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Supply chain management as the key to a firm's strategy in the global marketplace: Trends and research agenda

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Supply chain management as the key to a firm's strategy in the global marketplace

Trends and research agenda

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Supply chain
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Abstract

Purpose – The purpose of this paper is to analyze the intersection of two literature streams: that of strategy and supply chain management (SCM). This review should create a better understanding of “strategic SCM” by focussing on relevant theories in the strategic management field and their intersection with SCM to develop a joint research agenda.

Design/methodology/approach – The authors conducted a correspondence analysis on the content of 3,402 articles from the top SCM journals. This analysis provides a map of the intellectual structure of content in this field to date. The key trends and changes were identified in strategic SCM research from 1990-2014 as well as the intersection with the key schools of strategic management.

Findings – The results suggest that SCM is key to a successful deployment of strategy for competing in the global marketplace. The main theoretical foundations for research in this field were identified and discussed. Gaps were detected and combinations of theoretical foundations of strategic management and SCM suggest four poles for future research: agents and focal firm; distributions and logistics strategic models; SCM competitive requirements; SCM relational governance.

Research limitations/implications – Scholars in both the strategy and the SCM fields continue to search for competitive advantages. Much recent research indicates that strategic SCM can be a critical source for that advantage. One of the limitations of the research is that the analysis does not include every journal that published an article mentioning SCM. However, the 34 journals selected are reputed to be the most influential on SCM and focussed primarily on SCM.

Practical implications – The map of the intellectual structure of research to strategic SCM highlights the need to combine different theoretical approaches to the complex phenomenon of SCM. Practitioners should consider the supply chain as an informal organization and should devote time and resources to build a shared advantage across the supply chain. They should also consider the inherent benefits and risks that sharing.

Originality/value – The paper demonstrates that strategic SCM needs a balanced and rigorous combination of theoretical approaches to deliver more theory-driven evidences. The research combines both a qualitative analysis and a quantitative methodology that summarizes gaps and then outlines future research from a large sample of articles. This methodology is an original contribution to this field and offers some assistance for enlarging the sample of future literature reviews.

Keywords Strategy, Supply chain management, Strategic management, Literature review, Multiple correspondence analysis

Paper type Literature review



Introduction

In the ever changing competitive environment, organizations are constantly required to make substantial internal modifications to compete successfully in the global marketplace (Defee and Stank, 2005; Schoenherr, 2009; Wu and Barnes, 2011). The strategic SCM literature focusses on firm reaction to this tumultuous global environment for competitive advantage (Ronda-Pupo and Guerras-Martin, 2012). Research now suggests that supply chain management (SCM) can be considered a key resource for firms to obtain global superior performance (Hofmann, 2010). One reason is that SCM's workforce is in constant contact with the organizations' external environment and they act as knowledge gatherers for strategy formulation (Shore and Venkatachalam, 2003).

SCM is a relatively young field, starting in the late 1990s under an integrative approach by including several schools of thought (namely, Chain Awareness School, Linkage/Logistics School, Information School and Integration School) with a view of the interconnectivity of the entire supply chain (Bechtel and Jarayam, 1997). However, SCM literature's foundations have not been clearly defined nor have its theoretical boundaries been delineated (Tan *et al.*, 2002). As such, our research attempts to fulfill this gap by analyzing key research areas, and to focus on theoretical foundations, specifically those of the strategy SCM literature stream.

Although research into the strategic importance of SCM has long emphasized the performance implications in the marketing and operations management literature, the strategic management field has not devoted much empirical attention to this research focus (Hult *et al.*, 2007). This is unfortunate as the nature of competition globally has increasingly changed from firm-firm to supply chain versus supply chain competition (Slone, 2004). In recent years, however, the strategic management research has begun to examine the strategic use of supply chains, not as a means to move product, but to enhance firm performance (Hult *et al.*, 2004). The importance of supply chains and their management is exemplified that when a major supply chain problem emerges the firm's market value erodes by an average of 10 percent (Hendricks and Singhal, 2003).

The SCM of inter-firm relationships has been shown to achieve superior performance results and current research now explores this strategic employment globally (Cheung *et al.*, 2011). Business partnerships can result in co-creation of value leading to both collectively and individually achievement of greater competitive advantage (Vargo and Lusch, 2004). However, there has been little research in regard to global inter-firm collaboration and much research still is required (Cheung *et al.*, 2010).

The strategic management literature suggests that knowledge management (Grant, 1996) from a resourced-based view (RBV) (Barney, 1991) could be the rare, inimitable, valuable and non-substitutable asset to obtain a superior performance and thus a competitive advantage. As such, researchers note that the valuable knowledge can be transferred through the supply chain (Kotabe *et al.*, 2003). Outsourcing value chain stages or other organizational functions and sharing risks throughout the supply chain involves relational learning to achieve strategic objectives (Zaheer *et al.*, 2000).

In this context, several calls have been made for more solid theoretical foundations in the field of SCM (Croom *et al.*, 2000; Winter and Knemeyer, 2013; Kauppi, 2013) and for an eclectic, meta-theory of this complex field (Burgess *et al.*, 2006). This has proven difficult for researchers and it appears that a multidisciplinary approach is required (Power, 2005; Burgess *et al.*, 2006). Our research provides a review of "strategic SCM" from both the strategic management and SCM fields. By exploring the boundaries of the strategic SCM literature from past research, new theoretical and empirical research

avenues can be identified. Most past empirical studies have been conducted from a narrow functional approach such as transaction cost economics (TCE) focussing on the costs to achieve competitive advantage (Burgess *et al.*, 2006). The broader focus of our research utilizing the strategic management literature should assist future scholars to continue to explore how organizations can achieve a competitive edge by managing the supply chain strategically (Hitt, 2011; Barney, 2012).

This paper provides SCM boundaries by an in-depth analysis of past research from a strategy lens. After a discussion of research on the intellectual structure of the strategic SCM field, we offer several suggestions for future research. This investigation analyzed the content of 3,402 articles focussing on both SCM and strategy in a mixed method approach of content analysis, which facilitated the identification of gaps in the intellectual structure and venues for more eclectic theoretical development. This methodology is an original contribution to this field, which may assist scholars in undertaking deeper analyses by including larger samples in literature reviews. The method also reduces the possible bias in a manual revision of content, and provides a low-dimensional map of the intellectual structure of research.

