

## **Drivers and Outcomes of Salespersons' Value Opportunity**

### **Recognition Competence in Solution Selling**

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## **Drivers and Outcomes of Salespersons' Value Opportunity Recognition Competence in Solution Selling**

### **Abstract**

In B2B markets, firms seek to provide customer solutions instead of merely selling goods or services. As boundary-spanners, salespeople are pivotal for implementing this strategic shift. Yet, extant literature provides limited insights into salesperson's resources and competencies required for customer solutions, particularly in the early phases of solution selling. This research focuses on salesperson's value opportunity recognition competence (VOR), which is a central requirement for salespeople to be able to navigate the early phases of solution selling. Analyzing large-scale, multi-level data of 799 salespeople and their respective sales managers in 29 sales organizations, the authors investigate the role of different salesperson resources and work environment characteristics for strengthening their VOR. The authors find that salespeople need both customer and technical knowledge, but customer knowledge is more important. Salespeople also can substitute individual technical knowledge with strong internal relations, but strong customer relations are no substitute for individual knowledge about customers' business models and processes. Formalization turned out to be a double-edged sword in the context of VOR development, while transformational leadership has positive effects only. The findings bear concrete implications for improving the selection, training, and work environment of solution salespeople.

**Keywords:** Opportunity recognition, Solution selling, Salesperson resources, Selling performance, Employee capital

Solutions are widely recognized as an effective response to increasing competition and diminishing differentiation of core goods in business-to-business (B2B) markets (Eggert, Hogreve, Ulaga, and Münkhoff 2014; Ulaga and Reinartz 2011; Storbacka, Polsa, and Sääksjärvi 2011). As customized and integrated combinations of goods and services, solutions have the potential to create superior results within customers' business application (Tuli, Kohli, and Bharadwaj 2007). Compared to separate goods and services, solutions are more difficult to imitate, require deeper customer insights, and may therefore represent more sustainable sources of competitive advantage for suppliers facing cutthroat competition in global B2B markets (Shankar, Berry, and Dotzel 2009).

Salespeople play an important role in making solutions happen. As boundary spanners, they manage the interface between the supplier and the customer firm (Rapp, Bachrach, Flaherty, Hughes, Sharma, and Vorhees 2017; Singh, Brady, Arnold, and Brown 2017). Given that solution sales processes differ substantially from traditional, goods-centric B2B sales processes (Tuli, Kohli, and Bharadwaj 2007; Ulaga and Loveland 2014), extant research agrees that successfully selling solutions places new demands on salespeople (Evans, McFarland, Dietz, and Jaramillo 2012; Ulaga and Reinartz 2011). Yet, salespeople's changing roles and responsibilities for the enactment of customer solutions are not well understood (Blocker, Cannon, Panagopoulos, and Sager 2012; Evans et al. 2012; Panagopoulos, Rapp, and Ogilvie 2017). Accordingly, scholars have called for further research on the resources and competencies required by salespeople when selling customer solutions (Panagopoulos, Rapp, and Ogilvie 2017; Ulaga 2018; Ulaga and Kohli 2018).

The role of salespeople is especially paramount in the early phases of solution selling. During these phases, customer specifications are often ill-defined (Ulaga and Loveland 2014) and "customers frequently are not fully cognizant of their business needs and cannot easily articulate them to a supplier" (Tuli, Kohli, and Bharadwaj 2007, p. 6). Given that requirement

definition and customization of a company's offerings build the foundation for future solution selling success (Tuli, Kohli, and Bharadwaj 2007), it requires proactive salespeople who can find execution gaps in their customers' business processes. Hence, salespeople play a pivotal role by sensing customer problems that the customer is not aware of or cannot express and crafting offerings that can solve these problems (Tuli, Kohli, and Bharadwaj 2007). We thus identify salespeople's value opportunity recognition competence (hereafter abbreviated as VOR) as a critical proficiency in the early phases of solution selling. Building on Bonney and Williams (2009) seminal conceptual work on this construct, we define it as the salesperson's ability to identify value creation opportunities in customers' business that are captured by appropriate combinations of goods and services that enhance customers' value-in-use. By empirically investigating salespeople's VOR, including its antecedents, contingencies, and outcomes, we seek to expand current perspectives on solution selling and shed light on salesperson requirements in the early stages of solution selling. In particular, we want to identify individual resources and organizational work environment characteristics that enable salespeople to recognize value opportunities in solution selling contexts.

Evidently, not every salesperson possesses the resources required to cope with these challenges and is able to develop a high level of VOR. Yet, while it is generally accepted by academics and managers alike that solution selling requires a new type of salesperson (Murtha, Bharadwaj, and Van den Bulte 2009), extant literature provides limited insights into the specific salesperson resources required for recognizing solution opportunities in B2B markets. Against this background, there is a pressing need for more research that provides managers with actionable guidance on how to foster VOR among their existing salesforce and on whom to hire to strengthen their growing solution business.

To investigate the resources required for building salespersons' VOR, we draw on employee capital literature (Wang, Saboo, and Grewal 2015), which is regularly used to

explain inter-individual differences in employee competencies and behaviors (Kor and Sundaramurthy 2009). Using multi-level data from B2B salespeople and sales managers, we investigate the relevance of four salesperson resources: customer knowledge and technical knowledge (representing salespeople's human capital) as well as customer relations and internal relations (representing salespeople's social capital). In addition to probing into the direct effects of these antecedents to VOR, we also test how these resources combine to build VOR and whether they are contingent on work environment characteristics. Finally, we confirm the link between VOR and salesperson performance, thereby showing the importance of building VOR in B2B markets.

Our study contributes by addressing several gaps in the B2B solution literature. First, we show that VOR contributes to better selling performance in solution selling contexts, above and beyond traditional selling concepts (i.e., adaptive selling and customer-oriented selling). Thereby, we contribute to the question what constitutes a successful salesperson in today's complex solution selling environments (Blocker et al. 2012; Evans et al. 2012). Our findings also concur with the assumptions of the service-dominant logic, according to which the transition to solution selling shifts the focus from value-in-exchange to value-in-use (Friend and Malshe 2016; Vargo and Lusch 2008). The importance of VOR for selling performance inherently reflects the need for salespeople to move away from selling goods to selling value-in-use opportunities for customers (Sheth and Sharma 2008).

Second, our study extends current research on the specific resources required for recognizing solution opportunities in B2B markets and tests some key assumptions made in conceptual and qualitative papers. In detail, we find that customer knowledge and technical knowledge both enhance salespeople's VOR, but customer knowledge does so significantly more than technical knowledge. In addition, salespeople's relations within their own organization and with key stakeholders in customers' organizations emerge as significant

drivers of VOR. These results have important implications for the selection and training of salespeople.

Third, we account for potential substitution effects between the different resources, thereby addressing the question whether VOR necessitates salespeople to similarly invest in all types of resources. Our results indicate that salespeople with restricted technical knowledge can still develop a high level of VOR when they have extensive internal relations, but customer knowledge is indispensable and should be a key selection criterion when hiring new salespeople for solution businesses.

Finally, we also identify work environment characteristics as important contingency variables, thereby highlighting the important role of sales management in VOR development. While a high level of formalization turned out to be a double-edged sword, transformational leadership has positive effects only. These findings lend important insights for the design of work environments that enable the formation of VOR. In summary, our research offers novel insights into the complex interplay of the antecedents and contingencies of salespeople's VOR and its performance implications in B2B markets, offering much needed guidance to managers facing the challenge of implementing solution strategies.

The remainder of this article is structured as follows: In the next section, we review prior literature on solution selling and opportunity recognition. Then we develop our conceptual model, building on employee capital theory, and discuss our hypotheses. After we describe our research design, we present our findings and implications for marketing theory and practice. We conclude with an outline of the limitations of our study and some research avenues.

## **CONCEPTUAL BACKGROUND**

### **Literature Review on Solution Selling**

Extant research offers a substantial body of knowledge on solutions, particularly from an organizational strategy perspective (e.g., Colm, Ordanini, and Bornemann 2020; Eggert et al. 2014; Nezami, Worm, and Palmatier 2018; Storbacka, Polsa, and Sääksjärvi 2011; Worm, Bharadwaj, Ulaga, and Reinartz 2017). But even as we gain greater understanding of the organizational antecedents and consequences of B2B solutions, we lack insights into the antecedents and consequences of solution selling at the salesperson level. To date, only a handful of studies has explored solutions from the salesperson perspective, as summarized in Table 1. This void is surprising, considering salespeople's central position for implementing organizational strategies in general (Noble and Mokwa 1999) and identifying promising business opportunities in particular (Evans et al. 2012).

– Insert Table 1 about here –

Extant research on solution selling provides important insights in three areas. First, prior research makes important attempts in defining the *concept of solutions* and identifying the central processes inherent to solution selling. Solutions are conceptualized as joint supplier–customer processes for solving customer problems (Tuli, Kohli, and Bharadwaj 2007), with four distinct processes: (1) customer requirement definition, (2) product customization and integration, (3) deployment of solution offers, and (4) post-deployment support. Contrasting solution selling with traditional goods selling, research further identifies important specificities of solution selling, such as a stronger focus on co-creation relative to persuasion, fuzzier solution specifications, higher network complexity, and stronger relationship orientation (Ulaga and Loveland 2014). These solution specificities entail certain roles and activities for salespeople during solution selling. Depending on the respective solution selling phase, salespeople primarily need to (1) understand customers' businesses and identify solution opportunities, (2) craft solutions that fit customer needs, (3) orchestrate between supplier and customer stakeholders, and (4) maintain a continuous relationship with

customers (Friend and Malshe 2016; Panagopoulos et al. 2017; Sheth and Sharma 2008; Ulaga and Kohli 2018).

