UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ASSESSING REVERSE LOGISTICS COMPLEXITY: CONCEPTUAL MODEL, SCALE DEVELOPMENT, AND A CASE STUDY

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

STEFAN E. GENCHEV
Norman, Oklahoma
2007

UMI Number: 3291928

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

ASSESSING REVERSE LOGISTICS COMPLEXITY: CONCEPTUAL MODEL, SCALE DEVELOPMENT, AND A CASE STUDY

A DISSERTATION APPROVED FOR THE
MICHAEL F. PRICE COLLEGE OF BUSINESS

BY

_____
Patricia J. Daugherty, Chair

_____
Michael R. Buckley

_____
Timothy D. Landry

_____
Soonhong Min

_____
Anthony S. Roath

ACKNOWLEDGEMENTS

I want to thank my wife Daniela and my beautiful kids Rossi and Encho for giving me the inspiration and support through all the years at OU. They carried me through bad times and good times from enrolling in the OU's MBA program to this point.

And I love them.

My parents, Encho and Ruska, did not hesitate to cross the Globe and help us take care of our new-born son, a true child of an academic family. My sister Vanina always stood behind my decision to pursue an academic carrier. My mother-in-law Ceca and my father-in-law Ivan never stopped supporting us through the long years of study. And I love them too.

I am also grateful to Pat Daugherty for taking me in the Ph.D. program. She has become my academic and spiritual leader for half a decade. She showed me that submitting a well-written manuscript for publication is as challenging as driving 120 miles/hour to meet the 3 p.m. shipping deadline at DHL; but a 120 times more self-fulfilling and rewarding. And I am looking forward to continuing my academic journey under her guidance and invaluable advice. I feel honored and blessed to belong to her circle of Ph.D. students, an exceptional network of distinguished scholars.

I would like to thank Tony Roath as well, for helping me survive through times of hesitation and emotional turmoil. His constant encouragement and words of

perseverance did the trick and brought me over the hump of completing the program. I will be in eternal debt to Pat and Tony, period.

There is a long list of academics who also contributed to my growth, both as a scholar and as a person. The list includes my committee members, Soonhong Min, Tim Landry, and Mike Buckley, my Ph.D. course instructors George Mendoza, Larry Toothacker, Lazlo Tihanyi, Rick Johnson, Tom Brown, Bob Hoskinsson, Laku Chidambaram, and May Yuan.

Although not directly involved in my studies, I will always be grateful to my colleagues in the Marketing & Supply Chain Management department. Elten Briggs and Glenn Richey showed me that the study is worth the sacrifice. John Hobbs, Ken Gross, Jeff Schmidt, Jeff Wallman, Jack Kasulis, Samir Barman, Ford Smith, David Williams, Johnnie Ferguson, and Gina Amundson have always believed in my abilities to successfully complete my Ph.D. program. A special gratitude is due to the late Rod Evans, Alice Watkins, and Jason Moncrief. Let them rest in peace.

Of course, I would not be able to deal with all the challenges involved in pursuing a doctoral degree if it weren't for my fellow Ph.D. students. I want to thank Haozhe Chen, Dan Mattioda, Aaron Arndt, and Scott Grawe. It was an honor studying with them and I hope we will stay in touch for the years to come.

A big gratitude is also due to a group of business executives who shared a wealth of information with me and made my research complete. John Mascaritolo, Tony Sciarrotta, Robert Lodi, Michael Smith, Tom Herron, Rob Eves, Wayne Hickman,

and Dennis Stanley provided invaluable practitioner perspectives proving that academia and business can and should work together for the greater good.

Mike Buckley told me that I am living the American Dream; my wife is a well-respected corporate financial executive, I am ready to join the ranks of Assistant Professors, my kids are getting the best education in the world all within the best atmosphere to succeed in pursuing their dreams for the future. Well, who am I to disagree!

TABLE OF CONTENTS

ABSTRACT

The current dissertation examines a specific area of the supply chain, i.e., reverse logistics. More companies recognize the potential of reverse logistics as a powerful source of competitive differentiation. At the same time, research on the topic remains scattered at best. Some crucial issues related to developing modern reverse logistics programs remain largely unaddressed. Questions such as where to focus investments in returns management to achieve superior performance, how to ensure that firms build the right set of reverse logistics capabilities, and what specific competencies are required in the process, lack theory-based answers. The Resource Based View of the firm (Barney, 1991; Wernerfelt, 1984) is applied as the theoretical framework of investigation. The conceptual model is strengthened by empirical data collected at six companies directly involved in reverse logistics operations. The balance between theory and practice defines the format of the research project.

The dissertation follows a three paper format. The first paper is conceptual in nature and offers a framework for investigating the major factors that affect reverse logistics program development and implementation within the Resource Based View of the firm. Based on information from interviews with returns executives the need for formalizing the program was identified as top priority. Particular emphasis is placed on the formalization of the reverse logistics related processes which

bridge resource allocation decisions to building enhanced reverse logistics capabilities toward superior reverse logistics program performance. Determining the level of reverse logistics process formalization became the logical following point.

The second paper developed a reverse logistics process formalization assessment tool. The development effort was based on literature review and information gathered from in-depth interviews with logistics personnel at six companies. Strong managerial implications followed in terms of reducing the complexity of returns management by increasing the level of formalization. The relationship was confirmed in the last paper among other relevant to reverse logistics information.

Paper three represented a case study at one of the biggest computer wholesale distribution companies in the USA. Under conditions of anonymity, the reverse logistics program development and implementation was studied in detail. Relevant information was collected through interviews with reverse logistics personnel at different positions within the company; from the general manager of the distribution center and the reverse logistics manager to reverse logistics supervisors directly involved in day-to-day operations. Important implications in terms of reverse logistics program development and implementation were the major contributive outcomes of this final research paper of the dissertation.

DEVELOPING REVERSE LOGISTICS PROGRAMS: THE ROLE OF FORMALIZATION

INTRODUCTION

Delivering product to the customer does not always end the business cycle. Products are often returned or must be reclaimed from downstream trading partners. Over $100 billion in goods are returned every year (Blanchard, 2005). Reverse logistics can be a differentiating factor affecting competitiveness; however, focused effort is needed to efficiently manage returns.

The Resource-Based View (RBV) of the firm (Barney, 1991; Wernerfelt, 1984) can provide guidance for developing reverse logistics programs. RBV, linking firm-specific resources with enhanced performance relative to the competition, provides the theoretical framework for the current research. Within that framework, reverse logistics related processes are considered distinct competencies that transform firm resources into superior reverse logistics capabilities resulting in better performance. The inclusion of reverse logistics competences and capabilities follows the "dynamic capabilities" extension of the RBV (Teece et al., 1997). It is proposed that the formalization of the processes, which represent the distinct competences of the firm, makes a substantial difference in the level of reverse logistics capabilities achieved. To better understand the role of formalization in the reverse logistics processes, insights from interviews with returns managers and personnel at six companies are presented.

This manuscript is organized as follows: First, a literature overview on reverse logistics is provided. Second, a RBV model is presented followed by a conceptualization including the mediating role of reverse logistics process formalization on the relationship between resources and reverse logistics capabilities. Reverse logistics program performance is also discussed, as an outcome of the proposed model. Finally, implications for practitioners and academics are presented and future research directions suggested.

BACKGROUND

Overview of Reverse Logistics

Operational processes are "structured sets of work activity that lead to specified business outcomes for customers" and the firm (Davenport and Beers, 1995; p. 57). One such business process, reverse logistics, is the focus of the current research. Reverse logistics involves a number of different operational processes. Rogers et al. (2002) identified six reverse logistics processes: return initiation, determining routing, receiving returns, selecting disposition, crediting customers, and measuring performance. Because of the complexity of returns management, a process approach is necessary in order to fully understand and manage the activities and interactions involved (Cooper and Stephan, 1994).

The sheer volume of returns can be staggering. For example, in the magazine publishing industry, half of all products are returned. Return figures of 30% are not unusual in the book publishing, greeting cards, and catalog retailer

industries (Rogers and Tibben-Lembke, 1999). Across all industries, returns average 15 to 20% of goods sold (Norek, 2003). The strategic potential for reclaiming value and securing a competitive edge is substantial.

While both forward and reverse logistics involve handling the physical flow of goods and services, substantial differences exist. Stock and Lambert (2001) note that "most logistics systems are ill equipped to handle product movement in a reverse channel." (p. 24). The differences in resources, the processes involved, and the capabilities needed for handling returns, can influence logistics strategy/operations. Little empirical and theory-based research has been conducted covering reverse logistics and its impact on firms' overall performance. The issue is addressed here by introducing a conceptual model of reverse logistics program development based on the RBV of the firm.

Theoretical Background

In its most generic form, the RBV argues that a firm's resources can be a potential source of competitive advantage (Barney, 1991) leading to differentiated performance outcomes (Aaker, 1989; Day and Wensley, 1988) and above normal economic rents accumulation (Rumelt, 1987). The main idea is that company-specific resources determine the direction of company expansion and success in the long run (Penrose, 1959). A firm's resources and their allocation within that firm are considered more important strategic management issues than industry-specific characteristics (Teece, 1984). However, greater insight is needed as to how

resource allocation can best be targeted to secure sustainable and differentiating performance outcomes.

The dynamic capabilities approach, an extension of the RBV, addresses the issue (Eisenhardt and Martin, 2000; Teece et al., 1997). Dynamic capabilities "… refer to a firm's capacity to deploy resources, usually in combination, using *organizational processes*, to effect a desired end" (Amit and Shoemaker, 1993; p. 35). Rather than focusing on the acquisition of resources, the dynamic capabilities perspective emphasizes the effectiveness of deploying these resources to gain differentiated performance outcomes and competitive advantage (Makadok, 2001). Firm resources must be organized and carefully managed. Competences in developing, combining, and deploying resources become a necessary precondition to build firm-specific capabilities, which, in turn, leads to better performance (Teece et al., 1997). The current research will use the terms reverse logistics processes and reverse logistics competences interchangeably, consistent with the RBV of the firm.

The strategic potential of a firm to achieve competitive advantage and differentiating performance outcomes depends on its resources, competencies, and capabilities. Input is needed from all departments to determine necessary resources and how resources should be utilized to build distinct capabilities. Coordination efforts and control mechanisms can be used to get everyone "on the same page." The current research proposes that the formalization of the processes/competences involved can provide a solid structure for achieving distinct capabilities and

enhancing performance within the firm's resource base. Empirical support for this proposition was gained through interviews with reverse logistics practitioners. Four general managers of distribution, five returns managers, and six supervisory employees participated in the research. The interviewees represented six companies involved in designing and operating reverse logistics programs.

Formalization

Formalization refers to the extent to which rules, procedures, instructions, and communications are written (Pugh et al., 1968). The existence of rules and procedures coupled with the extent to which they are used as a means of controlling different business activities can help to differentiate one firm from another (March and Simon, 1958). Formalization as an organizational structure element has been researched extensively (Dahlstrom and Nygaard, 1999; Moorman et al., 1993; Song and Perry, 1993). However, research on the effects of formalization on specific organizational processes/activities has been largely overlooked (Ruekert et al., 1985). To address the issue, the construct of process formalization is introduced. Process formalization is defined as the agreed-upon written rules and procedures involved in certain organizational processes and related activities (Meilich, 2005).

The positive influence of process formalization derives from its potential to reduce work ambiguity, thus reducing managerial and coordination costs, and, at the same time, increasing efficiency of operations (Sine et al., 2006). Formalization provides guidelines for the efficient "maintenance" of the processes

involved by making them easier for employees to understand and execute. Most importantly, process formalization provides a framework for performance measurement. Overall performance depends on individual process areas. Formalizing the processes identifies what should be done, prescribes how things should be done, and provides an indication of performance expectations. Large and small companies can benefit from increased levels of formalization; the existence of written rules and procedures helps to define organizational goals and reduces process ambiguity (Hetherington, 1991; Schwenk and Shrader, 1993).

The positive effects of formalization have been discussed in the logistics literature as well. Bowersox and Daugherty (1992) identified formalization as a defining characteristic of leading edge logistics organizations. Benefits accrue from minimizing redundancy of tasks and a focus on formalization as a control mechanism contributing to organizational efficiency. The current manuscript goes a step further and argues that process formalization becomes a necessary pre-condition for the development of distinctive reverse logistics organizational capabilities.

