Manufacturing strategy

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Abstract— The main objective was to manufacturing strategy with special reference to Swashthik Plascon Limited. The research mainly focuses on manufacturing strategy. In this study the primary data are collected through survey method and secondary data are collected through company website. The survey method was done by using questionnaires; nearly 150 samples are collected from employees by using random sample method. The collected data was analyzed and interpreted through SPSS by using tool like percentage, correlation and chi-square test. As per the findings, suggestions are mentioned in this report.

I. INTRODUCTION

Manufacturing strategy as a concept was first recognized by skinner (1969), referring to a manufacturing strategy to exploit certain properties of the manufacturing function to achieve competitive advantages.

Manufacturing approach is described as "a chain of choices that, over time, allows a commercial enterprise unit to attain a preferred production structure, infrastructure, and set of particular capabilities.

Manufacturing strategy involves planning and implementing methods to optimize production processes, resource allocation and capacity utilization to achieve business objectives such as cost reduction, quality improvement, and responsiveness to customer needs.

It encompasses decisions regarding technology adoption, facility location, production scheduling, inventory management, supply chain integration, and continuous improvement initiatives.

II. REVIEW OF LITERATURE

Shi, Victor, et al, (2024), Trends in manufacturing strategy: A review of literature from 2015 to 2021
The study underscores the growing importance of sustainability in manufacturing practices, with an emphasis on environmentally friendly processes and resource efficiency.

Sergio Salgado, jose Crespo de Carvalho, and Pedro Saraiva, (2024), Industry 4.0 manufacturing operations: A systematic literature review

The review highlights the transformative potential of Industry 4.0 technologies in enhancing production efficiency and flexibility. Challenges such as cybersecurity risks and workforce adaptation are also addressed.

Lee A & Kim Y, (2023), Advanced analytics for smart manufacturing: Opportunities, challenges and Trends
The authors highlight challenges such as data integration, cybersecurity, and the need for skilled personnel to leverage analytics effectively. Overall, it provides insights into the evolving role of analytics in shaping the future of smart manufacturing.

III. RESEARCH GAP

- The overall study of company's manufacturing strategy to identify key objectives and methodologies.
- To understand the current manufacturing processes to identify inefficiencies.
- To learn the study of methods to enhance technology integration, to reduce lead times, and to optimize inventory management.

a. Objectives of the Study

- To learn the manufacturing strategy in this company.
- To understand how manufacturing strategy helps to minimize production cost
- To learn the risks involved in the manufacturing process

b. Research methodology

i. Descriptive Research Design

This design is often used to generate insights, identify trends, or provide a baseline for further investigation in various fields such as sociology, psychology, and market research.

ii. Method of Data Collection: Questionnaires were used to collect primary and secondary data on the factors influencing the information provided by employers and employees of the organization

1.5.3 Sample Size and Sampling Method: To gather data for the study, a sample size of 150 respondents was chosen using the uncomplicated technique of simple random sampling.

1.5.4 Data Analysis: To examine the data, descriptive analysis methods were used. A contingency table based on the frequency distribution was created using percentage analysis, which allowed for a more understandable depiction of the gathered data.

Bar charts are used in chart analysis to help visualize percentage data and make distributions and trends easier to interpret.

Cost Leadership a key objective

Particulars	Frequency	Percent
yes	135	90.0
No	15	10.0
Total	150	100.0

Table no.1.1 Cost Leadership a key objective

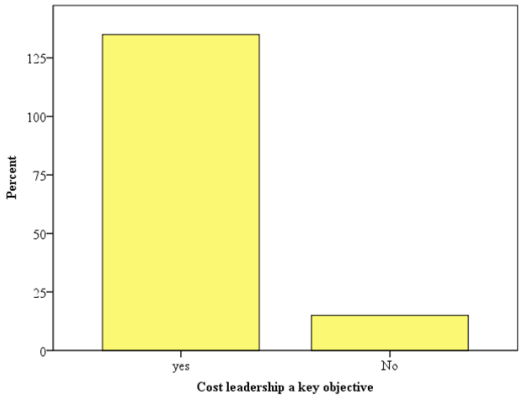

Fig no.1.1 Cost Leadership a key objective

Inference

From the above table, it is inferred that 90% of the respondents said yes that cost leadership a key objective, and 10% are said no.

