

Enhancement of Procurement Process through 5S and ABC Analysis. A Case Study

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Abstract:

Procurement is crucial department in any organization, this can involve defining standard operating procedure, specifications determination, purchase planning, supplier research, selection criteria, price negotiation, financing, and inventory control. As 5S belongs to Lean philosophy and discipline which at its core competence increases access to information to ensure responsible decision making in the service of creating customer values. This research work a is investigation carried out to consider for challenging situation of processing Purchase Requisitions from different unit plants and tries to complete them on timely basis.

Key words: Procurement, indents, purchase requisitions, 5S, ABC analysis etc.

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I. INTRODUCTION TO PROCUREMENT DEPARTMENT IN ORGANIZATION:

Procurement is crucial department in any organization, it includes the processing and preparation of end user demand accomplishment through receipt of required supply and service and complete process by approval of payment. Comprehensively, this can involve defining standard operating procedure, specifications determination, purchase planning, supplier research, selection criteria, price negotiation, financing, and inventory control. Procurement is required to achieve desired outcome through cost saving, reducing lead time, and developing win-win supplier relationships. Basically procurement is a procedure of purchasing goods and services against requisition from end users.

CLASSIFICATION OF PROCUREMENT IN ORGANIZATION:

For full-filling any organization requisitions procurement process classified into two main types as direct procurement, indirect procurement. Direct procurement also called direct spend is Acquisition of goods, materials, and/or services for manufacturing purposes refers to anything that is required to produce an end product this includes Raw materials, Components and parts, Machinery, Items purchased to resell. Indirect

DIFFERENCE BETWEEN PROCUREMENT AND PURCHASE:

Although both purchase and procurement have same connotation of buy some goods or services, but basic difference between them is the procedure of buying of entity also purchase is a part of procurement, In purchase focuses on short-term goals and business needs only, by making an allowance for the full-filling of requirement without considering any documents and process, the simple act of purchasing is more reactive (Full-Filling Requirement) to internal requests. While, procurement is based on strategic terms, long-term goals, like organization strategy and gaining a competitive advantage by following standard procedure is followed for buying with complete documentation and maintain transparency of buying, Procedure followed in procurement is to arrange of three quotation from different supplier and process for final approval from authority for procurement against purchase order (PO).

Procurement (without a direct contribution to the company's product manufacturing) method involves the materials significant to aid the day-to-day manoeuvre without a direct contribution to the company's product or act of Sourcing and purchasing materials, goods, or services for internal used internally for support of daily operations. One way of classifying indirect procurement is that it never adds to the bottom line of process. It involves expenses like office supplies, equipment repairs, Marketing supplies, Equipment maintenance, Office

suppliers, Marketing services, and costs for acquiring Consulting services. Goods Procurement: Any tangible object, unfinished or finished, office supplies, Raw materials, desks, and other physical goods fall under goods procurement.

Services Procurement: Any non-tangible value purchase, this refers to specialized offerings such as facilities repair or consulting services, it also encompasses purchases such as software work.

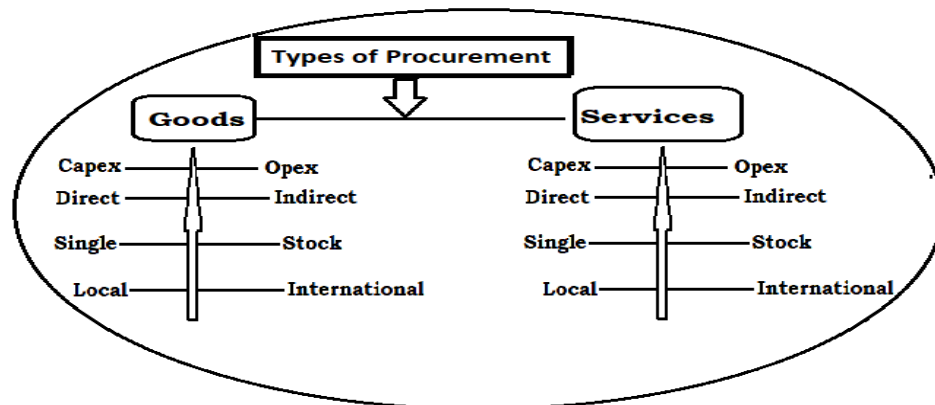


Figure 1: Types of Procurement process.

PROCUREMENT MANUAL: The Procurement Operational Manual is a structured summary of all regulations of a company establish policies and procedures for an effective, fiscally responsible procurement program. In procurement department manual are prepared as written purchase procedure, Standard Operating procedure (SOP), Policies and Department Hierarchy (Organogram), etc.

