योगः कर्मसु कौशलम्
Dr. Moonje Institute of Management and Computer Studies

Central Hindu Military Education Society's
Dr. Moonje Institute of Management & Computer Studies
(Affiliated to S.P. Pune University & Approved by AICTE New Delhi)
(Accredited by NAAC with B+ Grade)
Bhonsala Military College Campus Rambhoomi, Nashik – 422 005
☎ Ph. No. (0253) 2342840, 9175917050
PUN Code : IMMN017930, DTE Code : 5119, Exam Code : 0688
Email:office@moonjeinstitute.com Website:www.moonjeinstitute.com

Criterion 3

Research, Innovations and Extension

3.3 Research Publications and Awards

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Email:office@moonjeinstitute.com Website:www.moonjeinstitute.com

Index Criteria 3.3

3.3.1	Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

3.3.1 Number of research papers published per teacher in the Journals notified on UGC CARE list during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number		
						Link to website of the Journal	Link to article / paper /	Is it listed in UGC Care list
2018-19								
Predicting Consumer Behavior In Online Purchase Decision Making	Dr. Preeti Kulkarni	MBA	Indian Journal of Research	2018	2250-1991	https://www.worldwidejournals.com/paripex/	https://www.worldwidejournals.com/paripex/	YES
To Improve Efficiency Of The Production Process By Implementation Of 5s	Mr. Ankush Pingale	MBA	International Journal of Research in Engineering, Science and Management	2018	2581-5792	https://www.ijresm.com/	https://www.ijresm.co	YES

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Optimization Technique Implementation In Educational Campus	Mr. Ankush Pingale	MBA	International Journal of Advanced in Management, Technology and Engineering Sciences	2018	2249-7455	https://ijamtes.org/	https://ijamtes.org/	YES
The Importance Of Business Intelligence In Manufacturing	Dr. Shriram Zade	MCA	International Research Journal of Management Science & Technology	2018	2348 – 9367	http://www.irjmst.com	http://www.irjmst.com	YES
Human Resource Information System:A Literature Review	Dr. Shriram Zade	MCA	International Journal of Scientific Research in Computer Science Applications and Management Studies	2018	2319 – 1953	https://www.ijsrcsams.com/	https://www.ijsrcsams.com/	YES
New Trends In Commerce, Economics, Banking, Cooperation, Management, Computer Science, It & Environment	Dr. Preeti Kulkarni	MBA	Ajanta	2019	2277-5730	https://www.ajantaprakashan.in/ajanta_journal.html	https://www.ajantaprakashan.in/ajanta_journal.html	YES
Review Of Literature: Online & Offline Consumer Buying Behavior	Dr. Preeti Kulkarni	MBA	International Journal of Research & Analytical Reviews (IJRAR),	2019	2348-1269,	https://www.ijrar.org/	https://www.ijrar.org/	YES
Creating A Green Business- Indian Solar Energy Startups	Dr. Preeti Kulkarni	MBA	Aarhat Multidisciplinary International Education Research Journal (AMIERJ)	2019	2278-5655	https://www.aarhat.com/journals/amierj/?page=hom	https://www.aarhat.com/journals/amierj/?page=hom	YES
A Study Of Consumer Satisfaction Towards Rajhans Milk Products In Chakan Talegon	Dr. Preeti Kulkarni	MBA	Ajanta	2019	2277-5730	https://www.ajantaprakashan.in/ajanta_journal.html	https://www.ajantaprakashan.in/ajanta_journal.html	YES

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Dabhade Region							n.in/ajanta_journal.html	
A Study On Perception Of Customers Towards Multinational Brands	Dr. Preeti Kulkarni	MBA	Ajanta	2019	2277-5730	https://www.ajantaprakashan.in/ajanta_journal.html	https://www.ajantaprakashan.in/ajanta_journal.html	YES
A Case Study On Monitoring Aqi Of Mumbai Suburban Through Digitalization	Dr. Preeti Kulkarni	MBA	MET management Retrospect	2019	2455-0841	https://sjifactor.com/passport.php?id=19081	https://sjifactor.com/passport.php?id=19081	YES
Power Does Matter: Consumer Awareness On Renewable Energy	Dr. Preeti Kulkarni	MBA	International Journal of Advance and Innovative Research	2019	2394-7780	https://iaraedu.com/about-journal/	https://iaraedu.com/about-journal/	YES
2019-20								
Innovative Start-Ups Coming In The E-Commerce Industry:	Dr. Preeti Kulkarni	MBA	Ajanta	2019	2277-5730	https://www.ajantaprakashan.in/ajanta_journal.html	https://www.ajantaprakashan.in/ajanta_journal.html	YES
Influence Of Indian Ethos On Human Resource Development: A Perceptual Study"	Dr. Shriram Zade	MBA	Prestige International Journal of management & Research	2020	0974-6080	https://www.pimrindore.ac.in/i-Journal.html	https://www.pimrindore.ac.in/i-Jour	YES

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A Comparative Study On Factors Influencing Buyer Decision Making In Web Store And Retail Store Buying -: With Respect To Fmcg Goods In Nashik City	Dr. Preeti Kulkarni	MBA	Wesleyan Journal of Research	2020	0975-1386	http://www.wesleyanjournal.in/	http://www.wesleyanjournal.in/	YES
A Study The Influence Of Green Marketing Strategies On Performance Of Milk Processing Units In Ahmednagar District	Dr. Preeti Kulkarni	MBA	Shodh Sarita	2020	2348-2397	http://sereasearchfoundation.in/	http://sereasearchfoundation.in/	YES
A Study Of Consumer Attitude Towards Organic Products In Nashik City	Dr. Preeti Kulkarni	MBA	PalArch	2019	1567-214X	https://archives.palarch.nl/	https://archives.palarch.nl/	YES
A Compartive Study On Consumer Buying Behavior At Web Store Purchase And Services Storepurchase Of Entertainment Service In Nashik City	Dr. Preeti Kulkarni	MBA	Kala: The Journal of Indian Art History Congress	2020	0975-7945.	https://search.worldcat.org/title/kala-the-journal-of-indian-art-history-congress/oclc/43463890	https://search.worldcat.org/title/kala-the-journal-of-indian-art-history-congress/oclc/43463890	YES

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2020-21

Tracing Climate Change In Mubai Suburban	Dr. Preeti Kulkarni	MBA	Shod Sanchar Bulletin2020	2020	2229-3620	http://shodhsanchar.in/	http://shodhsanchar.in/	YES
Understanding Consumer Buying Behavior In An Online (Web Store) And Offline (Service Retail Store) For Entertainment Services In Nashik City	Dr. Preeti Kulkarni	MBA	Purakala	2020	0971-2143	https://www.scholarimpact.org/0971-2143-purakala.html	https://www.scholarimpact.org/0971-2143-purakala.html	YES
Study Of Challenges And Strategies Adopted By It Companies For Internal Customer During Covid Pandemic	Dr. Preeti Kulkarni	MBA	Purakala	2020	0971-2143	https://www.scholarimpact.org/0971-2143-purakala.html	https://www.scholarimpact.org/0971-2143-purakala.html	YES
Ananlytical Study Of Factors Contributing In Sustainable Brand Growth With Respect To It Industry	Dr. Preeti Kulkarni	MBA	Purakala	2020	0971-2143	https://www.scholarimpact.org/0971-2143-purakala.html	https://www.scholarimpact.org/0971-2143-purakala.html	YES
Study Of Consumer Buying Behavior Related To Health Care Products During Covid - 19 Pandamic	Dr. Preeti Kulkarni	MBA	Sambodhi	2020	2249-6661	https://sambodhi.co.in/publications-resources/	https://sambodhi.co.in/publications-	YES

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Role Of Product Attributes In Apparel Buying Behavior	Dr. Preeti Kulkarni	MBA	International Journal of Psychosocial rehabilitation	2020	1475-7192	https://www.psychosocial.com/	https://www.psychosocial.com/	YES
An Assesment Of Factors In Buying Enginearing Consumables With Reference To Spinning Textile Industry In India	Dr. Preeti Kulkarni	MBA	Journal of critical reviews	2020	2394-5125	https://www.jcreview.com/	https://www.jcreview.com/	YES
Importance & Role Of Information Technology Tools In Data Analysis	Mr.Mahesh A. Kulkarni	MCA	Shodh Sanchar Bulletin	2020	2229-3620	http://shodhsanchar.in/	http://shodhsanchar.in/	YES

2021-22

Theemergingroleofcloudcomputinginacademicsector–Bringing Innovation In Education	Mr. Mahesh A. Kulkarni	MCA	International Journal of Grid and Distributed Computing	2021	2005-4262	http://sersc.org/journals/index.php/ijgdc	http://sersc.org/journals/index.php/ijgdc	YES
The Impact Of Digitalization In The Epidemic Covid19	Mrs. Hema Darne	MCA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://ijcrt.org/	https://ijcrt.org/	YES
Impact Of Digitalization And Financial Inclusion On Retail Banking	Mrs. Hema Darne	MCA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://ijcrt.org/	https://ijcrt.org/	YES
The Impact Of Digitalization In The Epidemic Covid19	Mrs. Aditi Kulkarni	MBA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://ijcrt.org/	https://ijcrt.org/	YES
Impact Of Digitalization And Financial Inclusion On Retail Banking	Mrs. Aditi Kulkarni	MBA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://ijcrt.org/	https://ijcrt.org/	YES
E-Recruitment : Contribution To Organizational Development. Rabindra Bharati Journal Of	Mrs. Swati Lakhatgaonkar	MBA	Rabindra Bharati Journal of Philosophy,	2022	0973-0087.	https://rbu.ac.in/	https://rbu.ac.in/	YES

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C.H.M.E. SOCIETY'S ★ DR. MOONJE INSTITUTE NASHIK ★ Management and Computer Studies

Philosophy								
Perception Of Jobseeker Towards E-Recruitment & Selection Process	Mrs. Swati Lakhalgaonkar	MBA	Interlink Research Analysis	2022	0976-0377	https://portal.issn.org/resource/ISSN/0976-0377	https://portal.issn.org/resource/ISSN/0976-0377	YES
Perception Of Jobseekers Toward Social Media Recruitment With Respect To Nashik City.	Mrs. Swati Lakhalgaonkar	MBA	International journal for innovative research in multidisciplinary field	2022	2455-0620	https://www.ijirmf.com/	https://www.ijirmf.com/	YES
The Impact Of Digitalization In The Epidemic Covid-19	Dr.Harshada Aurangabadkar	MBA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://ijcrt.org/	https://ijcrt.org/	YES
Impact Of Digitalization And Financial Inclusion On Retail Banking.	Dr.Harshada Aurangabadkar	MBA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://rbu.ac.in/	https://rbu.ac.in/	YES
Make In India- An Initiative To Make India As A Manufacturing Hub	Dr. Nitin Chaudhari	MBA	Journal on Purana	2022	0555-7860	http://shodhganga.inflibnet.ac.in/	http://shodhganga.inflibnet.ac.in/	YES
Indian Values For Managerial Effectiveness- An Exploration Through Vidur-Neeti	Dr. Nitin Chaudhari	MBA	Journal on Purana	2022	0555-7860	http://shodhganga.inflibnet.ac.in/	http://shodhganga.inflibnet.ac.in/	YES
Covid 19 On Road: Pandemic Impact On Taxi Drivers	Dr. Nitin Chaudhari	MBA	Journal of Education: Rabindra Bharati University	2022	0972-7175	https://rbu.ac.in/	https://rbu.ac.in/	YES
"A Study On Impact Of E-Working Environment & Employees' Opinion About Work From Home With Special Reference To The It Personnel	Dr. Preeti Kulkarni	MBA	Phalanx: A Quarterly Review for Continuing Debate	2022	2320-7700	https://www.phalanx.in/	https://www.phalanx.in/	YES

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In Nashik City"								
Impact Of Covid 19 On Tourism From Residents' Perspectives In Nashik Pilgrimages	Dr. Nitin Chaudhari	MBA	Journal of Education: Rabindra Bharati University	2022	0972-7175	https://rbu.ac.in/	https://rbu.ac.in/	YES
2022-23								
To Study The Problems And Prospects Faced By Tribal Communities While Marketing & Branding Their Product	Dr. Preeti Kulkarni	MBA	Journal of Education: Rabindra Bharati University	2022	0972-7175	https://rbu.ac.in/	https://rbu.ac.in/	YES
The Impact Of Digitalization In The Epidemic Covid19	Mrs. Hema Darne	MCA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://iicrt.org/	https://iicrt.org/	YES
Impact Of Digitalization And Financial Inclusion On Retail Banking	Mrs. Hema Darne	MCA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://iicrt.org/	https://iicrt.org/	YES
The Impact Of Digitalization In The Epidemic Covid19	Mrs. Aditi Kulkarni	MBA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://iicrt.org/	https://iicrt.org/	YES
Impact Of Digitalization And Financial Inclusion On Retail Banking	Mrs. Aditi Kulkarni	MBA	Journal of Fundamental & Comparative Research	2022	2277-7067	https://iicrt.org/	https://iicrt.org/	YES
E-Recruitment: Contribution To Organizational Development. Rabindra Bharati Journal Of Philosophy	Mrs. Swati Lakhalgaonkar	MBA	Rabindra Bharati Journal of Philosophy,	2022	0973-0087.	https://rbu.ac.in/	https://rbu.ac.in/	YES
A Study Of Supply Chain Management Practices With Special Reference To Amul's Pouch Milk Distribution In Mumbai	Dr.Preeti Kulkarni	MBA	Journal of education: Rabindra Bharati university	2022	0972-7175	https://rbu.ac.in/	https://rbu.ac.in/	YES
A Study On Consumer Behaviour While Selecting A Hotel For Meal In Nashik City	Dr.Preeti Kulkarni	MBA	PARIPEXIndian Journal of Research	2022	2250-1991	https://www.worldwidejournals.com/	https://www.worldwidejour	YES

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Make In India: An Initiative To Make India As A Manufacturing Hub	Prof.Ankush Pingale	MBA	Purana	2022	0555-7860	http://shodhganga.inflibnet.ac.in/	http://shodhganga.inflibnet.ac.in/	YES
Expectations Of Job Seekers About Job Portals During Pandemic Times	Dr. Nitin Chaudhari & Mrs. Swati Lakhalgaonkar	MBA	Journal of the Maharaja Sayajirao University of Baroda	2022	0025-0422	https://ugccare.unipune.ac.in/	https://ugccare.unipune.ac.in/	YES
Make In India- An Initiative To Make India As A Manufacturing Hub	Dr. Nitin Chaudhari	MBA	Journal on Purana	2022	0555-7860	http://shodhganga.inflibnet.ac.in/	http://shodhganga.inflibnet.ac.in/	YES
Indian Values For Managerial Effectiveness- An Exploration Through Vidur-Neeti	Dr. Nitin Chaudhari	MBA	Journal on Purana	2022	0555-7860	http://shodhganga.inflibnet.ac.in/	http://shodhganga.inflibnet.ac.in/	YES
Covid 19 On Road: Pandemic Impact On Taxi Drivers	Dr. Nitin Chaudhari	MBA	Journal of Education: Rabindra Bharati University	2022	0972-7175	https://rbu.ac.in/	https://rbu.ac.in/	YES
Impact Of Covid 19 On Tourism From Residents' Perspectives In Nashik Pilgrimages	Dr. Nitin Chaudhari & Mrs. Swati Lakhalgaonkar	MBA	Journal of Education: Rabindra Bharati University	2022	0972-7175	https://rbu.ac.in/	https://rbu.ac.in/	YES
An Empirical Analysis Of Consumer Behaviour In Purchasing Covid-19 Essential Products	Dr. Nitin Chaudhari	MBA	Journal of the Maharaja Sayajirao University of Baroda	2022	0025-0422	https://ugccare.unipune.ac.in/	https://ugccare.unipune.ac.in/	YES
E-Recruitment : Contribution To Organizational Development	Dr. Nitin Chaudhari	MBA	Rabindra Bharati Journal of Philosophy	2022	0973-0087	https://rbu.ac.in/	https://rbu.ac.in/	YES

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Need Of Indian Ethos And Values In Academic Life For Specially Adolescence Student	Dr. Niraj Chaudhari	MBA	SaiBalaji International Journal of Management Sciences	2022	2349-6568	https://www.sbiims.edu.in/	https://www.sbiims.edu.in/	YES
An Exploratory Study Of The Role Of Ministry Of Tribal Affairs To Protect Livelihood Rights Of Tribal Community In State Of Maharashtra	Dr. Preeti Kulkarni	MBA	Rabindra Bharati Journal of Philosophy	2023	0973-0087	https://rbu.ac.in/home/page/106	https://rbu.ac.in/home/page/106	YES
Exploring The Use Of Machine Learning In Inventory Management For Increased Profitability	Dr. Niraj Chaudhari	MBA	A Journal for New Zealand Herpetology	2023	2230-5807	https://biogecko.co.nz/index.php/journal	https://biogecko.co.nz/index.php/journal	YES
The Emerging Role Of Business Management For Sustainable Development In Developing Economies	Dr. Niraj Chaudhari	MBA	World Journal of Management and Economics	2023	1819-8643	https://wesro.org/	https://wesro.org/	YES

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UGC CARE Group 1

THE IMPACT OF DIGITALIZATION ON THE EPIDEMIC COVID19

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Abstract: Technologies are proliferating in an effort to stop the coronavirus (Covid-19) pandemic from spreading in Switzerland and worldwide, or at the very least to assist patients and healthcare professionals. Digital technology can be used to gather information, reassure the public, treat patients, diagnose illnesses, and even create future vaccines. Examples include chatbots, robots, telemedicine, and big data. An incomplete list of the technologies in use today, the number of which is increasing daily. The first significant epidemic of our century is Covid-19. The numerous digital health businesses and technology have a great chance to examine what they can do to lessen this threat. Additionally, it offers a chance to reconsider the doctor-patient relationship.

Keywords: Covid19, coronavirus, data collection, Analysis, Block chain, Internet of Things.

Introduction:

Technology behemoths in China responded to the epidemic by supplying medical professionals with driverless vehicles, outfitting drones with thermal imaging cameras to assist viral detection,
and contributing their processing capacity to the creation of a vaccine. Alibaba revealed that it has created a brand-new artificial intelligence-based diagnostic tool. The Chinese juggernaut claims that its system can identify illnesses with an accuracy rate of up to 96% in just 20 seconds.

The Chinese version of Google, Baidu, has created an artificial intelligence algorithm to identify persons who are not donning face shields. Another issue with masks is that they make it impossible for conventional facial recognition systems to function correctly when half the face is obscured. As a result, people must take off their masks in order to pay for goods or enter a building, which creates hygienic issues. An identifying system that functions while wearing a protective mask has been created by Sense Time, a Hong Kong-based business that specialises in autonomous crowd monitoring.

Online epidemiology

Digital technology also makes it possible to play a key role in providing information and thus in anticipating the disease. This is what is known as digital epidemiology, which consists of **collecting, analysing and sorting the huge masses of data** produced on the Internet. This technique is currently made simpler thanks to hyper-connected populations. “The data exists, but public health agencies have to chase it down, which takes time. Digital epidemiology offers tools that make them more responsive” said Marcel Salathé, professor of digital epidemiology at the Ecole Polytechnique Fédérale de Lausanne, in an interview with the newspaper Le Temps [3].

Internet and social media are used by the Swedish-based European Centre for Illness Prevention and Control to keep track of disease outbreaks. Data scientists and medical epidemiologists are analysing the internet, the media, and social networks as part of the Epidemic Intelligence initiative to look for new cases. But they have a huge job to do. Every day, millions of tweets are analysed for the coronavirus, for instance. [3].

The Influence and Function of the Media During the Pandemic:- Public health communication to increase psychosomatic possessions and flexibility in different age groups and socioeconomic situations; effective strategies for helping individuals deal with social and physical distance; reduction of stigma, prejudice, discrimination, and inequalities; and successful health statements for the acceptance of sustainable anticipatory processes and curtailing propaganda [2].

Why a Digital Economy Must Be connected: - The COVID-19 will have a significant impact on business communities all over the world. The worldwide commercial push toward digitization is seen to have reached an inflection point with this disaster. Even as the virus spreads more, the connected, digital economy is assisting businesses, employees, and customers in staying active and conducting business. More than ever, this crisis has demonstrated to the business sector the potential benefits of investing in cutting-edge digital technologies. It is impossible to dismiss the growing reliance on business conferencing tools, e-commerce, digital learning, VR-based training, and business apps supporting remote workers as a passing trend; rather, it is likely to become the new standard for companies throughout the world. [8].

Ten New Digital technologies [1]

1. To help manage information overload, researchers may be able to employ natural language processing to quickly scan academic publications and scientific papers. The research team has created an AI platform in the US as part of the introduction of a project known as the COVID-19 Open Research Dataset (CORD-19), which will make it simpler for team members to find pertinent studies that may provide fresh perspectives or methods for addressing the COVID-19 outbreak.
2. Blockchain technology has the potential to be used to efficiently supervise medical data, track the supply of goods (disinfectants, sanitizers) that prevent the spread of viruses, and communicate with the general public. In order to combat the COVID-19 outbreak, 20 new blockchain applications were launched in China during the first two weeks of February. For instance, Alipay introduced a blockchain platform that makes it possible for NGOs and government agencies to work together more effectively and openly, including tracking allowance and contribution of humanitarian goods, tracing medical supplies, etc.
3. **During the COVID-19 pandemic, 3D printing can be used to help generate vital healthcare supplies. Many COVID-19 patients' lives were saved by an Italian hospital by using 3D-printed valves on reanimation equipment. A public document that hundreds of 3D printing design engineers and experts have already produced demonstrates their readiness to help with the creation of respirators, valves, masks, etc. utilises Facebook as their main information source, BBDO Guerrero has collaborated with the National**

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UGC CARE Group 1

IMPACT OF DIGITALIZATION AND FINANCIAL INCLUSION ON RETAIL BANKING

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Abstract
This study focus on the influence that digitalization and financial inclusion have had on retail banking sales. The majority of social welfare issues that are related to financial inclusion have been successfully addressed by the regulatory body, which has also been effective in establishing a variety of programmes and initiatives for the same. Compliance was a primary concern for businesses in the private sector when it came to financial inclusion. This study argues that it might be possible to look at it from a market building perspective for private sector banks. The term "digital transformation" refers to a process that encompasses much more than simply transitioning from analogue to digital banking. It is a significant shift in how banks and other financial organisations gather information about their clients, communicate with those consumers, and fulfil their needs. An effective digital transformation starts with an understanding of digital customer behaviour, including preferences, choices, likes, dislikes, stated and unstated needs, aspirations, and so on. This transformation leads to major changes in organisations, shifting their focus from being product-centric to customer-centric. The purpose of this research is to demonstrate in a quantifiable manner, from the perspective of sales representatives in the banking sector, how the effects of digitalization have been having an effect on sales.
Keywords: Digital Transformation, financial institutions, product-centric to customer centric

1. INTRODUCTION

Financial Inclusion

Inclusion in the financial system makes it possible for a country to achieve enhanced and more sustainable economic and social growth. It helps to empower the underprivileged, the poor, and women in the society, with the goal of making them self-sufficient and well informed so that they may make better decisions regarding their finances. The term "financial inclusion" refers to a practise that takes into account the participation of vulnerable groups such as the less fortunate members of society and groups with low incomes. This participation is determined by the extent to which these groups have access to various types of financial services, such as savings and payment accounts, credit insurance, pensions, and so on. Additionally, one of the goals of the financial inclusion exercise is to increase the availability of financial services in rural areas so that rural individuals and businesses can maximise their investments in areas such as business opportunities, education, savings for retirement, protection against risks, and so on. Still only a small percentage of people in rural areas of India have access to

various financial services. The causes of this condition can be investigated from either the supply side or the demand side, but the lack of supply is most likely the primary explanation for the poor penetration of financial services. It's possible that a low income level, a lack of financial literacy, the presence of additional bank accounts in the family, and other factors are contributing to the low demand for financial services. On the other hand, there is not a bank branch in the immediate area, there is a dearth of adequate items that satisfy the demands of the impoverished people, there are difficult processes, and there are language problems. These are all supply side factors. In an effort to broaden access to financial services, the Reserve Bank of India (RBI) and the Government of India (GOI) have collaborated to further these initiatives since 2005. Measures such as the SHG-bank linkage programme, the use of business facilitators and correspondents, an ease in the Know Your Customer (KYC) norms, electronic benefit transfer, a separate plan for urban financial inclusion, the use of mobile technology, bank branches and ATMs, opening and encouraging 'no-frill-accounts,' and an emphasis on financial literacy have all played a significant role in increasing the use of formal sources for availing loan or credit. Kisan Credit Card, Mahatma Gandhi National Rural Employment Guarantee Scheme, and Aadhar Scheme are some of the measures that have been undertaken by the government. Other measures include the opening of customer service centres and credit counselling centres. The previous actions, which were of a more general nature and had a much broader scope, were not as focused as these redoubled efforts, which are more narrowly targeted. In spite of the fact that the measures were implemented in the past, it is necessary to investigate and reinterpret the effects they had on the rural population in order to have a complete picture of the situation that currently exists in rural regions.

Digitization

The term "digitalization" refers to a process that encompasses much more than simply transitioning from analogue to digital banking. It is a significant shift in how banks and other financial organisations gather information about their clients, communicate with those consumers, and fulfil their needs. The first step toward an effective digital transformation is gaining an awareness of digital customer behaviour, including preferences, choices, likes, dislikes, declared and unstated demands, goals, and so on. And this transition brings about huge changes in the businesses, shifting their focus from the products they sell to the customers they serve. Understanding Financial Consumers in the Digital Era is the title of a study that was conducted by CGI, and it gives some light on the desires of the digital consumer of today. It is interesting to note that customers are lifting the bar on their expectations at a time when the world's financial institutions appear to be marching in lockstep with each other. A survey conducted by CGI found that customers are willing to switch financial institutions if the services they require from their present institution are not provided. Because customers' channel usage habits are constantly shifting, financial institutions like banks and credit companies need to concentrate on providing a seamless customer experience across a variety of customer touch points. Omni-channel banking is more than simply a truism; rather, it is an opportunity to elevate the bottom line to a higher level by obtaining insights from consumers' channel choices, behaviour, and preferences overall. Because the customers of today are more discerning and adept with technology, financial institutions are required to provide individualised service to each individual client in order to meet their specific requirements. They expect the businesses to comprehend not only their preferences but also their unspoken requirements. It should thus not come as a surprise that these clients expect the same level of responsiveness and service from financial institutions as they do from other businesses. Delivering an Omni-channel experience has become essential to achieving success in today's highly competitive market place. This includes everything from conducting research on new services to opening accounts,

11. Innovative Startups Coming in the E-Commerce Industry: Organizes the Unorganized Service Sectors in India

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Abstract

Over the last decade, the Internet made many changes in the way people purchase and sell goods and services on internet. Online retail or E-commerce has been revolutionized and increase the shopping expectations and behavior of consumers. Online retailing sector has been shows dramatic growth during last two decades. The implementation of new techniques makes the e-commerce sector more reachable, effective and efficient. Devices like Smartphone's, advance feature in mobile phones and increasing speed of internet connectivity lines, lowering prices of internet and devices is helping to raise traffic to the online shopping. Banking and other payment intermediator's are providing best and perfectly secured payment gateways. Online-retailers found it motivating and attractive to focus on developing a new way and channel which is different and separated from the services of mainstream players of E- commerce players.

Key Words: E-Commerce, E-tailers, E- Services, Vertical Specific Integration of E-Retailer

Introduction

Increasing use of internet through mobile device in urban as well as rural areas, increasing acceptance of online purchase, e-payments and young India has provided the e-commerce industry in nation the best chance to communicate and interact effectively with the customers. The Government's ambitious vision of 'Digital India' dreams to provide all the services and information on one stop shop by the way of introducing internet with low cost, good connectivity at the remote areas and every corner of the country to promote the online trade and services.

Conceptual Background

E-Commerce: E-commerce is the activity of selling and buying the goods and services online with the help of internet and other electronic devices. It is the application of the information and communication technology for the purpose of business transaction transactions.

E-tailer: Electronic retailing is selling goods using internet. It supports the concept of B2B, B2C transactions. With the introduction of E-retailing tools and techniques it becomes more convenience for the online businesses to manage their business effectively

Services: In economics, a service where no physical goods are transferred from seller to buyer. The seller has to perform his obligations on the willingness of the buyer of the services. As per the National Industrial Classification 2008 Service Sector, Services Included

Wholesale and retail	Repairing and maintenance of vehicles
Transportation,	logistics and warehousing, storage
Information and communication	Finance and all types of insurance
Real estate activities	Professional, scientific, and technical activities
Administrative and support services	Administration of public services
Education	Health related services for society
Creative arts, entertainment	other services

Literature Review

Pinto, kalpana pathak, Mishra (2014): Are e-commerce valuations sustainable? - Indian e-tailing market is expected to touch $32 billion by 2020 and account for 3% of India's overall retail market, where service industry will play an important role in this achievement.

