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OPERATION EXCELLENCE: A PILOT STUDY OF THE CURRENT STATUS IN THE AVIATION FUEL SECTOR

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OPERATION EXCELLENCE: A PILOT STUDY OF THE CURRENT STATUS IN THE AVIATION FUEL SECTOR

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Abstract

Operational excellence has many definitions and methodologies. Some industries focus more on product quality, while high-risk industries like oil and gas tend to focus on safety and sustainability. However, common elements exist across all methodologies, including: Standardization of systems to increase reliability. Closed-loop processes that enable continuous improvement. Proactive risk management that goes beyond compliance. Generating actionable data from key performance indicators (KPIs). Collaboration among cross-functional teams.

The current business climate is very complex, with varying demands from different stakeholders heightening firms' efforts to understand, respond and change to the various economic, social and ideological challenges in their environment (Seyed and Markus, 2013). There is no doubt that globalization has created formidable pressure on firms to survive and compete, especially in developing countries. In such conditions, firms must redesign themselves towards excellence, using the required creativity and innovation tools (Job and Sangha Mitra, 2010). Key amongst aspects of business excellence is operational excellence (OPX), which is an aspect of organizational structure that strives for improvements in key operational performance metrics.

1. Introduction

The current business environment has warranted unprecedented actions from the corporates to survive. The pandemic due to Covid -19 has brought down demand for all types of fuels, whether fossil or otherwise. This has brought down the prices in the global markets. Also there has been increase in accidents in the oil and gas industries in all the stages from drilling to refining to transportation. These factors have further necessitated the implementation of Operational Excellence in this sector. According to Dahlgaard and Dahlgaard (2007) Many firms are in search of this excellence and found very limited success in their efforts as the concept is yet to be understood properly the managers. Found et.al. (2018) trace the term Operational excellence to an article by "In Search of Excellence" by (Peters & Waterman, 1982)" and the use of the methodology to be relatively recent compared many other management philosophies. Both (Dahlgaard-Park & Dahlgaard, 2007), paper "Excellence – 25 years evolution" and Found et.al (2018) Towards a theory of operational excellence trace evolution of this concept. While the former authors focussed on assessing various models of Excellence in existence, the latter paper concentrated on trying find a theoretical foundation behind the concept.

Due to the current rapid development of service sector, which represents a positive improvement that is associated with the ability of Indians to provide a favorable climate for economic enhancements, this research aims to give a hand to uncover factors affecting one of the growing aspects that push firms to the world class performance level: operational excellence.

This paper aims to study the as to what extent the concept has been understood by executives in a process-oriented service sector like Aviation fuel management industry. The sector which has very limited scope of dictating the service price as the input and output cost are determined by the contract between the oil marketing companies and the Airlines.

The profitability of this sector therefore is dependent on managing the process and the facility efficiently, and also ensuring safety of the assets and its people in the plant. The current study aims

to evaluate the level of knowledge of the concept amongst the employees and its preparedness to incorporate operational Excellence.

Many literatures have documented the benefits of implementing an Operational excellence program in the manufacturing industries. Some notable benefits are minimizing waste and improving reliability which can deliver some remarkable results in terms of reducing costs and improving profits. Motorola—the pioneer of Six Sigma—has credited this system for giving savings of \$16 billion over 12 years.

2. Review of Literature:

According to Found et al. (2018) the origin of the term Operational Excellence can be traced to the seminal text of Treacy and Wiersema (1995) entitled ‘Discipline of Market Leaders’ which argues that organisations cannot succeed by trying to be all things to all people. As a result, they propose three distinct core disciplines that organisations can use to combine their operating model and value proposition. The three core disciplines are identified as operational excellence, product leadership and customer intimacy. Operational Excellence being described as the strategy for organisations striving to deliver a combination of quality, price and ease of purchase, and service, that no other organisation in their market, or industry, can match. The authors referred to Walmart as a company that epitomised Operational Excellence at that time.

