



## Aligning sales and operations management: an agenda for inquiry

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There is a rapid growth in solution selling in practice and a commensurate increase in research in this area. The focus of this sales strategy is on providing solutions to customer problems that typically entail combining products and services from the provider firm as well as other firms. The fulfilment of these solutions requires operations management support. Despite the need for closer collaboration between sales and operations management, more research is needed on the interface of these two functions. To deepen our understanding of the interface of sales and operations management, we undertook qualitative research and conducted in-depth interviews of senior executives in global firms to determine the need for sales and operations management cooperation. We followed the qualitative research with a review of extant research on the interface of sales and operations management. Finally, we conducted a survey of academic researchers to identify areas and themes of future research in this area. We summarize the implications of our findings for future research.

**Keywords:** sales and operations management; integration; solution selling; cooperation

In today's hypercompetitive marketplace, sales organizations are increasingly focusing on consultative selling and solution selling. An ignored aspect of solution or consultative selling is the role of operations management in the selling process. As an example, Tuli et al. (2007, 5) define solutions as "a set of customer-supplier relational processes comprising (1) customer requirements definition, (2) customization and integration of goods and/or services and (3) their deployment, and (4) post deployment customer support, all of which are aimed at meeting customers' business needs." While the sales function is critical in the first two stages, the service function is critical in the fourth stage, and the operations management function is critical for the second and third stages. It is clear that there is need for a deep integration of sales and operations management in solution selling, and noninvolvement of operations management with sales could lead to failure to fulfil customer needs. While there has been considerable research on the interface of sales and service (e.g., Neu and Brown 2005; Rapp et al. 2017), additional research is needed on the interface of sales and operations management. This is in the context of "portfolio of relationships" suggested by Plouffe et al. (2016), in which salespeople need to manage relationships with customers, internal business functions, and external business partners. More research is needed because firms that have tried to move to solution selling have seen little gain from it (Johansson et al. 2003; Stanley and Wojcik 2005; Sharma and Iyer

2011). One reason for the lack of gains may be the absence of coordination between sales and operations management. Operations management is typically focused on lean operations and efficiency, and providing customized solutions for customers has not been a priority.

In general, there has been a call for enhanced cooperation between different functional areas (Gulati 2013; Kotler, Rackham, and Krishnaswamy 2006) to deliver successful customer solutions (Kumar 2004), but more academic research is needed. As Esper et al. (2010) suggested, integration between demand and supply is regarded as necessary, but seldom achieved.

In this article, we focus on the collaboration between sales and operations management from a broad perspective. In this regard, we attempt to determine the interaction between sales and operations management and take a three-pronged research approach – managerial perspectives, examining extant research, and collecting data from researchers on what areas would enhance their understanding of the interaction. This multimethod perspective allows us to better understand and identify gaps, which when addressed will enhance our understanding of the sales and operations management area.

To achieve these objectives, we first conducted a qualitative research study by undertaking in-depth interviews with senior executives in 10 firms. We wanted to determine the need for sales and operations management collaboration and to identify some key drivers of successful

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cross-functional relationships. Following the qualitative research, we conducted a review of extant research on the interface between sales and operations management and found limited research. Then we conducted a survey of academic researchers in the area to identify areas and themes of future research in this area, followed by a second qualitative study of managers from an additional ten firms.

In examining the research gaps, we found that managerial issues such as the creation of an interface department, salespeople getting overall customer satisfaction targets, and organizational culture issues such as job rotations, special organizational programs to promote collaboration, and joint training programs have not been addressed in the current literature. We also found that academics suggest further research in the areas of technology/sales-force automation, intraorganizational issues, forecasting, sales evaluation and performance, and sales/marketing strategy.

The layout of the article is as follows. We start by examining the critical need for interfunctional coordination and sales and operations management coordination and highlight the consequences if this is not achieved. We then report on a qualitative research in which we interviewed senior executives from 10 firms to understand the practitioner's view of the coordination of sales and operations management. We then report on the results of a literature review in the area of marketing and operations management. This is followed by a section based on a survey of academics, who identify areas for future research and suggest possible research questions, and a follow-up qualitative study. We conclude with a summary of our findings and implications for research and practice.

### **Need for cooperation between sales and operations management**

Before we discuss the need for cooperation between sales and operations management, we need to describe the research on interfunctional coordination. As organizations grow, the main organizational goal, and hence the organizational strategy, is implemented through different functional areas such as marketing, sales, research and development (R&D), supply chain (Miller and Arnold 1998), and vertical specialization starts to dominate the mind-set of the people within the different departments (Cilliers and Greyvenstein 2012). Organizational silos can be observed between various functions and have been an important part of research. For example, the relationship between the marketing function and other areas has been extensively studied in the context of group and organizational identity (e.g., Randel 2002; Gupta and Ogden 2009; Grier and Deshpandé 2001).

Homburg and Jensen (2007) examined research articles on the relationship between the marketing department and

other departments, such as sales, R&D, finance, manufacturing, quality management, engineering, human resources, and information technology (IT). The authors suggest that the main reason for conflict between internal business relationships is their differing departmental goals. Marketing is categorized by a long-term orientation and is more product orientated while, for example, sales is considered more short-term and customer oriented.

Nauta, De Dreu, and Van der Vaart (2002) found similar goal incompatibilities between the operations and the planning departments, where operations usually focuses on high quality and efficient production and the planning department generally concentrates on on-time deliveries. Similarly, research by Shapiro (1977) examined the chronic conflict between the manufacturing-related departments, or the back offices, and the front offices, such as the sales department. Back-office departments have a cost-reduction goal, striving to the highest levels of efficiency within the production process, while the goal of front-office departments is to increase revenues by being customer centric.

This organizational silo problem is also embedded in the organizational behavior literature (Greenberg and Baron 1995). Prior research on organizational silos shows that organizational silos lead to a dysfunctional organization. Moreover, Diamond and Allcorn (2009) found that silo mentality strongly influences work behavior and the disconnection between the employee and the other departments. Brewer and Kramer (1986) found that, according to social identity theory, employees favor their own department and, to a certain extent, reject other departments. Thompson and Loewenstein (1992) found that employees overestimate the contributions of their own department and undervalue those of other departments.

The most common suggestion by researchers to solve this coordination problem is to develop a better alignment between different internal business functions (Dahler-Larsen 1998). Other propositions by researchers to tackle this issue are management by objectives (St. John 1991), soft human resource management (Beer et al. 1985), and the implementation of a process-oriented organizational layout (e.g., Christopher 1998).

Sales and operations management collaboration informs the operations of a firm in order to better adjust demand and supply. The literature in the area has consistently highlighted the critical role of sales and operations management collaboration for the success of the organization (Laanti, Garbriellsson, and Gabriellsson 2007; Storbäck 2011; Ivert et al. 2015). In addition, Swaim et al. (2016) suggested that an enhanced alignment between the sales and operations functions leads to an increase in control and agility of businesses and is an important asset in the emerging era of enhanced competition. They also found that sales and operations engagement is positively correlated to higher operational, market, and profitability outcomes.

The success of sales and operations management integration depends on how well the sales and operations culture is embedded across all functions and levels within a company (Lapide 2002). Despite the effort it takes to fruitfully implement and manage sales and operations management (Grimson and Pyke 2007), the advantages of properly integrating sales and operations management can be numerous. That may be the reason that Grimson and Pyke (2007) suggested that the explicit goal of sales and operation management alignment should be to maximize profit.