RBV MODEL OF REVERSE LOGISTICS

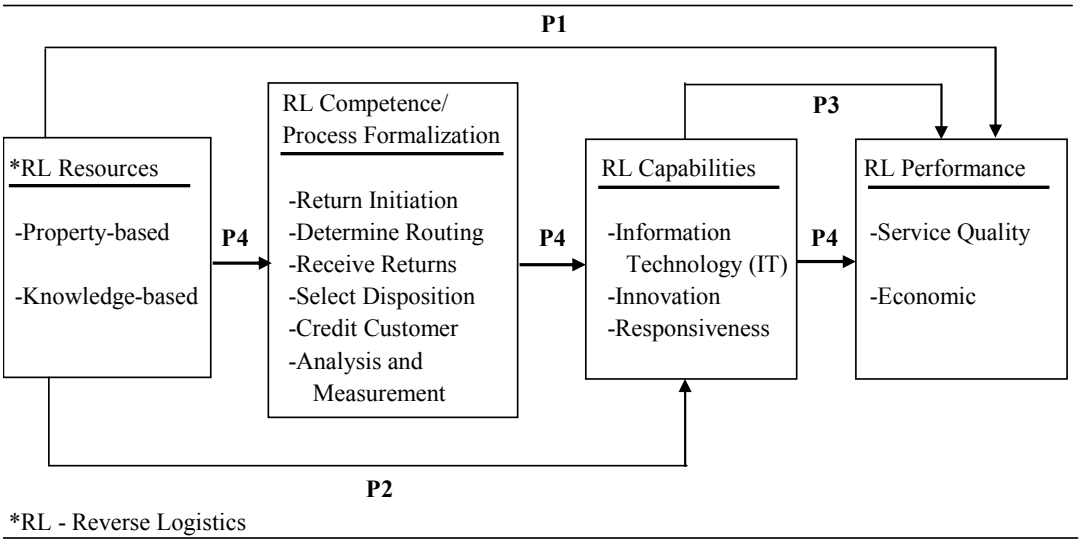
Figure 1 illustrates the relationships within the dynamic capabilities perspective of the RBV in a reverse logistics context. The proposed relationships are detailed in the following narrative.

Reverse Logistics Resources

In his definition of resources, Barney (1991) included "all assets … controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" (p. 101). Resources are frequently summed into one broad category including capital equipment, budgeted financial means, patents, brand names, and articulated and codified knowledge (Schulze, 1994). Guidance is needed on what specific resources can best be used to build unique firm competences and capabilities in a particular managerial domain.

FIGURE 1

CONCEPTUAL MODEL



Based on the interviews conducted with managers involved with reverse logistics operations, the current research will focus on two major resource categories: 1) property-based resources and 2) knowledge-based resources. This

categorization is consistent with Miller and Shamsie's work (1996). Property-based resources include what the firm legally owns. In a reverse logistics context, some examples of property-based resources would be the physical facility used for returns, automated machines and equipment used for returns distribution and disposal, and financial and human resources dedicated to reverse logistics. Property-based assets provide the necessary tools and manpower for executing reverse logistics related operations. Property-based resources are often considered an important indicator of program competitiveness (Das and Teng, 2000).

Knowledge-based resources include the firm's know-how and skills, i.e., its technological and managerial resources (for example, software and hardware systems utilized in returns management). Knowledge-based resources are difficult to transfer or imitate, at least in the short run, due to firm-specific paths of developing and/or acquiring know-how, skills, and experience (Barney, 1991; Amit and Schoemaker, 1993).

RBV-related research shows that combining property-based and unique knowledge-based resources strengthens the competitive positioning of the firm and can lead to substantial economic gains (Peteraf, 1993). The focal argument of the RBV of the firm linking firm-specific resources to differentiated performance outcomes provides the rationale for the following proposition:

P1: *The level of resource commitment to reverse logistics in terms of:*
a) property-based resources
and
b) knowledge-based resources,
is related to reverse logistics program performance outcomes.

Reverse Logistics Capabilities

Reverse logistics capabilities represent the organization's ability to find ways to respond to changing customer requirements. Three reverse logistics capabilities are of particular interest: 1) Information Technology (IT); 2) Innovation; and 3) Responsiveness. Previous research supports the importance of these three capabilities for returns management (Richey et al., 2005; Daugherty et al., 2005). Based on the literature review and input provided by returns personnel, each of the capabilities is discussed.

Reverse logistics IT capabilities

Reverse logistics IT capabilities, defined as the organizational ability to seamlessly integrate reverse logistics into the complete technological and informational network of the firm, should be a priority (Daugherty et al., 2005). When the necessary resources are focused on building IT capabilities, the impact on companies' competitive positioning can be substantial (Closs and Xu, 2000). Daugherty et al. (2005) investigated the mediating effect of IT capabilities on the relationship between resources and performance in a reverse logistics context. Their findings support a positive relationship between building IT capabilities and enhanced reverse logistics program performance.

Developing firm-specific IT capabilities to support logistics is often the differentiating factor between industry leaders and average firms (Bowersox et al., 1989). Although increased resources have been dedicated to technology systems

related to forward flows of products and services, IT solutions for reverse flows have received little attention (Norek, 2002). Attempts to apply standardized technological solutions in reverse logistics settings have often been unsuccessful (Stock and Lambert, 2001). One of the main reasons for the difficulties in building strong reverse logistics IT capabilities is the lack of a formal operational structure of the processes and activities involved. In the current research, reverse logistics IT capabilities are considered an outcome of committing and effectively managing firm-specific property and knowledge based resources.

Reverse logistics innovation capabilities

Reverse logistics innovation capabilities refer to the ability of the firm to apply new ideas to a set of reverse logistics processes (cf. Van de Ven, 1986). Prior research on returns management has addressed innovation capabilities and found that they are an important mediator of the link between resources and performance (Richey et al., 2005). Increased cost savings through efficient reverse logistics operations and value recovery require differentiated, innovative approaches (Guide and Wassenhove, 2002). Customized solutions are often needed for returns processing and selecting disposition: returned product flow runs counter to standard operations. Firms that gain a competitive advantage in reverse logistics apply company-specific management techniques and technologies (Zieger, 2003). Consequently, innovation is considered necessary to support a state-of-the-art reverse logistics program.

Reverse logistics responsiveness capabilities

The complexity of the returns-related processes makes it challenging for firms to quickly respond to changing market conditions and fluctuating return flows. A focused effort is necessary to keep reverse logistics programs responsive to such changes and competitive pressures. Reverse logistics responsiveness, defined as the firm's ability to respond to changing returns-related customer requirements, has the potential to enhance the competitive positioning of the firm (Richey et al., 2004). Since a return often signals a problem in the system, the ability of the firm to quickly address that problem can be an important differentiating factor (Malone, 2004). For example, customer service representatives may offer different options for faster return authorization dependent on different customer needs, geographic location, or volume of returns. Responsiveness can translate to higher levels of customer service and thus, it is included in the list of reverse logistics related capabilities.

Reverse Logistics Program Performance

The current research focuses on service quality and economic criteria as the two primary reverse logistics performance outcomes. Service quality measures refer to how easy it is for customers to return a product. How a firm complies with its stated returns policy and whether this policy is customized for the specific needs of customers, can determine long-term customer involvement. Service quality performance incorporates specific measures including the ease of return, how

reconciliations of charge-backs are handled, and the promptness of crediting the customer (Autry et al., 2001). Increased service quality performance can result in improved relationships with customers.

The major economic performance indicators in reverse logistics context are cost containment, improved profitability, recovery of assets, and reduced inventory investments (Daugherty et al., 2001). Inclusion of both economic and service quality performance measures provides a comprehensive statement of a firm's competitiveness and performance potential.

Firms' abilities related to technological skills, innovation, and responsiveness to changing customer requirements can have a positive and unique effect on the bottom line (Chow et al., 1994). In accordance with the dynamic capabilities perspective within the RBV of the firm and its application in a reverse logistics context, firm-specific resources must be combined and managed for developing unique capabilities, including IT, innovation, and responsiveness, before substantial performance improvements can be achieved. The following propositions illustrate the relationships.

P2: *The level of resource commitment to reverse logistics is related to reverse logistics capabilities in terms of:*

a) IT
b) Innovation
c) Responsiveness

P3: *The level of reverse logistics capabilities is related to reverse logistics program performance, in terms of:*

a) service quality outcomes
b) economic outcomes

The final component of the proposed model, i.e, process formalization, will be discussed in the next section.

REVERSE LOGISTICS PROCESS FORMALIZATION

In the RBV context, reverse logistics competences are defined as the necessary processes for transferring firm-specific resources into reverse logistics capabilities. These processes are organized by firm management in an effort to provide a source of competitive differentiation (Teece et al., 1997). The way logistics operational processes are organized and executed can be crucial.

What a firm can do or is capable of achieving is not just a quantitative function of the available resources; it also depends on the firm's resource-transformation processes. A sheer increase in the number of employees and/or investing a lump sum in wireless technologies, for example, will not automatically boost performance. A clear understanding of what is involved in the successful management of reverse logistics is necessary. Return initiation, determining the routing for the returned goods, receiving returns at the firm's facility, selecting the disposition option, crediting the customer/supplier and analyzing and measuring reverse logistics program performance are considered multidimensional processes providing the framework for assessment (Rogers and Tibben-Lembke, 2001; Rogers et al., 2002). Table 1 provides definitions of the reverse logistics processes.

Written organizational rules, policies and procedures, i.e., formalization, have been found to be associated with increased efficiency and effectiveness

(Bowersox et al., 1992). Reverse logistics formalization can help managers "make order out of chaos" (Norek, 2002) and provide a valuable tool for streamlining reverse logistics operations (Rogers and Tibben-Lembke, 1999). Defining processes and associated activities, and examining the potential effect of formalization, also helps to better understand the relationships between resources, capabilities, and performance in reverse logistics.

The nature and the potential effects of formalizing each one of the reverse logistics processes are discussed next.

TABLE 1

REVERSE LOGISTICS RELATED PROCESSES

RL Processes	Definitions
1. Return Initiation	Seeking a return approval from the firm by the customer or sending the return direct to the returns center.
2. Determine Routing	Determining the mode of transportation and destination for the returned product.
3. Receive Returns	Receiving returns includes verifying, inspecting, and processing the returned product with emphasis on assigning pre-disposition codes.
4. Select Disposition	Selecting a disposition option for the returned product.
5. Credit Customer / Supplier	Charging-back the customer's/supplier's account.
6. Analysis and Measurement	Analyzing returns and measuring returns-related performance criteria aimed at improving the whole reverse logistics operation.

Source: Adapted from Rogers et al. (2002)

Return Initiation

Return initiation is the process where the customer seeks return approval (Return Material Authorization or RMA) or sends the return directly to a designated returns center. The ease of returning items and how quickly return authorization is received can mean the difference between satisfied customers and those who never come back. The problem, though, is the difficulty in predicting the level of returns at any given time. Uncertainty is compounded at the detail level: which customer/firm will initiate returns and how? Developing and enforcing a formal return initiation process increases returns visibility and helps companies become more responsive (Sciarrotta, 2003). The number of unknowns in the reverse logistics operation will be reduced as returns activities are identified.

For example, different communication options are available for customers initiating an RMA request, i.e., on-line, phone call, or fax. The firm must be able to accommodate customers' preferences. Formal policies must be established and clearly communicated to customers covering return limits, reasons for returns, and the time for processing and issuing a returns request. To streamline the process, some companies assign a digital code describing the reason for return. Advanced customer notification of the code system and its operation can speed up return initiation. An additional benefit is gained in that the company processing the return can create a fast, accurate customer profile by industry, number of returns, reasons for returns, and other relevant information.

Determine Routing

The second reverse logistics related process involves physical movement of the returned product to a returns-processing facility. In a typical reverse channel, end users or retailers initiate the return and wholesalers or manufacturers receive and process the returned product. In this stage, strict responsibility is assigned for sending the return back following return authorization. Formal agreement among the parties involved is necessary to streamline returns routing. Once such an agreement is in place, firms can focus on creating clear and easy-to-use routing procedures. For example, firms can issue pre-printed shipping labels that specify the contracted carrier(s) and the exact location where the return should be sent. Firms can also issue specific routing policies that cover destination, timing, carrier selection, returned product condition, etc., as agreed upon in advance with business partners. Adherence to the policy allows for increased returns flow visibility and better resource allocation planning.

Because of the complexities involved and the potential impact on customer satisfaction, many firms select to outsource the routing/transportation of returns. Cost-benefit analyses as well as evaluation of internal resources are required to decide whether to use a "do it yourself" approach or outsource. In either instance, a structured approach should be applied. The outsourcing decision adds to the options involved in assigning responsibility for the routing of returns. Offering different routing options accommodates varying customer needs; however, the variability involved increases routing complexity. Formalization can help reduce

the complexity. When firm-specific or tailored solutions are used, it is even more important that written rules and procedures be developed to maintain required control.

Receive Returns

The next process involves physical receipt of the product. Although the returns managers interviewed represent different industries and different types of businesses, wholesalers, retailers, and manufacturers, they all identified the following activities as crucial to receiving returns: 1) verifying the documentation accompanying each return; 2) inspecting the condition and packaging of each return; 3) informing the customer for any discrepancies/exceptions not in accordance with the return policy; and 4) assigning pre-disposition codes for the processed return.

Returns involve a number of unknowns such as the time of return, volume, and physical/operational condition. Receiving returns typically involves a physical check of the returned product. Inspection is necessary to verify whether what the customer indicated is what actually arrived in the returns facility. Typically, the inspector has all the return-related information from the customer service department. (The customer has already contacted customer service representative to request a RMA describing the reason for the return). Consequently, the check involves a step-by-step comparison between the information on the screen and the returned product itself plus the accompanying documentation. Formalizing both the

verification of the content and the accompanying documentation of the return allows for fast and accurate feedback to customers in case of discrepancies. Having an agreed-upon return policy sets the level of expectations regarding the time required for returns processing. Assigning codes to the processed return speeds up the reverse logistics operation and sets the stage for the next process, i.e. selecting disposition.

