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Research paper

Shifts in buyer-seller relationships: A retrospective on Handfield and Bechtel (2002)

Robert Handfield*

Bank of America University, Poole College of Management, Campus Box 7229, NC State University, Raleigh, NC 27695-7229, United States of America

ABSTRACT

One of the most highly cited papers in the Industrial Marketing Management journal was published 17 years ago, and proposed a strong linkage in the elements of buyer-seller trust, asset specificity, contracts, and supply chain performance. In this paper, explore the question of "what has changed"? We note that the emergence of 1) real-time analytic technologies, 2) new governance models that span multiple parties across organizations in a supply chain network, and 3) new digital innovation requiring partnering with new entities are required to produce end to end analytical capabilities. We offer three new propositions that provide some insights towards future research areas, and we also note that although interpersonal buyer-seller relationships will remain important, digital transformation is changing the nature of how these will unfold. Our propositions provide insights on how the role of technology and other shifts in the supply chain ecosystem is shifting the role of buyers and sellers in the industrial landscape. I offer these insights in the hope that they may provide a basis for future researchers to engage in research in the field of emerging industrial buyer-seller relationships, and devote this paper to the memory of Christian.

1. Introduction

In a paper that became one of the top cited papers in IMM, Christian Bechtel and I published a paper on the importance of trust between buyers and sellers in achieving supply chain agility.[1] This study advanced our thesis that creating new relational forms of governance between buyers and sellers required an increased reliance on trust, more so than contractual governance. Our empirical results suggested that to build relationships based on trust, suppliers had to demonstrate a commitment, by investing in in site-specific and human assets dedicated to the relationship. In turn, buying companies needed to be more thoughtful in how they structured and engaged in contracts to control for relative levels of dependence within the relationship.

These developments also included elements such as the degree of dependence, the level of people engaged in the relationship and the level of trust that existed between the parties. In the presence of these elements, we found that the outcome was that buyers experienced quicker and improved supply chain responsiveness, with both parties enjoying the benefits of greater volume (for the supplier) and improved performance (for the buyer).

What has changed since this paper was published? Although industrial marketing research has explored many of the important concepts behind buyer-seller relationships, have more trusting relationships been fully embraced by industrial buyers during this period? For instance, the need for greater collaboration and information sharing between industrial procurement and marketing is recognized as a critical element for supply chain integration in several literature reviews and special issues of *Industrial Marketing Management* (Ivens, Pardo, & Tunisini, 2009; Johnsen, 2018; Lindgreen, Campello, & Angell, 2016). But have practices on the part of industrial marketing and procurement really shifted along with the theoretical shifts proposed in the industrial buyer-seller literature? And a second related question is whether the rapid shifts in digital supply chains occurring within the last decade have downplayed the need for of interpersonal and trusting buyer-seller relationships in the supply chain?

In this paper, I propose that ***velocity*** has become the key performance outcome in modern supply chains. As a result of the need for quicker outcomes, there will be a need for more efficient decision-making based on real-time data. Because of these changes in the ecosystem, we propose three major shifts have permanently changed the way that industrial marketing and purchasing managers work interact, as shown in Fig. 1:

- Technology development, brought about by the massive changes in cloud computing, real-time data, social media, "big data", artificial intelligence, block chain, and smart contracts, have created a need for more frequent and quicker engagement in buyer-seller relationships. (Handfield & Linton, 2017)

* Poole College of Management, CB 7229, North Carolina State University, Raleigh, NC 27695-7229, United States of America.
E-mail address: Robert_handfield@ncsu.edu.

[1] Handfield and Bechtel (2002). The role of trust and relationship structure in improving supply chain responsiveness. Industrial Marketing Management, 31(4), 267–382.

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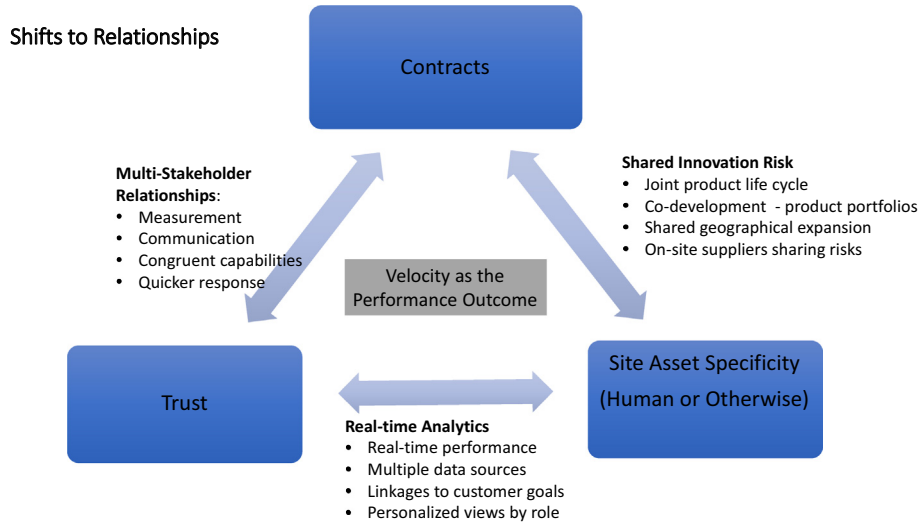

Fig. 1. Major shifts in the global supply chain relative to prior models of trust.

- The expansion of industrial buyer-seller relationships is moving beyond the interpersonal dimension, and is no longer between purchasing managers and sales agents. Although documented well in the literature, the need for cross-functional alignment today requires that data is shared in real time across multiple stakeholders, requiring governance mechanisms to promote increased alignment in defining contractual scopes of work, as well as on-going management of contractual outcomes in the face of uncertainty (Toon, Morgan, Lindgreen, Vanhamme, & Hingley, 2016; Wynstra, Weggeman, & van Weele, 2003). This is a significant change involving ways of working.
- Suppliers as a source of innovation has been well documented in prior research, but again the need for quicker time to market recognizes that shared risks and rewards must be established often in new industries and domains that do not have strong prior relationships in place. This includes not only the development and commercialization of the product, but also the product launch and life cycle management, which often involves new technology development between industrial buying and supplying parties (Handfield, Ragatz, Monczka, & Peterson, 1999; Gonzalez-Zapatero, Gonzalez-Benito, & Lannelongue, 2016).

Increasing shifts to a digital ecosystem have escalated in the last 5 years, due to major changes in the global economy and emerging technology. The explosion of data, cloud-based computing, and the rise of other forms of technological innovations have allowed organizations to access more data than ever before in real-time. Real-time data can be transmitted within 15 s or less, a fact that enables managers to understand and predict what internal users and customers will need right now (Handfield & Linton, 2017). During this same period, rapidly shifting demand and global events have led to the recognition that *response velocity* is the key ingredient for managing uncertainty in global supply chains. How have these digital technologies shifted the role of industrial marketing and procurement? I note in this paper that although the nature of buyer-seller relationships is well understood in the research, three major shifts in the ecosystem are new, and the effects on industrial marketing relationships are still unfolding. I offer some insights on how these changes may play out in the years ahead, and present a framework for exploration of these issues for future researchers.

First, the ability to disperse supply chain data rapidly has been enabled through development of technological capabilities that provide inexpensive cloud-based computing, distributed computing 'at the edge', and the growth of a digital ecosystem (Handfield & Linton, 2017). While the issue of visibility has been invoked for many years (Barratt & Adegoke, 2007), we are only now seeing the technology that makes real-time data a reality (Handfield & Linton, 2017). Even Galbraith (1974) predicted that one day the emergence of online, real-time structures producing instantaneous information would have powerful ramifications in terms of organization structures that would be needed to process this change: "Information is a source of power, and so the present power structure is threatened. Most of our attitudes and behaviors still reflect hierarchical and sequential processing of data." (p. 42, Galbraith, 1974). As such, collaboration in a velocity-driven era requires a different set of norms for managing industrial buyer-seller relationships, requiring differentiated approaches for managing event transparency, visibility material flows, and a time-defined component (Chen, Preston, & Swink, 2015; Oliveira & Handfield, 2018).

A second change is that increased response velocity will requires a new form of governance over buyer and seller relationships, which now typically consist of multiple stakeholders linked in networked supply chains. Prior industrial marketing research has established that individuals are no longer the sole decision-makers in B2B relationships, but that multiple stakeholders are playing a role (Handfield, Cousins, Lawson, & Petersen, 2015; Rinehart, Eckert, Handfield, Page, & Atkin, 2003). Supply management executives themselves recognize that they cannot operate in a void, and have begun to establish contractual performance objectives that extend to total cost models spanning multiple entities in supply chain networks. The field of supply management once had a love affair with the notion of strategic sourcing, which sought quick price reductions through volume leveraging, to the exclusion of the most important party in the supply chain: the internal customer. As this shift has occurred, procurement organizations have moved more towards a team-based approach to supply management, one in which procurement is no longer the sole decision-maker, but acts as a facilitator to lead a team-based decision, that must also convey the upsteam and downstream impacts of performance (This shift was documented in a white paper emerging from a workshop we held in 2017 of chief procurement offers and business development executives).