The research quoted in previous paragraphs highlights the critical need for enhancing the collaboration between sales and operations management. A quick review of the literature on this topic indicates that research is still lacking in this domain (Malhotra and Sharma 2002) and that more research is needed (Pagell 2004). Plouffe et al. (2016) have also suggested further research in this area within their conceptualization of “portfolio of relationships.” In the following sections, we highlight the findings of a qualitative study, an in-depth literature review, and a survey of academics we undertook to further explore this area.

### Qualitative research study

To understand the importance of collaboration between sales and operation management, we undertook a qualitative study. The qualitative study was based on the case

study approach suggested by Eisenhardt (1989). Drawing on grounded theory (Glaser and Strauss 1967; Yin 2013), Eisenhardt (1989) proposes a method of using case studies to contribute to theory building by using techniques such as triangulation by multiple investigators, cross-case analyses, and existing literature.

We conducted extensive in-depth interviews with senior executives from 10 firms that were predominantly operating in the business-to-business domain (see Table 1 for sample details). Two of the 10 firms also had a business-to-consumer division. To enhance our focus, we requested that participants focus on the business-to-business aspects in the interviews. We were interested in understanding why the collaboration between sales and operations management was important and how these firms were currently managing the collaboration. This was in keeping with Eisenhardt (1989), who suggests case study research to be based on certain a priori specified constructs. In keeping with the requirements of case study research (Eisenhardt 1989), we chose a theoretical sampling method to account for differences between product/service dominant companies, regional/global companies, and sales/operational executives. In addition, to ensure triangulation by multiple investigators, we had the principal sales investigator talk to operational executives and had a principal supply chain investigator conduct the interviews with the sales executives.

A sample of 11 participants were contacted based on their relationship with the co-authors and all 11 agreed to

Table 1. Characteristics of sample.

Firm	Function	Responsibility	Industry	Annual revenue (USD)
Stage 1				
A	Director of sales	Europe	Food and beverage	45.52 billion
B	Supply chain director	Europe, Middle East, and Africa (EMEA)	Commodity metals	2.67 billion
C	VP marketing and sales and VP operations	Global	Industrial machinery	11.4 billion
D	Supply-chain manager	EMEA	Industrial chemicals	57 billion
E	VP sales	Global	Electronic equipment	1.2 billion
F	Project manager – customer excellence	Global	Industrial materials	4.9 billion
G	Global supply-chain director	Global	Performance materials	9.65 billion
H	Chief financial officer	Regional	Waste management	16 billion
I	Business unit director	Global	Materials technology	15 billion
J	Service delivery head	Regional	Financial services	14 billion
Stage 2				
K	VP operations and VP sales	Global	Mining	4.5 billion
L	VP business development	North America	Industrial machinery rental	250 million
M	Manager, sales support	Regional-Europe	Transportation	100 million
N	Senior account director	EMEA	Financial services	850 million
O	SVP and business unit head	Global	Food technology	400 million
P	VP sales operations	EMEA	Medical devices	1.1 billion
Q	Global sales director	Global	Industrial construction	400 million
R	Operations manager	Regional	Automotive services	60 million
S	Sales director	Europe	Logistics services	Not provided
T	CEO	North America	Financial services	7 million

participate in the research. All the participants were male and had greater than 15 years of work experience. While six of the 11 participants had a global role, five had either a European role or more of a regional role. Five of the 11 participants had experience in different functions within their organization. All participants worked in specific business units within the multinational firms, but all the participants were familiar with how other business units within their companies worked on aligning sales and operations management.

We conducted semistructured, in-depth interviews with the participants that lasted between 60 and 75 minutes. Except for two of the interviews that were conducted over Skype, all the interviews were face to face either at the participant's office or at the offices of the authors. Six of the 11 interviews were conducted by one author and the remaining five by one of the other authors. The participants were asked to elaborate on four open-ended questions: (1) "How important is the collaboration between sales and operations management?"; (2) "How does their company align the sales and operations management functions?"; (3) "Can you provide concrete examples of specific actions taken to achieve alignment?"; and (4) "What were the outcomes of the specific actions taken to align sales and operations management?" According to their responses, participants were probed for additional information to provide more clarity on the information that they provided. We were also asked not to mention the names of the companies in our report.

Due to the sensitive nature of the information provided, all the participants insisted on nondisclosure agreements and did not want the interviews to be recorded, so field notes were taken (Bernard 2012). While we did not formally manage and code the field notes to ensure the trustworthiness of the findings from our interviews, we used the criteria suggested by Lincoln and Guba (1985). As mentioned earlier, both the interviewers (each of whom had his own theoretical perspective based on his field of specialization – sales and supply chain management) met after each interview to compare notes and adapt the questions wherever necessary for subsequent interviews. To ensure triangulation of our findings, we had one of the co-authors not involved in the research process go over our findings.

### Qualitative interview results

The first issue that we addressed was the importance of alignment between sales and operations management functions in an organization. There was unanimous agreement that an alignment between sales and operations management was critical. For example, Firm H had undergone a major organizational restructuring. Being a waste management company, the firm's processes and systems were run by the operations department. However, during the

economic crisis, the company had started to shift its focus to become a more commercially oriented, customer-centric organization. However, facing increased price pressure from customers, increased competition, and increased costs associated with service delivery (and failures), top management issued a directive to decrease costs associated with inventory management, which could only be undertaken if there was close collaboration between sales and operations functions. The company succeeded in aligning sales and operations management, which led to higher sales and profitability.

Most companies we interviewed had found themselves in a similar position as Firm H. They found that a lack of collaboration between sales and operations management negatively affected revenues and profitability. The firms stated that a lack of a company-specific alignment process between sales and operations management had a direct impact not only on the financial performance of a firm, but also on the long-term viability of the firm.

As mentioned earlier, we were interested in identifying business practices that companies deployed to align sales and operations management functions. It became clear after the first three interviews that different firms had different practices in place to align sales and operations management and to keep track of the efficacies of these practices. We identified five practices that were mentioned by more than half of the participants to be critical elements in the success of effective collaboration between sales and operations management – other functional team involvement; collaborative environment, internally and externally; goal alignment; organizational culture; and top-management involvement. While not all firms utilized all elements of best practices, we identified certain common practices across all the firms. These practices are listed in ascending order of how many times they were mentioned by the participants.

### *Other functional team involvement*

Our interviewees suggested that for sales and operation management alignment, the process needs to include other functional teams as well, such as finance, procurement, and IT. Firm E stated that one of the key changes that enabled their progress in climbing the sales and operation management maturity ladder was to understand and process vast amounts of data that were available at the firm. Although the sales and operation management teams were trying to measure the same outcomes, the different data metrics across the different functions became a hurdle during collaboration efforts. The reconciliation process began by holding a series of high-level meetings region by region, involving sales, supply and product management, with the purpose of defining a forecast per product group. Through a process of data and trend analysis, order book comparison, and taking into

account rollout schedules, a consensus demand volume was reached and then translated into a consensus forecast for all departments. The forecast was evaluated by the planning team as well as the purchasing team, who analyzed the plan with special attention to productivity constraints and potential shortages, making a plan to mitigate potential risks related to critical suppliers or components.

Firm A involved finance in the second stage of their sales and operation management process to aid in realistic financial budgeting and forecasting. They also required that the finance department assist in the forecasting of promotional products whereas, historically, forecasting was only for standard products. Firm A also mentioned that IT involvement was crucial as the sales and operation management process relied heavily on tools such as vendor-managed inventory (VMI) and collaborative planning, forecasting, and replenishment (CPFR) with their main customers.

