

Performance Evaluation of Procurement Department in a Cement Industry

Mian Muhammad Saqib*, Misbah Ullah

Department of Industrial Engineering University of Engineering & Technology,
Peshawar, Pakistan



Abstract – Procurement practices aim at ensuring that organizations get value for money when committing their expenditure. This involves the firm meeting its strategic objectives by purchasing the required goods and services from the right suppliers in an efficient manner. The company under this research is one of the cement industries of Pakistan with the annual dispatch of 45 million tons of cement. For this research Interviews were conducted, data were collected from a software used Sap, collected data were filtered and desired information was retained for research work and were analysed and gaps were identified in the process followed, and also future recommendations for the remedy of these gaps were made. Departmental and parts wise analysis were done which were further subdivide for proper analysis and results. The research objective of this study was to evaluate the procurement process followed by the organization and identify gaps. The research was done for the fiscal year 2017-18. Collected data were presented in the form of tables, charts and graphs.

Keywords – Supply chain, Cement, Procurement.

I. INTRODUCTION

There are many challenges to supply chains in today's world due to the involvement of multiple factors, such as: quality; uncertainty; agility; cost; asset safety and utilization; flexibility; reliability; responsiveness etc. Therefore, supply chain of a company must adapt to the constant internal and external changes. (Phelps, 2006) indicated that almost up to 80% expenses are in supply chains. Thus, whether it is multi-factor challenges or expenses, managing supply chains effectively – i.e. whether responsive, efficient or hybrid – is key for competitive gains as companies with better supply chain management has growth rate from 7-26% above industry average (Phelps, 2006). For this effective management, supply chain performance measurement is pivotal (Shepherd and Gunter, 2006, Chae, 2009). There has been increased pressure for the merging of procurement procedures and objectives with the organization's goals. The

supply chain has been directly linked to the overall company performance and this has therefore made procurement practices vital to company success. Procurement practices positively impact an organization's financial performance. Most organizations use a substantial amount of their income in procurement and therefore recognize the importance of strategic procurement practices Carr and Pearson (2002). Directors and heads of procurement department greatly influence supplier evaluations and the drafting of specifications to ensure the organization gets the best value for its money.

II. LITERATURE REVIEW

Today we realize that competition is between supply chains and no more between companies (Erkan and Bac, 2011). So, effective Supply Chain Management (SCM) is critical for protecting competitive advantage and performance improvement of a supply chain (Trkman et al.,

2007). SCM is the smooth flow and transformation of material from the origin to point of consumption. It includes flow of: materials; information; and money. Conventionally, for functional products the critical factor is cost efficiency and that for innovative products is responsiveness (Fisher, 1997). Organizations usually consider themselves successful in managing their supply chains, however still there are gaps (Elmuti, 2002). As demand for SCM is growing among employers, more universities are adding advanced courses in SCM (Ellram and Cooper, 2014, Webb et al., 2014). This move will further enhance the body of knowledge for supply chain decision making. Conceptually, various supply chain decisions can be segregated in terms of their implications, i.e.: operational; design; and strategic (Huan et al., 2004). For the effective management and decision making in supply chains, performance measurement is fundamental. Neely et al., (1995) defined Performance measurement as the method of calculating effectiveness and efficiency, by gathering, analysing and/or reporting information regarding performance of an individual, team, component or an organization. For organizations, it involves studying: processes /strategies; and existing Parameters or phenomena. The purpose is to evaluate whether outputs are in line with what was planned. Performance measurement of supply chains permits understanding across stages in the chain and promote communication and integration. Supply chain stages may have different goals and missions, however, the introduction of performance metrics across the chain can help in: aligning organizations; redesigning business goals; developing comprehensive strategies; and reforming processes to meet demands of SC (Chan and Qi, 2003).

