

21st Century Reverse Logistics: Consumer to Business Space Explored

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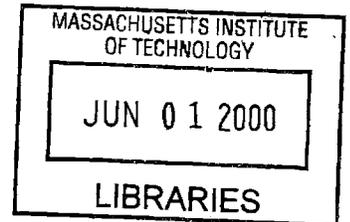
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ABSTRACT

Despite a growing body of information about the importance of good logistics and supply chain management, there remains a dearth of research regarding consumer-to-business reverse logistics (the collection of processes required to move individual goods from individual end-consumers to the appropriate retailer, manufacturer, or third party). Indeed, there is not a comprehensive framework to assist enterprises in understanding, evaluating, creating, implementing, or changing a consumer-to-business reverse logistics policy or program. Given the growth of e-commerce and the Internet channel, where goods are often delivered to end-consumers in quantities of one and may likely be returned in quantities of one, this absence of a framework is peculiar. This thesis seeks to fill that gap by utilizing analysis of existing literature, as well as extrapolation of recent trends and developments in reverse logistics service offerings, technology, and last mile solutions. The results are that there is enough available information on the processes and issues surrounding consumer-to-business reverse logistics that a flexible and pragmatic framework can be proposed for use in the United States. This is accomplished by synthesizing results with original analysis, thought, and context. Though the framework cannot be considered comprehensive, it does provide an initial tool for critique and improvement.

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LIST OF ACRONYMS

C2B	Consumer-to-Business
B2B	Business-to-Business
RL	Reverse Logistics
SCM	Supply Chain Management
IT	Information Technology
IS	Information Systems
SKU	Stock Keeping Unit
CRC	Central Return Center
CRM	Customer Relationship Management
3PL	Third Party Logistics
VAS	Value Added Services
PDA	Personal Digital Assistant

CHAPTER 1: INTRODUCTION

1.0 Context

Since 1994 the Internet has enabled e-commerce to mushroom from a literal handful of companies to an innumerable and growing myriad. Consequently there have been changes to many business models and formation of several new models. Senior managers in all industries and business functions are now cognizant of a *bricks, clicks, or mix dilemma*.¹ Stated simply, what is the correct balance between physical presence and Internet capabilities, and what are the implications in terms of strategy, customer focus, supply chain management, and technology utilization? From all indications e-commerce is here to stay; in 1999 over 39 million Americans shopped via the Internet.²

A longer running trend is increasingly creative and modular logistics solutions in distribution, warehousing, “last mile,”³ and information systems.⁴ Many enterprises and particularly manufacturers can now take products directly to end-consumers by utilizing the Internet, thereby disintermediating⁵ their supply chains. In this respect, e-commerce can be likened to cataloging with a new media. For enterprises accustomed to only moving goods forward in pallet and truckload quantities, there is now an impetus to learn

¹ “Bricks, clicks, or mix dilemma” is an original phrase inspired by former Intel CEO Andy Grove, who is often credited with inventing the term “clicks and mortar.”

² Ernst & Young LLP. “Global Online Retailing: An Ernst & Young Special Report.” p. 5. January 2000. ©2000 Ernst & Young LLP.

³ Last mile: This literally refers to how a product moves the final mile to an end-consumer’s residence.

⁴ Bovet, David and Sheffi, Yossi. “The Brave New World of Supply Chain Management” Supply Chain Management Review. Spring 1998.

about moving quantities of one. Because cataloging has traditionally experienced 18-35% return rates⁶ and there is no comprehensive⁷ framework to assist in consumer-to-business (C2B) reverse logistics decision-making, many firms are realizing that they must learn how to move quantities of one backwards as well. Thus C2B reverse logistics is an important and interesting area to research; advances in understanding may benefit consumers, enterprises with physical products, and management science.

1.1 Reverse Logistics

According to the Reverse Logistics Executive Council homepage (www.rlec.org) the definition of reverse logistics is “the process of moving goods from their typical final destination to another point, for the purpose of capturing value otherwise unavailable, or for the proper disposal of the products. Reverse Logistics activities include:

- processing returned merchandise for reasons such as damage, seasonal, restock, salvage, recall, or excess inventory;
- recycling packaging materials and reusing containers;
- reconditioning, remanufacturing, and refurbishing products;
- obsolete equipment disposition;
- hazardous material programs;

⁵ Disintermediation: A recently popularized term that describes the elimination of an intermediary.

⁶ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council. p. 7.

⁷ In this context, comprehensive means addressing strategic, economic, operational, organizational, and practical issues and decisions.

- asset recovery.”

In C2B reverse logistics, these activities move individual goods from individual end-consumers back to the appropriate manufacturer, retailer, or third party.

As with supply chain management in general, C2B reverse logistics involves the coordinated flows of materials, information, and capital, often across multiple organizations, including manufacturing, packaging, transportation, accounting, finance, sales, marketing, research & development, and information technology/systems (IT/IS).

Concerning the associated expenditures, The Reverse Logistics Executive Council’s estimate for reverse logistics costs in the United States is 0.5% of Gross Domestic Product (GDP).⁸ Applying this percentage estimate to public data from the U.S. Department of Commerce, Bureau of Economic Analysis, reverse logistics costs in dollars may be between \$34.4B and \$43.8B.⁹

1.2 Impact of the Internet

The Internet has introduced and enabled functionality for reverse logistics in the C2B space in two broad ways: front-end interface¹⁰ and back-end infrastructure.¹¹

⁸ Reverse Logistics Executive Council homepage (www.rlec.org).

⁹ The range reflects 0.5% of GDP for the years 1998 and 1999 and includes *both* C2B and B2B reverse logistics.

¹⁰ Front-end interface: what an individual sees and experiences through a monitor.

¹¹ Back-end infrastructure: the linking of multiple networks by telecommunications equipment.

¹² Hilsgen, Laurie. “I-business up in the trillions” InfoTech Weekly (www.infotech.com). 07/19/99.

On the front-end, the Internet is both a new media and a new channel for conducting sales, service, and marketing. It permits virtually unlimited display space, thus making it the world's largest color catalog. Individuals may browse literally tens of millions of products with zero paper or postage expense to anyone. Also, the Internet is available for browsing 24 hours a day, 365 days a year. These are just a few of the reasons customer relationship management (CRM) has become a major business focus as some argue that "...integration of customer interactions across all media is also becoming critical- encompassing Web, telephone, e-mail, fax and face-to-face transactions."¹² On a related note, there may exist opportunities for customization of the product and service offerings shown to individual consumers on the front-end. The Internet even allows the reduction or elimination of physical goods because many products such as software, magazines and music are migrating from physical to digital form.

On the back-end the Internet allows supply chain partners to link and share systems and databases, thereby speeding information flows and dissemination.¹³ Consequently, once this informational infrastructure is in place firms are empowered to conduct paperless commerce, ensure greater accuracy due to less manual processes, and push incremental transaction costs towards zero. This higher level of vertical coordination may also result in

¹³ Neuwirth, Daniel B. "Who are the next Big Winners in Electronic Commerce? Supply Chain Managers!" Logistics Expo (www.logisticsexpo.com). 10/31/99.

“...increased adoption of new technologies and processes, which could include reverse logistics activities.”¹⁴

1.3 Importance of Research

From a strategic perspective, reverse logistics research is important because it may help reveal patterns, permit benchmarking, and enable more informed decision-making. Fred Smith, CEO and founder of FedEx, stresses that the information about a package is almost as important as the package itself.¹⁵ The same might be true for materials in a reverse logistics pipeline. Other possible benefits of C2B reverse logistics research might include improved product lifecycle management, better marketing, and even differentiation. In addition, research could help firms decide if and when to close the logistics loop through a reverse logistics offering. This is consistent with a trend toward increasing use of the supply chain as a competitive weapon.¹⁶

Michael Dell’s direct model for personal computers is one example of using the supply chain as a competitive weapon, as well as cutting against the grain of conventional wisdom. In reverse logistics the general sentiment indicates that it is more important to simply not mess up than to actually do well, i.e. the benefits of good reverse logistics policies and programs are less than the detriments of poor ones. Many of Dell’s

¹⁴ Carter, Craig R. and Ellram, Lisa M. “Reverse logistics: A review of the literature and framework for future investigation.” *Journal of Business Logistics*. 19(1): 85-102. 1998.