ERP systems for production planning

Particulars	Frequency	Percent
yes	82	54.7
No	68	45.3
Total	150	100.0

Table no.1.2 ERP systems for production planning

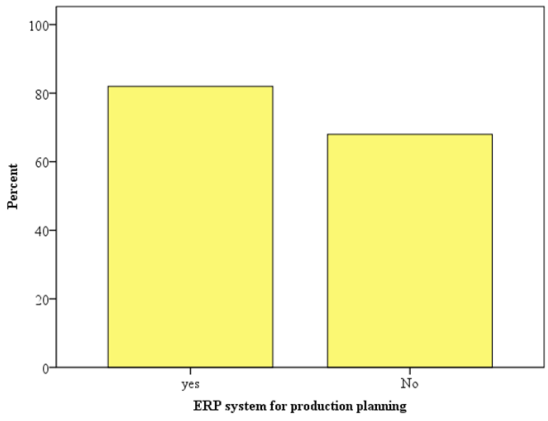

Fig no.4.9 ERP systems for production planning

Inference

From the above table, it is inferred that 54.7% of the respondents said yes that ERP systems for production planning, and 45.3% are said no.

Have a formal supplier evaluation process

Particulars	Frequency	Percent
yes	102	68.0
No	48	32.0
Total	150	100.0

Table no.1.3 Have a supplier evaluation process

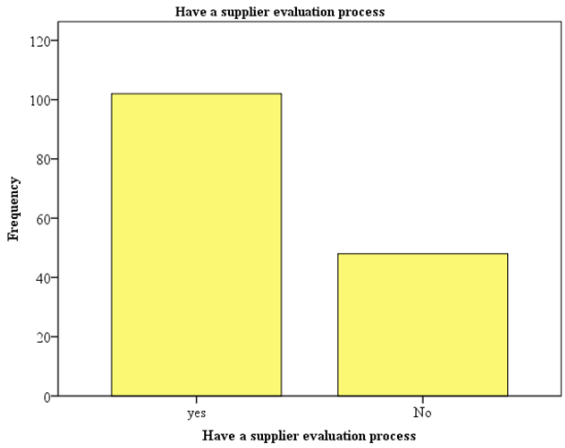

Fig no.4.10 Have a supplier evaluation process

Inference

From the above table, it is inferred that 68% of the respondents said yes that have a supplier evaluation process, and 32% are said no.

4.1.2 Chi-Square Test (Non-Parametric Test)

Hypothesis

Null Hypothesis

H0: There is no significant association between ERP system for production planning & Risk management a part of supply chain strategy.

Alternative Hypothesis

H1: There is a significant association between ERP system for production planning & risk management a part of supply chain strategy.

Summary of the Chi-Square

	Cases					
	N	Percent	N	Percent	N	Percent
ERP system for production planning & Risk management a part of supply chain strategy	150	100	0	0	150	100

Table no.1.4 Summary of the Chi-Square

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.166	1	.683
Likelihood Ratio	.166	1	.684
N of Valid Cases	150		

Table no.1.5 Test Statistics

Inference

From the above table 4.38, the significant value is p=.683 which is greater than 0.05. So, null hypothesis is accepted, it reveals that there is no significant association between ERP system for production planning & inventory management, Risk management is a part of your supply chain strategy.

4.1.3 Correleation

Null hypothesis

H0: There is no relationship between formal supplier evaluation & regularly review manufacturing strategy.

Alternative hypothesis

H1: There is relationship between formal supplier evaluation & regularly review manufacturing strategy.

Correlation

		Aim to minimize production costs	Employ predictive maintenance to minimize downtime
Aim to minimize production costs	Pearson Correlation	1	.087
	Sig. (2-tailed)		.291
	N	150	150
Employ predictive maintenance to minimize downtime	Pearson Correlation	.087	1
	Sig. (2-tailed)	.291	
	N	150	150

Table no.4.39 Correlation

Inference

From the above table, it is inferred that, r = 0.08 (r value lies between -1 to +1), hence it is clear that there is a positive correlation relationship between Aim to minimize production costs and Employ predictive maintenance to minimize downtime. So, H1 is accepted. There is a significant relationship between minimize production costs and minimize downtime

IV. SUGGESTIONS

- The management should Streamline operations to eliminate waste and improve efficiency.
- Boost productivity and maintain a competitive edge through technological advancements.
- Reduce environmental impact and promote sustainable operations.
- Encourage an organizational mindset focused on ongoing enhancement and innovation.

V. LIMITATIONS

- The study is unable to be conducted for a long enough period of time to observe the long-term effects of an intervention.
- certain studies not allowed to be conducted due to ethical concerns.

CONCLUSION

- In conclusion, the process of manufacturing strategy involves how manufacturing strategy helps to minimize production costs.
- I learned the risks involved in manufacturing process of Swashthik Plascon Limited.
- In this study, I have studied the manufacturing techniques, quality control process and manufacturing technologies.
- Here, I have collected data from employees through a questionnaire in that I have found some problems and I gave any suggestion to overcome those problems.

REFERENCES

[1] Green K & Patel S, (2022), Sustainable Manufacturing strategy and implementation: A cross- country comparative analysis

[2] Zhang M, Zhao L & Zhou D, (2021), The impact of COVID 19 on global Manufacturing and supply chain strategies