III. PROCUREMENT PRACTICES:

Procurement practices aim at ensuring that organizations get value for money when committing their expenditure. This involves the firm meeting its strategic objectives by purchasing the required goods and services from the right suppliers in an efficient manner. Timeliness, user integration and process efficiency are used as indicators to measure purchasing. Procurement plans in the long run helps organizations save costs and organizations that purchase items without a procurement plan in the end incur a lot of costs. Money spent to boost service levels in the long run increases market share and business performance. Cost savings are achieved through procurement of quality goods and services, economies of scale and the reduction of products in stock. The use of information technology in procurement, quickens order fulfilment and improves purchaser supplier relationship. Procurement practices

reduce the amount of resources allocated, increases profitability and improves the quality

Procurement Process in Cement Industry

Procurement is the process of finding and agreeing to terms, and acquiring goods, services, or works from an external source, often via a tendering or competitive bidding process. Procurement is used to ensure the buyer receives goods, services, or works at the best possible price when aspects such as quality, quantity, time, and locations are compared. The cement industry plays a major role in the economy of Pakistan in terms of employment creation and total contribution to Gross Domestic Product (GDP). With the number of players increasing in the industry, competition has been heightened. This call for the firms in the cement industry to plan ways to enable them stays competitive. One of this ways is to reduce on the supply chain costs by effectively managing their supply chains. New ways of technology and globalization have created an abundant of business opportunities and challenges to be tapped and mastered. Effective supply chains provide opportunities to create a sustainable competitive advantage (Tracey, Lim, & Vonderembse, 2005). The idea of supply chain management is to evaluate the processes of planning, implementing, and controlling the movement of materials. With the swift development of computer technology the meaning of procurement have been very different from past in modern economics, and the idea of supply chain integrated make the purchasing decision bound to the coordination and demand of supply. The process of procurement in a cement industry in Pakistan which is under discussion deals with the followings

Table 1: Procurement Process

▪ Requirement
▪ Selection of suppliers and issuance of RFQ
▪ Competitive Statement
▪ Purchase approval
▪ Goods receipt and inspection
▪ Payment Processing
▪ Efficiency of procurement processes

The process starts with the requirement or demand of any department within the cement industry, by creating a purchase Requisition (PR) in a software mostly SAP or ORACLE with complete information about the Part or component required, afterwards that PR is received to the

Procurement department and from here the procurement department starts their process by first preparing a request for quotation (RFQ) to different supplier depending upon the requirement of the department, as the quotations are received from different supplier minimum three in the time frame. A comparative statement (CS) is generated by the concern officer in the procurement department and sends to the relevant department from where the demand came.

IV. RESEARCH METHADODOLOGY

A case based research was carried out for finding out the existing performance and opportunities in the supply chain activities performed by Procurement Department of Cement Company in Pakistan. A step-by-step process was followed. The focus of these steps is highly operational. Performance of the existing processes and activities was measured and building an As-Is Model. Gaps were identified and reasons for these gaps were sought out and presented. To-be model was then developed.

Table 2: Research Data:

Total Orders	Average Delivery Days	Total Ordered quantity	Pending Quantity	Daily PR's
14619	51	221568919.5	8463	37

Case 1: Department Wise:

There are different departments in the company under research, but few of them are major which are following the procurement process of the company, only those departments where consider under this research and evaluated according to their requirements and orders placed to procurement department. Basic parameters for evaluation were quantity required and time taken by procurement department to release PO for them. The department under research were Mechanical, electrical, Auto, instrument and General.

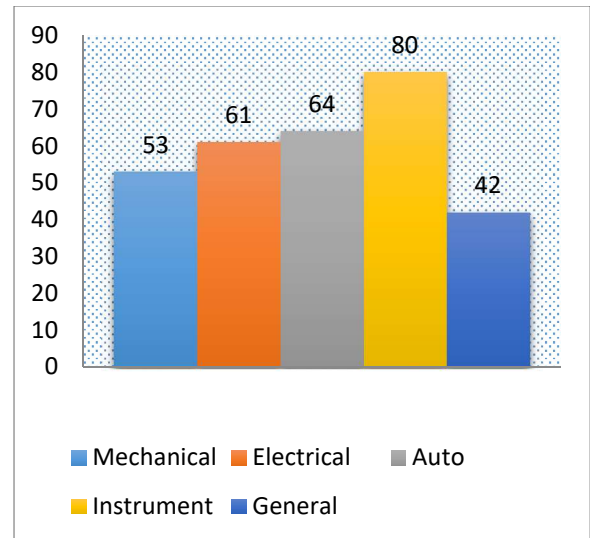


Figure 01: Departments Analysis

Case 2: Parts Wise:

As there are different parts which are ordered on daily basis by different departments depending upon their requirements and usage. Some of them are very important and critical and must be delivered on due time. While some of them are ordered as stock level and are running usage items or spheres. Keeping in view the criticality and importance of parts, few of them is taken for the research purpose and their procurement process is evaluated which includes the following parts which included Filters, Belts, Bearings and Bolts.