¹⁵ O’Reilly, Brian. “They’ve Got Mail!” *Fortune* (www.fortune.com). 02/07/00.

competitors and critics believed that a direct computer manufacturer could not adequately service its products (i.e. including reverse logistics for repair) without retail storefronts for consumers to visit. Dell turned this perceived disadvantage into "...a massive advantage" by offering on-site service.¹⁷

Also from a strategic perspective there is an issue of necessity - as long as there are physical goods there will be returns. There are many reasons that returns occur and a wide dispersion of parties who control those reasons. No single organization can control all of the factors that lead to returns. Manufacturers may create technically flawless products that are then either damaged in transit, not purchased due to competition or poor marketing, or simply misunderstood by the end-user. Returns of the latter sort are referred to as "non-defective defectives," and happen mostly in high tech and electronics.¹⁸ Other reasons of necessity include but are not limited to the following: 1) leases and rentals, 2) recall, 3) recovery of assets for parts, 4) the competition does it, and 5) high value or personalized goods virtually mandate a friendly reverse logistics process.

Yet another strategic reason that C2B reverse logistics research is important is regulation. One of the most documented aspects of reverse logistics is the "green" side -

¹⁶ Neuwirth, Daniel B. "Who are the next Big Winners in Electronic Commerce? Supply Chain Managers!" Logistics Expo (www.logisticsexpo.com). 10/31/99.

¹⁷ Dell, Michael with Fredman, Catherine. Direct from Dell. Harper Business. New York, NY. ©1999 by Michael Dell. p. 203-204.

¹⁸ Gentry, Connie Robbins. "Reducing the cost of returns." Chain Store Age. 75(10): 124-126. October 1999.

environmental friendliness.¹⁹ In times past, physical goods and their associated liability (disposal or recycling) moved together from one party (manufacturer, distributor, retailer, or consumer) to another. Due to increasing regulation, there has been a de-coupling of physical possession and liability.²⁰ This implies manufacturer responsibility for recycling or prescribed disposal of end-of-life goods that physically reside with individual end-consumers. Such regulatory trends are more prevalent in Europe but increasing in the United States.²¹

From an economic perspective, C2B reverse logistics research is important because enterprises are already dedicating time, money, and other resources to the processes. Therefore it would be helpful to understand the true total cost of this important function. While firms control forward logistics²² costs through scale,²³ C2B reverse logistics cannot necessarily achieve scale to control costs. Reverse logistics flows are sporadic by nature and 50% accuracy in forecasting is considered good.²⁴

As of May 2000 there is not a recognized standard for determining true total cost of C2B reverse logistics within an enterprise. Without an economic understanding it may be

¹⁹ Carter, Craig R. and Ellram, Lisa M. "Reverse logistics: A review of the literature and framework for future investigation." *Journal of Business Logistics*. 19(1): 85-102. 1998.

²⁰ Giuntini, Ron and Andel, Tom. "Advance with Reverse Logistics: Part 1." *Transportation & Distribution*. 36(2): 73-77. February 1995.

²¹ Bovet, David and Sheffi, Yossi. "The Brave New World of Supply Chain Management" *Supply Chain Management Review*. Spring 1998.

²² Forward logistics: Refers to the moving of large quantities of goods from either manufacturers, distributors, or warehouses towards individual end-consumers.

²³ Ernst & Young LLP. "Global Online Retailing: An Ernst & Young Special Report." p. 5. January 2000.

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difficult to explore strategic versus economic considerations. For instance, L.L. Bean has a generous return policy that permits returns regardless of purchase date or an item's condition.²⁵ L.L. Bean believes this practice to be worthwhile in the long run.

1.4 Goals and Objectives

The goal of this thesis is to define a comprehensive framework for C2B reverse logistics decision-making that enterprises may use going forward. This will be accomplished by analysis and synthesis of existing work and writing on the topic of C2B reverse logistics. It will also include identifying the forces involved and documenting trends and developments in business, infrastructure (both physical and technology), and research.

These are important questions to answer in devising and implementing a strategy, but they are also very broad. A narrower, yet equally compelling question is whether C2B reverse logistics can be used for an advantage, either strategic or economic? How should companies evaluate their current state, future state, and path between?

²⁴ Andel, Tom. "Reverse logistics: A second chance to profit." *Transportation & Distribution*. 38(7): 61-66. July 1997.

1.5 Scope of Work

This thesis will focus on macro issues, forces, and processes associated with C2B reverse logistics in the United States. Analysis and discussion of international reverse logistics, B2B reverse logistics, and psychological factors involved will be strictly limited.

1.6 Research Challenges

There are several challenges to effective research that may prevent achievement of stated goals and objectives. First, many firms already experience difficulty with forward logistics issues and supply chain management. Consequently it is common to overlook reverse logistics, and indeed there is a paucity of writing about it in both business and management science publications. Second, most journal articles take 2-3 years to publish. The popularity of utilizing the Internet for commerce purposes was sparked less than six years ago and even today remains in a major state of uncertainty. Forrester Research suggests that there will soon be waves of consolidation among Internet related enterprises.²⁶ Third, the literature that does exist is primarily B2B oriented, anecdotal, or narrowly focused on single aspects of reverse logistics such as gatekeeping, distribution, or environmental motivation. There is only one recent book written solely on reverse logistics; it will be covered in the literature review. Lastly, C2B reverse logistics research is difficult because

²⁵ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council. p. 38.

²⁶ Forrester Research e-mail alert. 04/10/00.

many related areas are evolving very fast. Each month seems to bring announcements regarding last mile solutions, reverse logistics service offerings, secondary markets, and technology.

CHAPTER 2: METHODOLOGY

2.0 Data Collection

The focus of this thesis is to define a comprehensive framework, which takes into account the relatively recent advent of e-commerce, to assist enterprises in understanding, evaluating, creating, implementing, or changing a C2B reverse logistics policy or program.

While other areas of logistics and supply chain management have existing frameworks and larger bodies of work to draw on and critique in attempting to advance the state of knowledge, this is currently not the case for C2B reverse logistics. In order to address the preceding challenges, this thesis utilizes a combination method of 1) survey and analysis of existing literature, and 2) trend analysis and extrapolation. The source data was collected from recent magazine and journal articles, white papers, conference proceedings, book chapters, and writings on related subjects such as retailing, supply chain management, e-commerce, and information technology. The data was then synthesized and qualitatively analyzed to identify areas of consistent agreement or disagreement and relationships among concepts.

2.1 Thesis Structure

Chapter 3 examines the forces which drive reverse logistics, obstacles related to reverse logistics policies and programs, key differences between C2B versus business-to-business (B2B) reverse logistics, and the groups of processes involved in C2B reverse logistics.

Chapter 4 then gives an overview of recent trends and developments that may influence how C2B reverse logistics evolves, including reverse logistics service offerings, technology, and last mile solutions. Chapter 5 presents the resulting framework, which includes synthesis of existing literature with original thought, organization, and context.

Conclusions follow.

CHAPTER 3: LITERATURE REVIEW AND ANALYSIS

3.0 The Big Picture

Over the last seven years there has been only a single book written on reverse logistics: “Going Backwards: Reverse Logistics Trends and Practices,” by Dr. Dale S. Rogers and Dr. Ronald S. Tibben-Lembke of the University of Nevada, Reno. It is based on over 150 interviews and over 300 surveys completed in 1997. Most of the participating companies have revenue in excess of \$200MM annually, with 45% topping \$1B annually. The Reverse Logistics Executive Council (RLEC) and GENCO Distribution Systems, a third party logistics provider published the book in August 1998. It represents primarily an overview of B2B reverse logistics issues.

The RLEC is composed of manufacturers, retailers, and academicians. Its main objectives are to collectively work towards ‘streamlining the reverse logistics process by concentrated efforts to research 3 primary areas:

- the process by which products come back through the pipeline;
- the technology available that enables products to move expeditiously while providing causal information as to why they were returned;
- the disposition options available for products, once they are returned to the retailer or the manufacturers.’²⁷

²⁷ The Reverse Logistics Executive Council homepage: www.rlec.org/

As stated previously, other sources of information are focused primarily on single aspects of reverse logistics such as point of entry into the system, regulatory necessity, or secondary markets. Also, content is generally more business-oriented than academic, and therefore more anecdotal than empirical. In addition, it should be noted that journals appear to be some of the better reverse logistics resources. While it is possible to examine magazines, white papers, and research reports, these often address reverse logistics as a mere sub-topic of subjects such as retailing, manufacturing, or supply chain management.

