

A STUDY OF REVERSE LOGISTICS IN FOOD PRODUCTS AT WINGS FOODS AND CHEMICALS PRIVATE LIMITED

Submitted in partial fulfillment of the requirements for the award of

Master of Business Administration

by

NATARAJ V
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SCHOOL OF BUSINESS ADMINISTRATION

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
Jeppiaar Nagar, RAJIV GANDHI SALAI, CHENNAI - 600 119**

April - 2021



March 25, 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **V.NATARAJ (Reg No: 39410133)** MBA Student of **Sathyabama Institute of Science and Technology** has completed the project on the topic of reverse logistics by questionnaire starting from **23rd December 2020 to 25th March 2021**.

With Regards,

(GM Head)



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Wings Foods and Chemicals (P) LTD

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **NATARAJ V 39410133** who have done the Project work entitled "**A STUDY OF REVERSE LOGISTICS IN FOOD PRODUCTS AT WINGS FOODS AND CHEMICALS PRIVATE LIMITED**" under my supervision from January 2021 to March 2021.

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DECLARATION

I **NATARAJ V 39410133** hereby declare that the Project Report entitled “**A study of reverse logistics in food products at wings foods and chemicals private limited**” done by me under the guidance of **Dr. Dhivya sathish** and **P. Malika** at **wings foods and chemicals private limited, Parrys, Chennai-600001** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

DATE:

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NATARAJ V

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NATARAJ V

ABSTRACT

This project focuses on explore the factors of revers logistics implementation based on survey questionnaires for Wings Foods and Chemicals Private Limited. Reverse logistics stands for all operations related to the reuse of products and materials. It 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 value or proper disposal. The study could provide appropriate and timely information about the position of preference level of reverse logistics towards Wings Foods and Chemicals Private Limited. The main objective of this project is to study and understand the reverse logistics by taking response from 120 respondents at Wings Foods and Chemicals Private Limited. As the objectives of this study is to analyse the effectiveness after implementing reverse logistics and strategies adopted. Data was analysed through descriptive statistical methods such as percentage analysis, Statistical Package for Social Science (SPSS) to draw a conclusion.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Reverse logistics stands for all operations related to the reuse of products and materials. It 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 value or proper disposal. More precisely, reverse logistics is the process of moving goods from their typical destination for the purpose of capturing value, or proper disposal. Remanufacturing and refurbishing activities also may be included in the definition of reverse logistics.” The reverse logistics process includes the management and the sale of surplus as well as returned equipment and machines from the hardware leasing business. Normally, logistics deal with events that bring the product towards the customer. In the case of reverse logistics, the resource goes at least one step back in the supply chain. For instance, goods move from the customer to the distributor or to the manufacturer.

Discussions of logistics in the food industry are overwhelmingly concerned with the forward supply chain, that is, getting products from farms or factories to retailers where they can be sold. But these supply chain operations are only half of the logistics system. Once food products arrive at markets, something must happen to the shipping platforms and packaging materials that were used to transport them—and to any unsold foods. Effective reuse of materials and resale or proper disposal of unsold products requires the establishment of a reverse supply chain.

Despite the importance of reverse logistics in handling growing amount of food product returns reverse operations during the product life cycle have received little attention. The unit of analysis is the firm. Results from a global survey of food professionals shed

light on how reverse food logistics performance indicators (speed, flexibility, reliability, quality, and sustainability) fluctuate during life cycle stages (introduction, growth, mature, and decline).

The research scope of this study is the food companies, and it has several research and practical contributions. The research contribution of this study is to review the relevant literature and propose a framework of indicators to test the research objective of this study. The contribution to practice of this study is that it offers specific managerial implications and suggestions to manage reverse food logistics that helps reduce waste throughout the food supply chain and increase value from returned products.

An effective and standardized reverse logistics process can give a firm the necessary competitive advantage to move above peers and competitors, and possibly capture larger market share within their industry because of their superior process and being able to meet the demands of the customers. Today's customer expects and demands to be able to return a defective or unwanted product smoothly and quickly and receive a refund or correct order as fast and as inexpensive as possible. A firm that can meet these increasing customer requirements is going to gain customer loyalty and retain, and perhaps increase, their overall market share.

reverse logistics involves moving goods from their typical end destination for the purpose of increasing value or for proper disposal. Reverse logistics includes the management and sale of surplus inventory or raw materials, as well as the returns of leased equipment, machines, and other hardware. Because reverse logistics involves product or materials moving at least one step back in the supply chain, it can pose challenges. But reverse logistics can also deliver certain benefits.

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1.2 INDUSTRY PROFILE

The food product industry showcase is worth INR 40,000 crore yearly. Principle flavours made in the country join pepper, cardamom, bean stew, ginger, turmeric, coriander, cumin, celery, fennel, fenugreek, Ajwain, dill seed, garlic, tamarind, clove, and nutmeg among others. The Indian flavours feature is foreseen to stretch around USD 18 billion by 2020 with improvement in the part is depended upon to be driven by stamped flavours and zest mixes. The Indian government is compellingly propelling zest sends out through various exercises, for instance, setting up of flavour parks. Flavour Parks offer typical taking care of workplaces to the two producers and exporters. India sends out close to 52 flavours. flavours send out from India created to USD 626.8 million during the fundamental quarter of 2015-16 when appeared differently in relation to around USD 511.2 million out of a comparative period a year back. India sent out 215,215 tons of flavours amid the essential quarter of FY16 as differentiated and 213,443 tons in a comparative period a year back. The market is, as it were, messy and the checked part makes up around 15%. The checked market is governed by players, for instance, MTR, Badshaah, Catch, Everest, Ramdev, etc. Starting late, Tata Chemicals has pushed its flavours picture Tata Sampan Spices. The exercises and execution of key players Everest Spices, MDH, Eastern Condiments, DS Group - Catch, MTR close by the present market circumstance has furthermore been mulled over. The report contains latest industry pioneer's inclination. During the most recent 6 years, Indian flavours industry or market has demonstrated colossal development. Flavours will ascend as \$18 billion industry by 2020, according to K Nirmal Babu, Director of the Kozhikode-based Indian Institute of Spices Research (IISR). Of the \$18 billion flavours publicize by 2020, the idea of India will be around \$5 billion. The assessed yearly improvement rate for flavours demand on the planet is around 3.19%. India is the point of convergence of beginning stage for dim pepper and cardamom. Beside this, the country is the genuine producer of ginger, turmeric, Chilies, and tree sorts of flavours. India has the greatest family unit grandstand for flavours on the planet. For the most part, flavours in India have been created in little land property, with natural cultivating increasing quality as of late. India is the world's greatest producer, purchaser, and exporter of flavours; the country conveys around 75 of the 109

combinations recorded by the International Organization for Standardization (ISO) and records for half of the overall trading flavours.

Significant dealers of Indian flavors are US, Vietnam, China, UAE, Iran, Thailand, UK, Saudi Arabia, Malaysia and Germany. During April to December'17, India's fare of Chilies was 36% to 353,400 tons, cumin exchanges extended 15% y-o-y to 104,260 tons, little cardamom sent out rose 44% y-o-y to 4,180 tons and garlic exchanges progress 92% y-o-y to 37,830 tons. Absolute flavors which are sent out from India? stayed at 1.08 billion kgs, esteemed at US\$3.11 billion in the year 2017-18.

Top flavors conveyed in the country incorporate ginger, fennel, fenugreek, tamarind, pepper, cardamom, clove, Chilly, turmeric, coriander, cumin, celery, Ajwain, dill seed, garlic, and nutmeg among others. Regardless of the way that seed flavors have been using in Unani and Ayurvedic drugs, yet expansive work should be done to know the Potentiality of seed flavors to fix the diverse human and animal diseases. Seed flavors can be fit in various items in different altering just as developing structure. The fenugreek can be created as a feed alter which is well off in protein. The straw from different flavors can be used as a feed for the animal by blending it in different extent. Customary vegetables and blossoms can be turned intercrop with seed flavors. Extending prosperity discernment among the flavor customer especially the European and American social order prompts the creating enthusiasm for regular yield things including flavors. It has provoked the headway of widespread trade for regular flavors. India is generally creating flavors normally. Notwithstanding the way that there is need to grow the zone under regular advancement of seed flavors. Exporters having some skill in characteristic creation have been productive in achieving the general measures embraced for flavors. India is today in the fortunate situation as one of the world's greatest producer of seed flavors and is a significant player in the overall market. India has the better ability of extending the creation of seed flavors yields and future possibilities of their fare are many. The seed flavors can be grown adequately under saline/stomach settling agent water, destructive soils, deteriorated lands, cut down ready soils, compelled soil moistness conditions and metal sullied soil. These seed flavor prosper well under these odd conditions just as improve them by following methods. Some seed flavors have potential for hyper social affair of salt resultant assistants in

recuperating saline sodic soil, for instance, fennel and coriander. Right now, in soil pH and ESP and augmentation in replaceable calcium occurs in soil. Seed flavors harvests could be adequately evolved on generous metal dirtied soils and under natural defilement alternative for some other consumable yields and empties the evident proportion of overpowering metals by hyper gathering.

1.3 COMPANY PROFILE

Wings Foods and Chemicals Private Limited

Wings Foods and Chemicals Private **Limited** from **2017** is **Wholesale Trading of Indian Spices, Agarbatti Sticks, Dry Fruits, and Agriculture Seeds**. Offered collections of these products are made by employing qualitative ingredients and progressive technology. These products are highly admired by the clients for their accurate composition, long shelf life, nontoxic and high purity features. Apart from this, these offered ranges are used in various fields.

Wings in India is an established and reputed Manufacturer, Exporter and Wholesaler of Indian Spices, Curry Powders, Blended Spices, Condiments, and other Indian commodities all over the world. We export bulk spices, as much as the quantity required by you. Wings incorporated with a vision of being industry leader by building customer satisfaction through trust, transparency, and fairness. We are positioned as a business partner for every client's success by providing one-stop solutions with complete customer satisfaction. Wings is a leading exporter in the country started its business activities in the year 2006 having registered office in India and one of the fastest grow. It is founded on a firm footing embedded with deep industry knowledge of agricultural production and passionate about the business by delighting the consumers through the high quality of products and services. We take proper measures of quality to keep the product range in compliance with quality standards and utilize modern technology for testing the quality, we have a strong channel of sales with the support of which we are successful in strengthening our global presence. Our core values of integrity, passion and quality which are guiding the way which we work with our business partners and created vibrant company culture, all these thriving us towards success.

Wings maintains the Quality standards to a level of 100%. We also maintain a high level of customer satisfaction while delivering all our products irrespective of quantity requested. Each of our clients are considered as an asset for us and we take all necessary steps to retain our clients for a long-lasting business relationship.

We make sure that,

- ✓ The products are delivered at the right time
- ✓ Ensuring the feedbacks from the clients are implemented at each stage
- ✓ Regular feedbacks and follow ups to understand the Client needs and satisfaction level are maintained high at all stages.

Why Us?

- Over a Century of Market presence and present CEO with more than 3.5 decades of Experience.
- Government Recognized Export House.
- An ISO 9001:2008 and Food Safety Management System (FSMS) 22000:2005 Certified company.
- Most of our containers are stuffed at our own factory under owner's supervision with analysis certificate from accredited labs.
- Cleaning, grading, sorting, and process of all foods at unit equipped with latest automatic machineries and HACCP/ ISO certified.
- With many years of experience, we have chosen suppliers who are highly reliable trustworthy and equipped with latest automatic machinery to process the spice at all producing centers. After sales service & customer satisfaction guaranteed till it reaches buyer's hand.
- Our dedication with established expertise in crop analysis, procurements productivity & quality has provided us an edge above others.

Our Mission

Vision:

- To be the best global organization by enriching people's lives through exceptional quality of food and service.

Mission:

We are determined to maintain leadership position in exports business. Bringing customer delight and becoming a trustworthy partner to our customers by excelling in every aspect of our operation:

- Quality & Consistency
- Global reach and being accessible.
- Cutting edge technology & processes.
- Efficient infrastructure & human resources.

Our Quality:

- Quality assurance through quality check for Microbiological characteristics Micro toxins and pesticide residue at accredited Labs.
- Food safety under one roof: - Heat treatment ETO, steam sterilization and Irradiation can be done at approved facilities.

Awards and Recognition:

- “Breakthrough Management Quality Registrar (BMQR)” certifies that the food safety management system of wings food and chemicals private limited has been assessed and found to be in accordance with the requirements of the HACCP and food safety standards in 2018.

