A NEW METHODOLOGY FOR SUPPLY CHAIN MANAGEMENT: DISCOURSE ANALYSIS AND ITS POTENTIAL FOR THEORETICAL ADVANCEMENT

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ABSTRACT

This paper responds to recent calls for methodological diversification and 'in-house' theory development within the discipline of SCM, by introducing discourse analysis to readers of the *Journal of Supply Chain Management*. One of the merits of discourse analysis is the way in which it 'problematizes' taken-for-granted aspects of organizational life, including supply chains, to show that what we assume to be natural, inevitable and beneficial is rarely quite so straightforward as it may seem. In addition, through the way in which it emphasizes the interrogation of meaning, discourse analysis can broaden conceptualizations of the supply chain to include actors that have previously been overlooked, such as employees, workers, not-for-profit organizations, regulators, consumers and the media. Using examples that are familiar to SCM researchers – the discourses of lean, sustainability, modern slavery and big data – we illustrate how discourse analysis can help to theorize SCM phenomena by problematizing established meanings and revealing how they reproduce power relations among actors. We then show how insights from discourse analysis can complement existing theories of the supply chain and, in so doing, potentially rejuvenate the field of SCM by inspiring novel theory development, opening up different empirical settings, and promoting new ways of analyzing qualitative data.

KEY WORDS: Environmental Issues, Ethics, Human Resources, Social Responsibility, Discourse Analysis, Research Methods

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The *Journal of Supply Chain Management* is now over 50 years old, during which time the field has changed considerably (Carter et al., 2014). Today, scholars are wrestling with a range of challenges, as a result of which a number of proposals for theoretical advancement of the discipline have been suggested. One suggestion is to broaden conceptualizations of the supply chain to include actors that have previously been overlooked, such as employees and workers (Elmortada et al., 2018), not-for-profit organizations (Pagell, Fugate & Flynn, 2018), governments and regulators (Fugate, Pagell & Flynn, 2019), consumers (Carter, Rogers & Choi, 2015; Soosay & Hyland, 2015), and the media (O'Leary, 2012). Another suggestion is to reduce the dependency on the use of single response surveys which have known limitations insofar as supply chain management (SCM) inevitably involves organizations, which is "a more complex unit of analysis … [and] cannot be assessed by asking individuals about their personal feelings, opinions, or behaviour" (Flynn, Pagell & Fugate, 2018, p. 2). Accordingly, broader research methods have been called for, including those that involve qualitative and critical forms of data collection and analysis (Calantone & Vickery, 2010; Denk, Kaufmann & Carter, 2012; Ketokivia & Choi, 2014; Narasimhan, 2014; Matthews et al., 2016). Without methodological innovation and diversification, it is difficult for the discipline to develop its own theoretical foundations. Instead, theory is imported from other disciplines rather than being developed 'in-house' (Carter, 2011; Narasimham, 2014).

Researchers in the SCM discipline are cognisant of these challenges: the emerging discourse incubators (EDI) promoted in this journal clearly illustrate this. We wish to take advantage of the opportunity provided by this EDI to show how discourse analysis can contribute to SCM research by introducing novel ways of thinking about the supply chain that will stimulate new theory development. One of the attractions of discourse analysis is the way in which it 'problematizes' (Alvesson & Sandberg, 2011) organizational life, showing that what we assume to be natural, inevitable and beneficial is rarely quite so straightforward as it may seem (Phillips, Lawrence & Hardy, 2004). By questioning longstanding assumptions, discourse analysis has helped to rejuvenate the field of organization and management theory (OMT), inspiring a period of novel

theory development, occasioning interesting new empirical settings, and promoting new ways of collecting and analyzing data (Grant, Hardy, Oswick & Putnam, 2004). In this article, we argue that there is potential for discourse analysis to do the same in SCM.

DISCOURSE AND DISCOURSE ANALYSIS

OMT researchers became interested in the role of language – or discourse – in the late 1980s. Since then, studies based on discourse analysis have established a strong presence in the discipline, not only in European journals, but also in top-tier US journals that usually concentrate on quantitative research. This body of work defines a discourse as a collection of interrelated texts (which includes talk) and practices "that systematically form[s] the objects of which they speak" (Foucault, 1979, p. 49) and "cohere[s] in some way to produce both meanings and effects in the real world" (Carabine, 2001, p. 268). Accordingly discourse analysts are also social constructionists (see Berger & Luckman, 1966; Gergen, 1985; Schwandt, 2003). They assume that our knowledge, understanding and experience of the world is constructed through social interaction and, particularly, language (Burr, 2015). Rather than *reflecting* a pre-existing, objective independent reality, language helps to *constitute* what we experience as reality (Phillips & Oswick, 2012). In other words, discourses "do not just describe things; they *do* things" (Potter & Wetherell, 1987, p. 6) by providing a language for talking about a topic that rules in certain ways of thinking and acting, while ruling out others (Phillips & Hardy, 2002).

Researchers cannot access discourses *per se*, but they can find traces of them in the texts and practices that compose them. Discourse analysis is, accordingly, the systematic study of texts. Some researchers examine bodies of texts, as well as patterns in their authorship, distribution and consumption, to show how they shape meanings and practices, as well to discern who has the right to speak and what can be said (e.g., Maguire & Hardy, 2009), while other researchers study individual texts to investigate the meanings embedded in them (e.g., Laine & Vaara, 2007). Another stream of research focuses on the practices that emanate from particular discourses, exploring the way in which power is embodied in certain ways of thinking, speaking and behaving (e.g., Knights,

1992; Townley, 1993). In sum, discourse analysis is a flexible methodology involving the use of different forms of data to examine the constructionist effects of language. Its aim is to show how particular meanings are created, maintained and disrupted through discourse; highlight how established meanings reproduce power relations among actors; and illustrate how the creation of new meanings can reconfigure power relations, empowering new actors to speak and/or allowing new things to be said (for a list of helpful resources on discourse analysis, please see appendix).