Methods and data collection

The procedure for reviewing the literature was based on the stepwise procedure suggested by Tranfield *et al.* (2003), which can be summarized in: database selection and search criteria, time span, method for analysis and mapping the intellectual structure of the research. Next, we describe those steps for the sake of reproducibility.

Step 1. Database selection and search criteria

In determining the selection of journals and databases the current literature reviews and journal rankings were examined with the primary focus on SCM as the research goal. The past reviews conducted on SCM have provided the rationale for the inclusion of those journals that provided the core contributions to SCM (Carter *et al.*, 2005, 2009; Maloni *et al.*, 2012; Giannakis, 2012), although they arguably excluded some other journals specialized in SCM. An aprioristic selection might yield biased results and yet there is a compromise between including the maximum information and excluding the noise produced by articles published in journals of general business management. Therefore, SCM must be central in the selected papers.

Accordingly, we conducted a search strategy in two of the most reputed databases, namely, the Social Science Citation Index-SSCI provided by Thomson-Reuters and Scopus provided by Elsevier, in search of knowledge certified by top reputed scholars in the field. The search strategy combined the terms “supply chain” (in its diverse variants such as SC or SCM) with “strategy” or “strategic management.” At the date of final consultation (July 2014), this search yielded 2,341 articles in Scopus and 2,688 in SSCI databases, which resulted in 3,803 different articles after deletion of repeated papers. However, both databases classify the fields in broad domains within Social Sciences, which in our results included Environmental Science, Computer Science or Arts and Humanities, to name just a few. Our procedure will extract the family of descriptors from the content analysis of articles. Therefore, we decided to select only those journals that included explicitly SCM as a central topic in their aims and scope declaration. This will avoid the possible inclusion of noise stemming from the fragmented results in research domains as obtained so far. We recognize that several

scientific journals may have been excluded, and yet this decision shall avoid including terms that were only marginally related with this field. Finally, 3,402 articles from 34 different journals were analyzed (see Table I).

Step 2. Dictionary of descriptors

The descriptors' content was extracted from the articles' title, keywords and abstract by means of Wordstat 6.1 software. This software for content analysis was used in previous research within this field for similar purposes (e.g. Ghadge *et al.*, 2012). This step provided a huge list of 3,621 keywords (nouns, adjectives and verbs). The aim of this step was to obtain a dictionary of descriptors that scholars have used in the investigation of this field. A matrix with these descriptors and articles was built. An initial multiple correspondence analysis was then performed in order to find similar terms and to help join some terms. Table II shows the final list of descriptors.

Journal	No. articles	%
<i>Supply Chain Management: An International Journal</i>	517	15.20
<i>International Journal of Physical Distribution & Logistics Management</i>	406	11.93
<i>International Journal of Production Economics</i>	352	10.35
<i>The International Journal of Logistics Management</i>	238	7.00
<i>International Journal of Production Research</i>	218	6.41
<i>International Journal of Operations & Production Management</i>	210	6.17
<i>Journal of Operations Management</i>	195	5.73
<i>Journal of Business Logistics</i>	167	4.91
<i>Journal of Supply Chain Management</i>	159	4.67
<i>European Journal of Operational Research</i>	139	4.09
<i>Transportation Research Part E: Logistics and Transportation Review</i>	116	3.41
<i>Production Planning and Control</i>	94	2.76
<i>International Journal of Logistics Systems and Management</i>	68	2.00
<i>Production and Operations Management</i>	65	1.91
<i>Journal of Cleaner Production</i>	60	1.76
<i>Journal of Purchasing and Supply Management</i>	59	1.73
<i>Transportation Journal</i>	57	1.65
<i>European Journal of Purchasing and Supply Management</i>	47	1.38
<i>International Journal of Services and Operations Management</i>	40	1.18
<i>Journal of the Operational Research Society</i>	35	1.03
<i>International Journal of Logistics Research and Applications</i>	31	0.91
<i>Manufacturing and Service Operations Management</i>	29	0.85
<i>International Journal of Information Systems and Supply Chain Management</i>	24	0.71
<i>Operations Research</i>	16	0.47
<i>International Journal of Retail and Distribution Management</i>	15	0.44
<i>International Journal of Integrated Supply Management</i>	11	0.32
<i>Logistics Research</i>	8	0.24
<i>Asia-Pacific Journal of Operational Research</i>	6	0.18
<i>Operations Management Research</i>	6	0.18
<i>International Journal of Shipping and Transport Logistics</i>	6	0.18
<i>International Journal of Operations and Quantitative Management</i>	4	0.12
<i>Asian Journal of Shipping and Logistics</i>	3	0.09
<i>Operational Research</i>	1	0.03
<i>International Review of Retail, Distribution and Consumer Research</i>	1	0.03
Total	3,402	100.0