Select Disposition

This process defines the appropriate disposition option for the returned product. These options "… can include refurbish, remanufacture, recycle, resell as is, resell through a secondary market, or send the product to landfill." (Rogers et al., 2002; p. 14). The returns experts interviewed identify as top priority getting returned product back into the market as quickly as possible. A PC and computer peripherals wholesaler, for example, described as operational priority pushing a return straight back to the manufacturer without costly re-stocking. In a similar effort, a manufacturer of electronic equipment applies a type of "cross-dock" operation getting good returns out the door to other customers without putting them in stock.

If the returned product cannot be re-distributed as new, it may be necessary to liquidate it or outsource the liquidation to a third party. Donating a return to charity may also be a plausible disposition alternative. The existence of so many options requires careful managerial consideration. The trade-offs involved make

this process one of the most complex in returns management. Formalized cost-benefit analyses were in place at the majority of the companies interviewed. The managers reported that the formalized approach had helped to reduce ambiguity, speed up the process, and recover more value from returned products.

Credit Customer / Supplier

The highest priority from customers'/suppliers' perspectives is fast charge back. No matter how efficient a reverse logistics program, the relationship can be compromised if the customer does not receive his/her money back promptly. Formal rules and procedures establish expectations in terms of time and documentation requirements for the charge-back. Clear guidelines as to how long it will take for charge-backs should be developed and formally communicated to the customer. Customers should know when to expect account crediting, including possible compensation if deadlines are not met. Policies should include possible exceptions to the normal timeframe. For example, if reconciliation procedures for charge-backs are necessary, customers should be advised of the time needed for resolving the issues. Keeping the customer informed can enhance customer relationships. How well the company manages to provide value to its customers should be at the center of the analysis of reverse logistics operations and measuring program performance.

Analysis and Measurement

The process of measuring and analyzing returns-related performance criteria is aimed at improving reverse logistics quality and identifying potential problem areas. The following metrics were identified by returns managers as the most important reverse logistics indicators: 1) volume of returns; 2) type/condition of returned product; 3) dollar value; 4) percent of sales; and 5) resources, including human resources, dedicated to returns. In-depth analysis of these measures can help to identify problem areas. Analyzing the volume, type/condition of returns, dollar value, and percentage of sales can provide a comprehensive list of reasons for returns and identify trends. For example, if a particular customer is constantly abusing the returns policy, this will be apparent when volume of returns and percent of sales data are analyzed. Type/condition of the returned product measures can uncover damage-related problems with specific carriers. R&D product designs and/or supplier selection procedures can be reconsidered if the number of defective products coming back exceeds a pre-determined level.

Measuring and analyzing reverse logistics programs can streamline resource allocation decisions as well. Targeting resources to potential efficiency gains should be a priority. Some firms start to apply reverse logistics-specific ROI ratios to identify the value-added to both the firm and the customers. Investments in employee training and new reverse logistics technological solutions, for example, are tied to pre-determined performance outcomes. Process formalization will enable the application of standardized analytical and measurement tools, like ROI, which

can provide feedback useful in improving the service-quality and economic performance of the reverse logistics program.

The effects of Reverse Logistics Process Formalization

Consistent with the RBV of the firm, in its dynamic capabilities extension, (reverse logistics) processes/competences help to transform property-based and knowledge-based resources into enhanced (reverse logistics) capabilities and (reverse logistics program) performance (Teece et al., 1997). The formalization of these processes/competences becomes a necessary condition for building a state-of-art reverse logistics program. Consequently, the current research proposes that reverse logistics process/competence formalization has a mediating effect on the link between resources and reverse logistics capabilities within the RBV theoretical framework.

> ***P4****: Formalization of reverse logistics processes/competences is necessary to enhance the relationship between resources and reverse logistics capabilities leading to differentiated performance outcomes.*

THEORETICAL IMPLICATIONS

The RBV is often critiqued for the tautological nature of the main argument, for lack of empirical support, and questionable applicability in practice (Makadok, 2001). The current research addresses these alleged shortcomings in the following ways:

First, the construct of reverse logistics competence is introduced to relate firm specific resources with enhanced capabilities and better performance. Unless a transformational mechanism is present, the argument that resources will enhance performance becomes circular since better performance will, in turn, result in accumulating more resources. There is no existing research linking the major elements of the RBV and the related Dynamic capabilities extension in a concise theoretical model that avoids the tautology criticism. The current research presents competence as the necessary link between resources, capabilities, and differentiated performance.

Second, the conceptual model presented in the research allows for extended empirical work on RBV. For example, the current research identifies process formalization as such a construct that may change the dynamics of the relationship between resources and performance. For example, in RL context, spending more resources does not always mean having a competitive program. This leads to the third point.

Third, in an environment where supply chain and logistics managers are struggling to squeeze out every possible cost-saving penny in their distribution operations, the finding that process formalization may, in fact, be more important than spending more money to improve operations, is worth considering by practitioners.

MANAGERIAL IMPLICATIONS

Managers interviewed are concerned not only about the level of awareness of the importance of reverse logistics, but also about the lack of guidelines regarding the reverse logistics program development. The formalization of the reverse logistics processes addresses the issue and provides several related benefits discussed bellow.

First, the formalization of the reverse logistics program can serve as a foundation for developing and implementing a solid monitoring system. Specific measurement items can be developed to help companies get control over their reverse logistics operations through increased visibility of the processes and activities involved. In addition to enhancing control, multiple monitoring/check points can help firms to modify certain processes and related activities. A constant feedback system can be established allowing for continuous process improvement.

Second, reverse logistics program formalization defines roles and responsibilities. A clear and shared understanding of what is involved in managing returns can increase employee motivation and contribute to increased operational efficiency. Clear delineation of required activities and associated responsibility can reduce returns processing time. The managers interviewed believe that reverse logistics process formalization allows employees to focus on ways to increase productivity. Measurable gains can be achieved, for example, by avoiding discussing potential options for every returned product. Instead, the prescribed policy/rule can be automatically applied. In addition to pure operational gains,

providing structure to the reverse logistics program can contribute to enhanced performance by enabling reverse logistics personnel to build upon shared and in-depth, firm-specific knowledge and experience. Capturing standard policy through written formal procedures provides institutional memory and creates a firm-specific knowledge database.

Next, reverse logistics program formalization can help to identify necessary resources and indicate how resources should be utilized. A step-by-step schematic of what exactly is involved in handling returns can greatly contribute to securing senior management support. Problem areas can be readily identified as well as potential economic and strategic benefits. Tailored investments can be made, for example in returns inspectors training and wireless technologies. These investments should be related to clear-cut performance outcomes through developing distinct IT, innovation, and responsiveness capabilities. More importantly, gaining support for reverse logistics was cited as the necessary first step in changing the attitude toward returns, the culture from "let's try to lose less money" to "let's try to identify opportunities."

The development of an effective, formalized reverse logistics program can also help companies to improve relationships with customers. When reverse logistics processes are formalized and documented at the detail level, preparing a customer-tailored offering can become less burdensome. Different activities can be adjusted as necessary and presented to the customer. The reverse logistics program can become an important element of the overall selling effort. Leading firms in

reverse logistics management already include returns experts as part of their sales team. Formalization of reverse logistics processes can become a key, customer-oriented strategic tool.

LIMITATIONS AND FUTURE RESEARCH

Although information from interviews at six companies was used, the current research was exploratory in nature. A quantitative empirical study is needed to test the proposed relationships among resources, reverse logistics processes and their formalization, reverse logistics capabilities, and reverse logistics program performance. The RBV of the firm is a general theory related to strategic intent and competitiveness. Focusing on one aspect of a firm's operations, i.e., reverse logistics, limits the generalizability of the model applications. Another interesting possibility for enhancing generalizability is to study the effects of formalization in terms of industry specificity and/or timing of introduction. Yet to be assessed is exactly how much formalization is needed? The question of balance between benefits and drawbacks of formalization requires more focused attention to the construct of process formalization itself.

The effects of process formalization within the RBV theoretical framework should be compared and contrasted to another theoretical perspective as a test of well-formulated theory application. The firm-specific level of analysis of the RBV may miss important implications in terms of customer relationship management and partner relationship management associated with program formalization.

Considerations external to the firm are not specifically covered under the RBV of the firm.

To address these issues, the current research provides future research directions from both theoretical and practitioner perspectives. The current research can be considered an initial step in a systematic effort to test the applicability of the RBV in a particular business domain. Opportunities exist to extend the conceptual model to other business areas within the firm and partners outside the firm. Comparative data from a firm and its trading partners and customers can provide for a better understanding of the general effects of process formalization.

Six companies were interviewed for the current study. Broader, more inclusive, research is needed to gain greater insights into the dynamic nature of process formalization itself. For example, different reverse logistics activities may require different degrees of formalization. Their relationships with enhanced performance should be investigated both in isolation and in different combinations. Changing process formalization effects over time may be another area of interest. It might take a certain period after the initial introduction of formal operational rules and procedures before the full effect can be assessed.

Developing measurement items related to formalization in a reverse logistics context is the logical next step. The scale development effort should be followed by both qualitative (case studies for example) and quantitative research to test the validity and reliability of proposed scale items. The opportunity for

providing additional empirical support regarding the relationships as proposed by the RBV of the firm is promising.

NOTES

Aaker, David A. (1989), "Managing Assets and Skills: The Key to a Sustainable Competitive Advantage," *California Management Review*, Vol. 31, No. 2; pp. 91-106.

Amit, Raphael and Paul J. Schoemaker (1993), "Strategic Assets and Organizational Rent," *Strategic Management Journal*, Vol. 14, No. 1, pp. 33-46.

Autry, Chad W., Patricia J. Daugherty, and R. Glenn Richey (2001), "The Challenge of Reverse Logistics in Catalog Retailing," *International Journal of Physical Distribution & Logistics Management,* Vol. 31, No. 1, pp. 26-37.

Barney, Jay B. (1991), "Firm Resources and Sustained Competitive Advantage," *Journal of Management*, Vol. 17, No. 1, pp. 99-120.

Blanchard, Dave (2005), "Moving Forward in Reverse," *Logistics Today*, Vol. 46, No. 7, pp. 1-2.

Bowersox, Donald J. and Patricia J. Daugherty (1992), "Logistics Leadership – Logistics Organizations of the Future," *Logistics Information Management*, Vol. 5, No. 1, pp. 12-17.

Bowersox, Donald J., Patricia J. Daugherty, Cornelia L. Dröge, Dale S. Rogers, and Daniel L. Wardlow (1989), *Leading Edge Logistics: Competitive Positioning for the 1990's*, Council of Logistics Management, Oak Brook, IL.

Bowersox, Donald J., Patricia J. Daugherty, Cornelia L. Dröge, Richard N. Germain, and Dale S. Rogers, (1992), *Logistical excellence: it's not just business as usual,* Burlington, MA: Digital Press.

Chow, Garland, Trevor D. Heaver, and Lennart E. Henriksson (1994), "Logistics performance: Definition and measurement," *International Journal of Physical Distribution & Logistics Management*, Vol. 24, No. 1, pp. 17-28.

Closs, David J. and Kefeng Xu (2000), "Logistics Information Technology Practice in Manufacturing and Merchandising Firms," *International Journal of Physical Distribution & Logistics Management,* Vol. 30, No. 2, pp. 869-886.

Cooper, James and Robert Stephan (1994), "Reinventing Logistics: Is Business Process Re-engineering the Answer?" *Logistics Information Management*, Vol. 7, No. 2, pp. 39-41.

Dahlstrom, Robert and Arne Nygaard (1999), "An Empirical Investigation of Ex Post Transaction Costs in Franchised Distribution Channels," *Journal of Marketing Research*, Vol. 36, No. 2, pp. 160-170.

Das, T. K. and Bing S. Teng (2000), "A Resource-Based Theory of Strategic Alliances," *Journal of Management,* Vol. 26, No. 1, pp. 31-61

Daugherty, Patricia J., Alexander E. Ellinger, and Chad W. Autry (2001), "Reverse Logistics: The Relationship between Resource Commitment and Program Performance," *Journal of Business Logistics*, Vol. 22, No. 1, pp. 107-123.

Daugherty, Patricia J., R. Glenn Richey, Stefan E. Genchev, and Haozhe Chen (2005), "Reverse Logistics: Superior Performance through Focused Resource Commitments to Information Technology," *Transportation Research-Part E*, Vol. 41E, No. 2, pp. 77-92.

Davenport, Thomas H. and Michael C. Beers (1995), "Managing Information about Processes," *Journal of Management Information Systems*, Vol. 12, No. 1, pp. 57-80.

Day, George S. and Robin Wensley (1988), "Assessing Advantage: A Framework for Diagnosing Competitive Superiority," *Journal of Marketing*, Vol. 52, No. 4, pp. 1-20.