Rick Edgeman, (2018) examined the Shingo excellence model to understand its use as a management system, which is made of Vision and objectives, strategy and processes and its activities, all these are encompassed in the Shingo’s model through principles of ideal behavior, systems driven behavior and this ideal behavior produce good results. According to Ion NAFTĂNĂILĂ et.al. stated that Operational excellence directly affects business performance as this involves process Focus, customer focus and ensure overall world class performance. A.M. Carvalho et al.(2017) in their study tried to prove the linkage between culture and agility of a firm and Operational excellence, which would then promote long term benefits to the organisation. They found that certain conditions are required for this to happen like promoting more agile behaviour and cultural capacity to enable a sustained operational excellence.

Salama S. Al-Qubaisi, MianAjmal, (2017) looked at factors affecting Operational efficiency in the oil and gas sector through the Balance score card perspective a performance measurement concept developed by Robert Kaplan and David Norton of the Harvard business school in 1992. They found that the knowledge management practices affect Organisational culture and therefore Operational Excellence. They also observed that KMP was an intervening or mediating factor between Culture and Operational Excellence. Muazu et. Al. observed that in Oil and gas the exploration production and transportation contained inherent risk, therefore the concept of Operational excellence in this industry was inseparable with the risks associated with these operations. McCreery, et.al. (2013), stated that unlike the other areas of an economy, oil and gas companies are under tremendous pressure from both regulators and the environment to reduce risk in their operations. So the growing complexity, costs, and risks combine in the oil sector trigger the need for operational excellence to achieve efficiency more than ever before. According to EY. (2015). foundation of operational excellence in the oil and gas sector has to be based on factors like , health, safety, environment, and quality, From the review it was noted that many industry leaders in Oil & Gas like Chevron ,Exxon Mobil etc. leveraged operational excellence for better performance, with well-directed programs which aimed at minimizing injuries, safety risks and negative environmental impacts.

3. Methodology

3.1. Design

The pilot study chose Descriptive research design to find out the current status of the understanding of the concept by the employees of the organization chosen.

3.2 Sampling

A purposive sampling design was taken as the researcher was working in the similar organization in the Oil and gas Industry.

3.3 Population

The employees of organization involved in jet fuel management systems at airports and employees of stakeholders that are impacted the operations.

3.4 Sample Size

The sample size for the pilot study was 20. The sample size was decided as the population of the executives in the firm were very small in number.as this is a niche industry.

3.5 Data Collection

Primary data was collected using a structured questionnaire designed for the purpose. The questionnaire was mailed to the executives and responses elicited.

4. Results

4.1. Descriptive

Table 1: Descriptive Statistics

<i>Descriptive Statistics</i>					
	N	Minimu m	Maximu m	Mean	Std. Deviation
Age of the respondent	20	31	60	44.45	7.803
Total					
Experience of the respondent	20	8	33	21.40	7.119
Experience in the current role	20	.25	20.00	5.36	4.960
Valid N (listwise)	20				

The table1 above shows the statistics for continuous numerical data like Age, Overall Experience, and experience their current role of the respondents. The mean age is 44.45 years with S.D 7.80, while the Overall experience mean was 21.4 years with S.D. of 7.12 years and the experience in their current role was 5.36 years with S.D. of 4.96 years

4.2 Frequencies

Table 2 OEMS Awareness

	Yes	No	NA
Aware of OEMS	19	1	0
OEMS In Place	9	11	0
Planning OEMS	2	8	10

The table 2 above shows that 19 (95%) respondents were aware of the OEMS, while 11(55%) answered that they did not have a Operational excellence management system (OEMS) and of those which did not OEMS only 2 (20%) said their organisations were planning for an OEMS. Those who were planning to implement were looking to do the same in less than 18 months.