However, technology and governance over procurement decisions are only part of the story. The third leg of the stool is related to the reliance of large companies on new providers of digital services to drive innovation. The reliance on external suppliers for innovation has been well documented in industrial marketing research, and has occurred in conjunction due to mergers and growth in the size of Fortune 500 companies. Many of these companies have begun to shed R&D

functions, and have sought to outsource business processes that once resided within their companies (Ivens et al., 2009). Outsourcing dramatically changed the nature of buyer-seller relationships, and the role of procurement as the primary business function responsible for managing third party suppliers increased both in scope and importance (Monczka et al., 2018). The practice of servitization emerged as analytical capabilities are now considered a part of product offerings, requiring organizations to partner with new providers of "analytics as a service", who must become integrated into their value chains. In addition, industrial marketers are awakening to the fact that they are dealing with a much more powerful procurement function, that is more centralized, reports directly to the Chief Financial Officer, and has a mandate to drive total cost savings (Handfield, Choi, & Jeong, 2019; Monczka et al., 2016). As the outsourcing of product development accompanied a shift of contract manufacturing to Asia, we witnessed the emergence of "original design manufacturers" who became responsible for both designing and manufacturing goods and services (Handfield et al., 1999; Peterson, Handfield, & Ragatz, 2005). More companies in industries such as automotive, electronics, life sciences and apparel now rely on overseas suppliers as the primary source of new product development and innovation (Cousins, Lawson, Handfield, & Peterson, 2009). Many are now also relying on digital providers to supplement their supply chain capabilities and product offerings. (An excellent example is the entry of Google and other parties developing automated vehicle technology in Detroit). Yet much of the research on buyer-seller relationships assumes reliance on established models of supplier-led innovation, that may not apply in this new context.

To explore the shift in buyer-seller relationships in light of these issues, I begin by revisiting the components of the relationship model that was explored in our paper published in *Industrial Marketing Management* in 2002, and consider them in light of the three shifts identified here: 1) digital transformation and the rise of big data analytics, 2) the shift in governance models within the procurement function in industry, and 3) outsourcing of product innovation and production capabilities to global suppliers, In reviewing these shifts I will highlight prior research in industrial marketing, and augment these findings in light of recent industry interviews conducted at an executive roundtable in 2017.

2. Handfield and Bechtel (2002): revisiting the ties that bind in industrial buyer-seller relationships

In an effort to better understand this issue, North Carolina State University's Supply Chain Resource Cooperative held a one-day executive summit, to discuss these issues in an open forum. We invited eight procurement executives from oil and gas, electronics, business services, industrial manufacturing, chemicals, and healthcare industries, and brought them in to meet with five sales executives from a large third-party logistics provider. In this forum, we asked executives to respond to several gaps identified between sales and procurement executives that typically occur, and transcribed all of the comments made in the ensuing debates and discussions that occurred. These notes were coded and incorporated into the exploration of issues and predictions proposed in this paper. Both groups shared their internal tools and mindsets around customer/supplier relationships, key issues that define strategic relationships, the effective use of performance measurement, and the types of disagreements that occur around contract negotiations. The outcomes provide a compelling picture of the great misunderstandings and myths that often exist in both sales executives and procurement executives as they approach one another, and served as the catalyst for this paper.

Our work in 2002 noted that buyers and sellers are indeed bound by a number of different factors that constituted the "ties" that bind industrial relationships. After 30 years of teaching, research, and consulting in the field of supply chain, I still believe these three elements are the foundation of buyer-seller relationships. In Fig. 1, I have shown the three foundational components explored in the Handfield and Bechtel (2002) publication in IMM. In general, we proposed that a tight relationship exists between buyers and sellers, that are defined by investments in human and site-specific assets, contractual engagements, and trust. These three components form the glue that binds relationships, producing value in the form of increased responsiveness. As noted in the introduction, these concepts are still very much in play in today's global environment. However, with the shifts in globalization, technology, and the changing nature of buyer-seller relationships, we believe it is also high time that these relationships be explored in a new context. What has changed? In short, we introduce the primary performance parameter emerging in the new ecosystem is *velocity*, and propose how this measure creates the need for different modes of relationship management among buyers and sellers:

- ***Real-time analytics*** define the relationship between trust and asset performance
- ***Multi-stakeholder governance models*** supported by analytics are used to establish trust, with "smart" contracts also supporting this linkage
- ***Shared innovation risks*** must be assessed to manage asset mobilization and intellectual property contractual guidelines, as relationships will be key to success in this medium.

3. Velocity as the new performance outcome measure

In our 2002 article, we noted that "responsiveness" was a key outcome measure sought from closer buyer-seller relationships. In today's rapidly shifting environment, we propose that a similar measure, Velocity, is a better descriptor for the benefits of improved relationships, as it refers to multiple attributes of the B2B relationship (Handfield & Linton, 2017). From a financial perspective, velocity is the ability of an organization to flow working capital rapidly from suppliers through to end customers, and to generate free cash flow. Working capital generally takes the form of inventory, an asset that doesn't produce any revenue or cash. Thus, a key benefit of faster decision-making is the ability to hold less inventory, and generate more free cash. Supply chains that operate in "real-time" decision-making mode use velocity capabilities in multiple ways that impact business processes, which goes beyond generating greater free cash flow (Handfield & Linton, 2017). Real-time data in the supply chain produces faster management responses in:

- Determining the volume and mix of product to schedule for delivery;
- Scheduling incoming material and communicating with suppliers;
- Updating forecasts of products that customers want
- Establishing the time and modes of efficient, responsive transportation providers,
- Planning and scheduling personnel in distribution and warehouse operations,
- Establishing how to move product through global logistics systems more efficiently and using which modes;
- Scaling up production of new products quickly that are "hot" in the market;
- Communicating instantaneously with personnel who must make decisions related to unexpected events and disruptions that impact material flow in all roles across the supply chain (suppliers, distributors, customers).

The ability to respond to real-time data and derive supply chain performance improvements is closely linked to prior work in organizational information processing theory (OIPT). According to OIPT, an organization's information processing capabilities must be aligned with its information needs. That is, an organization must be able to gather, interpret, synthesise, and coordinate information across the organization (Burns & Wholey, 1993). Processing information in such a

Table 1
Translating Handfield and Bechtel (2002) in light of real-time shifts.

Hypotheses	Empirical relationship	SHIFT: technologies and real-time analytics	Predictions /possible impacts
Buyer Dependence → Formal contracts, trust Responsiveness	+* n.s. -**	• Real-time data requires joint technology investments and contractual commitments	• Creation of meaningful analytics requires alignment and trust
Formal contracts → trust	n.s.	• Emergence of block chains and smart contracts linking events to contract contingencies	• Block chains become an enabler for trust and role of smart contracts may increase
Site specific assets → trust Human assets	+* +**	• Outsourcing has reduced interpersonal collaboration • Real-time analytics allow all parties to see what is happening	• Buyer-seller relationship outcomes become more visible • Analytics has potential to increase communication and trust
Human assets → trust Responsiveness	n.s. n.s.	• AI, natural language processing, and big data can be quantified to speed up human decisions	• Managers will require skills in interpreting and deriving meaning from data along with their supply chain partners
Trust → responsiveness	+**	• Real-time visibility of events allows increased responsiveness	• Real-time visibility requires trust to build shared data platforms and governance mechanisms

structured and logical way reduces uncertainty and helps various decision makers develop a shared interpretation of the information (Daft & Lengel, 1986). This in turn can lead to faster decision-making.

The move towards providing data to others in the supply chain is an important component of the research on *servitization*, a business model innovation is the product of a servitization strategy, where a manufacturing firm with a product business model expands its offering into services related to its products and, as a result, shifts from the "product-only" business model to the "service-oriented"model (Cusumano, Kahl, & Suarez, 2014). This is related to the concept of emerging define "business models" (Amit & Zott, 2012), defined as a system of interconnected and interdependent activities that determines the way the company "does business" with its customers, partners, and vendors. Servitization has received growing attention within the innovation community over the recent years (Blindenbach-Driessen & Van den Ende, 2014; Ostrom et al., 2010). While often heralded as a move that creates value for the customer, there are many performance implications of the business model changes that underpin servitization (Fang, Palmatier, & Steenkamp, 2008; Martinez, Bastl, Kingston, & Evans, 2010; Suarez, Cusumano, & Kahl, 2013). Real-time visibility in supply chains is an important part of the service model being required to do business in the new ecosystem. Technology is spawning networked business models, including the demand-based view wherein companies employ various platform-systems to create value by saving time, effort, and/or investments in learning for their customers, thereby generating "economies of scope in use" (Ye, Priem, & Alshwer, 2012). However, as noted by Visnjic, Weingarten, and Neely (2016), the performance impact of servitization is not yet well-defined. This was stated succinctly by a senior executive in our workshop from a global third-party logistics provider, "After we invest all this capital in real-time data, customers then expect to receive it for free. There is no good ROI measure of how much market share we capture, it is simply now a part of being in business!"

The opposite of visibility is opaqueness, or the absence of visibility on what is happening in an organization's upstream and downstream networks. When individuals have visibility to events that enable decision-making velocity, minor problems and disruptions are resolved more quickly and easily before they escalate into bigger problems (Craighead, Blackhurst, Rungtusanatham, & Handfield, 2007). Examples of visibility include demand visibility, market visibility, and supply visibility (Chen et al., 2015; Williams, Roh, Tokar, & Swink, 2013). Speed of decision-making increases not just the flow of information, but also the flow of materials, shipments, production, and all activities in the chain. A metaphor is that of reducing friction, which increases flow, where friction includes all of the typical delays and problems that slow material flows and increase inventory. Examples include the multiple layers of approvals for purchase orders, delays in decisions when a forecast deviation occurs, or the lack of response when a major disruption shuts down shipments to customers. Friction can produce bottlenecks in production systems and shipments, which delays material and causes inventory to build up or shortages to occur (Handfield & Linton, 2017). Examples include the Tianjin explosion, the tsunami in Japan, and the port closure in Los Angeles.

These principles are not new. Many of the concepts around 'lean production systems' and JIT have emphasized flow and visibility for decades. For instance, Li, Chung, Goldsby, and Holsapple (2008) maintain that demand information sharing and visibility enable improved supply chain responsiveness, alerting executives to opportunities and challenges in the extended supply chain (Dove, 2005; Holsapple & Kiku, 2005). But the emergence of real-time information that enables the instantaneous visibility of assets across multiple tiers in supply chains has only been realized in the last two years (Handfield & Linton, 2017). Real-time data is enabled by the emergence of cloud computing and mobile devices, which creates 'big data' technology platforms that process higher volumes of internal and external data from multiple sources (Chen et al., 2015).

