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India is the second largest consumer of paint in Asia. The Indian paint industry consists of two segments, namely the decorative segment, which basically caters to the housing sector and the industrial segment, catering to the automobile, marine, and other manufacturing industries. The objective of the research was to examine customer brand preferences among Indian paint companies. The analytic hierarchy process has been used for this purpose. Based on the literature, the four major criteria considered by customers in selecting a paint brand include price, quality, durability, and variety, and the same were used for both segments to test. The results of the study suggest that for decorative paints, durability is the important factor, followed by price, and lastly variety and for industrial paints, price is the important factor, followed by durability, and lastly variety.

India is the second largest consumer of paint in Asia. In 2015, the Indian paint industry was valued at US\$ 6.1 billion, and growing at a CAGR of about 15% per annum by volume. In the same period, the global paint market was valued at US\$ 132.3 billion, with the combined global sales of the top three companies exceeding US\$ 10.0 billion.

The Indian paint industry consists of two segments, namely the decorative segment, which basically caters to the housing sector and which accounts for 73% of the total demand for paints; and the industrial segment, catering to the automobile, marine, and other manufacturing industries and which accounts for the remaining 27%.

The decorative segment is subdivided into the premium sub-segment (high-end acrylic emulsions), catering mainly to metros and large cities; the medium segment (enamel paints), catering to smaller cities; and the distemper segment (low-end paints), catering to semi-urban and rural areas. Most paint companies in India offer all three categories of paints: premium,

medium, and economy. Most of the revenue for the manufacturers is from premium category paints. The organized players contribute to about 65% of the total industry value, while the unorganized players contribute to about 35% of the total industry value. The distemper segment in particular is dominated by the unorganized sector.

The major products in the decorative segment include exterior wall paints, interior wall paints, emulsions, varnishes, distemper, wood finish, metal finish, and specialised paints (such as weather protection paints and non-toxic paints). The major products in the industrial segment include powder coatings, surface coatings, floor coatings, high performance coatings, and specialised coatings (such as thermo-protective, rust protective, and non-combustible coatings).

The strength of the Indian paint industry lies in its established manufacturing networks and strong marketing and distribution networks. The typical cost structure of paint companies comprises raw materials (56%), employee costs (22%), and selling & administration expenses (22%). Demand for

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decorative paints is significant in the festive season (Sept-Dec) as compared to other periods. While the major demand thrust has come from the decorative segment, the industrial paints segment is also set to witness higher growth, with the Modi government promoting the 'Make in India' campaign, which will bolster domestic manufacturing and industrialisation. Within the industrial segment, the automotive sector accounts for 66.67% of the market, while the remaining consists of white goods, electronic products, and so on. The increased demand for two-wheelers and four-wheelers will also translate into growth for the industrial paints segment.

As of Dec' 2015, the top five players in the Indian paint industry are: Asian Paints (54.1%), Berger Paints (17.5%), Kansai Nerolac (15.4%), Akzo Nobel (10.9%), and Shalimar Paints (2.1%). Thus, the market can be considered to be highly concentrated, i.e. a small number of players dominate the market. Asian Paints is the market leader in the decorative paints segment. The market share of the organized sector is continuously improving as consumer preference is shifting towards better products offered by the leading brands. Berger Paints and Mysore Paints are the market leaders in the industrial paints segment.

Macro-environmental Factors

Among the political factors affecting the paint industry is the reduction in the excise and custom duties, which helps in importing better quality of raw material and in exporting of finished goods. Another crucial factor is the relaxation in FDI for the industry, attracting foreign players to invest in the Indian market by acquiring existing Indian companies. Kansai Paints of Japan entered the Indian market by acquiring Nerolac. Akzo Nobel, the world's largest paint company, entered the Indian market by acquiring ICI Paints (now Akzo Nobel India).

There are several socio-economic factors affecting the paint industry. There has been a continual increase in per capita income and real purchasing power of the neo-middle class, an increase in urbanisation and a trend in nuclearisation of families, along with an increase in education and awareness levels (Swar, 2007). This has led to a shift in preference from cheaper paints to more expensive, branded paints, resulting in growth and improved profitability for the industry.

