

Selected Research and Writings of William C. Copacino

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## Overview

William C. Copacino (1950-2012), was a world renowned supply chain strategy expert, who lived too short a life. He graduated from Harvard Business School in 1978 and went to work for Arthur D. Little Company (ADL) in Cambridge, Massachusetts, where he rose to the position of Managing Director and Vice President of the operations management practice. His initial focus was on consulting on transportation and related issues to industry clients. I was then a Vice President, Transportation and Logistics Consulting at Temple, Barker & Sloane, Inc., three miles down Route 2 in Lexington, Massachusetts from ADL. We were fierce competitors, mostly due to the fact that so few consultants focused on developing client transportation strategies in the early 1980's.

At that point in time, transportation was totally regulated by the Interstate Commerce Commission (ICC). Companies had only a few options in managing how they shipped or received freight. All that changed in 1983 when Congress began to seriously deregulate truck and railroad operations. Our consulting businesses boomed as companies sought new ways to store and move freight...and develop logistics strategies...the new, new thing in the 1980's. The era of transportation deregulation introduced a number of new variables to the world of transportation and physical distribution management (as supply chain management was then called), among them rates, service levels and new shipping options. Instead of a government agency, in this case the ICC, managing transportation pricing and service, the U.S. marketplace became the mechanism for balancing transportation demand and supply across companies.

After ADL, Bill became the founder and global managing partner of Andersen Consulting's (now Accenture) Supply Chain Consulting practice, where he remained until he retired in 2004. Bill spent 15 years at Accenture and built the largest supply chain consulting practice in the world, totaling over 7,000 professionals and more than 1,000 clients. After a brief stint at C&S Wholesale Grocers in Keene, New Hampshire, where he was Chief Administrative Officer, Bill joined Oco, a business intelligence software company as CEO, which was sold to Deloitte Consulting in 2011.

Bill published over ten scholarly articles, wrote two books on logistics and supply chain, authored at least 116 magazine columns, contributed to and/or edited many other books, and presented at numerous conferences during his life. I have collected over thirty representative articles and presentations (he re-published most of the columns in a later book), along with his books and conference videos. He was one of the many pioneers in the area of logistics strategy development during the 1980's and 1990's. Others academics and practitioners such as Jim Heskett, Bud LaLonde, Don Bowersox, Doug Lambert, Don Rosenfield, Jonathan Byrnes, John Mentzer, Jeremy Shapiro, Paul Bender, Yossi Sheffi, Roy Shapiro and Dick Powers also come to mind. The difference between Bill's writings and those of many of the aforementioned academics was that Bill focused on making logistics analysis actionable and useful to logistics line managers who wanted to use the new techniques to improve their transportation and distribution operations.

The following compilation explores his most innovative supply chain thinking in three "eras"—the Early Years at ADL, Thought Leadership at Andersen Consulting/Accenture and the C&S Wholesale/Oco Years.

## The Early Years at ADL

Bill's first published article was in 1984, titled "The Impact of Uncertain Transportation Costs on Physical Distribution Planning"<sup>1</sup>. It was co-authored with Larry Lapide, then at Data General Corporation, and published in the Journal of Business Logistics. The article evaluated a major theme of deregulation that bedeviled logistics managers—how companies could manage freight movements in a cost-efficient manner when transport prices changed frequently, depending on the level of competition in the marketplace. In particular, as the article pointed out, uncertain transportation costs made overall network design and operations (the location of and scheduling at physical distribution facilities as well as transport lanes connecting the facilities to plants and customers) much more complex. In the article, the authors stress the importance of accurately forecasting transportation costs, as swings in these costs could have a major impact on correctly positioning and operating warehouses across the U.S.

To summarize from the research in Bill and Larry's words (page 41):

"The article traces recent trends in the costs of physical distribution, and through two case examples, examines the sensitivity of facility locations to the uncertainty or unpredictability of physical distribution costs. One case example examined a plant location decision that was made in the mid-1970's. By failing to test the sensitivity of plant location alternatives to a broad range of transportation costs, the company incurred significant economic penalties when transportation costs in the late 1970's grew at a rate that exceeded most predictions. The company could have selected an alternate configuration that would have considerably reduced this potential risk.

