

ISBN :978-93-85434-43-3



AMET
UNIVERSITY
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AMET BUSINESS SCHOOL

International Conference on
ARTIFICIAL INTELLIGENCE-A GAME
CHANGER FOR MARITIME BUSINESS

on
18th & 19th March 2022

COMPENDIUM



AMET BUSINESS SCHOOL
Academy of Maritime Education and Training (AMET)
Deemed to be University
135, East Coast Road,
Kanathur-603112, Chennai

PREFACE

Proceedings of the International Conference on Artificial Intelligence - A Game Changer for Maritime Business

We are very happy to bring you the Compendium of the Proceedings of the 5th International Conference on Artificial Intelligence - A Game Changer for Maritime Business 18th and 19th March 2022. A major goal and feature of this International Conference is to bring academicians, research scholars and students together to exchange and share their experiences and research results about most aspects of maritime and Business research, and communicate the practical challenges encountered and the solutions adopted. This volume contains the papers submitted to the International Conference Delivering impact in higher education learning and teaching.

We hope that you will have a technically rewarding understanding of the various research issues raised by the researchers across the country on the topic of conference.

We would like to thank the organization staff, the members of the program committees and reviewers. The Compendium aims to provide a platform for discussing the issues, challenges, opportunities and findings of research on applications of Artificial Intelligence, digital technology and practice. Hopefully, it will also spark innovative ideas, foster further research and also aid researchers to identify relations or partnership between the various institutions based on the compiled research work presented herewith.

CHIEF CONVENOR MESSAGE

Dr. Deepa Rajesh
Executive Director,
AMET-Business School.



“I cannot teach anybody anything. I can only make them think-Socrates”

The international conference held by AMET business school on “AI a game changer for maritime business” emphasizes on the above words of Socrates. An international conference of this stature is an integrated platform for the exchange of knowledge, ideas among student’s facilitating young researchers to produce quality research papers to optimize value. During these unprecedented times of Covid Organizing such a conference is an initiative worth an applause.

There has been an Overwhelming number of quality papers that are received and to be presented at the conference. This conference promises to be equally stimulating about the theme around AI in maritime Business used in ships and other sea vessels to have careful communication protocols to promote clarity and ensure the lowest possible risk of accidents. Sharing Knowledge, Building Dreams is purposely broad so that we could have an eclectic array of papers ranging over a variety of themes including such topics as innovative educational practices works.

So, we are truly international. I hope during your time at the conference that you take the opportunity to engage with your peers to discuss your ideas for research and practice and that you ask questions of the presenters.

Warm greetings and felicitation to the organizing committee and the partakers.

I extend my heartiest wishes for the success of this international conference.

CONVENOR MESSAGE

Dr. D. Rajasekar,
Head of the Department,
AMET Business School.



The department of AMET Business School was started in the year 2001 and made remarkable achievements during this journey. We have MBA (Shipping and Logistics Management) and BBA (Shipping) program. From students' corner, our department plays an important role to develop new knowledge in the field of Shipping and Logistics Management as well as to nurture tomorrow's Managers. At the undergraduate level, we emphasis the students on teaching- learning process. We also emphasis on research activity during their course and publish research papers in International journal/ conferences.

There has been a good number of quality papers that are received and to be presented at the conference. This conference promises to be equally stimulating about the theme around AI in maritime Business used in ships and other sea vessels to have careful communication protocols to promote clarity and ensure the lowest possible risk of accidents.

EDITOR'S DESK

The AMET Business School, Academy of Maritime Education and Training (Deemed to be University), is a proud hosting the International Conference on Artificial Intelligence - A Game changer for Maritime Business"" organized by AMET Business school on 18th and 19th March, 2022.

We the conference team was excited to be a part of a conference that allows scholars and practitioners in education from around the world, to present their research and their practical ideas in order to enhance education.

We believe that researchers and practitioners, coming together at conferences such as this one, can advance the quality of education received by students worldwide. The theme of this conference- Drivers of AI adoption, Data sourcing and integration, Trust management, data analytics technologies focus on the latest development in the Maritime Business. The main theme of the conference implies that Logistics is beginning to become an AI driven industry with the use of AI there is an excellent potential to improve the maritime industry.

The organizing team has received 37 research papers from academician, Industry and research scholars on various areas like HR analytics, Industry 4.0, Supply chain management, E-Commerce, Internet of things. In addition, four sessions were successfully finished with the efforts of all the session chairs and presenters. The chairperson of each session played an important role in guiding the sessions in a timely and efficient way. To improve the papers and ensure the quality, the reviewers also made great efforts in the given time.

On behalf of the conference committee, we'd like to express our sincere appreciation to them for their contribution. This conference will surely be an eye opener for the participants also. We truly believe that the participants would find the discussion fruitful, and would enjoy the opportunity for setting up future collaborations.

Dr.M.Vallimmal, Professor, Co-Convenor

Dr.S.Catherine, Asst.Professor, Coordinator

S.NO	PAPER ID	TITLE OF THE ARTICLE	PAGE NO
1	ICAI_22_01	Influence of crowd funding in promotion of micro entrepreneurs in Nigeria <i>Dr. S. Senthilkumar, Ms. Aisha Turaki Ibrahim, Mr. Halifa Nuhu, Ms. Zaituna Shitu Mukhtar.</i>	1
2	ICAI_22_02	A Conceptual study on the Indian e-commerce revolution with artificial intelligence <i>Ms. S. Sruthi , Ganeshwari M</i>	9
3	ICAI_22_03	Impact On Implementation Of Artificial intelligence in Banking sector: A Case Study On Indian Commercial Banks <i>Mrs. Dr. B. Thulasipriya, Larisha Janet Rodrigues</i>	16
4	ICAI_22_04	Digitalization And Its Effects On International Trade Towards Growth Of Indian Economy <i>Dr.(Mrs.) S.Geetha, K. Divya</i>	25
5	ICAI_22_05	“A Study on Capacity Building of Women SHGs through Mahalir Thittam in Nagapattinam District” <i>Dr.V.Sivakumar Mrs.M.Shashikala</i>	33
6	ICAI_22_06	Electronic Word Of Mouth And Purchase Intentions – An Empirical Review <i>Mrs. Jyothis Rachel Mathews & Ms. Jiji George</i> <i>Dr. Ebenezer Paul Rajan. T.Y</i>	43
7	ICAI_22_07	Drivers of Artificial Intelligence[AI] Adoption in strategic Decision Making <i>Mrs. Dr. L. Nithya, Ms. S. Abarna</i>	51
8	ICAI_22_08	Influence of artificial intelligence in e-commerce <i>Dr. Thulasi Priya B, Ms. Pooja M</i>	60
9	ICAI_22_09	The influence of environmental concern on customer perception: an analytical investigation among organic food consumers <i>Ms.R. Sangeetha , Dr. A.Geetha</i>	69
10	ICAI_22_10	Role of artificial intelligence in e-commerce industry <i>Dr. M. Kalimuthu, Ms. M. Umadevi</i>	77
11	ICAI_22_11	Digital marketing as a tool to reach modern day consumers <i>Ms.S. Pratiksha, Dr. Kavitha M</i>	84

12	ICAI_22_12	Consumers' buying Behaviour towards electric vehicles (EV's) in Chennai city <i>Mr.B. Karthikeyan, Dr. V. Vijayalakshmi</i>	92
13	ICAI_22_13	Cluster Head Selection Algorithm in WSN Using MOPSO <i>Ms. Ambika jagannathan, Dr N.Vimala</i>	105
14	ICAI_22_14	Challenges in Artificial Intelligence[AI] Adoption in Maritime business <i>Mrs.Dr.L.Nithya, Mrs.Thamarai.P</i>	115
15	ICAI_22_15	Information security <i>Ms.Namrata vitthal lahamage</i>	121
16	ICAI_22_16	Corporate social responsibility & artificial intelligence <i>Dr. H. Dhanalakshmi</i>	125
17	ICAI_22_17	A comparative study on online v/s offline shopping of electronic products <i>Dr. Ebenezer Paul Rajan & Bindu joseph & Anjana</i>	129
18	ICAI_22_18	Impact of covid-19 during pandemic with reference to Tamil Nadu <i>Dr. B. Kanammai, Gokuleswaran B, Kavin.V</i>	138
19	ICAI_22_19	A study on customer preferences towards chatbot <i>Dr. Ebenezer Paul Rajan, Ms. Ardra C Michael & Ms. Mary Antony</i>	144
20	ICAI_22_20	Artificial Intelligence for Reshaping Business <i>Ms. Shanthi HJ</i>	151
21	ICAI_22_21	A study on rural customer's satisfaction towards online shopping – selected villages of Tirunelveli district in tamilnadu <i>Ms.J. Gnanajothi, Dr. D. Ponrani</i>	156
22	ICAI_22_22	Tea factory- a study on challenges and opportunities of the frontier industrial co. Operative tea factory limited – the Nilgiris <i>Ms.Athira Viswanath</i>	165
23	ICAI_22_23	A study on training and development on employee performance of apparels industry in Chennai city <i>Ms.S. Ezilarasi, Dr. M. Kavitha</i>	177
24	ICAI_22_24	Supply chain management in apparel industry with special reference to Chennai city <i>Ms. S. Ezilarasi, Dr. M. Kavitha</i>	187
25	ICAI_22_25	Super Artificial Intelligence Technologies in knowledge Administration <i>Mr.G.Ramachandran, Mr.S.Kannan</i>	196

26	ICAI_22_26	Semantic Visualize System of Intelligence Extraction using Python Libraries <i>Mr. Rajesh Yadav</i>	203
27	ICAI_22_27	Apocalypse Now: Forecasting the Imminent Epoch in Ernest Cline's <i>Ready Player One</i> <i>Ms.P. Asmin Janisha, Dr. H. Jimsy Asha</i>	210
28	ICAI_22_28	A Study on the Positive and Negative Effects of Social Media on Society <i>Ms.Fathima Munovara.T</i>	217
29	ICAI_22_29	A novel approach for data mining using clustering based ABC with GA in Big data <i>Dr. S.T. Arokkiya Mary</i>	222
30	ICAI_22_30	Cloud services evolving it's protection techniques against the attack <i>Dr. G.M.Nasira, B.Sasikumar & S.Anadha Krishnan</i>	228
31	ICAI_22_31	Assess financial literacy level of women entrepreneurs: a study of selected areas in virudhunagar <i>Mrs. A. Sriramalakshmi & Dr. R. Sorna priya</i>	240
32	ICAI_22_32	A Study on Attitude with relevance to Purchasing Mode of Buyers towards Fast Moving Consumer Goods in Virudhunagar District <i>Mrs. P. Muthu Ganeshwari & Dr. G. Yogeswaran</i>	248
33	ICAI_22_33	Flight fare prediction using machine learning algorithm <i>Dr. Helen & Dr.S.K.Manivannan</i>	259
34	ICAI_22_34	Current Trends of Cloud Computing in Business <i>Ms.Pavithra V, Dr. R. Gowri</i>	269
35	ICAI_22_35	A study on entrepreneurship development in India: and it's role of economic growth, foreign investment and financial development <i>Dr. G. Manoj</i>	282
36	ICAI_22_36	Internet of things (IOT): research challenges and future applications <i>Ms.Jayalakshmi M, Keerthi Malini R & Dr R.U.Anitha</i>	295
37	ICAI_22_37	Inevitability on the usage of artificial intelligence in the port operations of India <i>Dr. J. Rengamani & Dr. RM. Chandrasekaran</i>	305
38	ICAI_22_38	Impact of machine learning in the global maritime sector <i>Dr. R M. Chandrasekaran & Dr. J. Rengamani</i>	316

39	ICAI_22_39	Application of artificial intelligence and machine learning in maritime industry <i>Dr.S. Poongavanam and Dr.R. Srinivasan</i>	324
40	ICAI_22_40	A study on job satisfaction of employee with reference to a confectionary company in Chennai <i>Dr.M.Muthuchitra</i>	327
41	ICAI_22_41	Implementation of green supply chain management practices <i>Mr .M. Saravanan</i>	333
42	ICAI_22_42	Challenges for the Indian economy on covid-19 <i>Dr. Leena Jeneffa</i>	338
43	ICAI_22_43	An Automation Scheme for Smart and Optimized Dough Maker <i>Ms.Sowmene. J, Ms.Varsha. S &Ms. Thenmozhi. M</i>	343
44	ICAI_22_44	Antecedents of Green Logistics <i>Dr.B.Latha Lavanya & Mohamed Siddique</i>	352
45	ICAI_22_45	Exploring Green Shipping Industry An Influence On The Sustainable Economy <i>Dr.B.Latha Lavanya & Mohamed Marwan Noohu</i>	368
46	ICAI_22_46	Patterned Fabrics Features Extraction and Selection based on Robust Feature Extraction and Particle Swarm Optimization method <i>N.Ramya and Dr.T.Jayalakshmi²</i>	375

INFLUENCE OF CROWD FUNDING IN PROMOTION MICRO ENTREPRENEURS IN NIGERIA

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Abstracts

The financing of entrepreneurial venture has been at the cutting edge of academic debate as well as policy-making talk for nearly a century. In common, there appears to be an understanding that the risk related with trade new businesses are higher than for develop firms, subsequently; these ventures will need to pay a better-intrigued rate than more develop and expansive firms. Crowd financing (CF) permits founders for-profit, inventive, and communal ventures towards support their undertakings by representation on reasonably slight assurances after a moderately huge sum of individuals operating the web, deprived of customary cash interconnected mediators. Conceptual approach utilized as a device for this investigate by utilizing auxiliary sources of data. The result appeared that CF financing impact emphatically on enterprise desires and for the most part to fund little commerce or micro finance and charity. Include to that, CF leads to money related productivity and costs decrease, more flexible payments methods and more opportunities for entrepreneurs. The study recommended the process of successful CF, Potential Opening to Masses of Entrepreneurship Funding, Model of CF, advantages, operational working of CF, CF Platforms and benefits of CF for Startups.

Keyword: *Crowd funding, Entrepreneurship funding, Models of CF*

Introduction

Crowd financing stands the custom of little sums of investment from an expansive numeral of people to back modern innovative corporate venture. CF marks utilization of simple openness on tremendous systems of individuals over social media and CF websites to carry financial specialists as well as business people beside, probable to extend enterprise extending the puddle of stakeholders past conventional sphere of proprietors, relations, and wander financiers. Miniaturized scale back has gotten to be a device of democratization of business enterprise subsidizing, whereas CF possibly opens business subsidizing to masses. Combining both CF and small-scale fund can lead to an increasing speed of poverty destruction. CF contributed to move forward live conditions of millions of individuals. It is not one or the other as it were focused on to enterprise nor to the particular target of women or poor. In any case, it permits a potential opening to masses of enterprise subsidizing in common, and towards poor in specific.

For Example: Exclusive of the lot of diverting schemes to obtain capital from a personal who willing to generate a brand novel salad formula combination. His fund-mobilizing objective was \$10; however, he outstretched quite \$56,000 from 6,912 backers. Stakeholders will choose since many comes and capitalize by way of very slight as \$10. CF positions produce income from a share of the capitals upraised.

Prospects Of Successful Crowdfunding Campaign



Potential Opening to Masses of Entrepreneurship Funding

Donation-based CF financing is not truly associated to the small-scale fund issue since it depends on charity and not credit. On the contrary, the other types can. Around 30 platforms are committed to micro finance within the world, indeed on the off chance that this figure is in steady advancement as well as the division itself. Parts of platforms are created each year whereas numerous others disappear. There is around 1250 crowd-funding platforms in 2015 within the world. The foremost popular in smaller scale back are Kiva within the USA, Rang De, in India, and Baby loan in France. “Banking is vital; banks are not”. This Bill Gates’s sentence sounds especially exact for crowd micro fund. It may well be softened as far as CF platforms largely collaborate with banks and total their movement. In any case, this can be the sign of a re-humanization of finance.

Legal aspects of crowd funding in Nigeria

All Micro, Small, and Medium Enterprises (MSMEs) having a two-year working track record in Nigeria are qualified to raise cash through the CF Entry in trade for the issuance of offers, debentures, or other speculation disobedient as decided by the Commission from time to time. Companies with resources worth more than N500, 000,000.00 (Fifty Million Naira) cannot raise reserves through a Nigerian CF Portal.

Models of crowd funding around Global



Donation-based crowd funding – This can be the forward prevalent and basic show of Crowd funding. It speaks to the foremost broad frame and accounts a critical portion of the capital upturned by sequestered enterprises from side to side this network of giving non-financial profits to businesses and speculators. Stores are donated for philanthropic reasons in this model. As such, contributions are provided to communal and benevolent activities, non-monetary compensation be projected. The majority of creditors in this group contribute to the foundation that they trust in. There are a few common returns for these supporters, such as a note of gratitude from the authors, but no fabric remunerate.

Repayment constructed crowd funding - In this, exemplary, capacity clients remain requested to pre-order their choice of fund pattern, resulting in a limited number of instances available at a lower-than-average price. Furthermore, for reasons such as increased outreach, monetization of assets, and technical advancement, reward-based fully community fundraising allows recipients to gain access to funds at a lower charge than traditional sources. The reward-based totally version, also called as the sponsorship version, is a method in which people receive a pre-determined incentive, gesture of appreciation, or some type of provision.



Debt Crowd funding - It is also known as peer-to-peer (P2P) lending or market place lending. Through a platform, funders (lenders) can donate directly to fundraisers or invest in debt obligations. In addition, at the conclusion of the loaning period, investors receive interest then principal, whereas in case of good debtor performance, the exemplary may be based on the "revenue sharing norm, in which at the end of the agreed-upon loaning period, creditors are paid an aggregate that comprises an agreed upon part of the returns..

Equity centered crowd funding – The best suited for startups and small businesses. Individual investors and institutions can contribute in unlisted substances (backers) in trade for offers within the entity and expect a financial return via an online platform in a strategy. Investors are given a stake of the company and have the option of gaining voting rights. A profit-sharing model is another name for this strategy.

Regional crowd funding revenue statistics

Regional Crowd Funding	Revenue (USD Amount)
North American	\$17.2 Billion
Asian	\$10.54 Billion
European	\$6.48 Billion
South American	\$85.74 Billion
Oceanic	\$68.8 Billion
Africa	\$24.16 Billion

Source: Fundly (33), Fund Raising for all (2020)

Advantages of Crowd funding

There are regularly minimum in advance prices or fees and this indicates there may be a few safety from chance whilst beginning out

There is little economic chance with nearly no begin up debt

It's a exceptional shape of marketplace trying out and advertising research, looking for the opinion of your goal audience

Money may be raised speedy and campaigns can move viral

Social networks, websites, and on-line systems can bring about fast and huge exposure

You can use the CF marketing campaign to gauge public perception, generate hobby, and obtain feedback
Investors and donors can turn out to be individually invested in campaigns and this could assist you
construct loyalty applications and interest for your idea

CF permits begin-ups, small groups and innovative thoughts to get financial backing

It is a exceptional manner of elevating finance and protecting fees for the ones groups with out get right
of entry to conventional varieties of financial institution lending or in a difficult economy

You can create network guide on your task and construct on those critical relationships and consumer
loyalty

CF permits extra effective risk control as there may be regularly much less risk for smaller businesses

Working of Crowd funding

As we have fair set up, CF works by having an out sized number of people contribute monetarily to
a trade extend, ordinarily through a web platform.

For speculators to evaluate your thought, you ought to think about:

Generating an in depth explanation of the merchandise

Accurately the quantity

The sort of crowd funding

Duration of the investment round

Processing Crowd fund for Business Establishments

Project appraisal – After submitting your thought the group subsidizing stage will survey whether
it's a reasonable extend for his or her gathering of people or not

Publication – In the event that given the green light, your venture are progressing to be distributed
on the stage for the apportioned time

Promotion – Presently it's time to spread the word! Advance your wander inside the media, on social,
with companions and family to zest up your chances of getting the financing.

Project closure – Once the allotted time has finished the extend is closed, and so the ultimate sum raised is counted up.

Crowd funding Boards

There are numerous crowd investment structures to be had to entrepreneurs. Some of the maximum famous being:

Kick starter

Indie go

Crowd cube

Seeders

Crowd funder

Circle Up

Every platform specializes in a different type of crowd fundraising (equity crowd funding, non-profits, business loans, etc.), so do your research before deciding on a provider.

Advantages of crowd funding for Startups

Protect From Risks

Provides access to funds

Serves as a marketing tool

Gain Early Adopter

Provides the prospect of pre-selling

Conclusion

Crowd funding is when businesses, organizations or individuals fund a business without traditional means with small donations from many of us. By receiving the required boost to income, these ventures can get off the bottom or launch new projects. Most of those campaigns happen via internet platforms, have set time frames for when money are often raised and disclose specific monetary goals. CF may be a growing source of funding everywhere the planet including African continent. Micro entrepreneurs, non-profit organizations and corporations are looking to crowd funding as another source to assist them move forward and make dreams a reality. To achieve success, it takes planning, patience, and research. Investors and donors should know their risks. Within the planning stages, starts ups and initial introduction stage of business entities may determine business need expert assistance, like an attorney or a financial professional, so as to become a crowd funding success story.

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A CONCEPTUAL STUDY ON THE INDIAN E-COMMERCE REVOLUTION WITH ARTIFICIAL INTELLIGENCE

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ABSTRACT:

Innovation continues to stretch the boundaries of what web-based business can do. With intensifying headways in innovation, there is something new going after web-based retailers' consideration consistently. The genuine errand (technology) is distinguishing the best open doors for your online business. AI innovation has developed and turned into an amazing asset to help deals and streamline tasks. Indeed, even numerous little internet business organizations are utilizing innovation with some sort of AI capacity. The e-commerce stages would have certainly run over item/administration upselling by different brands on the page. These item proposals, for example, are driven by Artificial Intelligence (AI) innovation. However, there are numerous worldwide web-based business players, with abundant resources who are making a decent attempt to lay down a good foundation for themselves on Indian soil and advantage from expanding solace with online business. Organizations have gone max speed with AI execution in their backend programming, with the assistance of mechanized innovation, handling a lot of information inside couple of moments to give business-based canny data. Man-made intelligence has as of now changed the scene of the web-based business area in India. The pandemic circumstance made by Covid-19 has given a major fillip to the internet business area in India. From purchasing food, medications to home apparatuses, there has been gigantic development in this area which currently has turned into the new normal. Numerous huge pioneers have vanished from the market while many carefully changed their organizations. The main purpose of this paper is to give knowledge about the growth of Indian E-commerce businesses and also the perception from customers and small-scale retail business owners about the benefits of Artificial Intelligence for the communication and efficient use of technology in business.

Keywords: *Web-based business, Artificial Intelligence, Covid-19, Innovation, Small-scale retail business.*

INTRODUCTION:

In spite of the fact that for certain individuals it still just brings out sci-fi and mechanical technology, it is by the by part of all parts of our day-to-day routines. From mechanized sales registers to cutting-edge security checks at air terminals: computerized reasoning is presently pretty much all over. Furthermore, gradually, it is starting to enter the internet business. The use of man-made reasoning in web shopping is changing the E-trade industry by expecting to shop plans reliant upon the things that clients buy and when they get them. For example, if online clients consistently buy a particular brand of treats every week, by then, the internet-based retailer could send a redid proposition to these clients for this thing, or even use an AI-enabled idea for a gainful thing that works out positively for treats. Applied to online business and showcasing, AI alludes to the different techniques for information examination wherein PCs track down data without being told precisely where to search for it. ML calculations, when presented to gigantic measures of information, can extricate examples and use them to produce experiences or expectations about future circumstances. Albeit still generally new, man-made reasoning has as of now had an enormous effect in a brief timeframe on ventures like money and medical services. What's more, the advantages of AI are currently beginning to spread to online business.

REVOLUTION OF AI IN E-COMMERCE:

In this new advanced decade, Industry4.0 advances are disturbing each part of our lives, be it training, work, or trade. Man-made reasoning (AI) offers umpteen chances to supplement human information and enhances individuals' lives and work. Today, AI is being utilized forcefully in changing economies and organizations across spaces including web-based business.

As per another report from Tractica, AI has use cases and applications in pretty much every industry and vows to change existing plans of action while at the same time making new ones fundamentally. The market knowledge firm gauges that yearly overall AI income will develop from \$643.7 Million in 2016 to \$36.8 Billion by 2025. Web-based business organizations are using man-made brainpower to offer a superior client experience to their clients, improve efficiency and streamline their edges. How about we view how AI is upsetting the universe of online business. Client requests are convincing online business

Organizations to return to their evaluating techniques. Maintenance of clients is just about as critical as getting new clients. Online organizations, in this way, are utilizing grouping knowledge to assemble significant experiences into their rivals' item contributions and change evaluating as needs are.

Web based business organizations are using computerized reasoning to offer a superior client experience to their clients, improve efficiency and advance their edges. We should examine how AI is upsetting the universe of online trade. Client requests are convincing internet business organizations to return to their valuing techniques. Maintenance of clients is all around as critical as getting new clients. Online organizations, hence, are utilizing arrangement knowledge to accumulate noteworthy experiences into their rivals' item contributions and change estimating in like manner.

TRANSFORMATION OF AI IN E-COMMERCE DURING COVID-19:

Organizations have gone max speed with AI execution in their backend programming, with the assistance of mechanized innovation, handling a lot of information inside a couple of moments to give business-based astute data. Computer-based intelligence has effectively changed the scene of the online business area in India.

Utilizing regular language handling to limit, contextualize and essentially further develop the list items for the internet-based customers to make a superior shopping experience, AI is making a solid strategic advantage for organizations driven by means of online business. Computer-based intelligence devices have been created to make forceful re-focusing on crusades, in this manner not missing any forthcoming clients. From recognizing an imminent client to noting on the web inquiries, discussions by means of the chatbot, and yet again focusing on, AI-driven web-based business is the future, which is occurring now.

The pandemic circumstance made by Covid-19 has given a major fillip to the web-based business area in India. From purchasing food, medications to home apparatuses, there has been colossal development in this area which presently has turned into the new typical. Numerous huge pioneers have vanished from the market while many carefully changed their organizations. Advanced spryness made by such changes and empowered further by AI will further develop the item contributions, administration conveyance and raise the fulfillment score of the shoppers. The online business industry has begun speeding up the mechanical unrest and began laying out its presence in the virtual reality where we have seen more send-offs of sites, applications, and other advanced gateways which are AI-empowered. The virtual world never closes down and is open 24x7 and clients can now shop quickly, whenever according to their

Accommodation, and expect accessibility and die-hard loyalty from the association's client service group. Computer based intelligence is a significant method for conveying the mindful 24x7 help that customer currently anticipate. With prescient advertising at the fingertips, AI-controlled stages can gauge purchasing choices by noticing their purchasing behaviors and assessing the shopper purchasing ventures. With cutting edge elements, for example, voice or facial acknowledgment, interfaces help in understanding the client better to promote items which prompt purchasing, post understanding client experience. With continuous information being made accessible the personalization of these internet-based buy is made accessible and simple to follow.

Inventory network the executives has turned into an essential vital chance to keep association's cutthroat and this explanation has taken much more priority because of the pandemic. Since the internet business area has an enormous reliance on vigorous inventory network the executives, AI innovation works with conveyance to the customers according to the committed time. In inventory network conveyance, each mile and moment matters, subsequently computerized frameworks have sped up customary distribution center strategies. The subtleties of the clients, drivers, and vehicles have been submitted to the machine, which then, at that point, utilizes calculations to make the most ideal courses and subsequently make opportune conveyance. Stock administration has become more intricate because of ongoing photos of the accessible things in the stock. With the assistance of AI, it conveys many progressed answers for stock administrators and permits them to deal with the interaction all the more proficiently.

INDIAN E-COMMERCE BUSINESS WITH ARTIFICIAL INTELLIGENCE:

E-commerce business players in India are looking at to catch a critical part of buyer spending through a decent blend of promoting, marketing, and innovative strategies. In this light, Artificial Intelligence has turned into an essential advanced device for retailers who look to separate themselves in the commercial center. Indian customers have begun embracing online business with extraordinary energy. As per Forrester, India is the quickest developing web-based retail market on the planet that will reach \$64 billion by 2021, developing at a CAGR of 31.2%. The worldwide installments pioneer, World pay, gauges that India will surpass the US to turn into the second-biggest web-based business market internationally by 2034.

The development capability of this area is making Indian web-based business players reinforce their mechanical ventures with Artificial Intelligence (AI) and Machine Learning (ML) being the vital region. Specialists gauge that Amazon India, Flipkart, and Paytm Mall will spend almost \$2.5 billion on AI and ML in 2018. Right now, we see essential uses of AI in the Indian internet business space. Notwithstanding, retailers need to take it to a higher level to counter the opposition from Amazon, supposedly their greatest adversary. They can take motivation from the created markets; however, the key will be to give worldwide arrangements a confined flavor across different phases of the client venture.

Indian customers are exceptionally valued delicate which makes it significant for online players to give bargains/offers that conform to changing shopper inclinations while additionally considering the inside stock, benefit necessities, and contenders' estimating impacts, all empowered by AI. India has a major piece of first-time online purchasers, who have one or two misgivings about internet business. Along these lines, AI chatbot can assist with settling customers' fundamental questions and urge them to finish the buy with the required help. As per Gartner, chatbots will supplant 85% of client collaborations by 2020, giving web-based business organizations the impulse to incorporate AI chatbots into their informing and web stages. Internet business players regularly battle with request expectation and stock administration, especially during uber deals events when customer requests develop dramatically. In such situations, AI can illuminate retailers about factors influencing the interest and anticipate purchaser patterns to assist them with dealing with their stock.

INDIA'S FUTURE E-COMMERCE WITH AI GROWTH SECTOR:

It's no question that computerized reasoning has taken its inflexible stance in each industry, making processes more effective and more helpful than any time in recent memory; web-based business obviously is no exemption. Particularly during these pandemic times, purchasing inclination of buyers has seen a sharp spike towards computerized shopping in this manner setting off a structural change in the shapes of the deep-rooted client assistance working model. Man-made intelligence's most noteworthy advantage is that it helps assemble client reliability and consequently fortifies the client brand relationship. The data gave is more goal and the client has far more prominent command over the collaboration experience. A review directed by PwC uncovered almost 80% of online shoppers feel that speed, accommodation, educated help, and well-disposed assistance are the main components of a good client experience -

Something horribly ailing in the previous client support processes yet not made a reality with AI-based astute frameworks.

Simulated intelligence is the future and to endure this difficult and imaginative climate, organizations that haven't executed Artificial Intelligence yet ought to consider conversational trade in their guide. At last, making a speculation for extraordinary client assistance and customized showcasing techniques isn't at every one of an impractical notion.

The online business market in India has esteemed at INR 4,448.39 Bn in 2020. It is expected to arrive at INR 10,585.27 Bn by 2026, extending at a CAGR of ~18.29% during the 2021 - 2026 period. The online business market in India is profoundly aggressive. To remain above water, web-based business organizations are fusing trend-setting innovations like the Internet of Things (IoT), voice acknowledgment, mechanical technology, augmented reality (VR), man-made reasoning (AI), and AI (ML) into their web-based stages.

CONCLUSION:

By 2022, 70% of retailers across the world are relied upon to involve IoT innovation in their organizations. This will assist the players with further developing client experience, improve store network the board, and disentangle new chances to build their net income. Indian internet business organizations are putting intensely in IoT gadgets, for example, sensors and RFID labels to accomplish continuous permeability at their distribution centers. Aside from moment following and checking of stockrooms, these IoT gadgets additionally take out the possibilities of human blunder while taking care of merchandise. Man-made brainpower permits internet business organizations to distinguish examples and patterns, which assist retailers with bettering get clients' prerequisites. Utilizing AI and ML, online business organizations are offering showcasing procedures, customized ideas, voice-based chatbot help, and visual ventures. Amazon utilizes AI to break down buying examples of buyers and furthermore to recognize fake buys. With the assistance of AI, it conveys many progressed answers for stock supervisors and permits them to deal with the interaction all the more productively.

Artificial intelligence and web-based business are perfect pair and AI in web-based business offers umpteen advantages in building a hearty business eco-framework and will be the main way online business organizations can make due, develop further, and remain seriously ahead.

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IMPACT ON IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN BANKING SECTOR: A CASE STUDY ON INDIAN COMMERCIAL BANKS

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Abstract

Over the last few years, technology has changed the way businesses are conducted. Technology is riding the high horse of fortune and effortlessly guiding businesses to rapid growth. Artificial Intelligence (AI) is becoming increasingly important, and the Indian banking sector is steadily moving its focus to AI. It utilizes the potential of advanced data analytics to detect fraud, improve online money transfer services, and give customers with useful information. To address these demands, banks have branched out into retail, IT, and telecommunications to provide services such as mobile banking, e-banking, and real-time money transfers. While these improvements have enabled clients to access the majority of financial services at their fingertips at any time and from any location, they have come at a cost to the banking industry. This study examines the implementation of artificial intelligence in the banking sector, its positive and negative impacts, and the evaluation of artificial intelligence productivity and satisfaction in the banking sector. This study is descriptive in nature, all of the necessary and relevant information was gathered from various publications, periodicals, and websites.

Keywords: Artificial Intelligence, technology, Implementation, Banking sector

Introduction to Artificial Intelligence

Artificial Intelligence is another name for Machine Intelligence (AI). It's machine-discovered knowledge that's similar to people's natural knowledge. The tasks that are controlled by the computer are referred to be man-made consciousness. It's a software engineering field where tasks will be completed by computer-assisted, intelligent machines. Artificial intelligence is the study of machine learning skills that are similar to those of humans. Artificial intelligence is becoming more widely used every day. Since the introduction of artificial intelligence onto the market, every firm has sought to upgrade to newer, more advanced technologies, such as artificial intelligence. AI has the ability to function in a human-like manner, which will result in significant changes in the workplace. Basic tasks can be performed by robots, and humans can make decisions with the help of artificial intelligence.

Introduction to banking sector

The banking sector is the part of the economy that is responsible for keeping financial assets on behalf of others, investing those assets as leverage to generate new capital, and overseeing such operations through government agencies. A modern bank is critical to the country's economic success. The large agricultural industry in developing countries is being supported by commercial banks. Agricultural commodities traders can get loans from them. They open a number bank branches in rural areas to give agricultural loans.

Acceptance of deposits, grant of loans, advances, cash, credit, overdraft, and bill discounting are the primary functions of commercial banks.

The issuing of letters of credit, the secure custody of assets, the provision of consumer finance, and educational loans are all secondary functions.

Artificial intelligence is one of the trends that is attempting to transform the banking business. Various banks are on the threshold of converting their physical branches to AI branches, according to this viewpoint. AI is often provided by a few banks to boost productivity and lower operational expenses. AI was employed by the banks in the back office as well as on the exchange floor to deal with clients.

Objectives of the study

The objectives of the study includes the following

To understand the evolution of artificial intelligence in banking sector.

To study the positive and negative impact on implementation of artificial intelligence in banking sector.

To study about artificial intelligence applications at India's top commercial banks, including State Bank of India, HDFC, ICICI, and Axis.

To evaluate the productivity and satisfaction of artificial intelligence in banking sector.

Research Methodology

The study is descriptive in nature, and a qualitative approach of data collection and analysis appears to be appropriate, with data acquired from authentic and trustworthy sources. The study examines the impact on implementation of artificial intelligence and how it is applied in the Indian banking sector, using the top four commercial banks as examples. As a result, secondary data is used. Furthermore, the essential and relevant secondary data is gathered from a variety of sources such as research papers, journals, and publications.

Rise of artificial intelligence in banking sector

The world of banking and finance is changing faster than ever, with Artificial Intelligence (AI) leading the way in bringing about major changes. Core banking, operational performance, customer service, and analytics are just a few of the areas where AI has previously been used in banking. Banking will become a whole new experience for AI, rather than just devices, blogs, or physical venues.

Evolution

Although we have only recently seen AI in action, the history of AI extends back to the 1950s, when Alan Turing released a paper on the possibility of true intelligence in machines.

Although Artificial Intelligence as a word was only coined at this time, no use of the case or AI method was made until the late 1990s. After 2011, big IT companies such as IBM, Microsoft, Google, and Facebook began experimenting with Artificial Intelligence and Machine Learning for commercial purposes.

Importance of artificial intelligence in banks

Artificial Intelligence helps in increasing sales, making better informed decisions, and maintaining a positive client relationship. Banks will be able to combine human and machine capabilities to achieve optimal operational and cost-effectiveness. The primary goal of using Artificial Intelligence in the banking industry is to acquire insight into client wants and ensure that consumers are satisfied with the bank's services.

In banks, artificial intelligence can be utilized to provide financial services. This reduces financial risk while also detecting fraud and lowering operational risk. Artificial intelligence encompasses a wide range of technologies. The machine improves credit underwriting and ensures that customer records are not lost. Artificial intelligence and natural language are two technologies that can be employed in the banking industry for speech recognition and other processes. All financial transactions and other data sources can be tracked using artificial intelligence. As cybercrime incidents rise on a daily basis, artificial intelligence-based fraud detection can help to prevent such attacks.

Implementation of artificial intelligence in banking sector

Banks are using artificial intelligence (AI) in middle-office tasks to detect and prevent payment fraud, as well as to strengthen regulatory checks for anti-money laundering (AML) and know-your-customer (KYC) (KYC). The advent of mobile technology, the availability of data, and the growth of open-source software have created a massive playing field for artificial intelligence in the banking industry. The banking sector can employ AI and link it firmly with business imperatives thanks to the shifting complexities of the app-driven world.

Artificial intelligence is being implemented in the banking sector for various reasons.

Due to increasing competition in the banking industry.

Customer demand for individualized solutions.

Banks are implementing self-service.

To concentrate on productivity and satisfaction.

Impact in implementation of artificial intelligence in banking sector

Positive impacts

AI may assist a bank in determining a customer's spending habit, developing a tailored investment strategy, and assisting consumers with budgeting. Banks can also send notifications about recommendations for keeping track of expenses and investments based on data. The customer's Behaviour and preferences can be tracked using transactional and other data sources to optimize their experience. Many financial service providers use artificial intelligence and machine learning technologies to detect fraud in real time, which is one area where this capability is extremely important.

Online and mobile banking are getting better.

AI enables Banks to access client data, such as detailed demographics, website analytics, and records of online and offline transactions, and machine learning can combine and evaluate data.

Transaction Security & Speed

Artificial intelligence is designed to detect fraud in transactions based on a pre-defined set of rules, the mobile app can detect any suspicious activity in the customer's account based on Behaviour analysis, and any online transaction of a large amount from a customer's account with a history of small transactions can be detected instantly.

Personal Data Protection

Artificial intelligence can help protect personal data. With the surge in cybercrime, AI-based fraud detection can help prevent such attacks. As a result, AI has a lot of potential in the banking and financial sector when it comes to cyber security.

Fraudulent Transactions are identified

Machine learning algorithms can examine millions of data points in real time and flag suspect or outright fraudulent transactions, preventing many fraudulent claims in the process. This field encompasses both front- and back-office activity across numerous organizations.

Negative impacts

Costs are really high.

Artificial intelligence (AI) is made up of powerful software programmer that require regular upgrades to suit the needs of a changing environment. In the event of a severe failure, the procedure to restore the system and recover lost codes can take a long time and cost a lot of money.

Bad Decisions

Artificial Intelligence (AI) can learn and grow, but it cannot make decisions. When making decisions, humans can take into consideration individual situations and judgement calls, something AI may never be able to achieve. Replacing adaptive human Behaviour with AI may result in illogical Behaviour in human and machine ecosystems.

Unemployment

The use of technology to replace workers could result in widespread unemployment. Furthermore, if AI is widely used, people would become increasingly reliant on robots and lose their creative ability. Unemployment is a socially unwelcome situation. Individuals with nothing to do can use their minds in dangerous ways. Artificial intelligence, whether in banking or any other industry, can effectively raise the unemployment rate.

Artificial Intelligence applications used by Indian Commercial Banks

The following are some of the AI applications used by India's leading commercial banks: State Bank of India, HDFC, ICICI, and Axis:

State Bank of India (SBI)

SBI, the nation's biggest bank, has launched "Code for Bank," a programme that focuses on technologies such as predictive analytics, fintech/block chain, digital payments, IoT, AI, machine learning, BOTS, and robotic process automation. SBI has also introduced SIA, an AI-powered chat assistant that responds to customer inquiries quickly and assists them with common banking chores in the same way as a bank person would.

HDFC Bank

"Eva," a chatbot created by HDFC Bank, is based on artificial intelligence (which stands Electronic Virtual Assistant) Eva is capable of assimilating information from tens of thousands of sources and providing basic replies in under 0.4 seconds. Customers can acquire fast information on the company's products and services by using Eva. It eliminates the need to search, browse, or make a phone call. HDFC is also exploring with robotic applications in its stores. IRA (Intelligent Robotic Assistant) is a robot developed by HDFC.

ICICI Bank

ICICI Bank, India's second-largest private sector bank, has implemented software robotics (robotic software), which is a type of software that automates office tasks. The bank is the first in the country to use the technology, which mimics human actions to automate and perform time-consuming, high-volume business tasks. Employees at the bank have been able to focus more on value-added and customer-related duties as a result of it. ICICI Bank has also created iPal (chatbot), an AI-based chatbot that has interacted with 3.1 million clients and answered about 6 million queries with a 90% accuracy rate.

Axis Bank

Conversational Banking, an AI and NLP (Natural Language Processing) powered app from Axis Bank, India's third-largest private sector bank, was introduced to assist customers with financial and non-financial transactions, answer FAQs, and contact the bank for loans and other products. It is now available on Facebook and the Axis Bank website, but will be expanded to mobile banking platforms in the near future.

All of these banks play a more sophisticated and positive role in establishing regulations that balance banks' corporate objectives while also protecting customer privacy and security.

However, because India has yet to finalize its data protection and privacy policy, Indian banks would be required to implement GDPR-compliant AI systems and privacy rules. AI will be the foundation for greater product and service development.

Evaluation of productivity and customer satisfaction of artificial intelligence in banking sector

Productivity of artificial intelligence in banking sector

In the banking industry, AI has significantly lowered operational expenses and increased efficiency. Human errors have been decreased, as has the risk of harm. The customer experience has vastly improved since the introduction of conversational AI in banking. Chatbots have become a significant component of digital banking. In the banking industry, detecting fraud has become extremely simple. Banks have been utilizing AI to assess a customer's creditworthiness. It has made the procedure simple, smooth, and quick. Artificial intelligence plays an increasingly vital part in banking these days, since it has aided in boosting a bank's efficiency and performance.

Customer satisfaction towards artificial intelligence

In the banking industry, customer expectations have gradually risen over the last decade. People used to just want to come into the bank and get their work done as quickly as possible. People nowadays expect everything to be done online. People are unwilling to travel to banks for a single job. As a result, chatbots have been established, which is a communication medium that is proactively utilized in banks to solve clients' issues in a timely manner, 24 hours a day, seven days a week. Conversational banking has become more convenient and automated as a result of it. Chatbots are being used by banks and other financial institutions to fulfil changing user expectations while lowering costs.

Conclusion

The banking industry is gradually adopting AI to improve financial services. People are more inclined to use the digital approach to keep up with their bank accounts and make transactions during times of social isolation and confinement. With such benefits, it is almost certain that the majority of banks and financial institutions would implement AI in order to remain competitive and provide better customer service. Without a question, the recent push toward digitalization is having a dramatic impact on traditional banking structures. It has, however, exposed the institutions to a growing number of cyber security threats and vulnerabilities. In order to create an active defense system against cybercrime, banks are increasingly looking to emerging technologies such as block chain and analytics.

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DIGITALIZATION AND ITS EFFECTS ON INTERNATIONAL TRADE TOWARDS GROWTH OF INDIAN ECONOMY

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ABSTRACT

This paper studies about the Digitalization and its effects on International Trade towards the Indian Economy. The study comes up with meaning of digitalization and how it is differed from digitization and digital transformation. Then the layer of digitalization has also been explained. The paper shows how digitalization is revolved and it affects the international trade, as it describes about digitalization turned during globalization. Then finally it demonstrates about the digitalization regarding Growth of Indian Economy. The outcome of the study it concludes that there might be future growth in Indian Economy due to overall globalization so this will help in excessive development of many sectors like government, technology, industries, communication, etc.

Keywords: digitalization, globalization, growth, development

INTRODUCTION

Digitalization means the use of digital technologies to change a business model and provide new revenue and value producing opportunities it is the process of transferring in to a Digital Business. Digitization means creating a digital representation of physical substances or attributes. For instance, we scan a paper document into digital document. In other words, digitization means converting something non digital into a digital representation or artifact.

DIGITIZATION, DIGITALIZATION AND DIGITAL TRANSFORMATION

Digitization refers to creating a digital representation of physical substances or attributes into digitized format. **Digitalization** refers to enabling or improving processes by lifting digital technologies and digitized data. **Digital Transformation** means transforming business into digitalization by adopting digitalization. (Refer 1)

DIGITAL REVOLUTION

The Digital Revolution refers to the improvement of technology from analogue electronic and mechanical devices to today's digital technology. This era started during the 1980s to present. The Digital Revolution is generally meant as beginning of the Information Era. The Digital Revolution is also called as the Third Industrial Revolution. The development and advancement of digital technologies started within one fundamental idea i.e., The Internet. (Refer 2)

PROGRESS OF DIGITAL REVOLUTION:

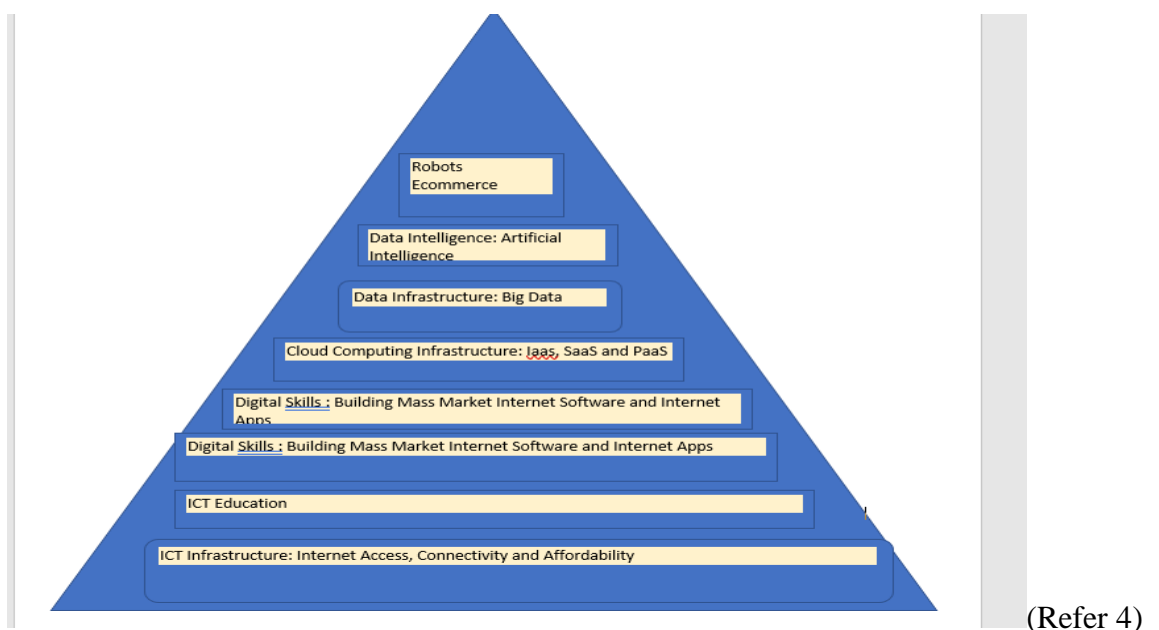
- 1947-1979 - The transistor, which was introduced in 1947, exposed the way for the development of advanced digital computers. The government, military and other organizations use this type of system of transistors during the 1950s and 1960s. This research eventually leads to the creation of the World Wide Web.
- 1980s - The computer became a known machine and by the end of this decade, being able to use became a necessity for many more jobs. The first mobile phone was also introduced during in this decade.
- 1990s - By 1992, the World Wide Web had been introduced, and by 1996 the Internet became a normal part of most of the business operations. By the late 1990s, the Internet became a part of everyday life for almost half of the whole population.
- 2000s - By this decade, the Digital Revolution had started to spread all over the developing world; mobile phones were commonly seen, the number of Internet users continued to increase eventually, and the television started to transition from using analogue to digital signals.

- 2010 and beyond - By this decade, Internet drove up more than 25 percent of the world's population. Mobile communication has also become very important, as nearly 70 percent of the population of the world owned a mobile phone. The connection between Internet websites and mobile appliances has become a standard in communication. By the year 2015, the innovation of tablet computers surpass personal computers with the use of the Internet and the promise of cloud computing services. (Refer 3)

DIGITALIZATION ON INTERNATIONAL TRADE

Digital infrastructure (DI) goes towards on Information and communication Technology (ICT) or e-commerce. It can be said to encompass three kinds of interrelated infrastructures, that are ICT infrastructure, Cloud Computing infrastructure and Data Infrastructure accompanied with use of related digital skills and digital technologies.

ICT infrastructure is the primary step towards building DI. It constitutes universal internet access, connectivity and affordability. This is accompanied by ICT education and skills. The second step towards building DI is to advance cloud-computing infrastructure. Cloud Computing infrastructure is a soft infrastructure, which can remotely provide computing services as a common utility to all the internet users. The following representation shows the different layers of digital infrastructure.



Cloud Computing infrastructure is a soft infrastructure, which can remotely provide computing services as a general helpfulness to all internet users. These services can be further classified into three main classes, which is Infrastructure as a Service (IaaS), Software as a Service (SaaS) and Platform as a Service (PaaS). IaaS are self-service models for managing remote data centre infrastructures, for an example networking services like firewalls or server spaces. SaaS abolishes the need to install applications on each and individual computers, for example emails or Google Apps, Facebook, Twitter, etc. while PaaS allows software developers' customization and reduces the amount of coding required. Users can create apps through software components that are only available by PaaS. Cloud computing infrastructure, by providing remote infrastructure, has the probable to directly reduce the need for hard infrastructure like storage disks, etc. and drastically cut cost of computing and using software's in a country.

The third step of building DI is building data infrastructure, which has become most important component of digital infrastructure, with the ability to give rise to global monopolies and change the relative positions of the countries in terms of their shares in worldwide production, consumption, investments and international trade. Data infrastructure has two parts- 'data' and the 'data intelligence' Many have termed 'data' as the 'new oil', which controls the digital economy the same way as oil powers the industrial economy. Data is created not just by the people who use internet, but by almost every person who uses smart technologies such as, TVs, cars, phones, fridge, etc. as Internet of Things has made it possible to connect devices through sensors and collect data. Non-personal data is also generated by purchasing goods, looking for admission in schools, admitting in hospitals, using roads, etc. Data intelligence associations layers of data to form 'Big Data' and transforms this big data into information by analysing it. This information leads to knowledge that is transformed into value. The value generated from big data is unique and forms the basis of 'Artificial Intelligence (AI)' producing unique products and services, which are more effective and lower in cost to produce and consume. Ownership of data and capability of logically transforming data into highly efficient products and services has led to growth of big tech firms also known as 'superstar firms' with monopolistic powers Large economies of scale and large network effects make it difficult for new firms to compete with these large monopolies. GAFAM (Google, Apple, Facebook, Amazon and Alibaba) along with Airbnb, UBER, etc. are some such monopolies created by the digital economy. Data intelligence itself designing digital technologies like AI, robots, 3-D printing, ecommerce etc. Comparing the existing digital infrastructure in India with those of other developing and developed countries can provide an valuation of the relative position of India in the digital world.

(Refer 5)

20th Century Globalization	21st Century Globalization
Physical goods, capital- and labour-intensive Flows.	Data, information and knowledge flows.
Exchanges of mainly monetized transaction.	Greater exchange of free content and Services.
Mostly between advanced economies and multinational companies.	More participation of emerging economies, SMEs and individuals.
Need for transportation infrastructure.	Need for digital infrastructure.
Slow diffusion of information across Borders.	Instant global diffusion and access of Information.
Innovation capacity and flows from Advanced to emerging economies.	Innovation capacity and flows in both Directions.

