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SPANDAN 2020

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Research

The Distance Between an Idea and its Realization

ST. FRANCIS INSTITUTE OF MANAGEMENT & RESEARCH

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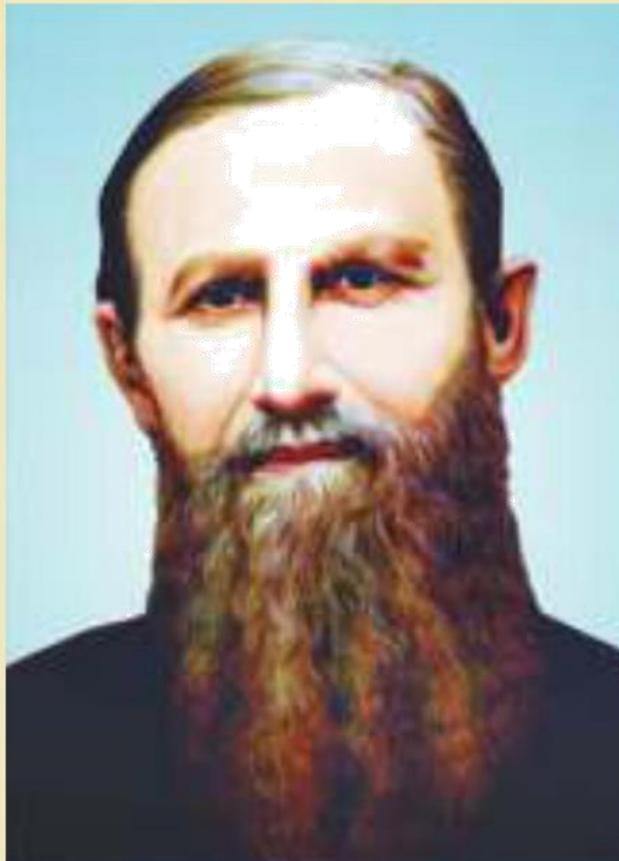


Prayer of St. Francis

Lord, make me an instrument of Your peace
Where there is hatred, let me sow love;
Where there is injury, pardon;
Where there is doubt, faith;
Where there is despair, hope;
Where there is darkness, light;
Where there is sadness, joy.

O, Divine Master, grant that I may not so much seek
To be consoled as to console;
To be understood as to understand;
To be loved as to love;
For it is in giving that we receive;
It is in pardoning that we are pardoned;
It is in dying that we are born again to eternal life.

Bro. Paulus Moritz
Founder of CMSF





ABOUT US

The Congregation of Franciscan Brothers was established in Mumbai in 1908, and now has branches in over 84 centres in India and 22 centres abroad in various Asian, European, American and African countries. The Congregation's main purpose is to render service to all strata of humanity especially the vulnerable sections of the society in order to empower them, help them, attain integral development and to live a free, dignified and truthful life.

St. Francis Institute of Management & Research (SFIMAR) was established in 2002 by –The Society of the Congregation of Franciscan Brothers; to impart quality education in the field of Business Management (MMS/PGDM/MMM/MFM). It is recognized by AICTE, New Delhi and has been granted permanent affiliation by the University of Mumbai. It is also recognized under Section 2 (f) & 12 (B) of UGC Act 1956. SFIMAR is an ISO 9001:2015 Certified Institute and received Grade 'A' from the National Assessment and Accreditation Council (NAAC) in 2016. It has won several accolades at National level such as 'Most Upcoming B-School' Award 2015 from ASSOCHAM, 'Best Educational Quality Enhancement Team' Award 2014 from National Centre for Quality Management. It has also earned recognition from the University of Mumbai's Department of Lifelong Learning and Extension for being the best participating B-School in Extension and Community Development Projects. SFIMAR is proud to be a part of the St. Francis Group of Institutions which is run by the Congregation of Franciscan Missionary Brothers having a 118-year old legacy of 'Service through Enterprise'.

At SFIMAR, we have leveraged the benefits of technology by building up an enviable storehouse of knowledge for our students through our on-going investments in pedagogical resources, a well-developed

library as well as in IT solutions that speed up our student services and help us implement useful feedback from all the stakeholders. Our students are aware of current issues and industry trends and have acquired advanced skills by participating in knowledge and skill enhancement programmes such as ‘Thought Leader’ and ‘Lead by Example’. Students develop their leadership skills, improve their concentration, creative thinking and innovation and the ability to lead and mentor others. These are conducted through various Clubs such as Nirmiti (Marketing), Finatics (Finance), Prerna (Entrepreneurship), Institute Social Responsibility (ISR), Green- Environment, Mindfulness Training and Personality Development programmes. Our well-qualified and experienced faculty are supported by competent and dedicated programme coordinators and staff, who ensure that programme delivery adheres to the Institute's strict quality, security and business continuity standards.

We focus on applied research and vital topics such as corporate social responsibility and governance, financial inclusion, investment strategy and asset allocation with forward-looking indicators, digital marketing and so on. SFIMAR facilitates industry (management)-academia (student) interaction through its Eminent Speaker Series, Management Development Programmes, Regular Guest Lectures, Summer Xcellence and Prakalpa (project competitions), Alumni Connect etc. We run a number of certification programmes for our students to make them job-ready.

We also promote interaction between academic institutions through our Visiting Faculty Programme and the Annual Research Conference 'Pathh' and 'Anveshi'. We have recently set up an Entrepreneurship and Business Incubation Zone (SFIMARebiz) to encourage self-employment and empower entrepreneurs to chart successful business ventures, by providing training, networking and cost-efficient solutions for setting up their businesses.

We have a consistent track record of 100% placement. We have started Corporate On-boarding Programme very successfully in which recruiters invest valuable resources in familiarizing our students with their organizational values, goals, roles, norms, and overall work environment. They also provide them job-specific training so that they have the necessary skills to get absorbed into their mainstream roles easily and become effective organizational members. This Corporate On-Boarding is a win-win programme for all, as it leads to positive outcomes for new employees, such as higher job satisfaction, better job performance, greater organizational commitment, reduction in occupational stress and intent to quit.

It's our constant endeavour at SFIMAR to bring up our students holistically with high moral values, ethical standards and an inclination towards societal good. Concepts such as compassion and stewardship are ingrained among our students so that they can adopt ethical business practices and build sustainable businesses. The Franciscan values continue to be a guiding beacon leading SFIMAR to higher standards in teaching, research and community service.

ABOUT THE FOUNDER

St. Francis Group of Institutions are run by the Franciscan Missionary Brothers, an International Congregation headquartered at Borivali (West), Mumbai.

Rev. Brother Paulus Moritz of Germany started the Congregation of the Franciscan Brothers in the year 1901 with the vision of reaching out to the poor and the less privileged.

St. Francis Group of Institutions in Mumbai is a chain of Catholic Minority Educational Institutions located in the western suburb of India's Financial Capital Mumbai. St. Francis Group of Institutions have today become a pride of Mumbai and India's most sought academic community for its focus on excellence in value based education and beneficial and educative extracurricular activities.

Today, after 118 years of its inception the Franciscan Brothers continue their commitment of training young minds and finding solutions to address tomorrow's challenges.



Vision

To flourish as a seat of learning of international standards for developing an entrepreneurial class of value-based industrial leaders empowered with techno-managerial competence to sustain innovation for building global business of the future.



Mission

To enter the realm of globally successful B-schools by imparting value-based education for creating responsible and thoughtful citizens who would lead the word by example and excel through innovation, an entrepreneurial spirit and a humanitarian attitude.

FOREWORD

SFIMAR's students research and project publication '*Spandan*' which contains a series of select research work chosen over 200 projects conducted by our students in various fields of management during their summer internships

These summer internships offer students a platform to work closely with professionals and to develop knowledge, competencies, and experience related directly to their career goals. The efforts taken by the students, their work supervisors from the organizations and the expert faculty guides from SFIMAR for taking it as a challenging task.

It has been our constant endeavor to maintain a strong relationship with industry which has helped our students to find suitable internships of their choice. We remain grateful to the organizations for their unfailing support in this regard.



Developing conceptual skills, Technical skills and Leadership skills is the objectives of Management education. Research, creativity and innovation are key elements of any higher education curricula and students need to develop these aspects, apply them in real-life situations so that they can adapt to the fast-changing nature of businesses and become successful managers or entrepreneurs in future. This Journal is an integral part of a broader research and project-based study agenda pursued at SFIMAR

Publishing a journal of this nature requires a lot of enthusiasm and strong involvement of various stakeholders. I thank all the student contributors, the Editorial Board, Student Editorial team, faculty reviewers, staff and SFIMAR's library team for their commitment, patience and timely revisions, which led to the successful creation of this Issue. We are thankful to the organizations that provided SFIMAR the opportunity to partner with them on these assignments, and above all also appreciate our alumni who act as a constant catalyst in bringing out the best in our students.

The variety of subjects and diversity of ideas showcased in this Journal set the stage for subsequent Issues, where we hope to attract articles with more theoretical, experimental and analytical content. I am confident that our Institute's strong focus on research will help our students to build on these efforts and maintain this impressive trajectory over coming years.

I trust that this year's volume of *Spandan* serves as a platform that brings industry and academia, inquiring minds and new ideas together to bring innovative practices in the industry in particular and also contribute to the well being of the society at large.

Dr.D. Henry

Director

EDITORIAL

Spandan is a student's research journal @ SFIMAR. Over the years, it has provided platform to students to get recognition for their quality research work. SFIMAR has always put great emphasis on qualitative and quantitative research in various areas of management. Students with the help of faculty members have constantly tried to improve the standard of research work.

Spandan is completely managed by student's right from the process of data collection to publishing and disseminating the copies. The editorial team works efficiently in the areas of content management and literature of the journal.

We are delighted to witness Spandan 2020 take its ultimate shape of distinctiveness. We express our gratitude to the members of the editorial board for their continuous involvement in the publication of the journal. We are grateful to the management for their unstinted assistance and support. We acknowledge the contributions of SFIMAR faculty members and the corporate guides that have aided the students towards the successful completion of their research projects.

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Equity research on Bajaj Finance

Mr. Movil Mathias

MMS II – Finance

INTRODUCTION:

Retail Banking involves lending transactions which are directly executed with consumers rather than with large corporates. Its offering includes transactional accounts, personal loans, mortgages, Credit cards and Debit cards. The Retail Lending Market has a huge potential considering the emerging Facilities like Online Banking. The Indian Economy is on a positive path on the amount of organized credit deployed, driven by increase in consumer disposable income and tranquil accessibility to credit; Credit Deployment has grown at CAGR of 11% in the Past 10 years, led by Private sector and Public-Sector Banks. The Growth in retail lending can be credited to favorable Demographic Profile, Development of Technology, favorable Environment, Micro level Demand and Supply Side Factors, Capital Market Reforms. This all has led to a paradigm shift in credit lending strategies of the Banks nonetheless, Despite Overall increase in the growth of Credit, Retail lending still remains under-served, India's retail debt to GDP ratio holdups behind several Developed and Emerging Economies.

This opportunity has led many Non-Banks especially the NBFC's to enter the retail lending market, Using various customized financial products and innovative credit lending models. In the past years, Non-Banking Financial institutions have outpaced Formal Banks in Fresh Credit deployment, leveraging technology to cater the under-served segments, Non-Banking Financial institutions have exploited the incapability of the Banks to customize rigid policies and rapidly scale up its operations and NBFC's have seen a tremendous increase in new credit Disbursals at the expense of Public Sector Banks. The Share of Non-Banks in the total credit market has gone up from 26% in FY-2015 to 35% in FY-2018. In the light of the above facts this sector has great opportunity to grow in future and hence many investors who want to invest in these companies. Thus, equity research is done for Bajaj Finance Ltd which is one leader when it comes to retail lending. This report would include in-depth research of Retail Lending Industry and detailed coverage of Bajaj Finance Ltd.

The study will analyze the financial strength and financial health of Bajaj Finance Ltd using Du-Pont Analysis, Beneish M Score Model and Ratio Analysis. The study also aims to find

the true and intrinsic value of the stock of Bajaj Finance Ltd by using Dividend Discount Model and Excess Return Model. It would also use Relative valuation technique to value the above companies. As financial markets sustain on information, it is one of the most asset, this paper will help in filling the information gap in the minds of investors interested in Bajaj Finance Ltd, so they can make well informed and sound investment decision.

LITERATURE REVIEW:

Equity Research is a division within either a buy-side or sell-side firm which is responsible for the research used by the firm and its clients. The purpose of an equity researcher is to provide insight and detailed analysis into a company, entity or sector and this information is then used by investors to decide how to allocate their funds and by Private Equity firms and investment banks to value companies for mergers, LBOs, IPOs etc. (Becker ton , 2015)

Valuation studies and exercises, by their nature, cannot be considered completely scientific and objective ways to find out true values of assets (Damodaran 2012).

Fernández (2007) points out the importance of valuation from a corporate finance standpoint and states that –for anyone involved in the field of corporate finance, understanding the mechanisms of company valuation is an indispensable requisitell. Mergers, acquisitions, restructurings, investment evaluations, initial public offerings, credit processes, accounting and taxation procedures can be counted amongst the major reasons that require valuation assignments. Valuation exercises include various assumptions and subjectivity; therefore, there is not an absolute correct way of performing them.

Booth (2007) has a parallel opinion with Fernández on the idea of being conceptually correct and indicates that although there are numerous ways of calculating the value of a firm, it is possible to claim a conceptually correct value. The fundamental argument of relative valuation proposes that; it is possible to estimate value of most assets considering how market values the similar assets (Damodaran 2012). It can be regarded an easy and fast method to implement and revise, and it reflects the conditions in the marketplace accurately on the time of valuation. On the other hand, issues on the depth and efficiency of markets, or difficulties during obtaining the multiples and applying the method to the companies tend to grow can set drawbacks of relative valuation. A relative valuation involves a multiples analysis, of which comparing a firm’s multiples with other companies alike and can provide an examination of robustness of DCF valuations as well as explaining performance mismatches of a company compared to the marketplace (Goedhart et al. 2010). According to

the same authors, -Using the right multiple, -calculating the multiple in a consistent manner, and -using the right peer group are key requirements for a well-structured multiples analysis. Regarding finding the identical companies' issue, Damodaran (2005) thinks that it is not an easy task to find enough comparable firms in a sector, or to define firms as comparable in a sector if their profiles (risk, growth, cash flows) are different. Damodaran (2005) adds that, if the market is not systematically overpricing or under-pricing the whole sector or an asset group, relative valuations and DCF valuations would converge to each other.

NEED FOR STUDY:

Bajaj Finance Ltd achieved its highest growth rate in the last 5 years and keeping in mind the favorable macro-economic factors and the demography, this Company has excellent growth opportunities in the future. Hence, given its current contribution to the Retail lending sector and the potential future growth it is a lucrative company for the investors. Thus, the need for this study is to provide information to the potential investors who want to invest in the Bajaj Finance Ltd and to the investors already invested in Bajaj Finance so that they can make a sound investment decision.

OBJECTIVES:

- To analyze the financial strength and performance of Bajaj Finance Ltd.
- To compute the intrinsic value of the stock of Bajaj Finance Ltd using Dividend Discount Model and Excess Return Method.
- To justify the period of High Growth for the retail lending industry.
- To determine the value of the above companies based on relative valuation technique.
- To give target price of Bajaj Finance Ltd and give ratings of Buy, Sell or Hold for the share.

RESEARCH METHODOLOGY:

Bajaj Finance Ltd was selected for the study. This company showed a phenomenal growth rate in the past 5 years. Despite of the Tailwinds in the sector, it became the second company sector to cross 2 trillion in terms of market cap.

Period of consideration of the same was from March 2009 to March 2019.

DATA COLLECTION AND ANALYSIS:

Secondary data is used for this study. It was collected from the Annual and Quarterly reports of the respective companies from their official website. Also, the data is being taken from authenticated websites like BSE & NSE. The data for the Retail Lending industry is taken from RBI, ICRA and CMIE research database.

Period of consideration of the same was from March 2009 to March 2019.

For Part I –Financial strength - Ratio Analysis, ALM Analysis, ECL Analysis and Du-Pont Analysis on Return on Equity is used.

For Part II – Dividend Discount Model and Excess Return Model is used. Cost of Equity is calculated by using Capital Asset Pricing Model (CAPM), Beta is calculated using regression analysis.

For Part III – Taking Retail Debt/GDP and China as a peer country for comparison Justified the Period of High Growth.

For Part IV – Operational Performance by comparing the profitability ratios and Valuation based on PE ratio.

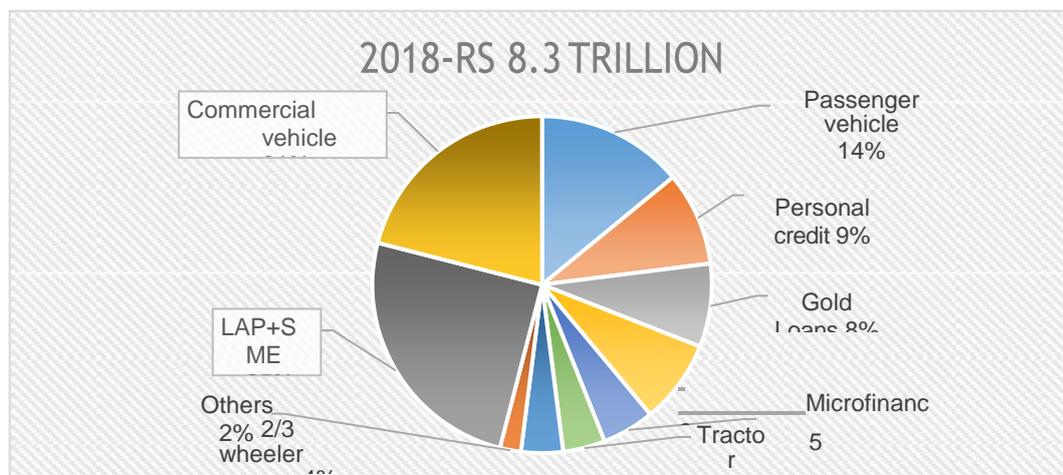
For Part V– Target price will be given by assigning a PE multiple to the company and recommendations will be given based on the following criteria.

BUY- the Stock expected to deliver more than 10% return

HOLD - The Stock expected to deliver between -10% to 10% return

SELL - The Stock expected to deliver less than -10% returns.

DATA ANALYSIS:



- Retail Credit Mix share of Non-Banking Companies increased from 29% to 34% in the last two years.

- Retail NBFC Credit in 2018 stood at Rs.8.3 trillion. Personal credit including Microfinance witnessed Growth whereas NBFC's started losing it share in some key segments like passenger and new commercial vehicles to banks.
- NBFC's pursued to focus on LAP+SME credit to avert pressures and diversified their lending Mix aiming on lower ticket lending (<Rs.10 Million).
- Competitive Pricing Pressures from Banks constrained funding Availability leading to an expected uptick in deinquencies which can restrict the overall growth in the near term.

Blow to NBFC's Sector in Mid-FY19

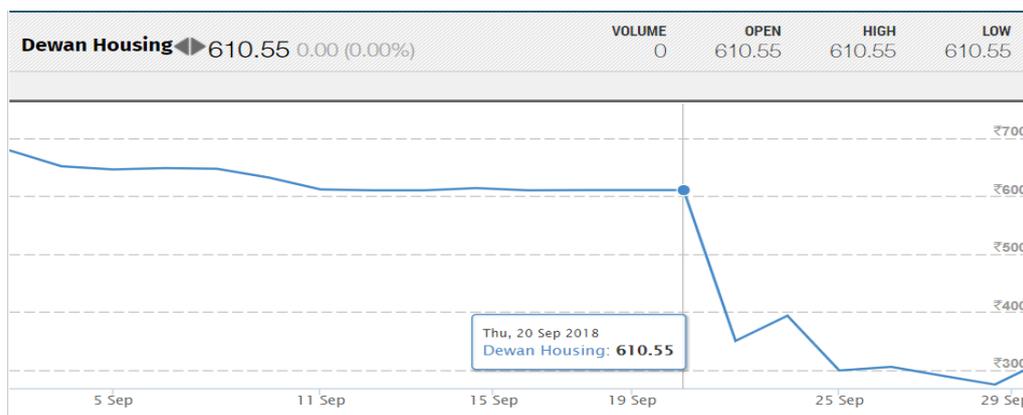
Timeline of events

- **IL&FS Defaults :-** IL&FS one of the India's biggest infrastructure development and financial institution known as a prime example of public-private partnership the group went aground when its subsidiary ITNL defaulted on payment of inter-corporate deposits to small industrial bank of india.Also on 28th August IL&FS financial services postponed payment on its commercial papers.In september 2018 IL&FS defaulted on payment of rs 10 billion term loan which it owed to SIDBI.This was trailed with constant rating Downgrades by the rating Agencies and even more Defaults. IL&FS was registered as an Investment Company,a type of NBFC's.
- **DHFL Bond Sale :-** DSP Mutual Funds sold DHFL's non convertible Debentures at a very discounted price,while mutual fund cited reduction in porfolio duration and intrest rate movement as the reason , this triggered risk for the investor resulting in plummeting DHFL's share price, inspite company commenting that it had suffiecent funds for liquidity. All NBFC's were put in the same bucket overnight amidst the fears of liquidity

Horizon of Raw Return				
Companies	Week	1 Month	3 Months	6 Months
IL&FS Transportation Networks	-5.80%	-18.10%	-47.40%	-74.90%
IL&FS Investment Managers	-7.00%	-5.20%	-47.50%	-69.30%
Dewan HF	-23.00%	-39.50%	-70.40%	-68.80%
Gruh Finance	-1.00%	-10.20%	-17.20%	-52.70%
IndiaBulls HF	-12.70%	-26.20%	-47.20%	-50.60%
Repc HF	-0.40%	-25.20%	-45.10%	-45.60%
Shriram transport finance	4.40%	-11.40%	-33.80%	-44.80%
PNB HF	-17.20%	-32.20%	-43.70%	-44.60%
Bajaj Finance	8.40%	1.30%	-13.70%	39.10%
Sundaram Finance	4.20%	-6.20%	-5.60%	-24.30%
L&T Finance	-3.30%	-11.70%	-36.50%	-32.20%
HDFC	-3.10%	-8.10%	-8.60%	-6.30%

Table-Performance of Share Price of NBFCs ,as on 25-October-2018

I. Deewan housing share price performance



DHFL shares sank by 55% which is the biggest fall in the past 21 years, the Fall had rippling effect on share price performance of other companies like Indiabulls housing finance Limited Plummenting by 16.77% .LIC(HFCs) tanked almost by 14.1% .Can finance Homes by 6.82% on that particular day.

II. Increase in Cost of Funds

NBFCs	AAA	-AA+	AA	AA-
Apr-18	8.35	9.24	9.38	8.98
May-18	8.79	8.62	9.21	9.22
Jun-18	8.92	9.09	9.2	9.6
Jul-18	8.72	9.26	9.71	10.28
Aug-18	8.74	9.18	9.59	10.37
Sep-18	8.46	8.76	10.04	11.05
Oct-18	9.24	9.38	9.98	11.5
Nov-18	9.15	8.68	9.5	11.17

Post the Crisis and default of IL&FS and Sale of DHFL Bonds the cost of funds increased, this led to liquidity crisis and increase in the interest rates of the loans given to customers.the cost of funds increased across all the different rated NBFCs.The cost of funds showed a declining trend before the default.

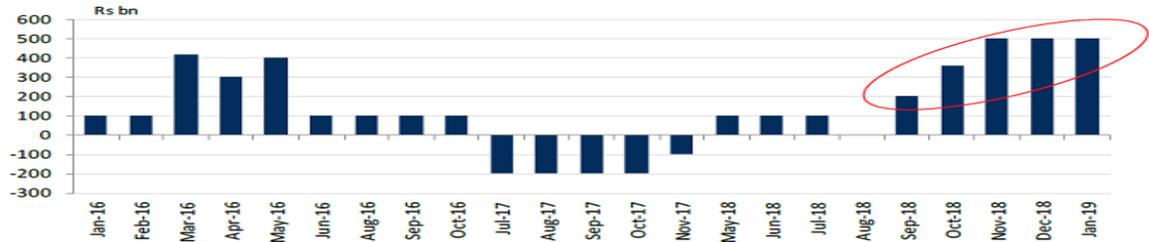
Regulatory Action-

After the IL&FS fiasco it became extremely difficult For NBFCs and HFCs to raise funds from the commercial paper market.Funding from sources like banks began to slowdown.In order to avoid liquidity Crisis the Reserve bank of India and National Housing Board undertook various actions to enable Shadow banks to raise funds from other sources

Timeline-

Date	Action
Sep-18 to Dec-18	The Frequency of OMO auction Purchase was increased by the RBI dramatically between September 2018 to Jan 2019 .RBI has infused liquidity to the extent of rs 2.06trn.The volume of credit available to the NBFCs depends on the willingness of the banks to lend them
8 Oct-18	The National Housing Board Extended the refinance limits to Housing Financial institution from rs 240bn to rs 300bn
19 Oct-18	RBI indicated the banks that they will be able to acknowledge government securities held by them equal to the amount of the credit outstanding to NBFCs

19 Oct-18	Revision of NBFCs exposure limit to single borrowers which are not engaged in in infrastrucutre Finance to 15% from 10%
29 Nov18	Minimisation Minimum holding period by the RBI for loans having maturity of more then 5 years as an admissibility criteria for loans which are to be securitised to banks
24 May 19	RBI announced for all the deposit and non deposit taking NBFCs having asset worth rs 5000 crore and more should maintain a LCR ratio of 60% from April 2020 gradually moving to 100% liquidity Coverage ratio by April 2024.



OMO Auction Volume Data-

Source-Reserve Bank Of India

- The Open Market Operations purchase in volume increased Rapidly from September 2018 to with collective auction volume standing at Rs 2.06trn between September-2018 to January 2019.
- The purchased volume of Open Market Operations rose to their highest monthly levels since March-16.
- The Reserve Bank of India had carefully selected the measures to ensure that Non-Banking Financial Institutions and Housing Finance Companies get liquidity through banks which will enable the RBI to exercise indirectly control over them.
- The Reserve Bank of India has oblique similar measures of Open Market Operation transactions throughout the year.

Objective I -To analyze the share performance and financial strength of Bajaj Finance Ltd

Three step Du-Pont Analysis breaks down ROE into 3 components.