The second case example examined the economics of direct shipment to customers as compared to shipment through remote warehouses. Again, the decision was shown to be very sensitive to transportation cost assumptions. The economic penalty and risks of not explicitly considering the implications of potential cost fluctuations when selecting a configuration of warehouses were highlighted. Finally, this article provided guidelines for planning and managing distribution systems given the uncertainty of future distribution costs."

Bill and Larry's research was important along a number of dimensions. First, companies were not used to planning alternate futures for their distribution system. Instead, the conventional wisdom involved setting up a warehouse/transport network that would last decades. Second, with fixed transportation costs due to regulation, companies were not used to having to deal with rapid changes in rates, making physical distribution planning and execution very difficult. Finally, companies were unprepared for the emergence of new transportation options in the late 1980's, when transport carriers offered new ways to get their products to market.

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<sup>1</sup> Copacino, William C. and Larry Lapide, "The Impact of Uncertain Transportation Costs on Physical Distribution Planning", Journal of Business Logistics, Volume 5, Number 1, 1984, Pages 40-56.

These regulatory changes led to the golden age of transportation consulting, during which ADL, TBS and numerous other consultancies flourished. Bill and Larry's proposed activities were a blueprint for many of types of consulting projects from the mid 1980's to the mid 1990's. They suggested numerous actions companies could take to lessen the economic risks from uncertain transportation costs (pages 54-55):

“Principally, uncertainty in distribution cost elements (and particularly the transportation cost element) implies the need for broad sensitivity analysis when analyzing facility location decisions. By testing the impact of a broad range of key cost elements on total costs, one can get a full understanding of potential risks. Facility location strategies that reduce exposure to variations of key cost elements can then be selected. (Note—this recommendation was the basis for transportation cost sensitivity analysis studies by consultants)

Secondly, we encourage the periodic review of facility location decisions, particularly when substantial changes in key cost elements have occurred. More practically, this point applies more for warehouse location decisions than for plant location decisions. The former tend to be lower investment decisions and can be modified without substantial cost penalties. (Note—this recommendation paved the way for logistics network strategy work by consultants)

Third, we suggest that managers select flexible strategies during periods of uncertain cost trends or when sensitivity analysis reveals substantial economic risks. These strategies include the use of leased rather than owned warehouses, the avoidance of long-term lease arrangements, the use of public warehousing where appropriate, and the use of incremental capacity additions where feasible. These strategies increase flexibility and allow reasonable responses to future uncertainties.”

Note that this final recommendation presages logistics strategy options analysis by consultants over the next decade.

In 1985, Bill published a second article on strategic planning in logistics, this time with Don Rosenfield, then a colleague at ADL, now a senior lecturer in operations management at the Massachusetts Institute of Technology (MIT), entitled “Analytic Tools for Strategic Planning”<sup>2</sup> and published in the International Journal of Physical Distribution & Materials Management.

The article is a review of the key analytic tool sets for strategic logistics planning—traditional tools, such as functional cost analysis and various modeling approaches, as well as newer tools, which could be very effective for strategic logistics planning. A framework was developed that outlines the various approaches for strategic logistics planning and identified the analytic tools that are available for each particular aspect of planning. Typical tools covered include: logistics cost analysis, decision support models, manufacturing strategy tools, the Shapiro grid framework (a two by two framework to examine strategy options) and the cost-service trade-off curve.

Again, many of these tools were used extensively by consultants during the late 1980's and 1990's in client engagements. Consultants were introduced via the article to many of the newer tool sets, such as

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<sup>2</sup> Copacino, William C. and Donald B. Rosenfield, “Analytic Tools for Strategic Planning” , International Journal of Physical Distribution & Materials Management, Vol 15, Number 3, Pages 47-62.

logistics network optimization, tying logistics planning to corporate plans, and supporting strategic corporate initiatives through logistics planning. In particular, the cost-service trade-off curve became a critical tool in evaluating various logistics strategies around customer service and whether it made economic sense to add more warehouses to serve customers in less time versus the costs of adding the facilities.

