

# Benchmarking Practice for Identification of Internal Supply Chain Management Performance Factors Gap

Kailash\*, Rajeev Kumar Saha\*\*, Sanjeev Goyal\*\*\*

\*Research Scholar, Mechanical Engineering, YMCAUST, Faridabad, Haryana, India.

Email: [kailashattri.257@gmail.com](mailto:kailashattri.257@gmail.com)

\*\*Assistant Professor, Mechanical Engineering, YMCAUST, Faridabad, Haryana, India.

Email: [rajeevsaha@ymcaust.ac.in](mailto:rajeevsaha@ymcaust.ac.in)

\*\*\*Assistant Professor, Mechanical Engineering, YMCAUST, Faridabad, Haryana, India.

Email: [ersanjeevgoyal@gmail.com](mailto:ersanjeevgoyal@gmail.com)

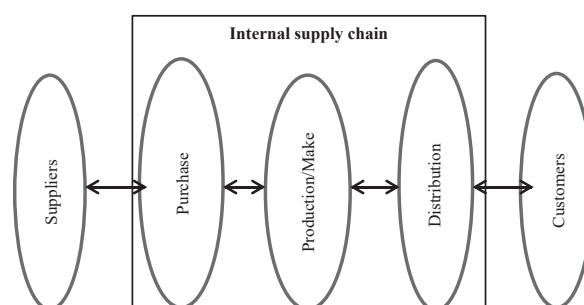
## ABSTRACT

The present study deals with summarizing and analysing the current challenges of internal supply chain management in the Indian manufacturing world. Benchmarking practice for internal supply chain management performance factors may be fruitful to overcome supply chain challenges. The main purpose of this research work is to implement the benchmarking practice in internal supply chain performance factors for the identification of gap between them. Internal supply chain management consists of purchase, production, and distribution units between suppliers and customers. Proper coordination between departments is necessary for efficient working of internal supply chain of manufacturing industry. In this research work, the main objective of the authors are to extract internal supply chain factors through history of literature and prepared mean scorecard on the basis of industrial questionnaire survey results; to implement the regular comparative benchmarking practice in finding out performance gap between factors of internal supply chain until and either the gap is under control or within the limits.

**Keywords:** Benchmarking, Internal Supply Chain Management Elements, Challenges Environment, Industrial Questionnaire Survey and Mean Score Card

## INTRODUCTION

The managerial decision at different levels: strategic level, tactical level and operational levels would be helpful in controlling the supply chain activities of manufacturing industries. Singh and Pandey (2013) identified the variables affecting the performance of a supply chain and prevalent techniques of supply chain performance on the basis of review of research papers. Globally, in any type of manufacturing industry, flow of materials starts from different suppliers of industry to the customer ends through internal supply chain components: purchase, production and distribution unit as shown in Fig. 1. The supply chain management process manages the flow of funds/ information/ raw materials from suppliers to the customer end through various stages (Bhagwat & Sharma, 2007).



**Fig. 1: Supply Chain Management Process of Manufacturing Industry**

Therefore, it becomes essential to take care of all components and flow of internal supply chain as any type of inconsiderate activity regarding the internal supply chain can create loss for manufacturing industry (Kailash, Saha, & Goyal, 2017b). The continuous practice of comparative benchmarking provides relevant information to the manufacturer about the competitors, for example,

how competitors manufactures the best quality products in minimum duration of time at low prices (Drozdowski, 1983).

In this paper, authors have simultaneously used two concepts, benchmarking and internal supply chain management for improving the performance of internal supply chain factors for the manufacturing industry. Pathak (2016) identified the best suppliers by using benchmarking practice. Benchmarking practice may also be helpful in finding out the performance gap between factors. The performance factors of ISCM affect the supply of items at right time, whenever it is required according to the customer demands. Nurizman and Singla (2017) proposed the successful investigation of barriers and enablers of supply chain management practices. During the literature review, the authors have enlisted the following factors which affect directly or indirectly the internal supply chain management: quality system, human resources orientation, inbound logistics, operational logistics, outbound logistics, products delivery, economies of scale, flexibility, logistics strategies, foreign trade and service management, new product development system, material follow up and procurement, production operation process, production programming, and transport-reception-custom decision. In this study, the main focus of authors is on implementing the benchmarking practice to find out the internal supply chain performance factors gap on the basis of experts opinion through industrial questionnaire survey.