Table.3Organisations culture related to implementing systems

Parameter	Response	Frequency	Percent
Findings shared	Agree	10	50
Non-Compliance Serious	Strongly Agree	14	70
Remedial Measures Adopted	Strongly Agree	10	50
Instructions for Deviation Clear	Strongly Agree	10	50

Use IT/Data to improve	Agree	10	50
Use Technology in Quality	Yes	13	65

The table 3 above indicates that firms mostly share the findings of any survey conducted (50%), they take note of non-compliance very seriously (70%), adopt remedial measures when they find processes are not giving the desired outcomes (50%). These firms have clear procedures to handle any deviations observed in the process (50%). The firms use IT and technology in their process and are driven by data to ensure the outputs are as per customer requirements.

Table 4 Management Commitment

Parameter	Response	Frequency	Percent
Management Allocates Resources for New Idea	Agree	16	80
Leadership Committed for Long-Term	Agree	12	60

The table 4 above shows that the respondents agreed that their company management were committed for long term and therefore allocated resources for new ideas within the firm. Table 5 exhibits the culture of the organization most of the respondents agreed that their organisations were using best practices 12(60%), communicating benefits 8(40%), making resources available 14(70%). Half the respondents strongly agreed that their firm had a well documented procedure and standards.

Table. 5 Management Culture

Parameter	Response	Frequency	Percent
Best Practices used to upgrade procedures	Agree	12	60
Management communicates OE benefits	Agree	8	40
No communication of OE	Disagree	5	25
Resources available for making improvements	Agree	14	70
Standard and procedures are well documented	Strongly agree	10	50

In the table 6 we can observe that firms which had OE, had their OE fitted with their company strategy 9(45%), The respondents disagreed that the strategies were seldom reviewed and the principles changed based on leadership change.9(45%) and 7(35%) respectively.

Table. 6 Strategy and Leadership

Parameter	Response	Frequency	Percent
OE fits company Strategy	Agree	9	45
Operation Plans and strategies seldom reviewed	Disagree	9	45
Principles Change based on leader	Disagree	7	35

4.3 Multiple Response

**Table.7 OEMs Goals
 \$OEMSGoal Frequencies**

		Responses		Percent of Cases
		N	Percent	
Goals of OEMS ^a	Productivity	7	12.7%	63.6%
	Quality	9	16.4%	81.8%

CostReduction	6	10.9%	54.5%
Safety	8	14.5%	72.7%
Sustain	8	14.5%	72.7%
EnsureQuality	5	9.1%	45.5%
HighDeliveryStd.	6	10.9%	54.5%
Riskmanagement	6	10.9%	54.5%
Total	55	100.0%	500.0%

a. Dichotomy group tabulated at value 1.

The table 7 above leads us to conclude that achieving quality(16.4%) in their products or services seems to be the primary goal of implementing OEMS followed by safety(14.5%) and sustaining their activity. The same is shown in figure 1