Discourse analysts have been particularly interested in 'dominant' discourses, which arise when texts draw on one another in well-established ways, converging in their descriptions and explanations of a phenomenon (Phillips et al., 2004). When this happens, texts create a unified and taken-for-granted view of reality, leading to highly institutionalized, authoritative ways of addressing a topic as shown in the example of the discourse of 'lean' below. In this case, discourse analysts problematize unified, prevailing views of 'reality' founded upon taken-for-granted assumptions and understandings to reveal how a dominant discourse dictates what is 'normal' in a particular domain. In this way, discourse analysts are able to expose how established meanings reproduce power relations by prioritizing particular bodies of knowledge, identify actors privileged by the dominant discourse, and ascertain those actors who are rendered marginal or invisible it.

The Dominant Discourse of 'Lean'

Lean production aims at producing products and services at the lowest cost and in the fastest time possible (Bhamu & Sangwan, 2014). The discourse of lean can be traced back to the 1980s (Hines, Holweg & Rich, 2004), when Massachusetts Institute of Technology (MIT) researchers working on International Motor Vehicle Programme (IMVP) used the term to describe Toyota's production system (Samuel, Found & Williams, 2015). Lean principles and practices are now implemented in retail, aerospace, construction, financial, health and public sectors, and encompass the entire supply chain (Bhamu & Sangwan, 2014; Samuel et al., 2015). Lean thus represents a dominant discourse embedded in institutionalized practices shared by a wide range of organizations.

The dominance of lean started with the production of a widely distributed, authoritative text – *The Machine That Changed the World*, published by Womack and colleagues in 1990. A text is more likely to be widely distributed when its authors 'warrant voice' (Hardy & Phillips, 2004) and are centrally located in the field (Phillips et al., 2004). In this case, the authors were respected MIT researchers reporting the results of a major research program involving a global network of academics. It is not surprising then that the ideas were subsequently taken up – or 'consumed' – in a myriad of academic papers written by other researchers (Samuel, et al., 2015), especially since the book was of a genre that also appealed to business audiences.

To achieve dominance, in addition to being widely distributed the ideas in the authoritative text must be reproduced with a high degree of fidelity (Maguire & Hardy, 2009). This is easier when actions are decontextualized and abstracted so that their organizing properties can be generalized to other locations. In

The Machine That Changed the World, the localized actions of a Japanese car manufacturer were taken "out of their Japanese context" and translated into "universal principles" (Oliver & Hunter, 1998, p. 81) that were legitimized by being associated with "a competitive edge by reducing cost and improving productivity and quality" (Bhamu & Sangwan, 2014, p. 877).

The Machine That Changed the World is thus a text that has achieved significant 'staying power' (Cooren, 1994). It is one of the most widely cited references in operations management (Holweg, 2007). It has created enduring meaning for the ideas that it proposes by being taken up in countless other texts and by bridging both academic and business spheres. Additionally, the resulting body of texts that constitute the discourse of lean draw on one another in well-established ways, converging in their descriptions of lean principles and prescribed practices. As such, the discourse of lean constitutes a clearly delineated body of knowledge (cf. Knights & Morgan, 1991) that explains and normalizes certain practices. Lean is also supported by other discourses such as Just-in-Time, Total Quality Management, Six Sigma and Business Process Engineering (Shah & Ward, 2003; Hines et al., 2004; Holweg, 2007; Pettersen, 2009). Each of these discourses promote practices that align with those associated with lean. As a result, they do not pose a threat to the discourse of lean but help to reinforce it.

In sum, despite academic qualms over the lack of a clear definition and equivocal findings regarding its impact (Bhamu & Sangwan, 2014), lean represents a dominant discourse. Attempts to criticize the discourse of lean often end up reinforcing it. Accusations that lean is not effective are typically attributed to practices not being properly implemented. As a result, the solution is to execute a 'purer' form of lean or to adapt lean practices to make them more successful. Either way, there is little threat to the dominance of the discourse of lean – merely adjustments to it.

Another area of interest for discourse analysts are discursive 'struggles' where actors contest meaning by drawing on different discourses. Maguire and Hardy (2006) show how different governments drew on either the discourse of 'sound science' or the discourse of 'precaution' in their attempts to shape a new global regulation on toxic chemicals. The former justified less constraining legislation to restrict these chemicals, while the latter legitimized a more restrictive regulatory framework where these chemicals were more likely to be banned. In this way, different discourses were used by governments to support their preferred outcome. Sometimes, the struggle does not involve competing discourses so much as conflicting meanings within a single discourse, as in the example of the struggle permeating the discourse of corporate social responsibility (CSR). By examining how different discourses create conflicting meanings and lead to contradictory practices or by illuminating how one discourse can generate multiple meanings, discourse analysts can explore the nature and implications of the struggle – who 'wins' and who 'loses' – as well as how the creation of new meanings can reconfigure power relations and the way in which discourse itself can be an important power resource.