3.1 Source of Root Cause of Return and Anticipation Levels

There are many very specific reasons that returns occur. It is possible to list the reasons for returns associated with many firms and industries, however, creating such lists and reviews would not necessarily be beneficial because there would be hundreds if not thousands of specific reasons cited. Based on the source data examined, it appears feasible to characterize returns in terms of two dimensions: source of root cause of return and level of anticipation or predictability. The following matrix illustrates several examples:

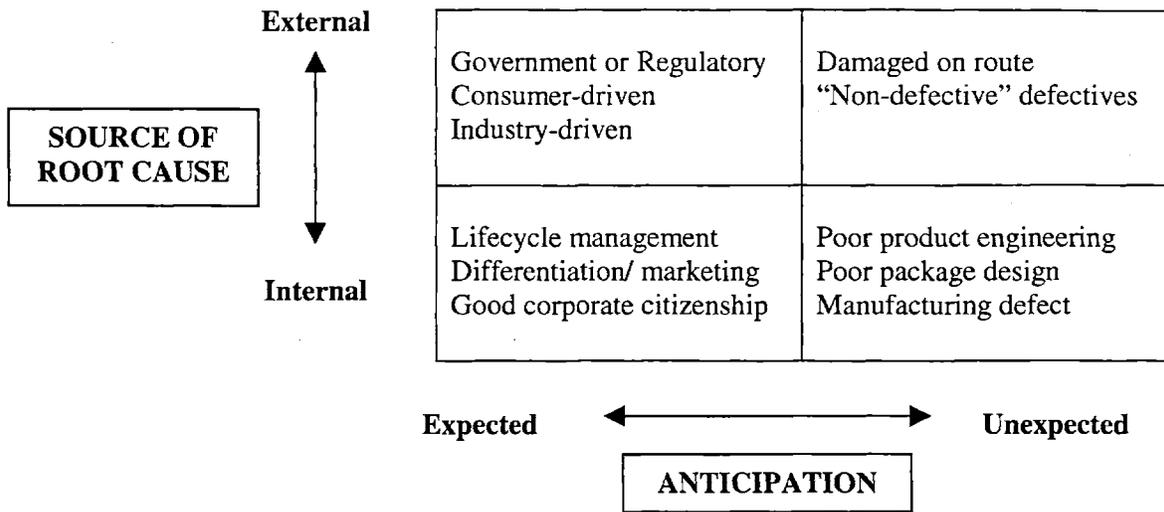


Figure 1. Force Origination Vs. Anticipation Matrix

(Note: Examples given are by no means definitive. Decisions related to outsourcing and cross-functional communication may cause the above examples to shift.)

The matrix essentially takes specific reasons that returns occur and classifies them for the purpose of discerning how much control an enterprise has over the reasons its goods are returned. For example, consider the case where an individual end-consumer returns a VCR to a mall retailer because it does not work. The retailer in turn sends it back to the manufacturer who later discovers that the problem was actually a poorly engineered subassembly which had been outsourced. Based on this information, both the retailer and manufacturer would classify the return as "External & Unexpected." Because the VCR model in question may also be returned for other reasons, it may be helpful to classify all reasons and note the percentage of returns corresponding to each specific reason. This leads to a product-specific matrix that may have return reasons in all four regions, which

could be used to assist in the prevention of future returns as well as for design of the reverse logistics system.

Predictably, enterprises have the greatest degree of control regarding "Internal & Expected" factors, and in this region, a firm may proactively exercise some degree of influence on the planning and forecasting of reverse logistics flows. An example of this is product lifecycle management, where a leasing and rentals firm will know exactly when leases expire and where end-consumer goods reside (i.e. a desktop computer manufacturer with which consumers have initiated ten thousand leases of 24-month duration in April of 2000 can forecast how many will likely need to be brought back in April 2002.)

Alternatively, for marketing purposes a firm might add a reverse logistics competency which is *atypical* for its industry or customer base. Kenneth Cole Productions' old shoe donation program illustrates this thought of good corporate citizenship each February. In return for one old pair of shoes donated for the needy, Kenneth Cole offers donors "...a 20% discount on a new pair of Kenneth Cole shoes."²⁸

In the "Internal & Unexpected" quadrant, enterprises have less control in planning and forecasting of reverse logistics flows, but may nevertheless *influence* flow variance and volume. Some good examples in this region originate with R&D, engineering, and manufacturing, where issues may be related to either the product or the packaging.

²⁸ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council.p.23

Defective products are likely to be returned by consumers, as are products damaged in transit due to poor packaging. Although such C2B reverse logistics flows are unexpected because firms do not set out to make poor products or packages, the root cause of the return is internal and can theoretically be reduced or eliminated.

Continuing, there are actually forces originating externally that can be anticipated and planned for in how they affect C2B reverse logistics policies and programs. For instance, the apparel industry is said to experience almost 20% return rates²⁹, with estimates for on-line clothing purchase returns as high as 35%.³⁰ Consequently, companies competing in the apparel industry are aware that a clear reverse logistics policy is needed to meet customer expectations and industry standards.

Finally, in the "External & Unexpected" quadrant enterprises have the least control. A product can be technically excellent and presented with brilliant marketing, only to be broken while in transit to the end-consumer. Likewise, consumers are sometimes known to return non-defective products with a claim of defect. This phenomena is often associated with high-tech and consumer electronics products that may require a moderate learning period. A recent survey of sixty-five consumer electronics manufacturers

²⁹ "Apparel Manufacturers Survey." RLEC Projects. 06/22/99. Courtesy of Reverse Logistics Executive Council web-site: www.rlec.org

³⁰ Ernst & Young LLP. "Global Online Retailing: An Ernst & Young Special Report." p. 60. January 2000. ©2000 Ernst & Young LLP.

determined that approximately 55% of C2B product returns fell in the category of “non-defective.”³¹

3.2 Obstacles Related to Reverse Logistics Policies & Programs

There are a number of widely cited reasons that evaluating, creating, implementing, or changing a reverse logistics policy or program is difficult. First, establishing C2B reverse logistics is difficult given that it is a cross-functional proposition;³² it can touch accounting, customer service, transportation, and distribution among others.. The second reason is the lack of information systems³³ capable of connecting multiple companies such as third party warehouses and return specialists. This is due to budget and labor constraints coupled with reverse logistics being viewed as a non-core competency.³⁴ Other reasons include, but are not limited to the following:

- Lack of metrics for C2B reverse logistics.
- Difficulty of measuring intangible benefits, i.e. goodwill.
- Difficulty of realizing decision uniformity³⁵ across people and locations.
- Trusting confidential customer or product data with a third party.³⁶

³¹ “Consumer Electronics Manufacturers Survey.” RLEC Projects. 06/22/99. Courtesy of Reverse Logistics Executive Council web-site: www.rlec.org

³² Gentry, Connie Robbins. “Reducing the cost of returns.” Chain Store Age. 75(10): 124-126. October 1999.

³³ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council.p.43

³⁴ Ibid.

³⁵ Decision uniformity refers to different persons, often at different locations, arriving at the same decisions regarding a product’s condition, sortation, and overall eligibility for a return per a firm’s RL policy.

³⁶ Blumberg, Donald F. “Strategic examination of reverse logistics & repair service requirements, needs, market size, and opportunities.” Journal of Business Logistics. 20(2): 141-159. 1999.

3.3 Differences of C2B Versus B2B Reverse Logistics

A review of the current literature suggests that there are a number of differences between C2B reverse logistics and B2B reverse logistics. Of the reasons given, a majority seem to be related to the differences in scale. The higher volumes associated with B2B reverse logistics lead to lower per unit costs for many steps of the reverse logistics process, including inspection, negotiation, transportation, and storage.

