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Supply Chain of India's State-Owned Distribution System: A New Paradigm

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Abstract

The purpose of this study is to formulate an effective marketing and strategic decision-making structure by integrating SWOT analysis with the Analytic Hierarchy Process (AHP). SWOT analysis is employed to analytically classify internal and external factors into four groups, namely strengths, weaknesses, opportunities, and threats, providing a comprehensive qualitative understanding of the working environment. However, traditional SWOT analysis lacks a mechanism to prioritize these factors objectively. To address this limitation, AHP is incorporated to strengthen the quantitative dimension of strategic planning through structured pairwise comparisons and eigenvalue-based priority estimation. The proposed integrated SWOT-AHP methodology enables the evaluation and ranking of critical strategic factors from a macro perspective, ensuring a balanced alignment between internal capabilities and external conditions. By quantifying the relative importance of SWOT factors, the study enables the formulation of different strategic options that maximize strengths and opportunities while minimizing weaknesses and mitigating potential threats. The methodology is implemented by constructing comparison matrices for selected SWOT factors and computing priority weights using the eigenvalue approach. The findings demonstrate that the combined SWOT-AHP framework provides a robust and systematic tool for strategic analysis and decision making. The results yield illegal strategic alternatives that support informed managerial decisions. In the context of India's Public Distribution System (PDS), the proposed method is expected to develop supply chain performance by improving operational efficiency, increasing supply volume, strengthening customer satisfaction, and enhancing product reliability. Overall, the study highlights the efficacy of the integrated SWOT-AHP model as a practical and quantitative decision-support tool for complex strategic planning problems.

Keyword: *Public Distribution System (PDS), Supply Chain Management, SWOT Analysis, Analytical Hierarchy Process (AHP), Critical Factors, Multiple Criteria Decision Making*.

1. INTRODUCTION

Public Distribution System is a food safety organization inaugurated under the MCA, Food and Public Distribution of India. The PDS evolved as a system to address food shortages by distributing food affordable prices. Public distribution of basic necessities has existed in India since the pre-independence period (Tarozzi, 2005).

The PDS, which focuses on the distribution of food grains in area of urban scarcity, was born out of the serious food deficiency of 1960 (APCR, 2011).Which India's agricultural production increased as a result of Green Revolution in the 1960s, the expansion of the PDS was elongated to India's tribal blocks and areas of high poverty incidence in the 1970s and 1980s (GOL, 2011(a)).

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Up to 1992, the PDS was prevalent system of eligibility for all consumers with no specified objective. In June 1992 RPDS was launched (Gol, 2011(b)) to enhance its reach in remote, craggy and cut off whereas considerable portion of the poor live. Later, in June 1997, the TPDS was initiated by the Indian government with an emphasis on the poor. (APCR, 2011).

Under the TPDS, which is still in force, states are required to identify poor people for the delivery of food cereals, and to distribute them through the (FPS). The estimated number of beneficiaries was 60 million. To make TPDS more earmarked to the poorest in the current BPL population class is the AAY was started in December 2000, for 10 million. (Later in the year 2005-06 it was raised to 22.5 million) poorest of the poor families.

Under this regime the states/ UTs were desired to bear distribution costs, including transportation costs, as well as margins for dealers and retailers. Consequently, the entire subsidy had to be transferred to the beneficiaries of the scheme. The PDF is an important element in the strategy to get rid of poverty and is to serve as a safety net for the nutrition insecure poor over 300 million of whom are at risk (Kattumuri, 2011). PDS is a network of approximately 0.5 million SPF and is perhaps the largest distribution network of its kind in the world. So these are complicated supply chain management issues correlated with the system.

The study draws upon numerous previous research works that employ organized analytical structures to upkeep strategic research. For example, Bello (2013) applied SWOT analysis to study the strategic positioning of Globacom Ltd., underlining its organizational strengths and market challenges.

Clardy (2013) critically examined the conceptual foundations of SWOT by characterizing between organizational strengths and strong strategic positions, thus refining the analytical precision of the outline. Jamshidi (2012) employed SWOT analysis to assess the judicious strategic position of a cyclic federation in Iran, indicating the applicability of the method in institutional and policy-oriented contexts.

