© MAY 2026 | IRE Journals | Volume 9 Issue 11 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I11-1717452

Evaluating The Effectiveness of Sales and Operations Planning (S&Op) In Balancing Demand and Supply: A Study of Pepsico in Chhattisgarh

ANUSHKA SHIVHARE[1], INDU SANTOSH[2]
[1,2]*MBA, AMITY UNIVERSITY, RAIPUR CHHATTISGARH*

Abstract- ***The FMCG industry operates in a highly competitive and fast-changing environment where demand can shift quickly and supply chains must respond with speed and accuracy. In such a setting, Sales and Operations Planning (S&OP) plays an important role in bringing together sales, operations, and supply-side decisions so that organizations can meet customer demand without creating excess inventory or stock shortages. Over time, many companies have moved beyond traditional S&OP toward Integrated Business Planning (IBP), which connects operational planning with financial and strategic goals. PepsiCo, with its large product portfolio and extensive distribution network, provides a strong context for studying how effective planning systems support demand-supply balance.This study examines the effectiveness of S&OP in PepsiCo's operations in Chhattisgarh, with special attention to forecast accuracy, inventory efficiency, cross-functional coordination, and service performance. The research uses a quantitative approach supported by interviews and observations. Primary data was collected through structured questionnaires from sales executives, distributors, and retailers, while secondary data was taken from reports and relevant literature. Statistical tools such as descriptive analysis, correlation, and regression were used to interpret the findings.The findings suggest that S&OP has a positive impact on demand-supply balance, mainly by improving coordination across departments and strengthening planning accuracy. At the same time, the study identifies practical gaps at the last-mile execution level, especially in managing local demand fluctuations, stock availability, and communication delays. Overall, the study concludes that S&OP is a valuable business process for PepsiCo, but its full success depends on timely data sharing, strong coordination, and continuous improvement in execution.***

Keywords: Integrated Business Planning (IBP), Sales And Operations Planning (S&OP), FMCG Industry, Demand Forecasting, Supply Chain Alignment, Pepsico, Inventory Management, Cross-Functional Coordination, Operational Efficiency, Business Planning

I. INTRODUCTION

In the modern FMCG sector, companies face constant pressure to maintain product availability while controlling costs and avoiding waste. Because consumer demand changes rapidly and product movement is high, even a small planning error can lead to stockouts, excess inventory, or poor service levels. This is why planning systems such as S&OP have become essential for organizations that want to remain efficient and competitive. S&OP helps different departments work together so that demand forecasts and supply decisions are aligned in a structured way.

Traditional S&OP was mainly designed to coordinate operational plans. However, as business environments became more complex, companies began to realize that planning should not remain limited to operations alone. This led to the development of Integrated Business Planning, which brings together sales, operations, finance, and strategy into one broader decision-making process. In this way, planning becomes not just a control tool but a strategic advantage.

The FMCG industry is especially suitable for this type of study because it involves a large number of SKUs, seasonal variation, promotional demand, and a wide distribution network. PepsiCo is a strong example of such complexity. Its product mix includes beverages and snacks, each with different demand patterns, shelf-life requirements, and supply needs. Because of this, the company must maintain a strong planning system to ensure smooth operations across different market levels.

The relevance of this study lies in understanding how well S&OP works in a real regional setting.

Chhattisgarh offers a useful case because it includes major urban and semi-urban markets where demand behavior, distributor efficiency, and retail execution all influence supply chain performance. By studying PepsiCo in this region, the research provides practical insight into how planning decisions translate into field-level results.

Objectives of the Study

The study was designed to:

1. evaluate the effectiveness of S&OP in balancing demand and supply in PepsiCo's operations in Chhattisgarh;
2. assess its impact on forecast accuracy, inventory levels, and service performance; and
3. examine coordination between sales teams and distributors.

Scope and Significance

This study is limited to PepsiCo's operations in selected locations of Chhattisgarh, mainly Raipur, Bhilai, and Durg. It focuses on key operational areas such as forecasting, inventory management, distribution efficiency, and last-mile delivery. The findings are valuable because they highlight the real-world challenges of implementing S&OP in a regional FMCG network. They also help explain how better coordination and planning can improve customer service, reduce stock imbalances, and support more effective decision-making.

II. COMPANY PROFILE

PepsiCo is a global food and beverage company known for its strong brand portfolio and large-scale distribution system. Its products are sold across more than 200 countries and include well-known names such as Lay's, Doritos, Cheetos, Pepsi, Mountain Dew, Quaker, and Gatorade. In India, PepsiCo has a significant presence through manufacturing, distribution, and local partnerships, which makes it an important player in the FMCG sector.