Table I.
Breakdown of
articles found
by journal

Area	Keyword	Content
S	1. Competitive strategy	Competitive strategy; advantage; differentiation; competition; competitiveness; competing
S	2. Corporate strategy	Corporate; corporate level; corporate strategy
S	3. Strategic management	Strategic management; strategic planning; planning; decision-making; business model(l)ing; feedback; control; coordination; fit; organizational structure; fit – adjust(ment)
S	4. Innovation	Innovation; technological change; R&D
S	5. Growth	Growth; growing; success; survival; survive
S	6. Environment	Competitive environment; environmental change(s)
S	7. Governance	Corporate governance; CSR; corporate social responsibility; leadership
S	8. Performance	Performance
S	9. RBV	Resource(s); RBV; resource-based
S	10. Agency	Agency theory; agentic; principal-agent
S	11. TCE	Transaction cost economics; TCE; transaction; transactional; cost(s); assets; effectiveness; efficiency
S	12. Dynamic capabilities	Dynamic capabilities; capability; core competencies
S	13. KBV	Knowledge; knowledge-based view; knowledge management; KM; knowledge transfer
S	14. Entrepreneurship	Entrepreneurship theory; opportunity discovery; opportunity recognition; entrepreneurial orientation; entrepreneurial attitude; manager team; managerial development
S	15. Institutional	Institutional theory; institutions; societies; Institutions and societies
S	16. Game	Game theory; gaming
S	17. Learning	Learning organization; organizational learning; learning
S	18. Market	Market; market scanning; marketing
S	19. Network	Relationship management; relational marketing; relational capital; channel management; relational management; network; networking
S	20. Resource dependence	Resource dependence theory
S	21. Stakeholder	Stakeholder theory; stakeholder(s)
SCM	22. Focal firm	Focal firm
SCM	23. Global firm	Globalization; global firm; international; internationalization; foreign trade
SCM	24. Foreign subsidiary	Foreign subsidiary
SCM	25. Joint venture	(International) joint venture; (international) joint venture; JV; IJV; partial ownership;
SCM	26. Alliance	Strategic alliances; cooperation; buyer-supplier; buyer-seller
SCM	27. Outsource	Outsource; independent outsource; outsourcing; outsourcing
SCM	28. Green	Green SCM; sustainable development; sustainability; carbon footprint; reverse logistics
SCM	29. Mindset	Global mindset; managerial mindset
SCM	30. Responsiveness	Responsiveness; speed; velocity;
SCM	31. Reliability	Reliability; reliable
SCM	32. Agility	Agility; agile; lean; lean production; JIT; just-in-time
SCM	33. Trust	Trust development; trustworthiness; trust
SCM	34. Flexibility	Flexibility
SCM	35. Risk	Risk management; uncertainty; traceability
SCM	36. Integrative	Integration; integrative

(continued)

Table II.
Dictionary of topics
and keywords

Table II.

Area	Keyword	Content
SCM	37. ICT	Information and communication technologies; ICT; e-commerce; e-business; b2b; c2c; internet; information system(s)
SCM	38. Boundary_spanner	Boundary spanner(s)
SCM	39. Logistics	Logistics
SCM	40. Distribution	Distribution
SCM	41. SCM	Supply(-)chain management; supply(-)chain; SC; SCM
SCM	42. 3PL	Third party logistics; third party logistics; 3PL; 3-party-logistics
SCM	43. 4PL	Fourth party logistics; 4-party-logistics; fourth party logistics; 4PL;
Notes: SCM, supply chain management field; S, strategy and strategic management field. All the content was extracted from the 3,402 articles analyzed		

Some ambiguity emerged at this step. For instance, “supplier-buyer” and “buyer-supplier” relationships were found to be more highly associated with alliance than with relationship management. In such cases, we decided to include the terms that were more associated (i.e. lower distance in the distance matrix). The disaggregation of SCM literature in component bodies proposed by Croom *et al.* (2000), as well as their taxonomy of the SCM field combined with Giunipero *et al.*’s (2008) categories were used in this review to classify the descriptors of the SCM field. Those rooted in the strategic management field were based on the Furrer *et al.*’s (2008) descriptors of that field (see Table II).

The theoretical key foundations from the strategic management field are as follows: TCE (Williamson, 1981), agency theory (Ross, 1973), RBV and knowledge-based view (KBV) (Barney, 1991; Grant, 1996), game theory (Von Neumann and Morgenstern, 1947; Brandenburger and Nalebuff, 1995), institutional theory (Scott, 1987; Oliver, 1997) and entrepreneurship theory (Evans, 1942; Hitt *et al.*, 2011). Entrepreneurship theory includes the process of opportunity recognition and exploitation, and the manager’s entrepreneurial orientation (Van Gelderen *et al.*, 2005). Van Weele and Van Raaij (2014) reported about some other approaches relevant in recent decades for strategic SCM field. They are the resource dependence theory (Pfeffer and Salancik, 1978) and the relational view of the firm (Dyer and Singh, 1998), which in part derived in a network centric approach to SCM (Mills *et al.*, 2004). This latter approach leads naturally to the social exchange theory (Griffith *et al.*, 2006). Meanwhile, the fact that SCM is increasingly related with delivering the right value for a multiplicity of agents, the Freeman’s (1984) stakeholder theory should be considered.

Step 3. Time span for analysis

The earliest articles with the above keywords were those authored by Ellram and Cooper (1990) and by Horscroft and Braithwaite (1990), while the most recent articles were published in 2014. The analysis was split into two periods in order to analyze the changes in SCM research: from 1990 to 1999 and from 2000 to 2014.

The rationale for this splitting was twofold. First, during the first decade the concepts arisen from RBV and KBV of the firm were still being developed (Barney, 1991; Grant, 1996) but were integral to SCM research over the recent years (Barney, 2012). Second, the definition and conceptualization of SCM was developed in the 1980s and 1990s. Mentzer *et al.* (2001) reviewed a number of relevant definitions of supply chain and SCM, most of which dated from 1985 to 1998. The definitions evolved from more simplistic forms, as for instance that by Jones and Riley (1985), centered on managing the flow of materials

toward more complex conceptualizations including upper views from philosophical viewpoints. Cooper *et al.* (1997) emphasized an integrative management philosophy; and La Londe and Masters (1994) included the terms such as trust, commitment or control from a process-based approach of SCM. It is evident that SCM has evolved into a more advanced stage along with the new global marketplace, which is influenced by concepts under discussion from strategy and strategic management fields. In the end, Mentzer *et al.* (2001, p. 18) defined SCM as “[...] the systemic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.”

Step 4. Method for analysis and mapping the intellectual structure of research

A vast majority of literature reviews of SCM have solely used a qualitative content analysis conducted manually. That method typically relies on the researcher's judgment, which may lead to different results if another scholar conducted that review (Seuring and Gold, 2012). In the present mixed method study, a quantitative method was employed to avoid the excess of dependency in the researchers' insights, although it does not substitute it completely.

The specific technique is multiple correspondence analysis, which had already been used in similar research aiming at mapping the intellectual structure of a field (e.g. Furrer *et al.*, 2008 in the field of strategic management or Dabic *et al.*, 2014 in the field of international business strategy). Following the methods of Hoffman and Franke (1986), Hoffman and De Leeuw (1992), and Furrer *et al.* (2008), a matrix was built and computed using the homogeneity analysis of variance by means of alternating least squares (HOMALS) in SPSS (v20) software.

