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# A Responsiveness View of logistics and supply chain management

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## Abstract

The emergence of logistics and supply chain management as a fully mature business discipline may depend on the development of foundational supply chain management perspectives embracing a focus on responsiveness. Hundreds of papers in our field conceptualize responsiveness and related concepts in disconnected ways ignoring this potentially valuable foundation for investigating supply chain strategic and logistical adjustments. Although these extant studies highlight many important issues related to responsiveness, their conceptualizations and nomological networks vary considerably. This diffuse focus seriously hinders efforts to create an overarching theoretical perspective in a dynamic field without one. The result is a masking of promising research directions that could help define the discipline. Drawing from the organizational economics, logistics, and supply chain management literatures, we begin the argument that responsiveness—realized through logistics and supply chain management—has strong potential as our defined foundational perspective. All roads to superior performance depend upon supply chain responsiveness to the environment, supply chain members, stakeholders, and the consumer. Our proposed Responsiveness View of supply chain management supports the exploration of how supply chains compete successfully amidst disruption and change, helping to define a young, theoretically distinct, research domain.

## KEYWORDS

adaptability, agility, flexibility, improvisation, resiliency, responsiveness, theory development

## INTRODUCTION

The conceptual grounding of supply chain management and logistics (L&SCM) research has long been a fragmented set of borrowed theories and assorted outcomes. Very few studies in L&SCM ask or answer the big “meaning-of-life”-type research questions, such as “why does L&SCM matter” or “what is the ultimate goal of L&SCM research?” Understanding this, Mentzer and his

colleagues proposed three definitional characteristics of L&SCM as a management philosophy:

1. A systems approach to viewing the supply chain as a whole, and to managing the total flow of goods inventory from the supplier to the ultimate customer;
2. a strategic orientation toward cooperative efforts to synchronize and converge intrafirm and interfirm

operational and strategic capabilities into a unified whole; and 3. a customer focus to create unique and individualized sources of customer value, leading to customer satisfaction. (Mentzer et al. 2001: 7)

Yet to date, we can find no research within the various theories (see Gligor et al. 2019) that has sought or settled upon defining a central thesis, much less identify related core concepts (e.g., Carter et al. 2015; Williams et al. 2013). There is no clear argument made concerning a foundational perspective.

The philosophical characteristics that Mentzer et al. (2001) outline suggest that supply chain managers should leverage their supply chain's capabilities to respond to (customer) expectations. Over the last decade, Mentzer and his colleagues' philosophical treatment of L&SCM has been extended via consumer-driven proposals toward a foundation that acknowledges and consolidates the unification of logistics, operations, and sourcing (Lambert et al. 2005); an enhanced discussion of value creation, efficiency, and satisfaction outcomes (Stock & Boyer, 2009; Gligor & Maloni 2021); and calls for more detailed and specific empirical reflection (Naslund & Williamson, 2010; Min, Zacharia & Smith, 2019). Still, many researchers within our discipline reflexively fall back on long-standing siloed traditions that do not combine well with more unified views of L&SCM as being orthogonal to functional silos. Even more concerning, Burgess et al. (2006) found that 58% of one hundred randomly selected L&SCM articles did not include a definition of the domain. As should be expected, confusion about the shape and scope of our discipline is widespread among scholars working in supply chain management (SCM), logistics, procurement, distribution, and related areas (Ellram & Cooper, 2014; LeMay et al. 2017). We suggest that this confusion may be related to the lack of L&SCM-specific theory(ies) in our young field.<sup>1</sup>

As researchers in L&SCM, we generally adopt external knowledge that addresses our distinct research interests by utilizing combinations of theories, parts of theories, or no theories at all. The recognition of this "fragmentation" of hypothesis support has contributed to a growing discussion about embracing mid-range theory (see Craighead et al. 2016; Ellram & Tate, 2021; Wowak, Craighead, Ketchen, & Connelly, 2022) as a viable solution in order to provide a perspective specific enough to

ground our research questions. The development of these types of studies, while relevant to a specific area, does not support L&SCM as a unique, united discipline, treating it as a specialty field. This approach renders it impossible to differentiate our discipline from others and fuel misconceptions about what epistemology and pedagogy is (and is not) L&SCM.

The objective of this paper was to highlight the opaque nature of L&SCM and the problems/challenges that result. We begin an argument for the development of a specific and defined foundational perspective of L&SCM. Our belief is that such an endeavor is well overdue if L&SCM is to become a fully mature business discipline in its own right. We suggest that this defined foundational perspective may be responsiveness. Responsiveness embodies the supply chain network—encompassing stakeholders, partners, and an orientation toward customer satisfaction. Adopting responsiveness as a focal outcome of the extended network can guide and support studies of logistics (operations) and relationship dyads (purchasing/sourcing), as well as the extended supply chain network. Accordingly, we work throughout our discussion to develop the following definition of responsiveness based upon the extant literature:

Responsiveness is the process and outcome of organizational adjustments achieved as individual organizations within a supply chain alter behaviors, norms, and/or policies to help place a supply chain and its members in a favorable position to achieve customer value under dynamic environmental conditions.

L&SCM research has long focused on intra- and interorganizational processes. Only recently has our field sought to conceptualize supply chain adjustment (i.e., a change in norms, managerial decisions, and/or processes across supply chain members in response to market dynamics. Market dynamics refer to conditions such as competition, disruptions, partner, and/or customer situations). Theoretically, this adjustment process is sometimes referred to as the reconfiguration phenomenon (Darkow, Weidmann, & Lorentz, 2015; Gundlach et al. 2006; Johnson & Leenders, 2001; Kauffman et al. 2018). Unfortunately, although extant research notes the importance of adjustment, such as adaptability and flexibility, it poorly conceptualizes these related constructs. This is not semantics, research highlights how poor conceptualizations of similar concepts create tautologies (i.e., Evans, 1991; Fawcett, Calantone, & Smith, 1996; Johnson et al. 2003). Our problems may also be caused by a consistent operational focus on organizational efficiency (e.g., cost

<sup>1</sup>Examples of such theories are the conceptualization of supply chains as global value chains in the international political economy literature (Gereffi et al. 2005), resource-based theory (Olavarrieta and Ellinger 1997), transaction cost economics (Williamson 2008), and the "smile of value creation" from the geography literature (Mudambi, 2008).

optimization, inventory turns) rather than prioritizing supply chain-oriented activities and results (e.g., transparency, coordination, and control across supply chain tiers). The internal “efficiency” approach lacks the distinction provided by embracing the dynamic dimensions of responsiveness (and perhaps other related concepts), and often creates confusion and insufficient understanding of the sheer complexity involved in implementing supply chain adjustments (Ellram & Tate, 2021; Ivanov, 2010).

A large number of L&SCM studies have examined important organizational antecedents and their potential connection to concepts we believe indicate responsiveness. We expect that when antecedents are conceptually identified, the support for a Responsiveness View of L&SCM will be further justified empirically (Swafford, Ghosh, & Murthy, 2006). Table 1 lists the seminal defining studies and the journals in which they appear. This literature search was specifically limited to works that developed or synthesized an explicit definition of the constructs of interest and does not include those solely quoting other, extant definitions.

The fluid conceptualizations associated with responsiveness offered in Table 1 reveal the massive breadth of our proposal to adopt a Responsiveness View as our defined foundational perspective. Extant research examines the L&SCM phenomenon from both the behavioral and analytical perspectives. To date, these studies approach a conceptual boundary that depends heavily on internal efficiency. Studying supply chain adjustment from a managerial perspective naturally follows a simple approach: “If we change what we do, what will be the revenue growth and/or cost savings trade-off?” Efficiency alone implies a limited or half-view because it examines the process and activity interaction but ignores the subsequent effectiveness outcome. Accordingly, this view pays scant attention to how the firms and supply chains respond, which would be the primary focus of an effectiveness approach (e.g., Porter, 1980; Wang & Ahmed, 2007; Zollo & Winter, 2002). Borrowing from the management and marketing channels/distribution literature bases without integrating their conceptualizations into a new foundational perspective thus impedes our understanding of how a firm, partnership, or entire supply chain develops and employs abilities for what should be the discipline’s foundation, managerial goal, and research outcome. The extant research implies that responsiveness can be applied as a foundational outcome and goal of L&SCM (Roh, Hong & Min, 2014) by taking these efficiency and effectiveness perspectives in combination. Responsiveness also represents a higher-order ability, a multidimensional outcome that can be achieved through the development and combination of specific dimensions as capabilities (see Dobrzykowski et al. 2015; Stevenson & Spring, 2007).

We support our argument that responsiveness can be an appropriate L&SCM research and managerial practice objective by exploring three unambiguous needs for L&SCM research. The first is to establish research goal clarity in our defined perspective, the second examines a multidimensional approach to being responsive within the L&SCM setting, and the third addresses the argument that L&SCM is the appropriate domain for studying and developing an understanding of the responsiveness phenomenon (Burgess et al. 2006; Swafford et al. 2006; Tsoukas, 1994). We offer a conceptualization of the Responsiveness View of L&SCM (or Responsiveness View) as a first step in this process.

## A defined foundational perspective

Many research domains in business have what can be called a central thesis, a core concern, a collective mindset, a rallying cry, or what we will call a defined foundational perspective. This perspective unites the field under a common theme or goal. For instance, macro-economic research has long rallied around achieving equilibrium (Gul & Stacchetti, 1999; Walras, 1896), marketing is broadly recognized as the study of exchange (Dwyer, Schurr, & Oh, 1987; Houston & Gassenheimer, 1987), and finance or financial management is considered the study of the efficient and effective management of funds (Brooks, 2010; Ferri & Oberhelman, 1981), while management (or organizational behavior) is said to be the study of human behavior in organizational settings (Moorhead & Griffin, 1995). Each of these disciplines supports a defined foundational perspective that extends to specific dependent variables or outcome measures. As such, these defined foundational perspectives set logical parameters around the study of each field and help guide researchers toward building discipline-defining theory and knowledge. The accumulation of that knowledge then becomes the foundation for the field comparable to the maturation of organizational knowledge (see Fletcher et al. 2013: figure 3: 65).