The company's purpose focuses on creating value for consumers, customers, communities, and the planet. Its pep+ strategy reflects a long-term commitment to sustainability and integrated growth. This is especially important because a company with such a wide product range must coordinate demand, supply, logistics, and financial goals carefully to remain efficient and responsive.

In Chhattisgarh, PepsiCo operates through a distribution network that includes super stockists, distributors, and retailers. This multi-layered structure makes planning both important and challenging. Since each level of the network affects product availability, even small communication gaps can lead to stock issues at the retail end. For this reason, the region provides a meaningful setting for studying S&OP effectiveness.

III. REVIEW OF LITERATURE

The literature reviewed in this study shows that S&OP and IBP have become increasingly important in supply chain management. Recent studies emphasize that organizations are moving toward data-driven planning systems to improve accuracy, visibility, and resilience. Research has also shown that while many companies understand the value of integrated planning, the actual implementation is often difficult because of organizational silos, weak coordination, and limited data integration.

Studies related to PepsiCo indicate that the company has worked toward more integrated planning practices, including gradual IBP adoption and technology-supported forecasting. Other research highlights that successful S&OP depends not only on tools and software but also on strong collaboration between departments, clear communication with distributors, and disciplined execution. Overall, the literature supports the idea that S&OP can improve performance, but only when it is supported by both systems and people.

IV. RESEARCH METHODOLOGY

This study uses a descriptive and analytical research design. A descriptive approach was chosen to understand existing S&OP practices, while an analytical approach was used to examine the relationships between forecasting accuracy, coordination, inventory efficiency, and overall planning effectiveness. The study is cross-sectional in nature because data was collected at a single point in

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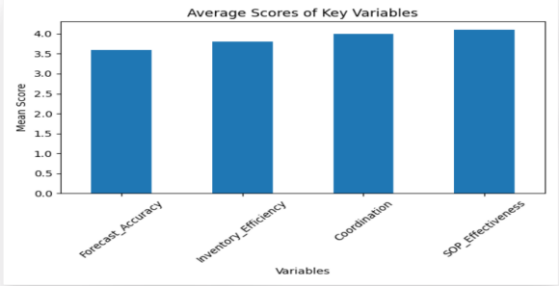
time from respondents involved in PepsiCo's regional operations.

The target respondents included sales executives, distributors, retailers, and where possible, supply chain personnel. A non-probability sampling method was used, specifically convenience and judgmental sampling, because the study focused on people directly connected to the planning and distribution process. Data was collected through structured questionnaires, interviews, and field observation. The questionnaire used a five-point Likert scale to measure perceptions related to demand forecasting, inventory management, coordination, and S&OP effectiveness.

The study tested the following broad hypothesis:

1. Null hypothesis: S&OP has no significant impact on balancing demand and supply in PepsiCo's operations in Chhattisgarh.
2. Alternative hypothesis: S&OP has a significant impact on balancing demand and supply in PepsiCo's operations in Chhattisgarh.

V. DATA ANALYSIS AND INTERPRETATION



The analysis of the collected data suggests that respondents view S&OP as a useful and effective process in the PepsiCo supply chain. The mean scores show that coordination received the highest rating, followed by overall S&OP effectiveness, inventory efficiency, and forecasting accuracy. This indicates that communication between teams and the flow of information are strong points in the current planning process.

Variable	Mean	Percentage
Forecast Accuracy	3.7	74%
Inventory Efficiency	3.87	77.33%
Coordination	3.97	79.33%
Stockout (Reverse)	2.33	46.66%
Overstock (Reverse)	2.63	52.66%
S&OP Effectiveness	4.0	80%

The percentage analysis also shows a positive picture overall. S&OP effectiveness was rated at about 80%, while coordination scored close to 79%. Forecasting and inventory management were also seen as reasonably strong, although the results suggest there is still room for improvement in handling local demand changes and reducing stockout situations.

Correlation analysis revealed strong positive relationships between S&OP effectiveness and variables such as forecasting accuracy, coordination, and inventory efficiency. At the same time, stockouts and overstocking showed negative relationships with S&OP effectiveness, which means that better planning is associated with fewer supply chain inefficiencies. Among the variables, coordination emerged as the strongest factor influencing S&OP outcomes.