Second, extant research agrees on the fact that solution selling poses specific *requirements for salespeople and sales management*. Specifically, prior research provides first insights on the attitudes, competencies, and behaviors that might facilitate solution selling among salespeople. Relying on qualitative interviews with 38 executives in industrial supply firms, Ulaga and Loveland (2014) distill important personality traits of high-performing salespeople for solution selling, such as learning orientation and intrinsic motivation. Koponen, Julkunen, and Asai (2019) conceptualize salespeople's communication competence in a solution selling context, building on insights from 39 interviews with sales educators and salespersons. In a conceptual article, Ulaga and Kohli (2018) further elaborate how salespeople can reduce uncertainty and foster adoption in solution selling. Moreover, prior research acknowledges that solution selling requires sales management to ensure a proper work environment for solution selling. For example, Panagopoulos, Rapp, and Ogilvie (2017) reveal solution selling to be more effective when cross-functional cooperation among coworkers exists. Friend and Malshe (2016) further identify orchestration of different activities and processes and operational integration with the customer as important organizational skills for selling solutions in business markets.

Third, one study sheds light on the *consequences of solution selling for salespeople*. Panagopoulos, Rapp, and Ogilvie (2017) find that solution selling involvement can enhance sales performance, an effect that is particularly pronounced for firms with large product portfolios, strong cross-functional cooperation, and strong customer–supplier relationships.

Against this backdrop, we identify three important research gaps. First, most salesperson-focused solution studies have been explorative or conceptual, preventing empirical generalization. Only few empirical studies (cf. Panagopoulos, Rapp, and Ogilvie



2017) investigate activities, behaviors, or competencies geared toward solution selling with a quantitative research design. As such, more quantitative research on solutions is needed that could help managers to decide more systematically on the right salespeople and work environment that support their solution initiatives.

Second, no research has specifically focused on the critical first phases of the solution selling process, a gap that has also been noted by Panagopoulos, Rapp, and Ogilvie (2017, p. 162f.) who called for closer research attention for the “requirements definition” and “solution customization” phases. To shed light on the initial phases of the solution selling process, we focus on salesperson’s value opportunity recognition competence (VOR), which is a central competence for salespeople to be able to navigate these early phases of solution selling. While opportunity recognition is already assumed to contribute to solution effectiveness and efficiency (Bonney and Williams 2009), it has not yet been tested empirically.

Third, extant literature provides limited insight into relevant antecedents and contingencies of salespeople’s competencies in solution selling. In this vein, Panagopoulos, Rapp, and Ogilvie (2017, p. 162f.) suggest that “researchers should examine antecedents ... such as salesperson knowledge brokering or tacit knowledge transfer skills”. To fill this vein, we investigate the effect of different salesperson resources and work environment characteristics for strengthening VOR, thereby acknowledging the important role of both salespeople and sales managers during solution selling initiatives.

### **Salespersons’ Value Opportunity Recognition Competence**

The concept of opportunity recognition originally stems from the area of entrepreneurship. In this context, researchers regard opportunity recognition – understood as the identification of situations where existing or new resources can be creatively deployed in a more efficient and/or effective manner– as the central ability of successful entrepreneurs

(Eckhardt and Shane 2003; Kirzner 1997; Shane and Venkataraman 2000). Recognizing the parallels between entrepreneurship and solution selling, Bonney and Williams (2009) first introduced the concept of salespeople's opportunity recognition in the context of solution selling. In solution selling, salespeople initially need to "invest time and effort into identifying a customer's problem and then configuring available resources in manner that addresses the focal problem" (Bonney and Williams 2009). Hence, similar to entrepreneurs, solution salespeople must be able to bring together value creation opportunities in a customers' business operation with appropriate resources of their firm (Bonney and Williams 2009). Mirroring this idea, we define salespeople's value opportunity recognition competence (VOR) *as a salesperson's ability to identify value creation opportunities in customers' business that are captured by appropriate combinations of goods and services that enhance customers' value-in-use*. As such, VOR addresses salespeople's ability to enact the first two phases of the solution selling process.

In their seminal article, Bonney and Williams (2009) identify three cognitive processes that collectively impact a salesperson's ability to recognize opportunities: awareness, problem-solution discovery, and evaluation. By focusing on these cognitive processes, the authors capture the cognitive roots of salespeople's variance in opportunity recognition, thereby contributing to the question what constitutes a salesperson's VOR. In contrast to these authors, we instead focus on the outcome of these cognitive processes, which is the salespeople's ability to actually recognize value opportunities in solution selling. By investigating relevant antecedents and contingencies as well as outcomes of VOR, we want to extend prior research on VOR and understand (a) what salespeople require to develop this competence and (b) how it impacts their selling performance.

## HYPOTHESES DEVELOPMENT

### Conceptual Model

We build on employee capital theory to understand the antecedents and contingencies of salespeople's VOR. Employee capital theory provides a valuable lens in this context, given its importance in explaining inter-individual differences in various competencies and behaviors of employees (Kor and Sundaramurthy 2009). According to employee capital theory, people generally can access two types of resources: human capital and social capital (Li and Zhang 2007). *Human capital* (or intellectual capital) denotes individual knowledge, typically developed through education, training, or experience (Adner and Helfat 2003; Kor and Sundaramurthy 2009). *Social capital* (or relational capital) refers to resources that people can "potentially mobilize via their social relations" (Adler and Kwon 2002, p. 27).

Researchers differentiate internal from external social capital (Adler and Kwon 2002).

Internal social capital derives from linkages within the focal group, such as an organization, whereas external social capital stems from linkages to others, outside the focal group, such as customers (Adler and Kwon 2002; Adner and Helfat 2003).

As our conceptual model in Figure 1 shows, we investigate four individual resources that might affect their VOR: customer knowledge and technical knowledge (both related to human capital) and customer relations and internal relations (both related to their social capital). We also account for interaction effects across these resources, with the recognition that human and social capital are not independent (Hargadon and Sutton 1997). Moreover, we investigate the potential moderating impacts of two important work environment characteristics (formalization and transformational leadership). Finally, for completeness, we consider the relationship of salespeople's VOR with their selling performance (see Figure 1).

– Insert Figure 1 about here –

### **Effect of Salesperson Resources on VOR**

Human and social capital both should promote the development of salespeople's VOR.

Human capital provides a foundation for VOR development, in that people build new competencies by enhancing their current knowledge or recombining it in new ways (Kogut and Zander 1992). In this sense, the human capital that an individual salesperson possesses constitutes a foundation for future competence development. Prior research identifies customer and technical knowledge as particularly critical types of human capital for salespeople's ability to recognize value opportunities (Tuli, Kohli, and Bharadwaj 2007; Ulaga and Loveland 2014; Verbeke, Dietz, and Verwaal 2011). *Customer knowledge* reflects salespeople's understanding of customers' business models, processes, and goals; *technical knowledge* is the extent to which salespeople are knowledgeable about the specifications and applications of the various goods and services offered by their company (Behrman and Perreault 1982). With detailed customer knowledge, salespeople should be better able to define customers' solution requirements and conceive how a specific offering might facilitate value creation (Blocker et al. 2012; Tuli, Kohli, and Bharadwaj 2007; Ulaga and Loveland 2014). Extensive technical knowledge also is required to recognize value opportunities for solutions, which by definition combine and integrate various goods and services, tailored to customers' needs (Ulaga and Loveland 2014).

We also predict that VOR development profits from salespeople's social capital (Nonaka 1994; Tsai 2001). Solution selling is complex and beyond the capabilities of a single person (Moon and Armstrong 1994; Schmitz 2013). Oftentimes, it demands knowledge and resources controlled by other people distributed both outside and inside the organization (Storbacka 2011), which salespeople might access through their customer and internal relations (Tuli, Kohli, and Bharadwaj 2007). *Customer relations* indicate the extent to which a salesperson has access to relevant decision makers within customers' organizations

(Palmatier 2008); *internal relations* refer to the salesperson's access to relevant actors within his or her own company. The former enable salespeople "to define the customer's requirements in a more complete and nuanced manner" (Tuli, Kohli, and Bharadwaj 2007, p. 12) and craft a solution that reflects heterogeneous customer needs (Friend and Malshe 2016). The latter instead enables salespeople to recognize the specific competencies and responsibilities of other members of their organization, so they can identify and ask the right people for unique information and support, which they can leverage to recognize value opportunities (Bolander, Saturnino, Hughes and Ferris 2015; Tsai 2001; Ulaga and Loveland 2014).

Therefore, we predict that all four salesperson resources drive their ability to recognize value opportunities in solution selling.

**H1:** There are positive relationships of salespeople's (a) customer knowledge, (b) technical knowledge, (c) customer relations, and (d) internal relations with their value opportunity recognition competence.