Furthermore, Gorener (2012) related the Analytic Hierarchy Process (AHP) and Analytic Network Process (ANP) in strategic decision-making within a manufacturing company, highlighting the value of multi-criteria decision tools alongside SWOT analysis. Lalitha (2017) covered the relevance of SWOT analysis as a useful tool for assessing organizational performance and strategic planning across sectors.

2. REVIEW OF LITERATURE

A literature review of related articles shows that several studies have been carried out in the following areas: In the year of 2011 (Dutta) and in 2013(Arora,) Andhra Pradesh and, in 2013(Arora, Jha, Sawant), and in 2001(Moojh), in 2013 (Arora) Tamilnadu but Odisha appears to have received relatively little attention from PDS researchers.

In Odisha, one of the most backward in the country, the target district Dhenkanal is lagging behind on a number of indicators relating to development. There are a number of factors responsible for the declining nutritional status of the people living in this area including the poverty rate, unemployment rate, illiteracy rate, infant and adult morality rate, migration rate and other factors that contribute to the poverty rate.

Koshy (1991) found that focusing on enhancing fair price shops in Kerala, India to avoid stock diversion. They also suggested that increasing beneficiary monthly quotas and targeting PDS towards the poorest groups for better social and economic outcomes.

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Ahluwalia (1993) reviewed the Indian Public Distribution System and identified issues of leakages into free markets, exclusion of vulnerable groups, and rural-urban disparities. He proposes that adjusting food grain allocation based on state poverty levels and simplifying ration card use. Use quality local grains to reduce costs, meet needs, and improve wellbeing. Balakrishnan & Ramaswami (1997) conducted a study on the effect of PDS quality on consumers. High issue price drives them to the open market, but not always directly. PDS fails to cover most households and satisfy demand. They also suggest that improving PDS quality & expanding coverage to compete with open market and ensure food security for all. Mooij (2001) found that why the Public Distribution System didn't work in Bihar.

Politics led to corruption and anarchy, making it hard to fix. The poor were disempowered by mafia, rangdars, and bureaucrats. Ramaswamy et al. (2002) examined state institutions' failure to control food prices and manage public distribution systems, affecting product quality, supply chain, and recipients. This paper also looked at how demand switches were tested when PDS was switched to open market based on commodity quality. Results show no switches if open market prices exceed subsidized grains, but quality. Is decisive when prices are similar.

Tritah (2003) concluded that the implementation of food subsidies in India had a determeneral effect on the prevalence of food insecurity and poverty. PDS has low awareness and limited access, and is only available to a select group of people. Subsidies are underutilized and poorly distributed. The study recommended a new poverty measure to include food content of poverty lines, proving PDS helps the targeted population. Khera (2008) conducted a study of India's poverty line criteria to be uniform and exclusionary.

Research on 400 households in 8 Rajasthan villages showed 44% of eligible households were excluded and 1/3 of beneficiaries were wrongly categorized. Pal (2011) found that the inept handling of Public Distribution System (PDS) commodities by the Food Corporation of India (FCI) and Central Warehousing Corporation (CWC) . The corrupt system exhibits stock shortages, ration card fraud, commodity diversion, bogus cards, and substandard grains. Pal suggests policy reform and technical upgrades to enhance transparency, speed, and performance. Kotwal et al. (2011) suggested focusing on concerns with cash transfer (CT) and food grain system flaws.

CT is more convenient and cost-effective than PDS, but faces objections like price changes and non-food expenses. Himanshu and Abhijit (2011) propose a universal NFSA for food security, as BPL card distribution has issues. They argue that universalization could decrease leakages and that access can be improved through transfers like direct cash or coupons. Puri (2012) conducted a study to measure that in Chhattisgarh, most households were content with their ration shops and receiving food grains at current prices. Kumar and associates. (2012) provided that corruption causes the failure of the public distribution system at the micro and macro level.

The Government of India introduced the "consumer club" program in 2006-2007 to educate children about consumer rights and government programs. Puri's (2012) addressed a review of 12 villages in Chhattisgarh, India and found that PDS beneficiaries are satisfied with ration shops and oppose cash transfers due to limited access to banks. Respondents suggested adding dal and cooking oil, reducing wheat and providing rice, and distributing food based on individuals instead of family units.