One may accurately argue that the examples above are long-standing core disciplines that differ from the recent rise and scope of L&SCM as an industry-supported research discipline. Relevant examples of legitimizing and developing newer core disciplines are evident in the business literature, occurring at least twice since 1950 (see Kenworthy & Verbeke, 2015; MacInnis & Folkes, 2009). For example, the corporate strategy discipline grew from a subsegment of the general management field to become a fully defined core discipline supported by a strong body of literature. This happened largely because of the development of research paradigms that focused specifically on firms achieving competitive advantage (Amit, 1986;

**TABLE 1** Summary of literature counts by construct

Adaptability (7)	
International Journal of Physical Distribution and Logistics Management	Charles et al. (2010), Christopher and Holweg (2011), Engelhardt-Nowitzki (2012)
International Journal of Supply Chain Management	Jayant and Ghagra (2013)
Journal of Business Logistics	Pettit et al. (2013)
Journal of Operations Management	Chandrasekaran et al. (2012)
Journal of Supply Chain Management	Wong (2013)
Supply Chain Management: An International Journal	Prakash (2011)
Agility (16)	
Decision Support Systems	Liu et al. (2013)
International Journal of Operations and Production Management	Bernardes and Hanna (2009)
International Journal of Physical Distribution and Logistics Management	Charles et al. (2010), Scholten et al. (2010), Wieland and Wallenburg (2012, 2013)
International Journal of Production Economics	Naim and Gosling (2011)
International Journal of Supply Chain Management	Jayant and Ghagra (2013)
Journal of Business Logistics	Gligor and Holcomb (2012a), Gligor et al. (2013), Golicic and Sebastiano (2011)
Journal of Business Research	Roberts and Grover (2012)
Journal of Operations Management	Devaraj et al. (2012)
Journal of Supply Chain Management	Meier et al. (1998), Paulraj and Chen (2007)
Supply Chain Management: An International Journal	Gligor and Holcomb (2012b)
Flexibility (13)	
International Journal of Operations and Production Management	Bernardes and Hanna (2009), Chiang et al. (2012)
International Journal of Physical Distribution and Logistics Management	Christopher and Holweg (2011), Engelhardt-Nowitzki (2012)
International Journal of Supply Chain Management	Jayant and Ghagra (2013)
Journal of Business Logistics	Gligor et al. (2013), Grawe et al. (2011), Omar et al. (2012), Pettit et al. (2013)
Journal of Operations Management	Malhotra and Mackelprang (2012), Patel et al. (2012)
Journal of Supply Chain Management	Liao et al. (2010), Vickery et al. (1999)
Improvisation (2)	
Journal of Operations and Supply Chain Management	Bradaschia and Pereira (2015)
Journal of Operations Management	Morrison (2015)
Resilience (11)	
Harvard Business Review	Hamel and Valikangas (2003), Coutu (2002)
Journal of Applied Business Research	Ponis and Koronis (2012)
Journal of Business Logistics	Wieland and Durach (2021), Pettit et al. (2013)
Journal of Supply Chain Management	Brandon-Jones et al. (2014)
Supply Chain Management Review	Melnyk et al. (2014)
Human Resource Management Review	Lengnick-Hall et al. (2011)
International Journal of Logistics Management	Ponomarov and Holcomb (2009)
Proceedings of the 5th International ISCRAM Conference	Falasca et al. (2008)
Sustainability: Science, Practice and Policy	Fiksel (2006)

(Continues)

**TABLE 1** (Continued)

Responsiveness (9)	
International Journal of Operations and Production Management	Bernardes and Hanna (2009), Squire et al. (2009), Vachon et al. (2009)
Journal of Business Logistics	Golicic and Sebastiano (2011), Grawe et al. (2011)
Supply Chain Management: An International Journal	Collin et al. (2009), Qrunfleh and Tarafdar (2011)
Journal of Operations Management	Williams et al. (2013)
Journal of Supply Chain Management	Bernardes (2010), Carr and Smeltzer (2000)

Barney, 1991; Porter, 1991). We note that similar strategy research in marketing remains a subset of the core marketing discipline due to its lack of a recognized defined foundational perspective, despite the herculean efforts of George Day (1994) and others. On the contrary, after emerging from marketing, the consumer behavior field moved from being a marketing research “area” to a recognized discipline due to its concentrated focus and strong research production embracing a range of perspectives on consumer affect (Mothersbaugh & Hawkins, 2015; Westbrook, 1987). Today, we understand that competitive advantage is corporate strategy’s purpose and that consumer affect is consumer behavior’s purpose. So, what is L&SCM’s purpose?

When asking fellow scholars in other fields their reason for being—expect to receive looks of confusion, fear, and overall concern that they are being backed into a corner—the initial expectation is that every field is very diverse, is broad-based, and scrutinizes many unrelated concerns. Consider Strategic Management Journal’s (SMJ) stated goals:

Overall, SMJ provides a communication forum for advancing strategic management theory and practice. Such major topics as strategic resource allocation; organizational structure; leadership; entrepreneurship and organizational purpose; methods and techniques for evaluating and understanding competitive, technological, social, and political environments; planning processes; and strategic decision processes are included in the journal.

This discussion presents a broad array of topics, but the fact remains that all these topics fit within the defined foundational perspective of competitive advantage. Moreover, as the L&SCM discipline evolves toward a foundational perspective, we are not suggesting there is a single topic or outcome/dependent variable. All business disciplines require many outcome variables that should align with the

boundaries of a defined foundational perspective. We are simply arguing for a research stream that attempts to unite the field in a debate concerning our defined foundational perspective.

To gain a feeling for the legitimacy of our argument as to whether thought leaders among other disciplines exhibit a general consensus regarding foundational perspectives in their areas of study, we conducted a frequency analysis of outcome variables in the most highly respected journals for various business disciplines. The journal list was curated based on the opinions expressed by over sixty scholars in the Economics, Finance, Accounting, and Management disciplines, supplemented by additional opinions from experts in two former subfields, Consumer Behavior (Marketing) and Corporate Strategy (Management).

We examined the abstracts and methods sections of papers in the journals from each discipline over the last three years. We focused on empirical research studies with defined models to eliminate any ambiguity regarding whether the variables examined were being employed as outcomes or other types of variables (i.e., controls or moderators). Qualitative debate with the experts resolved imprecise similarities (i.e., the terms risk premia and volatility in finance are different measures, but both measure the probability that investment values might fluctuate). From a sample of 194 articles, we identified 123 unique outcome variables, with no single variable employed more than 23% of the time. Nevertheless, most outcomes could be linked to a defined foundation perspective. Finance produced issues such as liquidity, returns, volatility, and risk—all relevant to fund management’s defining purpose. Economics included outcomes such as costs, income, and productivity—all of which are relevant to the study of equilibria. Strategic management examined many performance types, including the following: innovation, board design, return on investment, and executive compensation, all of which are clearly related to the concept of competitive advantage (also directly measured). We found it was not possible to identify a consumer behavior outcome variable that was not related in some way to consumer

affect. So, while the specific outcomes diverge across a broad spectrum of variables, the reason for conducting research on each outcome can be related to the aforementioned defined foundation perspective.

We can argue that one of the potential impediments to L&SCM's recognition and transition into a fully mature and independent discipline could be its lack of a coherent, well-defined foundation perspective, unlike consumer behavior's identification of customer affect and corporate strategy's purposeful study of competitive advantage. We note that responsiveness—broadly defined as "...a firm's propensity to act on market knowledge to anticipate and/or rapidly address modifications (to) customers' needs." (Bernardes, 2010, p. 48)—embodies the interaction among organizations as they seek efficient and effective adjustments to the behaviors, norms, processes, and policy within their supply chain structure and operations (Qrunfleh & Tarafdar, 2011; Bernardes & Hanna, 2009). Current conceptualizations do not necessarily treat the underlying nature of supply chain adjustment as responsiveness, although the concept of supply chain networks reacting to challenges in market forces and evolving because of these reactions captures the essence of responsiveness. We therefore argue that the extant research in L&SCM inherently calls for, but does not address, the need for a clearly defined view such as responsiveness. Although the extant research does not provide the necessary bridge to such a unified objective for SCM, perhaps we can take a lesson from ourselves. Our collaboration research stresses the importance of establishing clear, mutual goals across multiple organizations (Min et al. 2005). As a discipline, we should demand conceptual clarity in describing our foundation perspective and the issues that facilitate achieving that objective.

Why consider a foundational perspective or theory? Ultimately, developing a theoretical base for L&SCM is important to the continued advancement of the discipline. Such a perspective or theory allows a view of patterns, relationships, and tendencies associated with the phenomenon. This aspect of theory addresses the "what and how" of research, which the extant L&SCM literature has done well. Theory also directs us to potential trajectories (or predictions) and an ability to utilize managerial discretion from the knowledge gained from the predictions to decide upon appropriate adjustments and strategies. In our premise, we are contending that this aspect of theory embodies control, hence the focus on responsiveness. For example, the resource-based view of the firm (RBV)—when used as a conceptual framework in L&SCM research—receives fair critique regarding the fact that resources ultimately contribute to performance. Yet, RBV does not expressly address "how and why" or in "what manner" resource deployment would lead to a clear ability to establish

responses and strategies to achieve efficiency and effectiveness for the firm or network. We are suggesting that one way to address the gap between "what" and "how/why" is through a foundational focus on responsiveness. We propose that responsiveness may very well provide the link between the intra-organizational phenomenon of resource bundling and capability development to interorganizational resource bundling and capability development. Adopting the Responsiveness View may help further theoretical development in the L&SCM discipline.

Consequently, taken to the highest conceptual level, we contend that responsiveness is one possible path L&SCM scholars could take to unite our goals and research models and, ultimately, help to further advance and legitimize the field. We further suggest that responsiveness can be operationalized as a unifying outcome variable in many studies. We suggest that the Responsiveness View not only embraces stakeholder, partner, and customer orientations, but also supports the study of focal firms (logistics) in relationships, relationship dyads (sourcing), and more extended networks of firms (SCM). Responsiveness remains relevant regardless of the market economy (capitalism v. socialism) or the nature of disruptions (e.g., COVID-19). It is an inclusive view of firm adjustments as they develop and operationalize their respective activities within and across supply chains.

## CONCEPTUAL DEVELOPMENT

There are a few excellent theories that every L&SCM researcher has examined and applied to help explain supply chain phenomenon at some point. Lee, Padmanabhan and Whang (1997) developed the bullwhip effect to describe how information movement influences supply chain operations. Their model was primarily oriented toward explaining the interactions within single, optimizing organizations and how these individual rationalizations distort the efficiency of the supply chain network. Their work was important in establishing research to explore how multiple echelons (e.g., Chen, 1999; Chen et al. 2001) interact to increase efficiencies in structure and behavior (e.g., Lambert & Cooper, 2000). Their exceptional study is perhaps our only accepted theory and unfortunately covers only a small portion of the supply chain phenomenon. Interestingly, Gligor et al. (2019) scanned the literature to find that within the supply chain domain, fifteen theories are used widely that represent 95% of the research. Further, RBV and transaction cost economics (TCE) are employed in 31% of the studies with RBV the dominant theory (p. 172). Accordingly, we highlight RBV and TCE as representative theories for L&SCM.