### **Interaction among Salesperson Resources**

Further building on employee capital literature, we suggest that salespeople's social capital diminishes the importance of their human capital for VOR. According to employee capital literature, social capital might substitute for human capital due to the redundancy of information (Boxman, De Graaf, and Flap 1991; Kor and Sundaramurthy 2009). In other words, knowledge from other sources can substitute individual knowledge to the extent that it provides equivalent information on relevant aspects (Schwab 2007). First, customer relations may substitute for salespeople's customer knowledge. By using their links to key stakeholders within the customer organization, salespeople gain early access to unique information that helps them develop effective solutions (Gonzalez, Claro, and Palmatier 2014). The access to relevant, up-to-date information may diminish the informational benefits

of established customer knowledge for developing effective solutions. For example, salespeople with strong customer relations might identify value creation opportunities in customer's business processes, even if they lack deep individual knowledge about those processes, because they attain the required insights from customer representatives with whom they collaborate with. Thus, salespeople's access to relevant decision makers within customers' organizations should reduce the contributions of individual customer knowledge to their ability to effectively recognize value opportunities.

**H<sub>2a</sub>:** Customer relations moderate the relationship of salespeople's customer knowledge with their value opportunity recognition competence, such that the relationship is weaker when salespeople have strong customer relations.

Second, internal relations may substitute for salespeople's technical knowledge in terms of building VOR. Extensive technical knowledge is most relevant when salespeople have few internal relations, but its informational benefits decrease if salespeople can rely on relevant actors within their organization who provide unique, pertinent information about possible specifications and applications of the company's offerings (Tuli, Kohli, and Bharadwaj 2007). For example, salespeople with strong internal relations are more likely to successfully craft appropriate combinations of goods and services that enhance customers' value-in-use, even if they lack deep individual knowledge on the different parts, because they can access experts in these areas. Consequently, we posit that strong internal relations decrease the importance of salespeople's own technical knowledge for VOR.

**H<sub>2b</sub>:** Internal relations moderate the relationship of salespeople's technical knowledge with their value opportunity recognition competence, such that the relationship is weaker when salespeople have strong internal relations.

### **Moderating Effects of Work Environment Characteristics**

According to employee capital literature, leveraging social capital requires the right work environment as an organizational enabler (Andrews 2010). The work environment determines the opportunity and ability to which salespeople can access and apply information from their social networks (Burt 1997). Research has pointed to the importance of structure and leadership as relevant work characteristics (MacKenzie, Podsakoff, and Rich 2001; Tuli, Kohli, and Bharadwaj 2007). We consider one core characteristic from each group, determined according to their academic relevance and management potential. Formalization is an important structural element of organizations that governs their knowledge exchange processes (Tsai 2001); it has been studied particularly in the context of organizational intelligence generation and dissemination (e.g., Kohli and Jaworski 1990). With transformational leadership, we include a central measure of leadership behavior (Berson, Nemanich, Waldman, Galvin, and Keller 2006), with confirmed influences on learning (Vera and Crossan 2004) and the development of selling skills and capabilities (Martin and Bush 2006).

**Formalization.** Formalization refers to the extent to which the company proscribes sales activities (Khandwalla 1977). When formalization is high, firms have well-established rules, procedures, and instructions that guide employees' behaviors (Jansen, Van Den Bosch, and Volberda 2006). These rules might specify the roles and responsibilities of different units and functions, outline reporting structures, or govern information sharing across units (Tuli, Kohli, and Bharadwaj 2007).

We predict a negative moderating effect of formalization on the impact of customer relations on VOR. Because formalization encourages known responses to environmental phenomena (Daft and Lengel 1986), it likely hinders creativity and the integration of novel, external information, so salespeople may be less responsive to information from outside

sources, such as customers. In addition, customers use different frames of reference, and it is more difficult for salespeople to interpret and understand this information when they experience high formalization, because the information might not fit easily into pre-established categories. With increasing reliance on rules and procedures, salespeople become less likely to deviate from their frame of reference and effectively integrate customers' perspective.

**H<sub>3a</sub>:** Formalization moderates the relationship of salespeople's customer relations with their value opportunity recognition competence, such that the relationship is weaker when their companies' processes are highly formal.

In contrast, formalization should strengthen the relationship between internal relations and VOR, because it can promote and facilitate knowledge transfers across different stakeholders within organizations (Nonaka 1994). Through formalization, organizations institutionalize internal transfers of knowledge and facilitate routine experience sharing or continuous dialogue (Nonaka 1994). Because formalization ensures a common language and shared information for all members of the organization (Tuli, Kohli, and Bharadwaj 2007), it should lead to a greater understanding of other people's roles and facilitate interactions of members in different groups (Kogut and Zander 1992). In sum, formalization facilitates cross-functional communication, so salespeople should be more likely to benefit from their internal relations.

**H<sub>3b</sub>:** Formalization moderates the relationship of salespeople's internal relations with their value opportunity recognition competence, such that the relationship is stronger when their companies' processes are highly formal.

**Transformational Leadership.** Transformational leadership creates awareness and acceptance of an organization's objectives and goals and encourages employees to look beyond their self-interest to achieve those goals (Bass 1990). We propose that managers'



transformational leadership enhances the effects of both customer and internal relations on VOR. Transformational leaders influence their followers by providing intellectual stimulation and articulating a vision (Podsakoff, MacKenzie, Moorman, and Fetter 1990). Intellectual stimulation causes salespeople to reappraise current situations and question existing assumptions (Avolio and Bass 1988). Because new information informs such reappraisal and questioning, salespeople likely direct more attention to sources such as customers and internal colleagues when their managers' behavior is transformational. In addition, if they are motivated to engage in extra-role behaviors that help realize common goals (MacKenzie, Podsakoff, and Rich 2001), salespeople likely build on their customer and internal relations and proactively focus on the information they gain from those relations to identify customer problems and potential value-added solutions (MacKenzie, Podsakoff, and Rich 2001).

**H4:** Managers' transformational leadership moderates the relationship of salespeople's (a) customer relations and (b) internal relations with their value opportunity recognition competence, such that the relationships are stronger when managers' leadership is highly transformational.

### **Performance Outcomes of Salespeople's VOR**

We expect that salespeople's VOR is a critical competence that improves selling performance, defined as a salespeople's achievement of quantity and quality sales objectives (Sujan, Weitz, and Kumar 1994). First, VOR reflects salespeople's ability to identify customer requirements accurately and, in turn, create solutions that support the customers' businesses. Salespeople with high VOR will likely facilitate the value-in-use of a solution for customers, which should result in increased customer satisfaction (Agnihotri, Rapp, Andzulis, and Gabler 2014) and selling performance. Second, salespeople scoring high on VOR likely focus on how the solution benefits customers instead of highlighting mere technical details during sales conversations. Consequently, customers should consider the offering's value-in-

use potential, rather than just its price, and emerge as less price-sensitive, which ultimately increases potential sales profits. Third, by proactively identifying appropriate solution opportunities for customer problems, salespeople can build barriers to competitive actions (Bonney and Williams 2009; Weitz and Bradford 1999), which strengthens the salespeople's bargaining position and performance. Fourth, when customers believe that a salesperson understands their needs, they "voice tacit needs more readily and in ways better understood by the salesperson" (Bagozzi, Verbeke, Van den Berg, Rietdijk, Dietvorst, and Worm 2012, p. 642), leading to better dialogues with customers. Because VOR helps enhance the interaction of salespeople with their customers, it should improve their selling performance too.

**H5:** There is a positive relationship between salespeople's value opportunity recognition competence and their selling performance.

## METHODOLOGY

### **Multilevel Data Collection and Sample**

To test our hypotheses, we conducted a large-scale, cross-industry survey among B2B firms. A list of the 200 largest firms in Finland served as a starting point, from which we first removed all firms that mainly operated in business-to-consumer markets or nonprofit sectors or that primarily supplied the companies that own them. We then contacted the senior sales directors (e.g., head of sales, sales director, vice president of sales) of all B2B firms that offered customized and integrated product-service combinations, explained the aim and scope of our research, and asked whether they would be interested in participating. All these firms act internationally, and the sample encompasses business units with diverse operating areas, including Finland, Scandinavia, and Europe. As an incentive for participation, we offered tailored benchmark reports and executive summaries of the results. Ultimately, 29 independent business units agreed to participate.

In each business unit, we surveyed respondents at two hierarchical levels: management and salesperson level. We distributed the different questionnaires to the salespeople and the respective sales manager of each business unit, using a web-based survey tool. With coded numbers, we matched the responses from salespeople and the sales manager of the same business unit. After three rounds of reminders, the final matched sample consisted of 799 salespeople (response rate: 69%) from 29 business units, for a mean of 27.6 salespeople per unit. These data were matched with the responses of the respective sales manager for each business unit, who answered all questions regarding relevant management level variables.

The business units represent three industry sectors (information and communication technology [ICT], materials, and machinery and equipment) and, as noted, operate in different geographical areas (e.g., Finland, Scandinavia, Europe). On average, sales managers reported annual revenues of €756.53 million and 1,321 employees per business unit. The salespeople's average tenure with the organization was 11.43 years ( $SD = 8.93$ ), and their average selling experience was 13.59 years ( $SD = 8.88$ ), as shown in Table 2.