- Operating Efficiency- measured by net profit margin
- Asset usage Efficiency- measured by asset turnover ratio
- Financial leverage- measured by equity multiplier

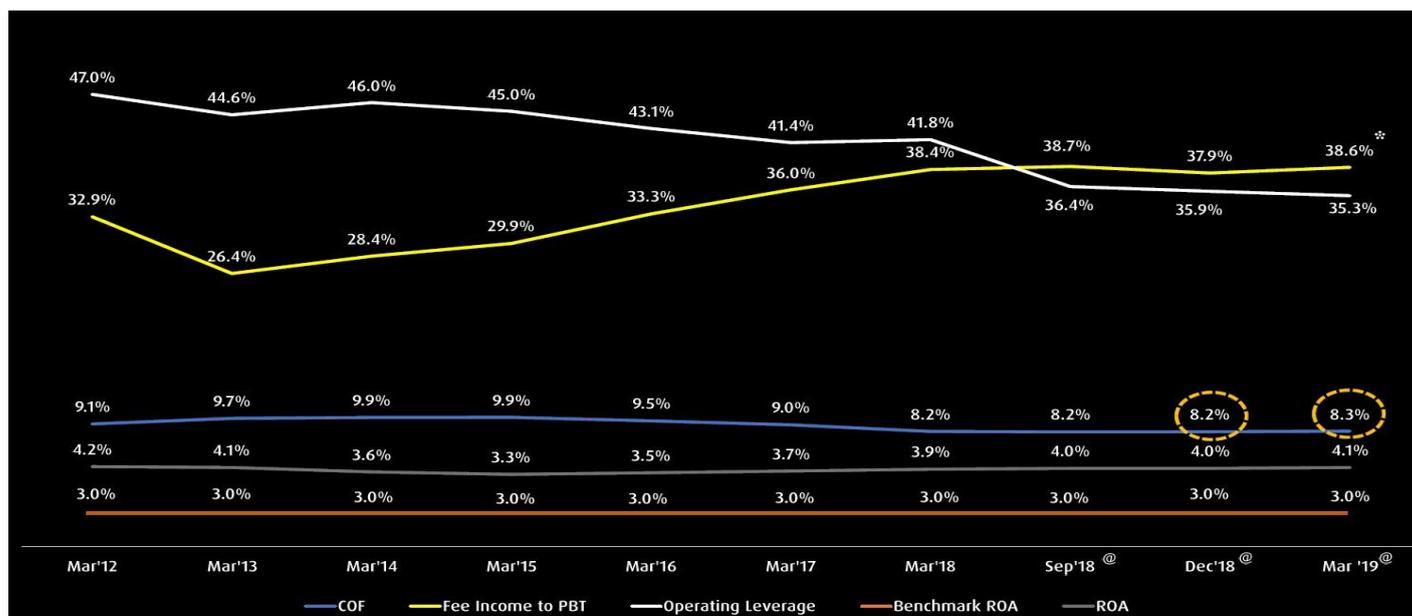
3 STEP DuPont Analysis

Year	Return on Equity	<u>Net income/</u> <u>Revenue</u>	<u>Revenue/</u> <u>Average Total Assets</u>	<u>Average Total Assets/</u> <u>Equity</u>
	(ROE)	Net Profit Margin	Asset Usage Efficiency	Equity Multiplier
2009	3.11%	0.06	0.15	3.71
2010	7.76%	0.10	0.19	4.19
2011	18.18%	0.18	0.17	6.27
2012	19.99%	0.19	0.17	6.36
2013	17.56%	0.19	0.17	5.29
2014	18.02%	0.18	0.17	6.17
2015	18.71%	0.17	0.17	6.84
2016	17.46%	0.17	0.16	6.34
2017	19.13%	0.18	0.16	6.64
2018	16.16%	0.20	0.16	5.25
2019	20.28%	0.22	0.15	6.31

Asset liability Management Mix

Particulars	1m	>1 to 2m	>3 to 6m	>6m to 1 yr	>1 to 3 Yr	>3 to 5 yr	>5 yr	Total
Cash & Cash Equivalents	5524	2	7	10	344	510	4181	10580
Loan repayments	7,642	5,263	12,203	17,014	31,771	12,409	5,991	97,492
Other inflows	2,150	63	590	445	2,726	544	1,136	7,868
Total Inflows (A)	15,316	5,328	12,800	17,469	34,840	13,462	11,308	1,15,940
Cumulative Inflows (B)	15,316	20,644	38,860	56,330	91,170	1,04,632	1,15,940	
Borrowings	5,361	430	3,638	10,045	27,182	14,616	11,422	75,039
Other Outflows	4,752	463	2,619	4,179	4,690	1,122	469	20,354
Capital and Reserves and Surplus	-	-	-	-	-	-	20,547	20,547
Total Outflows (C)	10,113	893	6,257	14,225	31,872	15,738	32,438	1,15,940
Cumulative Outflows (D)	10,113	11,006	21,667	35,892	67,765	83,502	1,15,940	
E. Mismatch (A-C)	5,203	4,435	6,543	3,244	2,968	-2,276	-21,130	

Earnings and Return Ratios



Objective II -To compute the intrinsic value of the stock of Bajaj Finance ltd by using Dividend Discount Model and Excess Return Model

1. Cost of Equity -

The cost of Equity will be calculated using the Capital Asset Pricing Model (CAPM)

Required Rate = Risk Free Rate + Beta (Risk Premium)

Risk Free rate:4.66%,Beta:1.1

{(10 year Government Bond Yield (6.81%) – Default Spread (2.15%))}

Expected Market Return:12.65% (Nifty Last 5 year Returns)

Cost of Equity-13.27%

High Growth Phase							
Year	Expected Growth Rate	EPS	Payout ratio	DPS	Cost of Equity	Cumulative Cost of Equity	Present Value
1	35.00%	₹ 93.60	8.65%	₹ 8.10	13.39%	113.39%	₹ 7.14
2	35.00%	₹ 126.35	8.65%	₹ 10.94	13.39%	128.57%	₹ 8.50
3	35.00%	₹ 170.58	8.65%	₹ 14.76	13.39%	145.79%	₹ 10.13
4	35.00%	₹ 230.28	8.65%	₹ 19.93	13.39%	165.31%	₹ 12.06
5	35.00%	₹ 310.88	8.65%	₹ 26.90	13.39%	187.44%	₹ 14.35
Transition Phase							
6	29.20%	₹ 401.65	20.22%	₹ 81.20	13.36%	212.50%	₹ 38.21

7	23.40%	₹ 495.64	31.78%	₹ 157.50	13.34%	240.84%	₹ 65.40
8	17.60%	₹ 582.87	43.34%	₹ 252.61	13.31%	272.90%	₹ 92.57
9	11.80%	₹ 651.65	54.90%	₹ 357.76	13.29%	309.16%	₹ 115.72
10	6.00%	₹ 690.75	66.46%	₹ 459.09	13.26%	350.15%	₹ 131.11

Growth Rate in Stable Phase =	6.00%
Pay-out Ratio in Stable Phase =	66.46%
Cost of Equity in Stable Phase =	13.26%
Price at the end of growth phase =	₹6,702.91
Present Value of dividends in high growth phase =	₹495.19
Present Value of Terminal Price =	₹1,914.30
Value of the stock =	₹2,409.49
Current Market Price	3489.5
Upside/ (Downside)	-31%

Excess return Model

Equity Invested =	19697.02
PV of Equity Excess Return =	21561.14692
Value of Equity =	41258.16692
T.V of Excess Return	43942.4196
Value Per Share =	2461.70447
Current Market Price	3489.5
Upside/ (Downside)	-29%

- **Objective III – To Justify the period of high Growth of the Retail Lending Industry in the future**

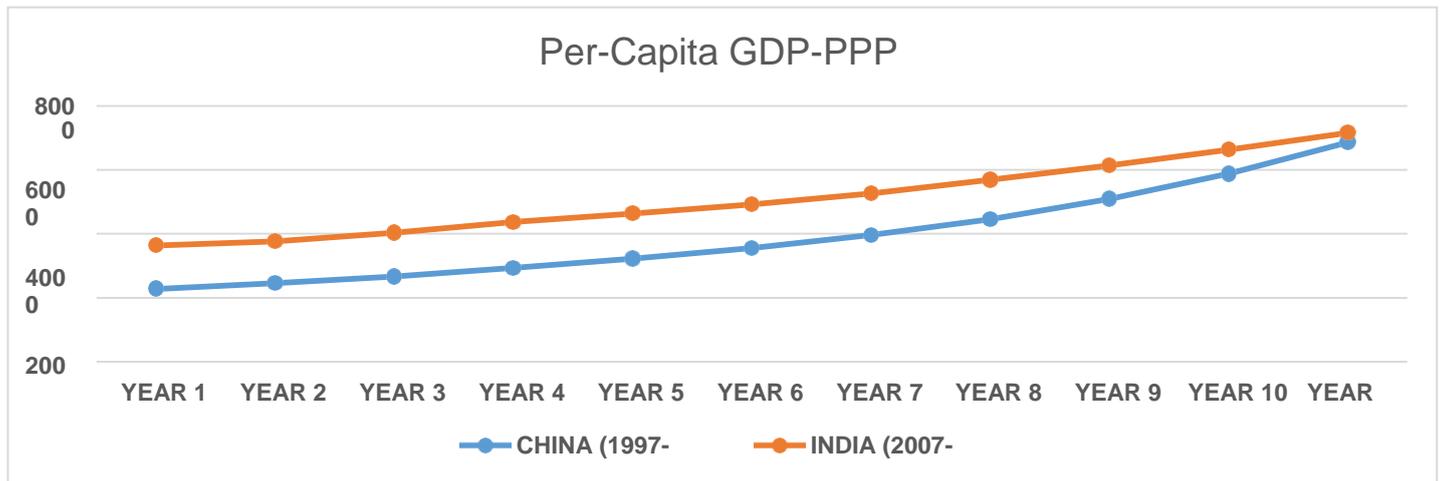
APPROACH

Estimation of the potential size of the India Consumer/retail lending industry on a rupee basis through cross-country comparisons of income and debt.



Source--BANK OF ITALY, ECONOMICS AND STATISTICS DEPARTMENT

China is a good comparison, as India's per capita GDP growth lags China's by a decade

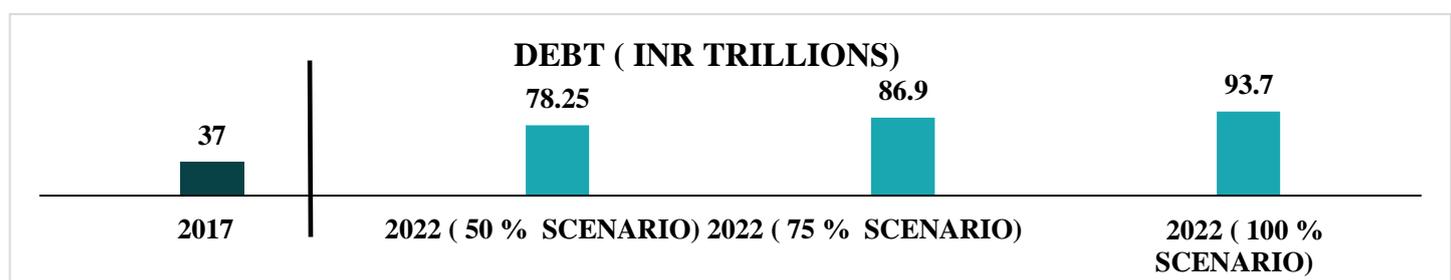


Estimation Of India's Retail debt					
China		India			
Year	Growth	Year	100% Growth	75% Growth	50% Growth
2008	17.85%	2018	21%	21%	22%
2009	23.89%	2019	28%	27%	25%
2010	27.29%	2020	32%	30%	27%
2011	27.81%	2021	33%	30%	27%
2012	29.61%	2022	34.9%	31.4%	28.1%
2013	32.97%	2023	39%	34%	30%
2014	35.41%	2024	42%	36%	31%
2015	38.23%	2025	45%	38%	32%
2016	44.19%	2026	52%	43%	34%
2017	49.21%	2027	58%	46%	36%

FINDINGS AND INTERPRETATIONS:

Part 1-

- The company has focused on portfolio granularity across geographies and products to augment profitability and reduce risk. It is reflected in lower operating expenses, better risk metrics, and better operating margin.
- Focus on expanding fee revenue pool and better cost management improved opex to net interest income by 35.3%.
- The company has a strong customer franchise base which rose up to 32% to 34.48 million from 26.22 million, adding 8.27 new customers.
- The portfolio quality of Bajaj Finance remains best in the last quarter as it was adjusted for IL&FS exposure with improvement in quality of portfolio, the business is deemed to grow in a strong manner.



- The company has a strong liquidity profile having a liquidity buffer of 6612cr as of 31st March 2019

Part 2 –

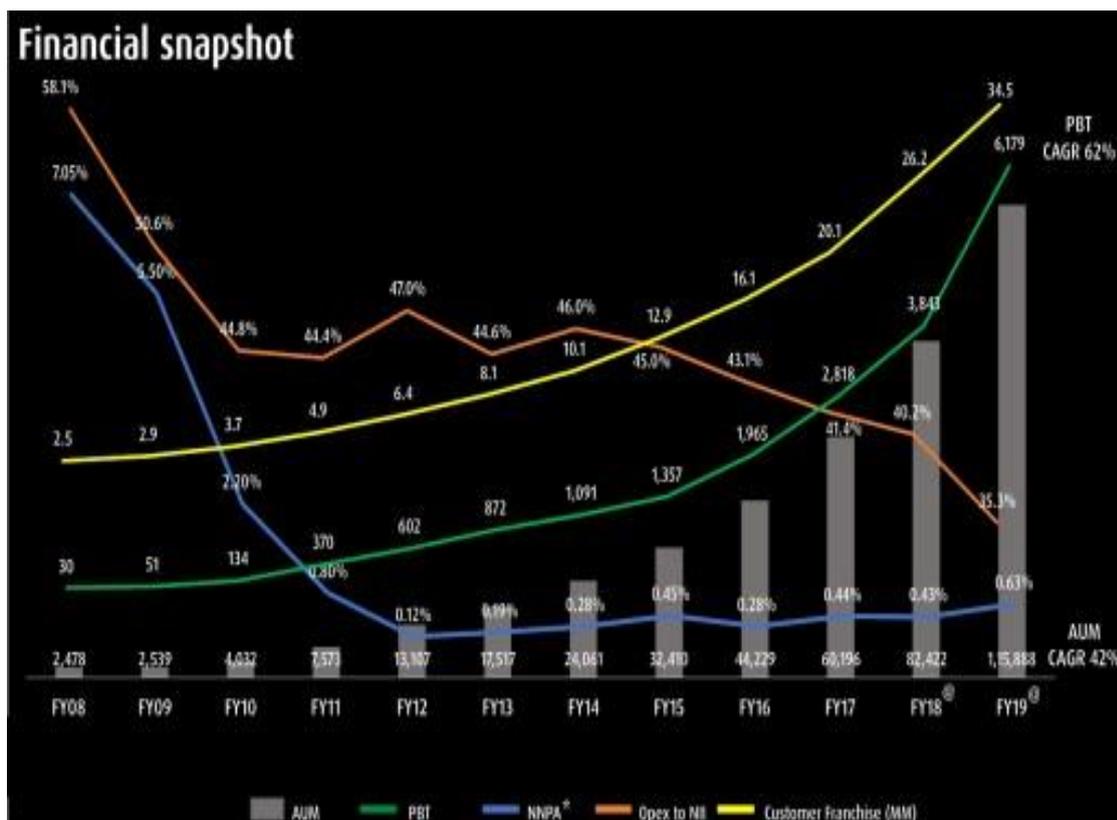
Company	Market Price	DDM	Upside / (Downside)	Excess Return Model	Upside / (Downside)
Bajaj Finance	3,489.50	2409.9	-31%	2461.704	29%

- Bajaj Finance Ltd based on Dividend Discount Model and Excess Return Model is overvalued
- This doesn't imply that one must sell the stock because perceptions and opinions about the company and the market play an important role in which influences the market price of the stock

Part 3 –

- Cross-country comparison with other emerging market peers indicates likely substantial growth over at least next 5 years
- China is the best comparable country in terms of the likely evolution of the per-capita income (and hence retail lending growth), with a temporal lag of a decade
- On a conservative basis, the potential market size is estimated to increase INR 78 trillion- a CAGR of 16.1%
- A more aggressive estimate implies a potential market size of INR 94 trillion by 2022, a CAGR of 20.5%
- The approach speaks about growth, not the limits of market itself.

Part 4 –



Parameters	Movement
Revenue Growth	
EPS Growth	
Operating Profit Margin	
Net Profit Margin	
P / E Ratio	

- The above table indicates that although the P/E ratio for the company is high they also have better operative margins and growth prospects than the industry
- Bajaj Finance Limited though overvalued it doesn't mean one should sell the company's stock as the company is backed by strong operative and growth statistics

Part 5 –

Company	Assigned P/E	Forward EPS	Target Price	CMP	Returns	Rating
Bajaj Finance	42.29	89.95	3803.99	3489.05	9.03%	HOLD

LIMITATIONS:

- The market behavior if irrational may give rise to – under-valuation for extended periods; Over-valuation from unjustified optimism and misplaced enthusiasm for unreasonable length of time. The slow correction of under and over valuation poses threat to analysis.
- Future changes are largely unpredictable; more so when the economic and environment is buffeted by winds of change. The analysis is based on my own interpretation from the data available from the best possible source however this may defer with other analyst as they may have different perception about the company
- Forecasting of the company is based on assumptions
- Lack of Availability of data

FUTURE SCOPE:

- The study can be extended to value companies across different sector
- Relative Valuation can be done by taking all the diversified financial companies across the world
- The same Valuation can be matched with Asset Valuation Model and Cash Flow to Equity Model and results can be compared

RECOMMENDATIONS:

The study recommends investors to Hold - Bajaj Finance Ltd.

CONCLUSION:

- It is evident from the study that the historical financial performance & strength of Bajaj Finance Ltd has been above average based on the Ratio Analysis and Du-Pont Analysis. Thus, based on past performance Bajaj Finance Ltd is favorable for the investors to invest as the return ratios are healthy.
- The true and intrinsic value of the company is less than the market value based on the DDM model and Excess Return Model. This concludes that the company is overvalued.
- However, this doesn't mean that investors should not invest in the company, when valued Bajaj Finance through relative valuation technique Bajaj Finance Ltd is overvalued. It has strong operative and growth statistics as compared to the industry

BOOKS:

John Burr Williams 1938. Theory of Investment Value

Prasanna Chandra 2011. Security Analysis and Portfolio Management.

Ashwath Damodaran 2006. Damodaran on Valuation: Security Analysis for Investment and Corporate Finance.

Annual Reports and Quarterly results of Bajaj Finance Ltd

Internal Reports of Finnovate Financial Service Ltd

DATA BASE:

Investment Information and Credit Rating Agency of India Ltd (ICRA)

Reserve bank of India

Capitaline

Bloomberg Terminal

Centre for Monitoring Indian Economy (CMIE)

ACKNOWLEDGEMENT:

I express my deepest gratitude to Prof. Vaibhav Shah (Faculty Guide) and Hardik Mer (Industry Guide), I would also like to acknowledge Prof. Pushkar Parulekar (Mentor) for their co-operation and inputs throughout the course of this project.

Analysis of Indian Cement Industry with special reference to Heidelberg Cement India Ltd.

Mr. Sanmay Tribhuvan

MMS II – Finance

INTRODUCTION:

Cement is one of the most important commodity which helps an economy to grow and develop from roads to railways & from House to factories are incomplete without cement. India currently has 480MT of cement production capacity. India is the second largest cement producer as well as consumer. Heidelberg Group is a leader in aggregate production, No.2 in cement and No.3 in ready-mixed concrete. Heidelberg Cement operates in 60 different countries and has a total cement capacity of ~200 MT. Heidelberg Group entered India in 2006 by taking stake in Maysor Cement and in 2008 Heidelberg cement fully acquired Maysor cement and named it as Heidelberg Cement India Ltd. Heidelberg Cement India Ltd currently has 5.4 MT of cement production capacity. With two major plant one at Damoh and other at Jhansi. It's one of the strong player in the central region (Madhya Pradesh & Uttar Pradesh) of India. As per management declaration it has 10% of market share in the central region. Heidelberg cement India Ltd Management discussed in the earning conference call that the lead distance time for the company is 390 Km. The management also discussed about various initiative taken by the firm to control its freight and power cost. Freight cost is controlled by agreement with Indian railways to solve the wagon issue. And the waste Heat Recovery System set up at Damoh plant can produce ~38% of the total power requirement of the plant. This initiative is helping the firm to keep control on fuel and power cost. Heidelberg cement India has shown a constant growth over the last 5 years the company also achieved its all-time high sales volume of 4.9MT and also trying to improve further. After running relative valuation the valuation for companies share price can reach Rs 239 BY FY 21E with upside of 25% from current price of Rs 192.

NEED FOR STUDY:

Cement Industry plays an important role in the Indian economy. India is the second largest cement producers as well as consumer in the world. Housing and Infrastructure sector are key consumers of cement as more than 80% of total cement demand is consumed by these 2 sectors. Given that the government of India has launched various schemes, like '_Housing For All', '_Bharatmala pariyojana' etc.; cement demand prospects are quite high. So looking at the potential of the cement industry to grow in the future, need is to analyze how the cement industry is performing currently and may perform in the near future.

OBJECTIVES:

- To understand the demand-supply pattern of the Indian cement industry.
- To analysis, the financial performance of Heidelberg cements India Ltd.
- To forecast the financial performance of Heidelberg Cement India Ltd for investors recommendations.

RESEARCH METHODOLOGY:

The research design is descriptive research where secondary data is collected and analyzed. The analysis is done on one of the well-known cement company operating in central India which is

Heidelberg Cement India Ltd. It's a subsidiary company of a global cement producing giant Heidelberg Cement.

DATA COLLECTION & ANALYSIS:

Secondary data: It was collected from the annual reports, transcripts of the earnings conference call, Investor relation presentation from the company's official websites. Also, the data was taken from Authenticated websites of BSE & NSE. The data of Heidelberg Cement India Ltd financial performance included balance sheet, Profit and loss statement and Cash flow statement was collected for the last 6 years from the Financial year 2013 to financial year 2018 The tool used to Analysis: In order to evaluate or compare the financial performance of the company on a year on year basis Industrial analysis and Relative valuation technique was used to give recommendation to the investor.

Primary Data: Calling Local Retail Dealers in the major states of Madhya Pradesh & Uttar Pradesh. To Collect data of Demand and Supply of cement in the region. 24 Retailers were called.

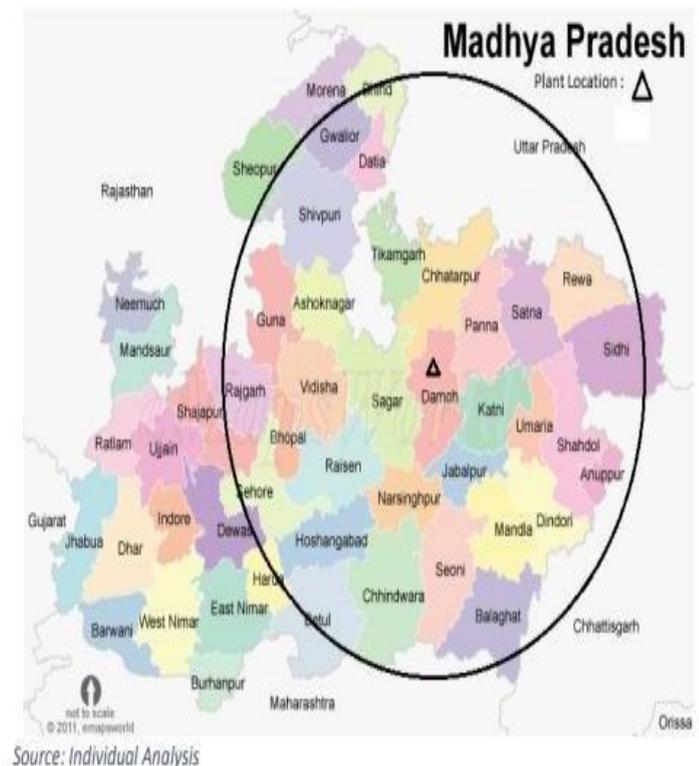
Objective 1: Cement is a bulky commodity and hence cement is generally sold near the location of the plant. Typically, in India the distance between the plant and consumer market for cement, called 'lead distance', is 300-400kms. If the material is dispatched through railways, then the lead distance can be higher. Therefore, it is essential to study the location of the plants and the addressable market it can cater to. For Heidelberg cement, its two key plants are located in the states of Madhya Pradesh and Uttar Pradesh and here we have taken a look at the addressable market from these locations.

Madhya Pradesh: Heidelberg has an integrated unit in Damoh, Madhya Pradesh. Based on the management's comments during the earnings conference call hosted by the company, its average lead distance is 390 km. Based on its location and lead distance, we have looked at the key cities or districts that Heidelberg's MP unit can target.

Place	Year 2011	Distance in Km
Damoh	12,64,219	19
Sagar	23,78,458	99
Tikamgarh	14,45,166	118
Katni	12,92,042	124
Jabalpur	24,63,289	127
Chhatarpur	17,62,375	131
Panna	10,16,520	137
Narsimhapur	10,91,854	176
Umaria	6,44,758	191
Satna	22,28,935	192
Vidisha	14,58,875	211
Raisen	13,31,597	243
Datia	7,86,754	249
Rewa	23,65,106	252
Shahdol	10,66,063	259
Seoni	13,79,131	264
Mandla	10,54,905	264
Bhopal	23,71,061	268

The Table contains district wise population and distance from the plant

Ashoknagar	8,45,071	280
Dindori	7,04,524	281
Chhindwara	20,90,922	299
Sehore	13,11,332	303
Hoshangabad	12,41,350	305
Anuppur	7,49,237	308
Gwalior	20,32,036	323
Guna	12,41,519	330
Sidhi	11,27,033	337
Balaghat	17,01,698	348
Rajgarh	15,45,814	353
Morena	19,65,970	374
Bhind	17,03,005	380
Shivpuri	17,26,050	384
Harda	5,70,465	389



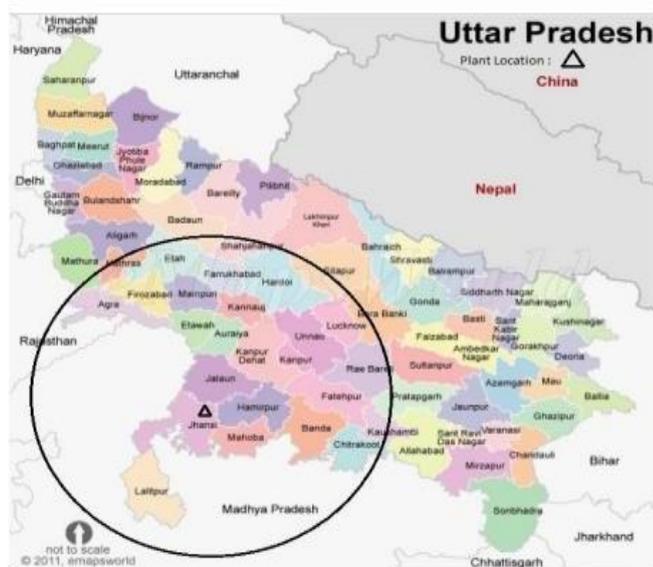
Uttar Pradesh: Heidelberg has a grinding unit in Jhansi, Uttar Pradesh. Based on the management's comments during the earnings conference call hosted by the company, its average lead distance is 390 km. Based on its location and lead distance, we have looked at the key cities or districts that Heidelberg's UP unit can target.

State	2011	Distance in KM
Jhansi	19,98,603	10
Lalitpur	12,21,592	95
Jalaun	16,89,974	125
Mahoba	8,75,958	162
Etawah	15,81,810	199
Auraiya	13,79,545	204
Kanpur Dehat	17,96,184	211
Kanpur Nagar	45,81,268	217
Banda	17,99,410	217
Agra	44,18,797	234
Mainpuri	18,68,529	250
Kannauj	16,56,616	250
Unnao	31,08,367	252
Firozabad	24,98,156	267
Hathras	15,64,708	286
Chitrakoot	9,91,730	286
Mathura	25,47,184	287
Farrukhabad	18,85,204	289
Etah	17,74,480	300
Fatehpur	26,32,733	304
Lucknow	45,89,838	316

The Table contains district wise population and distance from the plant

Aligarh	36,73,889	323
Hardoi	40,92,845	333
Rae Bareilly	24,03,705	340
Bara Banki	32,60,699	343
Kasganj	14,36,719	349
Budaun	31,27,621	364
Kaushambi	15,99,596	393

Source: Indian Census 2011



Source: Individual Analysis

In the map above the circle is drawn by considering the lead distance of a company

Geographical Breakup of Volume: The company mainly operates in central India in the state of Madhya Pradesh and Uttar Pradesh and some parts of Bihar. Company has a 10% market share in central India. The company said the major volume driver was increased in infrastructural activities and Rural Housing In central India. Given the uptick in infrastructure investments in the state of Uttar Pradesh like Purvanchal Expressway, Bundelkhand expressway, etc., the demand in the state is expected to move up.

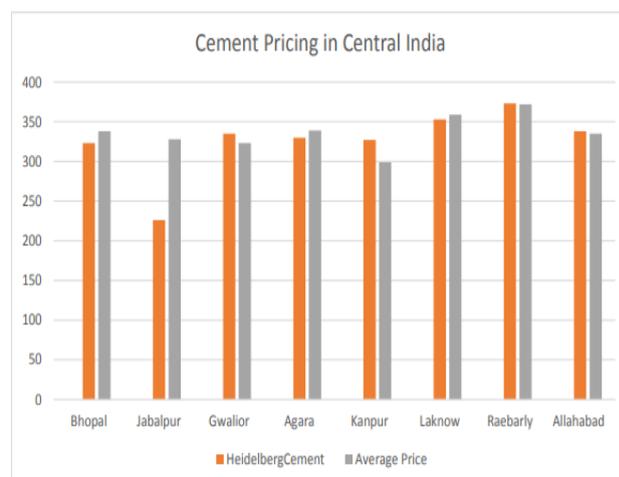
Trade & Non-Trade Mix: As per the management discussion through conference call company discussed that Heidelberg is focused on Trade sales as 85% of the total sales is trade sales and the rest is nontrade sales.

Composition Fuel Mix: As on fourth Quarter of FY 19, the Coal and Pet coke mix is 40% coal and 60% pet coke, but as per the management discussion, this proportion of coal and pet coke varies as the price of coal and pet coke changes. Heidelberg only uses Domestic coal for production and it is mainly sourced from Coal India.

Pricing of Premium Cement: Heidelberg sells its premium cement under the brand name Mycem power. The price gap between the premium product and the normal product is Rs30. The sales volume of the premium product is also increasing by 4% on a YOY basis.

Logistics: Out of the total distribution of cement 54% of the total sales volume is been transported through Road. The company has also signed long-term agreement on traffic with the Indian railway to optimize the logistical cost. Heidelberg has also set up Over Land Belt Conveyor (OLBC) this is a 19Km conveyor set up at Narsingarh (Damoh) plant and it's also one of the longest Over Land Conveyor (OLBC) in the country.

Cement Pricing in Major cities of Central India:



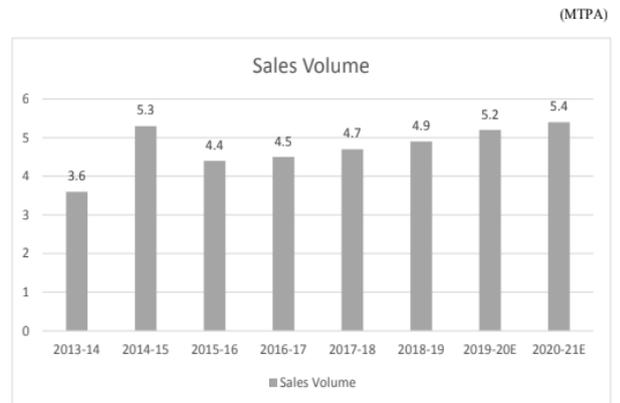
Source: Individual Analysis

Dealer Interaction: In order to gauge the recent pricing and demand trend in the region, we interacted with several cement dealers across the two states. Key cities targeted during the call were Bhopal, Jabalpur, Gwalior, Agara, Kanpur, Lucknow, Rebarly & Allahabad. the overall pricing feedback through the primary channel check is that cement pricing which had increased this region over the past two months is currently stable. However, given the advent of monsoon season, which is generally a weak season for construction, cement prices are expected to marginally come down from current levels.