The L&SCM response generally has been to combine transaction cost economics (TCE) (efficiency; Williamson,

1985) with RBV (effectiveness; Barney, 1986) to provide at least a theoretical window dressing. Even when applied in combination, these theories fail to explain the reality of what supply chain managers are hoping to accomplish. For example, the resource-centric theories—most prominently, Barney's RBV (1991)—have been accepted as canonical explanations in supply chain literature of how firms attain competitive advantage, particularly when bundled in complementary combinations (Madhavaram & Hunt 2008). However, critiques suggest that resource theories can be too broad (Kraaijenbrink, Spender, & Groen, 2010; Priem & Butler, 2001) and too opaque to clearly identify how resource bundles work, or what results may be attributed to them (Nerkar & Roberts, 2004; Zahra, Sapienza, & Davidsson, 2006). This is particularly a problem when it is unclear whether assets and competencies possess the valuable, rare, inimitable and organizationally specific qualities to rise to Barney's (1991) definition of a resource influencing competitive advantage (Kozlenkova et al., 2014).

Moreover, in dynamic markets, resources can rapidly be rendered obsolete (Teece, et al. 1997). This begs a question of how firms and their supply chain partners identify the resources they should combine, or how they know it is time to upgrade, or even replace their resource bundles. RBV offers us the "how" of assembling advantage, but not the "why in this manner" of resource selection and deployment. The view proposed in this research offers a parsimonious answer to the "why in this manner" question: Firms respond to the needs they perceive in their markets. They do so using either the combination of adaptability, flexibility, agility, improvisation, and resilience that they already possess, or the combination that market demand guides them to develop. It is well settled that resource combinations better enable firms and their supply chain partners to compete, but we submit that responsiveness guides and/or enables the selection and assembly of resources with which to compete.

As mentioned previously, TCE is also frequently used in our research (Gligor et al. 2019) and addresses the idea that a firm decreases its costs by either acquiring and maintaining resources or assembling a chain of cooperating firms that provide access to the outputs of such resources (Williamson, 1985). At its core, TCE examines a make or buy decision focusing on the firm and the firm's motivation for self-preservation. The theory describes an inherent internal drive for efficiency while establishing governance structures based upon make-vs-buy decisions to protect against "opportunism" from partners or more overt competing firms (Williamson, 1975). Although the "buy" decision extends the firm and contributes to network development, the focus remains on the focal firm to internalize the market based upon that firm's efficiency goals. TCE recognizes that these actions do not eschew

trust and may restrict the firm from extending the network indefinitely. Instead, the firm tends toward internalizing as a market governance solution. In comparison, little attempt is made to consider the make "and" buy decision central to managing an extended supply chain.

Transaction cost economics can be conceptualized as the fundamental level of firm organization; a basic-building block of understanding between firm relationships as they seek and maintain access to resources. Because TCE is a theory that explains economic organization (i.e., market hierarchy) by contracting to protect against opportunism and uncertainty, it is ill-designed to explain the willingness of firms to collaborate to combine resources to achieve effectiveness (e.g., supply chain responsiveness or resiliency) external to the firm. The interaction associated with collaboration and coordination of partners in a supply chain network context may result in various governance structures and economic trade-offs in effectiveness for individual firms; issues which TCE would not predict (Williamson, 2008). Hence, L&SCM builds upon this foundational level of TCE by introducing the idea of willingness to work with partners. TCE would predict buffer inventories within the supply chain due to lack of trust, for example, whereas L&SCM partners rely upon a degree of trust, "a management philosophical approach" (Mentzer et al. 2001; Morgan & Hunt, 1994) in collaborative efforts to reduce buffer inventories in order to achieve efficiency. The willingness and the collaboration contribute to capability development over time. Further, TCE outlines specific governance structures and do not cover the variance of governance (some fashioned from trust factors) that may exist in a supply chain network. This limitation therefore misses the various combinations and degrees of uncertainty, opportunism and asset specificities that may occur. The proposition we outlined above is in response to Williamson's (2008) challenge to the SCM discipline to develop a more nuanced review of how TCE can contribute to explaining governance in a network context.

We recognize that the supply chain network is a collection of individual firms and their respective objectives, strategies, and operations. The interaction of the individual firms reflects the supply chain. Moreover, the interaction highlights the complexity of individual firm's various objectives, which can be supply chain-networked, dyadic, and individual level. A focus on responsiveness acknowledges the variances that occur from combinations and degrees of uncertainty, opportunism, and asset specificity. We propose that as organizations comprehend the complexity of the external environment and its influence on the supply chain network, a focus on responsiveness will be an outcome and a direction to motivate convergence of the individual firm's objectives across the network.

Appropriately, most L&SCM research notes the importance of the efficiency–effectiveness trade-off, where the emerging relationship governance view focuses on the details (e.g., Richey et al. 2010a). Yet, these focused and adopted perspectives do not provide solidified and/or central grounding for our discipline (as noted by Ellram & Cooper, 2014; LeMay et al. 2017), making it difficult to produce grounded research questions that chart and assist in discipline-based growth and related directions for management within and across the L&SCM setting. We contend that a Responsiveness View may be the answer to this conundrum.

Studied holistically, responsiveness remains an important concept in the diverse interorganizational management literature. For example, the logistics management literature examines responsiveness from a customer-centric approach, which underlies the principle that organizations must be able to respond to demand and its inherent variability (Bowersox & Daugherty, 1990). This view typically highlights the external customer (e.g., consumer or user) as the catalyst for effectiveness as attention to the customer ultimately drives decisions about organizational efficiency (Aaker & Mascarenhas, 1984; Bahrami, 1992; Evans, 1991; Matusik & Hill, 1998). Conversely, the organizational economic literature emphasizes the organization's reaction—redeployment of resources—to uncertainty in the environment as the primary foundation for developing responsiveness (Slack, 1983). This perspective highlights the external environment as the catalyst for influencing organizational efficiency, arguing that an efficient organization encourages effectiveness at equilibria (Carlsson, 1989; Evans, 1991; Johnson, 1999; Johnson et al. 2003; Sanchez, 1995), often through supply chain adjustment (Ivanov, 2010). Yet, we should pause. Understanding our sister disciplines' literatures provides an important basis and guide for concept development. To build an effective L&SCM theoretical foundation, we must focus specifically on the L&SCM literature.

Flexibility studies reflect serious attempts to examine supply chain adjustment (see Vickery, Calantone, & Dröge, 1999) and supply chain agility (see Gligor, Holcomb, & Stank, 2013). To date, no literature review or empirical model has specifically addressed responsiveness as a foundational perspective connecting related concepts. It is also the case that no work has been reported that considers responsiveness as an encompassing term that reflects related and important L&SCM concepts of adjustment (e.g., adaptability, agility, flexibility, improvisation, and resilience) to market forces. These dimensions of adjustment can be built upon and reconfigured to create intervening assessments that provide a theoretical position from which to study the trade-off between efficiency perspectives and effectiveness approaches in a purely L&SCM setting or

they can be evaluated to determine the most appropriate setting for L&SCM research (see Castillo et al. 2021).

To fully understand responsiveness, we will flesh out five specific dimensions that we introduce only briefly here (see italics). Our conceptualization proposes the dimensions of adaptability and flexibility, along with agility, improvisation, and resilience, as the supporting dimensions of responsiveness. These dimensions are the building blocks that enable logistics flow, sourcing partnerships, and the supply chain as a whole to achieve both strategic and operational goals. Irrespective of one specific target stakeholder, responsive L&SCM strives to serve multiple masters through modifying various aspects of its dimensions. Managers manipulate/adjust these dimensions to achieve a desired level of responsiveness by optimizing the fit between products, strategy, and expectations (Fisher, 1997). For example, definitions of adaptability suggest an organizational-level dimension through which supply chains achieve an ability to respond to market changes and opportunities. Definitions of flexibility suggest a more policy-oriented dimension that reflects the ability to react quickly and intelligently to near-term changes/challenges related to supply–demand issues (i.e., execution). Moreover, in reference to Fisher's efficiency focus, responsiveness can also embrace contexts that lean more heavily on effectively benefiting society (e.g., sustainability, humanitarian, or non-profit).

### **Crafting a conceptual foundation: what is responsiveness?**

Researchers consider responsiveness to be an important and ongoing ability to modify a course of action through organizational adjustment in response to market and environmental conditions (Aaker & Mascarenhas, 1984; Bahrami, 1992; Bowersox & Daugherty, 1990; Evans, 1991; Matusik & Hill, 1998). Responsiveness has also been defined as “the ability to react purposefully and within an appropriate time-scale to customer demand or changes in the marketplace” (Holweg, 2005: 605). These ideas build upon Slack's (1983) view, highlighting the ability to exercise a range of management options that can reduce the costs (efficiency) and time (effectiveness) associated with a supply chain's performance. The responsiveness concept is coupled with a reactive adjustment and conceivably proactive positioning for future adjustment. The measure of these changes is the ability to prepare and react.