The main outcome is a low-dimensional map where the keywords are depicted in two axes. The positions represent an actual distance between the pairs of keywords in terms of association. This is because the HOMALS counts on the presence and absence pair-wise by computing a Euclidean distance in the matrix where the rows are articles/cases and the columns are keywords/variables (Hoffman and Franke, 1986). For each descriptor, if the article contains any of its content a “1” is saved, and a “0” otherwise. Therefore, if two descriptors appear closer in the map, it means that such pairs will have been associated jointly in a relevant portion of articles. Similarly, if they were covered mainly across separate articles, they would appear distant. This map enables the detection of possible gaps: those descriptors more distant in the map. A component, factor or cluster analysis can be problematic statistically speaking when it comes to dichotomous variables, so the HOMALS is a better choice. This quantitative method is superior in performance when compared to cross-tabulated manual reviews. We analyzed 3,402 articles, while 27 of the past review articles had reviewed 189 articles on average.

Lastly, the qualitative part of this mixed method relates with the interpretation of the map based upon past literature. The research should label poles depending on the content of the more proximal descriptors. A limitation of this method is that it includes part of the researcher's insights in this interpretation. However, the cloud of proximal descriptors helps reduce it. On the other hand, other scholars may find similar conclusions regarding the poles' labels while they can dig deeper in some more specific content. Another limitation of this method is that it only analyzes the title, abstract and authors' keywords as the main descriptors of their investigation. For example, if an

author only cited a descriptor within the main text but not in those fields then it would be computed a zero. And yet this method enables a deep analysis of the most critical descriptors of an article. This is why authors and editors should pay particular attention to title, abstract and keywords as main descriptors. Some other literature reviews have found that many authors are explicitly silent regarding the theoretical foundations of their research (e.g. Denk *et al.*, 2012; Van Weele and Van Raaij, 2014), which implies a relevant need for more rigor in this research field. Another limitation is that it is sensitive to how variables are categorized, since it affects the waterfalls of indirect associations between them. We should consider that the method tries to reduce the number of descriptors to only two. A solution for this limitation is merging proximal descriptors that can be joined logically in a first map, so it is avoided lacking valuable information while remaining the number of variables (descriptors) reasonably low. The researcher must consider past research in terms of taxonomy in order to avoid arbitrary mergers of those proximal descriptors.

Findings: intellectual structure of research on strategic SCM

As a result of the content analysis, Table III shows the breakdown of the frequency of 43 descriptors, and their change over time (see Table III).

The identification of trends will help to disclose the intellectual structure of this field and detect research gaps. Authors lost interest of distribution and logistics since both have diminished their relative frequency at a similar pace of roughly 39 percent. In turn, integrative approach has gained more attention over the last decade (+20 percent). It was highlighted in the review of Power (2005) who called for more empirical research to provide evidence that SCM can be a competitive advantage through integration of this function with the rest of the extended organization. The holistic approach to building a meta-theory of SCM was also proposed by several authors in the field of SCM, in particular during the most recent years (Burgess *et al.*, 2006; Ghadge *et al.*, 2012; Winter and Knemeyer, 2013). Therefore, multidisciplinary and holistic approaches are needed in the process of building a theory on such a complex phenomenon as SCM. However, the theoretical network approach is still underestimated among scholars, which deserves further attention (Mills *et al.*, 2004).

SCM, alliance, strategic management and performance have been the main descriptors throughout the full period, emphasizing the relational nature of this strategic process. Past literature reviews have also illustrated the relational nature in the forms of multi-tier supply chain in the global context (Meixell and Gargeya, 2005; Giunipero *et al.*, 2008), dynamic multi-partnering over time (Bygballe *et al.*, 2010); or the multi-agent framework of 4PL (Pazirandeh, 2011), or the call for research on sourcing risks within wider networks (Miemczyk *et al.*, 2012).

New terms have also emerged over the recent period, such as focal firm, 4PL, boundary spanner and foreign subsidiaries as well as governance. In particular, the governance mechanisms were highlighted as a key research avenue in the review of Gimenez and Tachizawa (2012): those mechanisms should encompass the three pillars of sustainability in the supply chain (economic, social and environmental). RBV, KBV and dynamic capabilities are positioned among the topics that have gained more attention over the last decade, which is consistent with the findings of Burgess *et al.*'s (2006) review.

In terms of theoretical descriptors, it becomes evident the increasing trend toward considering the strategic relevance of SCM. Among those descriptors with the highest change rate from P1 to P2, those related with the field of strategy are top: Corporate Strategy, KBV, Game theory, Dynamic Capabilities, or Performance, to name just a few.

Keywords	Position in P1	No. in P1	P1 %	Position in P2	No. in P2	P2 %	Change from P1 to P2 ^a (%)
Governance	34	1	0.08	31	95	0.54	589.7
Institutional	30	4	0.31	23	259	1.46	370.1
Corporate_S	20	17	1.32	12	513	2.90	119.1
3PL	33	2	0.16	34	59	0.33	114.2
KBV	23	14	1.09	18	385	2.17	99.6
Green	25	11	0.86	22	291	1.64	92.1
Game	32	4	0.31	30	105	0.59	90.6
DC	21	17	1.32	16	406	2.29	73.4
Reliability	31	4	0.31	33	84	0.47	52.5
ICT	22	16	1.24	21	315	1.78	42.9
Performance	8	54	4.20	4	996	5.62	33.9
Entrepreneurship	14	36	2.80	8	648	3.66	30.7
RBV	18	21	1.63	19	371	2.09	28.3
Strategic_mgmt	2	103	8.01	2	1,804	10.18	27.2
TCE	9	52	4.04	5	868	4.90	21.2
Innovation	27	9	0.70	27	150	0.85	21.0
Trust	28	7	0.54	29	116	0.65	20.3
Integrative	17	30	2.33	13	496	2.80	20.0
Risk	15	34	2.64	11	515	2.91	10.0
Learning	29	6	0.47	32	85	0.48	2.8
Flexibility	24	13	1.01	25	184	1.04	2.8
Agency	35	1	0.08	37	14	0.08	1.6
Network	11	47	3.65	9	621	3.51	-4.1
Responsiveness	26	10	0.78	28	131	0.74	-4.9
JV	36	1	0.08	38	13	0.07	-5.6
Alliance	3	90	7.00	3	1,164	6.57	-6.1
SCM	1	229	17.81	1	2,832	15.99	-10.2
Environment	16	33	2.57	20	349	1.97	-23.2
Competitive_S	4	77	5.99	6	810	4.57	-23.6
Market	5	70	5.44	7	713	4.03	-26.1
Global_F	12	40	3.11	17	388	2.19	-29.6
Distribution	10	52	4.04	15	436	2.46	-39.1
Logistic	6	67	5.21	10	561	3.17	-39.2
Outsource	19	20	1.56	26	165	0.93	-40.1
Growth	7	56	4.35	14	442	2.50	-42.7
Mindset	37	1	0.08	40	7	0.04	-49.2
Stakeholder	42	0	–	35	54	0.30	–
Focal_F	38	0	–	36	20	0.11	–
Resource dependence	43	0	–	39	8	0.05	–
4PL	41	0	–	41	4	0.02	–
Boundary_spanner	40	0	–	42	3	0.02	–
FS	39	0	–	43	2	0.01	–
Total		1,286	100.00		17,714	100.00	