Financial Analysis:

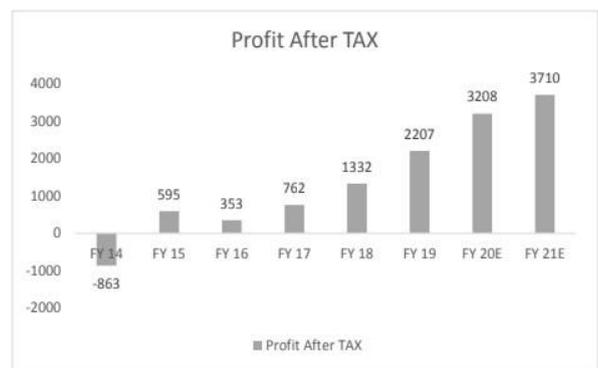
Increase in Sales over a period:

Heidelberg Cement India Ltd has increased its sales volume on year on year basis also it is expected that the volume will grow further as well due to strong demand from housing and infrastructure projects & government also trying to boost affordable housing by planning to build ~40 Million House in rural India and ~20 Million house in urban. We can see the sales volume has grown by 26% over FY 14 to FY19 and it is also expected to grow 10% By FY 21E.



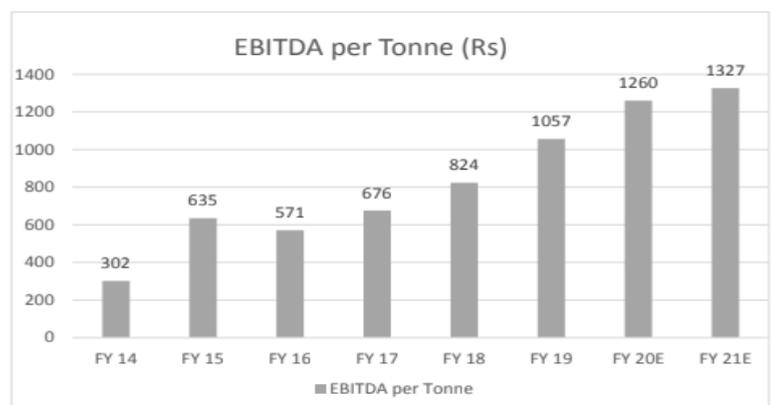
Growth Seen in Profit After Tax:

As the company is able to improve its Top line numbers the effect can be seen on the bottom line as well. During FY2014, the company had reported a loss of Rs836mn. From thereon, we can see continuous improvement in profits every year. In the current year, Heidelberg has reported record profits of Rs2207mn. Based on strong pricing scenario and a further improvement in operating efficiency, we expect the company to report PAT CAGR of 68% over FY19-21E.



Consistent Growth in EBITDA per Tonne:

Heidelberg Cement India was successfully able to improve its EBITDA per tonne from Rs302 in FY 2013-14 to Rs1057 in FY2018-19. The company was able to improve its EBITDA per tonne by controlling cost. One of the Initiative is the Waste Heat Recovery System which was installed in FY 2015-16 to reduce the power consumption cost. This WHRS system now efficiently produce ~30% of the total power requirement by the company.



Profitability Ratios:

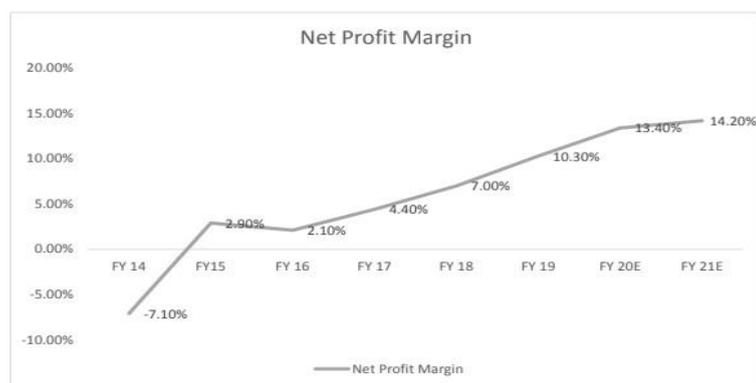
- 1) Net Profit Margin
- 2) EBITDA Margin

1) Net Profit Margin:

As we can see above the company has improved its top line on a year on year basis this has also helped company to work on its bottom line as a result we can clearly see that company has grown from -7.1% to 10.3 % Net profit Margin.

$$\text{Formula} = \frac{\text{PAT}}{\text{Net Sale}}$$

Net Profit margin	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Net sales	12089.1	20442.8	16483.5	17174.6	18894.7	21333.5	23774.6	25714.7
PAT	-863.6	595.7	353.9	762.1	1331.8	2206.6	3189.4	3654.1
Net Profit margin	-0.07	0.03	0.02	0.04	0.07	0.10	0.13	0.14
% Net Profit	-7.1%	2.9%	2.1%	4.4%	7.0%	10.3%	13.4%	14.2%

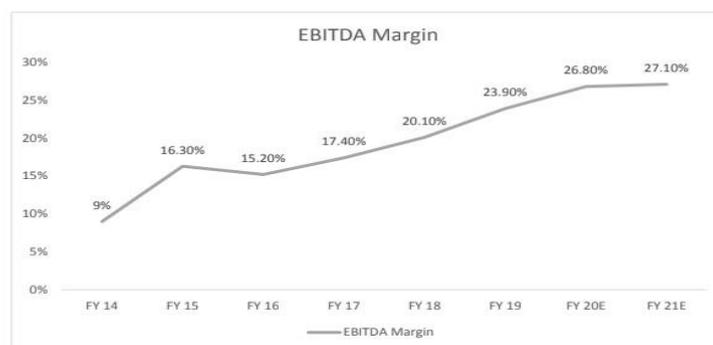


2) EBITDA Margin:

EBITDA Margin is the percentage of operating profit of the company from the net sales. EBITDA stands for net profit before Interest Depreciation and TAX. EBITDA margin is consider to be one of the important major to evaluate a company's financial performance.

$$\text{Formula:} \quad \frac{\text{EBITDA}}{\text{Total Income}}$$

EBITDA Margin	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
EBITDA	1093.30	3359.90	2536.10	3025.50	3832.90	5181.60	6490.41	7110.40
Total Income	12162.10	20581.20	16707.90	17411.50	19094.00	21681.70	24192.48	26216.06
EBITDA Margin	0.09	0.16	0.15	0.17	0.20	0.24	0.27	0.27
EBITDA Margin %	9.0%	16.3%	15.2%	17.4%	20.1%	23.9%	26.8%	27.1%



RETURN RATIOS:

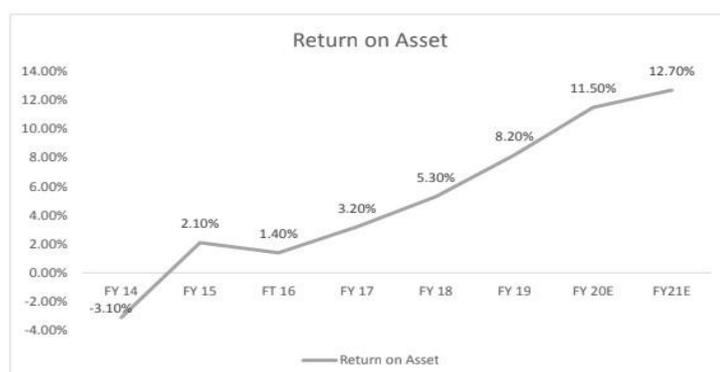
- 1) Return on Assets
- 2) Return on capital Employed

1) Return on Assets:

As we can see in 2013-14 there is a negative return on asset this is because during the FY 2013- 14 Company had a Net Loss of 863.6 million and return on asset was low majorly due to capacity expansion and company installed WHRS in the production units. But after FY 2013- 14 company has contently improved its return on assets numbers.

$$\text{Formula:} \quad \frac{\text{Net Income}}{\text{Total Assets}}$$

Return On Assets	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Net Income	-863.6	595.7	353.9	762.1	1331.8	2206.6	3189.4	3654.1
Total Assets	27586.1	27964.1	26146.1	24076.4	25328.2	26955.3	27784.9	28826.0
Return On Assets	-0.031	0.021	0.014	0.032	0.053	0.082	0.115	0.127
Return On Assets %	-3.1%	2.1%	1.4%	3.2%	5.3%	8.2%	11.5%	12.7%



2) Return on Capital Employed:

Company is continuously improving its revenue from operations on a year on year basis which is also reflecting in the returns generated against capital employed as we see the company has improved its ROCE from 1% in FY 14 to 21% in FY 19 and it is also expected to grow up to 31% By FY 21E.

Leverage:

- 1) Debt to Equity
- 2) Debt to Asset

1) Debt to Equity

Debt to Equity ratio tells us how much debt a company has over its shareholders fund. As we said, that the standard debt to equity ratio is 2:1 But all companies try to become debt free as a debt free company gives investor more confidence while making an investment. So, Heidelberg Cement India is also reducing its debt to equity ratio on a year on year basis from 1.55 to 0.29.

Formula:
$$\frac{\text{Debt}}{\text{Shareholders' Funds}}$$

2) Debt to Asset:

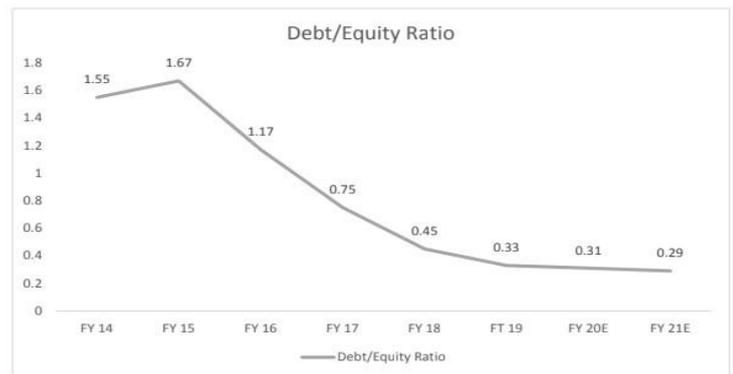
Debt to Asset ratio is one an indicator which helps an inverter or manager understand those company has enough amount of assets against the debt. As per the standard lower the Debt to asset Ratio better it is. Heidelberg Cement India ltd is paying off its loans and reducing its debt on the same side their asset value is also increasing due to which the debt to asset ratio is under control.

Formula:
$$\frac{\text{Total Debt}}{\text{Total Assets}}$$

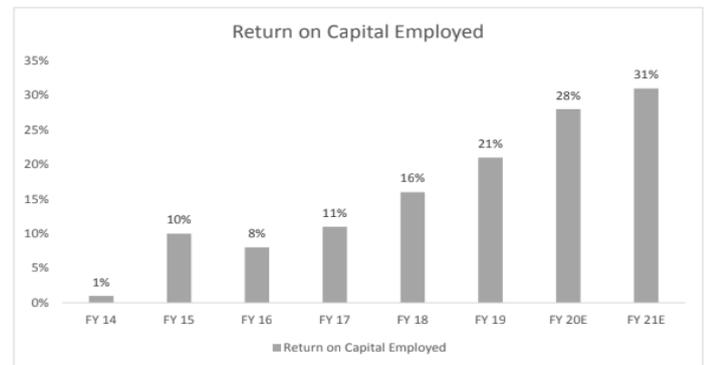
Working Capital Ratios:

- 1) Current Ratio
- 2) Quick Ratio.

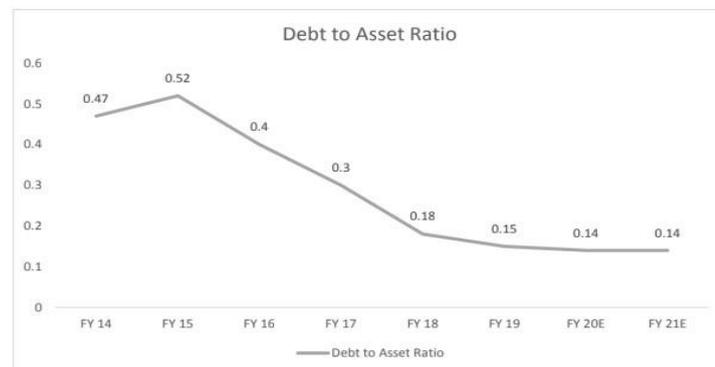
Debt to Equity Ratio	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Debt	12926.2	14449	10458	7299	4685.1	3918.2	3919.2	3920.2
Equity	8333.6	8669.5	8949.3	9669.5	10464	11711.9	12650.47	13599.48
Debt Equity Ratio	1.55	1.67	1.17	0.75	0.45	0.33	0.31	0.29



Return on Capital Employed	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Invested Capital	21,507.10	18,620.60	16,423.90	16,558.60	16,752.90	17,821.90	18,034.34	18,259.57
Operating Profit (EBIT)	119.80	1,846.10	1,313.90	1,797.10	2,621.90	3,815.70	5,046.08	5,573.71
Return on Invested Capital	0.01	0.10	0.08	0.11	0.16	0.21	0.28	0.31
Return on Invested Capital %	1%	10%	8%	11%	16%	21%	28%	31%



Debt to Asset Ratio	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Debt	12926.2	14449	10458	7299	4685.1	3918.2	3919.2	3920.2
Total assets	27586.10	27964.10	26146.10	24076.40	25328.20	26955.30	27784.91	28825.96
Debt to Asset Ratio	0.47	0.52	0.40	0.30	0.18	0.15	0.14	0.14

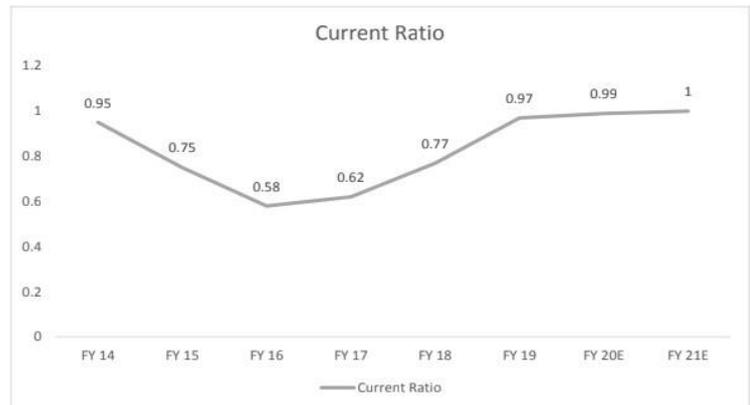


1) Current Ratio:

As we see the company has worked on its current ratio number. In FY 16 it was 0.58 but after FY 16 it is increasing over the year and it has reached 0.97 in the year FY 19 and it is predicted that it will reach 1 in the FY 21E. Which indicates that the company will be efficient enough to pay its short term debt with its current assets.

Formula: $\frac{\text{Current Assets}}{\text{Current Liability}}$

Working Capital Ratio / Current Ratio	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Current Assets	5,747.30	7,029.70	5,617.20	4,658.80	6,608.20	8,874.30	9,676.55	10,587.66
Current Liabilities	6,079.00	9,343.50	9,722.20	7,517.80	8,575.30	9,133.40	9,750.57	10,566.40
Working Capital Ratio / Current Ratio	0.95	0.75	0.58	0.62	0.77	0.97	0.99	1.00

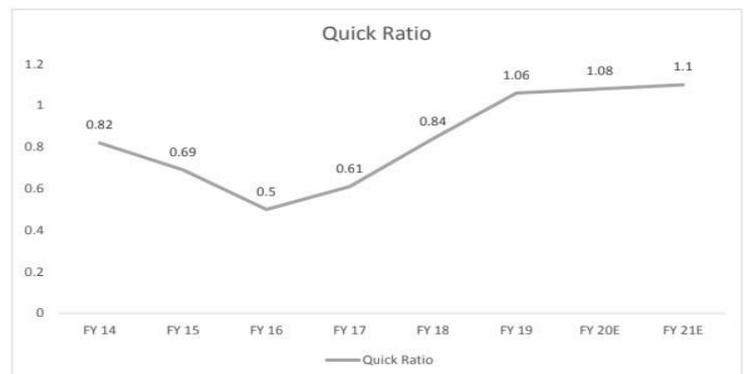


2) Quick Ratio:

As we see that company is constantly trying to improve its Quick Ratio number ever since FY 16. But in FY 19 the company's quick ratio passed 1 which indicates the company can efficiently pay off its short term liability with its quick cash flow available.

Formula: $\frac{\text{Quick Assets}}{\text{Quick Liabilities}}$

Quick Ratio	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Quick Assets	3,758.10	5,119.70	3,835.10	3,262.40	5,339.30	7,200.10	7,722.47	8,474.13
Quick Liabilities	4,565.60	7,435.10	7,649.80	5,356.70	6,386.70	6,791.20	7,174.15	7,732.33
Quick Ratio	0.82	0.69	0.50	0.61	0.84	1.06	1.08	1.10



Self-Sustainable Growth Rate (SSGR):

Self-Sustainable Growth Rate tells us the rate at which a company can grow without taking external financing and if a company shows growth over its SSGR then its internal resources would not be enough to fund its growth. As a result, the company has to take help of external financings like debt or equity dilution to meet the cash requirement and to generate target growth.

Formula: $\text{Self Sustainable Growth Rate} = \text{NFAT} * \text{NPM} * (1 - \text{DPR}) - \text{DEP}$

NFAT = Net fixed asset turnover

NPM = Net profit margin as % of sales

DPR = Dividend paid as % of net profit after tax

DEP = Depreciation rate as a % of net fixed asset

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
NFAR	0.68	1.14	0.87	0.92	1.05	1.23
NPM	-0.07	0.03	0.02	0.04	0.07	0.10
DPR	0.00	0.00	0.00	0.72	0.51	0.41
DEP	0.05	0.08	0.05	0.05	0.06	0.06
SSGR	-10%	-4%	-3%	-4%	-2%	2%

While analyzing the SSGR of Heidelberg Cement India Ltd, we can clearly notice that the company has a constant low SSGR (-10% - 2%) over the years. However, the company has shown a growth rate of 13% over the years.

Dupont Analysis:

Dupont Analysis helps us to understand the factor which is helping to generate growth in Return on Equity (ROE).

While conducting Dupont Analysis on Heidelberg Cement India Ltd. We can clearly see currently the company has a ~19% Return on Equity which is expected to grow to ~27% the reasons for growth in ROE over the year is seen mainly due to improvement in Asset Turnover, EBIT margin, Interest burden.

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20E	2020-21E
Tax Burden	1.00	1.00	0.78	0.67	0.64	0.65	0.65	0.65
Interest Burden	-4.48	0.30	0.30	0.56	0.74	0.82	0.90	0.93
EBIT %	0.02	0.10	0.09	0.12	0.15	0.20	0.23	0.24
Asset Turnover	0.44	0.73	0.63	0.71	0.75	0.79	0.86	0.89
Leverage	3.31	3.23	2.92	2.49	2.42	2.30	2.20	2.12
Return on Equity	-0.10	0.07	0.04	0.08	0.13	0.19	0.25	0.27
Return on Equity %	-10%	7%	4%	8%	13%	19%	25%	27%

Key Financial Highlights of Heidelberg Cement:

➤ 2014-15

- The company changed its financial year from January to December TO April to March because of which company had a financial year of 15 months in the 2014- 15
- In this year company sold a cement grinding facility in Raigad, Maharashtra to JSW Steel Ltd.
- From this net gain of ~603.10 million is disclosed as an Exceptional Item in the statement of profit and loss.

➤ 2015-16

- The government imposed a ban on sand mining in the state of Uttar Pradesh and some parts of Madhya Pradesh.
- As there was a ban on sand mining the construction and infrastructure in the central region was slow down due to which the demand for cement in that region was also down.
- The monsoon for the year was also not the up to the mark. Basically, there was a drought in U.P and M.P region in 2015-2016.

➤ **2016-17**

- In this year there were state elections and the newly elected government removed the majority of the ban on sand mining late this year (March 2017)
- This year also experienced a good monsoon.
- And as the ban situation was resolving the company faced raw material problem in the 2Q & 3Q and since the region also experienced a good monsoon due to which various new infrastructure activities in the region were initiated.
- And which also led to an increase in sales volume for the year by ~3%.

➤ **2017-18**

- The newly elected government solved the sand ban issue to a large extent.
- The result of which sand was available for infrastructure which also leads to new projects in the U.P and M.P regions.
- Also received an interest-free loan up to 69 Cr.
- The company paid 10 million debt in this year which also led to reducing interest for the year.
- But there was a slight increase in the freight cost which is due to the railway issue of lack of rack storage.
- During the year the sales volume increased by 6%.

➤ **2018-19**

- The fuel prices were controlled due to power generated from the waste heat recovery system.
- The company achieved the highest sales volume of 4.9 million tonnes mainly due to the increase in construction activities in Uttar Pradesh
- The company operated at a capacity utilization of 90%.

Income Statement:

(Million)

Particular	2013	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20E	2020-21E
Capacity (mn mt)	5.10	5.40	5.40	5.40	5.40	5.40	5.60	5.70
Production	3.75	5.24	4.43	4.44	4.60	4.86	5.15	5.36
Utilization	74%	97%	82%	82%	85%	90%	92%	94%
Sales volume	3.6	5.3	4.4	4.5	4.7	4.9	5.2	5.4
Realization	3,334	3,865	3,710	3,839	4,061	4,354	4,615	4,800
Realization (50Kg)	167	193	185	192	203	218	231	240
Revenue from operations (gross)	14,049	23,714	19,159	20,019	19,620	21,334	23,775	25,715
Excise Duty on Sales	1,960	3,271	2,676	2,844	725			
Total Income From Operations (Net Sales)	12,089	20,443	16,484	17,175	18,895	21,334	23,775	25,715
Expenses								
Cost of material consumed	2,823	4,438	3,428	3,260	3,566	3,915	4,281	4,630
Finish goods and Work in progress	(305)	(277)	(93)	347	136	(52)	(50)	(50)
Employee Benefit Funds	967	1,337	1,050	1,148	1,202	1,239	1,313	1,392
Other expenses	7,585	11,723	9,787	9,632	10,357	11,398	12,158	13,133
Total Expenses	11,069	17,221	14,172	14,386	15,261	16,500	17,702	19,106
Operating Profit	1,020	3,222	2,312	2,789	3,634	4,833	6,073	6,609
OP/mt	281	609	520	623	781	986	1,179	1,234
Other income (Add)	73	138	224	237	199	348	418	501
EBITDA (Income - Expenses)	1,093	3,360	2,536	3,026	3,833	5,182	6,490	7,110
Depreciation and amortization (less)	901	1,375	998	992	1,012	1,018	1,026	1,035
EBIT	193	1,985	1,538	2,034	2,821	4,164	5,464	6,075
Interest (less)	1,056	1,389	1,085	898	745	748	513	363
Profit Before Tax	(864)	595	454	1,136	2,077	3,416	4,951	5,712
Exceptional Items	-	603	-	-	-	-		
TAX (Less)	-	603	100	374	745	1,210	1,743	2,002
Profit After Tax (PAT)	(864)	596	354	762	1,332	2,207	3,208	3,710

Balance Sheet:

Particular	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20E	2020-21E
Assets								
Non current assets								
Property plant & equipment	17,861.6	17,864.4	18,975.0	18,744.2	18,043.8	17,362.7	17,512.7	17,662.7
Capital work in process	1,669.8	1,274.2	560.5	62.9	80.7	172.4	72.4	72.4
Intangible assets	11.6	49.6	36.9	26.5	16.5	5.7	5.7	5.7
Financial assets								
Security deposit	301.5	319.1	356.6	273.0	284.9	285.3	288.2	291.0
Derivative instruments		1,033.7	274.6					
Other non-current assets	1,994.3	393.4	325.3	311.0	294.1	254.9	229.4	206.5
	21,838.8	20,934.4	20,528.9	19,417.6	18,720.0	18,081.0	18,108.4	18,238.3
Current assets								
Inventories	1,989.2	1,910.0	1,782.1	1,396.4	1,268.9	1,674.2	1,954.1	2,113.5
Financial assets								
Securities deposit		26.4	28.2	101.6	106.9	145.3	159.8	175.8
Derivative instruments		862.9	808.1	186.5				
Trade receivable	306.0	191.4	257.6	125.6	188.0	253.2	260.5	281.8
Cash & Bank balance	1,141.4	1,462.6	77.7	142.0	2,124.1	3,376.7	3,671.7	4,168.3
Other financial assets		11.0	19.4	7.7	19.1	27.0	28.6	30.3
Short term loans and advances	2,306.2							
Other current assets	4.5	2,565.4	2,644.1	2,699.0	2,901.2	3,397.9	3,601.8	3,817.9
	5,747.3	7,029.7	5,617.2	4,658.8	6,608.2	8,874.3	9,676.5	10,587.7
Total Assets	27,586.1	27,964.1	26,146.1	24,076.4	25,328.2	26,955.3	27,784.9	28,826.0
Equity & Liability								
Equity								
Equity share capital	2,266.2	2,266.2	2,266.2	2,266.2	2,266.2	2,266.2	2,266.2	2,266.2
Other equity Reserves	6,067.4	6,403.3	6,683.1	7,403.3	8,197.8	9,445.7	10,384.3	11,333.3
Shareholders Funds	8,333.6	8,669.5	8,949.3	9,669.5	10,464.0	11,711.9	12,650.5	13,599.5
Non current liabilities								
Financial liabilities								
Borrowings	12,926.2	9,248.9	6,708.6	5,751.9	4,692.3	3,918.2	3,168.2	2,418.2
Other financial liabilities	46.8	29.3	30.2	62.0	53.8	41.2	45.3	49.9
Provisions	150.9	201.8	191.6	217.1	196.0	197.3	217.0	238.7
Government grants			124.8	328.1	511.8	650.0	650.0	650.0
Deferred tax liability	49.6	471.1	419.4	530.0	835.0	1,303.3	1,303.3	1,303.3
	13,173.5	9,951.1	7,474.6	6,889.1	6,288.9	6,110.0	5,383.9	4,660.1
Current liabilities								
Financial Liabilities								
Borrowings	642.0		700.0					
Trade payable (Due on micro and small e	1,901.1	1,909.9	1,859.6	1,914.1	2,266.3	2,778.2	3,184.0	3,584.7
Other current financial liabilities		5,081.4	4,609.1	2,820.0	3,121.6	3,045.4	2,905.8	2,971.8
Other current liabilities	2,022.5	443.8	460.3	562.8	896.0	822.3	924.6	1,000.0
Government grants			20.8	59.8	102.8	145.3	159.8	175.8
Provisions	1,513.4	1,908.4	2,072.4	2,161.1	2,188.6	2,342.2	2,576.4	2,834.1
	6,079.0	9,343.5	9,722.2	7,517.8	8,575.3	9,133.4	9,750.6	10,566.4
Total liabilities	27,586.1	27,964.1	26,146.1	24,076.4	25,328.2	26,955.3	27,784.9	28,826.0

Compounded Annual Expected Growth Rate:

Revenue from Operations: Heidelberg Cement India is expected to grow its Revenue from Operations By 9% in the next couple of years. The prediction is based on looking at its expansion strategy.

Source: Bloomberg

Revenue from Operations :

Revenue				
	FY 19	FY 20E	FY 21E	CAGR
India Cements Ltd/The	56,054	62,502	67,992	9%
JK Cement Ltd	50,167	56,127	64,638	11%
JK Lakshmi Cement Ltd	38,053	43,274	47,102	10%
Birla Corp Ltd	64,029	70,372	75,770	8%
HeidelbergCement India Ltd	21,334	23,775	25,715	9%
Sagar Cements Ltd	11,895	14,077	16,380	14%
Sanghi Industries Ltd	10,826	12,232	16,205	17%
Star Cement Ltd	18,459	21,189	24,217	12%
Orient Cement Ltd	24,549	28,292	31,333	11%
Prism Johnson Ltd	61,069	65,116	69,588	6%

EBITDA: As we look at the EBITDA we are expecting a growth rate of 19% over the next two years. The growth can be seen mainly due to company's efforts to control cost. By increasing the use age of WHRS

Source: Bloomberg

EBITDA:

EBITDA				
	FY 19	FY 20E	FY 21E	CAGR
India Cements Ltd/The	6,339	8,457	9,451	25%
JK Cement Ltd	7,559	9,294	10,907	22%
JK Lakshmi Cement Ltd	4,187	5,483	6,292	25%
Birla Corp Ltd	9,187	11,013	12,407	18%
HeidelbergCement India Ltd	5,182	6,490	7,110	19%
Sagar Cements Ltd	1,335	2,129	2,699	51%
Sanghi Industries Ltd	1,495	2,122	3,052	52%
Star Cement Ltd	4,823	5,195	5,990	12%
Orient Cement Ltd	2,445	4,132	4,862	49%
Prism Johnson Ltd	6,117	7,158	8,069	16%

Net Income: In terms of Net Income, we expect a growth of 33% over the years. This is because the company is constantly reducing its debt and improvement in the top line the effect can be seen on Net Income

Source: Bloomberg

Net Income:

Net Income				
	FY 19	FY 20E	FY 21E	CAGR
India Cements Ltd/The	549	1,914	2,611	188%
JK Cement Ltd	2,824	3,840	4,327	27%
JK Lakshmi Cement Ltd	720	1,795	2,538	126%
Birla Corp Ltd	1,972	3,119	3,870	48%
HeidelbergCement India Ltd	2,207	3,189	3,654	33%
Sagar Cements Ltd	93	532	695	324%
Sanghi Industries Ltd	430	819	925	57%
Star Cement Ltd	3,074	3,519	4,198	18%
Orient Cement Ltd	59	1,226	1,677	1377%
Prism Johnson Ltd	1,731	2,444	3,028	37%

Earnings Per Share: As we saw an increase in Net Profit After Tax over the years which has reflected its growth of 33% on Earnings per share as well. Company has 226.62 Crore of shares with FV RS 10 as issued Capital.