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Svedberg (2012) assessed focusing on that switching from PDS to cash transfers, suggested a plan to aid 2/3 households, expand outreach, and use UID cards to reduce ghost cards. He cautioned that unconditional transfers may reduce labor supply and increase inflation due to better nutrition. Mahendren (2013) conducted a study to measure over 60% of low-income families are satisfied with the food delivery service of universal PDS in Tamil Nadu. Chandanshiv and Narwade (2013) recognized that over half of PDS beneficiaries were dissatisfied with the food grain quality, yet still bought it due to financial constraints.

Sawant et al. (2013) found that PDS in Maharashtra, India did not reach the poor, leading to a switch to Targeted PDS for food security. Quality issues, weight cutting, leaks, and stock shortages caused the scheme to fail. Proposed solutions include timely supply, accessible buildings, fewer households, and complaint redressal for users. Arora (2013) analyzed PDS failures by studying food subsidy in India using National Sample Survey Data from 2004-05.

PDS aimed to provide cheap food and stability, but largely failed to help the poor except for Andhra Pradesh, Tamil Nadu and Kerala. Arora suggests involving banks to improve outreach and food security, particularly in the North. Ghuman et al. (2013) examined PDS in Punjab and its potential as a policy for aiding those below the poverty line. Their study exposed that only 10% of grain reached BPL beneficiaries in Punjab's PDS due to major leaks and weaknesses.

A Public Distribution System (PDS) that is corruption-free, efficient, and accountable, with infrastructure upgrades, decentralization and monitoring. Ashok and Naveena (2014) found that the current PDS in Mysore District has low satisfaction rates and poor commodity quality, resulting in low purchases and long queues for limited quotas. Velmurugan (2017) conducted a study on analyzed customer satisfaction with the public distribution system using convenience sampling and interview schedules. Factors influencing satisfaction were identified in Coimbatore District, Tamilnadu. 900 card holders' feedback was conveniently sampled and analyzed via Chi-square.

The findings indicate that customer satisfaction is influenced by age, occupation, income, expenditure, goods accessibility, and weight accuracy. Sharma (2017) addressed a review that while the direct benefit transfer (DBT) can reduce corruption and increase beneficiaries' purchasing power, there are still reasons for citizen non-acceptance and a need for improved implementation and financial awareness.

In their study, Lavanya and Velumurugan (2017) found that PDS customers require regular access to accurate quantities of goods, easily accessible shops with adequate staff, timely distribution of 17 commodities, and goods that meet their consumption needs for satisfaction. Sharma, Namrata (2018) carried out a study on “Agility in PDS supply chain through ICT intervention a selective diagnostic analysis”. This results showed that in this context, trust-commitment did not affect performance despite being a crucial element of supply chain agility, while risk perception had a significant positive relationship with performance.

This study also explores determinants of performance by supply chain partners during a mandated change in a government-controlled welfare service scheme. The findings also provide ways to further investigate these settings from a supply chain management standpoint. Bohtan (2019) studied “India’s Public Distribution System (PDS): an analysis of the supply chain perspectives” and focused on identifying various bottlenecks in India’s current PDS system as well as various factors to improve the system in India. He suggested that put more emphasis in technology with Information and communication technologies (ICT).

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Masiero (2020) conducted a study on "Biometric Infrastructures and the Indian Public Distribution System" with an objective to fight the rice mafia's food grain diversion, a biometric PDS doesn't prevent exclusion errors and supports an uncertain transition to a cash transfer system.

The main objective of this study is to develop and apply an integrated SWOT–AHP research structure to thoroughly identify, evaluate, and prioritize strategic factors affecting the Public Distribution System (PDS) supply chain from a macro perspective. By combining qualitative SWOT analysis with the quantitative accuracy of the Analytic Hierarchy Process (AHP), the study aims to evaluate the relative importance of strengths, weaknesses, opportunities, and threats through pairwise comparisons and eigenvalue-based priority calculations.

The objective is to enhance strategic decision making by providing a structured, measurable basis for identifying key improvement areas and formulating effective strategies to improve the overall efficiency and effectiveness of the PDS supply chain.