Also in 1985, Bill, along with Don Rosenfield and Edmund Payne of IntelliCorp, published “Logistics Planning and Evaluation Using “What-If” Simulation” in the Journal of Business Logistics.<sup>3</sup> The article further introduced many practitioners to the new world of computerized (as well as manual) modeling approaches for logistics planning, including manual evaluation of alternatives, “what-if” simulation modeling, optimization modeling and heuristic modeling.

The primary focus was on “what-if” simulations. “What-if” simulation modeling generally involves scenario evaluation and is useful in cases where a company cannot undertake a sweeping revision of their logistics system. The cost in terms of investment and organizational design is often too great relative to benefits. Companies may want to understand the effects of change to a single or limited number of variables, an application to which “what-if” simulations are well suited.

The article focused on a case study involving the application of a “what-if” simulation approach to the logistics network of a major U.S. manufacturer, with overseas plants and interfacility parts shipments. The unique aspect of this model was the attempt to comprehensively model all aspects and options of the logistics system using a “what-if” simulation approach. These included direct calculation of inventory costs and service levels, including the effects of cycle time, mode choice, shipment size, inventory stocking policy, lead times and so forth. All feasible geographical options for facilities were considered through the development of coordinate-specified locations and distance-based costs. The “what-if” simulation approach used the ADL Logistics Integrated Modeling System (LIMS), which Bill helped develop, to assess the tradeoffs among the costs of relocation of facilities, the selection of alternative freight consolidation strategies and alternative transportation modes and routes, and the use of alternative inventory policies.

There were some interesting learnings from the modeling which helped corporate decision makers better understand how logistics planning models could be used to enhance strategy implementation. Pure “what-if” simulation tools never really became mainstream in the logistics strategy consulting business. They were overtaken by optimization tool sets, although some simulation tools, including ADL’s LIMS tool did contain optimization algorithms for certain calculations.

Perhaps Bill’s most significant contribution to logistics thought leadership in the 1980’s was his book, with Don Rosenfield and John Magee as co-authors, Modern Logistics Management<sup>4</sup>. The book was a

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<sup>3</sup> Rosenfield, Donald B., William C. Copacino and Edmund Payne, “Logistics Planning and Evaluation Using “What-If” Simulation” ,Journal of Business Logistics, Vol 6 Number 2, Pages 89 to 109.

<sup>4</sup> Magee, John F., William C. Copacino & Donald B. Rosenfield, Modern Logistics Management: Integrating Marketing, Manufacturing and Physical Distribution, John Wiley & Sons, 1985

revision of Industrial Logistics; Analysis and Management of Physical Supply and Distribution Systems<sup>5</sup>, originally published in 1968 by John Magee of ADL. The revised book broke new ground in thinking about the need to include marketing and manufacturing in the analysis and optimization of logistics systems. Previously, physical distribution was limited to the study of transportation, warehousing and inventory management, with no linkages to sales, manufacturing or procurement. Bill, John and Don effectively argued that any rational logistics management plan needed to understand what was being produced, marketed and sold in a company to gain a true picture of logistics needs.

New technologies in the 1980's, especially the rise of information management systems and logistics data availability, were revolutionizing how companies managed their operations and their relations with customers. The emerging versatility of logistics systems to respond to changing customer needs was pushing logistics managers into a larger role in corporate strategy development. The (formerly) lowly logistics manager was finding him or herself interacting more frequently with senior executives and being part of discussions about better serving customers and in reducing logistics costs, often one of the largest cost centers in a company. Bill's book helped these managers understand their options to better plan and improve logistics systems, such as new approaches to multi-location inventory planning and strategic logistics location decisions. The book also included insights into international logistics issues, as many U.S. companies were beginning to "go global" in the late 1980's. The overall intent was not to produce a comprehensive guide to transportation, inventory and customer service management, rather to give readers an appreciation of each of these areas in relation to overall logistics system design. Bill's book was widely adopted by professors teaching the newly emerging courses at universities on logistics strategy and management.

In particular, the chapters on "A Framework and Methods for System Analysis" (Chapter 10) and "Long-Range Planning and Uncertainty" (Chapter 13) set new standards for designing efficient and effective logistics systems for companies. Consultants and practitioners adopted many of the suggested techniques to improve logistics operations and enhance customer service. Most importantly, the book closely focused on the issue of customer service, and showed how a company could structure its logistics system to ensure that customer delivery cost and service standards were equal to the best in the marketplace.