Source: Bloomberg

Earnings Per Share:

Earnings Per Share				
	FY 19	FY 20E	FY 21E	CAGR
India Cements Ltd/The	2	6	8	172%
JK Cement Ltd	38	52	57	26%
JK Lakshmi Cement Ltd	6	15	22	128%
Birla Corp Ltd	25	40	48	45%
HeidelbergCement India Ltd	10	14	16	33%
Sagar Cements Ltd	4	23	31	316%
Sanghi Industries Ltd	2	3	4	48%
Star Cement Ltd	7	9	10	21%
Orient Cement Ltd	0	6	8	1185%
Prism Johnson Ltd	3	5	6	37%

Book Value Per Share: Book value per share is expected to grow at 8% over the next couple of years. This growth is seen mainly due to increase in Equity Reserve which results to increase in Total Share Holders Equity.

Source: Bloomberg

Book Value Per Share:

Book Value Per Share				
	FY 19	FY 20E	FY 21E	CAGR
India Cements Ltd/The	157	161	167	3%
JK Cement Ltd	349	416	468	17%
JK Lakshmi Cement Ltd	128	142	159	12%
Birla Corp Ltd	579	609	612	3%
HeidelbergCement India Ltd	52	56	60	8%
Sagar Cements Ltd	420	450	474	6%
Sanghi Industries Ltd	66	70	76	8%
Star Cement Ltd	41	48	56	18%
Orient Cement Ltd	49	55	61	12%
Prism Johnson Ltd	23	26	31	19%

Financial Snapshot:

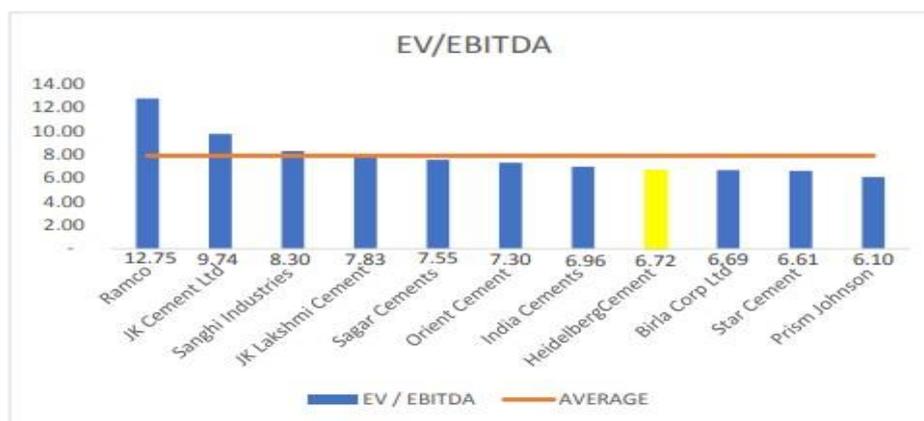
Financial Highlights								
	FY14	FY15	FY16	FY17	FY18	FY19	FY20E	FY21E
Revenue	12,089.10	20,442.80	16,483.50	17,174.60	18,894.70	21,333.50	23,774.64	25,714.66
EBITDA	1,093.30	3,359.90	2,536.10	3,025.50	3,832.90	5,181.60	6,490.41	7,110.40
EBITDA (%)	9%	16%	15%	18%	20%	24%	27%	28%
EPS	(3.81)	2.63	1.56	3.36	5.88	9.74	14.07	16.12
PE (x)	(16.53)	27.77	66.60	38.36	23.31	19.72	15.21	14.82
EV/ EBITDA	25.51	7.54	13.04	12.47	9.23	9.35	7.19	6.38
ROE	-10%	7%	4%	8%	13%	19%	25%	27%
ROCE	1%	10%	8%	11%	16%	21%	28%	31%

Relative Valuation Summary:

Relative valuation model is a business valuation model which helps the investor to compare a companies value to its competitors or industry peers to assess the financial worth. The valuation is done on EV/EBITDA multiple. This multiple was taken as an average EV/EBITDA of other competitors in the same industry.

Valuation Summary	
EBITDA - FY 21E	6,608.99
Multiple (x)	8.00
Enterprise Value	52,871.92
Net Debt	(1,203.60)
Equity Value	54,075.52
No.OF Shares (mn)	226.00
Target Price (Rs)	239.27
Current Market Price	192.00
Upside	25%

So according to my analysis by taking an average EV / EBITDA as 8 (x) for prediction of the share price. So according to me, the stock shows an upside of 25% by FY 21E (Target Price= 239).



Source: Bloomberg

And as we see Heidelberg Cement India Ltd is valued at 6.9 which is less as compared to the industry Average of 7.9 so it shows there is a growth potential in the stock by FY 21E.

FINDINGS:

As we see the growth potential of cement sector mainly due to increasing demand from government infrastructure as well as Housing development in the country. We also found that cement producing companies are also expecting grown in demand in the coming future due to stable government in central. Government Scheme like Housing for all under which government has planned to make 20 million Urban Affordable house and 40 Million Rural affordable house by 2022 will also drive the demand for cement. We also found that the cement sector sustains its growth rate of 5-7 percent over the last ten years and it is expected that it will grow further as well. In case of Heidelberg Cement India ltd the company has shown a two digit growth (13%) During interaction with the dealers operating in the state of Madhya Pradesh & Utter Pradesh it was clearly seen that Heidelberg Cement is one of the strong player in the central region.

RECOMMENDATION:

By Relative Valuation I predict that company's share price will hit RS 239 By FY 2021 whit an upside of 25% from the current Market price of Rs.192 per share.

CONCLUSION:

The lead distance for Heidelberg cement India Ltd is 390 Km. and during interaction with the retail sellers of cement in the central region of India said they are feeling that the demand for cement will be less during monsoon but the demand will increase after monsoon. Heidelberg cement India Ltd has shown a constant growth over the years. According to predicted that the company will cross 90% of cement utilization in the current year. It was also see that Heidelberg cement India's EV / EBITA was 6.75 which is below the industrial average of 8 which shows potential of the company. As company has constantly improving on sales volume as well as operational efficiency and after considering this continuous improvement and conducting Relative Valuation shows that company's share price will hit RS 239 By FY 2021 whit an upside of 25% from the current Market price of Rs192 per share(25th June 2019).

ACKNOWLEDEMNT:

Before we get into thick of things, I would like to add a few words of appreciation for the people who have been a part of this project right from its inception. The writing of this project has been one of the significant academic challenges I have faced and without the support, patience, and guidance of the people involved, this task would not have been completed. It is to them I owe my deepest gratitude. Firstly, I extend my gratitude to my college guide Mr.Pushkar Parulekar for giving me right direction to write this report his inputs were truly valuable. It gives me immense pleasure in presenting this project report on -Analysis of Indian Cement Industry and its Operations with special reference to Heidelberg Cement India Ltdl. It has been my privilege to have such a supportive project guide who have assisted me from the commencement of this project. The success of this project is a result of sheer hard work, and determination put in by me with the help of my project guide. I hereby take this opportunity to add a special note of thanks for Mr. Mangesh Bhadang, who undertook to act as my mentor despite his many other academic and professional commitments. His wisdom, knowledge, and commitment to the highest standards inspired and motivated me. Without his insight, support, and energy, this project wouldn't have kick-started and neither would have reached fruitfulness. Finally, I would also like to take this opportunity to thank my parents and friends who have directly and indirectly played a major role in supporting and motivating me during the course of this project completion.

A case study on L&T- Mindtree hostile takeover

Ms.Mayuri Gawad

MFM III - Finance

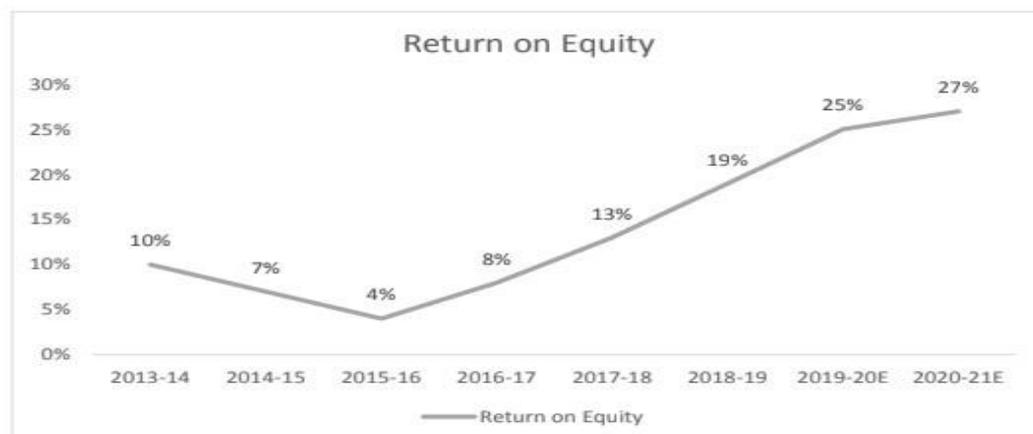
INTRODUCTION:

In the business world mergers, acquisitions, takeovers are the common occurrence. Even being regular these activities are the most toughest and complex when they take place in real. The concept of M & A was introduced for mutual benefits of the companies, but when it's a Takeover or to be more specific hostile takeover, it's a special form of acquisition which occurs without permission of the other company. The most dynamic hostile takeover occurred first time in the history of IT industry i.e. L&T-Mindtree. The project is about the IT's first ever hostile takeover in India. Hostile takeover happens when one company forcefully acquires another company to achieve its financial goals. The hostile takeover was done by one of the giant company i.e. Larsen & Tourbro, which played tactfully to takeover another growing IT company i.e. Mindtree. The takeover is driven with the objectives of leveraging the synergies expected to arise out of the consolidation. This takeover was planned for the optimum utilization of cash reserves available with L&T. The whole process of takeover was dramatic but eventually it was a successful takeover.

The project deeply speaks about the strategies used by the acquirer company – L&T to make sure takeover happens quickly and smooth and all possible actions taken by the acquired company- Mindtree Ltd. to resist the takeover. The changes that took place before and after takeover with respect to management, financial status etc.

This project is all about the factors involved for hostile takeover, stages of the takeover & its post- merger impact on both companies & people involved.

Growth Seen in Return on Equity



NEED FOR STUDY:

The study of M&A is highly relevant, as M&A represent a fundamental tool for corporate restructuring. M&A has much more impact on companies, staff, market status,

goodwill, share price, ratios etc. Hence studying overall impact of IT's very first hostile takeover is much needed. The L&T case study is an interesting example of how one can use the strategy efficiently in takeover bids or in placing investment bids based on smart predictions and forecasts of the capital markets.

OBJECTIVES:

- 1. To analyze the complete process of takeover between L&T and Mindtree**
Since this is its first ever hostile takeover, it becomes very much important to study the steps involved during this case so that one can use such strategy in future to accomplish their business goal in the area of Mergers and Acquisition.
- 2. To analyze the overall impact of merger**
To conclude this takeover, studying pre and post i.e. overall of impact of this hostile takeover becomes necessary.

RESEARCH METHODOLOGY:

For the purposes of this research combination of both primary & secondary data has been used.

Primary Data:

Questionnaires were chosen for this research because they are a reliable and quick method to collect information from multiple respondents in an efficient and timely manner. Questionnaires were a quick and effective way to reach multiple respondents within several weeks.

Sampling Strategy:

The questionnaires distributed among managers and higher leaders from several companies who all aware about the IT industry and familiar with M&A or takeovers. All of the participants were approached via email/ WhatsApp, and the questionnaires were distributed through Google form tool, then completed by the participant and updated on the same. This took place in the course of four weeks. The range of working experience of interviewees is varying from 3 year to 20 years. The total participant were 60.

Secondary data:

For secondary data, the main source was websites, News Paper which provided detailed information about this merger, daily updates and review of people who were familiar with this matter. Online sites which provided all financial information, ups and downs in finance world during and after takeover.

Pre-Merger Scenario:

Larsen & Toubro is a major, construction, technology, manufacturing engineering and financial services conglomerate, with global operations. L&T addresses critical needs in key sectors - Hydrocarbon, Power, Process Industries Infrastructure and Defense - for customers in over 30 countries around the world.

The country was viewer to the startup mania of 2014. **Mindtree** was set up by 10 friends, who came from Wipro Ltd, Cambridge Technology Partners Inc. and Lucent Technologies in 1999. Ashok Soota, who was then the vice-chairman of Wipro's IT services business, had

started discussions with VG Siddhartha, the firm's first investor. Over the next five-and-a-half months, 8 other co-founders joined Soota.

A hostile takeover plan by L&T:

Larsen and Toubro is ready to purchase V.G. Siddhartha's 20.41% stake in Mindtree for Rs. 3,269 crore. L&T planned that it would buy an additional 15% share in Mindtree from open market and initiate an open offer for 31% more, at Rs. 980/share

A 26% shareholding gives L&T the ability to block special resolutions and triggers a mandatory open offer. With that objective, L&T will also make open market purchases of up to 15% of Mindtree's share capital. Once they reach 26% shareholding, L&T will make an open offer, triggered by the SEBI takeover code, to acquire another 31% shareholding at @ Rs.980 a share. At this share price, the cost of the hostile takeover is @ Rs.10,733 crore. The acquisition will be fully funded from L&T's internal resources.

L&T takeover bid Vs Mind tree's fight back:

Mindtree had total paid-up capital plus free reserves of Rs.3,165 crore. A company can buy back shares only 10% of this capital without shareholders' consent. It can buy up to 25% of the capital with 75% shareholder approval. This means that Mindtree can buy shares worth only around Rs.317 crore without any shareholder nod, or shares worth up to Rs.791 crore with shareholder approval.

But following L&T's open offer proposal, Mindtree cannot buy back any shares without a 75% shareholder approval, according to the Companies Act, 2013.

-Even if Mindtree promoters offer Rs.1000 apiece and get a majority shareholder approval to buy shares worth 25% of the company's total capital, they will be able to buy back a maximum of 7.9 million shares, or 0.68% of Mindtree vis-à-vis the 31% shares L&T has proposed to buy in the open offer," a person directly aware of the recent developments at Mindtree said on condition of anonymity.

Also, under Section 77 of the Companies Act, 2013, if any entity (in this case L&T) announces an open offer to acquire control in a company (in this case Mindtree), the company cannot conduct a share buyback, or alter the company's capital structure in any manner unless it secures 75% shareholder approval.

The company does not have enough money in its balance sheet to fund the buyback and, even if the promoters pledge their entire 13.32% holding, which is rare, they may be able to raise around Rs.1,000 crore (which is 50% of the market value of their holding as per the standard loan-to-equity valuation practice).

Mindtree announced the special dividend to shareholders may well be another tactic to ward off the alarming hostile takeover bid by Larsen and Toubro Ltd (L&T).

Mindtree announced a special dividend of @20 per share. It will also pay an interim dividend of @3 per share and a final dividend of @4 per share for year 2019. In total, the company will pay a dividend of @27 per share, subject to approval by shareholders at the annual general meeting in July. This is the highest ever dividend announced by Mindtree since

The special dividend was to celebrate Mindtree's twin achievements of exceeding \$1 billion annual revenue and 20th anniversary of the company.

Completion of Hostile takeover:

Almost all the large institutional investors in Mindtree have sold their stakes to L&T in the open offer. They include Nalanda Capital (10.61%), UTI Mutual Fund (2.97%),

Amansa Holdings Pvt. Ltd (2.77%), Arohi Asset Management (2.74%), Franklin Templeton Asset Management (India) Pvt Ltd (1.06%), alternative investment funds (1.49%) and a few more mutual funds. Mindtree's promoters N. Krishnakumar, N.S. Parthasarathy, Subroto Bagchi and Rostow Ramanan, along with their families, own 13.32% in Mindtree.

Post- merger impact:

L&T's shares fell down about 5% this year, even though the Nifty 50 index has risen by over 8%. Investors have also supposed the decision to acquire Mindtree Ltd as a negative in the near term because of a worry about using cash in non-core businesses. It can weigh on near-term return on equity (RoE) of the company. Investors are not happy with L&T's capital allocation to Mindtree, in context of RoE being -5% at the acquired valuation multiple (of about 20 times).

Larsen and Toubro's shares have returned just 1% over a year as macroeconomic concerns and the recent non-core acquisition of Mindtree weigh on investor sentiment.

Within few days of L&T gaining control of Mindtree Ltd, the IT firm on 5th July, Krishnakumar Natarajan (Executive Chairman), Parthasarathy NS (Executive Vice Chairman and Chief Operating Officer) and Rostow Ramanan (CEO and Managing Director) have submitted their resignations as the board members of Mindtree and as employees of the company. The Mindtree stock now trades at @772, about 21% lower than the price at which L&T had offered to buy shares from the former's shareholders.

FINDINGS:

L&T has been motivated to carry out such hostile takeover on account of following reasons as mentioned:-

i) Acquisition for Scale

L&T was looking for a optimal usage of cash reserves to bring value the business. Mindtree was an exceptionally best opportunity to compete the aim of L&T. The presence of L&T Infotech is restricted to Banking, Insurance and Financial Services. This could be a best arrangement to provide synergy benefits in and thereby increasing the diversified customer base. The acquisition of Mindtree ltd will add value to the group's hi-tech, retail, Consumer Packaged Goods and travel verticals.

ii) Increasing Wealth of Shareholder

The cash and cash equivalents of L&T stands at RS 15,000 crores. Further, the management endeavors to diversify the business to an asset-light model, which means low capital expenditure in its traditional infrastructure business. It was exploring alternative options to generate value for shareholders after the Securities & Exchange Board of India rejected its plan for RS 9,000-crore buyback. Mindtree Ltd is financially vibrant which could boost the vision of L&T for expansion in the domain of Information Technology.

iii) Rework the missed opportunity

Back in 2009, L&T had made a hostile move to acquire the Satyam Computer Services. However, it missed the opportunity. Rather than repenting on the loss, they lashed upon to acquire Mindtree Ltd as in when the opportunity presented and provided adequate stimulus to L&T Infotech for further scaling the business.

iv) Future plans

L&T has no plans to merge its subsidiary which is L&T Infotech with Mindtree, advisories like Elara Capital and Motilal Oswal advice that a merger of the two companies will create a lot of synergies for L&T.

v) Concern from Mindtree promoters

What kind of a message was being sent to start-ups and credible entrepreneurs with the first hostile takeover attempt in the Indian technology sector? Why L&T could not build a great technology business on its own.

SUGGESTIONS:

L&T already has subsidiary i.e. L&T InfoTech and now this new company i.e. Mindtree. Hence merger of both companies is suggested for more profit in future. Combination of two will result into good synergy. Sharing of knowledge and techniques will result prosperous future for L&T. Below is a data of combined revenue of T&T InfoTech and Mindtree of quarter 3 annualized revenues which clears that combination would turn into great future.

The combined entity would have to trail 12-month (TTM) revenue of \$837 million in BFSI, \$520 million in hi-tech and media and \$554 million in manufacturing, retail and CPG. This implies a scale larger than Tech Mahindra in Banking Financial Service and Insurance, hi-tech and media verticals.

CONCLUSION:

Hostile Takeover in IT service business is an unprecedented event, and such a transaction may send a shockwave to the corporate governance and takeover norms in our country. Only time will justify whether service business will be integrated successfully in the industry or not. This hostile takeover may compel to protect the promoter group from the likes of sharks/ corporate raider/ opportunistic company in the future.

L&T has offered a good exit opportunity to Mindtree shareholders as the valuations are on the higher side. L&T's plans of using its cash reserves for an acquisition in a non-core business, raises questions about judicious capital allocation. Shareholders might have concerns on whether their value be enhanced by buying a non-core business. Alternatively, by acquiring Mindtree, L&T might be looking to smoothen the cash flows of L&T Infotech by increasing the scope of their offering in the InfoTech space. If L&T can handle the cultural issues of the takeover and are able to manage the product portfolio, the shareholders may actually gain.

Mindtree's promoters had called L&T bid as hostile and raised corporate governance issues at L&T and culture difference between the two companies.

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Report Generation X and Generation Y's attitude towards social media a solution development for Web box Studios

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PGDM II – Marketing

INTRODUCTION:

If you are unfamiliar with the terms Generation X and Generation Y, generation X is the group of people who were born between the years of 1961 – 1980 i.e. currently people belonging to the age group of 38 – 57 years old. Gen Xers are currently juggling child care, homeownership, and reaching the peak of their careers and is now working in green energy and has little kids to contend with. This generation remembers how video took over the radio star and are more pessimistic about having enough money to retire.

Gen Xers are a very busy group! They're dealing with children, paying mortgages and tuition, and working most of their time. Turns out, they're also online more than the current generation; they are on Facebook, Twitter and now even Instagram. They are more on par with technology adoption and use just like the millennial, and are more likely to be politically loyal throughout their lives than baby boomers or millennial. Gen Xers claim to be the most dedicated to lists while shopping, but also are making the most unplanned purchases on their shopping excursions. When it comes to marketing, Generation X is a true hybrid. They grew up without the online shopping experience, so they still enjoy a trip in store, but have now fully embraced online shopping as well.

While on the other hand generation Y also known as millennial are the group of people who were born between the years of 1981-1999 i.e. currently people belonging to the age group of 20 – 37 years old. This generation is most widely talked to and about on social media and in pop culture. When millennial begin their career the economy had crashed, and as a result, are the largest generation of entrepreneurs. Generation Y are notoriously soft-hearted and soft-shelled, valuing social issues far ahead of economics. Millennial would rather earn less at a job they love than earn more at a job they think is boring.

Generation Y is an economic force having a high annual buying power, smart marketers is turning to new channels to hook this generation. They are the least frequent in-store shoppers but tend to spend large amounts when they do shop. This generation is more responsive to online shopping opportunities, recommendations from friends and family, and is motivated by shopping ease. Millennials are reshaping the way that products and services are being marketed by staying unresponsive to traditional marketing tactics. This generation likes to decide where to eat based on Instagram pictures, chooses hair stylists from Facebook and has their groceries delivered to their door.

As we can see both these generations are very diverse and use social media in a different ways and consume different things as well. This project will help understand what both the generation needs so that marketers can cater to them.

NEED FOR STUDY:

Webbox Studios has many clients whose social media handles are operated by Webbox. Thus it is now an important part to consider Gen Xers as well. Gen Xers are still gradually accepting online shopping and have yet not fully accepted it as they still prefer the offline shopping experience. Thus, not many purchase intentions are being made online by Gen Xers via social media. With the increasing numbers of Gen Xers joining social media platforms this study will help Webbox and other similar companies understand Gen Xers and Yers attitude towards social media thus being able to find out the commonalties and differences in opinions, and be able to cater to their needs, thus making content that's relevant and relatable to the target audience and persuade to like their brand pages which will eventually lead to purchase intentions, as well increase brand loyalty and brand image.

OBJECTIVES:

- To understand the use of social media marketing and its usage pattern.
- To study the social media perception and usage behaviour of generation X and generation Y; and analyse the commonalties and differences between them.
- To suggest strategies for Webbox Studios based on the findings.

RESEARCH METHODOLOGY:

This is a qualitative and descriptive research conducted through a survey collecting primary data in the form of a questionnaire having 50 respondents from each group that in Generation X and

Generation Y comprising a total of 100 responses from urban and suburban areas of Mumbai derived through convenient sampling.

DATA INTERPRETATION & FINDINGS:

Weight assignment					
Options	Never	Rarely	Once in a while	Sometimes	Almost always
Weights	1	2	3	4	5

Generation X							
Particulars	Never	Rarely	Once in a while	Sometimes	Almost always	Total	Weighted Average
Facebook	8	10	9	6	17	50	3.28
LinkedIn	30	3	6	9	2	50	2
Instagram	37	2	4	1	6	50	1.74
Snapchat	45	1	1	3	0	50	1.24
Pinterest	44	1	4	1	0	50	1.24
Twitter	41	3	2	4	0	50	1.38
YouTube	9	6	5	13	17	50	3.46
WhatsApp	3	3	6	6	32	50	4.22

Generation Y							
Particulars	Never	Rarely	Once in a while	Sometimes	Almost always	Total	Weighted Average
Facebook	6	6	7	13	18	50	3.62
LinkedIn	13	8	11	12	6	50	2.8
Instagram	2	1	4	8	35	50	4.46
Snapchat	14	5	9	10	12	50	3.02
Pinterest	15	9	8	11	7	50	2.72
Twitter	27	8	7	6	2	50	1.96
YouTube	1	1	4	8	36	50	4.54
WhatsApp	0	0	2	1	47	50	4.9

Gen Xers are mostly active on WhatsApp than any of the other social media platforms, they are moderately very active on Facebook and YouTube as well, but are almost inactive on Instagram, Snapchat, Pinterest and Twitter. On the other hand, Gen Yers have an high average on most of the platforms, Instagram, YouTube and WhatsApp being the most active hubs. Gen Yers are similar to Gen Xers is not that active on Twitter.

More than 50% of Gen Xers now consume social media for 1 hour and above, meaning many Gen Xers are slowly accepting social media and are gradually increasing there consumption. Gen Yers consume heavy doses of social media as a majority spends 3 hour or more on social media daily, making Gen Yers still the massive population consuming social media.

Gen Xers like to consume social media mostly during free time and at times whenever they get any spare moment. On the other hand Gen Yers like to cease every opportunity they get to consume social media.

From Highest to Lowest			
Gen X		Gen Y	
Posts	Checklist Rating	Posts	Checklist Rating
Global News	34	Movies and TV show updates	36
Cooking/ Food posts	30	Humour	35
Movies and TV show updates	23	Music updates	33
Political updates	22	Global News	30
Humour	19	Meme	29
Recent updates around you	16	Recent updates around you	28
Sports updates/ highlights	16	Cooking/ Food posts	26
Arts and Craft/ DIY's	12	Sports updates/ highlights	25
Music updates	12	Arts and Craft/ DIY's	24
Current trends/fabs etc	10	Current trends/fabs etc	24
Meme	5	Gaming updates	19
Advertisement	4	Political updates	13
Gaming updates	0	Advertisement	11

There are certain commonalities between Gen X and Gen Y in terms on preferred post as it can be seen that both like to view content related to Global news, Cooking/ Food posts, Movies and TV show updates and Humour and similarly both dislike Advertisements while consuming social media content. Also, there some contradicting preferred posts as well; while Gen Xers like Political updates Gen Yers do not; similarly Gen Yers like to view posts related to Music updates, Memes, Current Trends/fabs etc and Gaming updates while Gen Xers do not. To study the influence of social media on the purchase behavior for the two different generations, Chi-square test was used to check whether they have similarity or not. Chi-square test is done to determine whether two categorial variables from a single population have any relationship between them. The two variables are the type of Generation and Purchase decision

Hypothesis:

Null Hypothesis H0: Purchase decision based on brand page from a social media platform is independent of the Generation type

Alternative Hypothesis Ha: Purchase decision based on brand page from a social media platform is not independent of the Generation type

Table of observations (Chi-square)					
		Purchase Decision			
	Particulars	Yes	No	Maybe	Total
Type of Generation	Gen X (39-58 years)	16	29	5	50
	Gen X (20-38 years)	27	17	6	50
	Total	43	46	11	100

Test of independence between the rows and the columns (Chi-square):

Chi-square (Observed value)	6.035
Chi-square (Critical value)	5.991
DF	2
p-value	0.049
Alpha	0.05

Fisher's exact test:

p-value (Two-tailed)	0.045
Alpha	0.05

Chi-square has been rechecked using Fisher's exact test using alpha 0.05 thus having 95% confidence meaning if p-value is <0.5 null hypothesis (H0) will get rejected. Therefore, Alternative hypothesis is true meaning purchase decision based on brand page from a social media platform is not independent of the Generation type. Purchase decision based on brand page from a social media platform is independent of the Generation type is rejected as p-value is 0.045, as generations do play an important role in purchase decision with influence of social media. To study my second objective the perceptions the two generations have on social media, factor analysis is used to reduce the data and get the latent variables that influence the perception development of the population. Kaiser-Meyer-Olkin measure (KMO) of sampling adequacy has been used to determine the factorability of the matrix as whole. The Kaiser-Meyer-Olkin measure (KMO) is 0.911, which is greater than 0.6. If Kaiser-Meyer-Olkin measure (KMO) is greater than 0.6, then factorability is assumed. Thus on the basis of Kaiser-Meyer-Olkin measure (KMO) result, it is appropriate to proceed with factor analysis. The reliability of the data after using factor analysis states that Cronbach's alpha was 0.951. Having a Cronbach alpha value of above 0.7 ensures internal consistency and reliability of the data, The table below shows the factor pattern after varimax rotation for the questionnaire. After using this varimax rotation method, using extracting method of Principle Component Factor 1 (D1) consists of 8 items with factor loading ranging from 0.522 to 0.838. Factor 2 (D2) consists of 6 items with factor loading ranging from 0.450 to 0.754. Factor 3 (D3) consists of 5 items with factor loading ranging from 0.471 to 0.828.