Mishra, Sita. (Oct-Dec 2009): It is all about creating customer value in e-retailing, the application of information and communication technology from the point of origin to the end point has been organized electronically so as to create fast delivery, proper communication with customer, user friendly web sites and mobile apps are created values in the offerings. it provides one stop solution to consumer with less amount of charges.

Elissar, Ricard & Jean (Business research 2013) Customer loyalty and business integration models, Service quality feedback is the difference between customer expectation and actual delivery of services at the point of consumption. Things promises by e-retailers and their fulfillment decides the customer loyalty.

Shirshendu, Roy (2010) "Service quality dimensions of hybrid services", as an e-retailer one may promise to provide better services but as the services are associated with skilled person it must be standardizes to get uniform services consistently.

Objectives of the Study

To study the role of E-Commerce in organizing the unorganized service sector in India

To study the Pros and cons of Vertical Integration of online and offline Service retailers

Research Methodology

This study based on secondary sources of information from various research publications, published newspapers, and conference publications, online journals & magazines, web sites, and books. The information has collected from libraries and websites.

Organized Service Sector

The major players in the industry like McDonald, Dominos, Pizza Huts, Subway, Traveling service providers like Kesari, Neeta, Veena world; Multispecialty hospitals like Wockheart, Apollo etc and many more in service industry has develop a network of organized services. As these major players have resources to attain the goal of organizing services.

Still a large area of service sector is unorganized in India. They are the individual players in the market with their brand image and goodwill. But the organized services players are the big threat in front of unorganized or individual services providers. This opportunity gives rise to "Vertical Specific Integration of E-tailers (VSIE)"

Vertical Specific Integration of E-Tailers (VSIE)

Vertical Specific Integration of E-tailers (VSIE) finds it attractive to target on specific product and services, as all the services are differentiates from its main e-commerce player. The importance of such kind of new venture development helps them to raise additional business, funds and more customers' acquisition and traffic generation. The crucial role of this kind of integration of industry with local service provides help in the customer driven service, availability of 24*7, less cost, user friendly.

Trivago has organized hotel industry this channel permit user to compare prices of different hotel bookings on a single click in a particular region for more that 400 booking sites for 1.8 million+ hotels in around more than 200 nations. Big Basket, an online grocery store, is marketing to deliver groceries at home without the Problem of traffic and saving time too. Uber,

A COMPARATIVE STUDY ON FACTORS INFLUENCING BUYER DECISION MAKING IN WEB STORE AND RETAIL STORE BUYING -: WITH RESPECT TO FMCG GOODS IN NASHIK CITY

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Abstract: Understanding the fundamentals and mechanism of virtual/web store shopping and retail store shopping behavior of consumer is an important issue for electronic-marketers as well as traditional marketer who is competing in the rapidly expanding marketplace. Therefore marketers can influence the decision making process of the customers. By the way of engaging traditional, physical marketing tools mainly by creating, offering and delivering proper buying experience , web experience: a amalgamation of virtual functionality, feelings, information, stimuli and products/services, expectation, positioning, in other word a mixture and complex mix of controllable variables beyond the 4Ps of traditional marketing mix. This study is concentrated on the consumer behavior with respect to web store & retail store marketer capacity to influence the consumer.

Keywords: Consumer behavior, web store shopping, Decision making, Retail store.
Article History
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Introduction

The World Wide Web (WWW) and internet has been a great development in the field of Information Technology since 1990s, which has provided companies an ability to design electronic Commerce (E-commerce) in comparison with the tradition retailing.

E-Commerce offers different website marketing opportunities to seller worldwide, because it allows retailers to sell their products at very low cost to the mass consumers. In response companies have develop website, to serve as additional way to sell their products. However, it has also created a competitive and open market to Electronic-retailers, where buyer can get product information from e-retailing websites and compare price as well as analyse products qualitatively.

Now a day to retailer is adopting Brisk and Click Model of retailing a mixture of Brick and Mortar and Pure Web. In the country like India where unorganised retaining is dominating the entire market as compare with organised retailing. Even people are ready to accept the new channel that is online web store retail format, but drawback of that result into un-trust on the r-retailers. With the help of Brick and Click model of retailing there is a possibility to reduce that un-trust and develop a customer centric approach. Where retailer could develop best experience for consumers by providing both the option of web store as well as retail store.

The consumer "Buying Behavior" has been a popular marketing subject, comprehensively studied in last two decade, even no any marketing book is complete without a chapter dedicated to same subject. To describe the fundamentals of consumer behavior, explain the consumer buying process as a learning and decision-making activity divided into following steps;

(1) Problem Identification (2) Information search (3) Alternative Evaluation (4) Purchase Decision (5) Post-purchase Behaviour (Bettman, 1997; Kotler & Armstrong, 1997)

Thus, the success of E-Retailing as well as traditional retailing is lies in understanding consumers buying behaviour. The Main factor that makes people select certain products is the level of customer expectation and satisfaction before and after sale services provided. This study is conducted to understand consumers' online & offline behavior, why he/she chooses that option, and what internal and external influences impelled him/her.

Review of important and relevant literature:

i) Buyer Decision Process model developed by Kotler and Armstrong (1997): It is adopted wildly by traditional marketers for traditional retailing. This model is based on following five development processes; i) Need Recognition ii) Information Search iii) Alternatives Evaluation iv) Purchase Decision v) Post- purchase decision

Learning: This model is yet not tested to study Online Buyer Behavior; researcher will applied it to investigate online buyer behavior.

ii) Sindhav and Balzas's Model (1999): Factors impacting growth of retailing on the internet. The main stages of this model are: 1) Consumer Characteristics 2) Firm- Related factors 3) Environmental factors.

Learning: 1) The only focus on stages of pre-purchase search, and ignore stages of purchase and post-purchase search. Factors in this model selected for study were not completely independent of each other. In this study researcher is trying to relate all the internal and external factors which affects online buyer behavior.

iii) Li, Kuo and Russell's model (1999): Factors that determines if customers opt "to purchase" or "not to purchase" online and how frequently purchase were made.

Learning: This model assumed only technological factors like channel understanding, comprehended channel utility, purchase orientation and demographics. In this study researcher will consider all the dimensions of new technological changes and its impact

on online buyer behavior.

iv) Beckett, Hewer and Howcroft's Model (2000): Suggested two-dimensional matrix of consumer choice to better understand consumer behavior. i) Involvement ii) Uncertainty

Learning: This is one of the best model which trying to get insight into consumers mind, today in cut throat competition it is difficult to maintain customer loyalty but only one factor is important in such situation to maintain loyalty is **Involvement** of Consumer. Uncertainty may be because of personal thinking and impact of external factors.

This model has given an important input for the study of online buyer behavior but many other internal and external factors are also played crucial role in such research which must get studied.

Efthymios Constantinides (2004),Research on the buying behavior and the factors influencing the decision-making process of online consumers has revealed similarities as well as differences between them and the traditional customers. The uncontrollable factors (external and personal ones) affecting consumer behavior are similar for both types of consumers. In case of traditional consumer 4P's of marketing mix are the main influencing factors on buying behavior, but in case of web consumer a set of element experienced during digital interaction are controllable factors influencing online buyer behavior.

Ruchi Nayyar, S. L Gupt, Birla (2011) The study shows that various demographic and psychographic factors influencing consumer's willingness to purchase online. There has been a very limited research to study the online buyer behavior and factors responsible for influencing online purchase intentions in India.

Li and Ping Zhang (2002) Online shopping attitude refers to consumer's psychological state in terms of making purchases on the Internet. The extent to which customers are satisfied is directly related to attitude towards online shopping. Consumer's satisfaction is important factor in online shopping, yet to be investigated precisely.

Mohammad Hossein et. al. 2012 E-retailers should make their website safer and assure customers for delivery of their products. People suggest e-buying to each other, therefore this buying method will be popular among people. How to develop trust among online buyer is still a pending issue?

With the help of literature review researcher has find out the most influencing factors on web store & retail store purchase made by consumer.

Table 1.1 Following are the Factors considered for this study

Parameters of Online Consumer Buying Behavior for product
Attitude & perception of the
Web store Attribute & Characteristics : navigation, Transaction and loading speed, security
Psychological behavioural factors
Consumer Perceived Risk- info, Financial, product, delivery
Demographic (Age, Income, Occupation),& Socio-cultural Factors
Web store Attributes & consumer ease of use
Parameters of offline Consumer Buying Behavior for product
Consumer perception, Attitude
Consumer taste & preference, intention
Demographic, Store atmosphere :
Risk, Privacy, consumer Convenience

Note: Table showing important factors of the study

Objectives of the study

- To identify important decision making factors of web store & Retail store Buyer.
- To gain insight into the different attribute of consumers attitude towards web store & Retail store shopping.

Hypothesis:

H_1: there is significant relation between factors influencing on buyers behavior in web store & Retail store buying of FMCG products

H_2: there is risk in buying FMCG products on web store as compare with retail store.

H_3: there is significant relation between attitude of consumer in web store buying and retail store buying.

Research Methodology:

The study leads to the analysis of factors affecting the consumer buying behavior in web store buying & retail store buying behavior for FMCG products of Nashik City's Customers. The data used for the study is collected from various secondary sources like research articles, journal, conference proceedings, books and internet.

Primary data is collected through the questionnaire easily. In this exploratory study five point Likert scale is adopted to gathered responses (strongly disagree/disagree/neutral/agree/strongly agree.) Questionnaire distributed for online survey and scheduled interviews personally to the 150 respondent who has made atleast one purchase during last 6 months in web store & Retail store.

Sampling area: Nashik City in the state of Maharashtra has chosen for the study.
Population: all those who are having experience of online purchase, of age 18 to 60
Sampling Unit: respondent who has made atleast one purchase during last 6 months in web store & Retail store.
Sample Size: 150 respondents
Sampling Technique: Convenient non-probability sampling
Research Tools: for the analysis of data collected researcher has use statistical tools like mean, percentage, t-test for compare mean, two way ANOVA. Cronbach's Alpha for reliability statistic of the instrument

Data Analysis & Interpretation

Data was analysed from 150 respondents form Nashik city. The measurement of reliability was done for examining the stability and consistency of the collected data. Consistency of the instruments questions was determined with the help of measuring a construct. Cronbach„s alpha was used to determine the coefficient alpha values Cronbach's alpha as a measure of internal consistency

1.2 Reliability Statistic for web store buying of FMCG

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.850	0.849	7
0.874	0.886	4
0.844	0.852	6
0.788	0.795	5
Note: Cronbach's Alpha for question set I		

1.3 Reliability Statistic for retail store buying of FMCG

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.719	0.721	7
0.849	0.859	2
0.889	0.901	2
0.862	0.852	6
0.789	0.747	5
Note: Cronbach's Alpha for question set II		

As the results of the reliability test that is cronbach's alpha score is average (0.855) & (0.815) respectively that shows a high level of internal consistency. Thus it is concluded that this instrument is accepted for further statistical analysis with the satisfactory level of reliability.

1.4 Demographic profile of the respondents

Variables	**Description**	**Frequency**	**Percentage**
Gender	Male	85	57%
	Female	65	43%
Age	Below 20	0	0%
	21-30	73	49%
	31-40	32	21%
	41-55	25	17%
	55 and Above	20	13%
Education	Up to SSC	10	7%
	HSC	25	17%
	UG	72	48%
	PG and above	43	29%
Occupation	Student	22	15%
	Self Employed	14	9%
	Govt. Empl	20	13%
	Private Job	46	31%
	Business	16	11%
	Home Maker	32	21%
Monthly Household Income	Below 2 lakh	7	5%
	2-4 lakh	90	60%
	4-6 lakh	26	17%

A STUDY OF CHANGE IN CONSUMER BUYING BEHAVIOR TOWARDS TOURISM DUE TO COVID-19

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ABSTRACT

Coronavirus will have a lasting effect on consumer needs and preferences. The consumer is likely to spend less on discretionary products and services and buy value-for-money deals. They are more likely to stay at home and use digital channels for purchases. These changes will impact their buying behavior towards tourism products and services. The long-distance travel will continue however with more caution. Moreover, tourists are likely to choose lesser-known destinations and less likely to travel in groups. Further, hygiene and cleanliness will be of prime importance. Tourists are more likely to purchase travel insurance and they will have reduced budgets. Lastly, they will research a lot of information about the tour destination. Summarily, covid will have a temporary as well as permanent impact on the buying behavior of tourists.

Keywords: *Covid-19, Tourism, Hygiene, Destination, Budget, Digital*

Introduction

Coronavirus is having a lasting effect on consumer needs and preferences. It is being proclaimed as "the new normal". Interestingly, consumers are adjusting to this new normal, with critical changes noted in their behaviors.

A recognizable change in the behaviors of consumers during the pandemic is their shift to essential buying (for example food) and a decrease in the acquisition of optional things (for example non-essential items and services). Value-based purchasing is the vital pattern during the pandemic; consumers are looking for "value for money" presently like never before. The pandemic has prompted social distancing and diminished in-person interactions, which has brought about a particular inclination for digital usage. Fortunately, digital channels have filled the gaps in the different spheres of life. Consumers have picked to experience new brands and are adopting new shopping behaviors because of the interruption in their normal purchasing designs. New propensities are forming as consumers are staying at home. Home is currently the school, coffee shop, entertainment and restaurant center for consumers.

The travel industry is healing as limitations are taken out in certain nations and individuals acclimate to the new normal. Notwithstanding, travelers' conduct is influenced by psychological and economic factors. Psychological factors include the fear of contracting the infection and the willingness to travel. The economic factor is the diminishing in family income. Both influence the decision-making process of vacationers (Al Sayegh, 2021).

Literature Review

There is reasonable research available on the topic of consumer buying behavior towards tourism due to Corona. Below are a few abstracts from the recent literature.

Im et al. (2021), have posited that, the COVID-19 pandemic has fundamentally changed people's everyday existence because of expanded risk aversion, which has influenced their consumption patterns and preferences. To understand the impact of the pandemic on purchaser conduct through risk aversion, this review researched the relationships among the pandemic, social distancing, online information search, and firm performance in the hospitality and tourism industries. For information investigation, we created two joint models and assessed the models utilizing the fixed-effects technique. The consequences of the principal model showed that social distancing set off by

COVID-19 reports influenced firm worth. The second regional level examination uncovered that the quantity of affirmed cases and COVID-19 reports impacted people's social distancing and online information search for vacation spots and the changed social distancing and online search, thusly, influenced the volume of online hotel reviews.

Stanciu et al. (2020), have argued that, the article targets dissecting the conduct of the Romanian consumer with regards to COVID19 development. The performed research has featured the particularities of the rise of this sanitary crisis at the local economy level. Albeit the Romanian populace's contamination degree has been more decreased when contrasted with the Western states, the severe avoidance measures forced by the authorities have not really set in stone a model of conduct of the consumer near the one of different states influenced by the disease with the new Covid, SARS-CoV2. The market studies performed by particular organizations have shown that overwhelming home isolation conditions, because of the crisis state, has altogether decreased the social activities of the Romanian consumer, the activities being focused basically towards covering the essential necessities. The strength of the consumers (acquisition of meds or visit to the doctor), getting food or monetary activities at the financial units are the fundamental inspirations for leaving the home. By examination, the sports activities or the visits for supporting family members have the most reduced weight. A fragment of consumers, backer of customary business, has been forced to engage present day exchange strategies dependent on online shopping, and the experts' assessments give the upkeep of the exchange conduct. Organizations should zero in on understanding the consumer's requirements and to adjust their product offer and dissemination framework so that to diminish the new consumption limits and to work with the business act. The fundamental direction during the crisis towards the local items can address a chance for the Romanian organizations, however Government support measures are important for the Romanian producers. The research results are an oddity, being among the primary investigations led at public level on the mind-boggling effect of COVID-19 on the strength of the populace, the public economy and consumer conduct.

According to Chebli (2020), the review plans to investigate the effect of the coronavirus pandemic (Covid-19) on traveler conduct and recognizes goals to change vacationer conduct that will arise because of this pandemic. 308 voyagers, chosen on a non-probabilistic premise, partaken in this pilot research. The information gathered were exposed to Chi-square test of goodness of fit test statistical analysis and content analysis. The outcomes demonstrate that the current Covid-19 pandemic is relied upon to affect explorer conduct goals, as far as personal safety, economic expenditure, conviction and attitude. At last, key discoveries and functional ramifications of this review are portrayed for the management of this crisis, in view of the outcomes and impediments of this research, future research bearings are introduced. Apparently, this paper gives the main exploratory analysis of the results that the Covid-19 wellbeing crisis is relied upon to have on travel conduct.

Gallego and Font (2021), have opined that, this paper develops a methodology for the early detection of reactivation of tourist markets to help relieve the effects of the COVID-19 crisis, utilizing Skyscanner data on air passenger searches (>5,000 million) and picks (>600 million), for flights between November 2018 and December 2020, through ForwardKeys. For future travel during the May to September 2020 period, the desire to travel (based on the quantity of flight searches) has come around 30% in Europe and the Americas, and by around half in Asia, while intention to travel (the quantity of flight picks, the final selections among flight searches) has dropped a further 10–20%. Most source markets stay hopeful with regards to air travel during the last quarter of 2020, proposing a U shape recuperation. However, hopefulness has dwindled over the long haul, proposing a flatline L shape. A traffic light dashboard for homegrown and inbound air travel demand to Spain shows how objective supervisors may utilize Big Data relating to the early recuperation of key source markets to develop designated advertising systems. We show how Big Data gives timely granular data essential in highly volatile

circumstances, and we contend that objective management associations should further develop their Big Data analytical and evidence-based, decision-making skills.

According to Torres et al. (2021), the current review looked to analyze how hospitality service consumption changed during the COVID-19 pandemic. Following a national review of U.S. consumers, the effects of customer influence were tested utilizing regression analysis with squared values to find out their effect on consumer conduct. Results revealed the effect of negative customer affectivity on consumer's decisions to buy hospitality and tourism services. All the more specifically, the timing, duration, and intensity of emotion influenced consumer's willingness to buy these services. Certain socioeconomics, including age, gender, and income, affected consumers' willingness to buy services. The authors lay the preparation for a behavioral-based division, enabling advertisers and managers to evaluate the consumers probably going to buy following the pandemic and devise systems to draw in them. Finally, the authors recommend that emergencies can achieve temporary and permanent consumer buying behavior changes.

Moreover, Nigar and Miah (2020), Itani and Hollebeek (2021), Ugur and Akbiyik (2020) and Rahimizhian and Irani (2020) have dealt with various aspects of consumer buying behavior towards tourism due to Corona.

Changes in consumer buying behavior

1) Choosing a Close Destination: The Covid-19 pandemic has not had an impact on individuals' longing to travel away from home and continue exploring across borders. When travel limitations are lifted, long-distance travel would continue, as before. The eagerness of vacationers to continue to travel is reassuring, although individuals may be "a little more cautious and attentive" to the recuperation. Some counteraction mechanisms, like wearing a mask or disinfectant gel, avoiding gatherings, appear to be reflected in individuals' behavior.

2) Choosing a Less Known Destination: Many tourists agree that for their next trip, they wish to pick a less popular destination. It tends to be found that this decision is a combination of internal motivations, like anxiety and fear, fear of being contaminated, or of catching a disease by ending up in a crowd, encircled by many strangers, whose state of health is obscure.

3) Group Travel: The Covid-19 emergency will have an impact on the penchant of tourists to travel in groups and on the purchase of tour packages. This can be explained as follows: the fear of being in a closed space (bus, boat, and so forth), where one cannot maintain separation, and also, the anxiety of being caught in the ocean, far from the surface, on account of a journey.

4) Sanitary Condition and Quality of Care at the Destination: The Covid-19 pandemic has placed hygiene and quality of public care in a vital position. One of the major impacts of this health emergency is hygiene and health awareness. This indicates that for their next trip, travelers would be more worried about the cleanliness of airports, public spaces, hotels, restaurants, tourist attractions and daily necessities, and so on, yet in addition, about the conditions of access and the quality of the care offered, by the destination.

5) Travel Insurance: Purchasing travel insurance isn't always a priority. Tourists will in general be reluctant to purchase travel insurance, either out of ignorance or basically out of a desire to save money. After the emergency, this indifference will change, as tourists can no longer take risks.

6) Purchasing Power: Another possible behavior is a decrease in the amount of income allocated to vacations. The economic emergency connected to Covid-19 will have repercussions on purchasing power. With the economic emergency, tourists will attempt to reduce their travel expenses.

7) Search for Information: Tourists are also willing to learn more and to follow current information about the travel destination before making a final decision about their next trip. The provision of clear, accessible and cutting-edge information is essential for attracting tourists and impacting their decisions (Chebli, 2020).

Conclusion

Coronavirus is having a lasting effect on consumer needs and preferences. The key impacts of the pandemic are – shift to buy essentials rather than discretionary, looking for

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A COMPARATIVE STUDY ON CONSUMER BUYING BEHAVIOR AT WEB STORE PURCHASE AND SERVICE STORE PURCHASE OF ENTERTAINMENT SERVICES IN NASHIK CITY

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Abstract:
This study is focus on the comparison between consumer buying behavior in the purchase of Entertainment services in web store (e-retail) & Service Retail Store. Aim of the study is to understand and analyse the factors influencing consumer buying behavior of entertainment services in web store (e-retail) & Service Retail Store. The development in the field of telecommunication and connectivity through internet plays an important role in the consumer buying behavior. This study concentrate on why consumers behave in a particular way while selecting and buying entertainment services from web store (e-retailer/ online) and in retail store (places where services sold/offline). Study reveals the facts that buying services from web store is more convenient comparing to buying service form service retail store. In this study researcher has identified the factors like attitude and convenience of consumer, Risk (financial information, personal information, malfunction delivery, product risk, non-delivery of services etc), ease of use etc. that are highly influencing consumer buying behavior in web store (e-retail) & Service Retail Store.
Key Words: Web store Shopping, Service retail store, Entertainment Services, Risk.

Introduction:
Simplicity of human life or complexities is the outcomes of their nature, behavior and circumstances. Lots of influencing factors determine the happiness or sadness in his/her life. There are many events occurs around him/her that push them in to stress or feel happy situation. In such circumstances an idea click that keep us relax and release our stress it is nothing but an Entertainment. Concept of entertainment may get change person to person, as per the criteria of happiness they select and consume services like games, concerts, organised events, movies, music, drama, channel subscription etc.
B2C E- commerce has entirely changed the complete scenario of the buying, selling, marketing of products and services; the reason is the magical upgradation in internet connectivity, loading speed, relatively low in cost and widely available network coverage. Even customers have also accepted e-retail purchase as another efficient and effective channel of purchasing goods and services
Television media is the important source to reach to the masses of crowded, highly populated and geographically dispersed country like India. The new most popular digital service distribution like *DTH,* smart TV and availability of Television on mobile phones has witnessed huge technological revolution. Application based branded personalized entertainment service providers like Amazon Prime, Hot star, Netflix etc has been raising the standard of service quality delivery for music industry. Television entertainment is a media of family entertainment where irrespective of like and dislike of members everyone has to watch the single channel of entertainment. This lacuna of television entertainment gives rise to personalization of services in the form of different service providers like Netflix, Amazon prime, Hot star etc. that result in to the innovation of Mobile TV where personalization of services becomes a main target.
Along with this purchase of movie or drama tickets, event & concert booking, games purchases, sport events tickets, subscription of channels become more simple and easy because of web store (e-retailing). Whereas stand in line/queue, longer waiting period, availability and non-availability of services at store, travelling and distance cover to purchase point is more complicated in case of service retail store. Number of questions created dilemma that what makes people to buy services from web store (e-retail) & Service Retail Store?

Literature Review
Li Na You et al 2016, Online and offline shopping has variable degree of risk, service store operator or attain dent may adopt various technique seeking his own benefit, service store premises and tangible presence give more confident feeling to the customer also it provide easy cancelation and refund of money paid.
Ummula Adrita 2016, Peoples are more comfortable buying with Brick and Mortar store as compare with pure web store purchase. The major factors that affect web store purchase is price risk, risk of trust, delivery risk and payment methods, overall saying

peoples are worrying about financial risk in online purchase so they prefer store purchase as compare with web store purchase.
Efthymios constantinides 2004, analyzing the role and importance of website, navigation pattern, ease of use, site user friendliness, loading and transactional speed, functional factors as well as psychological factors and their impact on customer's decision making in an online shopping is the most prominent factors affecting consumer behavior. Components of web experience and their role in consumer buying decision making make process it simplicity or complication depend on these controllable factor.
M. S. Ishar Ali et al 2017, Store Atmosphere including interior made significant impact on consumer buying behavior, service personnel image, and store interior design, image of other consumer, tangible factors, and visual stimuli plays an important role in consumer buying behavior in service store buying.
Priyanka S. Neha K 2014, Interior store atmospheric has great impact on consumer buying behavior that also influences consumer's impulse purchasing which is unplanned and stimulated by the store interior atmosphere.
With the help of literature review researcher has identified the factors that influence on consumer buying behavior in web store & service retail store purchase made by consumer.

Table 1.1 Following are the Factors undertaken for this study

Parameters of web store Consumer Buying Behavior for entertainment services
Attitude & perception of the consumer, Psychological factors, Risk, Purchase intention,
Web store Attribute & Characteristics : navigation, Transaction and loading speed, security & privacy
User friendly experience, others behavior
Demographic factors including Age, Income, Occupation , qualification
Parameters of retail service store Consumer Buying Behavior for entertainment services
Consumer Attitude & behavior
Consumer taste & preference, intention of purchase
Demographic profile, retail service Store atmosphere :
Risk associated with in store purchase , Privacy of consumer information & Convenience

Objectives
1. To study the web store (e-retail) & Service Retail Store consumer buying behavior of entertainment services
2. To find out factors affecting on web store (e-retail) & Service Retail Store consumer buying behavior with respect to entertainment services
3. To compare the various influencing factors in web store (e-retail) & Service Retail Store consumer buying behaviour of entertainment services.

Hypothesis
H_1: there is significant relation between web store (e-retail) & Service Retail Store consumer buying behavior of entertainment services
H_2: consumer prefer web store buying over service retail store buying of entertainment services

Research Methodology:
The study leads to the analysis of factors influencing the consumer buying behavior in web store (e-retail) & Service Retail Store buying behavior for Entertainment services of Nashik City's Customers. The data used for the study is gathered from secondary sources like research articles, journal, conference publishing, books and internet data.
Primary data is collected through the questionnaire. In this exploratory research five point Likert scale is adopted to collect responses (strongly disagree/disagree/neutral/agree/strongly agree) and close ended questions are added. Questionnaire distributed for survey and scheduled interviews personally to the 126 respondent who has made atleast one purchase during last 6 months in web store (e-retail) & Service Retail Store.
Sampling area: Nashik City in the state of Maharashtra has chosen for the research.
Population: all those who are having experience of web store (e-retail) & Service Retail Store, of age 18 to 60
Sampling Unit: respondent who has made atleast one purchase during last 6 months in web store (e-retail) & Service Retail Store
Sample Size: 126 respondents
Sampling Technique: Convenient non-probability sampling used for data collection
Research Tools: statistical tools used: mean, percentage, t-test of compare mean, two way ANOVA. Cronbach's Alpha for reliability statistic of the instrument

Variables used: for this study researcher has used demographic variables like age, income, occupation, marital status, family size, education and gender. Other variables used that are influencing factors like availability of information & option to select, financial risk, waiting time, website attribute like loading speed, navigation, ease of use similarly service store atmospheric like interior and

exterior

Data Analysis and interpretation:

Data was collected and analysed from 126 respondents form Nashik city. The measurement of reliability was done for examining the consistency and stability of the gathered data. Consistency of the research instruments was tested & determined with the help of measuring a construct. Cronbach's alpha was used to determine the coefficient alpha values Cronbach's alpha as a measure of internal consistency

Reliability Statistics convenience in Service Retail Store Attribute, Convenience & Risk

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.859	0.859	2
0.915	0.918	2
0.791	0.781	2

Reliability Statistics convenience in Web store Attribute, Convenience & Risk

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.858	0.855	2
0.811	0.805	2
0.955	0.956	2

Reliability Statistics Website Attribute

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.811	0.815	5

Reliability Statistics store atmosphere attribute

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.881	0.886	5

As the outcomes of the reliability test that is cronbach's alpha score is vary between 0.9 to 0.78respectively that conclude a high level of internal consistency. Thus it is concluded that the instrument is accepted for further statistical analysis test with the satisfactory level of reliability

Demographic Details of Customers of Entertainment Services

Variables	Description	Frequency	Percentage
Gender	Male	70	55%
	Female	56	45%
Age	Below 20	12	10%
	21-30	28	22%
	31-40	53	42%
	41-55	13	10%
	55 and Above	20	16%
Education	Up to SSC	4	3%
	HSC	8	6%
	UG	69	55%
	PG and above	45	36%
Occupation	Student	13	10%
	Self Employed	24	19%
	Govt. Employee	13	10%
	Private Job	39	31%
	Business	10	8%

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IMPORTANCE & ROLE OF INFORMATION TECHNOLOGY TOOLS IN DATA ANALYSIS

Mahesh A. Kulkarni*

ABSTRACT

The paper outlines summary about contemporary state of art and trends within the field of knowledge analysis. Collecting, storing, merging and sorting enormous amounts of knowledge are serious challenge for software and hardware facilities. Increasing number of companies and institutions has solved and developed tools for saving and storing tables, documents or multimedia data. Database structures are serious instrument in prevailing applications. These structures have everyday thousands or millions entries. The objectives of analytical tools is obtaining necessary and useful information from collected data and consequently utilizing them for active control and deciding. The main aim of this contribution is to present some possibilities and tools of knowledge analysis with regards to availability to ultimate users.