1.4 NEED FOR THE STUDY

The purpose of the study was to assess the influence of reverse logistics on performance of food product at wings with an aim of making recommendations on proper use of reverse logistics management. For the purpose of building a model defined the food reverse logistics, as the process of planning, implementing and controlling the efficient flow of food products within the supply chain, along with the flow of information, from the point of acquiring recalled products to the place of their use for the intended purpose, which is to, inter alia, recover of the value of the product, raw material or relevant to the development of non-commercial purposes with the principles of food safety, partnership and corporate social responsibility.

This study is about the challenges faced in Reverse logistics and to understand the performance of a company before the implementation of Reverse Logistics strategy and the change in performance after implementation.

1.5 SCOPE AND SIGNIFICANCE OF THE STUDY

- The study is to find the extent of satisfaction of performance towards wings, with regards to feature, maintenance cost and all other attributes, to improve the performance of the reverse logistics.
- The study is also done for providing suitable suggestions (or) measure the performance of the company wings after implementing reverse logistics to improve the existing reverse logistics performance in wings.

1.6 OBJECTIVE OF THE STUDY

This project is designed mainly to identify and evaluate the response towards reverse logistics provided by Wings.

1.6.1 Primary objective

To analyze reverse logistics in food products at Wings Foods and Chemicals Private Limited

1.6.2 Secondary objectives

- To analyse the performance of a company before implementing the reverse logistics strategies.
- To study the reverse logistics strategies adopted in wings.
- To measure the effectiveness of reverse logistics in wings
- To analyse the problem, they faced in using reverse logistics.

1.7 LIMITATION OF THE STUDY

- The sample collected has been restricted to the 120 respondents only.
- The bias in sample could not be controlled because workers attitude differs from person to person.
- The study is limited in a logistics company, it may not be generalized.

CHAPTER 2

2.1 REVIEW OF LITERATURE

S. Senthil, R. Sridharan (2016) presents a review of literature in reverse logistics. Several extensions are possible in reverse logistics. We could also study the case with competition between manufacturing and remanufacturing processes, namely, the manufacturing and remanufacturing taken by different firms. User friendly and smart decision support system may also be developed. Probabilistic demand pattern may also be considered in future studies.

Murugesan Palaniappan, Qinghua Zhu, Devika Kannan (2015) Many business groups have recently defined logistics for the private sector. All these definitions of logistics focus on the organization of services and supplies and the movement of goods from one point to another. Aghazadeh (2003) states that “logistics is the process of strategically managing movement and storage of material or products and related information from any point in the manufacturing process through consumer fulfillment.” Over the last decade, companies only considered the forward supply chain for maximizing their benefit but did not realize the responsibility for their products after the product life span, which is called reverse logistics. In logistics, reverse logistics is not a new industrial practice, but it has recently received growing attention as more companies are using it as a strategic tool to increase profit, to avoid any wastage, and even to benefit the customer relationship. Rogers and Tibben-Lembke (1999) define reverse logistics as “the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal.” It is concerned with issues such as reclaiming, recycling, remanufacturing, reuse, take back, and disposal needs to be available for adequate service requirements.

Isabel Fernández, Tauno Kekäle (2014) Since a model has only some of the characteristics of the reality, it is natural to have several possible models of the same phenomenon (Lave and March 1945). There are models of different levels of explanatory power: some models include the most important variables, some also the less important. The methodology explained here will eventually produce the most important variables, but only as seen from the interviewees' viewpoint. While

seeing a phenomenon from somebody else's perspective is difficult, it may bring best results to attempt to have representatives from all the stakeholder groups in the Delphi panel (as suggested by Scheele, 1975) and likewise also among the AHP group of respondents. The explanatory power of the resulting model can be traced back to the knowledge and understanding of the respondents – the more they know of the reality, and the broader their view is, the more certain we can be that we have a model as effective (simplicity vs. explanatory power) as possible. As for all models, we see also the model that has resulted from the case study described in this paper to be a temporary model, a reasonably clear and simple picture of the reality that suffices until a better one is proposed. There is no 'right' model of any phenomenon except the one that includes all the features of the real phenomenon, which we again have earlier seen is both very improbable and does not make the reality any simpler to understand than studying the reality in the first hand would be.

M. K. TIWARI (2014) Reverse logistics has grown leaps and bounds as a research field since the last decade. It has been conceptualized in a variety of ways by many researchers working in this field. Murphy was one of the first authors who used the term 'reverse logistics' as such. He defined reverse distribution as the 'movement of goods from a consumer towards a producer in a channel of distribution.' Stock recognized the field of reverse logistics as being relevant for business and for society in general. Kopicki et al., paid attention to the discipline and practice of reverse logistics and pointed out opportunities in re-use and recycling. Carter and Ellram describe reverse distribution as the return, upstream movement of material resulting from re-use, recycling, or disposal. They define reverse logistics as the sum of reverse distribution and source reduction. Reverse logistics is the process of planning, implementing, and controlling backward flows of raw materials, in process inventory, packaging and finished goods, from a manufacturing, distribution or use point, to a point of recovery or point of proper disposal (RevLog 1998). Reverse logistics is the process of moving goods from the point of consumption to another point for the purpose of recapturing the remaining value, or for the eventual proper disposal of the product (Rogers and Tibben-Lembke 1999). Dowlatshahi (2000) defines reverse logistics as the process in which a manufacturer systematically accepts previously shipped products or parts from the point for consumption for possible recycling, remanufacturing, or disposal. Blumberg (2005)

defines reverse logistics as the subset of closed loop supply chain which includes full co-ordination and control, physical pickup and delivery of the material, parts, and products from the field of processing and recycling or disposition, and subsequent returns to the field where appropriate.

K.M. Mahaboob Sheriff, Angappa Gunasekaran, Subramanian Nachiappan (2014) Reverse Logistics (RL) is the process of planning, implementing, and controlling the efficient, cost effective flow of obsolete materials referred to here as raw material, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal. The objective of this paper is to develop a framework to classify the various issues/parameters affecting strategic level decisions in RL and to explore future research opportunities. The review serves as a guide to practitioners on the model and methodologies available to support better strategic level decisions in RL and reveals the potential scope of research for academics.

Marisa P. de Brito, Rommert Dekker (2013) It have pointed out that the four perspectives of the reverse logistics framework not only give context to reverse logistics systems, but their combination determines to a large extent the kind of issues that arise in implementing, monitoring, and managing such a system. The precise influence of the four dimensions of the framework presented here (why, how, what and who) is still an open question that requires more investigation. The individual chapters of this book shed more light on their interrelations. Furthermore, we have illustrated with twelve case studies, that appear later in this book, the sort of questions coming from practice, and for which this book gives quantitative support.

Nikunja Mohan Modak, Kannan Govindan (2017) The paper presents a thorough bibliometric and content analysis of 94 studies that were published in IJPR from 2000 until July 2017. The studies initially underwent a rigorous bibliometric and mapping analysis that helped to identify their characteristics. Subsequently, the contents of the sample papers were evaluated thoroughly. The content analysis led to classification of the papers into two main categories and sub-categories, and then to rigorous identification of the papers' attributes. The bibliometric and content analysis disclosed several research gaps that remain to be addressed in IJPR.

Saurabh Agrawal, Rajesh K. Singh, Qasim Murtaza (2012) In summary, Implementation of legislation, corporate imaging, environmental concern, economic benefits, and sustainable competitiveness are forcing firms not only to adopt RL practices but also to make them efficient and effective. This review is focused on important issues which are underrepresented in the past literature reviews. The article, through a systematic and structured literature review provides insights into the conceptualization and research on the issues including adoption and implementation, forecasting product returns, outsourcing, RL networks from secondary market perspective, and disposition decisions. In this perspective, total 242 previous published research articles were selected, categorized, and reviewed to find the research gaps and future scope of research. The research gaps were identified, discussed, and suggestions were made for future research opportunity. The opportunities for future research will help academicians, practitioners, and researchers in their future work. Classifications and cited references may be used as a broad frame of references to develop concepts and models for the future research. One of the limitations of this study is that select issues were considered for the review. This work may be further extended for other issues like marketing, information technology in RL.

R. Pasupathy (2010) The work described in this paper is at the first stage in simulation research for reverse supply chain management. Recovery, recycling, or reuse of products will be important issues in current supply chain Umeda management. A formal study of SCM incorporating reverse logistics is critical. The proposed test-bed simulation system would be a useful tool for designing supply chain incorporating reverse logistics. There are various types of supply and reverse chain management problems. Design and planning would be the most popular scope. When a system planner designs a supply chain or a manager reviews performance of the existing supply chain, he/she would attach importance supplier selection problem. It is a significant decision since it affects the system performance for a long time. From the supply chain performance viewpoint, it affects all the problems discussed above. Matured decisions would be needed. We should organize problems in reverse supply chain management. Design and planning problems, suppliers/vender's selection problems, and outsourcing planning problem

would be discussed. These problems are interlinked. Among them, discussions of Push-type and Pull-type reverse models would be the most important.

Taknaz Alsadat Banihashemi, Jiangang Fei (2019) This paper presented a comprehensive review of the literature to evaluate the performance of the RL process based on the three dimensions of sustainability including environmental, economic, and social aspects. The content analysis approach was adopted to systematically collect the relevant information from the papers published in academic journals and conferences from the period of 1990–2019. The findings of the review show that when RL is investigated in the context of GSCM, it is studied as a single factor without considering the relationship between the various RL processes and ignoring the different disposition options and their possible performance outcomes. Also, it is compared to other GSCM practices with more attention being paid to its environmental performance and contributions to economic and social benefits being overlooked. Furthermore, only a small number of studies have investigated RL in the context of sustainability and their interrelationship. There is a need to examine the relationship between RL and sustainable development. In addition, the social aspect of sustainability of RL has been largely overlooked.

Noor Irdiana Binti Ngadiman, Mehdi Moeinaddini, Jamilahtun Binti Ghazali (2015) The successful by implementing reverse logistics at foods and beverage industries are influenced by several factors. At the early stage, the organizations must introduce and give awareness to the employees. From that, employees can understand the level of maturity of reverse logistics practices. Besides that, with the clear picture of implementation reverse logistics practices, the organizations must provide the guideline as standard procedure to be followed and fulfil by their employees and customers. In addition, the agreement and regulations by government also influence the success of reverse logistics practices. In the nutshell, internal and external barriers must be slowly overcome and eliminate it. The successful of reverse logistics in foods and beverage industries not only give benefits to the organization in terms of costs or profits but mainly benefits to environmental impacts.

Simme D. P. Flapper (2009) In this paper we give an overview of articles that describe how firms and other organizations deal with reverse logistics. Contrary to previous work, we do not focus on a specific reverse logistics aspect (e.g., remanufacturing), discipline (like marketing), or geographic area (the cases come from several continents). In this way we get a better insight into the critical success factors for reverse logistics. Hereafter we confront these findings with the models that have been developed to support decision making in reverse logistics. In this way we can point out gaps and are able to indicate research directions. The remainder of the paper is organized as follows. First, we introduce the topic reverse logistics. Then, we describe the methodology used for finding and classifying the case studies presented in this paper. After that, we present the case studies we found and the models in the literature. We end with final remarks and research directions.

V. Ravi, Ravi Shankar (2015) In this research, using the ISM methodology, a relationship model among the barriers of reverse logistics in Indian automobile industries has been developed. But this model has not been statistically validated. Structural equation modeling (SEM), also referred to as linear structural relationship approach, has the capability of testing the validity of such hypothetical models. Thus, this approach can be applied in the future research to test the validity of model. It is worth mentioning here that while comparing ISM and SEM, although SEM has the capability of statistically testing an already developed theoretical model, it cannot develop an initial model for testing. ISM, on the other hand, has the capability to develop an initial model through managerial techniques such as brain storming, nominal group techniques, etc. In this sense, ISM is a supportive analytic tool for the discussed situation.

Samir K. Srivastava (2013) The resource-based-view of the firm draws primarily from Hart who proposes a theory of competitive advantage based upon the firm's relationship to the natural environment. He provides a conceptual framework comprising three interconnected strategies: pollution prevention, product stewardship and sustainable development along with their corresponding driving forces, key resource requirements and their contributions to sustained competitive advantage. Bloemhof-Ruwaard elaborate on the possibilities of incorporating green

issues when analyzing industrial supply chains and more generally of the value of using Operations Research (OR) models and techniques in GrSCM research.