Factor pattern after Varimax rotation:	D1	D2	D3
You use Social media for Social Interactions	0.437	0.250	0.471
You use Social media for Information Seeking (About sales, deals, products, events, parties, businesses)	0.359	0.450	0.432
You use Social media to Pass Time	0.331	0.174	0.810
You use Social media for Entertainment	0.372	0.206	0.828
You use Social media for Relaxation	0.220	0.357	0.674
You use Social media for Communication Utility (Get topics to talk on online and/or offline)	0.610	0.314	0.243
You use Social media for Convenience Utility (Accessible anytime and anywhere)	0.569	0.575	0.241
You use Social media for Expressing your Opinions (Commenting on updates, and sharing comments on others postings)	0.376	0.754	0.123
You use Social media for Information Sharing (to share information about you with others)	0.389	0.672	0.149
You use Social media for Surveillance / Knowledge of others	0.486	0.605	0.220
Knowledge or awareness of the brand on social media can influence your purchase decision	0.725	0.353	0.320
Previous experience of social media shopping can influence your purchase decision	0.793	0.279	0.316
Information from social media platforms can influence your purchase Decision	0.763	0.308	0.367
Brand Reputation can influence your purchase decision to shop online	0.696	0.337	0.347
Review by other customers on social media can influence your purchase decision	0.838	0.094	0.214

You consider social media to be more trustworthy as compared to many of the mass vehicles	0.695	0.187	0.175
You still love to watch tv ads	-0.152	0.625	0.369
Varying contents of social media ads are very persuasive	0.282	0.508	0.539
In modern life brands cannot survive without social media campaigns	0.552	0.039	0.480
<i>Values in bold correspond for each variable to the factor for which the squared cosine is the largest</i>			

So, 3 new factors are formed using factor analysis. The following table shows the names of the new factors

New Constructs	Construct Name	Cronbach's alpha
D1	Social Media Perception	0.928
D2	Information Network	0.849
D3	Enjoyment	0.870

Thus to understand the perception to social media, a marketer can know focus on these latent features when developing strategies for their campaigns. Latent features being Social media perception, Information network and Enjoyment.

LIMITATIONS:

Time frame would be one of limitations because if were given a more time frame I would be able to gather more responses which would give a better understanding of the characteristics of Gen X and Gen Y. Certain Factors may have been missed out by me as only 2 people of my survey did not have any social media handles but in some responses many have utilized the not applicable option. Since I have adopted Convenient sampling my responses might show some bias results.

RECOMMENDATIONS:

With the help of this research I would recommend that:

Webbox Studios should continue their campaigns on Facebook and LinkedIn as Gen X do have accounts on them and also try to convince their clients to opt for Webbox's WhatsApp Blast serve which will help them target customers through WhatsApp as well , as WhatsApp too is a platform

where many Gen Xers have an account.

Since Gen Xers roughly access social media for an average of more than 1hour+ a day, Webbox should carefully plan when the post need to be uploaded so as to get a higher reach, which can be achieved with the help of analysis of the campaigns.

Gen Xers do not follow many brands as per the results found and those who do prefer product centric posts so Webbox having Clients whose target audience is mostly Gen X could opt for more of product centric posts.

When it comes to Gen Yers Instagram is a very good platform to sell on, so Webbox should target Gen Y on Insta (as it has a high weighted average rating from Gen Y)

Gen Yers like to view almost all types of content on social media so brands could post content that relates to their product (for example: a brand that does interior designing can have posts on DIYs for home décor, current trends in interior designing, new furniture spotlights, etc) also have fun, entertaining posts, relatable trendyposts.

Webbox and any marketer planning on creating a content bank should consider these 3 factors while doing so; Social Media Perception, Information Network and Enjoyment. For example Enjoyment can include posts like Memes, Humour, Current trend, etc. Information network is not only about uploading posts about the product/brand but also gathering information from the audience (For Example a coffee shop asking its audience to suggest what new flavors they should introduce, Youtubers asking their audience if they liked their video and suggestions to what else they want the youtubers to upload). Social Media Perceptions posts are those posts which encourage engagement and also purchase influence.

CONCLUSION:

In conclusion, the results obtained from the survey shows that there are certain commonalities and differences between Gen X and Gen Y, and companies having both as target audience can focus more on the commonalities when creating content campaigns. Gen X population is definitely gradually increasing on social media and is also beginning to consume as much social media as Gen Yers do, thus even making brands that focus only on Gen Xers to have a Social media presence a must. But when it comes to shopping online rather from any brand page on any social media platform Gen X is still hesitant unlike Gen Y, a research on the following can better help the situation and give a better understanding which can help companies increase their sales.

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Market Penetration Strategies For Arihant Industries For The Most Favourable Eastern European Countries

Ms. Sayali D. Sawant

MMS II – Marketing

INTRODUCTION

Arihant Industrial Corporation Limited, Incorporated in 1984 has been serving the Indian as well as the global marketplace with ground-breaking products and services in the Attractions Industry. They are engaged in manufacturing and supply of Water Park equipment and Children Play Ground equipment for 3 decades. Arihant has evolved into a one stop solution for providing comprehensive quality services by designing, manufacturing, and supplying children playground equipment and water park equipment in India and internationally. They have excelled in serving the hotels & resorts industry too. Arihant Industrial Corporation also operates a water park under the name The Great Escape. Each and every member of Arihant's team is highly experienced and believes in teamwork. With the collective efforts of developing experts, quality investigators, engineers, managers, and associates they have been able to achieve more than required till date. By having a vast experience of 3 decades, Arihant has managed to successfully accomplish more than 500 projects in 53 countries. However, they have finished more than 85 projects in Europe. They have transformed themselves into an Indian market leader and had also become successful in grabbing a prime position in the industry with their meticulous planning, designing which is as per international standards accompanied by commitment to quality and attention to detail. With deep understanding of the client's vision they have rooted themselves in every market they enter. They entitle each Arihantite as -Happy Moments Maker! who is the mother of fulfilling their purpose -We Exist To Create Happy Moments!. Arihant now aims for a goal of being globally preferred brand in the world of happiness, excitement and thrill titled as Amusement Industry.



Figure 1: Arihant's Worldwide Projects

Services provided:

1. **Conceptualization:** Even though Arihant is a manufacturing company and manufacturing the required water park equipment is its foremost service to be provided, it offers four additional services prior to manufacturing. The first one of it is conceptualizing. When a client comes to Arihant with a moto of building a Water Park Arihant tries to understand the vision of client and by adding his own skilled ideas and concepts they conceptualize the entire project in such a way that it not just meets but exceeds the client's expectations.
2. **Planning:** The next service provided is planning, that is conceptualized. This step also includes market research to understand the market and decide whom to target and then based on the target market, which slides to be added in the park is planned. Every minutest need, want and demand of the clients are taken care of. At planning stage, it is ensured that every product is customized as client's every desire, preference and constraints are met.
3. **Thematization:** This service is a part of planning in which Arihant also offer customized themes for products. Thematization in nothing but adding a WOW factor to the ride which makes the entire project look differently. Arihant has capability to transform any slide to any theme that strikes to client's mind.
4. **Design:** Arihant's product designs adhere to international standards (EN 1069: European Standard which is applicable to all water slides installed in swimming pools of public use and ASTM: American Society for Testing and Materials). At this stage accuracy, safety and durability are the three key focus areas of which most care is taken.

5. **Manufacturing:** The principle service for which Arihant is known for its Manufacturing. Arihant is 9001:2015 certified. It uses Light Resin Transfer Moulding, also called as LRTM process for manufacturing the equipment which gives a shiny transparent finish to the slides on both the sides that lasts for around 10 years. Arihant also manufactures the moulds of slides on its own. The technologies and machineries that are used by Arihant for manufacturing the Water Slides are the ones which are followed by industry giants and are hardly followed by any other player in Indian as well as International Market.
6. **Completion and trials:** All the manufactured products are installed at the company's manufacturing plant and trails are also executed before installing them at client's location to ensure operation safety before the rides are made open for visitors. Whenever it is possible for client, they visit the plant during trails.
7. **After sales service:** The customer service team helps in accomplishing this by competently assisting the clients in their post installation queries. A periodic service of the slides as well as second phase development assistance if required is provided without fail.
8. **Providing Solution for improving sales:** As Arihant also runs a water park under the name -The Grate Escapel they also have a team that always works for grabbing people at the water park. The same team helps the client who is the owner of park to improve his sales by studying the targeted market and their behaviour.

Unique selling propositions of Arihant:

1. **Unmatched product quality and Advanced technology:** Arihant's product manufacturing process is adhering to international standards – ISO 9000:2015, European Standard which is applicable to all water slides installed in swimming pools of public use & ASTM: American Society for Testing and Materials. Their both manufacturing units, one at Vasai and another at Manor, are spread over an area of 360,000 sq. feet are equipped with modern machinery, tools and techniques. The labs are equipped with Universal Testing Machines and each of the products follows stringent quality checks. Every product pass through 3 quality checks that includes two internal and one external. The products are

made with the use of LRTM (Light Resin Transfer Mould) technology. Use of LRTM technique has various advantages that make Arihant different from its competitors. The product manufactured with use of latest automated technology ensure premium finish and accuracy with minimum scope of human error. Provides superior product quality, Gives perfect tightness and durable, Longer lifetime of the slide, Efficient structure of the slide, Environment-friendly technology, Stronger and lighter water slides, Easy maintenance.

2. Customization and Theming: Every client is different and special for Arihant. Following this they try to satisfy every customer, by giving priority to their demand while manufacturing a product. Hence the idiom you imagine we creates applies to Arihant.
3. Start to end support: Right from conceptualization to installation assistance is provided and after sales service trails are followed thereafter.
4. Providing Solution for improving sales: No other manufacturing company provides assistance to a park owner for improving sales. Arihant can provide this service as they also run a water park therefore a skilled team is allotted especially for this work, which can also help the park owner.

PROBLEM STATEMENT

Arihant Industrial Corporation Limited is dominating the Indian Market in manufacturing the Water park equipments. It has done more than 500 projects in 53 countries in the last three decades. The company has also made a remarkable presence in Europe by completing more than 85 projects. However, there are various other companies leading the global market place and are creating a barrier for Arihant's growth in the international market. The company wants to penetrate the Western European market as well and increase in volume in those regions and win against the international players.

NEED FOR STUDY

Theme parks and attractions will continue growing globally. Thus, there must be many internal and external driving reasons/factors associated with the success of theme parks and attractions. Being a manufacturer of water slides, which is the most essential element of this industry, it is necessary to understand these driving forces well and then come up with

strategies that would help in penetrating the Western European countries.

OBJECTIVES

1. To study and understand the Western European market and find the most favourable country for penetration.
2. To identify the factors in the most favourable country through SWOT and competitor analysis which would help Arihant in Market Penetration.
3. To develop strategic ways to penetrate the market identified earlier.

RESEARCH METHODOLOGY

This research is qualitative in nature using exploratory study with secondary data from Company Websites, Broachers, Catalogues along with Official Government Websites, Research Articles, Industry Reports, etc. with a comparative analysis of the same.

DATA FINDING AND OBSERVATION

Increasing urban population, international tourism, and rising disposable income of the countries middle-class population are the growth drivers of water park industry. This research paper analysis the Western European countries where Arihant is already present, based on the growth factors, so that the country which is most favourable will be considered for penetration. The Western European Countries that are considered for research, with the number of projects completed in the respective country are as follows:

- Ireland (1) and United Kingdom (11) - Northwestern European Region
- Netherland(2), France(13), Germany(5), Belgium(6), Switzerland(3) - Western Europe &
- Spain (7) and Portugal (9) - Southwestern Europe

Insights about Western European Countries:

Economy: The euro is the common currency for the EU area. It is the second most commonly held currency in the world, after the U.S. dollar. The EU's trade structure has propelled it to become the world's second-largest economy after China. In 2018, EU's gross domestic product was \$22 trillion, while China's was \$25.3 trillion. The United States was third, producing \$20.5 trillion. However, the western European countries are one of the largest and wealthiest economies in Europe as well as in world. All the western European countries finishes in top 20 in GDP ranking. And Germany, United Kingdom and France are amongst the top 10 in world's largest economies. The 2017's and 2018's GDP of European countries:

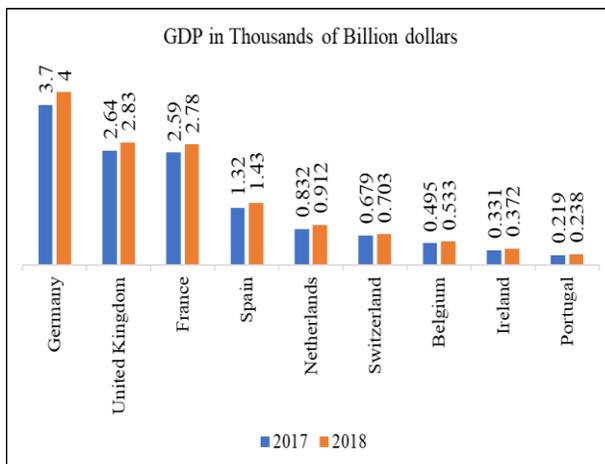


Figure 4: GDP of Western European Countries

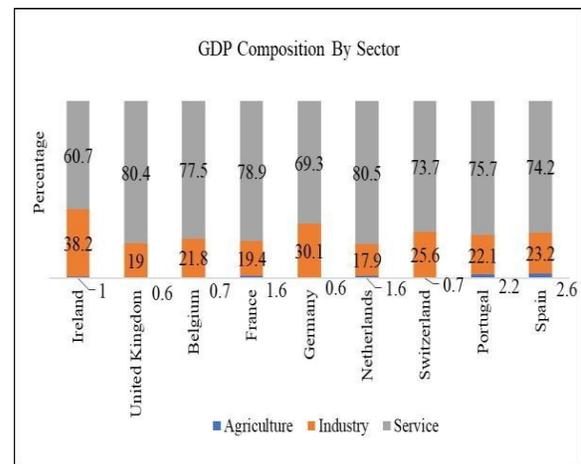


Figure 5 : GDP Composition by Sector of Western European

Human Development Index

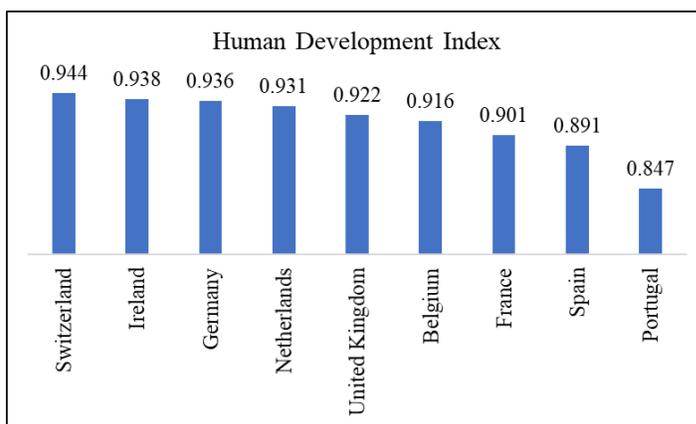


Figure 6: Human Development Index of Western European Countries

Rank	Country
2	Switzerland
4	Ireland
5	Germany
10	Netherland
14	United Kingdom
17	Belgium
24	France
26	Spain
41	Portugal

Table 1: HDI World Ranking of Western European Countries

People and Demographics

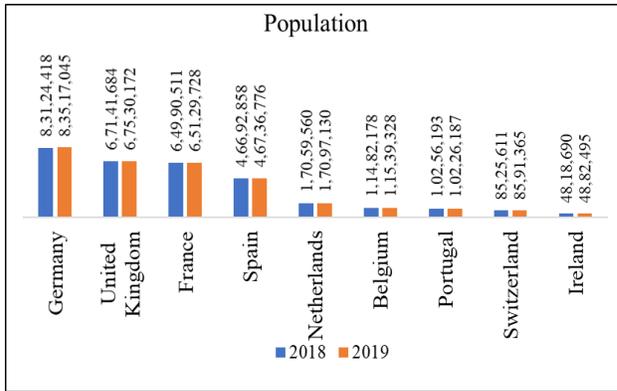


Figure 8: Population growth of Western European Countries

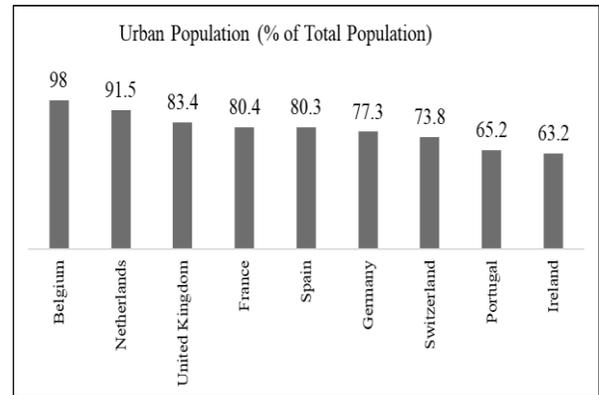


Figure 9: Urban Population of 2018 of WEC

Unemployment Rate

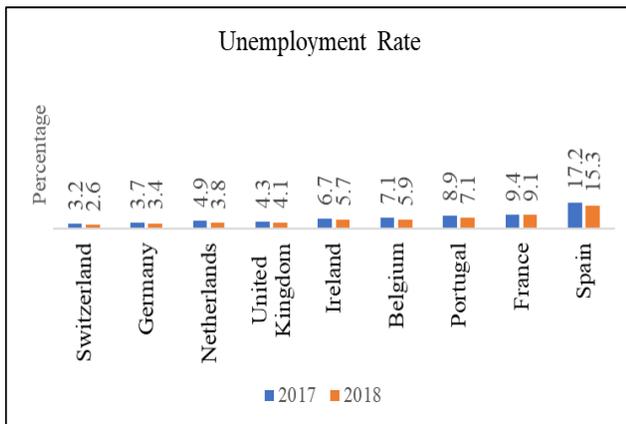


Figure 20: Unemployment Rate of Adjusted Western European Countries

Household Net-Adjusted Disposable Income Per Capita

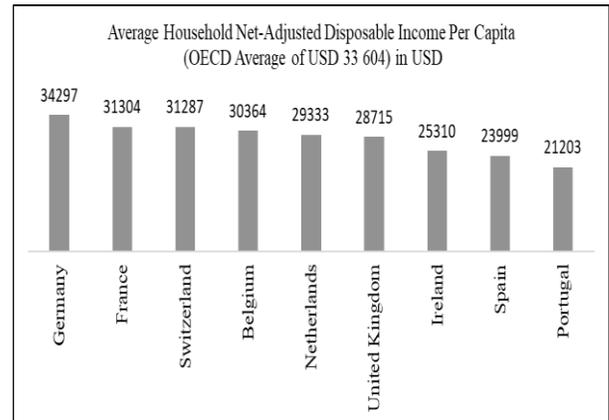


Figure 21: Average Household Net-Adjusted Disposable Income Per Capita of WEC

Time devoted to leisure

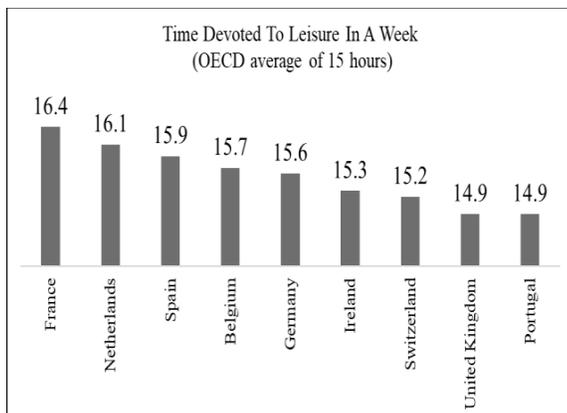


Figure 22: Time Devoted to Leisure in a week

International Tourist Arrivals



Figure 26: Number of International Tourist Arrival 2017

International Tourism:

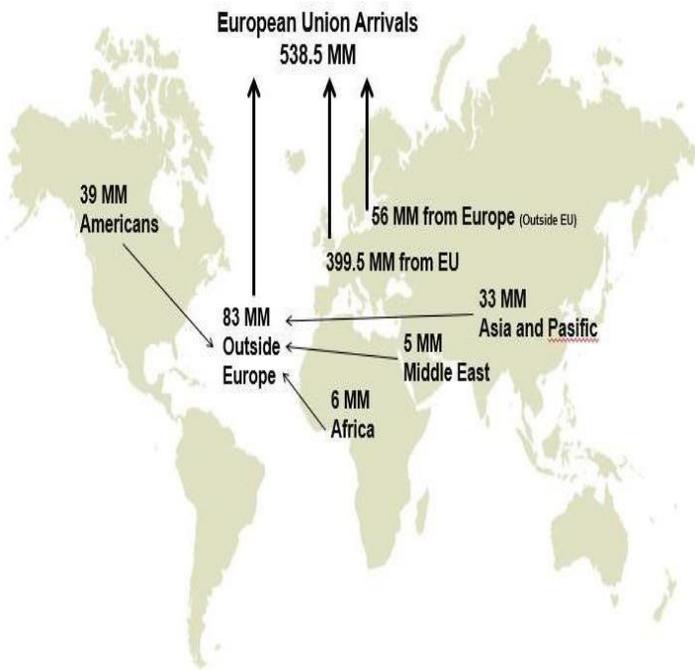


Figure 23: Arrivals Share World Wide in Percentage

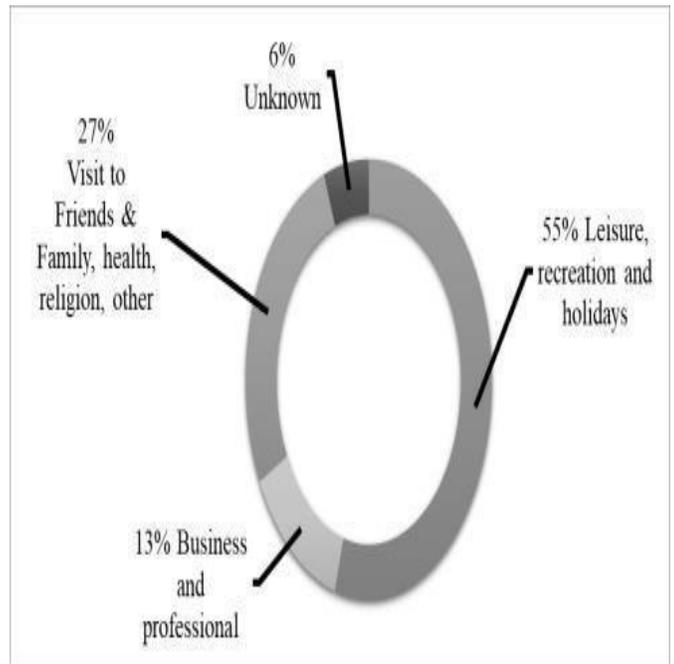
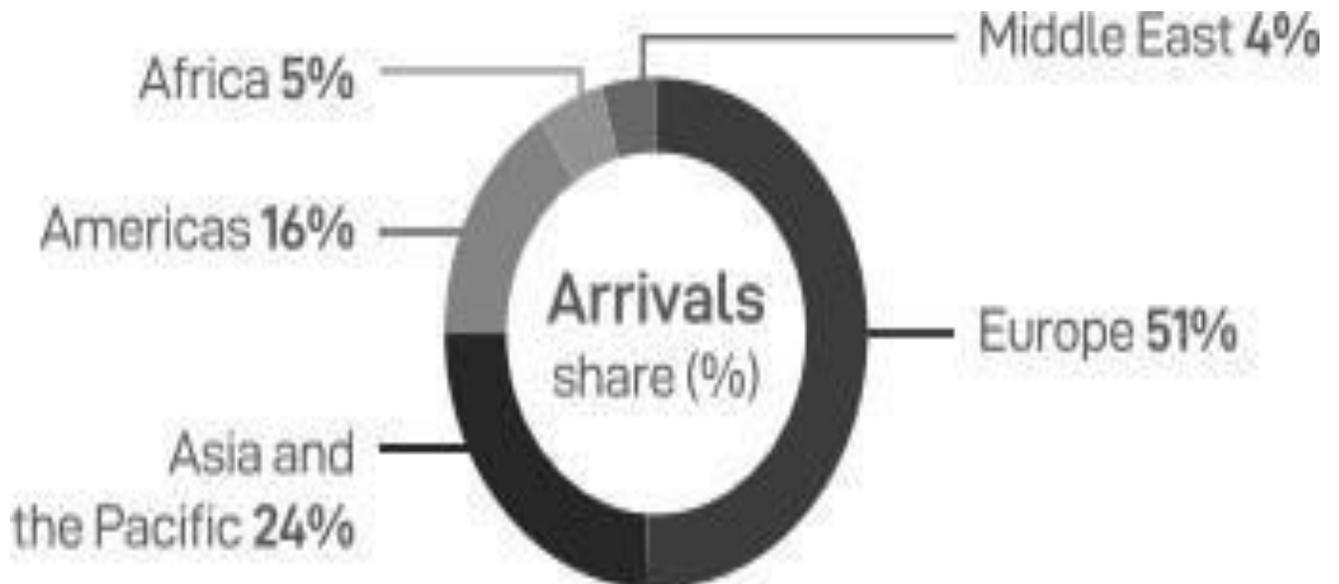


Figure 25 : Purpose of Travel to Europe

European countries welcomed more than 712.6 million international visitors in year 2017, more than half of the global market i.e. 51% of global market, and 5 of the 10 most visited countries are European nations.



FINDINGS

In previous sections the Western European countries were analysed based on some economical, demographical parameters. In the below table, the countries are given ratings from 1 to 9 based on their ranks among each other (1st ranker has given 9 rating and the last ranker has given 1 rating). The ratings were then totalled up and the totals are as follows:

Countries/ Parameters	Ireland	United Kingdom	Netherland	France	Germany	Belgium	Switzerland	Spain	Portugal
GDP	2	8	5	7	9	3	4	6	1
Tourism	2	7	4	9	6	1	3	8	5
HDI	8	5	6	3	7	4	9	2	1
Population	1	8	5	7	9	4	2	6	3
Urban Population	1	7	8	6	4	9	3	5	2
Un- employment Rate	5	6	7	2	8	4	9	1	3
Disposable Income	3	4	5	8	9	6	7	2	1
Leisure Time	4	2	8	9	5	6	3	7	1
Total	26	47	48	51	57	37	40	37	17

Table 4: Table of Ratings

As per the interpretation of the data analysed in this entire section and the final comparative table Germany, France, Netherlands, Switzerland, United Kingdom are found to be the most potential countries for Water park industry followed by Spain and Belgium. Ireland and Portugal scored very less numbers interprets that these countries are having very less driving factors necessary for a water park industry. But it can be also interpreted as the top five countries that these countries local population is capable of visiting a water park as well as their tourism is also high. Whereas, in case of Spain the tourism is high but the countries people are not capable hence the ranking went low. And in case of Belgium, tourism factor has the least rating and the local people also have moderate ratings. Therefore, while thinking

for expanding the market in Western European region Arihant should focus on Germany, France, Netherlands, Switzerland, United Kingdom and Spain the most. Also, the European water parks which are in the list of world's top 20 parks and water parks are also from these countries.

The European countries are looked as a potential market for Entertainment industry as they are densely populated as well as due to increase in tourism, per capita spending, higher disposable income etc. Within Europe the Western European countries are highly developed and ranking high in population, GDP, tourism than other European countries. The important aspect is European countries were always inclined and was enthusiastic about leisure activities. They love spending time with family, friends and relatives. Therefore, these countries were already having a very high number of Theme, Amusements and Water Parks. Whereas, US is the largest and most concentrated market in terms of water parks number. Every year around 30-35 water parks are built in USA and Canada. All these advancements that are seen in this industry is first brought up by companies that are situated in USA or Canada. As of now the developers have realized that the USA market is saturated now and waterparks in Europe have not evolved and innovated as much as USA's over the past 20 years. Therefore, in Europe marketers and park owners are more focusing on expansion of existing one and adding a water park to their theme park. They are focusing on bringing and incorporating all the new advancement in European water park market. All market giants are majorly focusing on Western European market as well as the European marketers are focusing on local as well as entire Europe. Therefore, a huge competition among the players is being seen in European Region.

Therefore, it is necessary to know the trends in the industry and the competitors in the higher-ranking countries as per this study i.e. Germany, France, Netherland, UK and Switzerland so that based on the insights obtained will be helpful in designing the strategies. This report therefore further studies Germany which is the most favourable country for penetration.

GERMANY

WATER PARK INDUSTRY IN GERMANY:

-Physical fitness" is a fundamental cornerstone of the German culture. Most Germans do not belong to a gym and their sports activities are likely to be as part of a club, a Verein, on a

weekly or biweekly basis. In fact, according to the German Sports Federation, one in three Germans plays sports in a club. A place to this is the Turnverein, which is a tumbling or a gymnastics club, found in almost any village of Germany. Most of these offer mother/toddler tumbling classes, gymnastics for boys and girls, and various aerobics classes for women, swimming, horseback riding, etc. Urban Sports Club is a flexible sports association that enables one to choose independently between above sports disciplines and venues in 26 cities in Germany. There are more than 1500 clubs in Germany with swimming pools.

Germans love to swim! Pools are everywhere in Germany - everything from a village outdoor pool, where children still walk or ride their bikes to spend every possible minute of summer break with friends, to indoor, amusement park-like pools, etc. Many of them are combination of indoor and outdoor pools with additional in-house spa facilities. Today, Germany has one of the most comprehensive spa cultures in Europe. In Germany, regular users of saunas increased by 6% to 25% over the last 20 years and they have effectively integrated it with water parks to better customer experience. The Thermenwelt Erding in Munich is the largest indoor thermal spa worldwide, which is also a waterpark. Thermenwelt Erding, Therme Bad Wörishofen, Badeparadies Schwarzwald, are some of the biggest spas with water slides in them. However, Badewelt Sinsheim, Cologne-Euskirchen are also some of the biggest spas in Germany but these are not having any slides installed within them. There are many such special spas and saunas everywhere in Germany.

