



Formalization of reverse logistics programs – Key for competitive advantage

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ABSTRACT

Competitive advantage enables maintaining and improving an organizational position relative to its competitors in the market. Reverse logistics is reportedly a tool for attaining and retaining competitive advantage for manufacturing businesses. In Pakistan different manufacturing industries have employed formalized practices of reverse logistics for cost effectiveness and process effectiveness. However, relevant literature is yet not been updated with facts how Pakistan's industries have benefited through reverse logistics. This study therefore took initiative of taking reverse logistics as an independent variable to check its effect on competitive advantages that industries in Pakistan targeted. It hypothesized that formalized and standardized programs of reverse logistics were means to achieve cost and process effectiveness. Collecting and analyzing reliable data and needful regression and correlation tests, it discovered a positive relationship between its selected variables. Substantiating its hypothesis, the study contributed empirical findings that formalize programs of reverse logistics remained a key factor for gaining competitive advantages for industries in Pakistan. Thus it recommended encouraging formal reverse logistics programs for manufacturing industries.

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Introduction

Competitive advantage enables maintaining and improving an organizational position relative to its competitors in the market. It is necessary for the long-term survival of a company to acquire some unique resources. Organizations undergo several strategic initiatives to gain and sustain competitive advantage (Erickson, 1992) Organizations try to explore new opportunities with the view of exploring new sources of competitive advantage. There is a focus on the installation of new mind set to explore new and new opportunities to create competitive advantage. One of the examples of such new sources is advancement in supply chain management and related domains.

Supply chain management is a strategic management tool, for making an organization competitive by enhancing its customer satisfaction as well as its profitability (Cooper, Lambert, & Pagh, 1997). Research studies provide evidences on the positive impact of supply chain management on organizational performance outcomes like improving organizational competitiveness and its position in the market by dealing with uncertainty (Croxtton, Garcia-Dastugue, Lambert, & Rogers, 2001; Lambert, 2008; Vereecke & Muylle, 2006).

Reverse logistics is an advanced topic in the field of sustainable supply chain management. Awareness about logistics dimensions is increasing day by day. The return management or reverse logistics management is one of the areas in logistics gaining rapid attention. There are good numbers of companies paying attention towards return management. Such companies have spread over the range of industries like electronics, beverages, medicines, automobiles as well as merchandising. Organizations are investing their time and

energy in reverse logistics operations (Rogers, Tibben-Lembke, University of Nevada, & Council, 1999).

Competitive edge usually consists of cost and value advantages. In the context of supply chain management, cost advantage is gained by increasing the productivity of supply chains. It means that offering different product and services at lower cost than the competitor's supply chains is organizational cost competitiveness. On the other hand value advantage has evolved with the customers' consciousness about the quality, reliability, accessibility and timeliness of their required product. And when they prefer all the desired features at a lesser cost, it means that competitive advantage is the function of both cost and value advantages (Kumar, 2001). Supply chains can be competitive and more responsive by structuring or redesigning its components.

In the context of reverse logistics cost and value advantages can be achieved by proper consideration into the managerial resource deployments. But it requires more challenging management, when compared with forward logistics, because of Inequality of resources employed for reverse logistics, Invisibility to see along the supply line, Difficulty in forecasting and lacking in uniformity (Tibben-Lembke & Rogers, 2002). Thus, management demands several managerial insights and strategic initiatives like supporting the reverse practices with information technology, creating vertical coordination among channel members but as far as the management of reverse flow is concerned before making capital expenditures in certain capabilities there is a need of formalization and standardization of reverse processes. This paper has presented the impact and role of formalized practices on two constructs of organizational competitive advantage i.e. cost effectiveness and process effectiveness.

In order to fully understand the complexities of reverse logistics process and manage them appropriately, formalization is a necessary tool. Formalized programs are required for managing the logistics distribution as well as other activities involved in reverse flow. Formalization of reverse logistics represents the organization consciousness and preparedness to deal with reverse logistics challenges (Sachan & Datta, 2005 and Stock & Boyer, 2009). E-commerce environment promote returns that enforces organizations to adopt standardized practices (Malone, 2004). Formalization of reverse logistics programs means clear definition of reverse logistics responsibilities, standardized processes and formats and adequate knowledge for managing and implementing reverse logistics (Huscroft, 2008).