As buyer-seller relationships and the link to increased velocity for decision-making across not only the internal enterprise, but the extended enterprise which includes buyers and sellers? What are the relational components and inter-personal changes that must occur, to ensure that a higher volume of real-time data has a meaningful improvement in performance velocity? These questions are explored and shown in the context of our original model shown in Tables 1 and 2.

Are these shifts unique to a specific industry? The shifts identified in the book "The LIVING Supply Chain" are taking place across a diverse set of 12 industrial verticals, that are all being impacted by the move to real-time supply chain analytics. There is evidence to suggest that some industries are adopting more quickly to the new demands than others. For example, automotive, electronics, and technology are moving much more quickly in adopting the move to analytics, whereas oil and gas, utilities, healthcare and life sciences are traditionally much slower to adopt the new technological shifts (Chick & Handfield, 2014).

4. Shift 1: technologies that share data through real-time analytics

In the 2002 study, we recognized the important relationship between trust and asset specificity. Specifically, we noted that trust occurs through more frequent interaction, as well as assets invested by the seller to the site. In our 2002 study, which is also the case today, the use of long contractual agreements is rarely going to increase trust in a relationship. Instead, an important proxy for creation of trust in the new management environment is the sharing of real-time analytics, using data as the new asset. Technology has emerged to the point where electronic communication can now occur in real-time, and also through

Table 2
Translating Handfield and Bechtel (2002) in context of stakeholder shifts.

Hypotheses	Empirical relationship	SHIFT: multi-stakeholder relationships	Predictions/possible impacts
Buyer dependence → formal contracts, Trust Responsiveness	+* n.s. -**	• Sellers are interested in working with "customers of choice" • Buyers are relying more on centralized procurement teams	• Multi-stakeholder performance reviews will become more important • Decision-making will rely on a broader set of metrics
Formal contracts → trust	n.s.	• Supplier scorecards will be used to assess information in quarterly reviews	• Supplier scorecards will reflect real-time outcomes • Performance outcomes will be linked to contract contingencies electronically
Site specific assets → trust Human assets	+* +**	• Supply base segmentation will define supplier roles • Buyers moving towards local suppliers in a global market	• Sellers will need to manage multiple stakeholder needs • Centralized and decentralized governance will be needed
Human assets → trust Responsiveness Trust → responsiveness	n.s. n.s. +**	• Shifting roles of procurement and sales in different stages of the relationships • Trust remains the glue of relationships • Partners must also establish aligned metrics that drive mutual value	• Sales will need to adjust their approach based on the internal dynamics of buyers organization • Sellers have an opportunity to leverage their data to embed customer relationships

multiple channels, including social media, internet of things, and in the future, block chains and smart contracts. Each of these developments will have profound effects on how data is exchanged, which allows greater visibility, and in turn, creates greater trust as both parties are aware of how the other is responding to shifts in the supply chain ecosystem. The emergence of real-time analytics will have profound and unknown impacts on buyer-seller relationships, as the ability to see what is happening in real time will change the dynamics of inter-firm relationships, as shown in Table 1.

4.1. Buyer dependence

Blind trust is no longer something that organizations function with, and although the internet has expanded the number of suppliers that buyers can work with, embedded analytics and real-time data can act to improve tighter relationships between buyers and sellers. As organizational analytics have become more mainstream, managers are now relying much more on real-time performance analytics to monitor supply chain performance. Sales personnel may also conduct quarterly business reviews with their clients, but must be prepared to deal with the fact that stakeholders will not want to wait to be informed of performance (Krause, Handfield, & Tyler, 2007). In fact, a recent executive noted that managers want to "push a button to see performance", and aren't willing to wait until the end of the quarter. Buyers and sellers will need to think about how to create inter-organizational performance analytics on-demand.

4.2. Contracts

Although the relationship between contracts and trust was not significant in our prior study, we may yet see a day when block chains, connected through an Internet of Things sensing system, may be tied to "smart contracts" that link specific events to contractual requirements (Handfield & Linton, 2017).

4.3. Site-specific and human-specific assets

Our prior study found that site-specific assets and human assets were important predictors of trust and responsiveness in relationships (Handfield & Bechtel, 2002; Krause et al., 2007). As organizations roll-out real-time analytics, real-time data on current inventory levels, demand forecasts, price shifts, and actual order data can facilitate tighter communication links between buyers and sellers, and over time, embedded analytics can help to also drive the longevity of the relationship. This may help to avoid having to re-bid the contract every three years or at its termination, as the business case for renewal can be generated if the performance is tracked over time. The capability to create a real-time supply chain agility relies on the aligned combination of data visibility, effective data integration and reporting, information sharing and collaborative processes (Frohlich & Westbrook, 2001; Schoenherr & Swink, 2012). Material velocity benefits accrue through 'real-time data visibility', defined as the relative transparency of events, material, and flows to all key decision-makers in the extended supply chain. This definition also extends the requirement that real-time data must be of 'high quality', meaning it is accurate, timely, complete, and in usable forms (Williams et al., 2013). Achieving a high level of real-time visibility requires the acquisition of multiple types of high quality supply chain information, which can be classified as either market-level or partner-level information types (Chen et al., 2015). The ability of an organization to derive reliable information about demand and supply conditions allows decision-makers to mitigate uncertainty and anticipate change, enabling improved responsiveness (Reichhart & Holweg, 2007). But this in turn assumes that individuals can 'trust' the data, which is a function of the supply chain's data quality (Pierce, Yonke, & Ahmed, 2016).

4.4. Trust and responsiveness

A prior study found an important linkage between trust and responsiveness. In the current environment, we propose that real-time visibility may help create a basis for trust, but will not completely replace the importance of "face to face" quarterly business reviews (QBR's) between buyers and sellers. Procurement executives who participated in our roundtable event emphasized that they believe QBR's are an important part of the buyer-seller relationship, and believe that procurement should lead the team, set up the timing of these reviews, invite the key participants, and follow-up on the outcomes of the reviews. As such, it is important that key business stakeholders from the customer participate, and that the business development lead for the relationship also be involved. Typically, customer business representatives will be involved in scoring the evaluations for Cost, Service, Quality/Safety, Innovation, and Contract Compliance. Data collection to "feed" the scorecard may be collected through operational systems outputs, internal satisfaction surveys, external performance metrics, or other analytics sources. The extent to which the business stakeholder is involved in QBR's is a function of how mature the procurement organization is, and reflects the extent to which the right people are engaged and attending.

4.5. Dependence and data

In our prior study, we found that buyer dependence led to increased

use of contracts, trust, and responsiveness. In an emerging digital environment, we believe that dependence is also a factor, in that sellers can offer access to real-time analytics as a component of the relationship, offering access to data across multiple-stakeholders, not just the business owner or the procurement manager. In this discussion, it is important to differentiate between real-time information technology, and real-time visibility. The difference lies in the degree of control over the information, and the extent to which the enterprise allows multiple tiers of individuals in the supply chain to view and react to real-time data. An organization may invest in real-time technology, but exert tight control over its dispersion. In fact, many organizations have invested in very tightly controlled systems called 'control towers' (Handfield & Linton, 2017) that restrict access to real-time data. In a control tower, information from all of an organization's logistics systems, production facilities, inbound shipments, outbound shipments, and inventory levels are dumped into a massive data warehouse (Bentz, 2014). The information is then centralized into a 'control tower', where individuals are scanning unfolding events, and senior executives render decisions, sometimes aided by complicated algorithms and automated ordering systems.

The fundamental assumption behind control towers is that senior executives removed from the day-to-day have the best knowledge of how to optimize the entire supply chain, because they are the only ones who have access to all of the data. Much of the data is 'integrated' (e.g., lumped together) from ERP systems, transportation management systems (TMS's), warehouse management systems (WMS's), distribution requirement systems (DRPs) and material requirement planning systems (MRP's). Because many of these systems are in a 'batch mode', meaning they are updated on a weekly, or perhaps daily basis, the information being viewed in the control tower is always lagging. As a result, decision-makers in the control tower are making decisions based on what happened a few days ago, and are determining what to do next based on what they think will happen next. Some may refer to this as 'real-time visibility', but it is not, as it is limited by the capability of the systems to generate data as events occur.

The importance of data as a critical asset, and the ownership of data, will become a central point on which buyer-seller relationships will be constructed. In an outsourced world, sellers will often be the ones managing the customers performance data, including demand information, customer preferences, forecasts, unmet needs, inventory velocity, and a host of other data. These data can eventually become the basis for new analytic products, that may be sold as a service to customers, and which also can become a vehicle to cement and sustain long-term relationships between buyers and sellers. Indeed, I believe that analytics generated from prior transactions will also yield important performance metrics, that may be tied to "smart contracts", and which are viewed and managed in real-time. Thresholds on performance may be established, whereby quarterly review meetings may not be necessary, facilitated instead by real-time data views. Sales teams will not have to set about preparing a set of powerpoint presentations summarizing key data outcomes based on the last quarters' performance. Instead, real-time views of performance data, coalesced from multiple sources including Internet of Things sensors, distributed computing, real-time feeds from diverse systems, and social media may be integrated into singular views of customer performance.

Control-towers embody the 'old' themes of 'supply chain integration': batch processing, information updates, 'control-tower' thinking where only some people see the information, and decisions requiring signoffs by senior executives. The opposite of a control tower is a 'data democracy', wherein all members of the supply chain can simultaneously gain access to the same information on related events. This is particularly true for sustaining customer-supplier relationships, where embedded analytics will become the foundation for reviewing performance outcomes, and identifying opportunities for improved collaboration and innovation. Our review of the research literature reveals a dearth of information that describes how organizations are combining mobile computing and system-wide supply chain analytics to derive real-time, data democracy capabilities across extended supply chain (Handfield & Linton, 2017; Oliveira & Handfield, 2018). This phenomenon is so new (e.g. Flex installed its real-time Pulse Centre in 2016) that the research literature has not yet caught up with current events (Handfield & Linton, 2017).