In the list of world's top 20 water parks two water parks are from Western European Countries which is Therme Erding, Erding, Germany and it is at 8th position which showed 13.6% growth in attendance during 2017-2018 taking the number from 1,500,000 (2017) to 1,320,000 (2018). Also, Tropical Islands, Krausnick, Germany is at 17th place and has shown 2.7% growth in attendance during 2017- 2018 and the changed numbers are 1,200,000 (2017) to 1,168,000 (2018). Amusement parks are very much popular among Germans. German theme park operators continue to see the value of developing rides based on popular intellectual properties (IP) to drive growth and profit. These themed IP attractions, created around stories and characters from the television shows and movies provide familiar appeal to park visitors, generate increased visitation, longer stays. Water parks too are having slides which has some prints on themselves or may be paying a role of a character in a water park.

Along with these a complete water park playing at theme is also evolving in the market. Such theme-based water parks are now really catching up very fast and are being praised and loved by people a lot. Water-parks are seen playing catch-up with theme parks in terms of overall look, feel and theming. Buyers are more sophisticated, wanting to create meaningfully immersive experiences.

Also, a biggest recent trend that is seen in the German market is that instead of opening a new water park at totally new location marketers are extending their existing water park and opening new gate for the theme park which is for water park. So that they will retain their customers and can satisfy more by giving something more also attracting new customers who are water park lovers. The temperature in Germany is comparatively lower due to which indoor water parks are also very popular. Such water park is having a controlled temperature so that people can enjoy the water park in winter too. Also, some of them are having a dome shaped Retractable roofs which can be closed in winters and opened in summers. Also, in some water parks some slides are build in such a way that half part of them is indoor and some transparent part is outside the park giving both indoor and outdoor experience.

In earlier days hotels and resorts were including just a swimming pool or some may have at maximum a baby slide or some water spray equipment but now a day if we see German hotels and resorts, they have included a complete water park within them. Also, camping is a great outdoor activity that Germans enjoy by buying tents and caravans on rent and staying at a clam relaxed placed far away from city with natures company. Even this picture is being changes the camping grounds are also now having a water parks included in them.

The market players are also seen focusing, especially on the integration of technology and interactivity into attractions. That means the rides will incorporate more media-based elements such as lighting effects and full-sensory stimuli, synchronised VR and AR displays that change throughout the ride, 5D cinematic experiences, smart phone integration and interactive competitions. Slide design will become more complex, as more turns, drops and accelerations are added. The dynamic waterpark market in Europe provides a host of opportunities. However, European Waterpark Association insists on the fact that it is useless to copy concepts already taken. One must stand out in the crowd by risking proposing something different!

About the competitors present in Western European Countries:

During the analysis of Germany with respect to competition it is found that the market is majorly being served and dominated by three major manufacturing companies which are White Water, Canada, Proslide, Canada and Poline Waterparks, Turkey. These three companies not only have their presence in Western European countries but also have a remarkable present in overall world. Along with these market giants 18 other companies were found to be serving the market place. After analysing all the competitors, they were divided into two categories category 1 major competitors' category 2 minor competitors and all falling in one category were judge on same parameters.

The major competitors are having a wide range of products and more importantly different product line except the traditional slides. All the major competitors are having their unique identity with respect to the products that they are offering to their customers. Every company out of the three have done their own nomenclature for their slides, they have many trademarked slides too. White water has given a unique icon to each of their slides. They have a smaller version of their every slide for the kids as the slides designed for youth may be dangerous for them. That proves that they are taking caking care of children's health as well as caring for their emotions and happiness. Their recent development of the rotating slide is a very big advancement in the industry as never before a rotating slide was built. They have water adventure play, wave pools and surfing and has given their own touch in the sub categories of these that makes them different form others. Proslide at the other hand have trademarked they're each and every slide, and Poline have a section of Poline Game Technologies. However, even these two have multiple categories of slides given birth to again number of sub categories which have their own flavour. The manufacturing technology, the basic formula of a slide, the moto is all same for all companies. All have integrated the latest technologies with their products even though they are different form each other and they are always taking steps to differentiate among each other and other competitors in the market, letting no one cross them and no new member to enter in the market, No one is following any other and no one is copying any other. And therefore, they have their own market place and their own followers. White water is still little ahead of the other two as their creativity, that they have shown in their product line, the network that they have built proves it all.

SWOT ANALYSIS

<p>SWOT</p>	<p>Strength</p> <p>S1 Theming</p> <p>S2 Provides Solution to client for increasing sales</p> <p>S3 Manufacturing Process, safety std.</p> <p>S4 Clients are invited at manufacturing plant</p>	<p>Weaknesses</p> <p>W1 No overseas sales office, small network of suppliers</p> <p>W2 Lacking in digital marketing</p> <p>W3 Narrow product Line</p> <p>W4 Less integration of technological trends with products</p>
<p>Opportunity</p> <p>O1 No. of attendees at water park, Hotels and resorts is increasing in Germany</p> <p>O2 Expansion programs in existing Water, Theme and Amusement parks and camping grounds.</p> <p>O3 Toddlers and Differently abled peoples also visits water parks</p> <p>O4 Number of Spa centres and clubs are present in Germany</p>	<p>SO Strategies</p>	<p>WO Strategies</p>
<p>Threat</p> <p>T1 Excited and adventurous customer</p> <p>T2 Long lasting product, Last for 10-12 years.</p> <p>T3 Client judges the past projects</p> <p>T4 Proactive and creative competitors as well as new entries assimilates things faster.</p>	<p>ST Strategies</p>	<p>WT Strategies</p>

LIMITATIONS

1. This research doesn't consider cost factor.
2. The data was completely secondary because of which there was a limitation in getting the actual picture of the market, competitors etc.
3. It is very difficult to understand the developer of a park in the region as the park's website doesn't have such information.

FUTURE SCOPE

All other Western European Countries as per ranking need to be analysed for penetration. As well as every country can be analysed state, city or province wise on the bases of all the factors used in this research. By dividing a country in smaller parts will give more detailed picture of the existing competitors in the market, existing number of water parks, entities needing renovation, expansion, which will give a potential market that has been skipped by competitors. It will also be helpful to implement strategies suggested in this research paper.

CONCLUSION AND RECOMMENDATION

1) SO Strategy:

S1O2 Strategy: Theming, One of the major strengths

One of the major Strength of Arihant is they are very aggressive in theming. The opportunity is that the market is showing continuous growth also during the market study it is seen that at all possible venues a water slide is installed

S3O3 Strategy: Happiness for all:

In western European market a waterpark is having slides and pools for people of all segments. They also have small pools and slides which are for toddlers and kids. Along with these they have separate pool for differently abled people too.

2) WO Strategy:

W1O1 Strategy: Having sales office overseas:

Looking at all various opportunity it is necessary for Arihant to have sales offices present in one of the potential markets. Staying overseas Arihant can't understand customers' needs and wants and even can't address them as quickly as someone who is close to them.

W3O4: Hotels and Resorts with smaller pools

Arihant's current product line consists of mostly traditional slides they have not integrated water slides with technology yet. Therefore such slides can be installed at hotels and resorts which have bigger swimming pools or have place for expansion and don't want to develop it entirely as a water park but are interested in installing few slides.

3) ST strategy:

S3T4 Strategy: Memberships

Arihant is one of the founder members of The Indian Association of Amusement Parks and Industries (IAAPI) and an active member of The International Association of Amusement Parks and Attractions as well as world water park associations.

4) WT strategy

W2T4 Strategy: Digital Marketing

While targeting a market that is overseas and can't personally come and check what a company has and what a company can do. In such cases a company should have a very appealing website.

W4T1 Strategy: Innovation is the Key

Be it any industry, today's customers want to see new things each day. Customer's both expected and unexpected needs and wants are fulfilled by the marketers. Whereas, when it comes to leisure products and more over amusement industry people wants something that will amaze them and manufacturers are doing so by manufacturing something new that now one has done yet.

W3T2 Strategy: Inflatable Slides

In western European countries the places where there are small lakes and ponds are also developed for leisure activities and such places are converted into water parks. It's a little different to the usual water park experience, too. It's not all brightly-coloured half pipes and lazy rivers, this is more like a giant, inflatable, floating, bouncy obstacle course.

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I am thankful to **Arihant Industrial Corporation Ltd., Marketing Division, Andheri** for giving me an opportunity to get familiarised with Marketing operations and overall functioning of the business. I would, in particular, like to thank the staff of Arihant Industrial Corporation Ltd, Marketing Division for their co-operation and help during my training period.

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Negative Influencing Factors Affecting Customer Buying Behavior in Regards to Real Estate / Property in the Western Suburbs of Mumbai (Bandra to Dahisar)

Mr. Dinto Antony Chungath

MMM III – Marketing

INTRODUCTION:

The real estate market has been considered as one of the most important aspect of an individual concerning his / her lifestyle. For a consumer, the process of selecting a home has always been a complicated process, whether is it for self-use or as an investment. There hasn't been a clear system or a procedure for a consumer through which one identifies his / her home as the one. The consumer usually faces a number of problems / fears while buying a property, through this thesis, I am trying to identifies the major negative contributing factors which affect the buying behaviour of the consumer.

BACKGROUND:

The aspect of real estate also known initially as royal estate, started with the introduction of the printing press, the industrial revolution, before the printing press the land as a resource was considered the property of the princely states or under a monarchy system, the monarch used to share the piece of their land to the public for development. The Printing press and the technology requirements made the need for large scale industrial setups, which later generated the need for labour housing schemes around the industrial setup. The need for these Housing schemes gave birth to the aspect of real estate. The later then was classified as per the requirements based on the users generated over the period of time, Industries created jobs , which created labour, creating homes, homes generating family income needed grocery and other products which created commercial shops etc, Large settlements generated need for larger demand, which created the idea of whole seller between farmers or manufacturers to consumers, which lead to real estate of warehousing and more industries. The Following thesis is been conducted only for Residential Category of users pertaining to the city of Mumbai

Mumbai (originally Known as Bombay) was a set of seven islands, situated on India's west coast was originally developed as a port, a centre of trade between the west and the east. Geographically, Bombay was not suitable to be developed as a centre to hold a large population as it had a limited land as a resource. Bombay was later transformed by the British by converting these seven islands into one land form to be the present known city of Mumbai. With the Boom of Textile industry later the Entertainment industry and the

now Financial District, a large number of migrations has been observed from the 1860's onwards and now holds around 1.8 crore population according to 2011 census. With respect to the rising Population and real estate property, development control regulation came into effect stating Development Control Regulation for greater Mumbai – 1972. Over the period various new regulations were added upon and changed to fulfil the ever-changing requirements of the city, The Latest Known Regulation followed today is the DCPR 2034 for Greater Mumbai release in the year 2016.

NEED FOR STUDY:

The Real estate market of Mumbai has faced major 3 storms in the present Decade, the first being Demonetization, November 2016. The real estate market leaders (developers and builders) depended on the speculators (Hundi system) and their bonds, as they would buy a large amount of area / property through cash or bonds and then sell it to the concerned consumer for a large price attaining huge margins. With the demonetization, the hundi system was out of the market, the developers now had to directly look out for their investment directly from the consumers. For the first time, the developers now had to lookout for the interest of the consumers. The adverse effect the demonetization had, was on the resale market, as shortage of cash was been observed, the property value in the resale market had almost crashed, which created a domino effect over the new properties being built.

Development Control and Promotion regulation for greater Mumbai (DCPR 2034) and the Real Estate Regulation Act (RERA) 2016, has been the two major changes in the regulation reform which has terraformed the real estate market completely. A transparent system has been setup which helps potential customers to know the real time status of work and its financial and legal counter parts. A customer can identify when the project deadline is, how many flats are occupied, booked or vacant, the parking and other amenities. Thus, with the age of information inside the palm of an individual, the customer has truly become the king.

Goods and Service Tax, which came into force on 1st April 2019, created a differential tax system. The GST for affordable housing has been lowered down to 1%, while for other projects the GST is at 5%. In Case of Flats purchased under construction period, 12% GST is applicable, until Occupancy Certificate of the premises has been issued by the Concerned Authority. However, in most cases, the benefits of Input Tax



Credit were not passed on to the consumers by the developers, thus the change in pricing methodology has been unchanged, post occupancy.

With Demonetization, New Regulation on Real Estate and New taxation norms, the developer now has a symbiotic relationship with the home buyers today. Hence it is has become more important to understand the consumer needs and their buying behaviour with respect to real estate.

OBJECTIVES:

The purpose of the paper is to present partial results of a survey conducted in Mumbai suburban region (Bandra to Dahisar) of Mumbai City, India. Its aim is to understand the negative influencing factors, other than the positive attributes responsible for a possible sale output.

To understand the dynamics of these negative factors effecting customer's attitude towards buying property three major questions need to be asked: the why, the whom and how?

The objectives of the study are

- To identify the gap between consumers' willingness to buy and actual sale acted upon.
- Where does this gap exist over the demographics of the consumers?
- What contribute to this gap and identify the factors responsible for the gap?

LITERATURE REVIEW:

The Literature reviewed enlists various factors of purchase decisions influenced by the various determinates in the real estate. The extensive survey of available literature which were examined from a wide range of journals, research papers, newspaper articles, real estate consultants and other similar sources. The Literature reviewed various factors such as Price, Location, Amenities, Aesthetics, Neighbourhood Factors, Attitude, Subject Norms, Perceived Behavioral Control, Intentions, Income, Project Delivery Time, Confidence Emotion, Intuition, Socialization, Optimism, Self-Attribution Bias etc

Other factor reviewed based on Online Journals and newspapers are :

Loss of Confidence in Real Estate

[\(https://www.hindustantimes.com/mumbai-news/over-5k-mumbai-homebuyers-cheated-of-rs-3-683-cr-in-frauds-since-2016/\)](https://www.hindustantimes.com/mumbai-news/over-5k-mumbai-homebuyers-cheated-of-rs-3-683-cr-in-frauds-since-2016/)

Job Insecurity

[\(https://economictimes.indiatimes.com/wealth/earn/how-to-manage-your-finances-and-get-your-career-back-on-track-on-losing-job/articleshow/56151700.cms\)](https://economictimes.indiatimes.com/wealth/earn/how-to-manage-your-finances-and-get-your-career-back-on-track-on-losing-job/articleshow/56151700.cms)

Negative ROI

[\(https://www.morningstar.in/posts/54373/whats-causing-slow-real-estate.aspx\).](https://www.morningstar.in/posts/54373/whats-causing-slow-real-estate.aspx)

Unfavourable Loan-to-value Ratio

[\(https://www.morningstar.in/posts/54373/whats-causing-slow-real-estate.aspx\)](https://www.morningstar.in/posts/54373/whats-causing-slow-real-estate.aspx)

High Taxation on Under-construction Homes

<https://www.morningstar.in/posts/54373/whats-causing-slow-real-estate.aspx>

RESEARCH METHODOLOGY & APPROACH:

The study will investigate the negative factors influencing Mumbaikars while purchasing real estate. The study examines the effect of attitude, perceived fears and demographics on the intention to purchase real estate. Taking into consideration that demographics as a moderator, a total of 100 questionnaires were distributed to respondents in Mumbai, through various method i.e. online google based survey and offline face to face interview through various passengers. The questionnaires made for Mumbaikars consists of two main components, the 1st section asks about the respondent's demographics and the 2nd section consists of asking about their attitude and behavioural attributes. A five-point Likert scale is been used ranging from 1-Strongly Disagree to 5-Strongly Agree to examine the effect of attitude and perceived fears on the intention to purchase real estate.

The Data has been collected from the region of study in the month of October 2019.

Demographical qualifiers for Data Collection:

Population for this study people living in Mumbai and who are above 24 years old. The sample selected are random and are being distributed directly to the respondents strategically based on location.

The Respondents have been purely on the basis of convenience with an intention to obtain completed questionnaires quickly and efficiently.

Variable factors asked in the questionnaire are: Age Group, Location, Intention of Purchase, Willingness to buy, Self-esteem, Trust issues, Tolerance, Investment Opinion, Market Fluctuations, Awareness, Biased Opinions, Price and Premium.

OBSERVATIONS & INTERPRETATIONS:

It is been noticed that the trust as an issue is irrelevant for 42% of the respondents, which may be due to the increase in awareness and other activities, one tends to spend before finalizing a property. With the increasing market instability and fear of joblessness, almost the decision-making effecting ones buying behaviour is affected

Around 63% of respondent's decision making gets affected due to the overall market instability and the fear of job loss. However, 12% of respondent's decision making does not gets affected due to the market fluctuation. The differential statements may exist due to the difference in the source of funding the project,

which could be self-funding or private loan or bank loan or through resale of the previous property or shares and bonds.

Around 61% of the respondents expect a positive return on investment over a short course of time.

Comparing the trends of expectation from region to region, respondents from Andheri To Bandra is greater with respect to other regions, it might be due to the high investment cost over these regions. Around 47% of the respondents do not mind paying premium and wish to acquire the property without waiting for a long time for projects to get completed.

As observed above, trust factor and project delay effects one's buying preference, consumers consider buying a property ready to move in ow, rather than getting under the struggle of bank loan and rentals. As most of the respondents are looking for a home to reside (self-use), consumer may think that rather than spending on rentals, it's better to spend on the premium, and acquire the home in the present tense rather than wasting time and money. And avoiding the feeling of homelessness.

By comparing the statistics between the trust factor variable and Awareness Variable, a similar kind of trend can be observed with regards to the respondents interested in buying a property in Andheri to Vileparle.

A consumer's Mistrust, Delay in project and Kind of investments all are been determined by Knowledge of the Project, RERA has been able to fulfil consumers requirements to most extend in making them aware of the project status and all other related details.

Around 63% of respondents have being using RERA provided data to help them in their decision-making Process.

As observed before, 11% of Respondents are not worried about market fluctuations and 13% of respondents trust their builders and agents, similarly a 11% of respondents do not rely on RERA data, which can also be interpreted as they trust their developers and their agents completely

However, few regions show a varied characteristic as mentioned below:

Dahisar to Kandivali:

Trust Factor is extremely low in the region from Dahisar, Borivali and Kandivali. Willingness to buy a property comparably is high in the region of Dahisar to Kandivali. This may be due to the intention of purchase, maximum respondents in the survey of this region have shown an interest to purchase a property for self-use, rather than just investment purposes

Malad to Jogeshwari:

Respondents interested in property of Malad, Goregoan & Jogeshwari show a high willingness to purchase property, but haven't been able to finalize on one yet.

Respondents intending to buy a property in these regions are buying with a primary intention of self-use. With its vicinity just 15 – 20 mins from the commercial hub and high differential communal bases, these regions show a high level of interest in residential as well as commercial convenient shopping premises also.

Andheri to VileParle:

Respondents interested in property of Andheri to Vileparle show a high level of interest in buying a property but also show a high level of discomfort in buying property in the present scenario.

These Respondents are purchasing a property with an intention to use it as an investment rather than just self-use, which maybe because Andheri is an upcoming commercial centre, with its vicinity to airport. Tolerance level among the respondents is at extremes than the rest.

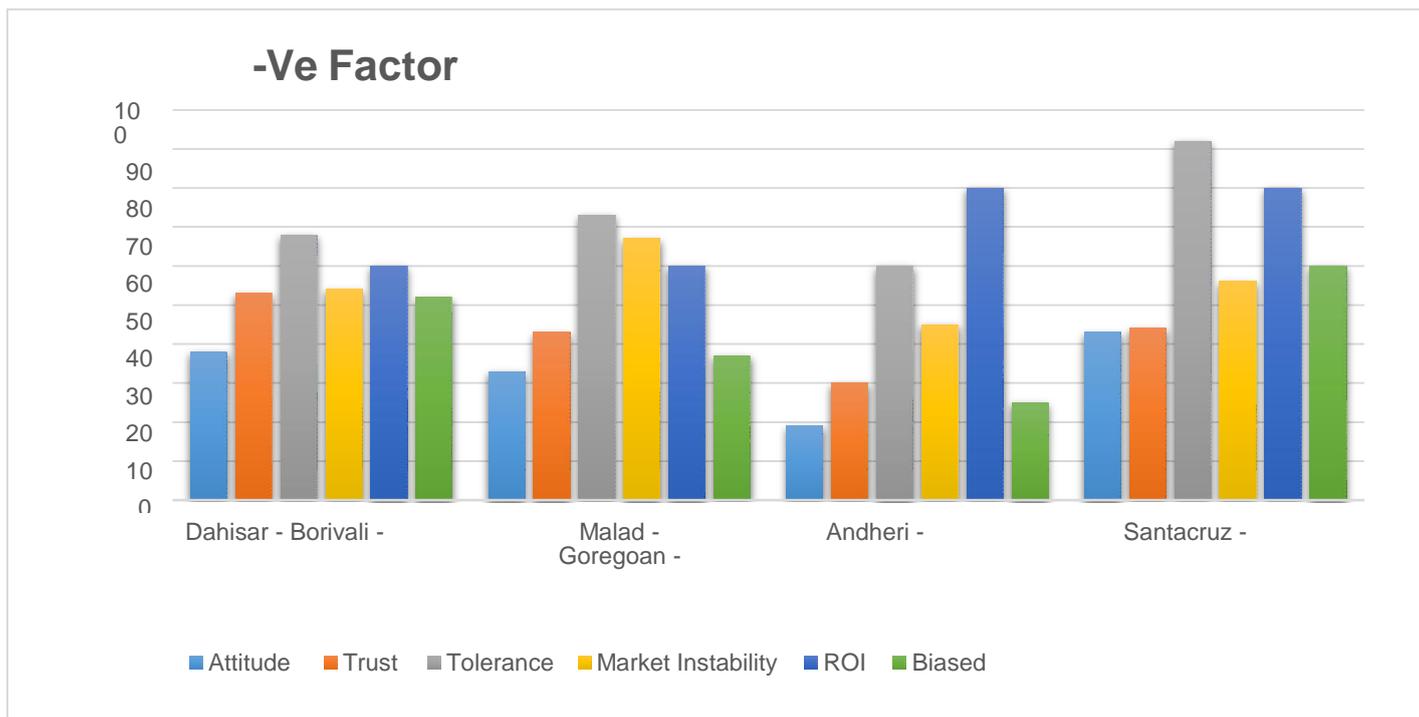
Around 47% of the respondents think that the builders or their agents are biased towards having consumers based on socio-economic basis, Unbiased Opinion directly leads high consumer enquiries also. These factors directly affect the trust variability of the developers and their agents.

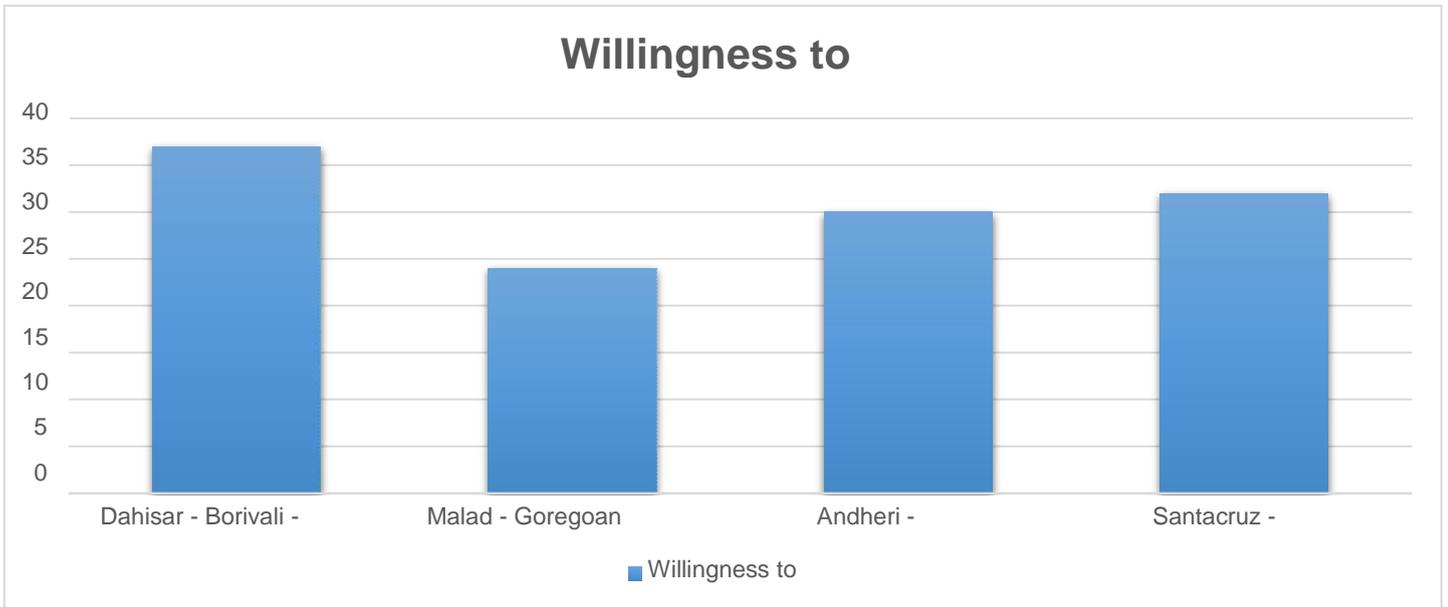
Santacruz to Bandra:

Respondents interested in property of Santacruz, to Bandra show a reasonable low level of discomfort with investment in property

Although majority of the respondents show a high sign of mistrust upon builders and their agents, a considerable positive side is seen in these regions.

However, they show absolute almost no tolerance in the matter of Delay in Project.





Data Analysis

Reliability Test:

Reliability Statistics

Cronbach's Alpha	N of Items
.518	8

The Reliability test of the data acquired as a Alpha value above 0.50, which can be considered permissible for further analysis, however a 0.70 is an appropriate value for further analysis, which would have been achieved with a seven point Likert Scale.

Pearson's Correlation Matrix

	Attitude	Intention	Trust	Delay	Market	ROI	Premium	Aware	Optimism	Will
Attitude	1	-.168	.252*	-.016	.135	-.064	-.035	-.217*	.092	-.220*
Intention	-.168	1	-.023	.004	-.174	.080	.132	.067	-.112	.065
Trust	.252**	-.023	1	.294*	.287*	.088	.036	-.001	.210*	-.311*
Delay	-.016	.004	.294*	1	.298*	.452*	.079	.368*	.182	-.050
Market	.135	-.174	.287*	.298*	1	.085	-.099	.062	.268**	-.379*
ROI	-.064	.080	.088	.452*	.085	1	.162	.590*	-.147	.271*
Premium	-.035	.132	.036	.079	-.099	.162	1	.320*	.101	.159
Aware	-.217*	.067	-.001	.368*	.062	.590*	.320**	1	.022	.261*
Optimism	.092	-.112	.210*	.182	.268*	-.147	.101	.022	1	-.154
Will	-.220*	.065	-.311*	-.050	-.379*	.271*	.159	.261*	-.154	1

Significance Value (two tailed): above 0.20

(Note: The Matrix is been analysed by rejecting the data below the age group of 23 and also rejecting the data of respondents whose are of interest is not under the region of study.

So Total No of Respondents Qualified for analyses = 109 respondents)

OBSERVATIONS:

The Highest level of significance is observed (.590) between awareness and return of Investment. Which we can interpret as respondents with an investment intention check all data under the RERA before taking a decision.

Significant factors effecting Willingness to buy the most are Attitude of purchase, trust Market Instability, Return on Investment and Awareness of the Project.

It can also be observed that Trust of the developer is depend on various factors such as Delay in project competition, Opinion of biased Builders, Attitude of purchase. Intention of purchase whether it is for self-use or investment or both, does not have any significance of other variables.

Factor Analysis

Rotated Component Matrix^a

	Component		
	1	2	3
Trust_Issues	.110	.661	.125
Delay_Issues	.654	.469	.054
Market_Instability	.135	.754	-.054
ROI	.891	-.024	-.089
Premium_Price	.238	-.206	.786
Awareness	.797	-.085	.252
Optimism	-.154	.463	.651
Willingness	.349	-.692	.118

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 5 iterations.

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.187	27.342	27.342	2.088	26.101	26.101
2	1.963	24.540	51.882	1.970	24.623	50.724
3	1.057	13.207	65.089	1.149	14.364	65.089
4	.799	9.988	75.077			
5	.687	8.582	83.659			
6	.513	6.417	90.076			
7	.460	5.748	95.824			
8	.334	4.176	100.000			

Extraction Method: Principal Component Analysis.

Deducted Factors are as follows:

- **Risk** (Explains 26.10% of the Variance)
- **Insecure** (Explains 24.62% of the Variance)
- **Price** (Explains 14.36% of the Variance)

LIMITATIONS:

The No of respondents involved in the sample study is comparatively low than required, however it is able to provide a framework for futher scope into the topic.

Maximum respondents in the survey are under the age group of 24 – 34 years old and under 35 – 54.

The study does not take into consideration the funding matrix of the respondents, whether it is self-funded or private loan or bank loan. However, 56.6% of respondents have enquired for loan to check their eligibility, however the Financial mixtures also plays an important role.

Study is divided upon various regions based on their differential RR rates; however, few rarer cases do exist, which may have not been considered.

Various Other Limitations are as Follows:

- Unproportionate number of respondents among the region of study.
- Category of project types not a part of study.
- Economic status of Respondents.
- Neighbourhood Factors and Social Political Factors.
- Amenities, Aesthetics and lifestyle as a factor.
- Differential RR rates from Plot to Plot.

CONCLUSION:

The Study can be used to develop a developer's image and decision making, whether in making the project phrase wise or try attaining full commencement certification from the concerned authorities. Major trust factor if achieved by the developers, then the attitude of consumers is going to change remarkably. This research paper establishes among the survey taken that consumers' willingness to purchase is restricted by a number of variables.

As Mahatma Gandhi Rightly Said –A customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruption of our work. He is the purpose of it. He is not an outsider of our business. He is part of it. We are not doing him a favour by serving him. He is doing us a favour by giving us the opportunity to do so.”