In addition to scaling, B2B differs from C2B in that it may apply a higher degree of proactive reverse logistics. This may contribute to increased certainty in predicting reverse logistics flows, which could result in lower reverse logistics costs, as well as higher customer satisfaction from the reverse logistics process. The following are three examples of proactive reverse logistics for B2B that are not available to C2B:

- ***Higher product quality and freshness through standardized reverse logistics business processes:*** Rite Aid Corp., the national chain of drugstores, contracted with Processors Unlimited to handle reverse logistics after a public relations storm and settlement of a \$1.1 million lawsuit that resulted from stocking "...outdated condoms and baby food."³⁷

³⁷ Levy, Sandra. "Rite Aid taps company to handle unsalable goods." *Drug Topics*. 143(14): 31. 07/19/99.

³⁸ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., *Going Backwards: Reverse Logistics Trends and Practices*. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council.p.25-29.

³⁹ *Ibid.* p.29.

- ***Channel cleaning:*** This practice moves older model goods backwards, usually from the retailer to the manufacturer so the retailer may purchase more new model goods.³⁸ This is important for new product introduction rather than replacement of expiring goods.
- ***Packaging re-use and disposal:*** Pallets are re-usable and some packaging is increasingly re-usable as well. Therefore, there is a need to make sure pallets and packaging are accounted for and moved to the right place at the right time.

3.4 Reverse Logistics Stages and Processes

The literature suggests that C2B reverse logistics can involve many processes, including but not limited to order entry, sorting, receiving, inspection, scheduling, and storage.

Furthermore, there are many ways to arrange the processes involved- seldom is it absolutely necessary for one process to occur before another. Although there appear to be many alternatives, three stages seem to be common among processes that are associated with C2B reverse logistics. The three stages are “gatekeeping,” “transportation and storage,” and “final action.”

“Gatekeeping” is the first apparent stage of C2B reverse logistics and the choice of this term appears to have specific meaning. The term “gatekeeping” is often used to refer to the point of entry into the reverse logistics flow. However, a more complete definition

may be that gatekeeping is *the group of processes associated with goods entering the reverse logistics flow*. Typical processes associated with gatekeeping include customer service, collection, inspection, verification, negotiation, authorization, sortation, and issuance of debits or credits. The utilization and sequencing of these processes are flexible and sometimes several processes can take place together. For example, a firm may elect to have a toll-free 800# where customer service representatives first *verify* that an item is under warranty, then *authorize* a pick-up by a national parcel service, and finally route the package (accomplishing *sortation*) to a third party logistics provider that performs *refurbishment*.

Continuing, the literature suggests that there are a number of goals in gatekeeping. For instance, cost minimization can be an important goal because the average customer service call costs a firm \$2.80 to \$7.00.³⁹ Here, outsourcing may be helpful because another firm is aggregating the service and gaining economies of scale, but other issues may result. For example, service levels may decline or become more erratic.

Another common goal of reverse logistics gatekeeping, which also involves reducing reverse logistics costs, is minimization of *return abuse*.⁴⁰ Return abuse can include attempts to return:

- 1) stolen items for cash,

³⁹ Ernst & Young LLP. "Global Online Retailing: An Ernst & Young Special Report." p. 59. January 2000. ©2000 Ernst & Young LLP.

- 2) recently discontinued product models in exchange for the latest iteration,
- 3) products intentionally “borrowed” for one-time or short-term use such as cocktail dresses, and
- 4) goods purchased through another channel and for a lower price with the intent of returning them through a higher-end channel for a profit.

Given the number of processes and goals associated with gatekeeping, one may expect that policy formulation and program administration would have many issues to resolve. This is indeed the case. At a macro level, a firm’s strategy, physical infrastructure, and nature of goods alternately guide and constrain how gatekeeping can or should be done. For firms that rely heavily on the Internet channel, effective gatekeeping is especially important.

Despite all of the aforementioned, it is possible to be good at gatekeeping through simple process changes and improvements. The following is a passage from the Rogers and Tibben-Lembke book (p. 40):

Nintendo, the electronic game manufacturer, has developed a particularly innovative gatekeeping system. They rebate retailers \$0.50 if they register the game player sold to the consumer at the point of sale. Nintendo and the retailer can then determine if the product is in warranty, and also if it is being returned

⁴⁰ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council. p. 21.

inside the allowed time window. They developed special packaging with a window that allows the serial number to be scanned by the retailer's point-of-sale scanner. This information updates a database that a retailer can access when the customer brings back a Nintendo machine.

No matter how gatekeeping processes are ordered and executed, most goods entering the reverse logistics flow will require transportation (even if the onus is pushed to a consumer or garbage person) and some goods will require storage. Regarding these issues, the literature suggests that there will almost certainly be a question of whether to outsource some or all of the processes. Despite having similar physical and informational infrastructure, J.C. Penney and Service Merchandise have elected to adopt different C2B reverse logistics solutions. J.C. Penney manages the transportation and storage aspects of its C2B reverse logistics function internally⁴¹ while Service Merchandise has chosen to outsource its requirements.⁴²

While the above illustrates how similar cases can be served by very different reverse logistics processes, most of the literature agrees that forward and reverse logistics functions should typically be performed separately. Once again, the main reasons cited are 50% variability in return levels and inability to intentionally increase the scale of reverse logistics operations. Here, central return centers (CRCs) can be used to

⁴¹ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council. p. 8-9.

- 1) separate returns from forward distribution centers or warehouses, and
- 2) address issues of scale- prior to outsourcing its reverse logistics needs, Service Merchandise needed only one CRC to serve 385 stores.⁴³

Furthermore, with an enterprise's reverse logistics being handled under one roof rather than many, there should be greater decision uniformity, less "safety space" required, and an opportunity to consolidate the final disposition of returned goods.

In rare instances there are firms with high yet steady return rates (low variability) that are able to effectively conduct both forward and reverse logistics functions in a single facility designed to handle such requirements. BMG, the music membership service, is able to handle 12 million returned packages per year. This is accomplished by using unique bar code labels, on the return invoice and the products themselves, which speed and enable consumer credits, sortation, and re-stocking.⁴⁴

After an item has been brought back to a retailer, manufacturer, or third party, there are many possible actions that can be taken depending on the reason for return, product nature, and product condition. These possibilities are some of the more widely written about processes of C2B reverse logistics. Actions may include:

⁴² Anonymous. "Outsourcing helps Service Merchandise manage returns." *Logistics Management & Distribution Report*. 37(6): 52. June 1998.

⁴³ Ibid.

⁴⁴ Witt, Clyde E. "Distribution: A differentiator in 2000." *Material Handling Engineering*. 50(11): 57-64+. October 1995.

- **Remanufacturing:** Sun Microsystems and Hewlett Packard are each known to utilize this option.⁴⁵
- **Refurbishing:** Xerox offers a cash rebate for toner cartridges because it is less expensive to pay the rebate and shipping expenses than it is to manufacture a new cartridge.
- **Recycling:** Some items may be hazardous or unsalable.
- **Repackaging:** Sometimes needed to make a product suitable for resale.
- **Reselling:** To another individual consumer (domestically or possibly the product has been pre-sold in another country), business (for parts or in large quantities), or channel (auction or factory outlet store).

3.5 Observations

While the individual processes that may be incorporated into a C2B reverse logistics policy or program are by no means complex when examined separately, many issues may arise from the sheer number of different process *combinations*. Both the lack of commercial information systems for dealing with reverse logistics and the lack of complete cost models further complicate these issues. Such limitations may help explain the tendency of reverse logistics articles to be rather narrowly focused on single issues, processes, and forces, or

⁴⁵ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council. p. 64.

small collections of the aforementioned. In addition, e-commerce remains a relatively new application that has probably not yet stabilized. Until e-commerce arrives at some kind of equilibrium, and likewise for Internet consumer shopping patterns, it will remain difficult to define a comprehensive C2B reverse logistics framework.

CHAPTER 4: RECENT TRENDS & DEVELOPMENTS

4.0 General Trends & Developments

Over the last several years and even the last several months, there have emerged a number of interesting trends and developments related to C2B reverse logistics. These trends and developments can be segmented into three primary areas for further examination: C2B reverse logistics service offerings, technology advancements, and last mile solutions. The bulk of this chapter will be dedicated to the summary and analysis of each area and extrapolation of its impact on C2B reverse logistics forces and obstacles.