Struggles over the Discourse of 'Corporate Social Responsibility'

Corporate Social Responsibility (CSR) is typically defined in terms of actions that further some form of social good that involves the firm going beyond pursuing its own narrowly defined interests or simply obeying the law (McWilliams & Siegel 2001). According to the discourse of CSR, firms "must not only not harm various stakeholders in their pursuit of profit … they must go one step further: they should proactively strive to improve the working and living standards of their employees, contribute to the communities in which they operate and preserve and protect the environment" (Jonker & Marberg, 2007, p. 108). The discourse can be traced back to the 1950s (Carroll, 1999), although its appearance in SCM is more recent (e.g., Carter & Jennings, 2002a; 2002b, 2002b, 2004; Jørgensen, Pruzan-Jørgensen, Jungk & Cramer, 2003; Carter, 2004, 2005; Phillips & Caldwell, 2005; Maloni & Brown, 2006; Andersen & Skjoett-Larsen, 2009; Park-Poaps & Rees, 2010), and the implementation of CSR practices remains limited (see Björklund, 2010). So, unlike lean, there is little evidence of a dominant discourse that has been translated into institutionalized SCM practices.

From a discourse-analytic perspective, we can see that the limited application of CSR in SCM results from a discursive struggle among businesses, academics and nongovernmental organizations (NGOs) concerning what CSR means. Many academics and NGOs call for a strong form of CSR premised on the idea that many production, consumption and employment practices used in business are unethical and unsustainable. They therefore require fundamental change. The meaning of CSR promoted by the business community, in contrast, calls for a more conservative approach that does not change business practice significantly and which is administered through self-regulation (Markkula & Moisander, 2012).

Business has so far succeeded in winning this discursive struggle by representing financial and environmental performance as mutually exclusive objectives. In this way a meaning was created that limits the need for a fundamental shift in practices in order protect financial performance (Burchell & Cook, 2006). Discourse analysis thus helps researcher understand why CSR has entered in the lexicon of SCM but has taken a particular, relatively constrained form.

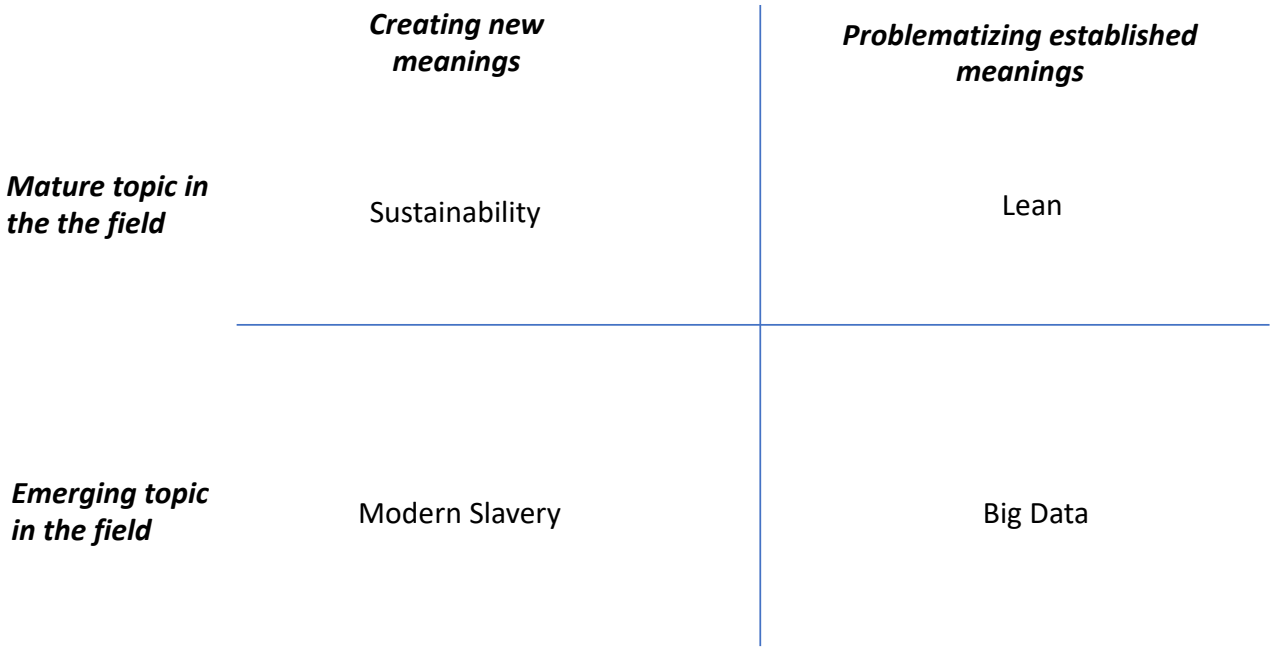
In sum, discourse analysis introduces the idea that language has effects: it does not merely describe what happens in organizations or society; it helps to create it. Changing the language – or discourse – can introduce new meanings from which different outcomes flow. At the same time, it also challenges the idea that meaning is unequivocal and inherent regardless of how matter of fact or incontestable it may seem. In showing how meanings are created through discourse, discourse analysis helps to explain how particular meanings emerge, why they stabilize and become taken-for-granted, and how they can be changed (Hardy & Phillips, 2004). It also becomes possible to see the way in which discourses embody subtle power relations – by privileging certain identities, prioritizing particular bodies of knowledge, or hiding inequalities behind taken-for-granted assumptions – that enable certain outcomes, while constraining others.

DISCOURSE ANALYSIS AND SUPPLY CHAIN MANAGEMENT

In this section, we show how discourse analysis can add insight into specific areas of SCM research by showing how meanings are created, maintained and disrupted. In the first instance,

discourse analysis can be used *to problematize established meanings* and reveal how they reproduce power relations among actors. Discourse analysis also sheds light on how *the creation of new meanings* reconfigures power relations. Moreover, discourse analysis provides insight into *mature* themes familiar to SCM researchers, as well as *emerging* issues that have only recently started to attract attention. This dual emphasis allows us to consider the discourses of lean, sustainability, modern slavery and big data (see Figure 1).