STEPS INVOLVED TO PROCESS PROCUREMENT: procurement process involves several elements, which includes requirements identification and determination, supplier research and development, Product and Service value analysis, raising a purchase request and orders, re-view phase, conversion to purchase order(PO), Annual contract administration, evaluation /monitoring of received order, three-way matching/Approval, payment process/fulfilment, and finally record keeping. The Requirements. (d) Evaluates demand projections from various verticals and analyses the previous year's (historical data) expenses. (e) Consolidate and prepare similar requirements. (f) Identify

following 10 key steps are crucial to building an effective procurement process cycle:

1. **PROCUREMENT PLANNING:** Procurement planning is the process of considering the procurement necessities by identifying and consolidating requirements and determining the timeframes to minimize their purchase costs while maintaining their quality and quantity of goods standards for their procurement with the aim of having them as and when they are required. Steps in Preparing a Procurement Planning are (a) list out the needs or requirements by Collect the list of needs from the user departments and Research the local market for the prices and availability of goods. (b) Determine the quantities and expected costs. (c) Determine when the requirements shall be needed for use (Lead time). Identify the inter-relationships (Different Department) between and among the

appropriate procurement procedure and methods. (g) Schedule lead times for each process completion. (h) Prepare an application sheet and records to identifying key dates for each process.

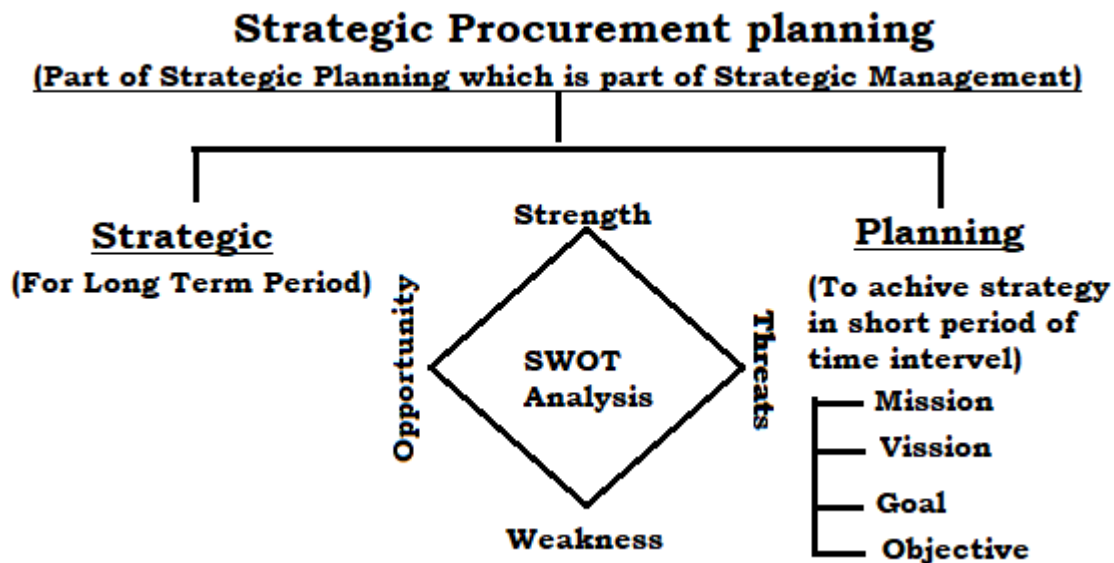


Figure 2.0: Strategic Procurement Planning

2. PURCHASE REQUISITION OR

INDENTING/DEMAND: Purchase Indent is an internal document used by industrial organisations to authorize the requisition of purchase of raw materials, consumables, capital items, services etc. It is usually prepared by the store-in-charge for the replenishment of stocks or by end-users of the department for new requirements through procurement head, the end-user department and its head, and the budget approving authority must approve the purchase requisition.

3. IDENTIFICATION OF SUPPLIER/VENDOR

CATEGORY: Supplier identification and evaluation is the process of searching for potential suppliers who fulfils the “Five Rights” objectives (Required Quality, Required Quantity, at the Required Time, Required Place at the Required Price). The outcome of this process is to compute and compile a list of potential suppliers.

4. FLOAT REQUIREMENT FOR QUOTATION:

A request for a quote (RFQ) is a formal process of exchange information to potential supplier potential suppliers or service providers to submit their price

quotations and stand a chance to supply or provide goods or services.

5. EVALUATE QUOTATIONS: This procedure covers Primary estimation criteria of technical evaluation of vendors' quotations for equipment, materials and subcontracts, including total cost (cost of the goods, packing and forwarding, freight, quantity, warranties, guaranties, discounts and payment terms) and availability of goods. A comparative assessment of the above parameters is tabulated for easy decision-making apprising all above terms with scope of work requirements, functional/ operational performance requirements, conformity to site conditions, execution in conformity with the requisition and standards mentioned therein, test, inspection, calibration and guarantee, certificates for materials, calibration, safety (e.g. ex-proof), external appearance (standard height of cabinets) and finish, field assistance requirements, spare parts, bonded spares, maintenance service, conformity to other requirements of engineering documents/drawings. Kraljic’s initial portfolio model is based on determining the characteristics of the buyer-supplier relationship and assigning proper strategies and standard to procure commodities.

KRALJIC'S PORTFOLIO MATRIX

Each of the four categories of commodities in the KPM requires a different approach to suppliers.

Profit impact	High	Leverage items <ul style="list-style-type: none"> • Standard, substitutable • Alternate suppliers • High volume or cost 	Strategic items <ul style="list-style-type: none"> • Strategically important • Substitution difficult • No alternate suppliers
	Low	Noncritical items <ul style="list-style-type: none"> • Standard, substitutable • Alternate suppliers • Low volume or cost 	Bottleneck items <ul style="list-style-type: none"> • Substitution difficult • Monopolistic market • Critical items
		Low	High

Supply risk

Figure 3.0: KPM approach to select supplier.