Table III.

Breakdown of
keywords for each
period and change
between periods

Notes: P1: 1990-1999; P2: 2000-2014. ^aChange rate was computed as the relative difference between the percentages achieved over the first period and the second one. Search conducted on author's title, keywords and abstract

Source: Own draft from the 3,402 articles

The HOMALS procedure conducted on the 43 descriptors delivered the map of the intellectual structure of research on strategic SCM (see Figure 1).

Hot topics within strategic SCM appear in the origin of both axes with keywords such as competitive and corporate strategy, performance and strategic management, which is logical because they have been the most frequently used to describe articles. In the case of the horizontal axis, the right side is governed by boundary spanner, foreign subsidiaries, agency, focal firm, institutional, reliability, governance and trust. In the case of the horizontal axis, the right side is governed by agency and institutional theoretical approaches. From the SCM field, the main descriptors are focal firm, ICT and mindset. Some other approaches with quantifications above 1.5 in this pole were TCE, resource dependence, dynamic capabilities and KBV. Accordingly, it can be labeled as “agents and focal firm,” which represents the idea of the network of relationships between the myriad of internal and external agents to the focal firm from an institutional approach. A principal-agent relationship is frequently used to explain that network. A key underlying assumption here is that the focal firm’s performance depends strongly on the performance of its value chain (Van Weele and Van Raaij, 2014).

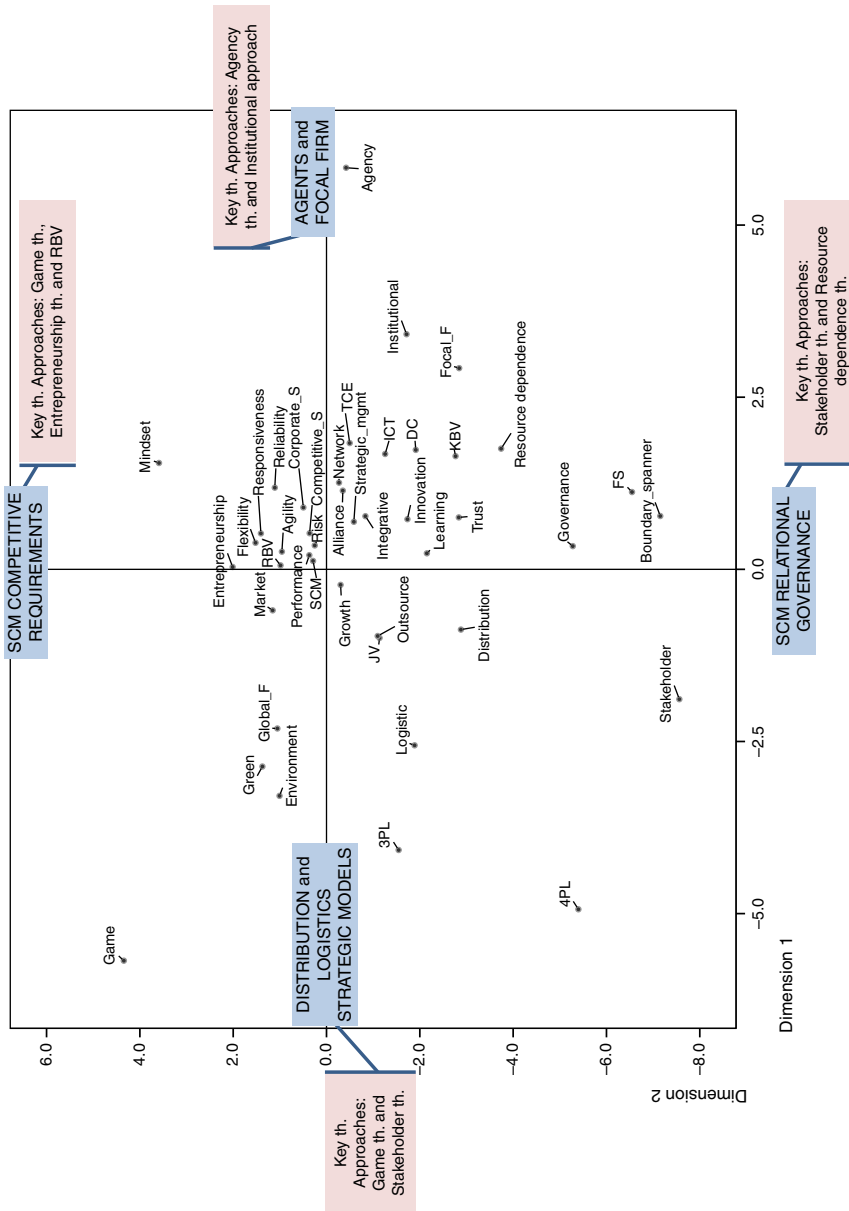
The opposite pole at the left is informed by game, 4PL, 3PL, environment, green, logistic, and global firm. Along with game, stakeholder obtained a higher quantification in this pole. Therefore, the main issues here refer to distribution and logistics concerns from a game approach, i.e. decisional models within those organizational functions of the supply chain. Accordingly, they can be labeled as “distribution and logistics strategic models.” The key foci here are global firms. There is much opportunity for further research into these concepts as little work has transpired to date.