An executive at a large contract manufacturer we interviewed stated this as follows:

> "Real time supply chains are the anti-control tower. 'Think about visibility in the context of driving your car. If you are watching your speedometer, you don't want information on your vehicle's velocity from a week ago, an hour ago, or even a minute ago! You want to know how fast you are moving right now!' The same principle applies to the supply chain. To make informed decisions based on insight pulled from data, we need the data to be as fresh and as current as possible!"

As one looks to the future, the value of Big Data, and the ability to control dimensions of the end to end supply chain, its structure, and future business models in demand-supply systems will radically change. Whoever controls buyer-seller data may have the greatest influence on the structure of business models in the demand-supply systems (ecosystems), including the impact on current roles, power positions, value-creation, and value capture. A good example of such a power play is by large third-party logistics providers, who are moving to become "Fourth party logistics providers", also called a "Lead Logistics Provider", suggesting that they would be capable of capturing and managing data from multiple providers, and able to provide a single integrating mechanism to manage all entities on behalf of the primary customer. Current shifts in technology, macroeconomic trends, increased operational constraints crossing borders, and customer-driven service has inspired some companies to create supply chain innovation divisions, tasked with helping to identify approaches to the evolution of supply chain outsourcing. All parties recognize that central focus of being an LLP is on managing big data in real time to produce actionable analytics. For instance, a recent study conducted by several academics and consultants in Germany of Fourth Party Logistics Provider services (Schramm, Czaja, Dittrich, & Mentschel, 2019) reveals several important trends, based on a panel of experts and an online questionnaire. The results suggest that:

- Current 4PL solutions focus on transport management and 3PL selection, focusing on service audits, customs management, and ensuring that logistics operations run smoothly.
- There is no "standard" 4PL service offering except for basic transport and logistics management services. Future 4PL services will be specifically targeted at the client's needs with different degrees of responsibility given to 4PL's.
- There is a move towards 4PL's providing an IT platform as part of their service. It doesn't appear to matter if the 4PL establishes and hosts the platform, or sources it from an external IT Provider and supervises operations.
- The most important function of 4PL's will be managing internal integration and end to end solutions. Such integration is the key foundation for providing further 4PL services related to data analysis.
- Value-added analytics services will be important in addition to monitoring activities.
- Partnerships between 4PL's and their clients are transferring from operational to closer strategic relationships. Managing a partnership through trust and transparency will be critical.
- A clear predictor of 4PL provider success is their ability to adapt digital technologies and transfer the advantages to their client's business.

As more organizations recognize that logistics is not their strong

suit, they will be seeking reliable, trustworthy partners that can operate their logistics network for them. They will expect a strong suite of IT capabilities to be provided, even if these are not yet developed or available in the market. These types of engagements, however, have the potential to create game-changing capabilities in the market if effectively tied to client's business strategy and objectives. In light of these insights, we offer the following proposition that seems to suggest a shift that may occur through the emergence of digitization and real-time technologies:

Proposition 1. Emergence of real-time digital analytics will produce supply chain services that will manage end to end integration, to drive improved understanding of events in the supply chain, and drive greater collaborative behaviour across multiple tiers in the ecosystem. In such relationships, trust will be important, but may involve multiple buyers and sellers from different stages of the supply chain, not just a single link.

Because of the novelty of real-time supply chain technology, research has yet to provide evidence on who will set the standards for sharing data across multiple tiers. We found few empirical studies supporting the application of real-time data in improving supply chain outcomes to date. Current research on real-time supply chains hint at the emerging capabilities of being able to access large pools of 'big data' (Chen et al., 2015; Gandomi & Murtaza, 2015; Geisler, Quix, Weber, & Jarke, 2016) supply chain analytics (Acito & Khatri, 2014; Chen, Roger, Chiang, & Storey, 2012), and the application of real-time data in control tower settings (Bentz, 2014). Future research is needed to better understand how technologies will shift behaviors in buyer-seller relationships. The digital era will also create another shift: the move towards multiple stakeholders, not only within bi-lateral relationships, but across multiple organizations.

5. Shift 2: buyer-seller relationships are owned by multiple stakeholders

The relationship between sales and procurement has always been a contentious one, and since 2002, the introduction of greater competition and transparency through the Internet has made this even more competitive. Coupled with the emphasis on greater global competition, the relationship between buyers and sellers may often be considered under greater pressure and tension. The issue at the core of this tension is the concept of value recognition.

The 'cross-functional management of buyer-supplier relationships' has been evolving since the JIT and multi-tier supplier movement from the 1990's and has been driven further by the emergence of enabling technologies (flexible manufacturing, internet enabled interfaces, etc.) and economic pressure (Monczka, Handfield, Giunipero, & Patterson, 2018; Rinehart et al., 2003). The latter relates to the increasing complexity and systemic character of the end offerings (product & service packages) leading to increased cost, which drives increased supplier collaboration and to entire systems outsourcing (Ahuja, 2000; Chen, Paulraj, & Lado, 2004). This long-term evolution has resulted in new forms of ecosystems, including the emergence of OEMs and special service providers. The latter changes have been driving our third proposed shift (supplier engagement in new product development) for over two-decades especially in the electronics and automotive fields. In fact, contract manufacturing organizations have evolved to become "original design manufacturers", where the design, commercialization, and production of new products is outsourced entirely to a third party. At some of these contract manufacturers, the customer selling the product will have their brand on it, but may never touch or design the product at all (Handfield & Linton, 2017).

The nature of increased cross-functional decision-making has been researched extensively in the marketing literature. The original work by Webster and Wind (1972) and Sheth (1973) presented a general model for understanding organizational buying behavior, which led to hundreds of conceptual and empirical articles. The authors identified the buying cycle, as well as the situational influences that would occur in this cycle, including issues such as physical, political, economic, suppliers, technological, legal, cultural, global, group characteristics, and informational characteristics. Role stress and role conflict were also identified as important later (Vyas & Woodside, 1984). Later work by Campbell and Cunningham (1985) identified the important cross-functional roles, including specifiers, buyers, users, sanctioners, and gatekeepers. It is interesting that in current industrial selling models, however, we observed in our workshop that marketers displayed a singular lack of understanding about how purchasing made its decisions in a centralized model, whilst purchasing were also often unaware of how sellers employed pipeline management and selling models to target decision-makers. This is not inconsistent with Campbell and Cunningham's observation that resources are often deployed in relation to the economic importance of customers, and interpersonal relationships, but seem to ignore the impact of the governance, and context of purchasing decision-making in the focal firm. For example, one seller noted that "I had no idea that purchasing is segmenting us in this way." And a purchasing manager observed that "I had no idea that marketing would not respond to every RFP we put out there."

5.1. Buyer dependence

The movement towards tighter integration in supply chains will likely increase the dependence of buyers on suppliers, which will make management of these relationships more complicated for sellers in a multi-stakeholder world. No longer is it acceptable to only work with the local business representative, and the roles identified in the early work by Campbell and Cunningham and others has changed significantly. The new face of procurement recognizes a new set of value drivers that go beyond cost savings: understanding internal customer requirements, and codifying these requirements into a coherent statement of need that can be understood by the external supply market (Handfield et al., 2015; Chick & Handfield, 2014). A framework known as "*congruent capability*" was introduced by Handfield et al. (2015) as it enables procurement to link internal and external stakeholders that are mutually dependent on one another, imposing a buyer-centric rather than a seller-centric perspective of the relationship. Congruent capability is what an executive we interviewed was referring to when he identified the ideal of creating a 'virtual integrated company' where "… the existence of suppliers is an explicit outcome of a strategic decision to buy versus make. Implicit in this decision is the question of whether an organization is willing to manage the standards, discipline, execution, fixed capital investments, etc. of the 'make' decision, versus the sourcing, negotiation, contracting, and supplier signals associated with the 'buy' decision." As the primary boundary-spanning interface between the internal and external domains of the enterprise, purchasing has an exclusive mandate to ensure congruency in performance outcomes between the stakeholder's expectations and the suppliers resulting performance.

The types of congruent contributions that procurement is capable of providing include product innovation and technology development (Handfield et al., 1999), knowledge sharing and new process capability development (Dyer & Nobeoka, 2000), multi-tier supplier integration (Choi & Yunsook, 2002), mitigation of supplier risk (Ellis, Shockley, & Henrey, 2011), supplier performance improvement and capability augmentation (Krause & Scannell, 2002; Krause, Scannell, & Calantone, 2000), supplier financial disruption avoidance (Wagner, Bode, & Koznol, 2009), and sustainable supply chain improvements (Wieland & Handfield, 2013). Supply management leaders are unanimous in their call for an evolutionary approach to procurement transformation, through the improved alignment of internal stakeholder requirements with an emerging and growing global supply base (Handfield, 2013; Monczka et al., 2018; Kotabe, Martin, & Domoto, 2003; Chen et al., 2004). In addition, there have been significant shifts in the governance

structure for buying situations. The nature of cross-functional teams is no longer as simple as it once was, as noted by Johnston and Lewin (1996). In fact, procurement has moved to the use of category management teams, whereby global requirements are often specified after significant supply market research, global stakeholder and leveraging models, sophisticated total cost of ownership calculations, risk management practices, and shifting supplier evaluation models that account for these changes (Cousins et al., 2009; Craighead et al., 2007; Krause et al., 2007; Oliveira & Handfield, 2018). The nature of these decisions is also impacted more and more by global economics, such as the shifting nature of trade determined by tariffs imposed by the Trump Administration in 2018–2019. Entire supply chains are being redesigned, based on these global economic shifts, which go beyond the influence of interpersonal relationships.