Variable	Mean ($\bar{x}$)	Standard Deviation (σ)
Forecast Accuracy (X_1)	3.73	0.98
Coordination (X_2)	4.07	0.88
Inventory Efficiency	3.93	0.90
S&OP Effectiveness (Y)	4.13	0.94
Stockout	2.43	0.90
Overstock	2.67	0.95

Variables	r Value	Interpretation
Forecast and S&OP	0.88	Strong positive
Coordination and S&OP	0.98	Very strong positive
Inventory and S&OP	0.86	Strong positive
Stockout and S&OP	-0.87	Strong negative

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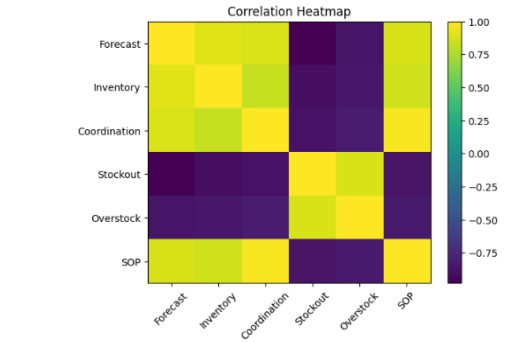
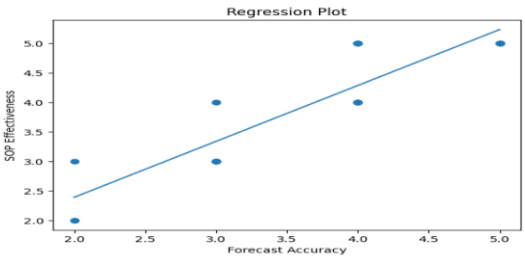
Overstock and S&OP	-0.83	Negative





The regression analysis confirmed the same pattern. Forecast accuracy had a positive but smaller effect, while coordination had a much stronger influence on S&OP performance. This suggests that forecasting alone is not enough; it must be supported by teamwork, communication, and timely execution across departments. Based on these results, the null hypothesis was rejected and the alternative hypothesis was accepted.

VI. CONCLUSION

The study concludes that Sales and Operations Planning plays an important role in balancing demand and supply in PepsiCo's operations in Chhattisgarh. The findings show that respondents generally view the planning process positively, especially in terms of coordination and operational alignment. At the same time, the study also makes it clear that some execution-level issues remain, particularly in managing stock availability and responding to local demand changes.

The statistical analysis provides strong support for the effectiveness of S&OP. Forecast accuracy and coordination both contribute to better planning, while stockouts and overstocking decline when the system works well. Among all the factors studied, coordination stands out as the most important driver of success. This means that even a well-designed plan can fail if departments do not communicate properly or respond quickly to changes in demand.

In practical terms, the study shows that S&OP is more than a planning exercise. It is a business process that connects sales, operations, and supply chain functions to support smoother execution and better service. For PepsiCo, strengthening this process can improve operational efficiency, reduce mismatch between demand and supply, and create more reliable performance across the distribution network.

FINDINGS OF THE STUDY

The study on the effectiveness of Sales and Operations Planning (S&OP) in balancing demand and supply in PepsiCo operations in Chhattisgarh led to the following key findings:

1. S&OP has a significant positive impact on balancing demand and supply across the supply chain.
2. Cross-functional coordination emerged as the most influential factor affecting S&OP effectiveness, indicating that alignment between sales, supply chain, and distributors is critical.
3. Demand forecasting accuracy was found to be reasonably strong and positively related to inventory efficiency, though there is still scope for improvement at the local level.
4. Inventory management practices are generally efficient, contributing to better product availability and reduced wastage.
5. A strong positive relationship exists between forecasting, coordination, and overall S&OP effectiveness.
6. Stockouts and overstock situations show a negative relationship with S&OP, confirming that better planning reduces operational inefficiencies.

VII. LIMITATIONS AND FUTURE SCOPE

This study has some limitations. The sample size was limited, and convenience sampling was used, so the findings cannot be generalized to all PepsiCo

markets. The study also relied heavily on respondents' perceptions, which may include bias. In addition, the research was restricted to selected areas in Chhattisgarh, so the results may differ in other regions with different market conditions. Access to detailed internal company data was also limited, which reduced the depth of analysis in some areas.

Future research can expand the study to other regions and use a larger sample for stronger conclusions. It would also be useful to include real-time ERP or SAP-based data for deeper analysis. Further studies may examine how digital tools, demand sensing, and distributor collaboration improve S&OP performance over time. A longer-term study could also help show whether improvements in planning create sustained operational benefits.

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