Literature Review:

Formalization is important because by implementing formalized practices in reverse logistics, decision rules about treatment of the return products are developed. Thus deciding about specific treatment of returned products i.e. scarping, discarding, repairing, overhauling or selling of a product in the secondary market becomes easy (Richey et al. 2005). It also resulted in improved vertical communication and process efficiency (Huscroft, 2008). Standardization of procedures resulted in managing return expectation of the customer appropriately. A formal and standard reverse logistics process enables the firm to manage the reverse logistics efficiently and effectively. Formalization and benchmarking is required to manage the complexities which occur while implementing reverse logistics (Genchev et al., 2011). Chawla (2007) stated that well defined processes lead to operational efficiency and cost effectiveness. Reverse logistics need standardization in order to achieve the organizational objectives which are expected from reverse logistics operations.

Reverse logistics costs are not properly recorded in the documents which creates the reporting problems for the management. Management is required to record them properly because a considerable portion of a company's logistics costs are connected with reverse logistics activities Verweij et al, (2008). Management decides about the destiny of a product when they are being returned. For productive decision about return treatment, first they need to know the reasons for return and then there comes the question of how they should be treated and where they should be moved. When a product is returned, managerial policies regarding the treatment of product return play a very important role for creating the value for the firm. If too much time is taken regarding the return treatment, much of the expected value would be lost. Reverse logistics requires high degree of specialization to manage all the related information, to extract maximum value for the product being returned, cost effectively. Therefore, formalization of reverse logistics programs is necessary because of the complexities attached with the management of reverse logistics process (Rogers & Tibben-Lembke, 1999).

Process effectiveness is one of the measures of organizational competitive advantage and it has been defined in terms of quality and timeliness of the return management (Huscroft,2008). From the above discussion, this study has learned that process effectiveness is inherited within the formalization of processes. In addition, reverse logistics activities include the processes which are used for the collection of expired, impaired, rejected or obsolete products. It also includes the shipping material components and product packing materials received from end user or from any other intermediary.

When a product is returned, there is a conflict between the sender and the receiver on the condition of the product. Thus, it demands for an agreed set of terms between both parties regarding the conditions of the product being returned. Not only the product condition needs preplanned set of terms but also the value received by the sender must be predefined to avoid any future conflict. In order to achieve process effectiveness, management need to work on the problem symptoms attached with the returns. One of the comprehensive set of those problems is recognized by Dr. Richard as follows.

Symptoms

- Returns arriving faster than processing or disposal
- Large amount of returns inventory held in the warehouse
- Unidentified or unauthorized returns
- Lengthy processing cycle times
- Unknown total cost of the returns process
- Customers have lost confidence in the repair activity.

Adopted from Rogers and Tibben- Lembke study in 1999

Piles of return inventory in the warehouses and increasing number of unofficial and anonymous returns are the symptoms that probe the inefficiency of return management process. Thus, insufficient process information and absence of formalized programs are important managing factors in the context of reverse logistics management (Rogers & Tibben- Lembke, 1999).

Formalization in terms of building the data warehouse, incorporating IT support is very significant in terms of increasing the return efficiency. Actually, it is the combination of information support as well as of formalization of reverse logistics. The research suggested that it could be attained by building an information system about warehouse data of returned products with recorded reasons of returns. In this way, a company can have feedback about the quality deficits of their products. Research study reported by Richey, Chen, Genchev and Daugherty (2005) also supported reverse logistics programs formalization. They proposed a positive relation between program formalization of reverse logistics and effectiveness of cost, processing and operations. Study reported a significant positive relation of fromalization and cost effectiveness but the expected positive relation between formalization and processing effectiveness was not found in the context of reverse logistics programs. In addition, this study also reported an increasing need of information support for reverse logistics program effectiveness. But this study is different in the context that it analyzes two possiblites for having information software. The study results are intersetting in the sense that the outsourcing of softwares are significantly positive as compared to making in-house softwares. The study suggested buying reverse logistics supporting softwares as a best strategy (Richey, Chen, Genchev & Daugherty, 2005).