Figure 1: Application of Discourse Analysis to SCM Topics



The Discourse of Lean

In this section, we continue with our discussion of lean. We problematize the meaning embedded in this mature, dominant discourse that serves to render employees invisible. In doing so, we address two criticisms often levelled at lean: that it can be oppressive as far as employees are concerned (Samuel et al., 2015); and that lean initiative are often unsuccessful (e.g., Radnor, Howeg & Waring, 2012; Carter, et al., 2013; Radnor & Osborne, 2013; Bhamu & Sangwan, 2014; Tay et al., 2017). We argue that these two issues are interwoven – that the exclusion of employees is one reason why lean initiatives fail.

Discourse analysis starts by problematizing the way in which the discourse of lean has taken

on a meaning that serves to exclude employees, especially as it originally emphasized an inclusive, participative workplace culture. In the case of the joint venture between General Motors and Toyota in the 1980s, agreements were reached with the union for a teamwork-based working environment, fewer job classifications and quality circles (Holweg, 2007). Since then, however, many companies have failed to address organizational culture when introducing lean initiatives. Implementation has tended to be "entirely tool-focused, and generally neglected the human aspects of the high-performance work system core to the lean manufacturing approach" (Hines, Holweg & Rich, 2004, p. 995). SCM research has also often concentrated on lean's structural components at the expense of its human and cultural aspects (Bhasin & Burcher, 2006). Even developments to broaden the meaning of lean to include quality in the 1990s and customer value in the 2000s failed to illuminate the presence of employees or their impact on lean initiatives (Hines et al., 2004).

Consequently, proponents of lean production usually have "a strong instrumental and managerial perspective, discussing employees in terms of components in the production system" (Pettersen, 2009, p. 134). This meaning is consistent with the broader conceptualization of the supply chain as a network consisting of nodes and links in SCM, where a node is defined as "an establishment which is an agent that has the ability to make decisions and maximize its own gain within the parameters in which it operates" (Carter et al., 2015, p. 90). However, insofar as it leads managers and researchers to neglect the complex role that employees play in enacting – or resisting – the practices that constitute lean, this meaning, as well the broader conceptualization of nodes in a supply chain, are problematic. Rendering employees invisible in the study and practice of lean production makes it harder to identify what makes lean initiatives successful and why they fail.

Accordingly, discourse analysis promotes a different meaning – one in which employees are recognized as *agents* that are able to take action in support of, or in opposition to, lean initiatives. For many employees, lean does not mean efficient production so much as it is "a shorthand for cost-cutting and new forms of domination" (Alcadipani, Hassard & Islam, 2018, p. 1452). It should not surprising then when employees try to resist lean initiatives in ways that can range from sabotage

and working-to-rule to subtle forms of irony and contempt (Videla 2006; Waring & Bishop, 2010; McCann et al., 2015). Individual lean projects can easily become 'contested terrains' notwithstanding the dominance of the discourse, and employee resistance can stymie the introduction of lean initiatives even while the discourse retains its dominance.

In sum, discourse analysis problematizes the way in which the discourse of lean has created a meaning that tends to ignore employees and acknowledges that, despite its dominance, the discourse of lean means different things depending on whether one is an employee, a manager, or a researcher. Creating a more employee-centered meaning for lean and, more broadly, re-revising the conceptualization of the nodes in a supply chain as *organizations with multiple actors* makes it possible to reconfigure power relations by repositioning employees as active agents who collectively enact – or resist – lean practices. In this way, discourse analysis helps to explain how employee resistance represents a potential operational challenge to lean initiatives, addresses the negative impact that lean can have on the workforce, and sets the scene for reconfiguring lean practices to take into account human and cultural factors.

The Discourse of Sustainability

Sustainability is a mature discourse in SCM with papers going back to the 1990s (Greenberg, 1995; Giuntini, 1996; Min & Galle, 1997), but it is not a dominant one. Despite the emergence of Sustainable Supply Chain Management (SSCM) as a distinct topic (Carter & Rogers, 2008; Pagell & Wu, 2009; Carter & Easton, 2011; Wible, Mervis & Wigginton, 2014; Krause, Vachon & Klassen, 2019; Markman & Krause, 2016), it is still "a novelty … not the focus for the typical researcher" with only 10 percent of papers in JSCM addressing sustainability (Pagell & Shevchenko, 2014, p. 45). Moreover, "very few firms are measuring their full externalities" (O'Rourke, 2014, p. 1126) and even "leading practitioners of SSCM have supply chains that are not yet truly sustainable" (Pagell & Shevchenko, 2014, p. 45). In this section, we explain why this mature discourse remains relatively marginal in SCM, as well as illuminate how scholars might change the meaning of sustainability in ways that will bolster its impact on supply chains.

Discourse analysis suggests three reasons that explain why the sustainability is not a dominant discourse. First, this discourse is not supported by a widely distributed, authoritative text whose ideas are faithfully reproduced in subsequent texts. *Our Common Future* (WCED, 1987), which introduced the concept of sustainable development and described how it could be achieved, is potentially such a text, but it has been cited less than 8,000 times, while *The Machine that Changed the World* has been cited by over 18,000.[1] Moreover, when *Our Common Future* is taken up in subsequent texts, its ideas are interpreted in conflicting ways with as many as 300 different definitions of sustainability (Ramsey, 2015); and the same confusion is true of SSCM (Carter & Rogers, 2008).