3. METHODOLOGY

3.1 SWOT Analysis

A SWOT analysis (as shown in Fig. 1) is a way of looking at a company's Strengths, Weaknesses, Opportunities, and Threats to figure out how it stacks up against other companies and how it can use that information to create better strategic plans. A SWOT (Strengths, Weaknesses, Opportunities, and Threats) is an analysis of a company's strengths and weaknesses, taking into account both internal and external factors, as well as its current and future potential.

SWOT analysis is a way of looking at how a business or part of it, like a line of products, division, sector, or other unit, is doing what their competitors are doing, what risks they face, and what their potential is (Kangas et al , 2003). The strategy also needs to be in line with what the decision maker is trying to achieve at the moment and what they want to achieve in the future (pesonen et al. 2003). SWOT is the process of analyzing a new product, technology, management, or program in a systematic manner and identifying the underlying elements that contribute to its success.

Swot matrix is one of the most widely used decision-making tools that assesses both the external and the internal context to support a decision. (Kurtilla et al. 2000, Kangas et al. 2003, Yüksel et al. 2007).

Strengths, Weaknesses, Opportunities and Threats (SWOT analysis) is a strategic planning methodology used to evaluate the strengths, weaknesses and opportunities of a project or a business (Hayikhani and Jafari 2013). These four elements make up SWOT, which stands for Strengths, Weaknesses, Opportunities, and Threats.

This involves the formulation of objectives for a work or project, as well as the identification of internal and external elements that support those objectives. Strategic factors are the internal and external elements that are most influential for the future of a company. SWOT analysis divide these factors into four sub-groups, known as SWOT groups. These groups include Strengths, Weaknesses, Opportunities, and Threats.

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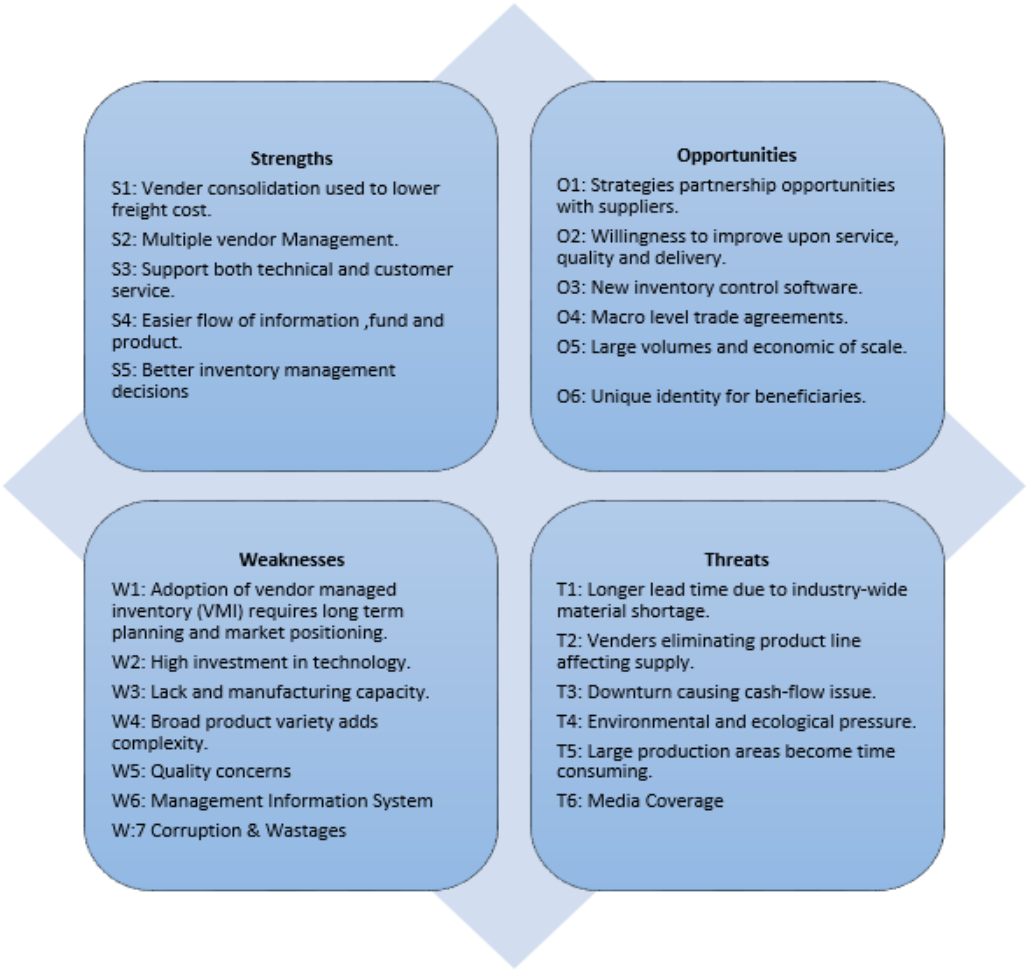