Frantisek Milichovsky (2017) The main aim of this paper is to identify level of influence of reverse logistics' activities in connection with marketing communication in Czech business environment. Main hypothesis is that there is dependence between in sell-places and application of reverse logistics (reverse logistics has becomes very important part for decision making process of purchasing). Main hypothesis is that there is closed relations in their connection. Presented paper is based on primary research by questionnaire survey, conducted in 2016, focused on activities of reverse logistics in connection within purchase place. To process the results of the questionnaire survey there were used both of descriptive statistics and correspond analysis. The conclusions provide characteristics of the limitations of the research and its potential further direction. Sample population was created by 811 consumers, which were chosen in random way. There were returned questionnaires from 293 respondents (effectiveness was 36.13%). To process the results of the questionnaire survey were used basic types of descriptive statistics on the selected data set. The data were processed by using the statistical program IBM SPSS Statistics 24, which was subsequently analysed the dependency between the two nominal variables by means of contingency tables and Pearson's chi-squared test.

Gowri Vijayan, Nitty Hirawaty Kamarulzaman, Zainal Abidin Mohamed (2011) This study was conducted to understand the level of adoption of reverse logistics practices across food retailers in Malaysia. The results showed that retailers mainly practice reverse logistics practices without familiarization with the term 'reverse logistics'. A partial application of reverse practices has been revealed in the study. Inventory management, product take-back, and waste management are some of the major practices followed by the retailers under reverse logistics. Print and visual/audio media has been found to be the major sources of information on reverse logistics activities for the retailers. Return management results showed an average 6-10% rate of consumer return, majorly beverages and dairy products which are either returned to supplier or undergo landfilling. Waste management results showed landfill operations as a main method for disposal. The firmographic characteristics of location, annual sales, retail format, and no of employees were found significant to level of reverse logistics adoption. While hypermarkets and

supermarkets displayed high level of reverse logistics adoption, grocery stores showed a relatively low level of adoption. This result could be an effect of size of operations on applicability of reverse logistics in a supply chain.

Enping (Shirley) Mai, Ph.D. Haozhe Chen, Ph.D. (2013) This research contributes to the body of knowledge on reverse logistics by examining several key antecedents of reverse logistics performance. Our study brings these factors to researchers and managers' attention and they present great opportunities to improve a firm's reverse logistics management. However, some limitations of the current study should also be discussed. First, we only examined the impact of internal collaboration due to the exploratory nature of the study, but external collaboration may also be a key factor for reverse logistics. Because today's logistics (including reverse logistics) activities often occur across firms, the collaborative relationships between supply chain partners should also be a relevant factor. Second, our study only used survey data that are based on managers' perceptions. While we have made efforts to ensure reliability and validity, it is still worthwhile for future research to incorporate other methods and triangulate the current study.

Marisa P. de Brito, Rommert Dekker, Simme D.P. Flapper (2015) This paper has provided a content analysis of more than 60 cases reported in the literature dealing with reverse logistics aspects. We also have given an overview of issues per section, which we have linked to propositions and research opportunities. By comparing North American with European cases, one notices that the prime driver in most North American cases is economics while in Europe legislation is also an important driver. For researchers acquainted with practice, this is a well-known 'truth.' However, there is room to investigate to which degree this difference in drivers makes the differences, or not, in network structures, relationships, inventory management and planning and control. Or instead, to directly investigate whether to some businesses similarities are a function of the industry. This could not be established with this content analysis, as the collection of the case studies have been disparately conducted. We suggest sampling groups of cases with different drivers and industry categories and to proceed to an intra- and inter- case study comparative analysis.

Alexander Kyalo Mutuku, Dr. Makori Moronge (2020) This research study adopted a descriptive research design approach. This study used probability sampling since the population and location of food and beverage manufacturing firms is known. Specifically, the study used stratified random sampling to account for the uneven distribution of firms in various towns. Based on distribution of firms in the 10 towns the study used proportions calculated in the population distribution to come up with a representative sample distribution. The proportions calculated give the number of firms to be included in the sample for each segment. Thereafter simple random sampling was used to select the names of food and beverage manufacturing firms in which data is to be collected. The study combined two methods in its data collection that is, questionnaires and key informant interviews. Inferential analyses were used in relation to correlation analysis and regression analysis to test the relationship between the four explanatory variables and the explained variable.

Fraser McLeod Adrian Hickford Sarah Maynard Tom Cherrett (2014) An overall aim of this review is to gain an understanding of the transport logistics associated with delivering core goods to commercial businesses in urban areas (high streets, shopping centres, etc.) and with the collection of returned goods and of waste materials from retailers. Core goods are defined here as those goods which are of fundamental importance to the business activity. So, for example, for retail outlets it would be the goods sold to customers and for service industries it would be the goods that are essential for the day-to-day operation of the business. In doing this, a secondary aim is to try to determine how different supply chains might join in their returns or waste collection operations either through shared use of vehicles, staff or of premises, e.g., warehouses.

Ilias P. Vlachos (2011) This study aimed to examine reverse logistics across the food product life cycle. The literature review of reverse logistics factors in food industry produced a set of supply chain performance measures. Using a survey, questionnaires were sent to 200 practitioners with experience in food supply chain operations. In total, 48 usable questionnaires were returned, resulting in 24% response rate. The contribution of this study lies in extending the body of knowledge of reverse food logistics during product life cycle. It offers practical advice to manage reverse food logistics. Results indicate that customer expectations are more

significant during the introduction and growth stages. The effectiveness of the return process in the introduction stage will determine the future of the product and companies need to manage quality problems effectively. The paper discusses managerial implications and offers recommendations for future research.

Sathiyagothai B and Saravanan S (2013) This study is demonstrated Reverse Logistics (RL) in Food Processing Industries. Reverse Logistics (RL) is the process of backward flow of moving goods for the purpose of capturing value, proper disposal, remanufacturing and refurbishing activities. Reverse Logistics (RL) is emerging trend in Supply Chain Management to gain more competitive advantage in terms of their value, profitability, sustainability and provide additional advantage in any type of industry. The Reverse Logistics (RL) practices adapted in manufacturing industries to reduce wastage and reuse. Food Processing sector possess high growth for the past ten years. As well as Food Processing industries are going to concern, food loss is high. Carbon emission, environmental degradation and greenhouse gas are some effects of food loss, if they are not properly disposed to environment. By applying the Reverse Logistics Practices in Food Processing Industries will help to manage the future demand as well as save the environment. In this paper we are attempting the application of Reverse Logistics practices in Food Processing Industries to reduce food loss. Here the model is developed as a concept-oriented model based on the literature and practical implication of Reverse Logistics in Foreign Countries. It will be helpful for the company to be sustainable for long-run and the food loss can be reduced. The future research leads the practical application of this model in Food Processing Sector and makes it as a beneficial one for improved performance and efficiency.

Patrick Beullens (2019) Technical solutions for the recovery of products from waste materials become more and more available. To have these new technologies implemented in a real world, a feasibility study is indispensable. For this purpose, it is often imperative to adopt the viewpoint of an individual firm and ask whether it would be wise to engage in product recovery activities or not. Aspects of economics and logistics are of prime importance here. Some important frameworks, models, and insights that have been developed in recent years are described in this paper. Finally, increasing reverse logistics flows from the disposer markets introduce new issues in the areas of collection and vehicle routing. Two prominent differences with

“traditional” distribution logistics are the usually low value of the goods and the large degree of freedom in deciding the moment and method of collection. The search for the lowest-cost approach leads to multi-period vehicle routing models that need to include strategies that combine the transport of multiple flows of goods. Models for co-collecting separated waste streams and for integrating delivery and collection activities are in demand.

Karol Wajszczuk, Piotr Sajna & Jacek Wawrzynowicz (2011) The aim of the empirical research was to analyse the scale and methods of management of dairy products through the distribution centre and determined what amount of these products could be used for social purposes. recesses and to carry out preliminary empirical studies. This is the area of the new approach to the logistics of recovery of these products, as proposed in the work that is carried out under the specific conditions of restrictions due to their health safety aspects and food product market regulation. This specific logistics process requires the work of conceptual definition and description of the procedures and further interdisciplinary research. The loss of food that could be given for social purposes, based on one distribution centre was estimated as 0.64% of the volume of dairy products. In addition to the economic aspect (reduction of losses, reduced disposal costs) and ethical actions to improve, the management of these products can provide an innovative approach to corporate responsibility strategy. Streamlining these processes, however, requires analysis of the system and to develop rules and procedures for reverse logistics, as an innovative area of reverse logistics.

Ahmet Alper Sayin and Haşim Barman (2013) Reverse logistics requires companies to have their responsibilities for the product they manufacture up to the last stage that the product can reach. Thanks to this obligation, it emphasizes the importance of reverse logistics companies to produce a more efficient and successful product in their production. Nowadays, gaining customer satisfaction for companies, providing a competitive advantage with the environmentalist impression, the existence of environmental protection laws, the responsibility of the producers for the products they produce until the last stage of the use of the consumers and the re-evaluation and recovery of the products have come to a serious level due to some economic factors. However, with each passing day, the deterioration of the ecological balance, the filling of waste land capacities and the

increasing environmental awareness of customers, it has become a necessity to research reverse logistics processes more efficiently in both public and private sectors. In the research, there are various ways of returning products to be included in recycling. Products often return because of faulty production or when they are discarded. Products that become waste due to various reasons are rarely found. Reverse logistics activities are applied to these recycled products. After the products are classified, those that can be used are separated. Partial use and reproduction processes are applied depending on the situation. More destruction processes are applied in this business. The reason for this is that it is a food manufacturing enterprise. Since there is human health in food manufacturing, partial use is not applied much, but the recycling of wastes is more.

MIRZA MOHSIN BEG (2010) Reverse Logistics refers to the movement of goods upstream, i.e., from the end point of usage to the initiation point to add more value or to dispose it. Remanufacturing, Refurbishing and Recycling activities are also the part of Reverse Logistics. Reverse Logistics gain more importance now-a-days because it reduces operational cost by reusing products or services. Also, by implementing efficient reverse logistics strategies companies can gain more trust of their customers which result in more business and hence it become an integral part of any business. Also, company can gain both social and economic benefits by implementing reverse logistics. However, companies in Pakistan treat Reverse Logistics as expenditure, because of the Infrastructure requirement. Also, there is lack of commitment at the leadership level due to which reverse logistics has not effectively been utilized in companies. We need to give more value to reverse logistics as companies are now realizing that by organizing the complete product life cycle, they will gain strategic edge over their competitors. Average age varies by the nature of product, but all products have a limited life, thus requiring disposal or reversal. Majority of the respondents see it supportive to the business while very small portion of respondents see reverse logistics as having negative impact on the business. Key concern for the companies is the impact on profitability due to reverse logistics.

Kannan Govindan (2014) In this paper, a comprehensive review study is undertaken for the Journal of Cleaner Production in the popular fields of reverse logistics and closed-loop supply chain. A total of 83 online papers accepted until 31

December 2014 are selected, reviewed, and categorized based on the proposed novel classifications of this study. The results can help researchers who are interested in JCP publications to understand the various subjects of the accepted papers and the future research opportunities. The results can also support the decisions of policy makers of the JCP to analyses the past accomplishments and to envision the future. The results of the review illustrate an incremental trend for the accepted papers in JCP from 2001 to 2014 in both RL and CLSC subjects. The analyses show that 69 papers out of 83 are based on RL subjects and the rest are based on CLSC issues. Further, the RL studies are classified in 8 categories of research including (in descending order) general studies, remanufacturing, waste management, recycling, reuse, recovery, disassembling, and remanufacturing-recycling investigations. It presents detailed information on the publications in the mentioned classifications. The results illustrate various types of research in all defined categories occurring in JCP.

Fayçal Mimouni, Abdellah Abouabdellah, Hassan Mharzi (2016) The study in this article consists of measuring the break-even of reverse logistics in a direct supply chain. Returned goods are uncontrollable and unpredictable hence the difficulty of having a precise forecast system to plan the return logistics. Also, when returning a product, there are different types of returned products. Another perspective would be to develop an analytical method that can reduce the impact of the random behaviour of the reverse logistics. This methodology could be supplemented by a forecasting tool that can approach the random behaviour of returns to provide more precise results.

Muhammad Waqas and Muhammad Nadeem (2015) Reverse logistics (RL) is considered as the most significant part of supply chain management in developed countries; unfortunately, its implementation in developing countries is in the initial stages due to certain barriers. This study aims to identify and verify the barriers to implementation of reverse logistics using a two-stage methodology: the Delphi Method and Structural Equation Modelling. A comprehensive literature review was considered to identify a primary set of barriers. Using the Delphi Method, a team of experts screened out barriers after performing three iterations. A survey-based questionnaire was then sent out to supply chain and logistics employees in the manufacturing industry and relevant government authorities. Five hundred and

forty-seven useful responses were analysed in the Statistical Package for the Social Science (SPSS) & AMOS 21 software using Structural Equation Modelling to verify barriers and ranked according to their severity. The most critical barriers with respect to each category are high cost of reverse logistics adoption (finance and economics), lack of skilled professionals (knowledge and experience), lack of government supportive policies (law and regulation), poor organizational culture (management), lack of human resources (infrastructure and technology), lack of environmental law awareness (environment), lack of community pressure (market) and company policies (reverse logistics in policy). Overall, the top five barriers found in this study include lack of initial capital, lack of skilled professional in RL, companies' policies against RL, lack of new technologies and information systems, and lack of community pressure. Knowledge about barriers to reverse logistics allows manufacturing companies to prepare a priority list of actions for better implementation of the reverse logistics system.