4.1 Consumer-to-Business Reverse Logistics Service Offerings

There are a few noteworthy C2B reverse logistics services and applications. This section will examine the offerings of the three largest national parcel services (USPS, UPS, FedEx) and one start-up firm (The Return Exchange) to begin ascertaining the degree to which each has stated commitment to C2B reverse logistics, and how much of C2B reverse logistics their offerings cover. The national parcel services are the incumbent competition, and the extent to which they either embrace or ignore C2B reverse logistics together and respectively, may influence whether further services can or should enter the market. The Return Exchange, a start-up dedicated to C2B reverse logistics, is then reviewed to illustrate where there might be opportunity for new entrants to compete.

United States Postal Service (USPS) – Returns@Ease

In early November 1999, the United States Postal Service (USPS) announced a new program, Returns@Ease, aimed at making merchandise returns more consumer-friendly.⁴⁶ Essentially, consumers may now go to a participating company's web-site and request authorization for a paid package return label that can be printed on regular paper. This came only days after an October 1999 InternetWeek article in which Bob Krause, VP of e-commerce at the USPS, asserted that the USPS wants to "...manage the round trip," including returns.⁴⁷ It is important to remember that the USPS already has at least several monopolistic advantages:

- 130 million built-in customers.⁴⁸
- Database of nearly every address in the United States.⁴⁹
- Ability to subsidize package deliveries through its monopoly on mail.⁵⁰
- Federal law requires competitors to set list package prices twice as high.⁵¹

However, the USPS is not as technologically advanced as its main competitors, FedEx and UPS, nor does it offer either storage or value-added services (VAS) such as repair or

⁴⁶ USPS web-site press releases. 11/05/99.

⁴⁷ Preston, Robert. "New Breed Of Internet Exec Is Born" InternetWeek Online (www.internetwk.com). 10/25/99.

⁴⁸ Wilson, Tim. "From Snail Mail To Address Databases" InternetWeek Online (www.internetwk.com). 10/25/99.

⁴⁹ Ibid.

⁵⁰ O'Reilly, Brian. "They've Got Mail!" Fortune (www.fortune.com). 02/07/00.

⁵¹ Ibid.

access to secondary markets. These additional services are where UPS, FedEx, and The Return Exchange among others are choosing to compete.

UPS Reverse Logistics Through 3PL Relationships

At UPS, C2B reverse logistics is offered through UPS Logistics Group and SonicAir. According to the UPS web-site (www.ups.com) the main emphasis is on the Service Parts Logistics Group, which seeks to provide an outsourcing solution for service parts, repairs, and other support from network planning to customer service.

FedEx - NetReturn (web-based reverse logistics management)

Similarly, FedEx NetReturn® allows firms to manage and authorize consumer returns from a desktop computer. This includes pick-up scheduling, label printing, package tracking, and control reporting.⁵² For Acer, the world's third largest PC maker, implementing NetReturn cut return cycle time from 15 days to less than 3 days. In addition, the associated depreciation costs fell- a key point given estimates of 13% (\$130) depreciation during the 15-day return process.⁵³

The Return Exchange (Independent C2B reverse logistics provider)

Most recently, in February 2000 The Return Exchange (www.returnexchange.com) opened its doors as a C2B reverse logistics service provider.⁵⁴ In the tradition of secondary

⁵² <http://fedex.com/us/software/ecommerce/netreturn.html>

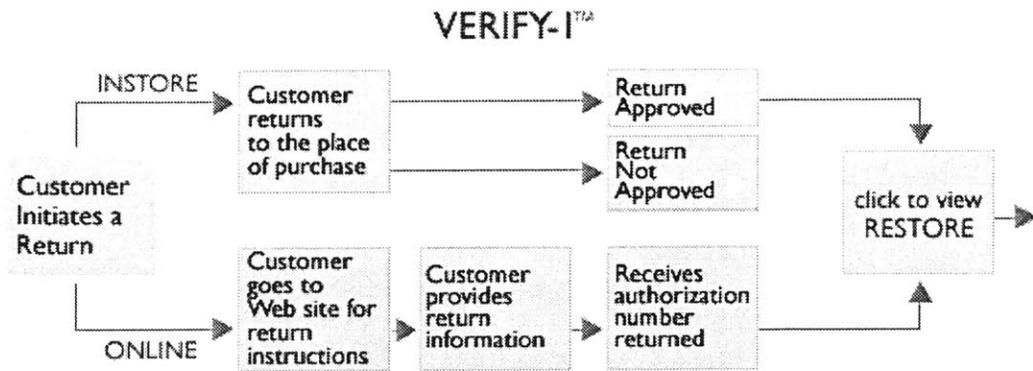
⁵³ Ibid.

⁵⁴ Duvall, Mel. "Start-Up Enjoys Big Returns" Inter@ctive Week, courtesy of ZDNet (www.zdnet.com). 02/14/00.

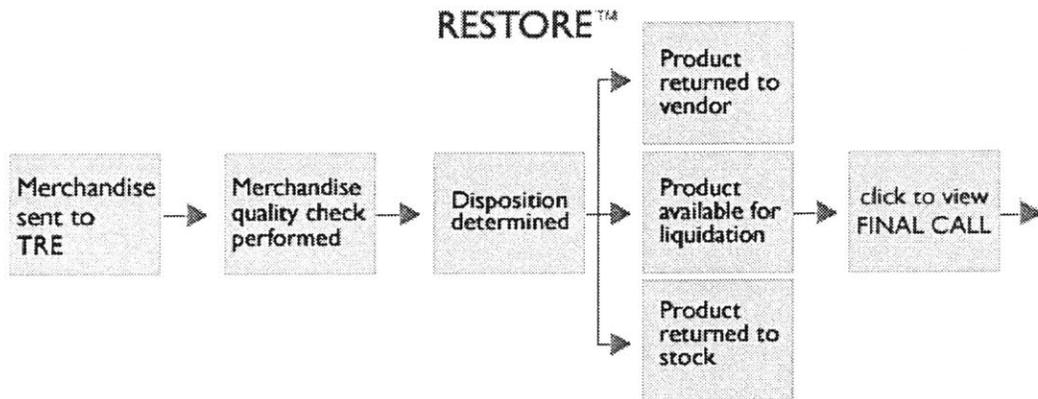
markets as disposal channels, the firm is attempting to capitalize on the increasing popularity of Internet auctions. The Return Exchange also offers value-added services such as fraud checking, repackaging, and refurbishment.⁵⁵ The following flow-charts are taken directly from the company's web-site to illustrate the whole process:⁵⁶

⁵⁵ Sapp, Geneva. "Return Exchange tackles e-commerce returns" InfoWorld.com (www.infoworld.com). 02/15/00.

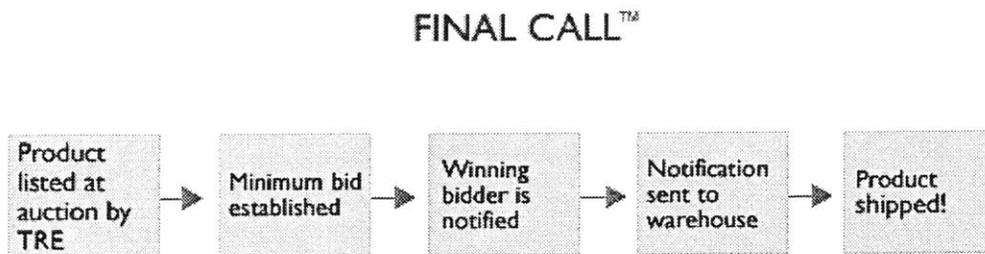
⁵⁶ <http://www.thereturnexchange.com/services/on-line.html>



* printer-friendly version (full chart)



* printer-friendly version (full chart)



* printer-friendly version (full chart)

Figure 2. The Return Exchange Products and Flow Charts

Due to The Return Exchange's brief history, it may be too early to tell what sort of value manufacturers, retailers, and individual consumers are placing on its software and services. More importantly, the fact that there is now a company whose primary line of business is C2B reverse logistics might help add legitimacy to the space.