Fig 1: SWOT Analysis

3.2 Analytical Hierarchy Process (AHP)

Analyzing the Analytical Hierarchy Process (AHP) a measurement study was conducted by Thomas L. Satty in 1980. One of the most widely used pair wise comparison techniques is the AHP method, which is used to make decisions on Multi-criteria decision problems (MCDM) (Gorener, Toker, & Korkmaz,2012). The purpose of the approach is to assist decision makers in integrating the qualitative and quantitative aspects of challenging issues.

The AHP methodology is based on the principle of constructing a problem structure. This method, which is employed as a means of formulating strategies in problem-solving, necessitates the preparation of hierarchical; structures during the process. The hierarchy begins with the Goal, the groups of factors, the strategic factors and the strategic alternatives (Kangas, Pesonen& Mikko, 2001).

AHP is a multifactorial decision-making approach that facilitates the demonstration of collective decision-making by constructing a challenging issue into a multi-dimensional set of objectives, criteria and options (Sharma M.J, Moon.i., and Bae h.,). In AHP, relative priority is determined on an absolute scale by comparing discrete and continuous pairs in a multi-level hierarchy (Satty, T.L .and Vargas, L.G, 1996).

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The order of priority is determined by the assignment of a numerical value to a comparison scale (Table-1) (Saaty, 1980) to indicate the relative significance of the criteria. The pair wise comparison matrices of these matrices serve as the bias for the calculation of the importance (Sharma M.J., Moon, I., and Bae H, 2008)

Table 1: Pair wise comparison scale

Importance	Explanation
1	Two criterion contribute equally to the objective
3	Experience and judgment slightly favor one over another
5	Experience and judgment strongly favor one over another
7	Criterion is strongly favored and its dominance is demonstrated in practice
9	Importance of one over another affirmed on the highest possible order
2, 4, 6, 8	Used to represent compromise between the priorities listed above

Table 2: Random Index (Saaty and Vargas, 1991)

n	1	2	3	4	5	6	7	8	9	10
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

3.3 SWOT-AHP Method

The SWOT matrix is used in this study to define the AHP, which is then broken down into three sub-structures, according to (Oreski, 2012). In order to develop a SWOT-AHP based strategic management model, we developed a phase model.

The evaluation process begins with a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis, followed by the identification of the appropriate external and internal contexts. Subsequently, the factors are modified and the evaluation model is constructed (Yogi, Rizal and Ahmadi, 2017).

This study was conducted taking into account existing challenges, the availability of data, and the institutional management's willingness to evaluate internal and external policies. The primary data collection was conducted through in depth interview and focus group interviews (Hunger and Wheelen, 2010) and secondary data collection was conducted via literature studies of various pertinent sources.

Five expert respondents were selected for their expertise in their respective fields. Subsequently, the data collected was analyzed, identified and aggregated to form internal and external strategic drivers. The internal and external factors as well as the group factors were weighted using pair wise comparison techniques.

Once an alternative strategy has been developed, AHP method is used to rank the alternative strategy. AHP method generates the best strategy among the alternative strategies recommended by SWOT matrix. (Mehmet, 2011).

4. RESULTS AND DISCUSSION

The SWOT analysis highlights the internal capabilities and external environment shaping the effectiveness of the supply chain system. The results indicate that the organization possesses numerous operational advantages, particularly in vendor consolidation, multi-vendor management, and coordinated technical and customer support. These strengths directly pay attention to smoother flows of information, funds, and products, enabling better inventory related decisions. Such internal efficiencies create a solid base for responding to both opportunities and threats in a dynamic supply environment.

