



COMPETITIVE DYNAMICS AND FIRM PERFORMANCE IN THE INDIAN PAINT INDUSTRY: AN EMPIRICAL STUDY

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Abstract:

Changing dynamics in the Indian paint industry have made competitiveness a major strategic concern for firms operating in both decorative and industrial segments. The paper examines the structure of the industry, identifies the market leader and its key success factors, evaluates company performance in terms of cost management and competitiveness, and assesses the impact of foreign entry. A survey-based descriptive and analytical approach was adopted. Primary data were collected through structured questionnaires from dealers and other industry stakeholders, and the responses were analysed using Likert scale analysis and correlation analysis. The results show that the organised sector accounts for 63 per cent of the market and that Asian Paints Limited emerged as the market leader with the highest score on key success factors, scoring 29, followed by Kansai Nerolac with 22 and Berger Paints with 20. Kansai Nerolac performed better in cost management, scoring 114 against 105 for Asian Paints, but Asian Paints retained stronger overall competitiveness. The findings further reveal that crude oil price fluctuations did not have a significant independent effect on competitiveness, while the entry of foreign firms increased product variety and competition without adversely affecting domestic companies. Overall, competitiveness in the Indian paint industry depends on quality management, stock keeping unit management, branding, supply chain efficiency, and strategic adaptability.

Keywords: Paint industry; Competitiveness; Branding; Supply chain; Cost management

1. Introduction

The Indian paint industry has gone through a 106-year manufacturing history, and its history can be traced back to about 1902. Gradually, there has been a change of consumer preference towards more quality products like emulsions and enamel paints as opposed to the traditional white wash in the industry. Increasing need for higher finishing, better textures and product durability as well as increasing per capita income, are among the key factors that have boosted the paint market in India. Manufacturers have also come up with better versions like eco-friendly, odour-free, dust-free and water-resistant paints, thus expanding consumer options and triggering market expansion. Moreover, technological modernisation and operational practices based on data have become an ever-growing factor in the competitiveness of the industry and organisational performance in the contemporary business context (Gupta et al., 2020; Li et al., 2018).

Market orientation, customer focus, product variety and competition behaviour are other key shifts that have come about as a result of the industry. Competition has been increased by the new products, worldwide manufacturing systems and computerisation, making firms more sensitive to customer needs. Its transformations in these aspects are aligned with the general trends of digital transformation, in which digital entrepreneurship, innovation capability, and industrial modernisation drive the ability of firms to be adaptable and responsive to the market (Elia et al., 2020; Kumar and Kumar, 2021). In terms of operations, long-term competitiveness is also affected by the effectiveness of firms to align strategic priorities with the evolving market conditions and production capabilities (Singh, 2025).

The Indian paint business is estimated to have a value of a bit more than Rs. It has a limited share in the world market, but 13,600 crores. Its overall production is approximately 9,00,000 metric tons, and per capita consumption in India is approximately 0.6 kg, which is significantly lower than the average consumption in the Southeast Asian region of 4.3 kgs and that in the world region of 22 kgs. However, the potential that the industry holds is immense due to the large population base in India and the growing housing and infrastructure demand. The industry growth rate experienced in the past few years of about 22 per cent has been very encouraging. Such a history of moderate size of the industry, significant growth, and low per capita consumption means that the market potential is high, as well as the need to comprehend how firms can generate and maintain competitiveness in this kind of environment (He et al., 2024; Rehman et al., 2024).

It is a very raw-material-oriented industry with over 65 per cent of the total cost of inputs being a result of raw-material inputs, especially the crude oil derivatives. The industry is exposed to external cost shocks due to excessive reliance on raw materials that are imported. In architectural paints, approximately 25 per cent of the raw materials are imported and in industrial paint, almost 40 per cent. Meanwhile, the growth of other industries, including power, petrochemicals, textiles, fertilizers and automobiles, has raised the need for industrial paint. Consequently, due to this, the supply chain efficiency, resilience, and environmental orientation have gained more and more significance as the performance sustainment in the manufacturing industries (Saini et al., 2023; Dubey et al., 2019). The importance of digital supply chain systems and a resilience-based approach to planning is further justified by the necessity to address risks of disruption and ensure continuity (Queiroz et al., 2022; Ivanov and Dolgui, 2021).