In 1987, Bill, along with Don Rosenfield, published "Methods of Logistics Systems Analysis" in the International Journal of Physical Distribution & Materials Management<sup>6</sup>. The article helped establish a new genre in logistics management, that of logistics strategy analysis, which was to become a primary

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<sup>5</sup> Magee, John F., Industrial Logistics; Analysis and Management of Physical Supply and Distribution Systems, McGraw-Hill, 1968

<sup>6</sup> Bill Copacino and Don Rosenfield "Methods of Logistics Systems Analysis" in the International Journal of Physical Distribution & Materials Management, Vol 17, Issue 6, Pages 38-59.

driver of logistics systems analysis during the 1990's. Bill and Don proposed a framework to understand and analyze logistics systems and their relationship to corporate objectives and corporate strategy. The framework focused on four issues:

1. Trade-offs included in logistics analysis
2. Characteristics of manufacturing processes, locations and products
3. Division of logistics systems analysis into a hierarchy of problems, and
4. Different kinds of available analysis

The article drew heavily on Bill's earlier book, Modern Logistics Management, and came to the following conclusions (page 59):

- Logistics strategy and integrated logistics planning are distinct, but related, decisions
- Basic trade-offs and measures of products and logistics systems, such as value density and the nature of the manufacturing process, have a significant impact on the role of the logistics system
- The role of a logistics system can be understood and analyzed only in the context of a hierarchical framework, and
- No single method of logistics systems analysis can be applied uniformly, with the best method depending on the problem and its complexity.

To cap off Bill's scholarship and research in the 1980's Bill published a final article in 1988 just before leaving ADL for Andersen Consulting. In an ADL Logistics Note, "Total System Efficiency: Taking Logistics beyond Corporate Boundaries"<sup>7</sup>, Bill indicated that "a significant new trend has been evolving in logistics management in recent years which involves the collaboration of all participants in the supply chain in order to reduce logistics costs. It has been referred to as "Supply Chain Management", "Logistics Partnerships", or "Inter-Corporate Logistics Management". We call it *Total Systems Efficiency* or TSE."

For academics and practitioners, the name supply chain management eventually stuck. Bill's desire to rename it joined mine (I think I tried the name "Product Logistics Management") in the nether world of forgotten names looking to define the new logistics scene. But Bill was correct that new thinking was needed to drive logistics strategy development. Not only did one need to include manufacturing and sales in logistics strategy analyses, but also customers and outside suppliers if we were going to build truly efficient "supply chains". He did also recognize that TSE's were not easy to establish. Participants in supply chains have conflicting interests and are often involved in a struggle for power and control over the distribution channel. He did believe that TSE's were the next quantum leap in logistics efficiency and

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<sup>7</sup> Copacino, William C., "Total System Efficiency: Taking Logistics Beyond Corporate Boundaries", Arthur D. Little, Logistics Notes, 1988.

carried that thinking over to Andersen Consulting, where that thinking would be put into action on a global scale.

Finally, Bill did start writing monthly columns for Logistics Management magazine in 1986, covering a wide variety of topics around customer service targets for logistics managers to global logistics challenges. Since most of these were written in the 1990's and re-published in his book, Supply Chain Management: The Basics and Beyond, we will review them in detail in the next section.

## Thought Leadership at Andersen Consulting/Accenture

Bill joined Andersen Consulting in 1989 as the first direct entry partner and leader of the nascent supply chain consulting practice. Many of his early 1990's presentations and some articles are lost, but as mentioned earlier, Bill did a monthly column for Logistics Management magazine that encompassed his thinking on a wide variety of supply chain topics. He published 116 columns on logistics strategy, the great majority of which were re-organized and re-published in his 1997 book, Supply Chain Management: The Basics and Beyond<sup>8</sup>.

With all his new responsibilities at Andersen Consulting, Bill did not have the time to engage in the basic logistics-related research he participated in during the 1980's. Besides his monthly column, Bill did find time to contribute pieces on logistics strategy to a number of books, The Logistics Handbook<sup>9</sup>, Reconfiguring European Logistics<sup>10</sup>, The Change Management Handbook<sup>11</sup>, and Reinventing the Warehouse<sup>12</sup>.