Keywords: *Data Analysis, Data Analysis Methods, Data Analysis Process, IT Tools*

INTRODUCTION

Data analysis is that the process of performing on data with the aim of arranging it correctly, explaining it, making it presentable, and finding a conclusion from that data. It is finished finding useful information from data to form rational decisions. The main purpose of knowledge analysis is interpretation, evaluation & organization of knowledge and to form the info presentable.

DATA ANALYSIS METHODS

There are two methods of data analysis are Qualitative Analysis & Quantitative Analysis. Qualitative Analysis is done through interviews and observations. Quantitative Analysis is done through surveys and experiments. Data Analysis Process includes:

1. Data Collection
2. Working on data quality
3. Building the model
4. Training model
5. Running the model with full data.

Difference between Data Analysis, data processing & Data Modeling

Data analysis is completed with the aim of finding answers to specific questions. Data Analysis techniques are similar to business Analysis and business intelligence.

Data Mining is about finding the various patterns in data. For this, various mathematical and computational algorithms are applied to data and new data will get

generated. Data Modeling is about how companies organize or manage the information. Here, various methodologies and techniques are applied to data. Data analysis is required for data modeling.

As more and more enterprises realize the unique strategic importance of knowledge quality, a replacement class of knowledge analysis tools has emerged. Like all processes, to realize the very best level of knowledge quality excellence, the order of operations matters. Properly putting things first means the primary thing that has got to be done, even before planning, is to research.

The truism that you simply can't fix what you'd don't measure is particularly true because it relates to data quality. Data quality analysis tools are available for a good range of measurements and fall under the subsequent categories:

Duplicate Data Detection

This type of knowledge analysis tool is employed to assess what percentage duplicate records are currently taking over space inside your database. Duplicate records are incredibly problematic for sales and marketing teams when it involves lead routing, assignment and conversion. This type of knowledge quality analysis is useful to supply insight about data quality and can assist within the recognition of duplicate data issues.

Data Cleansing

Once you've discovered the amount of duplicates inside your database, take action against them by matching and merging all duplicate records in real-time. Having a clean and duplicate free database will cause organizational efficiency, increased productivity and better ROI on your CRM and marketing automation investments.

Data Monitoring

These data analysis tools are helpful in analyzing and controlling the continued conformance of knowledge to the agreed business rules defining the info quality for the enterprise.

Data Enrichment

A data enrichment tool which will append your data with relevant contact and firmographic information like direct dials, email addresses, company revenue and employee count, can really change the way your sales and marketing teams operate. With enriched contact information like direct dials and email addresses, your sales team can engage with the proper person at the proper time, and your marketing team can increase deliverability, open and conversion rates, helping your maximize the ROI on your CRM or marketing automation investment.

Data Standardization

Data standardization tools help in formatting the values into layouts which are consistently supported local and industry standards. They also help in decomposition of text fields into components. It makes sure that fields like title, address and phone number look and read the same across your entire database. You wouldn't want to possess "VP" also written as "Vp" or "Vice President" inside your CRM. This results in duplicate records and poor data reporting because the CRM will read the titles as 3 different ones.

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THE EMERGING ROLE OF BUSINESS MANAGEMENT FOR SUSTAINABLE DEVELOPMENT IN DEVELOPING ECONOMIES

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Abstract

The opportunity of digital technology and the internet in terms of the elimination of communication issues and distance and enhancing the ability to transfer a large number of data has influenced wide areas of human life. Naturally, the advancement of technology also reflects a deep effect on industrial production and business execution processes. High technology-based manufacturing organizations have felt such high technology earlier. However, in the case of enterprises who are operating with traditional technology, they are suddenly exposed to the four advanced technology-based operating systems and feel the adventures and advantages of HRM 4.0. In this context, this research paper is going to dig into the impact of human resource management in creating enhanced industry 4.0 for sustainable growth and development.

Keyword

Enhanced industry 4.0, AI, Machine learning, Sustainable Growth, Business development.

1. Introduction

The continuously increasing market competition and constant demand are effectively throwing a great thrust into the market among diversional companies to make its sales curve up growing. In such a scenario, to further grow into the market, the up-gradation of the business is one of the smart ways to pull the interest of the market on the business's products and services. It is to be noted that in order to turn this concept into reality, the organization need to offer diversified services to its customer to make a transparent difference in the business in comparison to the other competitors [1]. Industry 4.0 technology helps organizations and HR management systems to manage and optimize all aspects of the business process, such as data management,

manufacturing process and supply chain administration. The main advantageous part of industry 4.0 is that it gives access to real-time data and provides insight into the business that the HR team needs to make the decision faster and smarter [2]. This factor can ultimately boost the profitability and efficiency of the entire operation.

2. Literature Review

The fundamental function of the human resource management team in an organization is to control, plan, organize and direct the company's activities through recruitment, staffing and optimizing the utilization of the workforce. In essence, with better management and cooperation, the HR team needs to act as a bridge between the employees and the organization so that all of the stakeholders connected with the business get adequate benefits. Industry 4.0 has introduced revolutionizing ways for the diversified organization to improvise the manufacturing, distribution, research and development of the product that effectively brought innovation within the organization area. The main advantage of industry 4.0 is that the human resource management is able to track each and every task operating in the company with live updates through the digitization process [3]. On the other hand, the integration of the internet of technology and cloud computing effectively allows HR to gather the market data at a very glance in real-time and could able to transfer the data between people very fast. Therefore, it is needless to explain that through this process the HR management team code easily understands present market demand and expectations. Now with industry 4.0 smart AI-based analytics helps to compare whether the organizational product and services are meeting the market expectation or not. In case the result is from a negative side, the AI technology automatically suggests some possible way of service development that further makes manufacturing and distribution of the product more improved [4]. Thus in the following HR management team can prove it's company as more customer-centric in the market and hence it's become easier for the company to grab the market easily in a faster way with superior services and product quality.

It is also to be noted that data management is one of the most important parts of business management as based on the sensitive data, the quality of the business execution and rate of annual sales are often varied which is directly connected with the profitability of the business [5]. By considering this fact, industry 4.0 also offers cloud-based data computing opportunities for the business that helps to make the strategy-making process easier and fruitful. However, besides such advantages, some dangerous challenges also may appear in the era of the enhanced industry 4.0 that may impacted the HR management to managing the organizational functionality and security [6].

Challenges that HR management faces in maintaining data security

In current days, the exposure of digital technology has enhanced the dependency of the company on the cloud-based data management system due to its high operational reliability. However, besides such an advantageous part, different challenges are also present that the HR management teams are facing to handle the data security factor. These factors include

i) Service Disruption (DoS): The occurrence of assault due to DoS potentially brings all the cloud services to a halt and effectively makes the system inaccessible to the consumers for some time. Moreover, DoS also fed the system with a large amount of traffic due to which the Business software was not working properly [7].

ii) Breaching of personal information: Cloud-based HRMS systems often fall under the data leaking like activities like data breaching through which the hackers

steal the confidential data of the company by breaching the security system of the cloud computing [8]. During such time, the handling of situations is getting harder for HRMS.

iii) Not secured APIs: In most of the time, unauthorized users have possessed data security dangers by capturing and transferring the sensitive data of the organization by using IoT sensors and various appliances. Such kinds of superior and tactful activities like assaulting API make HRMS confused and puzzled to find the main sources of the data leaking and in the meantime a lot of data gets leaked from the cloud system of the company [9].

iv) Crypto-jacking: With the popularity of bitcoin, crypto-jacking-related issues have become tandem. Hackers are exploiting computer resources to conduct malpractices like cryptocurrency transactions. Usually, cryptocurrency scripts are installed by hackers on the servers without the permission of the organization.

Thus in the following way, critical cloud HR services threats are taking place that are throwing great challenges in the business area.

3. Methodology

The metrological approach of the study has introduced how SMEs intended long-lasting and closer relationships with the customer through the implementation process of advanced services aligning with the fourth industrial revolution. In this study, methodological approaches have been illustrated step by step so that the technicians of those SMEs are able to easily deploy those services. The proposed methodology has been considered the phase of an information system life cycle.

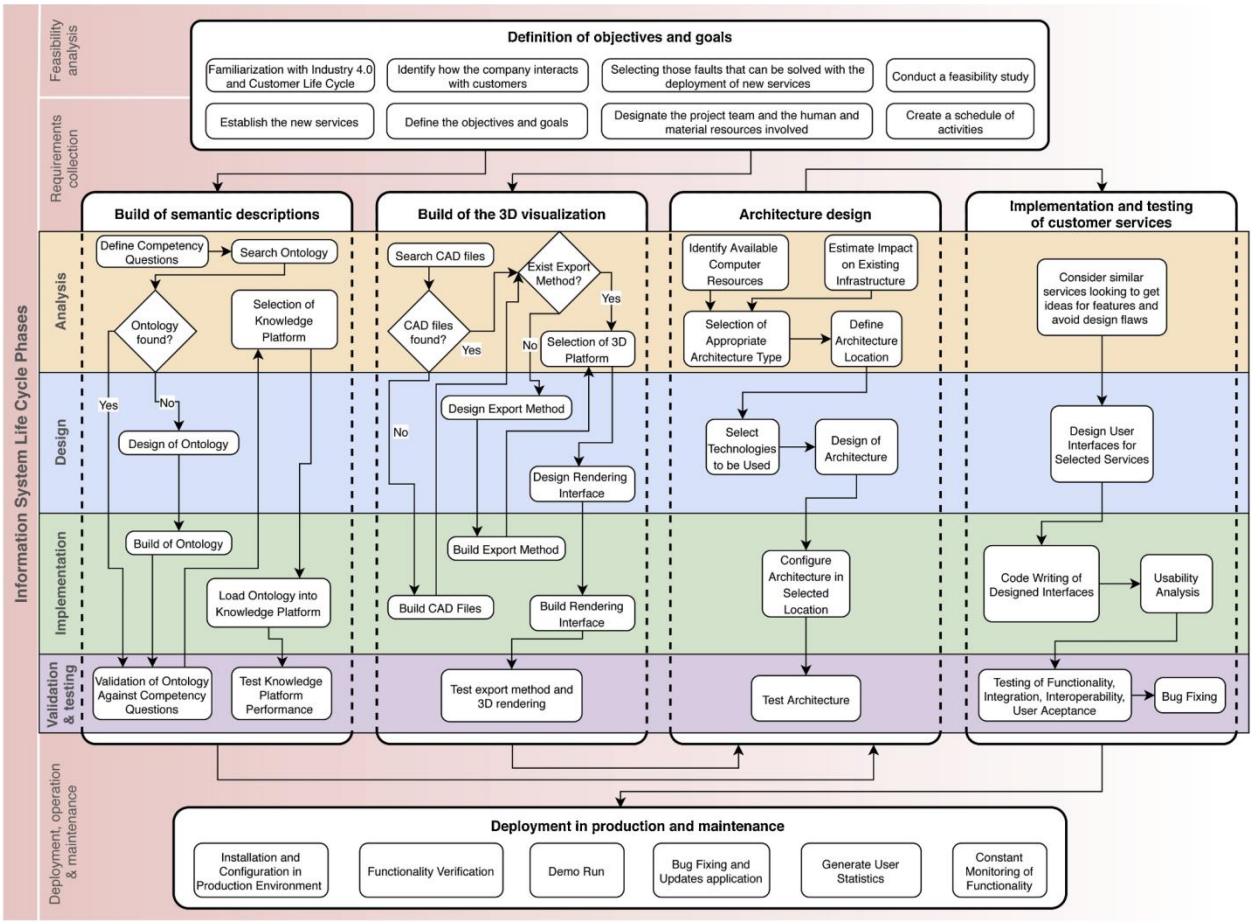

Fig 1. Diagram of methodology

(Source: [10])

In this study, different well-known development models can be deployed such as ***Iterative***, ***Waterfall*** and ***Agile*** that make a significant difference in each phase of the HR activities and information system life cycle. On the basis of the above figure, it can be seen that the requirement collection and feasibility analysis are highly required to familiarization with industry 4.0 and customer life cycle. Thus in the following way a series of new services such as the ***build of the 3D visualization, build of semantic descriptions implementation*** and ***testing of customer services and architecture design*** can be established through which the HR management team can able to improve the organizational efficiency and could enhance the customer experiences as well by attracting and retaining customers towards the products and services [11].

Table 1: Methodological stages in input and output

(Source: [12])

Stage	Input	Output
Designing of the objectives and goals	Showcasing the interest for adopting the industry 4.0 for improvising the relationship with the customer's	Listing the series of the new services along with defining goals, objectives and roadmap for deploying the diversified services of the organization.
Semantic description build-up	Designing specifications for the manufacturing of the products	Selection of the ontology in the knowledge platform
3D visualization	Making the list of the manufacturing the products	Synchronizing the export methods for rendering interface
Architectural design	Putting knowledge platform and quality attributes requirements	Getting a product based architecture
Testing and implementation of the customer services	Testing the existing products and the customer services	Implementation of superior services for the customer retention
Deployment of the productions and services	Implementation of the quality customer services in the business	Deployment of the customer services in the production house for more customizable product

4. Analysis and Interpretation

On the basis of the above information, it is quite clear that the emergence of industry 4.0 has experienced Singh a breakthrough that helps organizations to progress continuously. In order to understand this fact this research study has found the following development that human resource management will be faced due to the implication of industry 4.0.

- The production process will be simpler and can be majorly automated with digitalization.
- The internet of objects made dominant the entire firm, factory and the business world.
- Industry 4.0 helps to identify the best ways that the company may follow to interact with the customers while fulfilling the purpose of detecting and mitigating potential problems.
- System automatically analyze the strength and disadvantages of the business based on the organizational performance [13].
- AI-based system can also forecast the future sales of the company from very prior so that the company can take a bold move as per that.
- The phase of the customer life cycle can be improved while familiarizing the stakeholders with customer needs.

Fig 2. Framework of the industry 4.0

(Source: [14])

The above figure has demonstrated the framework of industry 4.0 where it can be seen that the major parts of the organization is being executed by data analytics and digital cloud computing-based technology. Considering this key component of industry 4.0, the above-demonstrated framework has considered IoT platform, human-machine interfaces, location detection technique, 3D printing authentication and fraud detection process analytics, advanced algorithm smart sensors, augmented reality variables & multi-level customer profiling and customer multi-level interaction technique through mobile devices and cloud computing [15]. Hence in the following way with the help of the Internet and digitalized technology the diversional area

of the business can easily be managed by the HR department. Thus, in the following way are revolutionary changes have positively impacted the human resource management team.

5. Discussion and Findings

After considering the above result it can be discovered that industry 4.0 has a significant contribution to the present industries to overcome the diversified technological challenges and increase the sustainability in the business area for improvising performance. The key factors of industry 4.0 like big data, IoT and smart factory has a higher level of potentiality to achieve the results consistent with the literature which may increase the business performance and always keep the business at a profitable position [16].

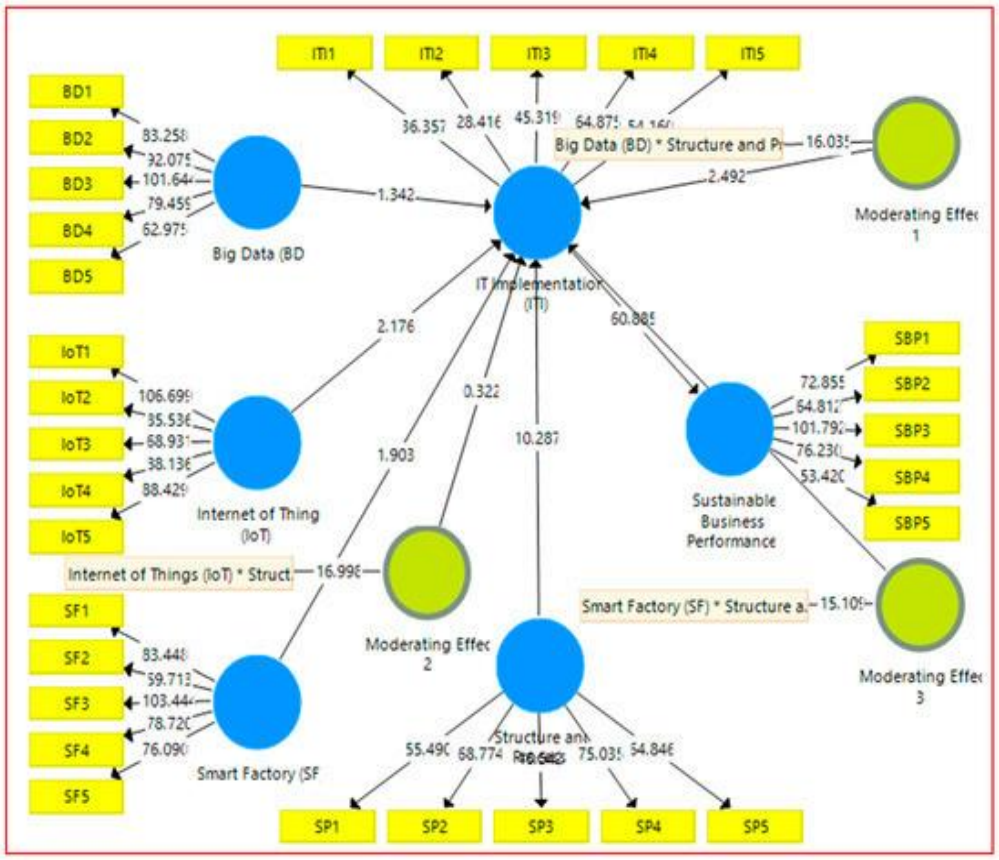

Figure 3: Moderation Effect

(Source: [17])

Moderation effect is such kind of effect that usually occurs when a continuous independent variable acts on a continuous dependent variable depending on the level of the moderator. It is to be noted that in order to implement industry 4.0, a major number of pre-existing systems need to replace with newer ones to get the advantages of technological advancement. However, this process is very heavier on budget and budgetary restrictions may slow down the overall process. Moreover, heavy load on pocket also may restrict the spread of industry 4.0 [18]. In that situation, by applying the moderation effect, some additional plug-and-play devices have been developed that could help the existing system to be compatible with the latest technology and works as per the expectation. Thus in the following way, the high structural process can be achieved at a lower cost. In order to understand this factor, the above-demonstrated figure has been shown how the IT implementation makes the system compatible while putting

the sustainable function in the business area.

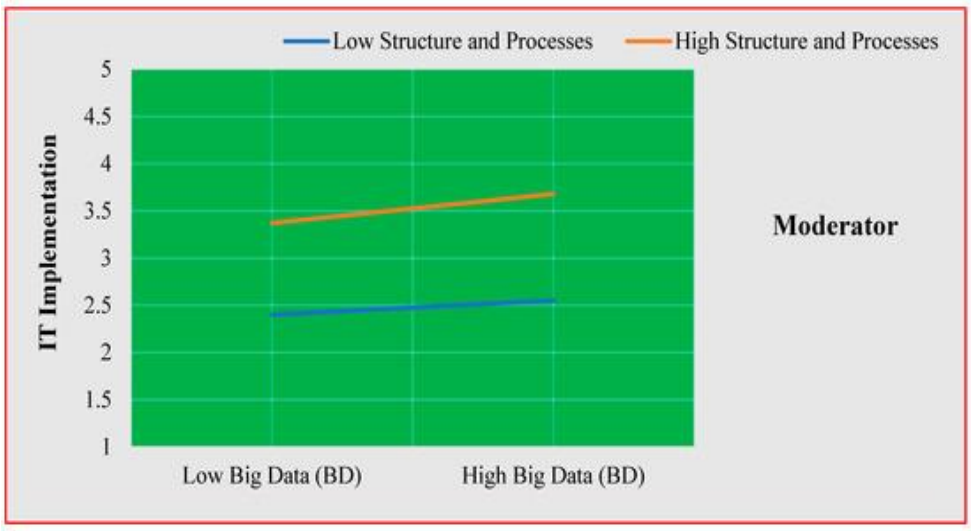

Fig 4: Moderation effects on the process and structure of IT and Big Data

(Source: [19])

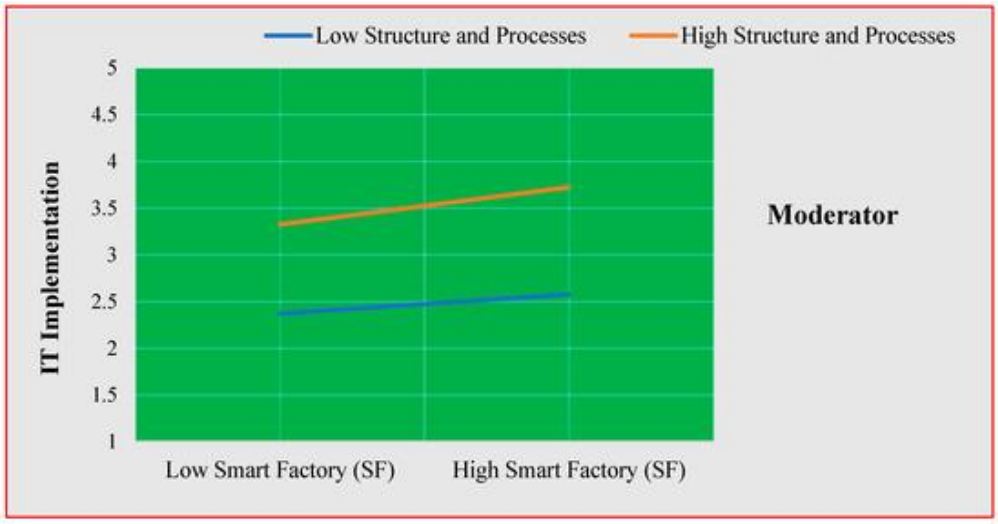

Fig 5: Moderation effects on the process and structure of IT and Smart factory

(Source: [19])

The above two results have demonstrated the moderation effect on the process in structure of IT implementation and smart factory while another one has demonstrated the consistent result and moderating variable strength with the help of smart factory and structure of IT. From the obtained graph it can be seen that the unsuitable structure and IT process can negatively impact the success factors of the firms that may directly harm the profitability factor [20]. Thus, in the following way it can be claimed that the application of industry 4.0 to HRM is justified that could bring a lot of success in the business area in future also.

6. Conclusion

Conclusively, after considering the above discussion it can be said that in current days the execution process of the business has widely changed by holding the hand of industry 4.0. Starting from business efficiency and working proficiency to data

management, decision making, product up-gradation and sales improvement, everywhere the function of industry 4.0 is undeniable. Hence through this process the human resource management ideally got tremendous support to managing the organization to some extent so that the organization's goal and agenda can be achieved faster.

7. References

- Raj, A., Dwivedi, G., Sharma, A., de Sousa Jabbour, A.B.L. and Rajak, S., 2020. Barriers to the adoption of industry 4.0 technologies in the manufacturing sector: An inter-country comparative perspective. *International Journal of Production Economics*, *224*, p.107546.
- Sony, M. and Naik, S., 2019. Key ingredients for evaluating Industry 4.0 readiness for organizations: a literature review. *Benchmarking: An International Journal*.
- Dalenogare, L.S., Benitez, G.B., Ayala, N.F. and Frank, A.G., 2018. The expected contribution of Industry 4.0 technologies for industrial performance. *International Journal of production economics*, *204*, pp.383-394.
- Stentoft, J., Adsbøll Wickstrøm, K., Philipsen, K. and Haug, A., 2021. Drivers and barriers for Industry 4.0 readiness and practice: empirical evidence from small and medium-sized manufacturers. *Production Planning & Control*, *32*(10), pp.811-828.
- Frank, A.G., Dalenogare, L.S. and Ayala, N.F., 2019. Industry 4.0 technologies: Implementation patterns in manufacturing companies. *International Journal of Production Economics*, *210*, pp.15-26.
- Rosin, F., Forget, P., Lamouri, S. and Pellerin, R., 2020. Impacts of Industry 4.0 technologies on Lean principles. *International Journal of Production Research*, *58*(6), pp.1644-1661.
- Vaidya, S., Ambad, P. and Bhosle, S., 2018. Industry 4.0–a glimpse. *Procedia manufacturing*, *20*, pp.233-238.
- Benitez, G.B., Ayala, N.F. and Frank, A.G., 2020. Industry 4.0 innovation ecosystems: An evolutionary perspective on value cocreation. *International Journal of Production Economics*, *228*, p.107735.
- V. Panwar, D.K. Sharma, K.V.P.Kumar, A. Jain & C. Thakar, (2021), "Experimental Investigations And Optimization Of Surface Roughness In Turning Of EN 36 Alloy Steel Using Response Surface Methodology And Genetic Algorithm" Materials Today: Proceedings, https://Doi.Org/10.1016/J.Matpr.2021.03.642
- Jain, A. K. Pandey, (2019), "Modeling And Optimizing Of Different Quality Characteristics In Electrical Discharge Drilling Of Titanium Alloy (Grade-5) Sheet" Material Today Proceedings, 18, 182-191 https://doi.org/10.1016/j.matpr.2019.06.292
- Jain, A.K.Yadav & Y. Shrivastava (2019), "Modelling and Optimization of Different Quality Characteristics In Electric Discharge Drilling of Titanium Alloy Sheet" Material Today Proceedings, 21, 1680-1684 https://doi.org/10.1016/j.matpr.2019.12.010
- Jain, A. K. Pandey, (2019), "Modeling And Optimizing Of Different Quality Characteristics In Electrical Discharge Drilling Of Titanium Alloy (Grade-5) Sheet" Material Today Proceedings, 18, 182-191 https://doi.org/10.1016/j.matpr.2019.06.292
- A. Jain, A. K. Pandey, (2019), "Multiple Quality Optimizations In Electrical Discharge Drilling Of Mild Steel Sheet" Material Today Proceedings, 8, 7252-7261 https://doi.org/10.1016/j.matpr.2017.07.054

- V. Panwar, D.K. Sharma, K.V.P.Kumar, A. Jain & C. Thakar, (2021), "Experimental Investigations And Optimization Of Surface Roughness In Turning Of EN 36 Alloy Steel Using Response Surface Methodology And Genetic Algorithm" Materials Today: Proceedings, Https://Doi.Org/10.1016/J.Matpr.2021.03.642
- Jain, C. S. Kumar, Y. Shrivastava, (2021), "Fabrication and Machining of Metal Matrix Composite Using Electric Discharge Machining: A Short Review" Evergreen, 8 (4), pp.740-749. https://doi.org/10.5109/4742117
- Jain, C. S. Kumar, Y. Shrivastava, (2021), "Fabrication and Machining of Fiber Matrix Composite through Electric Discharge Machining: A short review" Material Today Proceedings. https://doi.org/10.1016/j.matpr.2021.07.288
- M. Thakar, S. S. Parkhe, A. Jain, K. Phasinam, G. Murugesan (2022), "3d Printing: Basic principles and applications" Material Today Proceedings, 51, 842-849. https://doi.org/10.1016/j.matpr.2021.06.272
- Kateja A, Maurya N. Inequality in Infrastructure and Economic Development: Interrelationship Re-examined. The Indian Economic Journal. 2011;58(4):111-127. https://doi.org/10.1177/0019466220110407
- T.S. Papola & Nitu Maurya & Narendra Jena, 2015. "Inter-Regional Disparities in Industrial Growth and Structure," Working Papers id:6607, eSocialSciences.
- Cimini, C., Boffelli, A., Lagorio, A., Kalchschmidt, M. and Pinto, R., 2020. How do industry 4.0 technologies influence organisational change? An empirical analysis of Italian SMEs. *Journal of Manufacturing Technology Management*.