6. **NEGOTIATE AND SIGN OF AGREEMENT:** Contract negotiation is the process through which two or more parties deliberate over the terms of a contract to reach an agreement set of legally binding terms on how their relationship will operate and what their obligations will be. When two companies negotiate, to build mutually agreed contract drawn up and signed by both parties and both parties seek to obtain favourable terms and minimize operational, financial and legal risk.

7. **RELEASE PURCHASE ORDER (PO):** A purchase order (PO) is legal binding contract order a buyer sends to a supplier or vendor to authorize a purchase with a commercial agreed source document (payment terms, order date, shipping information, discount conditions, names of suppliers, description of goods, price per unit, and total quantity of items required etc.) this is normally issued/monitored by procurement department.

TYPES OF PURCHASE ORDERS: Basically purchased orders are classified into four Basic Types:

9. **INVOICE APPROVAL & PROCESS PAYMENT:** The goods receipt note (GRN) is created if the delivery is accepted. Any nonconformity based on the agreement is recorded and conveyed to the supplier. Further Movement in goods out (MIGO) and (Movement in Receipt out) MIRO are transaction codes used for entry of goods in system usually in Systems, Applications & Products in Data Processing (SAP) Software, and finally process supplier payment.

(1) **STANDARD PURCHASE ORDER:** These purchase orders are process through standard specifications as quantity, HSN, Terms & Conditions, freight, P&F, Delivery and warranty etc.

(2) **PLANNED PURCHASE ORDER:** In these orders monthly quantity known for minimum period time and rotate on monthly basis as per requirement.

(3) **BLANKET PURCHASE ORDER:** In these types quantity is not defined and consumption is not clear such as Petrol, PET bottles etc. These orders are processed on order quantity requirement wise in which prices are fixed.

(4) **CONTRACT PURCHASE ORDER:** These purchase orders are process for certain duration on the basis of contract, in these orders usually contract signed/confirmed by both parties' buyer & Seller.

8. **MATERIAL RECEIPT AND QUALITY APPROVAL:** once the contracted material delivered a physical inspection is carried out by concern user department for technical verification as per user requirement specification (URS). Further main-store is accountable for verification of quantity as per issued PO.

10. **MAINTAIN AUDIT RECORDS:** Managing and maintaining all the documents –quotations, comparisons, Indent/PR, agreements/contracts, Purchase Order, invoices, packing lists and GRN For auditing and filing statutory and compliance requirements.

DIFFERENT PROCUREMENT PROCESSES: Procurement is crucial process which drive as per situation and complexity of requirement to procure. Essentially in any

industrial organisation procurement are governed through 6 basic category.

1. **OPEN TENDERING:** This is process through Advertisement of Requirement to fulfil, basically these type is required to stimulate competition and minimize discrimination among competing contractors, suppliers, or vendors, usually applied where the process or guidelines may or may not be completely transparent.
2. **RESTRICTED TENDERING:** For bigger projects where time bound is much higher is applicable in this type only selected vendors are invited on the basis of past record of references of work accomplished by supplier.
3. **TWO STAGE TENDERING:** In this type of tendering separately quotation are invited for Technical specifications and Rates of requirement.
4. **REQUEST FOR PROPOSAL (RFP PROCESS):** Basically this type of procurement process is applicable where new projects are under processed.
5. **REQUEST FOR QUOTATION (RFQ PROCESS):** This type of procurement process is applicable for existing projects, machineries or services.

6. **SINGLE SOURCE:** This process is applicable for complex procurement where the supplier of required item or service is limited or single source or original equipment manufacturer.

PROCUREMENT SOURCING: PROCUREMENT sourcing is a process that connects data collection, market research, negotiation, spend analysis and contracting. This sourcing is usually applicable for (1) Least Possible Price (2) Goods Quality and (3) Timely Delivery.

TYPES OF SOURCING: Basically for procurement purpose sourcing is classified into four category.

1. **Reactive Sourcing:** This sourcing is applicable when demand generated and to fulfil requirement of end user on immediate basis.
2. **Operative Sourcing:** This sourcing is applicable Day to day Requirement such as Nut-Bolt, Paper, and Grease etc.
3. **Tactical Sourcing:** Short terms contract which have low value and low risk.
4. **Strategic Sourcing:** This is basically applicable to manage supplier by treating supplier as partner.