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From the opportunity perception, strategic partnerships with suppliers, adoption of new inventory control software, and large-scale operations offer noteworthy scope for improving service quality, delivery reliability, and cost efficiency. The SO strategies emphasize proactive inventory rationalization and closer collaboration with suppliers. By making informed decisions on which products to retain or discontinue, the system can minimize stock-outs while leveraging economies of scale. Corresponding support between technical teams, customer service units, and suppliers further ensures continuity of supply, even when product lines are phased out or modified.

The WO strategies reveal that weaknesses such as high technology investment, limited manufacturing capacity, quality concerns, and corruption-related wastage restrict the full exploitation of opportunities. Results show that insufficient production capacity combined with product discontinuation by vendors can severely affect availability. Addressing these gaps requires long-term planning for vendor managed inventory, gradual technology adoption, strengthening quality assurance mechanisms, and improving transparency through robust management information systems. Without resolving these internal limitations, opportunities like improved service delivery and unique beneficiary identification may not yield their full potential.

Threat analysis indicates that longer lead times, material shortages, cash-flow constraints, environmental pressures, and media scrutiny pose serious risks. The ST strategies suggest that existing strengths, particularly efficient information and product flow, can partially mitigate these threats. Better inventory planning and visibility can reduce the impact of material shortages and negative media coverage, while environmentally conscious operations help address ecological concerns. However, the WT strategies underline a critical vulnerability: limited manufacturing resources coupled with large-scale production demands. This combination can strain operations, especially during economic downturns.

Generally, the results demonstrate that while the organization has a strong structural foundation, maintainable performance depends on aligning internal systems with external realities. Strategic emphasis should be placed on capacity enhancement, technology integration, quality control, and supplier collaboration. By systematically converting weaknesses into strengths and threats into manageable risks, the supply chain can achieve greater resilience, efficiency, and public credibility.

Table 3 shows that opportunities dominate the SWOT matrix, strongly influencing strengths and weaknesses. Threats have a high interaction with opportunities and weaknesses, indicating risk exposure. Strengths exert moderate influence, while weaknesses are mostly reactive, highlighting the need to leverage opportunities to offset threats and internal limitations.

Table 3: Comparison of SWOT Matrix

	Opportunities	Strengths	Threats	Weakness
Opportunities	1	3	2	3
Strengths	0.333333	1	0.333333	1
Threats	0.5	3.000003	1	3
Weakness	0.333333	1	0.333333	1

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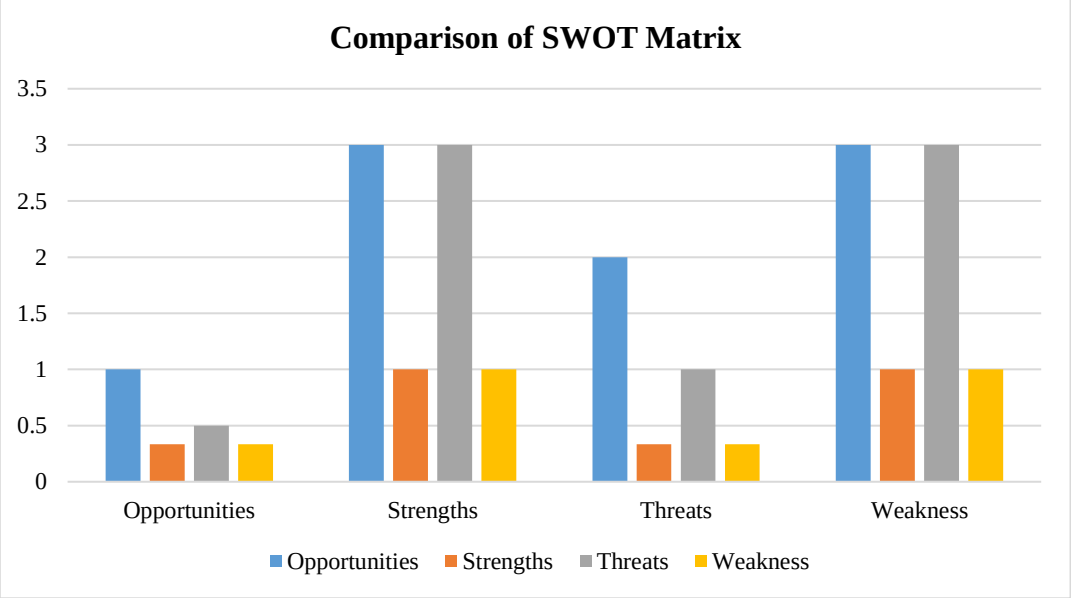

Table 4 indicates that **threats** have the highest priority (0.415), followed by **opportunities** (0.3208), showing strong external influence on strategic decisions. **Strengths** and **weaknesses** have lower weights. The low inconsistency value (0.02271) confirms acceptable reliability of the priority assessment.