From examining the literature it is suggested that there are actually three separate C2B reverse logistics service strategies being pursued and more possible. The USPS has chosen to compete as the lowest cost provider and does not offer other process functionality or value-added services beyond transportation. However, statements by the USPS CEO suggest that more comprehensive offerings may be available at a later date. In contrast, FedEx and UPS have had their C2B reverse logistics offerings longer and each competes as a value-added service capable of performing multiple processes for clients. The Return Exchange is a niche service- only processes associated with final disposition are offered.

4.2 Technology Advancements

As mentioned earlier in Chapter 3.4, music membership service BMG has utilized barcode technology to enable 12 million returns per year. During the last six months there appears to have been two possible advances with similar themes that will now be described.

Barpoint.com: Combining existing UPC and PDA technologies.

In December 1999 a company named BarPoint.com launched a product information and shopping site, www.barpoint.com, to "...help consumers make more informed purchasing decisions" anytime and anywhere.⁵⁷ This would be accomplished by leveraging universal product codes (UPCs)⁵⁸ in conjunction with mobile or wireless devices like cellular phones and personal digital assistants (PDAs). The idea is that individual consumers may enter or scan a UPC on one of the devices just mentioned and receive instantaneous information that may include detailed product characteristics, manufacturer contacts, independent reviews, and more. On a macro level these capabilities certainly seem relevant for C2B reverse logistics. It is plausible to imagine a manufacturer linking detailed return policy information to each product's UPC. This may increase customer satisfaction because there is no longer a reason to save or search for return instructions. For the manufacturer, BarPoint.com's service may save money due to both reduced need for printed materials and fewer phone inquiries, previously cited to average between \$2.80 and \$7.00.

ePCs: The obsolescence of UPCs

Electronic product codes (ePCs) are physical tags being developed that will be small enough and inexpensive enough to attach to most products. In early April 2000 an article appeared that gave an overview of work being done by researchers at the Massachusetts Institute of Technology (MIT) with backing from technology leader Sun Microsystems and consumer product heavyweights The Gillette Co., International Paper, and Procter &

Gamble. The crux of the article is that the Uniform Code Council, which administers bar codes, is sponsoring work at MIT's Auto-ID Center to create electronic product codes (ePCs) of up to 96 bits that would permit 33 trillion trillion trillion individual numbers.⁵⁹ This in turn enables a link to web pages with limitless information about not just a product such as Company ABC's regulation men's basketball, but an individual's individual product: Jonathan Fleck's Company ABC regulation men's basketball, with an unrestricted 2-year warranty, purchased on 10/25/99 with a \$5-off coupon at Retailer XYZ, located at 123 Main Street in Atlanta Georgia. Now consider products like cars, guns, computers, and jewelry utilizing this technology.

While the first article on BarPoint.com could have been excluded from this section, its inclusion helps illustrate the pace at which technology is advancing.

4.3 Changing Last Mile Solutions

While there is not previous literature on a *last mile and reverse logistics connection* per se, it may be appropriate to discuss the relationship. The reason is that the enterprises that dominate the last mile of forward logistics may influence the *first mile of reverse logistics* because they are identical from both physical and informational aspects. Also, there have been several new entrants into select areas of last mile solutions during the last three years

⁵⁷ "BarPoint.com Launches" Company Press Release courtesy of Yahoo!Finance (www.biz.yahoo.com). 12/06/99.

⁵⁸ UPC: A product's unique 12-digit barcode number.

⁵⁹ Trager, Louis. "MIT readies Net-generation bar code" Inter@ctive Week. 04/03/00.

alone. The remainder of this section will discuss two promising new entrants, Webvan and Kozmo.com, then conclude with recent statements by USPS leaders.

In early November 1999, Webvan held a successful initial public offering (IPO). The firm is a metropolitan oriented e-grocer with a goal of operating distribution systems in 30+ major cities. This is significant in that the firm represents *a new semi-national last mile solution*. It is also noteworthy because of the logistics required to first carefully pick and pack groceries and then hit a 30-minute delivery window. Plus there is a human element because delivery drivers will be interacting directly with end-consumers, rather than utilizing refrigerated drop-boxes as some regional e-grocers are. What this may suggest, and that is articulated by Jupiter Communications analyst Ken Cassar is that Webvan's "...aspirations are well beyond the grocery business. They're positioning themselves to be something beyond a grocery play."⁶⁰

Then in March 2000 Kozmo.com filed for an initial public offering as well. Like Webvan, Kozmo.com is a metropolitan-oriented last mile solution. The firm's business model is to offer bicycle delivery within one hour of an order being placed via the Internet. Products offered include snack food, CDs, video rentals, books, magazines, and more. There is presently no minimum order size or surcharges. Business partners and investors include Amazon.com and Warner Home Video among others.⁶¹

And though Wall Street has allowed Webvan and Kozmo.com to secure funding, there is still quite a battle to be fought with the United States Postal Service if either firm should try to diversify its last mile solutions much further. According to Sue Brennan, USPS spokesperson, the USPS was already handling many online returns *even before* announcing its Returns@Ease system.⁶² Furthermore, in a late 1999 interview U.S. Postmaster General and CEO William Henderson alluded to the USPS *dominating* the business-to-consumer market.⁶³ He is likely correct because the USPS already delivers *3.4 billion pieces of mail every week* through its 38,000 post offices around the country.

4.4 Summary of Recent Trends & Developments

Recent trends and developments provide evidence of greater information availability, more logistics solutions for quantities of one moving “forwards” to customers as well as “backwards” from customers, and an increasingly customer-centric business climate.

While the USPS has alluded to managing the “round trip,” it remains behind the curve set by FedEx and UPS in both information systems and value added services in either gatekeeping or final disposition. Finally, a new firm dedicated to C2B reverse logistics has recently opened.

⁶⁰ Kane, Margaret and Houston, Patrick. “Why Webvan may eventually sputter” ZDNet News (www.zdnet.com). 11/05/99.

⁶¹ “Kozmo.com files for IPO” www.cnnfn.com.03/21/00.

⁶² Ernst & Young LLP. “Global Online Retailing: An Ernst & Young Special Report.” p. 60-61. January 2000. ©2000 Ernst & Young LLP.

**CHAPTER 5: A PROPOSED FRAMEWORK...
FLECK-SIBLE & PRAGMATIC C2B RL**

5.0 Executive Summary

The following framework, hereafter referred to simply as “The Framework,” is designed and offered to assist enterprises in understanding and considering a C2B reverse logistics policy or program. This framework is the product of 1) synthesis and analysis of existing literature, 2) trend extrapolation, and 3) original thought, context, and organization. As a first attempt to formulate a comprehensive global framework for C2B reverse logistics, The Framework has been created to address primarily strategic and process-oriented issues exclusively in the United States.

Continuing, The Framework consists of up to six phases, each of which can contain several processes. The six possible phases are as follows:

1. *Fleck Four P Reverse Logistics Analysis*
2. *Opportunity & Constraint Identification*
3. *Best Gatekeeping*
4. *Lean Bridging*
5. *Final Disposition*
6. *Ongoing Management*

⁶³ Wilson, Tim. “From Snail Mail To Address Databases” InternetWeek Online (www.internetwk.com).

5.1 Fleck Four P Reverse Logistics Analysis

This first phase can be thought of as an enterprise's examination of its present state concerning C2B reverse logistics. An examination is accomplished through the utilization of an original assessment tool termed "Fleck Four P Reverse Logistics Analysis." The Fleck Four Ps and corresponding tools are as follows:

- Policy Tool: The Consumer-to-Business Reverse Logistics Audit
- Product Tool: Propensity for a Physical Return Grid
- Propellant Tool: Force Origination Vs. Anticipation Matrix
- Process Tool: Decision Map & Process Flow

Policy refers to an enterprise's planning, understanding, and administration of a C2B reverse logistics program. Product is the physical goods that will move from individual end-consumers back to retailers, manufacturers, or third parties. Propellant normally refers to a chemical that produces a force, but here it is the forces driving a need for C2B reverse logistics. Process refers to all of the steps an enterprise can take in performing C2B reverse logistics.

