

CLEANING CHEMICALS USAGE FOR HOUSE KEEPING WITH SPECIAL REFERENCE TO HOSPITALITY INDUSTRY: A STUDY

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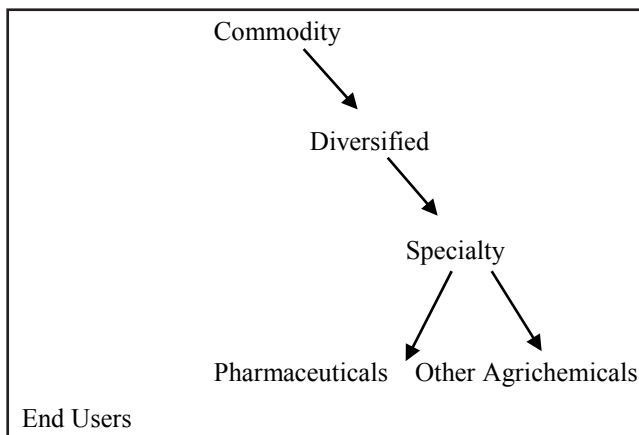
Abstract

Every business organisation incurs expenditure on maintenance. Most companies in the hospitality department, i.e., those companies that provide socialising, entertaining, recreation, helpfulness to customers fall in this industry. For instance, hospitals, schools, hotels, restaurants and also include supermarkets, shopping centres, and others where there is a heavy footfall of customers on a regular basis, though hospitality is medium, the housekeeping department is always on the go. This paper studies on cleaning chemicals used for housekeeping with a special reference to the hospitality industry. The study aims at bringing a solution for fitting and fighting competition against other cleaning chemical manufacturing companies. The study also conducted to analyse what is the cost allocated for the purchase and use of housekeeping chemicals such as glass cleaning liquids, phenyl, detergents, cleaning gels, etc. The study also involves the assessment of costs for housekeeping chemicals incurred by various hospitality companies. These companies are further compared for a clearer indication on the basis of domestic and international companies. Another comparison classification is on the basis of the scale of operations, small, medium, and large enterprises.

Keywords: *Cost, Housekeeping Products, Hospitality Industry and Cleaning Chemicals*

Overview of Chemical Industry

With its essential role in other sectors, it is not surprising that the chemical sector is a vast, complex industry. Companies that produce chemicals are intricately tied to one another as suppliers and consumers and are dependent upon other industries, as well as global economic trends. The main raw materials of the chemical industry are fossil fuel, water, air, salt, limestone, sulfur, and other specialised raw materials. The industry converts these materials into products; a chief characteristic of the industry is that its products almost always require further processing before reaching end users. Given the complexity of the industry, there are several ways in which the industry is commonly broken down into sub-sectors and categories. These categories, however, are not necessarily fixed. Furthermore, major chemical-intensive segments such as pharmaceuticals and agrichemicals are sometimes considered sub-sectors of the industry and sometimes categorised as distinct end-market sectors. In the financial community, it is typically noted whether pharmaceutical data is included in analysis.



Source: Innovest

Fig. 1: Chemical Sector Value Chain

On a basic level, a distinction is made according to the types of chemicals produced. Major categories include organic chemicals and inorganic chemicals, as well as commodity, diversified, and speciality chemicals. Defined, organic chemicals contain carbon. More than 90% of all known compounds are organic and include chemicals found in animal and plant life. Organic chemicals are mostly derived from substances such as petroleum, coal, and natural gas. Examples of organic compounds include benzene, ethylene,

formaldehyde, phthalate plasticisers, urea, vinyl acetate, and vinyl chloride. Inorganic chemicals do not contain carbon-carbon bonds (Though some inorganic compounds may contain carbon, they lack carbon-carbon bonds). Inorganic compounds are generally derived from metal and non-metallic minerals. Examples of inorganic chemicals include acids, metals, and gases; nitrates, fluoride, metals, silicones, silanes, and borates; aluminium sulfate, ammonia, chlorine, caustic soda, hydrochloric acid, hydrogen peroxide, nitric acid, sodium chlorate, and sulfuric acid. The commodity chemicals market includes companies that manufacture basic chemicals in large volumes. These include plastics, synthetic fibres, films, certain paints and pigments, explosives, and petrochemicals. There is no product differentiation within the sector; products are sold for their composition. The diversified chemicals market is comprised of companies that produce a diverse range of chemical products. These companies are characterized by a conglomerate business model and are highly impacted by economic market cycles. The speciality chemicals market is characterized by high value-added, low volume chemical production. These chemicals are used in a wide variety of products, including fine chemicals, additives, advanced polymers, adhesives, sealants and speciality paints, pigments, and coatings. Further, the chemical industry at International, national, state-level is discussed below:

The Chemical Industry at an International Level

The chemical industry has been a part of the global landscape from a long period of time. Europe became the first continent to be the home of chemical industries. The industry has now evolved and has become a gold mine of resources for businesses to thrive. The industry continues to be a part of the United Nations' 17 Sustainable Development Goals. The chemical industry has also laid down rules to have sound management of chemical substances. Strategic Approach to International Chemical Management (SAICM), 2006 has encapsulated the regulations for the chemical industry. The International Council of Chemical Associations (ICCA) had endorsed the Oxford Economics to assess the chemical industry globally. The chemical industry has contributed \$1.1 trillion to the world GDP. This amount directly provided employment to 15 million people. In 2017, the contribution rose to \$2.6 trillion providing employment to 60 million people. The chemical industry is the 5th largest manufacturing sector in the world. Asia-Pacific region provides a large contribution followed by Europe and then North America. The total economic impact by region for the year 2016-17 is as under:

Table 1: International Region - GDP Contribution

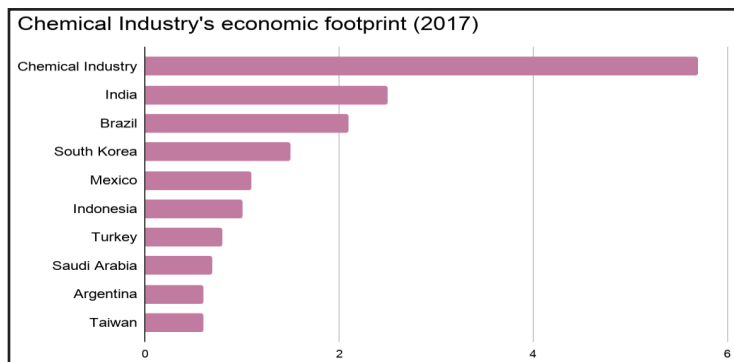
International Region	GDP Contribution
North America	\$866 billion
Europe	\$1.3 trillion
Asia-Pacific	\$2.6 trillion
Latin America & the Caribbean	\$374 billion
Africa & Middle East	\$550 billion

Source: International Council of Chemical Associations

The Chemical Industry at National Level

The chemical industry in India is the foundation stone for providing raw materials for textiles, paints, soaps, detergents, pharmaceuticals and others. The chemical industry stands at the US \$163 billion as of 2018. The Indian chemical industry contributes 3.4% to the global chemical industry. The Indian chemical industry also employs more than 2 million people. In India, the per capita consumption is 1/10th of the world average for chemical products.

India has a strong export demand. It ranks 17th in the world exports of chemicals. It ranks 7th for the imports of the same. Asia has become the manufacturing hub of chemical products. The value of exports of chemical products from April to September 2017 was at the US \$14.2 billion. Also, the value of imports of chemical and petrochemical products during the same period rose to the US \$21.9 billion. The domestic market possesses a huge growth potential due to the increase in GDP. There is a huge scope of investments in the chemical industry in India.



Source: International Congress and Convention Association

Fig. 2: Chemical Industry's Economic Footprint

From Fig. 2 shows the graphical representation of the economic footprint of the chemical industry during 2017. India is the highest contributor as compared to other emerging economies.

The Chemical Industry at State Level

The Indian States boast of many chemical industries manufacturing various chemicals and chemical products. A few well-known chemical industries are as below mentioned Table 2.