Firm H created eight new business finance controllers located within the specific regions. The finance controllers reported to headquarters; however, the majority of their work (approximately 80%–90%) was done with the regional sales and operation management teams. Firm H stated that this change had helped deliver greater operational efficiency through analyses including activity-based costing, improved payment terms, and negotiating prices.

Firm I, to align the different perspectives and to mitigate conflict, created an “interface department.” Being in a highly capital-intensive business and at the same time oriented toward customer intimacy, the necessity for a department that contributed to production planning and was able to provide the sales team with the most accurate information on areas such as lead times and quality levels was of paramount importance. The “interface department” acted as the knowledge center with responsibility for the cost model and for judging which products were the most appealing, in terms of both margins and technical fit to production facilities.

#### ***Collaborative environment: internally (sales and operations management) and externally***

Our respondents stressed that firms must set up the right structure to implement a collaborative environment where the internal teams communicate, align, and share knowledge/experience to guarantee success of the sales and operation management processes. The companies also commented that once internal collaboration is achieved (among the sales and operations management teams), the principles should be extended externally, that is, by collaboration with the customers.

Firm J decided to establish a biweekly, sales-lead meeting. The first purpose of the meeting was to discuss upcoming deals/projects and which projects were to be

the operational priorities. The second purpose was to raise awareness of the potential changes in the regulatory environment and other constraints that could directly impact the sales environment. The meeting was mandatory for sales and operations management departments to ensure the necessary level of support for effective execution.

Firm F was able to promote both internal and external collaboration between the sales and operations teams on one side and the customer on the other. The company introduced “an annual voice of customer” exercise, which brought all three groups together (sales, operations management, and the customer). From an internal collaboration perspective, the meeting allowed sales and operations to act as a single entity in front of the customer. From an external collaboration perspective, the customer and the company came together to discuss issues and resolutions that affected them. Firm F also asked sales and operations teams to work together to formulate logistic agreements with the clients. Firm F found that this collaborative effort contributed to high levels of conflict resolution within internal functions and led to an increase in customer satisfaction.

Firm C, which had more than 1,000 salespeople and key account managers, had operations management teams visiting customers monthly to understand any emerging issues and to help design solutions to address these issues. This monthly meeting allowed operations to meet with customers and enhanced collaboration not only with the external customer but also with the internal sales team.

Firm G’s products typically were made to order, making it important to analyze historical sales data and merge those results with customer forecasts. Firm G had to address the bullwhip effect (Lee, Padmanabhan, and Whang 1997), referring to the increased oscillations in demand upstream in the supply chain. As the production of the firm had historically been sold out and customers could not receive the desired volumes, they over ordered, leading to a forecast accuracy of only 50%. Looking for a solution, the company decided to have sales and operations collaborate more closely with their customers and incentivize them to provide accurate forecasts. This led to decreased inventory costs, better margins, and higher customer satisfaction levels.

#### ***Goal alignment***

Most of the executives we interviewed discussed the importance of aligning the goals of the sales and the operations team. Again, each company tailored the goal alignment to fit their specific organization needs, but goals for all firms were to ensure each team was working toward the same common goal of optimizing efficiency to ensure maximum profit. The companies achieved goal alignment between the departments through common key performance indicators (KPIs) and bonus schemes.



For example, Firm G redesigned the employee bonus scheme for the sales and operations departments to be fully aligned with the success of the overall business. Specifically, 50% of the KPIs for both sales and operations teams were related to sales volumes and other measures of overall market success, and the remaining 50% were department-specific KPIs related to efficiency, costs, and so on. Firm G also reported that logistics and packaging managers now cooperate with sales to deliver the right packaging, improve yield for the customers, and communicate other projects among the teams to raise their internal capabilities and directly influence customer satisfaction.

Firm C restructured their divisions so that the division presidents were now responsible for the entire profit and loss statement to align goals across departments. The company also stated that their global key account managers were now responsible for product sales and service levels as well as the overall net promoter score (NPS) (Reichheld 2003), the common metric of success across the different departments.

Firm D had also moved toward common KPIs. Historically, the external sales force was evaluated on sales KPIs (e.g., revenue or volume), which had resulted in the sales force demanding universal product availability. Now both sales and operations evaluations are based on overall company margin, with particular attention to operational costs. Subsequently at Firm D, the internal sales team takes the initiative to interact more frequently with customers to develop a better understanding of the demand forecasts.

The preceding examples were not the only common KPIs mentioned by the interviewed companies. At Firm A, the sales and operations management teams focus on forecast accuracy from their external customers to reduce days of inventory. They have monthly or weekly meetings to discuss forecast updates. For Firm B, forecast accuracy and managing stock levels had become KPIs. Finally, Firm E had a common KPI for forecast accuracy for both sales and operations management. They evaluated both teams on a common metric – ‘on time in full’ (OTIF), inventory turns, lead times, and total inventory levels.

### **Organizational culture**

Our interviews suggested that it is important that all employees understand the alignment processes, are able to impact it, and know that their efforts are valued and rewarded. To ensure that employees have this knowledge and the right capabilities, many companies in our research cited the importance of their company culture as a key success factor for better sales and operations management alignment.

The majority of participants we interviewed described the importance of each functional department understanding each other's processes and goals. Many companies

suggested that their organizational culture encouraged cross-functional knowledge sharing through either job rotations or special assignments. For example, at Firm G, the operations employees were encouraged to take technical support functions jobs. Since the employees experienced the goals and principles of other functions, both sales and operations management were able to better work together for the common good of the customer and the company.

Firm C also promoted job rotations within different functions. Regarding the sales and operation management alignment process, job rotations on the product, the service, and the sales function were a requisite for a successful career at Firm C. In addition, annually, employees who showed high potential were asked to work on a special assignment within a different function. Through these programs, Firm C had seen a drastic improvement in the willingness of employees to work together.

Firm D saw that a recent change in the structure of their training programs had been responsible for improved cooperation among their sales and operation management teams. The company saw the need for greater cooperation and understanding between the departments. Therefore, they decided to require departments to take common training programs simultaneously, which led to enhanced profitability.

### **Top-management involvement**

The interviewed managers described how top-management involvement improved sales and operation management alignment processes. Every enhanced interaction strategy aimed at better integrating sales and operations functions tended to require structural changes as well as capital investments (e.g., IT, training, KPIs, incentives), which required top-management support.

Firm E executives hold a yearly sales and operation management meeting to present the finalized 12-month forecast plan to management. After this meeting, the plan is communicated in a top-down approach where the department heads inform each region of the plan. Firm C traditionally had a separate production division and a separate selling division. One unified division was created in which top management were responsible for the profit and loss of the combined division, leading to enhanced overall financial health.

In summary, the qualitative research highlighted the importance of collaboration between sales and operations management, and the research identified five practices and 16 processes that are critical elements in the success of effective collaboration between sales and operations management. These are other functional team involvement (finance, product management, too much data available, need for business analytics, difficulty in common KPI setting, and creation of interface department); collaborative environment – internally and externally

(mandatory cross-functional meetings, joint meeting – sales/operation/customers, increased client engagement to unite sales and operations management, and client incentives to unite sales and operations); goal alignment (sales and operations outcomes aligned with overall business, top management KPI alignment, salespeople getting overall customer satisfaction targets, sales/operation responsible for accurate forecasting); organizational culture (job rotations, special organizational programs to promote collaboration, joint training programs); and top-management involvement (organizational structure change).