5.2. Contract governance will become more complex

Despite the hundreds of articles discussing how buyers and sellers are becoming more integrated ((Johnston & Lewin, 1996), our workshop reveals that bi-lateral arms-length relationships are still the norm, even for sectors that are considered "strategic" and involve digital innovation. Sales account managers accuse procurement of being purely price focused, and not recognizing the value of emerging digital solutions. Procurement executives on the other hand complain that sales account managers are always trying to "work around them" to communicate directly engineering, operations, clinicians, or other business stakeholders. "Sales people are always trying to raise prices and 'design themselves in' to our organization, without being competitively tendered." But sales people complain that procurement "does not recognize the value we bring to the business, in terms of quality, service, and reducing the total cost of ownership!" In the emerging landscape of digital technology development, contract negotiation will become more complex, and business models and managerial thinking need to adopt to these conditions.

The bulk of marketing and procurement research since 2002 assume that value-driven relationships have become the norm. A good deal of research in procurement maintains that managers have become more "strategic" in nature. Since the original work by Kraljic (1983) on supplier segmentation, influential papers have included research on supply base segmentation (Olsen & Ellram, 1997), as well as classification of customers for industrial marketers using a variety of frameworks (Cousins & Spekman, 2003; Krapfel, Salmond, & Spekman, 1991; Park, Shin, Chang, & Park, 2010). On the other hand, procurement has also recognized that they need to better understand who their suppliers are, as this has often not been an area where sophisticated analysis has been done. Today there is more focus on improving supply market intelligence (Chick and Handfield, 2016), and more effective communication of this intelligence to other parties in the firm (Handfield et al., 2016). To some extent, an increased focus on supply base risk has driven this need for intelligence data collection, as supplier disruptions often have significant impacts on buying company operations (Choi & Yunsook, 2002; Craighead et al., 2007).

Industrial marketers will need to think differently, in terms of identifying new approaches to employ digital technologies to reduce end to end supply chain costs for multiple upstream and downstream partners. This is especially true when it comes to the category of innovation. About 20% of innovation ideas are cost related, but this level may not be properly connected into the true sources of business value. In addition, less than 15% of innovation ideas are ever properly resourced and brought to fulfillment. This is because in most cases the ROI is greater than 6 months. A longer contract planning horizon would undoubtedly translate into a higher proportion of cost savings ideas being adopted and implemented. This value proposition clearly needs to go beyond the level of procurement, and engage the business in both service-level and cost-related performance improvement ideas. One sales executive noted:

"We are losing value opportunities by not focusing on the total cost of ownership outcomes of service improvement. Cost is a procurement conversation, and sales team are often not equipped to have this conversation as they focus more on operational issues. We don't recognize what different people want in terms of total cost performance and it may be an opportunity for us to drive an important source of value."

The implication is that sales should be educated and trained in the application of Total Cost of Ownership (TCO), as a means to influence both procurement and business stakeholders in their customers of the potential savings from operational improvements. Some of the issues associated with selling through a TCO model might include the following:

- How do we monetize value from supply chain performance improvements?
- How do we quantify in dollars the performance value we are creating and improving on using the current state as a baseline?
- How do we aggregate such savings across our volume of product as well as labor productivity, across multiple tiers of customers?
- How do we highlight the financial impacts on working capital, free cash flow, inventory, and other balance sheet items that are a function of increased velocity and access to analytics?
- What are the primary financial indicators (ROCE, free cash flow, etc.) that drives supply chain velocity, and how are we addressing those?

Increasing value has been shown to lead to improved customer satisfaction, commitment, and trust, which in turns leads to relationship continuity (Ulaga & Eggert, 2006). Differentiation in business relationships is a key component of value (Ulaga & Eggert, 2006), but in the context of the digital transformation of the economy, new forms of differentiation will become important. Buyers will need to establish increasing physical and digital linkages with their suppliers, that ensure they can maintain an essential position in the supply chain network. This may mean that suppliers too will need to segment their customers, and target those with whom they need to target and segment their asset investments around. Complex partnering targeted at generating innovative new digital system solutions through a joint value creation process will be different than before. These projects are often future oriented, and there is no market for a priori assessment of the economic value of the inputs of any supplier (Möller & Svahn, 2006; Möller & Törrönen, 2003).

We propose that the following characteristics will need to be considered in targeting industrial marketer's effort to focus on certain suppliers.

- **Account Size** – Ideally, larger accounts will provide increased opportunities for digital integration and growth. Note that the size of the account may not all currently be under a single provider, but should consider the potential for consolidation of multiple components of the network (transportation, warehouse, brokering, inbound/outbound, etc.) that would benefit from a single integrated provider solution.
- **Account Complexity** – Digital integration is ideally suited for a large network, which is often globally spread out, and which presents opportunities for consolidation, global solution partnerships, and brokering solutions.
- **Key Performance Attributes** – Target customers will understand the value of a Total Cost of Ownership solution that presents itself as an opportunity to optimize across the network, not just within the four walls of the distribution center or warehouse. Customers will understand the goal of reducing working capital and maximizing free cashflow. Some customers may also have high capital intensity operations (e.g. semiconductors, capacitated manufacturing operations requiring maintenance, specialized FDA compliance requirements, etc.) and understand the value of keeping equipment and

facilities up and running, rather than a low-cost solution which slows down valuable capital operations.

- **Maturity/Influence of Customer Procurement/SCM** – It is not evident that business stakeholders are not the key decision-makers in many organizations, so business development will need to consider the role of procurement/SCM. Even in decentralized businesses, procurement may lead category management teams that may have a high level of influence on the decision. It is important for business development executives to understand changes in senior leadership in procurement, along two dimensions. First, is procurement likely to understand the importance of adopting a Total Cost approach to awarding the business? In other words, is this a mature procurement function that is not simply going to run an RFQ and award the business to the lowest cost provider on a per unit basis? Second, does procurement have a strong or weak influence on the business? Ideally, procurement would have a strong basis for awarding the business based on both a high understanding of the total cost, and a high degree of influence on the decision. In such circumstances, the supplier is more likely to be successful.
- **Relationship Characteristics** – Targeted customers will have a strong relationship with the supplier, extending several years into the past. Trust is an important component of success in targeting customers, as there are already many barriers that exist in the minds of customers relative to the feasibility of the approach discussed here (Möller & Törrönen, 2003). Because many of these shifts are so new, suppliers will need to pilot with customers who are willing to take on a higher level of risk with this new concept, and be willing to explore how to operate with them in this new mode of business.
- **Analytics Potential** – Establishing "Analytics As a Service" implies that analytical capabilities will need to be extended beyond the traditional service-level KPI's associated with third party outsourcing operations. In addition to prescriptive capabilities operations that may increase efficiency, analytics will need to be developed that provide tangible opportunities for improving end to end network performance. This in turn will require buy-in from the customer.

Many of these issues can be addressed by establishing the proper agenda for Quarterly Business Reviews (QBR's) ahead of time. The agenda should span an overall business view, but also address performance and cost. An "ideal" agenda that was highlighted by a procurement executive at our meeting was described below.

"At ___, we only hold QBR's with our top 20 suppliers. Below the top 20, there was a six month or annual review held with suppliers. But the format of the meeting with the top 20 wad the same every time, and we had a timekeeper to ensure that we didn't go past the two hour meeting timeframe for each QBR.

- State of the Union – what is happening in the business?
- Where have we been - an in-depth review of each dimension of performance in the scorecard, and clarification of where deficiencies are. (30 min)
- What can we do better? What are the specific actions that need to be taken to address deficiencies in the next quarter (30 min)
- Where are we going and where are you taking us? What types of innovation and suggestions can we consider to drive not only savings but improved performance? This might include topics such as value analysis, value engineering, productivity improvements, etc. (30 min)

In some cases, the review of performance scorecards can produce important insights into deficiencies and assumptions regarding performance that are misaligned, and identify future areas for value creation using digital innovation and technology. Data and analytics can drive root-cause analysis, precriptive actions, and predictive modeling for how to prepare for the quarter and year ahead.

5.3. Site specificity and human assets drive trust…But there is a limit

Our paper supports the extensive research noting that suppliers need to dedicate limited resources to customer relationships based on the return on these investments (Webster and Wind (1972) and Sheth (1973)). With the unfolding of multi-tier integrated business models, organizations will need to recognize that they cannot approach every customer in the spirit of partnership. For instance, automotive and oil and gas companies we met with have downsized their supply bases, but are now questioning whether their new tier 1 suppliers have the required capabilities to manage the newly formed tier 2 suppliers. Sales executives may need to become more aware of their position in the supply chain, and how they impact both upstream and downstream parties. A senior sales executive recognized this and noted that "Sales is trained to over-sell at the expense of the buy. Buyer have to be on high alert with sales people, as they need to be far less relationship-based, and more value based."

Unfortunately, it also apparent from our limited sample of buyers and sellers in our roundtable, that both procurement and sales put one another into a "box", through their segmentation analysis. Procurement uses a set of strategic segmentation tools that commonly look at a number of criteria. Procurement will generally focus on creating category or "market sector" strategy teams, that seek to create an overall strategy for a given classification of spending (e.g. castings, professional services, logistics services, insurance, etc.) The first 'cut' is to examine the business impact of the overall category and the value to be derived, in terms of importance to stakeholders and potential for savings. Next, a "supplier preference" classification attempts to target suppliers that deem the customer a "core" or "developmental" high potential target. The next segmentation looks at the level of power in the relationship, and buyers prefer to be in a position of high power to drive a relationship (Cousins & Spekman, 2003; Krapfel et al., 1991; Olsen & Ellram, 1997; Park et al., 2010). Finally, the degree to which results can be achieved are highlighted, with difficult complex, low value opportunities receiving less priority. This "filtering" process results in less than 1% of the supplier population within a market sector being a true target for closer relationship meriting performance management reviews and strategic aligned planning.

An important element to consider here is how sales goes about understanding the decision-maker in the procurement relationship. A senior procurement executive from the electronics industry noted that:

> In some cases, procurement does a purposeful job of clouding who the decision-maker is and how that decision is made. Procurement may emphasize that sales is forbidden from contacting anyone else in the organization. It is not uncommon for the RFP language to include this stipulation, with a specific list of contact people. This language exists not to prevent sales from speaking to decision-makers, but to ensure that procurement provides a fair and balanced view of the proposal to everyone in the organization. World-class procurement seeks to create transparency of a sales value proposition, and wants to promote the supplier's position to everyone in a balanced manner.