In 1991, Bill and Frank Britt did publish an article, "Perspective on Global Logistics",<sup>13</sup> in The International Journal of Logistics Management, on the emerging importance of logistics in global trade. They noted that the increased globalization of markets has greatly increased the role of the international logistics function in many companies, which in turn has affected how companies organize the logistics function. The authors argued that trade flows would start to shift from an east-west to a north-south orientation as economic development shifted to countries near or below the equator. The article reflected on the rapid move of American manufacturing to Mexico, the Caribbean and South

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<sup>8</sup> Copacino, William C., Supply Chain Management: The Basics and Beyond, The St. Lucie Press, 1997

<sup>9</sup> Copacino, William C., co-editor with James Robeson, The Logistics Handbook, The Free Press, 1994

<sup>10</sup> Copacino, William C., contributor, Reconfiguring European Logistics, Council of Logistics Management, 1994

<sup>11</sup> Copacino, William C., contributor, The Change Management Handbook, Irwin Professional Publishing, 1994

<sup>12</sup> Copacino, William C. with Roy Harmon, Reinventing the Warehouse, The Free Press, 1993

<sup>13</sup> Copacino, William C. and Frank F. Britt, "Perspectives on Global Logistics", International Journal of Logistics Management, 1991, 2(1), P. 35-41

America during this period, along with the emerging cross-border logistics challenges the companies faced in moving goods to and from these distant facilities.

In his 1997 book, Supply Chain Management: The Basics and Beyond, Bill organized his many Logistics Management magazine columns into six chapters:

1. *Overview of Supply Chain Management and Logistics Strategy*, which defines supply chain and logistics management and related terms, outlines the requirements for excellence in these activities, and argues that integration (across functions, processes, and even organizations) is critical to success,
2. *Supply Chain Management and Logistics in a Competitive Context*, which takes a practical approach to the issue of how to use logistics to win and sustain competitive advantage, including how to manage and organize for success,
3. *Customer Service*, which argues that excellent supply chain and logistics management begins with understanding customer needs and explores how to gain the requisite understanding and then how to translate it into superior capabilities,
4. *Functional Excellence*, views logistics as a process that integrates a number of activities—forecasting and inventory control; manufacturing; transportation and warehousing; purchasing; information management; and sales, marketing, and customer service—which must be executed excellently, individually, and in combination, to make supply chain management effective,
5. *Techniques for Supply Chain Excellence*, outlines some practical tools and approaches for analyzing, and thus better understanding, key processes and costs of the supply chain, and
6. *Future Trends and Issues: The Broader Context*, tries to avoid crystal-ball predictions of the future, but lays out some emerging directions to give management insights into key issues that are sure to have impact of some kind on effective supply chain management and logistics.

As we look through the columns, we can see Bill foresaw many of the major emerging trends that defined supply chain strategy analysis in the 1990's and beyond:

- the importance of driving supply chain management with correct forecasts,
- integrating other corporate functions (customer service, in particular) into logistics decision making,
- defining flexible logistics systems to adapt to changing environments,
- just-in-time (JIT) logistics,
- creating real advantage from logistics,
- creating a perfect order,
- customer-driven versus asset-driven logistics,
- strategic inventory management,
- information and logistics,
- re-engineering logistics,
- logistics benchmarking and customer profitability analysis,
- managing reverse-flow logistics,
- the greening of logistics, and

- the opportunity for logistics shared services.

Other consultants, academics, and practitioners certainly explored these issues (and others) in detail during the same period that Bill was writing his columns. The impressive take-away here is that Bill was able to both capture the broad changes taking place in logistics over the 1990's, and treat them in the overall context of effective supply chain management, as well as exploring many underlying topics in detail. Most other authors focused on one or two area, as opposed to Bill's analysis of the broader global trends and their relationship to supply chain management.

In 1998, Bill was awarded the prestigious Distinguished Service Award by the Council of Logistics Management. In Bill's acceptance speech<sup>14</sup>, he spoke about how superior supply chain management required a greater set of skills and greater sophistication. He noted that we were seeing a growing disparity between those companies who do it well and those who do not—and we were seeing increasing performance differences in cost, in customer service, in asset performance and in the flexibility and responsiveness among players within every industry. "Supply chain superiority, Bill stated, offers great promise and rewards for the winners. Those who become the Masters of Supply Chain will lead their companies to a distinctive competitive advantage and market success".