(Refer 6)

Digitalization and International Trade in growth of Indian Economy

- Economic growth and job creation in the employment sector has received and will continue to receive an huge boost by digitalization.
- Digital businesses, located both locally and universally, are realising the huge potential of India and thus suggesting to offer their services to consumers based out here.
- The rise of the private sector has further sparked the distribution of internet-based or online services to millions of consumers all over India.
- The growth of the country's economy won't be possible if legislators don't come up with plans for digitalization across all the possible sectors.
- As per valuable inputs from the World Bank, India has to create about 8.1 million jobs each year to reach its revolutionary of a \$5 trillion economy.
- The E-commerce sector in India is presently generating about \$30 billion to \$35 billion in produce per year. It has been discovered that more than 100,000 people are going to be employed in this sector.
- The Indian market is going to observe to be the creation of 500,000+ jobs.

- Both government enterprises and private sector policies have given digitalisation a major growth in India.
- The Indian retail market makes up for the largest industry in the entire country and thus donates to about 10% of the nation's GDP. What is further awesome is that about 8% of employment opportunities stand up in this sector.
- The Indian Government has also been influential in encouraging digitalisation in the country. By the Digital India initiative, the government has been contributory in providing the private sector with an enormous chance to use Aadhar and make public data easily accessible.

The businesses and private firms will be able to better realize the consumer needs, and accordingly improve their services. Since technology is used for the improvement of the provision of services, it is not difficult to see why India is going to witness a boom in the economy.

- As much as it has been known from various statistical reports, India is foreseen to have 900 million active online users by 2025. India ranks just after China and the US, and thus our country has emerged as the country having the third-largest online consumer base.

- By the Fiscal Year 2026, the online retail market in India is foreseen to witness a great boom as the net worth is going to reach an enormous range of \$120 to \$140 billion.
- Taking into consideration the year 2021, the net volume of UPI transactions reached the peak of a huge figure- 3.24 billion. With billions of online transactions being made in the past year, it can be easily said that 2022 is also going to observe a huge volume of online transactions. Technology has arrived as a great advantage to us, especially, when its noble effects are viewed concerning the economy of the country. Now that digitalisation is already making its way to lift the economic condition of the country, another great aspect has been brought to the attention. Well, the rise of a digital economy is going to set up the foundation of a rich job market that will be skilled enough to support about 60 to 65 million job posts in the upcoming days.
- The creativities of the government and its policies will also determine how well the employment sector experiences development in the future. But yes, technological innovations are going to play the role of a substance here, as well. Analysts predict that the advent of 5G services is going to be conducive for the growth of the country's economy. 5G internet services can alone boost India's economy by enhancing its net worth to \$1 trillion.

Important Sectors push up India's Economy to \$250 Billion by 2025

- E-commerce/Online shopping
- Blockchain
- Crypto
- Artificial Intelligence (AI)
- Robotics
- Cyber-security
- Cloud Computing
- Eruption of Digitalised Start-Ups
- Telecom
- Information Technology & Business Process Management
- Electronics

Conclusion

Digitization is developing as a new tool to shape and withstand such absolute advantages and in some cases even to claim the “right to win” and beat the competition in certain sectors a critical capability that reinforces all other national economic efforts. Creating digital markets and boosting digitization can harvest significant economic benefits and lead to considerable social benefits to societies and communities. Digitization has the possible to improvement productivity, create new jobs, and enhance the quality of life for society at large. The Indian Government needs to bring about further deviations and take initiatives to introduce technology across all sectors. The government also has to give the interest of the private sectors too, so that an merging of both public and private efforts lead to the cumulative growth of the nation’s economic condition. If further initiatives are taken to encourage digitalisation, we are going to enter a market worth \$5 trillion further.(Refer 7)

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A Study on Capacity Building of Women SHGs through MahalirThittam in Nagapattinam District

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ABSTRACT:

Self - Help Group is homogeneous affinity groups with common objective of enhancing their economic conditions. Theorists view it as the homogeneous group of poor village people formed with at least 5 members. In reality, the SHG groups comprises of 12-20 members of nearly same economic conditions and aspirations. This is not based on strict rules, even though rules are framed to conduct smooth conduct of SHG meetings and the routine money rotation. The credit is provided for both consumption and other productive purposes. SHG members can leave a small amount of money collectively and they can lend, collateral-free loans to their members of reasonable rate of Interest. Any decisions are taken in collective manner. Self-Help Groups is the real model to be emulated by all to change the lives of the poorest of the poor. It is one of the potential instruments in the armory of the government to mitigate the poverty in the rural and urban Indian households. It has a positive impact on the family of the member of SHG. The basic principles of the SHGs are group approach, mutual trust, organization of small and manageable groups, group cohesiveness, spirit of thrift, demand based lending, collateral free loan, women friendly, peer group pressure in repayment, skill, training capacity building and empowerment.

Mahalir Thittam is a socio, economic empowerment programme for women / Differently abled in persons by Tamil Nadu Corporation for Development of Women Ltd. Mahalir Thittam is based on Self Help Group (SHG) approach and is implemented in partnership with Non-Governmental Organizations' (NGO organizations).

KEYWORDS - MFIs, Mahalir Thittam; Income Generation; Women Empowerment.

I.INTRODUCTION

In recent years, Women have joined hands for their development and self-employment in the form of Self Help Group. Mahalir Thittam is intended to promote economic and social empowerment of the poorest women through a network Groups” formed with active–Bank Linkage support programme has of NGOs significantly improved the access to financial services for the rural women and has Considerable positive impact on the socio –economic conditions and the reduction of poverty of SHG members and their households. These papers study the socio –economic profile and examine the empowerment of the respondents who are members of Mahalir Thittam in

Nagapattinam District.

Objective of the study:

To study about the Mahalir Thittam in Nagapattinam District

To determine No of SHGs in Mahalir Thittam

To analysis Schemes of Mahalir Thittam

THE PROJECT FOR WOMEN

The SHG approach was started in a small way in Dharmapuri district in the year 1989with the assistance of International Fund for Agricultural Development (IFAD). Later the scheme was extended to the erstwhile Salem and South Arcot districts in the year 1991-1992 and further extended to Madurai and Ramanathapuram in the year 1992-1993. Following the success of the IFAD project, Mahalir Thittam project was launched with State. Today; the SHG movement is a very vibrant movement spread across all districts of the State with nearly 69, 91,000 women as members.

Mahalir Thittam in Nagapattinam:

As on 31.03.2010, there are 4, 41,311 SHGs with a total savings of Rs.2568 crores. In Nagapattinam district the scheme has been extended during 2010-2011 Nearly 15008 SHGs were formed with 233420 women as members.

Project implementation Unit (PIU), Mahalir Thittam, Nagapattinam was formed on December 1999 under the Chairmanship of District Collector and the Project Officer As member secretary. The PIU had been registered as per Government order Ms.No.176/S.W/NMP dated 29.09.1999.

"Pengal Aduppu Ooduvatharke" is the traditional customary belief in Tamil Nadu, about the common women folk. Due to that MIS-concept, women are not treated as equal to men. Even though, they were placed in low status, Government of India as well as the State Governments in India has formulated many schemes with the intention of bringing up them socially and economically up in life.

The Nagapattinam District Administration has taken steps to promote various activities, like training for Adolescent Girls, Entrepreneurship training for SHG Women,

Campaigns for 100% enrolment of girl children in schools, against harassment of children, preparation of nutritive food for healthy life, holding health camps, workshop on women rights, etc. It has been decided to bring about a change and to create an atmosphere, which would develop Self-Confidence and self-decision making among women and Girls by involving Voluntary organizations.

We hope the efforts of the District Administration has contributed a firm way to the fullest achievement of the primary aim of the Women Empowerment which would be kept alive in all respect, in the society especially among women.

NGO Link with Mahalir Thittam:

Mahalir Thittam is implemented in partnership with NGOs who help in formation of SHGs, provide training and monitor them. The NGOs are given funds for providing the above services; Interested NGOs are affiliated as partners with Mahalir Thittam if they satisfy the norms for affiliation.

In Nagapattinam District 11 NGOs and 10 PLFs are affiliated with Mahalir Thittam. The NGOs are DMI, SEED, WARD, PEACE, GSWS, SEVALAYA, KRDS, NAMCO, VDS,

TMSSS, RUWA the PLFs are (1) Thirukarugavoor, (2) Thirukadaiyur, (3) Ayyakaranpulam, (4) Vadugacherry, (5) Vilanthidasamuthiram, (6) Themangalam, (7) Chettipulam, (8) Puthur, (9) Madanam and (10) Arapallam with the help of these institutions Mahalir Thittam, Nagapattinam, is undertaking the activities such as capacity building and linkage with bank's etc.

Capacity building:

The hallmark of the SHGs promoted by Mahalir Thittam is the systematic training provided to the SHG members and the office bearers,. This capacity building brings about qualitative changes in the attitude of the women and promotes cohesion and effective functioning of the group. All the SHG members are imparted training in 4 modules for 4days to orient them to the SHG concept. The office bearers of the SHGs (Animator and Representative) are given training in 3 modules for 6 days. This training enhances the leadership quality, team building spirit and capacity to maintain books of accounts. In addition, SHG members who are interested in starting economic activities or develop skills to get self-employment are provided skill training. The skill training includes a 5 day capsule on entrepreneurial development.

2019-2020 Formation of New SHGs under TNSRLM Phase –I &II as on 29.06.2020

Blocks	Women SHGs	No. of Differently
		abled identified
Keelaiyur	12,710	543
Vedaraniyam	19,898	1,480
Sembanarkoil	25,458	1,912
Sirkazhi	15,768	863

Kolidam	16,347	1,181
Nagapattinam	7,620	452
Thalainayar	7,044	624
Total	1,04,845	7,055

In Nagapattinam there are 434 total panchayat, Mahalir Thittam have 224 panchayats

.PARTICIPATING IN THE GROUP IDENTIFICATION IN MAHALIR THITTAM

Four Categories of people will participate in the SHGs; (i) Very Poor; (ii) Poor;

(iii) Middle; and (iv) High.

In Mahalir Thittam Target is Very poor and Poor people is Participating in this SHGs and 35% Household Family will be Participated. In Mahalir Thittam Urban area People only participated. Differently abled candidates are also participating in Mahalir Thittam.

Panchayat Level Federations (PLF):

In Mahalir Thittam, federations of SHGs are formed at Village Panchayat Level called Panchayat Level Federation (PLF). These federations, by pooling in talent and resources and exploiting economies of scale in production and marketing, can benefit member SHG's immensely. They can also guide and monitor functioning of SHGs in all Village Panchayats and strengthening them is the key for ensuring

Sustainability and Self-reliance of SHG's. From 2006-07, the Government of Tamil Nadu have been taking various initiatives to strengthen the PLF's.

All SHGs in Mahalir Thittam are members in PLF .12 to 15 members will be elected they will be an Office Bears in PLF's. These Office bearer people of the PLF's are very poor and differ

Village Poverty Reduction Community (VPRC):

All PLF's are control under are 10, 00,000 by this fund VPRC will be. Fund divided by 2,00,000,4,00,000,4,00,000., This amount will go for Vaccinating people. Vaccinate people mean Widow, Orphanage, Namadic, Carmey Killness (HIV). 40% of the amount will be given Individual loan on the basic of business. Interest of the loan is very low.

Youth Skill Training:

Youth Skill Training will be introduced in 2020 .After changing the Prime Minister's Government that training name also changed by DEEN DAYAL UPADHYAYA GRAMEEN KAUSHALYA YOJANA (DDU –GKY) . This training is given by 18 to 45 aged people. This training only given by very poor and Vaccinate people.

Training in DDU –GKY:

Name of the Training	No of Days	Stiffen per Day
Computer Training	95	100
Driving	75	100
Fitters, Welding, Electrician	72	100

Entrepreneur Development Training (EDT):

This training will be given for Livelihood Promotion, Social Welfare and Improve the Economic status.

Name of the Training	No of Days	Stiffen per Day
Farming	40	25
Tailoring	40	25
Palm Leaf Product	40	25

Women Headed House Hold (WHH):

This training will be given for Widow, Dioceses etc .In any family women will be a head because of any situation. If they have any son or Daughter will give trained on basis of the qualification

Animator and Representative Training (A&R):

This training will be given by the office bearers. To Trained how to manage the groups and accounts Maintenance. They receive stiffen also.

Target of the TSRLM in this Year:

In this academic Year 2020- 2021 Target is 1, 43,00,000 will be given credit for Identification of poor. This money will be given by Banks.

Participatory Identification of Poor (PIP) Data Collection as on 5.07.2020

		No. of	No. of	Balance	Additional	Additional
Sl.	Name of the			No. of		
		House	Card		Report	Report
No.	Blocks			Card		
		Hold	Entered		collected	Entered
				Entry		
1.	Keelaiyur	22056	22056	0	7436	5274
2.	Vedaraniyam	39117	39117	0	27960	6518
3.	Sembanarkoil	45537	45537	0	28832	7162
4.	Sirkazhi	32475	32475	0	23175	7988
5.	Kolidam	37429	37429	0	15723	11321
6.	Nagapattinam	22144	22144	0	22144	15886

7.	Thalainyar	17108	17108	0	5322	3322
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CONCLUSION

Self Help Groups can be very effective in helping persons with disabilities to come out their isolation and in promoting their participation and inclusion in societal mainstream. SHGs are playing a crucial role of harmonizing the society and strengthening rural economy; hence they must avail themselves of training programmers and should manufacture diversified quality products. The present study reveals that the satisfaction derived from the members on the activities of SHG is satisfactory level. The study also specifies about certain Pros and Cons of members activities of SHG. The result of the implementation of the recommendation will be increases the satisfaction of the members on the activities of SHGs. Further, the Government Welfare Departments, NGOs, Banks, Financial Institutions, Entrepreneurial Development Programme Centers, Social workers and well-wishers may help the members of SHGs by educate them in all ways and provide those more opportunities by relaxing the rigid rules. In Mahalir Thittam all fund and training programme are approved only valuable and very poor people but this is all send only this type of people or other people is unknowable.

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Electronic Word of Mouth and Purchase Intentions – An Empirical Review

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Abstract

The advent of social networking sites has revolutionized the lifestyles of people around the world and has become an important marketing tool. This surge has also led to the emergence of electronic word-of-mouth, which has a significant impact on customers' buying intent. Today's market is heavily influenced by the electronic world that has changed customers purchasing decisions. The growing popularity of social networking sites allows Internet users to spread electronic reviews around the world. Electronic word-of-mouth is becoming more and more important in influencing customers' purchasing decisions and intent. Online users enjoy creating and sharing product information to assist others. Before making a purchase decision, social media users inform themselves about the product or service. Internet users rely on other users' ratings and recommendations before making a purchase decision. Sharing information on social media via electronic word-of-mouth has a significant impact on purchasing intent. Purchasing intent is related to brand awareness and credibility. This empirical literature search asks about electronic reviews and intent to buy. This study reviews various existing literature reviews to create the proposed conceptual framework. To examine the electronic word of mouth within the buy this article will center on the social organizing destinations, brand mindfulness and believe which leads to the customer purchase intention.

Key words: *E-Commerce, Word of mouth, Purchase intention, Credibility, Trust*

Introduction

Globalization and technological advances are having a major impact on the lifestyles of people around the world. Moreover, the Internet has become an integral part of our lives, changing the way people communicate with each other. The world of communication has changed dramatically in the last few decades. We have witnessed the birth and rise of new communication channels that bring electronic word of mouth information. The use of social networking sites is increasing and boosting the growth of social networking sites users. At the same time, the number of electronic word-of-mouth (eWom) is increasing due to the increase in SNS users. Electronic word-of-mouth (eWom) can be used by consumers to share their opinions and experiences with friends and other consumers with similar interests in various products and services. Companies also have free access to this eWom information more and more brands are relying on social media to improve customer interaction and increase product and service sales (Sardar et al, 2021). The Internet has also made a big difference in the business world. Conversations are now taking place between people, not between marketers. People-to-people conversations in the form of word-of-mouth have always attracted attention among marketers as a powerful and effective tool compared to other traditional marketing tools (Saleem and Ellahi, 2017). More and more companies are investing heavily in their social media marketing efforts to reach more electronic word-of-mouth customers through activities such as engaging consumers with brand messages, creating consumer electronic word-of-mouth exchanges, and disseminating brand-related messages by referrers. However, ambiguity remains as to the mechanism by which consumers send eWoms to other consumers to influence consumer behaviour (Kapoor et al., 2020). Agreeing to Teng et al. (2014), the customer can alter their inclinations and buy conduct given the electronic word-of-mouth is enticing. There exist numerous predecessors of influential electronic word-of-mouth such as Data Quality, Demeanor towards Data, Data Validity, Data Convenience, Require for Data, & Data Selection. Chu and Kim (2011) recommend that the impacts of eWom may alter from one electronic word-of-mouth stage to another such as SNSs. In here, numerous things about appear the joins between predecessors of electronic word-of-mouth on SNSs and customer buy purposefully. One essential result of processing electronic word-of-mouth data is the consumer's choice of whether to receive electronic word-of-mouth data or not. This selection of eWom data makes a difference buyer makes an educated buy choice. There's a causal connection between predecessors of electronic word-of-mouth in SNSs and buy deliberate can be either coordinated or backhanded. In expansion, it can be interceded by electronic word-of-mouth selection, both the coordinate and the intercession impacts of forerunners of eWom upon purchase intention. The upgraded electronic word-of-

Mouth exercises would offer assistance to fortify the brands and eventually result in more prominent deals (Chu and Kim 2011).

The following figure 1 shows the theoretical framework on the electronic word of mouth with relation to Social Media, Brand awareness and trust which helps the customers for the purchase decision.

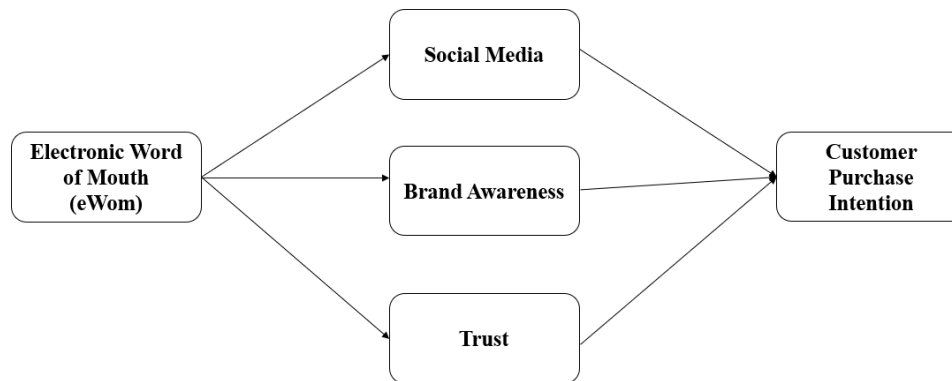


Figure 1: Electronic Word of Mouth affects the Purchase decision.

Review of Literature

Consumers are increasingly resorting to web resources (such as social media and blogs) to express their Views on the products and services they use and to learn more about the firms that offer them. These tools are drastically altering everyday living as well as customer-business relationships. The increasing rise of online communication via social media, websites, blogs, and other forms of online communication has stimulated academic interest in the word of mouth (Wom) and electronic word of mouth (eWom). Consumers, businesses, and the general public believe the electronic word of mouth (eWom) to be one of the most influential informal media (Huete-Alcocer, 2017).

Electronic Word of Mouth (eWom)

Consumers are increasingly resorting to web resources (such as social media and blogs) to express their views on the products and services they use and to learn more about the firms that offer them. These new technologies are altering everyday living as well as customer-business relationships. The growing

Proliferation of online communication through social media, websites, blogs, and other forms of online communication has fueled academic interest in the word of mouth (WOM) and electronic word of mouth. Consumers, businesses, and the general public believe electronic word of mouth to be one of the most influential informal media (Huete-Alcocer, 2017). In numerous pieces of literature, the strength of interpersonal influence through word-of-mouth communication has been extensively recognised. According to Cheung and Thadani's article 'The impact of electronic word-of-mouth communication: A literature review and integrative model' published in 2012, the concept of electronic word-of-mouth communication has attracted a lot of interest in the business. According to previous research, consumers view word of mouth as more trustworthy and captivating than traditional media such as print marketing, personal selling, and radio and television ads. With the introduction of the Internet, which extended electronic word-of-mouth communication to a variety of additional virtual contexts, word-of-mouth communication's influence on purchase decisions was further extended. Weblogs (e.g. xanga.com), discussion forums (e.g. zapak.com), review websites (e.g. Epinions.com), e-bulletin board systems, newsgroups, and social networking sites are all places where consumers can publish their ideas, comments, and reviews on products on the internet (e.g. facebook.com) (Cheung and Lee, 2012).

Social Media

Abu Bashar et al (2012) conducted a study on 150 online respondents who are engaged on social media. Before making a buying decision, respondents look at social media. They explore how quickly social media has influenced entrepreneur and marketer marketing methods, which have shifted from traditional to technology-based. In today's world, following internet marketing on social media has become a necessary vital connection for all types of businesses; else, marketers would become obsolete. E-Commerce and the internet have played a larger part in how businesses have adapted to social media technology. People become organic marketers by collecting and sharing information on social media (Abu Bashar et al, 2012). Amal Dev Sarma and Basav Roy Choudhury (2015) discovered that social media creates social networks, which impact user purchasing decisions through word of mouth. With the growth of online social networks and user-generated content, word of mouth shifts to eWom, which spreads widely. Ordinary folks use social media to gather information and receive what they want in real-time. The way people read seek, and trust content has changed as a result of social media. User-generated material also provides market information for commodities, services, and other items. Online reviews (recommendations and experiences) and electronic word-of-mouth spread as a result of personal

Communication, influencing purchase decisions and behaviour. Ismail Erkan and Chris Evans(2016) come up with similar foundations for how electronic word of mouth conversation on social media websites leads to customers' purchase intent. Social media has provided a good platform for electronic word-of-mouth discussion. Individuals talk to their friends and acquaintances about any brand's products and services. The Information Acceptance Model affects social media, electronic word-of-mouth, and consumer behaviour. According to the results of a survey done among 384 university students who used social media, positive information had a positive impact on customers' purchase intentions.

Brand Awareness

According to Civelek, M., and Ertemel, A. (2018), the Younger generation have a more significant purchasing intention than other age groups. Users of social media communication with their families, friends, and peers, both known and unknown. Peer to peer interaction is what electronic word of mouth is all about. Positive peer comments have a direct impact on brand recognition, which leads to brand trust. They concluded that Young p People search and retrieve electronic word-of-mouth information published on social networks to reduce anxiety before making a purchasing decision, according to Eun-Ju Seo and Jin-Woo Park (2018). The eWOM information supplied by experienced consumers who have purchased the goods online is trusted by the users. They discovered that brand awareness and trust influence eWOM. Brand awareness refers to a situation in which a user identifies a specific brand among a large number of brands available online, and as a result, the user's trust is linked to the brand. After reading Positive, an online user purchased Intention. In a social network, electronic word of mouth is used. In social media, electronic word of mouth had a direct impact on user trust. People's purchase decisions are influenced by social media eWOM peer to peer contact (Eun-Ju Seo and Jin-Woo Park, 2018).

Trust

Saba Anwar Khan et colleagues (2015) discovered that word of mouth had a direct and positive effect on purchase intent. Purchase Intention is influenced, by comparison, source attractiveness, and trustworthiness. Word of mouth has become a common and vital strategy for disseminating information about a product or service. Through electronic Word of mouth, new and existing customers communicate information about products and services. In social media marketing, word of mouth is a critical strategy for promoting products and businesses. Noraini Sa'ait et al (2016) conducted a study with 361 participants

To determine the impact of positive eWOM on purchase intent. They discovered that eWOM elements like correctness, comprehensiveness, relevance, and timeliness have a strong link to client purchase intent. Teenagers are more knowledgeable of products and services, and they trust eWOM consumer reviews before making a purchase decision. Prior purchasers have offered honest reviews and the eWOM information is from an unpaid source. After reading numerous reviews, the eWOM receiver who got prior purchaser information will have a purchase intention.

Conclusion

The prevalence of eWOM has been witnessed with the rise of Internet-based technology, and electronic word of mouth has established a new horizon that has empowered customers in many ways. Customers' purchase decisions are influenced by both favourable and negative evaluations. After reading negative evaluations or information about products and services from other customers, shoppers are discouraged from making a final purchase choice. Only eWOM can provide a better result for the organisation if the customers' minds are built on trust. As a result, marketers should use eWOM tactics to convey information about their products to potential customers, emphasising the need of developing trust among customers by delivering reliable, consistent, and valid data (Mahmud, Islam, Ali and Mehjabin, 2020). Anonymous, family, and friends' electronic word of mouth on social media via various social networking sites such as Facebook, Twitter, and others have an impact on a user's purchasing intention. Unpaid users share the electronic word of mouth, which turns them into organic promoters of products and services. Because the information is communicated by earlier purchasers, social media users trust other users' reviews and referrals. User-generated content (UGC) is information that is shared electronically through social media. Electronic word of mouth is used to spread information. People are influenced by eWOM to acquire products/services as a result of various referrals shared on social media. Electronic word of mouth is linked to brand awareness and trust. Use of social media the impact of electronic word of mouth on purchase intent among social media users (Navitha Sulthana and Vasantha, 2019).

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Drivers of Artificial Intelligence [AI] Adoption in strategic Decision Making **Mrs.Dr.L.Nithya*, Ms.S.Abarna****

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Abstract

Artificial Intelligence has grown to be very popular in today's world. It is the simulation of natural intelligence in machines that are programmed to learn and mimic the actions of humans. Artificial intelligence (AI) in business processes and academic research in AI has significantly increased. However, the adoption of AI in organizational strategy is yet to be explored in extant literature. This study focuses on drivers of artificial intelligence adoption and strategic decision making. This study is descriptive in nature, all of the necessary and relevant information was gathered from various publications, periodicals, and websites.

Keywords: Artificial Intelligence, Strategies, Drivers of Artificial Intelligence.

Introduction to Artificial Intelligence

The intelligence demonstrated by machines is known as Artificial Intelligence. Artificial Intelligence has grown to be very popular in today's world. It is the simulation of natural intelligence in machines that are programmed to learn and mimic the actions of humans. These machines are able to learn with experience and perform human-like tasks. As technologies such as AI continue to grow, they will have a great impact on our quality of life

Measuring Artificial Intelligence [AI]

Turing Test

The Cognitive Modeling Approach

The Law of Thought Approach The

Rational Agent Approach

Turing Test in Artificial Intelligence

The basis of the Turing Test is that the Artificial Intelligence entity should be able to hold a conversation with a human agent. The human agent ideally should not be able to conclude that they are talking to an Artificial Intelligence. To achieve these ends, the AI needs to possess these qualities:

Natural Language processing to communicate successfully.

Knowledge Representation to act as its memory.

Automated reasoning to use the stored information to answer questions and draw new conclusions.

Machine learning to detect patterns and adapt to new circumstances.

Cognitive Modeling Approach

As the name suggests, this approach tries to build an Artificial Intelligence model based on Human Cognition. To distill the essence of the human mind, there are 3 approaches:

Introspection: observing our thoughts, and building a model based on that Psychological

Experiments: conducting experiments on humans and observing their behavior

Brain Imaging: Using MRI to observe how the brain functions in different scenarios and replicating that through code.

The Laws of Thought Approach

The Laws of Thought are a large list of logical statements that govern the operation of our mind. These laws can be codified and applied to artificial intelligence algorithms. The issues with this approach, because solving a problem in principle (strictly according to the laws of thought) and solving them in practice can be quite different, requiring contextual nuances to apply. Also, there are some actions that we take without being 100% certain of an outcome that an algorithm might not be able to replicate if there are too many parameters.

Artificial Intelligence (AI) Workings

Machine Learning: ML teaches a machine how to make inferences and decisions based on past experience. It identifies patterns, analyses past data to infer the meaning of these data points to reach a possible conclusion without having to involve human experience. This automation to reach conclusions by evaluating data, saves a human time for businesses and helps a better decision.

Deep Learning: Deep learning is an ML technique. It teaches a machine to process inputs through layers in order to classify, infer and predict the outcome.

Neural Networks: Neural Networks work on the similar principles as of Human Neural cells. They are a series of algorithms that captures the relationship between various underlying variables and processes the data as a human brain does.

Natural Language Processing: NLP is a science of reading, understanding, interpreting a language by a machine. Once a machine understands what the user intends to communicate, it responds accordingly.

Computer Vision: Computer vision algorithms try to understand an image by breaking down an image and studying different parts of the objects. This helps the machine classify and learn from a set of images, to make a better output decision based on previous observations.

Cognitive Computing: Cognitive computing algorithms try to mimic a human brain by analysing text/speech/images/objects in a manner that a human does and tries to give the desired output.

3 Types of Artificial Intelligence

Artificial Narrow Intelligence (ANI)

Artificial General Intelligence (AGI)

Artificial Super Intelligence (ASI)

Narrow Intelligence (ANI)

This is the most common form of AI that you'd find in the market now. These Artificial Intelligence Systems are designed to solve one single problem and would be able to execute a single task really well. By definition, they have narrow capabilities, like recommending a product for an e-commerce user or predicting the weather. This is the only kind of Artificial Intelligence that exists today. They're able to come close to human functioning in very specific contexts, and even surpass them in many instances, but only excelling in very controlled environments with a limited set of parameters.

Artificial General Intelligence (AGI)

AGI is still a theoretical concept. It's defined as AI which has a human-level of cognitive function, across a wide variety of domains such as language processing, image processing, computational functioning and reasoning and so on.

We're still a long way away from building an AGI system. An AGI system would need to comprise of thousands of Artificial Narrow Intelligence systems working in tandem, communicating with each other to mimic human reasoning. Even with the most advanced computing systems and infrastructures, such as Fujitsu's K or IBM's Watson, it has taken them 40 minutes to simulate a single second of neuronal activity. This speaks to both the immense complexity and interconnectedness of the human brain, and to the magnitude of the challenge of building an AGI with our current resources.

Artificial Super Intelligence (ASI)

We're almost entering into science-fiction territory here, but ASI is seen as the logical progression from AGI. An Artificial Super Intelligence (ASI) system would be able to surpass all human capabilities. This would include decision making, taking rational decisions, and even includes things like making better art and building emotional relationships.

Once we achieve Artificial General Intelligence, AI systems would rapidly be able to improve their capabilities and advance into realms that we might not even have dreamed of. While the gap between AGI and ASI would be relatively narrow (some say as little as a nanosecond, because that's how fast Artificial Intelligence would learn) the long journey ahead of us towards AGI itself makes this seem like a concept that lays far into the future.

Objectives of the Study

To understand the drivers of artificial intelligence in adoption of strategic decision making. To evaluate how artificial intelligence helps in simplifying business decision making.

To examine the barriers of artificial intelligence in adoption of strategic decision making.

Research Methodology

The study is descriptive in nature, and a qualitative approach of data collection and analysis appears to be appropriate, with data acquired from authentic and trustworthy sources. The study examines the drivers of artificial intelligence adoption in strategic decision making. As a result, secondary data is used. Furthermore, the essential and relevant secondary data is gathered from a variety of sources such as research papers, journals, and publications.

Drivers of artificial intelligence in adoption of strategic decision making

AI (Artificial Intelligence) has been around for a while now. AI is gradually becoming a part of our daily lives, from fast recommendations on search engines and auto-focus in smartphones to robot attendants at office buildings and so on. AI has a lot of room for creativity and growth, and it will proceed to change the world in a variety of ways in the future. Many businesses are turning to artificial intelligence (AI) technology to reduce expenses, boost productivity, increase sales, and maximize customer support.

Understanding AI

The first step is to broaden people's understanding of AI terms and functionality. A solid understanding of the AI model and its use applications will aid management in recognizing potential applications and execution processes that will provide significant business value. It's also crucial to understand what you can't do with AI.

Making a List of Specific, Measurable Objectives

Setting simple and measurable business targets in all AI projects is unquestionably important because it addresses the key question of what you'd like from AI. Every engagement should be structured around meaningful business benefits that must be implemented within a specified timeperiod.

Current Business Issues Should Be Recognized and Analyzed

Leaders will need to prioritize the company's business use cases, such as improving service quality or enabling product development, automating labor-intensive activities or increasing employee/workplace efficiency, and so on. Applications and activities should be done to address

a business issue rather than to use AI. The majority of executives are also unable to understand market challenges that AI might be able to fix. Even if they recognize the importance of AI, they must find out how it functions and how it helps the business.

Usage Monitoring and Measurement

The secret to successful AI adoption is to keep close tabs on the state of the AI setting in your business. Ascertain that the company understands how and when to track and evaluate after the solution has been implemented. Identifying use trends and error instances early in the system's life cycle will help you optimize its use and adoption.

Evaluation of how artificial intelligence helps in simplifying business decision making Quicker decisions.

The pace of business has dramatically accelerated in recent times and there are no signs of it slowing down. In such an era, speeding up decision-making is extremely important. For example, oil companies can alter the price of gas according to the demand with the help of AI-powered pricing. Statistics show this could increase their profit margins by almost 5%. Travelsites, retailers, and other services similarly use dynamic pricing on a regular basis to improve their margins.

Handling multiple inputs.

When it comes to taking input from multiple sources and handling many different factors simultaneously, machines are much better than humans. This is because they can process a lot of data at once to make complex decisions and give a prediction or suggest the best possible decision.

Reduced fatigue.

A lot of psychology studies prove that when people are forced to make many decisions in a limited time, the quality of those decisions keeps declining. This is the reason you see candy and snack bars near cash registers at supermarkets; shoppers get exhausted with so much decision-making while shopping, so they find it much difficult to resist the sugar craving at the point of sale. On the other hand, algorithms have not so many weaknesses. They make equally good decisions at any point in time, hence helping executives avoid making bad decisions due to exhaustion.

Non-intuitive predictions through more original thinking. With AI, executives can identify patterns that may not be very clear to human analysis. For example, AI helped a major drugstore discover that people who bought diapers also tended to buy beer at the same time. Such unique insight, if incorporated in decision-making, can have an immediate and significant effect on the business.

The 4 Biggest Barriers to AI Adoption Every Business Needs To Tackle

My work brings me into contact with organizations at every stage of their digital transformation and AI adoption process. This gives me insights not only into what is working but why barriers or challenges are discouraging adoption. Here's a rundown of some of the most frequently

Cultural barriers

Put simply; this is all about resistance to change. Human beings, it is often noted, tend to be creatures of habit; once we find a method of carrying out a task that seems to get the job done effectively and efficiently, we like to stick with it. It often takes some persuasion before we will see that the disruption and expense that will inevitably be caused by altering procedures or adopting new processes will be worth the overall gains they will bring.

This could be as simple as a disinclination towards what can be seen as “handing over control” – Whether that’s directly to machines, or to the human employees who administer the technological infrastructure that makes AI possible.

Often this translates into simply not seeing the need for AI, and an incomplete understanding of the advantages it can offer. And in my experience education is usually the most effective means of overcoming this particular barrier. I spend a lot of my time working with boards and senior leaders to instill an awareness of how the core AI technologies – from natural language processing to computer vision and predictive maintenance – can create efficiencies and reduce costs. Once awareness levels are raised, people are likely to become receptive and engaged with the potential for positive change AI offer.

Fear

Another completely natural and understandable human response. Fear of the unknown, as horror writer HP Lovecraft liked to point out, is the “oldest and strongest emotion of mankind.” And as visionaries including Elon Musk and Stephen Hawkin have pointed out in more recent years, there is a huge amount that is still unknown when it comes to the part AI will have to play in our future.

In an immediate sense, this fear could revolve around a growth in distance between the human workforce and the job they are paid to carry out – decisions made by computer algorithm can be difficult to predict and understand. This leads to a fear that humans are losing control and may possibly no longer be regarded as the “experts” in their field of work.

The middle-term fear is of increasing human redundancy – if machines can carry out the work more efficiently and effectively, where’s the need for humans? Futurologists have predicted that this could go two ways – either leading to a utopian existence where robots fill all our basic needs and humans are free to pursue leisure, intellectual and artistic endeavors, or towards mass unemployment and social unrest.

I believe that instead there is an attractive middle ground (as there is so often), where the solution is to roll out intelligent tech to augment our work and make it better for humans, rather than replace them.

Shortage of talent

This is a real and pressing problem for most businesses wanting to adopt AI as well as move to other data-driven models of digital transformation. Experts predict that when it comes to capitalizing on the enormous potential for growth offered by AI, a bottleneck exists due to the shortage of data and technology

Professionals with the experience and training needed to implement the required infrastructure and organizational change.

Although AI research has been ongoing for decades, it's only relatively recently that these skills have been in demand by industry. And the massive growth in demand means that those with the abilities are able to ask for very high salaries and prestigious positions within the organizations that employ them. On top of this, those companies that already understand and heavily invest in AI – the Googles, Facebooks, and Baidu's of the world – are often seen as offering the prime opportunities by those who do have the skillset, meaning other businesses face an uphill battle competing to attract talent.

Lack of a strategic approach to AI adoption

In some ways, this is an amalgamation of several other barriers – lack of talent, lack of management buy-in, and a culture insufficiently immersed in the advantages and practicalities of AI and digital transformation. The result is often AI initiatives that aren't planned at a strategic level, fail to address strategic business objectives and don't fit within an organization's overall plans for growth and business development.

Conclusion

Artificial intelligence (AI) is the ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment. Manufacturing robots, Self-driving cars, Smart assistants, Proactive healthcare management, Disease mapping, automated financial investing, Virtual travel booking agent, Socialmedia monitoring.

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INFLUENCE OF ARTIFICIAL INTELLIGENCE IN E-COMMERCE

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ABSTRACT:

The E-commerce ecosystem has been growing at an exponential rate and even in times of a global pandemic and nationwide lockdowns the e-commerce ecosystem evolved and adapted the same. This ecosystem has become a crucial element for the economy as well as the digital users in a rather short span of time. New internet-based technologies have changed the way business enterprises handle marketing, discovery, transaction processing, product and customer service processes. One of the significant technologies is artificial intelligence (AI), which has partially or completely substituted humans for the performance of tasks. Hence this study focuses on the influence of artificial intelligence in E-commerce business. This study is descriptive in nature. All of the necessary and relevant information are taken from secondary data such as magazines, periodicals, websites, and articles. Hence, the study concludes that, there will always be a demand throughout its ecosystem since, AI works with combining real time prediction abilities, an understanding of human behavioural activities, expert technical and collaborative skills in order to deliver more reliable prediction.

Keywords: Artificial intelligence, E-commerce, Technology, and global economy.

INTRODUCTION:

AI is the discipline that aims to understand the character of human intelligence through the development of computer programs that imitate intelligent behaviour. AI techniques are successfully developed and employed in many of the areas like, science, engineering, education, business, etc. A whole list of acronyms is provided within the appendix. E-commerce is formed using computer and communication technologies in commerce taken place between some or all parts of a business and its customers. AI techniques are broadly employed in the event of e-commerce systems also. The sector of e-commerce is assessed as B2C e-commerce and B2B e-commerce, in terms of AI techniques involved within this field. This study focuses on some important AI techniques that are useful in the design and development of e-commerce systems. AI perspective are useful in the evolution of B2C and B2B e-commerce systems. B2B e-commerce has all over 80% share of whole e-commerce market, and rest are gathered by B2C. But, more consciousness in AI for e-commerce progress has concentrated on B2C transactions. In B2C e-commerce, AI is employed primarily for choosing the product, recommendation, negotiation, auctions, solving real-world scheduling problems and enhancing servers' scalability, generating automated responses, and decisions on bundling and pricing of products, etc. In B2B e-commerce, AI is employed mainly for supply chain management and both the e-commerce systems using the identical AI technology called ontology.

ARTIFICIAL INTELLIGENCE AND ELECTRONIC COMMERCE:

Artificial Intelligence:

Artificial intelligence (AI) has many alternative definitions; some people will see it as the created technology that permits the computers and machines to function intelligently. Some see it as the machine that replaces human labour to work for men and it performs more effectively to give a quick result. Others see it as "a system" with the ability to correctly interpret external data, to learn from such data, and to utilize those learnings to achieve some specific goals and tasks through flexible adaptation. Despite the different definitions, the common understanding of AI is that it is connected with machines and computers to help humankind to solve problems and making the work processes easier. In short, it is an intelligence designed by humans and demonstrated by machines. The phrase AI is used to outline these functions of "human-made tool that emulates the cognitive abilities of the natural intelligence of human minds."

Electronic Commerce:

E-commerce means electronic commerce. It means dealing in goods and services through the

Electronic media and internet. In e-commerce, business is conducted through the websites and by using the information technology like Electronic Data Interchange (EDI). E-Commerce relates the vendor and the customer on the Internet, and provides the products or services directly to the customer from the portal. The portal can be used by digital shopping cart or digital shopping basket system and allows payment through credit card, debit card or EFT (Electronic fund transfer) payments. A more perfect definition is: “E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and re-define relationships for value creation between or among organizations, and between organizations and individuals”. The most varieties of electronic commerce are:

Business-to-business (B2B); business-to-government (B2G); business to customers (B2C) consumer-to-consumer (C2C); and mobile commerce (m-commerce).

OBJECTIVES:

To study the influence of artificial intelligence in e-commerce.

RESEARCH METHODOLOGY:

This study is descriptive in nature. Hence this study focuses on the influence of artificial intelligence in E-commerce business all of the necessary and relevant information's are taken from secondary data such as journals, websites and articles.

HOW ARTIFICIAL INTELLIGENCE INFLUENCE E-COMMERCE?

Increase in volume of voice search:

Today, people are relying more on voice assistants like Alexa, Siri to know their daily schedule or find out the product they need through online for buying. **Loup Ventures** had released an updated speaker sales forecast model that had estimated that **80% people in the US will own a smart speaker, generating 35.5 billion revenue in 2025**. So as more households get hold of this technology, there

are chances of a breakthrough in the e-commerce businesses. This is definitely an AI application to keep an eye on in 2021.

Conversational chatbots:

Many top names in different industries like Starbucks, Sephora, and Dominos have adopted chatbots to gain more benefit to their e-commerce business. The customer can ask their queries regarding a product to a bot and can get an immediate response. This definitely helps the customer's decision to make a purchase if they are given quick answers to their queries.

Auto-generated product descriptions:

Customers use product descriptions to make purchase decisions. It is a useful means to impact customers. With the help of AI content generation tools, e-commerce can leverage the power of AI to create descriptions that address the interest of the buyer.

Image tagging or image recognition:

The Pinterest user are most aware of this feature so, what it does is that it allows users to select an item from any online photo and use its image recognition software to identify similar items. The e-commerce industry can also make use of such systems to provide an enhanced customer experience.

Personalized search:

Businesses can use AI-powered search engines which is referred to as insight engines to mix the search with machine learning capabilities so that the internal website research becomes more personalized.

Handling fake reviews:

A customer's buying decision is affected by the reviews they read through online on any e-commerce platform. There are multiple cases where there are negative reviews of the product, and those reviews are making customers to refrain from buying that product. This activity is called **astroturfing** and there are many e-commerce players that take the help of AI to block and tackle fake reviews so that the customers can make an unbiased decision.

Applications of artificial intelligence in E-commerce:

Most of the E-commerce and financial websites are using chatbots to boost their customer satisfaction and provide more services to customers. These chatbots are developed using artificial intelligence and machine learning techniques. They are capable of behaving like humans. These chatbots have learning ability; on the basis of accessibility of past data they are competent of providing best suggestion to customers. Image search on e-commerce website is implemented using artificial intelligence. It is based on image processing algorithms and helps in improving customer services. Customers are able to search the products by images. There is no need to search the products using the keywords. Handling Customer Data E-commerce has a large number of associated data. Machine learning algorithms are capable of performing analytical study on past data, which is related to sales, human resources, marketing, and customer purchase pattern. This analytical result will maximize the profit, sales, and resources optimization. This helps e-commerce and fintech companies to finalize their products for a selected form of customers. Along with the development of science and technology, Artificial intelligence technology is also growing up faster and is dramatically changing the way people work and live, especially in the field of electronic commerce, artificial intelligence technology has gradually developed into a powerful tool to increase the sales growth and optimize e-commerce operations. Certain applications using artificial intelligence are:

AMAZON:

As an early adopter of artificial intelligence, and one of the first companies to build their business around AI and machine learning, Amazon use a “flywheel” approach to artificial intelligence. Amazon.com is building a plenty of its business on machine learning-based system. Without machine learning, Amazon.com couldn’t expand its business, improve its customer focus and selection, and evaluate its logistic speed and integrity.

FACEBOOK:

Facebook AI is the name that the social network giant performs its internal work on artificial intelligence. The head of Facebook AI is Yann Lecun, a legendary AI researcher who developed some of the first commercial application of machine learning.

STARBUCK:

Starbuck is creating a future in which artificial intelligence and the technology will help the coffee giant fuel its growth. Starbuck internal artificial intelligence program referred as “Deep brew,” that allows the coffee giant to work innovate and experiment with machine learning and artificial intelligence not only to personalize drive through experience but also to automate time consuming task such as inventory management and it prevent the maintenance on its internet of things connected expresso machine.

DOMINO’S:

Domino’s pizza which is ranked among the world top restaurant brands. According to Djuric, key reason domino’s selected Talend were greater freedom to scale with more agile architecture, open source flexibility, fast implementation, cost-effectiveness and understandable licensing and predictability. Domino’s use “Talend” as their data mobilization programme, everything that takes place in their ecosystem commence with “Talend”. “Talend” captures, standardize, enriches, stores the data and allows it to be consumed by multiple consumers.

INDUSTRIES RELYING ON ARTIFICIAL INTELLIGENCE:**Gaming sector:**

Machines are now be able to compete with humans in games with artificial intelligence. AI is implemented in many strategic games such as poker, chess, tic-tac-toe, etc. Machines are empowered with capacity to consider many positions based on heuristic knowledge. Deep Blue was the initial a chess-playing expert system developed by IBM.

Banking:

AI application also misrepresents in “Anti-money laundering (AML)”. Anti-money launderers hide their activities to increase their illegal money. This illegal is documented so well to give the fantasy of legally earned money. Banking Industry over the world is moving from customary detection of AML to artificial intelligence-based systems. AML AI detection system can detect defaulters.

Healthcare:

AI application in healthcare are used in Diabetic Retinopathy Treatment, Medical Diagnosis, Risk Prediction and Automating Drug Discovery. For example, In Skin Cancer Treatment Sebastian Thrun's lab at Stanford released an Artificial intelligence algorithm which detects Skin Cancer with very high precision.

Vision Systems:

Vision systems can understand, interpret, and grasp visual contribution on the computer. For example- Medical experts use these systems to diagnose diseases. Investigation experts also make use the vision system to recognize the face of criminal with stored photo which is given by the forensic craftsman.

Music and Movie Recommendation Services:

AI used applications like Spotify, Pandora, and Netflix recommend music and movies on the interests of users and their past choices. The collected data is then fed into AI learning algorithm to suggest recommendations.

Transportation:

In 2015 the usage of AI systems in car and vehicles were just 8% but by 2025, the usage rate is expected to reach 109%. In the transportation industry, self- driving vehicle will undoubtedly be the next big thing. AI based self-driving will possibly replace manual driving and make driving on road safer. Examples like Tesla, Uber, Volvo and Volkswagen.

GROWTH OF ARTIFICIAL INTELLIGENCE IN E-COMMERCE:

The growth of artificial intelligence is presently increasing significantly. This innovation has improved the e-commerce sectors with new advancement and technologies. More than 80% of the business trust the artificial intelligence has brought more and more benefits for online markets at present as well as in future. AI has already changed the landscape of the e-commerce sectors using natural processing to narrow, contextualize and basically improve the search result for the online shopper to generate a better shopping experience and also creating a strong competition among the businesses. The pandemic situation created by covid-19 has given a big boost to the e- commerce sectors, for buying groceries, medicines, home appliances everybody used online applications so there has been tremendous growth in this sector which

Using AI. AI in e-commerce offers many interest and satisfaction in building a strong business eco-system and will be the only way e-commerce companies can survive, grow, stronger, and remain competitively ahead.

FUTURE OF E-COMMERCE IN INDIA:

The e-commerce sector in India is expected to grow at a 27% CAGR over 2019-24 and is expected to reach 99 billion by 2024, according to a report released by EY-IVCA Trend Book 2021. Grocery and fashion are said to be the key monitor of this growth. The report revealed that India will have 220 million online shoppers by 2025. The penetration of retail is expected to be 10.7% by 2024, compared to 4.7% in 2019. It affirms that the government is intending to build a trillion. E-commerce is developing and growing rapidly towards market trends day by day. The internet user base in India might still be mere 300 million which is much less as compared to the other developed countries but its surely expands in future. India has third largest internet population after US & China. As per the last three to four years there is a rapid change in the scenario of ecommerce in India. More than 200 million users are been included during last three years. Development of internet users is extending very quickly in India. E-commerce popularity is at its peak now. At times like these, when due to COVID-19, nobody could leave their houses to buy things of their basic needs at that time, E-commerce websites took everything in control and provided help to the millions of people who were struggling. E-commerce or electronic commerce involves a complete business over the web with computers, that area unit coupled to every different forming a network.

CONCLUSION:

India is the fastest growing country in the e-commerce where many technologies and inventions are used. AI has a broader scope for broaden in many aspects and areas. Nowadays people are well known about AI technology and they are using it. Many of the research results show there has been a wider scope for the AI technology to grow in various fields. Since AI has been moving in an upward direction that paves way for many new inventions in many industries. I believe that AI is still considered more important and especially in many convenience stores. AI many create a new revolution and also gives way for new data sciences and machine learning.

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THE INFLUENCE OF ENVIRONMENTAL CONCERN ON CUSTOMER PERCEPTION: AN ANALYTICAL INVESTIGATION AMONG ORGANIC FOOD CONSUMERS

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ABSTRACT

The concept of green product management has got a major role to play in the current day economy and the people are becoming more and more interested towards the organic products. The previous thirty years have observed a huge increase in the environmental consciousness all over the world. This is because of the increased environmental challenges. The protection of the environment has become an essential necessity and has also turned out to be a greatest agenda of the upcoming nations. As the environmental deterioration has increased a lot, the developing nations like India has got the most important responsibility of preventing the pollution and preserving the natural resources. The attitudes towards the environment makes an important element of environmental concern. The concern for the environment makes the customer to go in for organic products. In this view, the paper presented here is an attempt to explore the effect of environment concern over the customer perception towards the organic products. The respondents of the study are the customers of organic products in Chennai. The sample size of the study is 100 and the respondents are selected through Simple random sampling. The instrument used for data collection is a questionnaire and the tool used for analysis is Regression Analysis. The results of analysis show that environmental concern is seen to predict customer perception of organic product purchasers.

KEYWORDS: *Environmental Concern, Customer Perception*

INTRODUCTION

The term environment concern has been defined as the level to which the individuals are aware of the environmental issues and their willingness in offering a solution to such issues [Alibeli, M.A. and Johnson, C. 2009]. In the words of Lee. T.-W. et al., 2008], environment concern means the level of emotional involvement (active or dormant) regarding environmental issues. Aman et al. [2012] had described the word environmental concern to be the emotional disposition of the consumers. In other terms, it is the anger of the consumers for the environmental degradation.

Customer Perception

The term customer perception means the way the customers feel about the organization. Customer perception comprises of the emotions, thoughts and the opinions of the customers regarding the brand of a company. The perception of the customers may be positive or even negative. The process of customer perception happens when the customers deal with the brand of a firm, its product and services. It is the process wherein a customer gathers data regarding the product and makes an interpretation about the information for arriving at an expressive image regarding a specific product. When the customers look at the advertisements, feedback in social media, customer reviews and promotions regarding the product, they have the tendency of developing an impression regarding that product. The whole of perception process by the customers gets started at the time when that customer receives the information regarding the product. The process of perception goes on till he/she establishes a judgment regarding the product.