Table 2: Chemical Industries: India

Company Name	State
Pidilite Industries Limited	Maharashtra
Tata Chemicals Limited	Maharashtra
UPL Limited	Maharashtra
Gujarat Fluoro Chemicals Limited	Uttar Pradesh
Aarti Industries Limited	Maharashtra
GHCL Limited	Ahmadabad
India Glycols Limited	Uttarakhand
Gujarat Alkalies & Chemicals Limited	Gujarat
Atul Limited	Gujarat

Source: International Council of Chemical Associations

The research data is concentrated on the Hyderabad region, Telangana. The below mentioned Table 3 a few handpicked chemical manufacturing industries at Hyderabad.

Table 3: Chemical Industries: Hyderabad, Telangana

Company Name	City, State
Redwop Chemicals Pvt Limited	Hyderabad, Telangana
Gulf Oil Corporation Limited	Hyderabad, Telangana
Nichino India Pvt Limited	Hyderabad, Telangana
Aurobindo Pharma Limited	Hyderabad, Telangana
Alkali Chemicals Limited	Hyderabad, Telangana

Source: International Council of Chemical Associations

Review of Literature

The chemical industry in India has over 80,000 diversified products. The industry remains largely responsible for economies of scale for the Indian economy. The industry expands to agrochemicals, basic chemicals and speciality chemicals. India's closeness to Middle Eastern countries adds to its advantage for petrochemicals (Gupta Deepti, 2019). The chemical industry has helped the company to be placed on the global map in the production of dyestuff and intermediaries accounting to a share of 16%. There is a reported 9% per annum growth rate projected for the next 5 years. The growth of this industry is expected to be at \$304 billion by 2025. Though India's contribution is 3.4% in the global chemical industry as per 2019, it remains the 3rd largest consumer of polymers and 6th largest producer of chemicals.

Further, another study disclosed that the market for speciality chemicals has shown a considerable increase of 14% in the last 5 years. The Indian chemical industry is a building block for textiles, pharmaceuticals, soap and detergents, paints, agrochemicals, speciality chemicals, to name a few. The rise in GDP of India provides a huge growth potential in the market for manufacturing, distributing and retailing chemical products. Special Economic Zones and National Investment and Manufacturing Zones units receive incentives in North-East, Himachal Pradesh, Uttarakhand, and Jammu and Kashmir (Chemicals & Petrochemicals, 2019). Recently Union Budget presented by Mrs Nirmala Sitharaman, the 1st lady Finance Minister of India, has allocated a budget of US \$0.4 million. The foreign investors in India for chemical industry, in no specific order are, Japan's Mitsubishi Chemicals Corporation, Netherlands's Akzo Nobel, Switzerland's Syngenta, United Kingdom's Croda, Germany's Henkel, Germany's DyStar, and United States of America's DuPont (Make in India's statistical data and report, 2019).

According to Indian Brand Equity Foundation (IBEF) found that Gross Fixed Capital Formation has grown 10.44% which represents the investments in fixed assets between the financial year 2016 to 2018 which shows the propensity and feasibility for companies and marketers to grow. The young working population in India will help to achieve the full manufacturing potential (Indian Chemicals and Electronics Industry Analysis, 2017). The Indian chemical industry receives maximum consumption of its output from the domestic consumers. About 33% of the output is taken away by Indian consumers. With the trending growth rate of the industry, consumption is also set to rise.

Further Key Trends and Development, many industries are moving towards innovative solutions for environmental and other problems. Some successful examples of such solutions are Tirupur boasts of Arulpuram common effluent treatment plant which recycles 98% of water and reuse of 90% of salt, Bristol-Myers Squibb incorporated an integrated approach for 56% reduction in THF and a 93% reduction in wastes, the “waste to wealth” program was launched by Kanoria Chemicals and Industries Limited for recycling of water from distillery effluents, and green lubricants have been introduced by Hindustan Petroleum Corporation Ltd, which is a public refiner. The lubricants are developed from renewable livestock (Federation of Indian Chambers of Commerce and Industries (FICCI), Indian Chemical Industry).

Government Policies: Chemical Industry

In 2018, the Government which built a fund for technology up gradations had accumulated funds amounting to \$80 million. The report showed that Foreign Direct Investment has also been allowed to 100% level except in the case of hazardous chemicals. For industries set across 250 square kilometres, special incentives, support, and promotion.