Both the decorative and industrial paints are experiencing an active market, which has created stiff competition between the companies. The organised sector comprises major companies like Asian Paints, Kansai Nerolac, Berger Paints, ICI Paints and Shalimar Paints that compete at the regional level and thousands of small and mid-cap companies that operate in the region. Competition and pressure to survive have been further escalated by the entry of foreign firms. Even though past research has investigated the concept of performance analysis and valuation in the business environment, the studies have failed to discuss the critical success factors establishing a competitive advantage in the Indian paint industry and their response to the fluctuations of crude oil prices on competitiveness (Seng and Hancock, 2012; Baresa et al., 2013). Additionally, some related studies on leadership, responsibility, and firm performance

indicate that organisational and strategic considerations can have a profound effect on competitive outcomes, yet the interrelations are not studied properly in this context of the industry (Shafique et al., 2018; Khan et al., 2021).

It is against this backdrop that the current research has the following four objectives: to research the structure of the paint industry, such as the demand, supply dynamics, products, process, costs, profitability and major players in the Indian paint industry, as well as the influence of the entry of foreign companies in the Indian paint industry. Through a combination of these goals, the study aims to provide a narrow knowledge on competitive dynamics, cost pressures and survival strategies in the Indian paint industry.

2. Hypotheses Development

Based on the research gap as outlined in the introduction and the study objectives, the following hypotheses were developed to test the elements influencing competitiveness in the Indian paint industry. These are hypotheses that are concerned with quality management, marketing, changes in crude oil prices, branding and how foreign firms have influenced the competition in the market.

H1: The quality management and marketing activities are the primary determinants of competitiveness

H2: The level of competitiveness is not dependent on changes in international crude oil prices

H3: Lack of availability of branded paint is a drawback to competitiveness in the paint industry

H4: Foray of foreign paint companies in India has led to product line and competition

3. Research Methodology

3.1 Research Design

This research is premised on survey research. It takes a descriptive and analytical position to review the competitive nature of the Indian paint industry and specifically the success factors, cost management, competitiveness and influence of foreign firms. Structured questionnaires were used to gather primary data, and the analysis was done to evaluate perceptions and comparative performance among the selected firms.

3.2 Data Collection

The research was based on primary data, which was gathered with the help of structured questionnaires. The questionnaire was to get the appropriate data on customer choices, preferences, competitiveness, branding, quality management and other factors that would influence the performance of the paint companies. The data were collected among market players and stakeholders who were related to the paint industry.

3.3 Sample Description

The five large paint companies in the organised sector were covered by the study. These firms were chosen due to their higher market share and applicability to the competitive set-up of the Indian paint industry. The respondents comprised paint dealers as well as other stakeholders in the industry, including architects, builders, developers, interior decorators, painters, painting contractors and industrial users, as indicated in the overall analysis of key success factors in the research. In the case of the dealer-level survey, 50 dealers were picked in various areas and locations. Therefore, the structured questionnaire was primarily respondent-based on dealers, although other stakeholders who are considered important in determining the key success factors and competitive variables were also taken into account.

3.4 Sampling Technique

The research used a non-probability sampling technique. The selection of five major paint companies that participated in the study was done through convenience sampling, and the selection of dealers was done through judgment sampling. The respondents were selected based on the various regions and locations in the case of dealers, to cover a wider market. The

research, hence, incorporated the convenience as well as judgment selection to narrow down on firms and respondents that have a practical relevance to the research objectives.

3.5 Tools of Analysis

The data were collected and analysed with the help of Likert scale analysis and correlation analysis. The perceptions of the respondents towards the critical success factors that include quality, inventory management, stock keeping units, computer colour mixing facility, brand image and effectiveness of the advertisement were analysed using a Likert scale. Relationships between variables were investigated using correlation analysis, especially in determining the effect of the changes in the prices of crude oil on cost and other measures related to competitiveness. These were used to compare the relative performance of the chosen paint companies as well as test the hypotheses developed in the study.

3.6 Scope of the Study

The research will be targeted at five leading paint companies in the formal sector of the Indian paint industry. It specifically analyses the strengths, weaknesses, opportunities and threats encountered by these companies towards core competencies, competitive advantages and supply chain management.

3.7 Limitations of the Study

The research is bound to the evaluation of the major success drivers, competition and other aspects associated with the Indian paint industry. As the number of paint companies in India is quite high, both small and mid-cap, distributed across the country, it was not feasible to study all the paint companies. Thus, the study will be limited to five key actors in the organised sector.