Eisenhardt, Kathleen M. and Jeffrey A. Martin (2000), "Dynamic Capabilities: What are They?" *Strategic Management Journal*, Vol. 21, pp. 1105-1121.

Guide, V. Daniel R. Jr. and Luk N. Van Wassenhove (2002), "The Reverse Supply Chain," *Harvard Business Review*, Vol. 80, No. 2, pp. 25-26.

Hetherington, Robert W. (1991), "The Effects of Formalization on Departments of a Multi-Hospital System," *Journal of Management Studies*, Vol. 28, No. 2, pp. 103-142.

Makadok, Richard (2001), "Toward a Synthesis of the Resource-Based and Dynamic-Capability Views of Rent Creation," *Strategic Management Journal*, Vol. 22, No. 5, pp. 387.

Malone, Robert (2004), "Closing the Supply Chain Loop," *Inbound Logistics*, Vol. 24, No. 1, pp. 217-221.

March, Lames G. and Herbert A. Simon (1958), *Organizations*, New York: Wiley.

Meilich, Ofer (2005), "Are Formalization and Human Asset Specificity Mutually Exclusive? – A Learning Bureaucracy Perspective," *Journal of the American Academy of Business*, Vol. 6, No. 1, pp. 161-169.

Miller, Danny and Jamal Shamsie (1996), "The Resource-Based View of the Firm in Two Environments: The Hollywood Film Studios from 1936 to 1965," *Academy of Management Journal*, Vol. 39, No. 3, pp. 519-543.

Moorman, Christine, Rohit Deshpande, and Gerald Zaltman (1993), "Factors Affecting Trust in Market Research Relationships," *Journal of Marketing*, Vol. 57, No. 1, pp. 81-101.

Norek, Christopher D. (2002), "Returns Management: Making Order out of Chaos," *Supply Chain Management Review*, Vol. 6, No. 3, pp. 34-42.

Norek, Christopher D. (2003), "Throwing It into Reverse," *DC Velocity*, Vol. 1, No. 1, pp. 54-58.

Penrose, Edith T. (1959), *The Theory of the Growth of the Firm*, New York and Oxford

Peteraf, Margaret A. (1993), "The Cornerstones of Competitive Advantage: A Resource-Based View," *Strategic Management Journal*, Vol. 14, pp. 179-191.

Pugh, Derek S., David J. Hickson, Christopher R. Hinings, and Charles Turner (1968), "Dimensions of Organization Structure," *Administrative Science Quarterly*, Vol. 13, No. 1, pp. 65-105.

Richey, R. Glenn, Patricia J. Daugherty, Stefan E. Genchev, and Chad W. Autry (2004), "Reverse Logistics: Strategic Program Timing," *Journal of Business Logistics*, Vol. 25, No. 2, pp. 229-250.

Richey, R. Glenn, Stefan E. Genchev, and Patricia J. Daugherty (2005), "The Role of Resource Commitment and Innovation in Reverse Logistics Performance," *International Journal of Physical Distribution & Logistics Management*, Vol. 35, No. 4, pp. 233-257.

Rogers, Dale S. and Ronald S. Tibben-Lembke (1999), *Going Backwards: Reverse Logistics Trends and Practices*, RLEC Press, Pittsburgh, PA.

Rogers, Dale S. and Ronald S. Tibben-Lembke (2001), "An Examination of Reverse Logistics Practices," *Journal of Business Logistics*, Vol. 22, No. 2, pp. 129-148.

Rogers, Dale S., Lambert Douglas M., Keely L. Croxton, and Sebastian J. Garcia-Dastugue (2002), "The Returns Management Process," *International Journal of Logistics Management*, Vol. 13, No. 2, pp. 1-17.

Ruekert, Robert W., Orville C. Walker, and Kenneth J. Roering (1985), "The Organization of Marketing Activities: A Contingency Theory of Structure and Performance," *Journal of Marketing*, Vol. 49, No. 1, pp. 13-25.

Rumelt, Richard P. (1987), "Theory, Strategy, and Entrepreneurship", in D. Teece, (Ed.), *The Competitive Challenge*, New York: Harper Row.

Schulze, William S. (1994), "The Two Schools of Thought in Resource Based Theory: Definitions and Implications for Research," in P. Srivastava, A.S. Huff and J.E. Dutton (Eds.), *Advances in Strategic Management*, Greenwich: JAI Press.

Sciarrotta, Tony (2003), "How Philips Reduced Returns," *Supply Chain Management Review*, Vol. 7, No. 6, pp. 32-38.

Schwenk, Charles R. and Charles B. Shrader (1993), "Effects of Formal Strategic Planning on Financial Performance in Small Firms: A Meta-Analysis," *Entrepreneurship Theory and Practice*, Vol. 17, No. 3, pp. 53-64.

Sine, Wesley D., Hitoshi Mitsuhashi, and David A. Kirsch (2006), "Revisiting Burns and Stalker: Formal Structure and New Venture Performance in Emerging Economic Sectors," *Academy of Management Journal,* Vol. 49, No. 1, pp. 121-132.

Song, X. Michael and Michael E. Parry (1993), "R&D-Marketing Integration in Japanese High-Technology Firms: Hypotheses and Empirical Evidence," *Journal of the Academy of Marketing Science*, Vol. 21, No. 2, pp.125-133.

Stock, James R. and Douglas M. Lambert (2001), *Strategic Logistics Management*, McGraw-Hill, New York: NY.

Teece, David J. (1984), "Economic Analysis and Strategic Management," *California Management Review*, Vol. 26, No. 3; pp. 87-110.

Teece, David J., Gary Pisano, and Amy Shuen (1997), "Dynamic Capabilities and Strategic Management," *Strategic Management Journal*, Vol. 18, No. 7, pp. 509-533.

Van de Ven, Andrew H. (1986), "Central Problems in the Management of Innovation," *Management Science*, Vol. 32, No. 5, pp. 590-607.

Wernerfelt, Birger (1984), "A Resource-Based View of the Firm," *Strategic Management Journal*, Vol. 5, No. 2, pp. 219-239.

Zieger, Anne (2003), "Reverse Logistics: It's Time to Reclaim Some Substantial Lost Income Streams," *Frontline Solutions*, Vol. 4, No. 11, pp. 20-24.

Reverse logistics process formalization: an assessment tool

1. Introduction

Virtually all companies must deal with returns. Consider such diverse organizations as Phillips Electronics and Aurora Health Care Pharmacy. Both companies are highly successful in dealing with returns. Phillips reduced the number of returns from 1.2-1.3 million per year to less than 500,000 (Sciarrotta, 2003). Aurora keeps returns at less than 2% of its total inventory despite stringent FDA regulations related to expiration dates, manufacturer recalls, and proper disposal of drugs (Morton, 2006). The common success factor: both firms have established and meticulously enforced returns-related policies and procedures. They each put a structured program in place to manage returns (Morton, 2006; Sciarrotta, 2003). Regardless of products and/or services involved, managers need to get control of their return operations.

Control has been recognized as a crucial component of supply chain management (SCM): "The first step (in SCM) is to introduce structure and discipline to the supply process, tightening up procedures, and taking control of all activities in the supply chain." (Sandelands, 1994, p. 44). One important way to introduce such structure is to formalize the operation. Level of formalization is indicative of how much control a given firm has over its reverse logistics operations. Thus, the issue of control becomes associated with the formal development and implementation of written down policies, rules, and procedures related to reverse logistics.

Literature review and practitioners' perspectives indicate that formalization is a necessity for managing all aspects of the distribution effort including the return movement of goods and services from the market. The purpose of the current research is to provide an analytical tool for measuring the level of reverse logistics process formalization achieved. Such a tool will allow for a more precise assessment of firms' readiness to deal with the complexities involved in managing reverse logistics. Accordingly, this study examines the relationship between reverse logistics program complexity and reverse logistics process formalization.

The paper is organized as follows: 1) the complex nature of reverse logistics is discussed; 2) formalization and reverse logistics process formalization are introduced; 3) the method for developing reverse logistics process formalization assessment tool is discussed; 4) process formalization measures are provided and 5) relevant managerial implications are outlined.

2. Reverse Logistics

Reverse logistics is "the process of planning, implementing and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or for proper disposal." (Rogers & Tibben-Lembke, 1999, p. 2). Despite the growing recognition of the importance of reverse logistics, many companies are not ready to meet the challenges involved in handling returns. The rapid growth in the volume of returns far outpaces the

abilities of firms to successfully manage the returns (Rupnow, 2007). Because of all the uncertainties involved, reverse logistics program development and implementation becomes very complex. The major challenges involve the considerable number of unknowns that have to be accounted for in developing reverse logistics programs (A.T. Kearney's *Executive Agenda,* 2004).

2.1. Unpredictable demand for returns

In reverse logistics, the demand, or the returns product flow, is difficult to predict. Little advance information is typically available regarding quantities, quality, and routing of product coming back from the market. Projections related to seasonal spikes in returns, whether product features and designs will be appealing enough to customers, how demand will fluctuate etc. and their influence on reverse logistics are only estimates (Wood, 2001). Consider, for example, the unknowns associated with the condition of the returned product. Many returns are poorly packed, broken, and received in non-standard or misshapen packages. Until returns are received at the returns center, the exact condition of the returned product is unknown. Because of this, modern technologies for freight loading and routing cannot be directly applied to returns (Murray, 2007).

2.2. Firm-level complexities

The complexities involved in managing returns can have wide-ranging impact on different business functions within a company as well. The unknown

factors previously discussed, make planning and budgeting of reverse logistics extremely difficult. Lack of visibility regarding the number of returns in the returns channel and the condition of the returned product and its packaging, can result in extended time for credit processing, lost product, and excessive write-offs (Norek, 2002). For customers, a good returns program is measured by the time their accounts are credited; delays can result in dissatisfaction and reduced potential for future business transactions. Internal customers (finance, accounting, customer service representatives) can also encounter reverse logistics related problems (Malone, 2004). For example, missing returns-related data makes it very difficult to prepare accurate balance sheets and annual budgets. In addition, the inability of customer service representatives to inform customers about the status of their return at any given point in time constrains customer relationship management.

In such situations, it is imperative that firms organize operations to handle reverse logistics and effectively formalize their programs. The effort is well worth it; effective management of product returns can have a direct and positive impact on firms' revenues, cost containment efforts, profitability, and customer satisfaction levels (Stock, Speh, & Shear, 2006).

4. Formalization

Formalization refers to the extent to which rules, procedures, instructions, and communications are written (Pugh et al., 1968). Formalization can be implemented with such tools as articulated and/or written policies, job descriptions

and roles, organizational responsibility charts, strategic and operational plans, objective setting systems, standardization of processes and formalized communication systems, both intra and interfirm (Baum & Wally, 2003; Dahlstrom, McNeilly, & Speh, 1996; John & Martin, 1984; Schwenk & Shrader, 1993). Much of the previous research also includes formalization as a crucial component of building organizational monitoring systems (Eisenhardt, 1985; Dahlstrom & Nygaard, (1999). Walsh and Dewar (1987) directly point to the role of formalization as a mechanism to reduce a complex business program to a less complex set of processes and related activities. Consequently, process formalization is defined as the agreed-upon written rules and procedures regarding a particular business operation.

Reverse logistics process formalization

The current research proposes that increased process formalization can help companies streamline their reverse logistics operations. First, the process approach identifies the specific elements of a reverse logistics program. Knowing exactly what is involved in managing the returns flow is necessary in order to reduce ambiguity and the number of uncertainties relating to the reverse logistics program. Potential weaknesses can be identified as well as areas for improvement. Second, firms need to formalize each individual process in order to more accurately measure program performance. Routine measuring/monitoring reverse logistics operations can ultimately increase the competitive potential of firms by creating a

culture of continuous process improvement. Formalization can decrease costs, streamline operations, and enhance overall logistics efficiency and effectiveness (Bowersox et al., 1992). The potential negatives of formalization such as diminished operational flexibility, stifled innovativeness, and cumbersome knowledge transfer should be acknowledged (Eisenhardt, 1985). However, research on formalization in logistics contexts suggests that the benefits in terms of operating efficiency and effectiveness outweigh the potential drawbacks (Bowersox et al., 1992). The same is true in reverse logistics: the potential of formalization to help managers "make order out of chaos" in returns is substantial (Norek, 2002) and can be a valuable tool in streamlining reverse logistics operations (Rogers & Tibben-Lembke, 1999).

5. Methodology

Qualitative research methodology was used to develop an assessment tool regarding the degree of reverse logistics program formalization. Little written material was identified covering formalization of returns operations; the exploratory form of investigation was deemed most appropriate (Yin, 2003). Personal, semi-structured interviews with employees involved in reverse logistics served as the primary method to gain a better understanding regarding the need for formalization as a means of establishing organizational control. The current research combined information gathered from practitioners and existing research in order to fully understand the topics of interest (Yin, 2003). According to Yin (2003,

p. 9), such dual sourcing allows for a more precise formulation of "… what is known on the topic … (and) to develop sharper and more insightful questions about the topic." Developing a perceptual instrument for measuring the degree of process formalization became an iterative process going back and forth between the two sources of information. The qualitative investigative technique was chosen to explore the motives and behaviors of the participating employees and to extend understanding regarding the relationship between formalization and reverse logistics program performance.