The multiplicity of definitions creates a second reason. As with CSR – from which SSCM has emerged (Carter & Easton, 2011)[2] – there is a struggle over what the discourse means. Most studies subordinate sustainability to profitability: "the SSCM perspective advocates that such [social and environmental] undertakings would be socially irresponsible unless considered within the broader context of a firm's overall strategic and financial objectives" (Carter & Rogers, 2008, p. 369). Some researchers call for treating "a supply chain's social and environmental performance as equally or more valid than economic performance" (Pagell & Shevchenko, 2014, p. 45) and prioritizing "the environment first, society second, and economics third" (Markman & Krause (2016, p. 9). However, as with CSR, the overriding meaning is the one that denies the need for a fundamental shift in practices. Accordingly, sustainability is undermined by business discourses that emphasize economic profitability and shareholder primacy. The result is that SSCM appears locked into a meaning that emphasizes 'less unsustainable' supply chains – reducing harm instead of eliminating it with supply chains that "*at a minimum* create no harm and may even have positive or regenerative impacts on social and environmental systems" (Pagell & Shevchenko, 2014, p. 46; emphasis added).

[1] According to a recent Google Scholar search.
[2] Note that some researchers consider SSCM to be distinct from CSR (e.g., Markman & Krause, 2016) – another sign of discursive struggle.

Discourse analysis reminds us that there is nothing inevitable about this trajectory for the discourse of sustainability and provides insight into how SCM scholars might reorient it by changing its meaning from harm reduction to harm elimination, as 'green' or 'sustainable' chemists have done (see Maguire & Hardy, 2016; 2019). In the 1970s and 1980s, the environmental movement started to challenge the assumption that the benefits of chemistry automatically outweighed any harm that it might cause to human health and the environment. One response was to harness the discourse of sustainability by introducing green chemistry (Howard-Grenville et al., 2017), which changed the original meaning that emphasized harm reduction (allowing for the use of dangerous chemicals and regulating exposure to them) to one that focused on *eliminating* harmful chemicals from industrial processes. This change in meaning was achieved with the publication of an authoritative text – the field's first green chemistry textbook (Anastas & Warner, 1998) – which articulates twelve principles underlining a commitment to harm elimination. These principles have subsequently been systematically and consistently taken up in subsequent texts that have guided the development of new teaching and research practices. University chemistry departments around the world have signed up for the 'Green Chemistry Commitment' (Beyond Benign, 2017). Journals and conferences dedicated to green chemistry have been set up to foster chemistry that is 'benign by design' (Maguire et al., 2013). A range of green chemistry networks link universities, governments, industry and NGOs to promote "the creation and adoption of safer chemicals and sustainable materials, thereby creating market transitions to a healthy economy" (BizNGO, 2017). As a result, not only have sustainability and economic goals been amalgamated, but actors that traditionally do not warrant voice, such as NGOs, are now participants in the discourse.

In sum, discourse analysis shows that sustainability suffers from many of the problems that have beset CSR in that, despite the growth of interest in SSCM, conflicting discourses that prioritize profitability and shareholder value have marginalized this discourse and restricted its meaning to one of harm reduction. Discourse analysis also sheds light on a potential solution to this problem by tracing how a discipline in a similar position – green chemistry – created a new meaning – harm

elimination – to replace harm reduction, thereby ensuring that chemistry is taught, researched and practiced in a more sustainable way.

The Discourse of Modern Slavery

Modern slavery is a new discourse that has emerged as a result of the United Nation's Sustainable Development Goal (8.7), which calls for effective measures to end forced labour, modern slavery, human trafficking and child labour (Lindsay, Kirkpatrick & Low, 2017). Recent legislation in a range of countries[3] has introduced this discourse into SCM by requiring companies to disclose and address the risks of modern slavery in their supply chains (see Gold, Trautrims & Trodd, 2015; New, 2015; Stevenson & Cole, 2018). However, progress is slow, with observers arguing that stronger sanctions are needed to enforce quicker and greater compliance (e.g., Crane et al, 2017). In this section, we use discourse analysis to illuminate how creating new meanings at the intersection of the discourses of modern slavery and risk may help to increase compliance.

Modern slavery is typically defined as "the status or condition of a person over whom any or all of the powers attaching to the right of ownership are exercised" (1926 League of Nations Slavery Convention cited in Allain, 2009, p. 240). This definition acknowledges that modern slavery is premised on the exercise of specific powers rather than legal ownership (Crane, 2013), and includes conditions where individuals work under threat of mental and physical abuse, debt bondage, withholding of wages, and situations where the employer retains the passports or identity documents of migrant workers (ILO, 2005). It is estimated that 40 million people world-wide are victims of some form of modern slavery with some 25 million people in forced labour (ILO, 2017; Minderoo, 2019).

Recent legislation requires organizations to make their supply chains transparent by identifying and tracing all upstream tiers; assessing the risks that workers throughout the supply chain face in relation to modern slavery; and reporting strategies for managing risks to vulnerable

[3] Examples include including the California Transparency in Supply Chain Act in 2010, the United Kingdom Modern Slavery Act 2015, the French Corporate Duty of Diligence Act in 2017, the Due Diligence on Child Labour Act in the Netherlands 2019, and the Modern Slavery Act in Australia, 2018

workers (Stevenson & Cole, 2018). This presents a considerable challenge since tracking, monitoring and auditing a supply chain becomes more difficult the more one moves upstream, especially if the number and diversity of suppliers and use of subcontractors increase (Wilhelm et al., 2016). Moreover, typical supply chain performance metrics are not geared towards monitoring illegal activity since they rely on self-reporting (Gold et al., 2015). As a result, compliance is low. For example, one study found that only one per cent of 1300 US corporations could certify that they did not source 'conflict minerals' from the Democratic Republic of Congo without reasonable doubt (Kim & Davis, 2016). In the UK textile sector, risk management and avoidance plans have been mainly restricted to first-tier suppliers and emphasized minimal compliance (Stevenson & Cole, 2018). Overall, about 40 per cent of eligible companies are believed *not* to be complying with the UK legislation (Field, Miller & Butler-Sloss, 2019).