Figure 3.**PART 1 – Fleck Four P Reverse Logistics Analysis - Policy Tool:
The Consumer-to-Business Reverse Logistics Audit****The Consumer-to-Business Reverse Logistics Audit**

- Do you have a written reverse logistics policy that is distributed and understood internally?
- Do other supply chain members receive a copy and/or understand the policy?
- Are information systems used to help reverse logistics flows from the first touch of an item to the last?
- Is your external return process available to individual consumers in multiple forms? (i.e. 800#, packing slip, web)
- Does your web-site include return instructions and answers to frequently asked questions (FAQ)?
- Is “decision uniformity” taught and practiced?
- Does your retail operation avoid holding returns while waiting to ship a big batch at once?
- Are your forward and reverse distribution centers and warehouses operated at separate facilities?
- Do your accountants and financial analysts understand the impact of returns?
- Is return data systematically captured?
- Is this data shared among engineering, manufacturing, packaging, materials handling, marketing, transportation, and storage organizations or partners?
- Do you benchmark your return rates or processes for comparison to your industry or competition?
- Will the Internet leave your flows of physical goods unchanged?
- Have you definitively answered your bricks, clicks, or mix question?

Overall, these questions are meant to assist in identifying whether a firm has a C2B reverse logistics plan, if it is a good plan, and if it has been implemented and administered.

At firms experiencing returns yet answering in the negative to most questions in the “Consumer-to-Business Reverse Logistics Audit,” there may exist issues that will need to be resolved. However, the converse should not be presumed; answering the audit questions in the affirmative may be necessary but not sufficient to achieving a successful C2B reverse logistics program.

Figure 4.
PART 2 – Fleck Four P Reverse Logistics Analysis - Product Tool:
Propensity for a Physical Return Grid

LOW	←—————→	HIGH
Low Product Value		High Product Value
No Manufacturer Liability		Manufacturer Responsible for Lifecycle ⁶⁴
No Secondary Markets		Strong Secondary Markets ⁶⁵
Commodities		Luxury Goods
High distribution & transport costs as a % of CGS or profit		Low distribution & transport costs as a % of CGS or profit
Highly Integral Products		Highly Modular Products
Impersonal Goods		Personalized Goods Not time or price sensitive
Mid-Lifecycle		Beginning or End of Lifecycle
Competition does not do it		Competition does it
All Sales Final		Leases and Rentals ⁶⁶

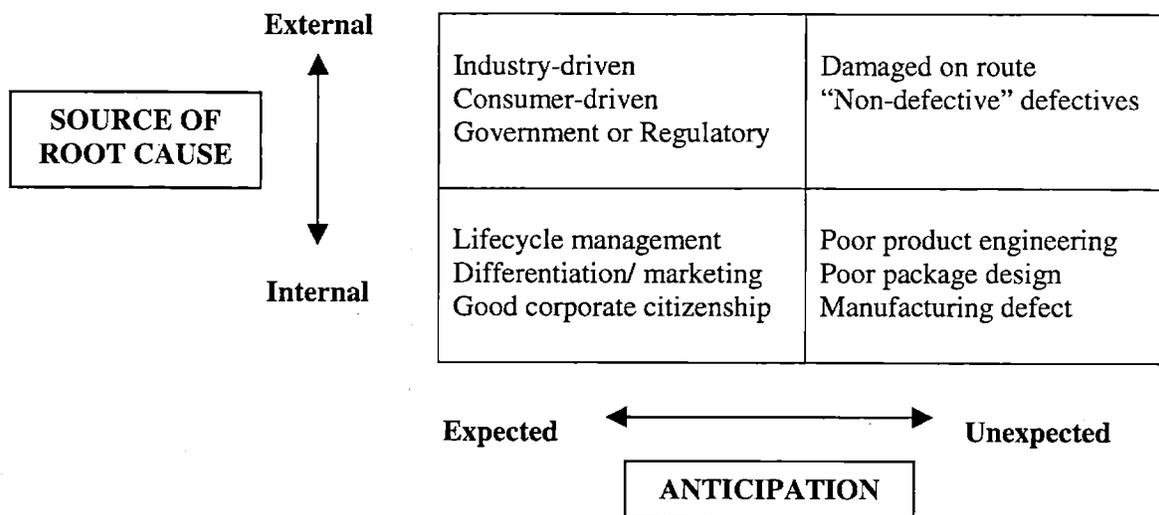
Firms utilizing the grid may first be cognizant of products clearly falling on one side or the other- those that strongly favor either return capability or no capability. Then the firm would verify that the suggested policy does in fact match its own C2B reverse logistics policy for the products in question. If there is a discrepancy, the firm may wish to investigate further. The more difficult policies to administer are those where a product may display two definite characteristics which correspond to high propensity for physical return capability, and at the same time two other characteristics demonstrating the exact opposite.

⁶⁴ Bovet, David and Sheffi, Yossi. "The Brave New World of Supply Chain Management" Supply Chain Management Review. Spring 1998.

⁶⁵ Sapp, Geneva. "Return Exchange tackles e-commerce returns" InfoWorld.com (www.infoworld.com). 02/15/00.

⁶⁶ Giuntini, Ron and Andel, Tom. "Advance with Reverse Logistics: Part 1." Transportation & Distribution. 36(2): 73-77. February 1995.

Figure 5.
PART 3 – Fleck Four P Reverse Logistics Analysis - Propellant Tool:
Force Origination Vs. Expectation Matrix



Continuing, the “Force Origination Vs. Anticipation Matrix” is a useful tool for mapping answers to the question “Why are returns presently occurring?” Through this mapping of primary return reasons, one may get a rough idea of how much room for improvement is possible. Inherently, the more reasons which either originate internally or are expected, the simpler it is to drive improvements and devise an effective C2B reverse logistics policy and program. And as suggested earlier, it is often possible to shift reasons from one region to another over time, including out of the external & unexpected region. One simple example of the latter would be a firm that has experienced damaged goods returned due to poor packaging design that had been outsourced; the product firm may elect to end its relationship with the packaging firm and perform future work internally.

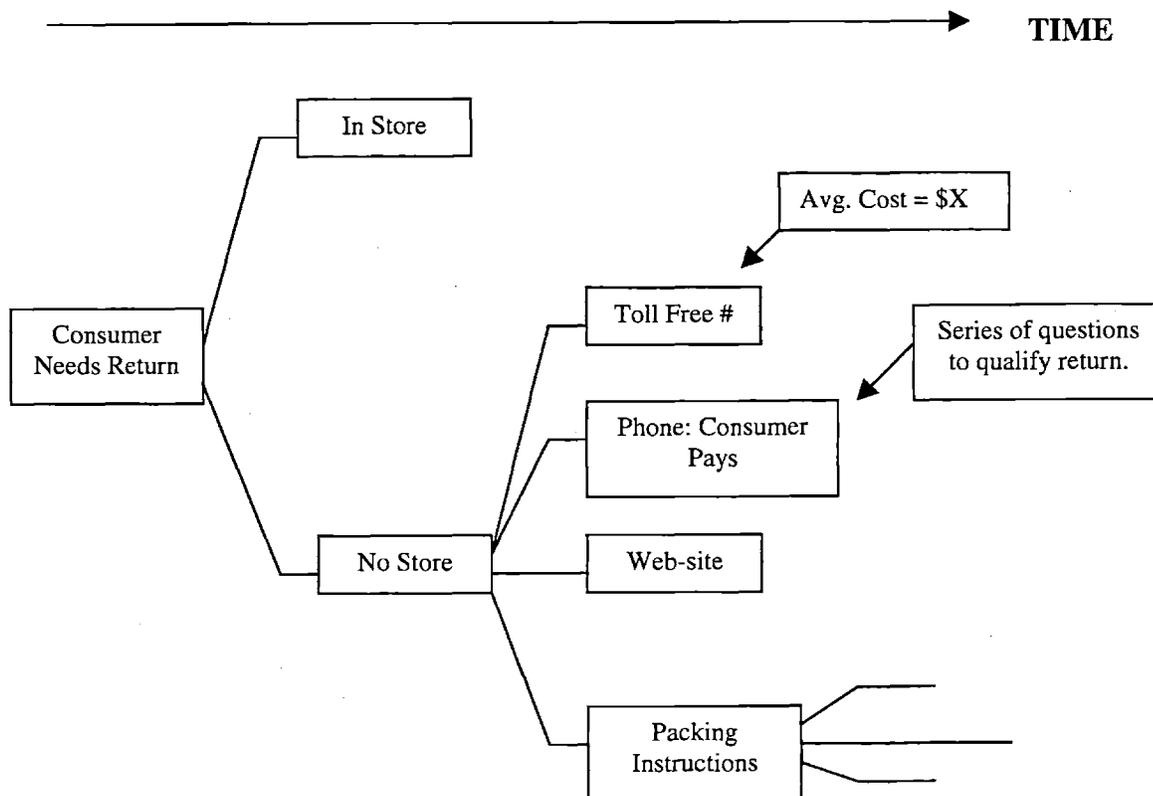
Figure 6.