5.1. Personal interviews

The initial conceptualization of the study was followed by personal interviews centered on "how" and "why" questions regarding the reverse logistics program and the operational processes involved, and their formalization (Yin, 2003). Introductory phone calls were made to managers at companies actively involved in reverse logistics. The list was generated from companies that regularly participate in reverse logistics related industry events. Six firms agreed to cooperate in the research. The participating firms represented different industries including consumer electronics, computers and peripherals, furniture and apparel catalog retailing, retail store equipment, and two third-party logistics providers. The interview participants included 4 general managers of distribution, 2 VPs of logistics, 5 returns managers, and 6 employees in supervisory positions involved directly with reverse logistics. Effort was made to ensure that the most

knowledgeable employees were interviewed; all hold executive positions related to the reverse logistics operations in their respective firms. Informants were interviewed during pre-arranged site visits where the reverse logistics operation was observed and recorded in detail.

The interviewees were asked to identify the primary initiatives related to their reverse logistics programs, provide detailed descriptions of their operations, and discuss related problems. The respondents uniformly pointed out the need for establishing formal operating procedures regarding reverse logistics operations in order to reap the most benefits and minimize associated costs. As one of the interviewees stated, "if you want to gain control of your reverse logistics program, you must clearly define the rules of the game and strictly enforce them." This manager continued to say that the formal returns policy finally gave his firm a sense of control and set the tone for the whole operation. Next, the reverse logistics experts were asked to identify specific activities involved in each reverse logistics process. The personal interviews were transcribed and an item pool of activities was generated. The process of collecting and analyzing the data from the qualitative research is presented in more detail in Appendix A.

5.2. Literature review

As previously mentioned, the purpose of the current research is to develop an assessment tool regarding reverse logistics process formalization. The survey format is most often used in the development process (Churchill, 2001). This stage

involved a thorough literature review related to identifying existing formalization scales that could be modified to fit the reverse logistics context. Churchill (2001) supports using/adapting existing scales; the unnecessary use of new scales may make it difficult to compare previous findings related to the effects of process formalization. The most important issues in this stage included determining the scale for assessment and measurement, evaluating the items' relevancy, clarity, and conciseness (Churchill, 2001). Existing general formalization scales served as the foundation for developing specific reverse logistics process formalization measurement items. Illustrations of such scales are provided in Table 1 and were adapted to the reverse logistics context.

The finalization effort regarding the reverse logistics process formalization assessment tool and its applicability to reverse logistics program development is discussed next.

Table 1.
Existing formalization scales & measurement items

Measurement scale	**Literature source**
1. Formalization - If a written rule does not cover some situation, we make up informal rules for doing things as we go along (r) - There are many things in my business that are not covered by some formal procedure for doing it (r) - Usually, my contact with my company and its representatives involves doing things by "the rule book" - Contact with my company and its representatives is on a formal preplanned basis	(Ferrell & Skinner, 1988)

- I ignore the rules and reach informal agreements to handle some situations (r) - When rules and procedures exist in my company, they are usually written agreements	
2. Formalization - There is a clear distribution of tasks between us and the company - There are no clear routines for safety training for persons employed at our station - In general, the information and routines from the company are very unclear (r)	(Dahlstrom & Nygaard, 1999)
3. Formalization - My responsibilities were clearly defined - My role in the company was clearly defined - Management clearly outlined those areas for which I was responsible - I did not know my role in the organization (r)	(Ayers, Dahlstrom, & Skinner, 1997)
4. Formalization - There are formal channels of communication between the marketing and sales departments - Going through proper channels for getting the job done is constantly stressed - Everyone within the organization follows strict operational procedures at all times - Members of the marketing department normally go through my supervisor in case they need to tell me something	(Sohi, Smith, & Ford, 1996)
5. Formalization The vendor: - Follows our previously written and verbal instructions - Has responsibilities clearly specified by us - Follows strict operating procedures defined by us.	(Dahlstrom, McNeilly, & Speh, 1996)
6. Formalization - Performance appraisals in our organization are based on written performance standards - Duties, authority, and accountability of personnel are documented in policies, procedures, or job descriptions - Written procedures and guidelines are available for most of the work situations	(Song & Parry, 1993)

7. Formalization of routines - Our company has highly formalized channels of communication for routine processes and practices - Our standard operating procedures (SOP) manual help us deal with routine problems - Our front-line people are 'on their own', even with routine tasks (r)	(Baum & Wally, 2003)

6. Developing the assessment tool

To capture the formalization aspects of reverse logistics as a means of control, the major processes involved were identified. The focus of the research is the formalization of each of these processes. They include 1) initiating return, 2) determining the routing for the returned products, 3) receiving returns at the firm's facility, 4) selecting the disposition option, 5) crediting the customer/supplier and 6) analyzing and measuring reverse logistics program performance (Rogers et al., 2002). These processes are considered summative of multiple related activities (Norek, 2002; Rogers et al., 2002; Rogers and Tibben-Lembke, 1999; Stock, Speh, & Shear, 2006).

6.1. Initiate Returns

Return initiation is defined as the process where the customer seeks a return approval from the firm or sends the return directly to the returns center (Rogers et

al., 2002). The executives interviewed agree that customer involvement in this process is crucial. The visibility in the returns flow is substantially increased when the customer formally initiates a return. As one of the returns managers stated "They (customers) give us the heads up what the issue is, what is it for us to know, what to look for prior to receiving back the return." All the interviewees described a procedure where customers' electronic profiles are created following customers' request for returns. The electronic profiles usually include product specifications and the reason why the product is sent back. Specific customer requirements related to crediting and/or disposition options are also registered. Such advance notice of what product is coming back from the market allows for increased speed in returns processing. Companies are able to provide customers with much more accurate information in terms of returns turnaround times. One of the executives cited that his company guarantees 48 hour returns processing time. Prior to establishing the rule that customers must initiate a return, such a promise was not realistic. Consequently, a formal returns policy that clearly identifies roles and responsibilities for both the firm and the customer was considered a priority.

The following list represents the activities that literature review and practitioner insights identified as prime candidates for formalization in this initial stage of the reverse logistics program:

- Create a formal returns policy
- Communicate the returns rules to customers/suppliers
- Require pre-return authorization (provide a RMA number)

- Require customers/suppliers to record the specific reason for the return prior to sending it back (including exceptions)
- Create customers'/suppliers' returns-related electronic profile

6.2. Determine routing

The second process included in the reverse logistics program determines the mode of transportation and destination of the returned product (Rogers et al., 2002). Formal shipping guidelines should be established. Two potential options exist. First, when the selling firm, itself, is responsible for returns routing, the need to formally engage the customer in the routing decision is most pronounced. The interviewees agree that the biggest challenge is to raise customer awareness of the importance of the routing decision. A good starting point in gaining customer compliance with pre-determined routing policies is to convince them that the choice of carriers can affect the time for returns processing and granting credit for the returns respectively. The second part is to provide customers with clear routing procedures related to the return. At one of the firms, for example, a formal shipping schedule is distributed to every customer. Depending on the size of the return and/or specific service level agreements (same day delivery versus 3 working days), different carriers can be selected. DHL, for example, can deliver only small-package returns for one to two days transit time while FedEx Freight specializes in heavy weight returns, both by air and ground. Although the companies used are for

illustration purposes only, the vast array of routing possibilities can be confusing for customers unless formal guidance is provided by the selling firm.

The second routing option considers the case when the customer is charged with responsibility for shipping the returned product. Although the selling firm is not paying freight, it should remain proactive in suggesting different options to customers. As in the first option, considerations of benefits related to using certain carriers should be communicated. The assumption that customers would know best which routing option to choose is often unwarranted; they may have little transportation related expertise or experience.

The insights gained during the interviews with the reverse logistics experts contributed to generating a list of the activities that should be formalized:

- Specify routing procedures and guidelines for customers/suppliers
- Specify the rules and procedures for selecting transportation service providers
- Specify the routing requirements to returns carriers
- Monitor and control volume of returns en-route and in carriers' warehouses

6.3. Receive returns

Receiving returns includes verifying, inspecting, and processing the returned product with emphasis on selecting the most efficient disposition option (Rogers et al., 2002). While return initiation and the routing decisions involve

external considerations, what happens after the retuned product reaches the returns center is an internal issue. Still, the information received from customers when they initiated the return (the customer returns-related electronic profile discussed before) guides the whole process. The preliminary information is checked against the condition of the physical product returned. The large number of customer requirements and firm-specific processing rules and procedures makes this the most challenging process related to returns. One of the general managers of distribution best summarized the complexities involved: "It's a big responsibility for the returns inspectors … They are making a whole lot of decisions about how to treat this customer from a financial stand point, whether to grant refund for a return and/or pay shipping and handling and they are making a lot of decisions about the quality of the returned merchandise." Following is a list of the activities related to the process of receiving returns. The formalization of these activities helps returns inspectors reduce the level of complexity and streamlines returns processing.

- Communicate the return-processing procedures to customers, including standard times for completion and dispute resolutions procedures
- Verify if returned merchandise matches returns claimed by the customer in the return initiation process
- Inspect through physical inspection or automated testing

- Assign responsibility for the disposition option selected
- Input data on electronic files following the return from receiving to disposition

6.4. Select disposition

Assigning pre-disposition codes to the processed return enables fast and accurate determination of disposition options (Rogers et al., 2002). Following is a list of major disposition options accumulated through the in-depth interviews.

- Return to manufacturer/supplier
- Return to stock
- Refurbish
- Repair
- Resale
- Balance inventory
- Refer to customer service
- Donate
- Reject
- Liquidate

Formal rules can be easily applied for assessing whether returns inspectors made the right decision according to firms' manuals and customer specifications. Selecting disposition may involve a decision to outsource (in addition to returns routing). Customer requirements, governmental regulations, and socially

responsible business practices often mandate using designated third-party logistics providers specializing in customized disposition alternatives. Consider the liquidation of computer electronics and peripherals; dumping unwanted product into landfill is not an option. Companies must be certified to handle electronic waste; acquiring such certification can be extremely costly. Firms may opt to outsource the liquidation instead of incurring the expense.

Formal cost-benefit analysis is also involved when reselling returned products. A separate sales force might be necessary. Or, a direct on-line selling operation might be established including creating and maintaining a dedicated sales web-site. Some of the interviewees pointed out the success they have selling returns on the web. Again, outsourcing seems appropriate. Various options involved in choosing the appropriate disposition require formal analytical procedures. Formalized efforts would help firms to profitably manage the returned product. Maintaining control of the returned products' flow requires formalizing the following activities related to selecting the disposition option:

- Establish formal disposition options for processed returns
- Report exceptions to customer service
- Execute cost-benefit analysis prior to outsourcing and/or liquidating processed returns
- Adopt a formal assessment of the potential impact of different disposition options both internally and external to the company

6.5. Credit customer/supplier

This process involves the charge-back to the buyer's account including credit authorization and potential claim settlements with customers (Rogers et al., 2002). The returns policy and individual customer's service level agreements play an important role in this process because customer and/or supplier satisfaction is involved (Rogers et al., 2002). Clear guidelines are necessary for handling charge-backs within the firm as well. Finance and accounting departments must be kept informed in real time of any customer/supplier returns related requirements including deductions, discounts, or short-term credits against existing invoices. The shared experience of the interviewed reverse logistics experts shows that poor handling and lack of control over customers' return credit may lead to reduced business with customers and even lost customer accounts. This realization puts crediting issues for returns on the agenda of every sales person trying to win a certain customer's business. While existing research points to negotiating potential settlements and credit coordination issues across the supply chain (Rogers et al., 2002), the current research focuses on related activities at individual firms level. The major related activities are listed bellow both from customer/supplier and intrafirm perspectives:

- Record the length of time required to handle charge-backs and communicate it to the customer/supplier and internally to the firm.

- Expedite reconciliation procedures for charge-backs, record and communicate them to the customer/supplier and internally to the firm.
- Develop accounting procedures for charge-back issues and explicitly verbalize and communicate them to the customer/supplier and internally to the firm.
- Check whether post-crediting transfer of funds were accurately charged back to customers' accounts.