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Exploring the Use of Machine Learning in Inventory Management for Increased Profitability

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Abstract

This review paper explores the use of machine learning in inventory management for increased profitability. The introduction provides background information on inventory management, explains the importance of inventory management for profitability, and provides a brief explanation of the use of machine learning in inventory management. The paper then delves into machine learning algorithms commonly used in inventory management and compares traditional inventory management methods with those that incorporate machine learning. The benefits of using machine learning in inventory management are also explored, including increased accuracy in demand forecasting, improved inventory optimization, enhanced supply chain visibility, and reduced costs and waste. However, the paper also discusses the challenges of implementing machine learning in inventory management, including data quality, cost and complexity, lack of understanding and trust, and privacy and security concerns. While implementing machine learning in inventory management presents several challenges, the benefits can outweigh these challenges, resulting in improved profitability and competitive advantage for businesses. By carefully planning and collaborating between data scientists and domain experts, businesses can effectively leverage machine learning algorithms to optimize inventory decisions and improve overall supply chain performance.

Key Word: Inventory management, Machine learning, Profitability, Supply chain, etc. Optimization

1. Introduction

Inventory management is a critical component of any business operation. It involves the planning and control of the inventory levels of goods and materials needed to support the production process and

meet customer demand. Effective inventory management can lead to increased profitability, while poor inventory management can result in lost sales, increased costs, and reduced customer satisfaction.

In recent years, machine learning has emerged as a promising tool for improving inventory management. Machine learning algorithms can analyze large amounts of data and learn from patterns and trends, enabling businesses to make more accurate predictions and optimize inventory levels. This technology has the potential to revolutionize traditional inventory management methods and drive profitability in a variety of industries.The purpose of this review paper is to explore the use of machine learning in inventory management for increased profitability. The paper will begin by providing a brief overview of inventory management and its importance for profitability. It will then examine the concept of machine learning and its application in inventory management. The literature review will explore previous studies on the use of machine learning in inventory management and compare traditional inventory management methods with those that incorporate machine learning.Next, the paper will discuss the benefits of using machine learning in inventory management. These benefits include increased accuracy in demand forecasting, improved inventory optimization, enhanced supply chain visibility, and reduced costs and waste. The challenges of implementing machine learning in inventory management will also be discussed, including data availability and quality, integration with existing inventory management systems, and staff training and adoption.[1-2] Finally, the paper will discuss future directions for the use of machine learning in inventory management. It will explore potential developments in this field and opportunities for further research and innovation. The conclusion will summarize the benefits and challenges of using machine learning in inventory management and provide final thoughts on the potential impact of this technology on profitability.Overall, this review paper aims to provide a comprehensive analysis of the use of machine learning in inventory management for increased profitability. By examining the current state of research and presenting case studies of successful implementations, this paper will demonstrate the potential benefits of machine learning for businesses looking to improve their inventory management processes.

1.1Inventory management

Inventory management is the process of controlling and overseeing the inventory levels of a business. It involves the planning and control of the materials and goods that are needed to support the production process and meet customer demand. Effective inventory management ensures that a business has the right amount of inventory at the right time, which can lead to increased profitability, reduced costs, and improved customer satisfaction.There are several key elements of inventory management, including demand forecasting, inventory optimization, and supply chain visibility. Demand forecasting involves predicting the amount of inventory that will be needed based on historical data, trends, and other factors. Inventory optimization involves determining the optimal inventory levels to meet demand while minimizing costs and waste. Supply chain visibility involves tracking inventory levels and movements throughout the supply chain, from suppliers to customers. [3-4]

Inventory management is essential for businesses in a variety of industries, including retail, manufacturing, and logistics. In the retail industry, inventory management is critical for ensuring that products are available to meet customer demand, while minimizing the costs of holding excess inventory. In the manufacturing industry, inventory management is essential for ensuring that the right materials and components are available to support production. In the logistics industry, inventory

management is important for optimizing the movement of goods and minimizing the costs of holding inventory.Historically, inventory management has been a manual process, relying on spreadsheets, paper records, and other traditional methods. However, with the advent of new technologies such as RFID (radio-frequency identification) and barcoding, businesses have been able to automate many aspects of inventory management. Additionally, the emergence of machine learning and other advanced analytics tools has opened up new possibilities for improving inventory management, enabling businesses to make more accurate predictions and optimize inventory levels. [5-7]

1.2 Importance of inventory management for profitability

Inventory management plays a crucial role in the profitability of a business. Effective inventory management can lead to increased sales, reduced costs, and improved customer satisfaction, while poor inventory management can result in lost sales, increased costs, and decreased profitability.One of the key benefits of inventory management is the ability to meet customer demand. When inventory levels are properly managed, a business can ensure that products are available when customers want them. This can lead to increased sales and repeat business. On the other hand, if inventory levels are too low, a business may lose sales as customers turn to competitors who have the desired products in stock.

Another benefit of inventory management is the ability to optimize inventory levels. By analyzing demand patterns and other data, a business can determine the optimal levels of inventory to hold. Holding excess inventory can lead to increased storage and handling costs, while holding too little inventory can result in stockouts and lost sales. By finding the right balance, a business can reduce costs and improve profitability.Effective inventory management can also help businesses reduce waste. When inventory levels are not properly managed, products may expire or become obsolete, resulting in wasted resources and lost profits. By optimizing inventory levels and tracking expiration dates, businesses can minimize waste and improve profitability. [8]

Finally, inventory management can improve supply chain efficiency and reduce costs. By tracking inventory levels and movements, businesses can identify bottlenecks in the supply chain and make adjustments to improve efficiency. This can lead to reduced transportation and storage costs, as well as improved delivery times and customer satisfaction. Effective inventory management is essential for improving the profitability of a business. By meeting customer demand, optimizing inventory levels, reducing waste, and improving supply chain efficiency, businesses can increase sales, reduce costs, and improve customer satisfaction. [9]

1.3 Machine learning in inventory management

Machine learning is a subfield of artificial intelligence that enables computer systems to learn from data without being explicitly programmed. In the context of inventory management, machine learning algorithms can be used to analyze large amounts of data and learn from patterns and trends. This can help businesses make more accurate predictions and optimize inventory levels, leading to increased profitability.One of the key applications of machine learning in inventory management is demand forecasting. Machine learning algorithms can analyze historical sales data, as well as external factors such as weather patterns and economic indicators, to predict future demand. This can help businesses optimize inventory levels to meet demand while minimizing the costs of holding excess inventory.

Machine learning can also be used for inventory optimization. By analyzing data on product demand, lead times, and other factors, machine learning algorithms can determine the optimal inventory levels

to meet customer demand while minimizing costs. This can help businesses reduce inventory holding costs, as well as minimize stockouts and lost sales. [10-12]

Another application of machine learning in inventory management is supply chain visibility. By tracking inventory levels and movements throughout the supply chain, machine learning algorithms can identify bottlenecks and inefficiencies. This can help businesses improve supply chain efficiency, reduce costs, and improve customer satisfaction.Machine learning can also be used to reduce waste in inventory management. By analyzing data on product expiration dates and shelf life, machine learning algorithms can help businesses minimize waste by ensuring that inventory levels are optimized and products are sold before they expire.

Finally, machine learning can help businesses identify anomalies and potential problems in inventory management. By analyzing data on inventory levels, sales patterns, and other factors, machine learning algorithms can identify outliers and anomalies that may indicate problems such as theft or inventory shrinkage.Machine learning has the potential to revolutionize inventory management by enabling businesses to make more accurate predictions and optimize inventory levels. By improving demand forecasting, inventory optimization, supply chain visibility, and waste reduction, machine learning can help businesses increase profitability and improve customer satisfaction.

2. Machine learning algorithms in inventory management

Table 1: Overview of machine learning algorithms commonly used in inventory management

Algorithm	Task	Strengths	Weaknesses
Linear regression	Demand forecasting	Simple, easy to interpret, works well for linear relationships	May not capture complex patterns or seasonality in the data
Time-series analysis	Demand forecasting	Specifically designed for time-series data, can capture trends and seasonality	May not work well for non-linear relationships or sudden shifts in demand
Random forest	Inventory optimization	Reduces overfitting, can handle large amounts of data	May not work well for highly imbalanced datasets or non-linear relationships
Artificial neural networks	Demand forecasting, inventory optimization	Can capture complex patterns in the data that other algorithms may miss	Can be computationally expensive and difficult to interpret
Support vector machines	Demand forecasting, inventory optimization	Can handle both linear and non-linear relationships, works well for small datasets	May not work well for highly imbalanced datasets or very large datasets
Reinforcement learning	Supply chain optimization	Can learn from trial and error to identify optimal actions	Can be computationally expensive and may require a large amount of dat

The table 1 summarizes some of the most commonly used machine learning algorithms in inventory management and their strengths and weaknesses.The first column of the table lists the different machine learning algorithms, including linear regression, time-series analysis, random forest, artificial neural networks, support vector machines, and reinforcement learning.The second column lists the tasks that each algorithm can be used for, including demand forecasting, inventory optimization, and supply chain optimization.The third column lists the strengths of each algorithm. For example, linear

regression is simple and easy to interpret, while time-series analysis is specifically designed for time-series data and can capture trends and seasonality. Random forest can handle large amounts of data and reduce overfitting, while artificial neural networks can capture complex patterns in the data that other algorithms may miss. Support vector machines can handle both linear and non-linear relationships and work well for small datasets, while reinforcement learning can learn from trial and error to identify optimal actions.

The fourth column lists the weaknesses of each algorithm. For example, linear regression may not capture complex patterns or seasonality in the data, while time-series analysis may not work well for non-linear relationships or sudden shifts in demand. Random forest may not work well for highly imbalanced datasets or non-linear relationships, while artificial neural networks can be computationally expensive and difficult to interpret. Support vector machines may not work well for highly imbalanced datasets or very large datasets, while reinforcement learning can be computationally expensive and may require a large amount of data.Overall, the table provides a useful summary of the strengths and weaknesses of different machine learning algorithms in inventory management, and can help businesses choose the right algorithm for their specific needs and context. [13-15]

3. Comparison of Traditional Inventory Management Methods with Those That Incorporate Machine Learning

Table 2: Comparison of Traditional Inventory Management Methods

Traditional Inventory Management	Inventory Management with Machine Learning
Reactive approach to inventory management, based on historical data and intuition	**Proactive approach to inventory management, based on real-time data and predictive analytics**
Relies on manual data entry and analysis	Automates data collection and analysis, reducing errors and saving time
Limited visibility into supply chain and demand fluctuations	Provides real-time visibility into supply chain and demand fluctuations, allowing for rapid response
Fixed inventory levels and reorder points	Dynamic inventory levels and reorder points based on real-time demand and supply data
Limited ability to optimize inventory across multiple locations	Optimizes inventory across multiple locations and supply chain partners, maximizing profitability
Relies on static rules and heuristics for decision-making	Uses advanced machine learning algorithms to identify trends and patterns in the data, improving decision-making
Limited ability to forecast demand and predict inventory needs	Accurately forecasts demand and predicts inventory needs, reducing stockouts and overstocks
Inefficient use of resources and higher carrying costs	Efficient use of resources and lower carrying costs, maximizing profitability

The table 2 compares traditional inventory management methods with those that incorporate machine learning, highlighting the differences between the two approaches.The first column lists the characteristics of traditional inventory management. Traditional inventory management is often reactive, relying on historical data and intuition to make decisions. It involves manual data entry and analysis, which can be time-consuming and prone to errors. Traditional inventory management also

has limited visibility into supply chain and demand fluctuations, resulting in suboptimal inventory levels and higher carrying costs.

The second column lists the characteristics of inventory management with machine learning. With machine learning, inventory management becomes more proactive, relying on real-time data and predictive analytics to make decisions. Machine learning automates data collection and analysis, reducing errors and saving time. It also provides real-time visibility into supply chain and demand fluctuations, allowing for rapid response. Inventory levels and reorder points are dynamic and based on real-time demand and supply data, resulting in more efficient use of resources and lower carrying costs. Machine learning also uses advanced algorithms to identify trends and patterns in the data, accurately forecasting demand and predicting inventory needs, reducing stockouts and overstocks. Additionally, machine learning can optimize inventory across multiple locations and supply chain partners, maximizing profitability.Overall, the table demonstrates that inventory management with machine learning provides numerous advantages over traditional inventory management. By leveraging real-time data and predictive analytics, machine learning enables businesses to make more informed decisions and optimize inventory levels, reducing costs and maximizing profitability. [16-17]

4. Benefits of Using Machine Learning in Inventory Management

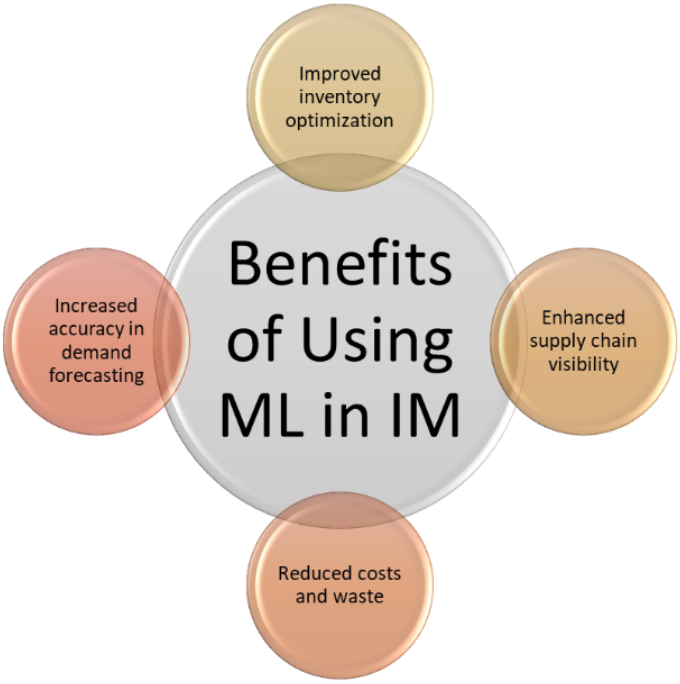

Figure 1: Benefits of ML in Inventory Management

Using machine learning in inventory management offers several benefits to businesses. One of the most significant benefits is improved demand forecasting. Machine learning algorithms can analyze historical sales data, market trends, and other variables to accurately forecast demand. This can help businesses optimize inventory levels, reduce stockouts, and improve customer satisfaction.Traditional inventory management methods often rely on reactive approaches, using historical data and intuition to make inventory decisions. This approach can be time-consuming and prone to errors, leading to

stockouts or overstocks. Machine learning algorithms, on the other hand, can analyze large amounts of data in real-time, enabling proactive inventory management. This helps businesses adjust inventory levels and reorder points based on actual demand, which results in optimal inventory levels and reduced carrying costs.

Another benefit of machine learning in inventory management is real-time inventory optimization. Machine learning algorithms can continually analyze supply chain data and adjust inventory levels and reorder points in real-time based on changing demand and supply conditions. This ensures that inventory levels remain optimal, reducing stockouts and overstocks. Real-time inventory optimization can also help businesses reduce waste by ensuring that inventory levels are not unnecessarily high.Machine learning can also help businesses optimize inventory across multiple locations and supply chain partners. Traditional inventory management methods may have limited visibility into supply chain and demand fluctuations, resulting in suboptimal inventory levels and higher carrying costs. However, machine learning algorithms can provide real-time visibility into supply chain data, allowing businesses to optimize inventory levels and reorder points across multiple locations and partners. This can result in more efficient use of resources and lower carrying costs.

Machine learning can also help businesses reduce the risk of stockouts and overstocks. By accurately forecasting demand and adjusting inventory levels and reorder points in real-time, businesses can ensure that they have the right products in stock when customers need them. This can help businesses reduce the risk of stockouts, which can damage customer satisfaction and result in lost sales. At the same time, machine learning algorithms can also help businesses avoid overstocks, which can tie up capital and increase carrying costs.Finally, using machine learning in inventory management can help businesses make better decisions. Traditional inventory management methods often rely on static rules and heuristics, which can be limited in their ability to accurately predict demand and optimize inventory levels. Machine learning algorithms, on the other hand, can analyze large amounts of data and identify patterns and trends that may not be immediately apparent to human analysts. This can help businesses make more informed decisions about inventory levels, reorder points, and supply chain partners, resulting in improved profitability.

Using machine learning in inventory management offers several benefits to businesses, including improved demand forecasting, real-time inventory optimization, optimization across multiple locations and partners, risk reduction, and better decision-making. Machine learning algorithms can analyze large amounts of data in real-time, enabling proactive inventory management and reducing the risk of stockouts and overstocks. They can also help businesses optimize inventory levels across multiple locations and partners, resulting in more efficient use of resources and lower carrying costs. By enabling better decision-making, machine learning can help businesses improve profitability and gain a competitive edge in today's fast-paced business environment. [18]

5. Challenges of Implementing Machine Learning in Inventory Management

One of the primary challenges of implementing machine learning in inventory management is data quality. Machine learning algorithms require high-quality data to make accurate predictions and recommendations. However, many businesses struggle with data quality issues, such as incomplete or inconsistent data, data silos, and data bias. These issues can significantly impact the accuracy of machine learning models, leading to suboptimal inventory decisions.Another challenge is the cost and complexity of implementing machine learning algorithms. Developing and deploying machine learning models can be time-consuming and require specialized expertise, which may be costly for smaller businesses. Additionally, integrating machine learning algorithms into existing inventory

management systems can be challenging, requiring significant changes to existing processes and infrastructure.

Lack of understanding and trust in machine learning algorithms is also a challenge for some businesses. Traditional inventory management methods often rely on intuition and experience, making it challenging for some employees to understand and trust the recommendations made by machine learning algorithms. This can lead to resistance to change and reluctance to adopt new technology.Finally, privacy and security concerns can also be a challenge when using machine learning in inventory management. Machine learning algorithms require access to sensitive data, such as sales data, customer data, and supplier data. Ensuring the security and privacy of this data can be a significant challenge, especially in industries with strict data privacy regulations. Implementing machine learning in inventory management presents several challenges, including data quality, cost and complexity, lack of understanding and trust, and privacy and security concerns. Addressing these challenges requires careful planning, collaboration between data scientists and domain experts, and a willingness to adopt new technologies and processes. However, the benefits of using machine learning in inventory management can outweigh these challenges, resulting in improved profitability and competitive advantage. [19]

Conclusion

In conclusion, this review paper highlights the potential benefits and challenges of implementing machine learning in inventory management for increased profitability. Machine learning algorithms offer significant advantages over traditional inventory management methods, including increased accuracy in demand forecasting, improved inventory optimization, enhanced supply chain visibility, and reduced costs and waste. However, implementing machine learning in inventory management requires careful consideration of data quality, cost and complexity, lack of understanding and trust, and privacy and security concerns.Despite these challenges, businesses can effectively leverage machine learning algorithms to optimize inventory decisions and improve overall supply chain performance by collaborating between data scientists and domain experts, adopting new technologies and processes, and prioritizing data quality and security. In doing so, businesses can achieve increased profitability and competitive advantage in the dynamic and ever-changing world of inventory management.

References

1. Ahumada, O., & Villalobos, J. R. (2009). Application of planning models in the agri-food supply chain: A review. European Journal of Operational Research, 196(1), 1-20. https://doi.org/10.1016/j.ejor.2008.02.014
2. Berman, B. (2012). The role of machine learning in business intelligence. Journal of Business Research, 65(2), 328-335. https://doi.org/10.1016/j.jbusres.2011.01.005
3. Chen, C., Li, Y., & Li, Y. (2019). Optimization of inventory policy based on machine learning algorithms. Journal of Intelligent Manufacturing, 30(3), 1063-1073. https://doi.org/10.1007/s10845-018-1431-2
4. Ferretti, V., Zanoni, S., & Zavanella, L. (2018). Machine learning in inventory management: A review. Computers & Industrial Engineering, 118, 327-342. https://doi.org/10.1016/j.cie.2018.03.044
5. Gavirneni, S., Kapuscinski, R., & Tayur, S. (1999). Value of information in capacitated supply chains. Management Science, 45(1), 16-24. https://doi.org/10.1287/mnsc.45.1.16

6. Li, X., Huang, G. Q., & Tickle, A. (2017). A survey of artificial intelligence for prognostics. Journal of Manufacturing Systems, 44, 192-220. https://doi.org/10.1016/j.jmsy.2017.06.001
7. Zhang, L., Zhao, S., Ma, X., & Gao, Z. (2020). An intelligent inventory management model based on machine learning algorithms for e-commerce enterprises. Journal of Intelligent & Fuzzy Systems, 39(3), 3651-3661. https://doi.org/10.3233/JIFS-191849
8. Phasinam, K., Kassanuk, T., Shinde, P. P., Thakar, C. M., (2022). Application of IoT and Cloud Computing in Automation of Agriculture Irrigation. Journal of Food Quality, 2022, Article ID 8285969, 8 pages. https://doi.org/10.1155/2022/8285969
9. Shinde, P. P., Oza, K. S., Kamat, R. K., & Thakar, C. M. (2022). Big data analytics for mask prominence in COVID pandemic. Materials Today: Proceedings, 51(Part 8), 2471-2475. https://doi.org/10.1016/j.matpr.2021.11.620
10. Jagtap, S. T., & Thakar, C. M. (2021). A Framework for Secure Healthcare System Using Blockchain and Smart Contracts. In 2021 Second International Conference on Electronics and Sustainable Communication Systems (ICESC) (pp. 922-926). Coimbatore, India. https://doi.org/10.1109/ICESC51422.2021.9532644
11. Parkhe, S. S., & Thakar, C. M. (2022). Implementation of IoT in production and manufacturing: An Industry 4.0 approach. Materials Today: Proceedings, 51(Part 8), 2427-2430. https://doi.org/10.1016/j.matpr.2021.11.604
12. Jagtap, S. T., & Thakar, C. M. (2022). Towards application of various machine learning techniques in agriculture. Materials Today: Proceedings, 51(Part 1), 793-797. https://doi.org/10.1016/j.matpr.2021.06.236
13. Thakar, C. M., & Phasinam, K. (2022). A review on role of artificial intelligence in food processing and manufacturing industry. Materials Today: Proceedings, 51(Part 8), 2462-2465. https://doi.org/10.1016/j.matpr.2021.11.616
14. Han, J., Wang, X., Liu, Y., & Liu, Y. (2018). Improved inventory management using machine learning algorithms: A case study of a small automotive company. Procedia CIRP, 72, 707-712. https://doi.org/10.1016/j.procir.2018.03.239
15. Ge, Y., & Huang, G. Q. (2018). Inventory management in the supply chain: A collaboration perspective. International Journal of Production Research, 56(4), 1466-1477. https://doi.org/10.1080/00207543.2017.1388099
16. He, Z., Lai, K. K., & Zhu, X. (2019). Exploring the impact of big data on supply chain management: A comprehensive framework for conceptual and empirical research. International Journal of Production Economics, 216, 259-272. https://doi.org/10.1016/j.ijpe.2019.03.006
17. Huang, L., Li, Y., Li, X., & Li, J. (2019). Inventory optimization in a perishable food supply chain using deep reinforcement learning. IEEE Transactions on Industrial Informatics, 15(4), 2382-2390. https://doi.org/10.1109/tii.2018.2875379
18. Ozdamar, L., & Demirli, K. (2011). A new fuzzy multi-criteria decision framework for successful ERP implementation. International Journal of Production Economics, 132(2), 197-216. https://doi.org/10.1016/j.ijpe.2010.10.012
19. Verma, A., & Singh, R. K. (2018). Machine learning in supply chain management: A review. International Journal of Information Management, 39, 1-12. https://doi.org/10.1016/j.ijinfomgt.2017.10.002

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The Emerging Role of Cloud Computing in Academic Sector – Bringing Innovation in Education

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Abstract

The emergence of Cloud Computing and its constituent tools and technologies have found profound relevance and are the prime force of success in any business sector. The adaption and operations of Cloud Computing technologies in the educational sector is still at a slower pace in comparison to others. The paper aims to highlight the importance of applying Cloud Computing technologies to various aspects of the education sector and primarily focuses on three specific target users namely students, teachers and the organization as a whole.

Over the years, the education industry has come a long way. Teaching and learning are no longer confined to textbooks and classrooms and now reaches computers and mobile devices. Today, learners are always connected whether they are on or off school grounds. At the same time, the right technologies like cloud computing empower them with real-world and career- ready skills. Technology plays a massive role in this disruptive change.

Keywords: Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS), Cloud Computing, Education Sector, Student, Teacher, and Predictive Analysis, Sentiment Analysis, development, data privacy and security

I. INTRODUCTION

Internet has been a driving force towards the various technologies that have been developed since its inception. Arguably, one of the most discussed among all of them is Cloud Computing. Over the last few years, cloud computing paradigm has witnessed an enormous shift towards its adoption and it has become a trend in the information technology space as it promises

significant cost reductions and new business potential to its users and providers. The advantages of using cloud computing include:

i) Reduced hardware and maintenance cost

ii) Accessibility around the globe

iii) Flexibility and highly automated processes wherein the customer need not worry about mundane concerns like software up-gradation.

Higher and professional education is a domain which constantly needs to be evaluated and transformed to follow the fast pace of changing trends in different sectors in the market which in turn creates a variety of needs in workforce. A major factor that has radically altered the way education is conducted is technology. Examples of different types of technologies used in education are mobile devices and apparatuses, teleconference and remote access systems, educational platforms and services and other that students, teachers, academic faculty, evaluation specialists, researchers and decision- makers in education interact with and use in an effort to impact and improve teaching and learning but also to realistically reflect in the learning stage the usage of modern technologies used in real settings.

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The interaction with these technologies generates large amounts of data that range from an individual access log file to an institutional level activity. Still the educational systems are not yet fully prepared to cope with and exploit them for continuous quality improvement purposes. In particularly, health professions education or health education is a context that these technologies are predominantly used, producing a wide range of educational data. In addition, health education is in constant need of reflecting the growing body of medical knowledge and evidence in order to practically embed it in education and prepare the future health professionals to meet the future challenges of healthcare systems. The need to govern these challenges within health education is now more than ever timely, and therefore, attention has been paid to different approaches such as Cloud Computing and analytics that could be useful in investigating and exploiting educational data too.
The innovation in technology combined with variety of data techniques have now provided the mechanism to deal with wide spectrum of issues that appear during the process of data collection and also during working with large volume, variety and velocity of data. The primary idea behind Cloud Computing is the application of information tools to pave way for data analysis and extract useful information for better estimation, planning and judgment in any business process. Globalization has not only paved way for competition in
world economics but has also driven educational reforms. Public expectations for accountability and transparency have immensely grown in every sector and education is no longer an exception.

Even though the education industry is continuously spawning large amounts of data, the application of Cloud Computing analytics is yet to gain momentum in comparison to sectors like Banking and Securities, Communication, Media and Services and so on. There certainly is a thriving enthusiasm in the education community to make use of Cloud Computing analytics to derive value which can be applied for the holistic betterment of the community.

Cloud Computing analytics can resolve all the issues of the education sector. Many foreign & private Universities for example adopted new data analytic tools to deliver solutions to the long pending problem of student retention. Various groups in the education sector look at the information collected in accordance to their own view and objective. Students, teachers and the educational institution itself can benefit by deriving values from the large volumes of data sets available. The paper is organized as follows –

Section II Cloud Computing: How Does It Bring Innovation in Education? Section III Advantages & Applications of Cloud Computing For Education Section IV Suggestion, Recommendation & Conclusion
Section V References & Bibliography

II. Cloud computing: How does it bring innovation in education?

Cloud computing refers to a setup of computing resources that can be shared anywhere, irrespective of the location of the users. By implementing cloud computing, it becomes possible to bring teachers and learners together on a single, unified platform. Educational organizations such as schools, colleges, and universities need not buy, own, and maintain their own servers and data centers. Rather, they can leverage cloud computing to avail compute power, databases, storage, and other services when they need them. Additionally, they can always be sure about their resources being secure on the cloud. Let us elaborate on the extensive benefits of cloud computing in the field of education.

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Strong virtual classroom environments

With cloud-based software, it becomes possible for educational organizations to have virtual classrooms for the students. The concept reduces the infrastructural costs to a considerable extent. They can even reduce the expenses of onboarding regular teachers in their faculty. Rather, they can collaborate with skilled trainers who work remotely and serve as cost-effective resources. At the same time, teachers can create and deliver online courses to students anywhere. Students can even appear for virtual exams, saving their time and expenses effectively.

Ease of accessibility

The potential of the cloud is unmatched when it comes to accessibility. Users can easily access the course content, applications, and data anytime and anywhere. They can enroll in courses and participate in group activities as well. The barriers of place and time no longer exist the cloud ensures seamless delivery of content at all times. What's more, it even sends across content on mobile devices so that students can easily learn even while on the go.

Extensive cost-savings

Another benefit of cloud computing that you cannot ignore is extensive cost savings. Both learners and providers can experience big benefits in this context. Students need not invest in expensive books and applications as these learning resources are available on the cloud. Providers too can lower the management costs by simplifying processes such as enrollment and assignment tracking. And of course, the infrastructural costs reduce too, as explained before. The best part about cloud computing is that you pay as you go, which makes it cost-effective.