Serving the customer at the business-to-business (B2B) and business-to-consumer (B2C) levels lies at the heart of dyadic, triadic, and network responsiveness conceptualizations. Congruent with the views of Ackoff (1971),

**TABLE 2** Definitions of responsiveness

**Responsiveness is the process and outcome of organizational adjustments achieved as individual organizations within a supply chain alter behaviors, norms, and/or policies to help place a supply chain and its members in a favorable position to achieve customer value under dynamic environmental conditions.**

Citation	Journal	Quote
Bernardes (2010)	<i>Journal of Supply Chain Management</i>	"...a firm's propensity to act on market knowledge to anticipate and/or rapidly address modifications in customers' needs." (48)
Bernardes and Hanna (2009)	<i>International Journal of Operations &amp; Production Management</i>	"... responsiveness is a propensity for purposeful and timely behavior change in the presence of modulating stimuli. It is not a latent means (availability of options), but an outcome. It is neither being prepared for a pre-established range of actions nor being able to change the means to achieve (reconfiguration), but a tendency to alter states in response to modulating stimuli. In order for an entity to be denoted responsive, it has to anticipate or address stimuli with timely and commensurate changes." (43)
Carr and Smeltzer (2000)	<i>Journal of Supply Chain Management</i>	"Supplier responsiveness is defined as the willingness of suppliers to meet the needs of the buying firm." (41)
Collin et al. (2009)	<i>Supply Chain Management: An International Journal</i>	"...being able to fill orders quickly." (411)
Golicic and Sebastiano (2011)	<i>Journal of Business Logistics</i>	"a responsive or agile supply chain strategy places a premium on flexibility and responsiveness to uncertainty in demand (Goldsby et al. 2006; Lee, 2002), suggesting a supply chain structure in which collaborative problem solving, ongoing communication and information sharing, and the ability of supply chain members to adapt to changing market conditions are essential elements." (255)
Grawe et al. (2011)	<i>Journal of Business Logistics</i>	"...doing things fast." (71)
Qrunfleh and Tarafdar (2011)	<i>Supply Chain Management: An International Journal</i>	"the ability of the supply chain to quickly adapt to changes in customer preferences." (572)
Squire et al. (2009)	<i>International Journal of Operations &amp; Production Management</i>	"...responsiveness refers to the speed with which action is taken in response to changing customer needs in an effective and profitable manner." (766–767)
Vachon et al. (2009)	<i>International Journal of Operations &amp; Production Management</i>	"The term responsiveness refers to the ability of a supply chain to respond quickly to market movements." (324)

Johnson et al. (2003), and Kritchanchai and MacCarthy (1999), responsiveness in this setting suggests that all other supply chain variables are ultimately oriented toward some level of responsiveness. Measures of financial performance are often directly or indirectly influenced by some degree of organizational responsiveness to the environment and may not be controlled by supply chain managers. Arguably, terminating a conceptual framework with responsiveness could provide more research accuracy and managerial relevance than a performance outcome that is distant from the supply chain managers' influence such as stock price. Supply chain managers care about what they can control, and responsiveness is certainly a more controllable metric in our research. Table 2 provides a detailed summary of the major conceptualizations of responsiveness.

As noted earlier, the supply chain can achieve different levels of responsiveness by emphasizing different paths or, more specifically, employing different dimensions of responsiveness according to the environmental issues, individual firm capabilities and responsibilities, and the responses of individual firm's to market forces. Responsiveness, as we conceptualize it, is a capability, not a performance outcome. The responsiveness capability is a set of capabilities that reflect the various ways supply chain managers of the individual organizations react (e.g., flexibility, agility, improvisation) to customer demand and market forces. Responsiveness reflects internal and external integration activities, which, when coordinated, improve responsiveness (Schoenherr & Swink, 2012). Hence, we propose that responsiveness is a multi-level dynamic concept and, as noted, needs clear conceptualization. To begin

cultivating the Responsiveness View, we can separate the conceptualization process into theoretical dimensions of responsiveness that are measurable and closely related to the extant research on L&SCM adjustment. These dimensions provide a framework for studying adjustment and include adaptability, flexibility, agility, improvisation, and resilience. When conducting research, one may choose to focus on either a single dimension or multiple dimensions, depending upon the research question. These concepts will be examined in detail in an attempt to avoid the continuing interchangeable use of such terms in future literature.

It is important to note at this point that responsiveness can refer to different units of analysis. For instance, firms in relationships (logistics), dyads (sourcing), or networks (SCM) of firms, all can be responsive depending on the perspective and/or the unit of analysis in decision making. For the extended enterprise (or network), appropriate governance mechanisms need to be in place that align the levels of individual responsiveness to the level of supply chain responsiveness (Richey et al. 2010a). This being understood, we now discuss the development of the multidimensional Responsiveness View of SCM.

## THE RESPONSIVENESS VIEW OF LOGISTICS and SUPPLY CHAIN MANAGEMENT

Supply chain management and logistics is the coordination and management of activities within a network of internal and external relationships. Structurally, the supply chain is defined as three or more firms linked directly to the upstream and downstream flows of products, services, finances, and information (Mentzer et al. 2001). Through these linkages, individual firms gain access to resources, develop capabilities, and impact performance (Carter et al. 2017; Lavie, 2006). In supply chains, managers seek the capacity to interpret and understand the environment and the ability to disseminate information among partners to improve performance outcomes (Gunasekaran et al. 2008; Zhang, Vonderembse & Lim, 2002). Further, L&SCM views organizations as a network of institutions exchanging access to resources, abilities, knowledge, and markets through cross-firm coordination to increase the potential for both individual and joint success (Chan, Chung, & Wadhwa, 2004). Consequently, L&SCM demands a dynamic and evolving view of reality based on a thorough understanding of mechanisms for responding to market and environmental forces employing a myriad of organizational processes that are both internal and external to the firms.

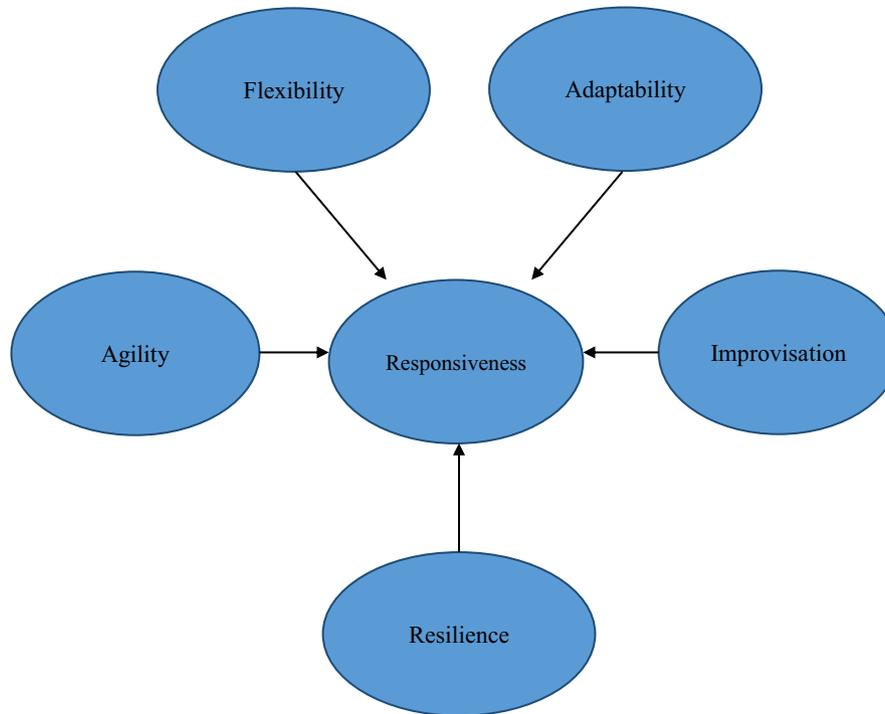
The proposal that supply chain performance can be improved as supply chain members respond to other

supply chains has gained traction in the extant literature (Balakrishnan & Geunes, 2004; Christopher, 2000). Research suggests that an individual firm's overall "response" is enhanced and constrained by the behaviors and abilities of other members of the same supply chain (Gereffi et al. 2005; Vickery et al. 1999). This interactive sociological conceptualization is reflected in attempts to consider issues that go beyond firms' influences on performance (Fawcett et al. 1996; Martínez & Pérez, 2005; Mason-Jones, Naylor, & Towill, 2000; Vickery et al. 1999). Research in the L&SCM domain suggests that supply chain responsiveness to market and environmental dynamics should be examined from a socio-organizational perspective (Jackall, 1998; Piplani & Fu, 2005). As a foundational perspective, supply chain responsiveness suggests that partners mutually and willingly modify their abilities, activities, arrangements, and behaviors to develop higher level abilities that will enable their supply chains to adjust to uncertainty and opportunities (Evans, 1991; Singh, 2015; Young, Sapienza & Baumer, 2003). These factors underlie responsiveness and affect the process of when, why, and how partners modify their supply chain configuration, processes, policy, and implementation collectively in responding to a range of issues and disruptions.

On the surface, the concept of responsiveness is intuitive. Many researchers consider responsiveness to be a manager's or an organization's ability to modify a course of action in response to dynamic conditions (Aaker & Mascarenhas, 1984; Bahrami, 1992; Bowersox & Daugherty, 1990; Evans, 1991; Matusik & Hill, 1998). Responsiveness has also been defined as "the ability to react purposefully and within an appropriate time-scale to customer demand or changes in the marketplace, to bring about or maintain competitive advantage" (Holweg, 2005:5). Holweg's definition offers an overarching theme that is applicable to any organization, yet the idea does not specifically address the perspective of the supply chain's constellation of firms and their collective interaction with demands.

As noted earlier, we invoke Ackoff's approach to responsiveness from a systems perspective, treating it as "a system event produced by another system or environmental effect (the stimulus). Thus, a response is an event in which the system itself is the co-producer" (1971: 664). This description of a responsiveness systems approach aligns more closely with the idea of a network of firms operating in a supply chain. Building upon both this idea and previous research, we develop a definition of responsiveness, which was presented earlier:

Responsiveness is the process and outcome of organizational adjustments achieved as



**FIGURE 1** Framework of the responsiveness view

individual organizations within a supply chain alter behaviors, norms, and/or policies to help place a supply chain and its members in a favorable position to achieve customer value under dynamic environmental conditions.

This definition reflects our evolving understanding of the concept and includes the necessary integration of multiple contexts and literature bases. Figure 1 highlights the conceptual framework of the Responsiveness View.

### The dimensions of the Responsiveness View

The Responsiveness View encompasses five dimensions that may receive varying degrees of emphasis in a supply chain's adjustment strategy. These dimensions are adaptability, flexibility, agility, improvisation, and resilience. The dimensions accommodate just-in-time, just-in-case, lean, omnichannel design, and many other value delivery mechanisms and/or strategies influencing responsiveness. Future research should canvas and categorize strategic decisions and their strategic/implementation mechanisms, as well as the relationship between dimensions. Table 3 provides a detailed content analysis of the existing research defining these five dimensions. We will discuss and define each dimension as it relates to the Responsiveness View.