In 1999, Bill, in collaboration with Jonathan Byrnes of MIT, began work on another research paper, focusing on companies who were leaders in supply chain management within their industries. The work went through many drafts and ended up in 2001 as an article in the Supply Chain Management Review, entitled, "How to Become a Supply Chain Master"<sup>15</sup>. The article focused on two key areas:

1. How to identify companies that have mastered supply chain efficiency and effectiveness in their respective industries, and
2. How other companies could emulate their successes.

The concept of Supply Chain Masters created a new consulting opportunity, that of supply chain benchmarking, where client company supply chain practices and metrics could be compared to those of the supply chain masters in their industry. Needless to say, Accenture supply chain consultants were quick to add benchmarking to their tool kits, thus creating competitive advantages in their bids for consulting engagements.

From Bill and Jonathan's research, five steps were identified as key to developing a supply chain mastery program (page 32):

1. *Develop a Fact Base*—using a tool called the channel map (explained in detail in the article), construct a dynamic model of the incremental costs and time spent on products at each stage as they move through a supplier and on to a customer. Close collaboration with suppliers and customers is required, but the interaction helps identify and estimate the economic benefits of the proposed business model, compared to the previous one.

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<sup>14</sup> Copacino, William C., "CLM Acceptance Speech", Council of Logistics Management Conference, 1998

<sup>15</sup> Copacino, William C. and Jonathan L.S. Byrnes, "How to Become a Supply Chain Master", Supply Chain Management Review, September/October 2001, pages 24-32.

2. *Engage Your Counterparts*—a successful project requires the cooperation between supply chain and other functional groups, such as sales & marketing, finance and customers. Without cooperation, obtaining buy-in to new ways of doing business is difficult at best. Gaining acceptance around the new ideas is a critical step in the change process.
3. *Sell the Business Model*—Engaging top managers in the change process up front is a critical success factor, as their support will be needed to drive the changes. Often, showcase projects that demonstrate how change will help the bottom line are used to capture skeptics.
4. *Drive Change in Other Functions*—engaging colleagues in related functional areas in the design and implementation of a new business model is also an important part of the process. Developing common performance measures is one tool that can help rally disparate groups in a company behind common goals.
5. *Create a Rollout Game Plan*—the work is not done until the change is implemented. Companies who create an exciting vision of the future must also create a path, or game plan, to that future. Once a showcase project has shown that success is possible, the game plan charts the rollout across other products and divisions of the company.

Bill transformed the article into an Andersen Consulting (AC) presentation in 2001 that was extensively used both inside AC to train new consultants as well as with clients to convince them that supply chain mastery was both feasible and worthwhile from a shareholder perspective (supply chain masters generally had higher total shareholder returns relative to other companies in that industry).

In October 2002, Bill was awarded the Salzberg Medallion, given in recognition of being a leading supply chain academic or practitioner, by Syracuse University's Martin J. Whitman School of Management Salzberg Program. Bud LaLonde, a pioneering supply chain professor at The Ohio State University, nominated Bill and Frank Britt, a Syracuse graduate and supply chain consultant at Accenture with Bill, introduced him. Bill's speech was recorded and the following summary was taken from that recording.

Bill's topic for the Salzberg Lecture was "Leadership in Supply Chain"<sup>16</sup>. He foresaw two trends emerging: first, supply chain was becoming increasingly important as a competitive tool by companies and second, there was a growing gap between supply chain leaders and laggards, creating problems for companies trying to keep up with the leaders.

From a competitive perspective, Bill cited the enhanced focus on supply chain in the global media, with companies such as Wal-Mart, Microsoft, Dell, Zara and P&G touting the importance of having a world class supply chains to dominate their markets. Leading companies recognize that supply chains can positively (or negatively) impact all drivers of shareholder value—costs, revenues, customer service and asset productivity. For example, he cited leader Wal-Mart's inventory turns increasing from 5.34 to 8.36 per year over the 1995 to 2000 period, while laggard K-Mart's inventory turns only went from 4.23 to 5.01 per year.