STATEMENT OF PROBLEM

Organic products have got a worldwide concern over the previous years and in recent times it has turned out to a significant concern topic for protecting the environment. Hence, it is essential to become aware of the perception of the consumers regarding the organic products. The awareness of the consumers is seen to be high towards the environment while buying the organic products than the conventional products. Therefore, it has become essential for understanding the perception of the consumers regarding the organic products.

OBJECTIVES

The intent with which this study has been performed is to identify the probable effect of environmental concern on the consumer's perception towards organic products.

REVIEW OF LITERATURE

Sahar HosseinikhahChoshaly (2018) examined the perception of the consumers regarding the green issues and the intention of purchasing the green products. The purpose of the research was to investigate the customer perception regarding green challenges, for examining the factors which affect the purchase intention towards green products and also for investigating the factors associated with the use of bags which can be recycled. The study's respondents were the students of university and the sample size of the study was 170. The findings of the study showed that the young customers of Malaysia exhibited optimistic attitudes for issues of environmental protection and also for the use of recycled bags. The highest predictor of purchase intention of green products was the perceived environmental responsibility which was followed then by social influence. The next predictor of this green purchase intention was the concern for self-image.

Sergio Silva et al., (2018) explored the impacts of environmental concern on the purchase of organic products in the retail sector. The current research study assessed the effect of the environmental concern on the retail purchase behaviour of the individuals towards the green products. The authors had conducted an exploratory research study which was quantitative in nature. Survey was done among 811 respondents.

Keith Edmund Ferguson et al., (2017) had done an exploratory research study regarding the perceptions of customers about sustainability. The authors of this paper had identified the intentions of the customers to buy products as well as services of sustainable nature and also the way it is associated with their experience, satisfied their expectations, norms of reference groups and also data given by the eco-labels. Hypothesis of the study was established through a mixed method approach through the performance of qualitative research for developing the model of theoretical consumer perceptions on the basis of TPB. The findings showed that the consumers of United States used the eco-labels for guiding their buying behaviour, had optimistic perceptions regarding sustainable products, exhibited a very strong desire for purchasing sustainable products and wanted to become better citizens of the society and the nation. Further,

the influence by the reference group was found to be strongest predictor of the consumer buying behaviour towards the sustainable products.

Smaeilpour, Majid and Rajabi, Azade (2018) explored the impact of the environment-friendly attitude on the perception of consumers regarding the usability of the product packaging. The authors had adopted descriptive survey and also correlation. The respondents were selected through simple random sampling method and the respondents were the customers of the big stores, Bushehr. The sample size was 385. Questionnaires were used to collect information for the study. The hypothesis of the study and the conceptual model was tested using AMOS software. The findings proved that the environment-friendly attitude of the consumers affected the sensitivity to reusability of product packaging.

RESEARCH METHODOLOGY

The study has been done among the respondents who purchased organic products in Chennai. The consumers of organic products are selected as respondents through the technique of simple random sampling and the sample size of the study is 100. Information needed for the study is collected with the help of a questionnaire. The tool used for the analysis of the data is Regression analysis. Scale was adopted from Stern, ET. al., (1993).

ANALYSIS AND INTERPRETATION

Model Summary

R	R Square	Adjusted R Square	F	Sig.
0.963(a)	0.928	0.920	114.564	.000(a)

a Predictor: (Constant), Environmental Concern Coefficients(a)

	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

	B	Std. Error	Beta		
(Constant)	.009	.156		.055	.957
The organic products are produced with methods which prove to be good for the environment.	-.129	.022	-.225	-5.972	.000
Techniques of organic farming do not degrade the environment.	.061	.026	.095	2.331	.022
Organic farming is also good for animal welfare.	.072	.037	.090	1.944	.055
I am ready to pay high prices for organic products as organic products do not affect the environment.	.185	.025	.347	7.392	.000
Pay higher taxes to protect the environment.	.101	.023	.148	4.413	.000
I am ready to compromise the conventional products that degrade the environment.	.193	.031	.284	6.167	.000
Organic production techniques are good for the health of the human and the environment.	.351	.046	.364	7.607	.000
No pesticides are used in organic farming and thus are not harmful for health.	.090	.029	.127	3.163	.002
In general, how dangerous do you think that the pollution of rivers, lakes, and streams is for you and your family?	.106	.035	.124	3.015	.003
Organic production helps to keep the atmospheric temperature in balance.	-.019	.023	-.030	-.843	.401

A Dependent Variable: Customer Perception

In order to find the statistical significance, focus was made on the 10 predictors of the Customer perception. Findings show that every statement of environmental concern factors was significant. The

Table also shows that among all the statements, eight statements were seen to have a high influence on the customer perception. The analysis done through regression exhibits that among environmental concern and customer perception. The coefficient value, R^2 , was found to be 0.928 through multiple regression, which shows that 92.8% of the environmental concern had an influence on the customer perception of the organic product purchasers.

In order to examine whether the value of coefficient (R^2) is significant or not, ANOVA was executed.

The F value so got was 22.553 which means $p < 0.000$. This finding shows that there was a significant relation between the environmental concern and customer perception of organic product purchasers. It is also reported that environmental concern is seen to predict customer perception of organic Product purchasers.

	Mean	Std. Deviation
The organic products are produced with methods which prove to be good for the environment.	3.65	1.029
Techniques of organic farming do not degrade the environment.	3.65	.914
Organic farming is also good for animal welfare.	3.66	.742
I am ready to pay high prices for organic products as organic products do not affect the environment.	3.77	1.109
Pay higher taxes to protect the environment.	3.66	.867
I am ready to compromise the conventional products that degrade the environment.	4.12	.868
Organic production techniques are good for the health of the human and the environment.	3.78	.613
No pesticides are used in organic farming and thus are not harmful for health.	3.40	.829

In general, how dangerous do you think that the pollution of rivers, lakes, and streams is for you and your family?	3.65	.687
Organic production helps to keep the atmospheric temperature in balance.	3.29	.913

The sixth statement in above table obtained a high mean score it indicates that for “I am ready to compromise the conventional products that degrade the environment”. And second high mean score for statement 7, shows that “Organic production techniques are good for the health of the human and the environment”. Statements 4 presents a third high mean score is proving that “I am ready to pay high prices for organic products as organic products do not affect the environment” . Fourth high mean score for third statement indicates that “Organic farming is also good for animal welfare.” and “Pay higher taxesto protect the environment”. Fifth high mean score for first, second and ninth statements reveals that “Theorganic products are produced with methods which prove to be good for the environment”, “Techniques of organic farming do not degrade the environment” and “In general, how dangerous do you think that thepollution of rivers, lakes, and streams is for you and your family”. Next high mean score is “No pesticidesare used in organic farming and thus are not harmful for health”. The least mean score for statement 10, “Organic production helps to keep the atmospheric temperature in balance”.

CONCLUSION

It has been concluded from the study that the environmental concern of the consumers has a positive and significant effect over their perception towards the organic products. This makes it easy to reduce the environmental degradation to some extent as the positive customer perception will make them to regularly pu4chase such products which eco-friendly in nature. It is also reported that environmental concern is seen to predict customer perception of organic product purchasers.

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ROLE OF ARTIFICIAL INTELLIGENCE IN E-COMMERCE INDUSTRY

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Abstract

Artificial intelligence has the capacity to collect and evaluate massive amounts of data and make actionable in various paradigm. This technology is now used in e-commerce to discover trends based on surfing, purchase history, credit checks, account information, and other factors. The information gathered is then used to provide personalized suggestions for each consumer. Google and Microsoft have already begun to invest in new AI projects. Many e-commerce companies have begun to use AI in various ways in order to better understand their clients and give a better customer experience. This article discusses the importance of artificial intelligence in e-commerce and how it may be used too many aspects of the industry.

Keywords: *Artificial Intelligence, E-Commerce, Machine Learning*

INTRODUCTION

E-commerce is way that provides purchasing and selling of various products on the internet platform. After payment of purchase order products has to reach to the customer within time. For this there is need of supply chain management. The supply chain is very important concept of E-Commerce which must be secure, continuous without any failure and fast. E-commerce is very aggressive tool for transportation industry. In current world E-Commerce is battling for more contribution towards creating and developing

Different strategies that can attract customer towards products. When supply chain is fully utilized functionally working then the cash flow is very efficient. Inventory is most important asset of company irrespective of whether company operated on small scale or on large scale. It is very necessary that product should deliver within time otherwise it may have risk of damage or spoilage of goods. Some advantages of successful e-commerce inventorymanagement:

Optimize the resources in the warehouse.

The fast response to the fluctuation indemand

Can identify the required amount of the inventory for everyitem.

Track all the record of sales data at anytime.

AI is starting to enter in all the fields of our lives. Artificial intelligence is everywhere from the selfcheckout cash transaction to very high security checkpoints at the airport. Many e-commerce starts to embed many different forms of AI to understand the customer requirement, behavior and provide better customer experience.

APPLICATIONS OF ARTIFICIAL INTELLIGENCE (AI):

Gaming

Artificial intelligence allows machines to compete with humans in games. Many strategic games, such as poker, chess, and tic-tac-toe, have AI implementation. Machines are given the capacity to consider a wide range of options based on heuristic knowledge. IBM's Deep Blue was the world's first chess-playing computer. Google's AlphaGo is another example. KeJie, the Go world champion, was defeated by an AI Go player.

Banking

AI application also lies in Anti-money laundering (AML). Money launderers hide their actions to increase their illegal money. This illegal is documented so well so as to give the illusion of legally earned money. Banking Industry across the world is shifting from traditional detection of AML to artificial intelligence based systems. AML AI detection system can recognize patterns to detect defaulters.

Expert Systems

Expert systems are artificial intelligence-based systems designed to tackle complicated issues in a certain subject. Expert systems are designed to provide advice, anticipate outcomes, provide alternative solutions, and aid humans in making decisions. Knowledge Base, Inference Engine User Interface, and ES are the components of ES.

Healthcare

AI application in healthcare lies in Diabetic Retinopathy Treatment, Medical Diagnosis, Risk Prediction and Automating Drug Discovery. For example, In Skin Cancer Treatment Sebastian Thrun's lab at Stanford released an AI algorithm which detects Skin Cancer with very high accuracy.

Vision Systems

Vision systems can understand, interpret, and comprehend visual input on the computer. For example- Medical experts use such system to diagnose diseases. Investigation experts also use the vision system to recognize the face of criminal with stored photograph given by the forensic artist.

Music and Movie Recommendation Services

AI based apps like Spotify, Pandora, and Netflix recommend music and movies based on the interests of users and their past choices. This data collected is then fed into AI learning algorithm to suggest recommendations.

Handwriting Recognition

The data are obtained using handwriting recognition software from text written on paper or on a computer screen. This programme then identifies patterns in handwriting, such as letter forms, and converts the input into editable text.

Intelligent Robots

Robots embedded with sensors such as sound, bump, pressure, heat, light and temperature can detect the physical data and perform the instructions by a human. They have efficient processors and huge memory to make smart decisions and exhibit intelligence. Intelligent Robots are also capable to learn from mistakes.

ARTIFICIAL INTELLIGENCE IN e COMMERCE: CASE STUDIES

Amazon

The application of AI and machine learning enhances the sale of Amazon drastically. Among most famous AI product Alexa is on the top. It helps to collect the training data sets for the algorithms are essential to Amazon's targeted marketing strategy. Recommendation system of Amazon uses AI to reveal the product in demand based on customer searches. Amazon's recommendation engine enhances the total sales by 35 percent

JD.com

To improve the efficiency of warehouse operation the renowned Beijing-based JD.com collaborated with Siasun Robot & Automation Co Ltd. They observed a drastic changes in supply chain system, not only it reduces cost of operation but also improve efficiency of delivery. The online order becomes 1.26 billion in 2015, which is almost double of 2014. Approximately 85% of order has been successfully placed. JD.com also has a mission to use Artificial intelligence to manual work which will reduce their number of employee from 120,000 to 80,000 over a decade therefore increase the profit margin

Alibaba

The founder of Alibaba believes that AI takes his work and dedication to supreme level. Alibaba doesn't left any stone un-turn as it has a list of AI services which include Tmall Genie, chatbot and Ali Assistant. It's chatbot processes 95 percent of customer inquiries, both written and spoken ones. According to Alibaba AI algorithms is very helpful in finding the best delivery route, which offers 30% reduction in travel distances and 10% reduction invehicle.

E-Bay

E-Bay sees AI as a way to maintain consumer interest and a competitive edge. The eBay Shopbot helps users easily find products that they are interested in using NLP. Also, customers can communicate with the bot via text, voice or by using pictures taken with their phone. Right now, machine learning is an integral component of eBay's business strategy.

ASOS

Fashion retailer ASOS continues investing in AI and voice recognition systems to influence buyer behavior. Also, it has already heavily invested in image recognition technology by introducing a visual search capability which allows the ASOS app to match users' photos with similar clothing sold online.

Rakuten

Japan's largest e-Commerce site, Rakuten, continues to invest in AI to better predict customer behaviors as it is critical to the eCommerce success. Right now, with their Rakuten Institute of Technology, they are able to analyze their 200 million products to forecast sales with a high degree of accuracy. Now they are also capable of segmenting buyers more accurately using real-time data. In Rakuten Fits Me app, they use Image-recognition technology with the objectives to improve customer satisfaction and sales productivity.

BENEFITS OF ARTIFICIAL INTELLIGENCE (AI) IN E-COMMERCE SECTOR:

Search has become more Customers Centric within Online Stores

It has been seen that due to lack of customer-centric search results in E-Commerce websites, a lot of users actually drop off. By making use of the AI tools and machine learning, search results can be significantly improved. Moreover, AI aided search results are also gaining prominence, that is luring businesses to provide a customer-centric experience. In this case, videos and images, such as logo, style and product are tagged, organised to provide visually relevant search for customers. Pinterest has utilized the image recognition software for the chrome extension. In this process, customers are able to search for images across the web as per the choice of the product.

Customer Experience has got more Personalized

In case of a personalized customer experience, Artificial Intelligence can be used in ECommerce portals for personalized experiences. This is possible by making an analysis of comprehensive data and accordingly, products are recommended.

As per the study conducted by Boston Consulting Group (BCG), retailers who provide personalized experiences have experienced around 6-10% increase in sales, which is two or three faster compared to other retailers.

Much Better Sales Processes

In the previous era, sales depended heavily on yellow pages and such conventional means to attract customer attention. However, sales processes have moved on a lot from those days and now retailers make use of different kind of digital platforms. Sales teams nowadays use AI integrated CRM systems that cater to customer tastes and preferences. Moreover, AI can answer customer queries, solve problems and even identify new sales opportunities.

Getty Images has effectively made use of integrated AI tools in order to identify data to get an idea of which businesses use images from the competition. Accordingly, the sales team of Getty Images lures more target audiences and woos new businesses.

Targeting Potential Customers

A huge customer base has its advantages as well as challenges. Due to the numbers, it gets a bit difficult for sales and marketing teams to track prospective leads. According to a study done by Conversica, around two-thirds of companies do not follow up on inbound sales leads. To resolve this issue, more and more E-Commerce companies are taking help of AI in order to track consumer behavior by observing their in-store behavior (using facial recognition software) and online customers through different offers.

Better and Efficient Logistics

Making use of Artificial Intelligence in logistics also ensures a seamless and efficient delivery process. Nowadays, warehousing uses automation to a great extent and machine learning algorithms are used for automated warehousing operations. Most of the E-Commerce giants, such as Amazon, Alibaba, eBay, and others are making use of AI to a great extent in the form of machine learning and robotics. It is expected that the speed and efficiency will be improved to a great extent and it will also cut costs to a great extent.

CONCLUSION

In end we can state that AI is on the ascent in the e-commerce business industry, in any case, it is still a long way from being flawless. E-commerce business firms keep on enhancing their AI instruments to more readily coordinate market request. They additionally accomplice up with different organizations to blend their abilities in AI and make more refined arrangements. It is believed that Artificial Intelligence will have an impact on transactions, customer maintenance, fulfilment, competency, and other aspects of online company. Simulated intelligence is transforming the way we shop and use the internet. The e-commerce industry's artificial intelligence revolution will result in a lot of new information science, machine learning, and engineering. AI-powered e-commerce will also create IT jobs to develop and maintain the frameworks and programming that will power those AI computations. In any event, the transformation of AI and internet business may have an impact on persons with a limited range of skills who may face joblessness in the next years.

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DIGITAL MARKETING AS A TOOL TO REACH MODERN DAY CONSUMERS

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Abstract

In this upgrading technology surrounded world, consumer's behaviour and perception towards the market and marketing also upgraded, the marketer needs to know the knowledge gap in between the existing consumer's perception and present consumer's perception towards the market, since the e-commerce is dominated by Digital Marketing, various new strategies utilized by marketers to understand and reach the modern day consumers, digital marketing is an online marketing technique in promoting the brands towards the prospective consumers according to their needs and wants, in this article, the researcher aims to analyse how marketers using digital marketing as a tool to reach modern day consumers, and testing its efficiency by analysing primary data collected through online questionnaire from various e-commerce consumers, by performing percentage analysis and t-test will show the exact need and importance for usage of digital marketing by marketers to reach the modern-day consumers, the sample will be collected only in Chennai city, by omitting other regions of modern day consumers, will be a limitation for this study. The objective of this article to find how effective is digital marketing in reaching the modern-day consumers, and is it able for consumers to reach all kinds of products and services through digital marketing or not.

Keywords: *Digital Marketing, E-Commerce, recent trends, modern day consumers, consumer perception, digital consumer engagement*

Introduction

As technology evolved the approaches in marketing also evolved, when traditional marketing was in practice, the marketers not able to reach the target consumers accurately, lot of resources were not utilized to its optimum in reaching the required group of potential consumers, when modern marketing practices came instead of traditional marketing, Digital Marketing plays an important role in finding, reaching and turning a prospective consumer into a regular customer, in this article the researcher analyse how the different types of digital marketing means i.e. E-Mail Marketing, SMS Marketing, Search Engine Optimization, Pay-Per Click, in attract and retain new and existing consumers.

Now-a-days many new entrepreneurs, marketers of MSME products using social media marketing as their primary tool to reach their audience, “digital marketing that is short, with music, humour and the use of social media influencers has a positive impact on both the Millennial and Generation Z consumers” (Alison Munsch, 2021)

Unlike traditional marketing, Product & Services can be easily verified and authenticated by the users (Consumers) with the help of company profile, product profile, reviews by various similar consumers, company certification, legality, everything can be easily checked in online marketing.

Objectives of the Research:

To know about the level of awareness towards digital marketing on modern-day consumers.

To find out how often digital marketing involves in day-to-day activities of modern-day consumers.

To analyse how effectively the digital advertising persuades consumers for consumer decision making process.

To find out whether digital marketing turns the audience in to a prospective-consumers or not.

Literature Review:

Gangadeep K Nagar & R Gopal (2014), “In this article the author analyses the features related to the buying behaviour of digital shoppers, consumer buying behaviour in respect of digital shopping was studied using different socio-economic variables. The researchers explain the drivers of consumers

Attitude and goal to shop on the internet, and consumers' perception regarding ease of use and usefulness. Conclusion derived from the analysis that assessment of consumer buying behaviour can contribute to a better understanding of consumer buying behaviour in respect of digital shopping”.

Kahlid Sheikh & Danish Khan (2021), “Advancement in technology infrastructure, internet penetration and access by the rural and urban people shows there is a great opportunity for online market in the future, it has been witnessed that the government support, FDI Investment, rapid internet penetration and young age population all these factors favouring e-commerce have wider scope in the coming years”.

Tahir Salim Zari (2021), “The researcher explores the importance of digital advertising in this competitive era, according to the researcher, customers prefer online shopping which is secured through digital payment, it is also concluded the demographical factors are significantly correlated and influencing the consumers purchase decisions due to digital marketing”.

Boulouiz Abdelwafi, Allovi & Guettaf Abdellcader (2021), “The researcher explains how the consumer buying behaviour have been transformed in the light of new trends in digital marketing, it has caused a radical change in the digital world of each of the companies, this by adapting them to a new way of doing business, which directly affected consumer behaviour”.

Man Lai Cheung, Guil Herme Pires, Philip J. Rosen Berger (2020), “The researcher reveals that interaction, electronic word-of-mouth and trendiness are the key elements directly influencing consumer brand engagement, then strengthening brand awareness and brand knowledge”

Blend Ibrahim, Ahmed Aljarah, Bashar Ababneh (2020), “The author interpreted that there is a positive relationship between social media marketing activities and brand equity, reflecting a large effect, moreover, the results show the context characteristics do not moderate the relationship among social media marketing activities, brand equity and purchase intention”.

Fathima Shahina & Vilani Sachitra (2021), “According to author, the consumers always try to find out more information about various products and services curiously to full fill their needs, the researcher concluded that mobile app marketing is the influencing medium for the consumer attitudes and acts as a mediating factor for the relationship between mobile app marketing and consumer buying behaviour”.

Mari Hartemo (2016), “E-mail allows an active, interactive and personalized communication fulfilling the preferences of an empowered consumer, E-Mail marketing can be used to empower consumers by sending E-Mails based on permissions, by making consumers active participants in the communication process and by making e-mails relevant for the participants”.

Geraint Holliman, Jennifer Rowley (2014), “According to the researcher, B2B digital content marketing is an inbound marketing technique, effected through web page social media and value add content, and is perceived to be useful tool for achieving and sustaining trusted brand status, content marketing requires a cultural change from “selling” to “helping”, which in turn requires different marketing objectives, tactics, metrics and skills to those associated with more traditional marketing approaches”.

Bin-yaw Shin, Chen-Yuan Chen, Zih-Siang Chen (2012), “The author concluded that a well-designed SEO strategy with the incorporation of social networking can effectively enhance the website’s visibility and exposure. Such a strategy will eventually contribute to overall site traffic and improve interaction with customers.

Methodology:

Online survey was conducted with a questionnaire created by Google Forms, 50 fully filled Questionnaire were collected online from respondents, and analysed with the help of SPSS, Frequency Distribution and One-Sample T-Test analysis was made on the data collected from the respondents.

Data analysis and Interpretation:

Table 1: Age of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 20	7	14	14	14
21-30	22	44	44	58
31-40	12	24	24	82
41-50	5	10	10	92

50 Above	4	8	8	100
Total	50	100	100	

Source: Primary Data

Table 2: Gender of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	26	52	52	52
Male	24	48	48	100
Total	50	100	100	

Source: Primary Data

Table 3: Decision on purchase based on Digital Marketing

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	39	78	78	78
No	11	22	22	100
Total	50	100	100	

Source: Primary Data

From the above table, majority of the respondents are aged between 21-30 (44%) Table 1, followed by age group between 31-40 (24%), Female respondents (52%) are slightly higher than the male respondents (48%) Table 2, It has been highly accepted by the consumers that they will decide over purchase based on Digital Marketing (78%) Table 3.

Further findings shows that majority of the respondents are PG Graduates (40%) followed by UG Graduates (22%), Students are the major respondents of the study (42%) followed by private employee (20%), the greater number of respondents are Unmarried (60%), the annual income of major respondents lies between 3,00,000 to 5,00,000 (34%) and 1,00,000 to 3,00,000 (32%), respondents living in Nuclear family (70%) is greater than Joint Family (30%)

It has been found that majority of the consumers experienced Social Media Marketing (49%) followed by Internet Browsing (39%) in their daily life, Smartphone is the prime device used by consumers for

browsing on Internet for online purchasing (64%), Majority of the respondents experienced Digital Marketing Frequently (74%) in their day-to-day life, 66% of the respondents prefer Social media marketing, E-Mail Marketing (20%) and Internet Chat Bots (14%) respectively for easy understanding of Digital Marketing in an effective way, and no consumers prefer SMS marketing, 90% of the consumers think Digital Marketing is better than Traditional marketing, and 80% of the consumers believe Digital Marketing is essential for maintaining Brand Image, It has been highly accepted by the consumers that they're seeing more number of Entrepreneurs in Digital Marketing (86%) than Traditional marketing (14%), Majority of the respondents are satisfied (84%) by the information provided in Digital Marketing.

Table 4: T-Test on the factors influencing Satisfaction Level of consumers on Digital Marketing

	N	Mean	Std. Deviation	Std. Error Mean	T value	Sig.	Rank
Trust Worthiness	50	2	.535	.0756	26.46	.000	1
Wide Option	50	1.82	.720	.102	17.88	.000	3
Satisfaction on desires and wants	50	1.86	.904	.128	14.55	.000	5
Query management	50	3.02	.999	.141	21.36	.000	2
Effectiveness of advertisement	50	2.24	1.001	.141	15.82	.000	4

Source: Primary Data

In the above T-test analysis (Table 4), the mean ranges from 1.82 to 3.02, Trust worthiness gives the most satisfaction level to the consumers (T Value = 26.46, Rank 1), Followed by Query Management (T Value = 21.36, Rank 2), Wide Variety of option available in Digital Marketing is preferred by Consumers as Third factor (T Value = 17.88, Rank 3), followed by Effectiveness of Advertisement (T Value = 15.82, Rank 4), in their Post-Purchase Behaviour of the consumers they get satisfaction on their wants and needs as Fifth Factor (T Value = 14.55, Rank 5).

Conclusion:

In the above research it has been concluded that Digital Marketing acts as an effective tool to reach modern day consumers, and it is predominantly proved that Social media marketing is giving a greater experience on Digital marketing to the consumers, when compared to other type of marketing, the consumers experiencing many new entrepreneurs in Digital marketing than Traditional marketing, consumers are highly satisfied by the information provided in Digital marketing, and it has been found that consumers will definitely made a purchase based on Digital marketing and marketers must improve the Digital Marketing strategies over SMS marketing, as it is least preferred by the consumers.

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CONSUMERS' BUYING BEHAVIOUR TOWARDS ELECTRIC VEHICLES (EV'S) IN CHENNAI CITY

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ABSTRACT:

In India, the pollution caused by the Carbon emission created numerous health problems to the people, and depleting the health of Mother Nature, so the people and the Government decided to change their commute from fossil fuel vehicles to Electric Vehicles, in this study the researchers explains how consumers' buying behaviour which includes post purchase behaviour towards Electric Vehicle. The researcher uses primary data and secondary data provided by the Government of India, Research Journals, articles, various top branded Electric Vehicle manufacturing companies. The major limitation will be the geographical location, the research which is limited to Chennai City.

Keywords: *Consumer Marketing, Consumer buying behaviour, Electric Vehicles, New trends in transportation*

INTRODUCTION

Transportation is one of the primary need now a days, due to jobs, personal works, tours and vacation, short trip, long trip, everyone required to travel from one place to another place for a reason unavoidably, but the mode of transport differs from person to person, rich can afford air travels, others might choose personal transportation or public transportation for their commute.

Though there are numerous mode of transportation present in one country, it must look into ecological and environmental consideration, earlier coal based commute was used, it was highly dangerous to the environment due to its air pollution from carbon emission, after that, petrol, diesel and electric mode of

Transportation was introduced in the country, it was much easier, less pollutant to the environment and faster when compared to earlier versions of commute.

Electric vehicles are becoming a new mode of transportation now a days, slowly people started using electric vehicles are their primary mode of transportation, the marketing used to approach and sell electric vehicles are called “Green Marketing”, it is a type of marketing which satisfies human needs regarding marketing of green products with the minimum impact to the environment. Marketing, packing, selling all done in an eco-friendly way is the prime motto of green marketing.

Consumer decision making process is of five stages, Need Recognition, Information search, Evaluation of Alternatives, Purchase decision, and post-purchase behaviour,

In the need recognition stage, consumers will initiate the initial self analysis of the basic need of the Electric vehicle in their life, whether it is used for personal life, or career.

In Information search, they will know more about what is Electric vehicle, how it is used, what are the merits and demerits, scope and future of this new and emerging market in India,

In Evaluation of alternatives stage, consumers start analysing the various alternatives and brands in the electric vehicles, based on their income, area of locality, service support, brand image, distance range covered in single charge.

Purchase decision stage, in this stage, consumer finally buying the product that they desired which satisfy their needs.

Post-purchase behaviour stage, the service support, maintenance over the vehicle, are checked by the consumer after the purchase decision was made, mainly the expectation vs reality is the primary thing in post-purchase behaviour, if the consumer’s expectation was fulfilled the consumer will be delighted and promote the product to others, if consumer didn’t meet out the expectation from the product, the product will have to bear the critics from those type of consumers.

Scope of Electric Vehicles in India:

As a growing market, EV plays an important role in changing the mode of transportation, “India’s EV is expected to grow at a compounded annual growth rate of 90% by 2030” (RBSA Advisors on Dec 1, 2021).

“The Ministry of Heavy Industries in India announced that 1,04,806 Electric vehicles have been registered in India till July 2021. In the last three years a total of 5,17,322 Electric vehicles have been registered in the country. Yearly growth of EV in India is nearly 23% in the year 2018-2019” (Business Today Aug, 2021)

Objectives of the research:

To study about the awareness of Electric vehicles among consumers

To know whether the marketing strategies are efficient to sell Electric vehicles

To analyse the satisfaction level among consumers regarding electric vehicles

To conclude whether consumers’ will shift their mode of transportation from fossil fuel vehicles to electric vehicles or not

Literature review:

Marcello Contestabile (2012) “*Electric Vehicles: A Synthesis of the Current Literature with a Focus on Economic and Environmental Viability*: A research concludes that the longer term uptake of EVs will depend heavily on progress in battery technology, to bring down costs and increase energy density, and on the provision of a suitable recharging infrastructure”.

Dash P. K., (2013) “*Potential Need for Electric Vehicles, Charging Station Infrastructure and its Challenges for the Indian Market*: India should invest in small scale reinforcements to manage the load issues locally rather than going for an enormous change. Home charging should be encouraged. Proper planning of place, population, traffic density and safety should be considered before implementing the massive scale charging infrastructure. The integration of activities within the energy and transport fields is important. Development goals through different innovative policies and programs, for instance, drivers of electrical cars are offered a financial consumer incentive, like tax credits, purchase subsidies, discounted tolls, free parking, and access to restricted highway lanes will help the market to grow”.

Philippe Lebeau, (2015) “*Conventional, Hybrid, or Electric Vehicles: Which Technology for an Urban Distribution Centre?*: Freight transport has a major impact on urban movement. Researcher explored the possible integration of electric vehicles in urban logistics operations. A fleet with different technologies

Has the opportunity of reducing the costs of the last mile. Researcher presented a fleet size and mix vehicle routing problem with time windows for EVs. The main contribution of the authors was considering the variability of the range of EVs. In the segments of small vans, EVs are often the most competitive technology. In the segment of large vans, diesel has seen the most interesting solution from a financial point of view as electric vehicles would need to cover a longer distance to be cost-competitive. Hybrid vehicles are chosen in the segment of trucks as its running costs and fixed costs are lower than the diesel truck”.

Fanchao Liao, (2017) “Consumer preferences for electric vehicles: Widespread adoption of EVs may contribute to lessening of problems like environmental pollution, global warming and oil dependency. However, this penetration of EV is comparatively low in spite of governments implementing strong promotion policies. They presented a comprehensive review of studies on consumer preferences for EV aiming to convey policy-makers and give direction to further research. They compared the economic and psychological approach towards consumer preference for Electric vehicle. The impact of financial and technical attributes of EV on its utility is generally found to be significant, including its purchase and operating cost, driving range, charging duration, vehicle performance and brand diversity on the market. The density of charging stations also positively affects the utility and promotion of EV. The impact of incentive policies, tax reduction is quite effective”.

Lingzhi Jin, (2017) “International Council on Clean Transportation: The early market growth for electric vehicles continues, but a number of barriers prevent their widespread uptake. These barriers include the additional cost of the new technology, relative inconvenience of technology considering range and charge times, and consumer understanding about the availability and viability of the technology. This last point, typically referred to as “consumer awareness,” is crucial”,

Mohamed M, (2018) “Study on Electric Vehicles in India Opportunities and Challenges: The replacement of ICE with electric engines will reduce pollution to a great extent and be profitable to consumers. Many countries have implemented this technology and are contributing to the improvement of the environment. The researcher saw the opportunities and challenges faced in India over implementing EVs. Opportunities like Government Initiatives, Batteries, Industries, and Environment have been considered. With these challenges like cost of EVs, efficiency of EVs in India and demand for EVs were taken into consideration. The implementation of EVs in India aims primarily to scale back greenhouse

Emissions and cut oil expenses. The govt. should make the foremost out of the opportunities available and find suitable ways to tackle the challenges”.

Pritam K. Gujarathi, (2018) “*Electric Vehicles in India: Market Analysis with Consumer Perspective, Policies and Issues*: Indian Scenario is different because the current market share of EV/PHEV is around 0.1%. Presently almost all vehicles consider fossil fuel-based transportation. These pollute the atmosphere by the emission of greenhouse gases & causes global warming. The gap between domestic petroleum production and consumption is widening. India imports around 70% of oil required per annum. Hence there's an urgent need to investigate factors and challenges for sustainable and cleaner alternatives”.

Masurali.A, (2018) “*Perception and Awareness Level of Potential Customers towards Electric Cars*: India contributes around 18% in transport sector alone in terms of carbon emission. The Electric Vehicle (EV) is one of the foremost feasible alternative solutions to beat the crises. Several automotive companies are introducing EVs and are expanding their portfolio. Promoting EVs can help reduce fuel dependence and pollution and beneficial for both consumers and the nation. The education of people has significantly higher influence over their awareness level on EVs. Apart from manufacturers, Government should strive hard to spread awareness and influence positive perception among potential customers”.

Pretty Bhalla, (2018) “*A Study of Consumer Perception and Purchase Intention of Electric Vehicles*: Choice of cars depends upon environmental concern, cost, comfort, trust, technology, social acceptance, infrastructure availability. These arguments have been tested for both conventional cars and EVs. They assume that these factors have direct influence on individual choice of vehicle. They found that EV manufacturers and Government have to invest more in social acceptance of the vehicle by creating more infrastructural facilities, putting more thrust on technology to create trust. The analysis depicts that the population is well aware of the environmental benefits. The responsibility lies on the shoulders of the Government and manufacturers to investing in the manufacturing of vehicles”.

Mr. A. Rakesh Kumar, (2019) “*Electric Vehicles for India: Overview and Challenges*: Global pollution is on the rise and each effort made, is to cut back the CO2 emissions and save the earth. One such effort is the introduction of EVs. The transport sector is one in all the largest emitter of CO2 and hence it's important to reduce it. The government has come up with ambitious plans of introducing EVs to the Indian market and confine pace with the event of EVs globally. The National Electric Mobility Mission Plan 2020 has included an in-depth report on the EVs. India encompasses a huge challenge in shifting the transportation sector from ICE engines to EVs. This needs lots of planning along with R&D. Charging

Infrastructure must be adequately build to deal with range anxiety. It’s vital to form demand generation by making all government buses electric and offering tax exemptions for personal EV owners”.

Janardan Prasad Kesari, (2019) “*Opportunities and Scope for Electric Vehicles in India*: Developing an aggressive strategy for the adoption of EVs in India and ensuring a well-executed implementation is a challenge but vital for government. The geography and diversity of India will present problems that require thoughtful solutions. Public procurement is expected to be an important driver of growth of EVs, with the purchase of four-wheeled vehicles for government offices, three wheeled vehicles and buses for public transport. Investments by fleet operators such as Ola and Uber, and operators of food distribution services, are also expected to boost the initial growth of two- and four wheeled electric vehicles. However, the private EVs may take 5-6 years to gain popularity and acceptance”.

Yogesh Aggarwal, (2019) “*Indian Electric Vehicles Storm in a teacup*: Users of scooters, who need only to travel short distances, may consider an EV, but those, who need to travel longer distances and already own bikes like a Hero Splendor, may find it difficult to move to an e2W. For cars, it is relatively simple to improve the range with increased battery size. For electric 2Ws though, every increase in kWh may provide an extra 30km in range, but the increase in weight is around 10kg, approximately a 10% increase in the total weight of the bike. This weight issue is even more pronounced in smaller bikes (less than 150cc)”.

Research Methodology:

The researcher uses primary data collected from consumers via online using Google Forms, a fully filled google forms was collected from 100 respondents, Frequency Distribution, analysis was made.

TABLE 1 AGE OF THE RESPONDENTS

CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
Less than 20	4	4 %
21-30	46	46 %
31-40	26	26 %
41-50	16	16 %
Above 50	8	8 %

Total	100	100
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From the above table, majority of the respondents are aged between 21-30 (46%), followed by age group between 31-40 (26%).

TABLE 2 EDUCATION OF THE RESPONDENTS

CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
School	4	4 %
UG	16	16 %
PG	40	40 %
Professional	36	36 %
Research Scholar	4	4 %
Total	100	100

PG Graduates are more in number of respondents by holding 40%, followed by Professional Respondents (36%), respondents completed school studies holding the minor value (4%)

TABLE 3 OCCUPATION OF THE RESPONDENTS

CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
Self-Employed	8	8 %
Govt. Employee	6	6 %
Pvt. Employee	52	52 %
Unemployed	6	6 %
Business	28	28 %
Total	100	100

Private employees are the major respondents in this research (52%), followed by respondents doing business (28%), Govt. Employee and unemployed holding minor value (6%) respectively.

TABLE 4 ANNUAL FAMILY INCOME OF THE RESPONDENTS

CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
Less than 1,00,000	4	4 %
1,00,001 to 2,50,000	38	38 %
2,50,001 to 5,00,000	38	38 %
5,00,000 to 7,50,000	14	14 %
Above 7,50,000	6	6 %
Total	100	100

It is clear from the above table, the annual family income of the respondents having an average income level ranges between 1,00,000 to 2,50,000 and 2,50,000 to 5,00,000 by holding 38% respectively,

TABLE 5 PREFERENCE OF VEHICLE OF THE RESPONDENTS

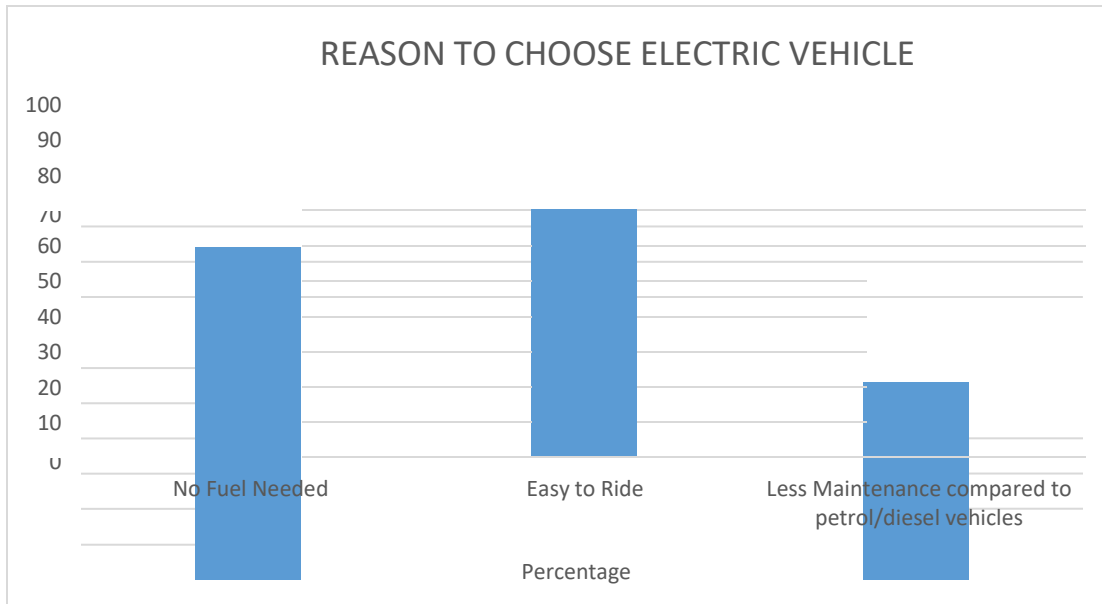
CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
Electric Vehicle	86	86 %
Petrol/Diesel Vehicle	14	14 %
Total	100	100

Majority of the respondents preferred to use Electric Vehicle instead of Fossil Fuel vehicles, from the above table, 86% of the respondents imprinted their preference of choice of vehicle in the upcoming years predominantly.

TABLE 6 DOES RESPONDENTS HAVING THEIR OWN EV OR NOT

CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
Yes	56	56 %
No	44	44 %
Total	100	100

56% of the respondents having their own EV Transportation, and the balance 44% of the doesn't have their own EV yet. **TABLE 7 REASON TO CHOOSE ELECTRIC VEHICLE**



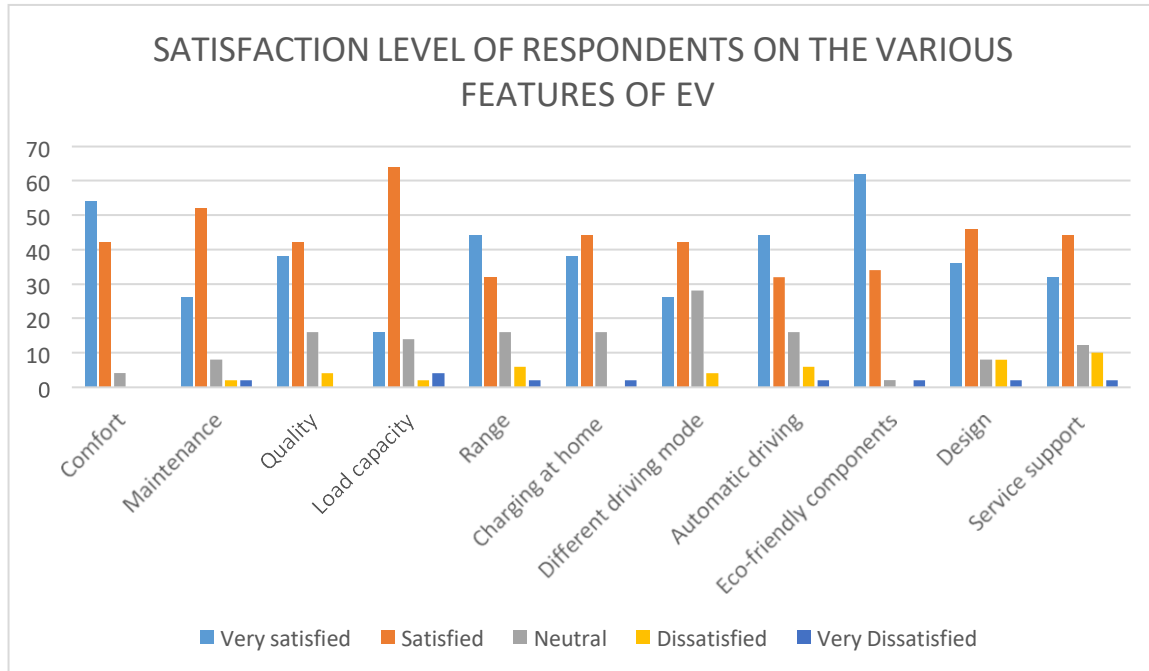
CATEGORY	NO. OF RESPONDENTS	PERCENTAGE
No Fuel Needed	94	94 %
Easy to Ride	72	72 %
Less Maintenance compared to petrol/diesel vehicles	56	56 %

From the above table, the respondents gave their multiple reasons to choose electric vehicle, in that, most of the respondents highly choose “No Fuel Needed” reason (94%) as their prime to choose Electric Vehicle over Fossil Fuel vehicles, followed by “Easy to Ride” reason by holding 72%, and “Less Maintenance Compared to Petrol/Diesel Vehicles” by holding 56% respectively.

From the above tables and findings, it is clear, that consumer are aware of Electric Vehicles, and its potential, uses, efficiency, majority of the consumers preferred to use Electric Vehicles as their primary transportation.

TABLE 8 SATISFACTION LEVEL OF RESPONDENTS ON THE VARIOUS FEATURES OF EV

CATEGORY	Very satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied	Total Respondents
Comfort	54	42	4	-	-	100
Maintenance	26	52	8	2	2	100
Quality	38	42	16	4	-	100
Load capacity	16	64	14	2	4	100
Range	44	32	16	6	2	100
Charging at home	38	44	16	-	2	100
Different driving mode	26	42	28	4	-	100
Automatic driving	44	32	16	6	2	100
Eco-friendly components	62	34	2	-	2	100
Design	36	46	8	8	2	100
Service support	32	44	12	10	2	100



Findings of the Research:

From the above table, the features of the Electric Vehicles are categorized and given to respondents to know about the satisfaction level of consumers, Load Capacity (64%) is the main feature attracted the consumers in buying Electric Vehicle, followed by Manufacturing by Eco-Friendly Components (62%), and Comfort while using Electric Vehicle as their primary transportation attracted consumers by 54%.

Features like Design (46%), Service Support (44%), Distance range per charge (44%), Automatic Driving facilities in Electric Car (44%), Different Driving modes available in E-Bike and E-Cars (42%), quality of the Electric Vehicle (42%), gave moderate satisfaction to the consumers while using Electric Vehicles.

Some of the respondents doesn't satisfied in the service provided by the Electric Vehicle manufacturer's (10%), overall, based on the satisfaction level, the following are the most important features of electric vehicles, Load Capacity, Eco-Friendly Components, Comfort, Maintenance, Design, Service Support, Range, and Automatic Driving.

Scope of the Research:

Electric vehicles is a new emerging market in India, many new studies are carried on over this topic, based on the consumer behaviour, technical feasibility, product differentiation, government policies, this research is based on the consumer behaviour over electric vehicles, which facilitates the marketers and electric vehicle manufacturers a wide view over how consumer's react to the EV's, whether they are ready to see EV around themselves in their area of living, what are the features consumers' primarily see in the EV's, area of improvement also discussed in this study, which helps the manufacturers to overcome in upcoming activities.

Limitation of the Research:

Time constraint is the primary limitation of this research, in a short period of time during the covid-19 and Omicron restrictions data was collected over Online, the area of research is limited to Chennai city, the consumers' perception will vary if the study conducts after some years.

Conclusion:

From the above research, the researcher conclude, that awareness about the electric vehicles are rapidly increasing now-a-days, majority of the respondents knew about the electric vehicles through their friends circle (40%), the informal communication plays an eminent role in spreading the awareness about Electric Vehicle, as from the findings of annual family income, consumers are ready to shift their primary transportation from fossil fuel vehicles to electric vehicles, irrespective of their income range, these days, consumers are moving towards more eco-friendly products to protect the mother nature, and their surroundings to help their future generation to live healthy and peacefully. Though many consumers are satisfied from the features provided by the electric vehicle manufacturers, they must keep on updating themselves in maintaining and improving the satisfaction level of consumers, from this research, marketers and manufacturers can clearly understand, some of the minor group of consumers are not satisfied in the service provided by the manufacturers, they must note this and rectify it in their upcoming activities.

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CLUSTER HEAD SELECTION ALGORITHM IN WSN USING MOPSO

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Abstract

The most important challenge in establishing sensor network is energy efficiency. Clustering has been demonstrated to be one of the well-organized methods for saving energy of wireless sensor networks (WSNs). Clustering shares networks into inter-related clusters such that every cluster has several number of sensor nodes with a Cluster Head (CH) at its head. Sensor congregated information is communicated to data processing midpoints through CH hierarchy in clustered locations. Therefore, the proper selection of CHs plays dynamic role to conserve the energy of sensor nodes for persisting the lifetime of WSNs. In this proposed method an energy efficient cluster head gathering algorithm which is based on Multi Object Particle Swarm Optimization (MOPSO). The algorithm is established with an efficient arrangement of particle encoding and fitness function. For the energy efficiency of the proposed MOPSO approach, it considers several parameters such as message overhead, redundant avoidance, and latency time. It present cluster construction in which non-cluster head sensor nodes joint their CHs based on lacking in originality weightiness function. The algorithm is certified expansively on various consequences of WSNs, changeable number of sensor nodes and the CHs. The results are associated with explicit surviving algorithms to validate the pre-eminence of the proposed algorithm.

Keywords: Wireless Sensor Networks (WSN), Clustering, CH-selection, Energy efficient Clustering, Multi Object Particle Swarm Optimization (MOPSO)

Introduction

Wireless sensor networks are involved in varied applications, for instance; in the field of perceiving of an atmosphere, disaster association, industrial process management, battlefield detecting etc. In WSN, the sensor node has the identifying and communication capability to sense the in effect environment for the desired information and disrespectful this data it to a base-station for ancillary dispensation. When the sensor node is associated, then it is not feasible to access it for renewing or interchange its battery. It

Means that the sensor node’s dynamism is limited and this requires manipulative such a type of procedure

(s) That supports the well-organized exploitation of the energy exist in in sensor node. The energy feasting of the sensor node in the preceding routing protocols organizes not optimum solutions which lead to a reduction in the lifetime of the WSN.

Clustering sensor nodes is one of the most effective techniques which is employed to conserve the energy of the sensor nodes []. In the process of clustering, the network is divided into several groups, called clusters. Each cluster has a leader referred as cluster head (CH). CHs are responsible to collect the local data from their member sensor nodes within the clusters, aggregate them and send it to a remote base station (BS) directly or through other CHs. The BS is connected to a public network such as Internet for public notification of the event. As an instance, the functionality of cluster based WSN is shown in Fig. 1.

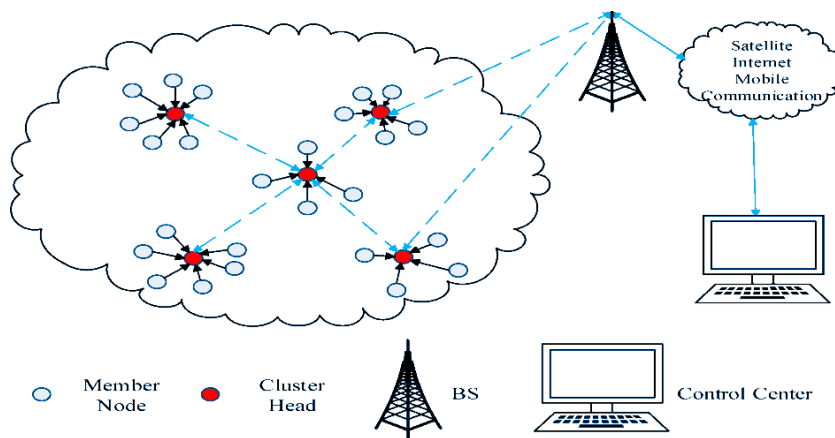


Fig .1 A cluster based WSN model

In WSN the sensor-nodes are divided into several groups, referred as multiple clusters, where the congregated nodes as cluster has functioned and accomplished by a particular sensor node, known as cluster head (CH) beforehand the clustering approach, every sensor node sends its information directly to BS, as there is no CH concept. The direct communication was very expensive in terms of energy consumption due to extended distance and redundant data [3]. The CH collects the data, eradicates redundancy from the data, aggregates it, and at that time sends it to the BS. This entire process suggests that the CH selection plays a main object in

improving the energy consumption of WSN. The traditional approaches for optimal cluster head selection are PEGASIS (Power-Efficient-Gathering-Sensor-Information-Systems), HEED (Hybrid-Energy Efficient-Distributed), LEACH (Low-Energy Adaptive-Cluster-Hierarchy) however, recent researches have demonstrated that these procedures have unsuccessful to select the “optimal” CH predominantly with multifarious optimization roles in WSN[3-11]. In this manuscript, an improved form of PSO is proposed, named “(MOPSO) Multiple Object based Particle swarm optimization”. The algorithm generates optimal solutions by minimizing the number of calling times of the CH selection process as an objective function. The proposed schemes for well-adjusted clustering scheme and replacement CH selection based on the maximum residual energy are cooperative in balancing the energy consumption of sensor nodes and thus persisting the network lifetime. Derivation of weight function for the formation of clustering scheme based on MOPSO is proposed to conclude the number of clusters and group sensor nodes into clusters evenly. Simulation of the proposed algorithm is demonstrating the efficiency over existing algorithms. In this way, the reduction of the number of calls for the CH selection algorithm causes the drop of energy exhaustion in sensor-nodes, which in turn leads to extending the lifetime of the WSN.