Discourse analysis shows how the discourse around supply chains has changed to include conceptions of slavery, ensuring that actors that were previously invisible – upstream labour – are now visible, and thereby extending the horizons of the supply chain. With the discourse of slavery also comes the discourse of risk insofar as organizations are expected to assess and manage the risk of modern slavery to individual workers in the supply chain in order to avoid penalties for noncompliance. However, early research indicates this in and of itself is not leading to radical changes in organizations' behaviour (e.g., Crane et al., 2018; Law Council of Australia, 2018; Field, Miller & Butler-Sloss, 2019).

Discourse analysis illuminates how the intersection of these two discourses – slavery and risk – can be leveraged to create new meanings that may encourage compliance. Specifically, if risks posed by modern slavery to individuals are 'translated' (Maguire & Hardy, 2019) into *organizational* risks, power relations among organizations are reconfigured. For example, if sourcing products through a supply chain that is susceptible to modern slavery becomes a reputational risk (Scott & Walsham, 2005; Power et al., 2009) for retailers, these organizations are likely to manage it by withdrawing products and/or switching suppliers. In doing so, retailers create

a strategic risk for suppliers insofar as there is a threat to long-term performance or the survival of the enterprise (cf. Calandro, 2015). In this way, legal sanctions are reinforced by 'retailer regulation' in that suppliers risk being 'locked out' (Grimaldi, 2017) of supply chains unless they improve their labour practices and invest in a more transparent practices, untainted by modern slavery.

The new meanings created by translating risks also reconfigure power relations among other actors. For example, Consumers play a role through preferences for brands whose supply chains are not marked by modern slavery. NGOs and the media can heighten the reputational risks to particular retailers by undertaking awareness and shaming campaigns, thereby increasing the chances of consumer boycotts and shareholder activism (Gold et al., 2015; Stevenson & Cole, 2018). NGOs can leverage their power further in that they are also able to *reduce* the reputational risk of retailers by conducting ethical audits, ensuring fair recruitment of workers, and certifying that appropriate changes have been made by upstream suppliers (Gualandris & Klassen, 2018). In this way, actors previously on the periphery of the supply chain become central to it.

In sum, discourse analysis helps to discern new meanings associated with the emerging discourse of modern slavery and its intersection with the discourse of risk. It shows how this intersection can be more effectively leveraged by translating individual risks into organizational ones. By creating new meanings in this way, other actors start to warrant voice and become an integral part of the supply chain, including consumers, NGOs and the media. The resulting reconfiguration of power relations puts pressure on non-compliant organizations as downstream consumer choices concerning individual products ripple back upstream to suppliers in ways that encourage the recalibration of employment practices

The Discourse of Big Data

The discourse of big data has only emerged in the last decade or so (Anderson, 2008; *The Economist*, 2010; Simsek et al., 2019). Big data are harvested from various forms of social media (Harford, 2014; Holtzhausen, 2016) and then combined with data science and predictive analytics

(Hazen et al., 2014) to form 'big data analytics' (Nguyen et al., 2018). Companies gain a competitive advantage by identifying trends that can be used to tailor products and services, anticipate demand and improve performance (Kruschwitz & Shockley, 2011; Wang et al., 2016). In SCM, big data are an emerging 'game changer' (Nguyen et al., 2018). Supply chain analytics (Wang et al., 2016) and SCM data science (Waller & Fawcett, 2013) will purportedly transform how supply chains are designed and managed (Ganeshan & Sanders, 2018; Hazen et al., 2014; Wamba et al., 2017). In this section, we discuss how this apparently recent discourse is, in fact, founded on longstanding assumptions. We use discourse analysis to problematize established meanings and reveal the power relations embedded in the discourse.

Discourse analysis shows that the discourse of big data is not as recent as it might seem. It is, in fact, buttressed by the scientific discourse that has enveloped SCM ever since it evolved from operations management and operations research during World War II (Bayraktar et al., 2007; Iansiti, 2015). This scientific discourse has long emphasized a highly privileged professional, scientific identity whose credentials were further enhanced by "narratives told about the contribution of 'science' to the war" (Thomas, 2015). The current discourse also constructs a privileged identity – for the data scientist. The 'sexiest' job of the 21st century requires a "hybrid of data hacker, analyst, communicator, and trusted adviser. The combination is extremely powerful – and rare" (Davenport & Patil, 2012, p. 73), leading to stratospheric salaries (Marr, 2015; Holak, 2019; Woodie, 2019). On one side, we see "messy piles of data living in far flung databases coming from heterogeneous sources … On the other side, we see fleeting glimpses of the rare subject capable of mining these messes: The Data Scientist, armed with … a large pile of data, algorithms and not a little genius" (Gehl, 2015, p. 414). In other words, as digital information has become more ubiquitous and accessible, the worker who can mine it has become more valuable.[4]

Discourse analysis draws attention to the fact that the discourse of big data also promulgates

[4] This privilege is unlikely to endure as companies increase their control over access to information, new cohorts of data scientists are trained, and crowdsourcing strategies allow companies to tap into the expertise of 'ordinary' people for free (Boyd & Crawford, 2012; Gehl, 2015). In this way, the discourse 'disciplines' the subjects it creates, rendering the privileged identity highly precarious.

a mythology – "the widespread belief that large data sets offer a higher form of intelligence and knowledge" (Boyd & Crawford, 2012, p. 662). This mythology presents big data as neutral when they are not: they are intended to direct behaviour so that organizations can secure preferred outcomes (Danaher, 2016). Algorithms are language-based regardless of the size of the database (Holtzhausen, 2016); their creators superimpose their value systems on them (O'Neil, 2016); and the data still have to be interpreted (Boyd & Crawford, 2012). The decisions generated by big data can also be discriminatory as in the case of predictive targeting, not to mention the biases of algorithms where gender, ethnicity, and disadvantage are written in – or written out (Podesta et al., 2014, p. 59).