Secure data storage

Besides accessibility and cost savings, cloud computing also serves the benefit of secure data storage. Organizations that deliver learning through the cloud can adopt a VPN for ensuring data security. VPN protocols such as IKEv2 are responsible for the automatic encryption of outgoing data and traffic. This means that the learning content can be easily transferred to the users without compromising its integrity. At the same time, learners can protect their privacy by using VPN for cloud-based learning applications.

Scalability

Scalability refers to the ability of the applications to match the growing numbers of users. Cloud computing covers the schools, colleges, and universities on this front as well. It enables them to scale up the learning applications and experiences quickly and easily. As a result, they can handle an increasing number of students. Additionally, scalability also helps them to manage the usage peaks and traffic spikes caused due to events like training registrations and assignment submissions. Similarly, they can scale down instantly during the low activity period to prevent wastage of resources.

Agility and innovation

Another way learning providers can benefit from cloud computing is through agility and innovation. It gives them the ability to experiment faster and more frequently. Consequently, they can innovate to create better learning experiences for the students. This becomes possible because new tools and features can be developed, tested, and deployed in the applications to make them better than before.

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Greater reach for the students

Cloud computing in the education industry brings the opportunity for the students to expand their horizons. Those who are not happy with the traditional learning systems can now explore the new concept of online education. This works wonders for students who want to opt for remote learning or even pursue courses overseas. Working professionals who are unable to attend conventional classes but want to upgrade their skills can also take virtual classes.

Minimal hardware requirements

With cloud-based applications, the requirements of hardware resources are minimal. These applications can operate seamlessly on internet browsers, both on desktops and mobile devices. Students can manage to learn with the mobile phone that they own. There is no need to invest in an expensive computer for taking the course. Additionally, they do not require external storage devices because they get access to free cloud-based storage. Learning could not get simpler than this!

III. Advantages of Cloud Computing For Education

Cloud computing offers an infrastructure, platform and educational services that create an affordable and innovative learning environment. Such an environment allows collaboration between all participants in the learning process and between different educational institutions that reflects on the quality of education

The benefits of the cloud computing model are for teachers and students as well as for the educational institutions. The advantages of cloud services for education can be considered from different aspects. The use of applications and services, delivered by external providers, is a cost-effective and efficient solution for educational institutions and allows enhancing financial flexibility. The advantages of cloud computing model, compared to the traditional approach, are expressed in: reduced costs for hardware and software as well as reduced costs for IT staff; payment for actual consumption; provision of many free services. Cloud computing offers a faster return of investments and dealing with rapidly changing software and hardware needs at a lower cost. There is a flexibility of the employment of resources combined with economic efficiency.

The educational institutions can implement effectively their strategy through cloud computing without the need to take care of its physical (hardware and software) provision. They have options to acquire and implement new IT solutions and to hire IT resources quickly. Service providers ensure the maintenance and management of IT resources. Cloud computing guarantees the use of modern ICT by educational organizations, something that cannot be achieved if they use their own IT infrastructure.

Cloud computing provides an easy and unrestricted access to services and resources at any time and place through a variety of devices both for teachers and students. The comprehensive accessibility by different devices enables the realization of ideas for mobile and lifelong learning – mobile learning that is expressed not only in using mobile devices, but primarily in the mobility of participants in the learning process.

Cloud Services with Applications in Education

Among the most popular cloud services that are successfully implemented in education are cloud-based office suites and storage services (cloud storage).

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Cloud-Based Office Suites

Cloud-based office suites, also known as online office suites or cloud-based collaboration tools in real time, are office suites that are provided as SaaS services. Among the most popular cloud office suites, used in education, are Google Apps for Work, Office 365, Zoho Office Suite, Apple Productivity Apps, Amazon WorkDocs, Thinkfree Online, Live Documents. Cloud-based office suites are available through Web browser, so they are platform and hardware independent. There is no need to install and configure software on local computers that allows students and teachers to work with cloud-based office suites on a variety of devices, including mobile. Using cloud-based office suites the idea of BYOD (Bring Your Own Device) can be implemented.

Applications for creating and editing documents (Word processing, spreadsheets and presentations)

Some packages include applications for creating and editing graphical objects, database management systems, software for publishing content (applications for creating Web sites without requiring Web programming skills, content management system, Blog, Wiki, etc.). Availability of facilities for storing documents as templates is a premise for creating libraries (repositories) with reusable learning materials and accelerating and facilitating the process of developing new learningcontent.

Applications for communication – e-mail, instant messaging (IM), online conferences, forums, and others

They enrich the possibilities for communication (synchronous and asynchronous) between participants in the learning process and offer new and more engaging forms for active connection in real time. Options for adding comments to shared documents allow students to share ideas, seek help or advice in difficulttasks.

Calendars and tools for contacts management

Users can manage upcoming and ongoing events and meetings via calendars. Personal calendars enhance management of users' individual tasks. Shared calendars can support learning process and all activities taking place in educational institutions. They can be used for planning and notification ьфдкш different events and creating weekly, monthly or annual classes' schedules.

Shared calendars may help students organize collaborative work on group projects more effectively. On the other hand, teachers can use and share calendars with their colleagues to define schedules of meetings and events, educational activities and tasks with deadlines and support their timely execution. Some calendars (Microsoft 365) offer options for assigning tasks. Teachers can create and assign tasks to students and involve them to participate actively in both the academic and social life of the group.

Specific educational applications

Some vendors, such as Microsoft and Google, add special educational applications to their office suites, making them extremely popular among educational institutions.

Classroom

It is an educational application, part of Google Apps, which allows teachers to create, assign and collect students' individual assignments (9). Teachers create courses (classes) and make assignments for individual or group work. They can add files from local computers, Google Drive, YouTube or a link to any Web page, since via Classroom there is

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integration between Google Docs, Google Drive and Gmail. Teachers can view tasks during the process of their performance, make comments, send feedback with recommendations or reviews to help students and evaluate them. Students can join classes, execute their assignments, communicate with teachers, comment and discuss with other students. Learners work on assignments directly in Google Docs and can add files from local computers, Google Drive or a link to a Web page or can create new Google Drive files of different types (documents, spreadsheets, presentations).

Suggestion, Recommendation & Conclusion

The paper depicts the importance of applications of Cloud Computing technologies to mine large educational data sets. Various scenarios pertaining to different target users namely students, teachers and educational institutions have been taken into account. Though Cloud Computing has unfolded its wings in various domains in an unprecedented manner, educational institutions are yet to utilize it to the maximum possible extent. Lack of computational capacities, tools and human resources can be attributed to this.

The benefits of cloud computing for the education sector are immense. It does not come as a surprise that major providers in the industry are fast embracing cloud tech so that they can enhance the services they deliver. Simultaneously, the cloud is emerging as the best option for the students as well. Nothing matches the convenience of accessing learning at the fingertips and cloud tech makes it possible. Whether it is a large university, a small school or a student, everyone in the industry is experiencing the positive impact of the cloud and things are going to get bigger and better in the future.

Cloud computing ensures comprehensive access to modern ICT for a wide range of users at any time and place via different devices, which is a prerequisite for the implementation of the ideas of lifelong learning. There is an effective use of available IT equipment with opportunities for renting powerful computing resources when they are needed. Using cloud services, educational institutions can concentrate on their main activities – training and research and fulfill them in the most efficient manner.

Cloud computing is extremely important and necessary for modern education. It transforms the role of ICT in training, supports and accelerates the processes of creating and providing an interactive learning environment where all participants have continuous access to diverse, high-quality educational resources and activities and work collaboratively.

References & Bibliography

- Al-Zoube, M., E-Learning on the Cloud, Int. Arab J. e-Technol. 1.2, 58-64, 2009
- 2. Reese, G., Cloud Application Architectures – Building Applications and Infrastructure in the Cloud, O'Reilly Media, ISBN 978-0- 596-15636-7, 2009
- 3. NIST Cloud Computing Standards Roadmap, Special Publication 500- 291, Version 2, July 2013,www.nist.gov/itl/cloud/upload/NIST_SP-500- 291_Version2_2013_June18_FINAL.pdf
- L. Wang, Gregor Laszewski, Marcel Kunze, Jie Tao, "Cloud Computing: A Perspective Study", New Generation Computing- Advances of Distributed Information Processing, pp. 137-146, vol. 28, no. 2, 2008. DOI: 10.1007/s00354-008-0081-5

ISSN: 2005-4262 IJGDC

- R. Maggiani, Communication Consultant, Solari Communication,"Cloud Computing is Changing How we Communicate", 2009 IEEE International Professional Conference, IPCC, pp. 1-4, Waikiki, HI, USA, July 19-22, 2009. ISBN: 978-1-4244-4357-4.
- Harold C. Lin, Shivnath Babu, Jeffrey S. Chase, Sujay S. Parekh, "Automated Control in Cloud Computing:
- Opportunities and Challenges", Proc. of the 1st Workshop on Automated control for data centres and clouds, New York, NY, USA, pp. 13-18, 2009, ISBN: 978-1-60558-585-7.
- Peter Mell, Timothy Grance, "The NIST Definition of Cloud Computing", Jan, 2011.http://docs.ismgcorp.com/files/external/Draft-SP-800- 145_cloud-definition.pdf
- Sclater, N., Cloud computing in education, Policy Brief, UNESCO Institute for Information Technology in Education, 2010
- Cisco Systems, Cloud 101: Developing a Cloud-Computing Strategy for Higher Education, www.cisco.com/c/dam/en/us/services/collateral/services/serviceseducation/cloud_101_higher_education_wp.pdf,

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"JUST IN TIME PRODUCTION AND JUST IN CASE CONSUMPTION": FACTORS AFFECTING ON AN ONLINE AND OFFLINE CONSUMER BUYING BEHAVIOR IN THE PURCHASE OF APPARELS.

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ABSTRACT: Consumer behaves differently in an online and offline mode. How they buy, how much they buy, how frequently they buy and in how much quantity, it is always an important aspect to study such behavior. That is the reason we need to study the major factors that affects consumer buying behavior. In this study researcher have considered mainly five factors of consumer behaviour that influences their buying psychology, the factors like, consumer convenience, consumer attitude, consumer intention, perceived risk, store and website attributes and its overall comparative impact on the online and offline consumer buying behavior for purchase of apparels**.**

Key Words: Consumer Convenience, Consumer Attitude, Consumer Intention, Perceived Risk, Store &Website Attributes, Consumer behavior.

INTRODUCTION:

Understanding and analysing the mechanism behind the online shopping and behaviour of virtual consumer is a vital issue for virtual-retailers which are competing in the rapidly expanding and multiplying online/ virtual marketplace (Dawson, 2006). Therefore virtual - retailers can very easily influence the decision-making process of online buyers, by the way of engaging them using new marketing tools, but mainly by creating, offering and delivering good virtual experience (Efthymios, 2004). Web experience: is an amalgamation of virtual functionality, feelings, information, stimuli and products/services, expectation, positioning, in

other words, a mixture and complex mix of controllable variables beyond the 4Ps of the traditional marketing mix (Wikstro and Frostling, 2000).

"Consumer behaviour is the study of how individuals, groups, and organizations select, buy, use, and dispose of goods, services ideas, or experience to satisfy their needs and wants. (Philip Kotler, Keller, Koshy & Jha 2010).A marketer must deeply understand and study both the theory and reality of consumer behaviour. A Consumer's Buying Behavior is influenced by Cultural, Social, Technical, Political and Personal factors. External and internal factors influence buyer behaviour in various ways (Herna'ndez *et al.* 2011). Consumer behaviour is Dynamic- Because the way they think, feel & actions of individual customers, target customers & Society are constantly changing. (Batra, 1999).Consumer behaviour is individual's directly involving training, using, and disposing of economic goods & services, including the decision process that precedes and determines the action (Engel, 1995). Motivation- is a psychological and inner force of individuals that compels them to take action (Nichols J.A.F. et al. 2002), Personality- is the internal psychological trait that both determines & reflects how a person responds to his environment (Zhang and Barcellos 1999, 2000, and Zhang and Dran 2000), Perception- the process by which an individual select, organises & interprets stimuli into a meaningful & coherent picture of the world. (Schiffman, 2001), Product characteristics refer to the merchandise management of the online stores, the products they offer for sale and the support they provide during the sale and after-sales services to support the complete transactions (Na Li, 2002)

OBJECTIVES OF THE STUDY:

To understand the concept of Online and Offline consumer buying behaviour

To identify the factors influencing on the online and offline consumer buying behaviour in the buying of Apparels

To analyse the impact of factors on the online and offline consumer buying behaviour in the buying of Apparels

HYPOTHESIS OF THE STUDY:

H_1: There is a significant relationship between attributes of an online consumer buying behaviour and Purchase of Appears in Nashik City

$H_{2:}$ There is a significant relationship between attributes of an offline consumer buying behaviour and Purchase of Appears in Nashik City

Research Methodology:

Table No 1 Research Design

Particulars	**Remark**
Research Design	Exploratory
Research Universe	Nashik city
Sampling Method	Multistage Sampling: Stratified- Quota- Convenience Sampling **Selected Age group**: 18-60
Sample Size	**150 Respondents (each represents a household)**
Products Selected for Study	**Apparels- Men's and Women's**
Data Collection: **Primary data:** **Secondary Data:**	 Survey: using structured Research Instrument All the sources of Secondary Data
Statistical Test Applied	T-test, Rho test, Cross Tabulation, Mean, Regression Analysis, Factor Analysis, Principal Component Analysis, Confirmatory Factor Analysis, ANOVA

Reliability Test:

The reliability test is conducted to measure the consistency of the scale. When the questions are Likert scale type, it becomes essential to test reliability because many variables are considered for the study. Outcomes of reliability tests show the consistency in the result based on collected data.

Table No 2 Reliability Statistics for Apparels Online & Offline

Sr No	**Item Code**	**Item Description**	**Items**	**Cronbach's Alpha (α) online**	**Cronbach's Alpha (α) offline**
1	CI	Consumer Intention	10	0.740	0.758
2	CC	Consumer Convenience	10	0.827	0.732
3	AT	Consumer Attitude	4	0.838	0.869
4	PR	Perceived Risk	7	0.826	0.755
5	WA	Website Attribute	8	0.729	------
6	ST	Store Atmosphere	6	------	0.798

The reliability test results are Cronbach's alpha score is greater than 0.7, which shows a high level of internal consistency. Thus it is concluded that this instrument is accepted for further statistical analysis with a satisfactory level of reliability

DATA ANALYSIS & INTERPRETATION:

Demographic Details of Apparels Goods Customers:

The researcher has taken the sample size of 150 Households to collect data related to online Buying behaviour and offline Buying behaviour of the consumers. The researcher has analysed the customer's demographic data.

Table No 3 Demographic Details of Apparels Customers

Variables	Description	Frequency	Percentage
Gender	Male	78	52%
	Female	72	48%
	Total	150	100%
Age	Below 20	35	23%
	21-30	42	28%
	31-40	28	19%
	41-55	30	20%
	55 and Above	15	10%
	Total	150	100%
Marital Status	Married	83	55%
	Unmarried	67	45%
	Total	150	100%
Education	Up to SSC	13	9%
	HSC	43	29%
	UG	53	35%
	P.G. and above	41	27%
	Total	150	100%
Occupation	Student	55	37%
	Self Employed	13	9%
	Govt. Employee	15	10%
	Private Job	34	23%
	Business	9	6%
	Home Maker	24	16%
	Total	150	100%
Annual Household Income	Below 2 Lakhs	15	10%
	2-4 Lakhs	97	65%
	4-6 Lakhs	21	14%
	6-8 Lakhs	10	7%
	Above 8 Lakhs	7	5%
	Total	150	100%

Apparel: Comparison between Online & Offline Consumer Buying Behaviour

The researcher has collected the data related to factors influencing the purchase decision of apparel. The researcher has presented the overall mean ranks of each factor influencing the customer's purchase decision and has done further analysis to check if the factor's influence is the same on Online Purchase and offline Purchase.

Table No. 4 Mean Ranks of Factors influencing Consumer Buying Behavior for Apparels

Sr. No.	Factor	Online	Offline
1	Consumer Intention	4.27	4.26
2	Consumer Convenience	4.27	4.15
3	Consumer attitude	3.78	3.88
4	Perceived Risk	4.05	2.67
5	Website/ Store Attribute	3.84	4.15
		4.04	3.82

The mean rank analysis of the factors influencing the purchase decision of Apparels suggests that the factor: Consumer intention to buy influences the consumer purchase decision in online shopping (4.27), similar to offline shopping (4.26). Consumer Convenience influences customers to purchase online purchases slightly more (4.27) than offline purchase decisions

(4.15). The factor Consumer Attitude about offline (Retail Store) Shopping affects slightly more to offline Purchase (3.88) than that of Online Purchase (3.78)

The Perceived Risk in Online (Web Store) shopping affects marginally more to online purchase that is there is HIGH risk in online Purchase (4.05) than that of Offline Purchase (2.67) and Retail Store (4.15) than online (3.84). Thus, in the case of Perceived Risk and Store Attribute, the results are concrete. It influences a consumer to buy offline; otherwise, the results are similar regarding influencing the Purchase Decision of Customers online or Offline. For better analysis and drawing a suitable conclusion, the researcher has performed a T-test of Paired means on the collected data.

Table No 5 t-Test: Paired Two Sample for Means: Apparels

	Online	*Offline*
Mean	4.042	3.822
Variance	0.05337	0.43437
Observations	5	5
Pearson Correlation	0.137891459	
Hypothesized Mean Difference	0	
df	4	
t Stat	0.73682102	
P(T<=t) one-tail	0.251055734	
t Critical one-tail	2.131846782	
P(T<=t) two-tail	0.502111469	
t Critical two-tail	2.776445105	

The analysis of the same suggests that as the 'p Value' is higher than 0.05 significance value, it can be concluded that the **factors influence the Customers Purchase decision into Online and Offline Purchase differently**. It can be said that the selected factors for study influence the customer to buy Online or Offline differently.

Factors Influencing in an online and offline Consumer Buying Behaviour in Product categories: Apparels

A) Exploratory Factor Analysis: It is a technique that helps to reduce a large number of variables into fewer numbers of variables

Kaiser-Meyer-Olkin (KMO) Measurement Technique for adequacy of sampling; KMO measures the extent of variance that is caused by the factors

Table No 6 KMO and Bartlett's Test		**Online**	**Offline**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.750	.722
Bartlett's Test of Sphericity	Approx. Chi-Square	947.083	1883.057
	df	435	406
	Sig.	.000	.000

From the table, it can be concluded that the value of (Kaiser-Meyer-Olkin) KMO for online is 0.750, and for offline is.722 an acceptable value for analysis .70 KMO value indicates sufficient items for each factor. The data set is considered to be best suitable for further factor analysis. The same table shows the value of the Bartlett test; the significance level is 0.000 it means that the taken data is multivariate normal and acceptable for factor analysis.

Table No 7 Communalities

Communalities for product offline			**Communalities for product online**		
	Initial	Extraction		Initial	Extraction
CI1	1.000	.760	CI1	1.000	.596
CI2	1.000	.680	CI2	1.000	.647
CI3	1.000	.776	CI3	1.000	.657
CI4	1.000	.855	CI4	1.000	.708
CI5	1.000	.777	CI5	1.000	.560
CI6	1.000	.958	CI6	1.000	.562
CI7	1.000	.855	CI7	1.000	.428
CI8	1.000	.870	CI8	1.000	.584
CI9	1.000	.886	CI9	1.000	.496
CI10	1.000	.899	CI10	1.000	.629
CC1	1.000	.757	CC1	1.000	.700
CC2	1.000	.743	CC2	1.000	.725
CC3	1.000	.779	CC3	1.000	.678
CC4	1.000	.857	CC4	1.000	.538
CC5	1.000	.791	CC5	1.000	.662
CC6	1.000	.958	CC6	1.000	.540
CC7	1.000	.856	CC7	1.000	.715
CC8	1.000	.885	CC8	1.000	.660
CC9	1.000	.881	CC9	1.000	.536
CC10	1.000	.899	CC10	1.000	.608
AT1	1.000	.565	AT1	1.000	.596
AT2	1.000	.558	AT2	1.000	.664
AT3	1.000	.661	AT3	1.000	.656
AT4	1.000	.616	AT4	1.000	.599
PR1	1.000	.456	PR1	1.000	.648
PR2	1.000	.559	PR2	1.000	.616
PR3	1.000	.586	PR3	1.000	.618
PR4	1.000	.594	PR4	1.000	.619
PR5	1.000	.655	PR5	1.000	.614
PR6	1.000	.564	PR6	1.000	.565
PR7	1.000	.964	PR7	1.000	.569
PR8	1.000	.964	PR8	1.000	.605
ST1	1.000	.411	W1	1.000	.642
ST2	1.000	.641	W2	1.000	.752
ST3	1.000	.680	W3	1.000	.650
ST4	1.000	.647	W4	1.000	.483
ST5	1.000	.568	W5	1.000	.567
ST6	1.000	.574	W6	1.000	.634
			W7	1.000	.661
			W8	1.000	.634
Extraction Method: Principal Component Analysis.					

The figures in the above table result in the communalities values of all the 40 items of influencing factors on online Consumer buying behaviour toward products and 38 items influencing factors on offline Consumer buying behaviour . It shows that all the values are

above 0.5, which means the data set is appropriate for further analysis. The initial communalities values above .30 are good for factor analysis.

Table No 8 Total Variance Explained for Apparels offline

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.177	30.12	30.12	6.502	30.12	30.12
2	4.483	6.535	36.655	2.368	6.535	36.655
3	2.472	6.506	43.161	2.080	6.506	43.161
4	2.382	6.27	49.431	2.035	6.27	49.431
5	2.091	5.804	55.235	1.999	5.804	55.235
6	1.884	4.957	60.192	1.986	4.957	60.192

All the 37 factors in the above table accounted for 60.192% of the variance. Total variance explained (60.192%) by these six components surpasses the 60 per cent threshold commonly used in social sciences (Hair, 2006). Even only five components surpass half, 50 per cent of a threshold value. The Eigen values are greater than 1.0, which is a common criterion of helpful factor.

Table No 9 Total Variance Explained Apparels online

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.089	34.65	34.65	8.089	34.65	34.65
2	5.776	5.439	40.089	5.776	5.439	40.089
3	2.707	5.268	45.357	2.707	5.268	45.357
4	2.579	4.947	50.304	2.579	4.947	50.304
5	1.532	3.831	54.135	1.532	3.831	54.135
6	1.511	3.778	57.913	1.511	3.778	57.913
7	1.417	3.543	61.456	1.417	3.543	61.456

All the 41 factors in the above table amounted to 61.456% of the variance. Total variance explained (61.456%) by these seven components surpasses the 60 per cent threshold commonly used in social sciences (Hair, 2006). Even the first five components are contributing to more than 50 per cent. The Eigenvalues are greater than 1.0, which is a common criterion of helpful factor.

Table No 10 Rotated Component Matrix

Rotated Component Matrix[a] for apparels offline						Rotated Component Matrix[a] for apparels online						
	Component						Component					
	1	2	3	4	5		1	2	3	4	5	6
CI1	.047	-.096	**.796**	.157	-.020	CI1	**.590**	-.090	-.078	-.070	-.317	-.358
CI2	-.173	.119	**.676**	-.111	.034	CI2	**.611**	-.180	.182	.106	-.099	-.099
CI3	.080	-.011	**.848**	.098	-.019	CI3	**.511**	-.203	.224	.134	-.082	.093
CI4	-.032	-.033	**.918**	.017	-.061	CI4	**.468**	-.040	.078	.066	.044	-.062
CI5	.034	-.005	**.865**	.006	.089	CI5	**.469**	.075	-.133	.284	.001	.041

CI6	-.066	-.015	**.971**	-.006	-.035	CI6	**.601**	-.190	.269	.023	.075	.216
CI7	-.112	.026	**.911**	-.037	.025	CI7	**.473**	-.045	-.056	.240	.089	.045
CI8	-.056	-.051	**.920**	-.049	-.005	CI8	**.644**	.194	.000	-.166	.163	-.328
CI9	-.043	-.047	**.934**	.002	-.032	CI9	**.435**	.148	-.036	.003	.123	-.002
CI10	-.093	.021	**.936**	.030	-.057	CI10	**.508**	.034	.023	.107	-.218	-.180
CC1	.035	**.792**	-.106	.126	-.022	CC1	.016	**.795**	-.041	.126	.122	.005
CC2	-.182	**.736**	.092	-.130	.040	CC2	-.048	**.799**	-.109	.079	.084	.110
CC3	.066	**.858**	-.019	.107	.012	CC3	.166	**.729**	.149	.072	-.166	.016
CC4	-.034	**.915**	.015	-.004	-.047	CC4	.118	**.680**	.052	.137	-.048	-.007
CC5	.039	**.881**	.015	-.021	.031	CC5	-.028	**.708**	.060	-.165	.003	.028
CC6	-.065	**.956**	-.014	-.007	-.035	CC6	.074	**.699**	-.065	-.081	.122	-.011
CC7	-.093	**.910**	.038	-.052	-.019	CC7	-.057	**.784**	-.084	-.096	.160	-.024
CC8	-.023	**.932**	-.033	-.034	.026	CC8	.145	**.754**	.150	-.011	-.023	.041
CC9	.002	**.928**	-.058	.033	-.039	CC9	.032	**.457**	.125	-.396	.088	.010
CC10	-.082	**.940**	.003	-.049	.018	CC10	.080	**.517**	-.050	.057	-.113	-.024
AT1	-.349	.007	-.079	-.056	**.580**	AT1	.112	-.137	.178	.214	.006	**.447**
AT2	.035	.056	-.010	-.100	**.589**	AT2	-.008	-.012	.227	-.198	.198	**.448**
AT3	.024	-.019	.135	.006	**.757**	AT3	-.126	.137	.187	.212	.029	**.452**
AT4	-.271	.024	.241	-.091	**.415**	AT4	.069	-.061	-.100	.263	-.074	**.467**
PR1	**.485**	-.012	-.024	-.034	-.100	PR1	-.066	.001	**.422**	.383	-.037	.296
PR2	**.610**	.106	-.026	.159	-.061	PR2	.076	.082	**.617**	-.073	-.018	.115
PR3	**.659**	-.001	.081	.019	.151	PR3	.059	-.010	**.673**	.135	-.086	-.274
PR4	**.674**	-.047	-.054	-.174	.153	PR4	.001	.066	**.722**	-.183	.067	.040
PR5	**.750**	-.087	-.051	.031	.014	PR5	-.067	-.020	**.721**	.101	-.064	.059
PR6	**.612**	.055	-.015	-.021	-.205	PR6	-.043	-.054	**.661**	.012	.082	.161
PR7	**.907**	-.008	-.020	.160	-.001	PR7	-.033	.050	**.707**	.035	-.074	.084
PR8	**.915**	.033	.001	.076	.007	PR8	-.005	.064	**.712**	.132	-.010	-.111
ST1	.026	.171	.308	**.437**	.088	W1	-.049	-.009	.085	.085	**.758**	.155
ST2	-.050	.107	-.119	**.745**	-.039	W2	-.089	-.023	-.044	.060	**.818**	.076
ST3	-.090	-.009	-.084	**.790**	.067	W3	.161	-.008	.013	.117	**.719**	-.063
ST4	-.056	-.027	.126	**.711**	-.035	W4	.050	-.174	-.096	.221	**.473**	-.008
ST5	.097	.074	.125	**.440**	.090	W5	.048	-.027	-.084	-.022	**.607**	-.187
ST6	.028	-.168	-.064	**.487**	161	W6	.089	.056	-.119	-.024	**.653**	-.101
						W7	.066	-.026	-.020	-.048	**.756**	.143
						W8	.136	.019	-.092	.076	**.680**	-.088

Rotated component matrix values are the indicators of the strength of the relationship between the item and factor. “The item's membership in factor is determined by identifying the highest loading in one factor.” The standard factor loading values appear between 0 - 1. Closer, the value to 1 shows the highest factor loading. Usually, item loading higher than 0.4 is the acceptable factor loading value as per Hair (2006); in the social science research study, 0.40 is the acceptable factor loading. The values in the above table represent that all factor loadings are more than 0.4, which shows all items are in the range of acceptance.