Gisele de Lorena Diniz Chaves (2014) Retailers value the service as an element of decision of whom to buy from and evaluate the performance of their suppliers in terms of availability, operational performance, and reliability. In this sense, understanding the relation between the industry and retail members of the distribution channel in the conflict solving regarding reverse logistics is a support for food companies in the decision making referring to return policies. Through this research comparing two companies with different return policies, it was possible to identify the consequences for the relationship towards the retail. The analysed companies have a divergent perception due to different reasons. Company A has a more conservative return policy than that of company B. The brand power and the structure of its distribution channel have a great influence in this decision. For company B, reverse logistics is considered a strategic activity for the industry-retail relation and, maybe because of this, conflicts are less intense and more quickly solved, in a positive way. Company B has a better relation towards the retail than company A concerning solving problems inherent to after sale reverse logistics. As a limitation, this paper analyses the industry-retail relation in the distribution channel according to the perspective of one member only, restricting the conclusions.

CHAPTER 3

RESEARCH METHODOLOGY

Business research is a systematic enquiry that provides Information to guide business decisions and aimed to solve managerial problems. Business research is of recent origin and it is largely supported by business organizations that hope to achieve competitive advantages.

Research methodology is a way to systematically solve the research problems. It may be understood as a science of studying how research is done scientifically. It includes the overall research design, the sampling procedure, data collection method and analysis procedure.

3.1 RESEARCH DESIGN

The research design stands for advance planning of the method to be adopted for collection the relevant data and the techniques to be used in adopted for collecting the relevant data and the techniques to be used in analysis, keeping the view the objectives of the research and availability time.

In general, research design is the conceptual structure within which research is conducted: it constitutes the blueprint for the collection, measurement, and analysis of data.

The Research Design undertaken for the study is **Descriptive Research Design**. A study, which wants to portray the characteristics of a group or individuals or situation, is known as **Descriptive study**. It is mostly qualitative in nature.

3.2 SAMPLING TECHNIQUE

Sampling is the process of selecting enough elements from the population (the items selected technically are called as Sampling). **Random sampling** is a way of selecting a **sample** of observations from a population to make inferences about the population. For example, exit polls from voters that aim to predict the likely results of an election.

3.3 SOURCES OF DATA

3.3.1 *Primary Data*

Data which is collected for the first time is called **Primary Data**. Well Structured Questionnaires has been prepared for collection of primary data. Most of the questions are consist of multiple choices. The structured Questionnaire method was undertaken. Proper care was taken to frame the Questionnaire in such a manner it should be easily understood the view of employee.

3.3.2 *Secondary Data*

Secondary data was collected from Internets, various books, Company Records, and various websites.

3.4 STRUCTURE OF QUESTIONNAIRE

The structure of questionnaire consists of two parts. Part A consists of profile of the respondents and part B consists of questions related to objectives.

3.5 SAMPLE SIZE

Sample size means the number of sampling units selected from the population for investigation. It helps to achieve the objective of research. Out of 150, the sample size taken for the study is 120.

3.6 PERIOD OF STUDY

The study period is from December 2020 - February 2021

3.7 ANALYTICAL TOOLS

- Percentage analysis
- Chi-square test
- Correlation analysis

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

TABLE 4.1.1: GENDER WISE CLASSIFICATION OF THE RESPONDENTS

Particulars	No. of Respondents	Percentage
Male	107	89.2
Female	13	10.8
TOTAL	120	100

Sources: Primary data

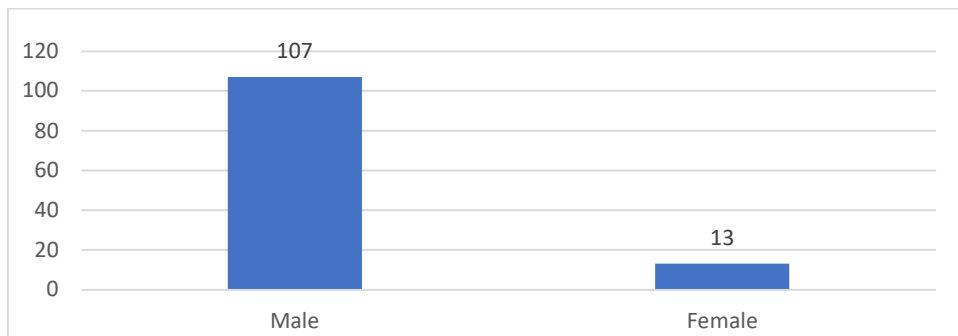


CHART 4.1.1: GENDER WISE CLASSIFICATION OF RESPONDENTS

Interpretation:

The table 4.1 shows that, 89.2 percentage of the respondents are male, and the rest 10.8 percentage of the respondents are female.

Inference:

Majority (89.2%) of the respondents are male in this company.

TABLE 4.2.1: AGE WISE CLASSIFICATION OF RESPONDENTS

Particulars	No. of Respondents	Percentage
20-25	14	11.7
25-30	41	34.2
30-35	46	38.3
35-40	15	12.5
Above 40	4	3.3
TOTAL	120	100

Sources: Primary data

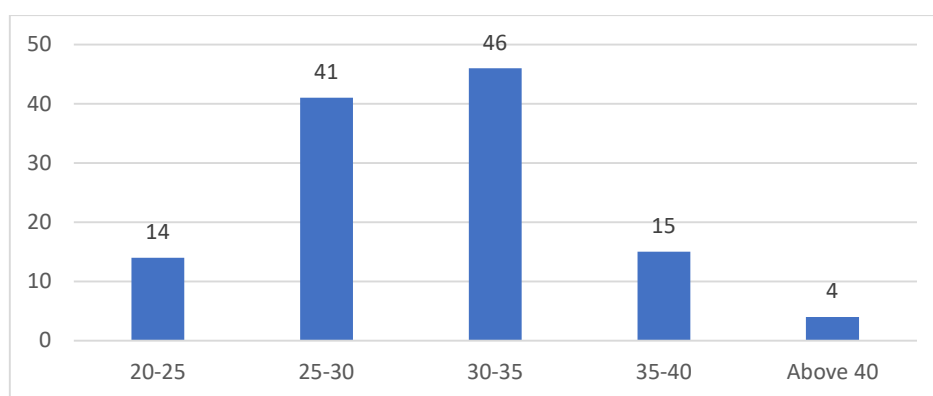


CHART 4.2.1: AGE WISE CLASSIFICATION OF RESPONDENTS

Interpretation:

The table 4.2 shows that, 11.7 percentage of the respondents are 20 to 25 years, 34.2 percentage of the respondents are 25 to 30 years, 38.3 percentage of the respondents are 30 to 35 years, 12.5 percentage of the respondents are 35 to 40 years, 3.3 percentage of the respondents are above 40 years.

Inference:

Majority (38.3%) of the respondents have age between 30-35 years.

TABLE 4.3.1: QUALIFICATION OF THE REpondENTS

Particulars	No. of Respondents	Percentage
High School	7	5.83
Diploma	22	18.33
Bachelor's Degree	66	55
Master's Degree	25	20.83
TOTAL	120	100

Sources: Primary data

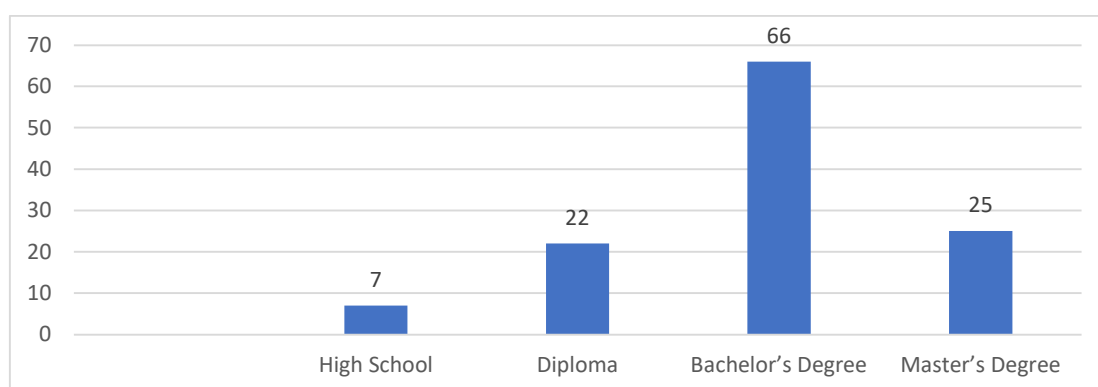


CHART 4.3.1: QUALIFICATION OF THE REpondENTS

Interpretation:

The table 4.3 shows that, 5.83 percentage of the respondents are high school, 18.33 percentage of the respondents are diploma, 55 percentage of the respondents are having bachelor's degree, 20.83 percentage of the respondents are master's degree.

Inference:

Majority (55%) of the respondents have completed bachelor's degree.

TABLE 4.4.1: Awareness of respondents on Reverse logistics

Particulars	No. of Respondents	Percentage
Very Great extent	24	20
Great extent	64	53.3
Moderate extent	31	25.8
Little extent	1	0.8
Not at all	-	-
Total	120	100

Sources: Primary data

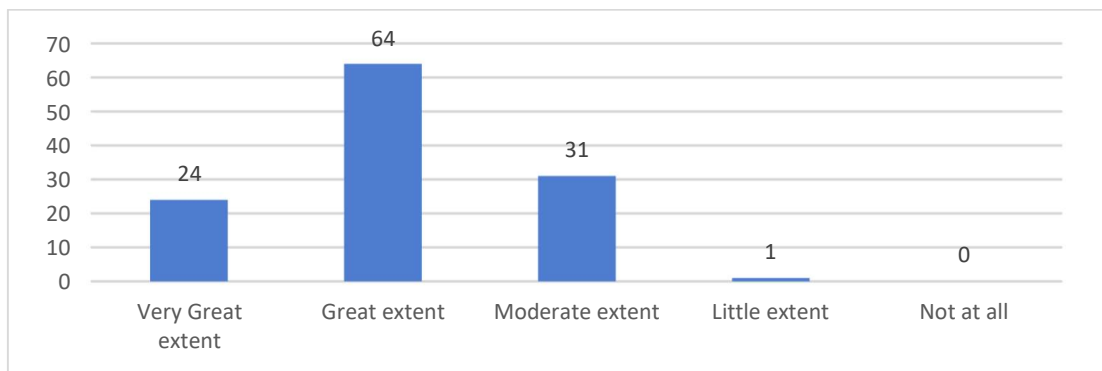


CHART 4.4.1: Awareness of respondents on Reverse logistics

Interpretation:

The table 4.4 shows that, 20 percentage of the respondents are aware to a very great extent, 53.3 percentage of the respondents are aware to a great extent, 25.8 percentage of the respondents are aware to a moderate extent, 0.8 percentage of the respondents are aware only to a little extent.

Inference:

Majority (53.3%) of the respondents are having great awareness on reverse logistics.