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A Study on Employees Perspective about engagement practices and measuring Engagement Level at Unitle India

Ms. Danica Ernestine Lobo,

PGDM II - HR

INTRODUCTION:

Employee Engagement is a workplace approach where the right conditions are created by the organization for each employee that allows them to make the most of each day and gives them a sense of purpose and commitment to the organization. Every employee is motivated and emotionally invested in the organization and therefore gives their best.

David Mcleod once said, *–This is about how we create the conditions in which employees offer more of their capability and potential.*”

Employee engagement is one of the hottest HR trends for 2019. Employee engagement is described as the enthusiasm that employees feel with regards to their work. Engaged employees are more inclined to go the extra mile for their organization. Engagement is when employees work and express themselves in a physical and emotional manner.

Engagement is an important function of Human Resources as it enables the highest performance levels, gives meaning to the employees working in an organization and influences the attrition rates in an organization. Engaged employees become ambassadors of the organization. They are motivated and encouraged as they feel that their efforts are contributing to the success of the organization and are challenged to use all their abilities at work.

Employee engagement is often misunderstood by both employees and senior management. It is often looked upon as boring, unnecessary and a waste of time. This study aims to understand the perspective that the employees have regarding the engagement activities that are carried on at Unitle and to measure the engagement level based on Herzberg’s Two Factor Theory.

NEED FOR STUDY:

Employee engagement activities were not as frequently conducted at Unitle as they are now. Only major festivals and national observance days were conducted one day prior.

These activities are gaining importance in this organization for three major reasons:

- The Company wants to portray a positive workplace environment for prospective employees and other stakeholders.
- There exists employee turnover as over 7 people have left the organization in a span of 6 months.
- The new HR Manager is looking to interact with all the employees as the current observation is one of the closed-off teams and lack of inter-department communication.

Generally, employees feel that these engagement activities are a waste of time and often just something that HR has to do for the sake of doing it.

The need of this study is to find out the level of engagement that these activities have on the employees at Unitile, what are the underlying problems, if any and what do they expect from these engagement initiatives.

OBJECTIVES:

- To study the perception of employee about employee engagement
- To apply Herzberg's Motivation Theory to measure the level of engagement at Unitile
- To analyze the feedback of events conducted for further improvements.
- To design employee engagement events at Unitile

RESEARCH METHODOLOGY:

Type of Research

Descriptive – Descriptive research is defined as a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the –what of the research subject rather than the –why of the research subject.

The research involves studying the current level of engagement among the employees and what are their expectations of the same.

Exploratory Research – As the name suggests, exploratory research is conducted to explore the research questions and may or may not offer a conclusion to the research conducted. It is directed to handle new problematic areas which haven't been discovered before. Exploratory

Research lays the footing for more definite research and data collection. This research aims to study the employee's attitude towards the current engagement activities taking place in the organization. The data collected cannot be easily analyzed numerically.

Based on research design this research can be classified as exploratory research as it is investigative in nature and topic-specific. It relates to employee engagement alone and cannot be applied in other aspects of Human Resource or otherwise.

- Sample size -55 out of 120 white-collar employees
- Sampling Technique -Non-Probability – Judgement / Purposive
- Data collection - Primary data and Secondary data
- Data Collection Tool -Structured Questionnaire

Applying Herzberg's Two Factor Theory on the Four Levels of Engagement

The Four States

In a general sense, there are four states an organization or team can find themselves in when it comes to Two Factor Theory.

1. High Hygiene and High Motivation

This is the ideal situation and the one which every manager should strive for. Here, all employees are motivated and have very few grievances.

2. High Hygiene and Low Motivation

In this situation, employees have few grievances, but they are not highly motivated. An example of this situation is where company policies and the work environment is favorable but the work isn't very interesting.

3. Low Hygiene and High Motivation

In this situation, employees are highly motivated but they have a lot of grievances. A typical example of this situation is where the work is challenging and really interesting but the pay scale is below industry standards.

4. Low Hygiene and Low Motivation

This is a bad situation for an organization or team to find itself in. Here, employees aren't motivated and the hygiene factors are not up to mark.

The Four Levels of Employee Engagement

There are four levels of employee engagement as identified by Effectory, Europe's leading provider of employee engagement solutions. They facilitate some of the world's biggest employee survey programs in over 35 languages across 70 countries. These levels are responsible for affecting your organization's business outcomes in various ways -

'Engaged and committed'

These employees consider the organization's goals as their own and commit to their work. They love their work and are emotionally attached to the organization.

'Engaged but not committed'

Employees who engage in their labor but are not devoted to the organization and vice versa. These are people who like their job but aren't motivated to actually perform the tasks.

'Neither engaged, nor committed'

They are neither engaged in their labor nor devoted to the company. They are neither emotionally attached to their work or the organization.

'Actively Disengaged'

These are employees that detest their work and try to create a negative atmosphere in the office. They can also hamper the productivity of high performing employees.

DATA ANALYSIS:

- Perspective – 33 Productive, 16 Fun
- Frequency of events – Once a month
- Neutral and disagree responses below 25% - Work challenges, job requirements, growth opportunities, belonging, information from leaders, a great place to work
- Neutral and disagree responses above 25% - Recognition, freedom to take decisions, achievements, job security, approachability of superiors, pay structure
- Greater the expenses, greater the satisfaction
- The more the planning and efforts are taken, the less popular
- Concerns regarding the participation of employees and refreshments provided

FINDINGS:

Of the 55 respondents, 33 employees viewed engagement activities as productive, 16 viewed it as fun whereas a total of 6 employees perceived engagement as unproductive and boring. In terms of any change in the quality of events, an equal number of respondents were indifferent to any changes there may or may not have been, an equal number of employees agreed there was a change whereas the remainder felt there was no change.

Currently, there are activities practically every week in a month. In terms of frequency of these events, 21 employees wanted them to be held once a month and 16 felt they should take place once in three months. The remaining respondents were divided between having engagement activities occasionally or twice a month.

A total of 46 respondents felt that their work challenged them to perform better, 41 respondents believed that had everything required to do their jobs effectively while 43 employees agreed that there are growth opportunities in the organization. Employees have a sense of belonging at this organization with 42 of them agreeing with this statement whereas 13 respondents did not share the same sentiment. Almost all respondents felt that the leaders and top management kept them informed about the happenings of the organization. While employees are recognized and appreciated here, 17 respondents did not feel the same or were indifferent. When it comes to freedom to make decisions regarding their work, 30 respondents felt they were given freedom though 18 respondents were neutral about the fact. 34 respondents felt that all employees' achievements were celebrated while 21 respondents were neutral or did not agree. Job security and self-belief in an employee's capabilities is something that 38 of respondents agreed to in the survey. 39 respondents believed that their HR and HOD were approachable in terms of difficulties faced and working conditions issues. 31 of the 55 respondents were either neutral or disagreed with the adequacy of the pay structure and benefits that were provided to them. Considering all things, the majority of the employees would recommend this organization as a great place to work.

LIMITATIONS:

- Strength of workforce – As there are only 120 white-collar employees within the organization the sample size is restricted.
- Co-operation from employees – Several reminders were given after individual emails were sent to all employees. Even then responses to the survey were sluggish.
- Scattered workforce – Personal interaction was limited to only the employees at the Head Office.
- Hesitation to respond – Many of the employees were hesitant to respond as they felt the information would be shared with the HR department. This also possibly lead to a skewed response.
- Family-run organization – Chances of personal bias may occur that cannot be avoided in these types of organizations.

FUTURE SCOPE:

- Employee Engagement should not be looked at as a trend that comes and goes but as a vital function ingrained in Human Resource Management.
- Between millennials constantly jumping from job to job and the senior employees with their traditional mindset of how work should be carried out, the engagement process must be updated on a regular basis to capture the attention of these segments.
- Engagement should not be looked at as a routine activity conducted by HR but as something deeply engraved in the organization's culture.

RECOMMENDATIONS:

- Reduction in the number of events – Ideally there should be an engagement activity at least once a month. The purpose may be either educational, fun, wellness or social responsibility. As feedback is collected after every activity, it is cumbersome for employees to fill out feedback forms continuously.

- Personal Interaction with all branches – While communications are sent to all the branches it would be preferable that HR personally meet with employees from other branches in a formal manner and discuss their grievances if any.
- Increase in Motivational factors -While there appears to be a good balance between hygiene and motivational factors at the workplace it would be better to encourage more motivational activities like celebrating employees achievements, professionally and otherwise, freedom to make more decisions regarding work and attention to not only the employee but their families as well.
- Awareness behind the motives of Employee Engagement – Despite defining employee engagement, employees still had doubts as to what it meant. All employees including top management need to understand the purpose of these activities. Often managers discourage their team from participating because their task comes first and they are more concerned with the repercussions of keeping their task on hold.

CONCLUSION:

Employee engagement is here to stay and with that being said it is important for HR to understand this concept clearly and communicate the same to their employees. This communication can bridge the gap between employers and employees.

Pay structure is often a factor to the attrition rates in organizations and is unfortunately not a situation that can be easily changed. If employees are made to feel valued and important in the organization and are given a voice, they would be less inclined to leave even with the pay they currently receive.

Attention needs to be given primarily to the current workforce demographic of millennials who are looking to make a quick buck in a more relaxed work environment. Engaging these employees to be more loyal to an organization is the current challenge for any HR.

This research shows that even though the employees here at Unitile are currently Engaged and Committed, nothing is set in stone. In this VUCA environment, HR cannot afford to be

complacent and should constantly be on their toes to find innovative and inspiring ways to keep the current workforce engaged. Ultimately it's about the human touch in Human Resources.

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Study on Employee Engagement Level

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Developing and Sustaining Employee Engagement: The Strategic Perspective in Telecom Company

Surekha Rana Gurukula Kangri Vishwavidyalaya, India Priyanka Chopra Gurukula Kangri Vishwavidyalaya, India. Title: Management techniques for employee engagement in contemporary organizations / Naman Sharma, Narendra Chaudhary, and Vinod Kumar Singh, editors. Description: Hershey, PA : Business Science Reference, [2019] Identifiers: LCCN 2018036411 | ISBN 9781522577997 (hardcover) | ISBN 9781522578000 (ebook) Subjects: LCSH: Employee motivation. | Personnel management. Classification: LCC HF5549.5.M63 M355 2019 | DDC 658.3/14--dc23 LC record available at <https://lcn.loc.gov/2018036411> DOI: 10.4018/978-1-5225-7799-7.ch009

Engaging for success: Enhancing performance through employee engagement

A report to Government

David MacLeod Nita Clarke

Department for Business, Innovation and Skills www.bis.gov.uk

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Enablers of employee engagement and its subsequent impact on job satisfaction

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A Study on employee engagement in two Indian businesses Malavika Desai¹, Bishakha

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EXAMINING BLUE-COLLAR WORKER LEADERSHIP BEHAVIOR AND WORKPLACE ENGAGEMENT

By Timothy R. Muckey

December 2012

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I am very grateful for the opportunity to work at **Unitile India** during my Summer Internship. I learned a great deal in terms of the HR function, character development as well as an insight into the Raised Access Flooring Industry. I consider myself very fortunate to have met and worked with talented, passionate professionals who have guided me throughout my internship. I am thankful for the platform I have been given to share my skills and interests.

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A Study on Recruitment Life Cycle and Lead Time Analysis at Prompt Personnel Consultancy Services Pvt. Ltd.

Ms. Shweta Chaugle
MMS II - HR

INTRODUCTION:

Recruitment is the base of a selection procedure and is currently going through drastic changes in the industry. The core function of an organization is recruitment because an organization doesn't want to recruit people who might not have potential which would indirectly spoil the company's goodwill and corporate image. The process is of finding and hiring the best-qualified candidates (from within or outside of an organization) for a job opening, in a timely and cost-effective manner. The recruitment process includes analyzing the requirements of a job, attracting employees to that job, screening and selecting applicants, hiring and integrating the new employee to the organization. A process of finding and attracting capable applicants for employment. The process begins when the new recruits are sought and ends when their applications are submitted. The result is a pool of application from which new employees are selected. Selection on the other hand, is the process of picking individuals who have relevant qualifications to fill jobs in an organization. The purpose of selection is to get the best suitable candidates for the job that fits in an organization and would meet the requirements basically to get the right person for the right job which will benefit the organization for a longer period. A responsibility of recruiters is to find out the ways through which they can easily source the candidates and close the position within the allotted time by the manger. Also, to find out loopholes in the process and plan strategies to recruit effectively. Recruiters must bring responsible candidates who are ready to learn as well as give inputs to the organizations which will help them to grown and succeed.

NEED FOR STUDY:

- Understand various HR functions including the recruitment process at Prompt Personnel Consultancy Services Pvt. Ltd.

- Evaluation of the Lead Time - Recruitment Process followed in the company

OBJECTIVES:

- To Study the Recruitment Life Cycle of Prompt Consultancy
- To Evaluate the Lead Time for completing the recruitment process

RESEARCH METHODOLOGY:

Research design: Descriptive Research

Descriptive Research design is used to understand the recruitment life of the Prompt.

Data Collection Method:

Primary: The data collected is purely based on observation and interview was taken of one HR Manager

Secondary: Data collected is from online articles journals, published articles and surveys.





FINDINGS:

- **Background Verification:**

Background verification forms at prompt include the details about to be filled by the candidate's previous employer regarding his work performance and attitude towards work. The details which are provided are sometimes not useful to get a complete record of the candidate because some of their previous employers don't even recognize them, this can happen in case where the candidate has taken break from his career. Sometimes the candidates reporting manager in previous company has already left. In such case, the new person is not able to give valuable feedback of that candidate.

- **Follow up on 30-60-90:**

It was found that the HR team was not following up with the newly joined employees to give feedback after completion of 30days, 60days and 90days in Prompt. This was the major drawback for Prompt because employees did not have any modes to communicate their problems to the HR manager. As a result, the problem faced by the Payroll team was not known to the HR Team and it resulted in employee alteration. Since 2018 there was no stable team for Payroll because of late sitting and various other issues as a result 60% of employees left prompt by finding better opportunities.

- **Employee Records:**

Each employee's documents and records are maintained only in file, there are no evidences about the employees if the file is lost or any of the documents are misplaced. Even the pre-joining forms are made to fill manually which results into grammatical errors, unable to read due to poor handwriting which results into inaccurate information passing on to various departments where the personal formation and other bank details are required to send or intimated.

- **Commitments from Candidates :**

Commitments from candidates are the biggest challenge that I had faced during working on different profiles. Candidates give confirmation regarding the interview timings but don't turn up for the personal interview round or don't answer the phone calls in case the telephonic round is schedule, this not only creates a bad impression about the candidate but also the time, energy and the efforts are wasted which could otherwise be utilized to source the candidates who are eagerly waiting for that opportunities.

- **Candidates with high expectations:**

Candidates offer a long list of expectations the consultants find hard to meet. We had limited resources through we were trying to place the candidates, so if they come up with some unexpected demands then it proves to be a big challenge for us. Also, some candidates are not ready to work because it's a consultancy firm, they think that it will not give value additions to their CV's

- **Centralization Process :**

Prompt is a pan India based company having its branches in Kolkata, Bangalore, Chennai, Hyderabad, Pune along with a corporate office at Ghatkopar but even if there is a vacancy in any of these branches the recruitment process is done from HO only. Induction of any new employee joining promptly is taken from my HO – HR Manager only as a result the work pressure increases.

LIMITATIONS:

- Some information that was needed for the project was not provided by the company stating that it was confidential in nature and cannot be disclosed.
- Short span of time to study all the aspects of recruitment in depth.
- It was difficult to take appointment of the HR Manager to understand different aspects of work.

RECOMMENDATION:

- Candidate's background verification checks should be done before releasing an offer to them. This will help to evaluate the employees much before they join the organization. In case, if a negative feedback is received from their previous employer the same candidate cannot be hired and therefore efforts, time and energy of the recruiter is wasted and he/she must again go back to the step of sourcing.
- 30-60-90 Form is valuable feedback from employees and suggestions from them will help to make improvisations. Employee's feedback should be taken even if they are performing well. This is an opportunity for them to share their work-related problems with the HR Team. This feedback if are honest can solve the issues going on with the company and it also results into employee retention since this may give them a sense of belonging to the organization.
- Feedback forms should not contain employees details it should be anonymous, such details should only be known by HR. As a result, the employees would be in a better position to give honest feedback without reliving their identity.
- Feedback should be taken from new joiners regarding their interview experiences which will certainly be fruitful in improving the process if required.
- Paper work should be transformed into maintaining digital records. Rather than asking candidates to carry hardcopy at the timing of joining, they can be asked to send scanned copies which in turn can be maintained in various department folders.
- Candidates should follow up after the interview even if they are rejected, this would create a good impression in the minds of applicants and the company can also call them back if in future, suitable positions opens in the company.
- Facebook is not used as a medium of sourcing. It is an inexpensive medium to reach a large mass of audiences in a fraction of seconds. Prompt can do a job posting on Facebook & can tag all its employees, when the employees are tagged their friends & relatives can see this post and can directly approach Prompt without employee referral. In this way company can save money there are spending on employee referral.
- Decentralization should be adopted branches should be given liberty to take interviews, conduct induction and do the onboarding process of new joiners at their

locations as a result the work burden on HO will be reduced and time can be utilised in doing another important task.

- Greenhouse Software is an Applicant Tracking System designed to make recruitment extremely simple for recruiters.

CONCLUSION:

The recruitment process at Prompt Personnel Consultancy Services Pvt. Ltd. is quite organized can be more effective with the help of proposed technological up-gradation.

Suggestions provided if taken into consideration can lead the company to improve its process.

Manual work should be converted into automation so that time can be invested in solving important issues currently happening in company. Minimizing the lead time and closing the respective positions is a concern area for the company.

The performance of the organization depends on the efficiency that its employee exhibits.

Hence it is crucial that an employee of the best suit must be selected for the organization, this is where the process of recruitment plays an important role that is finding –The Right

Candidate for the Right Job. HR specialists are no longer able to focus solely on recruitment due to global competition hence outsourcing the recruitment functions has become dominant in the allocation of human resources.

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EVALUATION OF DIGITAL RADIOGRAPHY FOR QUALITY IMPROVEMENT IN QC DEPT AT MAZAGON DOCK LIMITED (MDL)

Mr. Siddhesh Sugandh Tawde
MMS II – Operations

INTRODUCTION:

Mazagon Dock Limited, Mumbai, an ISO 9001: 2008 Company is one of the leading shipbuilding and offshore fabrication yards in India. The Yard was established in the 18th century, and over the 200 odd eventful years, has earned a reputation for quality work and established a tradition of skilled and resourceful service to the shipping world in general and the Indian Navy, Coast Guard & ONGC in particular. In its varied history, MDL passed through various ownerships like the P&O lines and the British India Steam Navigation Company. It was incorporated as a Public Limited Company in 1934.

After its takeover by the Government in 1960, Mazagon Dock grew rapidly to become the premier war-shipbuilding yard in India, producing sophisticated warships for the Navy and offshore structures for the ONGC. It has grown from a single unit, small ship repair company, into a multi-unit and multi-product company, with significant rise in production, use of modern technology and sophistication of products. The company's current portfolio of designs spans a wide range of products for both domestic and overseas clients.

QUALITY CONTROL (QC)

Quality as Quality Assurance in Ship building, or repair is all about preventing mistakes or defects in the process of manufacturing thereby ensuring that the end product meets the requirements and avoid problems when delivering ships or marine products to our customers. There are procedural as well as administrative activities that try to ensure the above objective in QA. The goals of QA are two in number - namely to produce a product which is "fit for purpose" and second in doing it "Right the first time" so that costly rework and mistakes can be avoided. On the other hand, Quality as Quality control (QC) is focused on the final product and focuses on defect identification. Quality control fails if Quality Assurance does not work.

SHIPBUILDING QUALITY CONTROL (SQC)

SQC established in 1980 to meet the Quality requirement for activities performed by YARD during construction of commercial ships & also hull and third party for naval ships. The department is equipped with qualified engineers, experienced inspectors & radiographers.

LITERATURE REVIEW:

The options for radiography embody not solely film, however with recent technological advances, it is now possible to fulfill a good vary of NDT review applications with digital solutions that square measure reliable and price effective. Digital radiography or computed radiography by use of reusable storage phosphor screens, offers a convenient and reliable thanks to replace film, additionally to the reduced price on consumables, the come back on investment of computed radiography systems is powerfully determined by savings in exposure time, processing times and repository times. what is more, intangible prices like plant conclusion, atmosphere safety and longer usability of isotopes square measure more and more vital once considering commutation film by storage phosphor systems. More and additional applications may be lined by rising the image quality of digital radiography systems. Digital pictures provide plenty of benefits in terms of image manipulation and progress. Film scanning, Computed Radiography and Direct Radiography by mistreatment completely different reasonably flat panel detectors all have their specific application fields. For the aim of this presentation, the digital applications examined square measure primarily computed radiography and to a lesser extent direct digital radiography mistreatment flat panel. The choice to travel digital depends on price, quality demand, progress output. (R.J. Patel,2005) One of the explanations of exploitation electromagnetic wave is its ability to penetrate pipes that have terribly thick walls. pictures created with film need long exposure periods because of the long integration time this technology needs. This exposure time is unsafe to the operator and to the exposed environment. once several pictures are needed the operating rate is additionally augmented because of the long exposure. Combining atom on web site testing with digital X-ray systems permits making a top-quality image whereas exploitation short exposure time. (R. PINCU,2008)

Advanced Software Features

This software package in Digital RT replaces conventional film with phosphor imaging plates and uses a high-resolution digital laser scanner instead of wet chemical processing. The scanned image is displayed on a high-resolution monitor, and simply yet sophisticated software tool can be used to quickly adjust to the image for optimal viewing. This software offers icon-driven operation, with single button filters for instant image optimization. The advance pipe wall thickness measurement tool automatically makes multiple thickness measurements along a single line drawn along the pipe wall.

Simple icon driven operations

- Intuitive Image classification database
- Original image is never compromised or changed
- Brightness, Contrast and Gamma adjustment
- Image flip rotate zoom
- Image pseudo color tool
- One-touch filter and preset

- Roving magnifying glasses
- Line area and angle measurement
- Advance pipe wall thickness measurement tool
- Text and region of interest annotation

ADVANTAGES OF DIGITAL RADIOGRAPHY

Immediate observation of radiographic images

If this were the only positive aspect of digital radiography, one still would choose it over conventional radiography. Keep in mind that only some digital radiography devices provide immediate viewing. Charge-coupled devices, or CCDs, provide immediate viewing. However, phosphorous-plate technology requires placement of the irradiated sensor in a processing device to scan it and put the information into a computer so that the image can be viewed.

Ability to enhance image

Many times, we looked at a radiographic image and thought that it needed to be lighter or darker, or that you would like the image to be somewhat larger? Digital radiography allows the observer to change contrast (to lighter or darker), enlarge images, place color enhancements or superimpose various textures on images.

Data storage

Pulling up specific stored radiographic images from a computer database is easy because of the highly organized nature of computer file storage. When using conventional radiography, all of us have had times when we have looked unsuccessfully for the paper chart and radiographs of a welding work carried on some years ago. With similar frustration, we have misplaced active welding charts and radiographs, sometimes never finding them.

Developing solutions and conventional film developers

One of the less desirable tasks in RT is maintaining and changing the radiographic developing and fixing solutions and keeping the often-unreliable developing devices in a functional state. In digital radiography, those tasks are eliminated, along with the dark-room that still is present in some offices that do not use automatic film processors. The problems of odors and stains from the developing and fixing solutions and the space occupied by the developing devices are eliminated when digital radiography is incorporated into a practice.

Communication

One of the most useful advantages of digital radiography is the ability it gives other to send images in a matter of minutes, even while talking on the telephone. There are various ways to send an image, but the commonly used e-mail method is one of the easiest.

Less radiation

When using conventional radiography, we often have been hesitant to make a radiograph because it exposes the human body to radiation. The reduction in radiation offered by digital radiography—usually 70 to 80 percent, and at times even more—allows multiple periapical images for the same radiation exposure involved in a single periapical image obtained via conventional radiography.

Loss of conventional films

Most practices have relatively efficient ways to store conventional radiographs in their respective places, but occasionally a critical film comes loose from its holder, and it is lost without the possibility of retrieval.

Assuming adequate back-up procedures are observed, there is no reason to lose stored digital radiographic images.

Ease of use

Some practitioners who are not comfortable with computers may debate this point. However, after a short learning period, accompanied with frequent use, the simple software necessary for use of digital radiography is easily mastered. The new wireless digital radiography concept has simplified the RT procedure even more.

DISADVANTAGES OF DIGITAL RADIOGRAPHY

Cost of devices

At the present time, the cost of purchasing a digital radiography setup is considerable, ranging from \$6,200 to \$9,800 per operator for a wired system \$10,500 to \$12,500 for a wireless system. Practitioners must be aware of the initial cost as they consider the advantages and disadvantages of the concept. In my opinion, this technology is far more important and necessary than other highly touted technologies that cost significantly more. After due consideration, the advantages of digital radiography appear to justify the high initial cost.

Cost of converting previous records to digital

The cost of employee time to scan and convert previous conventionally made radiographs into digital form is no small task. I suggest that previous radiographs be converted gradually, as clients/requisition come in. In this manner, the labor costs are spread over many months and can be absorbed by a typical practice without difficulty.

The cost of converting conventional radiographs all at once is formidable.

Learning to use the concept

After receiving initial education to begin using digital radiography, staff members still will require significant time to master the use of the software. Mature staff members can learn the techniques rapidly, but every new staff member who is hired must go through the learning process. In my opinion, manufacturers should strive to simplify the software for these devices further to allow an easier and faster learning period.

Thickness of the sensor

CCD sensors vary in thickness, from more than 3 millimeters to more than 5 mm.

Although this seems to be a major disadvantage, it is surprising to note the relative ease of use of CCD sensors in spite of their thickness. Wired sensors are not thinner than wireless sensors. Phosphorus sensors are thinner than CCD sensors, but they do not offer the advantage of immediate observation of the radiographic image.

IDENTIFICATION OF PROBLEMS:

The main outcome of the Problem Identification stage is to set the overall purpose and objectives of the project and to determine the likely data requirements.

This step followed:

- Clearly identify what aspect of the RA needs to be addressed;
- Set the objectives of the RA (what will and will not be considered), and
- Identify what information needs to be collected, analyzed and assessed.

Sr No.	Problem Description
1	DELAY IN ISSUING OF SAFETY SHOES / HELMET / BOILER / SUIT / TORCH
2	AMBIENCE
3	CONVENTIONAL METHODS
4	DISPOSAL OF UNWANTED DOCUMENT
5	MOTIVATION

Note:

On the basis of above-mentioned problem in Problem Category chart, problem no 3 “Conventional Method” was selected for the project.

DEFINITION OF PROBLEM:

CONVENTIONAL INSTRUMENTS/TECHONOLOGY:

Instruments used for inspection are as per industry standards. But using instruments with new technology will allow QC department to complete requisition more efficiently and accurately.

Radiography NDT Testing: is the use of ionizing radiation to view objects in a way that cannot be seen otherwise. It is not to be confused with the use of ionizing radiation to change or modify objects; radiography's purpose is strictly viewing. Industrial radiography has grown out of engineering, and is a major element of nondestructive testing. It is a method of inspecting materials for hidden flaws by using the ability of short X-rays and Gamma rays to penetrate various materials.

NEED FOR STUDY:

Improvement in business process should be done to adopt newer technologies to handle the unexpected rising costs incurred by following the conventional methods. This study aims to explore the benefits of adopting new technology like digital radiography used in ship building process at MDL.

OBJECTIVES:

1. To understand the Ship Building Process adopted at MDL
2. To evaluate the adoption of Digital Radiography used in Ship Building Process.

Shipbuilding manufacturing techniques

Shipbuilding is the construction of ships and floating vessels. It normally takes place in a specialized facility known as a shipyard. Shipbuilders, also called shipwrights, follow a specialized occupation that traces its roots to before recorded history. Shipbuilding and ship repairs, both commercial and military, are referred to as the "naval engineer". The construction of boats is a similar activity called boat building.

The dismantling of ships is called ship breaking.

Modern shipbuilding makes considerable use of prefabricated sections. Entire multi-deck segments of the hull or superstructure will be built elsewhere in the yard, transported to the building dock or slipway, then lifted into place. This is known as "block construction". The most modern shipyards pre-install equipment, pipes, electrical cables, and any other components within the blocks, to minimize the effort needed to assemble or install components deep within the hull once it is welded together. Generally shipbuilding process may take one year to 8-10 years which wholly dependent on the requirements of the customer and the technology you are using.

Process mapping of NDT test (Quality Control)

NDT (Non-Destructive test) test is carried out for weld test of various parts during shipbuilding. NDT requirements based on contract and specification is provided to the NDT team. Based on the specification requisition is raised. The raised requisition is inspected by control inspector for clarity and completeness of it. If satisfied then he gives acknowledgement for further process but if any shortfall in the requisition the feedback is given for it. E.g. If any area difficult to access and scaffolding is required to reach and is not mentioned then the requisition is raised again by arranging scaffolding structure. The inspector verifies the requisition again and then acknowledges if ok. Based on the area to be tested detailed drawing is made for NDT to be carried on. Markings are made on the drawing and at actual site where the test will be done. Once the markings are done NDT takes place and results are evaluate. Sometimes while evaluating result, it may be noticed that the image quality is not good which can be due to human or equipment error. If the image quality not good and can't be evaluated the test is carried out again. Once the test is successful then the reports are prepared for detail analysis and suggestion or corrective action to be taken for the weld. The reports generated are finally distributed to the concern department.