In the vertical axis, the upper pole is governed by essential requirements for delivering the best service (Meixell and Gargeya, 2005), namely, flexibility and responsiveness. Key theoretical approaches are game, and entrepreneurship. The managers’ mindset is relevant to label this pole as well. Therefore, they can be named as “SCM competitive requirements.” If jointly merged the theoretical approaches seems to point out the relevance of the managers’ role, in terms of their entrepreneurial orientation and mindset.

The lower part of the vertical axis includes several different descriptors with higher quantifications here. Theoretically it is mainly governed by stakeholder, governance and resource dependence. In terms of SCM, key descriptors are boundary spanners, foreign subsidiaries, and the emerging term 4PL. In a lesser extent, other theoretical approaches here are KBV and learning. Therefore, it can be labeled as “SCM relational governance.” Trust has been the main boundary spanner in governing the relationships across the value chain. Since resource dependence was only marginal in terms of frequency, it seems that future research should dig deeper in disclosing how the lack of internal resources to the firm may have an impact on the whole value chain. A critical perspective is the learning organization and how knowledge can be the most critical resource.

Discussion of the results for a research agenda on strategic SCM

The term SCM is not only useful to analyze the internal supply chain, logistics, transportation activities or physical distribution but also to describe strategic issues (La Londe and Masters, 1994; Tan *et al.*, 2002). Strategic SCM in combination with other organizational elements can be a source of competitive advantage in an extremely complex world that requires combined approaches to build an integrative, eclectic theory (Burgess *et al.*, 2006; Winter and Knemeyer, 2013).



Note: Own draft from the 3,402 articles

Figure 1.
Map of the
intellectual structure
of research on
strategic SCM
(1990-2014)

The four poles identified in regard to strategic SCM were obtained from the current trends of the extant literature. Across the next sections we will provide guidance on future research lines. For each pole, we will disclose the most relevant theoretical gaps – i.e. the most distant theoretical approaches to each pole –, and will discuss how to bridge that gap in order to obtain a fuller picture for future theory building on the idea of SCM as a source of competitive advantage. Far from being mutually exclusive, these theoretical approaches should be considered as complementary in order to obtain a balanced theory. In order to avoid arbitrariness, we identified distant approaches to each pole simply by using the respective coordinate for that axis.

Pole 1: agents and focal firm

The main theoretical approaches in this pole are agency theory and the institutional approach. Surprisingly enough, there is little association between two theoretical approaches usually linked such are game and the agency theory. This deserves further attention from scholars in the field of strategic SCM.

The alignment of all the members in the supply chain is a critical issue to achieve a competitive advantage, since it is not only the focal firm that competes but the value chain as a whole in the global marketplace. The enabler constructs of this alignment are organizational structure, internal relational behavior, customer relational behavior, top management support, information sharing and the measurement system of business performance (Wong *et al.*, 2012). Further empirical research should investigate these relationships from a combined perspective of game heuristics and by integrating the inherent problems of principal-agent relationships within the supply chain. The game theory's utility relates to a changing viewpoint: from decisions made by competitors as exogenous (Cournot equilibrium) toward the endogeneity of decisions within a system (Nash equilibrium). In such a system, all incumbents seek the common benefit instead of the individual one. This is a relevant framework for future research on modeling decisions strategically in the SCM. An example of research within the game approach is Holmström *et al.* (1999).

Empirical research should explore how decisions are made even for the forecasting competitor's movements or the customer's demands to provide a pool of win-win strategic alternatives by including game heuristics and all the members within the SC. This is particularly relevant in the relationships within the supply chain because agents are required to mutually share risks and rewards, which leads to a change in the approach from being transactional to relational (cooperation, long-term satisfaction, mutual reliability, etc.). His shift has major implications for logistics and distribution strategic models such that empirical research should be more integrated with the supply chain. Therefore, more emphasis is needed in building long-term relationships with a clear orientation to loyalty and retention of customers, instead of focussing on the short-term profitability (Cooper *et al.*, 1997; Mentzer *et al.*, 2001).

The stakeholder theory has to do with how organizations perform at their best when they meet the diversity stakeholders' goals and expectations. If this principle is shifted to the field of strategic SCM, then it is expected that the supply chain as a whole to obtain an above normal performance when each organization to meet the others' goals and expectations. This needs further empirical research in the intersection of the stakeholder theory under the umbrella of principal-agent relationships and the institutional theory. First, external stakeholders should be approached from the institutional theory, which posits that the organization's shape is influenced by external institutional pressures. In the stakeholder theory, there are two big types of stakeholders, namely, internal and external

to the organization. Therefore, the manner in which the three forms of institutional pressures (coercive, mimetic, normative) may shape the organization of the supply chain deserves further attention (Kauppi, 2013), in order to understand which one yields a superior performance as to be a source of competitive advantage. A critical question here is the internal organization of the supply chain: which organization must take the leading role and how to distribute the coordination efforts. Therefore, there is a need to broaden the perspective from the focal firm to the supply chain as an informal form to organize the industrial economic activity, i.e. the idea of extended firm.

Pole 2: distribution and logistics strategic models

Game and stakeholder theories are the main approaches most frequently associated with distribution and logistics strategic models. In spite of their negative values in the ordinate axis, there is a long distance between both approaches. This implies that there is a need for more empirical research based on both approaches, as well as from other schools of strategic thought.

As mentioned above, this pole emerged in contrast to the pole of agents and focal firm. This means that empirical research should try to integrate both viewpoints: how the diversity of agents that intervene in the supply chain shape the strategic model adopted by the focal firm, beyond the merely extension from 3PL to 4PL.

However, approaches from agency and institutional theory have less frequently been associated with this pole. Institutional and social pressures may have an impact on the supply chain model adopted (Kauppi, 2013), which in the end will have an impact on the firm's and the supply chain's performance. The network of internal and external agents to the firm should be investigated from a principal-agent framework in order to deliver the optimal way to manage them. Those strategic models should include the dynamic nature of the business environment in future investigations. Furthermore, multidisciplinary approaches may also benefit this research pole: psychological and sociological studies may shed some light on the agents' behavior and individual responses to institutional pressures in order to shape the ultimate SC.