TABLE 4.5.1: MONTHLY INCOME OF THE RESPONDENTS

Particulars	No. of Respondents	Percentage
Under 15000	4	3.3
15000-24000	40	33.3
25000-34000	50	41.7
35000-44000	18	15
Above 45000	8	6.7
TOTAL	120	100

Sources: Primary data

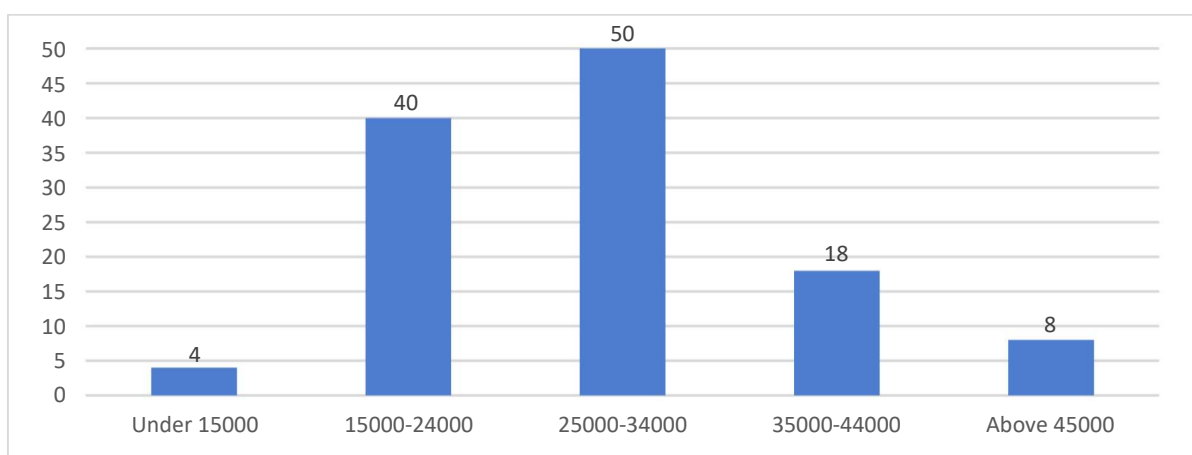


CHART 4.5.1: MONTHLY INCOME OF THE RESPONDENTS

Interpretation:

The table 4.5 shows that 3.3 percentage of the respondents have a monthly income under 15000, 33.3 percentage of the respondents have a monthly income between Rs.15000 to 24000, 41.7 percentage of the respondents have a monthly income between Rs.25000 to 34000, 15 percentage of the respondents have a monthly income between Rs.35000 to 44000, 6.7 percentage of the respondents are above Rs.45000.

Inference:

Majority (41.7%) of the respondents are with the monthly income between 25000-34000.

TABLE 4.6.1: WORK EXPERIENCE AT WINGS

Particulars	No. of Respondents	Percentage
Less than one year	2	1.7
1-2years	39	32.5
2-5years	56	46.7
5-10years	20	16.7
More than 10 years	3	2.5
TOTAL	120	100

Sources: Primary data

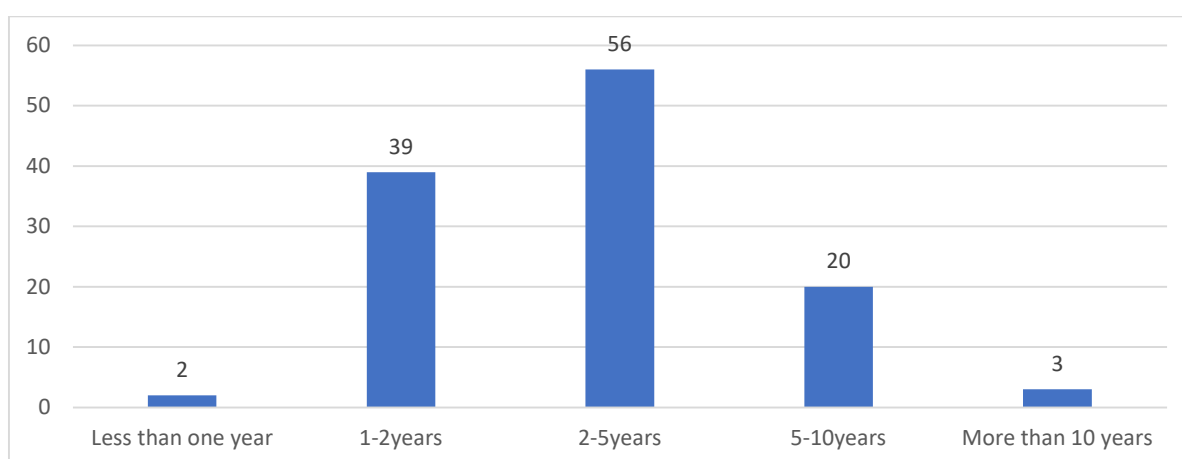


CHART 4.6.1: WORK EXPERIENCE AT WINGS

Interpretation:

The table 4.6 shows that 1.7 percentage of the respondents are having work experience of about less than one year, 32.5 percentage of the respondents are having work experience between 1 to 2 years, 46.7 percentage of the respondents are having work experience between 2 to 5 years, 16.7 percentage of the respondents are having work experience between 5 to 10 years, 2.5 percentage of the respondents are having work experience about more than 10 years.

Inference:

Majority (46.7%) of the respondents are having work experience between 2 to 5 years.

TABLE4.7.1: Reselling of products play a significant role in cost reductions at wings.

Options	Respondents	Percentage
Strongly Agree	21	17.5
Agree	67	55.83
Neutral	26	21.66
Disagree	5	4.16
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

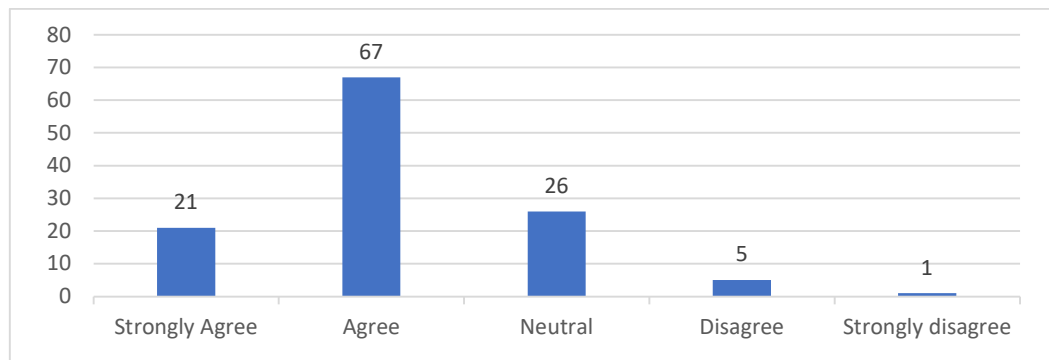


CHART 4.7.1: Reselling of products play a significant role in cost reductions at wings.

Interpretation:

From the table 4.7 it shows that, 17.5 percentage of the respondents strongly agree that reselling of products, 55.83 percentage of the respondents agree, 21.66 percentage of the respondents are neutral, 4.16 percentage of the respondents disagree, 0.8% percentage of the respondents strongly disagree.

Inference:

Majority (55.83%) of the respondents agree that Reselling of products play a significant role in cost reductions at wings.

TABLE 4.8.1: Product recovery plays a significant role in improving profitability at wings.

Options	Respondents	Percentage (%)
Strongly Agree	29	24.1
Agree	62	51.6
Neutral	26	21.66
Disagree	2	1.66
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

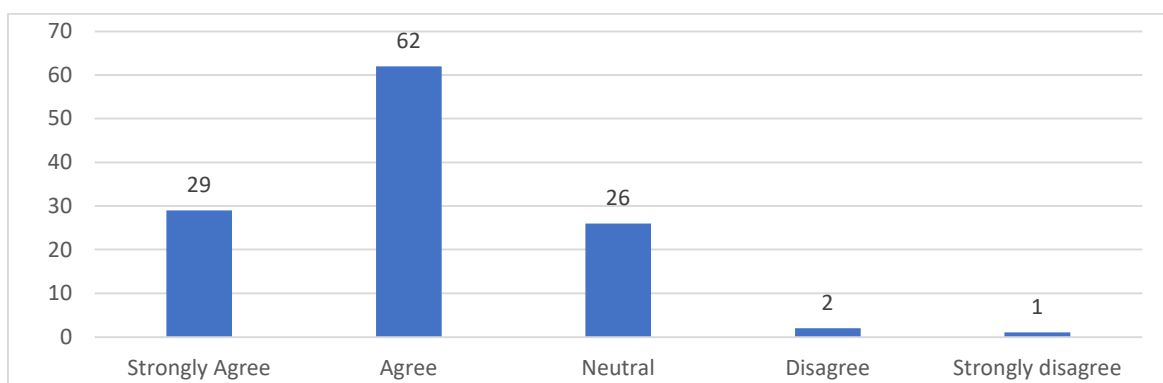


CHART 4.8.1: Product recovery plays a significant role in improving profitability at wings.

Interpretation:

The table 4.8 shows that, 24.1 percentage of the respondents strongly agree, 51.6 percentage of the respondents agree, 21.66 percentage of the respondents are neutral, 1.66 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (51.6%) of the respondents agree that Product recovery plays a significant role in improving profitability at wings.

TABLE 4.9.1: Eco-branding plays a significant role in expanding the market share at wings.

Options	Respondents	Percentage
Strongly Agree	40	33.33
Agree	56	46.66
Neutral	21	17.5
Disagree	2	1.66
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

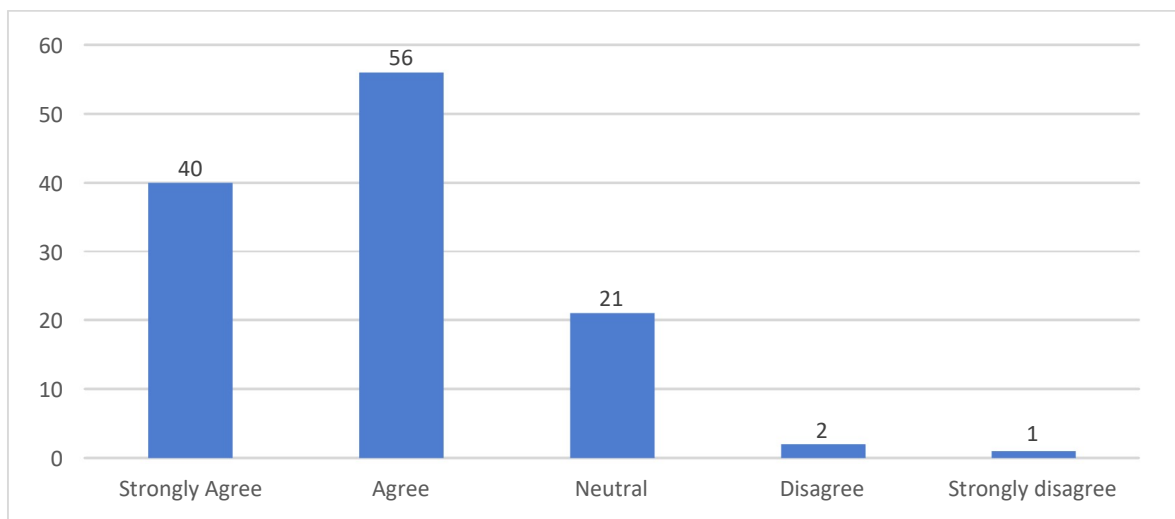


CHART 4.9.1: Eco-branding plays a significant role in expanding the market share at wings.

Interpretation:

The table 4.9 shows that, 33.33 percentage of the respondents strongly agree, 46.6 percentage of the respondents agree, 17.5 percentage of the respondents are neutral, 1.66 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (46.66%) of the respondents agree that Eco-branding plays a significant role in expanding the market share at wings.

TABLE 4.10.1: Before implementing reverse logistics, the logistics was periodically reviewed.

Options	Respondents	Percentage
Strongly Agree	3	2.5
Agree	20	16.66
Neutral	40	33.33
Disagree	47	39.16
Strongly disagree	10	8.33
Total	120	100

Sources: Primary data

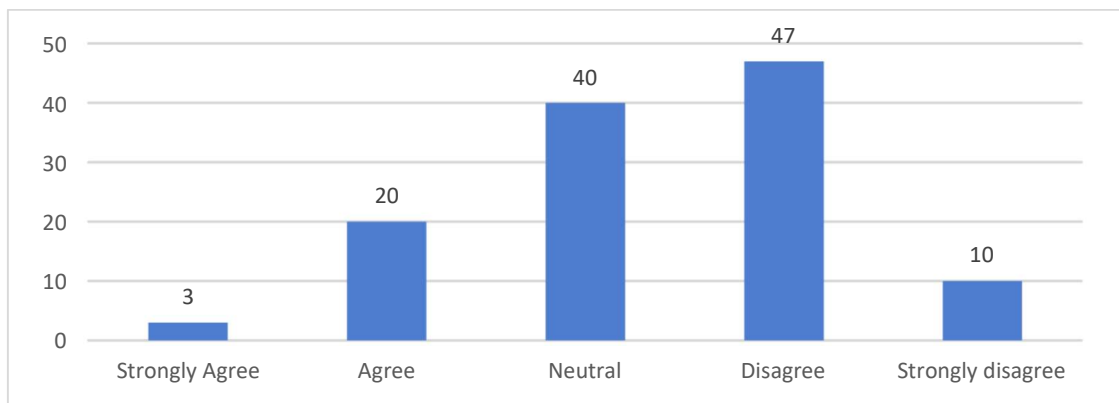


CHART 4.10.1: Before implementing reverse logistics, the logistics was periodically reviewed.