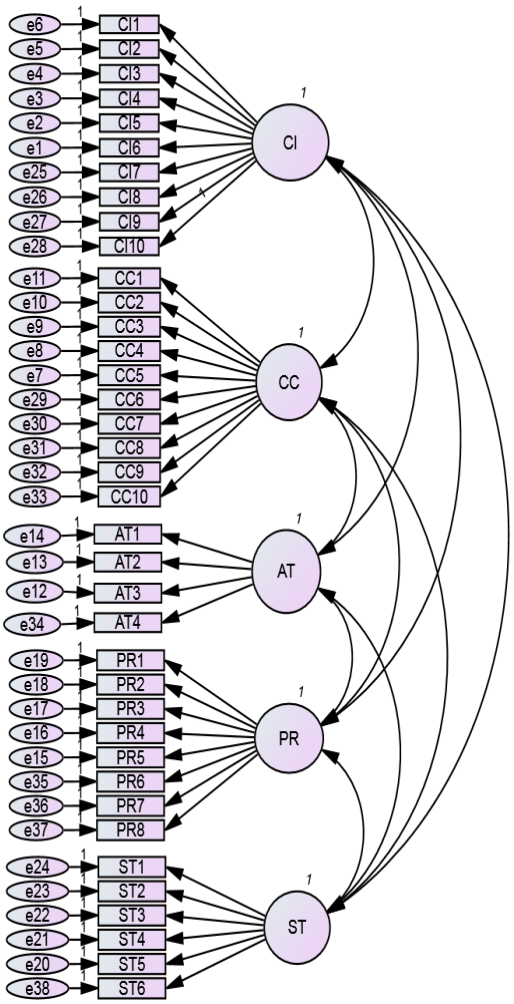
Table no 11 Factors Extracted

factors Extracted for product offline			**factors Extracted for product online**		
Factors	Items	Items Loading	Factors	Items	Items Loading
Consumer Intention	CI1	.796	Consumer Intention	CI1	.590
	CI2	.676		CI2	.611
	CI3	.848		CI3	.511
	CI4	918		CI4	.468
	CI5	.865		CI5	.469
	CI6	.971		CI6	.601
	CI7	.911		CI7	.473
	CI8	.920		CI8	.644
	CI9	.934		CI9	.435
	CI10	.936		CI10	.508
Consumer Convenience	CC1	.792	Consumer Convenience	CC1	.795
	CC2	.736		CC2	.799
	CC3	.858		CC3	.729
	CC4	.915		CC4	.680
	CC5	.881		CC5	.708
	CC6	.956		CC6	.669
	CC7	.910		CC7	.784
	CC8	.932		CC8	.754
	CC9	.928		CC9	.495
	CC10	.940		CC10	.759
Consumer Attitude	AT1	.580	Consumer Attitude	AT1	.477
	AT2	.589		AT2	.448
	AT3	.757		AT3	.452
	AT4	.415		AT4	.467
Perceived Risk	PR1	.485	Perceived Risk	PR1	.422
	PR2	.610		PR2	.617
	PR3	.654		PR3	.673
	PR4	.674		PR4	.722
	PR5	.560		PR5	.721
	PR6	.612		PR6	.661
	PR7	.907		PR7	.707
	PR8	.915		PR8	.712
Store Attribute	ST1	.437	Website Attribute	W1	.758
	ST2	.745		W2	.818
	ST3	.740		W3	.719
	ST4	.711		W4	.473
	ST5	.440		W5	.607
	ST6	.487		W6	.653
				W7	.756
				W8	.680

The researcher has extracted five major factors influencing online consumer buying behaviour regarding product categories through the extensive and relevant literature review and exploratory factor analysis.

D) Confirmatory Factor Analysis for Consumer Buying Behaviour in an Offline and online Purchase of Products:

For confirmation and verification of the factor, the structure researcher has conducted confirmatory factor analysis. In the structure following factors has been considered Consumer Intention (CI), Consumer Convenience (CC), Consumer Attitude (AT), Perceived Risk (PR), Store Attribute (ST) and Web Attribute (W) are the latent variable in the designed structure



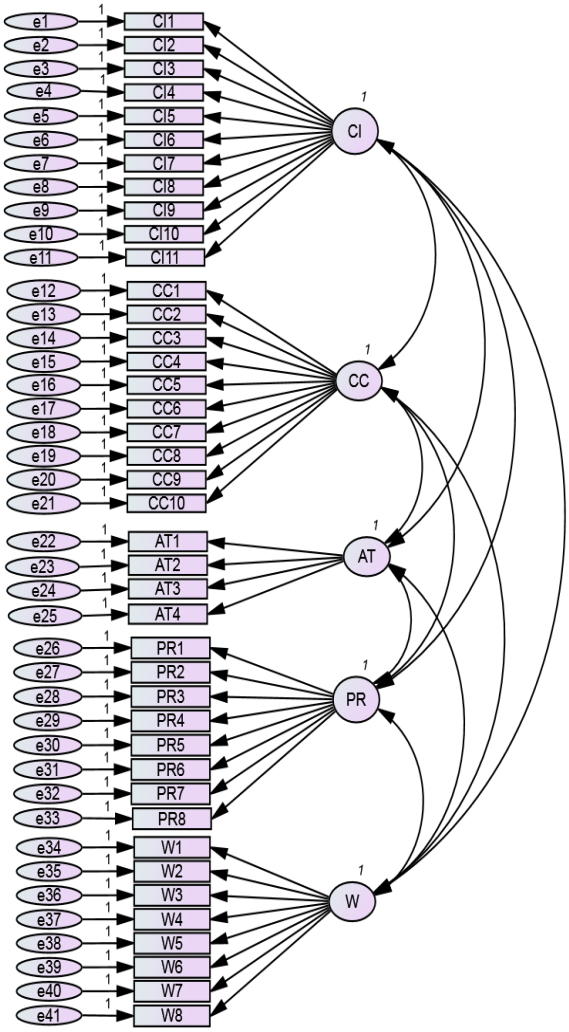


Fig no 1 Factor Structure for apparels offline **Fig no 2 Factor Structure for apparels online**

Table no 12 Measure for Model fit	Value offline	Value online
Ratio of Chi-Square to degree of freedom (CMIN/DF)	2.532	2.047
Goodness of fit index (GFI)	0.928	0.906
Adjusted GFI (AGFI)	0.913	0.915
Normed fit Index (NFI)	0.922	0.952
Tucker-Lewis Index (TLI)	0.915	0.917
Incremental Fit Index (IFI)	0.918	0.959
Relative Fit Index (RFI)	0.956	0.926
Comparative Fit Index (CFI)	0.954	0.923
Root Mean Square Error of Approximation (RMSEA)	0.034	0.048

The model fit details of the designed factor structure. The researcher has considered the different parameters of measurement for model fit. In the beginning, the chi-square value to the degree of freedom is greater than 0.05. The CMIN/df value in offline/online is 2.532/2.047 shows a slight difference between observed and expected covariance that explains the good fit of the model. The GFI (0.928)/ (0.906) and AGFI (0.913)/ (0915) thresh-hold value should be greater than 0.9; in the model fit summary, it shows the values higher than 0.9 indicated the model is of good fit. The following measure is NFI (0.922)/

(0.952), TLI (0.915)/ 0.917), IFI (0.918)/ (0.959) and RFI (0.956), (0.926), should also be greater than 0.9 to indicate a good fit of the model. The measure of CFI results in the overall improvement of the designed model; greater than 0.9 value of CFI indicates the good fit of the model. The root mean square error of approximation (RMSEA=0.034/ 0.048) should be less than 0.06, indicating the model's good fit.

Table no 13 Convergent and Discriminant Validity for Apparel offline

	CR	AVE	MSV	MaxR(H)	CI	CC	AT	PR	ST
CI	0.813	0.459	0.348	0.786	0.799				
CC	0.795	0.549	0.386	0.636	0.012	0.785			
AT	0.822	0.515	0.474	0.352	0.128	0.211	0.74		
PR	0.798	0.454	0.491	0.591	-0.219	0.172	0.258	0.792	
ST	0.81	0.582	0.574	0.303	0.165	0.293	0.457	0.3	0.748

Table no 14 Convergent and Discriminant Validity for Apparel online

	CR	AVE	MSV	MaxR(H)	CI	CC	AT	PR	W
CI	0.886	0.537	0.343	0.709	0.794				
CC	0.846	0.584	0.549	0.852	0.154	0.791			
AT	0.855	0.492	0.349	0.796	0.226	0.386	0.703		
PR	0.834	0.571	0.443	0.926	0.586	0.153	0.221	0.767	
W	0.818	0.468	0.327	0.887	0.357	0.244	0.308	0.223	0.762

Composite Reliability of all the five variables is greater than 0.8, indicating the factor structure has good reliability. The AVE is higher than 0.50 shows that more than half of the variance of each factor is clearly explained by every construct. Therefore the convergent validity is demonstrated by the construct reliability and AVE. Discriminate validity is achieved by the Maximum Shared Variance (MSV); when the value of AVE is greater than the value of MSV, we can state that its factor structure has discriminant Validity. McDonald Construct Reliability (MaxR(H)) also works like Cronbach alpha. The thresh-hold value of MaxR(H) is greater than 0.70, indicating the construct's reliability.

Hypothesis Testing Apparels Products

For testing the hypothesis, the researcher has designed further sub hypothesis, and tested it with the help of ANOVA and simple Regression analysis and studied the impact of all four identified factors on Consumer Intention of buying Apparels online as well as offline

Table no 15 Hypothesis Testing of Apparel Offline						
Hypothesis	**F**	**Sig**	**R2**	**η2**	**ANOVA**	**Result**
There is a significant relation between Consumer Convenience and Consumer intention to buy Apparels offline	4.134	.000	.200	.316	.000	Accepted
There is a significant relationship between the Attitude of the Consumer and Consumer intention to buy Apparels offline	2.584	.000	.134	.475	.000	Accepted
There is a significant relation between Perceived Risk and Consumer intention to buy Apparels offline.	1.660	.059	.078	.014	.088	Rejected
There is a significant relation between Store Attribute and Consumer intention to buy Apparels offline.	5.029	.000	.262	.360	.000	Accepted

The above table shows that the ANOVA value of Consumer Intention to buy Apparels offline for all four types of behavioural factors is .000, which is less than 0.05 at a 95 per cent confidence level. It indicates that the model is good. Therefore, the null hypothesis is not accepted for the three factors. But in the case of Perceived risk and consumer intention, the p-value is .078 is greater than 0.05 at a 95 per cent confidence level; therefore, we reject H4, i. e., alternate hypothesis and accept the null hypothesis

R square values of the above table specify how much Consumer Convenience, Consumer Attitude, Perceived Risk, and Store Attribute causes the variation in Consumer intentions to buy apparel

Consumer convenience and consumer intention to buy is 0.200 that is 20.0 % of the variation

Consumer Attitude for consumer intention to buy is 0.134 that is 13.4 % of the variation

Perceived Risk for consumer intention to buy is 0.078 that is 7.8 % of the variation

Store Attribute for consumer intention to buy is 0.262 that is 26.2 % of variation

Eta Square value indicates the association between the factors of consumer behavior.

Consumer convenience and consumer intention- 0.316 (strong association)

Consumer Attitude and Consumer Intention- 0.475 (strong association)

Perceived Risk and consumer intention- 0.014 (weak association)

Web Store Attribute and Consumer Intention- 0.360(strong association)

Hypothesis Testing: Apparels Online

Table no 16 Hypothesis Testing of Apparel Online						
Hypothesis	**F**	**Sig**	**R^2**	**η^2**	**ANOVA**	**Result**
There is a significant relation between Consumer Convenience and Consumer intention to buy Apparels online	5.393	.004	.117	.211	.000	Accepted
There is a significant relationship between the Attitude of the Consumer and Consumer intention to buy Apparels online	7.986	.000	.267	.312	.000	Accepted
There is a significant relation between Perceived Risk and Consumer intention to buy Apparels online.	6.351	.000	.342	.397	.000	Accepted
There is a significant relation between Website Attributes and Consumer intention to buy Apparels online.	6.441	.000	.369	.437	.000	Accepted

The above table shows that the ANOVA value of Consumer Intention to buy Apparels online for all four types of behavioural factors is 0.04 & 0.00 that is less than 0.05 at a 95 per cent

confidence level. It indicates that the model is overall good. Therefore, the null hypothesis is not accepted for all four factors.

R square values of the above table specify that to what extent Consumer Convenience, Consumer Attitude, Perceived Risk, and Website Attribute causes the variation in Consumer intentions to buy Apparels online.

Consumer convenience to consumer intention to buy is 0.117 that is 11.7 % of the variation. Consumer Attitude to consumer intention to buy is 0.267 that is 26.7 % of the variation. The Perceived Risk to consumer intention to buy is 0.342 that is 34.2 % of the variation Website Attribute to consumer intention to buy is 0.369 that is 36.9 % of the variation.

Eta Square value indicates the association between the factors of consumer behavior.

Consumer convenience and consumer intention- 0.211 (Moderate association)

Consumer Attitude and Consumer Intention- 0.312 (strong association)

Perceived Risk and consumer intention- 0.397 (strong association)

Web Store Attribute and Consumer Intention- 0.437(strong association)

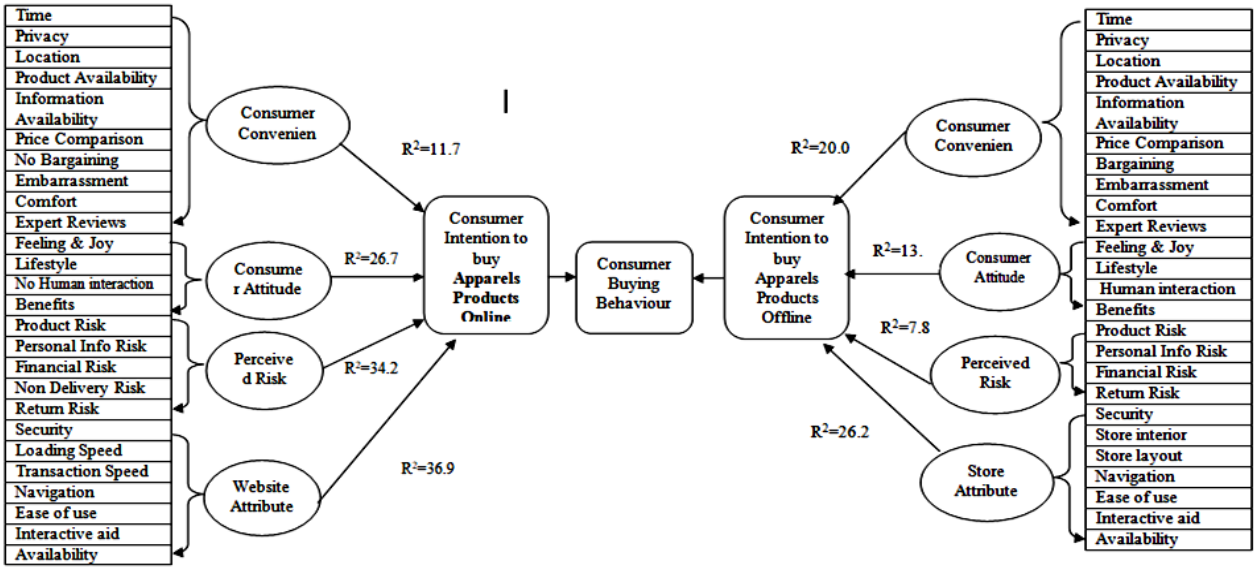


Fig no 3 Comparison between impact of different factors in an Offline & Online Consumer Buying Behaviour in the purchase of Apparels

FINDINGS:

Consumer Intention in online and offline purchase of the Apparels: Getting right product is important concern of consumer (4.34), online apparel shopping, people show less interest (4.02) as product appears different than they look on website. Online it provides proper information and price range but judging quality of product creates problem. Buying apparel from the physical store is more convenient (4.34) for people; it gives chance to investigate the quality personally.

Consumer Convenience in online and offline purchase of the Apparels: It is agreed that web store shopping can be made at any time and from any location (4.36); the website

provides detailed **product information with photos** (4.31) and provide the easy price comparison. There is no scope for bargaining (4.27). The physical store gives more confidence & feeling of shopping (4.26), where customers can check the quality of apparels personally. It is easier to check the appropriate size and colour combination of apparels.

Consumer Attitudes in an online and offline purchase of the Apparels: one must know how to use internet—those who are not aware of technology refrain from buying online. Sometimes people feel that the interference of others may disturb them in online shopping, which is why people don't like human interaction (4.08). Discount offers attract customers more (4.19). Overall, people have a slightly negative approach to buying apparel online. In apparel, the effects are a severe matter of purchase (3.76) as it is a matter of personality. People are very particular about their purchase of clothing.

Perceived Risk in an online and offline purchase of the Apparels: There is risk and fear of misuse of personal and financial information getting overcharged (4.08) for apparel, risk of receiving the wrong product (4.30), low-quality products, damaged items. Apparel looks different online and appears different when they arrive. Non-delivery (4.04) of goods, delivering faulty goods, late delivery, damaged delivery; these are the considerable risk. Problem of dispute settlement, return and refund is time consuming process. Overall there is **high risk in buying Apparels in Online.** There is less risk in Shopping at a physical store need not to provide personal information. They can easily check the quality of goods that avoid product quality risk.

Website Attribute in an online and Store attribute in an offline purchase of the Apparels: It must provide financial (362) and personal information security (4.16), but in some cases, people said that their personal information may not secure the website. The parameters like website loading speed, transaction speed is very important. Website must be user friendly to use. Buying clothes from Store gives shopping feel (3.82), they can judge the quality and size of the clothes.

CONCLUSION:

Consumer intention to purchase apparels is more inclined towards physical store in comparison with web store shopping, research identifies that people do not find online shopping of apparels more useful, retail store shopping is more convenient in case of apparels. Bargaining is possible, where it is easy to purchase and select apparels in an offline purchase as quality can be judge easily by themselves, there is very low risk in the purchase of garments in a retail store, even if they have any problem with the product it is easy to return and get refund or exchange product quickly, product risk especially the quality of product and chances to receive low quality or malfunctioning products is the primary concern that refrains

consumer from online purchase of apparels otherwise other shopping products like accessories are purchased in online mode, only apparels products are purchase in offline mode.

On the basic of factors identified through Factor analysis and Confirmatory Factor analysis researcher has develop a strategic model for apparel business

STRATEGIC MODEL FOR APPARELS BUSINESS

"Just In Time Production and Just In Case Consumption"

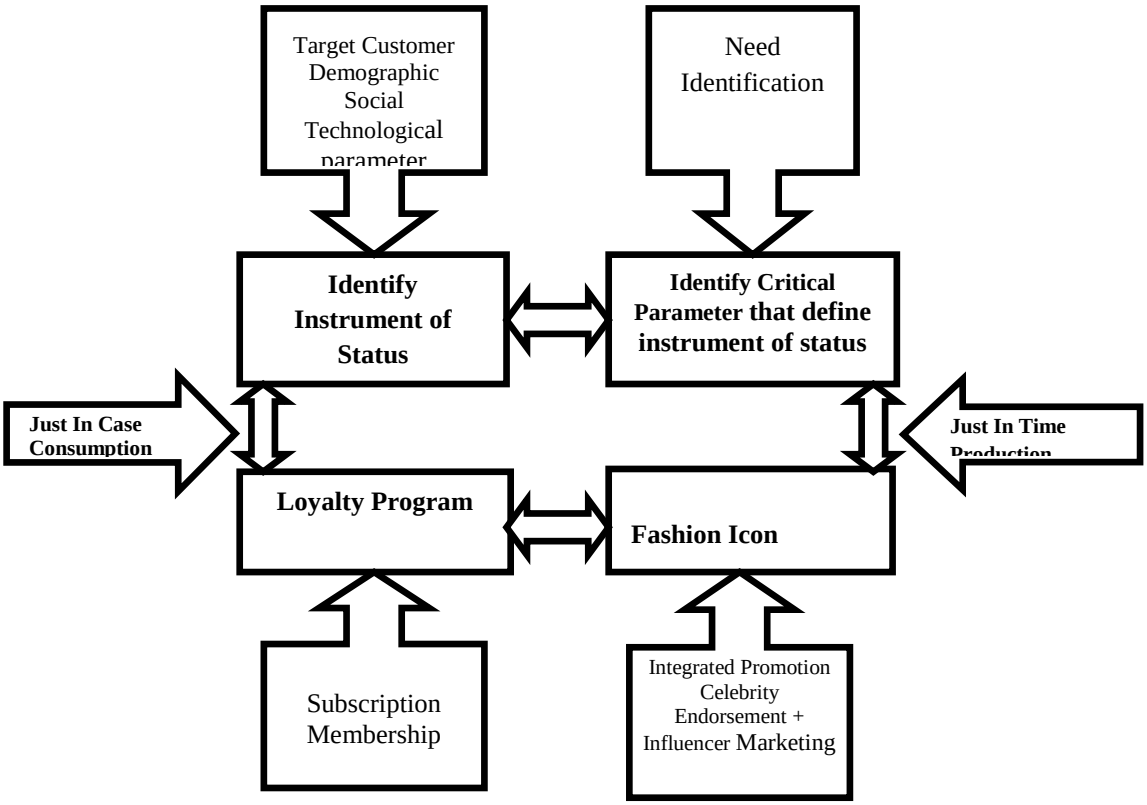


Figure 4 Business Model for Apparels

- Instrument of Status (Clothes)
- A critical parameter that defines the value of the instrument of status (Variety & Design)
- Fashion Icons (Celebrity Endorsement + Influencer Marketing)
- Loyalty Program: (Subscription + Membership)

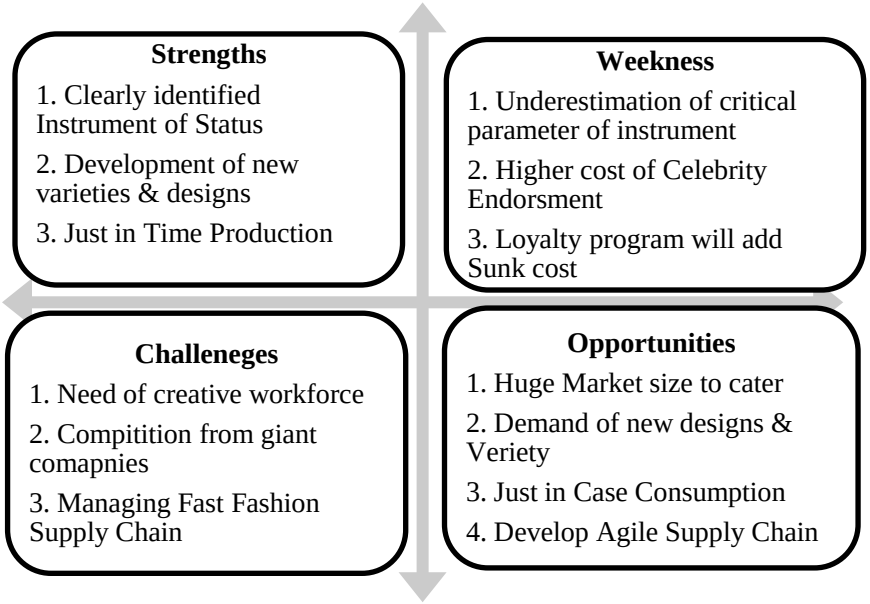


Figure 5 SWOC Analysis of the Model

1. All human beings depending upon whichever age group they belong to, put in extra money, and they put extra effort into something called the **Instrument of Status;** in simple words, when we were kids, especially in the 90s kids we would go the extra miles to get a Shakalaka Boom Boom pencil or to get an MRF bat and whoever had this instrument of status was considered to be a cool kid as we grow up the smartphone becomes the instrument of status and if somebody has an iPhone it suddenly gives an impression that they are a rich. For every age, we have our instrument of status and just like that; we understood the essential instrument of status for the age group of 20 to 40 is nothing but the clothes they wore.
2. Secondly, we also understood the instrument of status; human beings also have the **critical parameter that defines the value of that critical instrument**. For example, nobody cares about the wood quality that the MRF bat is made up of. Most of us use the duplicates bats only with MRF stickers. We bought it only because Sachin Tendulkar was using it. The parameter to judge the status of instruments was never the quality of the nutritional value of the product is all about just a sticker or just a stupid doll. People have three primary parameters defining their social circle status, like clothing. Those parameters are Quality, Variety and Design, and the culmination of these parameters makes them an excellent status instrument. Still, it is useless if all the clothes are bad design and the most exciting point over here is that very few peoples care about the quality of the clothes as much as they care about the design and variety.
3. Third and most importantly, women were fascinated by fashion icons like any heroin or Hollywood Bollywood star.

Strategic Need:

1. We need an **Agile Supply Chain**; we need to identify what kinds of designs are trending in society and whatever designs are doing well that is provided in the premium outlet. We need a **fast-fashion supply chain** that offers new premium quality designs in the shortest time at affordable prices. Focusing on design and variety of clothes, customers were delighted to find trending designs and use a variety of dresses.
2. The golden equation required for Apparels & Shopping Goods marketing is **Just In Time Production and Just In Case Consumption.** There are two types of operation in supply chain management. This mode of operation is not just applied to the supply chain but many other aspects of life also; this concept comes from the automobile industry. Suppose a car company operates with just in the case method. In that case, they will focus on keeping Inventory stocked up all the time, so if they want to manufacture car they either use by default 300 red, 300 black colour 300 yellow cards cars so regardless of what customer wants they will be able to provide the images of the car or deliver the vehicle immediately. What the major disadvantage of this strategy leads to exorbitant **storage cost and the Inventory get wasted** if all stock does not include sale, whereas in the second mode of operation, **just in time,** it is all about producing only what is needed; first, we place the order of black colour then they will start the production manufacturing and then painted black this way there is significantly less storage cost because the product was very quickly from the inventory and supply chain, in general, is become highly efficient.
3. If manufacturers prepare all the products just in time approach wherein they push out a new design every 15 days, so they end up saving tons of money by not keeping the Inventory, but customers tend to buy the product with the **just in case mindset** and end up spending more than needed if a girl sees the great the dress she knows that within 15 days this will be out of stock; therefore she will have the natural tendency to buy the dress even if she doesn't need it, she will buy with the mindset of just in case. I will have this on my birthday; she will have more flow than needed and eventually end uploading her own storage cost and saves producer inventory cost even if a flop design is come up still gets sold out because people have a mindset that within 15 days, this particular will not be available nearly because of the fear of missing out, people buy the products too.

BIBLIOGRHAPY:

Efthymios Constantinides,2004: Influencing the online consumer's behaviour: the web experience Journal of Internet Research, vol: 14, no: 2, pp 111-124 U.S.A.

Ellen Garbarino Gender differences in the perceived risk of buying online & the effect of receiving site recommendation Journal Of Business Research 57, pp 728-775 U.S.A. 2004

Hernández et al. 2001: Demographic factors like age, gender and income: do they influence online buying behaviour? Online Information Review, 35(1)

Li Na You Qiao Ming Li, Comparative study of online & offline consumer shopping perceived risk in clothing purchasing International journal of management & commerce innovation vol 4 issue1 pp 673-676 Bangkok Thailand 2016

Leon G. Schiffman, Leslie Lazar Kanuk, 2001: Consumer Behavior (8th Edition), Prentice-Hall of India Pvt. Ltd.

Na Li & Ping Zhang, 2002: Consumer online shopping attitude & behavior Journal of Information System, 509 U.S.A.

Nichols J.A.F. et al. 2002: "The Seven Year Itch? Mall Shopper Across Time", published in "Journal of Consumer Marketing."

Pritam P Kothari et. al 2016: A study on consumer attitude towards online shopping in India & its impact International Journal of Advance research, Idea & innovation in technology vol 2 iss 6 India

Satish K Batra, S H H Kazmi, 1999: Consumer Behavior (Text & Cases) Excel Books

Sayed Nasir Ketabi et. al, 2014, Analysis of effective factors on online purchase intention through theory of planned behavior International journal of academic research in business & social sciences vol 4 no 4 Iran

Schiffman & Kanuk, 2000: Consumer Behavior, 7th Edition, Prentice-Hall, New Jersey

Schiffman, Leslie Lazar Kanuk, S Ramesh Kumar, Joseph Wisenblit, Consumer Behavior, Pearson Publication, ISBN: 978-81-317-3156-7

Shahzad Ahmad khan et. al, 2015: An empirical study of perceived factors affecting customer satisfaction to re-purchase intention in online stores Journal of service sciences & management 8, pp 291-305 China

Wikstro and Frostling 2000, Watchfire Whitepaper Series 2000, best practices for managing the Web experience

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Human Resource Information System:A literature review

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Abstract- The Human Resource Information System (HRIS) is commonly a portion of the administration's larger Organization Decision System. Former manual systems are existence gradually exchanged by computerized HRIS. The HRIS want not be composite or smooth computerized. But automation consumes its own benefit of providing more exact and opportune data for management. HR activities are needed to automate so that collection, processing and distribution of faultlessinfo to the right person are possible through HRIS. Due to globalization, HRM is an essential factor of any successful business. Human Resource Information System (HRIS) is self-motivated to decision-making and shows a livelypart in the achievement of the business. Computerization of the member records and documentation has caused in efficient data managing and information distribution for the users, Managers, HR Executives and other workers can currently access the material without delay or errors. This paper enthusiasms on Study available literature review on HRISand what is an impact on HRMIS for decision making system?