6.6. Analyze returns & measure performance

The last process associated with reverse logistics program formalization is most directly related to establishing appropriate process controls and can be defined as the formal process of analyzing returns and measuring returns-related performance criteria aimed at improving the whole reverse logistics operation (Rogers et al., 2002). The constant feedback loop between returns operations and pre-established performance indicators allows for continuous process and program improvement. Return on investment on both tangible and human resource assets dedicated to reverse logistics programs can provide a valuable managerial tool for controlling the operation. The tangible process controls category may include:

- Volume of returns
- Type of returned product
- Dollar value of the returns

- Percent of sales
- Cycle times

Examples of controls associated with human resource management more directly related to behavior or process controls include:

- Number of employees involved in reverse logistics
- Reverse logistics employee turnover

7. Finalization of the development of the assessment tool

Review of previous research and the in-depth interviews identified reverse logistics processes and specific activities included in each. With that background, further review of the literature was undertaken to identify existing formalization scales and modify them to fit the context of reverse logistics program formalization. Following a procedure outlined by Bearden, Netemayer, & Teel (1989), the resulting version of the formalization assessment tool was sent via e-mail to a panel of expert judges. Fifteen people, five academics, familiar with reverse logistics issues, and ten business executives from the interview companies, provided feedback regarding the conceptualization of reverse logistics formalization and measurement items. Two of the five academics participated in the initial purification effort which provided consistency in the evaluation of the scale modification effort. Reverse logistics personnel who participated in the interview process were deemed the most appropriate development sample since they are able to judge best whether the measurement instrument adequately

captured the areas of interest, i.e., addressed issues they introduced during the in-depth interviews. Activities that were not consistently grouped under given returns processes were considered for elimination. The manual sorting procedure was conducted using an independent panel of academics and practitioners (Bearden, Netemayer, & Teel, 1989).

Appendix B presents the final version of the reverse logistics formalization assessment tool aimed at measuring degree of control of reverse logistics programs.

8. Managerial implications

The companies interviewed are logistically sophisticated and were chosen for their expertise in reverse logistics. They indicated that process formalization is a top priority. That may not be true at many other companies. The insights gained from the reverse logistics experts at the six different companies helped in the development of a process formalization assessment tool (Appendix B). Firms can use this as a starting point. It focuses internal assessment on the six reverse logistics processes and examines levels of formalization in each area. Weaknesses as well as strengths can be identified. Managers should carefully analyze how they handle their operation and follow with the application of the assessment tool relating the six processes and accompanying activities to the degree of formalization applied to each. The assessment tool would identify the points of interaction between customers' and firms' strategic and economic objectives as well as areas of shared responsibilities. The tool would reveal which particular areas in the reverse

logistics program need to be formalized further to avoid ambiguity and costly reconciliation procedures. For example, the major customers' requirement for timeliness of returns-related charge-backs to their accounts can have direct implications across all six reverse logistics related processes. How fast the firm will grant return authorization, how fast the return will reach the returns center and will be processed, and how fast accounting will execute the funds transfer should not be a disorganized operation; formalization will help to increase the visibility in reverse logistics, keeping the customer informed what is happening every step of the way. As one of the managers stated, "Satisfaction guaranteed" can be achieved best through establishing rules and procedures not through the lack there of."

Appendix A. Method used

The research conceptualization stage was followed by introductory phone calls to managers at companies actively involved in reverse logistics. The list was generated from companies that regularly participate in reverse logistics related industry events and often sponsor dedicated conferences and benchmarking workshops. Six firms agreed to cooperate in the research. The participating firms represented different industries including consumer electronics, computers and peripherals, furniture and apparel catalog retailing, retail store equipment, and two third-party logistics providers involved in creating secondary markets for processed returns and storage and inventorization on customers' behalf. The interview participants included 4 general distribution managers, 2 VPs, 5 returns managers, and 6 employees on supervisory positions involved directly with reverse logistics. During the face-to-face interviews, the reverse logistics experts were asked to identify specific activities candidates for reverse logistics formalization. Semi-structured interview format was used where the interviewees were asked to focus on all the processes and related activities comprising the reverse logistics program at their respective companies. The participation of the most knowledgeable informants was confirmed through site visits where the reverse logistics operation was observed and recorded in detail. The interviews were audio recorded and complete transcriptions were generated.

Next, the lead researcher executed a two-step coding procedure; first, the individual transcripts were coded looking for reoccurring themes related to reverse

logistics program development. The within-case analysis provided for gaining initial familiarity with the data and preliminary understanding of the processes and activities involved in managing reverse logistics. The within-case analysis was followed by cross-case pattern search as prescribed by Eisenhardt (1989). The second step in the codification effort identified common patterns across all the firms involved in the research. The replication logic used across the different companies was aimed at providing additional empirical support. The definition of the reverse logistics processes was confirmed and the list of related activities was expanded as a result.

These efforts resulted in identifying 85 items/activities related to reverse logistics processes and applied in practice. The initial list of activities followed the preliminary six-process conceptualization of reverse logistics formalization: Return initiation (12 items), Determine routing (8 items), Receive returns (18 items), Select disposition (10 items), Credit customer/supplier (6 items), and Analyze returns & measure performance (31 items).

Subsequent to the conceptualization of reverse logistics formalization and generating the measurement items pool, a group of academics from a large Midwestern university, including two professors and three Ph.D. candidates, classified the different activities candidates for formalization. The main criterion applied was whether these activities were clearly representative of the six reverse logistics related processes. Similar to a procedure used by Bearden, Netemayer, and Teel (1989), each of these judges was given a definition of the specific processes

and the list of generated activities. Then, the judges were asked to allocate the activities to the appropriate process. Items that did not receive consistent classification and were considered not applicable by at least four of the five judges were eliminated. This process resulted in 40 items.

The initial stage of measurement items identification concluded with the preparation of a test survey instrument. The test survey was sent to a number of experts, both from academia and different firms, for additional feed-back and finalization effort. Fifteen people provided feedback regarding the conceptualization of reverse logistics formalization and the adequacy of the measurement items – five academics, familiar with reverse logistics issues, and ten business executives from the interview companies. Two of the five academics participated in the initial purification effort which provided consistency in the evaluation of the scale development. Reverse logistics personnel who participated in the interview process were deemed the most appropriate development sample since they are able to judge best whether the measurement instrument adequately captured the areas of interest, i.e., addressed issues they introduced during the in-depth interviews.

Appendix B. Formalization of reverse logistics processes: An assessment tool

A Likert scale of 1 (= 'never') to 5 (= 'always') was used

Return Initiation

Customers/suppliers must request RMA # from Customer Service Department.

Customers/suppliers must record the reason for the return.

Customer service must create customers'/suppliers' electronic profile.

Customers/suppliers are on their own when they initiate a return.

Written procedures and guidelines are used for monitoring and controlling the return initiation process.

Determine Routing

We specify routing procedures and guidelines for customers/suppliers.

The customers/suppliers select their own returns routing.

Specific rules and guidelines are used for outsourcing the routing to a third party.

Written procedures and guidelines are used for analyzing the routing process.

Receive Returns

We verify the documentation accompanying each return.

The condition and packaging of each return are always inspected.

The return-processing procedures are explicitly verbalized and communicated to the returns inspectors.

Condition and packaging of each return is NOT always inspected.

The return-processing procedures are explicitly verbalized and communicated to customers/suppliers.

Returned product documentation is NOT always verified.

Pre-disposition codes for the processed return are assigned.

Written procedures and guidelines are used for analyzing the receiving returns process.

Select Disposition

Returns inspectors decide the disposition option on their own.

There are standardized disposition options for the processed return.

Specific rules and guidelines are used for outsourcing return liquidation to a third party.

Exceptions (not according to written rules) are reported to Customer Service.

Written procedures and guidelines are used for analyzing the disposition process.

Credit customer/supplier

The length of time for charge-backs is recorded and communicated to:

A. Customers/Suppliers
B. Internally to the firm

Reconciliation procedures for charge-backs are recorded and communicated to:

A. Customers/Suppliers
B. Internally to the firm

The charge-back procedures and guidelines are explicitly verbalized and communicated to:

A. Customers/Suppliers
B. Internally to the firm

Written procedures and guidelines are used for analyzing the charge-back process.

Analyze Returns & Measure Performance

Do you use written procedures and guidelines for analyzing returns in terms of:

A. Volume of returns
B. Type of product
C. Dollar value of the returns
D. Percent of sales
E. Cycle time for the returned product

Do you use written procedures and guidelines for analyzing returns in terms of:

F. Number of employees involved in reverse logistics
G. Reverse logistics employee turnover
H. Resources dedicated to reverse logistics

References

A. T. Kearney's *Executive Agenda* (2004), 7(3), Chicago, Ill.

Ayers, D., Dahlstrom R., & Skinner, S. J. (1997). An exploratory investigation of organizational antecedents to new product success. *Journal of Marketing Research*, 34 (1), 107-116.

Baum, R. J. & Wally S. (2003). Strategic decision speed and firm performance. *Strategic Management Journal*, 24(11), 1107-1129.

Bearden, William O., Richard G. Netemayer, and Jesse E. Teel (1989), "Measurement of Consumer Susceptibility to Interpersonal Influence," *Journal of Consumer Research*, Vol. 15, No. 4, pp. 473-481.

Bowersox, D. J., Daugherty P. J., Dröge, C. L., Germain, R. N., & Rogers, Dale S. (1992). *Logistical Excellence: It's not just Business as Usual.* Burlington, MA: Digital Press.

Churchill, G. A. (2001). *Basic Marketing Research*, 4th Ed., Fort Worth: Harcourt College Publishers.

Dahlstrom, R. & Nygaard, A. (1999). An empirical investigation of ex post transaction costs in franchised distribution channels. *Journal of Marketing Research*, 36(2), 160-170.

Dahlstrom, R., McNeilly, K. M., & Speh, T. W. (1996). Buyer-seller relationships in the procurement of logistical services. *Journal of the Academy of Marketing Science*, 24(2),110-124.

Eisenhardt, K. M. (1985). Control: organizational and economic approaches. *Management Science*, 31(2), 134-149.

Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14(4), 532-550.

Ferrell, O. C., & Skinner, S. J. (1988). Ethical behavior and bureaucratic structure in marketing research organizations. *Journal of Marketing Research*, 25(1), 103-109.

John, G. & Martin, J. (1984). Effects of organizational structure of marketing planning on credibility and utilization of plan output. *Journal of Marketing Research*, 21(2), 170-183.

Malone, R. (2004). Closing the supply chain loop: Reverse logistics and the SCOR model. *Inbound Logistics*, 24(1), 217-222.

Morton, R. (2006). Reverse spells 'headache relief. *Logistics Today*, 47(9), 35-36.
Murray, S. (2007). Hidden beauty of the 'uglies'. *Financial Times*, May, 17.

Norek, C. D. (2002). Returns management: Making order out of chaos. *Supply Chain Management Review*, 6(3), 34-42.

Pugh, D. S., Hickson, D. J., Hinings, C. R., & Turner, C. (1968). Dimensions of organization structure. *Administrative Science Quarterly*, 13(1), 65-105.
Rogers, D. S. & Tibben-Lembke, R. S. (1999). *Going Backwards: Reverse Logistics Trends and Practices*, RLEC Press, Pittsburgh, PA.

Rogers, D. S., Lambert D. M., Croxton, K. L., & Garcia-Dastugue, S. J. (2002). The returns management process. *International Journal of Logistics Management*, 13(2), 1-17.

Rupnow, P. (2007). Using reverse logistics standards to improve your operations. *Reverse Logistics Association News Letter*, 34(May), at daily@rltinc.com

Sandelands, E. (1994). Building supply chain relationships. *International Journal of Physical Distribution & Logistics Management*, 24(3), 43-45.

Schwenk, C. R. & Shrader, C. B. (1993). Effects of formal strategic planning on financial performance in small firms: A meta-analysis. *Entrepreneurship Theory and Practice*, 17(3), 53-64.

Sciarrotta, T. (2003). How Philips reduced returns. *Supply Chain Management Review*, 7(6), 32-38.

Sohi, R. S., Smith, D. C. & Ford, N. M. (1996). How does sharing a sales force between multiple divisions affect salespeople? *Journal of the Academy of Marketing Science*, 24(3), 195-207.

Song, X. M. & Parry, M. E. (1993). R&D-marketing integration in Japanese high-technology firms: Hypotheses and empirical evidence. *Journal of the Academy of Marketing Science*, 21(2), 125-133.

Stock, J. R., Speh, T. W., & Shear, H. S. (2006). Managing product returns for competitive advantage. *MIT Sloan Management Review*, 48(1), 57-62.

Yin, R. K. (2003) *Case Study Research: Design and Methods*, 3d Ed., SAGE Publications: Thousand Oaks.

Walsh, J. P. & Dewar, R. D. (1987). Formalization and the organizational life cycle. *Journal of Management Studies*, 24(3), 215-231.

Wood, S. L. (2001). Remote purchase environments: The influence of return policy leniency on two-stage decision process. *Journal of Marketing Research*, 38(2), 157-169.

Reverse Logistics Program Design: A Company Study

"You need to change the mentality of the top management team, the organizational culture, when it comes to building a successful reverse logistics program." (Reverse Logistics Manager at WCC* company)

1. Introduction

Reverse logistics, the return movement of goods and services in the supply chain, is becoming a necessary business activity regardless of industry or product/services involved. At WCC, the necessity gradually transformed into a pressing problem. Returns started piling up in the distribution center without a clear idea what to do with them and who was responsible for processing. The situation became critical when customers including key accounts started to complain about excessive times for returns-related crediting and started to divert some or all of their business to WCC's competitors. The initial reaction of WCC's management was to substantially increase the budget for reverse logistics with emphasis on hiring additional labor. One of the returns supervisors best described the resulting situation: "The returns department soon became crowded. The approach was to throw more bodies at solving every problem associated with returns handling without any idea why the problem appeared in the first place." Top management was surprised to find that the increased budget seemed to worsen the situation.