Interpretation:

The table 4.10 shows that, 33.33 percentage of the respondents strongly agree, 46.6 percentage of the respondents agree, 17.5 percentage of the respondents are neutral, 1.66 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (39.16%) of the respondents Disagree that before implementing reverse logistics, the logistics was periodically reviewed.

TABLE 4.11.1: Logistics processing was satisfactory before implementation of reverse logistics.

Options	Respondents	Percentage
Strongly Agree	-	-
Agree	3	2.5
Neutral	24	20
Disagree	52	43.33
Strongly disagree	41	34.16
Total	120	100

Sources: Primary data

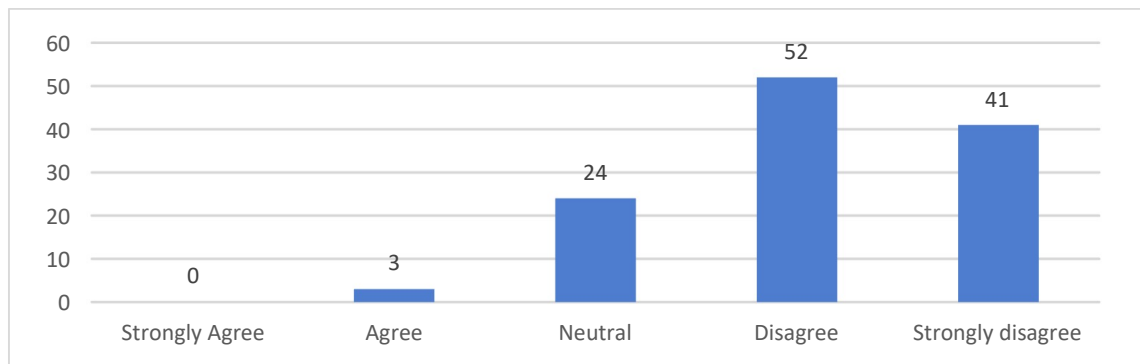


CHART 4.11.1: Logistics processing was satisfactory before implementation of reverse logistics.

Interpretation:

The table 4.11 shows that, 2.5 percentage of the respondents agree, 20 percentage of the respondents are neutral, 43.33 percentage of the respondents disagree, 34.16 percentage of the respondents strongly disagree.

Inference:

Majority (43.33%) of the respondents Disagree that Logistics processing was satisfactory before implementation of reverse logistics.

TABLE 4.12.1: The performance of the company was good before implementing reverse logistics in wings.

Options	Respondents	Percentage
Strongly Agree	-	-
Agree	5	4.16
Neutral	22	18.33
Disagree	57	47.5
Strongly disagree	36	30
Total	120	100

Sources: Primary data

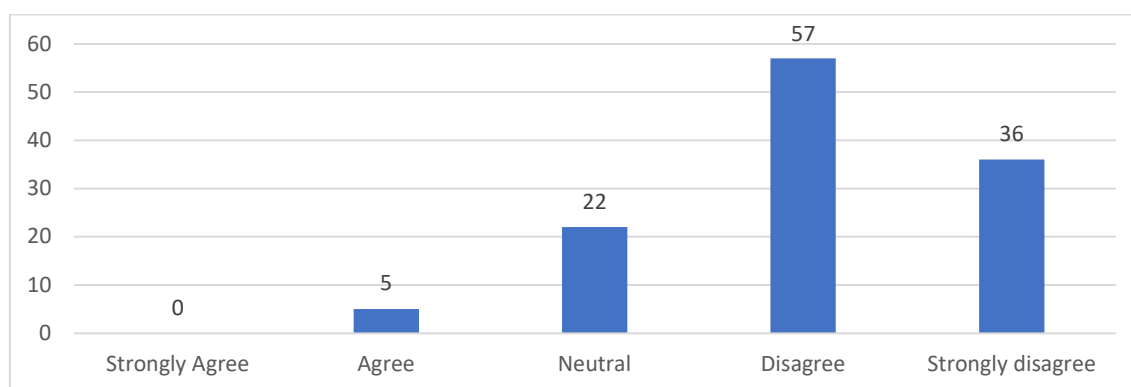


CHART 4.12.1: The performance of the company was good before implementing reverse logistics in wings.

Interpretation:

The table 4.12 shows that, 4.16 percentage of the respondents agree, 18.33 percentage of the respondents are neutral, 47.5 percentage of the respondents disagree, 30 percentage of the respondents strongly disagree.

Inference:

Majority (47.5%) of the respondents Disagree that the performance of the company was good before implementing reverse logistics in wings.

TABLE 4.13.1: The delivery of product increased using reverse logistics in wings.

Options	Respondents	Percentage
Strongly Agree	10	8.33
Agree	52	43.33
Neutral	51	42.5
Disagree	6	5
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

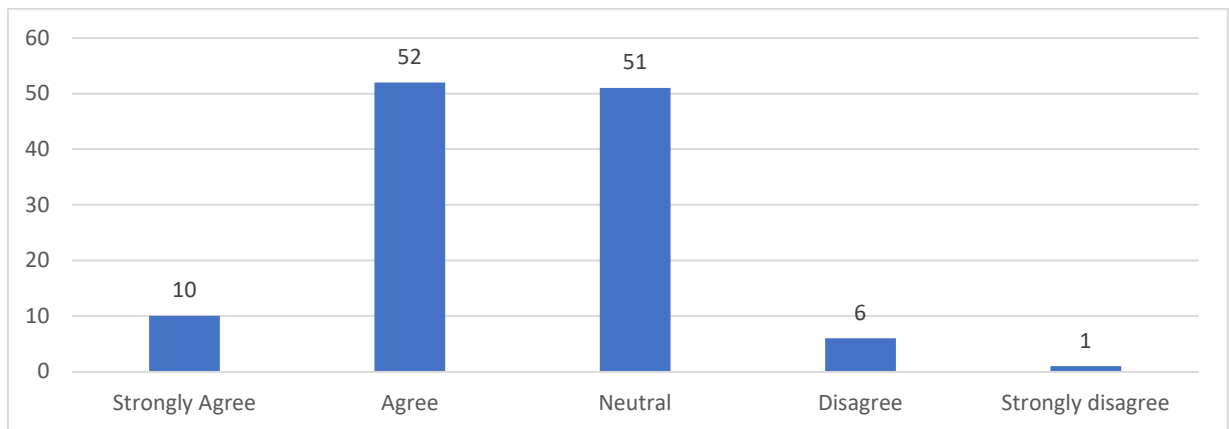


CHART 4.13.1: The delivery of product increased using reverse logistics in wings.

Interpretation:

The table 4.13 shows that, 8.33 percentage of the respondents strongly agree, 43.33 percentage of the respondents agree, 42.5 percentage of the respondents are neutral, 5 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (43.33%) of the respondents agree that the delivery of product increased using reverse logistics in wings.

TABLE 4.14.1: The reverse logistics has made employee work at ease in wings.

Options	Respondents	Percentage
Strongly Agree	11	9.16
Agree	60	50
Neutral	41	34.16
Disagree	7	5.83
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

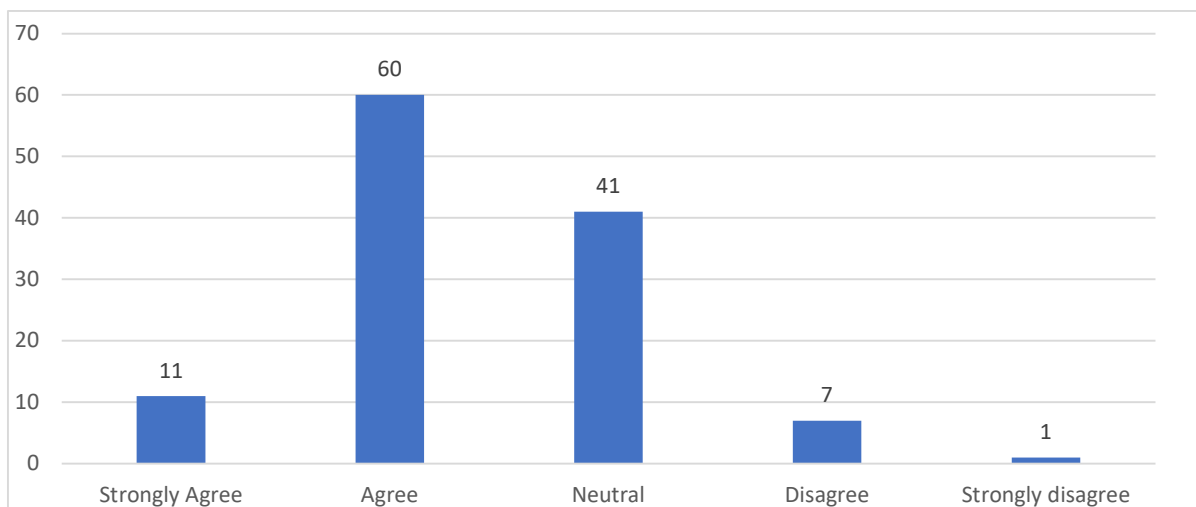


CHART 4.14.1: The reverse logistics has made employee work at ease in wings.

Interpretation:

The table 4.14 shows that, 9.16 percentage of the respondents strongly agree, 50 percentage of the respondents agree, 34.16 percentage of the respondents are neutral, 5.83 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (50%) of the respondents agree that the reverse logistics has made employee work at ease in wings.

TABLE 4.15.1: The performance of the company has increased after implementing reverse logistics in wings.

Options	Respondents	Percentage
Strongly Agree	43	35.83
Agree	64	53.33
Neutral	11	9.16
Disagree	1	0.8
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

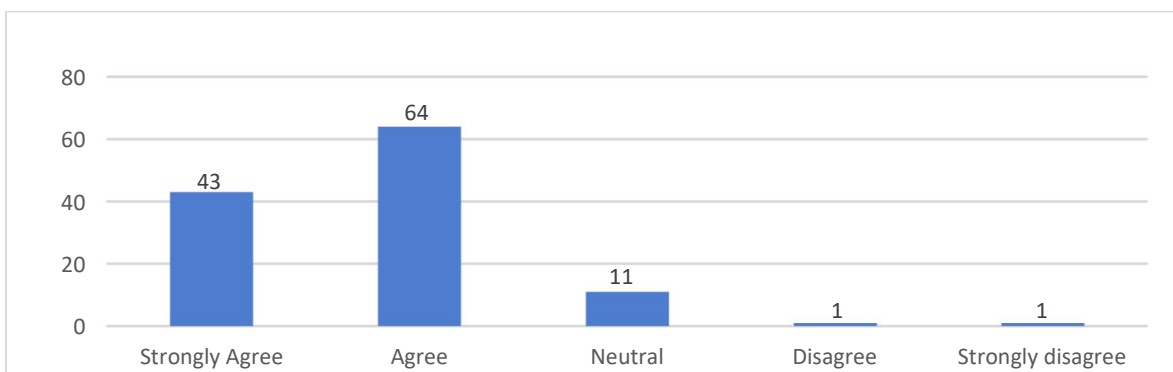


CHART 4.15.1: The performance of the company has increased after implementing reverse logistics in wings.

Interpretation:

The table 4.15 shows that, 35.83 percentage of the respondents strongly agree, 53.33 percentage of the respondents agree, 9.16 percentage of the respondents are neutral, 0.8 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (53.33%) of the respondents agree that the performance of the company has increased after implementing reverse logistics in wings.

TABLE 4.16.1: The reverse logistics reduced the time taken for processing.