### Adaptability—A structural adjustment

Adaptability refers to firms' ability to "adjust the supply chain's design to meet the structural shifts in markets, modify supply network strategies, products and technologies" (Jayant & Ghagra, 2013: 21), and "modify operations in response to challenges or opportunities" (Pettit, Croxton, & Fiksel, 2013: 49). Adaptability can be contrasted with flexibility "the long-term adjustment of a company and related [supply chain] flows require structural modifications" (Engelhardt-Nowitzki, 2012: 324), and is taken to function at the strategic rather than the operational level (Chandrasekaran, Linderman, & Schroeder, 2012).

Yet adaptability, while an organizational-level form of adjustment, remains distinct from and subordinate to responsiveness in that it is a change in the supply chain in response to externalities (environmental changes) that alters the products and services delivered across multiple supply chain levels (Prackash, 2011). Identifying externalities is a function of being adaptive and then responsive. Adaptability's long-term focus also separates it from other, shorter-term, responsiveness dimensions such as agility and improvisation.

Adaptability is often difficult to define precisely, as the definitions tend to center on the ability to shift the supply chain's design (Jayant & Ghagra, 2013) or structure (Engelhardt-Nowitzki, 2012), or modify how the supply chain operates when conditions change (Pettit et al. 2013). These are major events that require planning and strategic

**TABLE 3** Defining the dimensions of responsiveness

<b>Adaptability: the firm and supply chain's willingness and ability to adjust or reconfigure structurally based upon their understanding and expectations of externalities.</b>		
<b>Citation</b>	<b>Journal</b>	<b>Quote</b>
Chandrasekaran et al. (2012)	<i>Journal of Operations Management</i>	"Adaptability is the organizations flexibility to accommodate strategic or project level changes." (137)
Charles et al. (2010)	<i>International Journal of Physical Distribution and Logistics Management</i>	"agility is being able to deal with and take advantage of uncertainty and volatility, adaptability is rather used for more profound medium-term changes." (724)
Christopher and Holweg (2011)	<i>International Journal of Physical Distribution and Logistics Management</i>	"In that sense, we argue that we need to rethink how we operate supply chains in the era of uncertainty and create supply chains that are adaptable to such changes." (69)
Engelhardt-Nowitzki (2012)	<i>International Journal of Physical Distribution and Logistics Management</i>	"in contrast to flexibility – the long-term adjustment of a company and related SC flows require structural modifications." (324)
Jayant and Ghagra (2013)	<i>International Journal of Supply Chain Management</i>	"Adjust the supply chain's design to meet the structural shifts in markets, modify supply network strategies, products and technologies." (21)
Pettit et al. (2013)	<i>Journal of Business Logistics</i>	"Ability to modify operations in response to challenges or opportunities." (49)
Prakash (2011)	<i>Supply Chain Management: An International Journal</i>	"Adaptability reflects ability to adapt with environment and changing conditions (Lee, 2004), and involves willingness to correct errors in products/services delivered to the focal organization (Mersha & Adlakh, 1992), and ability to interact and understand focal organization's need at different levels of the supply chain." (363)
Wong (2013)	<i>Journal of Supply Chain Management</i>	"...[being] adaptive to changing environmental requirements." (115)
<b>Flexibility: the firm and supply chain's willingness and ability to adjust policy in the near term based upon their understanding of and interaction with externalities.</b>		
<b>Citation</b>	<b>Journal</b>	<b>Quote</b>
Bernardes and Hanna (2009)	<i>International Journal of Operations &amp; Production Management</i>	"... flexibility seems to be related to an ex ante mode in relation to change, whereby a system is prepared in advance for some future transformation within defined constraints. For instance, volume flexibility allows firms to respond quickly and effectively to both increases and decreases in aggregate demand levels." (41)
Christopher and Holweg (2011)	<i>International Journal of Physical Distribution and Logistics Management</i>	"Current SCM practice has sought to create what we term dynamic flexibility, which allows firms to cope with certain shifts in demand and technology, but only within the set structure of their existing supply chain design... to meet the challenges of a turbulent business environment, we need structural flexibility that builds flexible options into the design of supply chains." (64)

(Continues)

TABLE 3 (Continued)

Flexibility: *the firm and supply chain's willingness and ability to adjust policy in the near term based upon their understanding of and interaction with externalities.*

Citation	Journal	Quote
Engelhardt-Nowitzki (2012)	<i>International Journal of Physical Distribution and Logistics Management</i>	"a short- and middle-term concept in the sense of "the ability to change with little penalty in time, effort, cost or performance" (Upton, 1995, 207)." (323)
Jayant and Ghagra (2013)	<i>International Journal of Supply Chain Management</i>	"...an organization's ability to effectively adapt or respond to change." (22)
Gligor et al. (2013)	<i>Journal of Business Logistics</i>	"...the ability to modify the range of tactics and operations to the extent needed." (97)
Grawe et al. (2011)	<i>Journal of Business Logistics</i>	"Most definitions of flexibility refer to a firm's ability to meet a variety of needs in a dynamic environment. ... Operational flexibility is short-term and refers to having "built-in procedures which permit a high degree of variation in sequencing, scheduling, etc." (71)
Liao et al. (2010)	<i>Journal of Supply Chain Management</i>	"...the extent of responsive ability through the use of organization-specific knowledge and physical assets. It is the nature and design of resources that constrain the ways in which firms can use them." (7)
Malhotra and Mackelprang (2012)	<i>Journal of Operations Management</i>	"...we consider supply chain flexibility as a system or network of interrelated external flexibilities (inbound and outbound) and internal manufacturing flexibilities, which taken together support the focal firm's performance outcomes from a customer oriented perspective." (181)
Omar et al. (2012)	<i>Journal of Business Logistics</i>	"...supplier flexibility, defined as the manufacturer's perception of the supplier's ability to respond to changes in the environment, including changes in supply and demand or changing risk levels in the home country." (130)
Patel et al. (2012)	<i>Journal of Operations Management</i>	"A large body of research focuses on manufacturing flexibility as a key element of an organization's response to environmental uncertainty." (202)
Pettit et al. (2013)	<i>Journal of Business Logistics</i>	"Ability to quickly change inputs (outputs) or the mode of receiving inputs (delivering outputs)." (49)
Vickery et al. (1999)	<i>Journal of Supply Chain Management</i>	"Product flexibility is a value-adding attribute that is immediately visible to the customer...volume flexibility – the ability to effectively increase or decrease aggregate production in response to customer demand...access flexibility – the ability to provide widespread or intensive distribution coverage...responsiveness to target markets... the overall ability of the firm to respond to the needs of its target markets...spread throughout the supply chain...[hinging] on a firm's ability to leverage the capabilities of its supply chain to meet or exceed customer requirements." (17)

(Continues)

TABLE 3 (Continued)

Agility: the firm and supply chain's willingness and ability to immediately make process level changes based upon their understanding and reaction to externalities.

Citation	Journal	Quote
Bernardes and Hanna (2009)	<i>International Journal of Operations &amp; Production Management</i>	"...agility is the ready ability to fundamentally change states to accommodate unforeseen circumstances in a timely manner. It is a property that allows the system to change its fundamental configuration vis-a-vis unanticipated issues. It implies uncertainty about the future state (configuration) of the system: upon materialization of a situation, the system changes states such that the new architecture can address the situation. It is not the ability to absorb change within pre-established parameters, but the ability to reorganize rapidly and smoothly, whereby the end state or situation needing change are not established a priori. It is not bound by pre-defined possibilities, as it implies the fundamental change in the arrangement itself. It is not an available option previously incorporated to accommodate uncertainty, but the fundamental change of the options available themselves once uncertainty has materialized." (42)
Charles et al. (2010)	<i>International Journal of Physical Distribution and Logistics Management</i>	"agility is being able to deal with and take advantage of uncertainty and volatility, adaptability is rather used for more profound medium-term changes." (724)
Devaraj et al. (2012)	<i>Journal of Operations Management</i>	"To the extent that one of the key manifestations of agility is flexibility, we demonstrate the business value of agility by documenting the effect of flexibility on business performance such as cost, quality, and delivery." (517)
Jayant and Ghagra (2013)	<i>International Journal of Supply Chain Management</i>	"The ability of a supply chain to respond to short term changes in demand or supply quickly and handle external disruptions smoothly." (21–22)
Gligor and Holcomb (2012a)	<i>Journal of Business Logistics</i>	"...the supply chain's ability to quickly adjust its tactics and operations. This ability can manifest itself proactively or reactively." (296)
Gligor and Holcomb (2012b)	<i>Supply Chain Management: An International Journal</i>	"the agility literature emphasizes a need to be able to react and respond to changing conditions that can be either demand or supply driven." (446)

(Continues)

TABLE 3 (Continued)

Agility: the firm and supply chain's willingness and ability to immediately make process level changes based upon their understanding and reaction to externalities.

Citation	Journal	Quote
Gligor et al. (2013)	<i>Journal of Business Logistics</i>	"...a firm's ability to quickly adjust tactics and operations within its supply chain to respond or adapt to changes, opportunities, or threats in its environment." (95)
Golicic and Sebastiano (2011)	<i>Journal of Business Logistics</i>	"a responsive or agile supply chain strategy places a premium on flexibility and responsiveness to uncertainty in demand (Goldsby et al. 2006; Lee, 2002), suggesting a supply chain structure in which collaborative problem solving, ongoing communication and information sharing, and the ability of supply chain members to adapt to changing market conditions are essential elements." (255)
Liu et al. (2013)	<i>Decision Support Systems</i>	"... a firm's ability to perform operational activities together with channel partners in order to adapt or respond to marketplace changes in a rapid manner." (1453)
Meier et al. (1998)	<i>Journal of Supply Chain Management</i>	"Agile competitive strategies require a market-focused, total systems strategic orientation that results in the ability to rapidly respond to changing customer demands and market conditions." (39)
Naima and Gosling (2011)	<i>International Journal of Production Economics</i>	"Agility means using market knowledge and a virtual corporation to exploit profitable opportunities in a volatile market place." (343)
Paulraj and Chen (2007)	<i>Journal of Supply Chain Management</i>	"...supply chain partners' superior performance in flexibility, time, delivery and performance." (p.5)
Roberts and Grover (2012)	<i>Journal of Business Research</i>	"A firm's customer agility, its ability to sense and respond quickly to customer-based opportunities for innovation and competitive action...consists of two distinct yet complementary dimensions – customer sensing capability and customer responding capability." (579)
Scholten et al. (2010)	<i>International Journal of Physical Distribution and Logistics Management</i>	"... how an organisation can synthesise new productive capabilities from the expertise of its members, through knowledge and skill development, promoting innovative thinking, emphasising management and providing appropriate physical facilities... which attempt to reliably meet market demands while minimising costs and reducing security risks." (626)