– Insert Table 2 about here –

## Measures

Table 3 summarizes the measures and their psychometric properties. We relied on established scales whenever possible and adapted them to our context. At the management level, we used four items adapted from Homburg, Jensen, and Krohmer (2008) to assess *formalization*. To measure *transformational leadership*, we used 12 items from the Transformational Leadership Behavior Inventory (MacKenzie, Podsakoff, and Rich 2001; Podsakoff et al.

1990) that captured four dimensions: articulating a vision, providing an appropriate model, fostering the acceptance of group goals, and intellectual stimulation.<sup>1</sup>

At the salesperson level, we captured customer knowledge, technical knowledge, customer relations, internal relations, *VOR*, and performance. The *customer knowledge* items were adapted from Rapp, Ahearne, Mathieu, and Schillewaert (2006), and the items for *technical knowledge* came from Behrman and Perreault (1982). To measure *customer relations* and *internal relations*, we built on work by Palmatier (2008) and John and Weitz (1989) and captured salespeople's established relationships with relevant stakeholders, within the customers' or their own organization, respectively. We developed a new, four-item scale for *VOR*, in line with our definition and the conceptual research on opportunity recognition (Bonney and Williams 2009). Specifically, the indicators reflected salespeople's ability to identify value creation opportunities in customers' business that are then captured by appropriate combinations of goods and services to enhance customers' value-in-use. During the scale development phase, we confirmed the clarity and relevance of the indicators by discussing and refining the items with six practitioners, who offered extensive knowledge and experience in the solution business. The six-item scale for salespeople's *selling performance* came from Behrman and Perreault (1982). All items used seven-point scales, with different anchors (see Table 3).

In addition to the variables in our theoretical framework, we included several control variables. On the management level, we controlled for the industry in which the business unit operated. Using Global Industry Classification Standard codes, we classified business units by *industry types*: ICT, materials, or machinery and equipment, with machinery and equipment as the reference category. At the salesperson level, we controlled for customer-

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<sup>1</sup> The aggregated measure of transformational leadership, using data from salespeople, reflects their shared beliefs about the behavior of the sales manager for that business unit (Herold et al. 2008). We averaged individual assessments of all salespeople from the same business unit (Herold et al. 2008). The intra-class correlation coefficients empirically justified this data aggregation.

oriented selling, adaptive selling, and selling experience. For *customer-oriented selling* and *adaptive selling*, we used short scales by Thomas, Soutar, and Ryan (2001) and Robinson, Marshall, Moncrief, and Lask (2002). Following Homburg, Wieseke, and Kuehnl (2010), we operationalized *selling experience* as the salespeople's number of years in sales.

– Insert Table 3 about here –

All scales indicated strong psychometric properties, in support of the reliability and validity of the measures. The results of a confirmatory factor analysis (CFA) with all measures on the salesperson level revealed composite reliabilities greater than .85, average variance extracted (AVE) values greater than .53, and coefficient alphas greater than .85, in excess of the recommended thresholds (Bagozzi and Yi 1988; Table 3). The CFA produced satisfactory fit statistics (confirmatory fit and Tucker-Lewis indexes  $> .9$ ; root mean square error of approximation = .06), in support of the predicted measurement structure. We evaluated the discriminant validity of the construct measures using the criterion proposed by Fornell and Larcker (1981). For all constructs, the square root of the AVE exceeded the correlations between the focal construct and all other constructs in the study, in support of discriminant validity. Table 4 contains the descriptive statistics and correlations.

– Insert Table 4 about here –

### **Common Method Variance**

We used multiple remedies to limit any potential biases caused by common method variance (CMV). First, in the *ex-ante* research design, we designed and administered the questionnaire using techniques that lower the risk of CMV (Chang, Van Witteloostuijn, and Eden 2010). For example, we guaranteed the respondents anonymity and confidentiality and used different scale endpoints to establish methodological separation (e.g., Podsakoff, MacKenzie, Lee, and Podsakoff 2003). Second, we collected data from different sources (sales managers and

salespeople), which eliminates the potential influences of respondents' theory-in-use on the underlying relationships (Podsakoff et al. 2003). Third, in the *ex-post* statistical analysis, we specified a conceptual model that focuses on interaction effects between focal constructs. Compared with direct effects, interaction effects are far less affected by CMV (Siemsen, Roth, and Oliveira 2010). Fourth, we applied statistical remedies. With the single common method factor approach recommended by Podsakoff et al. (2003), we added a latent method factor with all of the measures as indicators to the CFA. Adding the method factor resulted in a better fit, according to the significant chi-square difference ( $\Delta\chi^2(10) = 72.3, p < .01$ ). However, the improvement in the non-normed fit index was very small ( $\Delta = .001$ ), and the method factor accounted for only a small portion (11.6%) of the total variance of the measures, indicating a relatively small magnitude of CMV (Williamson, Cote, and Buckley 1989). The factor loadings between the indicators and original latent variables also remained significant after we controlled for CMV. Thus, CMV does not appear to be a pervasive concern.

### **Analytical Approach**

Our data have a nested structure, in that salespeople are nested in business units supervised by the sales managers. To account for it, our analysis relies on multilevel modeling (Raudenbush and Bryk 2002). Multilevel modeling can disentangle different sources of variance, such as within-group and between-group variance (Hox, Moerbeek, and Van de Schoot 2010). We thus acknowledge that salespeople within a particular business unit and supervised by a particular sales manager might be more similar to one another on our core variables, VOR and selling performance, than they would be to salespeople in other groups (Hofmann 1997). The intraclass coefficients (ICC) and the design effects for VOR and selling performance indicate a meaningful proportion of between-group variance relative to total

variance; they approach or exceed the proposed minimum levels of .05 and 2, in support of our use of multilevel modeling (Maas and Hox 2005). To explain observed within- and between-group variance, multilevel modeling supports the investigation of both predictor and moderator variables on different levels, such as the salesperson and management levels. In line with recent suggestions, we group mean-center the predictor variables on the salesperson level, and we grand mean-center the predictor variables on the management level (Enders and Tofighi 2007).

The multilevel analysis consists of three steps (Wieseke, Kraus, Alavi, and Kessler-Thönes 2011). First, we built a model that contained all direct effects of the predictor and control variables on the salesperson and management levels (Table 5, Model 1). Second, to test whether the interaction effects are empirically meaningful, we added interactions among the human and social capital variables (Table 5, Model 2). The log-likelihood test confirmed that adding salesperson-level interactions improved model fit, in support of our conceptual model ( $\Delta\chi^2(2) = 54.93, p < .01$ ). Third, we entered the cross-level interactions of the management-level variables (Table 5, Model 3). The log-likelihood test confirmed that adding both organizational and individual interactions led to the strongest fit, in support of the adequacy of the multilevel investigation and the interaction terms ( $\Delta\chi^2(4) = 12.92, p < .05$ ).

## RESULTS

All analyses were conducted using the statistical software Mplus 7.0 (Muthén and Muthén 1998-2012). Table 5 contains the results of the multilevel analysis of VOR antecedents, contingencies, and performance outcomes. We start with the direct effect hypotheses, before we move on to the interaction hypotheses.

– Insert Table 5 about here –

### Direct Effect Hypotheses

Our model includes four salesperson resources as individual antecedents of VOR. With regard to salespeople's human capital, the final model revealed positive effects of both customer knowledge and technical knowledge on salespeople's VOR (customer  $\beta = .40$ ,  $p < .01$ ; technical  $\beta = .14$ ,  $p < .01$ ). The considerable differences in the effects of the two knowledge types indicated the need for verification; in a post hoc test, we confirmed a significant difference between the two path coefficients, as indicated by a  $\chi^2$  difference test ( $\Delta\chi^2(1) = 33.99$ ,  $p < .01$ ). The effect of customer knowledge on VOR thus was significantly stronger than the effect of technical knowledge, reiterating the importance of customer knowledge for value opportunity recognition in B2B markets. With regard to salespeople's social capital, we found positive effects of both customer relations and internal relations on VOR (customer  $\beta = .20$ ,  $p < .01$ ; internal  $\beta = .11$ ,  $p < .01$ ). In line with H<sub>1a-d</sub>, salespeople can better recognize value opportunities when they possess all types of resources.

Regarding the consequences of salespeople's VOR, in support of H<sub>5</sub>, the final model revealed a significant positive effect of salespeople's VOR on their performance ( $\beta = .20$ ,  $p < .01$ ). When salespeople's ability to recognize value opportunities increases, so does their selling performance.

We also investigated the mediating role of salespeople's VOR in the relationship between salesperson resources and selling performance by modeling the indirect effects of all salesperson resources on selling performance through VOR while controlling for their direct effects. Applying the bootstrap procedure recommended by Preacher and Hayes (2008), we found significant indirect effects of all salesperson resources—customer and technical knowledge and customer and internal relations—on selling performance through VOR



( $p < .01$ ; see Table 6). We thus confirmed that the performance effects of salespeople's resources are mediated by their VOR.