4. Results and Analysis

This section shows key findings of the study concerning the structure of the Indian paint industry, key success factors, cost management and competitiveness, and effects of crude oil prices and foreign entry. The findings are structured in terms of objectives to ensure that they are directly consistent with the objectives and hypotheses of the study. In general, the results show that the competitiveness of the Indian paint industry does not solely depend on the price-related aspects, but also on the quality, branding, inventory efficiency, and responsiveness to the market.

4.1 Structure of the Indian Paint Industry

The results reveal that there are organised and unorganised players in the Indian paint industry, with the former having a significant portion of the market. The two major segments are decorative and industrial paints, and the industry still has a high production capacity and demand potential. These results validate the assertion that the industry is both broad in structure and very competitive, with a high degree of concentration of market power amongst a small number of leading companies. The main structural characteristics of the industry that the study has shown are summarised in table 1.

Table 1. Structural Profile of the Indian Paint Industry

Indicator	Result
Number of companies in the organised sector	About 12
Number of companies in the unorganised sector	More than 2,000
Main industry segments	Decorative and Industrial
Total industry capacity	More than 9,00,000 metric tons
Organised sector market share	63%
Average decorative paint demand	About 9,00,000 tons per annum
Number of paint products offered	More than 40

Table 1 indicates that the Indian paint industry has a dual organisation structure of organised and unstructured companies, although the former controls the market share and competitive power. The existence of such a structural concentration implies that scale, the variety of products, and the power of distribution are probably crucial factors of long-term competitiveness. Figure 1 is a graphical illustration of the structural superiority of the organized sector and the wide range of products of the industry.

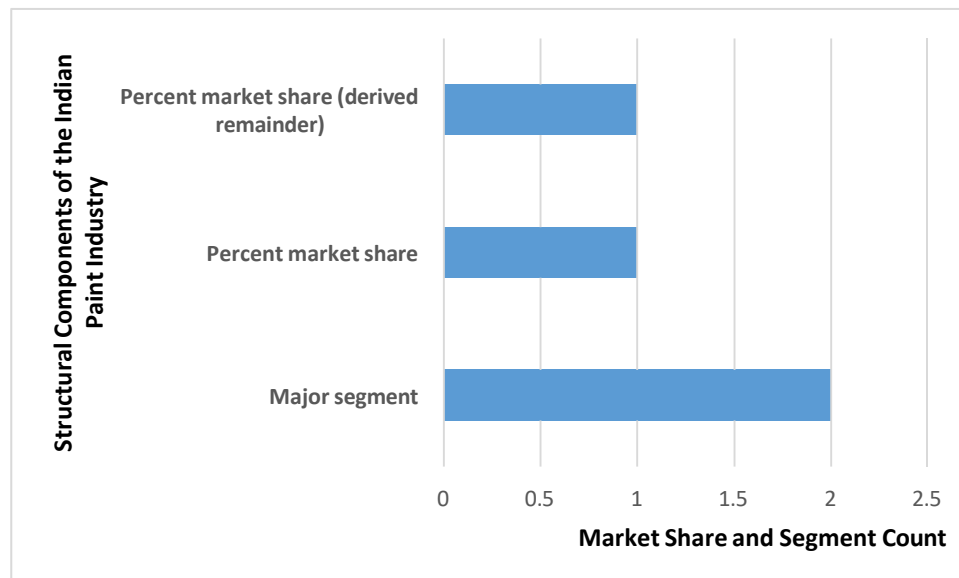


Figure 1. Structural Composition of the Indian Paint Industry

The data also suggest that the demand and supply are relatively balanced, particularly in the decorative segment, with the demand estimated to be approximately 9,00,000 tons per year. It was also noted that there was a seasonal fluctuation in demand, especially during festive seasons, and this shows that market organisation and inventory control are very important operational issues to companies in this industry.

4.2 Key Success Factors and Market Leadership

The second research purpose was to find the market leader and the key success factors related to the high-level performance. The assessment identified 6 major success factors that included: quality, SKU management, inventory management, computer colour mixing facility, brand image, and effective advertisement. These were determined with regard to the responses of the stakeholders who included the architects, builders, developers, paint dealers, interior decorators, painters, painting contractors and industrial users.