The Indian Government also aligns itself to implement legislation for chemical industry governance for chemical legislation and laws. The Confederation of Indian Industries (CII) has set up a target to triple the size of the chemical industry from 2015-2025 (Ravi Raghavan, Jyeshtharaj B. & Joshi, 2018). India is not fully equipped as it lacks the inventory management for commercial chemicals and the risks that they pose in the value chain. India should make it a priority to phase-out any harmful products for commercial purposes and support innovative solutions for substitute products.

Objectives

The main aim of the research study is to understand the cleaning chemicals usage in the housekeeping department of hospitality companies and creating an ease of decision making for accommodating into the clients’ budget with respect to the price, other things remaining constant for cleaning chemical products.

Scope of the Study

The scope of the study involves the assessment of costs for housekeeping chemicals incurred by various hospitality companies. These companies are further compared for a clearer indication on the basis of domestic and

international companies. Another comparison classification is on the basis of the scale of operations, small, medium, and large. The research's scope is specified within the boundary of a future distributor of housekeeping chemicals in order to analyse the amount allocated and budgeted for housekeeping products along with the price ranges of competitors. The research helps to ascertain the price of its products to fit into the client's or market's budget.

Research Methodology

The research is exploratory in nature for analyzing the costs incurred in the use of housekeeping chemicals by hospitality companies. The primary research will include surveys (scaling and samples), interviews, observation and secondary research from case studies and online research. The exploratory research is conducted for a new study. It intends to develop solutions or establish priorities and improve research design. The informal tools of research are discussions with employees and other related parties.

Data Analysis

Primary data is collected using Sample survey method/interviews using structured questionnaires in situated housekeeping managers in India. A sample size of 175 is considered for carrying out the research study. Simple random sampling method was used. Appropriate statistical tools were applied for analysing the data and drawing meaningful interpretations. The total number of samples are 175 which consists of 78.3 (137) percentage of respondents belong to Hyderabad, 13 (23) percentage of respondents belong to Union Territories and followed by Nepal and Vietnam with 4.3 (8 & 7) percentage of respondents respectively (Table 4).

Table 4: Location of the Hospitality Company

Location	Frequency	Percent
Hyderabad	137	78.3
Nepal	8	4.3
Port Blair	23	13.0
Vietnam	7	4.3
Total	175	100.0

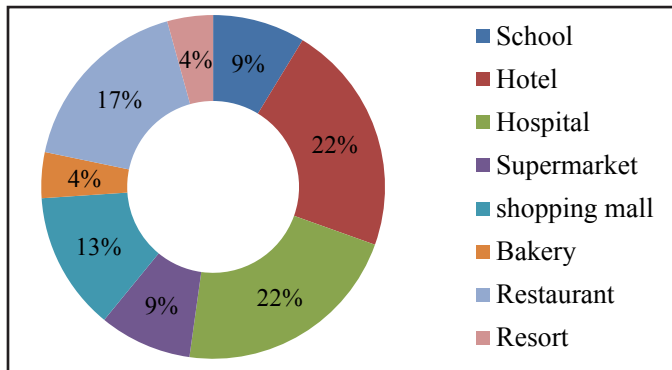
Source: Primary Data

Comparison of Average Costs

Indian hospitality companies which use locally manufactured cleaning chemicals such as the brands of taski, incur less expenditure as compared to international hospitality companies which use expensive cleaning chemical products.

The Indian hospitality companies have a choice among various chemical manufacturers as compared to the international markets which may be having a lesser choice. Vietnam and Nepal, the chemical industry suggests that they are not very resourceful in terms of locally manufactured cleaning chemicals. Therefore, this shows that India as a resource of chemical manufacturing companies which make chemicals available at low prices. A comparison is being made between states and union territories of India. The costs of cleaning chemical products in union territories are lesser as the UTs are mainly tourist destinations with a wide range of hotels. The chemicals are purchased in bulk and therefore are procured at a low price as compared to the States. A high cost of living in the metropolitan cities causes the costs to be high and procurement value continues to be high as the product travels through the supply chain down to the customers of cleaning products.

The Table 4 represents the frequency distribution of the number of each type of Hospitality Company with the varying scale of operations.