Options	Respondents	Percentage
Strongly Agree	1	0.8
Agree	25	20.83
Neutral	26	21.66
Disagree	41	34.16
Strongly disagree	27	22.5
Total	120	100

Sources: Primary data

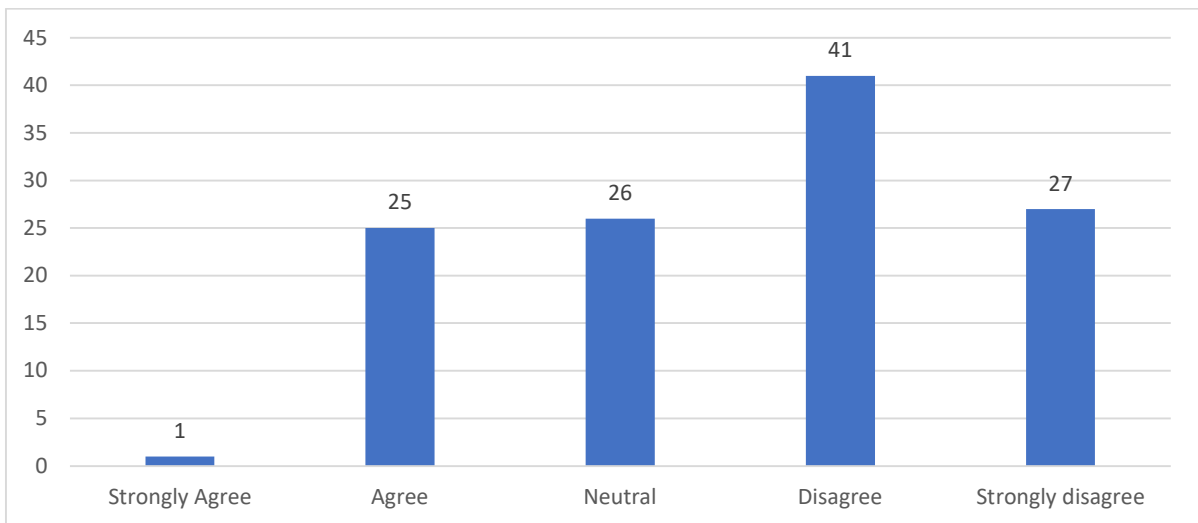


CHART 4.16.1: The reverse logistics reduced the time taken for processing.

Interpretation:

The table 4.16 shows that, 0.8 percentage of the respondents strongly agree, 20.83 percentage of the respondents agree, 21.66 percentage of the respondents are neutral, 34.16 percentage of the respondents disagree, 22.5 percentage of the respondents strongly disagree.

Inference:

Majority (34.16%) of the respondents disagree that the reverse logistics reduced the time taken for processing.

TABLE 4.17.1: Competitive issues are barriers to successful Reverse Logistics Activities existing in wings.

Options	Respondents	Percentage
Strongly Agree	16	13.33
Agree	59	49.16
Neutral	39	32.5
Disagree	5	4.16
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

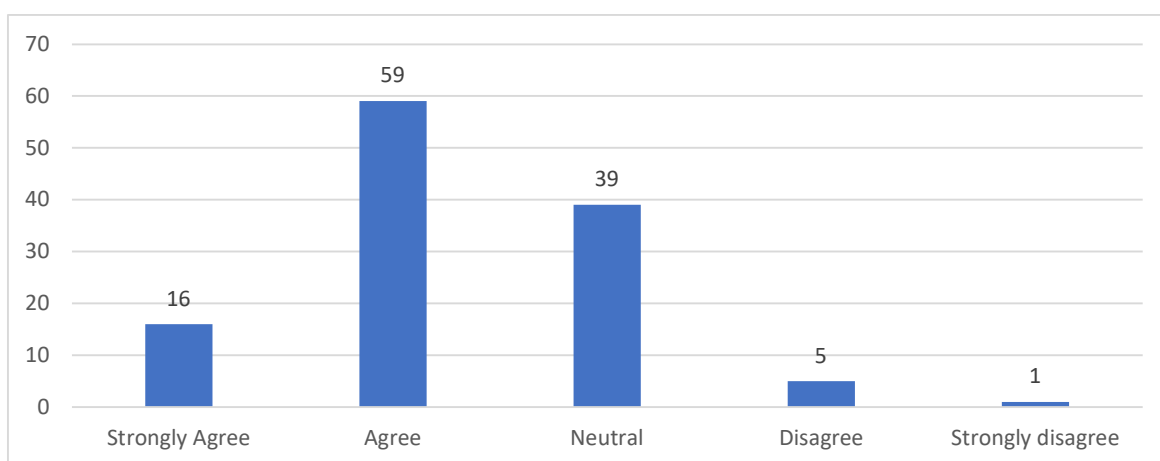


CHART 4.17.1: Competitive issues are barriers to successful Reverse Logistics Activities existing in wings.

Interpretation:

The table 4.17 shows that, 13.33 percentage of the respondents strongly agree, 49.16 percentage of the respondents agree, 32.5 percentage of the respondents are neutral, 4.16 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (49.16%) of the respondents agree that the competitive issues are barriers to successful Reverse Logistics Activities existing in wings.

TABLE 4.18.1: Financial issues are barriers to successful Reverse Logistics Activities exist in wings.

Options	Respondents	Percentage
Strongly Agree	28	23.33
Agree	63	52.5
Neutral	27	22.5
Disagree	1	0.8
Strongly disagree	1	0.8
Total	120	100

Sources: Primary data

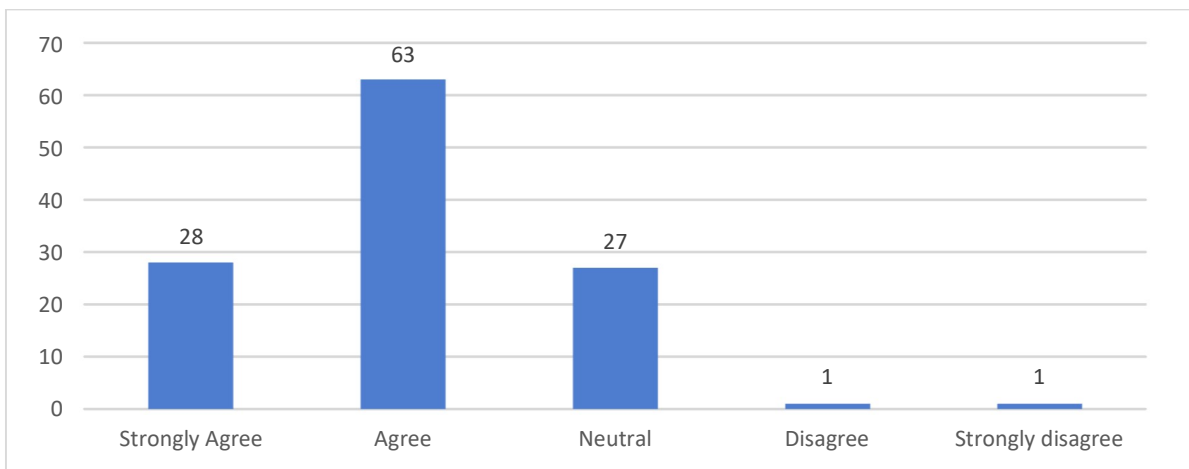


CHART 4.18.1: Financial issues are barriers to successful Reverse Logistics Activities exist in wings.

Interpretation:

The table 4.18 shows that, 23.33 percentage of the respondents strongly agree, 52.5 percentage of the respondents agree, 22.5 percentage of the respondents are neutral, 0.8 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (52.5%) of the respondents agree that the financial issues are barriers to successful Reverse Logistics Activities exist in wings.

TABLE 4.19.1: Transport system is a barrier to a successful Reverse Logistics Activities exist in wings.

Options	Respondents	Percentage
Strongly Agree	52	43.33
Agree	39	32.5
Neutral	11	9.16
Disagree	14	11.6
Strongly disagree	4	3.33
Total	120	100

Sources: Primary data

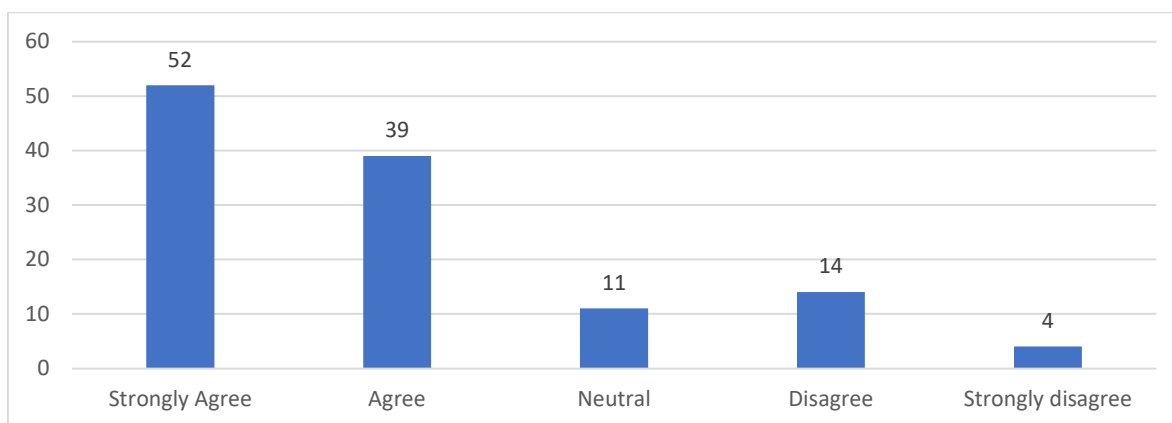


CHART 4.19.1: Transport system is a barrier to a successful Reverse Logistics Activities exist in wings.

Interpretation:

The table 4.19 shows that, 43.33 percentage of the respondents strongly agree, 32.5 percentage of the respondents agree, 9.16 percentage of the respondents are neutral, 11.6 percentage of the respondents disagree, 3.33 percentage of the respondents strongly disagree.

Inference:

Majority (43.33%) of the respondents agree that the transport system is a barrier to a successful Reverse Logistics Activities exist in wings.

TABLE 4.20.1: The availability of driver and vehicles in wings.

Options	Respondents	Percentage
Always Available	11	9.2
Available	60	50
Neutral	38	31.7
Less Available	11	9.2
Not Available	-	-
Total	120	100

Sources: Primary data

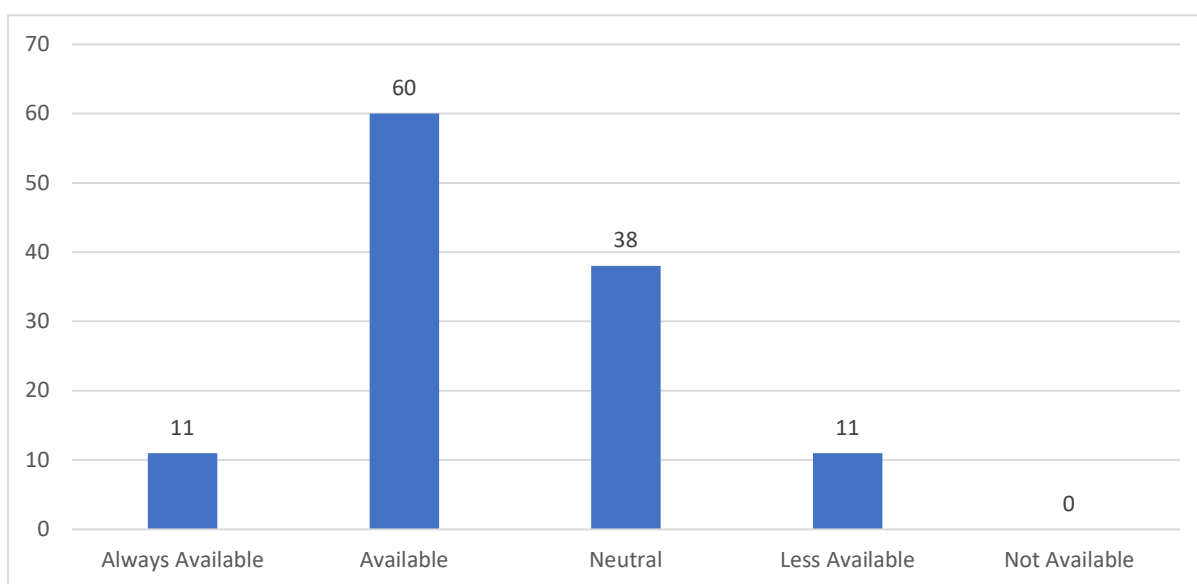


CHART 4.20.1: The availability of driver and vehicles in wings.

Interpretation:

The table 4.20 shows that, 9.2 percentage of the respondents rate always available, 50 percentage of the respondent's rate available, 31.7 percentage of the respondents are neutral, 9.2 percentage of the respondent's rate less available.

Inference:

Majority (50%) of the respondents says that availability driver and vehicle is high.

4.2 CHI SQUARE TEST

Null Hypothesis (H0) - There is no difference between awareness and after implementing reverse logistics.

Alternative Hypothesis (H1) - There is difference between awareness and after implementing reverse logistics.

Table 4.2.1: Table showing the association between awareness and after implementing reverse logistics.

Case processing summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
How well you know about reverse logistics? * The performance of the company has increased after implementing reverse logistics in wings.	120	100.00%	0	0.00%	120	100.00%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.819 ^a	12	.006
Likelihood Ratio	21.828	12	.039
Linear-by-Linear Association	4.209	1	.040
N of Valid Cases	120		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .01.

