Retail supply chain management: key priorities and practices

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Abstract

Purpose – The purpose of this paper is to investigate the unique supply chain strategies employed by retailers.

Design/methodology/approach – A mixed methods approach was employed involving analysis of depth interviews with 27 retail supply chain executives combined with a follow-up survey capturing over 200 responses.

Findings – In light of uncertain economic conditions, retailers appear to be developing more agile/responsive supply chain management (SCM) strategies. Additionally, retailers are putting greater emphasis on maintaining a balance of cost versus service than the cost-centered focus found in a prior study.

Research limitations/implications – This study focused on US retailers and therefore results should be cautiously extended to the retailing environment in other countries.

Practical implications – Retailing is not a "one size fits all" business, and study results suggest the SCM strategies used by retailers depend greatly on the nature of each retailer's model. However, the need to create agile SCM processes while controlling costs was an overarching theme described by retailers.

Originality/value – Retailers operate some of the largest and most complex supply chains, yet SCM research has generally overlooked the retail sector. This study targets this gap, and in addition introduces a novel data collection approach using clicker devices that researchers may find useful in future projects.

Keywords United States of America, Retailing, Supply chain management, Logistics management, Retail logistics

Paper type Research paper

1. Introduction

Power in the supply chain has traditionally rested with manufacturers, focusing on operations, distribution, inventory, and transportation functions at the firm level (Drucker, 1962; Langley, 1980; Poist, 1974). Suppliers and retailers were forced to align themselves with manufacturer priorities. Similarly, researchers also adopted this manufacturing driven perspective (Defee *et al.*, 2009).

The growth of discounting and the big box retailing concept over the past 20 years has led to a fundamental shift in marketplace power from manufacturers to retailers (Arnold, 2002; LaLonde and Masters, 1994; Srinivasan, 2004). Where producers once controlled supply chain issues (e.g. Proctor & Gamble, General Motors), organizations closer to the consumer (e.g. Wal-Mart, Target, Best Buy) are now taking the leadership role (Brodie *et al.*, 2009; Lusch *et al.*, 2007). As the power of the demand side continues to evolve, understanding supply chain management (SCM) from a retail perspective becomes more important (Davies, 2009).

Researchers from marketing disciplines have investigated the shift from a product to customer orientation (Kirca *et al.*, 2005; Kohli and Jaworski, 1990; Slater and Narver, 1995). Practitioners have established a retail-SCM (R-SCM) sub-discipline with career paths and professional conferences (e.g. Retail Industry Leaders Association's Logistics Conference, National Association of Chain Drug Store's Supply Chain and Logistics Conference). However, supply chain researchers have been slow to address the retailer-centric business model and few initiatives directly address R-SCM issues, capabilities, and outcomes (Defee *et al.*, 2009).

This knowledge gap is surprising, given the criticality of SCM to retail success (Brown *et al.*, 2005; Ganesan *et al.*, 2009), end consumer cost (Davies and Brito, 1996; Lee and Rhee, 2008), and shareholder value (Ganesan *et al.*, 2009; Srivastava *et al.*, 1998). Studies have shown a retailer's stock price falls an average of 9 percent on the day a supply chain problem is disclosed, with an additional 9 percent drop recorded over the next 90 days (Hendricks and Singhal, 2005).

In this baseline study, we address three interrelated research questions associated with the R-SCM research gap:

RQ1. What issues are capturing the attention of R-SCM executives?

RQ2. How are retailers responding to these issues?

RQ3. What supply chain capabilities are needed to establish competitive advantage in the current retail environment?

Additionally, we discuss the use of audience response systems (ARS), a data collection technology that was used to capture responses from over 250 practitioners at three major R-SCM conferences. ARS provides a viable alternative to traditional survey data collection methods.

The paper is organized as follows. An overview of the R-SCM literature is provided. Next, the mixed qualitative and quantitative method used to gather the data for this research is discussed. Third, data analysis and key findings are presented. Finally, research conclusions and R-SCM implications are summarized.

2. Literature
From the practitioner perspective, SCM provides a recognized foundation for retail industry success (Arnold, 2002; Ganesan *et al.*, 2009). Yet, supply chain research has been slow to respond to the ascendency of retail as the primary power in the business to consumer channel (Defee *et al.*, 2009). The published research has been narrowly focused, lacking a holistic conceptualization and application. Our search revealed that, over the past 15 years, less than a dozen R-SCM focused articles are found in top logistics journals (*JBL*, *IJPD&LM*, *IJLM*, and *SCMR*). These articles generally address narrowly

defined issues such as in-stock position (Taylor and Fawcett, 2001), inventory error rates (Waller *et al.*, 2006), or direct product profitability (Bookbinder and Zarour, 2001).