### Literature review

The second part of our research was determining the extant literature at the intersection of sales and operations management. We surveyed the extant literature that embodies the configuration and alignment of the sales function and the operations management function as follows. Drawing on the methodology by Higgins and Green (2011), we first explored the literature by searching for the following keywords in the Web of Science database: sales and operations alignment, sales and operation management alignment, sales and operation integration, sales operations, and operations selling. A number of articles discuss the relationship but not the configuration of the broader marketing function with the operations/manufacturing function (e.g., Cron et al. 2014), methodology issues when examining the cross-functional relationships (e.g., Frankel and Mollenkopf 2015), or the impact of cross-functional integration on the organizational level (e.g., Enz and Lambert 2015; Swink and Schoenherr 2015). However, most of these articles focus on sales as a function of turnover levels rather than on the actual sales function. In this research, we focused on the specific context of integrating both functions that foster the sales function, rather than improving operations planning.

To identify the extant cross-functional research from 1980 to 2017, we examined articles that were published in different literature streams. The journals in our sample are either rooted in the marketing and/or sales domains (e.g., *Journal of Marketing*, the *Journal of the Academy of Marketing Sciences*, *Industrial Marketing Management*, and *Journal of Business and Industrial Marketing*) or embedded in the operations management research field (e.g., *Journal of Business Logistics*, *Journal of Supply Chain Management*, *Production and Operations Management*, *The International Journal of Logistics Management*, *Journal of Operations Management*, *International Journal of Production Economics*, *International Journal of Physical Distribution and Logistics Management*, and *International Journal of Forecasting*) or in the broader general management area (e.g., *Management Science*, *Decision Sciences*, *Business Horizons*, *Industrial Management and Data Systems*).

This search yielded a total of 34 research articles that focused on the interaction between the sales and operations management functions. The coding of the research articles was conducted by a researcher who was “blind” to the hypotheses of the research project and who used a set of five different coding variables that embody the scope of the research project. The variables that were used are as follows: (1) type of research (either conceptual or empirical), (2) nature of the data set, (3) functional needs (sales and/or operations management) that were addressed, (4) key findings, and (5) discussion on the integration of operations and sales function. Based on this review, a total of 34 articles were identified, of which 21 articles were based on empirical/qualitative case study-based research and 13 were conceptual in nature. Table 2 presents an overview of the research that discusses the integration of sales and operations management functions.

Of the empirical/case study-based research articles, seven papers used data from the sales function, two articles collected data from the operations management function, and 12 articles collected data from both functions (i.e., the sales-operations management dyad). Some of the key articles are discussed next.

Zarpelon Neto, Pereira, and Borchardt (2015) collected data from the sales function to specifically address the needs of the operations management function. In their work, the researchers examine possible issues in servicing customers worldwide, and in this context, they find that six different managerial challenges arise when aligning functional areas internally. These are (1) regulations that create advantages for the local service company; (2) operational problems that stem from employee turnover and the distance that needs to be covered between clients, the factory, and the structure that supports the service provision; (3) the manufacturer culture (goods versus services-dominant logic); (4) commercial approaches (a closed relationship between the manufacturer and the customer that does not support unforeseen situations, lack of an understanding about the long-term profitability of each client, the issues that arise when contracts are inflexible, and when sales teams have to sell products and services at the same time); (5) poor manufacturer knowledge of customer needs and values (how this knowledge should be obtained, spread, and used).

Of the 12 articles that collected data from both sales and operations management functions, we identified 10 that address both the needs of the operations and the sales function. We briefly summarize these articles. Ivert et al. (2015) used case study research (examined eight companies from the food industry) and discussed the integration of sales and operations subject to the planning environment. The researchers present a set of eventualities linked to supply that need to be incorporated into the sales and operation management setup and process. These

Table 2. Sampled articles with a discussion on the integration of the sales and operations function.

Citation	Empirical or conceptual?	Who are data collected from?	Who needs are addressed?	Key finding(s)
Chen, Lai, and Xiao (2015)	Conceptual	No primary data	Sales and operations management	Salespeople are ideally positioned to collect the necessary market information for enhancing the company's production planning at a low cost.
Cooper and Budd (2007)	Conceptual	No primary data	Sales and operations management	Presentation of a theoretical model that synchronizes the sales funnel and project operations into the whole marketing project cycle.
Engelseth and Felzensztein (2012)	Empirical: one case study	Sales and operations management	Operations management	Business relationships are crucial for interlinking and coordination between sales and operations.
Feng, D'Amours, and Beaugard (2008)	Empirical: one case study	Sales and operations management	Sales and operations management	A supply-chain-based sales and operations management provides superior performance to a sales-production-based sales and operations management and decoupled planning in all cases.
Feng, Martel, D'Amours, and Beaugard (2013)	Empirical: one case study	Sales and operations management	Sales	The authors propose a make-to-order model that should lead to better manufacturer decisions. They suggest a decrease in the number of customer contract offers when the economy is unstable in order to end up with fewer nonprofitable contract obligations.
Grimson and Pyke (2007)	Conceptual	No primary data	Sales and operations management	Develop a framework that consists of five stages for assessing the level of sales and operations management maturity. Of the five identified dimensions, the business process is the enabler of integrating a plan for sales and operations management.
Ivert et al. (2015)	Empirical: multiple case studies	Sales and operations management	Sales and operations management	Identify a new set of contingencies connected to supply needs that should be incorporated into the sales and operations management setup and process, such as uncertainty connected to demand and material supply, frequent product launches, and production network complexity.
O'Leary-Kelly and Flores (2002)	Empirical	Sales and operations management	Sales and operations management	Business strategy and demand uncertainty have a moderating effect on the relationship between the integration of marketing/ sales-based and manufacturing decisions and organizational performance. Marketing/sales-based decisions have a positive moderating effect on the relationship between business success and the integration of sales and manufacturing, whereas the manufacturing-based decisions have a negative moderating effect.
Oliva and Watson (2011)	One case study	Sales and operations management	Sales and operations management	Constructive engagement and alignment are two constructs that explain the performance of the implemented planning process. Forecasts that are made by the sales side for other functions are suboptimal because they do not always incorporate the targets of other functions.
Soler and Tanguy (1998)	Conceptual	No primary data	Sales and operations management	A key factor to improve the coordination between marketing and manufacturing is planning design.
Storbacka (2011)	Empirical	Sales and operations management	Sales and operations management	The framework in this article depicts that firms that sell solutions need to pay more attention to the multifaceted interfaces between the sales and operations functions.
Swaim, Maloni, Bower, and Mello (2016)	Empirical	Sales and operations management	Sales and operations management	This article highlights the process conditions that are required to get the most out of sales and operations management. Aligning sales planning with capacity planning is critical to achieve higher levels of control and agility within the company.
Thomé et al. (2012)	Conceptual	No primary data	Sales and operations management	The systematic review of the sales and operations management literature indicates, to some extent, that cross-functional planning processes can alleviate the consequence of misaligned targets and structures on the company's results. Furthermore, enhancement of communications between the sales and operations function can also lead to improvements of firm results.