Another executive, a healthcare procurement professional, also emphasized the importance of internal stakeholder engagement.

> Sales may not be able to create the right relationship with the decision-maker to the deal. No procurement team worth its salt believes that a supplier needs to lose money to get their business. In fact, procurement is more of a facilitator, and can actually help you to sell your offering inside the business to multiple stakeholders. And I can do it faster than you can without my help. In healthcare, physicians often have decision-rights on the clinical decision, so sales used to go to them directly and forced procurement to buy it. Today we are implementing clinical category teams led by physicians that will sell across multiple hospitals, so you aren't selling it

to one physician at a time. Now we can pull it through, rather than going behind our backs and upsetting a lot of people.

Sales organizations are thus beginning to apply opportunity risk assessments, to consider whether they have a high likelihood of making the sale. This insight was very surprising to the procurement executives in the room. Only a few could comprehend the fact that sales personnel do NOT pursue every opportunity (RFQ) that came their way! There are four primary reasons why customer pursuits are halted in their tracks.

1. Limited access to the decision maker – if sales does not have an opportunity to present to the decision-maker, then they won't proceed. If a sales manager has the opportunity to make a presentation to the decision-maker (whether it is at the corporate or local level), they are almost always going to succeed. An important issue here, however, is the need to understand WHO the decision-maker is. The internal procurement-stakeholder relationship is therefore critical to understand by sales at this stage, and will thus strongly influence the outcome of the pursuit. Experienced executives note that if there are three coaches (influencers on the decision-maker) that you can speak to, than you have a good chance of success to influence the process.
2. Lack of existing relationship. This is often known as a “cold” relationship. If there is no pre-existing relationship with a customer, and no prior engagement, the odds of success are also very low. This means that an entire education process has to occur. Also, it is important to recognize the cost of change that the customer will need to go through, and evaluating whether the benefits provided by a potential change in sourcing strategy will outweigh the costs of doing so. Procurement may not even understand the value proposition, and are using the supplier as a “check in the box” to get a third quote to their RFP, in the hopes of putting more cost pressure on the incumbent supplier!
3. If the potential customer has never outsourced before, they are unlikely to understand the value proposition of a third-party logistics provider. If the decision-maker does not recognize the value statement, and doesn't understand the value provided, there is a low chance of success.
4. If the environment involves a strong incumbent, it is going to be unlikely that you will displace them. If a business development manager goes into a situation where there are multiple other suppliers in the running, then they are likely going to be viewed as a “commodity” by the customer, and there is a low likelihood of success.

In all four of these cases, however, there is an education process that must occur, and an opportunity for sales to help procurement understand the nature of the business decision they have to make. The sales team needs to offer a process and business model that presents an opportunity that will cover the cost of change. Is there enough value on the cost of change on their side? An important differentiating feature will be the analytics around total cost of ownership, as well as uplift on the revenue side. If there is no access to data to make these analytical insights, then the sales opportunity is simply not present. On the other hand, if procurement can be convinced of the business case, they will sell the idea up the chain of command.

These insights lead us to our second research proposition:

Proposition 2. Governance over buyer-seller relationships will become more complex in the presence of digital technologies, and sellers will need to differentiate their value through digital technologies to establish their location in the supply chain network. In such cases, the outcome will result in a stronger and more embedded position in the network as digital services become part of doing business in organizational relationships.

This proposition recognizes that working with multiple stakeholders will make the job of selling more challenging, as there is no long a single decision-maker. However, the end result, although it may take longer to achieve, will result in an aligned scorecard that can be employed to capture multiple stakeholder needs in the relationship. Understanding the decision-maker in the process is clearly an area that requires an in-depth assessment, as this can heavily influence the nature of whether to pursue the customer. In the past, sales would rely on internal relationships with the CEO or COO, who was the presumed decision-maker. As procurement organizations have matured and come into their own, sales reliance on C-suite relationships can occur at their own risk. In one healthcare provider, a supplier went to the CEO when turned down by procurement due to performance issues, and was promptly told that they needed to go back to procurement, who held the decision-rights! Many sales deals in logistics services are $50 M+, and these decisions are made carefully and with a great deal of due diligence. There is often a ‘tactical” element to the procurement process, especially with the advent of RFQ tools such as those in procurement systems such as SAP. These processes often result in impersonal interactions, and value-based relationships may be damaged in the process.

In mature procurement organizations, there is a common and aligned view of the supply base that is consistently communicated and emphasized in all business transactions. An example of a typical “segmentation” view of the supply base will be a tiered structure, whereby Tier 1 suppliers are viewed as strategic partners. If you are in a tier 1, you are viewed as a strategic resource, who acts as a trusted advisor to deliver business value and promote organizational objectives. There are typically only a handful of suppliers who are in this role in most organizations. Tier 2 suppliers are strategic, but do not have access to the same regular performance reviews and in-depth senior executive engagements. Tier 3 suppliers are primarily working with local business relationships, while Tier 4 are purely transactional. In terms of logistics providers, a Tier 4 is viewed as someone who provides labor and no other value.

It is important for the sales organization to understand how they are viewed by procurement in this context, as a number of assumptions on how procurement will work with you as a sales organization will follow from this perception. However, it is also important for the sales organization to recognize how procurement views them as well!

The final shift is related to the increased responsibilities being accrued by sellers as a function of increased outsourcing.

6. Shift 3: increased reliance on partners for innovation

6.1. Innovation requires dependence

In the prior study by Handfield and Bechtel (2002), the model predicted that buyers who feel that they are dependent on suppliers, will likely lead to development of more formal contracts to mitigate risk, reduced levels of trust, and generally speaking deteriorating performance in supplier responsiveness. Our data suggested that more formal contracts were indeed more likely to be used, and responsiveness was also likely to decline. Since this period, several changes have led to major shifts in these proposed relationships. These changes are shown in Table 3.

It is difficult for one firm to possess all of the resources, knowledge and capabilities required to sustain existing technological capabilities, while at the same time, to build new ones (Dyer & Singh, 1998; Sarkar, Echambadi, Cavusgil, & Aulakh, 2001). Thus, sharing “breakthrough” knowledge with their supply base provides an opportunity to enable supply chain partners to help make sense out of ambiguous and uncertain information about the environment.

6.2. Human Asset specificity promotes technology development

Strong in-house technological proficiency also provides an avenue

Table 3
Handfield and Bechtel (2002) in light of shifts in product innovation.

Hypotheses	Relationship	Shift: shared risks and rewards in product innovation	Predictions/possible impacts
Buyer dependence → Formal contracts, Trust Responsiveness	+* n.s. -**	• Joint investment in new technologies is key • Technology sharing and co-development leads to greater trust	• Less reliance on contracts due to fuzzy nature of outcomes and deliverables • Project review frequency will become key
Formal contracts → Trust	n.s.	• IP and trust issues often conflict • Trust grows as a function of interpersonal familiarity, but can change with different personnel	• Establishing governance mechanisms to manage information sharing will be key
Site specific assets → Trust Human assets	+* +**	• Outsourcing to diverse regions results in cultural misunderstanding on NPD teams	• Local presence on NPD development teams will be key
Human assets → Trust Responsiveness	n.s. n.s.	• Outsourcing to diverse regions results in cultural misunderstanding on NPD teams	• Local presence on NPD development teams will be key
Trust → Responsiveness	+**	• Engineering in buyers are often adversely influenced to share information with suppliers	• Defined roles and mutual expectations for parties will become critical for success

for identifying and valuing information received from the environment. Even where the primary source of technology is external, the firm needs strong internal capabilities to evaluate the external information and to integrate it into internal operations (Cousins et al., 2006). However, as previously stated, many firms are also increasingly reliant on their suppliers to help process this information. The role of supply management in driving improvements in product development performance has received increasing attention (Handfield et al., 1999; Monczka, Handfield, Frayer, Ragatz, & Scannell, 1999; Peterson et al., 2005).

6.3. Socialization breeds trust

Successful inter-organizational product development is also dependent on the partner's ability to manage, maintain and create knowledge (Cohee, Barrows, & Handfield, 2018; Cohen & Levinthal, 1990). Socialization between the buyer and seller will become a much more important factor, and has been shown to impact both the absorptive capacity of the buyer, as well as their level of innovation (Cousins et al., 2009; Peterson et al., 2005). As innovation is often shared across firm boundaries, the investigation of how knowledge is acquired and transferred between buyer and supplier represents an important empirical question (Ahuja, 2000; Argote, McEvily, & Reagans, 2003). Inter-organizational product development requires more extensive coordination and management than traditional intra-firm development and presents its own set of unique difficulties; such as how to manage appropriation concerns and establish trust with the partner company (Bstieler, 2006; Littler, Leverick, & Bruce, 1995). In this sense, relationship commitment is a key to building inter-organizational learning agility (Carmeli, Zivan, Gomes, & Markman, 2017). Despite these additional challenges, sharing knowledge with suppliers can often help in problem solving, making design and cost trade-offs, improving manufacturability and producing a higher level of quality (Takeishi, 2001).

These insights lead us to the following proposition:

Proposition 3. Increased digitization will provide competitive opportunities for suppliers to provide digital innovation, that and differentiate value through analytics as a service in emerging business models, and create opportunities for multi-tier integration.