2. Related Work

The efficient utilization of energy consumption of the sensor-nodes in the wireless-sensor-network is considered as the main issue that seriously damage the network performance. Some of the heuristic approaches like

Ye M, Li CF, Chen GH, Wu J(2005) **EECS** [12] In this methodology in cluster formation phase to sense of balance the load among cluster heads. EECS started with cluster head election phase anywhere sensor node nearby participate for the cluster head established on their residual energy and constant number of cluster heads are carefully chosen. Merits: Saving its individual energy, Demerits: Location unaware.

Y. Wang and T. L. X. Y. and D. Zhang(2009) **PEBECS** [13] PEBECS allows cluster head of each partition to use multi-hop communication to transferral data between the cluster head or to the BS, excepting the cluster head of nth partition will not be able to relay the data. PEBECS to form clusters and divides the procedure into two phases. a. Cluster head election phase. b. Cluster formation phase. Merits: Prolong Network Life time. Demerits: Layer set as a gateway cluster head.

Gautam N, Pyun J-Y (2010) **DAIC** [14] Cluster head receives all the recognized data from the non-cluster-head and forwards it to the gateway cluster head of instantaneous upper layer.

Setup phase contain of network setup, direction-finding path construction and schedule establishment phase and steady state phase comprise of data transmission phase. Merits: Improve Network Lifespan, CH of partition to use multi-hop Demerit: Network Delay, Unaware location.

J. Chang (2010) **ECRA** [15] It includes three phases: clustering, data transmission, and intra cluster head. In clustering phase first nodes located nearby to their consistent centroid point become the cluster head. Data transmission phase: Cluster head aggregates the conventional data to a single message and transfer it to the base station using single hop. Inter cluster head rotation: base station intermittently rotates the role of a cluster head between member nodes of same cluster to achieve the load harmonizing. Merits: Balance energy in routing process. Demerits: Time delay for balancing.

Yu Jiguo, Qi Yingying, Wang Guanghui, Guo Qiang, Gu Xin(2011) **EADUC** [9] EADUC construct superior cluster size to cluster head placed far away from the base station and smaller size to cluster head more rapidly to the base station to balance the energy consumption among cluster head. Just like LEACH, EADUC divide the whole operation into rounds, where each round starts with setup phase and data transmission phase. Merits: Average residual energy. Demerits: Location unaware.

3. Proposed System

Proposed system presented for the optimization of energy consumption in WSN.

Energy model:

Energy is a significant factor, as every node needs significant energies for participating in data communication. The sensor nodes are battery-operated, the nodes use the energy supplied by the batteries, which leftover nodes are completely charged in the initial phase. Then, the energy is reduced gradually during data transmission time. Here, the transmission is Consider a homogeneous network of 100 sensor nodes and a base station node distributed over an area. Well-organized, energy-aware sensor network protocols are thus required for energy conservation. Every node has similar capabilities and equal significance. This motivates the essential for extending the lifetime of every sensor. Each sensor produces some information as it monitors its surrounding area. The clustering and the selection of cluster-head (CH) can be done by using any existing protocol like LEACH, such that cluster-head (CH) is maximum k-hop away from any node in cluster. After the formation of cluster the transmission power of all nodes is adjusted in such a way that they can perform single hop broadcast.

PROPOSED ALGORITHM FOR CLUSTER HEAD SELECTION

In this proposed work, *CH* plays an important role as it gathers the data from the further sensor-nodes, performs the different aggregate operations on them, and then sends it to the *BS*. In Efficient Cluster Head Selection Scheme for Information in wireless sensor network” (ECHSSI) approach, the cluster contains; Cluster head (CH) is responsible only for received data from the cluster members, it perform information collection process over the received data and then to the (BS), in case of CH energy below from average energy, cluster nodes gathering data from environment and send it to the CH. In case of LEACH the CH will die earlier than the other nodes in the cluster because of its operation of receiving, sending and overhearing. When the CH die, the cluster will become useless because the data gathered by cluster nodes will never reach the base station because of sensor node have resource constraint in the network. Therefore selection of cluster head become important, cluster head is selected based on the energy and that sensor node is selected as a CH (cluster-head). While processing of the Cluster head node the energy become reduce, so if the energy of CH is becomes below to the non-cluster head nodes energies then next round should be processed. In the next round, the subordinate cluster-head should be made as a lead while selection of cluster head for the first round, so no need to select the cluster-head for next round. ECHSSI re-clustering, reduce the overhead of clustering process, reduce the load over cluster head, and reduce the energy consumption within cluster in large-scale and dense sensor networks with the help of a approach consumes limited energy to send the data and also avoiding cluster set up phase and cluster steady phase. In Efficient cluster head selection scheme for data aggregation in wireless sensor network” (ECHSSDA) approach works in two phases namely: Cluster set-up phase and cluster steady phase same as a LEACH protocol. This proposes ECHSSDA approach works into rounds. Each round initiates with a set-up (clustering) phase when clusters are organized, followed by a cluster steady phase, the CH is always on receiving data from cluster members, aggregate these data and then send it to the BS that might be located far away from it.

ALGORITHM-I. PSEUDOCODE OF PROPOSED ALGORITHM

2. Set MOPSO Initialization nodes X_i ($i= N_1, N_2, \dots, N_n$)
3. Evaluate the fitness-value for each search

4. Find Node $X_i = (N)$
 5. Initialization sensor node $X_j (j=S_1, S_2 \dots S_n)$
 6. Find Energy $X_j = (S)$
 7. **IF** $S > \text{Average Energy Level}$
 8. Then select as CH
 9. **Else**
 10. Not suitable for CH
 11. **IF END**
 12. Update CH If a better solution is available in energy level
 13. CH == compare to next average energy X_j
 14. ()Find next **CH**
-

4. Result and Discussion

The proposed scheme is simulated with Network Simulator tool (NS 2.34). In our simulation, 100 sensor nodes move in a random manner shown in Figure 4.1. The methodology of the proposed CH selection algorithm considered the above mentioned objective functions. Energy of each node = 40 joules.

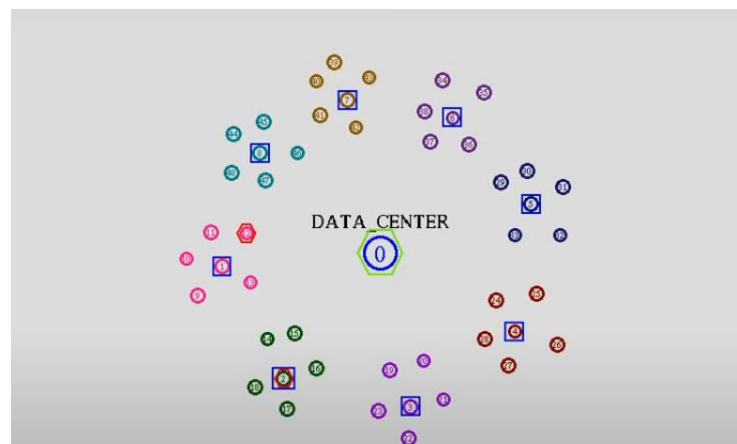


Figure 4.1: Deployment of Real field sensor nodes select in random

Table 4.1: Simulation settings and parameters

No. of Nodes	100
Area Size	1200×1200 m ²
The Initial Energy of the node	40 joules
Simulation Time	100 sec
Packet Size	512bytes
Mobility Model	Random Walk
Protocol	LEACH

The proposed system will test the architecture of 100 nodes randomly distributed over a target to evaluate how our algorithm would perform.

Packet Delivery Ratio:

Figure 4.2 shows the packet delivery ratio. In which equal nodes are implemented on a various range of regular intervals, the packets were transferred. Number of nodes vs Packet Delivery Ratio Usually, delivery ratio is the amount of successful message delivered in a network.

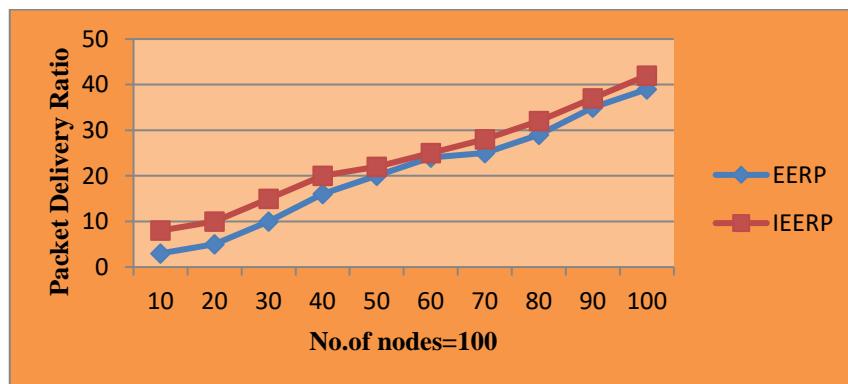


Figure 4.2: Packet Delivery Ratio Vs No. of Nodes

In order to enhance the packet delivery ratio the proposed system conceives the energy, data and communication trust, which can be developed among the sensor nodes. From the graph, it is understood that the proposed IEERP scheme accomplishes the greater packet delivery ratio as distinguished with the existing methods.

Packet Throughput:

Figure 4.3 shows the performance comparison of our proposed EERP with IEERP. In which equal nodes are implemented on two protocols at a various range of regular intervals, the packets were transferred. The above resultant graph shows compare to EEERP and IEERP increased in mobility.

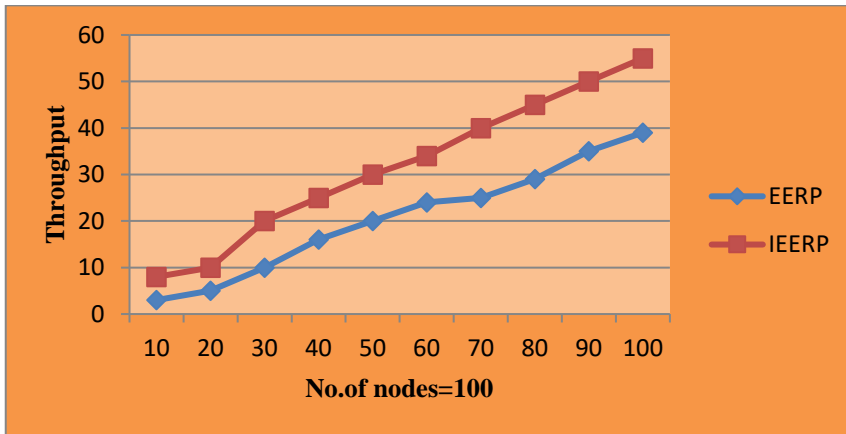


Figure 4.3: Packet Throughput Vs No. of Nodes

Usually, throughput is the quantity of successful message delivered in a network. On the evaluation phases during simulation, numerous throughputs were passed through the nodes and the results compared among the two protocols. In which the success rate on IEERP is fairer than the EERP.

End To End Delay:

Figure 4.4 End To End delay is one of the major issues in the efficiency of the protocol. The above fig 4.2 & 4.3 is simulated on different packet delivery ratio and packet throughput. The observation is done on packet transmission using IEERP with compare to EERP on finding the delay rate of the nodes. Comparing with others our IEERP is shown low delay rate.

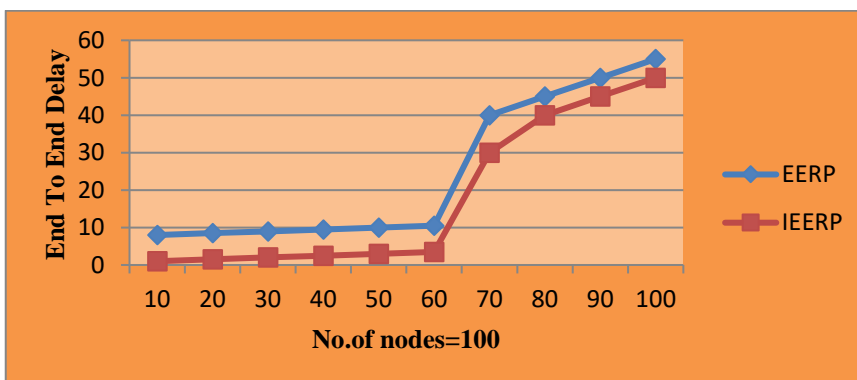


Figure 4.4: End to End Delay Vs No.of Nodes

End To End delay is one of the major factors that determine the efficiency of the protocol. The above fig 4.3 & 4.4 is simulated on different load variation and observations based protocols were plotted. The comment is done on packet transmission using IEERP with other protocols on finding the delay rate of the nodes. Comparing with others our IEERP is shown low delay rate.

5. CONCLUSION

In this paper, to calculate the energy efficient CH selection algorithm based on MOPSO using efficient particle presentation and fitness function. The simulation results along with the comparisons of existing EERP algorithm. The algorithm has been extensively verified with several scenarios and various cases of WSNs. The experimental results have exposed the proposed algorithm better than the existing algorithms in terms of total energy consumption, network lifetime and the number of data packets received by the base station. The simulated outcomes prove that the offered MOPSO approach is successful in efficiency of IEERP testing was done on simulation by comparing it with existing protocols known as EERP. Through various parameters like packet transmission, throughput and end-to-end delay with several nodes on compared among these three and results were designed. The obtained result shows that comparing EERP and IEERP proves its efficiency over different loads, traffic flow and security levels.

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CHALLENGES IN ARTIFICIAL INTELLIGENCE [AI] ADOPTION IN MARITIME BUSINESS

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Abstract

Artificial Intelligence has become a popular technology in this technological era. It is a wide ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. Artificial intelligences is taking up ahead in all technological sectors including maritime business. However, there are certain challenges in the adoption of artificial intelligences (AI) in maritime business which has to be explained further in the study. This study focuses on challenges in adoption of artificial intelligence in maritime business while e-commerce or shipping. This study is descriptive in nature, all of the necessary and relevant information was gathered from various publications, periodicals, and websites.

Keywords: Artificial Intelligence, shipping, e-commerce.

Introduction

With the new technology and advancement in the area everyday, the usage and importance of Artificial Intelligence (AI) has grown admirably. There are infinite users of AI; consider a sector, it can be manufacturing, distribution, transportation, academics, science, Information Technology, Telecommunication; AI has contributed and finds itself contributing towards each of those sectors. we will see how AI influences the Shipping Industry and the way resist this technology within the industry helps during achieving efficient operation and predictive capabilities in a better way of approach. Logistics is starting to become an AI-driven industry. With the utilization of AI, there is an excellent potential within the Logistics industry, more so within the maritime industry, to enhance through quality and speed by eliminating regular and tedious tasks.

Off late, the Shipping Companies have converted their ships into remote offices, which can, at sea; have internet access, route planners, email facility, networks for the captains to connect/communicate at the bottom stations, etc. These companies have acknowledged that faster communication of their vessels not only helps achieve completion of tasks but is additionally financially very sound. These Shipping companies can now invest in AI to scale back costs and optimise business processes. By using AI, large data sets are often processed, at a way faster pace than a person's intelligence are able to do. The more investment in AI, the larger are going to be the benefit in data analysis. The ship-owners that implement AI at the earliest are going to be at a plus thereto of the others.

The maritime business is an integral part of the transportation sector and therefore the overall supply chain management. Shipping moves goods across overseas promptly, driving the economy towards a progressive path. The quantity of goods that ships carry is large in quantity when compared to other transportation modes, offering very significant economic advantages. Dry bulk, containers, and oil tankers are three markets the shipping industry use to transfer the cargo.

Objectives

- To examine the need for adoption of artificial intelligence in maritime business.
- To analyse the challenges in adoption of artificial intelligence in maritime business
- To evaluate the ways to overcome the challenges in adoption of artificial intelligence in maritime business.

The need for adoption of artificial intelligence in maritime business:

1. Advanced analytics: Advanced analytics are wont to make important business ideas from many data sources. This may help to make sure that your decisions are supported data-proven methods.

2. Automated equipment: AI and automation play a task within the shipping industry. Machine learning capabilities will help within the analysis of historical data by considering such things as weather patterns or busy/slow shipping seasons. Automating processes can help identify problems before they happen. This allows time to form adjustments.

3. Safety and improved security: Accidents are often reduced using artificial intelligence. AI can also be used to detect threats and other malicious activities.

4. Route optimization: Route optimization would build optimization models to work out the foremost strategically route to require. With the assistance of AI, a prediction of the simplest path with minimum fuel consumption, and considering the weather are often calculated.

5. Performance forecasting: Performance forecasting could take the connection between speed and power to predict changes in performance due to underwater fouling.

Challenges in adoption of artificial intelligence

1. Poor Quality of Data: As an industry, there is always a requirement for shared data to form appropriate decisions. The industry must move alongside past the thought of competitive challenges around data sharing to profit all involved. The standard of knowledge within the sector also could hamper its adoption of artificial intelligence (AI) technologies within the business. The main aim would be to improve decisions through the supply of data-driven insights.

2. Lack of “Solid Information”: Farther the standard of knowledge would be the shortage of dependable information across the entire supply chain, which might also prevent its development. Analytic insights need sourcing from exact data. Data-driven decisions are only as right as their insights. Proper data collection and consistent data collection would be needed.

3. Fear of Job Replacement: There are possibilities that computers and technology will have an impression on the sort of jobs being created or replaced. The type of labor is probably going to vary when Artificial intelligence is fully adopted. Workers had to spend time on understanding and learning new technology in their workplace. The industry as an entire will got to keep pace with the innovations of artificial intelligence, the Internet of things, sensor technology, etc.

4.Transforming the Business through Digitalization will be a Process: Digitalization transformation may be a process. There will be time constraints, limitations, and development costs. The process will enhance ways of working smarter, simpler, and more efficient.

5. Lack of a Clear Strategy: Risks can be controlled when managing the method up to date. A transparent strategy may be a designed to line of actions to make a plus over competitors. It is essential to possess a clear and understandable strategy. Mastering clarity, goals, adaptability, and resources will make companies to show their strategy into success.

Ways to overcome the challenges in adoption of artificial intelligence in maritime business

AI has its own pros and cons. Despite the advantages, there are still barriers to the adoption of AI. Globally some challenges got to be addressed and overcome before moving forward and implementing AI. Most of this planning and execution are at its conceptual juncture, with a mission to achieve value and success, by implementing AI to the maritime industry, which will take the due course of time. Below are a couple of highlighted advantages of implementing AI within the maritime industry:

1. The AI empowers the shipping persons to model fleet management, use cases and highly possible predictive models with speed, depth and accuracy, which were not available in traditional methods. No prior data science experience required. Advanced strategies will be useful in highlighting downs and underperformance in the terabyte of data being generated by shipboard sensors.
2. Automating the recovery of relevant vessel operating information from a variety of sources, with advanced techniques, such as AI, allows owners of the shipping company to focus more time on safety and data-driven profits.
3. AI predicts and helps mitigate costs, time and supports the staff in assessing whether maintenance needs to be performed in the near future or can wait longer. It points out where, when, how and which assets on the vessel will need maintenance.

4. Factors such as weather, currents, and other potential problems are taken into account and then the most efficient route is recommended and this is made possible by refining the AI technology. AI software is in a position to predict the foremost easy-on-pocket and efficient route in terms of fuel consumption.
5. AI system uses high-resolution cameras and graphic processing unit to automatically identify vessels in the surrounding area. It is intended to assist improve the security and help stop large vessels colliding with smaller ones. Such image recognition technology might be wont to monitor shipping lanes, security and coastguard operations.
6. Navigation is one key area for the use of potential of AI in the shipping industry and a number of systems are currently in development. Some use elements of image recognition and tracking software, along with IoT connectivity. It is ready to recalculate routes during voyages when it receives information to mention there's a problem with this route. Autonomous vessel reduces the price of commodities and improves security of passenger ferries.
7. AI technologies are also being used to impersonate human sensitivity and cognitive abilities, through which user interfaces ship are benefitted, such as speech recognition directly helps in controlling types of equipment onboard.
8. AI is helping address risks associated with disrupted plans, be it hurricanes, a tsunami or terror threats that may stop the progress of the overall ship transportation.
9. A well built AI based application that provides cyber-security solutions, helps fight ransomware, malware, viruses and phishing scams, etc. It will help the company act on warnings of threat or failure, which can end in preventing downtime.
10. AI makes the concept of unmanned vessels come to reality. There are not any crew on-board vessels; where the technology is making decisions on route planning and hazard avoidance. Equipment like radar, GPS, cameras, satellites, sensors and LIDAR for the voyage, with AI systems used.

Conclusion

Artificial intelligence can deliver considerable benefits to the availability chain and shipping operations. Some advantages include less cost, reduced risk, elevated forecasting, faster deliveries through more optimized routes, and more. There will be a continued transformation of the industry. Those who take action and begin incorporating AI into their supply chains can build more efficient networks. This will, in

turn, free resources for shippers to invest in their products, teams, and technology. Digital change has its benefits for the port, supply chain, customer, and environment. The ability to maneuver swiftly between various cargoes is additionally essential.

INFORMATION SECURITY

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Abstract

Information is a data which is structured, processed and organized. Data is nothing but anyone's personal, professional, organization features, which is collectively called as information. Information security not only secures user data from unauthorized access but prevents data from disclosure, modification, unsecure access, hacking etc. Information can be of any type like personal data, organizations data, audio, video etc. Information security can be termed as "Sending sender's data to the receiver without intervention of third person". CIA, as the heart of information security, provides assurance of information security that is Confidentiality, Integrity, and Availability. Information security achieved through Risk Management - threats, vulnerabilities. Information can be in the form of electronic or physical. Non-repudiation, Authenticity, Accountability offers better information security. Cryptography techniques helps in information security in such a way that it converts user data in such a form that is not understand by middle one. Data is transferred in a coded form by using various cryptography algorithms. Authorized users will only be able to decode the data.

Keywords: Information, Data, Risk, Threat, Integrity, Confidentiality, Availability, Disclosure, Security.

Information is a data which is structured, processed and organized. Data is nothing but anyone's personal, professional, organization features, which is collectively called as information. Information security is not only securing user data from unauthorized access but preventing data from disclosure, modification, unsecure access, hacking etc. Information can be any type like personal data, organizations data, audio, video etc. Information security can be termed as "Sending sender's data to the receiver without intervention of third person".

CIA provides assurance of information security that is Confidentiality, Integrity, and Availability. Heart of information security is CIA. Information security is important part of cyber security.

Information security is termed as management of information risk. Prevention from unauthorized access of data, disruption, modification, devaluation of information offers information security. Information security gives assurance of access complete, accurate set of information by only authorized users. Information security protects the organizations intellectual property. Assurance of information security provides balance between controls and information risk.

Types of information security

1) Cloud Security

Running of application in shared environment is a cloud. Businesses should offer isolation between different processes in shared environment. It is creating and hosting of applications securely in cloud environment and consumption of secure third-party applications that are cloud in nature.

2) Application Security

Vulnerabilities in software's in web and mobile applications also APIs (application programming interfaces) can be found in code integrity and configurations, users authorization or authentication.

3) Cryptography

Data integrity and confidentiality is achieved by hiding data. Data authenticity is done through digital signatures.

4) Infrastructure Security

Protection of hardware resources such as internet, cables, devices.

5) Vulnerability Management

Network weak points scanning is vulnerability management. Scanning business network consistently reduces the vulnerability risk.

Security Measures for Information Security

Trained Security team appointment

Secured protocols should be used to maintain security. Security team should be aware about new risk points and preventive measures should be taken quickly and sharply.

Testing of Remote Access

Risk and security team be cautious while accessing applications of corporate type.

Security team confirm that all the standalone devices in the network having security measures installed on their devices like malware, antivirus, system patch.

Turn on the capabilities for security monitoring for visibility of wide operating environment

Security coverage area should be maximum up to remote areas. Security monitoring

Capabilities operating internally and management rules of log provides large visibility.

Tie Up with security vendors

Risk factors not only belongs to your home network. It may be a part of outside network that is not in the security coverage area of our internal team. In such conditions security vendor from outside network is required

Conclusion

Information is crucial part of everyone's life. Information security includes authorised access to data. Using soft wares and applications in secure environment will offer information security. Regular updates of software's, firewall protections, restricting malicious activities secures information. Day by day most of the data is communicated online, so information security now become a crucial task. If the data is handled by a single hand, the risk is low but if it is accessible to multiple area, there is always risk of data disclosure. If the device is connected to outsider network, there is high risk of hacking. To be saved from these issues, one has to take care of regular scanning, carefully sharing of data, communicating with the trusted parties only. These are just the measuring tools but the data can be hacked with the help of various ways. Use antivirus software for scanning files, allow only authorised users to access your network, regularly take knowledge of updating viruses, threats to overcome the upcoming risks.

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CSR PRACTICES & ARTIFICIAL INTELLIGENCE

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Abstract

CSR is focussed more and more by many companies. It is given high importance because of the need and benefits for the society, which is highly expected from business world. The companies that maintains a better welltodo strategy towards CSR have comparatively a separate identity and advantage. Though prices tend to be higher for goods and services of social-focussed and socially responsible concerns people show more attention to purchase them. Companies maintain CSR budgets to balance the paymentsfor CSR deficits. But due to various ups & downs, the CSR programs proves futile for many companies. Artificial intelligence can be used in such situations to gain efficiency and to handle the ups and downs. The main reasons for the failure or poor performance of CSR programs are due to the factors of deficiency in measuring process on impacts, the indifferent response of management in attitude and action towards CSR practices and improper integration of CSR initiatives and business techniques.

Key Words: Strategy, Social-focussed, Deficits, Efficiency, Impact, Initiatives

Introduction

In business scenario CSR attains a better place. A fruitful CSR approach by companies make them achieve a competitive benefit. Even when high price is quoted, still people show greater interest in getting the products and services of those companies which are giving importance to CSR initiatives. To equalize the trend, socially responsible companies plan their CSR expenditures in a prompt way. Due to various ups and downs, the influence of CSR initiatives carried out by companies do not satisfy their targets in accomplishing it. Artificial Intelligence strives to develop the efficacy and drop-down of the ups and downs. Because of the factors of not being accurate in measuring the effectual system, outlook and deeds of management towards CSR programs, the ineffective combination of corporate social responsibility with the business techniques, there is failure and improper implementation of actions pertaining to CSR.

Makeover of CSR initiatives with Artificial Intelligence

In the words of A. Kolk (2016), CSR is defined as activities that an entity engages in that go beyond legal compliance and to advance the overall wellbeing of society. The absorption of universe by digital pressure has transformed the CSR practices. Technology equips managers to adopt new techniques to capture society through the practices of corporate social responsibility. Many companies deploy Artificial Intelligence to simplify their actions and minimize their negative effect on the society. The Companies take initiatives on CSR practices so as to provide back to the society, concentrating on development in retaining employees and attracting employees, increasing brand image, settling risks and losses, minimizing the dues or liabilities for a better technical competitive advantage. When CSR gets connected with digital sphere, companies are in a position to adapt to difficult situations and are able to face challenges in a confident way. The adaptation allows companies to sharply and speedily deploy CSR programs that best fit the economy, and thereby supports the society in meeting its needs. Technology clubbed with CSR initiatives helps the firms to magnify its variety and scale of their social initiatives.

The modern era adopts big data and technology. Every action of the companies functions upon digitalization. The jobs handled by humankind are now lost because of automation and shall be wide so in the coming years. In respect of which newer kinds of jobs are expected to be developed and the scariness holds a large part of society because of digital division that demands education and proper sets of skills. The technological development balanced with plenty of data & inexpensive accessible computing capacity – Artificial intelligence is prompting business programs at all levels of the organization across industries. From increase of workflows to customer care development, AI involved services enrich business production. It is critical that companies consistently develop tools that provide support to managers to link business with CSR practices to optimize the entire value chain. A society can be highly benefitted because of AI but AI is very harmful also. AI system has to be built to be as exact as possible. It has to be accountable when any mistake is carried on, that is accountability and transparency also needs to be focused on while explaining for its decisions, especially when people's health and welfare are given the importance. For example, for a mortgage loan decision, supposing AI system is used, then a person who is denied the loan has the full right to know about the reasons for rejecting his loan sanction, in respect of which the artificial intelligence has to be forceful, strong and explainable one.

The AI tool should not be used for committing any fraud or it should be in contravention of any law instead it should be such that it must be in respect of the rule of law, or it should not be in contravention or breach of human rights like the right for livelihood, safety and freedom. The tool of AI must be to provide respect for human rights is given importance, or it must not be in discrimination based on caste, community, religion or gender. All things being equal, AI system must eliminate ups and downs, treat all people in equal manner, particularly in receptive tasks like job applications where senior jobs are for male and junior or lower jobs for female), crime policing, or judicial decisions like carrying on bail decisions on race basis, and should be free from racial or gender types. Hence, AI must be fair, just and conscientious. AI tool or system adopted must focus on ethical behavior and also to consider the respect towards the interest of stakeholders. Moreover with out the consent of individuals their photos or personal details should not be used in AI system and so the AI is expected to give importance to privacy of individuals and must be reliable. An AI tool needs to provide respect for international behavior and must be adopted in consideration of cyber-attacks too. It is important that AI needs to be adopted in consideration of security, safety and ethical.

Redefining Artificial Intelligence (AI)

Artificial Intelligence redefines the human-environment relationship by providing company-society interaction. The future is concerned about open technologies, liberal systems, adoption of free-thinking, and resource sharing to increase transparency and knowledge transfer. CSR comprehends the business operator's value of companies and ability to frame better results for various stakeholders. In consideration of the CSR initiatives, a better system can commend a programme approach and can devise a plan that aims to figure out and enhance a CSR program.

AI system enthusiastically, can examine & trace the upcoming trends and the worldly changes. It can also provide specific and multi-faceted performance measures of a CSR initiative against worldly accepted standards.

Artificial Intelligence tries to fire or minimize human unfairness in measuring the multidimensional value and in reviewing the material aspects.

AI can also traceout management unfairness, not being perfect and truthful, self-filling and also other management problems and can also provide suggestions.

Artificial Intelligence also finds out deceit, and tries to develop the controlling factor internally. Besides all these applications, a better and smart technology supports to identify the combination points of business techniques and CSR initiatives. Through this companies begin to combine the CSR techniques in the overall business activities.

Conclusion

The society is transforming towards becoming digital in all its possible actions. With the inclusion of smart technology better methods can be developed to contribute for the development of the society. Organisations are striving hard to combine the latest technologies in delivering CSR initiatives for the betterment of the society.

A COMPARATIVE STUDY ON ONLINE V/S OFFLINE SHOPPING OF ELECTRONIC PRODUCTS

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ABSTRACT

India's retail sector is one of the world's fastest growing. It is one of the country's economic foundations, accounting for around 10% of GDP. Millions of people use the internet to shop. The product, on the other hand, is being purchased from the traditional market for many years. Many customers prefer to buy offline so that they can check the product and take control of it only after paying for it. Consumer preferences vary based on whether they choose to shop online or in person. Both online and offline purchasing have their own set of advantages and disadvantages. Online shopping saves time and money by removing the need to travel long distances, increasing choice, and making products available 24 hours a day. It also provides significant discounts and allows for consumer feedback. Traditional shopping, on the other hand, allows customers to view items in person, which is not possible with online shopping. The findings may help bridge the gap between online and offline shopping. It represents the issues and elements in order to determine which shopping option is best from the customer's standpoint. The study examines the comparison of online and offline shopping for electronic products.

Key Words: Customers, Online, Offline shopping, product.

INTRODUCTION

The purpose of the study is to compare and contrast offline and online electrical product shopping. Its goal is to research customer purchasing habits as well as views toward buying things online v/s offline. Some people prefer to shop offline, while others prefer to shop online, and many people do both. During the data collection period, the study focuses on the consumer's decision to shop online or in traditional retailers. People, on the other hand, find online buying to be lot easier and less expensive than offline purchasing. The consumer must determine which channel is best suited to his demands and can meet thoseneeds. Online purchase behaviour and online shopping are other terms for the same thing.

Buying behaviour refers to the act of purchasing products over the internet using a web browser. Customers are aware of the benefits and drawbacks of online shopping as a result of the huge development in the number of users over the previous two years. Online shopping is convenient on days when we don't feel like leaving the house, but offline shopping is preferable if we want to thoroughly test or inspect items before bringing them home.

STATEMENT OF THE PROBLEM

The study examines the advantages and disadvantages of both online and physical shopping. We spend more time wandering around looking for products when we shop offline, yet we may not find anything. We encounter a slew of difficulties while shopping online, including quality, security, and additional fees. This research contributes to bridging the gap between online and offline shopping. The consumer studies show which option the consumer should choose in order to get the most out of it.

OBJECTIVES OF THE STUDY

1. To understand the satisfaction level of respondents.
2. To identify the purchase behaviour of the respondents with respect to electronic products.
3. To examine the elements that influence a consumer's decision to migrate from offline to online purchasing and from online to offline shopping.

REVIEW OF LITERATURE

Mohammed Rafiq, Heather Fulford & Xiaoming Lu., (2013). In this paper, we look at how to establish client loyalty in an e-commerce environment. In Internet retailing, it investigates the function of relationship quality (RQ) in the building of client loyalty. RQ is viewed as a disaggregated, multidimensional construct, rather than a global one, in contrast to previous research, and consists of relationship satisfaction (RS), trust, and commitment. Structural equation modelling is used to examine the influence of the different dimensions of RQ on e-loyalty based on an online survey of 491 Internet grocery buyers. RS, perceived relational investment, and emotional commitment all have a large and favourable impact on e-loyalty, according to the findings. Trust has a strong effect as well, although it acts through RS. The findings indicate that the disaggregated RQ model predicts e-loyalty better than the aggregated RQ model.

Rick L. Andrews Ourso and Imran S. Currim (2004) Using actual decision data from an online supermarket and traditional scanner panel data, researchers looked at behaviour differences between customers attracted to online buying and traditional supermarket shopping. The study discovered that, as compared to typical grocery shoppers, online shoppers prefer larger sizes over smaller sizes, screen more for brand names, screen less for sizes, and had stronger decision set effects.

Tony Ahn, Seewon Ryu, Ingoo Han(2004) investigated the online and offline characteristics of internet shopping malls, as well as their links to customer acceptance behaviour. In Korea, a web survey of 932 people was done in six retail malls. The technology acceptance model (TAM) was validated in this study for predicting the acceptance of Internet shopping malls. User acceptance, usefulness, attitude, and intention to use are all positively influenced by online and offline features.

Lenvin (2003) The ability to personally experience a product prior to purchase is an underlying reason in the preference for offline shopping for categories such as clothing, according to the study. Textiles and clothes, on the other hand, have found the most acceptance in online retail, and no other part of the industry has been as affected by the internet as retail sales.

RESEARCH METHODOLOGY

a) Sources of data

The primary data was collected through survey method and for this well designed questionnaire was carried out. Questionnaire mainly focuses on the comparative analysis of online and offline shopping.

b) Sampling unit

Sampling units are college students, business men, professionals and others.

c) Sample size

The sample size for the purpose of the study was 134 respondents.

d) Tools for data collection

Structured questionnaire was used to collect primary data.

RESULTS AND DISCUSSIONS

On the basis of collected data, it was able to get the following results by using proper tools.

TABLE 1 DEMOGRAPHIC ANALYSIS

	FREQUENCY	PERCENTAGE
Gender		
Female	82	61%
Male	52	39%
Total	134	100%
Age		
18-25	58	44%
26-35	40	30%
36-45	36	26%
46-50	0	0
Total	134	100%

Occupation		
Services	14	10%
Business	6	8%
Student	94	70%
Others	20	15%
Total	134	100%
Education		
Bachelor's Degree	100	75%
Master's Degree	12	9%
Any other	22	16%
Total	134	100%
Income		
Less than 15000	76	57%
15000-30000	38	28%
30000-80000	12	9%
Above 80000	8	6%
Total	134	100%
No of Online Purchasers		
Yes	100	75%
No	34	25%
Total	134	100%

TABLE 2-RATING THE QUALITY OF ELECTRONIC PRODUCTS IN ONLINE SHOPPING

Rating	Frequency	Percentage
Excellent	22	16.4%
Good	62	46.2%
Satisfactory	38	28.3%
Worst	12	9%
Total	134	100%

TABLE 3-LEVEL OF SATISFACTION WITH REGARD TO THE QUALITY OF ELECTRONIC PRODUCTS IN OFFLINE SHOPPING

LEVEL OF SATISFACTION	FREQUENCY	PERCENTAGE
Very dissatisfied	6	4.4%
Not satisfied	6	4.4%
Neutral	36	26.4%
Satisfied	64	48.5%
Very satisfied	22	16.4%
Total	134	100%

TABLE 4-PURCHASING OF ELECTRONIC PRODUCTS FROM ONLINE SITES

Online sites	Frequency	Percentage
Amazon	56	41.8%
Flipkart	70	52.2%
Snapdeal	0	0%
Any other	8	6%
Total	134	100%

TABLE 5-METHOD OF PAYMENT

Mode of payment	Frequency	Percentage
Cash on delivery	82	61.2%
Credit card	26	19.4%
Debit card	12	9%
Internet transactions	14	10.4%
Total	134	100%

TABLE 6-HOW FREQUENTLY ELECTRONIC PRODUCTS ARE BOUGHT ONLINE?

Frequency of buying	Response	Percentage
Frequently or at least once in a month	20	15%
Once in six months	44	32.8%
Once in a year	56	41.7%
Never bought online	14	10.4%
Total	134	100%

TABLE 7-WHETHER VISITED THE SHOP BEFORE MAKING THE FINAL PURCHASE OF ELECTRONIC PRODUCTS ONLINE

Visited the shop or not before online shopping	Frequency	Percentage
Yes	70	52%
No	64	48%
Total	134	100%

TABLE 8-REASON FOR CHOOSING OFFLINE SHOPPING FOR ELECTRONIC PRODUCTS

Reason for choosing offline shopping	Frequency	Percentage
Like to hands on	30	22.3%
Like to interact with others	30	22.3%
It is easier	24	18%
Time efficiency	24	18%
Others	26	19.4%
Total	134	100%

TABLE 9-REASON FOR CHOOSING ONLINE SHOPPING FOR ELECTRONIC PRODUCTS

Reason for choosing online shopping	Frequency	Percentage
Not a social person	4	3%
Time efficiency	30	22.3%
It is easier	44	33%
More products	40	29.8%
Others	16	11.9%
Total	134	100%

CONCLUSION

It can be concluded that sample members motivations for using the internet to shop were motivated by the desire to save time, effort, and money. Today's shoppers are less likely to shop offline because websites provide more features. More than 95% of Indians own a mobile phone, which allows them to effortlessly review internet sites from the comfort of their own homes. People have hypothesised that internet buying will eclipse traditional shopping due to the rapid rise of items and companies.

To summarise, we can see that people are still unhappy and believe that it is helpful for them at times.

People are also suffering from its negative consequences. Traditional methods are preferred over new Technologies by them. People are threatening to cheat, make fraudulent transactions, and so on. People don't think it's particularly trustworthy, and they can't rely on it completely for anything.

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IMPACT OF COVID-19 DURING PANDEMIC WITH REFERENCE TO TAMIL NADU

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ABSTRACT

E-commerce is a platform where every retailer can sell or buy products online using the internet. In this paper, the advantages and disadvantages, impact, and growth of E-commerce in Covid-19 are discussed. Also, how E-commerce has evolved all around the world, small businesses, start-ups are discussed. E-commerce led to a big development and got a successful message at last as survive. E-commerce leads the country's economy to grow their small start-ups to the big outcome. Most of the country's economy is being developed in COVID-19 only by E-commerce. E-commerce is showing better development in the market field and the Industrial field. One side of a market is based on E-commerce play vital role in electronic things. Only by E-commerce, there are two main advantages on E-commerce one side from marketing commodities and another side on industrial development products like mobile phones, laptops, tablets, etc. In this paper, the main impact of E-commerce during Covid-19 is discussed and the growth of E-commerce before covid-19 and after covid-19 is discussed.

Key Words: Covid-19, E-Commerce, Marketing, Start-Ups, Electronic.

Introduction

E-commerce is a platform where every retailer can sell or buy products online using the internet called E-commerce. E-commerce helps small start-up retailers to sell their products and how E-commerce is facing all those growths and advantages and disadvantages during Covid-19. Mainly, e-commerce played a vital role during the period of COVID-19. Comparing E-commerce from before of COVID period and after of COVID period, comparing these two high economic growths will lead by after of COVID-19. This is because of the growth of online business in various domains; some of the domains are Electronic Products,

Medical Products, stationaries, and so on. By this, we have seen all those advantages and disadvantages of E-commerce growth in Covid-19. Now we discuss the complete process involved in E-commerce in COVID-19.

Advantages of E-commerce

There are many advantages of e-commerce where it is playing a vital role all around the world. This is the main platform where it is being raised in all the fields like Marketing, Industrial growth, electronic growth, etc. By this, some of the major advantages of e-commerce are:

1. Business Growth

* The main impact of e-commerce is to develop all those small start-ups into ordinary start-ups to develop their functionality growth.

* Most of the start-ups have gone into the E-commerce platform because of COVID-19, which makes them develop their growth of the company at the topmost level for reaching more profits.

* In this pandemic commercial growth of the company is achieved only by e-commerce.

* Not only on marketing, but this COVID-19 has also helped electronic growth and made IT companies deal with e-commerce. Because of a pandemic, all consumers have started to purchase electronic appliances because of the pandemic.

This COVID-19 has gained great success in E-commerce.

2. Higher Conversation

* This pandemic has got most of the education websites to sell out their PDF in book format on a marketing platform.

* Many authors have written a book for free to use for the student, but this pandemic made all of them sell their PDF in book format, which made high conversation in the marketing platform.

* By this, all the authors have started to sell their ideas as books on E-commerce platforms like Amazon, Flipkart, etc.

3. This Covid-19 has driven E-commerce growth to 84% in the past four (4) years. These are the official results from the ministries of government and all around the policy of the world.

These are all most of the advantages of E-commerce in the COVID-19.

Disadvantages of E-commerce

There are also the advantages and disadvantages of E-commerce. Some of the main disadvantages of E-commerce are:

Some of the products from the online site is not safe to buy, and they cannot be bought online,

Some of the online sites that we are using is not safe and not secured,

Some of the sites will not deliver at the concerned time mentioned after the order,

Some sites are not secured to use online transactions,

Some sites are detecting a very large amount of tax for even a small product,

Data's that we are entering is not safe as possible.

These are all some of the advantages and disadvantages of E-commerce.

ADVANTAGES OF E-COMMERCE DURING COVID-19

During the pandemic period of COVID-19 there are some of the advantages of E-commerce they are:

This Covid-19 make the online economy grow to more than that compared to last followed years,

During Covid-19 E-commerce have got taken more place in a marketplace where all those have changed to become online retailers

The growth of retail purchases by 2016 in 5.6% but the growth of retail purchases by end of 2019 is jumped to 19% within two years of the pandemic,

Nearly 1.92 billion people have engaged with online retail nearly 277 million people are from Americans have started to buy from online,

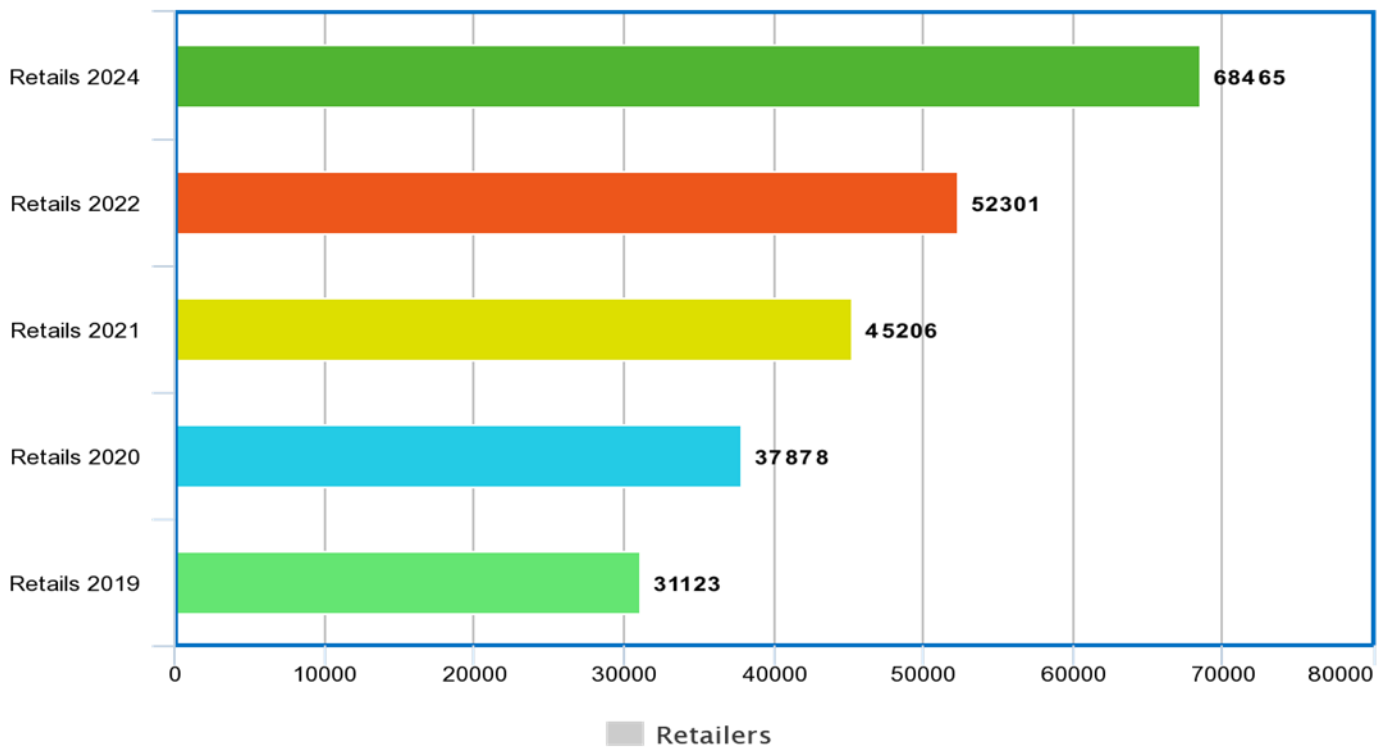
During this COVID-19, society has met many types of people and more amount of people involved in online retail.

Many domains are including E-commerce during the COVID-19, there are main and daily needs of things are being attained into the E-Commerce because of not facing each other during this pandemic. Because of this many daily needs must get into online retail marketing and raised their financial growth into the

marketing space. Some of the needs with sustainable growth are:

Needs	Growth
Food	36% by April 2020
Clothing product	23.7% (2018-2019)
Household Goods	48%
E-Commerce in the U.S	38%

The above-mentioned needs are respectively for our daily needs where they are being still alive in the market from starting of the Covid-19 and the growth is being compared from the last two years. By this, we have come to know about the various needs that have been raised in this covid-19. There are also some of the needs where they have been raised for their financial purpose at Covid-19 time. By seeing this bar chart, we can see the various needs and retailers who have got in E-commerce.



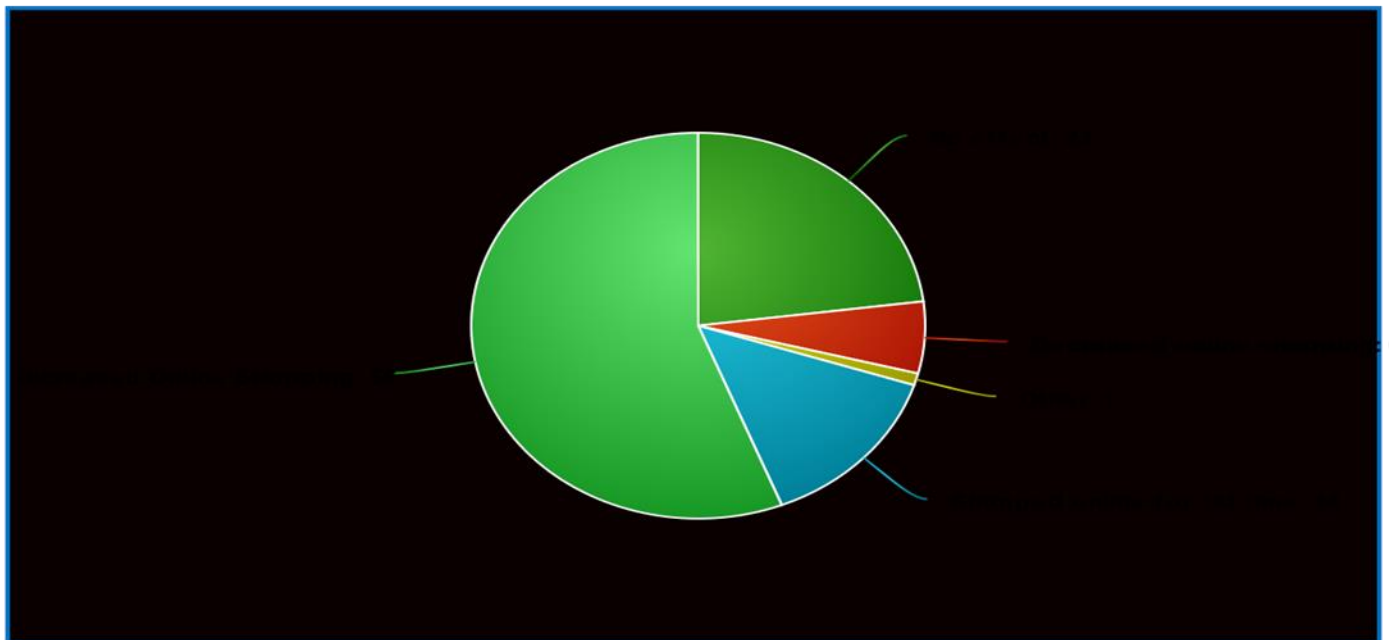
meta-chart.com

By this chart, we have come to know that E-commerce has played a vital role and it will play a vital role in the future.

Medical Products on Covid-19

During this pandemic, all those medical products have been developed by E-commerce where it has played a vital role where all those have medical products have played a vital role in sharing the E-commerce. Many of the retail stores are being closed because of the covid-19 pandemic. In this situation, E-commerce has played a vital role in sharing all these products online using the internet where it made E-commerce raised in the market level.

By sharing all those medical products, it made the system to be completely done online. Make complete business by online shopping. The system followed during the online system is followed still now for the economical purpose. And raised their financial growth.



■ No effect
 ■ Decreased online shopping
 ■ Other
 ■ Shopped online for 1st time
■ Increased Online Shopping

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This is the following of the advantage of E-commerce during Covid-19.

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A STUDY ON CUSTOMER PERCEPTION TOWARDS CHATBOT

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ABSTRACT:

Artificial intelligence (AI) is the ability of a computer or computer controlled robot to perform tasks associated with intelligent human beings. Chatbot or bot is a computer program that simulated a natural human conversation. Chat bots work by analyzing and identifying the user's request. Chat bots interpret and process user's words or phrases and give a quick preset reply. There are three important types of chatbots: 1. Rule based chatbots 2.Intellectually independent chatbots and AI-powered chatbots. Rule based chatbots uses a series of defined rules, chatbots deliver solutions to problems based on these rules. Rule based chatbots map out conversations. Intellectually independent chatbots are based on machine learning. An AI Chatbot is a bot that is powered by artificial intelligence. AI chatbots are able to understand user queries through natural language processing and can give intelligent answers to them. The traditional way of customer service falls short when it comes to meeting the ever increasing expectations of new age customers.

The traditional way of customer service falls short when it comes to meeting the ever increasing expectations of new age customers. The present study focus on customer perception towards chatbot. The study was limited to generation Z .Descriptive research was used and the study revealed that even though chatbots are multilingual and commits fewer errors than human assistance consumers prefer Human assistance over chatbots.

Keywords: Artificial intelligence, chatbot, Rule based chatbot, Intellectually Independent chat bot

INTRODUCTION

The standard to serve customers have undergone rapid pace in today's digital environment that it can be difficult for business to keep up. With the introduction of new platforms such as live chat, messenger apps and social networks, the number of messages and inquiries from customers has considerably increased. Using customer service bots, it is quite easy to provide better and prompt assistance at various touch points of the customer journey and to boost the level of enhancing customer engagement. But this doesn't mean that Chat bots are inevitable or so crucial, that they will make human assistance redundant.