(Continued on next page)



Table 2. Sampled articles with a discussion on the integration of the sales and operations function. (Continued)

Citation	Empirical or conceptual?	Who are data collected from?	Whose needs are addressed?	Key finding(s)
Toon et al. (2016)	One case study	Sales and operations management	Sales and operations management	The framework in this article focuses on internal organizational integration. The authors highlight the relation between internal integration and operational efficiency, and they suggest that focusing on cost is vital in low variation settings, whereas knowledge transfers between functions are more important in innovative scenarios.
Tuomikangas and Kaipia (2014)	Conceptual	No primary data	Sales and operations management	This literature review sheds light on two main avenues for future research in the sales and operations management area. One is that more empirical studies are needed to examine the complexity of sales and operations management and how this should be implemented. As a second avenue for future research, this article emphasizes the need to study how sales and operations management can be used to achieve company objectives.
Turkulainen et al. (2013)	One case study	Sales and operations management	Sales and operations management	This article points out that organizational design needs more detail in order to fully grasp and implement the managerial problems. The associated needs and mechanisms are strongly influenced by contextual factors, and thus vary, not only across company level, but also among individual projects.
Wagner, Ullrich, and Transchel (2014)	One case study	Sales and operations management	Sales and operations management	The case study concludes with a maturity model that implies that a better alignment between sales and operations can result in higher service levels.
Mentzer, Stank, and Esper (2008)	Conceptual	No primary data	Sales and operations management	This article presents a classification framework from the perspective of both sides –marketing (sales) and operations – on decision scopes and functional areas.
Kaipia et al.(2017)	Case studies	Sales and operations management	Sales and operations management	This article demonstrates, based on a set of contextual factors, whether the manufacturer should consider collaborative sales and operations management processes.
Esper et al. (2010)	Conceptual	No primary data	Sales and operations management	This article states that value creation through intraorganizational knowledge management between supply chain and marketing/sales serves as a basis for creating customer value.
Patel, Azadegan, and Ellram (2013)	Empirical	Operations	Sales and operations management	This article points out that strategic supply chain operation is linked to customer-focused and operational performance. However, the results indicate that structural supply chain operation is only associated with operational performance.

contingencies are the uncertainty related to demand and supply, the effect of many product introductions, and the complexity of the production system.

Laanti, Gabrielsson, and Gabrielsson (2007) examined global companies in the wireless technology sector and identified that “born global” firms are different from companies with traditional internalization processes. A key result of their research is that these “born globals” were faster in setting up local sales and marketing branches. The main explanation for this result is the nature of the sales offering of this case, a digital service and software that can be easily distributed online. Yet the alignment between operations and sales is not discussed in this article.

O’Leary-Kelly and Flores (2002) discussed the interconnected decisions between the sales function and manufacturing/operations function. The authors identified business models and demand uncertainty as two moderating effects on the path between the six dimensions of business success (product innovation, cost leadership, superior quality, on-time delivery, product breadth, perceived demand uncertainty) and the integration of sales and manufacturing. The direction of the relationship differed depending on the type of decision that was examined (marketing/sales-based or manufacturing-based) and the type of respondent that measured the integration (marketing/sales versus manufacturing respondent). Their results show that the marketing/sales-based decisions have a positive moderating effect on the relationship between business success and the integration of sales and manufacturing, whereas the manufacturing-based decisions have a negative moderating effect. The suggested rationale is that marketing/sales-based choices usually serve as a basis for manufacturing-based operational decisions.

Drawing on case study research, Oliva and Watson (2011) examine the cross-functional conflicts in supply chain planning. The authors propose that two constructs, alignment and constructive engagement, mediate the performance of implemented planning processes. In their case study, they identified that forecasts made by the sales force for other functions usually contained many flaws because of the lack of quality related to the shared information, the procedure used, the alignment, or the little engagement between the two functions.

Storbacka (2011) depicted 12 categories that cover 64 capabilities and management practices related to the effective management of solution businesses. The construction of the 12 categories is based on four steps of the solution process (develop solutions, create demand, sell solution, and deliver solution) combined with three clusters of cross-functionality (commercialization, industrialization, and solution platform). An effective business model that is based on solutions requires a sophisticated synchronization of resources and business processes

among all functions. The presented framework in the article depicts that firms need to focus more on the multifaceted interfaces between the commercial and the industrial side of the company. Solutions businesses are in essence cross-functional, which requires the outline of new boundary-spanning roles, within and between firm functions.

Swaim et al. (2016) suggested that a better alignment of the sales and operations function leads to increased control and agility of the business. They also found that organizational sales and operations management engagement is positively related to higher operational, market, and profitability outcomes.

Turkulainen et al. (2013) explored the use of integration mechanisms (vertical, lateral formal, or lateral informal) in one case study, and the researchers indicated how these mechanisms vary over different project phases (project sales or project execution phase) due to contextual factors.

Wagner et al. (2014) depicted a maturity model on how well the sales and operations functions are integrated. This model evaluates the internal sales and operation management process and aims to improve the organizational alignment. The sales and operations management maturity model consists of six levels (undeveloped, rudimentary, reactive, consistent, integrated, and proactive) and four dimensions (process effectiveness, process efficiency, people and organization, and information technology). The key result of this maturity model is that higher levels of sales and operations management maturity increase the sophistication of sales and operations management integration.

Finally, Feng et al. (2008) discussed how sales and operations management results in better financial performance when it is grounded in the supply chain than when sales and operations management is founded on a sales/production-based sales and operations management relation.

The last two of the 12 articles that sample both sales and operations management functions only address the needs of one function. First, Engelseth and Felzensztein (2012) collected data from sales and operations management functions and addressed the needs of the sales function. Their research suggests that business relationships are vital for linking and coordination between the two functions. Second, in the case study on contract decisions by Feng et al. (2013), the research sampled both sales and operations management executives and incorporated the needs of the salespeople to better coordinate the supply chain regarding make-to-order manufacturing.

The themes that arise from the literature are as follows:

1. Collaboration between sales and operations management is critical for the success of firms (Ivert et al. 2015; Laanti, Garbrielsson, and Gabrielsson

2007; Storbacka 2011; Engseth and Felzensztein 2012).

2. Enhanced sales and operations management collaboration can reduce negative sales and operations management effects (Oliva and Watson 2011; O'Leary-Kelly and Flores 2002).
3. Greater sales and operations management collaboration can improve positive sales and operations management effects (O'Leary-Kelly and Flores 2002; Swaim, Maloni, Bower, and Mello 2016; Feng, D'Amours, and Beauregard 2008; Feng et al. 2008).

### Survey of academic researchers

An area that we wanted to further explore was the direction for future research. The ideal respondents for this task are researchers active in the business-to-business and sales domains. We exactly followed the research design of Paesbrugghe et al. (2018). Given the broad research areas that could possibly be identified, we used a categorization that would help us better address topics for future research (Paesbrugghe et al. 2018). We used the standard 20 categories of sales and sales management research suggested by Plouffe, Williams, and Wachner (2008).

To identify the research topics, we used the survey designed by Paesbrugghe et al. (2018) to test what topics categories proposed by Plouffe, Williams, and Wachner (2008) are important for understanding collaboration between sales and operations management and to identify research questions linked to the particular research topic.

We used a self-administered online questionnaire designed by Paesbrugghe et al. (2018) and used their sample of marketing and sales researchers who were on editorial review boards of *Journal of Personal Selling and Sales Management* and *Industrial Marketing Management*. The link to the online questionnaire was sent to 440 researchers (email addresses were developed through public sources) with a reminder after one week. After two weeks, we got responses from 16 academics who mentioned that they were not active in this area of research and so opted out of the survey. We checked the list for duplicate email addresses since it is possible to be a member of both review boards. In addition to initial requests, after seven months, we decided to reach out to those academics who had not filled out the survey. In total, we received 52 usable responses (32 completed questionnaires in the first two rounds and 20 completed questionnaires in the third round). In analyzing the data from the first set of responses and the second set, the top five areas of study remained the same.

As stated earlier, we used the questionnaire designed by Paesbrugghe et al. (2018) to determine the importance of examining the importance of topics within categories suggested by Plouffe, Williams, and Wachner (2008).