Table 4: Priority value of SWOT factors

SWOT	LOCAL WT	PRIORITY
Strengths	0.1405	3
Weakness	0.1237	4
Opportunities	0.3208	2
Threats	0.415	1
Inconsistency: 0.02271		

The SWOT Matrix allows for the development of alternative strategies that are based on the components of the SWOT factors and sub factors as outlined in Table 5.

Table 5: The selection of SWOT factors and sub-factors for the strategy selection

Internal factor	Strength (S)	Weakness (W)
	S1: Vender consolidation used to lower freight cost.	W1: Adoption of vendor managed inventory (VMI) requires long term planning and market positioning.
	S2: Multiple vendor Management.	W2: High investment in technology.
	S3: Support both technical and customer service.	W3: Lack and manufacturing capacity.
	S4: Easier flow of information, fund and product.	W4: Broad product variety adds complexity.
	S5: Better inventory management decisions.	W5: Quality concerns
		W6: Management Information System
		W7: Corruption & Wastages
External factor Opportunities (O)	**SO Strategies**	**WO Strategies**
O1: Strategies partnership opportunities with suppliers.	Making smarter choices about what goods to keep in stock, and working with suppliers to avoid	The quality of products and some vendors stopping their product line are

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	any shortages caused by discontinuing certain items.	causing problems with getting enough supplies.
O2: Willingness to improve upon service, quality and delivery.		
O3: New inventory control software.	Help both the technical and customer service teams, and suppliers, so that product supplies are not affected.	Not enough ability to make things and stores stopping to sell some items is making it hard to get enough products.
O4: Macro level trade agreements.		
O5: Large volumes and economic of scale.		
O6: Unique identity for beneficiaries.		
Threats (T)	**ST Strategies**	**WT Strategies**
T1: Longer lead time due to industry-wide material shortage.		
T2: Venders eliminating product line affecting supply.	Information, money and products move more easily, and there are concerns about the effects on the environment and nature.	We need more ability to make things and chances to work with suppliers on plans.
T3: Downturn causing cash-flow issue.		
T4: Environmental and ecological pressure.	Making good choices about what to keep in stock and getting noticed by the press.	Not having enough resources to make things and making a lot of things at once to save money.
T5: Large production areas become time consuming.		
T6: Media Coverage		

Table 6 defines the group factor that has the highest local priority. Next, comparisons were made between the four SWOT groups to determine scaling factors for each SWOT group. Finally, the local priority of each factor was multiplied by the scaling factors of each SWOT group to get the overall global priority for SWOT factors. In order to further refine the formation of high priority SWOT factors, the top two factors of each group of the Global priority SWOT table are considered.

Table 6: High Priority SWOT Factors

SWOT Group	Factor Code	SWOT Factor	Overall (Global) Priority of the factor
Strength	Sa	Better inventory management decisions.	0.0596
	Sb	Support both technical and customer service.	0.0330
Weakness	Wa	Quality concerns	0.0351
	Wb	Lack and manufacturing capacity.	0.0288
Opportunity	Oa	Venders eliminating product line affecting supply	0.1074
	Ob	Media Coverage	0.0839
Threat	Ta	Strategies partnership opportunities with suppliers	0.1378
	Tb	Large volumes and economic of scale	0.0824

The high priority SWOT factors are shown in Table 7, where all factors are weighted and selected from the highest among all factors to consider priority to compare internal and external factors to improve the supply chain management of Public Distribution System (PDS) with the right strategy.