Table 2. Comparative Performance of Sample Paint Companies on Key Success Factors

Company	Score on Key Success Factors
Asian Paints Limited (APL)	29
Kansai Nerolac Paints (KNP)	22
Berger Paints Limited (BPL)	20
ICI Paints	13
Shalimar Paints Limited (SPL)	8

As indicated in Table 2, Asian Paints Limited received the highest mark of 29, then Kansai Nerolac with 22 and Berger Paints with 20. The trend obviously makes Asian Paints a leader in the market in terms of the combined power of the identified success variables.

The competitive difference between Asian Paints and the other companies is more apparent in Figure 2 and confirms the meaning of a group of strategic capabilities as the source of leadership, not an isolated phenomenon.

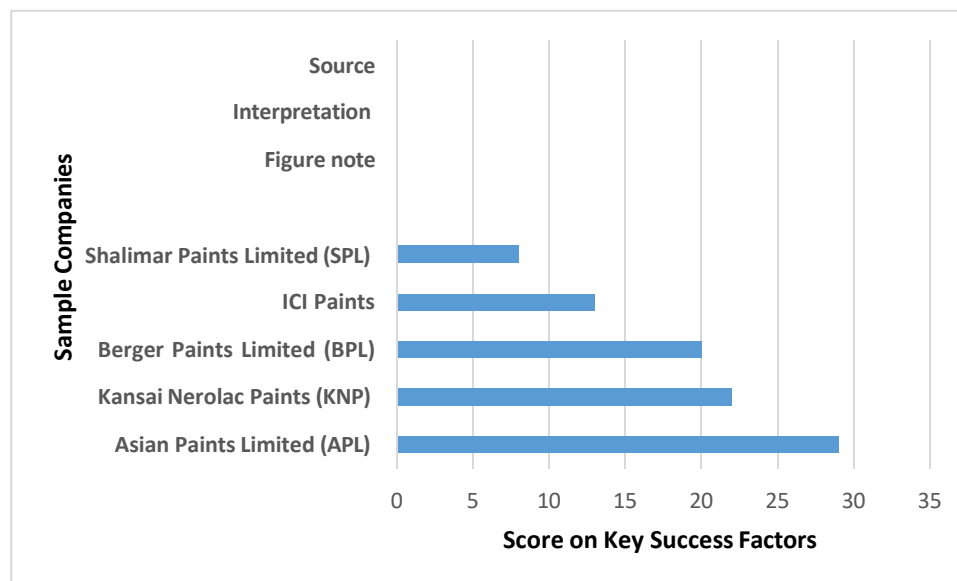


Figure 2. Comparative Scores of Sample Companies on Key Success Factors

The findings show that even though a number of firms do well on some of the chosen dimensions, Asian Paints has the most balanced and best overall competitive profile. Simultaneously, Kansai Nerolac seems to have a relatively stronger inventory management, mostly due to its automotive coating business strength. This means competitiveness in the paint industry is segment-specific and multi-dimensional, although a single firm may dominate the industry.

4.3 Cost Management, Competitiveness, and External Pressures

The third and fourth objectives evaluated the direct relationship between cost management and competitiveness and whether crude oil prices have a strong impact on industry performance. The findings indicate that cost management is also significant, although not the sole contender for competitiveness. Kansai Nerolac had the highest score in the cost management, and Asian Paints continued to be the most competitive in the market because of wider success factors (brand image, quality, and distribution effectiveness).

Table 3. Cost Management, Competitiveness, and External Impact Findings

Variable / Comparison	Result
KNP score on cost management	114
APL score on cost management	105
APL score on competitiveness (APP-based comparison)	28 out of 90
Crude oil component in material cost	Around 40%
Relationship between crude oil price rise and paint prices	Insignificant overall
Effect of foreign entry on Indian paint firms	No major negative impact
Result of foreign entry	Improved quality and competition

Kansai Nerolac was doing better in cost management; however, Asian Paints had better market competitiveness as shown in Table 3. This observation implies that it cannot be cost-efficient and lead the market. Wider strategic resources, especially quality control and marketing efficiency, seem to have a more pivotal influence. The difference between the operational efficiency and the market dominance is important, as explained with the help of Figure 3.

