

SUPPLY CHAIN MANAGEMENT AND ITS APPLICATIONS

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ABSTRACT

Purchasing is a subset of supply chain management. Purchasing deals primarily with managing all aspects related to the inputs to an organization (i.e., purchased goods, materials, and services), while supply chain management deals with inputs, conversion, and outputs. A supply chain consists of three types of entities: customers, a producer, and the producer's suppliers. The extended supply chain includes customers and suppliers. Supply chain management oversees and optimizes the processes of acquiring inputs from suppliers (purchasing), converting those inputs into a finished product (production), and delivering those products or outputs - to customers (fulfillment). Under this definition, supply chain managers decide where to locate manufacturing and distribution facilities, how to route goods and materials among those facilities, and from which parts of the world to source the inputs. Supply chain management unites disparate functions that historically reported to different executive positions with different, and sometimes conflicting, priorities. However, the purchasing professional can expect to see his or her role expand to include the

management of functions that were separate in the past. These functions include inventory management, internal logistics, warehousing, and other functions that are more related to the input or pre-production side of the supply chain. Today, due to this expanded role, purchasing is often referred to as purchasing and supply management.

Keywords : Supply Chain Management, textile industries, inventory management and suppliers.

INTRODUCTION

This publication was conceived as an introduction to the discipline of Supply Chain Management (SCM), and also various areas supply chain uses. It introduces fundamental SCM concepts and illustrates them with selected agri food related cases from different regions of the developing and developed world. SCM concepts are already consolidated as an essential part of modern management thinking. Its tools and techniques have helped companies in traditional areas such as manufacturing and retailing to achieve unprecedented levels of operational performance and efficiency in transaction coordination with suppliers and customers. The present publication represents a contribution to fill this gap. The text has been planned to constitute a basic reference source for agro food professionals seeking information on this relatively new area of

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work. It should address not only the needs of the traditional audience of FAO publications - field project managers, extension officers, Non-Governmental Organization (NGO) personnel, officers at Ministries of Agriculture etc, but also managers of agro processing plants, agribusiness development service providers and others with professional responsibilities in agro-industrial enterprises and support services. The publication may also be used as reference reading for agribusiness management training purposes and academic programmes.

I. SSCM AND ITS APPLICATION

Supply Chain Management (SCM) has been widely used in various application domains during the last decade. Despite the popularity of SCM research and applications, considerable confusion remains as to its meaning. There are several attempts made by researchers and practitioners to appropriately define SCM. Amidst fierce competition in all industries, SCM and its applications are discussed below.

II. TEXTILE INDUSTRY

The objectives of this study are to assess the degree to which SCM principles are applied in the garment industry and to examine whether the degree of application varies among the manufacturing firms. Twenty managers were selected as respondents from BOI registered garment factories Colombo and Karpaga districts the supply chain management practices enhance the productivity in industries with a large number of network partners and enable to

survive within the competition. Sri Lankan textile industry deals with networks of suppliers and customers in different countries but little research has been conducted to assess the degree of applying SCM principles in the garment industry. The study addresses this gap. The findings disclose that the degree of application of SCM principles is at a moderate level.

It is a well-structured integrated multi-disciplinary programme which combines topics from business and engineering and is ideal for mid-career professionals who are keen to advance their career in supply chain management. The programme will be complemented by site visits to logistics and manufacturing companies, and the country's ports. Expert industry speakers in supply chain management and logistics will be invited to share their best practices.

The programme comprises a comprehensive skill-set for planning and operating modern supply chains in Asia with a global context so that graduates from this programme will be able to assume positions as logistics executives, supply chain analysts and manufacturing planners. Expected learning outcomes include (a) a comprehensive understanding of supply chain management that covers planning, design and operations, (b) exposure to current issues in the wider context of supply chain management and developments in Asia, and (c) in-depth application of theory to solve real-world problems with business analytics methodologies such as optimization, simulation, data analysis, economic analysis and information technology.

III. REAL TIME INVENTORY MANAGEMENT

The growing demand for immediate information in business has driven the creation of real-time solutions by geospatial engineering firms such as NAG Inc. based in Los Angeles. Using web-based mapping technology, NAG creates advanced consumer reporting solutions that allow manufacturers, retailers and distribution companies to collect and crunch real-time inventory and sales data, and make it usable in seconds.

"In the business world time is money and having access to information when you need it makes all the difference between productivity and wasted resources," said Swap an Nag, CEO of NAG, Inc. "Geospatial solutions are paving the way for more efficient and cost-effective companies by arming managers with the timely business intelligence they need to make important decisions."

