



# **INFLUENCE OF MAINTENANCE, REPAIR AND OPERATION SERVICES ON BUYER BEHAVIOR IN PURCHASING OF INDUSTRIAL PRODUCTS LIKE HEAT EXCHANGERS, AIR POLLUTION CONTROL SYSTEMS.**

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## **Abstract**

In the active markets, focus on Buyers to draw their attention always a prime motto for the sellers. Within the available options like digital ways, where sellers promote their product features are become more increasing there by drawing buyers attention. Services is key factor influencing the Buyers decisions that were backed from the feedback of the actual users.

The current paper focus on in the industries where using the heat exchangers, Air pollution control products which are cost intensive. Organizations been shifting from sourcing and leveraging large machines (capital goods) to a more service-oriented perspectives. A major part of services is Maintenance Repair Operation (MRO) service, and it is therefore a critical area to investigate more. Capital goods are part of a larger system, but they are used to make finished goods or process systems. Generally these are physical assets that a company uses within different processes towards producing products and provide services that consumers will use later.

The buying of Maintenance Repair Operation services differs from the other type of industrial services for instance audit services. The most dominant factor is influencing the industrial buying behavior was observed to be the relationships between the buyer and the seller.

**Keywords:** Capital Goods, Buying Behavior, MRO Services.

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## 1. Introduction

### Preface

Buying behavior in an organization describes to the way of how companies process to buy goods and services. Few series of steps are involved in addressing:

Need analysis with description and budgeting.

Product specifications and conformity to system requirements

Value analysis and proposition to the proposed products

Decision process involving risk, warranties, bonds.

Performance review from buying perspective whether it fits to needs or not.

### Problem Definition:

How can the Buying behavior be characterized when purchasing MRO services from suppliers of heat exchangers, Air pollution control products.

### Research objectives & Scope:

To share and analyze the impact of buyer buying behavior process when altering the proposal from an itemized product to its primary purpose that is a product (heat exchanger or Air pollution Control) with maintenance, repair and operation services, these services to previous users with already installed machines and those involved in the buying process will positively influence. Broadly, definition can be labelled as Buying behavior characterization.

The discussion in this paper covered for capital goods including various silos, electrical items, mechanical structures, pipes associated with high quality surface finish, various levels of inspections etc. However, the scope of research was limited to

Heat exchangers, Air pollution control product where respective systems was unique for each application as the process demands free flow of material, lesser intervention for any maintenance or choking, higher availability of operation system.

Two different industrial individuals been enquired with a questionnaire on the influence of MRO services and analyzed their results. The two data types in consideration are, primary and secondary. Primary data is collected for the purpose of this study and secondary is collected by observations or query techniques with a questionnaire. For this paper to be more research oriented, a detailed questionnaire was prepared and shared to different individuals been associated with different companies and at different roles. Secondary data not available in this paper. Out of five individuals who are senior level officials of respective companies, only two was responded and detailed here. Though this sample is less for a conclusion, but it gives an impetus to a larger approach of how to further workup on.

### Data collection from Questionnaire and Data Analysis:

The questionnaire was prepared keep in view of minimal personal data and larger data regarding the captioned topic. Some correspondence with the individuals taken and kept for record after consent. The questionnaire was segregated into sub-parts as below:

Elements of Buying Centre.

The table was framed in such a way the questions are related to source of buying decision. Essentially each of the dimension reflects on measurables used.

The table as shown below:

Elements of Buying Centre	Measure Used
Extensivity (Size)	How many individuals from the buying office involved in the communication
Horizontal participation	How many offices are participated in the buying activities
Top-Bottom roles	How much of hierarchy levels that affect the communication within buying office
Relatedness	The extent to which buying centre members are related to each other by direct exchanges
Uniqueness	Extent of which the Buyer performing as a point of communication within the buying office

The dimensions of buyer center in right side table are such way that, to measure and understand that in the buying centre how much it involved in the process. This helps in identifying the behaviors impacts of each influencing person. The more the people involvement from the buying centre contribute to communication, there could be gaps though the communication is circulating among all. The authority hierarchy levels that impact the

communication of the buying centre is one of key parameters. Ideally, the authority can be delegated or decentralized according to the value proposition and criticalness of the buying items.

Case 1: The individual responded is from Chennai location, working in Senior Level position leading a team of individuals for Project Management. The current setup has 3 people involved in buying

communication and the production centre is involved. There are three levels of hierarchy that authorizes

<b>Elements of Buying Centre</b>	<b>Measure Used</b>	<b>Fill below</b>
Extensivity (Size)	How many individuals from the buying office involved in the communication	3
Horizontal participation	How many offices are participated in the buying activities	Production
Top-Bottom participation	How much of hierarchy levels that affect the communication within buying office	3
Relatedness	The extent to which buying centre members are related to each other by direct exchanges	High
Uniqueness	Extent of which the Buyer performing as a point of communication within the buying office	All PO's

the buying actions in all purchase orders.

Case 2: The individual responded is from Trichy location, working as CEO position leading a team of individuals. Similar to case 1, there are 3 people been involved in the buying centre. At same time,

number of departments involvement are more in buying centre. The decision influencing of the buying been carried by Project Manager, VP and MD of the organization irrespective of the value and criticality.