– Insert Table 6 about here –

Finally, we consider several control variable relationships. First, we allow for direct effects between human and social capital, because social capital may increase human capital (Blyler and Coff 2003; Gonzalez, Claro, and Palmatier 2014). In line with our expectations, salespeople's internal relations enhanced both customer and technical knowledge; customer relations increased only their customer knowledge. Second, we controlled for the direct effects of the management-level moderators, formalization and transformational leadership; including all components of an interaction term is necessary to prevent biased estimation results (Irwin and McClelland 2001). Formalization exerted no significant effect on VOR; transformational leadership exhibited a positive effect. Third, when we controlled for the direct effect of salesperson resources on selling performance, we found that all resources had significant positive effects on performance, in addition to their indirect effects through VOR. Fourth, we controlled for the effects of salespeople's customer-oriented selling, adaptive selling, and selling experience on performance. Both adaptive selling and selling experience enhanced selling performance, too; customer-oriented selling had no effect. These findings are largely consistent with previous sales literature (e.g., Franke and Park 2006). The standardized regression coefficient of VOR on performance ( $\beta_{\text{VOR}} = .17$ ), compared with the standardized regression coefficients of the control variables ( $\beta_{\text{Customer-Oriented Selling}} = .00$ ;  $\beta_{\text{Adaptive Selling}} = .05$ ;  $\beta_{\text{Selling Experience}} = .07$ ), revealed the incremental predictive power of VOR.

### **Interaction Effect Hypotheses**

On the salesperson level, we focused on potential interaction effects among human and social capital and uncovered varying results for the different interactions. That is, we found no

significant interaction between customer knowledge and customer relations, in contrast with H<sub>2a</sub>, but the analysis provided empirical support for a negative moderating effect of internal relations on the relationship between technical knowledge and VOR, as suggested in H<sub>2b</sub>. The latter interaction effect was significantly negative ( $\beta = -.07, p < .05$ ). In turn, in Figure 2, Panel A, we depict the contingent effect of technical knowledge on salespeople's VOR for different levels of internal relations, together with its confidence interval, according to a spotlight analysis (Johnson and Neyman 1936). As this figure shows, salespeople's technical knowledge becomes less important for their VOR when their internal relations are strong, rather than weak. If salespeople have extensive internal relations (~1.5 standard deviations above the mean), the effect of technical knowledge on VOR even becomes insignificant.

On the management level, we found support for the predicted moderating effects of formalization. It weakened the relationship between customer relations and VOR (H<sub>3a</sub>), according to the significant negative interaction of customer relations and formalization ( $\beta = -.04, p < .05$ ), and it strengthened the relationship of internal relations and VOR (H<sub>3b</sub>), according to the significant positive interaction of internal relations and formalization ( $\beta = .07, p < .05$ ). A spotlight analysis reveals the contingent effects of customer and internal relations across levels of formalization (Figure 2, Panels B and C). Formalization buffers the positive effect of customer relations on VOR, such that its effectiveness decreases with increasing formalization, until it disappears at very high levels of formalization (~2 standard deviations above the mean). Yet formalization amplifies the positive effect of internal relations on VOR once it reaches a moderate level (~.5 standard deviations above the mean).

In support of H<sub>4a</sub>, transformational leadership strengthened the relationship between customer relations and VOR, according to the significant positive interaction effect of customer relations and transformational leadership on VOR ( $\beta = .11, p < .05$ ). However, we cannot confirm H<sub>4b</sub>, because the interaction effect of internal relations and transformational

leadership on VOR was not significant ( $\beta = -.11, p > .05$ ). Figure 2, Panel D, illustrates the contingent effect of customer relations at different levels of transformational leadership: Customer relations exert a stronger effect on salespeople's VOR when managers' transformational leadership is high rather than low, but the effect of internal relations remained constant, regardless of the level of transformational leadership.

– Insert Figure 2 about here –

## DISCUSSION

Prior studies in sales and solution research highlight the overall importance of salespeople for solution selling performance (Panagopoulos, Rapp, and Ogilvie 2017), while at the same time offer limited insights on what is required by salespeople and sales managers to successfully sell solutions in B2B markets (Plouffe, Williams, and Wachner 2008). Therefore, we investigate critical resources and work environment characteristics that advance salespeople's VOR and also probe its relevance for selling performance. Our study complements and extends prior research on solution selling in business markets, with several theoretical and managerial contributions.

### Theoretical Contributions

First, we extend insights into the critical competencies of effective solution selling in business markets, by offering empirical evidence of a positive link between VOR and selling performance above and beyond traditional selling concepts, i.e. adaptive selling and customer-oriented selling. Although extant sales research provides profound evidence regarding which salesperson competencies and behaviors drive performance (Verbeke, Dietz, and Verwaal 2011), recent studies propose that the change toward a service-centered view of exchange inherent to solution selling imposes additional demands on frontline employees

(Hartmann, Wieland, and Vargo 2018; Sheth and Sharma 2008; Ulaga and Loveland 2014). Accordingly, our findings respond to recent calls for more research on the specific competencies required to implement a service-centered view of exchange and effectively co-create value with the customer (Blocker et al. 2012; Evans et al. 2012). Our research further supports a more granular view of the solution selling process in B2B markets (Panagopoulos, Rapp, and Ogilvie 2017), by focusing on a salesperson competence that becomes relevant during the critical early stages of solution selling.

Second, our research provides a finer-grained view of the requirements of solution selling at the individual salesperson level. We underscore the importance of salespeople's human capital. Their VOR is driven by both technical knowledge about the firm's goods and services and deep knowledge of customers' business processes. Technical knowledge has long been established as an important salesperson resource, but knowledge about customers' business models, operations, and key performance indicators has not received the same level of attention, despite some attempts to conceptualize and measure general customer knowledge (e.g., Verbeke, Dietz, and Verwaal 2011). Our results highlight a central role of deep customer knowledge, which emerges as the strongest driver of VOR. Because the impact of customer knowledge on VOR is significantly stronger than that of technical knowledge, a deep understanding of customers' business provides a key antecedent of the ability to recognize value opportunities in solution selling. Second, our results highlight the need for salespeople to establish and maintain relations with key stakeholders in both the customer's and their own company. This study thus responds to calls to investigate the effects of network-related variables on selling performance (Verbeke, Dietz, and Verwaal 2011).

Beyond the direct effects of salesperson resources on VOR and performance, we show that other people's knowledge can substitute for individual knowledge, at least to some degree. While most researchers agree that human capital and social capital are not

independent from each other (Hargadon and Sutton 1997), empirical results on how the different resources influence each other are mixed at best. For example, Boxman, De Graaf, and Flap (1991) reveal decreasing returns on human capital for managers with larger social capital, thereby supporting a substitution effect. In contrast, Burt (1997) proposes a synergistic effect, in that larger social capital leads to higher returns on human capital. We extend this research by showing that the effect varies with the specific resources under investigation. In particular, we demonstrate that salespeople can partly substitute for technical knowledge by gathering pertinent knowledge from internal relations with relevant specialists. Yet, we did not find a similar effect for customer knowledge. Strong relations with relevant customer stakeholders cannot substitute for salespeople's own deep insights about customers' business models and operations. To better account for these varying effects, future research should pay more attention to the specific resources under study and differentiate among key levers of salesperson capital.

Finally, VOR does not just result from salesperson resources but also depends on work environment characteristics. Formalization is a double-edged sword, with both positive and negative effects. It attenuates the positive relationship between customer relations and VOR, because it hinders creativity, open-minded thinking, and learning of novel knowledge (Agnihotri et al. 2014; Daft and Lengel 1986; Nonaka 1994). But it also helps salespeople leverage their internal relations more effectively to identify value creation opportunities, by clarifying organizational roles and promoting effective knowledge transfers among relevant specialists within the firm. Transformational leadership instead is consistently advantageous, in that it both increases VOR directly and strengthens the impact of customer relations on VOR. Transformational leadership provides intellectual stimulation that fosters VOR and encourages salespeople to focus on their customer relations as valuable sources of

information for identifying value creation opportunities and crafting effective solutions to customers' problems (MacKenzie, Podsakoff, and Rich 2001; Martin and Bush 2006).

### **Managerial Contributions**

Some of the insights for managers that stem from our findings challenge conventional wisdom. For example, for *sales force selection*, our findings prompt questions about some commonly adopted managerial practices, such as the tendency of B2B firms to hire technical experts (e.g., trained engineers) into sales functions, to deal with the growing complexity of goods and technologies. Darr (2006) notes a doubled percentage of engineers in the sales force. Especially when it comes to customer solutions, manufacturers also might move technical experts from a service technician role or after-sales service function into a sales position. According to our exploratory interviews, the material handling equipment manufacturer Linde exclusively hired services and solution salespeople from its pool of more than 2,400 European service technicians. But our results instead underscore the importance of salespeople's customer knowledge, suggesting that companies might want to seek employees with a good understanding of customers' businesses, instead of primarily recruiting technical experts, such as by hiring customer industry experts into existing sales organizations. The industrial and medical gas supplier Air Liquide hired experts with deep knowledge in diverse customer applications, such as automotive welding or food packaging, and teamed them with generalist salespeople in its efforts to grow solution sales in these two industry segments. Our results indicate the suitability of such an approach.

Managers also should actively screen applicants' proficiency with interpersonal relations. In general, our findings highlight the importance of nurturing personal relations and accumulating a knowledge base that extends beyond what any individual salesperson could maintain. We thereby substantiate Verbeke, Dietz, and Verwaal's (2011, p. 422) argument

that salespeople increasingly must act as “knowledge brokers” in complex business situations, in contrast with a more traditional view of salespeople as “loners” (Weitz and Bradford 1999, p. 250). Salespeople ideally should be endowed with strong existing relations with relevant actors from customer organizations; an ideal candidate would have dealt with several customer firms and know people from different hierarchical levels in those firms (Weitz and Bradford 1999). Furthermore, they should possess personal connections with various departments of the hiring firm, to gain necessary support from relevant specialists. These internal relations are especially important when salespeople lack individual technical knowledge, because the presence of these relations enables them to rely on their partners’ knowledge and substitute for their own technical deficiencies. With regard to the organization of solution selling, these results further indicate the need to build a customer centric front-end sales organization, supported by a back-end organization with deep technical expertise (Davies, Brady, and Hobday 2006).