With the need to get the right product to the right place in the right quantity at the right time, the ability to make immediate production adjustments based on real-time sales trends, and accurately track inventory at various stages of the distribution cycle, can be a game changer.

Cost control, customer service and planning are some of the top challenges of supply chain management. All require the continuous assessment of market conditions and operational performance. Geospatial reporting systems are addressing each of these concerns with their ability to quickly process metric data and illustrate real-time information flows that companies can easily understand.

"We provide a real visual of what is happening, when it's happening," said Nag. "This picture allows businesses to adapt quickly to market trends by bridging the information gap, which increases product success and reduces time-to-market. With increased productivity and reduced waste, products are created and delivered faster and cheaper. qualifications and relevant work experience may be considered subject to recommendation and approval by the Board of Graduate Studies. Admissions are competitive and thus meeting the minimum admission requirements does not guarantee admission. Candidates opting for the program on part-time should preferably have 1 to 3 years of relevant practical work experience after their first degree.

IV. SUPPLIER & INVENTORY MANagements

Balance service levels with stocking levels and Gain company-wide, real-time inventory visibility and with accuracy and predictability, Reduce lost sales due to out-of-stock products and Gain control over your inventory investment & COGS , Inject speed and flexibility into the order process and Increase on-time, error-free deliveries.

V. CUSTOMER SATISFACTION

Some Equipments and the company with CRM tools -sales, customer service, collections all customer-facing personnel and Identify most profitable customers , Measure sales and service performance and Improve quality of customer inquiry responses. Discover customer insights, preferences and trends

VI. ENABLE YOUR BUSINESS FOR GROWTH

Handle substantial business volume and growth, Integrate seamlessly with best in class technologies and Open access to database for desired use of Extend capabilities without major system changes. Employ virtually unlimited staff on system locally and globally.

VII. ACTIVATE SUPPLY CHAIN MANAGEMENT SOFTWARE

It brings your company & supply chain together in a single system – management, purchasing, warehousing, sales, marketing, shipping, and customer service – increasing productivity and

enabling real-time access & visibility across your entire business.

Designed for small & mid-sized businesses, Activate Supply Chain Management includes the powerful inventory & business management features found in Activate, along with extensive productivity enhancements, decision support tools & system access options.

The following table represents the three different approaches and applications are compared and shows the usage of scm concepts and application. The percentage of supply chain management has to categorized in to various ratings

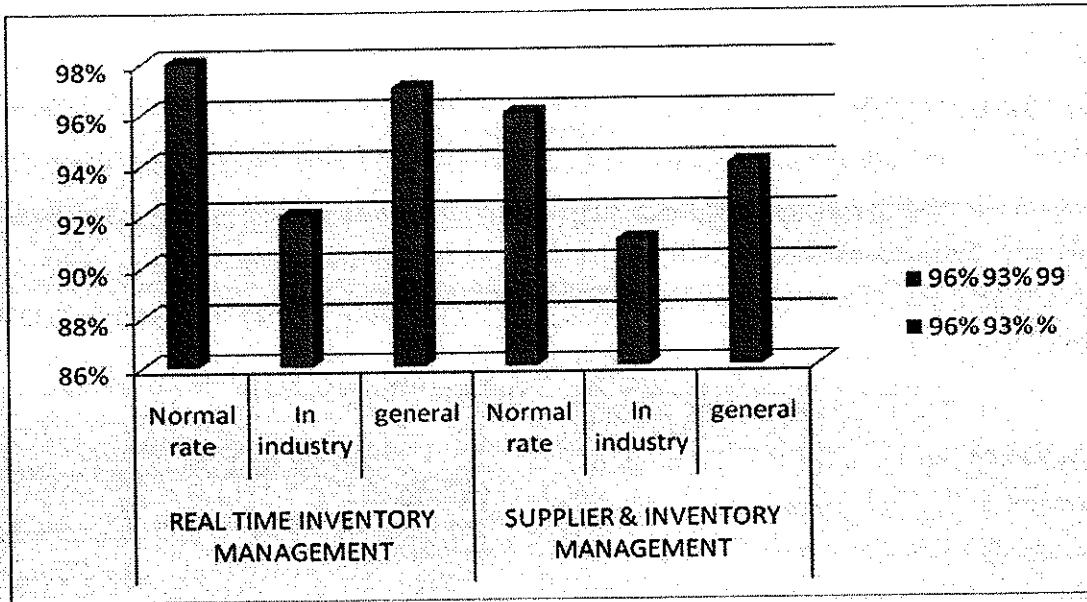
| TEXTILE INDUSTRY | | | REAL TIME INVENTORY MANAGEMENT | | | SUPPLIER & INVENTORY MANAGEMENT | | |
|------------------|-------------|---------|--------------------------------|-------------|---------|---------------------------------|-------------|---------|
| Normal rate | In industry | general | Normal rate | In industry | general | Normal rate | In industry | general |
| 96% | 93% | 99% | 98% | 92% | 97% | 96% | 91% | 94% |