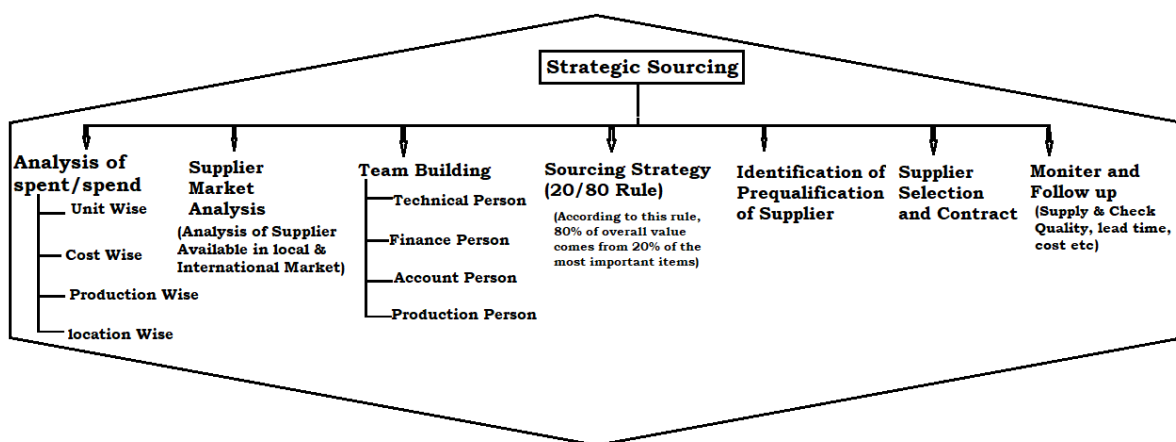


Figure 4.0: Procurement Strategic Sourcing

INTRODUCTION TO 5S: As 5S belongs to Lean philosophy and discipline which at its core competence increases access to information to ensure responsible decision making in the service of creating customer values. The 5S is a lean method and one of the foundations of Kaizen (Continuous Improvement). It consists of 5 sequential steps that allow any team to organize their workplace or working procedure for maximum process efficiency. Japan created 5S on the basis of questionnaire arise at work place such as (1) what is the purpose of this item? (2) When was this item last used? (3) How

frequently is it used? (4) Who uses it? (5) Does it need to be here? Etc. and the original “S” terms were in Japanese as explained below, so English terms for each of the five steps may be 1. Sort 2. Set In Order 3. Shine 4. Standardize 5. Sustain. The basic association between them are easy to understand, though 5S involves considering everything present in a space, removing what's unnecessary or not required, organizing things rationally, performing housekeeping tasks, and keeping this cycle going, clean, Organize, and repeat.

Table 1: Explanation of 5S

S.No	Japanese Terms	English Terms	Meaning	Explanation
1	Seiri	Sort	tidiness	Remove unnecessary items from each area of workplace
2	Seiton	Set In Order	orderliness	Identify and Organize storage for efficient use of available things.
3	Seiso	Shine	cleanliness	Inspect and Clean each area of work place regularly
4	Seiketsu	Standardize	standardization	Incorporate above 3S into standard practice.
5	Shitsuke	Sustain	discipline	Track progress, Assign responsibility, and continue the cycle of improvement.

INTRODUCTION TO ABC ANALYSIS: ABC (Always Better Control) analysis is an inventory classification is one of the most commonly used inventory management strategy that categorizes the goods into three categories, A, B, and C, based on their revenue. A items is inventory with the highest annual consumption or high value, B items is Inventory that require regularly but not nearly as much as A items which indicates moderately necessary goods and have moderate value, and C

items is the rest of your inventory that doesn't required much either have very high value. Industrial Inventory ABC classification is based on the Pareto principle, also known as the 80/20 rule. Pareto analysis is a powerful decision-making and quality tool. Pareto analysis is premised on the idea that 80% of a project assignment's benefit can be achieved by doing 20% of the work—or, conversely, 80% of problems can be traced to 20% of the causes.

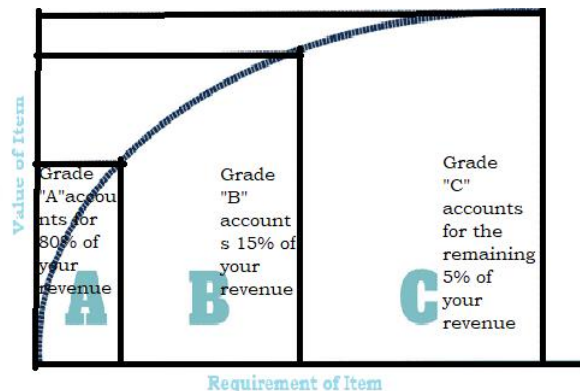
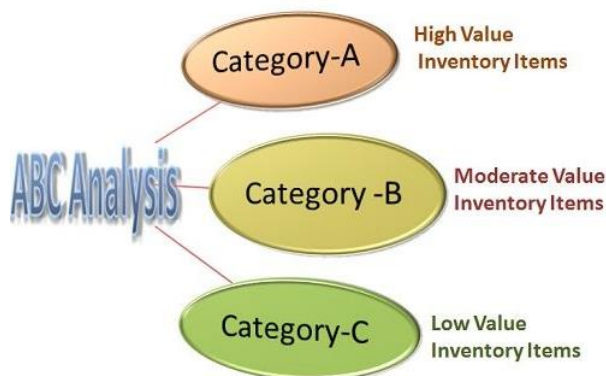


Figure 5.0: ABC (Always Better Control Analysis) Distribution

STEPS TO PROCESS ABC ANALYSIS: To do an effective ABC analysis typically, organisation use the following steps to perform ABC analysis –