<b>Elements of Buying Centre</b>	<b>Measure Used</b>	<b>Fill below</b>
Extensivity (Size)	How many individuals from the buying office involved in the communication	3 people
Horizontal participation	How many offices are participated in the buying activities	Three Department, Supply Chain, Project and Engineering Department
Top-Bottom participation	How much of hierarchy levels that affect the communication within buying office	3 users, Project manager, Vice President and Managing Director
Relatedness	The extent to which buying centre members are related to each other by direct exchanges	HIGH
Uniqueness	Extent of which the Buyer performing as a point of communication within the buying office	Each and Every communication routed via purchase department

However, similar in case 1 all purchase orders are routed though the buying offices and all are highly in connectedness, which is seen as common. Some dissimilarities from the cases could be found. The quantum of buying however can affect the size of buying office. The size of the buying office increased with the value and criticality. Top level

management is generally not participating in freezing the MRO services.

#### **Roles in Buying Centre.**

The following tables are framed based on the levels or roles played by the individuals connected with the buying centre.

Case 1: In case of the Chennai based individual, the Maintenance Engineer is the person who obtains the product ie as a consumer of the product and same individual is responsible for initiator of the buying needs.

<b>Roles in Buying Centre</b>	<b>Measure Used</b>	<b>Case 1</b>	<b>Case 2</b>
<b>Originator</b>	Individual who originates the process	<b>Engineer Maintenance</b>	<b>Project Manager</b>

<b>Consumer</b>	Who is user of the product	<b>Production</b>	<b>Operations Manager</b>
<b>Influencer</b>	Who 'have a say' concerning the buying	<b>Manager Maintenance</b>	<b>Engineering Head or process head</b>
<b>Buyer</b>	Who obtains the product	<b>Maintenance Engineer</b>	<b>Supply Chain Department</b>

Case 2: Contrasting to the case 1, individual from Trichy based, the buyer is the person who obtains the product and will allot/ transfer to a consumer of the product. The project manager is responsible for initiator of the buying needs. For large EPC / infrastructure projects where the user is buyer and initiator been observed as the Project manager. In this case, the product user is the operations manager. The originator is commonly noticed at end levels in the team structure. The consumer and/or originator is often one person, since they are the ones working on the item/product. The buying departments plays

generally a low-keyed role and are not in any decision-making roles.

**Factors affecting the industrial buying behavior.**

The following tables under this frame is based on the levels or roles played by the individuals connected with the buying office. The important affecting factor is competence. If the competence is developed with the buying office, always pursues to solve raised issues with-in. The other prominent factors affecting the buying outcomes are cost and delivery periods.

<b>Factors Affecting</b>	<b>Used Measurement</b>	<b>Case 1</b>	<b>Case 2</b>
<b>Environmental</b>	Environmental factors determines buying of MRO services	<b>Yes</b>	<b>YES</b>
<b>Inter-Organizational</b>	Inter-organizational factors determines buying of MRO services	<b>Yes</b>	<b>YES</b>
<b>Organizational</b>	Organizational factors determines buying of MRO services	<b>Yes</b>	<b>YES</b>
<b>Interpersonal</b>	Interpersonal factors determines buying of MRO services	<b>Yes</b>	<b>YES</b>
<b>Individual</b>	Individual factors affects buying of MRO services	<b>Not to that Extent</b>	<b>NO</b>
<b>Buying Situation</b>	How the buying context will be an affect on the buying behaviour of MRO services	<b>Varies</b>	<b>NO</b>

From the both cases, it is evidently clear that all the parameters with opinioned are matched except at the buying situation varies in case of Case 1 and not impacted in Case 2. To analyze the buying situation affects further larger detailed analysis to take up including the buying centers and other individuals involved in the process to ascertain the affects if any.

From both cases, it is evidently clear that all the parameters with opinioned are varied on different counts. The common agreed was the initial low price and guarantees, however rest three are differed. In case 1 the high availability, unplanned stops and delivery are high for the requirements wr..t ranking, whereas for case2 these three parameters are next to high rank.

**Ranking of factors buying MRO Services:**

<b>Factors</b>	<b>Case1 : Ranking 1: High, 5 : Low</b>	<b>Case2 :Ranking 1: High, 5 : Low</b>
Low first Price	1	1
Spare parts High availability	1	2

Higher Guarantees	1	1
Avoid unplanned stops	1	2
Delivery of spares on-time	1	2

## 2. Conclusion & Further Study:

The composition of the buying centers differs from common theories. Differences observed in all types: elements of buying offices, roles in the buying office and influence in buying office. These variations may not be linked to any specific demographic factors. The prime aspect affecting the buying behavior is the relationship. This relationship can be staunchly work related or based on personal familiarity. The distinctions noticed regarding the buying process and its center are not significant enough to suggest a modification to the common theories.

Further research to MRO services as it is also an area that has not been thoroughly investigated and therefore believed that more research should be done to comprehend this type of buying. There is no significant finding on any common nominators stating how these aspects can differ, and therefore this is another area that should be further examined.

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