Keyword: HRM, HRMIS, IS, HRIS, MIS

I. INTRODUCTION

Tannenbaum, S.I. (1990) An HRIS is an organized procedure for gathering, storage, preserving, retrieving and authenticating data necessary by an association for its HR. Hendry and Pettigrew (1990)recommended that various inward factors, for example, the hierarchical culture, structure (situating of HR), initiative, level of innovation utilized and business yield straightforwardly add to framing the substance of HRM.Raymond McLeod, JR., GERARDIVE De SANCTIS (1995)In this paper, proposed an asset stream model of the HRIS, in light of System hypothesis, as a Framework for arranging and evaluating HRIS Components. The Model perspectives applications farawayexercises that are executed as workforce course through a firm. The HRIS is the latest practically arranged data systems.HRIS is a PC based application programming. The term HRIS is utilized in two diverse ways. One utilize views it as a hierarchical unit and other utilize sees the HRIS as whole PC based applications that procedure human31asset data. As per this view, the HRIS can be characterized as "an automated instrument for the gathering, stockpiling, upkeep and recovery of data about personalities and their activity". In that capacity, the HRIS is a condition of a practical framework, comparative in authoritative situating to the advertising data framework, the assembling asset arranging framework and the bookkeeping data framework.

Wright and Snell (1998)arranged a critical perception that greatest of the HRM Copies comprised ofworkings, which included human source management observes, worker's abilities and conduct and adaptability. Theworkings assimilated towards offering an explanation to an inconstancy of sensible needs required for arranged and non-vital consultations.

Sandeep Krishnan, Manjari Singh (2006-07)these paper appearances at the subjects and concerns looked by Indian associations in executing and administration HRIS. In this examination, the unsafe accomplishment components and faintness in different phases of actualizing an HRIS are investigated. The issues are established in primarily two variables. One is the method that the HR division needs learning about HRIS and henceforth can't obviously explain the prerequisite of the Framework. A poor review is a continuance of this issue. Second is the nonappearance of significance given to the HR division in the associations?

Flynn, Simone I (2008)this article center on Human Resource and the manner by which HRIS is applied by a business association to limit human capital. Business, governments and non-benefit associations everywhere the world depend on human 34asset data framework (HRIS) to encourage data sharing and in addition encourage cutting back and re-building endeavors. In the last investigation, HRIS increment aggressiveness in the commercial center by enhancing the usefulness of HR activities, create progressively and shifted HR-related information and reports.

Sanjay Mohapatra (2009)in this paper, a structure has been produced for fruitful execution of the HRIS that would help in adjusting business objectives to partner’s targets. As unique of the associates, representatives are keys to the achievement of an association. Overseeing workers viably and overhauling their abilities appropriately will result in expanded aggregate execution at an authoritative level. The writer proposed the accompanying structure for fruitful execution of HRIS Proper determination of programming: regardless of whether to choose instantly modified programming or to create in-house

interpretation to the association's needs. Information re-designing: change of current information into the original framework rendering to the necessity. Execution objectives: Identifying the prerequisite and objectives to be accomplished. Partner's contribution: legitimate preparing and give the required assets. The status audit by a senior director: to get existing conditions of the execution and to do required changes in plan and schedule.36 Implementation venture plan: predefined stages/stages to actualize HRIS educate to eachexclusive of the worries. Undertaking Organization structure: influence accessible expected man-to control rendering to the structure said for effective execution of HRIS. As create in the paper, for actualizing HRIS, the accompanying things should be tended to, for example, absence of administration responsibility, fulfillment with existing conditions, no or ineffectively done requirements examination, inability to include key individuals, inability to keep venture group unblemished, legislative issues/shrouded motivation, inability to include/counsel huge gatherings, absence of correspondence, terrible planning (season and span).

Chamaru De Alwis (2010) in this examination, an endeavor is made to discover the foundation of the e-HR appropriation in the Sri Lankan setting and its result on the portion of the HR specialists. 70 % of vast scale organizations in Sri Lanka have received a direct level adjust past that point. In the acting, spending distribution for this selection demonstrates a change of utilization inside the year 2010-2012. In the event that an association will embrace this, most importantly, they should assess representative dispositions, hierarchical attributes, culture and the method for teaming up those with HR and IT. This appropriation need not to be done in a specially appointed way. It should to be agreed and actualized in the best prospective way. An association ought to distinguish the reasonableness of the select programming through cost and advantage examination since it fundamentally influences the post-execution of the entire framework. The reception of e-HR by HR experts will roll out a noteworthy enhancement in their parts by making them vital accomplices in business. Huselid (1995) said in one of his examinations that the workforce choice, execution evaluation motivator state of mind appraisal remuneration, work plan, complaint systems, data sharing, work administration interest enlistment endeavors, worker preparing, and advancement criteria are the major HRM improves which win in an association. Singh, H.P., et al. (2011)the arrangement of a HRIS in managing an account is the product of advancement of IT's. It has risen as anlively interdisciplinary instrument to accomplish imperative authoritative Human Source (HR) destinations. In this paper, the quantity of HRIS in changing the managing an accounting industry of creating nations was talked about. HRIS in banks of different creating nations are contemplated. It is done to inspect the present status and potential utility of HRIS in creating nations. This paper builds up HRIS as a conspicuous interdisciplinary instrument to successfully oversee associations and delivers cooperative energies among orders of HR, IT and managing an account with regards to creating nations. HRIS has a wide extension in banks of creating nations. It is connected in staff organization, compensation organization, leave/nonappearance recording, aptitude stock, therapeutic history, execution examination, preparing and advancement, HR ordering, deployment, vocation arranging, transactions and so on. It is energetic for a bank to plainly distinguish its framework prerequisites before executing HRIS. This would empower to choose the fitting level of difficulty of HRIS and would prompt ideal use of rare assets.

Akansha Chauhan, Sanjeev Kr Sharma, Tarun. Tyagi, (2011)According to creators see, utilization of HRIS appears assumes anenergetic part in HRM in light of the fact that HRIS capacities enhance HRM faraway authoritative purposes and scientific purposes. As a key part of an association-wide coordinated data framework, a key HRIS will give essential data about HR needs and capacities; this data will help the administration group in building up the hierarchical mission and getting objectives and destinations underway. The last end made by creators, HRIS increases the charge of the association all in all and to the HRM office particularly.

Md. Sadique Shaikh (2012)The Author made three models in his examination paper for HRIS plotting to be particular basic HRIS arrangement show, HRIS hexagonal and HRIS stage's model. The maker underscored on the payback of HRIS building and execution for all stages and spaces of associations; as beneficial indispensable HR and related attractive methodologies and conclusion, to evaluate and to controller HR process confidential and external of business affiliation using HR-databases or HR-Knowledgebase, which consolidates info related to human source kept up and took care of by HRIS. Humayun Zafar (2013)in this, the paper author has emphasized information security. This study discovered the under-researched expanse of HRIS and e- HR security issues. In the association only appropriate personnel are acceptable to have admission to private data. It leads to employee-centric culture, boost fulfillment and confidence, and more motivated and loyal workforce. A relatively late advance toward electronic human asset (e-HR) frameworks has enabled associations to offer a customized interface to singular representatives.

The interfaces incorporate a capacity to apply for employment, evolving work related advantages, preparing.

Stone (1998) remarked that HRM is whichever share of the problematic or total of the explanation in ahead the creative contribution of persons. The above estimates suggest that managements need to successfully manage their human resources if they are to get the extreme contribution from their employees. Confederation of Indian Industry (2012)Index advisory private Ltd. Studied the state of human resources/industrial relations in medium and small enterprises segment. They assessed basic human resources, recruitment, training, and manpower planning, performance management, and compensation, career planning and industrial relation.

They found only 61 per cent of businesses have a presence of HRD.

Hansson (2002) studied two questions, based on 26 company's data. He examines (1) what determines employee training from an organizational perspective and (2) to what amount training investments contributes to company performance. He decided that the exercise has a helpfulinfluence on organization performance. K.P.Tripathi (2011)in this paper, author has emphasized the use of HRMIS. HR is considered one of the mainassets of the commercial organization.

The exchange handling layer of expert system in human asset work manages routine exercises like participation recording and finance computations. The operational level exercises additionally incorporate trust up the representative records which are utilized as a reason for vital layers. With the developing significance of human asset management and expanding size of the associations, upkeep of worker-related information and producing proper reports are the vital parts of any 40 association. In this manner, an ever collective number of associations are embracing PC based human quality administration frameworks.

Majid, R. (2009)in this study, the author wants to focus more on an estimation of the helpfulness of theInformation System organization. End users satisfaction is the main criteria to calculate the helpfulness of the system. The end user satisfaction depends on system quality, system use, information quality, etc. By providing effective training about using the system an organization can easily eliminate the entire paperwork system of the association or department. Growth and progress in management backing system leads voluntary use of e-commerceorganizations are more common today. Kristine Dery, David Grant and Sharna Wiblen (2006)in this article, the writer found that the usage and utilization of HRIS are being obstructed by three primary difficulties: keeping up authoritative consideration, kindness to the complexities related with individuals administration and overseeing client acknowledgment of the change related with the framework. This challenge demonstrates that the material, functional characteristics of technologies such as HRIS are complex and make them difficult to introduce and operate.In additional study Srimannarayana (2008) show that additional satisfactory human source development environment was usual in the manufacturing division than the service and information technology sector.

II. METHODOLOGY

In this research work, all people's papers which are available in protruding journals were perused. Papers affecting to the arena of HRIS and administrative presentation were groups and examined in detail. The paper was qualitatively confidential in agreement with selected scopes, Process enables the researchers to convey out an organized review and discover new dimensions and those not sufficiently covered in the existing literature. It is organized impression adequately dazzling upon noticeable and most relevant aspects.

III. RESULTS

Once deep study of available literature, it is made conceivable the academic to discover new possibility which is physical input to the procedure of information. It has remained found that there is a cumulative to integrating traditional HR purpose into whole some planned method to the human supply management. Some addition prospects include:

1. Now the possibility of Human source management is broader from employees to a considered level.
2. Human resource tests are not incomplete only HR.
3. The tasks can be higher due to new expansion in another punishment.

IV. CONCLUSION

Contemporary globalization brings implication changes in each field of human lifecycle. The administration part is the one of the prime areas which is additional pretentious by this globalization. Though the researcher underwrites enough inputs in the arena of human resource management, but due to quickly increasing globalization made these input to be more update. One the main manipulating factor in current globalization is innovation. The new expertise completely improved the methods of human supply management. By final the inputs of all above researcher,

the true statistic is that it cannot disregard the local issues and, in the same way, it cannot set aside the global issues. The fact is that we need accept such kind of central between local and global.

RECOMMENDATIONS

Once studying the inputs of the researcher in which the highest of the researcher prove the association among various issues of the human resource administration it is optional that the now it is time to explain the links between in manufacturing in policy in HRIS.

REFERENCE

[1]. S. I. Tannenbaum, "Human Resource Information Systems: User Group Implications," Journal of Systems Management, Vol. 41, No. 1, 1990, pp. 27-32.
[2]. Hendry, C., Pettigrew, A. (1990), "Human Resource Management: An agenda for the 1990"s", International Journal of Human Resource Management, Vol. (1) (3) pp.17-43.
[3]. Raymond McLeod Jr and Gerardine Desanctis (1995), 'A Resource-Flow Model of the Human Resource Information System', Journal of Information Technology Management, Vol-VI, Number 3
[4]. Wright, P.M. and Snell, S.A. & Dyer, L. (2005), "New models of strategic HRM in a global context", International Journal of Human Resource Management, 16: 875-881
[5]. Singh, Manjari & Krishnan Sandeep K, 2006. "Issues and Concerns in the Implementation and Maintenance of HRIS," IIMA Working Papers WP2006-07-01, Indian Institute of Management Ahmedabad, Research and Publication Department.
[6]. Simone I Flynn (2008)-"Human Resource Information System", EBSCO Research Starter. Sanjay Mohapatra, " Framework for HRIS Implementation in Non-IT Sector"Journal of Convergence Information Technology Volume 4, Number 4, December 2009
[7]. A.Chamaru De Alwis (2010) "The Impact of Electronic Human Resource Management on therole ofhuman resource managers, " KONOMIKA A MANAGEMENT.
[8]. Huselid, M.A. (1995), "The Impact of Human Resource Management Practices on turnover, productivity, and corporate financial performance" Academy of Management Journal, Vol. 38, pp. 635-672
[9]. Singh, H.P., et al. "Role of Human Resource Information System in Banking Industry of Developing Countries" International Journal of the Computer, the Internet and Management, Vol. 19 No. SP1, June 2011.
[10]. Akansha Chauhan, Sanjeev Kr. Sharma and Tarun Tyagi," Role of HRIS in Improving Modern HR Operations" Review of Management, Vol. 1, No. 2, April-June 2011, ISSN: 2231-0487
[11]. MD. Sadique Shaikh "Human resource information system (HRIS) designing needs for business application", Zenith International Journal of Business Economics & Management Research, Vol.2 Issue 1, ISSN 2249 8826., January 2012, pp 256-264.
[12]. Humayun Zafar " Human resource information systems: Information security concerns for organizations " Human Resource Management Review 23 (2013) pp105–113
[13]. Stone, R. J. (1998), Human Resource Management, 3rd edition, Jaracanda Wiley Ltd, Milton.
[14]. Confederation of Indian industry and Index Advisory (P) Ltd.,' State of human resources/industrial relations in SME segment, Mumbai, March 2012.
[15]. Shammy Shiri " Effectiveness of Human Resource Information System on HR Functions of the Organization: A Cross-Sectional Study", US-China Education Review A 9 (2012) 830-839 Earlier title: US-China Education Review, ISSN 1548-6613
[16]. Hansson Bo, 'company based determinants of training and the impact of training on company performance: Result from an international HRM Survey', The Institute for employee and corporate development, Uppsala University, Sweden, 2002.
[17]. K.P.Tripathi, "Role of MIS in Human Resource", International Journal of Computer Science and Technology, Vol.2, issue 1,2011.
[18]. Majid, R. "Measuring the effectiveness of human resource information system in the national Iranian oil company an empirical assessment" Iranian Journal Of Management Studies (IJMS) Vol 2 No, 2 June 2009 pp: 129-145.
[19]. Kristine Dery, David Grant and Sharna Wiblen(2006), "Human Resource Information Systems(HRIS): Replacing OR Enhancing",www.researchgate.net.
[20]. Srimannarayana, M;, 'Human resource development climate in India', Indian Journal for Industrial relations, Vol.44, No.2, October 2008, pp.248-256.

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IMPORTANCE & ROLE OF INFORMATION TECHNOLOGY TOOLS IN DATA ANALYSIS

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ABSTRACT

The paper outlines summary about contemporary state of art and trends within the field of knowledge analysis. Collecting, storing, merging and sorting enormous amounts of knowledge are serious challenge for software and hardware facilities. Increasing number of companies and institutions has solved and developed tools for saving and storing tables, documents or multimedia data. Database structures are serious instrument in prevailing applications. These structures have everyday thousands or millions entries. The objectives of analytical tools is obtaining necessary and useful information from collected data and consequently utilizing them for active control and deciding. The main aim of this contribution is to present some possibilities and tools of knowledge analysis with regards to availability to ultimate users.

Keywords: *Data Analysis, Data Analysis Methods, Data Analysis Process, IT Tools*

INTRODUCTION

Data analysis is that the process of performing on data with the aim of arranging it correctly, explaining it, making it presentable, and finding a conclusion from that data. It is finished finding useful information from data to form rational decisions. The main purpose of knowledge analysis is interpretation, evaluation & organization of knowledge and to form the info presentable.

DATA ANALYSIS METHODS

There are two methods of data analysis are Qualitative Analysis & Quantitative Analysis. Qualitative Analysis is done through interviews and observations. Quantitative Analysis is done through surveys and experiments. Data Analysis Process includes:

1. Data Collection
2. Working on data quality
3. Building the model
4. Training model
5. Running the model with full data.

Difference between Data Analysis, data processing & Data Modeling

Data analysis is completed with the aim of finding answers to specific questions. Data Analysis techniques are similar to business Analysis and business intelligence.

Data Mining is about finding the various patterns in data. For this, various mathematical and computational algorithms are applied to data and new data will get

generated. Data Modeling is about how companies organize or manage the information. Here, various methodologies and techniques are applied to data. Data analysis is required for data modeling.

As more and more enterprises realize the unique strategic importance of knowledge quality, a replacement class of knowledge analysis tools has emerged. Like all processes, to realize the very best level of knowledge quality excellence, the order of operations matters. Properly putting things first means the primary thing that has got to be done, even before planning, is to research.

The truism that you simply can't fix what you'd don't measure is particularly true because it relates to data quality. Data quality analysis tools are available for a good range of measurements and fall under the subsequent categories:

Duplicate Data Detection

This type of knowledge analysis tool is employed to assess what percentage duplicate records are currently taking over space inside your database. Duplicate records are incredibly problematic for sales and marketing teams when it involves lead routing, assignment and conversion. This type of knowledge quality analysis is useful to supply insight about data quality and can assist within the recognition of duplicate data issues.

Data Cleansing

Once you've discovered the amount of duplicates inside your database, take action against them by matching and merging all duplicate records in real-time. Having a clean and duplicate free database will cause organizational efficiency, increased productivity and better ROI on your CRM and marketing automation investments.

Data Monitoring

These data analysis tools are helpful in analyzing and controlling the continued conformance of knowledge to the agreed business rules defining the info quality for the enterprise.

Data Enrichment

A data enrichment tool which will append your data with relevant contact and firmographic information like direct dials, email addresses, company revenue and employee count, can really change the way your sales and marketing teams operate. With enriched contact information like direct dials and email addresses, your sales team can engage with the proper person at the proper time, and your marketing team can increase deliverability, open and conversion rates, helping your maximize the ROI on your CRM or marketing automation investment.

Data Standardization

Data standardization tools help in formatting the values into layouts which are consistently supported local and industry standards. They also help in decomposition of text fields into components. It makes sure that fields like title, address and phone number look and read the same across your entire database. You wouldn't want to possess "VP" also written as "Vp" or "Vice President" inside your CRM. This results in duplicate records and poor data reporting because the CRM will read the titles as 3 different ones.

Data Quality Checklist

It is useful to make a knowledge quality checklist to be used for data improvement. If you'll make an inventory of all the info quality improvements you'd wish to make both short term and future, you'll have a far better grasp on the state of your database and make it easier to realize those goals.

Importance of Data Quality Analysis Tools

Data quality is of important importance for any organization striving for peak revenue performance. With the simplest quality data, the choice making capabilities of each individual within the organization is enhanced, allowing business objectives to be reached during a more efficient manner. Employing best practices for data quality analysis is important since you can't fix what you don't measure.

Many tools are provided by vendors and consumed by users for internal deployment. Now, however, hosted tools also are growing in popularity and continuing to emerge. The tools are regularly implemented by many organizations in support of other data quality initiatives and data solutions, which are bringing a few continuous improvements in organizational data quality. With the increasing focus on data quality initiatives in the enterprise the key role that the right data quality analysis tools have cannot be overstated.

The growing demand and importance of data Analysis in the market have generated many openings worldwide. It becomes slightly tough to shortlist the highest data Analysis tools because the open source tools are more popular, user-friendly and performance oriented than the paid version. There are many open source tools which doesn't require much/any coding and manages to deliver better results than paid versions e.g. – R programming in data processing and Tableau public, Python in data visualization. Below is the list of data Analysis tools, both open source and paid version, based on their popularity, learning and performance.

R Programming

R is the leading analysis tool in the industry & widely used for statistics and data modeling. It can easily manipulate your data and present in several ways. It has exceeded SAS in some ways like capacity of knowledge, performance and outcome. R compiles and runs on wide variety of platforms viz - UNIX, Windows and MacOS. It has over 11000 packages and allows you to browse the packages by categories. R provides tools to automatically install packages in customized way, which may even be well assembled with big data.

Tableau Public

Tableau Public is free software that connects any data source be it corporate Data Warehouse, Microsoft Excel or web-based data, and creates data visualizations, maps, dashboards etc. with real-time updates presenting on web. They can even be shared through social media or with the client. It allows the access to download the enter different formats. If you would like to ascertain the facility of tableau, then we must have excellent data source. Tableau's Big Data capabilities make them versatile and one can analyze and visualize data better than the other data visualization software within the market.

Python

Python is an object-oriented scripting language which is simple to read, write, maintain and a free open source tool. It was developed by Guido van Rossum in 1980s which supports both functional and structured programming methods. Python is straightforward to find out because it is extremely almost like JavaScript, Ruby, and PHP. Also, Python has excellent machine learning libraries viz. Scikitlearn, Theano, Tensorflow and Keras. Another important feature of Python is that it often assembled on any platform like SQL server, a MongoDB database or JSON. Python can also handle text data very well.

SAS

SAS is a programming environment and language for data manipulation and a leader in Analysis, developed by the SAS Institute in 1960s and further developed in 1980s and 1990s. SAS is easily accessible, manageable and analyze data from any sources. SAS introduced an outsized set of products in 2011 for customer intelligence and various SAS modules for web, social media and marketing Analysis that's widely used for profiling customers and prospects. It can predict user behaviors, manage, and optimize communications.

Apache Spark

It is developed by University of California, Berkeley's AMP Lab in 2009. Apache Spark may be a fast large-scale processing engine and executes applications in Hadoop clusters more times faster in memory and 10 times faster on disk. Spark is application of data science and it makes data science effortless. Spark is popular for data pipelines and machine learning models development. Spark also includes a library – M. Llib that provides a progressive set of machine algorithms for repetitive data science techniques like Classification, Regression, Collaborative Filtering, Clustering, etc.

Excel

Excel is basic, popular and widely used analytical tool almost at every industries. Whether you're an expert in SAS, R or Tableau, you'll still get to use Excel. Excel becomes important when there is a requirement of Analysis on the client's internal data. It analyzes the complex task that summarizes the info with a preview of pivot tables that helps in filtering the info as per client requirement. Excel comes with advance business Analysis option which helps in modeling capabilities which have prebuilt options like automatic relationship detection, a creation of DAX measures and time grouping.

RapidMiner

RapidMiner may be a powerful integrated data science platform developed by an equivalent company that performs predictive analysis and other advanced Analysis like data processing, text Analysis, machine learning and visual Analysis without any programming. Rapid Miner can incorporate with any data source types, including Access, Excel, Microsoft SQL and Tera data, Oracle, Sybase, IBM DB2, Ingres, MySQL, IBM SPSS and Dbase etc. The tool is very powerful that can generate Analysis based on real-life data transformation settings.

KNIME

KNIME Developed in January 2004 by a team of software engineers at University of

Konstanz. KNIME is leading open source, reporting, and integrated Analysis tools that allow you to analyze and model the data through visual programming, it integrates various components for data mining and machine learning via its modular data-pipelining concept.

QlikView

QlikView has unique features like patented technology and has in-memory data processing, which executes the result very fast to the end users and stores the data in the report itself. Automatic Data association is special feature and it can be compressed to almost 10% from its original size. Data relationship is visualized using colors – a specific color is given to related data and another color for non-related data.

Splunk

Splunk is a tool that analyzes and searches the machine-generated data. Splunk pulls all text-based log data and provides a simple way to search through it, a user can pull in all kind of data, and perform all sort of interesting statistical analysis on it, and present it in different formats.

ADDITIONAL DATA ANALYSIS SOFTWARE

Qlik Sense

Qlik Sense is an Analysis platform for any device. It provides a cloud-based platform. This tool is for any sized businesses. Qlik works with several databases like IBM DB2, Impala, Microsoft SQL Server, Oracle, Sybase, and Teradata. Qlik can be extended and combined with other technologies using APIs. It provides features like drag-and-drop functionality, smart search, provides real-time Analysis anytime and anywhere. It provides a basic plan as well as a business plan. The basic plan is free and the business plan is also available. Website: Qlik Sense

NodeXL

It is the tool for social network and content analysis. With this tool, data analysis is completed in Microsoft Excel. This tool provides data importers and reports. The tool is useful for data-driven marketers. NodeXL has included social media analysis features. The tool provides good features for research work also. Its other features include importing data from social media, PowerPoint export, and network visualization. For academic and private use, the value of the tool is $199. For corporate use, the worth is $75 per month. Website: NodeXL

GoodData

GoodData provides a cloud-based platform for data Analysis. It will assist you while working with complex data. This tool will allow you to deliver fully managed insights to your customers. The tool can work with any data source and visualization. The tool enables you for agile development and versatile product design. It is a business intelligence platform and can function a service. Website: GoodData

Pentaho

This tool is for data integration, data processing and knowledge dashboards. It also provides OLAP services. This business intelligence software supports Windows, Mac, and Linux operating systems. With Pentaho, you'll add a hybrid and multi-cloud environment. It has functionalities like IoT Analysis, big data integration, real-time data

analysis, and predictive modeling. No coding skills are required. The tool is simple and easy to use. Website: Pentaho

Domo

It is a knowledge management and machine learning tool. It provides more than 500 connectors. These connectors will allow you to attach with the opposite sources from the cloud, on-premises, and proprietary systems. Domo will provide real-time data. With the assistance of a mobile app, you'll work on mobile also. The mobile app supports Android and IOS. The tool works for all sized businesses. The cloud architecture of this tool saves your data securely. The tool will allow you to share your visualization with customers. Domo has three pricing plans. You can try the tool for 30 days for five users. To know more about the pricing details, you'll need to contact them. Website: Domo

SUGGESTIONS FOR FUTURE WORK

The amount of knowledge collected from various applications everywhere the planet across a good sort of fields today is predicted to double every two years. It has no utility unless these are analyzed to urge useful information. This necessitates the event of techniques which may be wont to facilitate big data analysis. The development of powerful computers may be a boon to implement these techniques resulting in automated systems. The transformation of knowledge into knowledge is by no means a simple task for top performance large-scale processing, including exploiting parallelism of current and upcoming computer architectures for data processing.

Moreover, these data may involve uncertainty in many various forms. Many different models like fuzzy sets, rough sets, soft sets, neural networks, their generalizations and hybrid models obtained by combining two or more of those models are found to be fruitful in representing data. These models are also very much fruitful for analysis. More often than not, big data are reduced to incorporate only the important characteristics necessary from a specific study point of view or depending upon the appliance area. So, reduction techniques have been developed. Often the data collected have missing values. These values got to be generated or the tuples having these missing values are eliminated from the info set before analysis. More importantly, these new challenges may comprise, sometimes even deteriorate, the performance, efficiency and scalability of the dedicated data intensive computing systems. The later approach sometimes results in loss of data and hence not preferred. This brings up many research issues within the industry and research community in sorts of capturing and accessing data effectively. In addition, fast processing while achieving high performance and high throughput, and storing it efficiently for future use is another issue. Further, programming for giant data analysis is a crucial challenging issue. Expressing data access requirements of applications and designing programming language abstractions to take advantage of parallelism are an instantaneous need.

Additionally, machine learning concepts and tools are gaining popularity among researchers to facilitate meaningful results from these concepts. Research within the area of machine learning for giant data has focused on processing, algorithm implementation, and optimization. Many of the machine learning tools for giant data are started recently needs drastic change to adopt

it. We argue that while each of the tools has their advantages and limitations, more efficient tools are often developed for handling problems inherent to big data. The efficient tools to be developed must have provision to handle noisy and imbalance data, uncertainty and inconsistency, and missing values.

CONCLUSION

To conclude, we can say that Tableau Public is straight forward to use and provides many data analysis solutions with different features. RapidMiner is great data analysis software for machine learning is easy to use and provides a powerful GUI. KNIME is a free and open-source Analysis platform that is easy to learn. Orange provides Widgets to make supervised and unsupervised learning models. OpenRefine makes working with messy data easier and it also supports many file formats for import and export. With Looker, you'll get accurate charts & tables and it'll also allow you to create mini-applications using Look ML. Talend may be a popular and powerful ETL integration tool, which is straight forward to use. R-Programming is used by many people for data science as it provides many features that are useful for data science. Google Fusion Tables may be a free platform to see the info through charts, graphs, and maps.

We discussed concept of data analysis and some varied tools that perform data analysis, cleaning and presentation. These tools save the time spent on coding and testing by giving customized and accurate results. These tools can be used in various fields where data analytics is required. Data analysis tools play a vital role in all business domains. Many more tools have been introduced in the market and the existing products are also under constant improvement. The demand for better analytics tools is increasing constantly which is only going to increase further in future.