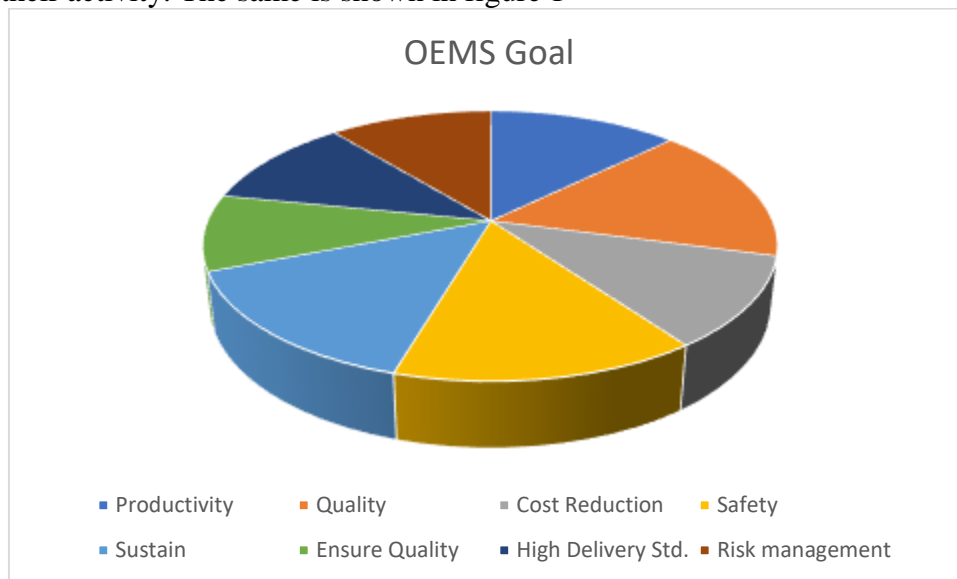


Figure 1: Goals of Operational excellence management System(OEMS)

Table 8 OEMS benefits
\$OEMS Benefit Frequencies

		Responses		Percent of Cases
		N	Percent	
Ares benefited by OEMS ^a	Safety	6	54.5%	75.0%
	Cost	4	36.4%	50.0%
	Others Benefits	1	9.1%	12.5%
Total		11	100.0%	137.5%

a. Dichotomy group tabulated at value 1.

From the table 8 above we can conclude that the respondents find benefits of OEMS primarily in the area of safety (54.5%) followed by cost benefits (36.4%). There were other benefits which was enumerated by one respondent.

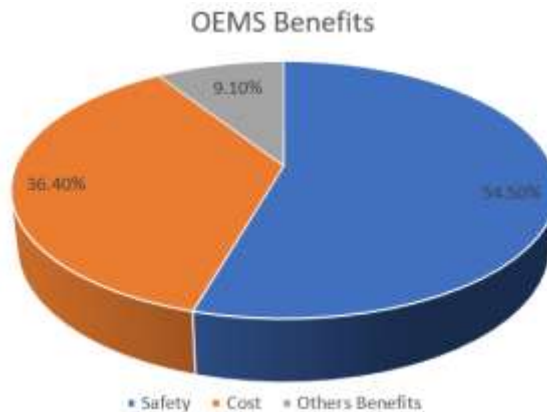


Figure 2 Benefits of the OEMS

Table 9 Barriers to Implementation of OEMS
 \$ImplementBarrier Frequencies

		Responses		Percent of Cases
		N	Percent	
Barriers to implementation ^a	LackBusinessJustification	2	8.7%	14.3%
	LackInfrastructure	6	26.1%	42.9%
	LackTopTeamSupport	4	17.4%	28.6%
	LackFunctionAlignment	6	26.1%	42.9%
	BudgetaryConstraints	3	13.0%	21.4%
	OtherIssue	2	8.7%	14.3%
	Total		23	100.0%

a. Dichotomy group tabulated at value 1.

The table 9 above exhibits the frequencies of the barriers that firms face to implement OEMS. It is clear that lack of infrastructure (26%) seems to be the most important reason along with lack of function alignments (26%), followed by lack of top team support (17.5%).