1. Define the things you want to analyse: First step is to determine the items' inventory value by multiplying their price and consumption volume during the given period. The main goal of ABC analysis is to determine the importance of each product. Mathematically,

$$\text{Inventory Value} = \text{Item Cost} * \text{Consumption Volume}$$
2. Gather the necessary information: Once the inventory defined to analyse, sort and arrange all the items according to inventory value from highest to lowest.
3. Figure out the impact of your products on the company: List down the products in a spreadsheet and find out the influence and calculate

the value contribution of each item as a percentage of the total inventory value. Mathematically,

$$\text{Item \% of Total Inventory Value} = \frac{\text{Item's Inventory Value}}{\text{Total Inventory Values}}$$

4. Categories products into three classes based on demand: Now split up available goods into categories based on the main principle of ABC analysis. Divide your products into three grade: A — the most valuable/expensive products that bring 80% of your profit, category B grade — less popular and valuable products that bring 15%, and grade C — items that bring 5% of revenue.
5. Calculate the Impact on transactions: For each inventory item, calculate its impact on transactions as a percentage by dividing the annual item cost by the aggregated total of all items spent. This number is the percent, or fraction, that you will use to compare items in the list. Here's the formula:

$$\% \text{ Impact} = \frac{\text{annual item cost}}{\text{aggregated total of all items spent}} \times 100$$

II. LITERATURE REVIEW:

Muhammed Maddi et al.: In this work author explains over Procurement strategies for processing effective procurement in supply chain system. Author explains from very beginning of purchase process to advance level of procurement step by step and provide effective temperaments of Procurement Forms and Methods.

Robert Eadie et al.: In this work author provided advantages in the adoption of e-procurement within a construction organisation. Author explain by allowing those promotion on e-procurement within construction to identify by size and procurement apply, this effect in acquiring and selling of products and services by electronic means. Those companies which are most likely to accept e-procurement as a procedure and consequently increase the speed of meeting the targets laid down for organisations working.

Rafael Rossi Buzzetto et al.: As per author the main aim of this study is to identify the key features of procurement in the Project Management setting and their relation to project accomplishment. Particularly, the effects of assortment criteria, supplier incorporation and the dynamics of attainments are investigated.

Shamil Naoum et. al.: Author explains in present work for project management for design and build problems that are facing the building process. The normal problem faced by procurement method for construction are Separation of design from construction, lack of effective communication, lack of integration, uncertainty, changing clients' priorities and expectations, changing environment, increasing project complexity.

Charles Mensah et al.: This study dedicated to evaluate purchasing processes on performance at Kumasi Polytechnic and Komfo Anokye Teaching Hospital in the public sector in Ghana. The key purchasing procedures and approaches that will help public sector institutions obtain their material requirements on time and increase upon purchasing performance.

Mohd Izhan et al.: In this work author tries to mention important role of Procurement process in ensuring that a telecommunication institution gets its supplies (for projects) in timely manner. This research undertakings are focused on solving the new procurement process is updated or expanded on each stage of a telecommunication company.

Jagtar Singh et al.: Author explain the implementation of 5S process in service, as per them This system helps to organize a workplace for efficiency and decrease non value added activities and optimize quality and productivity through monitoring an organized environment. This paper

aims to analysis preceding studies about benefits of 5S Application and its efficiency in organizations.

Kavitha Saravanan: Author explains regarding ABC analysis is that the process of control and management of inventory is a very significant factor in the success or failure of any business. Inadequate or insufficient inventory management can present a severe challenge to the productive capacity of a manufacturing organization. The main objective and aim of this study was to determine of the usefulness of inventory management in a manufacturing company.

PROBLEM STATEMENT

Procurement is a very complex task to attained in any organisation, due to its crucial significance for supply of goods and services on right time and right place so that definitive outcome of organisation not to be hampered. Due to versatile demands of end users as every organization has specific customer demand patterns, classifications, specifications, systems and other issues that have a variety of challenges to face every day. Usually purchase department have to face pressure to procure required material/service but due to versatility of product specifications process is hindered to progress further for procurement. Numerous issues usually faced on procuring material as mentioned below.

- **SPECIFICATION UNPREDICTABILITY:** Inaccurate data provided which have unclear specifications & requirements by end user due to lack of details is one of the major procurement challenges.
- **ORIGINAL MANUFACTURE UNAVAILABILITY:** OEM not available either due to long tenure of machines or machine model obsolete by OEM, which obstruct availability of required spares.
- **LACK OF SUPPLIER ASSESSMENT:** Due to sever demand by end user of required goods/spares parts which leads to qualitative discrepancies in availed goods by new supplier which leads to hinder process by pre-mature parts failures.
- **LACK OF TRANSPARENCY:** This situation is faced due to scarcity of data documentation for procurement of goods, this is usually arise which dealing with same equipment to be procure by various department with different part numbers.
- **EXCLUSION OF KPIS:** This is the situation arise due to not practicing critical questioning at the time of procurement of any goods. As an example while procuring machine spares critical questioning KPIS for required machine spares are volume, velocity, variety, visibility, variation etc. which lead to open clues for procure right material for specific requirement.