---

* Due to claims of anonymity, the company that participated in the case study will be addressed as Wholesale Computer Company or WCC.

The apparent contradiction required focused efforts to identify the root problems. Company executives assigned to the task reached a unanimous conclusion: The problem was a lack of understanding about what is involved in handling returns, the major processes and accompanying activities, and how to clearly map them.

The current research describes the major processes and activities related to returns handling at WCC and illustrates the successful turnaround the company made by formalizing their reverse logistics program. WCC's reverse logistics program can serve as an example of how to build a model returns operation. Although descriptive in its nature, the case study can help other companies to more fully exploit opportunities to improve reverse logistics.

2. Company background

WCC's main business consists of wholesale distribution of technology products. The company serves the US market and also has operations in Canada, South America, Europe, and the Middle East. WCC's main product lines include components, networking, peripherals, software, and computer systems. Within each product line, the number of SKUs offered is growing exponentially in response to customer requests. The components product line, for example, consists of more than 10,000 different items. The list of component suppliers includes names like Microsoft, Seagate, AMD, Intel, Toshiba, and HP. Additionally, more than 450 vendors provide a vast array of networking, peripherals, software, and systems

products. WCC has more than 100,000 customers including value-added resellers, direct marketers, retailers, corporate resellers, and individual customers. The company also provides a range of services including training, technical support, external financing, network configuration, and marketing. A separate division deals with electronic commerce solutions; specific activities include on-line order entry, product integration services, and electronic data interchange. The company business model has evolved into "integrated supply chain specialist" offering products and associated services.

Competition

WCC's state-of-art forward distribution system puts the company in a leading position within the computer wholesale industry. The company is regularly ranked in the *Fortune 500*®. Their competitive position is remarkable considering the growing trend of manufacturers to promote direct relationships with their customers. Nevertheless, intense competition places considerable pressure on WCC. The company's senior management must constantly look for ways to reduce costs, increase profitability, and build core strengths and capabilities.

Logistics management has been recognized as one of the major factors contributing to the success of WCC's business model. The company has achieved an impressive 99% shipping accuracy rate and can accept same-day shipment orders as late as 5 p.m. Monday through Friday. In addition to comprehensive product offerings, their efficient distribution system supports enhanced customer

service including customized shipping documents and electronic commerce integration. Direct competitors closely follow the same business model. Therefore, WCC must identify other ways to differentiate their offerings.

One of the areas that WCC's management views as a potentially strong differentiating factor is its reverse logistics operations. Companies committed to utilize reverse logistics' value-added are rare. The entire corporation is now involved in reverse logistics at WCC. The payoff is clear; reverse logistics operations can help not only WCC but also its partners to minimize supply chain costs and maximize efficiencies. This case study details the steps involved in the development of a competitive reverse logistics program at WCC. Following is a discussion regarding major issues accompanying the development process including previously discussed competitive pressures (Table 1).

3. Organizing reverse logistics

3.1. Operational Considerations

The current study involves one of WCC's five US distribution centers. This facility is the firm's largest in terms of physical space: 553,000 sq. ft., 150,000 sq. ft. of which are dedicated to returns operations. Although the distribution center is considered a one-unit building, the area for returns processing and the returns receiving gate are treated separately. Each is assigned a separate mailing address and a separate physical space. Several important considerations were taken into account when reverse logistics operations were designed.

Table 1 Problem areas within the reverse logistics program

Reverse logistics program	Managerial issues
Organizing for reverse logistics	Customers Competition Location Security Labor The Returns Policy
Reverse logistics processes	Requesting return authotization Processing returns Receiving and staging returns Inspecting returns Identifying exceptions Assigning disposition
Measuring results/feedback loop	Financial impact Returns characteristics Labor retention Labor productivity Resource base adequacy

1) Security.

One of the major reasons for separating returns from outbound distribution was related to security issues. Prior to establishing strict personal responsibility for handling return product at WCC, there were considerable missing and/or misplaced returned items. The following scenario began to occur with greater frequency: A customer made an inquiry about a delayed crediting for a return. After spending considerable amount of time investigating the issue, returns personnel reported to WCC's customer service that this particular returned product was registered

entering but could not be found in the distribution center. Customer service had no choice but to apologize to the customer for the delay and immediately charge back the account.

The loss related to the low security level within the returns area was not only financial; the potential for eroding WCC's competitive reputation was at stake. Being a wholesaler, WCC often serves the needs of direct retail competitors. Sensitive data are often loaded on the electronic products coming back from the market and the customers expect proper liquidation without any possibility that third parties can recover such information. The need to tighten security around reverse logistics was recognized.

Currently, WCC has an airport-like security system run by a specialized separate firm. There is only one point where employees can enter/exit the returns area and metal detectors and personal security agents are assigned to monitor that point. The number of unaccounted returns is drastically minimized.

2) Shipping/receiving

A constantly reoccurring headache for the returns managers at WCC and for the transportation companies was unloading returns at the wrong place within the distribution center. As a result, returned products were often mixed with new products waiting to be shipped. The shipping gate was blocked and again considerable time was wasted sorting through the mix. Returns had to be internally transferred back to the returns area, often manually. Assigning a separate mailing

address to the returns dock avoids these situations; even new carriers and drivers can make an accurate delivery/shipping according to the pre-determined gate.

3) Labor

The general manager at WCC's distribution center agrees that inspecting returns is their most complicated job. Numerous requirements regarding the condition of the returned product and related disposition options have to be accounted for by the returns inspectors. At the same time, a high level of computer data input proficiency is necessary to record all the information in the system. As one of the returns supervisors stated: "returns personnel can pretty much do any other job in the distribution center but it doesn't work the other way around." Better educated, more trained, and highly motivated employees are necessary to fill in the positions. Considerable investments were made related to improving the skills and abilities of returns inspectors. Such investments made it prohibitively costly to have even temporary lay-offs. At the same time, the unpredictable nature of returns made it very difficult to ensure a 100% labor utilization rate for a two-shift, whole day operation throughout the year. The solution was found by establishing the right mixture between full-time and hourly workers for handling returns. All returns inspectors, for example, are hired full-time. Supporting personnel like employees who unload returns, palletize and distribute the returns to the inspecting stations, and pick and pack the processed returns according to disposition options, are paid by the hour. This doesn't mean that WCC's returns management is indifferent

regarding turnaround rates for supporting employees. Near full time labor utilization is ensured for these workers as well. Still, the rationale for the division is that it is much easier to hire additional supporting (temporary) employees than returns inspectors. A balance is achieved at WCC. Here it is how it works:

The returns processing is executed in only one shift: from 6:00 a.m. to 2:30 p.m. The returns inspectors have a guaranteed work-day load. At the same time, an official cut-off time for receiving returned product is set at 11:00 a.m. The transportation companies are contractually obligated to make any returns deliveries prior to that time. After 11:00, the supporting returns personnel can be transferred to help the new-product outbound operations; the same pick-pack-ship professional skills are required. A full-day workload is ensured for the hourly workers as well.

Coordination between returns and outbound distribution is an important additional benefit following intradepartmental employee transfer. Organizing returns handling around employees' needs pays-off for WCC; the company has the lowest employee turn-over rate among more than 100 other companies situated in the same industrial zone.

3.2. Customers' Requirements

WCC has always been proud of the ability to address customer needs and concerns. Managers knew they needed to maintain the same high standards for returns. In order to build a reverse logistics program and develop a returns policy, they started by looking at customer needs. As a wholesaler company, WCC has two

very different types of customers: 1) manufacturers and WCC's suppliers and 2) resellers and end users.

1) manufacturers and WCC's suppliers

WCC serves manufacturers/suppliers not only by distributing new products but also by handling returns. Manufacturers/suppliers often have a long list of requirements related to what they will accept as a legitimate return. For example, manufacturers/suppliers often negotiate a returns allowance, stating the percentage of new products that can be returned "no questions asked." WCC accepts returns of products that are inoperable at first use (Dead-on-Arrival or DOA), defective, or damaged in transit. Some manufacturers/suppliers limit the time for accepting returns on certain products. These limits must be considered in the returns policy. WCC is responsible for monitoring and strictly applying the agreements. Establishing formal agreements between WCC and its manufacturers/suppliers proved to be worth of the effort. The value-added in providing a complete logistics solution related to the returns flows of goods results in more business for WCC at better terms.

2) resellers and end users

The returns needs of resellers and end users are somewhat different. In addition to the product-related reasons for returns, which are the main concern for manufacturers/suppliers, a market-related dimension is added. Seasonal surge in

demand must be accounted for. Receiving the wrong product and/or the wrong quantity due to vendor error, must be accommodated as do changing end user preferences.

Overall, WCC serves more than 4,000 manufacturers/suppliers as well as many resellers and end users. The two groups of customers affect the development of WCC's reverse logistics program in different ways. While the relationship between WCC and its manufacturers/suppliers provides complete logistical support for distributing and selling a product, the relationships with resellers and end users center on product and market related information. The corresponding returns-related requirements for better customer service can be burdensome. WCC management realized that unless the value of reverse logistics is communicated clearly to customers and internally to the different departments involved, enhancing program performance can be problematic. WCC needed to set up an agreed upon in advance return policy if high levels of communication and coordination between the firm and its various customers was to be achieved.

3.3. The Returns Policy

*****Special Announcement*****

"We have standardized our Returns Policy which will enhance your customer experience with WCC. This simplified policy will allow WCC to provide you consistent returns information in a timely fashion ("WCC".com)."

After careful analysis of returns requirements for manufacturers/suppliers and resellers and end users, WCC's management identified common areas across

the customer base. Basic returns guidelines were created and explicitly stated in a policy format. The guidelines included:

1) return authorization information;

2) return-product eligibility requirements;

3) return shipping guidelines;

4) freight damage guidelines; and

5) general corporate policy regarding returns.

With little out-of-pocket investment, WCC created a returns policy that was carefully communicated to customers through different channels, including on-line. WCC managed to successfully customize its returns offering based on a set of agreed-upon written rules and procedures. The basic guidelines included in the returns policy serve as a solid foundation to expand the value-added proposition to different groups of customers. Key accounts, for example, have access to the services of a dedicated Business Partner Authorization desk staffed with specialists who work directly with the customer. Currently, 51 vendors with the privileged status can request technical assistance with returns 24/7. The returns policy is externally oriented. It helps to set customer expectations and engages customers as partners in the efficient handling of the reverse logistics operation. The enhanced communication between WCC and customers results in increased visibility of the value of reverse logistics in the distribution channel. Stronger senior management support for greater IT investments, better training for employees, and better

coordination among the different departments involved in handling returns, is justified by increased customer satisfaction resulting in more business for WCC.

4. Reverse logistics in action

4.1. Requesting Return Authorization (RA)

Requesting RA means that customers must call WCC prior to any return, no exceptions. Customers must describe the product and explain why it is to be returned. Only after the request has been approved and the customer service department has assigned a RA number, can customers send the product back. Related customer and operational requirements had to be considered before establishing formal rules and procedures that cover the RA request. Getting customers "on board" proved to be crucial for setting the tone of the whole operation.

1) Customer considerations

Prior to establishing the rule that customers must first request a RA and receive a RA number, the average time for crediting customers' accounts varied considerably. Customers constantly complained about how long it took to credit their accounts for a given return. They were concerned that waiting for a RA would add more time to the process of getting their money back. Even if the delay was caused by discrepancies in the quality or quantity claimed by customers and what actually came back to WCC, a negative attitude prevailed; "Returns are not our job.

Don't waste our time with returns-related problems. Just give our money back." Changing customers' attitude towards returns to more of a partnership was a necessity.

2) WCC considerations

Customer satisfaction has always been considered top priority at WCC. Requesting RA has never been regulated and strictly enforced out of fear of negative customer reactions. The misunderstanding of what constitutes better customer service proved to be costly. Lack of pre-return authorization resulted in lack of visibility as to what exactly is coming back on any given day. The reactive nature of return processing, i.e., processing starts only after the physical product is received, resulted in considerable time waste due to impossible advanced resource planning and allocation. Inventory holding costs related to returns were growing exponentially and customer service was suffering.

3) Applied RA

WCC now guarantees 48 hour turnaround for processing any return request and granting RA. By carefully explaining the benefits of pre-return authorization and making the authorization request process user friendly, WCC turned customers into partners in the reverse logistics program. With only a couple of clicks on-line customers can request a return authorization and receive a timely response message. Three sequential steps are involved in the process:

Returns Authorization On-line Request

Step 1: Select Items – WCC offers a complete list of all the products purchased by the customer by invoice number, part number, quantity, and invoice age. The customer sees the list on her screen and clicks on the particular product/part she wishes to return. The same procedure is repeated again if more than one item is considered for return.