Our results also offer important insights for *sales force training*. Firms can expand salespeople’s human and social capital with training. When it comes to human capital, it is most likely that industrial salespeople already possess a substantial amount of technical knowledge, but might need training in how to develop customer knowledge (Verbeke, Dietz, and Verwaal 2011). Hence, B2B firms must be ready to invest in new training content beyond obvious areas such as technological, operational, and market developments, i.e., content that allows salespeople to gain deeper insights into customers’ business models and discuss ‘return on investment’ eye to eye with key decision-makers. To enhance salespeople’s social capital, employees should be trained in how to communicate with “unusual suspects”, such as colleagues from different departments or customer stakeholders from different hierarchical levels. For example, firms could institutionalize cross-functional activities and events that foster communication and networking among people from different

departments, e.g. salespeople, technicians, engineers. Moreover, salespeople must learn how to involve in deeper conversations with stakeholders located higher in the customer's hierarchy.

Our findings also provide important insights regarding the *design of work environments* to enable VOR. Transformational leadership effectively promotes VOR among salespeople, by inspiring them to find new value creation opportunities and pushing them to focus on information gathered from their customer relations. When assigning managers to the task of transforming the sales force from a product to a solution focus, firms would be well advised to favor those with strong transformational leadership skills. Not every manager can translate the company's solution focus into appropriate guidance for salespeople. For example, in one company we interviewed in preparation for our research, the national sales director understood the new strategy of focusing on customer solutions rather than selling goods and services, but about a year into the transformation process, he resigned. Comfortable in a traditional equipment sales setting, he worried he lacked the right profile to lead the sales force in crafting and commercializing customer solutions.

Moreover, firms should consider their formalization practices carefully, depending on what type of information—external or internal—is more critical for identifying valuable solution opportunities. If external information from customers is key (e.g., customer-pull scenarios), firms should avoid highly formalized sales processes, which hinder salespeople from recognizing opportunity-relevant signals or learning what customers might value. However, if internal information is more critical (e.g., technology-push scenarios), firms can establish more formalized sales processes to help salespeople efficiently leverage their internal relations—particularly if the organizational structures are highly diversified, and relevant specialists are spread across various departments.



## LIMITATIONS AND FURTHER RESEARCH

This study is subject to several limitations that offer fruitful areas for research. First, we examined VOR from the supplier's perspective and provided insights into the antecedents and contingencies of salespeople's VOR. Future research could also consider the customer perspective on salesperson's VOR (Friend and Malshe 2016; Macdonald, Kleinaltenkamp, and Wilson 2016). Additional studies might investigate customers' contributions to value opportunity recognition too (Schaarschmidt, Walsh, and Evanschitzky 2018), or contrast salesperson and customer perspectives on effective value opportunity recognition.

Second, to capture salespeople's customer and internal relations, we asked salespeople to rate the extent to which they had access to the relevant actors from customer and their own organizations, which creates a focus on one specific characteristic of social networks. Further research should study the relative importance of other network characteristics, such as density, brokerage, or centrality (Bolander et al. 2015; Gonzalez, Claro, and Palmatier 2014), as well as investigate salespeople's network structures using social network analyses (Verbeke, Dietz, and Verwaal 2011). Building on our framework of the basic mechanisms of VOR, network analyses may offer a valuable next step for investigating the effects of specific network characteristics in more detail.

Third, we identify means to develop human and social capital as a promising area for future research. In our research, we focus on the antecedents, contingencies, and performance outcomes of VOR. We do not refer to the question how salespeople obtain or build required human and social capital. Further research should investigate the role of individual characteristics or skills that facilitate the accumulation of social and human capital, such as emotional intelligence (e.g., Kidwell, Hardesty, Murtha, and Sheng 2011) or political skills (e.g., Bolander et al. 2015).

Finally, further studies should address the outcomes of VOR in greater detail. We show that it produces positive results, beyond what salespeople usually achieve on the basis of their existing knowledge, sales behaviors, and experience. It also would be worthwhile to investigate the mechanisms underlying positive outcomes of VOR. For example, exploring the possible mediating role of different customer reactions (e.g., willingness to pay, perceived attractiveness of competitive offers) in the VOR–performance relationship may be an interesting research avenue.

Our study explores the relevance of different antecedents and contingencies of VOR and investigates its effect on selling performance in B2B markets. We hope that the insights resulting from this study encourage further research in this important area.

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**Table 1. Research on the Role of Salespeople in B2B Solution Selling**

<b>Article</b>	<b>Focus of Research</b>	<b>Key Findings</b>	<b>Theoretical Foundation</b>	<b>Methods and Data</b>
Friend and Malshe (2016)	Understand vendor's key skills to craft customer solutions within an ecosystem from the customer's perspective	From the customers' perspective, vendors ability to develop and implement solutions within an ecosystem is guided by four skills: diversity sensitivity, multipoint probing, orchestration, and stability preservation.	Ecosystem research	Explorative, qualitative research: N=117 customer interviews across 59 vendors
Koponen, Julkunen, and Asai (2019)	Explore salespersons' sales communication competency in a solution context	Conceptualizes sales communication competence with four components: behavioral, affective, and cognitive communication, as well as sales acumen dimensions.	General solution and personal selling research	Explorative, qualitative research: N=39 interviews with sales educators and salespersons
Ulagu and Loveland (2014)	Understand personality traits of high-performing salespeople in hybrid offering settings	When selling hybrid offerings, high-performing salespeople need strong learning orientation, customer service orientation, and intrinsic motivation	General service and personal selling research	Explorative, qualitative research: N=38 interviews with C-level managers among industrial B2B suppliers
Ulagu and Kohli (2018)	Identify salespersons' roles in steering the solution selling process	Salespeople have two fundamental roles: reducing uncertainty and fostering adaption in the sales process	General service, organizational buying, and personal selling research	Conceptual research
Panagopoulos, Rapp, and Ogilvie (2017)	Conceptualize salesperson solution selling involvement and study its effect on selling performance and boundary conditions	Solution selling involvement is a second order construct that predicts selling performance, contingent on sales unit's cooperation with other units, broadness of product portfolio, and closeness of customer relationships	Contingency framework and solution research	Qualitative pre-study and three quantitative studies, including multisource data from an ICT firm (N=120+N=38), a cross-industry seller survey (N=247+N=58), and a customer survey among industrial supplier's customers (N=185)
This study	Investigate the antecedents and contingencies that enable salespeople to recognize value opportunities in solution selling	Conceptualizes salespeople's value opportunity recognition competence (VOR) and confirms its impact on selling performance. Customer knowledge is the strongest driver of VOR. Formalization and transformational leadership foster the impact of customer relations on VOR.	Employee capital theory and solution research	Quantitative research: Multilevel survey among 799 salespeople and their respective sales managers from 29 business units

Table 2. Sample Composition

<b>Business Units (N = 29)</b>		<b>Salespeople (N = 799)</b>	
<b>A. Industry</b>	<b>%</b>	<b>E. Years in the Company</b>	<b>%</b>
Information and communication technology (ICT)	24	< 5 years	25
Materials	14	5 – 10	29
Machinery and Equipment	41	11 – 15	17
Missing	14	16 – 20	12
		21 – 25	9
		26 – 30	4
		> 30 years	4
		Missing	2
<b>B. Operating Area</b>	<b>%</b>	<b>F. Selling Experience</b>	<b>%</b>
Global	10	< 5 years	16
Europe + Other (e.g., Middle East)	10	5 – 10	26
Europe	34	11 – 15	21
Scandinavia	10	16 – 20	16
Finland	34	21 – 25	10
		26 – 30	6
		> 30 years	4
		Missing	2
<b>C. Annual Revenues</b>	<b>%</b>		
< €50 million	7		
€50 – €99 million	7		
€100 – €249 million	17		
€250 – €499 million	28		
€500 – €1,000 million	7		
€1,000 – €2,000 million	7		
> €2,000 million	3		
Missing	24		
<b>D. Number of Employees</b>	<b>%</b>		
< 200	17		
200 – 499	21		
500 – 999	17		
1,000 – 2,499	17		
2,500 – 5,000	7		
> 5,000	7		
Missing	14		