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<sup>16</sup> 2002 Salzberg Medallion Presentation and Lecture Video provided by Fran Tucker, Marketing Professor in the Syracuse University Whitman School of Management and the Salzberg Program.

He then asked why laggard companies are not keeping up with the leaders in supply chain. His answer was that being a leader was difficult and complex to accomplish, taking years to build the right infrastructure, network, processes, and human capital. On top of all this, change in supply chain is very dynamic, with last year's acceptable performance now this year's also-ran metric. Further, new technologies and capabilities, such as RFID, eprocurement, supply chain planning, training and collaboration options, keep emerging, making the process even more difficult.

He did see a window of opportunity, however, for laggards to upgrade their supply chain performance to be more like the leaders in their industry. He cited preliminary findings from the Accenture-sponsored Stanford and INSEAD study on Masters of the Supply Chain<sup>17</sup>, detailing six common factors that separate leaders from laggards:

1. *Functional excellence*—leaders have high performing supply chains across all functional areas
2. *Cross-functional harmony*—leaders have close collaboration between supply chains and other areas of the company
3. *Demand Shaping*—leaders manage demand as well as supply, using sophisticated pricing models to ensure correct product balances in the supply chain
4. *Outsourcing*—leaders find other who can better perform supply chain functions and work with these partners to create new and innovative supply chain processes
5. *Information Technology*—leaders use the most recent and creative software to look, for example, to trading information for costs and inventory in the supply chain
6. *Human Resources*—leaders hire and nurture top talent as well as provide extensive training for supply chain professionals

In conclusion, Bill stressed two factors that would help companies achieve supply chain Leadership:

- *Greater CEO leadership*—companies need to enhance awareness among senior leadership on how supply chain contributes to both the top and bottom lines, and get the CEO behind providing the resources to make their supply chain world class
- *Better trained supply chain leaders*—supply chain executives need to understand and demonstrate the importance of supply chain, from both a financial and a customer service perspective, and be able to effectively tell their story to other senior executives

To enable companies to better adapt to the increasing sophistication of supply chain, Bill recommended two fixes:

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<sup>17</sup> Accenture, Masters of the Supply Chain, 2002, by Stanford University and INSEAD, published internally.

1. Improved supply chain awareness on the part of the CEO, who can provide leadership for supply chain transformations
2. Empowering and enabling supply chain professionals in the organization to make change happen.

In the early 2000's, Bill also focused on developing presentations to educate AC professional and clients. Most of these are confidential, so copies are not publicly available. Some of the topics Bill explored in detail in those presentations include:

- *Outsourcing Logistics Activities*—Bill was an early proponent of hiving off functional areas in supply chain, such as transportation and procurement, from companies to third parties who could do a better, more cost effective job of managing these activities. He developed a detailed approach to how AC could be a player in this market place, as a follow-on to completing a client consulting project.
- *Supply Chain Operating Models*—Bill was keen on defining better operating models for supply chain operations in the retail and high tech industries. Many examples exist of client-specific work he did with leading companies helping them redefine their supply chain operating models.
- *Using Supply Chain to Drive Competitive Advantage*—One of Bill's pet projects was attempting to relate improvements in supply chain operations to increases in shareholder values. Numerous presentations were produced to evaluate how this could best be measured in an industry.

One of Bill's proudest career accomplishments was having an article accepted into the Harvard Business Review (HBR), the Holy Grail of publications for consultants. Published in July 2003, "Supply Chain Challenges: Building Relationships"<sup>18</sup> was a conversation between Julia Kirby, a senior editor at the HBR and a number of distinguished supply chain experts, including Bill and Hau Lee, a renown supply chain educator and Professor at Stanford University.

The conversation focused on how companies could tear down the functional walls that inhibit development of efficient supply chains. Other obstacles were also discussed, including the role of the CEO in driving change and eliminating barriers, the role of information technology in managing complex supply chains, and developing supply chain talent. Bill had the final word in the article, where he stated that "supply chain done right is actually a value chain, able to create additional value to both the company and its customers. Supply chains are engines for innovation and revenue creation, not just for cost savings". These words would help propel the profession into looking at supply chain as an equal member of a company's overall management team—one that had the potential, if understood and correctly implemented, to drive growth and profitability.