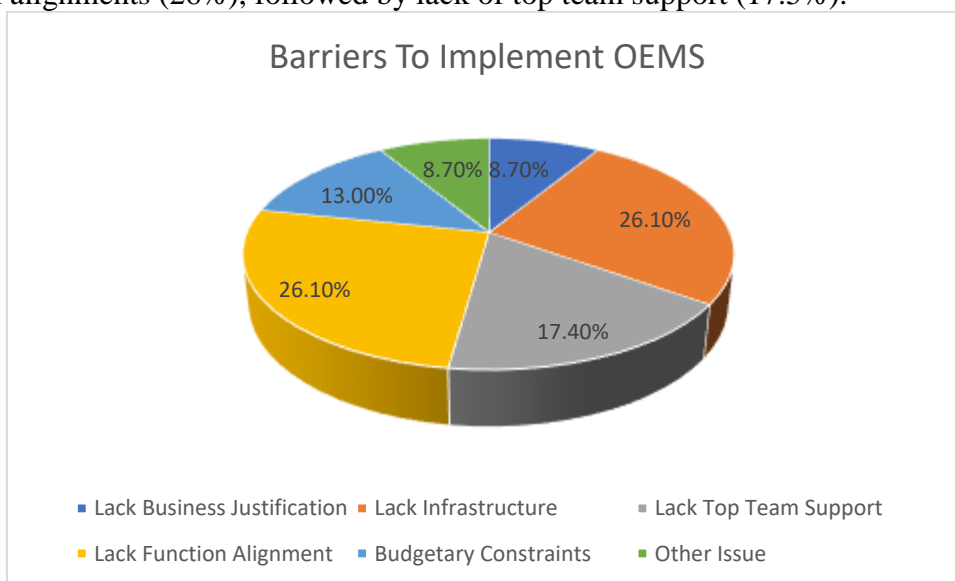


Figure 3: Barriers to implement OEMS

Table.10 Top Areas for Investing in Future
 \$TopInvestArea Frequencies

		Responses		Percent of Cases
		N	Percent	
Top areas to invest ^a	Operations	13	35.1%	68.4%
	Safety	11	29.7%	57.9%
	IT	4	10.8%	21.1%
	Quality	3	8.1%	15.8%
	Training	2	5.4%	10.5%
	Others	4	10.8%	21.1%
Total		37	100.0%	194.7%

a. Dichotomy group tabulated at value 1.

The table 10 above gives the frequencies of about the top areas of investment the respondents felt the firms should be looking at, and it is operations (35%), followed by safety (29.7%) that the respondents want the organisations to invest in. The same is shown as pie chart in figure 4

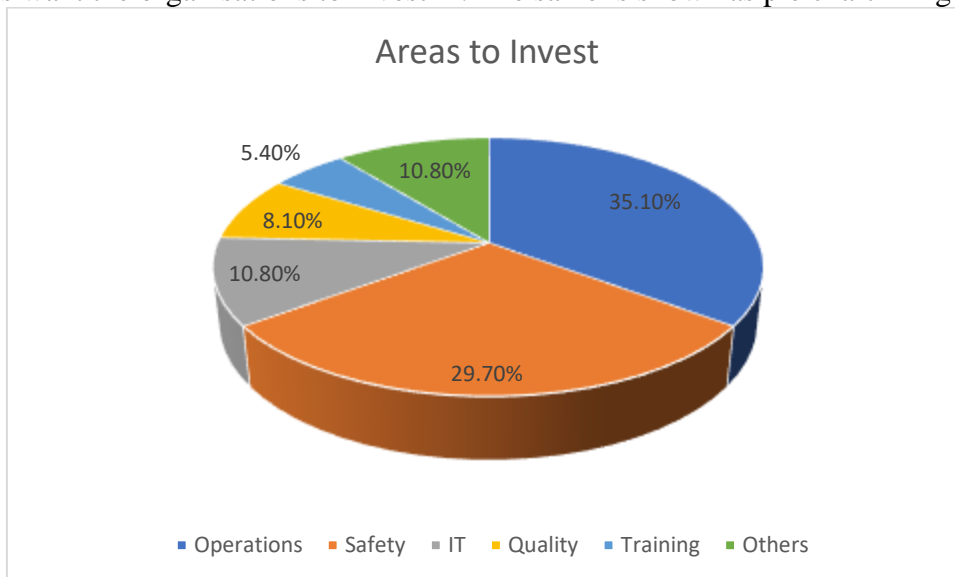


Figure.4: Top areas of Investment

Table 11 Various Systems followed
 Systems Followed Frequencies

		Responses		Percent of Cases
		N	Percent	
Different systems followed ^a	ISO9001	10	40.0%	71.4%
	ISO14001	8	32.0%	57.1%
	OSHAS18001	1	4.0%	7.1%
	TQM	2	8.0%	14.3%
	Lean	2	8.0%	14.3%
	Others	2	8.0%	14.3%
	Total		25	100.0%

a. Dichotomy group tabulated at value 1.