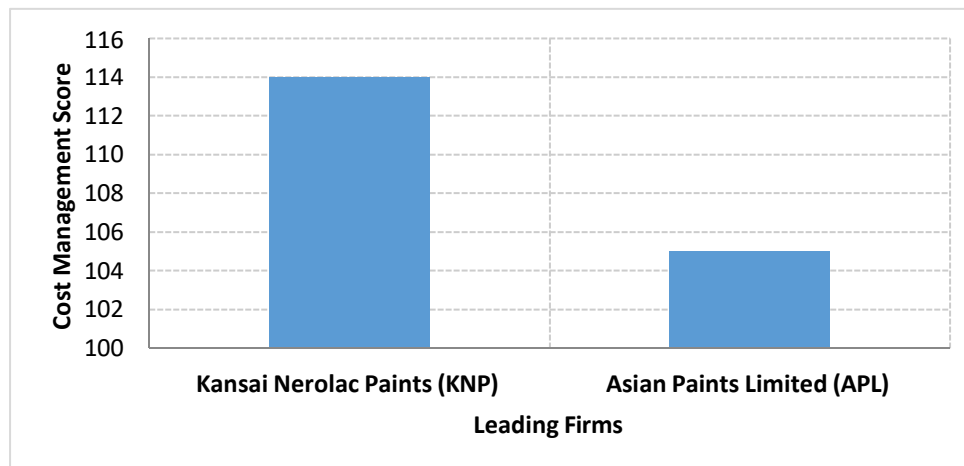


Figure 3. Cost Management versus Competitiveness among Leading Firms

Another finding of the research was that in the case of solvent-based paints, the crude oil constituent is especially important, with around 40 per cent of the material cost being obtained by this component. Though correlation analysis revealed that there was an insignificant overall correlation between Crude oil price upward movement and the end-paint prices, since the firms are more likely to adjust their prices according to the increasing cost of inputs. Moreover, entry by foreign companies did not have any negative implications on the performance of domestic firms; on the contrary, it seems to have had an impact to improve quality, technological adoption, and industry-wide competition. These results substantiate the perception that strategic adjustment is more effective in determining competitiveness in the Indian paint industry than external shocks.

4.4 Summary of Results

The results reveal that the Indian paint industry is structurally large, competitively concentrated, and it is increasingly influenced by strategic differentiation. The strong all-round performance of Asian Paints was due to its long-term advantage in numerous success factors, and Kansai Nerolac demonstrated a higher cost management efficiency. The data also show that the volatility of crude oil prices and foreign entry are also at work, but do not single-handedly dictate the competitiveness. Comprehensively, the findings are valid in supporting the thesis that the primary competitive success factors in the Indian paint market include quality management, branding, and supply chain effectiveness, as well as market responsiveness.

5. Hypotheses Testing

H1: Quality management and marketing are among the key contributors to competitiveness.

Technique applied: Population Proportion Method and Five-point Likert scale.

Findings: Quality, marketing efforts, and competitiveness had a positive relationship.

Decision: Accepted

H2: International crude oil price fluctuations are not related to competitiveness.

Procedure: Modified the APP model and the coefficient of correlation of Karl Pearson.

Findings: The oil price volatility did not cause significant overall competition impacts.

Decision: Accepted

H3: Lack of availability of branded paint is an impeding factor to competitiveness in the paint industry.

Technique employed: Data analysed using a five-point Likert scale through weighted analysis with respect to the expert assessment and dealer responses.

Findings: Competitiveness was greatly aided by brand availability, with Asian Paints ranking as the most weighted.

Decision: Accepted

H4: The product line and competition have increased with the entry of foreign paint companies in India.

Procedure: Comparison of sales, Profit Before Tax and Profit Before Tax before and after foreign entry.

Outcome: Foreign penetration enforced competition and product variety, and indigenous companies kept expanding.

Decision: Accepted

6. Discussion

The results of the study indicate that quality, marketing effectiveness, inventory management, branding and supply chain efficiency work together to establish competitiveness in the Indian paint industry, as opposed to individual efforts. Asian Paints Limited became the market leader since it showed better performance in the key success factors that were identified to be important in the study, particularly quality, SKU management, computer colour mixing facility, brand image and advertisement effectiveness. This trend means that a strong strategic orientation and a harmonised management focus can make a major contribution to improving firm performance in the competitive markets (Faisal et al., 2018; Liao et al., 2020). Another finding that can be used to support the argument that competitive advantage can be created when firms integrate product strategy, responsiveness in the market and operational capabilities in an integrated fashion as opposed to being based simply on price or scale is also supported by the result. In these regards, Asian Paints' overpower is indicative of its capacity in transferring strength within the organisation to stable market leadership. The research consequently indicates that the long-term competitiveness level in the paint sector is rooted in the ability of organisations to achieve a disciplined and orchestrated manner of integrating the internal capabilities into market perspective efforts (Ambedkar and Prakash, 2024; Wiyanto and Ellitan, 2024).