SIGNIFICANCE OF CHATBOTS

Customer retention has become a critical factor for business growth due to the ever increasing choices and options. The soul of customer service is to fulfill customer needs. Though customer say they prefer waiting to speak with agents, but all customers expect quick response with less mistake and cost effective. In contrast to traditional customer service, chatbots is available round the clock. It is also not impressed by a high number of requests. A bot can easily process them all at the same time without ever being overworked. Chat bots offer wide range of application and are not limited to one Industry.

OBJECTIVES OF THE STUDY

To study the customer perception towards Chatbot

To understand customer awareness towards the functions of chat bot

To analyze Customer preference towards chat bot and human assistance

RESEARCH METHODOLOGY

The study is descriptive in nature

Primary data is collected through questionnaire

Sample size 50

LITERATURE REVIEW:

Sebastian Wollny (July 2021) Are we there yet? Chatbots on Education. Their study explains the possibilities of incorporating chatbots in education. In terms of scalability and accessibility chatbots offer unique possibilities for digital learning. The study throws light on the application of chatbots in the field of education.

Preethi Bhat, HarshaPariyani (May 2020) Literature survey on various chatbots. Their study concentrates on the functions of different types of chatbots. The paper explains how the chatbot behaving as a human conversational partner are designed to comprehend a conclusive human response.

Jeffrey Inscho (2017) Chat bots and conversational experiences. The study highlights design framework for chatbots, chat bot architecture, a bot's mission to make life better.

G Calderini (2022) Recent advances in Chat bots- The study explains the different fields in which Chat bots can be applied. The chat bot background is also explained in this study. A mention about social chatbots and its application is the highlight of this survey.

CUSTOMER PREFERENCE TOWARDS PLATFORM INCASE OF ASSISTANCE

OPTION	RESPONSE	PERCENTAGE
CHATBOTS	18	36
PERSONALASSISTANCE	32	64

INFERENCE- The answer from respondents as to which platform they prefer when they need assistance, majority of the answers supported the option , personal assistance. 64% was the preference level towards human assistance over chatbots.

2. AVAILABILITY OF CHATBOTS OVER HUMAN ASSISTANCE

1.

OPTION	RESPONSE	PERCENTAGE
Very Good	8	16
Good	18	36
Fair	24	48
Poor	0	0
Verypoor	0	0

INFERENCE- Most of the respondents replied positively about the availability of chatbot. 48% the population rated availability of chat bot as fair. Whereas 36% of the population rated availability of chatbots as good and 16% stated that it is very good.

3. LIKELINESS OFCHATBOTS COMMITING MISTAKES

OPTIONS	RESPONSE	PERCENTAGE
Extremely Likely	1	2
Likely	16	32
Neutral	16	32
Unlikely	17	34
Extremely Unlikely	0	0

INFERENCE-Majority of the population thinks that chatbots doesn't commit mistakes whereas few people were neutral to the question and around16% stated that chatbots are likely to commit mistakes

4. EFFICIENCY OF CHATBOTS OVER HUMAN ASSISTANCE

2.

OPTIONS	RESPONSE	PERCENTAGE
Strongly agree	22	44
Agree	11	22
Neutral	10	20
Disagree	7	14
Strongly disagree	0	0

INFERENCE- 44% of the respondents strongly agreed that Chatbots are more efficient than human assistance.22% of the respondents agreed that Chatbots are efficient than human assistance whereas 20% were neutral to the statement and 14% disagreed to the statement and None strongly disagreed

5. SPEED OF CHATBOT OVER HUMAN ASSISTANCE

OPTIONS	RESPONSE	PERCENTAGE
Strongly Agree	0	0
Agree	9	18
Neutral	10	20
Disagree	30	60
STRONGLY DISAGREE	1	2

INFERENCE - 60% of the respondents disagreed that Chatbots are not Faster than human assistance.20% of the respondents were neutral to the statement.18% of the respondents agreed that Chatbots are faster than human assistance.only 2% strongly disagreed to the statement and none strongly agreed to the statement.

6. COMPARITIVE ANALYSIS ON THE PERFORMANCE OF MULTILINGUAL CHATBOTS OVER HUMAN ASSISTANCE

OPTIONS	RESPONSE	PERCENTAGE
Strongly agree	30	60
Agree	10	20
Neutral	0	0
Disagree	10	20
Strongly disagree	0	0

3.

INFERENCE- 60% of the population strongly agreed that multilingual chatbox can help customer betterthan human assistance.20% agreed to the statement and 20% disagreed to the statement.

7. OVERALL LEVEL OF SATISFACTION TOWARDS CHATBOTS EXPERIENCE

OPTIONS	RESPONSE	PERCENTAGE
Highly Satisfied	25	50
Satisfied	10	20
Neutral	10	20
Dissatisfied	5	10
Highly Dissatisfied	0	0

INFERENCE- The overall satisfaction level of customers are rated as follows, 50% of the respondents stated that they are highly satisfied with chatbots. 20% are satisfied, 20% remained neutral and 10% stated that they were not satisfied.

FINDINGS:

- *Majority of the respondents prefer human assistance over chatbot
- *Maximum respondents stated that the availability of chatbot are more than human assistance
- *Most of the customers are of the opinion that chatbot makes lesser mistakes than human
- *Nearly 44% of the respondents agree that chatbots are more efficient than human assistance
- *60% of the respondents disagreed that chatbots are quicker than human
- *Majority of the customers are of the view that Multilingual chatbot are better than human assistance
- * The responses of 50% favoured human assistance and the other half favoured chatbot

CONCLUSION

When it comes to chatbots and human assistance, the study reveals that there is no clear winner. In certain situations, human assistance serves better while in some other situations chatbots can handle things with ease. The study reveals that chatbots can be viewed as an extension of the human customer support team,

Rather than a substitute technology. Human assistance are necessary to operate at higher quality levels, while chatbots can communicate with customers at the preliminary stage.

Operating with excellence is the ultimate aim of every forward looking organization. When the customer queries are over pouring in, a chatbot is the most effective solution. When it comes to true value in communication, chatbots beat real people. When it comes to quality conversations and establishing trust, a human agent is far more effective. The study draws the inference that a hybrid approach to chatbots and human assistance is acceptable to most of the organizations.

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ARTIFICIAL INTELLIGENCE FOR RESHAPING BUSINESS

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ABSTRACT

The paper discusses on relationships of AI and Machine Learning in influencing consumption pattern in sustainable development of business. This technique saves the money and improve the efficiency of business not without the grave consequences. The inability to identify or manage the risk may lead to delay in identification of its potential. We need to define the characteristics of AI and Machine learning to set processes and outcomes.

Keywords: Artificial Intelligence, Machine learning Value creation, Technology adoption

Introduction

The evolution of new technologies, with rising use of mobile and internet, while conversely financial crises and economic developments are also increasing, the change in needs and behaviors of customers creates demanding pressure to the world economics. In the

The Digital Age internet and mobile technologies preliminary, made corporations into opening their stores in cloud and web, to mobilize together with its customer base, drag governments into launching their e-government initiatives, financial institutions into presenting themselves in tablets, mobile phones and social media. The new type of business called e business with e signature, mobile banking, e-payments makes a enormous transformation in the business world. Contrary the amount of the information grows high in every single day led business environment to analyze big data and to react simultaneously with CRM systems.

The worldwide spending on cognitive and AI systems has been growing steadily for the past years with \$24.0 billion being spent in 2018. Such investment is expected to grow to \$77.6 billion in 2022 (IDC, 2019). In order to encourage further advancements in research on business applications of AI, which often require a multidisciplinary perspective, AI practitioners and researchers will benefit from a comprehensive knowledge about what has been investigated and applied in different business domains (i.e., from

Manufacturing to services) and in different disciplinary fields, such as marketing, tourism, management, sociology, psychology, and so on. Such a comprehensive knowledge will provide researchers a foundation to prioritize research foci and practitioners to guide effective investment in important aspects of AI for business.

II State of the Art of Business in AI

The “Artificial intelligence” [1] was founded as a field by John McCarthy, professor emeritus of computer science at Stanford University in 1956. He organized the famous Dartmouth conference at Dartmouth College, Hanover and started AI as a field. He had the belief that there will be systems which will evolve intelligence of human order. In 1973, Firschein and Coles [2] postulated a list of twenty-one hypothetical products that would result from the advances of AI by the 1990s.

Following all the real-world applications, we have a intelligent agent (IA) that interacts with the environment in a recurring cycle of sense-think-and-act. It explores the input data (big data) in order to learn correlations, extract features, detect similarities, and discover good depiction at multiple levels. Previously, the unavailability of data and efficient hardware was hindering the progress of AI. In the last couple of years, the accessibility of low-cost and low-power sensors has resulted in the production of a huge amount of data. An investigation of a list of dataset providers is done to elucidate the amount, diversity and accessibility of datasets available on the web.

Table 1. Broadareas of ML

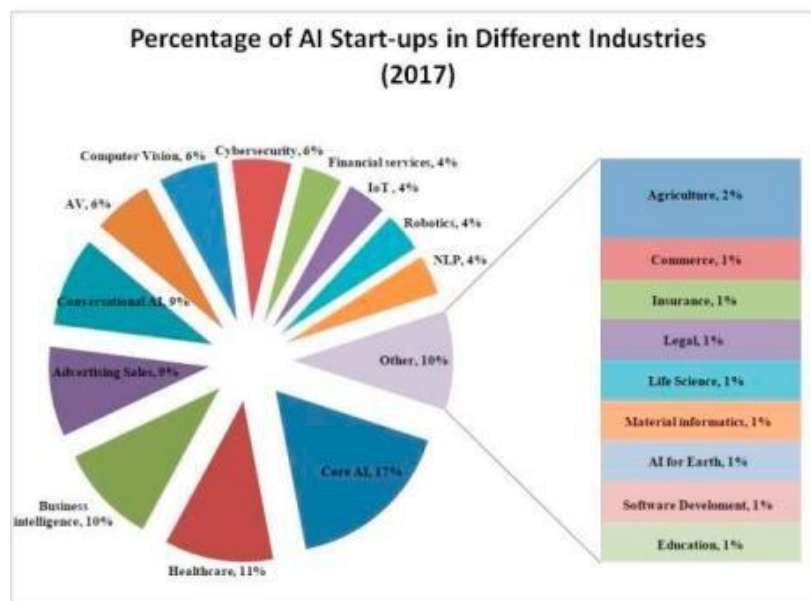
Broad areas	Description	Applications	Deep learning algorithm
Computer Vision	This area deals in making machines capable of analyzing and understanding images or sequence of images.	Face recognition, Image restoration, Computer-aided diagnosis (CADx), People counting, Gesture recognition, Iris recognition, Product defect , detection	Convolutional Neural Networks (CNNs)
Text Analysis	The area focuses on deriving high-quality information from the text data.	Information extraction, Question answering (Q/A), Search engines, Query Processing, Recommendation/ Personalization, Sentiment analysis, Document summarization, Fraud detection, Demand forecasting, Product search ranking, Translation	Gated-Recurrent Neural Networks (RNNs) (both Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU))
Speech Recognition	The area deals in making machines capable of responding to vocal instructions.	Speech-to-text processing Voice search and dialing	CNNs, RNNs, and their combination
Game playing	The area deals in making machines capable of playing games against humans and other computer agents.	Go, Chess, Atari	Policy Gradient Reinforcement Learning, Deep Autoencoder, Deep Q-Networks.

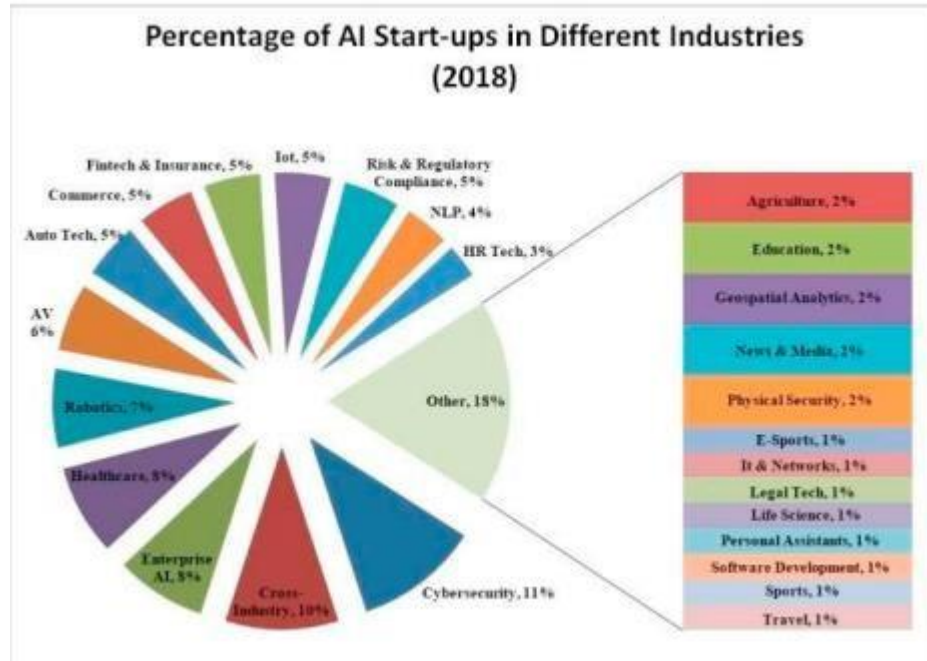
and successful applications in their area.

III Organizational impact of AI

The studies claim the importance of incorporating AI in organizational decision, project, and enterprise contexts (e.g., Danila, 1989; Jankovi, Cardinal, & Bocquet, 2015), and how AI transforms the nature of work and the employee-machine relationships (e.g., Li, Tang, Man, & Love, 2002; Kolbjørnsrud, Amico, & Thomas, 2017). Sousa and Wilks (2018) point out the importance of retaining critical skills for employees in organizations that use AI. These include complex problem-solving, critical thinking, creativity, people management, coordinating with others, emotional intelligence, judgement, and decision making, service orientation, negotiation, and cognitive flexibility. In sum, the papers suggest that AI will develop a sense of initiative and entrepreneurial capabilities inside the organizations. AI systems can develop persuasive communication with employees, capture the essentials of communication concisely to assist in promoting goods and services, formulate questions that contribute to solving problems, and stimulate curiosity

AI start-ups initiated pan world and categorized in 22 different fields including autonomous vehicles, business intelligence, healthcare, etc. Fig. 1. depicts the percentage of 200 AI start-ups (AI17 and AI18) in different lines of business which majorly covers all the fields where AI is showing its impact. It can be seen clearly that the spread of AI is all pervasive, from education to healthcare, from home to industry; there is no place where AI is not being used or explored.





IV Discussion and Conclusion

The present work demonstrates the achievements and the technological innovations of AI field. But the AI-driven products are proposed 48 years ago, proves that AI is not hype but has the ability of transforming the business and thus the global economy. This progressive growth and deployment of AI driven system is attributed to two major factors: big data and fast processing units (GPUs and TPUs). The work identifies four broad areas of deep learning (computer vision, text analysis, speech recognition, and game playing); preferred DL algorithm for each of them and various successful applications which have surpassed human-level accuracy.

AI is software and software is prone to vulnerabilities. Few of the deep learning algorithms are the pillars of AI which to require passing through multiple factors to be used for real-time applications. Identifiable systemic failure modes, repeatability, transparency, explainable, path tracing, penetrability, etc. are some of the major factors established at the time of assessment of software; even after passing through these factors, there exist cases where DL algorithms have produced unreliable results.

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A STUDY ON RURAL CUSTOMER’S SATISFACTION TOWARDS ONLINE SHOPPING – SELECTED VILLAGES OF TIRUNELVELI DISTRICT IN TAMILNADU

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ABSTRACT

In the modern age Online shopping is a biggest gift to shoppers. Now a days more and more people are shopping online all the time. It is true worldwide, not only in the Cities. Most people living in a busy schedule. So they feel uncomfortable and time consuming for going crowded markets. So, E-Shopping is a boon as it saves lot of time. when they need to buy something, they will usually opt for doing it over the internet, instead of going to a physical store. It saves them time, effort, and even money. Simply put, it's way more convenient for them to do it from the comfort of their homes than in a shop. And most people are always looking for ways to save money. During the pandemic, online consumption habits also increased in Rural areas. The purpose of this study was to assess Rural customer's satisfaction towards online Shopping at the Tirunelveli . A Total of 150 respondents completed the online survey of the study. Study results showed that Rural customer's Overall evaluation of their online shopping experiences were generally Negative. They are not satisfied with the online shopping . And Rural people Reported that they faced lots of problems in the E-Shopping experiences. .

Key words: Shopping, Online, Satisfaction, Rural customers

INTRODUCTION

A rural area is an area of land outside the densely populated urban areas in a town or city. Rural areas are traditionally areas not included in the urban definition, and are usually large, Open areas with few houses and few people, as opposed to urban areas which have larger Populations. India is a land of diversity and about 70% of the Indian population lives in villages. These villages contribute in the economic development of the nation through the production of food grains, vegetables, fruits, etc. Export of these agricultural commodities result in the generation of capital and earnings of foreign exchange.

Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser or a mobile app. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers.

With the advent of the internet, India has seen a kind of revolution in the online shopping market As many Indians are moving online – purchasing everything from apparel to furniture to dog food

To electronics to what not. The massive e-commerce boon has changed the way urban Indians Shop and is slowly but steadily changing the shopping landscape of rural India too.

OBJECTIVES OF THE STUDY

- ❖ To know the Specific reasons for which customers choose online shopping.
- ❖ To find out Rural customer's satisfaction level towards online purchasing.
- ❖ To investigate the various difficulties in online shopping.
- ❖ To identify the different payment and delivery systems preferred by the customers.

SCOPE OF THE STUDY

- ❖ To know which type of product prefer most.
- ❖ To know which features attract the customers in Rural.
- ❖ To find out the price category that customer prefer most.
- ❖ To find out the factors that influence consumers to not buy online.

STATEMENT OF THE PROBLEM

The biggest problem while buying things online is that you have no guarantee of a product's quality. It's important to go through the return policy while making a purchase. But most sites have vague return policies that can leave you with a low-quality product and no way to return it. The same applies for guarantees, as most sites don't clearly mention what the policy is for a product and then refuse to carry out replacements if you receive a damaged product.

Another problem is that the vast majority of the Indian population which lives in rural areas and Tier-III cities is unable to shop online because not all e-commerce sites provide delivery services to their locations.

Most sites have vague return policies that can leave you with a low-quality product and no way to return it. The same applies for guarantees, as most sites don't clearly mention what the policy is for a product and then refuse to carry out replacements if you receive a damaged product.

E-commerce sites record important customer data like name, phone number, address, and bank details. If these sites don't implement stringent cyber security measures, your data is at risk of falling into the wrong hands who can then wreak havoc on your bank account.

AREA OF THE STUDY

In this study covered only the selected village panchayat in Tirunelveli District.

SAMPLING DESIGN

The Researcher Cannot be able to collect the data from all the online customers in Tirunelveli District. As the population size is infinite 150 respondents are selected for this study. So convenient sampling are used to collect the data.

SOURCES OF DATA

Primary data were collected from the respondents with the help of questionnaire. After getting the questionnaire filled the data collected were analyzed and interpreted using appropriate tools. And collected the necessary secondary data pertaining to the study from websites and journals

Pros of online shopping

- Customers can shop anywhere, anytime as there are no geographical boundaries.
- There are a wide variety of items available for purchase

- Customers have the ability to compare prices and find the items that fit their budget
- It is also possible to buy second-hand items at a lower price
- Customers can easily send gifts to others via online shopping.

Cons of Online Shopping

- Customers don't have the chance to physically see or touch the items they order; sometimes, what they see in product advertisement may be completely different from the product that is delivered to them.
- Customers have to wait for the items they ordered to arrive
- There are delivery charges and chances of mishandling during delivery
- There is a risk of online fraud.
- Some websites and sellers may pose a threat to online security
- Overall, online shopping may be a dull experience

Table :1

Demographic Details of the Respondents

Variables	Category	Respondents	Percentage
Gender	Male	89	59.33
	Female	61	40.67
Age	Below 20	38	25.33
	20 – 40	76	50.67
	Above 40	36	24
Qualification	Illiterate	11	7.33
	SSLC	31	20.67
	HSC	41	27.33
	Graduate	67	44.67
Occupation	Student	45	30
	Salaried person	49	32.67
	Business		
	Agricultural	15	10

	House wife	15 26	10 17.33
Monthly Income	Below 5000 10000 – 15000 Above 15000	30 77 43	20 51.33 28.67
Online shopping websites	Amazon Flipkart Meesho Others	41 64 39 6	27.33 42.67 26 4
Preferred product	Clothes Home Needs Electronics Cosmetics Footwear /watches Kids Accessories Men Accessories Women Accessories	57 24 7 5 8 12 17 20	38 16 4.67 3.33 5.33 8 11.33 13.33
Specific reasons	Time saving Low prices Attractive offers Easy return and refund Various collections	47 44 26 11 22	33.33 29.33 17.33 7.33 14.66

Frequency of purchase	Monthly	13	8.67
	Only offer time	37	24.67
	Some time	49	
	When I need	51	32.66
			34
Mode of payment	Cash on delivery	86	57.33
	Debit card	49	32.67
	Online bank transfer	15	10
Is it safe to do online shopping	Yes	114	76
	No	36	24

DISCUSSION

1. The Table shows that out of total 150 respondents in the rural areas who use internet and visits various shopping sites, when considering the gender, 89 percent are men compared to 61 percent of Women. So it is very clear that rural men are more committed towards online shopping.

2. The age wise study shows that 76 percent comes under the age category of 20 – 40 which shows that the youngsters are more interested in online shopping compared to the old generation who still like to buy from the traditional stores.

3. The education wise study about the respondents shows that 7 percent non graduates, 20 percent are comes under SSLC, 27 percent are comes under HSC and 44 percent are graduates. It shows that education qualification have a Significant influence on online shopping behavior. Those who have graduated more Interested in shopping online compared to low educated people.

4. The occupation wise study shows that 45 percent are students, 45 percent of the people comes under salaried person, 15 percent comes under Agriculture, 15 percent are business class, and 26 percent are house wives.

5. From this study we know 8 percent buy monthly once, 37 percent buy only offer time, 49 percent buy some times, and 51 percent are buying when they needed.

6. Majority of the respondents 51 % are purchasing when they needed. They are not give importance to the online shopping. 57 % of the customers selected their mode of payment by cash on delivery.

7. From the above figure it is cleared that greater selection of the products is influencing the rural Consumer to goods through online shopping. Low price and time is another factor that Influencing rural consumer to buy goods through online shopping and also discount offer and Different type of deals are also influencing them to buy goods through online shopping. So from This we can say that people are having wide range of products and alternatives of the products are Also available to them.

Table: 2

Overall satisfaction level of the Respondents

Statement	Highly satisfied	Satisfied	Neutral	Dissatisfied	Highly dissatisfied
Information about the products	27	29	13	42	39
Collections and choices	41	37	05	40	27
Quality of the product	23	17	27	49	34
Price of the product	47	38	13	27	25
Time of Delivery	22	41	11	45	31
Return of defective product	30	33	21	39	27

Refundfor returned product	47	38	-	31	34
Attractive offers	24	34	17	40	35
Shopping Experience	29	27	-	49	45
Credit points	33	30	-	40	47

DISCUSSION

Table: 2 shows that the overall satisfaction level of the rural respondents. Majority of the rural customers are not satisfied with the online shopping. They recorded the information of the product is not true. The delivered product is not same as the model picture. Only limited collections are available there. Most of the time the quality of the product would be very poor. They disappointed in online shopping mostly due to goods not arrived at the right time. 62 percent of the rural customer's online shopping experience were generally negative.

Conclusion

When we hear the word 'shopping', we usually think of traditional shopping, i.e., visiting shops and buying goods from them. The main advantage of traditional shopping is that customers are actually able to see what they are buying before they make the payment. If they are purchasing a garment or shoes, they can also try them on. Moreover, customers can also take the items home with them on the same day, unlike in online shopping as the customers only see the products on the screen of the computer but they cannot touch nor feel... Online shopping scored poorly on timely delivery. And there is no possibility for bargaining. From this study concluded that the Rural customer's are not satisfied with the online shopping. The lack of trust and the fear of being fooled is one of the most discouraging factor that Affects online sales in rural areas. Rural consumers feels that the product available on online platform may be of inferior Quality, because they don't get chance to touch and feel the product. Many villages still don't have the facility of proper internet connection, which hinders them to purchase online.

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**TEA FACTORY-A STUDY ON CHALLENGES AND OPPORTUNITIES OF THE
FRONTIER INDUSTRIAL CO.OPERATIVE TEA FACTORY LIMITED – THE
NILGIRIS**

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ABSTRACT

The purpose of the study was to investigate the challenges and opportunities faced by the Frontier Industrial co. operative tea factory limited in Nilgiri. The study employed both qualitative and quantitative approaches. The main data collection approach was personal interviews, field visits, journals, statement reports. The nature of the study is primarily quantitative, descriptive and analytical. The phenomenal status is in loss because of various problems such as machinery in the production unit, so the production capacity is low. Automated machines can be implemented so the work of labor decreases in production units. Tea production increases when automated machines are used. Exporting can be initiated. As now indico tea factory only concentrates on production with insufficient machines and there is maximum use of laborers. There will be high availability of tea leaves but due to insufficient machines, factories fail to produce tea. All these challenges can be removed by the installation of automated machinery. As Nilgiri district is located on the border of Kerala and Karnataka states in India. Nilgiri powder has high demand in export.

Automated machines decrease the labor in the production unit and these laborers can be shifted to packing and export units.

Government should take in and consider to improve the infrastructure. In order to increase the financial status brokered system for marketing and selling can be stopped and direct exporting from the production unit to consumers can be implemented. Skilled labor can be brought, new strategies can be adopted.

Well experienced and skilled managers can be appointed this can further increase development. The new methodology can be adopted for improving income and demand.

INTRODUCTION

The frontier industrial co-operative tea factory Ltd was registered on 23.06.1981 and started on 27.07.1981. It commenced its production from 12.10.1986. The Area of operation of the factory has mainly relied on the patronage of the small tea growing members of the area.

The frontier industrial co-operative tea factory limited was started with 98 members of small tea growing members residing in the area of operation to improve their standard of living by paying an economic rate for the green leaves supplied by them. The factory is equipped with machinery for dual products in both (CTC) crush, tear, curl and orthodox types of teas. The cultivation became aware of the need for tea factories in this locality. They formed an association and approached the Tamilnadu government authorities in 1981 in order to implement their ideas.

AREA OF OPERATION

The area of operation of the factory is confined to erumad village and its hamlets of the Nilgiris district. (ie) erumad, kayunni, manathivayal, ayyankolly, cherambadi, kottoor, manalvayal, thaloor and kollappally revenue village. The successful running of the factory mainly relied on the patronage of small tea growing members of this area. The factory management has taken few steps to maintain the business and this includes providing manures, fertilizers, chemicals and coirbags to the tea growers who have a membership with this factory. The factory provides training facilities, demonstration classes and planting instruction as given by united planters association of India (UPASI) further the factory tries to encourage thrift deposits i.e. 10 paisa per kg of the tea leaves supplied. The main object of the factory is services-oriented rather than profit making

INDUSTRIAL CO-OPERATIVE TEA FACTORIES IN NILGIRIS

There are 17 tea industries co-operative in Nilgiris district, registered with the department of co-operative Tamilnadu. Out of these 15 are production societies and two of them are trading societies. There are 125 industrial co-operative tea factories with the membership of about 20000 small tea growers functioning in the Nilgiris district. The share of made tea production of INDCO factories continues about 17% of the total tea production in Nilgiris district. During 2019-

2020 the INDCO factories have purchased 4248854 lakh kgs. Made tea produced 1015380kgs and sold made tea to the sales value of rs.73431098lakhs.

The Tamilnadu small tea grower's industrial co-operative tea factories federation's popularity is known as INDCOSERVE was established as an apex organization in 1965 at Coonoor to help themembers of INDCO tea factory in Nilgiris district. This organization provides various services like warehousing facilities, input, marketing of tea, etc... Besides other activities, the INDCOSERVE is marketing SILVER MIST TEA.

OBJECTIVES

→ **PRIMARY:** Challenges and opportunities of factories Nilgiri

→ **SECONDARY:** (1) to know the infrastructure.

(2) To know employment opportunities.

REVIEW OF LITERATURE

Das Ashim Kr (2009) found in his study that the tea industry is being affected due to the absence of accurate estimates of the formulation of long-term industry wise action plans.

Jain Shweta (2011) identified some major factors as being responsible for India's poor performance of tea industry are high input costs, the old age of the bushes, unskilled labor, and lack of infrastructure, poor price realization, legal problems, outdated machinery, high fixed and labor cost, inefficient Tea Board, inability to compete with other tea producing nations in terms of price, quality, packaging, etc.; slow increase in world demand for tea as compared to the Subsequent increase in its supply, losing traditional international buyers and more inclination towards the domestic market in comparison to the international market.

Majumder Basu and others (2011) observed that strategies must be adopted to meet up the

Challenges in global demand for tea industry in India. They suggested promoting tea as a healthbenefit beverage to the nonconventional areas of tea in the world for an expansion in Consumption. Different types of tea products need to be developed for balancing the supplydemandchain for the end user.

Hazarika M and others (2011) found that the Indian tea industry is facing several challenges.

Nearly 50 percent of tea bushes in the plantations are more than 50 years old. This factor leads to a decline in productivity.

Roy S (2011) suggested modernizing the tea industry of Assam with a change in the technique of plantation, improvement of encouragement to the electronic tea auction and managerial Excellence.

Mahanta Devajit (2012) observed that tea growers in Assam did not give much attention to the marketing aspect as they always enjoyed a ready-made market for their product. Tea is sold by an auction system where only registered sellers, buyers, brokers and warehouses can participate in a particular auction. In the auction system producers do not take part in the selling process. The Auction system is one-sided operation where price determination is mainly controlled by the broker (Hazarika K, 2012). The broker fixes the price with the buyer that informs the seller accordingly. As a result, sellers may not get the actual price that is given by the buyer in the auction system which affects the profit margin in the tea industry.

Goowalla H (2012) studied on Labor Relations Practices in the Tea Industry of Assam. He pointed out that the tea industry in Assam has long been neglecting the human aspect of the Organization. He emphasized the human aspect in order to produce extraordinary results in a competitive scenario.

Anil P.V (2013) observed that India occupies the last position among the major tea producing countries regarding yield per hectare apart from exceptional geo-agro-climate situations that have created unique conditions that are very suitable for growing a super fine quality of tea. The average tea yield among the major tea producing countries is 2235 Kg/ha, whereas it is 1693 Kg/ha in India. Future prospects of the tea plantations may be jeopardized due to various constraints and weaknesses if due attention and appropriate measures are not taken in time.

Arya Nizara (2013) found that Assam Tea had lost its competitive edge in the market due to price rise. Over the last few years, the tea industry is facing problems as the land for tea plantations has not grown much while the workforce has multiplied enormously which indicates a vast

Surplus of labor in tea gardens. The industry needs transformation through low prices, incorporation of small estates and cooperative management

Nath Anantha and Dutta Ajoy (2015) analyzed the productivity for black tea production in Assam. One relation has been suggested between total productivity and partial productivity. Only three years of data have been considered in the study and found that labor productivity and in the study and found that labor productivity has a major role in total productivity.

METHODOLOGY

The study is based on primary data collected through structured questionnaires, personal interviews, and field visits. The secondary data was gathered from related literature published in journals, newspapers, books, statements, reports. The nature of study is primarily quantitative, descriptive and analytical. The productivity accounting model used for the study. I have used Stratified random sampling. There are 17 tea industries co-operative in Nilgiris district. The Average number of workers includes 510.

THEORETICAL FRAMEWORK OF THE STUDY TEA FACTORY PRODUCTION PROCESS

Spreading the leaf on Withering Trough:

The collected green Leaf is spread upon the withering trough while spreading due emphasis is laid upon to remove source and old dried leaves so that it will help to minimize the presence of stalks and help in producing fine tea.

Withering:

The process of withering involves partial removal of moisture from fresh leaves and is carried out in order to condition the leaf physically for subsequent processing. Besides, some chemical

Changes also take place during withering and these are independent of the physical process. Thus, withering involves (a) Physical wither and (b) Chemical wither. While the physical wither can be completed even in 3-4 hours, however for completion of the chemical wither, a period of 12-16 hours is required as such the withering trough can't normally be used more than once a day.

Withering is carried out either by Natural Withering or by through the withering system. The green leaves that are spread upon the wire mesh of a withering trough are charged with cold and warm air through an axial flow fan so that the moisture content is reduced to the desired level.

Generally, the level of reduction in moisture depends upon the grades and quality of tea, which is to be manufactured.

Rolling / Rotorvane:

The withered leaves are rolled to rupture the leaf cells and release enzymes and to give a twist to the leaf. It is achieved by processing withered leaves in Rotorvane. During rolling operation chemical changes among the principal constituents of leaf start as soon as the juice of leaf is

Squeezed out in contact with the air. The chemical changes are caused by the enzyme present in the leaf. The enzyme brings about chemical changes but it does not change itself generally, leaf is rolled in Rotorvane before being sent to further processing.



Operating on C.T.C Machines:

After the leaves are rolled, they are put into the C.T.C machine (i.e. cutting, tearing and curling machine). This machine cuts the leaf into uniform size with maximum cell distortion leading to quicker and more even oxidation during fermentation. The C.T.C machine is composed of two rollers rotating in opposite directions at an arranged speed. The speeds of the two rollers are different, one of the rollers is fast rotating at a speed of around 675 revolutions per minute, whereas the slow roller rotates at a speed of 60 to 73 revolutions per minute. Generally, a constant clearance between the rollers is maintained. The roller segment is in sharp condition, which cuts the leaves three times. During the process, it is specifically seen that leaves are not heated as it destroys briskness and quality.



Fermentation:

After processing in the C.T.C machine the leaves are fermented. Fermentation of the tea leaf is a very important process in Tea manufacture for briskness, strength, color and quality largely depend upon it. Duration of fermentation varies according to the rise and fall of temperature. A temperature of 76°F to 78°F represents the ideal temperature of the fermenting room and it takes roughly between 1 to 2 hours in the fermenting process. The leaf processed in C.T.C is spread on the fermenting floor or fermenting bed of the fermenting machine. Generally, they are spread at a thickness of half an inch. Fermentation begins as soon as the juice of the leaf comes into contact with the air enzyme present in the leaf, causing chemical changes among the constituents of the leaf cell such as catechins (polyphenols) and caffeine. When the leaf becomes bright red in the fermenting room it is the best time to transfer to the drying room for firing.

**Drying:**

After the requisite level of fermentation CTC leaf is transferred to the drying room where the leaf is fed on the trays of mechanical dryers and fermented leaf is fired at an inlet temperature of 200°F to 220°F to arrest the fermentation process and to remove additional moisture present. The exhaust temperature is 120°F to 135°F. The thickness of the spreading CTC leaf is one fourth of an inch. The fair revolution of the quality drying machine should be 350 and the tray speed is 200. The final moisture contained in the tea is kept at around 3%.\

Sorting:

The sorting process of the CTC leaf is very simple. At first tea is allowed to pass through the sorter for separation of grades, during this process tea is also made free from any foreign material, fiber and other proper grading which depend largely on size (granule) of tea. After grading tea is packed in tea chest/jute bags of standard size and sent to the auction center.

LABOR FORCE IN THE FACTORY: CLASSIFICATION OF WORKERS:

Workers are classified as

- ❖ Permanent workers
- ❖ Temporary workers
- ❖ Casual workers

SHIFT TIMING FOR WORKING:

8.00 AM-5.00 PM

5.00 PM-1.00 AM

1.00 AM-8.00 AM

WAGES TO WORKERS:

- Daily wages are given to workers. Dearness allowance, Yearly Bonus, Uniform and Increments are given for senior Workers. Gratuity is provided to Permanent Workers at the time of Retirements or Designation 12% of wages is contributed to the Employee Provident Fund (EPF). The same percentage of the amount must be provided by the management to the Workers. This amount is divided into: 3.67% EPF 8.33% for Pension scheme
- Various Insurance schemes such as Medicare Insurance which is a reimbursement Scheme for Medical Expenses of workers and an Insurance which is Family Benefit Fund (FBF) for compensation in the case of the sudden death of any worker

FINDINGS

- ❖ Rotorvanc and CTC machine working capacity is 1000kg, fermentation 4000kg per day. As the amount of tea leaf from the tea grows is high due to only 1000kg capacity they obtain only a limited quota of the leaf from each tea leaf owner. It directly affects production.
- ❖ As there is no exporting and the marketing is done by brokers it plays a vital role in

Decreasing the demand and profit.

- ❖ Poor infrastructure of the factory of the production
- ❖ Usage of labor is high due to poor infrastructure so that the percentage of the wages given is high
- ❖ Marketing is done through broken so the stakeholder does not get the high project. ❖

And according to the financial statement analysis, the factory is facing continuous loss.

STAKEHOLDERS IMPACT

1. SUPPLIERS: Most of the suppliers fail to get high profits. So they move to the private factory.
2. CUSTOMERS: High price is provided by the broker.
3. EMPLOYEES: Profitable opportunities for rural people by providing job opportunities.

SUGGESTIONS

- ❖ Automated machines decrease labor. Increase production of the company.
- ❖ Experiences managers and skilled laborers should be appointed.
- ❖ New strategies and policies should be implemented.
- ❖ Exporting should be encouraged by the government in order to promote rural area development.
- ❖ Exporting will help the stakeholders in all positive ways.

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A STUDY ON TRAINING AND DEVELOPMENT ON EMPLOYEE PERFORMANCE OF APPARELS INDUSTRY IN CHENNAI CITY

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ABSTRACT

In an age of rapidly changing business and workplace environments worldwide, effective employee training and development practices are the vein for obtaining the best employee performance in the various industrial sectors as well as the garments sector. The current study was carried out to investigate the relationships between employee training and employee development as predictors of employee performance. The main goal is to determine how training and development affect operational level employee performance in the context of the Chennai apparel industry. The reason for choosing this research topic is that it was discovered that apparel companies were experiencing problems with employee errors and delays, resulting in significantly lower performance. It was discovered that mistakes and delays on the part of machine operators are affecting target achievement and, as a result, shipment delays to the end customer. This highlights the significance of training and development in reducing errors, mistakes, and delays.

KEYWORDS: *Training and Development, Employee performance and satisfaction.*

INTRODUCTION

In today's business environment, treating a company's human resources as its most valuable asset is regarded as a competitive advantage. Although many organizations provide training opportunities for their employees. This study sheds light on the significance of addressing employees' training needs in order to

Improve performance standards among employees in the apparel industry. As a result, this study attempted to investigate the mediator factors influenced by training and their impact on employee performance in the respective apparel organization.

The human being is the ultimate resource of any organization because the success or failure of any organization is determined by the efficiency and effectiveness of its human resources and their functioning. The entire scope of an organization's activities revolves around its human resources. As a result, people are the most important resource in any organization. Employee development is carried out through training programmes, and training brings about the necessary development in employees working at various levels. One of the sub-systems of Human Resource Development is training and development. The current study contributes to determining the effectiveness of training and development in Chennai's Apparels industry.

Training and development are processes that invest in people to prepare them to perform. These processes are part of a broader human resource management strategy that ideally, will result in people being motivated to perform well. It goes without saying that employee training and development is an issue that every organization must address. However, the amount, quality, and quantity of training provided varies greatly between organizations. Organizations must provide excellent training to their employees.

To be effective and efficient while also being successful, an organization must have a clear vision as well as a well-defined mission. An organization should have a philosophy statement as well as a list of programmes and goals that focus on the skills and talents of its employees and can lead to the organization's success. An organization's success is determined by its workers, both employers and employees. As a result, the motivation, engagement, and willingness of employees in an organization toward the key result areas of an organization will lead to excellence in productivity, which will lead to excellence in employee productivity. Individual employee productivity should be considered because individual employee productivity determines the overall productivity of the organization.

The Apparel Industry, which is the focus of this research, is highly employee oriented, and success or failure will be determined by employee productivity, either individually or as a team. As a result, the productivity of employees is regarded as the dependent variable on Self-efficacy, continuous learning culture, supervisor support, working conditions, training design, and trainee characteristics are all independent variables in training and development practices. At the same time, the goal of this research is to identify existing training and development practices that have an impact on employee productivity

And to recommend some systematic ways for management to improve employee productivity while addressing the importance of training and development practices.

TRAINING AND DEVELOPMENT

As an organization, you provide your employees with the knowledge and skills necessary to complete a specific task or procedure. What is the overall goal? Assist them in performing better at their current job. It focuses on short-term gains, such as learning about the latest product updates, integrating a new hire into the CRM system, or introducing new project management software. Employee training is a program that assists employees in learning specific knowledge or skills that will help them perform better in their current roles.



It is a continuous process that, like leadership programmes, is focused on growth and adding long-term value to the organization. Employee development does not only refer to honing a person's skill set for a specific role. Instead, it is a type of lifelong learning that nurtures professionals and helps them advance in their careers. Employee training could be considered a component of employee development. Employee development is more expansive and focuses on employee growth and future performance, rather than an immediate job role.

Employee training and development refers to a company's ongoing efforts to improve the performance of its employees. Companies use a variety of educational methods and programmes to train and develop their employees. Training and development have emerged as critical components of strategy in recent years. More business owners are realizing that investing in employee training and development not only motivates employees, but also allows the organization to create a highly skilled workforce.



CUSTOMER SATISFACTION

Customer satisfaction is a marketing term that is frequently used. It is a measure of how well a company's products and services meet or exceed customer expectations. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a company, its products, or services exceeds specified satisfaction goals". Customers play an important role in keeping a product or service relevant, it is the best interests of the business to ensure customer satisfaction and build customer loyalty.

Consumer behaviour research is based on consumer purchasing behaviour, with the customer playing three distinct roles: user, payer, and buyer. According to research, even experts in the field find it difficult to predict consumer behaviour. It looks into individual consumer characteristics such as demographics and behavioural variables in order to better understand people's desires. It also attempts to evaluate the consumer's influences from various groups such as family, friends, reference groups, and society in general. A variety of psychological and physical variables that correlate with satisfaction behaviours, such as other products to which the customer can compare the organization's products, determine the level of satisfaction.

EMPLOYEE PERFORMANCE

Employee performance is a rating system used in most corporations to determine an employee's abilities and output. Planning, monitoring, developing, rating, and rewarding are the five components of performance. An organization's performance is always measured by the performance of the employees who work for it. The organization's performance can be measured by the amount of revenue it generates and the amount of profit it makes. This is very important and is not hidden from anyone.

The HR department of the organization is in charge of tracking employee performance so that the appropriate decisions can be made. If an employee has demonstrated exceptional performance, he or she can be rewarded, and if the individual is losing interest, additional motivation can be provided. There may also be a number of such employees who fail to perform despite the organization's efforts to motivate them. Such employees become a burden on the company, and as a result, appropriate actions are taken against them, depending on the circumstances.

OBJECTIVES

To identify major purposes of training and development.

To ascertain training and development policies in operations of the organizations.

To study the impact of training and development on employee performance.

To find the skill and improvement of employees.

REVIEW OF LITERATURE

According to Ananth (1998), he identified various issues that organizations face when managing corporate finance, such as the timing of procurement and investment of funds. He proposed that the organization must adapt to the needs of a changing environment by making sound decisions through the use of professionally trained personnel.

While employee performance is one of the critical measures emphasized by top management, employees are more concerned about their own productivity and are increasingly aware of the accelerated obsolescence of knowledge and skills in their turbulent environment, according to Cheng and Ho (2001).

According to the literature, by effectively training and developing employees, they will become more aligned for career advancement. Personal motivation is increased by career potential.

Srimannarayana (2006), Presented the training and development measures that were deemed exceptionally valuable and were consistently used by HR/training professionals. Based on data gathered from HR professionals from various industries, feedback on training programmes was discovered, and the sample was assembled using a convenient sampling method and the T-test. Training costs and the number of training days were more popular measures in various training programmes than learning measures during training, training transfer, performance improvements as a result of training, and cost-benefit analysis of such programmes. It was time to focus on impact measures, having made significant progress in traditional training and development measures.

Alexandros G.S. and John B. (2007), investigated the connection between perceived employee training effectiveness and job satisfaction, motivation, and commitment. The findings revealed a significant relationship between employees' perceptions of training effectiveness and their commitment, job satisfaction, and motivation. Furthermore, high correlations were discovered between these three variables. The implications of this study for managers, particularly Human Resource professionals, are significant, influencing key employee attitudes that appear to be related to organisational performance outcomes such as productivity, turnover, and absenteeism.

S.S. Hafeez and A. Waheed (2008), The paper investigated the value chain model while discussing productivity factors and emphasizing the tactical link between training, productivity, and the organization's competitive strategy. The importance of training effectiveness as a moderating variable in the relationship between training intervention and competitive strategic outcomes was emphasized. The paper also examined the implications of the 'value chain model' for evaluating strategic training needs/objectives in accordance with the organization's basic competitive strategy and objectives. This paper has both theoretical and managerial implications for developing strategic training programmes aimed at increasing productivity and competitive advantage.

Organizations use training and development to fill employee skill gaps, according to Iftikhar Ahmad and Sirajud Din (2009). Training evaluation must be tailored to the individual and situation. Unless and until training is properly designed, evaluation will not ensure effective learning. The success of evaluation is dependent on whether the means of evaluation were designed into the training programme before it was implemented.

According to Bates and Davis (2010), the usefulness of a training programme is only possible if the trainee is able to put the theoretical aspects learned in the training programme into practice in the actual work environment. They emphasized the use of role playing, cases, simulation, mediated exercises, and computer-based learning to expose students to a current and relevant body of knowledge as well as real-world situations.

According to McDowall et al. (2010), the importance of training has increased due to increased competition in the industry, as training employees increased the company's competitive advantage by enhancing the workforce's skills and knowledge. As a result, companies spend a significant amount of money on employee training.

Training and development, according to Henry Ongori (2011), has become a strategic issue. Despite the fact that many scholars have conducted research on training and development practices in organizations in both developing and developed economies, it is worth noting that the majority of the research has focused on the general benefits of training. However, there is a lack of focus on evaluating training and development practices in organizations.

The purpose of the research, according to Fizzah (2011), is to determine how training and development affect organizational performance and the impact of training and development in organizations. In addition, previous research on training and development has been conducted. Training and development are important for employees in organizations because it allows them to improve their skills and perform well at work. There is a significant relationship between training and development and organizational performance, which is discussed in the paper.

RESEARCH METHODOLOGY

This study is descriptive in nature and based on secondary data collected from various sources including journals, articles reports and websites.

A literature review is useful to explore the current research topics, it summarizes prior studies and shows the difference between studies and gaps exist in the field of research. Reviews are useful not only for interpreting and assessing the strength of previous research, but also for guiding the direction of future study

LIMITATIONS

It is conducted on a small scale, this study has several limitations. There are numerous variables that have an impact on customer training and development, but only a few are included in the research model, and only their impact and relationship are studied in the apparel industry. Other variables and industries may contribute more to the literature, so they should be included for a better understanding.

FINDINGS

It has been discovered that the majority of workers have insufficient experience. It has been discovered that employees are unaware of the organization's training programme. According to the study, workers only attended one training programme. It was discovered that the organization used both on-the-job and off-the-job training methods, according to the workers. Customers' purchasing behaviour is not always consistent with their principles, and it exhibits a wide range of behaviours not only within groups of individuals, but also within the decisions of individuals influenced heavily by emotional decisions. These emotional choices must be made by the design community.

The majority of employees are satisfied with the training they received and believe that it improves their skills and makes them more efficient when compared to employees who did not receive training. Thus, the apparel industry's training and development programmes are effective and provide the firm with a competitive advantage over its competitors. This study looks at four aspects of training and development programmes: learning, behaviour, outcome, and efficacy. All of these factors contribute to a firm's competitiveness. Thus, the training and development programmes make employees more skilled, which leads to customer satisfaction and, as a result, gives the industry a competitive advantage in the market.

CONCLUSION

According to the findings of the study, the industry provides effective training to its employees. However, it can improve its effectiveness by extending the duration of the training programme and bringing in experts from outside the industry to train employees.

This will encourage employees to take training more seriously. Employees should be given more flexibility so that they can ask the trainer questions. The training programme aids in the advancement of knowledge, skill, and ability. Candidates for the training session should be chosen based on a need analysis, as this will provide an opportunity for every employee who is in desperate need of training. Both the organization and the employees will benefit from this.

Employee performance and training and development are linked. Based on our findings, we concluded that training and development improve employee performance. Employee performance improves as a result of development, and both training and development improve employee performance. Employee output is high in organizations that invest heavily in training and development.

Finally, the research discovered a strong relationship between training and performance. Training not only improves the effectiveness of leadership, communication, work quality, employee motivation, and job satisfaction, which in turn improves employee performance, but it also produces a well-qualified managerial workforce with increased knowledge, skills, and abilities, resulting in increased competencies.

SUGGESTIONS

Employees are an organization's most valuable asset. As a result, a planned investment in developing their skills, knowledge, and abilities will provide the best return on investment for the organization, as it will greatly aid its growth. According to the findings of this study, investing in developing the skills and knowledge of employees has the benefit of improving the competencies of their subordinates because when the managerial level's skills and knowledge are updated, they become more confident in coaching their teams. Furthermore, training must be a continuous process that includes periodic evaluation of employees and the opportunity to close performance gaps. It is also critical to make trainees aware of the skills and knowledge they lack or need to improve, as well as how improving their performance contributes to organizational success as well as personal growth, which will make them more committed to the organization.

The training programmes that are organized must be relevant, and the learning that is gained must justify the cost of organizing the programme and arranging resources to carry it out. Training sessions, as a result, should be appropriate in length. The new skills that are taught to employees through training should be well practiced and tested by the trainer to ensure the employees' proficiency. All training programmes organized by the industry should improve the overall quality of employee performance.

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Employee training and development

SUPPLY CHAIN MANAGEMENT IN APPAREL INDUSTRY WITH SPECIAL REFERENCE TO CHENNAI CITY

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ABSTRACT

The evolution of the apparel and textile supply chain is explained using industrial dynamics and logistics functions. The various supply chain structures and their impact on the apparel manufacturing are explained. The current state of the textile or apparel industry is examined, and the key factors for a successful supply chain in light of the industry's globalization are discussed. Low inventories, lower costs, higher productivity, greater agility, shorter lead times, higher profits, and greater customer loyalty are all characteristics of effective textile in supply chain management. This paper discusses the constraints of the textile industry in Chennai city, such as ineffective communication, long lead times, and other factors that would enable further research to develop this sector. Thus, the purpose of this study is to analyze the literature on supply chain management thoroughly in order to reveal the collective findings that will lead to further research.

KEYWORDS: *Textile industry, supply chain management, apparels industry.*

INTRODUCTION

In today's technological era, where humans are working to discover the world beyond their imagination, the textile industry is playing an important role in improving technologies and serving as a key source to describe the characteristics of every human being. Apparel industries are the sector in which we construct our comforts in a variety of ways. However, how it works is that the apparel industry creates a garment to wear as comfort to appear better. Everyone is aware that the garment and textile or apparel industry is crucial to the global economy because it is dependent on apparel and his manufacturer apparel industry making a garment.