REFERENCES

- http://www.dataversity.net/3-types-data-analytics-descriptivepredictive-prescriptive
- https://www.google.co.in/webhp?sourceid=chromeinstant&rlz=1C1CHWA_enIN623IN624&ion=1&espv=2&ie=UTF-8#q=data%20analytics%
- http://www.im-techsolutions.com/big-data/four-types-of-big-dataanalytics-and-examples-of-their-use
- http://www.computerworld.com
- http://www.kdnuggets.com/2014/06/top-10-data-analysis-toolsbusiness.html
- http://www.tableau.com
- Douglas, Laney. "The Importance of 'Big Data': A Definition". Gartner. Retrieved 21 June 2012.
- Blog post: Mark van Rijmenam titled "Why the 3V's Are Not Sufficient to Describe Big Data".
- Jean Yan, April 9, 2013 “Big Data, Bigger Opportunities Bowman, M., Debray, S. K., and Peterson, L. L. 1993. Reasoning about naming systems.
- “Research in Big Data and Analytics: An Overview” International Journal of Computer Applications (0975 – 8887) Volume 108 – No 14, December 2014
- Blog post: Thoran Rodrigues in Big Data Analytics, titled “10 emerging technologies for Big Data”, December 4, 2012
- M. K.Kakhani, S. Kakhani and S. R.Biradar, Research issues in big data analytics,

International Journal of Application or Innovation in Engineering & Management, 2(8) (2015), pp.228-232.

- A. Gandomi and M. Haider, Beyond the hype: Big data concepts, methods, and analytics, International Journal of Information Management, 35(2) (2015), pp.137-144.
- C. Lynch, Big data: How do your data grow?, Nature, 455 (2008), pp.28-29.
- X. Jin, B. W.Wah, X. Cheng and Y. Wang, Significance and challenges of big data research, Big Data Research, 2(2) (2015), pp.59-64.
- R. Kitchin, Big Data, new epistemologies and paradigm shifts, Big Data Society, 1(1) (2014), pp.1-12.

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AN EMPIRICAL STUDY ON CHALLENGES AND OPPORTUNITIES OF GREEN MARKETING IN DAIRY INDUSTRY WITH SPECIAL REFERENCE TO AHMEDNAGAR DISTRICT

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Abstract

Global warming had been in news since last decade. Scientists are working vigorously to reduce the effect of global warming. Consumers are also aware of ecological and environmental problems created by the various organizations. They demand products and services that not only safe for them but also environmentally safe. Thus there is a need for Green Marketing Practices. Dairy products come under essential commodity and related to health. In Maharashtra due to economic growth and disposable income resulted in milk consumption and production of milk. This paper examines challenges and opportunities of green marketing and its practices adopted by dairy industries located in Ahmednagar District of Maharashtra. The objective of this paper is investigated green marketing practices and its challenges and opportunities in dairy Industry. Paper is descriptive in nature and empirical data is analyzed to statistically to generalize findings. The paper also describe the reason why dairy industries are adopting it and concludes that green marketing is something that will continuously grow in both practice and demand.

Key words: Green marketing, challenges, opportunities, customers, dairy industry, green milk products, etc.

Introduction

Green marketing is the marketing of products that are presumed to be environmentally safe, that means it refers to the process of selling products and services based on their environmental benefits. Green marketing strategies are adopted by the companies for protecting and securing the environment in this Liberalization, Privatization and Globalization era. With the help of Green Marketing, organization can change the consumer perception, attitude towards the Brand, and that time every organization or firm will change their policies and practices with regards to the product which is environment protected. Nowadays Green marketing has become a global concept for protecting the earth from the damage. Implementing green marketing saves the earth's resources in production, packaging, and operations. Businesses are showing consumers they too share the same concerns, boosting their credibility. Divergent aspects of green marketing include ecologically safer products, recyclable and biodegradable packaging, energy-efficient operations, and better pollution controls. India has been the leading producer and consumer of dairy products worldwide since 1998 with a sustained growth in the availability of milk and milk products. Dairy activities form an essential part of the rural Indian economy, serving as an important source of employment and income. India also has the largest bovine population in the world. However, the milk production per animal is significantly low as compared to the other major dairy producers. Moreover, nearly all of

the dairy produce in India is consumed domestically, with the majority of it being sold as fluid milk. Green issues have become increasingly important to decision makers as firm's faces some sensitivity issues. Although environment issues influence all human activities a few disciplines have integrated green issues into their literature. Human beings are becoming more concerned about environment issues, even the corporate start modifying their business strategies. Environmental laws, rules and regulations are the major aspects of milk processing units to develop eco-friendly products and empowering distribution channel. Also milk processing units are giving major importance to quality of green milk products, green promotion and green price of the product.

Objectives of the Research

1. To understand process of green marketing development and its challenges adopted by milk processing units in Ahmednagar District
2. To bring out the factors responsible for the opportunities and challenges of dairy industry.
3. To evaluate the challenges faced by dairy industry.

Hypothesis

H_a: Milk processing units in Ahmednagar District are faces the challenges in accurate planning and implementation of green marketing strategy.

H_0: Milk processing units in Ahmednagar District do not faces the challenges in accurate planning and implementation of green marketing strategy.

Literature Review

Alsmadi (2007) investigating the environment behaviour of Jordian consumer's revels environment consciousness, but positive tendency in "Green Products" does not show have positive impact o buying decisions.

Sweta Gupta, Deepak Singh, C.S Thakur (March 2003), Corporate must be aware of the fact the consumer will show interest in green products if companies show same interest through their actions towards environment. To promote a green product without making consumers aware about the green products is a challenge to the marketers.

Yazdanifard, Mercy (2011), for companies to survive in the market, they need to go green in all aspects of their business. Consumers want to identify themselves with companies that are green competent and are willing to pay a premium for a greener life. Green marketing is not just an environmental protection tool but also a marketing strategy.

Polonsky, Michael (1994), Green marketing cover more than firms marketing claims, Firms must bear more of the responsibility of environment. Responsibility of the environment is not only the responsibility of the firms only ,consumers and industrial buyers have the ability to integrate the environment into their corporate culture and thus ensure all organisations minimize the detrimental environment impact of their activities

Nitin Mittal (2014), according to this study ultimately it is consumers who are responsible for environmental problems. Corporate should create the marketing awareness among the consumers, what are the benefits of green as compare to non green one.

Oyewole P. (2001), in his paper presents a conceptual link among green marketing, environmental justice and industrial ecology. It argues for greater awareness of environmental justice in the practice for green marketing. A research agenda is finally suggested to determine customer's awareness of environmental justice and their willingness to bear the cost associated with it.

Research Design

This research focus on important issues to be consider in selection of an adequate research design for empirical studies. This study proposes a positivistic as a research plan for data collection & analysis, and develops the survey method and questionnaire design. Data used for supporting analysis in this section is from practical survey of dairy sector in Ahmednagar District supplemented by literature references. The secondary data were collected by using of Annual report, books, Journals, Government reports, magazines, Government publications and internet etc.

Analysis and Interpretation

Mean analysis, descriptive statistics and standard deviation analysis method was used to study the current scenario of green marketing strategies adopted by milk processing units in Ahmednagar District. All the variables were measured on five-point Likert scale in order to understand the importance given for various green marketing practices in opinion of the employees over milk processing units. It is observed that according to the responses received in milk processing units maximum importance by the milk processing units in Ahmednagar District was given to Empowering Distribution channel for operations followed by Eco label are used by company to create awareness and Penetration pricing for green products. The minimum importance was given to the Bundle Pricing for Green Product, Proper disposal of Hazardous waste, and Use of digital promotion tool for marketing. Mean for rest, all factors measuring for understand current scenario of green marketing strategies adopted by milk processing units in Ahmednagar District.

Mean analysis, descriptive statistics and standard deviation analysis method was used to study the factor influencing on milk processing units to adopt green marketing strategies in Ahmednagar District. All the variables were measured on five-point Likert scale in order to understand the influencing factors on milk processing units to adopt green marketing strategies in Ahmednagar District in opinion of the employees over milk processing units. It is observed that according to the responses received in milk processing units maximum importance by the milk processing units in Ahmednagar District was given to Environmental laws, rules and regulations have led companies to develop eco-friendly products followed by Waste management is important criteria and is given more importance and Green marketing gives competitive advantage. The minimum importance given to Green marketing attract investors to invest, followed by Good demand for green product is noticed in recent past and Green marketing increase the market share. The Mean for rest, all factors measuring for understand current scenario of green marketing strategies adopted by milk processing units in Ahmednagar District.

Mean analysis was used to study the challenges faced by milk processing units in adoption of green marketing strategies in Ahmednagar District. All the variables were measured on five- point Likert scale in order to understand the challenging factors on milk processing units to adopt green marketing strategies in Ahmednagar District in opinion of the employees over milk processing units. The It is observed that according to the responses received in milk processing units maximum importance to facing challenges by the milk processing units in Ahmednagar District was given to Low profit margin followed by it increase price of the product and increase complexity in supply chain management. The minimum importance to facing challenges given to increase promotion cost for green products followed by lack of trained employees to adopt green marketing strategies and high cost of maintenance. The Mean for rest, all factors measuring for understand challenges faced by milk processing units for marketing strategies adopted in Ahmednagar District.

Opportunities are analyzed as per the component matrix table it is observed that their 5 components were extracted for 24 variables entered in to Factor Analysis component. It indicates the Conservation of resources for production unit as most commonly adopted practice followed by Eco friendly disposal of waste, Training & development of sales team for Green Marketing, Well Cleanliness of Own Outlet Area and Product is marketed on eco-friendly features.

Hypothesis Testing

With the help of t-test Mean score for all the parameters measuring that the milk processing units in Ahmednagar district are face the challenges in accurate planning and implementation of green marketing strategies is more than three ($\mu>3$). The higher is the difference in mean and the test value (3) on five points Likert scale, the negative is the answer to the question tested through the concerned objective. Very negligible mean differences shown in t-Test table with p-value less than 0.05 signifies that facing challenges in accurate planning and implementation of green marketing strategies hence null hypothesis was rejected.

Findings and Conclusion

Green marketing must satisfy two objectives: improved environmental quality and customer satisfaction. The vast majority of consumers, however, will ask, “If I use ‘green’ products, what’s in

it for me?" the top reasons consumers do not buy green products included beliefs that they require sacrifices - inconvenience, higher costs, lower performance - without significant environmental benefits. In practice, green appeals are not likely to attract mainstream consumers unless they also offer a desirable benefit, such as cost-savings or improved product performance.

Implementation of the strategies is not possible without structures considering environmental issues. Companies need to make environmental friendly products easily available and affordable and without compromising on performance and at no extra costs for the consumer to make informed purchasing decisions, as they increasingly report a willingness to do so. In order to have a credible, sustainable brand, companies must have operational integrity and their communications have to strike the right balance between visibility and transparency.

Communication messages must be backed by facts and figures. The industry should work in this direction to gain more substance behind its environmental advertising. This aspect of the study is the most important lesson to be learned for marketers in all sectors. The purchase of many everyday products has a habitual character. It is performed in a stable context, often executed with high frequency and without much reflection. It can thus be concluded that green marketing is a tool used by many milk processing units in dairy industry to make brand their products into separate line.

References

Alsmadi, S. (2007), ―Green Marketing and the Concern over the Environment: Measuring Environmental Consciousness of Jordanian Consumers, Journal of Promotion Management, Vol. 13(3–4), 2007.

Arbuthnot, J. (1977), "The roles of attitudinal and personality variables in the prediction of environmental behavior and knowledge", Environment and Behavior, 9, 217 –232.

Booi-Chen Tan and Peik - Foong Yeap, (2011), "Relationships among the Antecedents of Behaviour Intention towards Environmentally Friendly Restaurants: A Causal Model", 2011 International Conference on Environment and Industrial Innovation IPCBEE vol.12

Kangun, N. and M.J. Polonsky (1995), Regulation of Environmental Marketing Claims: AComparative Perspective, International Journal of Advertising, 14, 1 – 24.

Mainieri, Tina; Barnett, Elaine G. (1997), "Green buying: The influence of environmental concern on consumer behavior", Journal of Social Psychology, Vol. 137, Iss.2, 189 –205.

McCarty, J. A. and Shrum, L. J. (1994), The recycling of solid wastes: personal values, value orientations, and attitudes about recycling as antecedents of recycling behavior", Journal of Business Research, Vol. 30, No. 1, 53 – 62.

Mishra et.al (2010) Green Marketing in India: Emerging Opportunities and Challenges Journal of Engineering, Science and Management Education/Vol. 3, 9-14

Mohana sundaram. V (2012) Green Marketing – Challenges and Opportunities International Journal of Multidisciplinary Research Vol.2 Issue 4, 66-73

Nitin Mittal (2014). "Green Marketing: Emerging Opportunities and Challenges".International journal of Engineering Research ISSN:2348-4039 & Volume-1,Issue-1Management Technology January 2014.

Ottman, Jacquelyn. (1995), "Today's consumers turning lean and green", Marketing News, Vol. 29, Iss. 23, pp. 12 – 14.

Oyewole, P. (2001). Social Costs of Environmental Justice Associated with the Practice of Green Marketing. Journal of Business Ethics, 29(3), Feb, 239-252.

Peattie, Ken. (2001), "Towards Sustainability: The Third Age of Green Marketing", The Marketing Review, Vol. 2 Iss. 2, 129 –146.

Polonsky, Michael Jay. 1994a. "Green Marketing Regulation in the US and Australia: The Australian Checklist." Greener Management International 5: 44-53.

Rashad Yazdanifard, Igbazua Erdoo Mercy (2011), "The impact of Green Marketing on Customer satisfaction and Environmental Safety" 2011 International Conference onComputer Communication and Management Process of CSIT vol.5 (2011) © (2011) IACSIT Press, Singapore.

Sarkar, A. N. (2012). Green branding and eco-innovations for evolving a sustainable green marketing strategy. Asia-Pacific Journal of Management Research and Innovation, 8(1), 39-58. doi: 10.1177/2319510X1200800106

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A STUDY ON THE IMPACT OF CONSUMER BUYING BEHAVIOUR AND ATTITUDE FOR RECOMMENDATION OF GREEN MILK PRODUCTS IN AHMEDNAGAR DISTRICT

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Abstract

Green marketing is a phenomenon which has developed particular important in the modern market. The purpose of the study was to go into depth of impact of recommendation of friends and relatives on purchase behavior on green milk products. To obtain a guideline for the future development of green marketing in milk industry Ahmednagar district by accurately analyzing the data on the past and present situation of the industrial trends. Most of the times friends and relatives are suggests that green products are healthy and environmentally safe, secured for family but other side indicates that customers are not ready to pay premium for green products. The present study will focus on analyzing existing green marketing customers & impact of friend circle and relatives' recommendation on purchase behavior of new and existing customers. The study will be beneficial to the milk industry and society because it helps to create awareness about the concept of green milk products and green marketing. This paper examines impact of friends and relatives on purchase behaviour of green milk products on the basis of collected data by dairy industries, dealers and consumers located in Ahmednagar district of Maharashtra. The objective of this paper is investigated green marketing practices and its impact on dairy Industry. Paper is descriptive in nature and empirical data is analyzed to statistically to generalize findings. Consumers are purchase green milk products on the basis of benefits of green products, environmental concern about green products, level of awareness, shielding environmental responsibility, family health, availability and affordability of green products etc.

Key words: Green marketing, customer buying behaviour, consumer attitude, green milk products etc.

Introduction

Dairy produce activities formed crucial part of the rural Indian economy which is also serving as significant role in the employment and income of rural India. Besides offering profitable business opportunities in India, the dairy industry is a major tool for socio-economic development. By considering these opportunities Indian Government took various initiatives and introduced various schemes focusing the development of dairy industry in the country. Schemes like 'National Dairy Program (Phase-I)', Operation Flood (White Revolution), focused to increase cattle productivity and to intensify the milk production throughout the country. The sachems also focused on escalating and expanding milk procurement infrastructure at rural areas and to provide greater connectivity to the market places. On the other hand, participation from cooperative societies and private players of dairy industry also increased in last few decades. After globalization, few international players also entered in the Indian Dairy Business, seeing the potential of the Indian market. These players focused on extended (Value Added) products of the dairy industry like yogurt, cheese, probiotic drinks, etc. these private are also innovating other products by considering consumer's specific requirements. Just to cope up with the demands, they are also strengthening their milk procurement network which will also facilitate the development of dairy industry in India.

Most of the customers are transforming their purchasing willingness for green products, which are eco-friendly, and healthy for society, human being and family members. Green marketing is the marketing of products that are presumed to be environmentally safe, that means it refers to the process of selling products and services based on their environmental benefits. Now a day's purchase

behavior is also depend upon the sales promotion strategies. Customers are attracted by various companies by glamorous advertisements, policies provided by seller, discount policies etc. In the case of milk and milk product customers are believes on positive responses by their friend and relatives, because kiths opinion is helps to reduce bias thinking of existing as well as new customers. As compared to huge milk production in India, the milk processing units are less in numbers. Only 10% of the total milk production is delivered to approximately 400 dairy plants. The reason behind this is the unorganized sector of milkmen, vendors and other mediators who collects the milk from local producer and sells to rural and urban areas, which is around 65-70% of the total milk productions. The cooperative milk processors have approximately 60% of the market share in the organized dairy industry. 90% of the collected milk is processed by the cooperative dairies, however out of total collected milk, private dairies process and sells 20% of the milk in liquid form and 80% for other dairy & value added products.

Literature Review

Kurajdova Klaudia explains in today's highly informed, competitive and saturated market, a key to success of any business depends on knowing consumer and his consumption patterns and recognizing and understanding factors influencing his decision-making for the purpose of developing an attractive offer of products, supporting services, communication means and other marketing tools that would fit like a glue to customer's needs. Study of consumer behaviour belongs to a group of very wide and strong subjects of marketing attention and its examination requires ongoing approach.

Rahman A. S. M. Saifur, are suggests that marketers must come out with new and innovative ways to change the consumer's perception of the green marketing.

Bhatia Mayank includes in research on Green Marketing: A Study of Consumer Perception and Preferences in India that consumers' level of awareness about green products found to be high but at the same time consumers are not aware about green initiatives undertaken by various government and non-government agencies signifying need for more efforts from organizations in this regard.

Need for the Study

There are needs of green products consumption especially in fast moving consumer goods, like vegetables, grocery, milk etc. Most of the times friends and relatives are suggests that green products are healthy and environmentally safe, secured for family but other side indicates that customers are not ready to pay premium for green products. This study is relevant to the owners of the companies that deal with milk processing units. The study also highlights on impact of recommendation by friends and relatives on purchase behaviour of other customers, new or existing customers in Ahmednagar District. The Ahmednagar Dairy Board stands to gain from the research study as it identifies the weaknesses as well as the strengths of the Milk processing companies and customers, which will be able to come up with suitable policies for milk processing units and new or existing customers also. The present study will focus on analyzing existing green marketing customers & impact of friend circle and relatives' recommendation on purchase behavior of new and existing customers. The study will be beneficial to the milk industry and society because it helps to create awareness about the concept of green milk products and green marketing.

Statement of the Problem

The expansion requires the involvement of small and medium scale milk units to these industries. Most of the milk is still being sold in the informal sector as raw milk and it poses public health risks this is an indication of a high opportunity of exploitation in this industry. In addition, previous studies have focused on description only while this study was analytical to look at relationships between variables. It is in this view that this study aimed to assess the influence of consumer buying behavior and attitude towards green milk products in Ahmednagar District of Maharashtra State.

1. It is observed in existing research and literature that higher importance is given to green marketing practices implementation and adoption in other industries like automobiles, services than agricultural allied industries.
2. It is also observed that there is higher scope for the green marketing studies in food processing, beverage industries among agricultural allied industries.
3. Moreover, none of the study was focusing on milk industry, consumer purchase behaviour and green marketing strategies but not focus on impact of recommendation

Objectives of the Study

1. To analyse the impact of consumer buying behavior and their attitude towards green milk products in Ahmednagar District.
2. To study the influence of consumer preferences for green milk products with a special focus on Ahmednagar District.

Research Methodology

Research Design: The research design is Descriptive in nature. The major purpose of descriptive research is description of the state of affairs as it exists at present. The study involved describing the current practice which is adopted by milk processing units and to identify consumer attributes, factors of buying decision making, consumers' market awareness of milk processing units.

Data Collection: Appropriate date was collected at three different levels with the help of questionnaire method and survey namely 1) Domestic milk processing units, 2) Distributers, 3) Consumers etc. Secondary data was collected from the publications, articles, previous study done by researcher, internet search, and concerned research institutions of milk processing industry. Various books on marketing strategies were referred for studying the contents of the subjects. Government rules regarding waste management and recycling norms for sustainable development from website was referred to understand green management.

Research Area: The study is related to milk processing units in Ahmednagar district in Maharashtra state. Ahmednagar was selected as it is the biggest district geographical area wise having most of the milk processing units in operations in Maharashtra state.

Sample Size: 400 consumers, 80 dealers and 20 milk processing units were selected from Ahmednagar district.

Sampling Method: Non Probability convenience sampling was opted for survey. This method attempts to obtain a sample of convenient end user of milk products, manufacture & sellers of milk products who are ready to response.

Statistical Tools: In the present study, Ratios, frequencies, tabulation, percentages, averages etc were used as per the requirement of the data for analyzing the data. Central Tendency was also opted like mean mode and, median. Suitable statistical tools have been used to draw inferences using Statistical Package for Social Sciences (SPSS). Statistical test used for testing hypothesis - Spearmen's rank correlation co-efficient Rho test

Scope of the Study

1. **Geographical Scope:** For the purpose of data collection, all the companies in the field of milk processing units active in Ahmednagar district in state of Maharashtra were considered.
2. **Functional Scope:** The purpose of the study was to go into depth of impact of consumer buying behavior and attitude and its recommendation to friends and relatives to purchase green milk products. To obtain a guideline for the future development of green marketing in milk industry in selected research area by accurately analyzing the data on the past and present situation of the industrial trends.

Limitations of the Study

The present study is conducted in Ahmednagar district parts of Maharashtra state only; This research bare foot of green Global Institute which is studied through marketing strategy angle this

work is can be e utilized as benchmark for Global Green Marketing strategies do the research has study eat for tricolor time period than specific geographical and milk processing units only the scope can be further only widen for application at various levels at state national and global level the continuous time series data may not be available with researcher the present study is done at milk processing units of Ahmednagar district so results, conclusions, observation may or may not be replicable in other district and other Food Industry or other industry.

Hypothesis

H_0: There is no correlation between recommendation of consumers and quality of green milk products.

H_1: Recommendation of consumers and quality of green milk products are positively correlated.

The researcher was interested in finding out whether their exist correlation between recommendation of consumers and quality of green milk products. This hypothesis would be beneficial to understand role of consumers, friends and relatives as the major influencers towards recommending for green products. This would also be useful for the milk processing units to formulate their strategies with respect to branding efforts influencing the opinion leaders (friends and relatives). As both these variables were categorical variables measured on an ordinal scale therefore Spearmen's' rank correlation co-efficient Rho was thought to be most appropriate test.

Test Statistic: Spearmen's rank correlation co-efficient Rho test

	Correlations			
			I recommended this l to friends and relatives	Quality of Green products
Spearman's Rho	I recommended this to friends and relatives	Coefficient	1.000	.329(**)
		Sig(2-Tailed)		.000
		N	400	400
		Correlation Coefficient	329(**)	1.000
		Sig(2-Tailed)	.000	
		N	400	400
** Correlation is significant at the 0.01 level (2-tailed)				

Observation

N=400

Rho=0.329, p value=0.001

Since Rho is positive with p value= 0.001 there is positive correlation with alpha=0.001 therefore H_0 is rejected and H_1 is accepted.

Findings

1. The respondents expressed their willingness for recommending use of green milk products to their friends and relatives on the basis of benefits of green products, environmental concern about green products.
2. Respondents purchased regularly from retail outlets followed by outlets, grocery shops, railway station and bus stand. Their level of awareness regarding green products was on higher note.
3. Perception of respondents towards green products was for environmental factor followed by health. Their purchase depends on quality of green product not on price. Some respondents lack confidence in the performance of green products.
4. Factors influencing the purchase of green milk products were identified as shielding environmental responsibility, family health, availability and affordability of green products. Design and promotion by dealers by display also influences the purchase of green product.
5. It is revealed that majority of respondent says that green milk products are beneficial for health, environmentally safe, better performance, eco-friendliness, purchase base is quality nor price,

concern for status and expensive than regular products who are recommending to their friends and relatives also to purchase green milk products in Ahmednagar District.

Suggestions

Based on the findings the research study has suggested suitable strategies for green marketing of milk products.

1. As most of the milk products are sold through distribution channel of local retail outlets so more retail outlets and tie ups with local grocery shops, bakeries involved in selling milk products can help companies to increase their market presence and visibility. The consumption of green products at authorized outlets can be increased by offerings schemes to customers coming to the outlets which will increase the sale of milk products to authorized retail outlets.
2. As in many case customers are not aware of the facts and figures about the benefit of consuming green products so some educative campaigns can help the customers to understand the usage and importance of the green products.
3. Advertisement in local newspapers, regional television channels, radio channel along with pasting stickers on local auto rickshaws, banners on railway stations, and bus stands in regional language should be considered.
4. Improving general public awareness, affordability and availability through activities such as educational programme, exhibitions and screening camps in rural bazaar, mela and rural villages.

Conclusion

Perception of respondents towards green products was for environmental factor followed by health. Their purchase depends on quality of green product and its price. Some respondents lack confidence in the performance of green products, some perceive that green products are expensive and concern for status is the opinion of some respondents. Factors influencing the purchase of green milk products were identified as shielding environmental responsibility, Family Health, Availability and Affordability of green products. Design and promotion by dealers by display also influences the purchase of green product. Staff providing information regarding benefits of green products also creates an impact on purchase behavior. Friends and relatives play a major role in purchase decision of green milk products. Milk processing units can be encouraging dealers to promote the green products. Thus hypotheses recommendation of friends and relatives and importance of quality of green product are positively correlated is tested and validated.

Contribution of the Research

The research will help milk processing units to improve upon their market performance effectively and improve companies overall profitability and also tries to raise awareness for eco-friendly products in milk processing units along with advantages on health and environment. Customers in society should also develop hobbits of adopting for green products to save resources avoiding irrelevant packing and labeling.

References

Bhatia Mayank and Jain Amit, 2013, Electronic Green Journal, Green Marketing: A Study of Consumer Perception and Preferences in India, https://escholarship.org/uc/item/5mc39217.

Hasan Zuhairah and Prof. Ali Noor Azman (2014)Global Conference on Business & Social Science, The impact of green marketing strategy on the firm's performance in Malaysia - 2014, GCBSS-2014, Kuala Lumpur.

Kannan Elumalai and Birthal Pratap S., 2010, Journal of International and Area Studies, Effect of Trade Liberalization on the Efficiency of Indian Dairy Industry, Vol. 17, No. 1 (June 2010), pp. 1-15 (15 pages), Published By: Institute of International Affairs, Graduate School of International Studies, Seoul National University, https://www.jstor.org/stable/43111481.

Kothari C.R (2006) -'Research Methodology Methods and Techniques' 2nd Edition New Age International Publishers.

Kotler Philip, Keller Keven Lane (2017), Marketing Management, marketing cases in the Indian context, Fifteenth Edition by Pearson.

Kurajdova Klaudia, Táborecka-Petrovicova Janka , 2015, International Review of Management and Marketing, Literature Review on Factors Influencing Milk Purchase Behaviour, Vol. 5, No. 1, 2015, pp.9-25, ISSN: 2146-4405,www.econjournals.com.

Medhi Manashi (2015) International Journal of Marketing and Human Resource Management (IJMHRM), "A Study on the Green Marketing Practices adopted by various companies in India" Volume 6, Issue 3, (Pages 83-88) ISSN 0976–6421andISSN Online:0976–643X.

Polonsky Michael Jay & Rosenberger Philip J. (2001) Re-evaluating Green Marketing: A Strategic Approach, Business Horizons.

Rahman A S M Saifur, Barua Adita, Hoque Rajidul & Zahir MD Rifat,2017, Global Journal of Management and Business Research: E Marketing, Influence of Green Marketing on Consumer Behavior: A Realistic Study on Bangladesh, Volume 17 Issue 1 Version 1.0, Online ISSN: 2249-4588 & Print ISSN: 0975-5853, Publisher: Global Journals Inc. (USA).

Sahu Amit Kumar & Laxmi (2014) TRANS Asian Journal of Marketing & Management - "A Study of Green Marketing" (Vol. 3, Issue. 2) ISSN: 2279-0667.

Sharma Manjeet, Singh Manender, 2015, International Journal of Managerial Studies and Research (IJMSR), Green Marketing: Challenges and Ways to Green Your Business, Volume 3, Issue 7, July 2015, PP 142-147, ISSN 2349-0330 (Print) & ISSN 2349-0349 (Online), www.arcjournals.org

Sudhalakshmi K. & Dr. Chinnadorai K.M (2014) (International Journal of Management, IT and Engineering), "Green marketing strategies for sustainable business growth" (Volume: 4, Issue: 6 pages: 297-302).