The discussion also demonstrates that the supply chain management role remains the bone in comprehending the reasons behind the achievements of some corporations compared to others. Even though Kansai Nerolac did a better job in managing costs, Asian Paints retained greater competitiveness since it seemed to enjoy more strategic capabilities in more efficient management. This implies that cost control by itself is not enough to achieve market leadership. Instead, the supply chain integration, inventory planning, responsiveness of dealers and availability of products function as a pivotal factor in transforming operational strength into competitive advantage. The focus on the issues of inventory management and SKU control of the study is in line with the premise that agility, integration, and responsiveness of the supply chain have a direct impact on the performance of the firm and customer development (Khan and Yu, 2019; Alfalla-Luque et al., 2023). Likewise, earlier research has indicated that higher levels of supply chain integration lead to better firm performance due to better coordination in business activities and in business channels (Beheshti et al., 2014; Acquah et al., 2024). The current result also shows that companies that maintain effective management on their dealer network and have more reliable supply systems, are in a better position to satisfy their market demand and remain competitive. Particularly significant is this in an area where seasonality in demand, product diversification, and dispersed distribution bring about complex operations. Therefore, the effectiveness of supply chains does not just play a support role in the paint industry, but it is a competitiveness strategy itself (Asamoah et al., 2021; Garcia-Buendia et al., 2025).

The aspect of branding also becomes a key factor of competitiveness in the research. Asian Paints is well positioned in the market, that is not merely because of the quality of its products and strength in its operations, but also because of excellent brand recall, advertisement and dealer choice. The observation that the non-availability of branded paint undermines competitiveness proves that brand visibility and trust of the market still influence the buyer preference in this market. This strengthens the notion that companies need to invest not only in the aspects of production and cost effectiveness, but also in building good market identities. Meanwhile, the findings on the topic of crude oil prices indicate that the competitive pressures

in terms of input costs can influence the industry, yet not alone due to the pricing (companies adjust to this kind of pressure), planning, and managed practice of the strategy. This interpretation is in line with recent studies that highlighted how innovation, sustainability orientation, and technology-enabled operations can nuance cost pressures and enhance firm resilience (Zhang et al., 2019; Bag et al., 2023). Moreover, the observations on the higher quality and competition following foreign entry in the study indicate that competitive pressure may encourage innovation and growth of capabilities instead of being a mere threat to the domestic companies. This can also be aligned with the arguments that sustainability practices, novel technologies, and clear supply systems might enhance organisational capability and performance over the long-term (Kouhizadeh et al., 2018; Asante-Darko and Osei, 2024). In general, it is clearer that it is the interplay of branding, supply chain capability, cost management and strategic adaptation that explains competitiveness in the Indian paint industry as opposed to any single variable.

7. Managerial Implications

According to this study's results, managers in the Indian paint industry will have many implications from the study for their operations. Competitiveness can be developed through multiple areas (and not just cost) and therefore, organisations must take a holistic managerial view which includes quality of product, efficiency of supply chain, developing strong brand(s), and creating strategic position(s). These implications are outlined in more detail below, in four areas.

7.1 Product Strategy

The majority of study respondents believe managers need to focus on implementing continuous product quality improvement, as this was identified as one of the strongest indicators used to measure the competitiveness of an organisation. Firms should enhance/reinforce their product research and development efforts so that they can deliver improved/differentiated products to satisfy the evolving needs of their customers. In addition, another critical aspect to focus on with regard to product strategy is product range, as having a larger range of products available will improve the organisation's market reach and hence, enhance customer preferences. Companies with larger product portfolios and strong perceptions of product quality are likely to experience a greater degree of enduring competitiveness over an extended period of time.

7.2 Supply Chain Strategy

This research emphasises the significance of inventory and SKU (stock keeping unit) management and dealer network layout in terms of leveraging one's market position. Therefore, managers must seek to improve the level of coordination between manufacturers, distributors and dealers to ensure that products are available when customers want them. By further integrating the activities of the supply chain, stock-outs will be reduced, supply chain responsiveness will increase, and overall market presence will be enhanced. In an industry characterised by high levels of product variety and significant fluctuations in product demand due to seasonality, supply chain effectiveness is a key source of competitive advantage.