## REVIEW OF LITERATURE

Dubey (2014) identified some recent and classical papers which will guide existing and aspiring PhD scholars to undertake their research in supply chain and operations management. Many authors have contributed to the literature on benchmarking which originated in the late 1970s in America (Camp, 1993) but as a research strategy emerged in the 1990s, in the business sector (Saad & Patel, 2006). In 1982, Xerox benchmarked its logistics and distribution unit against retailer L. L. Bean to improve its warehousing and material handling operations (Camp, 1993). A benchmark is measured, best-in-class achievement recognised as the standard of excellence for the business process. Today Indian manufacturing industries are completely capable of producing various variants of products (Sharma, Garg, & Agarwal, 2012). Benchmarking is a continuous improvement process by identifying the gap between performance measures (Le, & Dale, 1997). The objective of benchmarking is to trace the early method of examining policies and products of

competitors to see how they are made and how they could be made, whether the same or better (Ulusoy, & İköz, 2001). The review of literature on benchmarking, supply chain management carried out to identify certain issues which have not been satisfactorily addressed. These issues can be regarded as inadequacies and they offer scope for further research and exploration (Balm, 1996). Bag (2012) reviewed different types of supplier selection models success factors of excellent supply chain. Benchmarking of internal supply chain management continuously compares and measures the internal performance of industry with its business leaders anywhere in the world to gain information that will help the industry to take action in order to improve its performance (Foster, 1992). Kumar, Singh and Shankar (2012) analysed various types of supply chain management issues in automobile industry by SAP-LAP analysis. Benchmarking practice is the latest technique which assists the manufacturing industries in improving the internal supply chain performance (Vig, 1995). The interlinking of benchmarking of manufacturing industries with internal supply chain management is necessary to increase the efficiency of the industry (Tutcher, 1994). Bag, Anand, and Pandey (2014) developed a framework which analyses the complex relationships between identified factors of sustainable supply chain using interpretive structural modelling. The main purpose of this literature review is to identify the internal supply chain performance factors (Table 1) and then implement comparative benchmarking practices to distinguish gap between internal supply chain performance factors.

## INDUSTRIAL QUESTIONNAIRE SURVEYS

The objective of the industrial questionnaire based survey was to find out the internal supply chain performance factors gap within manufacturing industries. Five-point Likert scale was used in the survey for collecting the response of experts. Lesser the points, lesser will be the effect of factor, while higher the point, higher will be the effectiveness of factor. The authors have used own contacts, e-mail and postal survey system for collecting experts opinion through survey. In total, questionnaires were sent to 150 Indian manufacturing industries. Out of 150 questionnaires, 70 filled-up questionnaires were received. The response rate is 46.66 % which is appropriate for continuing research work. The main purpose of this questionnaire-based survey is only to find out the importance of factors in internal supply chain management in practical problems. Through different responses of this survey, different factors with their score and mean score have presented in Table 1.

**Table 1: Mean Score of ISCM Factors**

S. No.	Factors	Score by experts (S)	Mean score = (S/70)
1	Human Resources Orientation	983	14.04
2	Inbound logistics	1700	24.29
3	Operational logistics	879	12.56
4	Outbound logistics	850	12.14
5	Economies of scale	618	8.83
6	Flexibility	581	8.3
7	Logistics strategies	898	12.83
8	New Product development system	883	8.33
9	Material follow up and Procurement	1565	22.36
10	Production Operation Process	990	14.14
11	Production Programming	948	13.54
12	Quality System	1738	24.83
13	Products delivery	1493	21.33
14	Foreign trade and service management	1454	20.77
15	Transport-Reception-Custom decision	1351	19.3