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Table 7: SWOT factors are considered to be a global priority

SWOT group	Scaling factor of the group	SWOT Factors	Priority (local) of factor within the group	Overall (global) priority of the factor	Inconsistency ratio
Strengths	0.1405	Vender consolidation used to lower freight cost.	0.183	0.0257	0.0883
		Multiple vendor Management.	0.0848	0.0119	
		Support both technical and customer service.	0.2347	0.033	
		Easier flow of information, fund and product.	0.0735	0.0103	
		Better inventory management decisions.	0.4241	0.0596	
Weakness	0.1237	Adoption of vendor managed inventory (VMI) requires long term planning and market positioning.	0.158	0.0195	0.0627
		High investment in technology.	0.0577	0.0071	
		Lack and manufacturing capacity.	0.2324	0.0288	
		Broad product variety adds complexity.	0.1371	0.017	
		Quality concerns	0.2839	0.0351	
		Management Information System	0.0758	0.0094	
		Corruption &Wastages	0.0551	0.0068	
Threats	0.3208	Longer lead time due to industry-wide material shortage	0.1193	0.0383	0.0841
		Venders eliminating product line affecting supply	0.3349	0.1074	
		Downturn causing cash-flow issue	0.0419	0.0135	
		Environmental and ecological pressure	0.0619	0.0199	
		Large production areas become time consuming	0.1802	0.0578	
		Media Coverage	0.2617	0.0839	
Opportunities	0.415	Strategies partnership opportunities with suppliers	0.332	0.1378	0.1443
		Willingness to improve upon service, quality and delivery	0.1944	0.0807	
		New inventory control software	0.0536	0.0222	
		Macro level trade agreements	0.1845	0.0766	
		Large volumes and economic of scale	0.1987	0.0824	
		Unique identity for beneficiaries	0.0368	0.0153	

Table 8 shows the sum of the top two factors for each SWOT category based on the SWOT high priority table. The internal and external factors by weight age are added to get the top ten strategy options.

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Table 8: Strategy Options

Priority	Factors considered (codes from Table 4)	Strategy Options	Weightage
1	Wa+Oa	Quality concerns and Venders eliminating product line affecting supply	0.1425
2	*Wb+Oa*	Lack and manufacturing capacity and Venders eliminating product line affecting supply	0.1404
3	Wa+Ob	Quality concerns and Media Coverage	0.119
4	Wa+Ta	Quality concerns and Strategies partnership opportunities with suppliers	0.1729
5	Wa+Tb	Quality concerns and Large volumes and economic of scale	0.1175
6	Sa+Oa	Better inventory management decisions and Venders eliminating product line affecting supply	0.167
7	Sb+Oa	Support both technical and customer service and Venders eliminating product line affecting supply	0.1404
8	Wb+Ob	Lack and manufacturing capacity and Media Coverage	0.1127
9	Wb+Ta	Lack and manufacturing capacity and Strategies partnership opportunities with suppliers	0.1666
10	Wb+Tb	Lack and manufacturing capacity and Large volumes and economic of scale	0.1112

Using the TOWS matrix as a starting point, future research will focus on the relationship between internal and external system variables, as well as the strategies based on those variables. Strengths and weaknesses are related to the internal elements of the organization, whereas opportunities and threats are related to external elements of the organization. It is clear that strengths and opportunities are beneficial (supporting the attainment of the goal) and weaknesses and threats are detrimental (contrary to attainment of the goal). Strategic options are formed by combining internal elements with external elements.

Comparisons are used to develop strategies to leverage existing strengths for seizing opportunities. Similarly, strategy options are developed for leveraging strengths to help detect and mitigate existing potential threats, to overcome weaknesses by leveraging available opportunities, and to diminish weaknesses by eliminating looming threats.

5. CONCLUSION

This study combined SWOT with AHP, which is a decision analysis method or sensitivity analysis. The outcome was a hybrid approach that yielded numerical values for SWOT factors. The combination of AHP with SWOT analysis showed good results. Drawing pair-wise comparisons necessitates consideration of the relative importance of the components and allows for a more precise and comprehensive analysis of the situation. SWOT-AHP methodology was applied to select the alternative strategies and selected the best strategy for the development of supply chain of State-owned Distribution system of India. It has become evident that the most profound solution to improve and optimize the implementation of the PDS in India is to reengineering the current processes within its supply chain. It is becoming evident that improving and streaming the PDS system in India necessitates a significant alternation of current supply chain processes through the reengineering process. PDS supply chain challenges require strategic and tactical policy interventions, as well as the application of scientific methods at an operation level.

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