The industry uses state-of-the-art technology, equivalent to that employed internationally. Paint companies set aside a portion of their income for research and development, introducing new and improved varieties of paints such as waterproof paints, Teflon coatings, ultra-thin colour coats, oil roll-off coats, anti-ultraviolet coats, all-weather guard, and so on. Other technological improvements include marble finish, paints that cool room temperature, and stencils. However, the excessive chemicals in paint lead to pollution, so the industry is subject to stringent pollution control regulations. The industry is currently in the process of adopting lead-free paints and water-based technologies which are eco-friendly and use low-

volatile organic/nano-compounds which are less harmful for health.

Competitive Analysis (Porter's Five Force Model)

The threat of new entrants is low, as the paint industry is highly capital-intensive, and subject to stringent norms. Nevertheless, there is scope for entry of established foreign players, particularly with the easing of FDI norms and encouraging the 'Make in India' campaign.

The overall bargaining power of suppliers is moderate/high. In particular, one of the most important raw materials required in paint is titanium dioxide, the supply of which is highly limited globally.

The overall bargaining power of buyers is moderate. Demand for decorative paints depends mainly on the housing and realty sector, whereas demand for industrial paints depends on industries like automotive, engineering, and customer durables. Also, dealers perform a pivotal role as an interface between the consumers and the manufacturers, and the success of the manufacturer depends largely on dealer support (Jha, 2008).

The threat of substitutes is low/moderate, as there are not many substitutes for paints. In rural areas lime wash is conventionally used as a substitute for paints. An alternative option for decorative paints available today is wallpaper, but this is used for interior decoration, and has not gained much in popularity in the Indian market.

The degree of competitive rivalry in the industry is high, even though the market is highly dominated by the top four/five players. Paints companies have to act aggressively and efficiently to stay abreast in this highly competitive market. The key to success in this market lies in building a strong brand image through aggressive marketing strategies and gaining customer loyalties (Pandey, 2009).

A majority of customers tend to repaint their houses once in four to five years, and usually on occasions, such as during the Deepavali festival season, or during a marriage function. Thus, paint companies can introduce offers to induce customers to repaint their houses within three years, and provide off-season discounts to smoothen demand.

The paint industry needs to come up with more innovative ideas for the decorative segment to attract more customers to the premium segment. This is being done by offering new combinations of paints to customers to give an exclusive ambience for houses, to give customers pleasure and change their mood, to fascinate customers with artistic designs, and to beautify their homes. Mishra (2007) suggested that consumers look for new solutions for their painting needs, as well as value-for-money.

Paint manufacturers have to be very creative in the way they package and sell their paints. This market, like other markets, is moving towards being service-oriented rather than just being product-oriented. Companies need to sell more than just paint to furnish in this market. Companies have to understand their consumers' needs and preferences; and package products accordingly. Companies who do so promptly and efficiently are sure to see success in this market. With the present technology various companies have been trying to develop various colours with a long-lasting coating and freshness.

Paint markets in Asia are dominated by multinationals and a few large local companies. These companies are now looking to expand in the region, and many large companies are turning to unexplored markets, as they are showing tremendous growth potential for the paint industry.

Methodology

The objective of the study is to examine customer brand preferences among Indian paint companies. The analytic hierarchy process has been used for this purpose.

The analytic hierarchy process (AHP) is a structured way of organizing and analysing complex decisions. AHP works through pairwise comparison matrices and weighted averaging. The first step is that of defining the problem and stating the goal. The second step is that of defining the criteria or factors that influence the goal. The third step is that of performing paired comparisons between the criteria, and between the alternatives under each of the criteria. The weightage for each of the criteria and for each alternative under each of the criteria are obtained from the pairwise comparison matrices. The fourth and final step is that of synthesising the weightages of the alternatives, selecting the alternative with best weighted average (Saaty and Forman, 1992; Saaty, 2008).