**Table 3. Construct Items, Loadings, and Reliability Statistics**

Items	Loading	$\alpha$	CR	AVE
<b>Level 2: Management Level</b>				
<i>Formalization</i> <sup>a,d</sup> (Homburg, Jensen, and Krohmer 2008)				
We rely on clearly defined sales processes.	---	---	---	---
Our sales processes are documented in written form.	---			
There is a "standard operating procedure" for major sales-related decisions.	---			
There are rules and procedures for most sales activities.	---			
<i>Industry</i> <sup>e</sup>				
Please indicate the industry in which you are mainly acting. (Global Industry Classification Standard)	---			
<b>Level 1: Salesperson Level</b>				
<i>Customer Knowledge</i> <sup>b</sup> (Rapp et al. 2006)				
In my job, I am recognized as being skilled in ...		.89	.89	.73
being particularly knowledgeable concerning customers' business.	.87			
having a profound understanding of customers' business goals.	.87			
having a deep understanding of customers' business processes and operations.	.82			
<i>Technical Knowledge</i> <sup>b</sup> (Behrman and Perreault 1982)				
In my job, I am recognized as being skilled in ...		.88	.88	.72
knowing the design and specifications of our company products/services.	.85			
knowing the applications and functions of our company products/services.	.90			
keeping abreast of our company's production and technological developments.	.78			
<i>Customer Relations</i> <sup>a</sup> (Palmatier 2008)				
Typically, I deal with the relevant decision makers for our products and services at my customers' firm.	.79	.85	.86	.60
Typically, the contacts I have at my customers' firm make me very effective at working with them.	.85			
Typically, I know a diverse cross-section of people at my customers' firm.	.72			
I work hard to identify the relevant key stakeholders for our products and services at my customers' firm.	.75			
<i>Internal Relations</i> <sup>a</sup> (John and Weitz 1989; Palmatier 2008)				
As a salesperson, I deal with the relevant decision makers at my firm.	.70	.87	.87	.53
The contacts I have at my firm make me very effective in my job.	.76			
I know a diverse cross-section of people at my firm.	.75			
I build strong working relationships with other people in my company.	.79			
I work very closely with non-sales employees at my firm to close sales.	.71			
I discuss selling strategies with people from various departments.	.66			
<i>Value Opportunity Recognition</i> <sup>b</sup> (Bonney and Williams 2009)				
In my job, I am recognized as being skilled in ...		.87	.88	.64
finding "execution gaps"/"business challenges" that have substantial value potential for my customers' business, based on consultative sales work.	.83			
identifying sales opportunities with substantial value potential in customers' business.	.80			
identifying solutions that will add substantial value to my customers' business.	.86			
crafting solutions by transferring knowledge gained from working with other customers.	.70			

Items	Loading	$\alpha$	CR	AVE
<i>Selling performance</i> <sup>c</sup> (Behrman and Perreault 1982)		.89	.89	.58
Compared with other salespeople working for your company, how would you evaluate your overall performance with regard to...				
exceeding the sales targets and objectives that are assigned to me?	.75			
selling products with higher profit margins?	.72			
generating a high euro/dollar amount of sales in my territory?	.82			
quickly generating sales of new company products?	.67			
producing a high market share for my company in my territory?	.84			
identifying and selling to major accounts in my territory?	.75			
<i>Transformational Leadership</i> <sup>a</sup> (McKenzie, Podsakoff, and Rich 2001; Podsakoff et al. 1990)		.96	.96	.69
With respect to the sales manager you report to, to what extent do you agree with the following statements?				
My sales manager....				
has a clear understanding of where we are going.	.74			
inspires others with his/her plans for the future.	.88			
is able to get others committed to his/her vision.	.89			
fosters collaboration among work groups.	.85			
encourages employees to be "team players."	.83			
develops a team attitude and spirit among employees.	.87			
challenges me to think about old problems in new ways.	.78			
asks questions that prompt me to think about the way I do things.	.79			
has ideas that have challenged me to reexamine some of my basic assumptions about my work.	.77			
leads by "doing" rather than simply by "telling."	.80			
leads by example.	.86			
provides a good model to follow.	.90			
<i>Customer-Oriented Selling</i> <sup>a</sup> (Thomas, Soutar, and Ryan 2001)		.85	.85	.59
I try to figure out what a customer's needs are.	.65			
I try to bring a customer with a problem together with a product/service that helps solve that problem.	.76			
I offer the product/service that is best suited to the customer's problem.	.78			
I try to find out what kind of products/services will be most helpful to a customer.	.87			
<i>Adaptive Selling</i> <sup>a</sup> (Robinson et al. 2002)		.88	.88	.65
When I feel that my sales approach is not working, I can easily change to another approach.	.74			
I like to experiment with different sales approaches.	.72			
I am very flexible in the selling approach I use.	.87			
I can easily use a wide variety of selling approaches.	.89			
<i>Selling Experience</i> <sup>e</sup> (Homburg, Wieseke, and Kuehnl 2010)		---	---	---
Please indicate how long have you been in sales. [years]	---			

<sup>a</sup> Anchors: 1 (strongly disagree) to 7 (strongly agree).

<sup>b</sup> Anchors: -3 (less than average) to +3 (exceptional level).

<sup>c</sup> Anchors: -3 (much worse) to +3 (much better).

<sup>d</sup> Not computed due to small sample size on the company level.

<sup>e</sup> Manifest construct.

Notes: CR = composite reliability, AVE = average variance extracted.



**Table 4. Correlations, Means, and Standard Deviations**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Management Level<sup>a</sup></b>													
1. Formalization	-- <sup>c</sup>												
2. Transformational leadership (aggregated)	-.03	-- <sup>c</sup>											
3. ICT industry	.63**	.08*	-- <sup>b</sup>										
4. Materials industry	-.16**	.30**	-.17**	-- <sup>b</sup>									
<b>Salesperson Level</b>													
5. Customer knowledge	-.10**	.07*	.00	.06	<b>.86</b>								
6. Technical knowledge	-.24**	.06	-.22**	.04	.37**	<b>.85</b>							
7. Customer relations	-.06	.15**	.04	.03	.51**	.17**	<b>.78</b>						
8. Internal relations	-.01	.13**	.06	-.01	.36**	.23**	.53**	<b>.73</b>					
9. Value opportunity recognition	-.09*	.13**	.00	.04	.66**	.41**	.53**	.43**	<b>.80</b>				
10. Selling performance	-.12**	.11**	-.08*	.09*	.38**	.35**	.36**	.29**	.43**	<b>.76</b>			
11. Customer-oriented selling	-.04	.05	-.01	.08*	.28**	.22**	.36**	.36**	.31**	.22**	<b>.77</b>		
12. Adaptive selling	-.09*	.18**	-.01	.03	.33**	.17**	.40**	.35**	.44**	.28**	.34**	<b>.81</b>	
13. Selling experience	-.16**	.09*	-.05	.02	.12**	.07*	.19**	.09*	.17**	.18**	.01	.07*	-- <sup>b</sup>
Mean	5.26	5.23	.28	.10	1.48	1.45	5.53	5.66	1.33	.90	6.31	5.16	13.59
Standard deviation	1.19	.40	.45	.31	.93	.99	.91	.86	.82	.99	.67	1.06	8.88
N	28/780	29/799	29/799	29/799	791	792	793	795	791	782	795	796	786

\*  $p < .05$ . \*\*  $p < .01$ .

<sup>a</sup> Correlations are based on scores disaggregated per salesperson.

<sup>b</sup> Manifest construct.

<sup>c</sup> Not computed due to small sample size on the company level.

Notes: Significance is based on two-tailed tests. The square root of the average variance extracted (AVE) appears on the diagonal.

**Table 5. Multilevel Analysis of Value Opportunity Recognition Antecedents, Contingencies, and Performance Outcomes**

	Hypothesis	Model 1 (Direct effects only)		Model 2 (with FLE level interactions)		Model 3 (Full model)	
		$\beta$	SE	$\beta$	SE	$\beta$	SE
<b>Hypothesized Relationships</b>							
<i>Direct Effects</i>							
Customer Knowledge → Value Opportunity Recognition	H <sub>1a</sub> (+)	.39**	.03	.39**	.03	.40**	.03
Technical Knowledge → Value Opportunity Recognition	H <sub>1b</sub> (+)	.15**	.04	.15**	.04	.14**	.04
Customer Relations → Value Opportunity Recognition	H <sub>1c</sub> (+)	.19**	.03	.20**	.03	.20**	.03
Internal Relations → Value Opportunity Recognition	H <sub>1d</sub> (+)	.11**	.04	.10**	.04	.11**	.03
Value Opportunity Recognition → Selling performance	H <sub>5</sub> (+)	.21**	.05	.20**	.05	.20**	.05
<i>Interaction Effects</i>							
Customer Knowledge x Customer Relations → Value Opportunity Recognition	H <sub>2a</sub> (+/-)			.04	.03	.04	.03
Technical Knowledge x Internal Relations → Value Opportunity Recognition	H <sub>2b</sub> (+/-)			-.06*	.04	-.07*	.04
Customer Relations x Formalization → Value Opportunity Recognition	H <sub>3a</sub> (-)					-.04*	.02
Internal Relations x Formalization → Value Opportunity Recognition	H <sub>3b</sub> (+)					.07*	.02
Customer Relations x Transf. Leadership → Value Opportunity Recognition	H <sub>4a</sub> (+)					.11*	.06
Internal Relations x Transf. Leadership → Value Opportunity Recognition	H <sub>4b</sub> (+)					-.11	.12
<b>Controlled Relationships</b>							
Customer Relations → Customer Knowledge		.44**	.06	.43**	.06	.43**	.06
Internal Relations → Customer Knowledge		.14**	.05	.14**	.05	.14**	.05
Customer Relations → Technical Knowledge		.06	.04	.06	.04	.06	.04
Internal Relations → Technical Knowledge		.25**	.06	.25**	.06	.25**	.06
Customer Knowledge → Selling performance		.13**	.05	.14**	.05	.14**	.05
Technical Knowledge → Selling performance		.18**	.03	.18**	.03	.18**	.03
Customer Relations → Selling performance		.15**	.05	.16**	.05	.16**	.05
Internal Relations → Selling performance		.08*	.04	.08*	.04	.08*	.04
Customer-Oriented Selling → Selling performance		.00	.05	.00	.05	.00	.05
Adaptive Selling → Selling performance		.04	.04	.05	.04	.05	.04
Selling Experience → Selling performance		.01**	.00	.01**	.00	.01**	.00
Formalization → Value Opportunity Recognition		-.04	.03	-.04*	.03	-.04	.03
Transf. Leadership → Value Opportunity Recognition		.25**	.11	.26**	.11	.26**	.11
ICT Industry → Selling performance		-.12	.12	-.13	.12	-.13	.12
Materials Industry → Selling performance		.30**	.06	.30**	.06	.30**	.06
<b>Model Fit</b>							
-2 log-likelihood				6877.35 (31)		6822.42 (33)	6809.50 (39)
Increase in model fit						$\chi^2(2)=54.93^{**}$	$\chi^2(4)=12.92^*$