(Continues)

TABLE 3 (Continued)

Agility: **the firm and supply chain's willingness and ability to immediately make process level changes based upon their understanding and reaction to externalities.**

Citation	Journal	Quote
Wieland and Wallenburg (2013)	<i>International Journal of Physical Distribution and Logistics Management</i>	"the ability of a supply chain to rapidly respond to change by adapting its initial stable configuration" (Wieland & Wallenburg, 2012)." (302)
Wieland and Wallenburg (2012)	<i>International Journal of Physical Distribution and Logistics Management</i>	"...agility is mostly understood as the ability of a supply chain to rapidly respond to change by adapting its initial stable configuration. Agility corresponds primarily with being responsive (Christopher, Peck & Towill, 2006), being fast (Prater et al. 2001), and being able to reconfigure the supply chain (Bernardes & Hanna, 2009)." (890)

Improvisation: **the firm and supply chain's willingness and ability to adjust managerial actions to address immediate needs without prior planning as a one-time emergency response based upon reaction to externalities.**

Citation	Journal	Quote
Bradaschia & Pereira (2015)	<i>Journal of Operations and Supply Chain Management</i>	"Improvisation involves the ability to recombine available resources for a specific task. In this vision of improvisation, the author also includes creativity, defining it as the ability to use what you already know in different situations. In this way, creativity and, consequently, improvisation, are related to flexibility, to the extent that they are responsible for the increase in available options for dealing with a given situation." (123)
Morrison (2015)	<i>Journal of Operations Management</i>	" find[ing] other ways of getting things done. Some scholars view this process as one of improvisation or bricolage - the 'use of whatever resources and repertoire one has to perform whatever task one faces' (Weick, 1998 p.352)." (82)

Resilience: **the amount of disturbance that can be sustained by a firm or supply chain before a change in its control and structure occur.**

Citation	Journal	Quote
Brandon-Jones et al. (2014)	<i>Journal of Supply Chain Management</i>	"...the ability of a supply chain to return to normal operating performance, within an acceptable period of time, after being disturbed..." (55-56)
Coutu (2002)	<i>Harvard Business Review</i>	"...the ability of an organisation to face reality with staunchness, make meaning of hardship and improvise solutions from thin air." (55)

(Continues)

TABLE 3 (Continued)

Resilience: *the amount of disturbance that can be sustained by a firm or supply chain before a change in its control and structure occur.*

Citation	Journal	Quote
Falasca et al. (2008)	<i>Proceedings of the 5th International ISCRAM Conference</i>	"...the ability of a supply chain system to reduce the probabilities of a disruption, to reduce the consequences of those disruptions once they occur, and to reduce the time to recover normal performance." (596)
Fiksel (2006)	<i>Science, Practice &amp; Policy</i>	"...the capacity of an enterprise to survive, adapt and grow in the face of turbulent change." (16)
Hamel and Valikangas (2003)	<i>Harvard Business Review</i>	"...refers to a capacity for continuous reconstruction. It requires innovation with respect to those organizational values, processes and behaviours that systematically favour perpetuation over innovation." (55)
Lengnick-Hall et al. (2011)	<i>Human Resource Management Review</i>	"...firm's ability to effectively absorb, develop situation-specific responses to and ultimately engage in transformative activities to capitalise on disruptive surprises that potentially threaten organisation survival." (244)
Melnyk et al. (2014)	<i>Supply Chain Management Review</i>	"the ability of a supply chain to both resist disruptions and recover operational capability after disruptions occur..." requiring "...two critical capacities: the capacity for resistance and the capacity for recovery." (35–36)
Pettit et al. (2013)	<i>Journal of Business Logistics</i>	"...the capacity for complex industrial systems to survive, adapt, and grow in the face of turbulent change." (47)
Ponis and Koronis (2012)	<i>Journal of Applied Business Research</i>	Ecological perspective: "...resilience is the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks—in other words, stay in the same basin of attraction." (922)... Organizational "...the ability to proactively plan and design the Supply Chain network for anticipating unexpected disruptive (negative) events respond adaptively to disruptions while maintaining control over structure and function and transcending to a post-event robust state of operations, if possible, more favorable than the one prior to the event, thus gaining competitive advantage." (926)

(Continues)

TABLE 3 (Continued)

Resilience: *the amount of disturbance that can be sustained by a firm or supply chain before a change in its control and structure occur.*

Citation	Journal	Quote
Ponomarov and Holcomb (2009)	<i>International Journal of Logistics Management</i>	"...SCRes is the adaptive capability of the supply chain to prepare for unexpected events, respond to disruptions, and recover from them by maintaining continuity of operations at the desired level of connectedness and control over structure and function."
Wieland and Durach (2021)	<i>Journal of Business Logistics</i>	"Supply chain resilience is the capacity of a supply chain to persist, adapt, or transform in the face of change."

decision making. The definitions consequently tend to imply abilities and adjustment with long-term implications (Chandrasekaran et al. 2012; Engelhardt-Nowitzki, 2012). We propose the following definition grounded in the Responsiveness View:

Adaptability is the firm and supply chain's willingness and ability to strategically adjust or reconfigure structurally based upon the understanding and expectations of externalities.

### Flexibility—A policy adjustment

L&SCM examines intra- and interorganizational efficiency and effectiveness in adjusting to changing demand (Barney, 1991; Day, 1994). In the face of challenging market changes, flexibility—when implemented—reflects a firm's dynamic capability (Eisenhardt & Martin, 2000; Makadok, 2001). When managed well, flexibility can even create a responsiveness-related advantage over the competition by allowing policy to change (Upton, 1995) or become more liberal (Daugherty, Autry, & Ellinger, 2001). Flexibility also addresses the reaction to some activities or policies from market and environmental dynamics that require a rapid response. In this case, the distinction between flexibility and adaptability is that flexibility is a dimension of responsiveness that is rooted in operations or logistics reactions to rapid changes in the market.

Upton refers to flexibility as "the ability to change or react with little penalty in time, cost, or performance" (1994:73). More recently, Swafford et al. (2006) adopted these definitional characteristics to propose that a firm's range of flexibility corresponds to the number of different states of preparedness (levels, positions, or options) that can be achieved with its existing resources leaving little time for additional resources to be acquired. For clarity

in the responsiveness–flexibility relationship, one need only examine the foundation of Clark's (1991) proposition that responsiveness describes "systems flexibility" or an ability that embodies an aspect of responsiveness. When viewed from this perspective, some of the extant research not grounded in a Responsiveness View has been confusing in that it combines several actions/decisions, loosely termed as flexibility, across multiple supply chain studies covering multiple responsiveness dimensions. Overall, we argue that the link between flexibility and responsiveness follows Slack's (1991) conceptualized framework, where systems flexibility relates specifically to the higher order supply chain responsiveness concept. Flexibility is therefore defined as the supply chain's "ability to respond in a speedy manner to a changing marketplace environment" (Swafford et al. 2006: 172). This definition implies that the policies associated with flexibility must be based on a thorough understanding of a firm's response to relationships (logistics perspective) and the network (supply chain perspective).

Definitions of flexibility tend to refer to changes bound by a supply chain's structure (Christopher & Holweg, 2011), and its use entails a range of policy options rather than attempting to innovate a solution on the fly (Bernardes & Hanna, 2009). Engelhardt-Nowitzki (2012) views flexibility as a midterm approach to coping with change versus the longer-term adaptability dimension. Some researchers have even suggested that flexibility represents the boundaries that constrain a firm's ability to exercise agility (Chiang, Kocabasoglu-Hillmer, & Suresh, 2012). We propose this definition grounded in the Responsiveness View:

Flexibility is the firm and supply chain's willingness and ability to adjust policy in the midterm based upon their understanding of and interaction with externalities.

The responsiveness of a supply chain can be an outcome of supply chain member interactions. These interactions are represented by flexibility, along with the other dimensions. Specifically, flexibility embodies the ability to both recognize the intrinsic values of resources and relationships across the network and to adjust them based upon a time-orientated perspective to develop and incorporate abilities (Collis, 1994). Thus, responsiveness is a higher-level concept that integrates conceptual notions associated with L&SCM, whereas flexibility, like adaptability, is a dimension (and maybe a necessary managerially component) of being responsive.

### Agility—A process adjustment

While very popular in L&SCM research since the 1990s, the root of agility's definition is more apparent in disciplines such as kinesiology, where it is described as “the ability to change direction with a minimal loss of control and/or average speed” (Barnes et al. 2007: 1192). This implies some level of dependence on cognitive and perceptual processes to cope with unpredictable environmental changes (Sekulic et al. 2014). These definitions reflect industrial engineering's view of the organization reacting very “...quickly and effectively to changing markets, driven by customer-designed products and services” (Hasan et al. 2009: 409), as well as the operations management definition of efficiently changing operating states in response to uncertain and changing demands placed upon production (Narasimhan et al. 2010).

In the L&SCM literature, agility has been described as “[t]he ability of a supply chain to respond to short-term changes in demand or supply quickly and handle external disruptions smoothly” (Jayant & Ghagra, 2013: 21). At the firm level, it has been defined as “a firm's ability to quickly adjust tactics and operations within its supply chain to respond...to changes, opportunities, or threats in its environment” (Gligor et al. 2013: 95). The relationship of agility to the supply chain perspective is based on Bernardes and Hanna's (2009) conceptualization that agility reflects the firm's ability to fundamentally change states to accommodate unforeseen circumstances in a timely manner. Agility, then, is a property that allows very rapid changes within the system's fundamental configuration vis-à-vis unanticipated issues. It implies that when a situation arises, the system immediately changes state to address the situation. It is important to note that this does not represent the ability to absorb change within pre-established parameters, but rather the ability to reorganize and redistribute resources rapidly and smoothly, where the end state or situation needing change was not established a priori. It is therefore not bound by predefined possibilities,

but instead implies a fundamental change in the arrangement itself. It is “not an available option previously incorporated to accommodate uncertainty, but [a] fundamental change of the options available...once uncertainty has materialized” (Bernardes & Hanna, 2009: 42).