## COMPARATIVE BENCHMARKING PRACTICES IN INTERNAL SUPPLY CHAIN MANAGEMENT: A BRIEF INTRODUCTION

Benchmarking of internal supply chain management is the combination of two word benchmarking and internal supply chain management. Andersen (1994) says that benchmarking is the process of comparing something or someone with best practice. The purpose of internal supply chain management is to manage the flow of material, funds and information within the industry. The main objective of internal supply chain management is only to control the supply chain flow between purchase, production and distribution units within the industry. The internal supply chain management consists of all activities between the departments from initial to final stage. The flow of right information is one of the most critical activities of each department in internal supply chain. An effective flow of raw material/ funds/ information from suppliers to customers or customers to suppliers is very important to the maintain sustainability internal supply chain performance of any manufacturing industry. Internal supply chain of any type of manufacturing industry consists of the purchase, production and distribution departments (Matzko & Wingfield, 1995). The flow of supply chain takes place in forward and reverse direction. When flow is in forward direction then supply chain is known as forward flow supply chain otherwise it is reverse flow

supply chain management. The purpose of benchmarking process is to compare the internal supply chain operation with similar units and standards for reducing the internal supply chain performance factors gap. The implementation of comparative benchmarking practice means is just to compare regularly internal supply chain performance factors and operations between different operating units and departments within industry. The main elements (purchase, production, and distribution) of internal supply chain management are discussed below in brief.

## PURCHASE DEPARTMENT

The functions of purchase department are varied and wide which are based upon different approaches. The purchasing activities may be divided into those that are always assigned to the purchasing department and those that are sometimes assigned to some other department (Cavenato, 1988). The followings are some of the important functions which are necessary to be performed:

- Assessment of demand or description of need
- Selection of sources of supply
- Receiving of quotation
- Placing order
- Making delivery at the proper time by follow-up the orders.

- Verification of invoices
- Inspection of incoming materials
- Meeting transport requirements of incoming and outgoing materials (Richardson, 1992)
- Maintaining purchasing records and files
- Reporting to top management
- Developing coordination among other departments
- Creating goodwill of the organisation in the eyes of the suppliers.

### Production Department

The functions of production department depend upon the size of the industry. In a small industry, the production manager may have to look after production planning and control along with personnel, marketing, finance and purchase functions. In a medium sized industry, there may be separate managers for personnel, marketing and finance functions. But, the production planning and control as well as purchase and stores may be under the control of production department. In a large sized industry the activities of production is confined to the management of production activities only (Tan, 2011).

### Distribution Department

The importance of physical distribution in manufacturing industries are variable in nature and it is typically associated with the types of product (Zairi & Whymark, 2000). Strategically staging products in locations to support order shipments and coming up with a rapid and consistent manner to move the product enables industries to be successful in dynamic markets. Physical distribution is managed with a systems approach and considers key interrelated functions to provide efficient movement of products. The functions are interrelated because any time a decision is made in one area having effect on the others. For example: a business that is providing custom handbags would consider shipping finished products via air freight versus rail or truck in order to expedite shipment time. The importance of this decision would offset the cost of inventory control, which could be more costly. Managing physical distribution from a systems approach can provide benefit in controlling costs and meeting customer service demands (Cetinkaya, Uster, Easwaran, & Keskin, 2009).

## CHALLENGES FOR INDIAN MANUFACTURING INDUSTRIES

Today manufacturing industries produces variety of products like automobiles, construction equipments, FMCG products, medicines, defence weapons, surgical equipment, chemicals etc. The Indian economy is rapidly changing as the variation is taking place in manufacturing sectors. The growth of manufacturing industries depends upon its strategies of production planning and control for creating the products. There are number of competitors in the market who are ready to provide the best quality product with required quantity at right time. Therefore, customer satisfaction is a critical challenge in front of manufacturers.