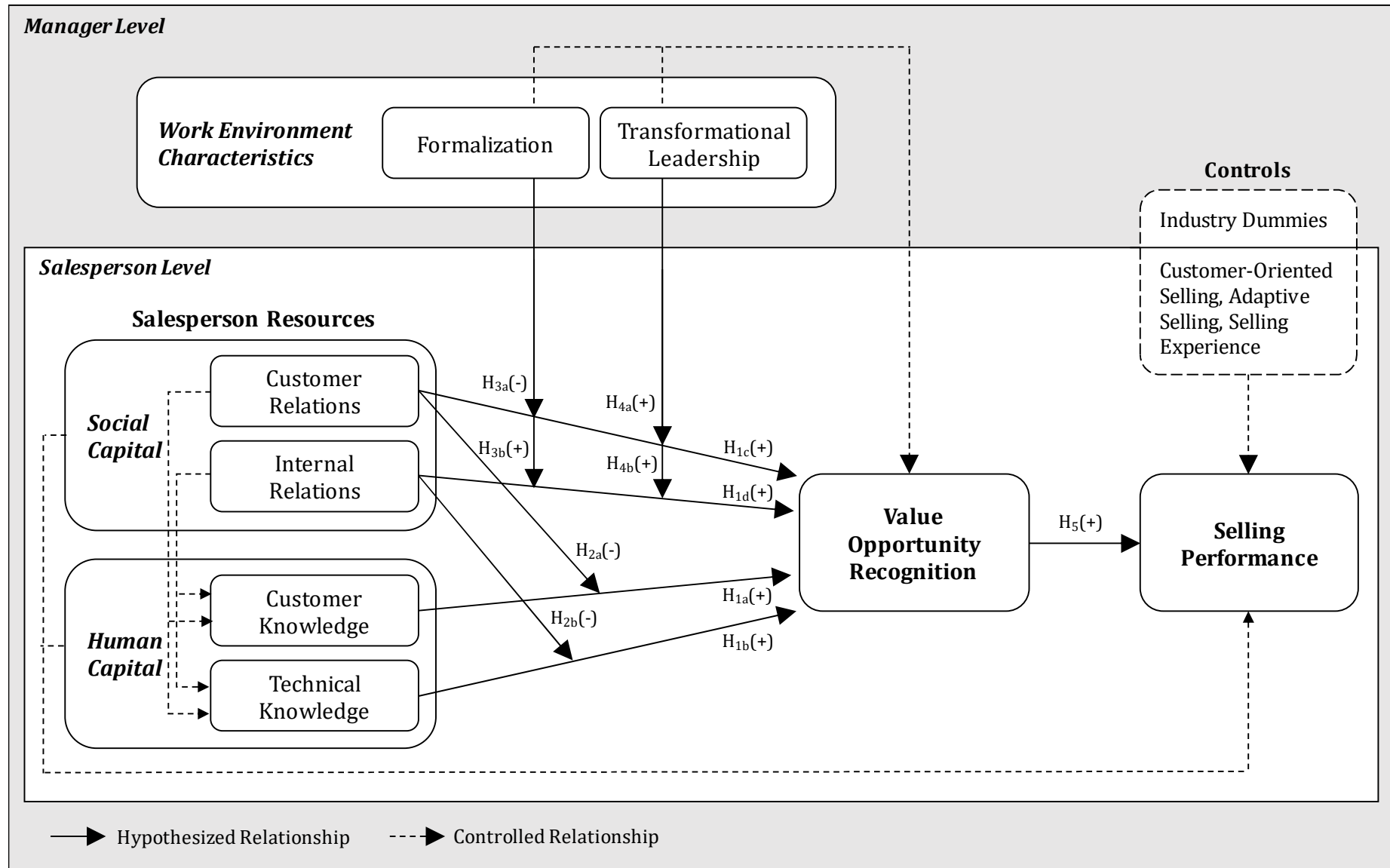
Notes: \*  $p < .05$ ; \*\*  $p < .01$ . (Significance is based on one-tailed tests.)

**Table 6. Mediation Analysis**

Variable	Indirect Effect on Selling Performance through Value Opportunity Recognition		Direct Effect on Selling Performance	
	$\beta$	SE	$\beta$	SE
Customer knowledge	.08**	.02	.14**	.05
Technical knowledge	.03**	.01	.18**	.03
Customer relations	.04**	.01	.16**	.05
Internal relations	.02**	.01	.08*	.04

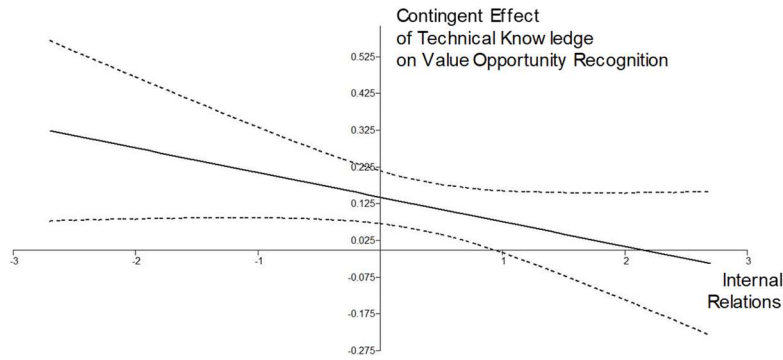
\*  $p < .05$ ; \*\*  $p < .01$ . (Significance is based on one-tailed tests.)

Figure 1. Conceptual Model

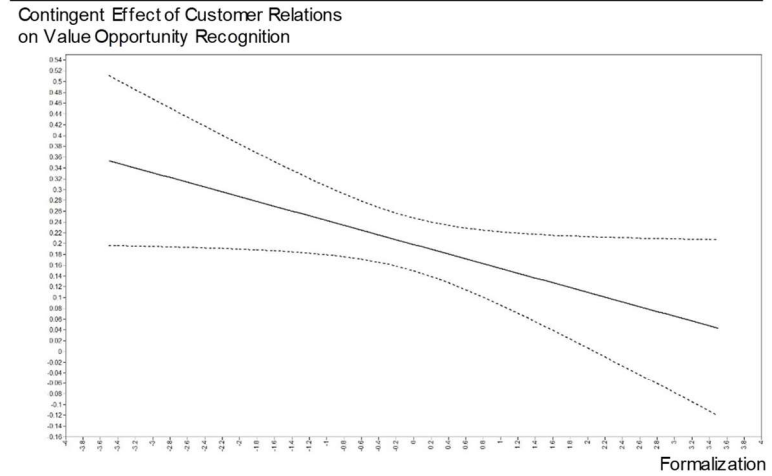


**Figure 2. Moderating Effects on Salespeople's Value Opportunity Recognition**

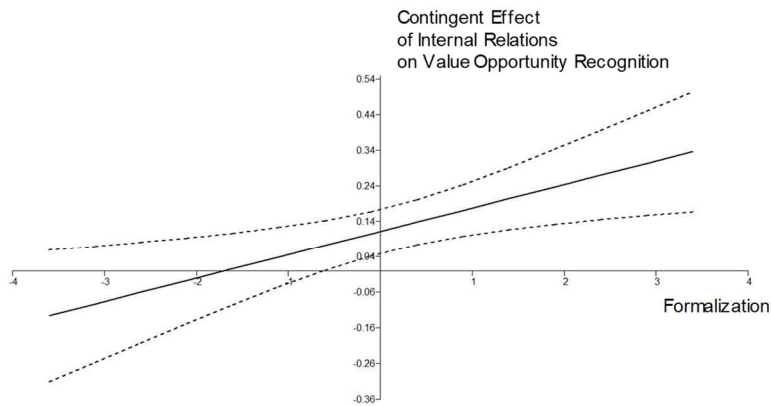
**A) Within-Level Interaction Between Technical Knowledge and Internal Relations (H<sub>2b</sub>)**



**B) Cross-Level Interaction Between Customer Relations and Formalization (H<sub>3a</sub>)**



**C) Cross-Level Interaction Between Internal Relations and Formalization (H<sub>3b</sub>)**



**D) Cross-Level Interaction Between Customer Relations and Transformational Leadership (H<sub>4a</sub>)**