Definitions of agility have included rapidly adjusting to changing supply and demand conditions (Gligor & Holcomb, 2012a, 2012b) and strategic changes connected with firms' customer-sensing and customer-responding abilities (Roberts & Grover, 2012). Other definitions point to an ability to exploit opportunities that surface for limited periods because of the marketplace's dynamic and volatile nature (Charles, Luras, & van Wassenhove, 2010; Naim & Gosling, 2011). These definitions of agility may resemble flexibility in that they both represent relatively short-term adjustments in the face of changing conditions (Gligor & Holcomb, 2012a; Liu et al. 2013; Swafford et al. 2006). Agility and flexibility are distinguished from one another by agility's lack of preconceived responses and enhanced speed of adjustment (Bernardes & Hanna, 2009), as flexibility relies on firms' preplanned or proactive configurations and supply chain policy (Swafford et al. 2006; Upton, 1995). Agility definitions across disciplines imply an immediate response to phenomena encountered in proximity, rather than reconfiguring structure and policy to respond effectively to anticipated or forecast phenomena. We propose this definition grounded in the Responsiveness View:

Agility is the firm and supply chain's willingness and ability to make immediate process level changes based upon the understanding and reaction to externalities.

### Improvisation—A tactical adjustment

Improvisation is the responsiveness dimension that addresses short-term action in response to opportunity or mistake. Grounded in the knowledge and experience that managers call upon when adapting work routines and activities to rapid environmental changes, improvisation is “the deliberate and substantive response to the design and execution of a novel production” (Miner, Bassof & Moorman, 2001: 314). Improvisation therefore implies the generation of new “one-time” ideas (Deng et al. 2003), reflecting quickly emerging, but temporary, thoughts and actions (Ciborra, 1999; Moorman & Miner, 1998).

Improvisation is primarily associated with decisions made with minimal preparation. It connotes spontaneity or intuition (Weick, 1998) and is normally associated with creative activities such as music (e.g., jazz), rather than procedures (Miner et al. 2001). Interestingly,

improvisation is not examined as frequently in the business literature as the other responsiveness dimensions. Nevertheless, L&SCM managers do respond to surprise events by improvising. Although improvisation is not considered extensively in the L&SCM literature, there are several useful studies in the management literature that examine it in organizational settings (e.g., Moorman & Miner, 1998; Weick, 1998), primarily from a learning perspective (Miner et al. 2001). Reports in the literature have also highlighted various actions or activities that may represent or describe improvisation, such as creativity—novelty or deviation from standard practice (Amabile, 1983), or intuition—individual's choices that are not based on analysis (Moorman & Miner, 1998).

Improvisation is built upon prior experience and an updated modification or recombination of existing routines or plans (Hatch, 1998; Miner et al. 2001). The complexity of exchanges and the difficulty of predicting customer requirements necessitate an ability to adjust or react in a manner that addresses and corrects critical performance errors (Crossan et al. 1999; Jüttner & Maklan, 2011). Within the supply chain, improvisation is a critical dimension of responsiveness because it provides a complementary approach to planning, as well as a means to address unpredictable service failure events. It can contribute to the organization's and the supply chain's integrity by modifying responses built on preplanned actions and processes that comprise the collaborative elements between companies. Improvisation contributes to responsiveness by addressing one-time actions alongside the other dimensions of responsiveness.

In recent work, improvisation has been defined as a means of “find[ing] other ways of getting things done” (Morrison, 2015: 82), by “recombin[ing] available resources for a specific task... [requiring]...creativity [as] the ability to use what you already know in different situations” (Bradascchia & Pereira, 2015: 129). In short, the extant literature implies that improvisation is a means of achieving responsiveness in the face of unexpected impediments by leveraging whatever resources are at hand, regardless of whether they are designed for the purpose required. Thus, actions and techniques resulting from improvisation are unlikely to become a standard means of operating following emergencies. The ability to exercise improvisation remains important for responsiveness in any competitive environment where it is impossible to foresee all possible contingencies.

Supply chain complexity and uncertainties require the ability to respond with quick solutions to emerging problems and situations. Improvising generates new ideas to address these circumstances, serving as a way to deal with surprises that formal plans and previously developed activities are not equipped to handle (Miner et al. 2001). Kanter (2002) describes improvisation as action

taken by individuals who do not have all the information they need. This description is similar to Ciborra's (1999) conceptualization of improvisation as action that occurs on the spur of the moment, a view grounded in purposeful human behavior and based in intuition, competence, and chance. We propose this definition grounded in the Responsiveness View:

Improvisation is the firm and supply chain's willingness and ability to adjust managerial actions to address immediate needs without prior planning as a one-time emergency response based upon reaction to externalities.

### Resilience—Rebounding from impacts

L&SCM scholars have often implicitly understood resilience as “engineering resilience,” thereby assuming the supply chain to be a system that can be designed, optimized, and engineered (Holling, 1996; Wieland & Durach, 2021). Previously, resilience has been defined as the “ability to react to an unexpected disruption [...], and restore normal operations” (Rice & Caniato, 2003, p. 25). Such engineering-focused and equilibristic definitions have recently been criticized outside of L&SCM (e.g., Davoudi, 2012). The supply chain simply is not a rigid structure that can be shaped by a manager as if they were an engineer and it often is unclear what the desirable (“normal”) state of the supply chain is in the long run.

Contemporary thought assumes the supply chain to be a complex adaptive system (Choi, Dooley & Rungtusanatham, 2001; Novak, Wu & Dooley, 2021) or, more specifically, a social-ecological system (Wieland & Durach, 2021). This entails that the supply chain is too complex to be controlled by singular human actors, but that humans are still able to influence its structure and processes. A social-ecological interpretation of resilience is not about moving the supply chain back to normal because the meaning of “normal” might constantly evolve and be adjusted both inside and outside the supply chain. This can be done by adopting appropriate strategies and engaging in proactive planning by choosing a specific supply chain relationship. Resilience is then about being experimental and transformative Holling (1996)'s and Wieland and Durach's (2021) conceptualizations of resilience in the context of the supply chain network (Novak et al., 2021). We propose this definition grounded in the Responsiveness View:

Resilience is the amount of disturbance that can be sustained by a firm or supply chain before a change in its control and structure occur.

## Key assumptions of the Responsiveness View

Assumptions offer researchers boundaries for grounding research. Otherwise, studies grounded in logic would have to address all previously accepted conditions as potentially true. Not spelling out assumptions is a potential weakness in the extant L&SCM research, as we often overlook generally accepted assumptions that may not fit our context. We also tend to neglect to add new L&SCM-specific assumptions to the theories we adopt from other disciplines. Fortunately, our research has been building a solid platform for grounding the Responsiveness View's conceptualization of assumptions (Fawcett et al. 1996; Johnson, 1999; Johnson et al. 2003), although as yet these conceptualizations have largely examined responsiveness as an antecedent to other variables in a single-firm perspective rather than addressing responsiveness as a higher-level outcome or goal of L&SCM research and practice. At the same time, research has contributed to organizational interactions with externalities by underlining the importance of employing the responsiveness concept as a target for making informed managerial decisions (Lau, 1996; Mishra & Wadhwa, 2003; Yusuf, Sarhadi, & Gunasekaran, 1999).

When discussing the Responsiveness View, the dimensions and assumptions must be defined as a fundamental first step toward developing the parameters for future research directions and empirical testing. The following assumptions for supply chain responsiveness are based upon the activities required for L&SCM responsiveness to occur. These assumptions must also address consistent customer/interorganizational norms that are likely to exist or need to exist for the Responsiveness View to be applicable to a particular phenomenon. Hence, we note that responsiveness is the consequence of decisions made by interconnected firms specific to a supply chain, assuming that:

- Each supply chain is distinct in the market and environment such that managers are able to recognize and implement actions that can adjust their organization and their supply chain's actions.
- Each firm either adds some level of value to the supply chain or is eliminated.
- Each firm has resources and abilities, which dependent organizations can dedicate to creating responsiveness and adjusting its dimensions when faced with a dilemma.
- Relationships across the supply chain network are possible and preferred to the spot market when vertical integration is not possible.

Without these basic assumptions, the Responsiveness View will not hold. Table 4 presents a summary of the key criteria framing the Responsiveness View.

## DISCUSSION

It is likely that the development of the Responsiveness View has been overlooked because of attention paid to focal firm research that lends itself to borrowed theories, with little consideration paid to the complexity of L&SCM adjustment. Under supply chain and logistics management, responsiveness is both an organization-specific and supply chain-spanning concept that cascades from organization to organization. Thus, it is the combination of efficiency and effectiveness resulting from the various dimensions involved that should be examined to truly estimate the responsiveness of the extended enterprise. A renewed emphasis on the study of responsiveness may help overcome our very limited theoretical centering and grounding of L&SCM research. Our growing awareness of this issue motivated us to address the calls for theory building within SCM from the SCM, logistics, distribution, marketing channels, and management literatures (see Flint et al. 2005; Melnyk & Handfield, 1998; Mentzer & Kahn, 1995; Min et al., 2019). This approach integrates multiple elements of existing L&SCM research into a logical framework that treats the supply chain as a specific discipline striving for a specific goal.

The Responsiveness View may help eliminate the current need to solely ground our studies in borrowed theories that do not adequately address the complexities of L&SCM or outcomes. While elements of theories such as TCE and the RBV are useful, they ignore the specifics of implementation that make L&SCM a unique discipline that provides valuable input for supply chain managers and impacts of practice. TCE addresses the idea that a firm decreases its costs by either acquiring and maintaining resources or assembling a chain of cooperating firms that provide access to the outputs of such resources (Williamson, 1985). TCEs' resource combination for efficiency and the resource-based view of the firm (Barney, 1991; Wernerfelt, 1984) are basic assumptions in L&SCM research and the Responsiveness View. These theoretical groundings in firm efficiency and effectiveness are robust but are not designed to consider how and to what degree firms make trade-offs or how and to what degree to best balance these trade-offs between efficiency and effectiveness to achieve short-term and long-term goals. This important question and the underlying logic of how the work of the supply chain is accomplished is better framed and supported by the Responsiveness View. The Responsiveness