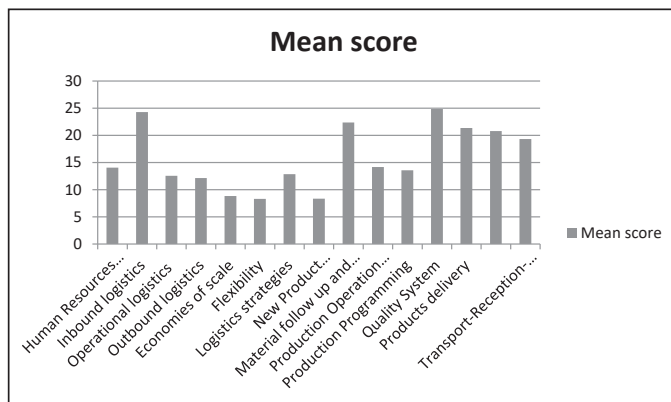
## IDENTIFICATION OF GAP BETWEEN PERFORMANCE FACTORS USING COMPARATIVE BENCHMARKING PRACTICE

Some types of critical field's objective are only to sense the world best practise. Benchmarking practice is a method of making sure that the targets are relevant as per the market needs. Such type of technique is equally applicable in all types of business like manufacturing and service industries (Kailash et al., 2017a).

The identification of comparisons with competitors is not a new idea, while acquiring data about how competitors are performing well is a typical task. The internal supply chain management contained all the activities related to purchasing, production and finally distribution department. Thus, comparative benchmarking practice for internal supply chain management is a proactive management tool which is increasingly being used to identify and focus improvement activities with the goal of international competitiveness. In this type of competitive environment, it is necessary to adopt such type of techniques which articulates us about the strategies of competitor like: how much gap occurs between performance factors. In such types of competitive environment there is more scope of implementation of comparative benchmarking practice in internal supply chain management. This concept should provide help to identify gaps between performance factors and then improve the internal supply chain performance of manufacturing industry by reducing the performance factors gap (Holloway, Francis, Hinton, & Mayle, 1998). Gawankar, Kamble, & Raut (2015) proposed use and application of balance scorecard in depth. The enlisted



performance factors (1-15) of internal supply chain, with mean score 14.04, 24.29, 12.56, 12.14, 8.83, 8.3, 12.83, 8.33, 22.36, 14.14, 13.54, 24.83, 21.33, 20.77, and 19.3 respectively are shown in Fig. 2. Fig. 2 consists of internal supply chain factors along x-axis while mean score values along y-axis. By regular comparative benchmarking practice, we can easily see the gap between factors and then create factors as a benchmark for other factors of manufacturing industries.



**Fig. 2: ISCM Performance Factors Gap Identification by Using Benchmarking Practice**

### CONCLUSION

This paper presents a comprehensive literature review on internal supply chain relationship, benchmarking, and supply chain management. Regarding the application of benchmarking concepts to industry and service sectors, published literature started appearing in a noticeable way only after the 1980s. Different authors had developed different models and frameworks for studying supply chain relationship and benchmarking. But, there is less work published in the field of benchmarking for ISCM of Indian manufacturing industries. Thus, there is a need for improvement and augmentation of benchmarking practice in ISCM of Indian manufacturing industries. The conclusion of this research work is that there is a more future scope for doing research in this area. The comparative benchmarking technique provides hints to identifying and eliminates the internal supply chain performance factors gaps for growth of Indian economy. In this research work, authors have identified fifteen internal supply chain performance factors then collect the opinions of experts about the effectiveness of factors. The individual mean score of each factor has been calculated as shown in Table 1. After completion of research work, authors have identified that factor 2's inbound logistics

and quality systems calculated maximum scores are 24.29 and 24.83 respectively. Therefore, these factors act as a benchmark for remaining thirteen factors for continuously improvement of less scoring factors. The qualitative and quantitative techniques are helpful for growing up less scoring factors while continuously comparative benchmarking practice should assist us to find out the gap between factors until and either it is reduced.

### FUTURE SCOPE

In this research paper, authors have been used comparative benchmarking practice in internal supply chain management for identification of performance factors gap on the basis of other internal factors. Similarly, practice managers and researchers can also use this benchmarking practice research for development of benchmark.

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