7.3 Marketing Strategy

Critical success factors include brand image and advertising effectiveness; thus, managers need to increase the amount spent on brand building, target more effective advertising, and enhance communication with both dealers and end-users. Establishing a computer colour matching facility and providing customer-oriented support services may help to create greater brand loyalty and improve the customer experience. As noted earlier, organisations with stronger market recall and increased visibility are more likely to maintain their customers' trust and overall competitive position.

7.4 Competitive Strategy

According to the study, simply controlling costs doesn't give you a competitive advantage over your competition. Managers need to use broader strategic capabilities in addition to controlling costs, including quality, innovation, brand image/reputation, and responsiveness to competitive pressures. Foreign competition provides opportunities to create a competitive advantage by creating new technology and improving the quality of products; therefore, foreign competition can also serve as an incentive to expand operations into additional countries. Companies should take a much more focused competitive strategy by developing specialised capabilities that align with evolving industry trends, creating stronger brand awareness within their target market segments, and aligning their individual strengths with continuing changes in the market and the industry.

8. Conclusion

This research analyses the changing shape of the Indian paint sector, the structure of that sector, competitive advantages, how price and costs are managed, how competitive this sector is with respect to competing foreign companies, etc. The key findings in this study indicate that although there is a major growth aura surrounding the Indian paint industry, this sector has a lot of competition and is very broad-based. Much of the actual power in terms of market share lies with the larger organised paint manufacturers. Of the companies analysed, the leader of this sector was Asian Paints Limited, which, through their exemplary performance across all forms of key success factors such as product quality, ability to manage SKUs, provide computer colour matching services, and media advertising effectiveness were able to capture the largest share of this market. The study clearly established that there are a number of different dimensions to competitiveness. To be competitive in the paint sector, price and cost position are very important, but being able to compete in these areas alone will not deliver long-lasting market leadership. Kansai Nerolac had better mechanisms for cost control; however, in terms of competitive advantage, Asian Paints had superior branding and greater geographic reach, had greater supply chain support, and a more market-centric focus. This finding demonstrates that firms experience long-term success not just because they operate efficiently but by successfully integrating quality, distribution, branding and responsiveness to customers. Another conclusion that can be drawn from this research is that crude oil price changes do have an impact on input costs, particularly for solvent-based paints; they are not independent drivers of competitiveness. Companies seem to cope with this cost pressure through strategic adaptations and pricing strategies. Furthermore, the increase of foreign companies in the paint market has added to competition and product variety overall; however, domestic companies still remain competitive and foreign entry has promoted greater quality and technology improvements than before foreign company entry. Therefore, the research indicates that maintaining long-term competitiveness within the Indian paint industry requires companies to combine quality management, branding, supply chain efficiency and adaptability as part of their overall business strategy, given that the business environment continuously changes.

References

1. Acquah, I. N., Kumi, C. A., Asamoah, D., Agyei-Owusu, B., Agbodza, M., & Agyabeng-Mensah, Y. (2024). Unearthing the relationship between supply chain social capital and firm performance: the role of supply chain responsiveness. *Benchmarking: An International Journal*, 31(4), 1225-1248.
2. Alfalla-Luque, R., Luján García, D. E., & Marin-Garcia, J. A. (2023). Supply chain agility and performance: evidence from a meta-analysis. *International Journal of Operations & Production Management*, 43(10), 1587-1633.
3. Ambedkar, K., & Prakash, G. (2024). Evolving dynamic capabilities: exploring implications of industry 4.0 digital technologies on manufacturing. *IEEE Transactions on Engineering Management*, 71, 5455-5469.
4. Asamoah, D., Nuertey, D., Agyei-Owusu, B., & Akyeh, J. (2021). The effect of supply chain responsiveness on customer development. *The International Journal of Logistics Management*, 32(4), 1190-1213.