• **LACK OF KNOWLEDGE OF PROCUREMENT FUNCTION PROCESSES:**

Procurement functions such as JIT Purchasing, supplier development, Procurement function training & development, Procure-to-Pay (P2P) and strategic sourcing are some of function which enhance procurement work by smoothening processes.

• **PROCUREMENT IN OVER EXCESS OF REQUIREMENT:** Due to inadequate available details of past procurement, leads to some goods in excess of procurement and other to have deficient activity.

• **DEALING WITH MANY SUPPLIER FOR SAME ITEMS:** Contract function leads to procurement working improvement where same type of material is supplied by different sources.

• **TIMELY VENDOR OR SUPPLIER PAYMENT:** Timely payment of supplier is also seen a situation which create complexity within the process of procurement scheduling.

• **PAUCITY OF ADVANCE PROCUREMENT SOFTWARE:** Normally software required for data reference for procuring of goods and service which ease to provide and records of data and utilize at the time of procurement, some of the system application software are ERP, SAP, WebX, Pipefy, Coupa, NetSuite, DocuSign, Fraxion, Tradogram, GEP SMART, Procurify, Kissflow Procurement Cloud, Procurement Express, Precoro, Basware, RFP360, Prokuria etc. and other for strengthening of procurement processes.

CASE STUDY: This case study considered 2600 items average on monthly item of Fast-moving consumer goods (FMCG) based organisation (Not allowed to disclose name). As FMCG is vast organisation and the production is very dynamic in nature and continuously changing within short duration for maintaining marketing strategy and beat competitors, to sustain this vigorous pattern of FMCG procurement should have to be very prompt for providing goods and services on time.

III. METHODOLOGY ADOPTED:

This research work a is investigation carried out to consider for challenging situation of processing Purchase Requisitions from different unit plants and tries to complete them on timely basis. This steady carried within the time frame of 10 month from July 2022 to May 2023, for this work Japanese lean quality tools 5S and ABC analysis is adopted for considering effective job accomplishment of procurement process. To progress and analysis work procedure improvement through implementation of 5S is proceed through below mentioned steps.

5S AND ABC ANALYSIS AT THE OFFICE:

1) **SEIRI** – First step is to classify the features of the workplace by categories to area where improvement is required for improve workplace organize and standardise. In this process is applied to procurement work through first collection of all the indents provided by all the end user on monthly basis and attempt to segregate common requirement from all the indents and apply the process of ABC analysis to evaluate the indented items on the basis of value in terms of urgency at unit plant, value in terms of monetary terms required for procuring items, value in terms of quantity required on daily, weekly monthly basis, monthly repeated quantity, technical clarity required on complex spares and existing quantity on spares basis at plant unit store.

2) **SEITON** - Organize the segregated items from indents on basis of monetary value, plant urgency, and requirement on daily, weekly, monthly basis and existing quantity of required material. Next step is to prioritise and allocate the requirement for further process of procurement with the help of FIFO (first in, first out), FILO (first in, last out), LIFO (last in, first out), LILO (last in, last out) philosophy on the basis of requirement of urgency and process for further process of procurement by RFP, RFQ etc.

3) **SEISO** – Once all items get segregated now standardize procurement processes, separate them and process for quarterly, half yearly & annual rate contract through purchase orders of repeated quantity of monthly consumption. AMC & CAMC of service requirements of critical machineries and equipment. OEM spares price list managed and contracted for procurement of approved rate on yearly, two yearly, five yearly basis or as per requirement. Critical spare stock maintenance at main store for immediate requirement at site. Safety stock maintenance and defined lower limit of stock so that just reaching lower limit automatically from software or through manual process of new stock for replenish of quantity. Have processing developed through POKA YOKE document templates for proper clarity of complex spares and timely delivery of material. Increase procurement efficiency by sourcing locally this includes investigating the potential for local sourcing which reduces costs, manufacturing and transportation time supports the local economy, and promotes sustainability, and managing bid evaluations.

4) **SEIKETSU** – Now evaluate the process for checking the Indent closed on monthly wise by applying 5S and ABC and the remaining indents where reconsider by reapplying the process with some modification on required indented items with proper clarity if required from end user and maintain

data required of with or without 5S and ABC analysis, flow diagram for result outcome.

5) **SHITSUKE** - Maintain standard order and discipline, through centralize Information, Create a Standard Procurement Policy, Cost Saving Identifier, Centralised Invoice and Document Management, establish a Feedback System, Strategic Sourcing, Invest in Professional Development, Enforced budgetary control, Educate Workforce, Sourcing Selection/ Streamline Suppliers, embrace Lean Procurement, Automated fraud detection and prevention, Transaction and Item level breakdowns Evaluate KPIS or Key Performance Indicators, Information Sharing for local supplier developing, Invest in Procurement Automation, long-term and tactical function of a business and Cash Flow forecasting.

EFFECT OF IMPLEMENTATION OF 5S AND ABC ANALYSIS ON PROCUREMENT PROCESS:

Basically 5S is started and associated with manufacturing processes and equipment maintenance. In actuality, it's a versatile Lean methodology that can be applied to any work functioning and environment including the office work that can benefit from visual control and streamlined workflows. ABC analysis is the best approach for processing and controlling equipment goods segregation for storing and procurement.