The need for direct engagement is one of the most important components of new product development and innovation (Chowdhury, Jayaram, & Prajogo, 2017; Monczka et al., 1999). The emerging digital environment provides an opportunity for creating value that is unparalleled in the current environment. For new customers, sales personnel have an opportunity to promote digital innovation by ensuring that they remain on the forefront of a purchasing organization's environmental scans, even if they are not a current customer. This may involve engagement in trade shows, technical presentations, and socialization mechanisms that provide a venue for procurement to learn more about what the art of the possible may be, even if the technology is not immediately applicable. Organizations are more interested in identifying partners for inclusion on their technology roadmaps (Handfield et al., 1999; Handfield et al., 2003). Cousins et al. (2009) argue that firms who actively scan their environment for breakthrough technologies will be more successful at integrating and disseminating knowledge within new product development. Knowledge management is a matter of "connecting people so they can think together" (McDermott & O'Dell, 2001: 104). While the effectiveness of the knowledge management process largely depends on how well a company manages its resources, assistance from supply managers in extending the reach of knowledge acquisition back into the supply base is a critical component for success. Intellectual capital and understanding business needs can lead to innovative digital solutions that will tie the business with data to drive improved end to end supply chain improvements. As one supply manager we interviewed stated, *"accessing the knowledge in the heads of 10,000 people in the supply base to improve your product and come up with new ideas is surely an asset worth working for*!" (Chick & Handfield, 2014).

7. Conclusions

In our prior study, we were concerned with the level to which companies established site-specific assets ensure access and facilitate relationships between buying and selling organizations. As more industries such as automotive, electronics, life sciences and apparel source from low cost countries that are distant from one another, executives are increasingly aware of the potential risks of supply chain disruption, as well as brand risks, that exist. As suppliers and customers grow closer, the need to meet more often, to work through contentious issues, has become critical in management of supply chain flows. One of the barriers that has arisen is the increasing distance between buyers and sellers, as outsourcing has continued to grow. This is particularly the case as procurement has outsourced to "Low Cost Countries" in their pursuit of lower costs.

Our updated insights on the current state of buyer-seller relationships suggest that the need for personal relationships may be on the rise. As noted in our propositions, inter-organizational relationships will require greater engagement with multiple stakeholders, and whether these occur virtually or in-person, the personalities and relationships that emerge will matter. For example, multiple teams of people may not be reviewing data in real-time, and conducting more frequent performance reviews. This may include multiple stakeholders, and may complicate the governance of these relationships as different parties need to come to a resolution on how to address different situations, when each has a different point of view on how to achieve this. The role of buyers will also increase, as they may require more frequent meetings, particularly around new product initiatives and new product rollouts. All of this will require a new type of seller, one who has strong

inter-personal and relationships management skills, and who also brings problem-solving skills to the table.

Another shift will be a new focus on the multi-enterprise supply chain as the unit of analysis, and the emergence of "lead logistics providers", a concept that has heretofore remained unexplored in the research. The emergence of a single provider with analytical insights collected from multiple enterprises, leading to a transparent and unbiased role, is one that is very much new to the research, and which causes a great deal of discomfort in many parties, will need to be address. The role of trust verified by data will become much more important in this context.

As a result of these shifts, despite the move towards digitization of supply chains, we may start to see companies move closer together. In fact, the emerging practice of "localization" is being driven by the recent wave towards increased tariffs and protectionism. Organizations are starting to realize they need to "buy where they sell, and sell where they buy", which may involve establishing local suppliers to meet local content requirements, and avoid tariffs, customs, duties, and other fines (Handfield & Linton, 2017). Long lead times are another characteristic of global sources, and this often involves establishing large inventory buffers to deal with them. In a world where speed and velocity is imperative, localization is starting to look a lot more appealing! The push towards localization thus leads us to propose that buyer-seller relationships may again be on the rise, (albeit spanning multiple parties), in an era where the benefits of true globalization are under threat.

In our prior paper in 2002, there seemed to be no relationship between contracts and trust. In fact, contracts were found to somewhat get in the way of creating trust. In the past eighteen years, we have seen a significant improvement in the ability of organizations to create improved contracts, that are able to better navigate the uncertainties that exist. One of the most important elements is that more stakeholders are involved in the contracting process upfront, as we identified in this paper. We believe that in case of joint technology development, this will also become more important, especially with the entrance of new digital providers in the supply chain who will become embedded in the physical supply chains. In tandem with procurement having more stakeholders to consider, sales should also be aware that multiple forms of value need to be produced through analytics as a service, and explore new contractual mechanisms for doing so.

In addressing this question, it is important for the sales team to be able to quantify the elements of value and in this case, educate the customer. In some cases, the procurement organization may not have a full level of understanding regarding the different forms of performance and value that a third party outsourced provider is can deliver to their business. In the evolving ecosystem that is unfolding with digital transformation, new roles for buyers and sellers will undoubtedly prove to be a rich area for future industrial marketing research.

References

Acito, F., & Khatri, V. (2014). Business analytics: Why now and what next? *Business Horizons, 57*(5), 565–570.

Ahuja, G. (2000). The duality of collaboration: Inducements and opportunities in the formation of interfirm linkages. *Strategic Management Journal, 21*, 317–343.

Amit, R., & Zott, C. (2012). Creating value through business mdel innovation. *Sloan Management Review, 53*(3), 41–49.

Argote, L., McEvily, B., & Reagans, R. (2003). Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management Science, 49*(4), 571–582.

Barratt, M., & Adegoke, O. (2007). Antecedents of supply chain visibility in retail supply chains: A resource-based theory perspective. *Journal of Operations Management, 25*(6), 1217–1233.

Bentz, B. (2014). Supply chain control towers help organizations respond to new pressures. *Supply Chain Management Review, 18*(4), 34–38 July.

Blindenbach-Driessen, F., & Van den Ende, J. (2014). The locus of innovation: The effect of a separate innovation unit on exploration, exploitation, and ambidexterity in manufacturing and service firms. *Journal of Product Innovation Management, 31*(5), 1089–1105.

Bstieler, L. (2006). Trust formation in collaborative new product development. *Journal of Product Innovation Management, 23*(1), 56–72.

Burns, L., & Wholey, D. (1993). Adoption and abandonment of matrix management programs: Effects of organizational characteristics and Interorganizational networks. *Academy of Management Journal, 36*(1), 106–138.

Campbell, N. C., & Cunningham, M. T. (1985). Managing customer relationships. The challenge of deploying scarce managerial resources. *International Journal of Research in Marketing, 2*(4), 255–262.

Carmeli, A., Zivan, I., Gomes, E., & Markman, G. (2017). Underlining micro socio-psychological mechanisms of buyer-supplier relationships: Implications for inter-organizational learning agility. *Human Resource Management Review*. https://doi.org/10.1016/j.hrmr.2016.12.002.

Chen, D., Preston, D., & Swink, M. (2015). How the use of big data analytics affects value creation in supply chain management. *Journal of Management Information Systems, 32*(4), 4–39.

Chen, H., Roger, H., Chiang, R., & Storey, V. (2012). Business intelligence and analytics: From big data to big impact. *MIS Quarterly, 36*(4), 1165–1188.

Chen, I. J., Paulraj, A., & Lado, A. (2004). Strategic purchasing, supply managmeent, and firm performance. *Journal of Operations Management, 22*, 505–523.

Chick, G., & Handfield, R. (2014). *Procurement's value proposition.* London: Kogan-Page.

Choi, T. Y., & Yunsook, H. (2002). Unveiling the structure of supply networks: Case studies in Honda, Acura, and DaimlerChrysler. *Journal of Operations Management, 20*(5), 469–493.

Chowdhury, M., Jayaram, J., & Prajogo, D. (2017). The influence of socialisation and absorptive capacity on buyer's innovation performance. *International Journal of Production Research, 55*(23), 7022–7039.

Cohee, L., Barrows, J., & Handfield, R. (2018). Early supplier integration in the U.S. defense industry. *Journal of Defense Analytics and Logistics, 3*(1), 2–28. https://www.emeraldinsight.com/eprint/HSU85JBSY7FZPMRFDD5U/full.

Cohen, J., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly, 35*, 128–152.

Cousins, P., Handfield, R., Lawson, B., & Peterson, K. (2006). Creating supply chain relational capital: the impact of formal and informal socialization processes. special issue of *Journal of Operations Management on Behavioral Research in OM, 26*, 851–864.

Cousins, P., Lawson, B., Handfield, R., & Peterson, K. (2009). Knowledge sharing in collaborative product development: The impact of formal and informal socialization rocesses. *Journal of Product Innovation Management, 26*, 156–172.

Cousins, P., & Spekman, R. (2003). Strategic supply and the management of inter- and intra-organizational relationships. *Journal of Purchasing and Supply Management, 9*(1), 19–29.

Craighead, C., Blackhurst, J., Rungtusanatham, J., & Handfield, R. (2007). The severity of supply chain disruptions: Design characteristics and mitigation capabilities. *Decision Sciences, 38*(1), 131–156.

Cusumano, M. A., Kahl, S. J., & Suarez, F. F. (2014). Services, industry evolution, and the competitive strategies of product firms. *Strategic Management Journal*. https://doi.org/10.1002/smj.2235.

Daft, R., & Lengel, R. (1986). Organizational information requirements, media richness and structural design. *Management Science, 32*(5), 554–571.

Dove, R. (2005). Agile enterprise cornerstones: Knowledge, values & response ability. *Business agility and Information Technology Diffusion, 180*(June), 313–330. https://doi.org/10.1007/b135658.

Dyer, J., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *The Academy of Management Review, 23*(4), 229–660.

Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: The Toyota case. *Strategic Management Journal, 21*(3), 345.

Ellis, S. C., Shockley, J., & Henrey, R. M. (2011). Making sense of supply disruption risk research: A conceptual framework grounded in enactment theory. *Journal of Supply Chain Management, 47*(2), 65–96.

Fang, E., Palmatier, R., & Steenkamp, J. (2008). Effect of service transition strategies on firm value. *Journal of Marketing, 72*(5), 1–14.

Frohlich, M. T., & Westbrook, R. (2001). Arcs of integration: An international study of supply chain strategies. *Journal of Operations Management, 19*(2), 185–200.

Galbraith, J. (1974). Organization design: An information processing view. *Interfaces, 4*(3), 28–36.

Gandomi, A., & Murtaza, H. (2015). Beyond the hype: Big data concepts, methods, and analytics. *International Journal of Information Management, 35*(2), 137–144.