Similar to Paesbrugghe et al. (2018), we used the same questions for all 20 research topics. For each category, the category description and topic definition were provided. As an example, for selling process and technique the following data were provided:

Category Topic: Selling process and technique (e.g., intelligence, personality, knowledge structure characteristics and content, selling technique interaction strategies)

Topic Definition: Individual-level approaches to improving the effectiveness of customer and prospect interactions and sales outcomes

Similar to Paesbrugghe et al. (2018), for category 1, the question was "We would like your opinion on the importance of studying the following topic when examining the intersection of personal selling and sales management and operations management. Please rate from 1 to 7 (1 = not important and 7 = very important)." This was followed by the category topic and definition. In addition, we asked, "If you think the topic 'selling process and technique' is important, can you please share a possible research question?" We asked these questions for all 20 categories. We calculated the importance for each topic; the five most important topics and their means are as follows: technology/sales-force automation (5.83); forecasting (5.50); sales evaluation and performance (5.43); intra-organizational issues (5.40); and sales/marketing strategy (5.19). These were the only areas with a mean above 5.

### Summary of research findings

To summarize research in this area and avenues for future research, we review the three research approaches. We first use the qualitative study as a base and determine whether the factors were addressed in the literature survey or in the survey of academics; the results are presented in Table 3.

Of the 16 subtopics suggested by our qualitative research, we found that 11 were examined in research or highlighted by academic researchers. We regard this to be a check on the validity of our results. However, we identified five areas that were not discussed in literature or academic survey – creation of an interface department to deal with better sales and operations management, salespeople getting overall customer satisfaction targets to force them to work better with their operations management counterparts, organizational culture issues such as job rotations, special organizational programs to promote collaboration, joint training programs, and finally top-management involvement to align sales and operations management better.

Second, we examined the top five areas for research identified by academic researchers (technology/sales-force automation, forecasting, sales evaluation and

Table 3. Matching qualitative findings with literature review and academic survey.

Case study themes	Literature review	Research questions from academic survey
Other functional team involvement		Do contradicting objectives (e.g., sales focusing on high service levels and operations on inventory reduction) increase the tension between different departments?
Involvement of other functional domains such as finance, product management, etc.	Feng, D'Amours, and Beaugregard (2008)	What performance metrics should be used to compensate inside (operations management) and outside salespeople equitably?
Too much data available, need for business analytics	Storbacka (2011)	How can digital data inform forecasting – seasonality/fluctuation of demand?
Difficulty in common KPI setting	Toon et al. (2016)	How can one forecast sales using buyers' browsing patterns?
Creation of an interface department		
Collaboration: internal/external		
Mandatory cross-functional meetings	Wagner, Ullrich, and Transchel (2014)	
Joint meeting – sales/operations/customers	Engelseth and Felzensztein (2012)	
Increased client engagement to unite sales/operations	Ivert et al. (2015)	
Client incentives to unite sales and operations	Oliva and Watson (2011); Storbacka (2011)	What are the conflicts between personal selling and sales management and operations management?
Goal alignment		Tools for managing in the era of new customer decision journey?
Sales and operations outcomes aligned with overall business	Swaim et al. (2016)	How can the goals of personal selling and sales management and operations management be aligned?
Top management KPI alignment		What incentives drive personal selling and sales management and operations management integration?
Salespeople getting overall customer satisfaction targets	O'Leary-Kelly and Flores (2002)	How can technology (AI, machine learning) help operations management forecast demand from examining sales software (e.g., salesforce.com)?
Sales/operation responsible for accurate forecasting	Feng et al. (2013)	How does sales automation affect operations management in better forecasting?
Organizational culture		
Job rotations		
Special organizational programs to promote collaboration		
Joint training programs		
Top management involvement		
Organizational structure change	Turkulainen et al. (2013)	How does ICT (internet communication technologies) affect sales-force structure (i.e., the composition and split between inside [operations management] and outside salespeople)?
		Should researchers examine sales automation before looking at integration of functions?



Table 4. Summary of findings using questionnaire.

Topic Plouffe, Williams, and Wachner (2008)	Qualitative research	Literature survey	Sample research questions (from survey of academic researchers)
Firm-level Intraorganizational issues	Other functional team involvement; collaborative environment: internally and externally; goal alignment; organizational culture; and top management involvement	Engelseth and Felzensztein (2012); Chen, Lai, and Xiao (2015); Feng, D'Amours, and Beaugregard (2008); Ferrel, Ingram, and LaForge (2000); Grimson and Pyke (2007); O'Leary-Kelly and Flores (2002); Oliva and Watson (2011); Randall, Netessine, and Rudi (2006); Soler and Tanguy (1998); Storbacka (2011); Swaim et al. (2016); Toon et al. (2016); Wagner, Ulrich, and Transchel (2014); Wilson, Boström, and Lundin (1999); Zackariasson and Wilson (2004); Zarpelon Neto, Pereira, and Borchardt (2015)	<ul style="list-style-type: none"> <li>• Top-performing salespeople have high reputational effect and are able to garner required support. What sets them apart?</li> <li>• What incentives drive personal selling and sales management and operations management integration?</li> <li>• What are the conflicts between personal selling and sales management and operations management?</li> <li>• How can the goals of personal selling and sales management and operations management be aligned?</li> </ul>
Sales/ marketing strategy	Negative impact of lack of coordination	Engelseth and Felzensztein (2012); Laanti, Gabriellsson, and Gabriellsson (2007); Zarpelon Neto, Pereira, and Borchardt (2015)	<ul style="list-style-type: none"> <li>• Should researchers examine sales automation before looking at integration of functions?</li> <li>• Understanding the relationship between sales strategy and enhanced operations management.</li> <li>• Is sales strategy an impediment to better forecasting?</li> </ul>
Sales-management level			
Technology/ sales-force automation	Combining data from sales with historical data to create business insights	Barker et al. (2009); Feng et al. (2013); Zackariasson and Wilson (2004)	<ul style="list-style-type: none"> <li>• How does ICT (internet communication technology) affect sales-force structure (i.e., the composition and split between inside [operations management] and outside salespeople)?</li> <li>• What type of technology will enhance personal selling and sales management and operations management coordination?</li> <li>• How can technology (AI, machine learning) help operations management forecast demand from examining sales software (e.g., salesforce.com)?</li> <li>• How does sales automation affect operations management in better forecasting?</li> <li>• Tools for managing in the era of new customer decision journey.</li> </ul>

Sales evaluation and performance

Changing the evaluation of salespeople to include operations measures.

Chen, Lai, and Xiao (2015); Feng, D'Amours, and Beaugard (2008); Lee and Grewal (2004); Storbacka (2011)

- Do contradicting objectives (e.g., sales focusing on high service levels and operations on inventory reduction) increase the tension between different departments?
- What performance metrics should be used to compensate inside (operations management) and outside salespeople equitably?
- Should salespeople evaluation be a 360 evaluation?

Salesperson level

Forecasting

Issue of enhanced accuracy of forecasting discussed.

Cooper and Budd (2007); Doering and Suresh (2016); Feng et al. (2013); Ivert et al. (2015); Oliva and Watson (2011); Zarpelon Neto, Pereira, and Borchardt (2015)

- How can digital data inform forecasting – seasonality/fluctuation of demand?
- Forecasting has to take the industry sector into account. It can be done and needs to be done completely different in different sectors.
- How can a firm enhance forecasting accuracy?
- What are the antecedents and consequences of enhanced forecasting accuracy?
- How can one forecast sales using buyers' browsing patterns?

performance, intraorganizational issues, and sales/marketing strategy) and map them to our findings from the qualitative study and the literature survey (see Table 4). We found that all of the topic areas were addressed by literature survey (although in most topics we only found a handful of studies, suggesting room for further research), but one area was not addressed by practitioners – technology/sales-force management.