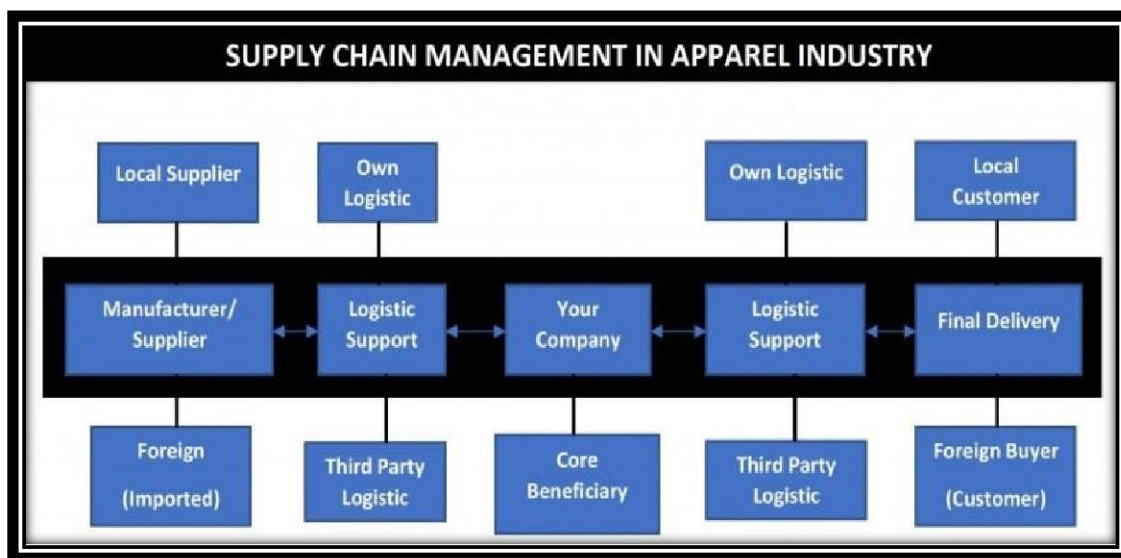
The lifestyle industry is evolving at a rapid pace. Trends emerge in an instant, putting pressure on brands like yours to keep up. Social media has not only given the end user control, but it also has the ability to impose demands. This has made it necessary for brands to fight a never-ending battle to remain relevant. You should also be aware of the other key driving factors that define your industry today. You must be present across multiple channels, develop long-term strategies, arrive at the market on time, and forecast your next move. Under these conditions, no matter how successful you've been in the past, your way of working must evolve on a continuous basis. For you, the ideal supply chain includes an end-to-end logistics partner who can tailor solutions to changing demands in an agile and dependable manner. Such a partner can help you with your on-demand production cycles, ensure that your product gets to market on time, expand your technological capabilities, and provide insights to help you prepare for each new wave.

SUPPLY CHAIN MANAGEMENT

Supply chain management connects all supply-interacting organizations in a two-way street. The communication system is designed to manage high-quality inventory in the most effective and efficient way possible. Supply chain management is now regarded as a critical success factor in the apparel industry. As a result, top management's primary goal is to create an efficient supply chain management system. Supply Chain Management is the process of managing resources, specifically the movement of resources from one party to another, one location to another, one department to another, and one section to another. The movement of resources should be done in such a way that the right resources are available in the right place, at the right time, in adequate quantity, and at the lowest possible cost.

Supply Chain Management (SCM) is the systematic, strategic coordination of traditional business functions within a specific company and across businesses in the supply chain to improve the long-term performance of the individual companies and the supply chain. A supply chain is made up of all parties who are directly or indirectly involved in fulfilling a customer request. Transporters, warehouses, retailers, and customers are all part of the supply chain, in addition to the manufacturer and supplier. Within each organization, such as a manufacturer, the supply chain encompasses all of the functions involved in receiving and fulfilling a customer request.

Suppliers, distributors, retailers, and customers are all part of the supply chain. Customers are the primary focus of the chain because the primary purpose of any supply chain is to satisfy customer needs. Initially, SCM was associated with inventory management within a supply chain. The most significant benefits to businesses with advanced supply chain management capabilities will be dramatically improved customer responsiveness, developed customer service and satisfaction, increased flexibility for changing market conditions, improved customer retention, and more effective marketing over time. A supply chain is a process that includes the facilities, functions, and activities involved in producing and delivering a product from the supplier(s) to the customer (s). In a highly competitive market, the Supply Chain Management concept is made possible as a traditional management tool for all manufacturers to strive to improve their product quality, reduce their product and service costs, and shorten their product delivery and response time.



A supply chain is a network that includes all parties involved in order to satisfy the customer's request. When developing a supply chain network for a specific company, every stakeholder, from suppliers and product developers to warehouses, investors, and customers, is typically taken into account. Traditionally, a supply chain is thought to be a tool for developing and promoting new products and services, improving production processes, supervising and operating them, facilitating customer service, marketing development, developing financial strategies, and improving supply processes.

Mapping the supply chain is important in a variety of ways. It assists the company in clarifying specific responsibilities to its employees. The supply chain mapping demonstrates that the performance obtained from task completion is not dependent on an individual. It also aids in the establishment of a baseline against which the company can measure the effects of any new enhancement effort. Manufacturing, logistics, distribution, marketing, sponsorship, and communication are all part of the company's supply chain structure.

SUPPLY CHAIN STAGES

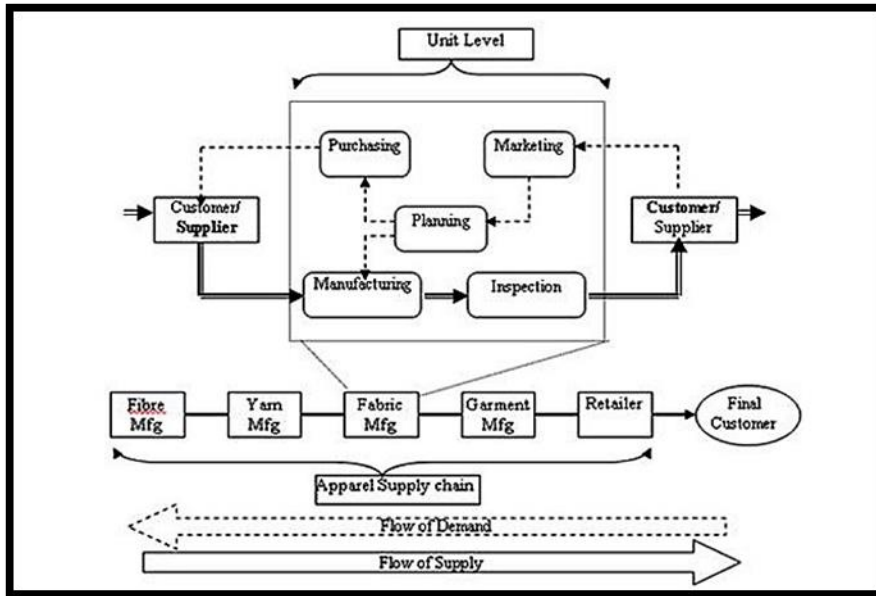
The supply chain stage are as follows-

Raw material supplier

Manufacturer

Wholesaler/distributor

Retailer Custome



OBJECTIVES

The objective of the research paper is mentioned below:

To study the current supply chain dynamics of Indian apparel industry.

To study various factors of supply chain management in different contexts.

To understand different elements of supply chain management.

To find new trends in the field of supply chain management.

REVIEW OF LITERATURE

Douglas J. Thomas and Paul M. Griffin (1996) conducted a literature review on coordinated planning between two or more stages of the supply chain, with a focus on operational planning, defining three types of coordination buyer-vendor coordination, production-distribution coordination, and inventory-distribution coordination.

Naylor et al. (1999) created two definitions of lean and agile practices as they relate to supply chain strategies. Lean refers to the elimination of all waste, including time, in order to meet level schedules, whereas agile refers to the virtual relationship and knowledge of the market, as well as profitable opportunities in a volatile market. It concludes that it is an important perspective in the supply chain that

Companies strive for "leagility" a combination of both. Just-in-time manufacturing was introduced in 1980, with the primary goal of eliminating waste by shortening lead times.

Mentzer et al. (2001) synthesized supply chain management definitions and defined it as "the systemic, strategic coordination of traditional business functions and tactics across these business functions within a specific company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole."

T.M. Frohlich and R. Westbrook (2001) investigate global supplier and customer integration strategies. Different "arcs of integration" characteristics strategies. Their research yields two major conclusions. The initial evidence suggests that there were five distinct supply chain strategies: inward, periphery, supplier, customer, and outward facing. The broad arc of supply chain integration was strongly associated with higher levels of performance, according to the second piece of evidence.

Bruce, M et al., (2004) Discuss the characteristics of the textile and apparel industries, as well as the perspectives of lean, agile, and legality found in existing supply chain literature. Their study's goal was to look at supply chain management approaches used in the textile and apparel industries. It was addressed through case studies from various points along the textiles and apparel supply chain, from fibre producers downstream to manufacturers and retailers upstream. Conclusion: The textile and apparel market is volatile, with a wide range of products and short product life cycles. The apparel sector earns low profit margins, and holding small quantities of stock is impractical, so companies in the apparel sector are compelled to manufacture orders quickly in order to compete in a volatile market.

Lam and Postle (2006) examined the concept of supply chain management in Bangladesh's textile and apparel supply chains. They discussed the advantages and disadvantages of Bangladesh's textile apparel supply chains. They claimed that the Bangladesh apparel industry is generally unaware of the concept of supply chain management and that the industrial benchmark for both the manufacturing and retailing industries in Bangladesh is below the global average, and that supply chain performance in Bangladesh is below the global average.

According to Hussain et al., (2011), recent studies have shown that branded products outsource their production from tiers of competing suppliers via an international network of global supply chain. "The textile and clothing supply chain is driven by big brands and retailers, who wield enormous power in

determining price, quality, delivery, and labour conditions for suppliers and producers down the chain." The two profit segments have been identified as high and low profit steps, with innovation, marketing, and retailing falling under the high profit category and sourcing of raw materials, production and assembly, finishing, and packaging falling under the low profit category.

RESEARCH METHODOLOGY

This study is descriptive in nature and based on secondary data collected from various sources including journals, articles reports and websites.

A literature review is useful to explore the current research topics, it summarizes prior studies and shows the difference between studies and gaps exist in the field of research. Reviews are useful not only for interpreting and assessing the strength of previous research, but also for guiding the direction of future study.

SUGGESTIONS

The overall goal of supply chain management is to reduce product lead time and cost. The elements of Supply Chain Management include demand information sharing, efficient logistics planning and management, raw material transportation, availability of better road and railway infrastructure, availability of proper warehouses to store goods, inventory planning and controlling for optimized solutions, availability of enhanced maritime physical infrastructure, and highly efficient planning and controlling of ports and shipments. All of these factors contribute to reducing the value chain's lead time and associated costs.

According to a review of the current state of the textile industry in various countries, it is clear that the textile sector plays an important role in improving Chennai's economic growth. The proper application of supply chain management would allow for the timely delivery of finished products from suppliers to customers. SCM is critical for manufacturing industries in order to improve business operations in terms of factors such as inventory fluctuation, inventory stockouts, late deliveries, quality issues, and so on. Effective communication, supply chain visibility, event management capability, and performance metrics are required for successful supply chain management. It also necessitates activity coordination and information sharing among supply chain partners at three decision levels, namely strategic, planning, and

Operational. This study created a modified supply chain model for the textile industry in Chennai by utilising outsourcing to reduce costs and focusing on core business.

CONCLUSION

This paper depicts the current state of the textile industry in Chennai. Based on the analysis of previous studies, the researchers would develop a model. By implementing supply chain management, this model improves the textile industry's lower inventories, higher productivity, lower costs, shorter lead time, higher profits, greater customer loyalty, and so on. This research would pave the way for more extensive research on other manufacturing industries from both a local and global perspective. Finally, this study's practical contribution and future research will be able to explore more on the effect of social factors on entrepreneurial intention among consumers' status of purchase intention. Researchers believe that consumers' branded apparel supply chain management will be influenced not only by their close friends and families, but also by successful international entrepreneurs of branded items.

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SUPER ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN KNOWLEDGE ADMINISTRATION

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ABSTRACT

This research study examines artificial intelligence strategies used in the field of educational administration. The author discusses intelligent learning systems in this article. Expert systems that are integrated into the design of platforms for online learning are given special consideration. The elements of intelligent systems that allow for the organisation of an optimum digital learning process are highlighted. As an example, the establishment of an interactive training project aimed at the successful acquisition of knowledge by students attending philosophy courses, as well as the improvement of the quality of this knowledge, is offered. Design and development of software required constructing and managing online platforms; systematic methodology, including databank formation and classification of data; and approach to intelligent data processing to activate interactive learning models are among the project implementation approaches.

The goal of this study was to see how Artificial Intelligence (AI) might affect schooling. The study's scope was limited to the use and effects of AI in administration, instruction, and learning, based on a narrative and framework for analysing AI identified through preliminary investigation. A qualitative research approach was adopted, which effectively assisted the accomplishment of the study objective by leveraging the utilisation of literature review as a research design and approach. Artificial intelligence is a field of study that has resulted in computers, machines, and other artefacts having human-like intelligence defined by cognitive capacities, learning, adaptability, and decision-making capabilities. According to the findings, AI has been widely accepted and employed in education, notably by educational institutions, in various forms. AI began with computers and computer-related technologies, progressing to web-

based and online intelligent education systems, and finally, the use of embedded computer systems in conjunction with other technologies, humanoid robots, and web-based chat bots to perform instructor duties and functions independently or in collaboration with instructors. Instructors have been able to accomplish improved quality in their teaching operations by using these platforms to handle various administrative responsibilities, such as evaluating and grading students' assignments more effectively and efficiently. On the other hand, because the systems rely on machine learning and flexibility, curriculum and content have been modified and individualised to meet the needs of students, fostering uptake and retention and so boosting the overall quality of learning.

Keywords:- Administration, Digital learning, Educational process ,Online platforms,

Introduction

Educational management in the modern era refers to a set of policies and practises aimed at increasing the quality of the educational process. The efficacy of the methodologies used in the educational process, as well as the competence of the teachers themselves, determines the quality of the educational process today. Without tactics as an auxiliary to the structure of an educational system tailored by teachers, today's educational process would be unthinkable. The digitalization of education as a tertiary activity is linked to instructional practises. In this way, digital education is becoming increasingly integrated into the larger trend of economic digitalization. The digitalization of the economy has an impact on all aspects of the educational system.

Artificial intelligence and machine learning techniques are essential components of modern school management. In this context, the educational industry is currently facing significant challenges as a result of the widespread usage of artificial intelligence. This includes not only professional skill redistribution, but also the quality of specialist training in the rising labour market. Based on the study of data-mining systems that may be used in the real educational process, new learning strategies have become the most in demand in terms of their usage in education. Educational administration is now a multi-vector process that includes economic, social, political, and high-tech growth vectors. In digital education, high-tech is becoming increasingly important. Furthermore, this process affects both technical and humanistic branches of study.

However, in addition to its benefits, the technologicalization of education has additional drawbacks. The author believes that the greatest danger to education's technologization is its excessive standardisation and

Formalism, particularly in the human sciences. As a result, in order to create a dynamic and engaging learning environment, projects with the qualitative potential to change the teaching and learning process in the human sciences are critical. As an example, consider a project in which machine learning techniques relevant to the discipline of philosophy are used to create it. This is an interactive educational initiative intended at helping students learn philosophy more effectively and improve the quality of their knowledge.

1. Artificial Intelligence in Education: Development Trends and Thoughts

Artificial intelligence (AI) is a set of information technologies with intelligent capabilities that are based on large data and machine learning. It incorporates artificial intelligence into the field of education and optimises educational development via the employment of essential technologies and intelligent tools in an intelligent education environment. The system encourages collaboration and integration between developing intelligent technologies and the education sector. In general, artificial intelligence's application in the field of education is constantly increasing and deepening, and the introduction of new concepts, methods, and ideas is bound to have a significant impact on educational reform.

1.1 Artificial intelligence techniques

1. AI-Related Techniques in AI Education Scenarios

2. Student and school evaluations-Academic analytics, adaptive learning method, and individualised learning approach Paper and exam grading and evaluation

3. Computer vision- image identification, and prediction system Intelligent, personalised instruction

4. Intelligent education systems, learning analytics, data mining or Bayesian knowledge interference

5. Knowledgeable school- Face recognition, speech recognition, virtual labs, A/R, V/R, hearing, and sensing technologies are all examples of face recognition, speech recognition, and virtual labs.

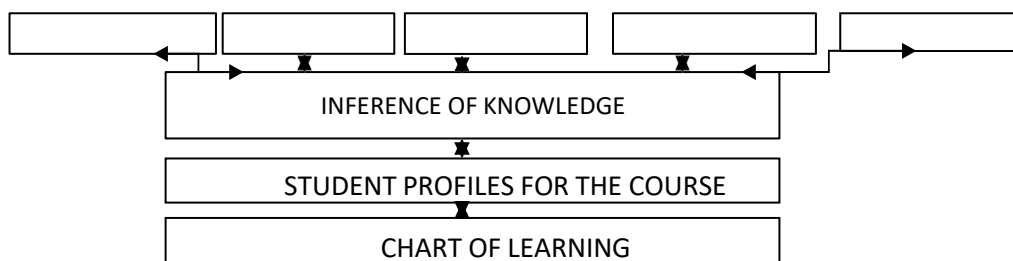


Fig-1 AI education has a technology foundation.

5. Remote teaching through the internet and mobile devices-Real-time analysis, edge computing, and virtual tailored assistants.

Based on machine learning, data mining, and knowledge models, many strategies are included into AI systems for learning analysis, recommendation, knowledge understanding, and acquisition. In general, an AI education system consists of teaching materials, data, and intelligent algorithms, which are classified into two categories: system model (which includes learner, teaching, and knowledge models) and intelligent technologies As demonstrated in Fig. 1, a model's contribution to the creation of a data map, which develops structures and association rules for acquired educational data, is critical for increasing learning. The model serves as the brain of an AI system, with technologies supplying the system's power.

1.2 The educational work that AI is capable of

A. Administration

Perform administrative duties that take up a lot of time for teachers, such as grading examinations and delivering feedback, faster.

Determine each student's learning styles and preferences, allowing them to create a customised learning plan.

Assist educators with data-driven work and decision assistance.

Give timely and straightforward comments and work with students.

B. Instruction.

Estimate how effectively a student will exceed expectations in projects and exercises, as well as the likelihood of dropping out.

Examine the syllabus and course materials to come up with personalised content.

Allow instruction to extend beyond the classroom and into higher education, so encouraging

Collaboration

Adapt the teaching strategy for each student depending on their own information. Assist educators in creating individual learning strategies for each student.

C. Learning

Discover a student's learning weaknesses and address them early in their education.

Students' university course selection can be customised.

By analysing data, you can predict each student's professional path.

Detect students' learning states and provide intelligent adaptive intervention.

3. The Use of Artificial Intelligence Technology in the Construction of Smart Campuses is examined

Smart campus is a growing trend in educational information architecture, particularly with the extensive use of artificial intelligence technologies. Smart campus applications have substantially improved as a result of the development and promotion of the Internet of Things, mobile learning equipment, wireless network equipment, and smart software. The purpose is to build an education ecosystem, as well as to investigate the field of artificial intelligence's use in smart campus building and to suggest a transition strategy from smart campus to "smart" campus construction.

Educational information construction has become the driving force behind the new format of educational informationization, from the initial application of modern information technology to the construction of smart campuses characterized by artificial intelligence, technological progress, and innovation [1]. Artificial intelligence is built on data, which is also wisdom. Campus construction's "fuel." Big data, cloud computing, and other technologies are propelling artificial intelligence forward, as well as providing technical support for the development of "smart" campuses. In his book "Schools and Society," American educator John Dewey proposed: The substantial advancement of social progress must have an impact on educational reform. There are gaps in the current educational environment and the development of modern information society, particularly the rapid development of Internet technology, which has resulted in the establishment of "smart campuses." Wisdom Artificial intelligence technology, which covers campus teaching, management, learning, life, and many other sectors, is at the heart of the campus. Artificial intelligence has made its way into campus, bringing new life to educational service models and promoting the multi-modal development of the "smart campus."

3. Artificial intelligence application fields in the "smart campus"

A. Artificial intelligence aids in the delivery of precise instruction

The reform of instructional work is the most significant influence of artificial intelligence technology on the "smart campus"[3]. "Fine" and "quasi" are examples of so-called "precision teaching." "Quasi" is the refining of knowledge, "spirit" is the refinement of knowledge. It is the consequence of students putting what they have learnt into practice. Precision teaching has become the standard for measuring the success of topic instruction in the classroom, as well as the basic guide for establishing efficient and interesting classroom teaching. Precision teaching stresses student-centered learning. As shown in Figure 1, this education concept is based on emphasizing teaching students based on their aptitude, as well as measuring and recording students' learning behaviors, performances, and processes in order to analyze students' learning needs and optimize teaching content or teaching methods to meet those needs. As can be seen, "precision teaching" is based on the use of big data and artificial intelligence technology to alter and optimize instructional modes while also increasing teaching efficiency. Assess students' classroom engagement and concentration, and change teaching tactics to meet the needs of students' individualised

teaching plans by identifying, recording, summarising, and integrating learning behaviours. Classroom behaviour analysis and emotion recognition based on facial expression recognition have already appeared in some cases, according to current developments. The Paris Business School, for example, used the artificial intelligence technology Nestor in two online courses in September 2017. Its working idea is to track students' eye movements and facial expressions using a computer network camera, and then evaluate the data obtained. In May 2018, a smart classroom behaviour management system was deployed in a secondary school in Hangzhou, India, to assess students' classroom participation and concentration. The system analyses classroom behaviours of students in the classroom environment and provides reference for teachers to carry out precise teaching and adjust teaching strategies.

Online teaching is another type of "precision teaching" approach. Artificial intelligence technology is also being utilised to design learning programmes and exact services for learners, particularly in the current MOOC trend. As the largest organisation in the field of artificial intelligence education, Knewton, for example, delivers personalised education, continues to create adaptive education using AI, and employs adaptive learning technology to identify each student's knowledge gaps through data collecting. It can also perform a more in-depth analysis of the causes and make recommendations for improvement. Civitas Learning specialises in the selection of university-level independent courses. It forecasts the key patterns of learners' curriculum scores and attendance rates using machine learning technology.

B. Artificial intelligence helps people make better decisions.

The study of objective data ensures the correctness of decision-making. Artificial intelligence technology's rigour of logical operation thinking gives rational analysis for scientific decision-making and has become a significant technical technique to support decision-making. Traditional data-assisted decision-making, however, still has flaws as compared to artificial intelligence. Traditional computing looks to be focused on the data-driven model and cannot go far into the neural reasoning stage. Artificial intelligence, which blends data-driven and knowledge-driven intelligence, can "from experience" emphasise knowledge-driven intelligence in India. For example, you can employ sensors to collect relevant data and construct a data analysis model using emerging technologies such as artificial intelligence (AI). It can deliver fast and dependable school management and teaching when combined with the features of the school. Opinions on intelligent decision-making. Future artificial intelligence might be described as a "smart brain" that will improve campus decision-making by leveraging its tremendous data processing,

Computation, and logical reasoning capabilities to provide schools with scientific and visual decision-making resources.

C. Quantitative evaluation is aided by artificial intelligence.

Scientific and effective evaluation is the key to increasing educational quality in education and teaching practise. The existing evaluation approaches are primarily restricted to the analysis of educational large data, which limits their application. According to certain studies, adopting educational big data as the basis for evaluation will limit the accuracy of evaluation due to the unidirectionality of data generation. Based on big data analysis, artificial intelligence technology will employ multi-modal machine learning technology to improve the assessment system and eliminate the one-sided problems that data mining has generated in the past.

To increase the accuracy of the assessment and reflect the evaluation object more accurately, multi-dimensional data alignment technology is used to process the evaluation acquired from the visual information database and the evaluation gained from the text information database. Artificial intelligence technology has introduced modifications and innovation to the development of school informatization in the context of the "Education Informatization 2.0 Action Plan." Promote the modernization and transformation of the "smart campus" construction system, but focus on how to get there. What is the best way to exchange and distribute data? How can we encourage the management of several applications in a collaborative manner? To drive the constant development of the "smart campus" construction process, it is even more important to find a deep integration of artificial intelligence and education.

Online education, as a growing trend in recent years, not only boosts students' learning passion, but also assists teachers in comprehending the situation. The education industry may greatly increase the quality of learning and provide a firm foundation for future development if it strengthens the construction of learning education space. Online learning; education

With the advancement and growth of Internet technology, an increasing number of sectors have begun to incorporate Internet technology into their development plans. The impact of Internet technology, as the most important industry in society, is far higher than that of other industries. As a result, education should

Include modern Internet technologies in order to reform the educational system. As a prominent presentation of the contemporary artificial intelligence education model, the online learning education space has changed the single flaw of the traditional teaching model and considerably improved the quality.

4. Conclusion

As a result, the education industry should expand its research into the online learning education arena and strive to improve teaching quality on a continuous basis. However, when it comes to the current state of online learning and education space construction, most educational administrators are still unaware of the significance. In the context of artificial intelligence training when developing an online learning education, the developed education space model is inappropriate and does not fully match the learning classroom subject status. However, when it comes to space building in various educational institutions, the majority of system designers do not take the dominant position into account. The construction of space in the form of learning has an impact on learning efficiency and is not conducive to the establishment of an efficient online learning education space. As a result of the new teaching criteria, various educational institutions should develop learner major modules based on their own circumstances.

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SEMANTIC VISUALIZE SYSTEM OF INTELLIGENCE EXTRACTION USING PYTHON LIBRARIES

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ABSTRACT

Intelligence Extraction, also known as IE, is a technique for systematically organising unstructured information or data using a machine learning algorithm. Structure information is collected data that can be easily understood and classified by the human brain. As the name implies, unstructured data is a data format that contains dynamic information that neither machines nor humans can understand. As a result, extracting meaningful information from them is a difficult task. Here I have tried to give a visual view on various Extraction obtained through libraries available in a Machine Learning environment.

KEYWORDS: Machine Extraction, Intelligence Structured Data, Webpage, Unstructured Data.

1. INTRODUCTION

Millions of documents are uploaded to the cloud every day. We process a large amount of data every day, so processing and analysing this unstructured data is complicated. To manage that data, we need a simple system to use, reliable, efficient, and user-friendly, and through which we can obtain structured data.

The World Wide Web is a central location where data is stored and managed, so this organisation contains a large amount of information in pdf, images, text, numbers, videos, etc. From this large amount of data, the user wants only relevant data. Various extraction methodology is discussed below in Section 3, which will provide the visual flow of intelligence extraction.

2. RELATED STUDY

[1] Studied various approaches to extract structured data from web pages. She also discussed web data extraction techniques, some techniques extracting flat records and others trying to pull nested documents. Some of these techniques are either inaccurate or make many strong assumptions.

[2] Proposed a solution - automatic Extraction of entity relation employing Information Extraction (IE) technique divided into two steps of Named Entity Recognition (NER) and Relation Extraction (RE) process. The author utilised a supervised machine learning approach combined with a rule-based system.

Significant findings: It determines which features and algorithms of machine learning are sufficient to gain the best-known result and which rules are the most suitable for novel characteristics.

[3] The authors proposed a new approach to extract structured data from Web pages in this paper. Although several researchers have studied the problem, existing techniques are inaccurate or make many strong assumptions. Their method does not make these assumptions. They proposed an enhanced method and novel partial tree alignment technique based on visual information, significantly improving the algorithm's accuracy. Their empirical results using many Web pages showed the accurate Extraction of data.

3. EXTRACTION OF INTELLIGENCE

Intelligence Extraction is nothing more than the Extraction of structured data. Intelligence Extraction includes Web Page Extraction, Csv Extraction, Video Extraction, Image Extraction, and Pdf Extraction, among other things. These modules extract data and store it in a file format such as.csv, .txt, etc.

The proposed system includes the following modules:

1. CSV Extraction
2. Webpage Extraction
- 3.Extraction of Video
- 4.Extraction of Images
5. Extraction of PDF
 - Text Extraction
 - Image Extraction
 - Extracting E-Mail Addresses
 - Extraction of URLs
 - Extraction of Tables

3.1 Extraction of CSV

This module extracts CSV data from a specific column by using a unique character known as a delimiter. Delimiters are those special characters that separate data.

This module makes use of two libraries:

- a) Pandas: prime role in data analysis by allowing & importing data from various file formats such as CSV, SQL database tables or queries, JSON and Excel.
- b) CSV: read and write tab-ular data in CSV format.

In this module, the user must provide the file's name with the extension to the programme. The module then reads the file and asks the user which column they want to extract. After providing the column name, the user must give the delimiter between the data in that column.

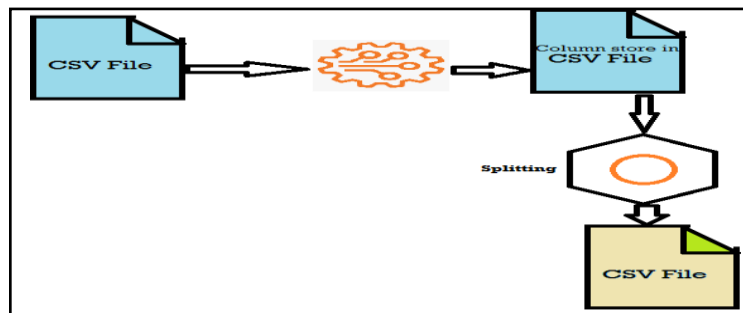


Figure 1: CSV Extraction Process

3.2 Extracting Web Pages

Web Extraction extracts the contents of a webpage and saves it to a file.

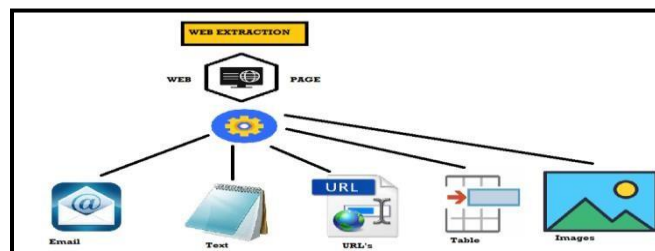


Figure 2: Web Extraction Method

This module is divided into several types, including:

3.2.1 Web-page Text Extraction

Text data will be extracted from a static website using this method. The above method makes use of three libraries:

- a) Request: Send HTTP requests.
- b) Sys: Access to interact strongly with the interpreter.
- c) Beautiful Soup: To pull data out of HTML and XML files.

3.2.2 Web-page Image Extraction

This module is a subset of Email Extraction; however, it will extract images from a given URL. There are four libraries in use:

- a) Request b) Urllib: This library primarily fetches Uniform Resource Locators aka URL'S.
- c) Beautiful Soup d) Req: to check whether a given string matches with a given regular expression.

3.2.3 Email Extraction from a Website

The Email Extraction module is used to extract an email address from a website that the user has provided. We used three libraries in this case:

- a) Re b) Beautiful Soup c) Request

3.2.4 Web-page URL Extraction

This module focuses on obtaining the linked URL of a specific Website. The user will provide this module with a URL, and it will read the website and return a linked URL from it. There are two libraries used in this case: a) Re b) Sys

3.2.5 Web-page Table Extraction

This module extracts tables from web pages and saves them in CSV format.

4. Extraction of Video

Video frame extraction will extract each video frame and save it in a file; the structure will be image format. This module made use of two libraries:

- a) CV2: to read video
- b) Os: provides the most straightforward functions facilitating user interaction and operating system information.

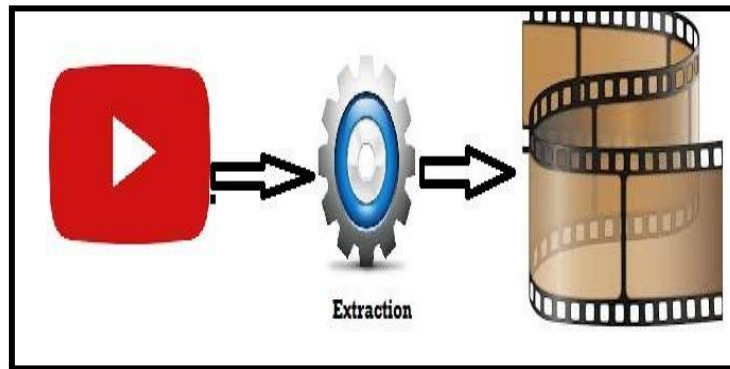


Figure 3: Video Extraction Process

5. Image Extraction

This module is used for text extraction from an image as a source. This makes use of two libraries:

- a) Pytesseract: Optical character recognition (OCR) tool for python, which recognises and "read" the text embedded in images.
- b) PIL: facilitates image processing capabilities to Python interpreter. It also provides extensive file format support.

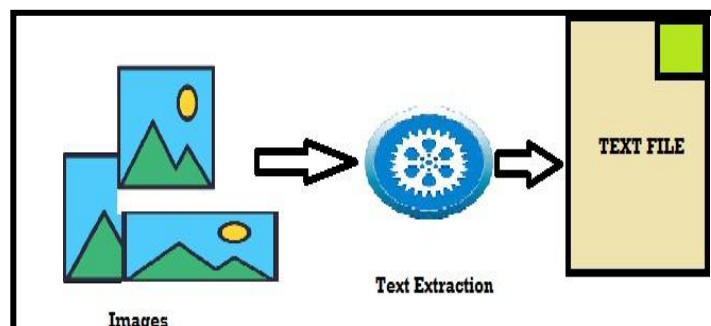


Figure 4: Image Extraction Method

6. Extraction of PDFs

It will extract text from a pdf file. We only used one library in this case, PyPDF2, which is used for performing major tasks on PDF files such as extracting the document-specific information, merging the PDF files, splitting the pages of a PDF file, adding watermarks to a file, encrypting and decrypting the PDF files, etc.

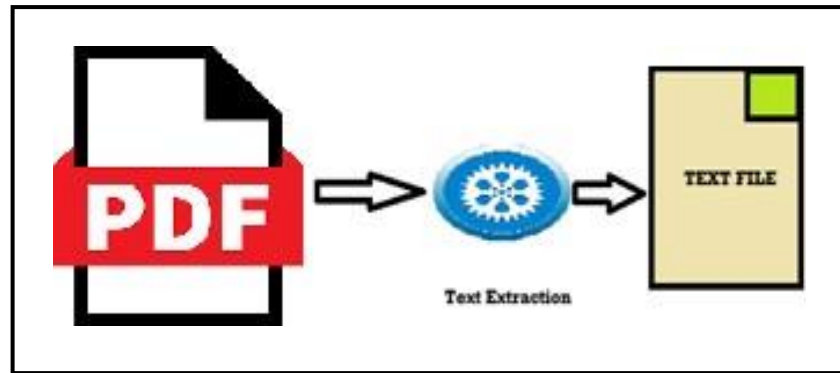


Figure 5. PDF Extraction Method

Articulation of Proposed System

This system is based on data gathered from various sources, such as company and organisational data. Because the user wants only relevant data, the proposed system categorises that data as easily accessible. It will extract and classify data into graph format as output files using various machine learning python libraries.

The complete visual is provided below figure to understand more simply.

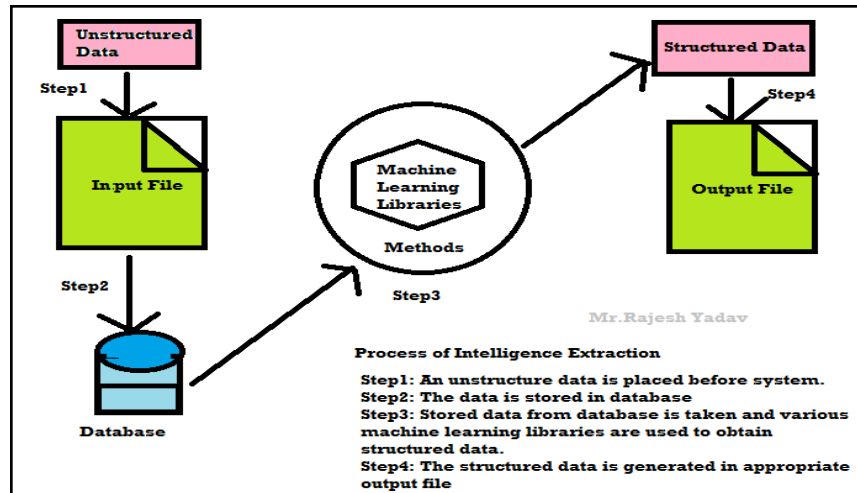


Figure 6: The Process of Intelligence Extraction

CONCLUSIONS

Here I tried implementing a visual system in which Extraction is based on the different machine learning algorithms that sort unstructured data into a structured format to be user-friendly for the user.

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APOCALYPSE NOW: FORECASTING THE IMMINENT EPOCH IN ERNEST CLINE’S READY PLAYER ONE

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ABSTRACT:

Human knowledge generates ideas to feature uniquely in a gadget. The technological invention of gadget altered nature for the survival of humans by increasing the control over the environment. The paper entitled “Apocalypse Now: Forecasting the Imminent Epoch in Ernest Cline’s *Ready Player One*” discusses the challenges and tribulations that the world will face in the near future. It also portrays how the world is traversing the path of science and technology. Ernest Cline’s novel *Ready Player One* showcases the upcoming world of online games and its impact.

Keywords: Role-playing game, Cyberspace, Technology, Artificial Intelligence

“The trials and tribulations in your life make stronger.” – Taylor Swift

Technology plays a vital role in today’s world, where the role of cyberspace is indispensable. It is a double-edged sword, which has benefits and detriments. Newton Lee comments on the technological inventions as, “Every major technological innovation propels humanity forward to the point of no return” (Lee). In

This present millennium, cyberspace rules over the people and it takes a central position in the universe. The major reason for the usage of technology is that the people try to escape from reality and enter into the world of imagination. As Carl Honoré says, “Technology enables us to work every minute of every day from any place on the planet” (Honoré).

A role-playing game (RPG) is a genre where the gamer controls a fictional character that undertakes a quest in an imaginary world. It is very challenging to define RPGs due to the range of hybrid genres that have RPG elements. Here, AI’s role can be seen in a wide manner. When a gamer gives command to their gaming applications, the command is paused within a fraction of seconds. This boosts the gamers to gain attraction towards it.

Ernest Christy Cline is an American Novelist, Slam Poet and Screenwriter. He is well-known for his works *Ready Player One* and *Amanda*. Before his fame, he spends much time in tech support jobs, which made him surf the web all day and laid the foundation for his 80’s pop culture. His literary career began as a spoken-word performer, competing in slam poetry competitions where he performs live before the judges. He was the Austin Poetry Slam Champion in 1998 and 2001. One of his spoken-word pieces called *Dance Monkeys Dance* is about a little blue planet run by monkeys who don’t think of themselves as monkeys. He turned out this piece into a short film. When it became a viral video, it was translated to at least 29 languages. His favourite video game is *Black Tiger* in which the hero fights enemies while finding hidden bonuses.

Ernest Cline projects the near future with RPG. Though his writings pose the forthcoming world, the present world can feel the minuscule traces of it. The novel *Ready Player One* forecast the upcoming twist and turns in the near future. It can also help them to be cautious and a warning sign about the approaching world.

Ready Player One (2011) is set in the year 2045 and it portrays the life in Oklahoma City, Oklahoma, resembles scenes from every Hollywood sci-fi, dystopian flick. Society is high tech with glowing neon everywhere. The book is about a kid who tries to solve the keys to find a billionaire’s wealth in a sort of competition. Orphaned 18-year-old Wade Watts is the protagonist who lives in the stacks, dwellings, literally, formed from stacks of old cars, trailers, RVs, etc. Like most of the people, he escapes his grim surroundings by spending his waking hours jacked into the OASIS, a sprawling virtual utopia. Like millions of other people, Wade dreams of discovering a virtual Easter egg that lies concealed within one of the virtual worlds by the OASIS’s creator, the late James Halliday. The wacky genius has left clues to

The Egg's location in puzzles scattered around his virtual worlds which, when solved in order, lead to the location of the prize - whoever discovers the Egg will inherit his entire estate, including management and control of the OASIS itself; a prize worth hundreds of billions of dollars.

In order to claim the Egg Wade has to solve the series of puzzles hidden in various classic arcade games and media from the 1980s, as Halliday was mad about the era. Though Wade is an expert at classic arcade games, he doesn't know everything. Aiding him in his quest for the Egg are his 'gunter' mates: Art3mis, his best friend Aech, and the brothers Daito and Shoto. Our nerdy heroes, however, soon gain the attention of Nolan Sorrento, the head of the 'Oology Division' at Innovative Online Industries. IOI is a multinational corporation bent on taking control of the OASIS for purely commercial reasons - charging for its use and bombarding users with advertisements. Currently, schooling in the OASIS is free. When Wade refuses to assist them in finding the first key, Sorrento and his associates attempt to murder Wade; they fail and the race is now on to find the Egg with Wade and his buddies representing the forces of good and Sorrento, the face of the evil IOI corp, the villain of the story. After huge many twist and turns, Wade succeeds in finding the Easter egg.

Behind every scientific development, the developer has to do lot of trials to bring out best out of it. In those trial cases, they face lot of difficulties, sufferings, pain and struggles. Some quit their trial, and lead their life in different direction. Some extract beautiful and useful invention by facing every barrier. In recent times, people learn more things by experimenting it with the help of technology. Technology drives people to the future after many trialling. Peter Canelo clearly opines about the technology, "Technology is the driver here. The strength will continue, and this rally will take us to new highs" (Canelo). In this current state of affairs, technology carries the life of the humans.

The rise of machine because of technology makes the man to become lazy. John Maynard Keynes, British Economist, predicted about the world that by 2030, "he expected a system of almost total "technological unemployment" in which we'd need to work as few as 15 hours a week" (Burn-Callander). This prediction has been believed by the devotees of the 'Pareto Principle,' which means 80-20 rule. Lazy people place their 20 percent effort and input in their work and they know the strategy to get the remaining 80 percent output. This principle was originated by Vilfredo Pareto, an Italian Economist in the year 1906. This is also used as one of the time management techniques.

Technology plays the essential role during the Covid-19 pandemic time. People are requested to be in their home to safeguard themselves. Before the pandemic situation people are free to go anywhere and

Everywhere. But now, they are locking up themselves to get rid of virus. Not only children, but also the elderly people get boredom easily. To escape from their boredom and loneliness, they start to use and explore the technological gadgets. People use these technological widgets to earn money by doing their office work.

People used to sense and feel the human touch from their day to day life activities, when they look back past twenty years. They are one with nature. They assemble in groups and expand their relationship levels. Though they have fewer level of technology, they can feel the touch of human. There activities like letter writing, phone calls and so on improve their love for them stronger and deeper. To watch a film, they need to wait for that particular time and they all sit in groups. In a street or village, there will be one television and the people gather together to watch television. They were united and together they made beautiful memories and widened their relationships.

In the recent era, the rise of technology has separated people who are nearby and has united people from far away through social media. The art of letter writing has been vanished. Within a fraction of second, people can converse with anyone. The art of creating and spreading gossip has been replaced by the social media platforms like Twitter, Whatsapp, Facebook, and Instagram and so on. They can spread news within seconds to anyone whether the news is real or fake. Many people are misguided by the fake news. The growth of meme culture can make the news or the product to a great extent. Peter Guber, an American business executive, entrepreneur, educator and author opines about ‘oohs and aahs’ of social networks:

I think any new technology that helps connect and create social cohesion is great. But at the end of the day, you and I are analog creatures. We have to take ‘oohs and aahs’ and convert them to 0s and 1s and then convert them back to ‘oohs and aahs.’ Narratives that work in the social networks are the exchange of stories that are told well. (Guber)

Playing outdoor games has been fading in the recent times because of modern technology. Not only children but also the elders play games in the so called techno gadgets. They unite with friends in virtual reality games. They feel lonely, when they take a break from those games. Virtual space separates people from reality. Though playing games in virtual reality has benefits, it has equal share of demerits. Over addiction to virtual reality take away their connection with people.

Playing games in virtual space can boost their level of knowledge and skills. Children can learn problem solving techniques, multitasking, gain hand-eye coordination and so on. When people lose their self-control, they enter into the troublesome situation. Astro Teller, British-American Entrepreneur and scientist, rightly share about the invisibility of techno usage, “When technology reaches that level of invisibility in our lives, that’s our ultimate goal. It vanishes into our lives. It says, ‘You don’t have to do the work; I’ll do the work’” (Teller).

Ernest Cline’s *Ready Player One* explores the condition and habit of the gamer. The protagonist of the novel exposes the situation that is going to happen sooner. Though the gamers have ample number of friends in the virtual space, they don’t have true or real friendship in the real space. Their reality space will be empty and alone. They will reach the stage of depression. They cannot open up their pain and thoughts with the people in virtual space⁰⁰. To get fame and money, people use technology in many ways and they get stressed.

In the next twenty years or more, people are going to see the drastic change of technology. Artificial Intelligence (AI’s) can replace humans with the machine (robots). Robots can be programmed with ample number of knowledge and with that people can export large amount of production. Already, this pandemic has started replacing real classrooms with virtual classrooms. Soon, the text books will be replaced by virtual space. Travelling to space will be like travelling in an aircraft to different places. Every space will be automated because of the rising technology. As Ernest Cline’s *Ready Player One* portrays the buildings and houses are replaced with caravan and trailer, tall buildings can become mini streets and so on.

The article “The Impact of Gaming: A Benefit to Society [Infographic]” clearly speaks out the downside of the gamers. The extract below unmistakably projects the future of the gamers:

The voice of gamers is going to play a big role in the future as gaming culture continues to develop and grow. It’s time we started listening to the people that actually play these games rather than people that just want someone to blame for the violence they see on the news. Gaming is not a perfect world. There are flaws such as gaming addiction that need to be addressed. But for the most part, it seems that gaming has a positive impact and should be treated as such. (Anderton)

Humanitarian concept has been degrading in the recent times. Biowar, border fight and so on smash the population growth with the help of techno based tools which can be used as weapons. To conclude with the quotes of American clergyman Lionel Kendrick, “We cannot always control everything that happens to us in this life, but we can control how we respond. Many struggles come as problems and pressures that sometimes cause pain. Others come as temptations, trials and tribulations” (Kendrick). Trials and tribulations can make warning from the future failures and lead the path to taste the real fruit of success. It is the one which makes as a real successful person in the life.

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A STUDY ON THE POSITIVE AND NEGATIVE EFFECTS OF SOCIAL MEDIA ON SOCIETY

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ABSTRACT:

Social media is very salient in day-to-day life and it is the elite platform for the public to argue their issues and opinions. Social media is a term used to describe the communication between groups or individuals in which they produce, share, and exchange ideas, images, videos, and much more, over the internet and in virtual communities. Young children are evolving with electronic gadgets such as mobile phones, laptops, computers, etc. And teenagers are very much interactive on sites like *Twitter, Facebook (FB), Instagram, WhatsApp, Snapchat, Telegram, Pinterest, LinkedIn, Myspace*, and much more, which changes their behavioral attitudes and separates them from their family members. Two effects of social networking: on the one hand, with a positive attitude, social media provides many job and business-oriented opportunities. On the other hand, the negative attitude is also balanced by leading teenagers to take risks related to online communities. Cyberbullying is a form of harassment that is carried out using technology that is high-risk. The purpose of the paper entitled “A Study on the Positive and Negative Effects of Social Media on Society” explore to get a deeper insight into both the pros and cons of social media.

KEYWORDS: Social Media, Cyber bullying, electronic gadgets, Mobile phones, websites, networking.

Social media is an online platform in which people build their social networks and relationships with others who share personal information, backgrounds, activities, career interests, opinions about society, Etc. The impact of social networking on teenagers is well-known. It becomes a part of each and every individual’s life. Many youngsters are using laptops, Android phones, tablets, and various types of

computers to check the updates from their friends and families. The advancement of technology keeps people engaged in their work, despite the fact that it leads to a stressful life. Etc. The impact of social networking on teenagers is well-known. It becomes a part of each and every individual's life. Many youngsters are using laptops, Android phones, tablets, and various types of computers to check the updates from their friends and families. The advancement of technology keeps people engaged in their work, despite the fact that it leads to a stressful life.

Billions of people around the world share their information, videos, photos, and messages on social media in order to communicate with friends and relatives. Some use social media for gaining knowledge and being updated with current affairs. In the fields of education and business, social media plays an indispensable role. With the evolution of technology, youths now lead a standard life. Through social networks, teenagers can advertise their field of business very efficiently.

Nowadays, people don't completely rely on television for news. People can get the information through social media world-wide. The current generation can be referred to as the "Net Generation." They use the latest technologies in various forms, which include Smartphones, MP3 Players, Digital Cameras, Ipods, Video Games, Web Design, E-books, and personal computers. They are completely different from previous ages. This 21st century is ultimately filled and occupied with electronic gadgets, social networks, and the media. From social media, they gain more knowledge about education, health and medical advice, beauty concepts, business, e-commerce, and food-related tips, etc. Social media is widely used by people from all over the world, which has its own pros and cons.

Some of the most well-received social media sites are *Facebook, Twitter, Google, YouTube, Pinterest, Instagram, Snapchat, WhatsApp*, etc.

Facebook: It came into existence on February 4, 2004. It has billions of active users per month. It is considered to be the world's largest social media network where we can fulfill all our needs. It connects different cultures of people in a single frame.

Google+: It is one of the most wanted and daily used social media sites by the people from all categories. It was propelled on December 15, 2011. It is very important in all fields. Google+ is the area where we get all facts under an umbrella.

YouTube: It is the world's second biggest well-known video-based online networking which charms the people from all age groups. It was founded on February 14, 2005. And later it was purchased by Google in 2006 in the month of November.

WhatsApp: WhatsApp Messenger is the platform to share instant messaging app used via Android phones, PCs, and Tablets. Internet connection is actually important to share pictures, videos and other kind of documents. It was launched in January 2010 and finally purchased by Facebook on February 2004.

Instagram: otherwise called as visual online networking stage. This site has millions of dynamic and active participants around the world. People use to posts data in the form of stories. They share all information and share their location in this site. In addition to this people who use Facebook also prefers to handle and maintain Instagram accounts.

Pinterest: It is used by the learners and the new comers. It was founded on September 2015 with millions of clients. This is very beneficial for young girls to get trending information.

Snapchat: This application was authentic from September 2011. It is an image transformation and informing application mostly used by children as well as teenagers. Photo editing, collaging, framing, sharing pictures in different frames by editing.

Social media has a enormous impact on society. It has changed the destination of every individual's. It helps the people to reconnect with their old comrades, partners and mates; in addition to this it makes the individual to influence on new companies to share their content, pictures, documents, voice notes among them. The social networks change the life style in the society.

Positive Effects:

The first and foremost choice of social media is to connect people from anywhere. Anyone can communicate with everyone. There is no partiality and dominance between men and women, caste and religion and even location. This makes the individual to attach with anyone to gain knowledge and to share their opinions. It also provides various benefits for the students as well as teachers. It is the easy way to educate during Pandemics with help of expertise professionals via social media. During this Pandemic situation social media helps to educate children in many ways. It also assists to gain supporting hands from others during the issues. Regardless of whether it support in terms of cash or an advice from media group which are associated with it.

The web-based social networking helps us to get information and daily updates which happen around us. People, now a day's not depend upon Televisions and Print media. Through social media we can get to know all the details from everywhere possible. On the other hand it doesn't pass authentic and genuine

Messages too. Through Social media, we can promote our business to the people in wide range. The entire world is open for every one. Advertisement in social media increases the profits for our business.

Since the world has different kinds of religions and beliefs. So they can connect, discuss and share their own stuffs with others. It unites people to achieve goals in their field and made them to shine. It also provides bountiful opportunities for people who are interested in writing blogs. It shares the ideas beyond geographical boundaries. And it also paves the way for young generations.

Negative effects:

Cyber Harassment: In accordance to the report released by the Pewcenter.org the greater part of youngsters who have progressed towards digital bullying without their knowledge. It creates the hindrance among the public.

Hacking: Personal information were hacked by the hackers from individual's website accounts. Accounts from Facebook, Twitter, Instagram accounts have been hacked by the hackers very often.

Addiction: Social media addiction destroys the life of teenagers. It even spoils the ambition of the teenagers in the form of online games and websites etc.