Geisler, S., Quix, C., Weber, S., & Jarke, M. (2016). Ontology-based data quality management for data streams. *ACM Journal of Data and Information Quality, 7*(4), 1–34.

Gonzalez-Zapatero, C., Gonzalez-Benito, J., & Lannelongue, G. (2016). Antecedents of functional integration during new product development: The purchasing-marketing link. *Industrial Marketing Management, 52*, 47–59.

Handfield, R. (2013). The future of procurement. *Research Brief, KPMG Procurement Advisory Group*. Houston: KPMG International.

Handfield, R., Choi, T., & Jeong, S. (2019). Emerging procurement technology: Data analytics and cognitive analytics. *International Journal of Physical Distribution and Logistics Management*. https://doi.org/10.1108/IJPDLM-11-2017-0348.

Handfield, R., Cousins, P., Lawson, B., & Petersen, K. (2015). How can supply management really improve performance? A knowledge-based model of alignment capabilities. *Journal of Supply Chain Management, 51*(3), 3–17.

Handfield, R., & Linton, T. (2017). *The living supply chain: The imperative of operating in real-time.* New York: Wiley.

Handfield, R., Ragatz, G., Monczka, R., & Peterson, K. (1999). Involving suppliers in new product development. *California Management Review, 42*(1), 59–82.

Handfield, R., Ragatz, G., & Peterson, K. (2003). A model of supplier integration into new product development. *Journal of Product Innovation Management, 20*(4), 284–299.

Handfield, R. B., & Bechtel, C. (2002). The role of trust and relationship structure in improving supply chain responsiveness. *Industrial Marketing Management, 31*(4),

267–382.
Holsapple, C., & Kiku, J. (2005). Exploring secondary activities of the knowledge Chain. *Knowledge and Process Management, 12*(1), 3–31. https://doi.org/10.1002/kpm.219.
Ivens, V. S., Pardo, C., & Tunisini, A. (2009). Organizing and integrating marketing and purchasing in business markets. *Industrial Marketing Management, 38*, 851–856.
Johnsen, T. (2018). Purchasing and supply management in an industrial marketing perspective. *Industrial Marketing Management, 69*, 91–97.
Johnston, W., & Lewin, J. (1996). Organizational buying behavior: Toward an integrative framework. *Journal of Business Research, 35*(1), 1–15.
Kotabe, M., Martin, X., & Domoto, H. (2003). Gaining from vertical partnerships: Knowledge transfer, relationship duration, and supplier performance improvement in the U.S. and Japanese automotive industries. *Strategic Management Journal, 24*(4), 293–316.
Kraljic, P. (1983). Purchasing must become supply management. *Harvard Business Review,* 109–117 (Sept.–Oct.).
Krapfel, R., Salmond, D., & Spekman, R. (1991). A strategic approach to managing buyer-seller relationships. *European Journal of Marketing, 25*(9), 22–37.
Krause, D. R., & Scannell, T. V. (2002). Supplier development practices: Product- and service-based industry comparisons. *Journal of Supply Chain Management, 38*(2), 13–20.
Krause, D. R., Scannell, T. V., & Calantone, R. J. (2000). A structural analysis of the effectiveness of buying firms' strategies to improve supplier performance. *Decision Sciences, 31*(1), 33–55.
Krause, D., Handfield, R., & Tyler, B. (2007). The relationship between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management special issue on Organization Theory and Supply Chain Management, 25*(4), 525–548.
Li, X., Chung, C., Goldsby, T., & Holsapple, C. (2008). A unified model of supply chain agility: The work-design perspective. *International Journal of Logistics Management, 19*. https://doi.org/10.1108/09574090810919224.
Lindgreen, A., Campello, A., & Angell, R. (2016). Introduction to the special issue on co-management of purchasing and marketing. *Industrial Marketing Management, 37*(3), 292–300.
Littler, D., Leverick, F., & Bruce, M. (1995). Factors affecting the process of collaborative product development: A study of UK manufacturers of information and communications technology products. *Journal of Product Innovation Management, 12*(1), 16–32.
Martinez, V., Bastl, M., Kingston, J., & Evans, E. (2010). Challenges in transforming manufacturing organisations into product-service providers. *Journal of Manufacturing Technology Management, 21*(4), 449–469.
McDermott, R., & O'Dell, C. (2001). Overcoming cultural barriers to sharing knowledge. *Journal of Knowledge Management, 5*(1), 76–85.
Möller, K., & Svahn, S. (2006). Role of knowledge in value creation in business nets. *Journal of Management Studies, 43*(5), 985–1007.
Möller, K. K., & Törrönen, P. (2003). Business suppliers' value creation potential: A capability-based analysis. *Industrial Marketing Management, 32*(2), 109–118.
Monczka, R., Handfield, R., Frayer, D., Ragatz, G., & Scannell, T. (1999). *New product development: Strategies for supplier integration.* Milwaukee, WI: ASQ Press.
Monczka, R., Handfield, R., Giunipero, L., & Patterson, J. (2018). *Purchasing and Supply Chain Management* (7th ed.). Cincinnati, OH: Southwestern Publishing, College Division.
Oliveira, M., & Handfield, R. (2018). Analytical foundations for development of real-time supply chain capabilities. *International Journal of Production Research.* https://doi.org/10.1080/00207543.2018.1493240.
Olsen, R., & Ellram, L. (1997). A portfolio approach to supplier relationships. *Industrial Marketing Management. 26*, 101–113.
Ostrom, A. L., Bitner, M. J., Brown, S. W., Burkhard, K. A., Goul, M., Smith-Daniels, V., ... Rabinovich, E. (2010). Moving forward and making a difference: Research priorities for the science of service. *Journal of Service Research, 13*(1), 4–36.
Park, J., Shin, K., Chang, T., & Park, J. (2010). An integrative framework for supplier relationship management. *Industrial Management & Data Systems, 110*(4), 495–515. https://doi.org/10.1108/02635571011038990.
Peterson, K., Handfield, R., & Ragatz, G. (2005). Supplier integration into new product development: Coordinating product, process and supply chain design, special issue of Journal of Operations Management *on* Product. *Process Design Impacts on Supply Chain Design, 23*(4), 371–388.
Pierce, E., Yonke, L., & Ahmed, M. (2016). The state of information quality and data governance — 2016 Industry Survey & Report. https://www.iqint.org/publication/state-information-quality-data-governance-2016-industry-survey-report/.
Reichhart, A., & Holweg, M. (2007). Creating the customer-responsive supply chain: A reconciliation of concepts. *International Journal of Operations & Production Management, 27*(11), 1144–1172. https://doi.org/10.1108/01443570710830575.
Rinehart, L., Eckert, J., Handfield, R., Page, T., & Atkin, T. (2003). An assessment of supplier-customer relationships. *Journal of Business Logistics, 25*(1), 25–62.
Sarkar, M., Echambadi, R., Cavusgil, T., & Aulakh, P. (2001). The influence of complementarity, compatibility, and relationship capital on alliance performance. *Academy of Marketing Science, 29*(4), 358–373.
Schoenherr, T., & Swink, M. (2012). Revisiting the arcs of integration: Cross-validations and extensions. *Journal of Operations Management, 30*(1–2), 99–115. https://doi.org/10.1016/j.jom.2011.09.001.
Schramm, H. J., Czaja, C. N. C. N., Dittrich, M., & Mentschel, M. (2019). Current advancement and future developments of fourth party logistics in the digital future. *Logistics, 3*(1), 7–15. https://www.mdpi.com/2305-6290/3/1/7.
Sheth, J. (1973). A model of industrial buyer behavior. *Journal of Marketing. 37*, 50–56.
Suarez, F. F., Cusumano, M. A., & Kahl, S. J. (2013). Services and the business models of product firms: An empirical analysis of the software industry. *Management Science, 59*(2), 420–435.
Takeishi, A. (2001). Bridging inter- and intra-firm boundaries: Management of supplier involvement in automobile product development. *Strategic Management Journal, 22*, 403–433.
Toon, M. A., Morgan, R. E., Lindgreen, A., Vanhamme, J., & Hingley, M. K. (2016). Processes and integration in the interaction of purchasing and marketing: Considering synergy and symbiosis. *Industrial Marketing Management, 52*, 74–81.
Ulaga, W., & Eggert, A. (2006). Value-based differentiation in business relationships: Gaining and sustaining key supplier status. *Journal of Marketing, 70*(1), 119–136.
Visnjic, I., Weingarten, F., & Neely, A. (2016). Only the brave: Product innovation, service business model innovation, and their impact on performance. *Journal of Product Innovation Management. 33*(1), 36–52.
Vyas, N., & Woodside, A. (1984). An Inductive Model of Industrial Supplier Choice Processes. *Journal of Marketing, 48*, 30. https://doi.org/10.2307/1251308.
Wagner, S., Bode, C., & Koznol, P. (2009). Supplier default dependencies: Empirical evidence from the automotive industry. *European Journal of Operational Research, 198*, 150–161.
Webster, F. E., & Wind, Y. (1972). *Organizational buying behavior.* Prentice Hall.
Wieland, A., & Handfield, R. (2013). The socially responsible supply chain: An imperative for global corporations. *Supply Chain Management Review, 17*(5), 22–28 September.
Williams, B., Roh, J., Tokar, T., & Swink, M. (2013). Leveraging supply chain visibility for responsiveness: The moderating role of internal integration. *Journal of Operations Management, 31*(7–8), 543–554. https://doi.org/10.1016/j.jom.2013.09.003.
Wynstra, F., Weggeman, M., & van Weele, A. (2003). Exploring purchasing integration in product development. *Industrial Marketing Management, 32*(1), 69–83.
Ye, G., Priem, R. L., & Alshwer, A. A. (2012). Achieving demand-side synergy from strategic diversification: How combining mundane assets can leverage consumer utilities. *Organization Science, 23*(1), 207–224.