Only two studies in recent years examined broader, strategic supply chain issues from a retail perspective. Lowson (2001) explored operational strategies used by 82 retailers in the USA and Europe. Lowson's work suggests that retail supply chain managers employ a broad array of strategies such as quick response, time-based competition, lean, and postponement. More recently Morrison and van Assendelft (2006) reviewed the results of an IBM Institute for Business Value study of 795 retailers worldwide. This study indicated that top performing retailers held one-third less inventory when compared with retailers at the median. Further the top retailers had revenue growth more than twice that of median retailers, and operating income margins one-third higher.

The remaining retail supply chain articles adopted a more micro perspective. These articles considered the supplier to retailer link for a single product (Hines *et al.*, 2006 examined pineapple distribution in Australia), or describe the supply chain for a given type of retail outlet or region (Fernie *et al.*, 2000; Mejias-Sacaluga and Prado-Prado, 2002 review grocery logistics in Spain and the UK, respectively). Kahn and colleagues (2008) use a retailer as a case study in their exploration of supply chain risk. Mukhopandhyay and Setaputra (2006) suggest the value to retailers of outsourcing costly reverse logistics activities. Kent and Mentzer (2003) developed the concept of relationship strength using retailers as part of the sample.

R-SCM has also been given scant coverage in retailing journals. Only nine relevant articles have been published in the *Journal of Retailing* (*JR*), many of which formed a special issue on SCM in 2000. These *JR* articles tend to be point-focused, dealing primarily with traditional inter-firm relationship issues including power (Bloom and Perry, 2001), dependence (Gassenheimer and Lagace, 1994), conflict management (Bradford *et al.*, 2004; Brown *et al.*, 1983), coordination (Ingene and Parry, 2000), and partnering (Mentzer *et al.*, 2000). Automatic replenishment (Levy and Grewal, 2000) and guaranteed profit margin programs (Lee and Rhee, 2008) have also been reviewed.

This narrow focus is not surprising. R-SCM research has been more an opportunistic extension of manufacturing theory, along with consumer product marketing and distribution theory, rather than a holistic, ground up construction of a critical research domain. Research should therefore consider key aspects of competitive advantage resulting from this shift in power. Research is lagging practitioner efforts to provide a broad understanding of retailer power impacts R-SCM, or the strategic importance of SCM to retailers. Our work begins to bridge the existing gap in the literature.

3. Methodology

The R-SCM research was based on a mix of both qualitative and quantitative methods highlighted in Table I. Specifically, we combined executive interviews and survey data to understand the trends and best practices found across the retail supply chain. The current study also has a longitudinal component with two years of ongoing R-SCM study (Defee *et al.*, 2009).

The current year's study was initiated through interviews with 27 R-SCM senior executives. We used the constant comparative technique of grounded theory to analyze the extensive interview transcripts, organize the results into emergent themes, and identify the major issues in R-SCM (Charmaz, 2006; Glaser and Strauss, 1967). Insights gained from the qualitative analysis of the interviews provided the basis

for a quantitative survey. The survey was administered to more than 300 supply chain managers and leaders from retail, manufacturing, logistics, transportation, consulting, and information service providers.

3.1 Qualitative process

Table I depicts the steps followed in this investigation. Armed with the findings of the 2009 study, we met and discussed the approach for the 2010 study. This initial planning session helped us determine the interview protocol, target participants for the interviews, and strategy for a follow-up quantitative survey (step 1).

At step 2, and again at step 4, interviews were conducted with senior executives representing a wide variety of retailers, ranging from automotive supply stores to super centers. Their annual sales range from $670 million to $422 billion, with median revenue of $7.7 billion.

During steps 3 and 4, each researcher reviewed 25 percent of the initial interviews for themes and relationships. Multiple meetings were held to cross-validate findings and gain consensus on our initial insights.

We continued to code in order to develop and refine higher order categories (step 5). As questions arose (step 6) we reviewed previous transcripts for clarification. If required, we conducted additional interviews to resolve questions and complete our understanding of the emerging categories. During this step, we came together again to harmonize our findings. This process was aimed at consensus rather than compromise.

In step 7, the team developed a survey based on the interview findings. The objective of this survey was to provide robust validation of the themes uncovered through the interview process. The survey provided ordinal rankings among the elements of the categories (e.g. challenges, trends, and best practices) uncovered during interview data analysis.