Source: Primary Data

Fig. 3: Type of Company

From the Table 5 it shows that 21.7 percentage of sample respondents represents the Hotel and Hospital industry, 17.4 percentage represents

restaurants, 13 percentage of them represents shopping malls, 8.7 percentage schools and supermarkets, followed by 4.3 percentage of the respondents represented bakery and resorts respectively. Small, medium and large enterprises are using Taski chemicals. Taski is another branch of lesser priced products as compared to its parent Johnson Diversey.

Table 5: Brand Expensive

Brand Expensive	No. of Respondents	Percentage
Yes	68	39.1
No	107	60.9
Total	175	100.0

Source: Primary Data

From the Table 6, Out of the 107 who find the brand affordable, 50 percent of respondents opined that they are using Taski Chemicals. Among 68 who find the brand expensive, 65 percent of them using Diversey remaining Taski and it is also observed that most of them are believing that it is affordable and remaining believed that expensive. There is only a partial difference between the two companies who prefer to shift to another product. Few have the willingness to stay loyal due to good Customer Relationship Management or offers, while others are brand switchers. The present study, it is proved that 52.2 percent of the sample respondents have shifted to another cheaper product and 47.8 percentage of them are very much loyal to good communications with companies (CRM) (Table 6).

Table 6: Shift to Cheaper Alternative

Shift to Cheaper Alternative	No. of Respondents	Percentage
Yes	91	52.2
No	84	47.8
Total	175	100.0

Source: Primary Data

In order to identify the degree of loyalty to the current brand used by the hospitality companies a 5 point Likert scale used. The scale has the following representations Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree.

Table 7: Current Brand

Using Current Brand	Frequency	Percentage
Strongly Agree	30	8.7
Agree	23	26.1
Neutral	61	34.8
Disagree	46	13.0
Strongly Disagree	15	17.4
Total	175	100.0

Source: Primary Data

From the Table 7 it is proved that 34.8 percentage of the sample respondents agreed that they are having loyalty to the current brand whereas 30.4 percentage of them are not having loyalty, so they have shifted to alternative product because of low price or others and remaining 34.8 percentage are in a confusion to shift to other product or be with the current brand. Many chemical industries decide on prescribed tactics for reducing the costs of cleaning chemical products or housekeeping products. Shifting to a cheaper alternative is most effective to reduce costs as mentioned below Table 8.

Table 8: Reduce Cost

Reduce Cost	No. of Respondents	Percentage
Reduce Usage of Cleaning Products	15	8.7
Shift to Cheaper Alternative	53	30.4
Stay Loyal to Current Product	46	26.1
Looking for a Solution	38	21.7
Other	23	13.0
Total	175	100.0

Source: Primary Data

From the above Table 8, 30.4 percent of the sample respondents have shifted to other products who offered cheaper rate whereas 26.1 percentage of the respondents showing very much loyal to the current product, 21.7 percentage are in a position to confusion and looking for a solution. It is also observed from the study 8.7 and 13 percentage of the respondents are trying to reduce the usage of chemicals for using for cleaning and others. This implies that companies are ready to move to a cheaper alternative if

provided with a convincing proposition. It can also be assumed that these companies may have previously shifted from another product to the current using product. Table 9 showing minimum price hospitality company would spend on cleaning product package of phenyl, cleaners, and detergents. 52.17 percentage of the respondents can spend more than Rs. 5000, 26.09 percentage Rs. 2000 to 3000, 17.39 percentage Rs. 3000 to 4000 and 4.35 percentage of them Rs. 4000 to 5000 respectively (Table 9). Overall 78.3 percentage of hospitality companies can spend for Rs. 2000 and more on the purchase of the combination of Phenyle, cleaner, and other detergents. As a result, a company in the chemical industry, in order to be captured the market has to convince a customer by fitting into the price range of up to Rs. 5000.