Furthermore, Fayezi *et al.* (2012) in a literature review of 86 articles approaching SCM from agency theory found a scarcity of applications of this framework to the SCM discipline. This approach can be useful for managers to explain some unexpected behaviors across the supply chain and to provide contractual remedies. Zu and Kaynak (2012) linked the principal-agent framework to different management mechanisms that firms must choose when it comes to quality management. They included salient relationship attributes such as information asymmetry, goal conflict, risk aversion of suppliers, length of relationship and task characteristics. However, an additional effort should be conducted to link these principal-agent relationships between agents internal to the supply chain with external agents from an institutional approach. External agents are not included in contractual relationships and yet they can have an impact on the agents' behavior. All of this will finally shape the strategic model chosen. Additional empirical research should demonstrate whether those relationships yield a superior performance so the SCM is definitely a source of competitive advantage.

Pole 3. SCM competitive requirements

This pole has been governed by approaches from game theory, entrepreneurship and RBV. Most distant theoretical approaches have been stakeholder and resource dependence theories. The learning organization along with KBV both are also noteworthy to mention as distant approaches to this pole in the map.

Key competitive requirements in the supply chain are flexibility, responsiveness, reliability and agility. These requirements can be linked to the necessary resources and capabilities a firm must develop to compete successfully under the RBV approach (e.g. Squire *et al.*, 2009). Furthermore, the entrepreneurial orientation of the workforce and the managers' mindset in the supply chain can help discover new business opportunities around the latter requirements. This resulted in a kind of supplier-buyer core competencies relevant to obtain a superior performance.

However, the resource dependence theory has been less examined in this pole. Perhaps this may be due to the fact that the resource dependence theory is less popular among scholars, so little theoretical support can be found. This may have derived in part in the recent debate on the appropriateness of a resource-advantage theory (Hunt and Davis, 2008, 2012) and the RBV (Barney, 2012; Priem and Swink, 2012). We believe that both approaches are complimentary because the focus is shifted from internal (RBV) to external resources to the firm (resource-advantage theory). This can be better understood if approached from the resource dependence theory, which has received only scant attention from empirical studies (Van Weele and Van Raaij, 2014).

In this particular case, the performance of supply chain depends not only on a single firm but on all the diverse agents involved in delivering the right value. Dependence theory (Pfeffer and Salancik, 1978) can be here linked to the relational view of the firm (Dyer and Singh, 1998), so the supply chain is a network of resources and capabilities. What is more important is that the firm must be in a position as to control those resources. This is not say that it owns the resource, but it somehow controls it for instance by means of the bargaining power or perhaps by means of a collaborative joint strategy.

Priem and Swink (2012) clearly identified the intrinsic relational nature of the supply chain, since value creation should be studied in terms of the entire system, i.e. the supply chain, and not solely for a specific firm. A critical question here is how to integrate different levels of analysis in a single study, namely, the firm's, the extended firm's, the second and successive tier's viewpoints. This seems to be more a methodological than a theoretical question since the common argument lies in the idea of controlling a certain resource. The difference is whether it is internal to the firm or to the supply chain as informal organization. According to Paulraj and Chen (2007), the resource dependence theory is suitable to explain the direct effect of the uncertainties surrounding the supply chain on the SCM, which offers new research avenues to complete the theory of how to configure a supply chain-based competitive advantage.

In all this debate, the stakeholder theory may help explain the heterogeneous expectations underlying each agent's competitive behavior under the network framework, which has been frequently eluded in this pole. According to that theory, it is not solely a question of meeting the stakeholders' financial goals but a broader array of interests. Therefore the strategic discourse should be shifted from creating value to creating the right value for each stakeholder, i.e. doing the right thing.

The learning organization and how knowledge is shared across the supply chain also deserves the scholars' future attention by linking them to the SCM competitive requirements. For example, Saenz *et al.* (2014) found that absorptive capacity mediates between organizational compatibility and both innovation and efficiency performance. Future research should include the impact of the latter on the SCM competitive requirements, i.e. how the way supply chain partners and other stakeholders share knowledge have an impact on shaping the supply chain-based competitive advantage.

According to Mills *et al.* (2004), the dynamic network view of supply chain includes how the new virtual firm chooses and manages a myriad of relationships in terms of knowledge sharing and creation. Managers must make a strategic decision concerning the firm's position in the supply chain, which in the end is conditioned by the upper level decisions on corporate and competitive levels strategy.

In this pole, the KBV should be focussed on detecting which skills, abilities or core (dynamic) competencies are required for implementing successfully a distribution and logistics strategic model. From a strategic viewpoint, knowledge as a key resource for competing successfully in global organizations is a relevant research avenue (Ghadge *et al.*, 2012). The focus is on the role of knowledge practices throughout the supply chain and how to deal with the inherent risks in sharing knowledge which is exposed to the risk of external appropriation. At this point, theory building calls for some type of integration of results – for instance, by means of a meta-analysis to shed more light on the boundaries of this research stream and how contextual particularities such as cultural differences (see for instance Jiang *et al.*, 2007 or Schoenherr, 2009), may hinder the development of a universally valid theory.

Van Weele and Van Raaij (2014) also suggest that further research should be devoted to investigate how the appropriation of external knowledge in the value chain can be a source of, we believe, a shared competitive advantage among the value chain. This would mean that the theory of competitive advantage should be also applied to the fully supply chain, i.e. a supply chain competing against other supply chains.

Pole 4: SCM relational governance

The opposite pole to the latter in the vertical axis has been governed essentially by the stakeholder theory and, to a lesser extent, by the resource dependence theory. KBV approach located proximal as well. These approaches have attracted the study of new phenomena such as 4PL. However, some other strategic approaches were dropped distant from this pole, namely, game theory, entrepreneurship and RBV.

We should consider the relational governance perspective underlying this pole, in particular from the approach of stakeholders. The creation of the right value for stakeholders seems to required additional empirical efforts in order to shed more light on what type of resources and capabilities are needed.