### Areas for future research

We focus on the five areas identified by sales researchers and highlight areas for future research. In examining the issues of sales and operations alignment, research can address the issues at three levels – the organizational level, which encapsulates cross-functional alignment strategies; the sales-organization level, which primarily focuses on the management of salespeople; and the individual salesperson level. Although broadly classified, the research does overlap. As an example, in examining the impact of firm-level technology on alignment, there will be implications at the sales-management and salesperson levels. Our conceptual view of the overlapping research, based on Sharma and Syam (2018), is presented in Figure 1. We have two areas at two levels – firm level (intra-organizational issues and sales/marketing strategy) and sales-management level (technology/sales-force automation; sales evaluation and performance) – and one area at the salesperson level (forecasting). In addition, to enhance validity, we conducted a second qualitative study that is described next.

### Qualitative research follow-up

To confirm that the gaps we identified through our research are relevant to practitioners, we conducted

additional in-depth interviews with executives/practitioners. We reached out to our contacts from the first round of interviews; however, none of the original set of people we interviewed were available to give us their feedback on our list of research gaps. The reasons were as follows: we were unable to contact executives through e-mail because they had switched jobs, had retired, or were laid off by their firms, or we contacted them but they did not have the time to talk (over half of the original sample). Consequently, we reached out to a new sample and were able to conduct 11 interviews from 10 companies (see Table 1). We used the same methodology as in our earlier qualitative study to identify companies from different sectors and executives from different functions. The interviews were conducted in the same manner as in the first study. We used the method suggested by Lincoln and Guba (1985).

Since we were dealing with a different set of companies than in our earlier study, we checked to see whether the findings from the first study were relevant to the second group as well. A quick review of the results by an independent coder identified that the findings from the qualitative studies were identical except for some new practices, which were more in line with the research gaps identified by the academic survey. In the following section, we discuss the gaps that were identified in our research, and drawing on further multidisciplinary research, we identify areas for future research.

We discuss the five areas of future research as identified by sales researchers in more depth in the next sections. There are at the firm level (intraorganizational issues and sales/marketing strategy), at the sales-management level (technology/sales-force automation; sales evaluation and performance), and at the salesperson level (forecasting).

### Intraorganizational issues

In the academic field, our research yielded a number of studies that focused on the domain of sales and operations management collaboration (Engelseth and Felzensztein 2012; Chen, Lai, and Xiao 2015; Feng, D'Amours, and Beauregard 2008; Ferrel, Ingram, and LaForge 2000; Grimson and Pyke 2007; O'Leary-Kelly and Flores 2002; Oliva and Watson 2011; Randall, Netessine, and Rudi 2006; Sheth and Sharma 2006; Soler and Tanguy 1998; Storbacka 2011; Swaim et al. 2016; Toon et al. 2016; Wagner, Ullrich, and Transchel 2014; Wilson, Boström, and Lundin 1999; Zackariasson and Wilson 2004; Zarpelon Neto, Pereira, and Borchardt 2015), but most of this research was qualitative in nature, thereby indicating the need for more quantitative research on this topic. One of the research questions raised by academics was about the ability of salespeople to garner required support. This is in keeping with recent research by Plouffe et al. (2016), who



Figure 1. Areas of future research.

suggested that salespeople need to create a “portfolio of relationships.” They found that strategic frontline employees who use effective persuasive measures with their internal colleagues are more likely to perform better. We think that this research can be extended to understand how salespeople can use different persuasive tactics with their operations counterparts. Interestingly, Kaski, Niemi, and Pullins (2018) proposed an innovative methodology that involved in-depth qualitative interviews, conversation analysis of sales situations, and follow-up interviews to analyze rapport building in salesperson–customer interactions. We think that this methodology could also be applied to understand how salespeople build rapport with their operations management counterpart.

Research in the domain of customer centricity identifies ways by which organizations can align their internal departments to deliver customer value (Gulati 2013). For example, Cuevas (2018) suggested that sales professionals will be required to engage with customers to co-create the service and then involve various functions across the supplier organization to deliver it. Similar outcomes have also been suggested by Sharma, Iyer, and Evanschitzky (2008) and by Storbacka, Polsa, and Sääkjärvi (2011). Cuevas (2018) suggested that sales forces need to become more aligned and in some cases integrated with R&D, operations, and supply chain functions, but the process is not clear. When we presented some of the findings from this work to the practitioners we interviewed, all firms except for Firms N, R, and T claimed that sales and operations got together only when they faced ad hoc customer situations, thus raising the issue of whether interdepartmental cohesion is always necessary. This idea to create ad hoc sales–operations teams was mentioned by Firm P when faced with very specific, “one-off” requests by customers, by Firm S when they had specific customer complaints, and by Firm N when they worked on innovation projects involving voice-of-customer exercises and market-potential exercises for new product planning purposes. Academic research on the nature of ad hoc sales–operations teams is limited, but Malshe et al. (2017) focused on how marketers need to work on both strategic and operational alignment with their sales counterparts to achieve their goals. It will be interesting to determine whether the findings from this research can be duplicated to a sales and operational team whose key performance indicators need not be aligned. Another area of potential research could be to measure the performance of these ad hoc teams and the antecedents of their success. This is in keeping with the work by Johnson et al. (2018), who focused on organizations with malleable sales and marketing teams, which they termed sales and marketing selling centers (SMSC’s). Failure to resolve intraorganizational issues could result in failed sales opportunities (Friend et al. 2014). Future research could extend this research to apply to sales and operations teams to

understand the antecedents and consequences of failed sales and operations management collaboration.

#### *Sales/marketing strategy*

There is limited research on sales/marketing strategy in the domain of sales and operations management collaboration except for a few examples (Engelseth and Felzenstein 2012; Laanti, Gabrielsson, and Gabrielsson 2007; Zarpelon Neto, Pereira, and Borchardt 2015). Academic researchers have suggested two interesting questions: (1) Should researchers examine sales automation before looking at integration of functions? (2) Are some sales strategies an impediment to better sales and operations alignment?

Our qualitative research found that a lack of coordination between sales and operations management has a negative impact on firm performance. All the companies we interviewed suggested that for the most part, sales and operations aligned themselves only when they were faced with specific situations that necessitated them to work together. This led to unnecessary friction between the teams, resulting in increased costs and dissatisfied customers. In our second round of qualitative interviews, we specifically focused on this issue. All the executives we interviewed felt that while the operations management strategy was clearly defined in their organizations, the sales strategy was either not always well defined or was not adhered to. Clearly, more research is needed in this area.

#### *Technology/sales-force automation*

Barker et al. (2009); Feng, D’Amours, and Beauregard (2013); Sharma and Sheth (2010); and Zackariasson and Wilson (2004) have addressed the area of technology/sales-force automation in the domain of sales and operations management collaboration, but much work remains to be done. The topic of how technology could impact sales operation alignment has generated some interest by academics as they start examining the impact of how advances in technology could facilitate better communication between sales and operations and how new technologies such as artificial intelligence and machine learning could help sales organizations better manage their relationship with operations (Syam and Sharma 2018). While academic literature on these topics still remains limited, there seems to be an emerging stream of literature that addresses some of the issues mentioned.