Table 9: Price Range

Price Range	No. of Respondents	Percentage
Up to Rs. 2000	0	0.0
Rs. 2000 - Rs. 3000	46	26.09
Rs. 3000 - Rs. 4000	30	17.39
Rs. 4000 - Rs. 5000	8	4.35
More than Rs. 5000	91	52.17
Total	175	100

Source: Primary Data

Many hospitality companies purchase chemical products in a bulk basis. From the table, the range of costs incurred on a monthly basis in order, procurement, purchase, and use of housekeeping chemicals for cleaning chemicals is as follows:

Table 10: Range of Costs

Price Range	No. of Respondents	Percentage
Rs. 5000 - Rs. 10000	46	26.2
Rs. 10000 - Rs. 20000	38	21.8
Rs. 20000 - Rs. 30000	15	8.6
Rs. 30000 - Rs. 40000	15	8.6
More than Rs. 50000	61	34.8
Total	175	100.0

Source: Primary Data

From the Table 10 shows that majority of the companies (34.8%) incurred costs more than 50000, followed by Rs. 5000 to 10000 (26.2%) Rs. 10000 to 20000 (21.8%) and remaining Rs. 20000 to 40000, respectively. This also depends on the scale of its operations. A classification on small, medium and large enterprises is made below in Table 11.

Table 11: Company-Wise Classification of Range of Costs Incurred Per Month

Scale of Operations	Company Name	Range of Costs Per Month
Small	10 Downing Street	Rs. 5000 - Rs. 10000
	Heritage Fresh	Rs. 5000 - Rs. 10000
	Grill 9	Rs. 5000 - Rs. 10000
	Heritage Line	Rs. 5000 - Rs. 10000
	Lions Club	Rs. 5000 - Rs. 10000
	Swiss Castle	Rs. 5000 - Rs. 10000
	Holy Trinity School	Rs. 10000 - Rs. 20000
	Ayush Hospital	Rs. 10000 - Rs. 20000
	Chilis American	Rs. 10000 - Rs. 20000
	Sunshine Hospitals	Rs. 10000 - Rs. 20000
	PVR Next Galleria	Rs. 10000 - Rs. 20000
Medium	Geetha Nursing Home	Rs. 20000 - Rs. 30000
	Sunshine Hospitals	Rs. 20000 - Rs. 30000
	Delhi Public School	Rs. 30000 - Rs. 40000
	PVR Central Mall	Rs. 30000 - Rs. 40000
Large	Reliance Fresh	More than Rs. 50000
	Novotel HICC	More than Rs. 50000
	Hotel Country Villa	More than Rs. 50000
	Sea Shell	More than Rs. 50000
	Keys Aqua Green	More than Rs. 50000
	Hotel Balajee Palace	More than Rs. 50000
	Paradise Hotel	More than Rs. 50000
PVR Orion Mall	More than Rs. 50000	

Source: Primary Data

Large hospitality companies incurred more costs as the scale of its operations are high as compared to small and medium companies. 65.22 percentage of companies 10%, 13.04 percentage of the companies 20% and 30%, followed by 4.35 percentage of the companies incurred cost up to 40% and 50% respectively (Table 12). The companies have expressed their opinion on suggestion and recommendation on Diversey is being an expensive company as compared to Taski and other companies.

Table 12: Cheaper Product: Reduce Costs

Percentage of Reduction in Costs	No. of Respondents	Percentage
10%	113	65.22
20%	23	13.04
30%	23	13.04
40%	8	4.35
50%	8	4.35
Total	175	100

Source: Primary Data

Distributor's Discretion on Manufacturer Matrix (DDMM)

The distributor has to exhibit its discretion on the choice of manufacturers. For instance, in the chemical industry, the distributor can choose among a wide range of cleaning chemical manufacturers. To simplify the decision making of the distribution a Distributor's Discretion on Manufacturer Matrix is developed. The parameters were chosen for decision making the variables of costs and marketability are fixed. The DDMM is as follows:

Illustration C.1¹

High Cost	Green Quadrant	Red Quadrant
Low Cost	Yellow Quadrant	Blue Quadrant
	High Marketability	Low Marketability

From the above Illustration C.1 the green quadrant symbolises high cost and high marketability, the red quadrant symbolises high cost and low marketability, the yellow quadrant symbolises low cost and high marketability and the blue quadrant symbolises low cost and low marketability. The costs are