Also hidden behind the mythology is the way in which this discourse constricts the space for qualitative SCM research. The dominant approach in SCM has always been positivist (Mentzer & Kahn, 1995; Carter & Ellram, 2003; Charvet, Cooper & Gardner, 2008; Golicic, Davis & McCarthy, 2005). The discourse of big data promises to 're-mathematize' the study of supply chains thereby avoiding any 'detour' into qualitative research, regardless of how much light such research could shed on contemporary SCM challenges. If single-source, human respondents generate data that are too 'small' or too 'narrow', then bigger data generated and collected by computer systems are the obvious solution. There is no need to deal with the 'messiness' of interpreting qualitative research since "with enough data, the numbers speak for themselves" (Harford, 2014).

In sum, discourse analysis shows how the supposedly emerging discourse of big data, in fact, represents a return to SCM's scientific, positivist roots that reinforce longstanding, taken-for-granted positivist assumptions. By problematizing these established meanings, discourse analysis exposes how the power relations embedded in this discourse privilege certain actors, promote supposedly value-free, mathematical solutions to supply chain problems, and threaten the voice of qualitative researchers in the discipline.

DISCUSSION AND CONCLUSION

In this section, we discuss how discourse analysis can contribute to SCM more generally. Discourse analysis helps researchers to ***look closer*** at what is going on 'inside' the supply chain to understand potentially differing responses on the part of diverse actors, as in the case of lean. Discourse analysis also encourages researchers to ***look further***, towards the upper reaches of the supply chain and also to downstream NGOs and consumers, all of whom are clearly relevant to SCM as the case of modern slavery clearly shows. Another contribution of discourse analysis is that it helps researchers to ***look holistically***. Instead of differentiating between 'full members' of the supply chain and those that "play a vital but indirect, supportive role" (Carter et al., 2015, p. 89), the true impact of 'supporting' actors can be more easily seen, such as employees in the case of lean or the media and NGOs in the case of modern slavery. Discourse analysis also enables researchers to ***look differently*** in order to understand how to open up new conditions of possibility by, for example, switching from harm reduction to harm elimination in SSCM or by translating categories of risks in the case of modern slavery. Finally, discourse analysis exhorts researchers to ***look deeply*** and attend to the creation of new meanings, as in the case of big data where the power relations associated with the discourse need to be identified and interrogated to understand their implications fully.

Drawing from these different ways of seeing, we offer some discursive 'elaborations' to the foundational premises (FPs) proposed by Carter and colleagues (2015) in their attempt to develop a theory of the supply chain. The first two FPs concern the conceptualization of the supply chain as a network: the supply chain "is a network, consisting of nodes and links" (FP1, p. 90) which "operates as a complex adaptive system, where every agent grapples with the tension between control and emergence" (FP2, p. 91). Our discursive elaboration is as follows:

> *Within each node of the supply chain, there are multiple agents that do not necessarily act in unison. Consequently, tensions between control and emergence include those <u>among</u> agents inside nodes.*

In other words, resistance may arise among agents within a node, such as when employees refuse to

submit to managers in the case of Lean. It may also arise among different organizational functions or departments that have different objectives in relation to the supply chain. The relative power of these agents is influenced by the prevailing discourse(s). So, for example, the discourse of big data empowers certain data analysts, while the discourse of sustainability empowers sustainability officers.

The third FP states: "The supply chain is relative to a particular product and agent" (p. 91). We propose the following discursive elaboration:

> *The supply chain is relative to the particular meaning of a product which, in turn, is influenced by the prevailing discourse(s).*

The meaning of a product can significantly change the demands on how the supply chain is managed. For example, consider the product of a 'diamond'. Its meaning – and its value – changes as to whether it 'is' a diamond or a 'blood' diamond. In order to ensure the former meaning, sophisticated processes reaching upstream to the mining of the raw product must be established in order to identify – and regulate – a complex, multi-tier supply chain. This elaboration also relates to FP4, which states: "The supply chain consists of both a physical supply chain and a support supply chain" (p. 92). Our discursive elaboration proposes:

> *The physical and (material) support supply chains are complemented by an ideational support supply chain through which symbolic resources flow whose relevance and impact depend upon the prevailing discourse(s).*

These ideational resources such as certification in the case of diamonds changes the meaning of a product. Other important meaning-makers include NGOs and the media whose power may increase when certain discourses – such as sustainability and modern slavery – prevail.

The remaining FPs relate to the visibility of the supply chain. "The supply chain is bounded by the visible horizon of the focal agent" (FP5, p. 93), which is "subject to attenuation, where distance is based on factors including physical and cultural distance, and closeness centrality" (FP6, 94). Our discursive elaborations propose:

> *The visible horizon of the focal agent is influenced by the position of the agent within a node*
>
> *The attenuation of the visible horizon of the focal agent can be redressed through the*

meaning-making activities of diverse agents in the ideational support supply chain which introduce new symbolic resources, thereby changing the meaning of the product, the relative power of particular agents, and/or the engagement of consumers.

In the first instance, the agent's position in the node will determine which part of the supply chain they see. For example, someone responsible for transportation may set their sights on the next actor downstream to ensure products are delivered to customers in a timely, cost-effective manner. Someone responsible for sustainability may look more broadly at different organizations upstream to source 'greener' supplies. Someone responsible for legal matters may look all the way back to the origins of the supply chain in order to ensure that the organization is compliant with modern slavery legislation. The horizon of these actors may broaden if meaning-making activities of agents in the ideational support supply chain, such as media and NGOs, introduce new symbolic resources such as certification or consumer awareness. By shaping consumer preferences, for example, agents can bring the far reaches of the upstream supply chain into view (as in the case of blood diamonds) and/or make nodes further down the supply chain more important (as in the case of sustainability with the circular economy).