The following graph shows the measurement of various applications of supply chain management a company, normal rate and generally used principles in the industry. For this data the graph can be drawn and shows how the textile industry ,real time inventory management and supplier & inventory management.

The normal rate of real time inventory management increased due to it is used to calculate the present stock level in the company. the maximum and minimum sales, stock level can be analyzed . The economic order quantity are used to find the maximum stock level in the industry.

The graph also explains the supplier & inventory management it is used to calculate the suppliers orders placement, order confirmation, payment details. the inventory management also shows how the stock and work in progress, opening stock, closing stock and also used to calculate the economic order quantity.

The graph clearly shows how the supply chain management applications like real time inventory management and supplier & inventory management are used in the industry in the various levels.



VII. Conclusion and Future Enhancement

Thus, the supply chain management is used in these following areas. And also supply chain management helps to manage the company problems, leads the customer to make the decisions in the business. Supply chain management can be used in many applications such as discussed above, supply chain management also used to calculate the real time inventory management and the supplier & inventory management.

In future, supply chain management can be grown in a large scale companies and suitable for the business solutions. And also it is used in real time product analysis , calculate the economic order quantity, product sales analysis, in a textile industry it can be used to calculate the stock in progress, international trade organisation , product manufacturing, and manage the large organizations.

The supply chain management can also used in business growth in the concern and customer satisfaction. in future supply chain management are used to calculate total ratings of product manufacturing unit in a company and how the products are move to the customers, suppliers through online.

Some of the future enrichment are

1. Customer satisfaction
2. Real time inventory management
3. Suppliers orders can be placed in the online

REFERENCES

[1] R. Arunachalam, J. Eriksson, N. Fine, S. Jansen, and N. Sade. The supply chain management game for the trading agent competition 2004. http://www.sics.se/tac/tacscm_04spec.pdf. Date accessed: Apr 8, 2004, 2004.

- [2] R. Bellman. Dynamic Programming. Princeton University Press, Princeton, NJ, 1957.
- [3] C. Outlier, M. Goldsmith, and B. Sabbath. Continuous value function approximation for sequential bidding policies. In the Fifteenth Annual Conference on Uncertainty in Arterial Intelligence (UAI-99), pages 81{90, Stockholm, 1999.
- [4] C. Outlier, M. Goldsmith, and B. Sabbath. Sequential auctions for the allocation of resources with complementariness. In the Sixteenth International Joint Conference on Arterial Intelligence (IJCAI-99), pages 527{534, Stockholm, 1999.
- [5] S. Butt and A. Grant. A decision-theoretic algorithm for bundle purchasing in multiple open ascending price auctions. In the Seventeenth Canadian Conference on Arterial Intelligence (AI'2004, London, ON, Canada, 2004.
- [6] RuiCarvalho, LuísCustódio, "A Multi agent Systems Approach for Managing Supply-Chain Problems: new tools and results", Intelligence Artificial V. 9, No 25, 2005.
- [7] Vive Kumar, Amid Kumar Gael , Prof. S.Srinivisan, "A Multi agent Conceptualization For Supply-Chain Management", Ubiquitous Computing and Communication Journal, Vole 4, No. 5, 2009
- [8] William E. Walsh and Michael P. Wellman, "Modeling supply chain Formation in Multi agent System", Artificial Intelligence, Vole 4 1788: Agent Mediated Electronic Commerce II, Springer- Velar, 2000
- [9] Yevgeniya Kovalchuk, "Multi-Agent Decision Support System for Supply Chain Management" 10th Int. Conf. on Electronic Commerce (ICEC) '08 Innsbruck, Austria.
- [10] Yang Hang and Simon Fong, "Double-agent Architecture for Collaborative Supply Chain Formation", Proceedings of iiWAS 2008.

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