According to Pandey (2009), quality and durability are the main attributes influencing customer choice of paint brands. Gangopadhyay et al (2013) further identified variety and promotional offers as relevant attributes affecting customer choice of paint brands. Thus, four characteristics were taken for the comparison of paint companies using AHP analysis: price of the paint (x1), durability of the paint (x2), quality of the paint (x3), and the variety or range of shades/colours available (x4).

For convenience of comparison, the companies were classified into the decorative paints segment and the industrial paints segment. The decorative and industrial segments were analysed separately, as customer preferences would be affected by the purpose of application of the paint. In the decorative paint segment, the major players taken for the analysis were Asian Paints (y1), Berger Paints (y2), Kansai Nerolac (y3), and Akzo Nobel (y4). In the industrial paints segment, the major players taken for the analysis were GNP Madras (z1), DIC Coatings (z2), Mysore Paints (z3), and PSL Corrosion (z4).

Analysis & Interpretation

The analysis for the decorative segment is presented below. The pairwise comparison matrix for the criteria is presented in Table 1 below. The resulting weightage for each of the criteria is presented in Table 2.

	x ₁	x ₂	x ₃	x ₄
x ₁	1	1/5	1/9	5
x ₂	5	1	1	6
x ₃	9	1	1	9
x ₄	1/5	1/6	1/9	1

Table 1: Pairwise comparison matrix for the criteria (Decorative Segment)

	weightage
price	0.109598
durability	0.371799
quality	0.473303
variety	0.045300

Table 2: criteria weightages (decorative segment)

The weightages resulting from the pairwise comparison of criteria indicate that quality is given the highest level of importance, followed closely by durability, price, and variety. This finding is consistent with those of Pandey (2009).

The pairwise comparison matrices for the selected paint companies in the decorative segment under each of the criteria are presented in Tables 3-6 below:

	y ₁	y ₂	y ₃	y ₄
y ₁	1	7	1/5	1/3
y ₂	1/7	1	1/5	7
y ₃	5	5	1	8
y ₄	3	1/7	1/8	1

Table 3: pairwise comparison matrix for price (decorative segment)

	y ₁	y ₂	y ₃	y ₄
y ₁	1	5	7	8
y ₂	1/5	1	6	7
y ₃	1/7	1/6	1	6
y ₄	1/8	1/7	1/6	1

Table 4: pairwise comparison matrix for durability (decorative segment)

	y ₁	y ₂	y ₃	y ₄
y ₁	1	8	9	9
y ₂	1/8	1	6	7
y ₃	1/9	1/6	1	5
y ₄	1/9	1/7	1/5	1

Table 5: pairwise comparison matrix for quality (decorative segment)

	y ₁	y ₂	y ₃	y ₄
y ₁	1	7	9	9
y ₂	1/7	1	7	7
y ₃	1/9	1/7	1	7
y ₄	1/9	1/7	1/7	1

Table 6: pairwise comparison matrix for variety (decorative segment)

The scores for each of the companies under each of the criteria and the overall AHP scores are presented in Table 7 below.

	price	durability	quality	variety	AHP score
Asian Paints	0.198385	0.582868	0.641562	0.619346	0.570162
Berger Paints	0.162858	0.259114	0.222188	0.231335	0.229829
Kansai Nerolac	0.518211	0.116764	0.097345	0.112159	0.151362
Akzo Nobel	0.120547	0.041255	0.038905	0.037159	0.048647

Table 7: criteria scores and overall AHP scores

In the decorative segment, Asian Paints was found to dominate under each of the criteria, except for price. Kansai Nerolac was found to dominate in terms of price. Overall, however, Asian Paints was found to be the most preferred brand, followed by Berger Paints, Kansai Nerolac, and finally Akzo Nobel.

The analysis for the industrial segment is presented below. The pairwise comparison matrix for the criteria is presented in Table 8 below. The resulting weightage for each of the criteria is presented in Table 9.

	x_1	x_2	x_3	x_4
x_1	1	2	1/6	5
x_2	1/2	1	1/7	3
x_3	6	7	1	9
x_4	1/5	1/3	1/9	1

Table 8: pairwise comparison matrix for the criteria (industrial segment)

	weightage
price	0.179629
durability	0.107234
quality	0.665138
variety	0.048000

Table 9: criteria weightages (industrial segment)

The weightages resulting from the pairwise comparison of criteria indicate that quality is given the highest level of importance, followed by price, durability, and variety.