We also offer our commentary (see Table 1) concerning a discursive version of the five avenues for future development identified by Carter and colleagues (2015, p. 94-5), and pose a number of research question that discourse studies in SCM could address .

Table 1: Potential Discursive Developments for Research in SCM

Avenues for Development (Carter et al., 2015)	**Insights from Discourse Analysis**	**Research Questions**
"Could we conceptualize the portion of the supply chain that lies beyond the visible horizon? Perhaps researchers can help managers to identify and manage critical suppliers that often exist beyond their visible range."	What lies beyond the visible horizon can only be seen by changing the prevailing discourse(s); and whether a supplier is critical depends upon the meaning of the product which, in turn depends upon the discourse.	Which discourses contribute to the meanings of specific focal products; and what is the impact of these meanings on the visible horizon of SCM practitioners in the physical supply chain?
"There are opportunities to develop additional dimensions of the supply chain and to refine the dimensions that we have put forth."	One additional dimension of the supply chain is thus the ideational support supply chain through which symbolic resources flow. It can change the relevance and composition of other dimensions.	What is the nature, structure and function of the ideational support supply chain; who are the key actors in them; what are the symbolic resources that flow through them; and what impact do they have?

"Our dichotomization of the physical and support supply chain, along with our focus on a physical product, might limit the generalizability of our theorization by excluding the service supply chain."	The incorporation of meaning into the theorization of the supply chain increases the generalizability of the theorization by including 'nontraditional' actors, such as NGOs and media, who are clearly relevant to SCM.	What are the roles of 'nontraditional' actors, such as NGOs and media, in contemporary ideational supply chains; and what are the implications for the associated physical and material support supply chains, as well as for SCM more broadly?
"The visible horizon, as a boundary to the supply chain, likely varies depending on the focal product and the location of the focal agent."	The visible horizon depends on the meaning of the focal product, as well as on the position of the focal agent, bearing in mind that different agents are found in the same node.	Which discourses contribute to the meanings of specific focal products; and what is the impact of these meanings on the visible horizons of different types of agents found in the same node in the physical supply chain?
"We have not included the consumer in our conceptualization of the supply chain, based on our definition of a node as an establishment."	An emphasis on discourse helps to include the consumer in the conceptualization of the supply chain by focusing on the meaning of products, which can be changed through discourse. It also highlights how different ideational support components are relevant to SCM as well as the key role played by 'nontraditional' actors such as NGOs and media.	What is the role of consumers in contemporary ideational supply chains; and what are the implications for the associated physical and material support supply chains, as well as for SCM more broadly?

The incorporation of discourse analysis also opens up interesting opportunities for empirical research. Discourse analysis relies on qualitative research, and typically draws upon interviews and documents as data for case studies. Using ethnographies (Narasimham, 2014) that get 'inside' the nodes of the supply chain and identify who the various agents are and what they are doing would offer additional insight. Ethnographic methods are an important way of identifying the practices being used to implement (or resist) initiatives such as lean and SSCM. They would also help researchers document exactly how the mythology of big data is promoted and manifested in organizations. By employing ethnographic methods to identify "practices that a variety of firms might execute," discourse analysis "can help provide more specific, actionable recommendations for supply chain managers … [and] help guide research that leads to prescriptions for how managers can work with supply chain partners to tackle important real-world problems' (Carter et al., 201, p. 120).

Nicolini (2009) calls this type of research 'zooming in.' However, in that a supply chain

consists of a network of multiple nodes, there is also a need to 'zoom out' by examining inter-organizational relationships in order to ascertain whether and how the local accomplishment of practices translates into more or less effective supply chain relationships, as well as to examine historical supply chain relationships to assess how well (or poorly) organizations have dealt with emerging SCM challenges, such as becoming sustainable or introducing big data. This can be achieved through the qualitative analysis of interviews and texts, which allows researchers to obtain data from multiple organizations and/or contemporaneous data over time. In this way, there are opportunities for the "joint pursuit of macro and micro level theory development of practical relevance" (Narasimham, 2014, p. 214).

Another opportunity for researchers is to conduct 'subversive' research where the aim is to look for irregularities – "contradictory empirical results, outliers, and real-world paradoxes … that challenge the preconceived picture of the theoretical framework to thus stimulate the development of new or alternative explanations" (Durach, Kembro & Wieland, 2017, p. 75). Quantitative research tends to average out or eliminate radically different supply chains. However, these 'outliers' are not "a source of statistical noise, but a potential source of insight" (Pagell & Shevchenko, 2014, p. 49). As the field of SCM continues to develop, there are opportunities to spend more time studying situations where supply chains do not conform to expected patterns.

In conclusion, discourse analysis has helped to rejuvenate OMT through novel theory development, as well as expanded possibilities for empirical research. "Empirical material anchors the process of theorization in specific claims about the object under study, thus prohibiting arbitrary ideas from being put into play" while, at the same time, illuminating shortcomings in more traditional theorizing (Alvesson & Karreman, 2007, p. 1266). Discourse analysis has helped OMT to become what it is today – a "multi-vocal community, which allows exploration of multiple and diverse aspects of organization … characterized by curiosity, integrity, responsibility and humility" (Svejenova, 2018, p. 2). We believe it can do the same for the field of supply chain management.

Appendix: Resources for Conducting Research Using Discourse Analysis

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