From the strategy field, theoretical foundations such as RBV and dynamic capabilities are still considered a nascent research focus in strategic SCM (Defee and Stank, 2005). This may be due to the inconclusive nature as to which capabilities provide a competitive advantage. According to the main proponents of RBV, an organization must be in the position to control a combination of valuable, rare, inimitable and imperfectly non-substitutable resources and capabilities (Barney, 1991; Barney, 2012). Some SCM research has utilized RBV as, for example, certain capabilities related with agility are an essential part of logistics (Gligor and Holcomb, 2012). However, the stakeholders' viewpoint has largely been eluded as integral part of the supply chain resources and capabilities. The paradox underlying here relates with shared resources and capabilities as part of the competitive advantage of all the firms involved in the supply chain. Neither the competitive advantage nor the resource-advantage approaches can predict well what happens with shared resources and capabilities in the supply chain. Therefore future research should solve theoretically and provide practical evidence of this possibility by combining some of the theoretical approaches suggested.

Other

Finally, we should mention some approaches located in the axes' origin. They are the integrative efforts to merge supply chain with other organizational functions (e.g. Cooper *et al.*, 1997; Mentzer *et al.*, 2001), which was located near the center (integrative). These efforts of a more holistic view of the supply chain should be investigated from broader perspectives, in light of its distance to agency, stakeholder or game, to name just a few. On the other hand, the TCE has been largely followed by scholars on this field. And yet some opportunities for research can be found. TCE is a useful theoretical foundation regarding strategic SCM since strategy is the pursuit of an economic rent, and under the paradigm of maximizing the organization's profit, strategy is about performance (Furrer *et al.*, 2008). The framework to develop strategic SCM under the paradigm strategy-structure-performance proposed by Defee and Stank (2005) can yield relevant research avenues. The "value" challenge of assets and relationships within the supply chain could be faced complementarily from TCE, RBV and stakeholder approaches.

TCE includes the costs of discovering contractual partners and perfecting contracts along with a firm's internal costs. The key principle is that organizations, in their quest for efficiency, internalize all those operations whose transaction costs exceed the costs of managing them inside the organization. Examples of research using this approach are Hobbs (1996) or Williamson (2008). Hitt (2011) approached SCM from the strategic management theory with a combination of TCE and RBV. Casson (2013) approached SCM from the internalization theory of multinationals (Buckley and Casson, 1976). Yet some questions still remain elusive to our understanding. Decisions on SCM are sometimes not rationally motivated or, at least, not necessarily pursued for economic efficiency (Kauppi, 2013). Hence the economic and financial performance of distribution and logistics models require more empirical research.

Table IV summarizes the main approaches most required in each pole for a more balanced research field of strategic SCM.

Conclusions

Globalization has changed the way firms act strategically, as their supply chains have become complicated webs of global networks with SCM attempting to build critical linkages externally while managing internally. The new supply chain has evolved to a relationship focus where suppliers and customers have all become co-producers of value. Scholars have suggested that SCM can potentially be one of the sources of a firm's competitive advantage and a key to its global strategy, partly because firms seek differentiated strategies in the global marketplace where SCM plays a complementary role. Unfortunately, very little SCM research has focussed on SCM as the key element in the firm's strategy on what could be labeled as strategic SCM. We analyzed the content of 3,402 articles to extract the level of current research on the topic.

Four poles for future research have emerged from the map of the intellectual structure of strategic SCM. They are: agents and the focal firm; distribution and logistics strategic models; SCM competitive requirements; and SCM relational governance. These four areas have been discussed in relation to key approaches from the strategy field. Our result has demonstrated that most SCM research has utilized a variety of approaches, which is required by the complex phenomenon of managing the supply chain strategically. Past research concurring with our findings suggests that SCM can be an essential part of a competitive advantage if combined with other resources and capabilities throughout the entire supply chain, in what has been labeled

Common approaches

Entrepreneurship The role of the entrepreneurial orientation and the managers' mindset to shape a SC-based advantage

TCE Does the selected D&L strategic model yield an above normal performance?
How to share the profits and maximize the stakeholders' benefit throughout the SC?

The risk of internalizing the share competitive advantage in the SC by the focal firm: economic efficiency vs competitive advantage in the short-run

Poles/Approaches Agents and focal firm

Distribution and Logistics (D&L) strategic models

Game th. It should be investigated more in combination with principal-agent relationships (game heuristics)
Game heuristics applied to risk sharing

Game + stakeholder approaches should be combined to study the stakeholders' behavior regarding the selection of D&L strategic models: game heuristics

Stakeholder th. Change of focus: the competitive advantage of the full supply chain instead of focal firm
Who must take the leading role in the SC as informal organization?
Meeting the myriad of stakeholders' needs beyond financial prizes

Agency th. and institutional th.

Principal-agent relations in the network of agents
The role of external institutional pressures to shape the D&L strategic models
Psycho and sociological approaches to agents competitive behavior

Poles/Approaches SCM competitive requirements

Resource dependence th. The SC as a network of resources available for all the firms involved in the SC: the shared resource-advantage?

The need for integrating different levels of analysis: firm, network of firms, the SC as informal organization

SCM relational governance
Combining the stakeholders' viewpoint with discourses rooted in the creation of a resource-based or a competitive advantage
Combination with TCE: the risk of internalizing the shared advantage
How to manage the relational governance to reach the competitive requirements

RBV and KBV and dynamic capabilities

Shifting the argument from creating value to creating the right value for each stakeholder
Which are the key resources and capabilities and dynamic competencies in the SC to achieve a competitive edge?
Supplier-buyer core competencies
Relational capabilities in the network of SC
The learning organization and the learning SC as core to shaping the SC-based advantage
The appropriation of K: a shared resource for a shared competitive advantage in the SC?

Table IV.
Approaches most required for a balanced research agenda on strategic SCM

as the network approach. The global marketplace, hybrid relationships and blurred firm boundaries make these research phenomena even more difficult to explore.

While the results provide evidence of the intellectual structure, several gaps have been found and discussed. SCM is a recent but fruitful field of research, which now needs more efforts devoted to the integration of findings in the process of theory building after empirical evidence has been provided. Qualitative methods are useful when exploring the current boundaries of theories and new linkages according to the proposed research agenda. The research should advance to the notion of the supply chain as an informal organization where a shared advantage may exist.

In summary, this paper suggests that one theoretical foundation may be insufficient to cover all the complexities of strategic SCM research. Combined approaches and multidisciplinary research grounded in more of the current theories is needed to explore the intersections of the latter poles. The discussion now should focus on integrating the extant research and current practices in a robust theory on how to obtain competitive advantage based on the SCM.

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