The pairwise comparison matrices for the selected paint companies in the industrial segment under each of the criteria are presented in Tables 10-13 below:

	z_1	z_2	z_3	z_4
z_1	1	1/6	1/7	7
z_2	6	1	1/7	7
z_3	7	7	1	8
z_4	1/7	1/7	1/8	1

Table 10: pairwise comparison matrix for price (industrial segment)

	z_1	z_2	z_3	z_4
z_1	1	1/5	1/7	1/5
z_2	5	1	1/7	7
z_3	7	7	1	8
z_4	5	1/7	1/8	1

Table 11: pairwise comparison matrix for durability (industrial segment)

	z_1	z_2	z_3	z_4
z_1	1	5	1/7	1/5
z_2	1/5	1	1/7	1/5
z_3	7	7	1	7
z_4	5	5	1/7	1

Table 12: pairwise comparison matrix for quality (industrial segment)

	z_1	z_2	z_3	z_4
z_1	1	1/7	1/8	1/5
z_2	7	1	1/8	5
z_3	8	8	1	7
z_4	5	1/5	1/7	1

Table 13: pairwise comparison matrix for variety (industrial segment)

The scores for each of the companies under each of the criteria and the overall AHP scores are presented in Table 14 below:

	price	durability	quality	variety	AHP score
GNP Madras	0.124095	0.048285	0.119336	0.041951	0.108857
DIC Coatings	0.237550	0.232751	0.048629	0.227225	0.110881
Mysore Paints	0.598511	0.607654	0.613131	0.621368	0.610313
PSL Corrosion	0.039845	0.111309	0.218903	0.109456	0.169948

Table 14: criteria scores and overall AHP scores

In the industrial segment, Mysore Paints was found to dominate under each of the criteria; while DIC Coatings was ranked second according to price, durability, and variety, PSL Corrosion was ranked second in terms of quality. Overall, Mysore Paints was found to be the most preferred brand, followed by PSL Corrosion, DIC Coatings, and finally GNP Madras.

Discussion

The study has applied the analytic hierarchy process to examine customer brand preferences among Indian paint companies. The decorative and industrial segments were analysed separately, as customer preferences would be affected by the purpose of application of the paint. Based on the literature, the four major criteria considered by customers in selecting a paint brand include price, quality, durability, and variety, and the same were used for both segments.

The results of the study suggest that the crucial factor when selecting decorative and industrial paint brands is that of quality. For decorative paints, durability is the next important factor, followed by price, and lastly variety. Thus, customers are willing to pay more for decorative paints that are of better quality and that will last longer. This is why innovative and high-tech decorative paints are increasingly in demand and are able to command a premium price. This has led to increased brand differentiation, and growth in the market share of the organised sector in the decorative segment.

However, for industrial paints, price is the next important factor, followed by durability, and lastly variety. This suggests that cost

is a much more important factor for the industrial segment, as manufacturing supply chains are continuously looking for ways to reduce manufacturing costs.

Asian Paints is the market leader in the decorative segment, and it was found to dominate over the competitors in terms of quality, durability, and variety, and Berger Paints was the follower under the same criteria, while Kansai Nerolac dominated in terms of price. These three brands are the closest competitors in the segment. There is stiff competition between the three players, mainly through price/discounts and product innovation.

Mysore Paints is the market leader in the industrial segment, and it was found to dominate over the competitors under all the criteria. The competition in this segment is for the follower position, with DIC Coatings as the follower in terms of price, durability, and variety, while PSL Corrosion was the follower in terms of quality. There is stiff competition between the three followers, mainly through quality and price/discounts.

There are some limitations inherent in the study. Only a small number of brands were selected for the study, so that the results may not reflect the entire industry. Also, the study is based on qualitative data, and is thus somewhat subjective in nature and may not be generalisable. Further, there is scope to extend the study by considering secondary level criteria for each of the primary level criteria. This would yield a more understanding of the competitive forces in the industry.

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