INFERENCE:

- It is found from the chi square test that the significance value is 0.006 which is lesser than 0.05. Hence, Null hypothesis is rejected.
- Therefore, there is a significant difference between awareness and after implementing reverse logistics.
- Hence, it is inferred that awareness of reverse logistics among workers have made the reverse logistics effective after implementation.

4.3 CORRELATION ANALYSIS

Table 4.3.1: Table showing the correlation between the delivery of product increased using reverse logistics and employee work at ease.

Correlations

		The delivery of product increased using reverse logistics in wings	The reverse logistics has made employee work at ease in wings
The delivery of product increased using reverse logistics in wings	Pearson Correlation	1	.530**
	Sig. (2-tailed)		.000
	N	120	120
The reverse logistics has made employee work at ease in wings	Pearson Correlation	.530**	1
	Sig. (2-tailed)	.000	
	N	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

INFERENCE:

- From the above table 4.3.1, Pearson correlation value is 0.530. Therefore, there is a positive correlation.
- Hence, there is a significantly positive correlation between between the delivery of product increased using reverse logistics and employee work at ease.

CHAPTER 5

FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS OF THE STUDY

- Majority (89.2%) of the respondents are male.
- Majority (38.3%) of the respondents have age between 30-35 years.
- Majority (55%) of the respondents have completed bachelor's degree.
- Majority (53.3%) of the respondents are having great awareness on reverse logistics.
- Majority (41.7%) of the respondents are with the monthly income between 25000-34000.
- Majority (46.7%) of the respondents are having work experience between 2 to 5 years.
- Majority (55.83%) of the respondents agree that Reselling of products play a significant role in cost reductions at wings.
- Majority (51.6%) of the respondents agree that Product recovery plays a significant role in improving profitability at wings.
- Majority (46.66%) of the respondents agree that Eco-branding plays a significant role in expanding the market share at wings.
- Majority (39.16%) of the respondents Disagree that before implementing reverse logistics, the logistics was periodically reviewed.
- Majority (43.33%) of the respondents Disagree that Logistics processing was satisfactory before implementation of reverse logistics.
- Majority (47.5%) of the respondents Disagree that the performance of the company was good before implementing reverse logistics in wings.
- Majority (43.33%) of the respondents agree that the delivery of product increased using reverse logistics in wings.
- Majority (50%) of the respondents agree that the reverse logistics has made employee work at ease in wings.
- Majority (53.33%) of the respondents agree that the performance of the company has increased after implementing reverse logistics in wings.
- Majority (34.16%) of the respondents disagree that the reverse logistics reduced the time taken for processing.

- Majority (49.16%) of the respondents agree that the competitive issues are barriers to successful Reverse Logistics Activities existing in wings.
- Majority (52.5%) of the respondents agree that the financial issues are barriers to successful Reverse Logistics Activities exist in wings.
- Majority (43.33%) of the respondents agree that the transport system is a barrier to a successful Reverse Logistics Activities exist in wings.
- Majority (50%) of the respondents says that availability driver and vehicle is high.

5.2 SUGGESTIONS

- The overall experience index from the study reveals that the company is performing very well and customers buying are much experience with the service given to them.
- Some of the customers have complained about the slack in the delivery process and timings. Therefore, this is the area which I recommend to the showroom to focus a little bit more. It needs to improve its delivery process and time. Need to become little quick and fast.
- Wings Foods and Chemicals Private Limited must consider in decision-making processes concerning the design and development of their competitive issue.
- It is further recommended for wings to pay more attention to the reverse logistics processes as the cost for reverse logistics is around 5 to 10% of the total costs for logistics which is a small percentage but nevertheless an opportunity for improvement.

5.3 CONCLUSION

This project indicated that product returns management, recycling management, disposal management and product repackaging have a positive relationship with performance of food products in Wings Foods and Chemicals Private Limited. Good reverse logistics management not only results in reduced costs, but it can also increase revenues. A lot of money is being made and saved by bright managers who are focused on improving the reverse logistics processes of their company. While sometimes derisively referred to as junk, much value can be obtained from managing the reverse flow cost effectively. While the efficient handling and disposition of returned product is unlikely to be the primary basis upon which a firm competes, it can make a competitive difference. Finally, the study recommended that food products should embrace reverse logistics to improve performance and further research should be carried out in other sectors to find out if the same results can be obtained.

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APPENDIX – I (Questionnaire)

(1) Age

- (a) 20-25
- (b) 25-30
- (c) 30-35
- (d) 35-40
- (e) Above 40

(2) Gender

- (a) Female
- (b) Male

(3) Highest qualification

- (a) high school
- (b) diploma
- (c) bachelor's degree
- (d) master's degree

(4) How well you know about reverse logistics?

- (a) Very Great extent
- (b) Great extent
- (c) Moderate extent
- (d) Little extent
- (e) Not at all

(5) Monthly income

- (a) Under 15000
- (b) 15000-24000
- (c) 25000-34000
- (d) 35000-44000
- (e) Above 45000

(6) Work experience

- (a) Less than one year
- (b) 1-2years
- (c) 2-5years
- (d) 5-10years
- (e) More than 10years

(7) Reselling of products play a significant role in cost reductions at wings

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(8) Product recovery plays a significant role in improving profitability at wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(9) Eco-branding plays a significant role in expanding the market share at wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(10) Before implementing reverse logistics, the logistics was periodically reviewed.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(11) Logistics processing was satisfactory before implementation of reverse logistics.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(12) The performance of the company was good before implementing reverse logistics in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(13) The delivery of product increased using reverse logistics in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(14) The reverse logistics has made employee work at ease in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(15) The performance of the company has increased after implementing reverse logistics in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(16) The reverse logistics reduced the time taken for processing.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(17) Competitive issues are barriers to successful Reverse Logistics Activities existing in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(18) Financial issues are barriers to successful Reverse Logistics Activities exist in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(19) Transport system is a barrier to a successful Reverse Logistics Activities exist in wings.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

(20) Rate the availability of drivers and vehicles in wings.

- ☐ Always available
- ☐ Available
- ☐ Neutral
- ☐ Less available
- ☐ Not Available

APPENDIX – II (Article)

A STUDY OF REVERSE LOGISTICS IN FOOD PRODUCTS AT WINGS FOODS AND CHEMICALS PRIVATE LIMITED

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ABSTRACT

This project focuses on explore the factors of revers logistics implementation based on survey questionnaires for Wings Foods and Chemicals Private Limited. Reverse logistics stands for all operations associated with the reuse of products and materials. It is the method of designing, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the purpose of consumption to the aim of origin for the aim of recapturing value or proper disposal. The study could provide appropriate and timely information about the position of preference level of reverse logistics towards Wings Foods and Chemicals Private Limited. The main objective of this project is to study and understand the reverse logistics by taking response from 120 respondents at Wings Foods and Chemicals Private Limited. As the objectives of this study is to analyse the effectiveness after implementing reverse logistics and strategies adopted. Data was analysed through descriptive statistical methods such as percentage analysis, Statistical Package for Social Science (SPSS) to draw a conclusion.

INTRODUCTION

Reverse logistics represents all activities related to the reuse of products and materials. It is a process of "organizing, operating, and managing the flow of goods, costly goods, continuous collection, finished goods and related information from the place of consumption to the place of origin for the purpose of retrieval or disposal. Where to go for the purpose of capturing value, or disposal. for goods, an appliance returns at least one step back from the supply list.

Negotiations for the distribution of goods in the food industry are very concerned with the provision of supply, that is, to get products from farms or factories to retailers where they can be sold. However, these transactions are only part of the transaction process. When food products arrive at the market, something has to happen to the ship's ports and packaging materials used for transportation - and to any food that can be sold. Re-use of goods and the re-sale or disposal of non-sale products requires the establishment of a return chain.

REVIEW OF LITERATURE

Alexander Kyalo Mutuku, Dr. Makori Moronge (2020) This study used probability sampling since the population and site of food and beverage manufacturing firms is known . Specifically, the study used stratified sampling to account for the uneven distribution of firms in various towns. supported distribution of firms within the ten towns the study used proportions calculated within the population distribution to return up with a representative sample distribution. The proportions calculated give the quantity of firms to be included within the sample for each segment. Thereafter simple sampling was used to select the names of food and beverage manufacturing firms during which data is to be collected. The study combined two methods in its data collection that's , questionnaires and key informant interviews. Inferential analyses were utilized in reference to correlation analysis and multivariate analysis to check the connection between the four explanatory variables and therefore the explained variable.

S. Senthil, R. Sridharan (2016) presents a review of literature in reverse logistics. Several extensions are possible in reverse logistics. User friendly and smart move network also can be developed. Probabilistic demand pattern also can be considered in future studies.

Fayçal Mimouni, Abdellah Abouabdellah, Hassan Mharzi (2016) The study during this article consists of measuring the break-even of reverse logistics during a direct supply chain. Also, when returning a product, there are different types of returned products. Another perspective would be to develop an analytical method that can reduce the impact of the random behaviour of the reverse logistics. This methodology could be supplemented by a forecasting tool that can approach the random behaviour of returns to provide more precise results.

OBJECTIVES

PRIMARY OBJECTIVE

To analyze reverse logistics in food products at Wings Foods and Chemicals Private Limited

SECONDARY OBJECTIVES

- To analyse the performance of a company before implementing the reverse logistics strategies.
- To study the reverse logistics strategies adopted in wings.
- To measure the effectiveness of reverse logistics in wings

RESEARCH METHODOLOGY

The study is also done for providing suitable suggestions (or) measure the performance of the company after implementing reverse logistics to improve the existing reverse logistics performance This project is designed mainly to identify and evaluate the response towards reverse logistics provided by Wings Foods and Chemicals Private Limited. The response are taken by questionnaire from 120 respondents. Findings and interpretation of the response are analysed by Percentage analysis, Chi- square test.

DATA ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

1) Awareness of respondents on Reverse logistics

Particulars	No. of Respondents	Percentage
Very Great extent	24	20
Great extent	64	53.3
Moderate extent	31	25.8
Little extent	1	0.8
Not at all	-	-
Total	120	100

Interpretation:

The above table shows that, 20 percentage of the respondents are aware to a very great extent, 53.3 percentage of the respondents are aware to a great extent, 25.8 percentage of the respondents are aware to a moderate extent, 0.8 percentage of the respondents are aware only to a little extent.

Inference:

Majority (53.3%) of the respondents are having great awareness on reverse logistics.

2) The performance of the company has increased after implementing reverse logistics in wings.

Options	Respondents	Percentage
Strongly Agree	43	35.83
Agree	64	53.33
Neutral	11	9.16
Disagree	1	0.8
Strongly disagree	1	0.8
Total	120	100

Interpretation:

The above table shows that, 35.83 percentage of the respondents strongly agree, 53.33 percentage of the respondents agree, 9.16 percentage of the respondents are neutral, 0.8 percentage of the respondents disagree, 0.8 percentage of the respondents strongly disagree.

Inference:

Majority (53.33%) of the respondents agree that the performance of the company has increased after implementing reverse logistics in wings

4.2 CHI - SQUARE TEST

Null Hypothesis (H0) – There is no difference between awareness and after implementing reverse logistics.

Alternative Hypothesis (H1) - There is difference between awareness and after implementing reverse logistics.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.819 ^a	12	.006
Likelihood Ratio	21.828	12	.039
Linear-by-Linear Association	4.209	1	.040
N of Valid Cases	120		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is .01.

INFERENCE:

- It is found from the chi square test that the significance value is 0.006 which is lesser than 0.05. Hence, Null hypothesis is rejected.
- Therefore, there is a significant difference between awareness and after implementing reverse logistics.
- Hence, it is inferred that awareness of reverse logistics among workers have made the reverse logistics effective after implementation.

FINDINGS

- Majority (53.3%) of the respondents are having great awareness on reverse logistics.
- It is found from the chi square test that the significance value is 0.006 which is lesser than 0.05. Hence, Null hypothesis is rejected.
- Majority (53.33%) of the respondents agree that the performance of the company has increased after implementing reverse logistics in wings.

SUGGESTIONS

- The overall experience index from the study reveals that the company is performing very well and customers buying are much experience with the service given to them.
- Therefore, this is often the world which i like to recommend to the showroom to focus a touch bit more. It must improve its delivery process and time. Need to become little quick and fast.
- Wings Foods and Chemicals Private Limited must consider in decision-making processes concerning the design and development of their competitive issue.

CONCLUSION

This project indicated that product returns management, recycling management, disposal management and product repackaging have a positive relationship with performance of food products in Wings Foods and Chemicals Private Limited. Good reverse logistics management not only leads to reduced costs, but it also can increase revenues. Finally, the study recommended that food products should embrace reverse logistics to improve performance and further research should be carried out in other sectors to find out if the same results can be obtained.

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