In our qualitative studies, we found that our first set of interviews did not discuss technology/sales-force automation although investments in technology to enhance collaboration between sales and operations management were highlighted. Interestingly, when this topic was presented to the second set of qualitative studies we



conducted, two of the companies in the new sample, Firm L and Firm O, indicated that their firms were combining the reports/data from their sales reports (through sales-force automation systems) and from their enterprise resource planning (ERP) systems to help generate actionable insights to help better forecast demand for their offerings. This analysis was the responsibility of a separate business analytics unit that helped both sales and operations departments better manage their forecasting. Setting up a separate department to help sales and operations is not an option that other firms were considering as they felt that this would give rise to unnecessary complications and may lead to either lost opportunities with customers or dissatisfied customers (Firms K, N, S, and T). This is in keeping with work by Virtanen et al. (2015), who suggested that cross-business collaboration does not always lead to better sales performance, owing to the possibility of an overload of information from multiple internal sources that cannot be processed by customers.

Interestingly, Balboni and Terho (2016) suggested that most research in business-to-business marketing has ignored taking into account salesperson analysis of customer potential and instead has only focused on internal-driven, historical data that do not always apply in many business-to-business settings. Building on this, we think that sales-force automation technologies can help capture salespeople's analysis of their customers, and this combined with the historical data (usually captured in internal ERP systems) can lead to better cooperation between sales and operations management.

#### *Sales evaluation and performance*

There is limited academic research on sales evaluation and performance in the domain of sales and operations management collaboration. Studies by Chen, Lai, and Xiao (2015), Feng, D'Amours, and Beauregard (2008), Lee and Grewal (2004), and Storbacka (2011) are the few exceptions, and we think that future research should focus on this area. Research suggests that the role of the salesperson should be similar to that of a general manager with supply chain responsibilities (Sheth and Sharma 2008). Our survey of academic researchers yielded some interesting research questions: Do contradicting objectives (e.g., sales focusing on high service levels and operations on inventory reduction) increase the tension between different departments? What performance metrics should be used to compensate inside and outside salespeople equitably? Should salespeople be subject to a 360-degree evaluation that includes peers from other departments?

Our qualitative research suggests that most firms were changing the evaluation of salespeople from revenue/profits to include operations management measures. Firm X for example was looking into linking an operations department KPI of QOTIF (quality on time in full) to the

sales function, owing to the reliance of the operations department on the forecasting accuracy of salespeople. However, the sales organization was not very happy with this evolution. A similar approach was being taken at firm N, a financial services company, where they were taking an innovative approach to ensure the success of new product development and commercialization. In this organization, both the sales and operations department were held jointly responsible to ensure successful new product development and commercial launch.

Another area of possible research involves the different expectations of salespeople regarding their roles in customer delivery. For example, Davies, Ryals, and Holt (2010) suggested that as the roles of salespeople evolve more to become relationship managers, salespeople should be expected to forge better internal relationships to ensure operational delivery and keep an efficient supply chain (Harvey et al. 2002; Homburg, Workman, and Jensen 2000, 2002). This is in keeping with the research by Nijssen et al. (2017), who suggest that salespeople who are ambidextrous should focus on cross-functional cooperation if they need to be successful. The next stage of research would be examining sales evaluations and performance.

#### *Forecasting*

Our qualitative reviews indicate the need for better forecasting and how companies were trying to address this area. Academic research has also addressed the issues of better forecasting in the domain of sales and operations management collaboration (Cooper and Budd 2007; Doering and Suresh 2016; Feng, D'Amours, and Beauregard 2013; Ivert et al. 2015; Oliva and Watson 2011; Zarpelon Neto, Pereira, and Borchardt 2015). One of the issues that researchers wrestle with is the inaccuracy of salespeople's predictions (Lambert, Marmorstein and Sharma 1990). Academic researchers from our online survey suggested the following areas for future research: how digital data can inform forecasting – seasonality/fluctuation of demand; what the antecedents and consequences of enhanced forecasting accuracy are; and how one can forecast sales using buyers' browsing patterns.

A review of the literature in operations research identified an increasing focus on understanding how advances in technology has enabled firms to capture data about customers that are stored in CRM databases or in operations databases (Fildes et al. 2008) to help drive forecasting accuracy. Syam and Sharma (2018) highlighted key ways in which developments in AI and machine learning can help organizations better manage their demand estimation and forecasting. However, extant research outlines a silo-oriented approach used by researchers in the sales domain and the operations domain separately. Fildes et al. (2008) pointed out that while operations researchers have focused

on models to manage inventories and the impact of sharing forecast implications down the supply chain, researchers in marketing/sales have used data to aid in forecasting of sales (Syam and Sharma 2018). Future research should focus on combining the sources of data from CRM and ERP systems to help both sales- and operations-related outcomes. Our qualitative studies did not shed light on this area although most executives suggested that firms need forecasts that are more accurate. This area, therefore, remains an area of further research.

## Conclusion

There is rapid growth in modern sales techniques, and strategies such as consultative selling, solution selling, and challenger sales have emerged. The common element in all of these strategies is the role that operations management plays in fulfilling the needs of customers in terms of integrating products and services. Since solution selling and challenger sales have not been universally successful, one possible reason for the lack of success may be the lack of collaboration between sales and operations management. As stated earlier, operations management is typically focused on lean operations and efficiency, and providing customized solutions for customers has not been a priority. The negative effect of the lack of collaboration between sales and operations management was a key finding from extant research as well as the feedback from senior executives in firms.

To determine how sales teams and operations management teams should work together to ensure delivery of a firm's offerings, we conducted a deeper examination of this area. We undertook three research projects. First, we undertook qualitative research in two stages by conducting in-depth interviews with senior executives in 10 firms on sales and operations management collaboration. The primary finding was that close cooperation between sales and operations management is critical for the success of firms. Lack of collaboration leads to revenue loss and harms customer relationships. The interviews also suggested that other functional team involvement – collaborative environment, internally and externally; goal alignment; organizational culture; and top-management involvement – positively affected sales and operational management collaboration. We also found that managers supported the five subareas where research is needed – intraorganizational issues, sales/marketing strategy, technology/sales-force automation, sales evaluation and performance, and forecasting.

The second research project was an in-depth review of the research and literature on the interface of sales and operations management. Surprisingly, we found only 12 articles that addressed both sales and operations management functions. We identified common themes in the research. These were criticality of sales and operations management collaboration in the success of a firm;

sales and operations management alignment can reduce negative effects; sales and operations management alignment can enhance positive effects; internal business relationships are critical in enhancing interactions between sales and operations management; and what processes can improve sales and operations management collaboration.

Third, we conducted a survey of academic researchers in the area to identify areas and themes of future research in this area. Using the Plouffe, Williams, and Wachner (2008) categorization, respondents suggested that technology/sales-force automation, forecasting, sales evaluation and performance, intraorganizational issues, and sales/marketing strategy are the most important areas of study in the domain of sales and operations management. The respondents also suggested some research questions. While the response rate was low, by analyzing and finding few differences between early and late respondents, we feel that the right areas were identified. We then presented these gaps to a set of executives to gain their insights into the relevance of these gaps to practice.

Finally, we combined findings and identified our results as well as the direction for future research. There are also interesting new approaches to research and we would suggest examining longitudinal modeling (Bolander, Dugan, and Jones 2017). For instance, one of the examples proposed by Bolander, Dugan, and Jones (2017) can be modified to ask: What specific salesperson behaviors increase sales-operation management cooperation? We hope that this article will serve as an impetus for further research in this critical area.

## Declaration of interest

No potential conflict of interest was reported by the authors.

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