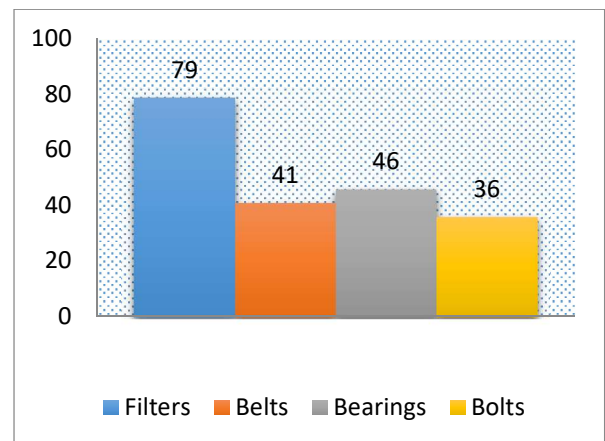


Figure 02: Parts Analysis

V. CONCLUSIONS:

Overall 50 days on average for the fiscal year 2017-18 are required for any purchase requisition to reach to the final stage of purchase order. Whereas mechanical department's purchase request took 53 days, electrical department's 61

days, auto department 64 days, instrument department 80 days and general department took around 42 days.

Likewise different parts were analysed and the results are as under for filters the process from purchase request to purchase order took 79 days, for Belts it was 41 days, for bearings it was 46 days and for bolts it took 36 days the process to be completed in the fiscal year 2017-18.

REFERENCES

- [1] Belfitt et al. (2011). *Sustainable Procurement – Challenges for Construction Practice*. University of Reading; United Kingdom.
- [2] Joyce, W. B. (2006). Accounting, Purchasing and Supply Chain Management. *Supply Chain Management: An International Journal*, 11 (3), 202-207
- [3] ZULQARNAIN, A., IQBAL, S. A. & KHALID, R. 2013. Implementing Six Sigma Methodology in a developing country. *International Journal of Process Management and Benchmarking*, 3, 314-333
- [4] ALLAHDAD, BANO, S. & AKHTAR, M. N. 2012. A supply chain model for SMEs in the weaving sector of Punjab, Pakistan. *Far East Journal of Marketing and Management*, 2, 60-72
- [5] Fisher, M. (1997, March). What is the Right Supply Chain for your Product? *Harvard Business Review*, 75(2), 105-116.
- [6] Available [Online] at : <https://www.apcma.com/>
- [7] CHAE, B. 2009. Developing key performance indicators for supply chain: an industry perspective. *Supply Chain Management: An International Journal*, 14, 422-428
- [8] SALMAN, M., IQBAL, S. A. & KHALID, R. Implementing SCOR (Supply Chain Operation Reference) Model in Manufacturing Firm of a Developing Country. *International Asia Conference on Industrial Engineering and Management*
- [9] Cembeureau (2008) Main Characteristics of the Cement Industry [WWW Document] URL <http://www.cembureau.be/> (visited 2008, November 2).
- [10] Lee, H. (2002, Spring). Aligning Supply Chain Strategies with Product Uncertainties. *California Management Review*, 44(3), 105-119.
- [11] Approach to innovative supply chain strategies in cement industry; Analysis and Model simulation Bernd Noche and Tarek Elhasia. 2nd International Conference on Leadership, Technology and Innovation Management
- [12] Handfield und Nichols Jr. (Sep. 2001). Supply Chain Redesign Transforming Supply Chains into Integrated Value Systems. FT Press Hendriks C.A., Worrell E., Price L., Martin N. and Ozawa Meida L. (2001). Carbon Dioxide Emissions from the Global Cement Industry. *Annu. Rev. Energy Environ.* 26:303 29
- [13] Isabel Agudelo(2009). Supply Chain Management in the Cement Industry. Master thesis in Logistics, published by Massachusetts Institute of Technology, under DOI 496817625
- [14] Post JW. (1995). The Cement Plant Operations Handbook. Dorking, UK: Tradeship. 1st Ed.
- [15] Buzzi Cement (2008). The Group at a Glance. [WWW Document] URL <http://www.buzziunicem.it/contentsmulti/instance1/files/document/1101NdG2007ING.ddf> (visited 2009, April 20).
- [16] Supply Chain Council (2008). SCOR Model. [WWW Document] URL http://www.supply-chain.org/cs/root/scor_tools/resources/scor_model/scor_model (visited 2008, December 2)
- [17] Supply Chain Management in the Cement Industry Isabel Agudelo Industrial Engineering Pontificia Universidad Javeriana Cali, Colombia. 1995
- [18] Effects Of Procurement Practices On Organizational Performance Within The Public Sector: A Case Of East African Portland Cement Company Limited Rono Thomas Kipkemoi
- [19] Investigation on Supply Chain Activities in the Manufacturing Sector of Southern and Western India - *International Journal of Engineering Research and Development*. e-ISSN : 2278-067X, p-ISSN : 2278-800X Volume 2, Issue 8 (August 2012), PP. 33-39
- [20] Supply Chain Operations Reference (SCOR) Model, Overview- Version 10.0
- [21] Supply Chain Operations Reference (SCOR) Model, Overview- Version 10.0
- [22] L. Berrah, V. Cliville, Towards an aggregation performance measurement system model in a supply chain context. *Computers in Industry*, 58, 709-719, 2007.
- [23] L. Berrah, V. Cliville, Towards an aggregation performance measurement system model in a supply chain context. *Computers in Industry*, 58, 709-719, 2007.
- [24] A. Röder, B. Tibken, A methodology for modeling intercompany supply chains and for evaluating a method of integrated product and process documentation. *European Journal of Operational Research*, 169, 1010-1029, 2006