Scams: Several cases are available where people commits fraud and scams through social media or web based networking. Another great drawback is the shared images, Videos, and voice recordings may be misused and modified to create a problem which also misleads young generation. As the development of technology has many advantages and some faults which misleads the society. False statements and information were allowed to spread on the social media platforms which affects and attacks the individual's personal security. So all the citizens are advised to adopt the positive side of social media not by the negative side and get benefited by the development of technologies.

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A NOVEL APPROACH FOR DATA MINING USING CLUSTERING BASED ABC WITH GA IN BIG DATA

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ABSTRACT

Data mining is the process of discovering actionable information from large sets of data. Data mining programs analyze relationships and patterns and summarizing it into valuable information which can be used to increase profits, cuts costs, or both. Data mining techniques in CRM assist your business in finding and selecting relevant information. It involves exploring and analyzing large blocks of information to glean meaningful patterns and trends. It can be used in a variety of ways, such as database marketing, credit risk management, fraud detection, spam Email filtering, or even to discern the sentiment or opinion of users.

The data mining process breaks down into five steps. First, organizations collect data and load it into their data warehouses. Next, they store and manage the data, either on in-house servers or the cloud. Business analysts, management teams, and information technology professionals access the data and determine how they want to organize it. Then, application software sorts the data based on the user's results, and finally, the end-user presents the data in an easy-to-share format, such as a graph or table.

The artificial bee colony (ABC) algorithm is a popular swarm based technique, which is inspired from the intelligent foraging behavior of honeybee swarms. In ABC, the neighborhood search strategy is employed in order to find better solution around the previous one. ABC algorithm is used to solve many real world problems [1].

So, in this paper clustering based hybrid algorithm including Genetic Algorithm (GA), Artificial Bee Colony algorithm (ABC) has been proposed for mining the data which removes the unnecessary data available in the applications.

The results indicate that the new method achieves good performance than the previously presented methods from the subjective and objective viewpoints.

Keywords: *Customer Relationship Management (CRM), Artificial Bee Colony algorithm (ABC) and Genetic Algorithm (GA).*

INTRODUCTION

Genetic Algorithm (GA) is one of the powerful optimization methods based on the process of natural evolution [2]. The survival of the fittest idea is adopted to provide a different searching technique which explores selected possible solution to obtain good result. Due to the performance problem in GA during the searching, several works have been done aiming at it by, such as, the development of the selection mechanism strategy [3], adaptive mutation probability and GA operator improvement [4], and elitism selection mechanism enhancement through successive generations using threshold values [5].

The artificial bee colony algorithm (ABC) is an optimization algorithm based on the intelligent foraging behavior of honey bee swarm [6].

Related works

A. Kishor and P. K. Singh [7] compared performance of the artificial bee colony algorithm (ABC) and the real coded genetic algorithm (RCGA) on a suite of 9 standard benchmark problems. The problem suite comprises a diverse set of unimodal, multimodal and rotated multimodal numerical optimization functions and the comparison criteria include (i) solution quality, (ii) convergence speed, (iii) robustness, and (iv) scalability to test efficacy of the algorithms. To the best knowledge of the authors, such a comprehensive comparative study of the two algorithms is not available in the literature. An empirical study shows that

The RCGA has advantages over the ABC in terms of all the criteria for the unimodal and the rotated multimodal functions. On other hand, the ABC outperforms the RCGA in terms of solution quality for the multimodal functions. Therefore, based on the insights gained out of this comparative study, the authors propose an algorithm ABC-GA with new algorithmic framework that comprises advantages of both the ABC and the GA. An empirical study of the proposed algorithm ABC-GA shows its promising performance as the obtained results are superior to both the comparative algorithms for all the problems in all the criteria.

Muthiah A, Rajkumar R [8], in their ambitious approaches have employed three bees to furnish optimization in makespan, machine work load and the whole run period in an optimized method. In this way, with the efficient employment of our effective technique we make an earnest effort to minimize the makespan and number of machines. This paper compares GA to minimize the make span of the job scheduling process with ABC and proved that ABC algorithm produces the better result.

Taher, Ali Abdul Kadhim, and Suhad Malallah Kadhim [9], proposed a method to improve GA using artificial bee colony (GABC). This proposed algorithm was applied to random number generation (RNG), and travelling salesman problem (TSP). The proposed method used to generate initial populations for GA rather than the random generation that used in traditional GA. The results of testing on RNG show that the proposed GABC was better than traditional GA in the mean iteration and the execution time. The results of testing TSP show the superiority of GABC on the traditional GA. The superiority of the GABC is clear in terms of the percentage of error rate, the average length route, and obtaining the shortest route. The programming language Python3 was used in programming the proposed methods. This algorithm reflects the operation of natural selection, where the fittest individuals are chosen for reproduction so that they produce offspring of the next generation.

Advantages of ABC algorithm [10]

The major advantages which ABC holds over other optimization algorithms are (9)(5):

Simplicity, flexibility and robustness

Use of fewer control parameters compared with many other search techniques

Ease of hybridization with other optimization algorithms

Ability to handle the objective cost with stochastic nature

Ease of implementation with basic mathematical and logical operations

finding global optimization solution.

Discussion

Number of researchers is interested in ABC algorithm for solving optimization problems, since 2005, several related works have appeared to enhance the performance of the standard ABC in the literature, to meet up with challenges of recent research problems. In this review paper, we provide an overview of Artificial Bee Colony (ABC) algorithm and advances in ABC algorithm.

Even though more number of algorithms proposed for optimization, those algorithms have been implemented in simulation and not in real time implementation. If this algorithm is used in optimization, the outcome will be better than the existing one because the clustering is measured with the help of metrics like Entropy, precision, recall and purity.

Research Direction

If a new clustering approach is used, unnecessary data will be removed

Quantification of clustering is measured.

GA has been proposed

ABC algorithm has been proposed.

Quantification of GAABC algorithm is measured and compared with the existing approaches.

Conclusion

Data mining is the process of investigating data from different viewpoints and summarizing it into valuable information which can be used to increase profits, cut costs, or both.

Genetic algorithm (GA) is a part of evolutionary computing that simulates the theory of evolution and natural selection, where this technique depends on a heuristic random search. Genetic algorithm has the responsibility of evolutionary process of ants' characteristics.

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CLLOUD SERVICES EVOLVING IT'S PROTECTION TECHNIQUES AGAINST THE ATTACK

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ABSTRACT:

Cloud Services is defined as a new technology to deliver services through internet. This technology became over traditional data processing system to store large data. Cloud Services gives the user the ability to access information anytime from anywhere.

Cloud is definitely useful for business that cannot afford hardware and maintenance team to work 24 hours to keep the business on. Because the data is in the cloud not local in the company private area. The data will be exposed for attacking from hackers. CLOUD NETWORK Security is devoted to solving your CLOUD NETWORK security issues in detail, now with even more news, information and solutions to your CLOUD NETWORK security problems.

This past year saw nearly a 300% increase in reported cybercrimes, according to the FBI's Internet Crime Complaint Center (IC3). There has been a clear rise in threat volume and sophistication as many cybercriminals shift to techniques that can effectively evade detection and easily go after high-value targets.

IoT devices are becoming a focus for threat actors, and threats related to credential harvesting and ransomware are also growing in number. Additionally, some cybercriminals are moving their infrastructure to the cloud in hopes of blending in among legitimate services

KEYWORDS: Security, Internet, Cloud, Business.

2. INTRODUCTION:

Cloud computing is Web-based computing that allows businesses and individuals to consume computing resources such as virtual machines, databases, processing, memory, services, storage, messaging, events, and pay-as-you-go. Cloud services often improve upon older ones.

For example, the pay-as-you-go model charges for resources as they are used. Unlike traditional computing, if you do not use any resources, you do not need to pay. Similar to a water connection or an electricity line, you have a meter and this meter keeps track of your monthly usage. You then pay for that usage at a given rate.

There are 4 main types of cloud computing: private clouds, public clouds, hybrid clouds, and multclouds. There are also types of cloud computing services:

Infrastructure-as-a-Service (IaaS),

Platforms-as-a-Service (PaaS),

and Software-as-a-Service (SaaS).

Choosing a cloud type or cloud service is a unique decision.



The differences between public clouds, private clouds, hybrid clouds, and multi clouds were once easily defined by location and ownership. But it's just not that simple anymore. So while we compare the differences below, there are plenty of caveats.

Here is a list of my top 10 cloud service providers:

Amazon Web Services (AWS)

Microsoft Azure

Google Cloud

Alibaba Cloud

IBM Cloud

Oracle

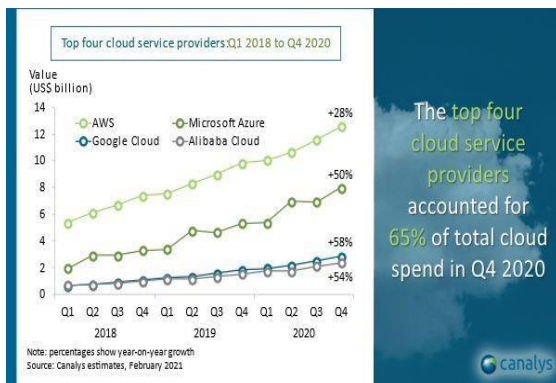
Salesforce

SAP

Rackspace Cloud

VMWare

In the above service providers there will be security policies and processes to reduce the overall risk or impact of a cybersecurity threat.



In regard to cybersecurity, risk mitigation can be separated into three elements:

PREVENTION,

DETECTION,

AND REMEDIATION.

As cybercriminals' techniques rise in sophistication, your organization's cybersecurity risk mitigation strategies will have to adapt to maintain the upper hand.

In the Cloud Service providers the best of the three is which players and their offerings in the cloud computing world.

	AWS	Azure	Google Cloud
Company	AWS Inc.	Microsoft	Google
Launch year	2006	2010	2008
Geographical Regions	25	54	21
Availability Zones	78	140 (countries)	61
Key offerings	Compute, storage, database, analytics, networking, machine learning, and AI, mobile, developer tools, IoT, security, enterprise applications, blockchain.	Compute, storage, mobile, data management, messaging, media services, CDN, machine learning and AI, developer tools, security, blockchain, functions, IoT.	Compute, storage, databases, networking, big data, cloud AI, management tools, identity and security, IoT, API platform
Compliance Certificates	46	90	
Annual Revenue	\$33 billion	\$35 billion	\$8 billion

Some of the Service providers provide in various categories, including

Elastic Computing,

Storage and CDN,

Networking,

Database Services, Security,

Monitoring and Management,

Domains and Websites,

Analytics and Data Technology,

Application Services,

Media Services,

Middleware,

Cloud Communication,

The cybercrimes increases day to day by various Attack, the High Risk is taken by the service providers to protect the Data Which Stored in the Database which come in their controls.

3. CLOUD NETWORK ATTACK MITIGATION TECHNIQUES:

- 3.1. Conduct a risk assessment to determine vulnerabilities.
- 3.2. Establish CLOUD NETWORK access controls.
- 3.3. Implement firewalls and online antivirus software.
- 3.4. Create a patch management schedule.
- 3.5. Continuously monitor CLOUD NETWORK traffic.
- 3.6. Build an incident response plan.

The cybersecurity risk mitigation strategies has Proactive cybersecurity risk mitigation is quickly becoming the only option for organizations as the likelihood of experiencing a cyber-attack is all but guaranteed. Here are 6 top strategies for mitigating cybersecurity incidents across your IT ecosystem:

3.1. CONDUCT A RISK ASSESSMENT TO DETERMINE VULNERABILITIES

The first step in a cybersecurity risk mitigation strategy should be to conduct a cybersecurity risk assessment, which can help uncover potential gaps in your organization's security controls. A risk assessment can offer insight into the assets that need to be protected and the security controls currently in place, and conducting one can help your organization's IT security team identify areas of vulnerability that could be potentially exploited, and subsequently prioritize which steps should be taken first. Cybersecurity ratings are a great way to gain a real-time look at your organization's cybersecurity posture, including that of your third- and fourth-party vendors.

3.2. ESTABLISH CLOUD NETWORK ACCESS CONTROLS

Once you have assessed your assets and identified high-priority problem areas, the next step is to establish CLOUD NETWORK access controls to help mitigate the risk of insider threats. Many organizations are turning to security systems such as zero trust, which assesses trust and user access privileges on an as-needed basis depending on each user's specific job function.

This helps minimize both the likelihood and impact of threats or attacks that occur due to employee negligence or a simple lack of awareness of cybersecurity best practices. Additionally, as the number of connected devices on a CLOUD NETWORK increases, endpoint security will also become a growing concern.

3.3. IMPLEMENT FIREWALLS AND ONLINE ANTIVIRUS SOFTWARE

Another important cybersecurity risk mitigation strategy involves the installation of security solutions such as firewalls and online antivirus software. These technological defenses offer an additional barrier to your computer or CLOUD NETWORK. Firewalls act as a buffer between the outside world and your CLOUD NETWORK and gives your organization greater control over incoming and outgoing traffic. Similarly, online antivirus software searches your device and/or CLOUD NETWORK to identify any potentially malicious threats.

3.4. CREATE A PATCH MANAGEMENT SCHEDULE

Many software providers release patches consistently, and today's cybercriminals are aware of that. As such, they can quickly determine how to exploit a patch almost as soon as it is released.

Organizations should be aware of the typical patch release schedule among their service or software providers to create an effective patch management schedule that can help your organization's IT security team stay ahead of attackers.

3.5. CONTINUOUSLY MONITOR CLOUD NETWORK TRAFFIC

Proactive action is one of the most effective strategies for mitigating cybersecurity risk. With roughly 2,200 attacks occurring every day, the only way to truly stay ahead of cybercriminals is to continuously monitor CLOUD NETWORK traffic, as well as your organization's cybersecurity posture.

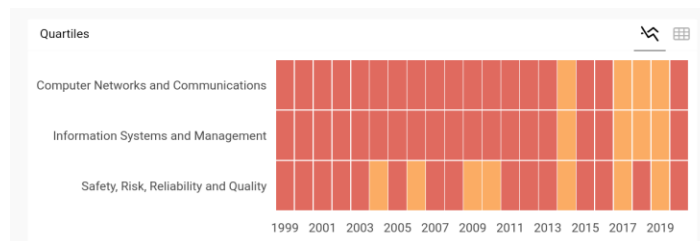
To truly enable real-time threat detection and cybersecurity risk mitigation, consider tools that allow you to gain a comprehensive view of your entire IT ecosystem at any point in time. This will allow your IT security team to more actively identify new threats and determine the optimal path to remediation.

3.6. BUILD AN INCIDENT RESPONSE PLAN

Ensuring that everyone, including both the IT security team and non-technical employees, knows what they're responsible for in the event of a data breach or attack can make it easier to have resources in place and ready to go.

This is known as an incident response plan, and it is one of the most critical components to mitigating cyber risk in your organization's evolving CLOUD NETWORK environments.

Threats can come from anywhere and they are continuously growing in sophistication, meaning it's becoming increasingly impossible to be 100% prepared for data breaches. An incident response plan helps your organization do as much as possible to remain proactively prepared so your team can move quickly and efficiently to remediate any issues



4. BENEFITS OF CLOUD NETWORK SECURITY:

CLOUD NETWORK Security is vital in protecting client data and information, keeping shared data secure and ensuring reliable access and CLOUD NETWORK performance as well as protection from cyber threats.

A well designed CLOUD NETWORK security solution reduces overhead expenses and safeguards organizations from costly losses that occur from a data breach or other security

Incident. Ensuring legitimate access to systems, Online Applications and data enables business operations and delivery of services and products to customers.

4.1 TYPES OF CLOUD NETWORK SECURITY PROTECTIONS

4.1.1 FIREWALL

Firewalls control incoming and outgoing traffic on CLOUD NETWORKS, with predetermined security rules. Firewalls keep out unfriendly traffic and is a necessary part of daily Services. CLOUD NETWORK Security relies heavily on Firewalls, and especially Next Generation Firewalls, which focus on blocking malware and Online Application-layer attacks.

4.1.2 CLOUD_NETWORK SEGMENTATION

CLOUD NETWORK segmentation defines boundaries between CLOUD NETWORK segments where assets within the group have a common function, risk or role within an organization. For instance, the perimeter gateway segments a company CLOUD NETWORK from the Internet. Potential threats outside the CLOUD NETWORK are prevented, ensuring that an organization's sensitive data remains inside. Organizations can go further by defining additional internal boundaries within their CLOUD NETWORK, which can provide improved security and access control.

5. ABOUT THE ACCESS CONTROL:

Access control defines the people or groups and the devices that have access to CLOUD NETWORK Online Applications and systems thereby denying unsanctioned access, and maybe threats. Integrations with Identity and Access Management (IAM) products can strongly identify the user and Role-based Access Control (RBAC) policies ensure the person and device are authorized access to the asset.

6. TYPES OF CLOUD NETWORK SECURITY PROTECTIONS:

6.1 .ZERO TRUST

6.2. EMAIL SECURITY.

6.3. DATA LOSS PREVENTION (DLP).

6.4. INTRUSION PREVENTION SYSTEMS (IPS) .

6.5. SANDBOXING.

6.6. HYPERSCALE CLOUD NETWORK SECURITY.

6.1 ZERO TRUST

Techniques Remote access VPN provides remote and secure access to a company CLOUD NETWORK to individual hosts or clients, such as telecommuters, mobile users, and extranet consumers. Each host typically has VPN client software loaded or uses a web-based client. Privacy and integrity of sensitive information is ensured through multi-factor authentication, endpoint compliance scanning, and encryption of all transmitted data.

The zero trust security model states that a user should only have the access and permissions that they require to fulfill their role. This is a very different approach from that provided by traditional security solutions, like VPNs, that grant a user full access to the target CLOUD NETWORK. Zero trust CLOUD NETWORK access (ZTNA) also known as software- defined perimeter (SDP) solutions permits granular access to an organization’s Online Applications from users who require that access to perform their duties.

6.2 EMAIL SECURITY

Email security refers to any processes, products, and services designed to protect your email accounts and email content safe from external threats. Most email service providers have built-

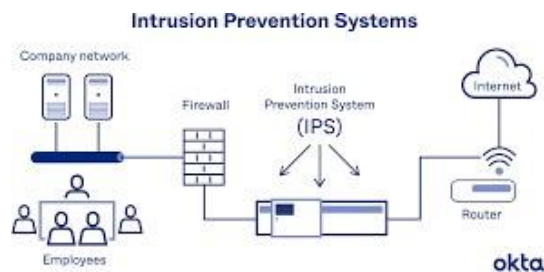
In email security features designed to keep you secure, but these may not be enough to stop cybercriminals from accessing your information.

6.3 DATA LOSS PREVENTION (DLP)

Data loss prevention (DLP) is a cybersecurity methodology that combines technology and best practices to prevent the exposure of sensitive information outside of an organization, especially regulated data such as personally identifiable information (PII) and compliance related data: HIPAA, SOX, PCI DSS, etc.

6.4 INTRUSION PREVENTION SYSTEMS (IPS)

IPS technologies can detect or prevent CLOUD NETWORK security attacks such as brute force attacks, Denial of Service (DoS) attacks and exploits of known vulnerabilities. A vulnerability is a weakness for instance in a software system and an exploit is an attack that leverages that vulnerability to gain control of that system.



When an exploit is announced, there is often a window of opportunity for attackers to exploit that vulnerability before the security patch is applied. An Intrusion Prevention System can be used in these cases to quickly block these attacks.

6.5 SANDBOXING

Sandboxing is a cybersecurity practice where you run code or open files in a safe, isolated environment on a host machine that mimics end-user operating environments. Sandboxing observes the files or code as they are opened and looks for malicious behavior to prevent threats from getting on the CLOUD NETWORK. For example malware in files such as PDF,

Microsoft Word, Excel and PowerPoint can be safely detected and blocked before the files reach an unsuspecting end user.

6.6 HYPERSCALE CLOUD NETWORK SECURITY

Hyperscale is the ability of an architecture to scale appropriately, as increased demand is added to the system. This solution includes rapid deployment and scaling up or down to meet changes in CLOUD NETWORK security demands. By tightly integrating CLOUD NETWORK ing and compute resources in a software-defined system, it is possible to fully utilize all hardware resources available in a clustering solution.

7. CLOUD NETWORK SECURITY

Online Application s and workloads are no longer exclusively hosted on-premises in a local data center. Protecting the modern data center requires greater flexibility and innovation to keep pace with the migration of Online Application workloads to the cloud. Software-defined CLOUD NETWORK ing (SDN) and Software-defined Wide Area CLOUD NETWORK (SD-WAN) solutions enable CLOUD NETWORK security solutions in private, public, hybrid and cloud-hosted Firewall-as-a-Service (FWaaS) deployments.

8. ROBUST CLOUD NETWORK SECURITY

8.1 VIRUS:

A virus is a malicious, downloadable file that can lay dormant that replicates itself by changing other computer programs with its own code. Once it spreads those files are infected and can spread from one computer to another, and/or corrupt or destroy CLOUD NETWORK data.

8.2 Worms:

Can slow down computer CLOUD NETWORK s by eating up bandwidth as well as the slow the efficiency of your computer to process data. A worm is a standalone malware that can propagate and work independently of other files, where a virus needs a host program to spread.

8.3 Trojan: A Trojan is a backdoor program that creates an entryway for malicious users to access the computer system by using what looks like a real program, but quickly turns out to be harmful. A trojan virus can delete files, activate other malware hidden on your computer CLOUD NETWORK, such as a virus and steal valuable data.

8.4 Spyware:

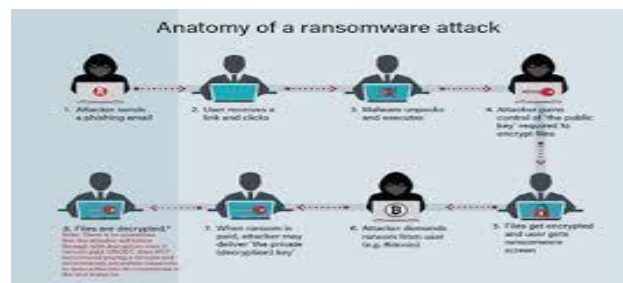
Much like its name, spyware is a computer virus that gathers information about a person or organization without their express knowledge and may send the information gathered to a third party without the consumer's consent.

8.5 Adware: Can redirect your search requests to advertising websites and collect marketing data about you in the process so that customized advertisements will be displayed based on your search and buying history.

8.6 Ransomware:

This is a type of Trojan cyberware that is designed to gain money from the person or organization's computer on which it is installed by encrypting data so that it is unusable, blocking access to the user's system.

CLOUD NETWORK Security is devoted to solving your CLOUD NETWORK security issues in detail, for example the information and solutions to your CLOUD NETWORK security problems and identify the threats to your CLOUD NETWORK s.



8.6.1 CLOUD NETWORK Security covers:

8.6.1.1 Authoritative news and analysis of significant events, including major trends in threats, attacks and regulatory changes.

8.6.1.2 Regular columns – the inside view from our panel of experts.

8.6.1.3 Detailed articles providing real-world guidance on key CLOUD NETWORK security issues.

8.6.1.4 In-depth analysis of the management, regulatory and policy challenges around information security, data governance and regulatory compliance.

8.6.1.5 Technically detailed updates on developments in key CLOUD NETWORK and IT security technologies.

9. CLOUD NETWORK SECURITY VITAL STATISTICS REPORTING FOR:

The reason behind this to protect the Data which they stores in their database,

9.1 CISOs and CSOs

9.2 Computer and Information Security Managers

9.3 CLOUD NETWORK based Telecommunications Managers

9.4 Planners

9.5 Analysts and Operations Managers

9.6 Systems Administrators

9.7 IS Management

10. CLOUD NETWORK SECURITY TOOLS AND TECHNIQUES:

Access control. If threat actors can't access your CLOUD NETWORK, the amount of damage they'll be able to do will be extremely limited.

10.1 Anti-malware software.

10.2 Anomaly detection.

10.3 Online Application security.

10.4 Data loss prevention (DLP) .

10.5 Email security.

10.6 Endpoint security.

10.7 Firewalls.

CONCLUSION:

Cybersecurity risk mitigation is a task that should never truly end, as new threat actors are entering the landscape at a rapid pace. To keep today's dynamic environments protected, organizations will need to employ proactive cybersecurity monitoring to ensure that threats are being identified and remediated as quickly as possible.

Security Scorecard's security ratings offer an outside-in view of the security posture of your organization's IT infrastructure, giving your team visibility into your cloud network and system vulnerabilities at any given point in time.

The platform's easy-to-read dashboard makes it easier than ever to confidently take control of third-party risk, enable continuous compliance, and make informed decisions about how to improve security in the future. By implementing the right security controls today, your organization can stay protected against the emerging threats of tomorrow.

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**ASSESS FINANCIAL LITERACY LEVEL OF WOMEN
ENTREPRENEURS: A STUDY OF SELECTED AREAS IN
VIRUDHUNAGAR**

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ABSTRACT

The paper aims to know the assess level of financial literacy of women entrepreneurs in Virudhunagar. The study explains how women entrepreneurs in Virudhunagar understood their level of financial literacy and the ways in which it could be made better. By applying Proportionate stratified random sampling technique, to select 140 women entrepreneurs as sample size. The researcher has framed the null hypothesis for level of financial awareness is not dependent on the area of residence of women entrepreneurs. The researcher has applied ANOVA in their analysis. The researcher found that based on Duncan Multiple Range Test (DMRT), the rural women entrepreneurs' financial knowledge is significantly differed with Semi-urban and urban area of women entrepreneurs. The financial attitude and financial behaviour of rural women entrepreneurs is no significant difference among semi-urban and urban area women entrepreneurs. It concluded that overall, the assessing level of financial literacy of rural and urban women entrepreneurs is significantly differed from semi-urban women entrepreneurs.

Keywords: Entrepreneurship, Women entrepreneurs, Level of financial literacy, Duncan Multiple Range Test

1. INTRODUCTION

In the last decade, India has seen a surge in entrepreneurship, with many women joining the ranks of leading start-ups in recent years. Women continue to face greater difficulties than men, as the added societal pressure of achieving a work-life balance weighs heavily on their shoulder (Sharmita Kar, 2021). Even though the number of women entrepreneurs is increasing, research shows that their businesses are less likely to grow than those of their male counterparts (Davis, 2011). When it comes to starting and growing a business, women entrepreneurs face a variety of obstacles. In light of these obstacles, entrepreneurial consulting, training, and education services are beneficial to venture a success. However, it has been noted that the availability of resources critical to the start-up and success of entrepreneurial ventures is largely determined by geographic location. One of the most important factors to consider when compiling the list of potential service areas was the area of barriers to not only entrepreneurship but also growth.

2. REVIEW OF LITERATURE

According to **Kumaran Kanapathipillai S. and M. Ferdous Azam (2019)**, the success of women entrepreneurs is influenced by five factors: financial capital, human capital, social capital, innovation, and work-life balance. The findings could serve as a motivation for other women to overcome all obstacles in their quest to triumph and maintain a high socioeconomic status as well as a competitive edge in business. In their research paper, **Dr. R. Gayathri and T. Vanjikkodi (2019)** argue that women face problems that are not only economic but also psychological. The research question can be expressed as follows: business performance and financial literacy of women entrepreneurs in Tiruppur District. The profitability and sales performance of the company were investigated by the researcher. Data is collected from 100 women entrepreneurs in Tiruppur District using convenient sampling methods and a structured questionnaire. The researcher came to the conclusion that women entrepreneurs have a medium level of financial literacy. According to the researcher, the government should organise a larger number of entrepreneur awareness programmes to reach out to the villages and hamlets. In their research paper, **T. Charulakshmi and M. Thaiyalnayaki (2019)** discovered that scarcity of raw materials, business finance,

Family, Tyres, society, male dominance, risk bearing capacity, competition, and mobility are the most common problems faced by women entrepreneurs. The researcher used a questionnaire to select 120 women entrepreneurs as samples. The researcher must be aware of the issues that women entrepreneurs face. The researcher came to the conclusion that there is a significant relationship between age and the problems that women entrepreneurs face. Even so, women entrepreneurs face numerous challenges related to finances, family, and other factors. According to the researcher, the government should improve its government schemes for developing and improving women entrepreneurs in Tamilnadu.

3. OBJECTIVES

To determine the level of financial awareness among women entrepreneurs

4. HYPOTHESIS

H_0 = Level of financial awareness is not dependent on the area of residence of women entrepreneurs

5. METHODOLOGY

5.1 Sample and Data Collection

The researcher has collected primary data through questionnaire method. The study involved SME's Owners of women in Virudhunagar. There are 219 women entrepreneurs are registered in District Industries Centre, out of these 140 respondents are selected as sample size. By applying Proportionate Random Sampling Technique is used to fix the sample size @ 5% error.

6. RESULTS AND DISCUSSION

Table 1

Area of Residence and Level of Financial Literacy – Descriptive Statistics

Level of Financial Literacy	Area of Residence
------------------------------------	--------------------------

	Rural		Semi-Urban		Urban	
	Mean	SD	Mean	SD	Mean	SD
FINANCIAL KNOWLEDGE						
Open bank a/c	2.45	1.32	2.82	1.30	2.51	0.98
Types of bank account	2.37	1.11	2.66	1.07	2.49	0.78
Core banking services	2.51	1.36	3.05	1.26	2.74	1.29
Internet banking services	2.63	1.24	2.71	1.11	2.51	0.98
ATM, Debit card and Credit card	2.59	1.21	2.64	1.03	2.83	0.89
Mobile Banking services	2.43	1.23	2.95	1.01	2.63	1.06
Offer more services like bill payments, etc...	2.27	1.20	2.77	1.35	2.69	1.12
Overdraft	2.61	1.35	2.98	1.15	2.97	1.10
TOTAL	19.86^a	7.16	22.59^a	6.63	21.37^a	4.98
FINANCIAL ATTITUDE						
Level of creativity	2.59	1.27	3.00	1.24	2.63	1.09
Problem solving skills	2.53	1.47	3.11	1.17	2.57	1.07
Self esteem	2.49	1.23	2.64	1.02	2.60	0.88
Self confidence	2.57	1.49	3.09	1.21	2.80	1.11
Risk taking commitment	2.20	1.12	2.64	1.14	2.69	1.23
Social relationship	2.37	1.17	2.84	1.17	2.63	1.24
Level of professional contacts	2.67	1.49	3.00	1.14	2.71	1.07
Bravery neither success or nor failure	2.49	1.18	2.84	1.08	2.51	0.85
Flexibility	2.65	1.63	3.29	1.39	2.46	1.42
Work ethic	2.39	1.29	2.84	1.20	2.57	1.27
Integrity	2.51	1.24	2.70	1.01	2.46	1.04
TOTAL	27.47^a	11.39	31.98^{ab}	8.61	28.63^b	8.33
FINANCIAL BEHAVIOUR						
Investment	2.49	1.23	2.80	1.02	2.49	0.74
Budgeting	2.57	1.44	3.05	1.26	2.46	1.29
Saving behaviour	2.61	1.54	3.11	1.11	2.60	1.04
Ownership	2.57	1.46	3.07	1.17	2.66	1.06
Use of credit	2.63	1.13	3.02	1.08	2.63	1.26
Asset accumulation	2.57	1.21	3.00	1.04	2.57	0.92
Mental accounting	2.53	1.23	2.98	0.94	2.43	1.09
Herd behaviour	2.53	1.28	3.02	0.98	2.40	1.10
Emotional gap	2.67	1.46	3.09	1.16	2.60	0.97
Self-attribution	2.51	1.21	2.82	1.17	2.63	1.06
TOTAL	25.69^a	10.57	29.96^{ab}	8.41	25.54^b	6.95
OVERALL TOTAL	73.02^a	28.41	84.54^{ab}	22.66	75.54^b	19.01

Source: Computed Data

Note: Different alphabet among area of residence denotes significant at 5% level using Duncan Multiple Range Test (DMRT)

Based on Duncan Multiple Range Test (DMRT), the rural women entrepreneurs' financial knowledge is significantly differed with Semi-urban and urban area of women entrepreneurs. The financial attitude and financial behaviour of rural women entrepreneurs is no significant difference among semi-urban and urban area women entrepreneurs. In overall the assessing level of financial literacy of rural and urban women entrepreneurs is significantly differed from semi-urban women entrepreneurs.

Ho: there is no significant difference between the assess level of financial literacy and the area of residence.

Table 2
Test of Homogeneity of Variances

S.No	Level of Financial Literacy	Levene Statistic	Df1	Df2	Sig.
1.	Financial Knowledge	3.630	2	137	0.029
2.	Financial Attitude	6.853	2	137	0.001
3.	Financial Behaviour	7.614	2	137	0.001
4.	Total	6.375	2	137	0.002

Source: Computed Data

The F value for levene's test of financial knowledge, financial attitude, financial behaviour and the overall level of financial literacy is 0.029, 0.001, 0.001 and 0.002 is less than the p value of 0.05. Hence there is levene test for homogeneity of variance is a significant difference between the assess level of financial literacy and the area of residence like rural, semi-urban and urban.

Table 3
ANOVA

Area of Residence and Level of Financial Literacy					
	Sum of Squares	df	Mean Square	F Value	P Value

Financial Knowledge	Between Groups	195.161	2	97.580	2.338	.100
	Within Groups	5717.725	137	41.735		
	Total	5912.886	139			
Financial Attitude	Between Groups	573.064	2	286.532	3.099	.048
	Within Groups	12665.358	137	92.448		
	Total	13238.421	139			
Financial Behaviour	Between Groups	631.399	2	315.699	3.968	.021
	Within Groups	10901.022	137	79.570		
	Total	11532.421	139			
Overall	Between Groups	3809.149	2	1904.574	3.292	.040
	Within Groups	79255.594	137	578.508		
	Total	83064.743	139			

Source: Computed Data

Since P value is more than 0.05 for financial knowledge, the null hypothesis is accepted with regard to financial knowledge for women entrepreneurs. Hence there is no significant difference between the financial knowledge of women entrepreneurs and their area of residence.

P value for financial attitude is 0.048 and financial behaviour is 0.021 for women entrepreneurs are more than 0.05, the null hypothesis is accepted. Hence there is significant difference between financial attitude and financial behaviour of women entrepreneurs and their area of residence.

Overall the assessing level of financial literacy p value is 0.40 which is less than the accepted value 0.05, the null hypothesis is rejected. Hence the assessing level of financial literacy is depending on the area of residence like rural, semi-urban and urban of women entrepreneurs.

7. CONCLUSION

Entrepreneurs are the backbone of all successful economies around the world, as they are regarded as a critical source of economic growth in terms of creating jobs, eradicating poverty, and contributing to the development of both developed and developing economies' gross domestic product (GDP). This study used only registered women entrepreneurs in Virudhunagar. In overall the assessing level of financial literacy of rural and urban women entrepreneurs is significantly differed from semi-urban women entrepreneurs.

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A STUDY ON ATTITUDE WITH RELEVANCE TO PURCHASING MODE OF BUYERS TOWARDS FAST MOVING CONSUMER GOODS IN VIRUDHUNAGAR DISTRICT

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ABSTRACT

The second-largest industry in India is Fast Moving Consumer Goods (FMCG). It encompasses a large portion of our day-to-day activities. Even though we have numerous favourite brands and items, we compare them to ourselves in terms of requirements, expectations, availability, and so on. The method of purchase is through nearby shop, retail store, wholesale market, departmental store, etc., More importantly, now we purchase items through the online and payment also through online of the recent technology This is now more significant, so the Types of Purchasing Mode can be analysed with the Demographic Variables of the respondents can analysis by the researcher in this article.

Keywords: FMCG, Types of Purchasing Mode, Gender, Age, Literature Qualification, Employed Status, Unemployed Status, Monthly Income, Chi-Square.

INTRODUCTION

Every one of us is an FMCG customer. It is a high consumer demand commodity, as well as a perishable product. These items are frequently purchased, are inexpensive, and are offered in large quantities. There are many retail and mass-production products, and only this sector deals with product consumption. Food and non-food everyday consumer products are included in the FMCG industry. All kinds of products like home care, personal care, health care, food and beverages. Here we disclosed how purchasing mode influences the demographic variables. The researcher will explore how demographic variables affect the different types of purchasing modes in this study.

REVIEW OF LITERATURE

A.M. Mahaboob Basha (Aug 2016) in his article title “A Study on Consumer Behaviour Towards FMCG Goods an Empirical Study with Special Reference to SPSR NELLORE District of Andhra Pradesh” he discovered that corporations use several critical tactics (price off, discount, more quantity for the same price, cellphone recharge, premium, etc.) in sales promotions to encourage people to buy local items. It raises consumer awareness and encourages brand loyalty. Meanwhile, the researcher established that there is no substantial relationship between consumer behaviour and respondents' gender, location, or age group. According to the findings, successful businesses attract and retain clients by delivering Good Quality, Availability, Low Cost, and Brand Loyalty.

Dr. Rambabu Gopiseti, G.Linganna (Nov 2017) in their article titled “Consumer Buying Behaviour towards fast Moving Consumer Goods (A study of selected Personal Care Products in Nizamabad District of Telangana State)” they discovered that television is the most powerful element influencing customer buying behaviour, followed by quality and brand loyalty. According to their research, individuals under the age of 40 and with a higher level of education are more likely to use personal care products with brand loyalty. Because of the

Widespread and efficient advertising, all consumers choose branded products, which are in high demand due to the customer's regular use.

Lakshmi Sai Chandra Maddi and VVG Ravi Teja (2020) in their article titled “Impact of Online Shopping on Consumer in FMCG sector”, they explained buying Groceries through online is hassle-free, very easier and faster. The researcher uses the descriptive and quantitative research methodology. They proved that various dimensions influencing consumers purchasing grocery through online by using Chi-Square. The researcher provided that there is a no association between the age of the person and the behavior to shop online for groceries. There is a significant association between the gender of the person and the behaviour to purchase the household needs through online portals. There is no association between the martial status of the person and the online purchasing behavior of the consumers. There is a significant association between the income of the person and the online purchase of groceries. Finally, the researcher concluded that female 20-30 age category mostly buying groceries on online portals especially married women use these applications more frequently.

OBJECTIVES OF THE STUDY

The following objectives were framed for the study

To evaluate the Demographic Variables and Types of Purchasing Mode of FMCG.

To suggest suitable recommendations for the problems found in the study

METHODOLOGY

The current research is both exploratory and descriptive in character. The data were gathered Using both primary and secondary sources. For the objective of gathering primary data, a structured questionnaire was administered. A google form was used to disseminate the questionnaire to the sample respondents. Since there is is very difficult to collect the data from the entire population in the study area, the researcher has decided to collect data from 225 respondents. This sample size has been fixed with the help of a sample size determination tool called as qualtrics.com. A simple random sampling has been used to collect data from

the respondents. SPSS software was used for coding, tabulation, and analysis. Tables are used to present the findings. The researcher has used chi square test for determining the differences between the demographic variables and types of purchasing mode.

Hypothesis

There is no significant difference between the Demographic Variables and Types of Purchasing Mode.

Sub Hypothesis

There is no significant difference between the Gender and Types of Purchasing Mode.

There is no significant difference between the Age and Types of Purchasing Mode.

There is no significant difference between the Literature Qualification and Types of Purchasing Mode.

There is no significant difference between the Employed Status and Types of Purchasing Mode.

There is no significant difference between the Unemployed Status and Types of Purchasing Mode.

There is no significant difference between the Monthly Income (in Rs.) and Types of Purchasing Mode.

Hypothesis Testing

There is no significant difference between the Demographic Variables and Purchasing Mode.

Sub Hypothesis

There is no significant difference between the Gender and Types of Purchasing Mode.

Table 1

Gender with Types of Purchasing Mode

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.348 ^a	2	.006
Likelihood Ratio	15.590	2	.000
Linear-by-Linear Association	3.723	1	.054
N of Valid Cases	225		

Source: Computed data

The chi-Square test was used to see if there was a statistical difference between the Gender and the Types of Purchasing Mode in Table 1. The table reveals that the significant was more than 0.05 of the acceptable threshold, implying that there is no significant difference between gender and purchasing mode types, and so the hypothesis is accepted.

Sub Hypothesis

There is no significant difference between the age and types of purchasing mode.

Table 2

Age with Types of Purchasing Mode

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.865 ^a	6	.093
Likelihood Ratio	14.425	6	.025
Linear-by-Linear Association	5.693	1	.017
N of Valid Cases	225		

Source: Computed Data

Table 2's results were put through a chi-square test to see if there was a statistical difference between the Age and the Types of Purchasing Mode. The hypothesis was accepted since the acceptable level of significance was greater than 0.05, implying that there is no significant difference between age and purchasing mode types.

Sub Hypothesis.

There is no significant difference between the Literature Qualification and Types of Purchasing Mode.

Table 3

Literature Qualification with Types of Purchasing Mode

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.811 ^a	10	.022
Likelihood Ratio	22.342	10	.013
Linear-by-Linear Association	.135	1	.713
N of Valid Cases	225		

Source: Computed Data

The tool known as the chi-Square test was used to analyse Literature Qualification with Types of Purchasing Mode. The acceptable threshold of significance in this analysis was less than 0.05, implying that there is a significant difference between Literature Qualification and Types of Purchasing Mode, and so the hypothesis is rejected.

There is no significant difference between the Employed Status and Types of Purchasing Mode.

Table 4

Employed Status with Types of Purchasing Mode

Chi-Square Tests

	Value	Df	Asymptotic Significance (2- sided)
Pearson Chi-Square	10.110 ^a	8	.257
Likelihood Ratio	12.454	8	.132
Linear-by-Linear Association	.473	1	.491
N of Valid Cases	134		

Source: Computed Data

Analysis of the Chi-Square test between Education Status and Purchasing Mode Types. The researcher obtained a value of 0.257 in Table 4, which was greater than the recognised significant level of 0.05, indicating that there is no significant difference between Employed Status and Purchasing Mode Types. The hypothesis has been accepted.

There is no significant difference between the Unemployed Status and Types of Purchasing Mode.

Table 5

Unemployed Status with Types of Purchasing Mode

Chi-Square Tests

	Value	Df	Asymptotic Significance(2- sided)
Pearson Chi-Square	8.750 ^a	6	.188
Likelihood Ratio	12.662	6	.049
Linear-by-Linear Association	1.001	1	.317
N of Valid Cases	91		

Source: Computed Data

The Chi-Square Test was used to examine the relationship between unemployed status and different types of purchasing modes. Table 5 shows that the significant value is 0.188, which is greater than the acceptable limit of 0.05, indicating that there is no significant difference between Unemployed Status and Purchasing Mode Types. The hypothesis is accepted since the significance level is high.

Sub Hypothesis

There is no significant difference between the Monthly Income (in Rs.) and Types of Purchasing Mode.

Table 6

Monthly Income with Types of Purchasing Mode

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14.038 ^a	10	.171
Likelihood Ratio	19.201	10	.038
Linear-by-Linear Association	8.024	1	.005
N of Valid Cases	215		

The Chi-Square test was used to analyse the respondents' monthly income in relation to their different types of purchasing modes. Table 6 shows that the significant level is 0.171, which is higher than the accepted level of 0.05, indicating that the hypothesis is correct.

CONCLUSION

According to the findings of this study, there is no significant difference in attitudes toward Demographic Variables and Purchasing Mode Types. There is no significant variation in perspectives of Gender, Age, Employed Status, Unemployed Status, Monthly Income with Types of Purchasing Mode, according to Chi-Square Analysis. In addition, there is a significant difference in how Literature Qualification is viewed in relation to the various types of purchasing modes.

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FLIGHT FARE PREDECTION USING MACHINE LEARNING ALGORITHM

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ABSTRACT

Now a days, the price of an airline ticket changes very rapidly. The airline uses dynamic pricing for flight tickets. Flight ticket prices vary between the morning and evening hours and also varies according to the holidays or festival season. Forecasting will help the traveller to determine a flight fare according to thier budget. Due to the high complexity of the price models used by airlines, it is very difficult for a customer to buy an air ticket at a very low price, because the price fluctuates sharply. Customers want to pay the least amount of money possible, while airlines want to make the most profit and revenue possible. To address this issue, the proposed paper uses the machine algorithm to predict the minimum price predicting model that tell us the best time to purchase a ticket. The price of a flight ticket determined by different factors including Date of Journey, source, destination, arrival time, price. The proposed system uses the supervised learning technique to forecast the flight fare by predicting the dataset. The supervised learning technique Linear Regression, Lasso Regression, Random Forest and XGBoost regression. The algorithm uses the real-time dataset for developing the model, and the model was tested with the trial dataset. This study uses the Mean Absolute Error (MAE), Mean Squared Error (MSE) and Root Mean Squared Error (RMSE) for computation. The performance results say XGBooster regression is efficient model that will predict the price of ticket with greater accuracy. Hence, the model can forecast the flight fare which can help the customer to predict the flight fare.

Keywords: prediction, flight fare, supervised, regression.

1. INTRODUCTION:

Nowadays, airlines use sophisticated air-ticketing techniques. These sophisticated methods make it difficult to predict a plane ticket for customers, as fares are changing dramatically. Machine Learning is an artificial intelligence (AI) method that allows computers to learn without having to be programmed directly. Machine learning is a way of predicting the future flight fare. The machine learning algorithm are used in the training and forecasting process. It feeds the training data into an algorithm, and then enters the training data into new test data to make predictions. The machine learning algorithm supervised learning program is provided with both input data and associated labels to read the data. The prediction will help a traveller to decide a specific airline as per his/her budget. The proposed flight forecasts are designed to detect price patterns of one flight at a time and this can only mean increased accuracy. Due to the high complexity of the price models used by airlines, it is very difficult for a customer to buy an air ticket at a very low price, because the price fluctuates sharply. For this reason, many strategies are ready to give the customer the right time to purchase an air ticket by predicting the price of the air price.

2. LITERATURE REVIEW:

The authors use the regression model for predicting optimal purchase timing for airline tickets. Predicting prices of flights with specific desirable properties such as flights from a specific airline, non-stop only flights, or multi-segment flight [4]. The author uses the data mining approach to travel price forecasting. The goal of this paper is to consider the design of decision - making tools in the context of varying travel prices from the customer's perspective [5]. The author uses the linear quantile mixed regression model for prediction of airline ticket prices. This research proposes statistical regression models for airline ticket prices and compare the goodness of fit [6]. The author proposes the airfare prices prediction using machine learning techniques. The machine learning (ML) models, used to predict the air tickets price [7]. The author proposes an adaptive context aware ensemble regression model for airfare price prediction. Flight price prediction can be regarded as a typical time series

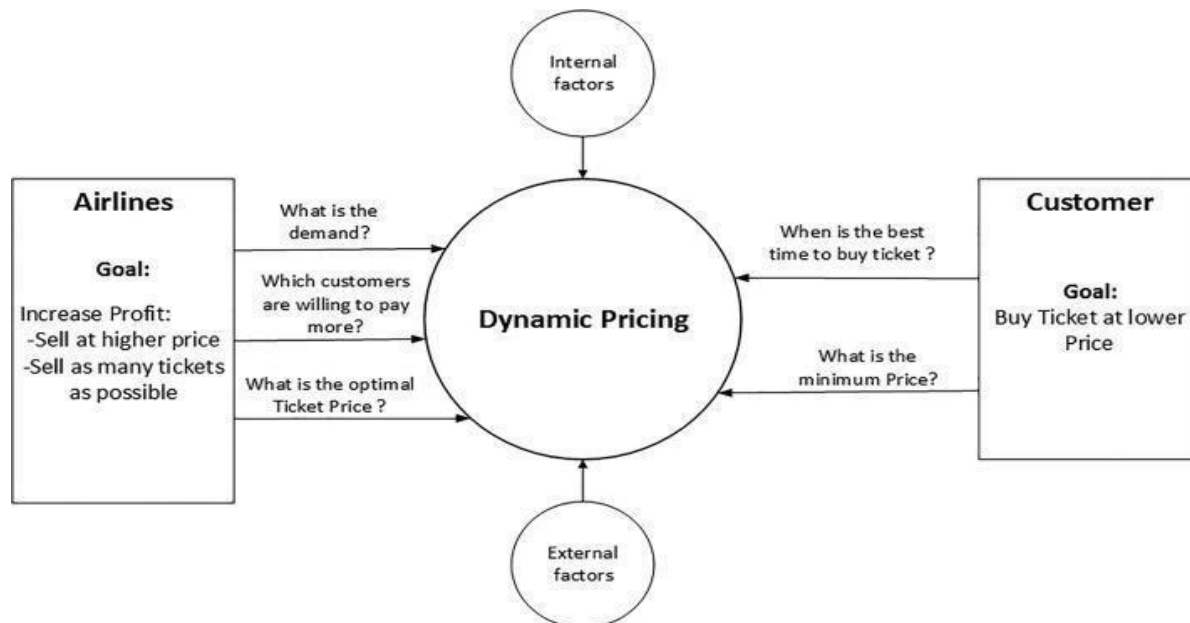
Prediction problem. There are usually two main methods to solve this problem. One is using classical time series prediction methods such as ARIMA, etc. Another is extracting certain features and using regression models. [13] An airfare prediction model for developing markets. The proposed model can predict the trends as well as actual airfare's changes up to the departure dates using public airfare data available online despite the missing of many key features like the number of unsold seats on flights.

3. OBJECTIVES:

- To extract data from various airlines and deploy all high-performance models for airlines as well as customers. This predicts the fare of various airlines locally using past data available from databases.
- To use machine learning techniques to simulate flight ticket performance over time and predict flight ticket prices.
- To implement the machine learning algorithm to predict the airline tickets change over time for upcoming flight tickets.

4. RESEARCH METHODOLOGY:

The supervised learning in machine learning and mathematics where a computer program



learns from a given data input and uses it to learn to discover new visuals. A single variable (X) Is called an independent variant or predictor and another variable (Y), also known as a dependent variable or result.

Fig1: Architecture Model

- 1. Train-Test Split Phase:** This phase splits data into training and testing data subsets. For example, data are divided into two parts per a ratio of 80% training data and 20% test data.
- 2. Data Pre-processing Phase:** Before the data is fed to the model, all the null and redundant values are removed.
- 3. Model-Building Phase:** In this phase, using sklearn package of python which contains many packages for classification and regression task.
- 4. Algorithm:** Linear Regression, Logistic Regression, XGBoost, Random forest
- 5: Training the model:** The model is trained to find out the accuracy
- 6: Visualization of results:** To compare the results and find out the best model that can be used to get the desired result.

Pattern Recognition Methods

1 .Linear Regression

Linear regression strives to show the relationship between two variables by applying a Linear equation to observed data. One variable is supposed to be an independent variable, and the other is to be a dependent variable. Linear Regression is a machine learning algorithm based on supervised learning. It performs a regression task. Regression models a target prediction value based on independent variables. The linear regression model provides a sloped straight line representing the relationship between the variables.

$$\mathbf{Y} = \mathbf{B}_0 + \mathbf{B}_1 * \mathbf{X}$$

Where, X is the independent variable and Y is the dependent variable.

2. Lasso Regression

The Lasso Regression is best suited for models that show high levels of multi-collinearity or when to perform certain parts of the model selection, such as the selection / termination of the parameter. It is one of regularization methods which use large number of features, where large means either of the below two things: 1. Large enough to enhance the tendency of the model to over-fit. Minimum ten variables can cause overfitting, 2. Large enough to cause computational challenges. This situation can arise in case of millions or billions of features.

$$\sum_{i=1}^n (y_i - \sum_j x_{ij} \beta_j)^2 + \lambda \sum_{j=1}^p |\beta_j|$$

3. Random Forest Regression

Random forests are a supervised learning algorithm. Random forests build decision trees on randomly selected samples of data, get prediction from each tree and choose the best solution by voting. It also provides a fairly good indicator of the feature importance.

$$H(x) = \frac{1}{T} \sum_{i=1}^T h_i(x),$$

Where T is the number of regression trees, and $h_i(x)$ is the output of the i-th regression tree (h_i) on sample x. Therefore, the prediction of the RF is the average of the predicted values of all the trees.