DATA COLLECTION & ANALYSIS:

Analysis of cost of Dark Room which is used for Film Developing of Radiography test including solution and film costing which is required for the procedure is as given below:

Dark Room Cost

Electrical	Number	Power Consumption	KWH	Hrs. Used	Power consumed
Tube light single	3	48 W	0.048	10	0.48
Wall Fan	2	120 W	0.12	10	1.2
Split A/c	1	1154 W	1.154	10	11.54
Illuminator	1	15 W	0.015	2	0.03
			1.337		13.25

Units/Hr.	Units/Day	Units/Month	Units @9.05 Rs	
1.325	13.25	344.5	3117.72	per month expenditure (dark room)

Material cost

Size of film	Films used in 2018	Price per box (per 100 film)	No of box used	Cost
8*10	1,500	2,380	15	35,700
7*17	1,800	5,680	18	1,02,240
10*12	1,300	15,060	13	1,95,780
	4,600	Total		3,33,720

Chemicals	# of cans used	Price per can	Cost
Solution 1	100	300	30,000
Solution 2	80	300	24,000
Solution 3	80	400	32,000
1 FTE		75000x12	18,00,000
		Total Cost	22,19,720

Time Analysis (Conventional Method)

Phase I	Pre RT - preparation of films		no of films	Total time
	Per film	10 Mins	6	60 Mins

Phase II	Dark Room Operations per film		Chemical Process (Min.)	For 6 Films
	Solution 1		5	
	Solution 2		10	
	Solution 3		10	
	Drying		45	
	Total Minutes		70 – 80	150 Mins. (Approx.)

Phase III	Post Darkroom Activity			
	Reading and Report Writing		10 Mins each	Total time
			60 Mins for 6 reports	60 Mins

Total		6 films		
	Pre RT	60		Time for 6 films
	Development Film	150	Worst case	270
	Post RT	60	Best case	190
	Total time for 6 films	270		

Time analysis

Time utilization chart 2018-19			
Month	Tests	Time consumed (mins)	Error
Apr-18	276	12,420	22
May-18	309	13,905	31
Jun-18	270	12,150	27
Jul-18	389	17,505	31
Aug-18	381	17,145	38
Sep-18	394	17,730	39
Oct-18	392	17,640	39
Nov-18	410	18,450	33
Dec-18	413	18,585	41
Jan-19	365	16,425	37
Feb-19	491	22,095	49
Mar-19	450	20,250	45

FINDINGS:

- As X-ray and Gamma radiation are invisible to the naked eye only suitable trainer and qualified person is allowed to do testing as it can have serious health and safety issue.
- It is a slow process and developing a film after testing is very time consuming.
- The testing is usually carried out during night time as require safe working area to be established while creating the images. All area near testing needs to be evacuated which hamper other ongoing process.

- Film can come loose from holder while performing test which can affect the image captured.
- Storage of films can be an issue and finding them for welding carried out some years ago can be a task sometimes never finding them.

INTERPRETATION:

The following data summarize the requirements and constraints associated with implementation of digital radiographic systems.

Costs

The digital radiography system described costs approximately 700000 INR (including the Image Share software) and has a projected useful life of approximately 5 years. The projected lifespan of the existing conventional system is 3 to 4 years.

The shorter lifespan of the conventional system is largely due to the corrosive effects of the developer and fixer used to process exposed film. As per research carried out by US defense the annual operating costs of the digital radiography system are projected to be approximately one-sixth of the conventional system. Such reductions are possible because the digital system reduces labor demands, does not require film or hazardous developing materials and eliminates hazardous waste from the process.

Environmental, Safety and Health Issues

Conventional radiography at Mazagon Dock Ltd. used approximately 30 gallons of developer and fixer per year. The environmental personnel handled and disposed of approximately 24 gallons of these materials each year as hazardous waste.

The digital radiography system uses no chemicals to process the x-ray images. Since the digital radiography system replaces conventional film, the hazardous materials and hazardous waste associated with the film development are eliminated.

Impact Analysis

The impact analysis compares the annual economic and environmental considerations of using the digital radiography system versus conventional radiography.

The analysis incorporates:

- Initial cost of the new equipment
- Recurring costs for both options
- Labor savings from process changes
- Savings from x-ray film and developing chemicals purchases
- Reduced hazardous waste disposal costs

Benefits of Digital Radiography versus Conventional Radiography

1) Environmental, Safety and Health Benefits

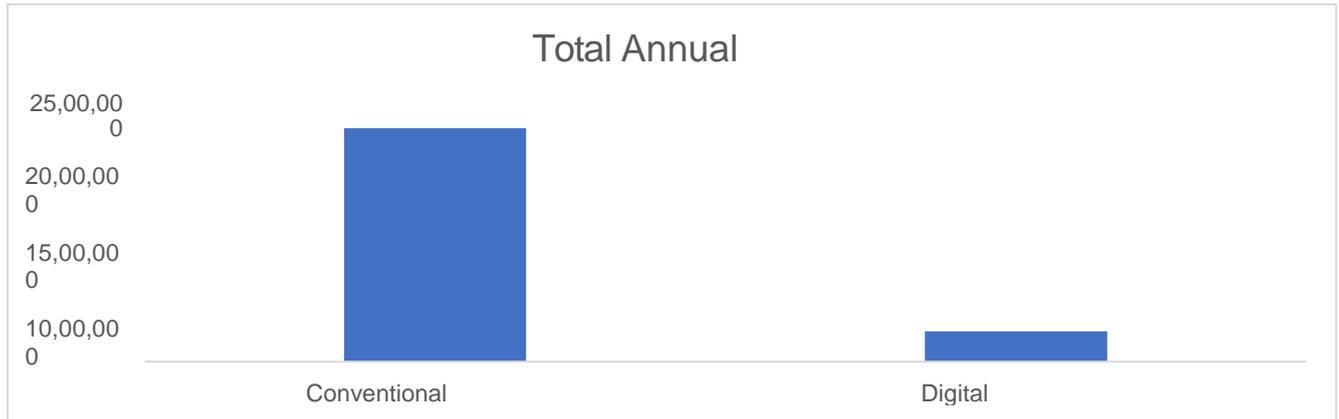
Hazardous Materials Reduction (Gallons/year) 30

Hazardous Waste Reduction (Gallons /year) 24

2) Annual Operating Cost Elements

Cost of Elements	Conventional Radiography	Digital Radiography
Materials & Electricity(INR)	4,57,000 (Approx.)	5,000
Labour (INR)	1,800,000	2,88,000
Disposal (INR)	X	
Total Annual Costs	22,57,000	2,93,000

X: Disposal Amount is variable



Annual Cost Savings 19.64.000 INR Minimum

3) Annual Operating Time Elements (4540 Tests per year i.e. 15 per day approx.)

Time Elements	Conventional Radiography		Digital Radiography
	Per film	For 6 films (Mins)	For 6 films (Mins)
Pre RT-preparation of films	10	60	80-90
Dark Room Operations per film	70-80	150	
Post Darkroom Activity	10	60	
Total	90-100	270	85 mins (Average)

Time Saving per 6 films

Method	Pre	Photo	Post	Total
Conventional	60	150	60	270
Digital	18	45	18	81

Derived Optimized Time Saving chart for a Year

Month	Tests	Conventional Time consumed (mins)	Expected Digital Time	Cumulated Conventional	Cumulated Digital
18-Apr	276	12,420	3,864	12,420	3,864
18-May	309	13,905	4,326	26,325	8,190
18-Jun	270	12,150	3,780	38,475	11,970
18-Jul	389	17,505	5,446	55,980	17,416
18-Aug	381	17,145	5,334	73,125	22,750
18-Sep	394	17,730	5,516	90,855	28,266
18-Oct	392	17,640	5,488	108,495	33,754
18-Nov	410	18,450	5,740	126,945	39,494
18-Dec	413	18,585	5,782	145,530	45,276
19-Jan	365	16,425	5,110	161,955	50,386
19-Feb	491	22,095	6,874	184,050	57,260
19-Mar	450	20,250	6,300	204,300	63,560

SUGGESTION:

- For Digital Radiography no need for certified personnel only a qualified trainer with good software knowledge will be able to do testing as it is easy to use.
- Exposure time is reduced by 70-80% which reduces the health safety issue.
- It is real time process and image can be viewed on laptop/computers while testing no need to develop film.
- The film used for capturing image can be used again and again.
- DR test can be done during day time which can save lot of time and cost.
- Easier to store captured image in computer database and retrieve as when required.

LIMITATIONS:

- No access to most of the areas of production to know the procedure. (E.g.: Warships, Submarines)
- Data highly secured so availability of data was limited for the project.
- No in-depth knowledge sharing by senior members.
- Only observation was allowed but no hands-on experience was given on equipment's.

FUTURE SCOPE:

➤ Computed Tomography (CT) technique requires large amount of data storage which provides 3D radiographic image for viewing. This method can be implemented after 5-6 years as it is currently very expensive.

CONCLUSION:

Compared to conventional radiography, digital radiography eliminates the generation of hazardous waste in the process and saves time and money. Also, it will help to improve the error detection ratio, which will eventually lead to improve the quality of inspection

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A Project Report on Time and Motion Study, Capacity Utilization and Terminal Operations at HPCL, Mumbai

Ms. Sonali Mhatre

MMS II – Operations

INTRODUCTION:

This project deals with the time and motion study of the lubricants production operating in the HPCL Sewree II terminal. Sewree II terminal mainly carries out the blending and production of different lubricant variants. The main operations that the terminal handles are blending, receipt, production and dispatch of lubricants. The lube production operates in a single shift from 8:00 to 15:00.

Time study is a work measurement method to record working times and rates for the components of a specified job performed under specified circumstances and to analyze the information to determine the time needed to perform the job at a given results rate.

Motion research involves dividing the work into basic components or basic activities of a job or process to eliminate unnecessary or faulty components in a job. It discovers the most science and systematic technique of performing the procedure or finishing the task after researching all motions in a job, process or operation.

Thus, time study fixes the standard time for a job or a process while motion study eliminates wasteful motions or the movement of a worker on the job. Both are complimentary to each other. And so, it was necessary to conduct a time and motion study in the terminal to increase the efficiency of production.

NEED FOR STUDY:

- Understanding the manufacturing of Lubricants in the Sewree Plant,
- Identifying the factors causing delay in the packaging of the Lubricants
- Identifying the areas where extra manpower is used.
- Capacity Utilization of the machines involved in Lubricant Manufacturing to be explored.

OBJECTIVES:

1. To understand the Terminal Operations of Sewree Plant of HPCL
2. To undertake Time and Motion Study of Lubricants manufactured at Sewree Plant
 - To assess the Capacity Utilization of Machines used in Manufacturing of Lubricants

RESEARCH METHODOLOGY:

The methodology used is a descriptive as well as exploratory research methodology. The study involves in-depth study of data and their interpretations. The required data was collected by interviewing the company employees and the contract workers as well as staying physically on the field and observing the production process.

Primary data collection was through interviewing the operations officers, supervisors and operators to achieve correct information related to the processes, the manpower and the time required for the processes. Most of the data was collected by being physically present on the production field and monitoring the activities of the workers and supervisors and measuring the cycle time of each process.

Secondary data was collected through the company's manuals, SOP's, websites, documents, etc.

Lubricants:

Lubricants are substances that are used for lubricating an engine or a component, such as oil or grease. Lubricants produced in HPCL are used in the engine oils of vehicles, steamers, ships etc.

Lubricants are produced in the HPCL Sewree II Terminals which are then packed and transported to HPCL warehouses and direct customers all over India.

The lube oils consist of 3 types:

1. Gear Drive EP 90
2. Milcy Turbo (15W 40)
3. Racer 4 (20W 40)

Gear Drive (GD) is blended and produced in the Sewree Terminal II whereas Milcy Turbo and Racer 4 are bought from the Mazgaon Terminal of HPCL.

Application areas are manual transmissions of automobiles requiring this type of extreme pressure oils. HP GEAR OIL EP are multi-purpose gear oils with extreme pressure additives for mild circumstances of service.

HP MILCY TURBO is a multi-grade diesel engine oil of premium quality intended to provide outstanding engine lubrication in both turbo-charged and natural-aspirated diesel engines. Formulated

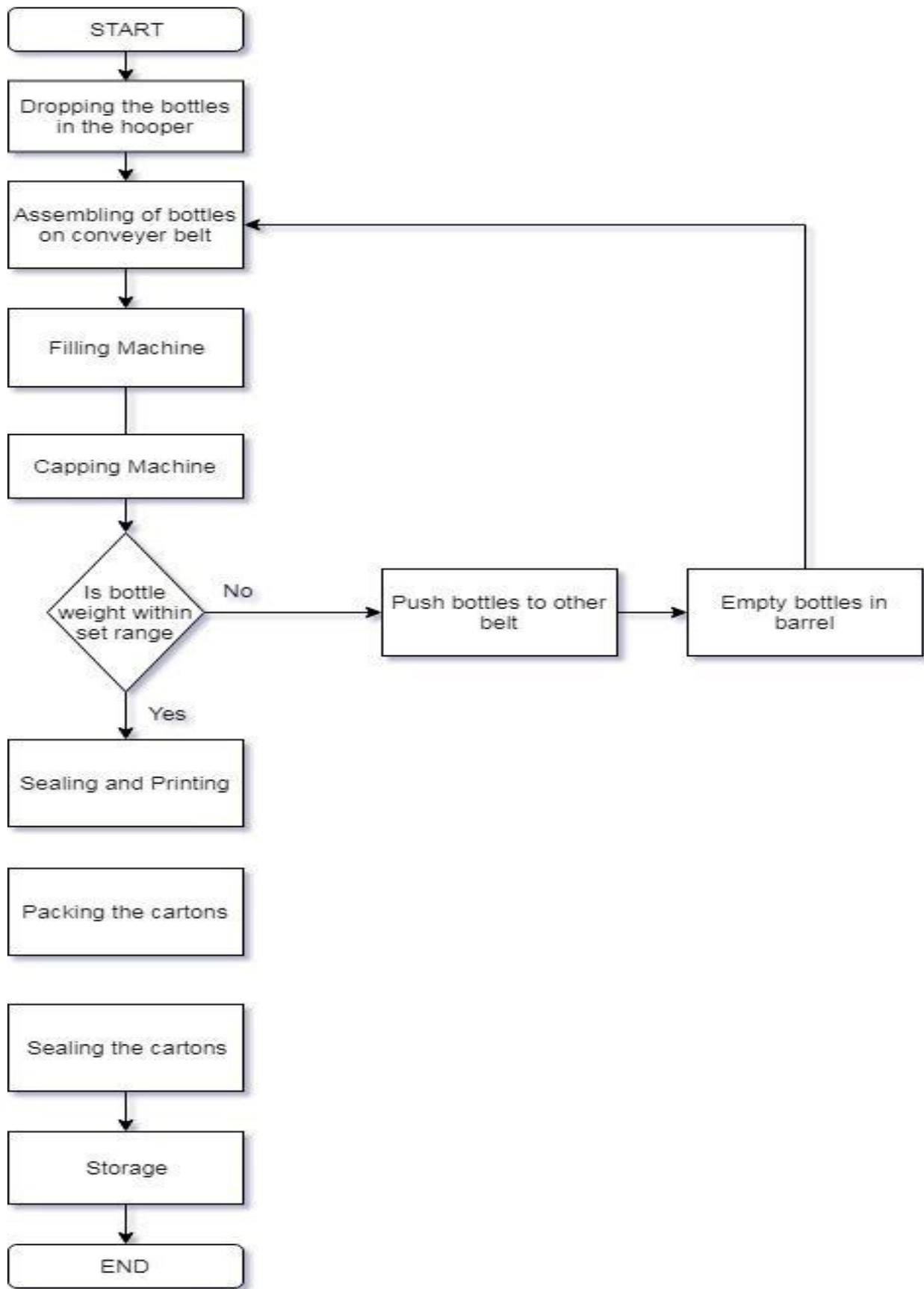
with extremely hydro-processed base oils and thoroughly chosen additive chemistry, HP MILCY TURBO is intended to provide outstanding viscosity / temperature features, unmatched engine safety, great load carrying capacity

HP RACER 4 grade is premium motorcycle engine oil designed to meet the extremely challenging lubrication demands of contemporary 4-Stroke geared motorcycles.

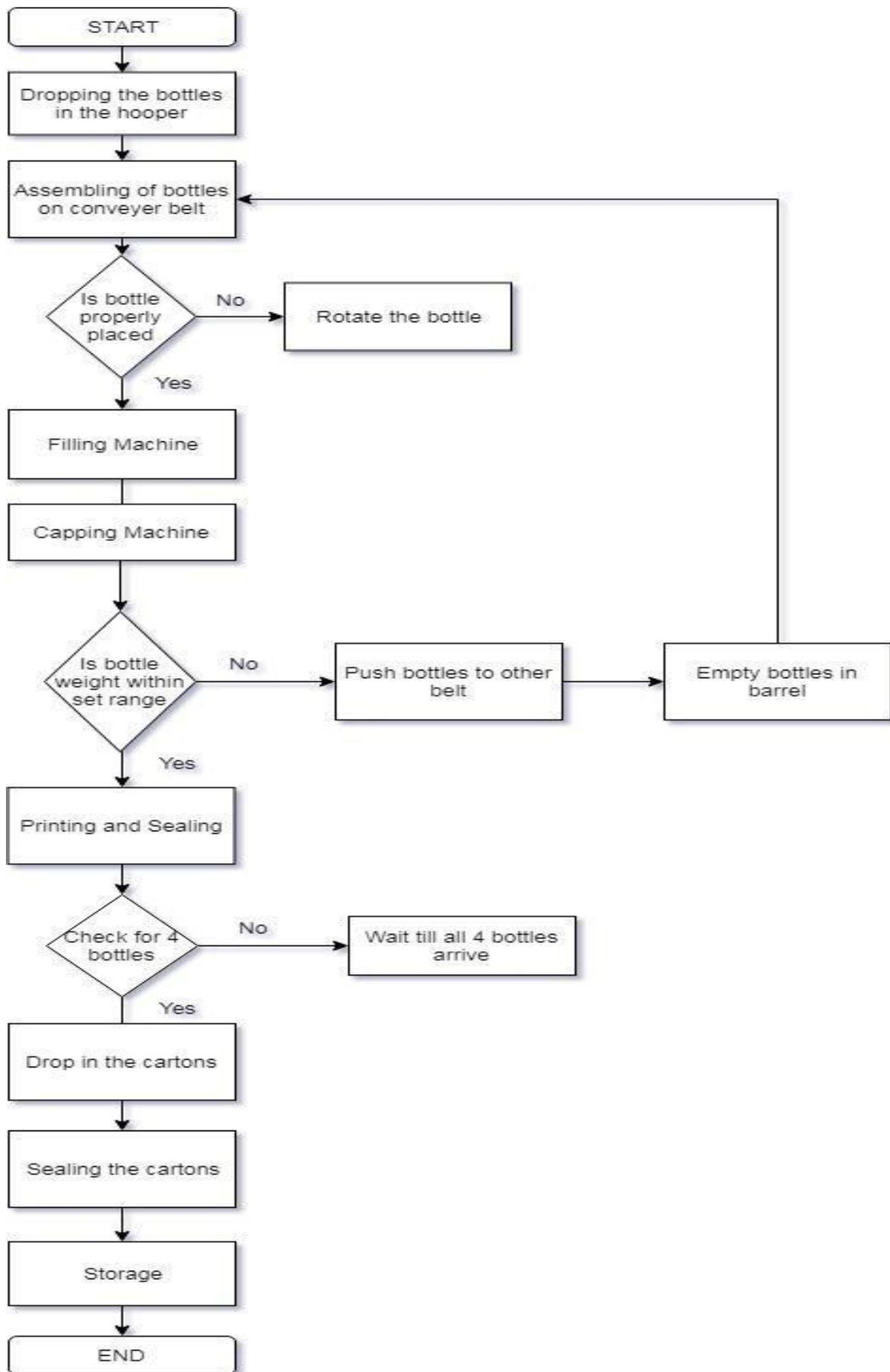
Flowcharts:

1 litre flowchart:

Sr. no	Variant	Quantity
1	Racer 4	900 ml
2	Racer 4	1 L
3	Gear Drive	1 L
4	Milcy Turbo	1 L
5	Gear Drive	5 L
6	Milcy Turbo	5 L
7	Milcy Turbo	7.5 L
8	Milcy Turbo	10 L
9	Gear Drive	10 L
10	Milcy Turbo	15 L
11	Milcy Turbo	20 L
12	Gear Drive	20 L
13	Milcy Turbo	26 L
14	Gear Drive	26 L
15	Racer 4	50 L
16	Gear Drive	210 L



5 litres flowchart:

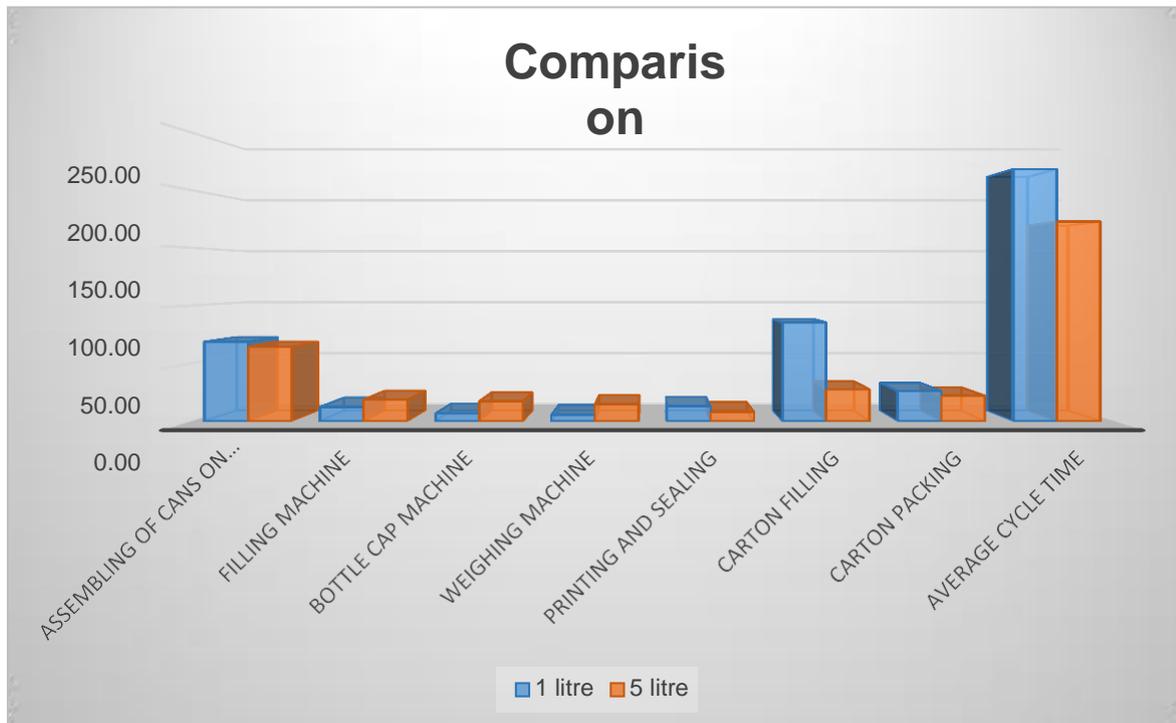


DATA ANALYSIS & INTERPRETATION:

1) The total time a bottle takes to fill from the starting of the production process i.e. from dropping the bottles into the hooper to placing the cartons onto the palette is observed and calculated as follows:

8 cycles are observed at an interval of half an hour and their total cycle time is calculated individually.

Comparison of 1 and 5 litres:



The carton filling machine should be installed which costs Rs. 2, 50,000. This will reduce the time taken for producing each bottle and will in turn increase the daily production. Currently the carton filling step requires 2 mandatory workers to continuously fill the bottles into the cartons. So, automating this particular process will also reduce the cost of 2 labors.

1 labor cost = Rs. 710/day

2 laborers cost = Rs.1420/day

Monthly cost= Rs. 1420*26(working days) = **Rs. 36,920**

Yearly = Rs. 4, 43,040

The machine installation cost including all the expenses is **Rs. 3,07,500**

The cost of investment is recovered in the first year itself considering the labor cost which is saved. If along with the labor cost saved, the daily production of 1 litre is considered, the cost will be recovered within months.

2) Increase the productivity of assembly line by introducing changes in the existing coupon system for promo production:

The promo packaging of lubes is done manually wherein promo packages are produced on 1 litre and 5 litres assembly line. This includes pasting of stickers on containers and then inserting coupon in each container. This process is done manually. 4 laborers are required for placing the coupons and stickers in the bottles for each machine. Since, it is done manually; it results in increase in cycle time and thus decreases the productivity of both the machines. This problem can be solved by introducing a new methodology for coupon/promo packaging of lube containers.

To increase the productivity and to make the assembly line more cost effective a new methodology can be used wherein the coupon shall be replaced by the serial number on caps. To bring in the changes the serial number and coupon code shall be printed in the bottle caps itself by the cap vendors as this will reduce the production time of the promo packaging of the bottles. On implementing this technique, cost reduction will be as follows:

Cost reduction:

The labor cost would reduce as follows:

Each labor costs Rs.710/day

i.e. Rs. 2,840 for 4 laborers

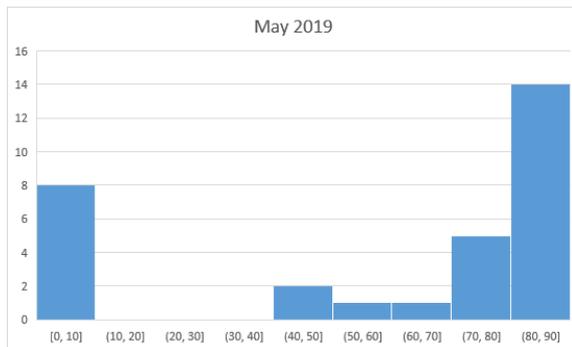
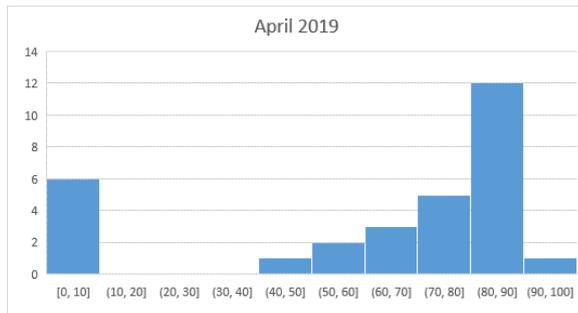
Which comes out to $2,840 * 26(\text{working days}) = \text{Rs. } 73,840/\text{month}$ would be the cost reduction.

3) Machine Capacity Utilization

Calculation for machine capacity:

1 litre	7-3 shift	hrs: min
	7:30-9:00	1:30
	9:30-12:30	3:00
	1:00-2:30	1:30
	Total	6:00
	tea breaks	0:10
	total machine run time	5:50

1 litre	bottles/min
Rpm	60
per hour	3600
per shift	21000
2100 cartons per shift	



FINDINGS:

- The carton filling process of 1 litre production consumes a lot of time due to which the cycle time of the bottles increases and results in less production daily.
- During the promo packaging production, extra manpower is needed to place the stickers and insert the coupons in the bottles due to which the production efficiency decreases and there is increase in the cost of 4 extra laborers.
- The 1 litre production machine is underutilized due to which there is decrease in the daily production.
- The 5 litre production machine faces a lot of breakdowns daily, due to which there is a significant wastage in time, thus leading to low production and idle manpower.

SUGGESTIONS:

- Since the carton filling process in 1 litre production takes the maximum time, the carton filling machine must be installed which will reduce the cost of 2 laborers and will increase the daily production.
- For the promo packaging production, the coupon code and the serial number should be printed on the bottle cap itself by the cap vendor which will reduce the cost of 4 laborers and increase the efficiency of production.
- The production machines are underutilized mainly due the constant machine breakdowns which leads to wastage of time and idle manpower which is a loss for the company, so to avoid the breakdowns; the machines should have a proper maintenance at least twice in a month. This will increase the daily production by utilizing the machines according to the capacity and won't lead to any idle manpower. The daily production of 1 litre should increase from 1800 cartons to 2000 cartons.
- Machine maintenance must be carried out twice a month.

LIMITATIONS:

Though all the efforts were made for an in-depth study, but in course of doing so, there were some limitations involved.

- Breakdowns have caused slight variation in the time.
- Data collection was restricted since access to some important data required for the project was not allowed.
- Shift in the study locations.

FUTURE SCOPE:

- The carton filling machine which is suggested to be installed in the Sewree terminal can also be implemented in the Mazgaon terminal. HPCL's Mazgaon terminal manufactures a lot of product variants and is carries out larger operations than the Sewree terminal. So, implementing this would be very beneficial for the terminal.
- The blending process of Milcy Turbo and Racer 4 can be introduced in the Sewree terminal.

CONCLUSION:

On checking of the capacity utilization of the machines, it can be concluded that the machines are not fully utilized as per their capacity. The current run time of the machine is 5 hours and 50 minutes excluding all the break times. This includes the constant machine breakdown, such as non-printing,

cap fitting, carton filling and many such other issues which tends to slow down the production to almost an hour which can be avoided. On the other hand, even if the machine takes less than 10 minutes to get the machine working back, sometimes it takes more than half an hour. In this case there is more loss of production leading to idle manpower and low production rate of that date.

Thus, on maintaining the machine at least twice a month or when the machine is not in use will ensure a clear and smooth production without any severe breakdown.

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