The table 11 above exhibits the systems followed by organisations currently, with majority (40%) following ISO9001 with ISO14001 in about 32% of the firms. The same is seen in the pie chart, figure 5.

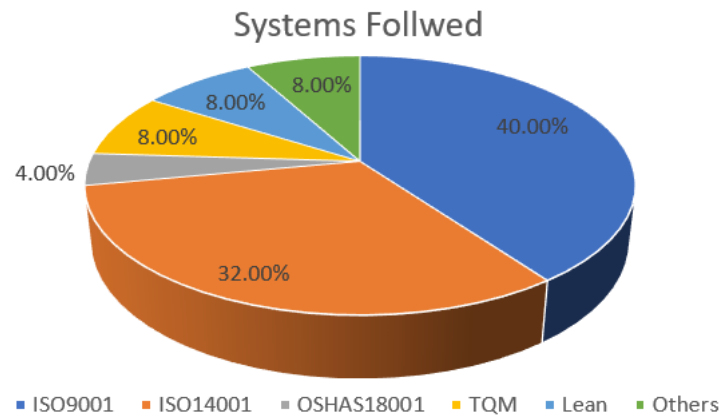


Figure.5::Various quality and other management systems followed

4.4 Related findings of OEMS Implementation.

The majority of the respondents who had OEMS in their organization had implemented it very recently that is within the last 2 years. All the OEMS implementation were executed by internal resources with help from outside consultants, and not done by external third-party vendors.

The firms which implemented 9 (45%) had integrated their OEMS with their QEHS systems but majority of the firm's 15(75%) had separate systems for quality. As for audits of these systems majority did not agree that they did this just to comply with customer demands. The audits were done separately for different systems and the frequency of audits were quarterly. The audits generally were done in stages as per 18 (90%) of the respondents. Majority9(45%) said that their quality and OEMS were integrated

5. Conclusion:

The pilot study has shown some interesting findings with regard to OEMS. The majority employees are aware of OEMS, and many have responded that they have an OEMS in place and a few are in the process of implementing one. The major hurdles in the Implementation of the system were lack of Infrastructure, functional misalignment and top management support.

Most of the respondents have agreed that they have some management systems with top management trying to align their strategy with OEMS or similar such systems. The major benefits accrued too the organization was in the area of safety and cost. Safety since this industry has high operational risk due to the nature of the products being handled during the service. Cost reduction has been the focus as this industry's sustenance depends on controlling costs.

The firms major focus of investment in these industries as per the study is clearly in operations to maintain standards and improve costs and also to maintain high safety standards. The firms conducted safety audits not just to comply with regulations but also improve their overall operations efficiency and safety. The results of the study confirm findings of literature surveyed which were in related field.

OEMS in the Indian context has not gained the desired momentum as companies adopt models and techniques available for improvement in one area rather than a holistic approach. Service sectors have adopted various techniques and methods as the search for improvement is instinctive. Techniques or models like Quality Circle, Just-in-time, Total Quality Management, Business Process Re-engineering, Six Sigma and Lean have been adopted, but the success rate has not been encouraging.

The firms which had implemented and the one's which were in the process, in this industry clearly did not have a model based on which they could evaluate the readiness of the firms or process which could help them to adopt these systems effectively.

6. References:

McCreery, J., Phillips, E., & Cigala, F. (2013, February 25). *Operational Excellence: The Imperative for Oil and Gas Companies*. Retrieved from <http://www.bain.com/publications/articles/operational-excellence-the-imperative-for-oil-and-gas-companies.aspx>