3.2 Survey approach

Survey research is often impaired by low response rates (Dillman, 2000). We addressed this problem by using ARS technology. The ARS clickers provide real-time responses to questions posed to a group. We embedded survey questions into presentations at the 2010 Retail Industry Leaders Association Logistics Conference, the 2010 National Association of Drug Store Chains Supply Chain & Logistics Conference, and the 2010 Witron Retail Congress.

During these three events, ARS clickers were distributed to 210 conference attendees and a paper survey to 100 attendees. The ARS clicker participation rate was 93 percent versus 60 percent for the paper survey. Incomplete surveys were eliminated from

Step	Analytical activity	
1	Develop the opening research questions	
2	Begin data collection and initial coding	
3	Arrange initial codes in tentative categories	
4	Data collection aimed at validated tentative categories and defining new categories	
5	Sort codes into aggregate categories	
6	Emerge categories, dimensions, and relationships	
7	Survey	Table I.
8	Survey data analysis	Qualitative-quantitative research methodology

the database, leaving a total of 210 usable responses. An overall response rate of 68 percent (210/310) was achieved.

Survey participants included R-SCM executives and executives from industries that support the retail sector. The data were segmented by business type and the survey results presented in the next section are based upon 93 retailer responses. Table II reveals that over 80 percent of these responses are from R-SCM executives working for major US retailers listed in the Stores Top 100 annual report (Schulz, 2010). Hence, retailer demographics are consistent with those of the qualitative interviews and the overall research results reflect the largest retailers in the industry.

The ARS survey brought clarity to key issues in R-SCM. The survey questions also allowed us to quantify the qualitatively derived categories. Finally, the use of the quantitative survey method provided validation of the qualitative interview findings and conclusions (Charmaz, 2006; Dillman, 2000).

4. Findings and discussion

The research results provide an exploratory overview of R-SCM practices in light of recent economic conditions. Three primary questions are addressed in this section:

RQ1. What issues are capturing the attention of R-SCM executives?

RQ2. How are retailers responding to these issues?

RQ3. What supply chain capabilities are needed to establish competitive advantage in the current retail environment?

Individual quotes representative of the interview themes and related survey results are provided for each question.

4.1 Critical issues affecting R-SCM practices

From an external perspective, the impact of the "Great Recession" continues to influence retailers and R-SCM practices. During the interviews, executives were hesitantly hopeful that the worst is economic turmoil were behind them. However, doubts remained and one respondent succinctly stated:

> Nobody can look you in the eye and tell you how quickly we are going to come out of this or how much pain is yet to come.

Table III reveals that the survey respondents also remain highly uncertain about the speed of the recovery, while a small proportion worry about issues that could stall the turnaround. Interestingly, the survey respondents did not highlight inflation as an area of concern despite it being mentioned in multiple interviews.

2009 revenue	Percent of respondents
Above $10 billion	57.8
$5 billion to $10 billion	21.7
$1 billion to $4.9 billion	18.1
Below $1 billion	2.4

Table II.
Retailer demographics

When asked about specific R-SCM issues, the interview participants focused on the ability to achieve reliable flows across the supply chain network. An executive noted:

> We are focusing on the collective network infrastructure [...] the transportation provider portion of the network, the supplier infrastructure portion of the network. It's about managing all of the different streams and making sure that you have the right products in the right streams based on how the consumer is addressing you.

The survey participants concurred with these network flow challenges, specifically regarding transportation. Table IV suggests that they are keeping a close eye on issues normally associated with increasing freight volume. The R-SCM executives worry about being caught "flat-footed" during an economic recovery if port capacity, rate increases, equipment availability, and related issues become acute. Interview participants discussed the need for solid contracts, carrier relationships, and contingency plans for various recovery scenarios.

Questions regarding internal challenges revealed that the interview participants indicated the need to achieve greater coordination and collaboration with other functions. R-SCM executives must satisfy varied and complex internal stakeholder demands. Within this theme, an executive said:

> We spend an inordinate amount of time working to make sure the process between sales, procurement, distribution & transportation are aligned.

Similarly, internal alignment was identified as a critical issue by a plurality of survey respondents in Table V. Heavy focus is also placed on supporting the needs of store operations through in-stock availability. R-SCM executives must balance requirements for service responsiveness against supply chain cost control, product availability against inventory rationalization, and high delivery frequency versus transportation efficiency.