Therefore, this study has also sought the empirical evidence on the proposed relationship of formalization of reverse logistics programs and process & cost effectiveness of reverse logistics programs that have not been reported previously with reference to the organizations in Pakistan.

Rationale of Study

There are good numbers of studies that have supported the positive formalization of Reverse Logistics programs on the performance of the organizations that have implemented reverse logistics. However, studies that have reported the impact of formalization on organizational competitive advantage are not sufficiently established in the existing body of knowledge. The topic is not well explored in Pakistan with reference to the academicians while observations revealed that formal reverse logistics had not only been adopted rather they had been considered a good source of various benefits by the industries. This study therefore intended to investigate and confirm through empirical methods the relationship between formalized programs and competitive advantages in the industries of Pakistan.

Hypothesized Model of the Study

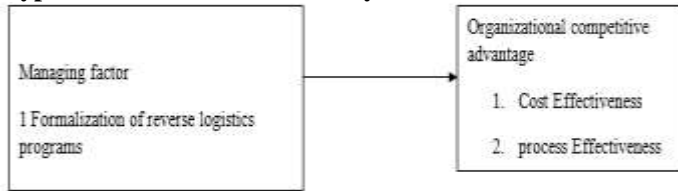


Figure 1

Figure 1 depicts the model of this study that selected formalization of reverse logistics programs as a managing factor is the independent variable. It kept organizational competitive advantage operationalizing it in terms of cost effectiveness, process effectiveness (Huscroft, 2008) as dependent variable.

Hypothesis Statement

The study set the following hypotheses:

- H₁: Formalization of reverse logistics programs significantly and positively impacts the cost effectiveness.
- H₂: Formalization of reverse logistics programs significantly and positively impacts the process effectiveness.

Methodology

This was a descriptive, cross sectional and correlation empirical study with minimum researcher’s interference during its non – contrived execution. It was conducted in the cities of Lahore and Gujranwala of Pakistan during 2011. The study selected a judgmental sample of 25 manufacturing industries engaged in domains like molding plastic, packaging, home appliances, tobacco, steel manufacturers, paper manufacturers and recyclers and soap manufacturers. This large range of diversity in industries was kept to ensure better generalized results. Utilizing a pretested reliable instrument of four item scale developed by Christman (2000), a three-item scale developed by Autry et al. (2001), 3 items adopted from Autry (2005) Richey et al. (2005) and 2 items from Daugherty et al. (2001), Instrument is formulated on 7 point interval scale. Study collected cross sectional data from 250 respondents representing the top management of the selected industries. The study utilized frequency analysis, Pearson Correlation and simple -linear regression to test its models.

Findings & Results:

Figure 2 depicts the frequency analysis of the independent variable formalized programs. Figure 2 is evident that out of 250 employees 0.8% of respondents are strongly disagree, only 2 % disagreed, 8.8% slightly disagreed, 17.2% showed neutral response, 32.4% slightly agreed, 34.4% agreed and 4.4% strongly agreed for formalization of activities in reverse logistics programs. Table 1 presents the descriptive statistics. As the mean remained close to 5, it indicates that out of 250 respondents majority acknowledged that formalized programs of

reverse logistics played good role in gaining cost effectiveness and process effectiveness.