**PART 4 – Fleck Four P Reverse Logistics Analysis - Process Tool:
Decision Map & Process Flow**

Next, an enterprise would physically map its reverse logistics (return) process end-to-end from literally the moment a consumer *considers* a physical return. Important features to consider are 1) areas of uncertainty, 2) points where a variable or transactional cost is incurred, and 3) movements of a physical good from one party to another. Important details to note may include but are not limited to the following:

- Number of “clicks” to arrive at return process information on web-site.
- Toll-free support costs, service level, hours of operation, training.
- Best case and worst case time-lines for return completion to satisfy consumer.
- Who performs packaging.
- Are verification and sortation occurring before or after transportation?
- How does information flow during and after the reverse logistics process?

The following is the beginning of a possible decision tree:



5.2 Opportunity & Constraint Identification

From the “Fleck Four P Reverse Logistics Analysis” described above, an enterprise may have been able to identify opportunities and constraints particular to its situation. For purposes of this framework and especially this section, a constraint will be defined as any fact, force, process, or combination thereof that an enterprise will not consider changing. Possible constraints may include budget limitations, long running vendor relationships, legal requirements, or over-riding product characteristics. Regarding opportunities, an enterprise may find best candidates as follows:

- “The Consumer-to-Business Reverse Logistics Audit” answers that were negative or qualified (i.e. “Yes, however...”).
- Disparities that have no explanation from the “Propensity for a Physical Return Grid.”
- The reasons for returns which were mapped to the “Force Origination Vs. Anticipation Matrix.”
- The most expensive and/or complex regions and decision points from the “Decision Map & Process Flow.”

While the above may not be all of the opportunities and constraints, they do provide a starting point for consideration and evaluation. When choosing which opportunities to

pursue, some of the more commonly important criteria may include solutions with high benefit, low cost, and minimal disruption to current state.⁶⁷

5.3 Best Gatekeeping

“Where products are inserted into the reverse logistics flow is a prime determinant in the resulting reverse logistics system.”⁶⁸

There are many different processes that can be incorporated into the gatekeeping phase of C2B reverse logistics. However, communication and decision uniformity⁶⁹ may be two of the most important processes. The communication process should address information flows internally and externally, across various media, and in both proactive and reactive contexts. The degree of decision uniformity will affect sortation, which in turn influence transportation, storage, final disposition, and ultimately the cost of a reverse logistics program.

COMMUNICATION

Regarding external communication, enterprises should seek to utilize the Internet as much as possible. The framework suggests that the real question is whether any logical case

⁶⁷ Dr. Jonathan L.S. Byrnes. MIT Strategy Case Studies Lecture. Spring 2000.

⁶⁸ Rogers, Dr. Dale S. and Tibben-Lembke, Dr. Ronald S., Going Backwards: Reverse Logistics Trends and Practices. University of Nevada, Reno, Center for Logistics Management. ©1998, Reverse Logistics Executive Council. p.12.

⁶⁹ Decision uniformity: when different persons, often at different locations, can arrive at the same decisions regarding a product's condition and overall eligibility for a return per a firm's RL policy.

against web-based applications could be constructed. From a consumer viewpoint, the Internet enables virtually unlimited information availability 24 hours a day, 365 days a year. For example, “non-defective defective”⁷⁰ returns might be reduced through a combination of extensive web-based instructions that would be prohibitively expensive to actually print and too much information to fit on a package, and advice or hints posted by other consumers.

Concerning internal communication, here too enterprises should seek to utilize the Internet and simple tools like e-mail and databases. Once gatekeeping allows an item into the reverse logistics flow, there are many departments that may need to be notified depending on the nature of the return. Certainly accounting, finance, and marketing must be notified, and possibly product development, materials handling, packaging, distribution, and even the legal or compliance departments. For enterprises with high returns that may be outsourcing any of the preceding departments, communication may be even more important, lest assets are lost or service levels sacrificed.

DECISION UNIFORMITY

Returning to decision uniformity, there are two primary aspects to consider: customer service/experience and cost of mistakes. If there is a breakdown in decision uniformity, that is two consumers attempt to bring back the same items in the same condition for the same reasons and receive different decisions about whether the item will be accepted, then

⁷⁰ Gentry, Connie Robbins. “Reducing the cost of returns.” *Chain Store Age*. 75(10): 124-126. October 1999.

there is necessarily a breakdown in customer service. Additionally, there can be unwanted costs incurred as a result. Perhaps neither of the aforementioned fictional consumers' returns should have been accepted to begin with. Then it is possible to have one dissatisfied consumer who didn't get to return an item, as well as costs incurred for the unnecessary storage, transportation, and management of the item that was accepted and shouldn't have been. This example epitomizes the importance of good gatekeeping and decision uniformity.

An important tenet in utilizing The Framework is that enterprises should seek to streamline their reverse logistics flows through consolidation of processes into gatekeeping. For instance, if an enterprise has the option of performing collection, sortation, and credit issuance at a single physical location or through a single interaction, then all else equal versus performing the processes separately, there should be a consolidation.

5.4 Lean Bridging

The phrase "Lean Bridging" has been chosen especially for The Framework to denote the group of processes that may be needed between Best Gatekeeping and Final Disposition. That is if Final Disposition does not or cannot occur at the point of Best Gatekeeping, then Lean Bridging is necessary. Lean suggests that it is best to use lean practices and Bridging refers to this phase connecting the product-entry (Best Gatekeeping) and product-exit (Final Disposition). Typical processes include transportation and storage. When making

related decisions, enterprises should consider their physical infrastructure, product nature, and propellants as the key variables.

However, in keeping with the literature review and analysis, these Lean Bridging processes are excellent candidates for outsourcing. Here The Framework proposes that Lean Bridging should only be performed internally when an enterprise and its returns display *several* of the following characteristics:

- High return volume which leads to economies of scale.
- Proprietary reverse logistics information systems or willingness to add them.
- Strong focus on utilization of technology, i.e. barcodes or radio tags.
- Propellants which are characterized as internal, expected, or both.
- Significantly less than 50% return variability.
- Internally managed final disposition processes.

The following figure shows how firms and categories of firms are prepared to not only perform Lean Bridging, but also perform Best Gatekeeping and Final Disposition:

5.5 Final Disposition

There are many options an enterprise may undertake in final disposition: remanufacturing, recycling, redeployment (to stock, to factory outlet, to secondary market, to another country), repackaging, and repair are among the most common processes. This section does not seek to advise which is best or even how to go about evaluating each one.

Instead, the main purpose is to stipulate that good execution of Best Gatekeeping and Lean Bridging will greatly enable good Final Disposition.

CHAPTER 6: CONCLUSIONS

While it was understood that C2B reverse logistics is cross functional, the magnitude and complexity of issues and processes that may be involved are nevertheless surprising. C2B reverse logistics can involve arguably every major business function and organization at one time or another. For these reasons, developing a comprehensive framework for consumer-to-business reverse logistics may be more appropriate as the subject of an entire book.

This thesis proposes that the “Fleck-sible and Pragmatic C2B RL” serves as a useful model for understanding C2B reverse logistics and that it may serve as a base for further critique and improvement. In addition, the framework contains several original qualitative tools. Overall, the framework may be beneficial for enterprises seeking to understand C2B reverse logistics from strategy and process standpoints. However, further research is still needed in developing the economic understanding and operational metrics which would complement the “Fleck-sible and Pragmatic C2B RL Framework.” Finally, advancement in the state of knowledge may be possible through future research that either solicits feedback on the “Fleck-sible and Pragmatic C2B RL Framework” or contrasts it with a single enterprise’s effort to understand, evaluate, create, implement, or change its own C2B reverse logistics policy and program.

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