5. Asante-Darko, D., & Osei, V. (2024). Sustainable supply chain management practices and firm performance: the mediating effect of firm capabilities. *Management of Environmental Quality: An International Journal*, 35(4), 751-779.
6. Bag, S., Wood, L. C., Telukdarie, A., & Venkatesh, V. G. (2023). Application of Industry 4.0 tools to empower circular economy and achieving sustainability in supply chain operations. *Production planning & control*, 34(10), 918-940.
7. Baresa, S., Bogdan, S., & Ivanovic, Z. (2013). Strategy of stock valuation by fundamental analysis. *UTMS Journal of Economics*, 4(1), 45-51.
8. Dubey, R., Gunasekaran, A., & Childe, S. J. (2019). Big data analytics capability in supply chain agility: the moderating effect of organizational flexibility. *Management decision*, 57(8), 2092-2112.
9. Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological forecasting and social change*, 150, 119791.
10. Faisal, A., Hermawan, A., & Arafah, W. (2018). The influence of strategic orientation on firm performance mediated by social media orientation at MSMEs. *International Journal of Science and Engineering Invention*, 4(08), 22-31.
11. Garcia-Buendia, N., Moyano-Fuentes, J., Maqueira-Marín, J. M., Romano, P., & Molinaro, M. (2025). Strategic supplier performance in a competitive landscape: Enhancing organizational performance through lean supply chain management. *BRQ business research quarterly*, 28(2), 474-490.
12. Gupta, S., Drave, V. A., Dwivedi, Y. K., Baabdullah, A. M., & Ismagilova, E. (2020). Achieving superior organizational performance via big data predictive analytics: A dynamic capability view. *Industrial Marketing Management*, 90, 581-592.
13. He, J., Fan, M., & Fan, Y. (2024). Digital transformation and supply chain efficiency improvement: an empirical study from a-share listed companies in China. *Plos one*, 19(4), e0302133.
14. Ivanov, D., & Dolgui, A. (2021). A digital supply chain twin for managing the disruption risks and resilience in the era of Industry 4.0. *Production Planning & Control*, 32(9), 775-788.
15. Khan, S. A. R., & Yu, Z. (2019). *Strategic supply chain management*. Springer.
16. Khan, S. A. R., Yu, Z., & Umar, M. (2021). How environmental awareness and corporate social responsibility practices benefit the enterprise? An empirical study in the context of emerging economy. *Management of Environmental Quality: An International Journal*, 32(5), 863-885.
17. Kouhizadeh, M., Saberi, S., & Sarkis, J. (2018, April). Blockchain technology and sustainable supply chains. In *2018 Annual Conference (47th)* (p. 43).
18. Kumar, M., & Kumar, P. (2021). Industry 4.0 and business policy development: Strategic imperatives for SME performance.
19. Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129-1157.
20. Liao, S., Fu, L., & Liu, Z. (2020). Investigating open innovation strategies and firm performance: the moderating role of technological capability and market information management capability. *Journal of Business & Industrial Marketing*, 35(1), 23-39.
21. M. Beheshti, H., Oghazi, P., Mostaghel, R., & Hultman, M. (2014). Supply chain integration and firm performance: an empirical study of Swedish manufacturing firms. *Competitiveness Review*, 24(1), 20-31.
22. Queiroz, M. M., Ivanov, D., Dolgui, A., & Fosso Wamba, S. (2022). Impacts of epidemic outbreaks on supply chains: mapping a research agenda amid the COVID-19 pandemic through a structured literature review. *Annals of operations research*, 319(1), 1159-1196.

23. Rehman, S. U., Bresciani, S., Zhang, Q., & Bertoldi, B. (2024). Tech and grow! Unraveling the interplay between industry 4.0 technologies and supply chain performance: marketing strategy alignment as a moderator. *International Entrepreneurship and Management Journal*, 20(2), 1347-1376.
24. Saini, N., Malik, K., & Sharma, S. (2023). Transformation of supply chain management to green supply chain management: Certain investigations for research and applications. *Cleaner Materials*, 7, 100172.
25. Seng, D., & Hancock, J. R. (2012). Fundamental analysis and the prediction of earnings. *International Journal of Business and Management*, 7(3), 32.
26. Shafique, I., N Kalyar, M., & Ahmad, B. (2018). The nexus of ethical leadership, job performance, and turnover intention: The mediating role of job satisfaction. *Interdisciplinary Description of Complex Systems: INDECS*, 16(1), 71-87.
27. Singh, A. (2025). A decade of operations strategy: research issues and future research directions. *Competitiveness Review: An International Business Journal*, 35(3), 476-497.
28. Wiyanto, V. S., & Ellitan, L. (2024). Enhancing Competitive Advantage through Supply Chain Management Strategy.
29. Zhang, D., Rong, Z., & Ji, Q. (2019). Green innovation and firm performance: Evidence from listed companies in China. *Resources, conservation and recycling*, 144, 48-55