4.2 R-SCM responses to key issues

As noted above, coping with the variety of external and internal challenges requires R-SCM strategy to be flexible. With the economic downturn deepening, the 2009 interview participants and survey respondents primarily focused on short-term cost

Issue	Percent of respondents
Speed of economic recovery	80.5
Tax increases	7.3
Consumer credit availability	7.3
Government deficits/debt	4.9
Inflation	0.0

Table III.
Retailers' economic
concerns

Issue	Percent of respondents
Infrastructure capacity/condition	41.2
Transportation rate increases	23.5
Logistics expertise development/availability	22.1
Carrier capacity/availability	7.4
Supplier financial instability	5.9

Table IV.
Retailers' supply chain
concerns

cutting activities to survive. While cost control costs remained important in 2010, the strategic focus discussion shifted toward to a more balanced perspective. An interview participant highlighted this strategy, stating:

> We're focusing on our ability to maximize the cost-service-customer demand equation.

Figure I shows a similar shift in strategy among the survey respondents. Two-thirds adopted a more economically optimistic strategy that emphasized cost/service balance or revenue growth. Also, having already taken significant costs out of the retail supply chain over the previous year, R-SCM executives expressed concerns about their ability to pursue additional cuts without negatively impacting the organization.

Achieving this state of balance is not an easy task. It requires two key abilities: agility – quickly responding to short-term shifts in supply or demand and adaptability – adjusting supply chain design to accommodate market changes (Lee, 2004). In the short term, the interview participants cited the need to be more responsive to a multitude of challenges including: inconsistent store sales, slow steaming by ocean carriers, and rising transportation rates.

A failure to rapidly adjust to these external issues can be catastrophic, according to an interview participant:

> Coming out of the recession there are three types of retailers, those that didn't make it, those that are mortally wounded, and those that are ready to move forward.

While 40 percent of the survey respondents also highlighted supply chain agility as their primary goal, it is not the only priority. Table VI indicates that efficiency

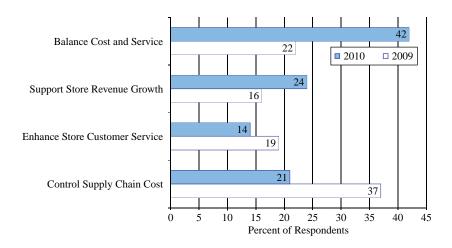| Issue	Percent of respondents
Aligning supply chain strategy with company strategy	42.5
Enhancing store experience and product availability	23.3
Controlling inventory assortment and investment	21.9
Improving merchant collaboration	8.2
Expanding private label offerings	4.1

Table V.
Retailers' internal issues

Figure 1.
R-SCM strategy – 2009 vs 2010

is essential to a third of the respondents who are pursuing greater asset utilization or streamlining inventory.

Often, investments in supply chain capabilities are needed to support the strategies and goals identified by the study participants. In 2009, the R-SCM executives kept tight reins on spending, particularly in the areas of technology and infrastructure. The focus shifted in 2010 with retailers investing heavily in both areas. This included long-range capital projects, according to interview respondents:

> Our investment plan is heavy on technology as it relates to running the business. We have to utilize data to make better decisions about redesigning and improving our supply chain.

> We're moving into robotics with mini-load and the pallet stacker cranes – creative things that'll be instrumental in driving up capacity of our buildings and leveraging our fixed assets.

Among survey respondents, investments in process improvement led the way both years. However, technology and infrastructure became more important in 2010, as indicated in Table VII. Nearly 49 percent of the respondents were devoting resources to boost fulfillment capabilities or enhance information systems.

4.3 R-SCM competitive advantage
Executing effectively on R-SCM strategies, goals, and spending plans is essential to retail success. This requires a commitment to leading edge capabilities and delivering outstanding performance relative to the competition. During the 2009 study interviews and subsequent survey, we identified four best-in-class R-SCM capabilities. These attributes included: flexible processes and capabilities, supply chain goal alignment, talent development, and network strength.

In 2010, over half of the participants in each of the interviews and survey indicated that flexibility is the most important attribute of a best-in-class retail supply chain. This aligns as expected with the agility goal discussed earlier. Flexibility encompasses

Issue	Percent of respondents
Achieving greater supply chain agility	38.9
Maximizing asset utilization	23.4
Increasing supply chain visibility	15.6
Enhancing internal goal alignment	11.7
Streamlining inventory	10.4

Table VI.
Retailers' primary
SCM goals

Issue	2010 percent of respondents	2010 rank	2009 rank
Process – improve fulfillment performance	36.8	1	1
Infrastructure – expand fulfillment capabilities and capacity	27.6	2	4
Technology – enhance supply chain information systems	21.1	3	3
People – training and development of supply chain team	14.5	4	2

Table VII.
Retailers' primary
investment areas

scalability of operations and the ability to respond appropriately to changing conditions, requirements, and channel strategies.