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<sup>18</sup> Copacino, William C. et. al, "Supply Chain Challenges: Building Relationships", Harvard Business Review, July 2003

## The C&S Wholesale/Oco Years

As in his later years at Accenture, Bill's writings while he was Chief Administrative Officer at C&S Wholesale Grocers were focused on presentations describing how C&S's supply chain work (mostly confidential), and on explaining the concept of how business intelligence (BI) could enhance performance in supply chains while he was CEO of Oco.

C&S Wholesale was an innovative food distributor, including a shared third-party food logistics company, ES3. In short, ES3 took days and dollars out of the supply chain for manufacturers and retailers. They did this by combining warehousing, mixing, and distribution services under one roof in a multi-manufacturer, collaborative model optimized by advanced technology. Bill helped ES3 expand its service offerings and market share during his tenure at C&S, advancing his concept of Supply Chain Masters into the Third Party Logistics (3PL) arena.

At Oco, where Bill had a successful tenure as CEO, he described in an unpublished note, how BI could further improve supply chain operations at companies:

"While Business Intelligence (BI) has delivered powerful results for many companies over the past decade, the majority of applications focused on marketing, sales, and customer and financial analysis, and less on operations and supply chain activities. However, as supply chain management becomes an increasingly important, strategic and competitive factor for many companies, the tide is now changing and there is a growing trend to leverage business intelligence for supply chain management.

Supply chain managers are now utilizing BI capabilities such as analytics, reporting and dashboards to monitor supply chain performance, as well as to gain new insights into all aspects of their businesses. BI is allowing them to drive performance improvement in individual functions, in business processes that span multiple functions, and in the "extended supply chain" through collaboration with customers, vendors and other trading partners. And these BI tools are delivering significant benefits in terms of cost reduction, customer service improvements and lower inventory levels."<sup>19</sup>

In particular, Bill focused on the usefulness of BI in managing the extended supply chain. "Access by all players in the extended supply chain to the same information on demand forecasts, orders, order status, shipments, promotions and inventories is a fundamental requirement for successful collaboration and operational coordination. And the visibility, coordination and integration of both customers' and vendors' supply chain activities can create significant value for all players in the extended supply chain. Effective execution of the extended supply chain can lower costs, improve customer service performance and enhance asset productivity. "

After Bill retired from Oco, he spent much of his time mentoring young companies and their (often very young) executives, using the techniques that made him so successful at Accenture.

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<sup>19</sup> Copacino, William C. " Leveraging Business Intelligence for Supply Chain Collaboration", Unpublished Oco Note, 2008

## Final Thoughts

Over his career, Bill was dedicated to pushing supply chain thinking to new levels. He was consistently at the leading edge of supply chain design, analysis and management development. He took a broad view of supply chain, always seeking to understand how internal and external (global economics and supply chain partners, in particular) forces could alter supply chain decision rules. His work influenced generations of scholars and practitioners, helping them understand fast-evolving industry supply chains, in the wake of deregulation, globalization and technological advances.

There are many prolific authors in various fields. Bill was unique because while his work as a manager and consultant inherently dealt with the larger picture, he used his writing to reinforce his people leadership philosophy. He expected each of us to think bigger, share our points of view, and be purposeful about touching individual employees in a manner that left an indelible impression. He realized “content is identity” well before it was chic, and platforms like twitter had him really excited. He wrote to inspire, cajole and mandate clients and associates alike, and applied a rigor to the supply chain well before it was a hot industry. Frank Quinn, Editor of the Supply Chain Management Review, and longtime friend of Bill, echoed these thoughts in a remembrance in May 2012.<sup>20</sup>

Today, Bill would be advocating the rise of mobile technology to enhance supply chain execution, adding risk management into supply chain planning process, real-time network optimization and the use of “Big Data” to enhance information flows into supply chain planning and execution. I know this because this was one of the last conversations we had a few weeks before his death. Rest in peace, our dear friend.

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<sup>20</sup> Frank Quinn, [http://www.scmr.com/article/remembering\\_bill\\_copacino\\_a\\_supply\\_chain\\_champion](http://www.scmr.com/article/remembering_bill_copacino_a_supply_chain_champion)

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