This research work process carried for 10 to 11 month to come to conclusion, during researching first step is made through concrete indent format for process, every prerequisite material for consolidated monthly indent instead of separate requisition for every items whenever required is process through new adopted format. Also for the urgent or critical items the scope of separate indent is still made open.

Table 2.0: Format for Purchase Indent Requisition

Company Complete Name with Address													
Purchase Indent													
DIVISION : PLANT						INDENT TYPE							
DEPARTMENT NAME :						PROJECT :							
INDENT NO. :						AUTHORIZED DATE :							
INDENT DATE :						REQUESTED BY :							
S. No.	Item Description	UOM	Required Quantity	Preferred Supplier OEM etc.	Stock on Date	Indented Quantity	Last Purchase Rate	Scheduled		Estimated Rate	Estimated Value	Cost/Profit Center	Scope/Reason Require
								Date	Qty.				
A	B	C	D	E	F	G	H	I	J	K	L	M	N
						D-F=G							
Total Value													
REMARK :													
EDP Prepared By: Chandresh Joshi Partner Plant Name with Code Authorized Signatory													

Second step is to segregate items for category and class to select for vendor sourcing, as an example first items are categories into Electrical, Mechanical, Utility, Consumables etc. further items are classified in same class for ease of procurement to select supplier source, OEM, Belts, Electrical

parts, drives, lugs, cable ties, gearboxes, fuels of every type, local fabrication parts, office utility, plant utility and other consumable items etc. While working it is found that about 2600 Nos. average items indent process by procurement department on

monthly basis, further classification of is define through chart.

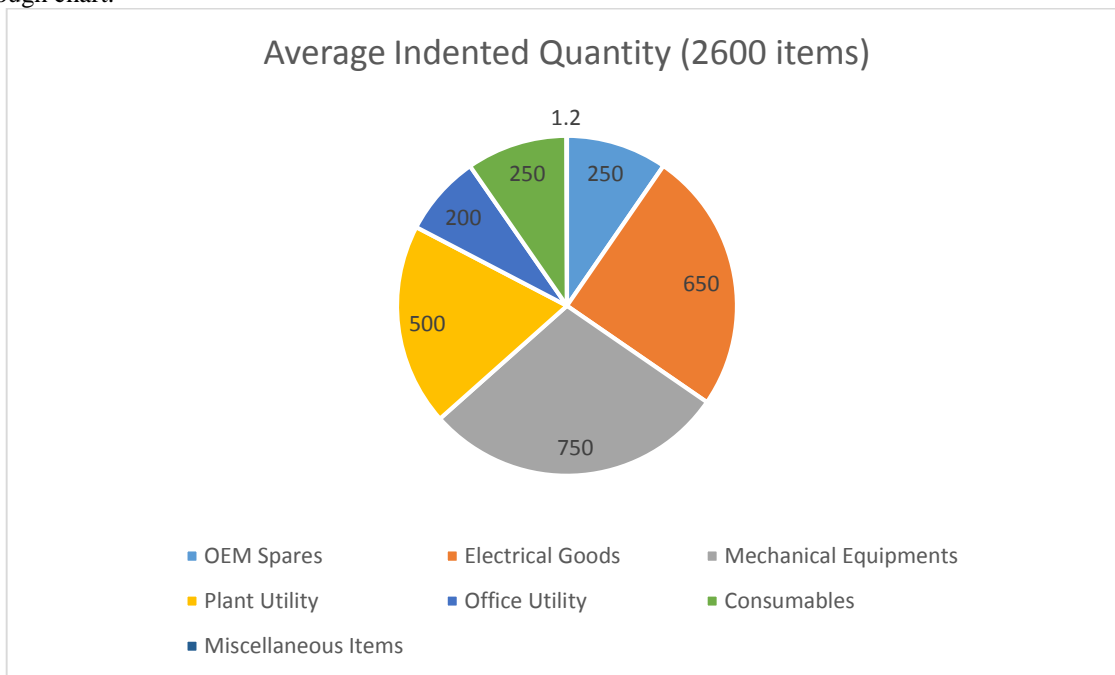


Figure 6.0: Average indented quantity per month

Third step is process for RFP, RFQ and other procurement process of categorized items to concern supplier for quotation and process for contracts on regular and repeated item through AMC, ARC etc. for repeated items.

Forth Step is continuous observation and feedback process for completion of requirements provided by end user. On this basis continuous improvement (Kaizen) on procurement procedure is made for further ease to process requirement.

Fifth Step is to standardized the above improved procedure and sustain them in working practice.

OUT COMES:

While working with average 2600 nos. items at procurement department and implementing selected

methodology for procuring these items a continuous observation and feedback process applied on it. On the basis of observations following outcome received, which is mentioned below through process showing flow diagram, in this consideration of study out of total indented items half items are considered with implementation of 5S and ABC analysis and other half are regularly processing for completion of procurement. Outcome received are magnificent which supports research work applied for improving procurement process by implementation of proper structural process and standards through 5S and ABC analysis. This methodology assists in improving the procedure of procurement to ease for completion of project on scheduled basis.