- [25] Wong, A. (1999), "Partnering through cooperative goals in supply chain relationships", *Total Quality Management*, Vol. 10 No. 4/5, pp. 786-92.
- [26] Ansari, A., Lockwood, D.L. and Modarress, B. (1999), "Supplier product integration: a new competitive approach", *Production and Inventory Management Journal*, Vol. 40 No. 3, pp. 57-61.
- [27] Cauthen, R. (1999), "APS technology: powering supply chain management", *Enterprise Systems Journal*, Vol. 14 No. 9, pp. 41-8.
- [28] Childerhouse, P. and Towill, D. (2000), "Engineering supply chains to match customer
- [29] Requirements", *Logistics Information Management*, Vol. 13 No. 6, pp. 337-45.
- [30] Cooper, M.C. and Ellram, L.M. (1993), "Characteristics of supply chain management and the
- [31] Implications for purchasing and logistics strategy", *The International Journal of Logistics Management*, Vol. 4 No. 2, pp. 13-24.
- [32] Cox, A. (1999), "Power, value and supply chain management", *Supply Chain Management*, Vol. 4 No. 4, pp. 167-75.
- [33] Cox, A. (2001a), "The power perspective in procurement and supply management", *Journal of Supply Chain Management*, Vol. 37 No. 2, pp. 4-7.
- [34] Cox, A. (2001b), "Understanding buyer and supplier power: a framework for procurement and supply competence", *Journal of Supply Chain Management*, Vol. 37 No. 2, pp. 8-15.
- [35] Ferguson, B.R. (2000), "Implementing supply chain management", *Production and Inventory Management Journal*, Vol. 2 No. 2, pp. 64-7.
- [36] Hauguel, P. and Jackson, N. (2001), "Outward-looking supply-chain strategy", *European Business Journal*, Vol. 13 No. 3, pp. 113-8.
- [37] Korpela, J., Lehmusvaara, A. and Tuominen, M. (2001a), "Customer service based design of the supply chain", *International Journal of Production Economics*, Vol. 69 No. 2, pp. 193-204
- [38] Lambert, D.M. and Cooper, M.C. (2000), "Issues in supply chain management", *Industrial Marketing Management*, Vol. 29 No. 1, pp. 65-83.