Step 2: Edit Items – from a customized drop-down menu, the customer edits the complete details of the returned product including reason for the return, unit price, customer reference number, and the item'(s') serial number(s).

Step 3: Review – Final revision of all the selected items is offered to avoid any accidental inclusions and/or add more items to the list. This final step is followed by clicking on a "submit" button to register the official return authorization request.

There are four possible responses to a return request. They are:

Response Messages

1. **Approved –** The request to return this item has been approved. A confirmation e-mail will be sent with the Return details and instructions.

2. **Denied –** The request to return this item has been denied. See reason(s) below.

3. **Reviewed –** This return request has been reviewed. WCC's customer service representative will contact you.

4. **Mixed –** Some of the items on this Return Request have been denied or require additional review. Specific details are available below.

This interactive and easy to use on-line tool for requesting return authorization resulted in improved relationships with the customers, reduced human error, and considerable reduction in the returns processing time. The

information collected in advance enables increased visibility within the returns flow of products. In addition, an automatic electronic profile is built for each customer. This profile includes not only information related to specific returns but also information about the customer, a history of transactions with WCC including the number of returns, billing information, contact person(s), etc. The type of return is known, the specific reasons for the return are registered, and customer considerations for proper disposition of products are accounted.

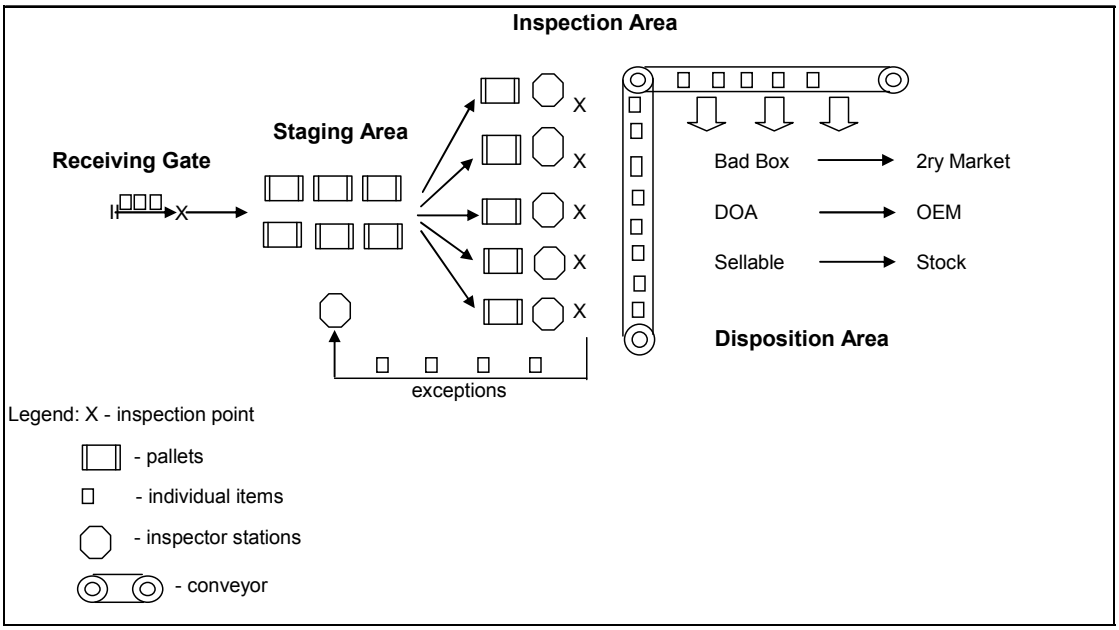
4.2. Processing Returns

WCC is ready to deal with the incoming returns because of the availability of information regarding the quantity and condition of the returns from the cutomer RA request. The receiving process is engineered with customers' needs in mind. Fig.1. illustrates the process.

1) Receive and stage.

At the receiving gate, the returned products are physically unloaded and organized; usually 1800-2000 cartons of returns are received daily, put on pallets, and staged in the receiving area. Every return has to be registered at the point of entry in the returns facility and followed through all the way until it is properly disposed.

Fig.1.
Returns Processing



The first inspection point and the following palletizing and staging of the returns provide visibility in terms of processing turnaround times. Since the different pallets are wrapped in different color folio according to the day received, at any given time the returns manager and/or the supervisors can tell how large the backlog of unprocessed product has become. A type of FIFO (first-in-first-out) rule is followed where the most recently arranged pallet is processed last. For example, if Monday's returns were wrapped in red folio (Tuesday can be in black, Wednesday in green, etc.) and 48-hour returns processing is guaranteed to customers, there shouldn't be any red pallets left in the returns center prior to closing on Wednesday. The increased visibility in terms of backlog helps WCC's

managers to focus their attention on prompt and accurate service to customers by assigning additional resources for processing.

2) Inspect returns

After the pallets are arranged and staged in the receiving area, the inspectors receive the first pallet in line, disassemble it, and start the itemized inspection process. Inspectors log in with their own code to ensure strict and personal accountability. The electronic profile created by customer service following customers' requests to return a product(s) proves invaluable in the inspection process. The information on the product, manufacturer's number, the product's serial number, invoice number, etc. from the customer RA request is detailed on a screen. The verification process is centered on comparing this data to the physical condition of the product. If product condition and accompanying documentation matches the information on the screen, the returns inspector assigns a disposition code for the return according to predetermined policy and depending on individual service level agreements. Before disposition options are discussed, an important additional consideration should be mentioned, i.e., exceptions.

3) Identify exceptions

If there is missing information or the actual condition of the product does not correspond to the electronic profile, the product is sent back to the receiving area as a "red" exception (around 10% of the returns at WCC fall under this

category). Instead of halting the entire processing line, exceptions are automatically returned to an exceptions center within the staging area. Designated employees deal with exceptions under the close supervision of the returns manager. Customers must be informed immediately about the registered discrepancies, the exact problem, and the correspondence may include sending pictures for physical proof. The proactive communication to customers regarding exceptions is an official policy at WCC and is included in the company-wide customer relationship management initiatives.

One additional issue that could be considered an exception is the privileged treatment of key account customers. Each inspector is provided with a list of the companies designated as key accounts along with a list of their specific requirements. Relaxed return quotas and product return specifications, for example, may trigger a change in the inspection process. Senior management at the distribution center, corporate customer service, and sales involvement is mandatory in cases of discrepancies recorded related to key accounts' product returns.

Approximately 90% of the inspected returns comply with returns related requirements and are moved to the disposition stage of returns processing.

4) Assign disposition

This is the process of deciding what will be done with the processed return. Three major disposition categories were discussed by WCC's returns manager and

supervisors: return to manufacturer/supplier; return to stock/sellable; sell at a discount on secondary markets (Fig.1).

- Return to manufacturer/supplier

"Pushing returned product back to manufacturers/suppliers is considered the highest priority when disposition options are discussed" (the returns manager at WCC). The urgency comes from the direct cost implications for WCC. Manufacturers/suppliers credit WCC only after they receive the returned product. According to established in advance service level agreements (SLAs), WCC can send vendors the following return-product categories: 1) product that is still factory sealed; 2) dead on arrival (DOA); or 3) defective. Factory sealed returns are described as in fully resalable condition, with no stickers, markings, etc. DOA product returns are initiated by resellers. Acceptable DOA reasons for return include product damaged in transit, vendor quality defect, or wrong product received in terms of quantity and/or technical specifications. Defective returns are usually initiated by end consumers; the product was inoperable at first use. According to the agreement with vendors, such returns can be directly shipped to them and WCC will receive full credit.

- Return to stock

Another option related to products that are new, with the original manufacturer's seal intact, is for them to go back to new inventory/sellable. The

manufacturers/suppliers have to formally agree to WCC keeping their returned product in the hope of finding new customers. This is the most preferred option for manufacturers/suppliers, since returns transportation costs are avoided and valuable inventory space is preserved (WCC keeps the inventory). If return to stock disposition is selected, the processed return must be put back to sellable inventory according to customer status and available space. Key accounts, for example, have dedicated stocking racks within the distribution center and processed returned product associated with them is automatically routed to that zone. The put-to-stock team is responsible for assigning the appropriate inventory place. In thousands of square feet, this may turn into a formidable task. An electronic map of available space by zones and stocking racks guides the placement of this type of returns. Close coordination efforts are necessary with new inventory (sellable) shipping department to ensure proper utilization of available inventory space.

- Sell on secondary markets

Products that are in good operational condition, but the original manufacturer's seal on the box has been broken or the packaging has been damaged fall under the disposition code "bad box." WCC can try to resell these products on secondary markets. The term secondary is used by WCC's personnel to indicate that these products have already been sold as new once and now go back to the market for the second time as used. A negotiated percentage of the returns' resale value is usually credited back to the vendor after a sale is made. Or, WCC pays

vendors the full suggested residual price of a return and then tries to sell it at a profit. Selling the already processed return requires close coordination with corporate sales department. The process brings higher visibility to the importance of reverse logistics company-wide. The returns department is transforming into a profit center as well. The department even developed and promoted its own web site selling "bad box" products on-line. Initial skepticism by senior management quickly transformed into enthusiastic support since the web initiative generated considerable traffic and more than 70% of "bad box" sales.

5. Measuring results

WCC's return management realizes that efficient management of reverse logistics operations requires a system of constant monitoring and control. Written procedures and guidelines for execution are set to achieve pre-determined performance outcomes. Following is a list of indicators for analyzing returns and measuring performance.

1) volume of returns
2) type of returns
3) exceptions as a percent of returns
4) returns as a percent of sales
5) total processing time from initiation to disposition
6) number of employees dedicated to returns & employee turnover

7) labor productivity

8) physical and technological resources dedicated to returns

These general indicators are transformed into specific day-to-day operational requirements. Table 2 describes a tool used by WCC summarized in a monthly report (the numbers and format used are for illustrative purposes only).

Table 2.
Daily, weekly, and monthly returns report

April 2012 Returns

Date	Pieces delivered	Pallets delivered	Total orders	Pieces shipped	Send back to vendor	Other dispositions	Hours worked	Pieces per hour productivity
4.01	600	30	110	1000	600	400	370	9.5
4.02	…	…	…	…	…	…	…	…
4.03	…	…	…	…	…	…	…	…
4.04	…	…	…	…	…	…	…	…
4.05	…	…	…	…	…	…	…	…
Week totals	4500							
Week average	650							
Month total	20000							
Month average	500							

6. Lessons learned

The reverse logistics program described is an example of a successful transition from lack of accountability and reactive processing to a streamlined and efficient operation. Several major factors contributed to this impressive turn around.

First, WCC's returns management learned to listen to customers. Although WCC initiated the reverse logistics program, the dialogue with customers, their expectations, and coordinated participation proved invaluable. Customers' input was crucial to providing complete solutions from initiation to disposition of returned products. Customers' needs and requirements triggered a change in the culture of WCC. "Satisfaction guaranteed" is not just a slogan at the firm.

Second, WCC was overwhelmed by the complex nature of returns, including an array of different customers' requirements, cost considerations, and profit opportunities. The lack of personal accountability and a system for monitoring and controlling the reverse logistics operation further contributed to the inability to efficiently handle returns. WCC addressed the issue by formalizing the processes and activities involved. From return initiation and introducing and enforcing an agreed-upon customers' returns policy, through receiving and processing the returns, to their final disposition, written rules and procedures are readily available to guide execution. A formal performance feedback loop has been established. Potential weaknesses are identified and appropriate corrective actions immediately are applied. Formalization has also important implications in terms of internal integration of reverse logistics operations within WCC and external integration with customers. The detailed description of the reverse logistics program including clear cut intermediate and final operational outcomes finally got the attention of senior management; favorable budget was secured for the reverse logistics program. More importantly, by pinpointing the potential effects of a

missing return authorization, for example, it became easier to motivate customers to actively participate in the program.

Third, formalizing the reverse logistics program has important implications for another group of WCC's customers' i.e., its own employees. Application of written rules and procedures related to handling returns reduces complexities and ambiguities involved. WCC's returns managers and supervisors agree that the best workers are in the returns area of the distribution center. Accordingly, extra care and resources should be dedicated to motivating and constantly enhancing their professional skills and abilities. Extensive training and on-the job advising are combined with improved working conditions. For example, WCC's management hired consultants to design the returns inspecting stations in the most ergonomic way. Hydraulic lifts were installed to help returns personnel handling heavier products. The results are indicative of the importance of such investments. WCC has the lowest employee turn-over rate among all the firms at this particular free trade zone location.

Finally, reverse logistics at WCC gradually became integrated not only within the distribution operation but corporate-wide as well. Getting senior management attention and support seemed to be the most difficult task regarding returns. Mapping out the reverse logistics program and identifying all the different departments directly or indirectly involved in returns handling proved to be valuable. Clear responsibilities were assigned to accounting, sales, finance, marketing etc. regarding increasing the efficiency of the operation.

"A couple of years ago nobody at WCC really cared about returns," confesses WCC's distribution manager. Now, the whole company recognizes the importance of reverse logistics and supports the effort to build a modern reverse logistics program. This is a success story of how to manage the complex task of dealing with returns.