¹ The Distributor's Discretion on Manufacturer Matrix (DDMM) is devised by Harsha Sheelam, Student, PGDM (---), IPE, Hyderabad

represented on the vertical axis. The costs show the amount that is incurred for the order, purchase, procurement, and use of the products. The marketability is represented on the horizontal axis. The marketability implies the popularity or demand in the market for the product. The potential of the product in the market, the distributor, can build a DDMM of their own to decide on a manufacturer whose products they want their company to be associated with respect to this study we use the DDMM in the following way:

Illustration C.2²

High Cost	Diversey	Clean Mate Lizol
Low Cost	Taski	Mhalasa Techsol Innochem Labs
	High Marketability	Low Marketability

Therefore, The Distributor’s Discretion on Manufacturer Matrix helps the distributor choose from the available options as per their requirements. The chemical industries require a manufacturer with low costs but high marketability, hence, Taski would be chosen by companies.

Findings and Suggestions for Distributors of Cleaning Chemicals

The findings and suggestions for distributors for cleaning chemical products are:

- The cleaning chemicals used in the housekeeping department of hospitality companies vary on the basis of the scale of operations. Small hospitality companies consume an average of Rs. 5000 per month. Medium companies consume an average of Rs. 30000 per month. Large companies consume more than Rs. 50000 per month.
- The costs incurred for the purchase of the chemicals creates ease of decision making for accommodating into the clients’ budget with respect to the price, other things remaining constant for cleaning chemical products.
- The Distributor’s Discretion on Manufacturer (Brand) to be associated with can be solved with the help of the Distributor’s Discretion on Manufacturer Matrix (DDMM) with respect to costs and marketability.
- The brand that has captured most of the market share is Taski. Taski remains to be affordable and of good quality. Hence, Chemical Industry can associate with Taski as suppliers/distributors.

2 *The Distributor’s Discretion on Manufacturer Matrix (DDMM) is devised by Harsha Sheelam, Student, PGDM (---), IPE, Hyderabad*

- Diversey is chosen by companies in India and abroad, but companies are likely to switch if given a cheaper product. Diversey is a premium and expensive brand. Its USP is high-class quality. The quality gives value to price-insensitive consumers.
- A distributor should fit into a budget of Rs. 30000 to 40000 per month for hospitality companies working on medium to large scales.
- The Distributor Discretion on Manufacturer Matrix (DDMM) helps a distributor choose from a wide option of manufacturers in their industry if they possess such discretion and choice.
- Customer Relationship Management can be sustained in a B2B business of a distributor by sending a post-sales questionnaire as devised in the study.

References

- Gupta, G. (2019, July). *World's chemical nucleus*. Invest India - National Investment Promotion & Facilitation Agency.
- Make in India's statistical data and report "Chemicals & Petrochemicals" (2019).
- Indian Brand Equity Foundation (IBEF). (2017, June). Indian Chemicals and Electronics Industry Analysis.
- Federation of Indian Chambers of Commerce and Industries. (FICCI). Project Titled Indian Chemical Industry.
- Raghavan, R., & Jyeshtharaj, J. B. (2018, December). *India's expanding chemical industry*. American Institute of Chemical Engineers (AIChE).
- Kotler, P., & Keller, K. L. (n.d.). *Marketing management* (15th ed.). ISBN-10: 0684860473, ISBN-13: 978-0684860473
- Invest India Government Portal. Retrieved from <https://www.investindia.gov.in/sector/chemicals>
- Make in India. Retrieved from <http://www.makeinindia.com/sector/chemicals>
- India Brand Equity Foundation. (IBEF). Retrieved from <https://www.ibef.org/industry/chemicals-presentation>
- Federation of Indian Chambers of Commerce and Industries. Retrieved from http://ficci.in/sector/7/Project_docs/Chemical-Petrochemical-sector.pdf

- American Institute for Chemical Engineers (AIChE). Retrieved from <https://www.aiche.org/resources/publications/cep/2018/december/indias-expanding-chemical-industry>
- https://en.wikipedia.org/wiki/Diversey,_Inc
- <http://www.johnsondiversey.co.uk/>
- <http://www.taski.com/solutions/diversey-chemicals>
- https://www.icca-chem.org/wp-content/uploads/2019/03/ICCA_EconomicAnalysis_Report_030819.pdf