**TABLE 4** Responsiveness View's key criteria

<b>Supply Chain Management Key Performance Outcome Variable</b>		
<p>Responsiveness is the process and outcome of organizational adjustments achieved as individual organizations within a supply chain alter behaviors, norms, and/or policies to help place a supply chain and its members in a favorable position to achieve customer value under dynamic environmental conditions.</p>		
<p><b>Dimensions of Responsiveness</b>A firm or supply chain's choice of key decision variables</p>		
<p><b>Adaptability</b><b>Definition:</b> the firm and supply chain's willingness and ability to strategically adjust or reconfigure structurally based upon the understanding and expectations of externalities.</p> <p><b>Application:</b> Adjusting design based on market shifts, by modifying networks, products, and technologies (Jayant &amp; Ghargra, 2013)</p> <p><b>Example:</b> Brick and mortar retailer adoptions of omnichannel approaches</p>	<p><b>Flexibility</b><b>Definition:</b> is the firm and supply chain's willingness and ability to adjust policy in the midterm based upon their understanding of and interaction with externalities.</p> <p><b>Application:</b> Coping with environmental dynamics through built-in procedures (Grawe et al. 2011)</p> <p><b>Example:</b> Adjusting to customer demands for more liberal returns policy.</p>	<p><b>Agility</b><b>Definition:</b> the firm and supply chain's willingness and ability to make immediate process-level changes based upon the understanding and reaction to externalities.</p> <p><b>Application:</b> Quickly reacting or responding to changing demand or supply conditions (Gligor &amp; Holcomb, 2012b)</p> <p><b>Example:</b> Ability to rapidly locate alternative suppliers or retool for different products</p>
<p><b>Improvisation</b><b>Definition:</b> the firm and supply chain's willingness and ability to adjust managerial actions to address immediate needs without prior planning as a one-time emergency response based upon reaction to externalities.</p> <p><b>Application:</b> The ability to use whatever resources are at hand to address immediate needs (Morrison, 2015)</p> <p><b>Example:</b> Ability to ship in-store stock via intercompany transfer to compensate for DC stock outs.</p>		<p><b>Resilience</b><b>Definition:</b> the amount of disturbance that can be sustained by a firm or supply chain before a change in its control and structure occur.</p> <p><b>Application:</b> Persisting (in the short term), adapting (in the midterm), and transforming (in the long term) (Wieland &amp; Durach, 2021)</p> <p><b>Example:</b> Maintaining the current supplier network can be desirable in the short term, but fundamentally transforming it can be desirable in the long term.</p>
<p><b>Assumptions of Responsiveness</b></p> <p>Each supply chain is distinct in the market and environment such that managers are able to recognize and implement actions that can adjust their organization and their supply chain's actions.</p> <p>Each firm either adds some level of value to the supply chain or is eliminated.</p> <p>Each firm has resources and abilities, which dependent organizations can dedicate to creating responsiveness and adjusting its dimensions when faced with a dilemma.</p> <p>Relationships across the supply chain network are possible and preferred to the spot market when vertical integration is not possible.</p>		

View incorporates the efficiencies of resource allocation espoused by RBV, but the Responsiveness View contribution is how resources are allocated to achieve (mutual network) effectiveness through collective efficiency.

The abstract usage of the theories applied to L&SCM research makes them less useful than a perspective that specifically addresses our domain. This does not mean that past theory should be ignored. In particular, some of the emerging perspectives can be examined as antecedents and contexts of the Responsiveness View. These concepts are presented as vital components of supply chains and are accumulated over time within the L&SCM environment (Gulati, 1999). Additionally, supply chains can focus an organization's attention on specific contexts, enabling

group developed abilities that lower costs and improve capabilities. Issues such as these will help grow a discipline-defining nomological network that is well beyond this discussion but necessary. Future researchers will fully flesh out the paths to responsiveness and the appropriate combinations of dimensions.

Supply chains are becoming increasingly complex and varied in strategy, structure, and management conduct. The Responsiveness View and its dimensions offer the researcher tools to help explain this complexity. Richey et al. (2010b) support the notion that supply chains leverage relationships specifically to build superior responsiveness. In support of the current argument, responsiveness is treated as the firm's

managerial goal and the discipline's foundational perspective, whereby financial performance and customer value may follow. These supply chain managers target responsiveness as a key metric for future success and leverage a cost-value trade-off to influence performance through a targeted responsiveness level. We stress that while L&SCM managers are responsible for responsiveness, they are often only tangentially responsible for financial and corporate value. Setting one of those variables as an outcome therefore requires a litany of controls and assumptions that are beyond the allotted length of any journal article and open the researcher to enhanced endogeneity issues. It is our hope that the Responsiveness View proposed here will evolve to help L&SCM researchers to focus their efforts on a specific conclusion without assuming their way to a less legitimate outcome.

### **Responsiveness and supply chain strategy**

Structure and complexity are likely to have a significant impact on the activities leading to responsiveness. Adaptability suggests reacting to perceived changes in the market and environment by making structural modifications to supply chain flows. Thus, supply chain managers may develop a modular design such as postponement as a means of adapting to change. Additionally, retailing firms anticipating an increase in demand for omnichannel fulfillment might add warehouse capacity closer to the customer by contracting with (outsourced) warehouses rather than relying on more distant (owned) warehouses and retail locations (Ishfaq, Davis-Sramek, & Brian Gibson, 2021). These are all strategies for achieving improved responsiveness.

Similarly, developing supply chain strategy to become more flexible could incorporate modular characteristics. Flexibility's definitions suggest an ability to react to changes, but "only within a set structure of [the] existing supply chain design" (Christopher & Holweg, 2011: 64). Flexibility might then represent the range of modular configurations available to a given supply chain such that it can employ specific combinations of relationships and/or resources to execute segmented projects or cope with anticipated changes in demand or risk within the current structural boundaries. For example, Apple has been noted many times in the past decade for their ability to configure supply chains to best serve customer needs by using combinations of vendors that are well qualified based on their abilities for specific tasks, integrated capabilities (i.e., inventory management) and their response to customers in various market conditions.

Most disruptions are unpredictable. Prices for key inputs might change radically at short notice and persist for lengthy periods as happened with the price of oil in recent years. Similarly, key suppliers might become untenable because of changing customer attitudes toward labor conditions. Anticipating these circumstances may require a careful repositioning of supply chain member resources and abilities (possibly by changing the supply chain structure) or reconfiguring suppliers. Firms in highly volatile or innovative markets might prefer rapid-reaction approaches to medium- and long-term supply chain configurations in order to retain the ability to act quickly to seize new opportunities (Shekarian et al. 2020). Thus, there is room for supply chains to exercise adaptability and flexibility through modularized means. Future research questions could include the following:

- What specific combinations (of responsiveness dimensions) are best for particular circumstances?
- When should specific combinations (of responsiveness dimensions) be employed? and
- How should these combinations be implemented to reach a desired level of responsiveness?

We ask the reader to note that modular design is only one example in a field containing hundreds of existing and emerging strategic options that extend far beyond the space available here.

### **CONCLUSION**

Ambitious, all-encompassing definitions of L&SCM and borrowed theories may be partially to blame for confusion about our discipline and its maturity. Working from a definition that L&SCM is "everything" may have resulted in issues that muddied the field and bewildered our colleagues. Over the last two decades, we have seen the adoption of the L&SCM domain by tangential researchers, a lack of unity and understanding in our field's research goals, growing confusion about what makes a L&SCM contribution, and even false assumptions that a profit/cost motive is always appropriate or even measurable. This manuscript introduces a single, unified perspective for L&SCM research, especially in the area of decision making. While the Responsiveness View of L&SCM is still only an emerging idea, we contend that it will help ground future research and give researchers a specific and measurable outcome that can be easily explained in practical terms. Over time, developing our understanding of the antecedents, dimensions, and assumptions of the Responsiveness View may open the door for a significant amount of new and replicated research that should help define and advance the field.

## Advancing the Responsiveness View Research

The conceptualization presented here provides only a beachhead argument for larger research goals across the discipline. Although we have defined the basic parameters, this dimensional framework needs to be expanded and made completely transparent. In explaining the overall shape of the Responsiveness View, we have attempted to provide a potential discipline-defining perspective for our entire field of study. Ultimately, this study introduces a new, targeted logic that explains the multi-level decision design of the phenomenon, provides for the implementation of specific dimensions, and highlights the importance of the required assumptions. We define five important L&SCM dimensions that are often discussed and often confused. We set the stage for responsiveness to be viewed as a key performance criterion for our discipline. We hope that this discussion will spur debate that will improve L&SCM research and help the field mature through the benefits a focused approach offers.

Many conceptual and methodological questions remain. For instance, empirically, responsiveness can and initially probably should be collected through discussions with the manager, but researchers need to find other ways to develop specific metrics within and across organizations. An important measure that could include cost would be return on responsiveness (ROR), analogous to return on quality (ROQ). New metrics will enable researchers to relate responsiveness to outcomes in the broader field of business, but only when applying the appropriate control variables. Suggesting that responsiveness is our reason for being does not mean that sunk cost, financial performance, stock price, net income, and other outcome variables are less important, it means that they are typically distant from the activities and control of logistics and supply chain managers. As such, in studies that include market and financial outcomes, responsiveness could be considered a key mediating criterion similar to the modeling positions of commitment and trust in relationship marketing research (Morgan & Hunt, 1994).

In this manuscript, we have sought to provide logic and structure to how supply chains adjust, but we have not empirically examined the relationships between these concepts.<sup>2</sup> This is a largely ignored gap in the literature. Understanding the influence of these dimensions on responsiveness is crucial to bring realism and ripeness into the discussion. Additionally, research needs to work within, across, and beyond these concepts to address normative decision making, as well as best practices. The Responsiveness View opens the door to

simplifying past conceptualizations, allowing researchers to examine an outcome that is less burdened with error from missing variables, especially in the absence of controls. The research possibilities supported by the Responsiveness View are truly endless. Researchers may work to redevelop past models with responsiveness as the new outcome. This might also require more work on developing a standardized measurement instrument to quantify the responsiveness dimensions. Fortunately, recent statistical analysis supports convergent and discriminant validity across the dimensions and responsiveness itself (e.g., Um et al. 2017; Williams et al. 2013). Questions exist concerning the role of resource orchestration (including technology) and other mediators and moderators between setting, dimensions, and even responsiveness itself (see Gligor et al. 2021). Other more specific questions include the following: How does time influence the Responsiveness View? How does the Responsiveness View relate to ecological and social sustainability? How would a proactive or reactive approach further develop and influence the Responsiveness View? How do capabilities stemming from the responsiveness dimensions influence risk, uncertainty, and relational governance? How can agreements/disagreements between responsiveness at the firm vs. supply chain level be negotiated? The opportunities are deep and broad. Finally, and most importantly, L&SCM managers must be able to understand the Responsiveness View and find the connection appropriate to their explicit needs. That is not something you can say about many of our borrowed perspectives.

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<sup>2</sup>Recent statistical analysis does support both convergent and discriminant validity across the dimensions and responsiveness itself.

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