When it comes to creating a competitive advantage, this ability to respond to challenges and change (i.e. agility) is essential. This sentiment was succinctly summed up by an R-SCM executive who stated:

Having your asset base aligned and the flexibility to take capacity up or down without too much pain is very important.

Nearly half of the survey participants echoed this perspective. Table VIII reveals that R-SCM responsiveness and coordinated flows separate leaders from the pack. Many retailers effectively manage the flows through distribution centers and onward to the store receiving dock but lose authority and control over the product at that point. Leading retailers are taking control of that final dock door to shelf segment of the supply chain to ensure visibility and availability. The other three issues are necessary to compete, rather than drive competitive advantage.

4.4 Looking forward

Though they have been entrenched in activities related to recovering from the Great Recession, R-SCM executives recognize the changing landscape that lies ahead of them. From the instability of fuel prices to the emergence of multi-channel distribution, R-SCM executives must prepare for a wide range of issues and meet them head-on.

Sustainability is one of these key issues, according to many interview participants. Within this theme, an executive warned:

The time is coming when retailers must be able to communicate the virtues of their supply chain savings initiatives from an environmental standpoint.

In concluding the survey, we asked retail SCM executives to identify the issues that will impact their long range planning. Table IX reveals that sustainability and oil prices are dominant concerns, followed by regulation and international transportation.

Issue	Percent of respondents
Responsive operations to meet changing requirements	49.2
Coordinated product flows all the way to the store shelf	34.9
Precise supply chain cost knowledge and control	6.4
Enhanced visibility across the supply chain	4.8
Rigorous inventory management and rationalization	4.8

Table VIII.
R-SCM drivers of competitive advantage

Issue	Percent of respondents
Emphasis on sustainability and related costs	30.7
Rising oil prices and their impact on network design	30.7
Government regulation and compliance costs	17.7
International carriers' financial health and loss of capacity	14.5
Domestic carriers' financial health and loss of capacity	6.5

Table IX.
R-SCM future issues

Overall, R-SCM executives and their teams provided stability for retailers throughout highly challenging times. Their ability to shift from all out cost-cutting mode to a more balanced perspective is a testament to the flexibility and agility of R-SCM processes. However, the executives realize that this is no time to rest on their laurels as much work remains to be done to improve supply chain efficiency and service. This perspective is well defined by an interview participant who succinctly concluded:

> There is huge upside supply chain potential for most retailers. If we manage to synchronize the various parts, eliminate variability, and reduce inventory, we will truly create economic value for the organization.

5. Conclusion

In this exploration of R-SCM, our research focused on three interrelated research questions. The interviews and survey questions provided insights into critical R-SCM issues, responsive strategies and investments, and the capabilities needed to survive and thrive in a changing retail environment. This study begins to address some of the critical gaps in R-SCM research and paves the way for future in-depth analysis of R-SCM strategy and practice.

In the 2009 survey the retailers' focus was on cost control and reducing inventory positions – but that has changed. In 2010, we found the road to competitive advantage appears to be a more balanced strategy. The global economy is growing increasingly turbulent, and R-SCM executives must rapidly respond to unanticipated changes at reasonable costs. Responsiveness, flexibility, and agility are the fundamental requirement for R-SCM success. R-SCM leaders realize that they must meet customer expectations of continuous product availability while simultaneously rationalizing inventories and reducing waste.

In addressing these questions, we also demonstrated the use of ARS technology as a viable methodological tool for SCM research. To date, this technology has not been used for academic research. We found that ARS technology is an engaging tool that allows rapid collection and dissemination of data with a targeted group of experts. It also helps to deal with the problem of declining response rates and uncertainty regarding who is completing the survey.

Of course, all technologies and methodologies have their limitations. ARS technology is particularly good for basic single-response survey questions but does not handle more complex ranking questions particularly well. Also, audience fatigue can become a factor. We noticed a discernable drop-off in response rates after approximately a dozen questions.

Likewise, our research results are restricted to an overview of the R-SCM landscape for large US retailers. Analysis of supply chain issues and practices related to international, e-commerce, or small retailers will further enhance the limited knowledge base regarding R-SCM. It is an important area of SCM that is ripe for robust investigation.

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