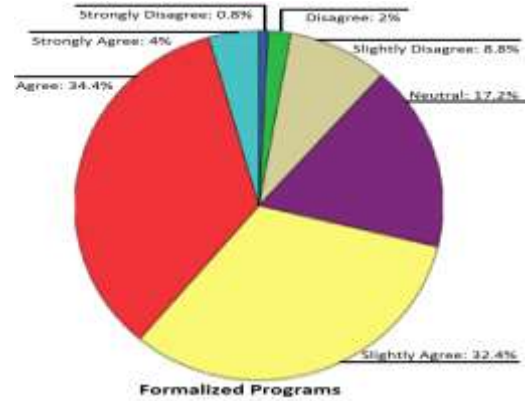


Figure 2

Table 1- Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Formalized programs	250	1	7	4.99	1.165

Table 2 is evident that formalized program was a variable that remained positively correlated with both constructs of the outcome variable i.e. organizational competitive advantage (Pearson value +0.3 to +0.7 and P < 0.05). Although the correlation is positive and significant but it is weak positive association (Pearson value +0.3 to +0.7 presents weak correlation).

Table 2- Correlations

		Formalized Programs	Reverse Logistics Process Effectiveness	Reverse Logistics Cost Effectiveness
Formalized Programs	Pearson Correlation	1	.327**	.359**
	Sig. (2-Tailed)		.000	.000
	N	250	250	250
Reverse Logistics Process Effectiveness	Pearson Correlation	.327**	1	.444**
	Sig. (2-Tailed)	.000		.000
	N	250	250	250
Reverse Logistics Cost Effectiveness	Pearson Correlation	.359**	.444**	1
	Sig. (2-Tailed)	.000	.000	
	N	250	250	250

** . Correlation Is Significant At The 0.01 Level (2-Tailed).

Using the SPSS 16, the study tested simple-linear regression for further confirming the impact of formalized programs of reverse logistics on cost effectiveness and process effectiveness. Table 3 presents the regression results between formalized programs and process effectiveness construct of organizational competitive advantage while Table 4 presents the summary of results between formalized programs and cost effectiveness construct of organizational competitive advantage. It is clear that cost effectiveness and process effectiveness of reverse logistics are not just dependent on formalized programs solely and certainly requires other parameters in equilibrium (B > 1.0). The results further confirm that formalized programs significantly regressed both the cost effectiveness and process effectiveness

(Beta positive, $t > 1.0$ and $P < 0.05$) (Sekaran, 2003 & Saunders; Philip and Thornhill, 2003). Based on these results the study substantiated both its hypotheses H1 and H2. Overall, the study found that formalized programs of reverse logistics remained the significant determinants of organizational competitive advantage.

Table 3 – Regression among Formal Reverse Logistics and Process Effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.637	.242		15.061	.000
Formalized Programs	.257	.047	.327	5.453	.000

A. Dependent Variable: Reverse Logistics Process Effectiveness

Table 4 – Regression among Formal Reverse Logistics and Cost Effectiveness

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.071	.269		11.429	.000
Formalized Programs	.318	.052	.359	6.057	.000

A. Dependent Variable: Reverse Logistics Cost Effectiveness

Conclusion

Based on the findings this study infers that provided all necessary prerequisites required for reverse logistics process in a given industry are placed in balance, standardized processes of reverse logistics and defined roles of management play an important part in leading manufacturing business to attain competitive advantage in terms of cost and process effectiveness. It concluded that in order to understand the complexities of reverse logistics process and manage them appropriately, formalization is a necessary tool that guarantees competitive advantages both through cost reduction and process optimization.

Recommendation

Having confirmed the validity of the perceived relation of formalized programs of reverse logistics with organizational competitive advantage, the study recommended that manufacturing industries must give them primary importance. In addition it acknowledged that placing all other factors of reverse logistics in order is simultaneously important. The additional factors may include customer support, regulatory facts, and stakeholders' commitment for better outcome of reverse logistics programs as per the findings of Carter & Ellram (1998). The study recommended that more research should be triggered for learning how standardization in reverse processes could help industries in managing various challenges.

Future Research Opportunities

This study could pioneer research in the domain of reverse logistics for only 25 manufacturing firms in Pakistan. This research should serve as a stimulator for researchers interested in this domain to probe into other factors of reverse logistics as it is an emerging area with its ability to create leverage for greater organizational competitive advantage.

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