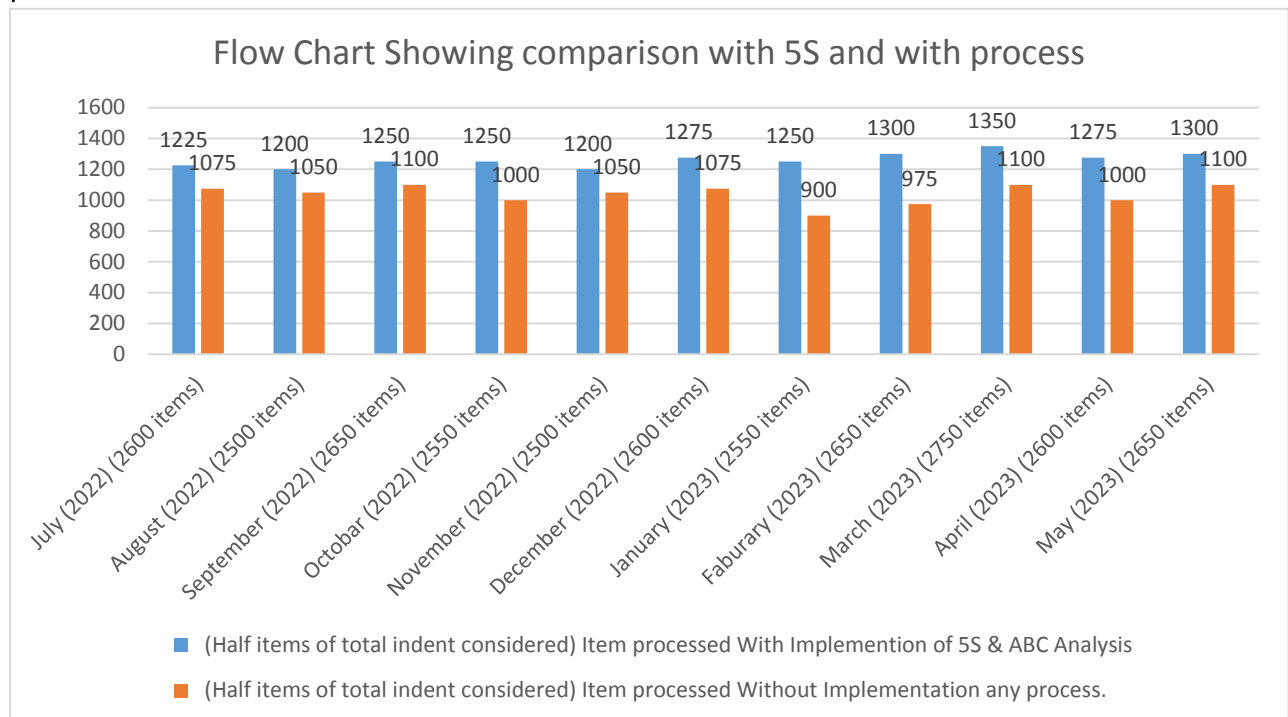


Figure 7.0: Flow chart showing Impact of Implementation of 5S and ABC analysis with other case.

IV. CONCLUSION:

Although 5S is developed for material at working site to enhance process by preparing healthy milieu by clean and clear standards. As per current review on implementation on these methodologies it is found that it can also be equally significant for process enhancement. ABC analysis methodology is all time significant for standardization of storing material under supply chain process.

REFERENCE:

[1]. Maddi, M. S., and Davis, P., "A Review of Strategic Procurement: Primary Step to Research on E-Procurement For Engineering Projects"

[2]. Eadie, R., Perera, S., and Heaney, G., (2011) "Analysis of the Use of E-Procurement in the Public And private Sectors Of The UK Construction Industry", Journal of Information Technology in Construction.

[3]. Buzzetto, R. R., Bauli, M. R., & Carvalho, M. M. (2020). The key aspects of procurement in project management: investigating the effects of selection criteria, supplier integration and dynamics of acquisitions. Production, 30, e20190112. <https://doi.org/10.1590/0103-6513.20190112>.

[4]. Naoum, S., and Egbu, C., (2015) "Critical review of procurement method research in

construction journals" Procedia Economics and Finance, 21,

[5]. Mensah, C., and Tuo, G., (2013) "Evaluation of Procurement Processes and its Operational Performance in the Public Sector of Ghana: A Case Study of Komfo Anokye Teaching Hospital and Kumasi Polytechnic", European Journal of Business and Management, Vol.5, No.29

[6]. Izhan, M., and Yusoff, M., (2018) "The Behaviour of Procurement Process as Described by Using System Dynamics Methodology" Advances in Operations Research Volume 2018, Article ID 6721912

[7]. Singh, J., Rastogi, V., and Sharma., "Implementation of 5S practices: A review" (2014) Uncertain Supply Chain Management 2(3):155-162

[8]. Saravanan, K., "ABC Analysis, an Inventory Management Technique at a Manufacturing Company" International Journal of Operations Management and Service

[9]. Vol. 19, n.3, pp. 167-170

[10]. Dr. Kavitha, S., Kandeepan, A., and Narmadha, N., (2021) "ABC analysis an Inventory management technique at a manufacturing company" International Journal of operations management and services Vol. 19, n.3