4. GBOOST (EXTREME GRADIENT BOOSTING) REGRESSION:

XGBoost is a faster and more accurate version of Gradient Boosting & arguably the best machine learning ensemble. It is a powerful approach for building supervised regression models. Objective function contains loss function and a regularization term. It tells about the difference between actual values and predicted values, i.e how far the model results are from the real values. It learns from its mistakes (gradient boosting) and has extensive hyperparameters for fine-tuning. Initially all samples set in the data set have the same weight and the first model is trained by periodically selecting specific samples from the data set, where each sample has an equal chance of participating in the training. Each model is tested for all samples and the weight of the randomly divided samples is reviewed to select the training for the next model.

RESULTS AND DISCUSSION

In comparison, this paper shows higher accuracy with conviction that the built model is perfect. The performance results are compared with the following parameters:

Mean Absolute Error (MAE) is the mean of the absolute errors:

$$\frac{1}{n} \sum_{i=1}^n |y_i - \hat{y}_i|$$

Mean Squared Error (MSE) is the mean of the squared errors:

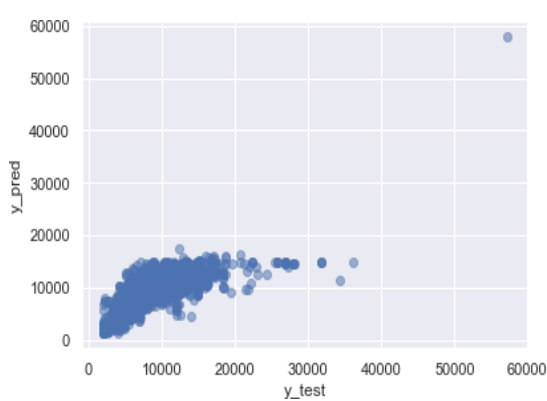
$$\frac{1}{n} \sum_{i=1}^n (y_i - \hat{y}_i)^2$$

Root Mean Squared Error (RMSE) is the square root of the mean of the squared errors:

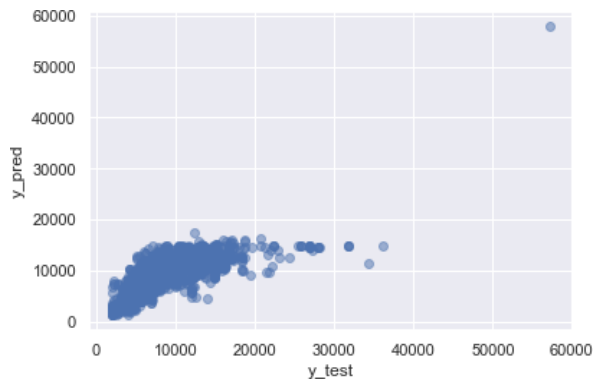
$$\sqrt{\frac{1}{n} \sum_{i=1}^n (y_i - \hat{y}_i)^2}$$

Algorithm	MAE	MSE	RMSE	R2
Linear Regressor	820.93728551480	760.93728551480	80.557407134	0.619594372
Lasso Regressor	715.93728551480	500.93728551480	85.557407134	0.669594372
Random forest regressor	615.04671796390	413.04671796390	60.88333664	0.797413390
Xgboost regressor	520.77391361420	315.77391361420	30.5274770306	0.9538101

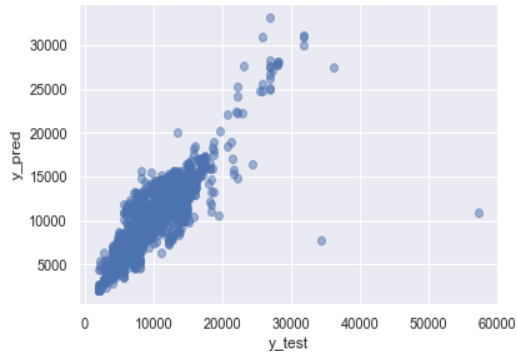
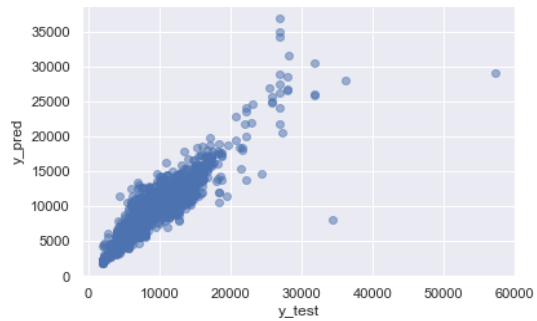
The above table summarizes the value of MAE, MSE, RMSE obtained from using various algorithms. The below table concludes that Xgboost algorithm is more accurate than other algorithms because it has low MAE and MSE value and high RMSE score as compared to the random forest algorithm. This shows that the top two accurate algorithms are random forest and Xgboost algorithms.



(A) LINEAR REGRESSION



(B) LASSO REGRESSION

**(C) RANDOM FOREST REGRESSION****(D) XGBOOST REGRESSION**

In this (A) Linear Regression graph is scattered and there is no relation between actual and predicted values of the flight fare, so it is not accurate. In (B) Lasso Regression the graph is not perfectly linear and is also little scattered, so it can be inferred that it is not much accurate, In (C) Random Forest Regressor the graph is little bit perfectly linear and is also little scattered, so it can be inferred that it is not much accurate. In (D), the graph is nearly linear and less scattered which shows that the Xgboost regression is very accurate in terms of the results, and it has linear relation between actual and predicted values of the flight fare.

The conclusion from the above graphs that Xgboost regression shows the most accurate results when compared to other algorithms in terms of the relation between the actual and predicted values of the different flight fares.

CONCLUSION:

Machine Learning algorithms with least square measures are used to forecast the accurate fare of airlines, and it provides accurate value of plane price ticket at limited and highest value. The accuracy of the results obtained by the Linear Regression, Lasso Regression, and Random Forest and XGBoost regression algorithms. The performance results say XGBooster regression is efficient model that will predict the price of ticket with greater accuracy. Hence, the model can forecast the flight fare which can help the customer to predict the flight fare.

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CURRENT TRENDS OF CLOUD COMPUTING IN BUSINESS

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ABSTRACT

Currently, running a company with less investment, maintaining big Data, enabling good services at preferable cost to customers is a big challenge faced by the most entrepreneurs. Cloudcomputing is an on-demand IT resource delivery over the internet and less expensive. Cloud computing can help businesses transform their existing physical server infrastructures into virtualone, expanding and reducing server capacity depending on their requirements. Cloud computing is not just for organizations and businesses; it's also benefited by the users as well. It enables users to run software programs without installing them on computers, it enables them to storeand access their multimedia content via the internet. In this article, let's see how Cloud computing is helping the society to cope with future problems such as managing big data, managing cost, cyber-security and quality control...etc. Further, the 10 top cloud service providers and also the factors that a businessmen need to consider before accessing any cloud services is discussed.

Keywords: AWS, IBM Cloud, Services, Azure, Google Cloud, cloud types

INTRODUCTION

Nowadays, the data emergence is huge due to scientific innovations and usage of modern smart phones for all the purposes. Especially, the social media, websites, online services increased the rate of data generation. This scenario leads to data storage scarcity. Every organization has its own website and software, where such data generation is vast.

Obviously, this results in storage scarcity. The cloud service is one of the best options to overcome this situation.

Cloud computing is the on-demand availability of computer system resources, especially data storage, cloud storage, and computing power without direct active management by the user as in figure 1. Large clouds often have functions distributed over multiple locations, each location being a data center. Cloud computing relies on sharing of resources to achieve coherence and economies of scale, typically using a “pay as you go” model which helps in reducing capital expenses, but may also lead to unexpected operating expenses for unaware users.



Figure 1: Cloud Computing – An overview

2. ROLE OF CLOUD COMPUTING AT VERSATILE DOMAINS

In every field, there are numerous applications for cloud computing. Some of them are discussed in this section like Drop boxes, Banking & Finance services, Healthcare, Education, Business, etc.

2.1. Cloud Storage

Cloud can be used for the storage of files. The cloud space provides various services Like easy backup, automatic synchronization of the desktop files, provides hosting space and so on. These drop boxes provides free storage of 1 terabyte [1]. Some of the drop boxes like Google drive, Gmail, etc.,. Social networking platform requires a powerful hosting space to manage and store data at real-time. Cloud-based communication provides click-to-call capabilities from social networking sites, access to the instant messaging system.

2.2. Banking and Finance Services

Banking sectors are highly dependent on cloud services. Consumers store financial information to cloud computing service providers. They store tax records as online backup services [1].

2.3. Health care

Using cloud computing, medical professionals host information, analytics and do diagnostics remotely. As healthcare also comes in the list of examples of cloud computing it allows other doctors around the world to immediately access this medical information for faster prescriptions and updates. Application of cloud computing in healthcare includes telemedicine, public and personal healthcare, E-health services and bioinformatics [1].

2.4. Education

This is useful in institutions of higher learning, provide benefits to universities and colleges so henceforth education comes in the examples of cloud computing. Google and Microsoft provide various services free of charge to staff and students in different learning institutions [1].

2.5. Business process

Business email is cloud-based. ERP, document management and CRM are based on a cloud service provider. SAAS has become an important method for the enterprise, i.e. salesforce, HubSpot. They make many business processes more reliable because data can be copied at multiple redundant sites on the cloud providers [1].

1. CLOUD COMPUTING SERVICES

Cloud computing services are the services that are mainly provided by big corporate giants which let you host your application and do big computing tasks without the overhead of managing the underlying infrastructure, i.e.: Microsoft provides Microsoft azure, Amazon provides AWS, Google has Google cloud platform. Apart from these companies, a business or organization can also have a private cloud.

1.1. Necessity

There are several reasons why we need cloud computing in today's world is discussed in this section. One of the reasons for why huge number of business sectors from all over the world are using cloud computing today, is because of tremendous effect on cost saving. Cloud computing has made drastic change in the reduction of hardware and software cost and other server resources as well [2].

In data centers, users require to spend more time to managing infrastructure, servers whereas, accessing resources of cloud computing can save time. Day to day issues related to server maintenance or installation of software or hardware or whether it is renewal of license, all those factors are undertaken via cloud computing service providers [2].



Figure 2: Benefits of Cloud
Computing

3.2.1. Public cloud

Public clouds are owned and operated by a third-party cloud service provider, which deliver their computing resources like servers and storage over the internet i.e.: Microsoft Azure. With a public cloud, all hardware, software and other supporting infrastructure is owned and managed by the cloud provider. You access these services

With the help of cloud, we can access any data, applications whenever and wherever we want to, over the internet. Cloud not only handles data storage remotely but it also protects and recovers all crashed or loss data so we don't have to worry about crashed or loss of data, it gives you high security [2]. The various benefits of cloud computing is shown in the figure 2.

1.2. Types of cloud computing

Not only clouds are the same and not one type of cloud computing is right for everyone. Several different models, types and services have evolved to help offer the right solution for your needs. First, need to determine the type of cloud deployment or

cloud computing architecture that your cloud services will be implemented on. There are three different ways to deploy cloud services on a public cloud, private Cloud or hybrid cloud as in figure 3.



Figure 3: Cloud – An overview

And manage your account using a webbrowser. Examples: Alibaba cloud, Amazon webservices (AWS), Google cloud, IBM cloud, Microsoft Azure [3].

3.2.2. Private cloud

Private cloud refers to cloud computing resources used exclusively by a single business or organization. A private cloud can be physically located on the company's on-site datacenter. Some companies also pay third-party service providers to host their private cloud. A privatecloud is one in which the services and infrastructure are maintained on a private network [3].

3.1.3. Hybrid cloud

Hybrid cloud combine public and private clouds, bounds together by technology that allows data and applications to be shared between them. By allowing data and applications to move between private and public clouds, a hybrid cloud gives your business greater flexibility, more deployment options and helps optimize your existing infrastructure, security and compliance [3].

For example, a hybrid cloud may need to include [4]:

- At least 1 private cloud, at least, public cloud
- 2 or more private clouds
- 2 or more public clouds

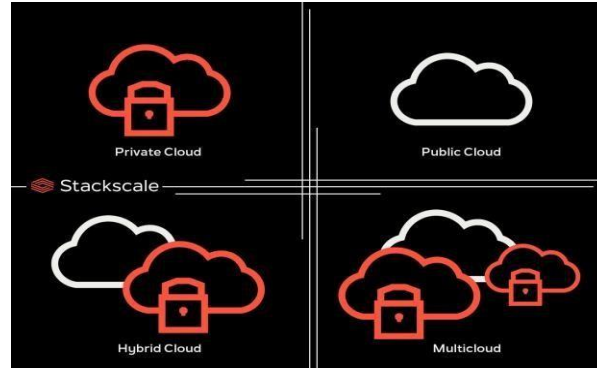


Figure 4: Cloud Types

1.3. Types of cloud services

Cloud services are infrastructure, platforms, or software that are hosted by third-party providers and made available to users through the internet.

There are 3 main types of cloud service solutions: IaaS, PaaS, SaaS as in the figure 5. Each facilitates the flow of user data from front-end clients through the internet, to the cloud services provider's systems and back-but vary by what's provided [5].

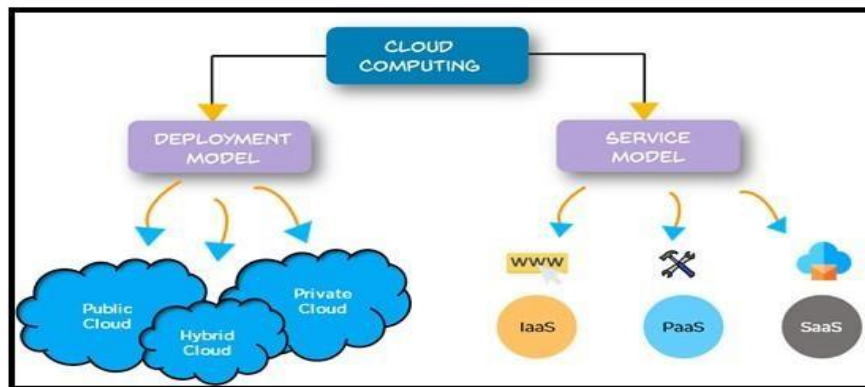


Figure 5: Architecture of Cloud Computing

3.3.1. SaaS (software as a service)

SaaS would be a software application that you could access over the cloud without having to have it installed on your device. A variety of software services are available including file storage, backup, web-based email and project management tools. Using one of these applications, users can access, share, store and secure information in the cloud. SaaS cloud solutions examples include Dropbox, slack and Microsoft 365 [5].

3.3.2. PaaS (platform as a service)

Platform as a service provider delivers a platform to you, enabling you to develop, run and manage business applications over the cloud. Developers can focus on their task, without needing to build and maintain the infrastructure that *such software development processes normally require. AWS elastic beanstalk and windows azure are two cloud technology examples of PaaS [5].

3.3.3. IaaS (infrastructure as a service)

Infrastructure as a service provider the infrastructure that you need to manage SaaS tools, including servers, storage and networking resources. The cloud provider would manage the storage servers and networking hardware and may also offer additional services load balancing and firewalls [5].

1.4. How cloud services are delivered

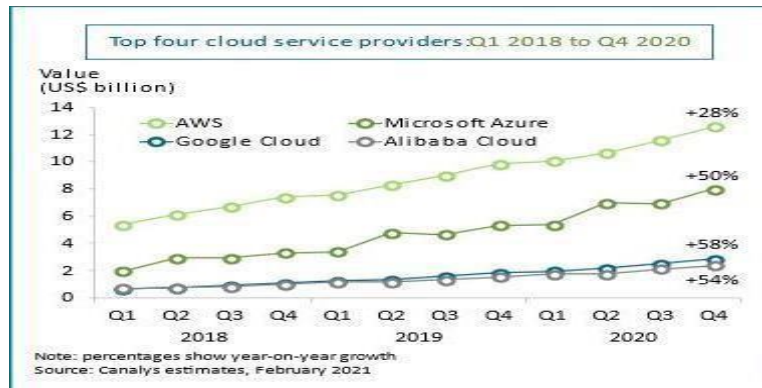
Cloud services are delivered through a public cloud or a mix of both commonly known as hybrid cloud [6].

1.4.1. Difference between types of clouds

The difference between public clouds, private clouds and hybrid clouds were once easily defined by location and ownership.

Public clouds tend to have a wider variety of security threats due to multi-

Tenancy and numerous access points. Public clouds often split security responsibilities [6]. For instance, infrastructural security can be the provider's responsibility which workload security can be the tenant's responsibility.



Private clouds are thought to be more secure because workloads usually run behind the user's firewall, but that all depends on how strong your own security is.

Hybrid security is made up of the best features of every environment, where users and admins can minimize data exposure by moving workloads and data across environments based on compliance, audit, policy, or security requirements [6].

2. TOP 10 CLOUD SERVICE PROVIDERS

Let's see the most popular cloud providers, their cloud offerings and which cloud provider you should choose for your cloud services, from a developer perspective. Cloud computing has multiplied over the past several years. Today, the majority of top cloud service providers offer all of these services. The two leaders in cloud computing are Amazon and Microsoft, followed by Google, Alibaba and IBM [7].

Here is a list of top 10 cloud service providers: Amazon web services, Microsoft azure, Google cloud, Alibaba cloud, IBM cloud, Oracle, Salesforce, SAP, Rackspace cloud, Mware [7]

2.1. CLOUD SERVICE PROVIDERS

The discussion is on features and services provided by top-level Service providers. According to the report by canalys shown in the below chart in Q4 2020, AWS cloud grew by 28% and azure 50%, Alibaba clouds 54%, as of this report, AWS has 31% of the total cloud market shared followed by Azure, Google, and Alibaba that have 20%, 7% and 6% respectively as in figure 6 [7].

Figure 6: Top Cloud Service Providers

2.1.1. AMAZON WEB SERVICE

Amazon Web services (Aws) is an amazon company that was launched in the year 2002. It is the most popular cloud service provider in the world. This service is used by millionsof customers. It offers hundreds of services. Some of these include virtual Private cloud, EC2, AWS Data Transfer, Simple Storage service, AWS lambda. The following graphic in figure 7 isa list of the various categories of services available in AWS [8].



Figure 7: Services offered by

AWS

Cloud security is the highest priority for AWS. As a customer, you will benefit from a datacenter and network architecture built to meet the requirements of the most security-sensitive organizations. AWS security offers services such as infrastructure security, DDoS mitigation, data encryption, inventory and configuration, monitoring and logging, identify access control and penetration testing [8].

2.1.2. Microsoft Azure

Microsoft Azure is one of the fastest growing clouds among them all. Azure was launched years after the release of AWS and Google Cloud but it is also offering hundreds of services within various categories including AI, machine learning, analytics, blockchain, compute, databases, security, storage, mobile, networking, etc as in figure 8 [8].

Azure security- Azure offers the most advanced security products and services.



Its security options are: Azure Active Directory, Security center, VPN Gateway, Key vaulted.

Figure 8: Microsoft Azure

2.2. IBM cloud

IBM cloud is formerly known as **Bluemix**. IBM cloud developed by IBM (IT company) is a set of cloud computing services for businesses. Similar to other cloud service providers, the IBM cloud includes IaaS, SaaS and PaaS services via public, private and hybrid cloud models [8].

2.3. Google cloud

Google cloud platform is Google's cloud. It also offers services in various categories including compute, storage, security, database, virtualization and more as in figure 9. Google has hired a large set of security professionals who help in protecting the data on servers. All the data on the cloud platform is encrypted. So, users can be sure of their data being safe and secure [8].

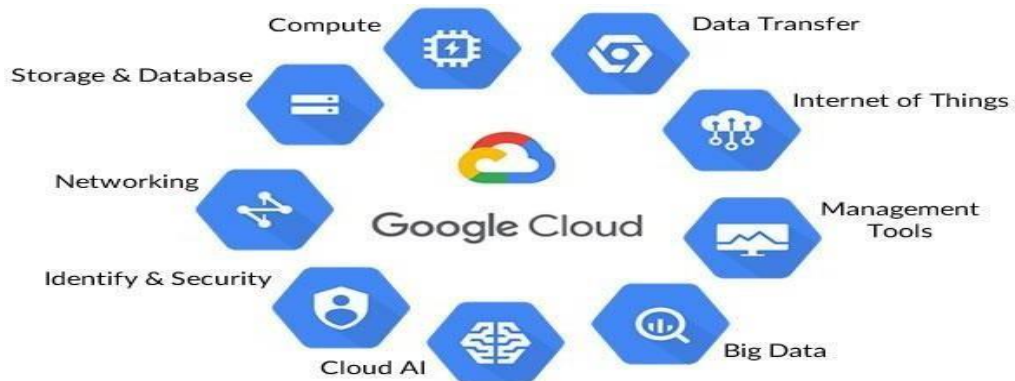


Figure 9: Google Cloud

3. CONCLUSION

The cloud computing is the leading technology to provide various services to the users remotely. Due to huge data emergence, most of the organizations, concerns, social media, etc, are in need of storage, security, and other computational services for managing their transactions. So, in this article the overview of the current trends in cloud computing is discussed.

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**A STUDY ON ENTREPRENEURSHIP DEVELOPMENT IN
INDIA: AND IT'S ROLE OF ECONOMIC GROWTH, FOREIGN INVESTMENT
AND FINANCIAL DEVELOPMENT**

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Abstract:

Entrepreneurship is the key to India's development. It is important as it utilized local resources, employment and rural development. This paper examines the impact of financial development, economic development and foreign investment on entrepreneurial development measured by production per MSME and fixed investment per MSME for the period of 1992-93 to 2019-21. Using Error correction model the result shows that investment per MSME is positively influenced by financial development in longrun. In short run foreign investment and economic development positively influence fixed investments in MSMEs. Production per MSME was found to be positively influenced by economic development and financial development in long run while in short run none of the selected independent variables influence production of MSMEs.

Keywords: MSME, Error correction model, FDI

Introduction

Indian economy has developed since liberalization is attracting foreign investments, its GDP per capita has increased, the stock market capitalization has deepened and these benefits channelizes back to economy. With the development, globalization and information channel penetration marketplace had shrunk creating new avenues for entrepreneurs to grow and exploit the opportunities. With liberalization of economy in

1991 entry barrier have reduced by great deal economists view growing foreign investment as resource providing global reach. The stock market and economy has also benefitted to this as foreign investment which in turn makes investment in India a lucrative business. But does this development have benefitted entrepreneurs?

Economic development provide with a high standard of economy, investment scenario both domestic and foreign. The stock market sentiment becomes positive creating boom in the market for new investments and innovation which are few determinants of entrepreneurship. This has cyclic effect with development in one develops other which benefits the earlier. This positive sentiment that is developed needed for starting an enterprise to counter the risk associated with it. Opportunity, need and ability are the determinants for entrepreneurship (Davidsson & Honig,2003) economic development, financial growth, investment sentiment and entrepreneurship policy of the state frames the opportunity.

Micro, Small and Medium Enterprises (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country.

Ministry of Micro, Small & Medium Enterprises (M/o MSME) envision a vibrant MSME sector by promoting growth and development of the MSME Sector, including Khadi, Village and Coir Industries, in cooperation with concerned Ministries/Departments, State Governments and other Stakeholders, through providing support to existing enterprises and encouraging creation of new enterprises.

The Micro; Small and Medium Enterprises Development (MSMED) Act was notified in 2006 to address policy issues affecting MSMEs as well as the coverage and investment ceiling of the sector. The Act seeks to facilitate the development of these enterprises as also enhance their competitiveness. It provides the first-ever legal framework for recognition of the concept of "enterprise" which comprises both manufacturing and service entities. It defines medium enterprises for the first time and seeks to integrate the three tiers of these enterprises, namely, micro, small and medium. The Act also provides for a statutory consultative mechanism at the national level with balanced representation of all sections of stakeholders, particularly the three classes of enterprises; and with a wide range of advisory functions. Establishment of specific funds for the promotion, development and enhancing competitiveness of these enterprises, notification of schemes/programmes for this purpose, progressive credit policies and practices, preference in Government procurements to products and services of the micro and small enterprises, more effective mechanisms for mitigating the problems of delayed payments to micro and small enterprises and assurance of a scheme for easing the closure of business by these enterprises are some of the other features of the Act.

This paper is an attempt to explore the relationship between entrepreneurship development with foreign investment, financial development and economic growth for the period of 1992-93 to 2019-20. This paper has VII sections. Next section details about literature review, preceding this is about methodology, next section deals with results and discussion and last section is conclusion about the study.

Literature review

There is extensive research done to understand the effect of entrepreneurship on economic development but there is limited research that looks into the effect of economic development and other measures on entrepreneurship mostly limited to developed economies.

Leff (1978) Development of banking institution that allows firms to obtain formal finance

Promoting entrepreneurship. Also the improvement in the flow of communication among firms, reduced cost of gathering information and facilitating the diffusion of technological and managerial expertise promote entrepreneurship.

King and Levine (1993) they found that financial system affect the entrepreneurial activity that affects in four ways (a) financial system choose the most promising projects after evaluating (b) financial system help in mobilizing of funds (c) financial system allow investor to diversify the risk associated with uncertain innovative activities (d) financial system reward to engage in innovation relative to confirmation of existing knowledge. Better financial system stimulates foster productivity growth and growth per capita output. They suggest that government policies toward financial system may have an important causal effect on long term growth.

Smallbone and Welter (2001) Entrepreneurs contribute to economic development in terms of job creation, innovation and external income generation depending upon priorities and different stage of market reform. The authors suggested direct support to SMEs to overcome immediate difficulties to strengthen their potential for development and growth.

Liu, Burridge, and Sinclair (2002) investigated the causal links between trade, economic growth and inward foreign direct investment in china. With quarterly data long run relationship found between growth, export, import and FDI. The author finds bidirectional causality between economic growth, FDI and export which reinforce open door policy.

Alfaro et al (2004) They examines the links between FDI, financial market and growth considering that financial agents either take up entrepreneurial activity or use wealth to get returns by working for company in the FDI sector. Better financial market provides incentive for FDI. They found that FDI plays important role in the economic growth.

Carland and Carland (2004) studied the impact of entrepreneurship on employment and

Economic development of United States. They found that firms with less than twenty employees have greatest impact for the decade of 1990's. They suggested that the firm has great potential for future economic development. Also, economic policy changes should be specifically to boost entrepreneurship.

Agosin and Machado (2005) assesses the extent of FII in crowding in or crowding out domestic investments with a panel data of three decades for the developing regions of Asia, Africa and Latin America, they found that FDI has nothing to do with domestic investments for sub period and sub areas. With more analysis they found that FDI was found to crowding out domestic investment particularly in Latin America. FDI was found to be unfavorable to crowd in domestic investment.

Wennekers et al (2005) found a U shaped relationship between entrepreneurial dynamics and level of economic development. They suggested that for advanced countries incentive structure should be improved while developing nation should exploit economies of scale, foster FDI and promote management education.

Naudé (2008) Entrepreneurship has important role to play in fostering from a predominantly traditional / agrarian economy to modern economy. With innovation driven growth productivity is increased in advanced countries. Self-employment, startup and credit market determine quantity and quality of entrepreneurship. They found that low entrepreneurial activity contribute to economic stagnation and even developmental gap.

Methodology:

For measuring entrepreneurship development two proxies production per MSME and investment per MSME have been taken, for financial development stock market capitalization as percentage of GDP and foreign direct investment as percentage of GDP has been taken. The model can be depicted as

$$Y_{t1} = f(\text{FDI}_t, \text{GDP}_t, \text{MCAP}_t) \\ Y_{t2} = f(\text{FDI}_t, \text{GDP}_t, \text{MCAP}_t)$$

Where Y_{t1} denotes investment per MSME, Y_{t2} denotes production per MSME, FDI is foreign direct investment, SMC is stock market capitalization. The econometric models are

$$\ln Y_{t1} = \beta_0 + \beta_1 \ln \text{FDI}_t + \beta_2 \ln \text{GDP}_t + \beta_3 \ln \text{MCAP}_t + u_t$$

$$\ln Y_{t2} = \beta_0 + \beta_1 \ln \text{FDI}_t + \beta_2 \ln \text{GDP}_t + \beta_3 \ln \text{MCAP}_t + v_t$$

Where \ln is logarithmic transformation)

Unit root test

It is essential to look for stationarity of data when dealing with time series regression otherwise it will lead to spurious regression the result will look good with significant t statistic but there would be no significant relation between the variables. In order to check the unit root presence Augmented Dickey–Fuller test (ADF) is used here.

Engle and Granger’s Cointegration Test

This concept was first introduced by Granger in 1981; this technique is for testing relationship between two non stationery time series. Two non stationery time series are said to be cointegrated if they are non stationary at level ie $I(0)$ but both series are stationary at linear combination i.e at same differentiating level $I(n)$. The linear combination cancels out the stochastic trends of the two time series; this is tested by ADFtest. Running the regression on the raw data and testing for spurious regression the value of R^2 should be smaller than d (Durbin Watson) value obtained in the regression as a rule of thumb (Gujarati, 2003) or the residuals obtained must be stationary.

Error correction model

This method was first used by Sargan and later popularized by Engle Granger after correcting for disequilibrium. It states that if two variables are cointegrated the relationship can be expressed as ECM (Gujarati, 2003)

$$\Delta X = \alpha_0 + \alpha_1 \Delta Y + \alpha_2 U_{t-1} + \varepsilon_t$$

Where X is dependent variable at first differentiation Y is independent variable at first differentiation u_{t-1} is lagged value of error term obtained from Engle Granger cointegration test, ε_t is the white noise. The α_2 is expected to be negative to restore ΔX to equilibrium (Gujarati, 2003)

Data

Data were obtained from different sources foreign direct investment taken for foreign investment (FDI expressed as a % of GDP) was obtained from UNCTAD, for economic growth GDPPC (gross domestic product per capita)was take from world bank data, stock market capitalization as percentage of GDP was taken as proxy for financial development. For entrepreneurship measurement two proxies are used (a) average investment per MSME (b) average production per MSME these data were taken from annual report of ministry of MSME.

All the values of variables were taken in US dollars at current price.

Results:

Stationarity and Intergration test: To test for stationarity and integration ADF test was used the result is reported in table 1

Table 1: Stationarity test results

Variable	Differencing	t-statistic	P - value	inference
LFDI	Level	-2.728	0.0878	Non-stationary
	First difference	-3.1128	0.0472*	Stationary
LGDP	Level	1.771	0.999	Non-stationary
	First difference	-2.952	0.0589***	Stationary
LMCAP	Level	-1.9868	0.2895	Non-stationary
	First difference	-5.25	0.0006**	Stationary
LINVEST	Level	-1.146	0.6746	Non-stationary
	First difference	-3.0655	0.0477*	Stationary
LPROD	Level	-1.068	0.705	Non-stationary
	First difference	-4.258	0.0044**	Stationary

The ADF unit root test shows that the entire five variables are carrying unit root at level and are stationary at first difference. lfdi and linvest are significant at 5%, lmcap and lprod are significant at 1% while lgdp is significant at 10%. The results of ADF test shows that the variables are integrated at first order i.e I (1). This shows that cointegration exists among the variables.

Long run equation:

The equation that is formed in this paper is

$$\text{Linvest} = \beta_0 + \beta_1 \ln \text{FDI}_t + \beta_2 \ln \text{GDP}_t + \beta \ln \text{MCAP}_t + u_t$$

$$\text{lprod} = \beta_0 + \beta_1 \ln \text{FDI}_t + \beta_2 \ln \text{GDP}_t + \beta \ln \text{MCAP}_t + v_t$$

the results obtained from this is

$$\text{Lprod} = 5.4416 + 0.37084 \text{ lgdp} + 0.12389$$

$$\text{lmcap} + 0.04426 \text{ lfdi} \quad (6.87) \quad (3.22) \quad (2.19) \quad (1.00)$$

(0.00) (0.0053) (0.0436) (0.3319)

$R^2 = 0.91$ $d = 1.25$

Production per MSME is found to be influenced by economic development, stock market capitalization however foreign direct investment fails to influence entrepreneurship development. If per capita GDP is increased by 10% the average production is also increased by 3.7% significantly, whereas 10% increase in market capitalization per GDP increases production of MSME by 1.2%. The Durbin Watson value d is greater than R^2 the long run equation is non spurious as rule of thumb (Gujarati, 2003)

$$\begin{aligned} \text{Linvest} = & 6.984 - 0.0827 \text{fdi} + 0.289 \\ & \text{Lmcap} + 0.034 \text{lgdp} \quad (3.218) \quad (-0.682) \\ & (1.869) \quad (0.109) \\ & (0.0054) \quad (0.504) \quad (0.08) \quad (0.9145) \\ & R^2 = 0.2816 \quad d = 0.647 \end{aligned}$$

Investment per MSME is influenced by market capitalization at 10% significance level; however foreign direct investment and economic growth failed to influence investment per MSME. It is found statistically that 10% increase in market leads to 2.8 % increase in investment per MSME. The durbin Watson value d is greater than R^2 the long run equation is non spurious as rule of thumb. (Gujarati, 2003)

Both the equation was tested for multicollinearity variance inflation factor (VIF). Variables with VIF value greater than 10 requires further analysis but here VIF were found to be less than 10. So the long run equation was free from multicollinearity

Short run equation:

The short run equations formed in this paper are

$$\Delta \text{invest} = \beta_0 + \beta_1 \Delta \ln \text{FDI}_t + \beta_2 \Delta \ln \text{GDP}_t + \beta \ln \Delta \text{MCAP}_t + u_{t-1} + \varepsilon$$

$$\Delta \text{Iprod} = \beta_0 + \beta_1 \Delta \ln \text{FDI}_t + \beta_2 \Delta \ln \text{GDP}_t + \beta \Delta \ln \text{MCAP}_t + v_{t-1} + \varepsilon$$

Where Δ is the lagged value at first differentiation of variables, u_{t-1} and v_{t-1} are lagged value of the error term and ε is the white noise. The results obtained from this short term equation are

$$\begin{aligned} \Delta \text{Iprod} = & -0.0697 + 0.0168 \Delta \ln \text{FDI}_t + 1.443 \Delta \ln \text{GDP}_t + 0.04 \Delta \ln \text{MCAP}_t + -0.603v_{t-1} \\ & (-1.022) (0.345)(1.56) (0.789) (-2.334) \\ & (0.3238) (0.7349) (0.1388) (0.4431) (0.035) \\ & R^2= 0.36 \qquad \qquad \qquad d=1.38 \end{aligned}$$

In the short run average production per MSME is not influenced by foreign investments, economic development and market capitalization. The lagged error term have negative coefficient and significant at 5% as desired for the equation.

$$\begin{aligned} \Delta \text{Iinvest} = & -0.234 + 0.0979 \Delta \ln \text{FDI}_t + 3.02 \Delta \ln \text{GDP}_t + 0.017 \ln \Delta \text{MCAP}_t - 0.238 u_{t-1} \\ & (-3.06) (1.88) (2.88) (0.29)(-2.306) \\ & (0.0083) (0.081) (0.012) (0.77) (0.036) \\ & R^2=0.643 \qquad \qquad \qquad d=1.98 \end{aligned}$$

In the short run invest in MSME is influenced by foreign direct investment and GDP; these variables have immediate and positive effect on investment in MSME. The lagged error term is negative and significant at 5% as desired for this equation.

Discussion:

Entrepreneurship is getting importance as the current economic situation demand job providers to have a dominant role nation's economy as India is struggling to provide job and income security to its citizens. Entrepreneurship provides significant role in the global as well as domestic economy by industrializing rural and backward areas, as a supplier of input to large industries, creating employment opportunities. It is key driver which

transforms agriculture based economy to industry based which makes it even more important for India, as it's % of population resides in rural areas which is devoid of basic amenities forcing people migrate from rural areas to urban areas. In 2011-12 there were 447.73 lakh working enterprise giving employment to 1012.59 lakh people. These have contributed 43% to Indian exports but only 17% is contributed to GDP while in OECD nation it contributes to 60-70% of employment, 55% to GDP. (Ministry of Finance, 2013) despite the importance of entrepreneurship environment for venturing into it is not so favorable in India even though it has improved significantly.

It is argued by economists that foreign investment, economic development and financial development have catalyzing effect in promoting entrepreneurship. As per findings, average investment on MSME is impacted by financial development, this could be of two reasons, first every entrepreneur wants to expand its business so transform it to public limited company and raise capital from market which will also reduce the risk on the owner. Second is that since, MSME contributes to the input of large industries their growth stimulate growth of the MSMEs. In short run investment is positively influenced by economic development and financial development. The positive economic and financial environment created motivates entrepreneurial activity to gain from this development.

In the long run economic development, financial development has positive influence on production per MSME. Economic development increases the purchasing power of the people which develops new market for small firms. Small firms which sells to both market or supply to big industries get benefitted by this development and these firms have to produce more. Financial development does in the similar way creating new avenue for investment. In the short run none of the independent variables i.e financial development, economic growth and foreign investment influence productivity of MSMEs. This can be because immediate effect is not felt by the small firms.

Entrepreneurship is an important area of focus for India to provide citizens income and job security. To promote it nation has several programs like PMGSY, entrepreneurship promoting agencies like SIDBI, IDBI etc but it has failed to deliver unlike other

emerging economies like China, Morocco etc. The business environment should be made conducive to entrepreneurship policies have to be drafted which attracts foreign investments, promote economic and financial investment.

Conclusion:

This paper analyses the effect of economic development, financial development, and foreign investment on entrepreneurial development measured by production and investment. Using two step of Engle and Granger because of the small size of our sample and the number of parameters to be estimated. The result shows that production is positively affected by economic development and financial development in the long run while in the short run production per MSME is not influenced by either of the variables selected as entrepreneurs look for long term benefit to start entrepreneurship or increase production.

Investment per MSME is found to positively influenced by financial development proxied by stock market capitalization as percentage of GDP in the long run while foreign direct investment and GDP positively in the short run. To promote entrepreneurship, conducive environment should be made that creates scope for entrepreneur so that it reduces the risk associated with it

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INTERNET OF THINGS (IOT): RESEARCH CHALLENGES AND FUTURE APPLICATIONS

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ABSTRACT

Internet, an innovative discovery is always renovating into new aspects of hardware and software which is unavoidable for anyone. The recent development in information & communication Technologies has steered to the emergence of the Internet of Things (IoT). The creativeness of this new Era is unlimited with amazing potential to improve our lives which IoT changed the Traditional Way of living into a High Life Style as Smart Home, Smart Transportation, Population Control, Energy Savings, Smart industries, Smart city etc. Many of Essential research and investigations have been done in order to enhance the technology through IoT. Still, there are a lot of challenges and issues are needed to be discussed to achieve the potential of IoT. Some of the challenges and issues required be considered from various aspects of IoT such as Applications, Challenges, Enabling technologies, Social and environmental impacts etc. This paper deals with a review on recent development of IoT and discussed about the applications used in IOT in today's era. And also, presents the various research challenges and Future of IoT.

KEYWORDS: Internet of Things, Growth of IoT, Future IoT, Applications of IoT, Research challenges in IoT.

Introduction

The internet of things (IOT) is a developing paradigm that enables the communication between electronic devices and sensors through the internet of order to simplify our lives. IoT is continually growing and is a recent research topic where opportunities are immeasurable. The number of devices availing internet services is increasing every day and having all of them by wire or wireless will put a powerful source of information at our finger tips. A connected great transformation can be observed in our daily routine life along with the increasing involvement of IoT

Devices and technology. According to Strategy Analytics, the connected objects will reach more than 38 billion by the end of 2025 and 50 billion by 2030 [1]. One such development of IoT is the concept of Smart Home System (SHS) and appliance that consists of internet-based devices, automation system for homes and reliable energy management system. IoT is a new technology that allows the implementation of systems interconnecting several objects, either in the physical or virtual world [2, 3]. In fact, the evolution of the Internet began with the creation of a simple computer network linking personal computers and then moved on to client-server architecture networks, World Wide Web, e-mail, file sharing, etc. These devices range from ordinary household objects to sophisticated industrial tools.

Growth of IOT

IoT is comprised of connected devices, allowing users to access remote functionality in real time. In more recent years, businesses are recognizing the value and putting more toward IoT investments. It is a global platform where many services like the World Wide Web could be implemented on top of it. As the days passed by, people started emerging into the internet- “Internet of people” . Nowadays 4G and 5G mobile internet connections have led to faster internet access and deliver better quality in video calls. Some popular examples of IoT are Amazon Alexa hubs, Google Home, Ring doorbells, Smart watches, Smart appliances, Nest thermostats and smoke alarms, Smart door locks and Fitness trackers.

According to Mordor Intelligence, the IoT technology market value is expected to rise to \$1.39 trillion by 2026. This incredible growth is likely due to a number of factors. The COVID-19 pandemic accelerated the advancement of remote monitoring, smart home devices, and data analysis solutions. Businesses are racing to develop better

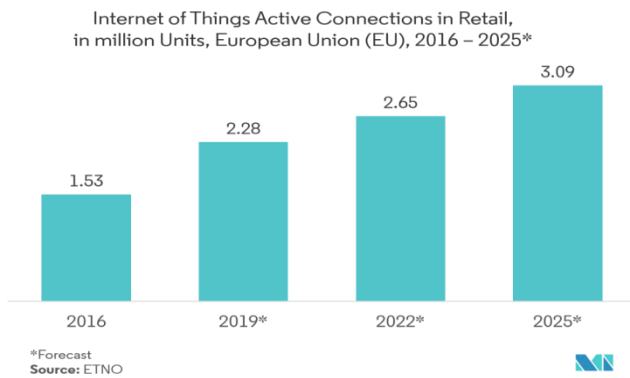


Fig 2 .Forecast Growth of IOT

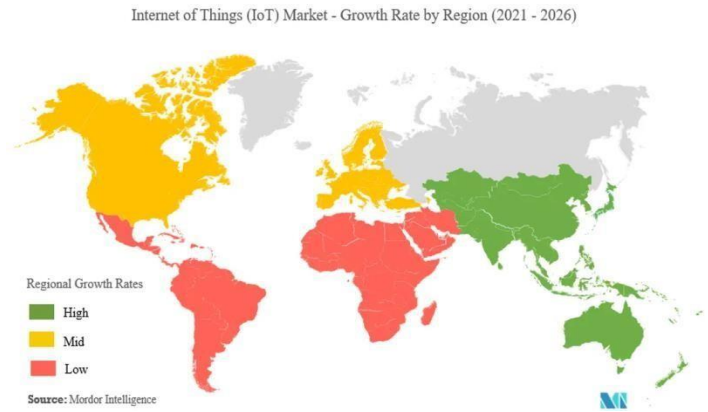


Fig 3 .Regional Growth Rates of IOT

Artificial intelligence solutions. These often require a network of advanced sensors and edge computers within the scope of IoT. IoT networks can accomplish some tasks more efficiently than centralized solutions. [4]

The retail industry is witnessing significant growth in the last two years, especially with the massive expansion of the e-commerce industry, across the globe. Industry 4.0 and IoT are at the centre of new technological approaches for developing, producing, and managing the entire logistics chain, otherwise known as smart factory automation. Another primary market in the region is home automation systems. The products consumers want to add to their homes include connected cameras (highest demand), video doorbells, connected light bulbs, smart locks, and smart speakers of late. According to a Stanford University and Avast study, North American homes have the highest density of IoT devices of any region in the world. Notably, 66% of homes in the region have at least one IoT device. Additionally, 25% of North American homes boast more than two devices. The average household in the region would have an average of 9 devices by 2022, and nearly half (48%) of total devices and connections will be video capable.

Applications of IOT

Most of the daily life applications that we normally see are already smart but they are unable to communicate with each other and enabling them to communicate with each other and share useful information with each other will create a wide range of innovative applications [7]. IOT applications are used widely in many domains. This section discussed few of these applications of IOT.

Smart Homes

One of the best and the most practical applications of IoT, smart homes really take both, convenience and home security, to the next level. Though there are different levels at which IoT is applied for smart homes, the best is the one that blends intelligent utility systems and entertainment together. IOT device giving perceptions into everyday water usage, Set-top box, Smart Door access control system,

Automated Gate and garage, Automatic Illumination Systems and Connected Surveillance Systems.

Wearable Devices

Wearable smart devices have many more functions which are capable of reading text messages, showing notifications of other apps, tracking location, monitor workout status, remind schedules and continuously monitoring health conditions. Major smart wearable manufacturers are developing special operating systems and applications dedicated for smart wearable devices. Wearable watches are saved the life of many people from accident and medical emergencies, Parents can track their child's location, Care takers, Doctors and medical professionals will get notification of patient's vitals like blood sugar levels, Blood pressure, Heart rate and blood oxygen etc,

Smart Agriculture and Smart farming

Agriculture is one sector that will benefit the most from the Internet of Things. With so many developments happening on tools farmers can use for agriculture, the future is sure promising. Tools are being developed for Drip Irrigation, understanding crop patterns, Water Distribution, drones for Farm Surveillance, and more. These will allow farmers to come up with a more productive yield and take care of the concerns better. Smart IoT farming applications enable agricultural producers to optimize their work by sensing soil nutrients and moisture levels so that they can determine the best time to harvest plants and create fertilizer profiles based on the chemistry of the soil. IoT devices such as Smart Elements, AllMETOE, and Pynco can detect weather conditions and other environmental data.

Healthcare

Healthcare industry has been utilizing the possibilities of Internet of Things for life saving applications. Especially during the pandemic, the healthcare industry has been at the forefront of IoT developments, utilizing wearable technology and telemedicine to diagnose and treat patients. These connected healthcare devices allow doctors to collect data on and provide medical attention to a greater number of patients without the risk of potential infection via in-person visits. It can also helpful for monitoring patients and communicating data to health professionals for review and diagnosis. The need for tele-health during the pandemic made IoT ideal for many healthcare applications.

Transportation

Internet of Things (IoT) has crucial applications in the transportation system. IoT plays an important role in all the field of transportation as air-transportation, water-transportation, and land transportation. All the component of these transportation fields is built with smart devices (sensors, processors) and interconnected through cloud server or different servers that transmit data to networks.

Education

There exists a huge potential for education and training sectors to couple the collected information from IoT nodes with other data sources, including user mobility and data analytics, to enable new services and experiences [9]. There are studies that capitalize on this collected information to understand user learning patterns, quantifying their online learning experience by measuring their concentration levels, measuring the impact of ease of accessibility of the learning content [10] and collecting IoT-based feedback.

Autonomous Driving

Autonomous driving has been evolving with the use of artificial intelligence and smart sensor technology in Internet of Things. Earlier generation of autonomous vehicle (partial automation) will assists drivers to drive safely, avoid collisions and warn about the conditions of the road and vehicle.

Industrial IoT for manufacturing

Manufacturing industry is one of the early adopters of Internet of Things which entirely changed several stages of a product development cycle. Industrial IoT will help optimize various stages of product manufacturing such as Monitoring of supply chain and inventory management, Optimization in product development, Automate mass production processes, Quality testing and product improvement, Improves packaging and management, Process optimization using data collected from huge number of sensor networks, Cost effective solution for overall management of factories.

Disaster management

Internet of Things with wide range of smart sensors allow engineers to build a more effective emergency response system for factories, schools, hospitals, airports and any other public gathering places. Any emergency situations like fire outbreak or flooding will be automatically detected using sensors and this information is shared to responsible work groups in real time.

Future of IOT

The Future of IoT has the potential to be limitless. Advances to the industrial internet will be accelerated through increased network agility, integrated artificial intelligence (AI) and the capacity to deploy, automate, orchestrate and secure diverse use cases at hyper scale. The potential is not just in enabling billions of devices simultaneously but leveraging the huge volumes of actionable data which can automate diverse business processes. As networks and IoT platforms evolve to overcome these challenges, through increased capacity and AI, service providers will edge furthermore into IT and web scale markets – opening entire new streams of revenue. An exciting wave of future IoT applications will emerge, brought to life through intuitive human to machine interactivity.

Future wearable technology will be capable of early detection of diseases and trigger for treatment during early stages. Sensitive nano-sensors will have the capability to detect components in our body fluids (sweat, tear and saliva) and notify certain physical conditions that could trigger more severe disease in future. Future healthcare procedure will include more wearable devices for convenient, accurate detection of diseases and monitoring of many medical conditions.

Cisco renewed its agreement in September 2021 by signing a new five-year SaaS agreement with Telstra to offer business added insights and visibility to monetize IoT, allowing Telstra to grow new revenue streams and advance its business goals. In August 2021, IBM announced the expansion of the capabilities of the 5G industry 4.0 testbed at IBM's Industry Solution Lab in Coppell, Texas, with the help of collaboration with Verizon to allow enterprise customers at the lab to test and develop innovations in 5G-enabled use cases for Industry 4.0 applications.

Research Challenges of IOT:

As IoT gives the new paradigm to society so there is a need to change in laws as per this new era of technology. There should be a threat for sanctions in the case of violations of rules. Further, there is a need to be work on the global accountability related to legal aspects of using this new technology. [5]

Universal Standards

There is a need for universal standards to communicate with such heterogeneous environment of devices. Although ETSI and IETF communities are working on standards related to IoT and develop standards but still the universal standard for communication is still a research challenge in IoT.

Networks/ Connectivity

Connectivity is elementary feature of this technology to connect anything, anytime and anywhere. So need to consider the issues in connectivity and networks. In IoT unique identifier for all communication devices demands to build an effective addressing policy for IoT enable devices and IP standard integration. One of the research challenges that is still open is the traffic characterization and combining the concept of traffic characterization and modelling for implementation of quality of service in IoT. Quality of service in the field of IoT is another challenge for scientists in IoT. There is a need to develop a protocol that satisfies these needs. IoT uses different routing protocols with little modification as used in a wireless network or ad-hoc network.

The Architecture of IOT

Even, the development of IOT is in the initial stage, there is a need to build standard architecture for communication. The architecture provides the interoperability between the devices, it simplifies the development and finally equipped with standards that provide easiness during implementation.

Security

Almost trillions of devices are connected in IoT and share the data with each other that might be sensitive data like in banking sector e.g. PINs for an account and personal information etc. that needs to be secure for secure communication. For secure communication in IoT, there must be a mechanism for authentication and data integrity. In some scenarios of IoT devices exposes to open environment or unattended for some period of time during its working so there is a possibility of physical attacks as well as a proxy attack on the devices or links.

There is a need to

Build some security mechanisms that help in protecting the data or links to get safe communication.

Interoperability

At present, various industries practice a variety of standards in supporting their applications. Due to the large quantities and types of data, as well as heterogeneous devices, using standard interfaces in such diverse entities is very important and even more significant for applications which support cross organizational, in addition to a wide range of system limitations. Therefore, the IoT systems are meant towards being designed to handle even higher degrees of interoperability [6].

6. Conclusion

Internet of Things has a significant role in the rapid development that recent technology has known recently. These technologies have made the exchange of data easier. However, the security of user's data should not be ignored. New technologies and applications are surfacing every day; however, there still exist challenges and gaps that need to be addressed. In this paper, we have outlined a growth in IoT and Future technologies. As IoT is not only providing services but also generates a huge amount of data. The fact that IoT is so expansive and affects practically all areas of our lives, makes it a significant research topic for studies in various related fields such as information technology and computer science. The paper highlights various potential application domains of the internet of things and the related research challenges.

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INEVITABILITY ON THE USAGE OF ARTIFICIAL INTELLIGENCE IN THE PORT OPERATIONS OF INDIA

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ABSTRACT

Globally, India ranks 2nd in ship recycling and 21st in ship building. India is ranked amongst the top 5 countries supplying trained manpower, with 17% growth in seafarers in the last 3 years. Total traffic handled at Indian Ports rose from 885 MTPA in 2010-11 to 1300 MTPA in 2019–20. The 12 Major Indian Ports handled nearly 54 per cent of the total cargo in 2019-20 and have witnessed just about ~4% CAGR growth in overall cargo traffic over last 5 years. Given the evolving global shipping market and 10-year traffic projections across commodities and regional clusters, India needs to upgrade its port infrastructure to increase its market share. The overall logistics cost in India is higher than best-in-class benchmarks, primarily as a result of larger hinterland distances and higher unit costs. Port land industrialization, a means to bring industries closer to ports has started gaining traction with port based SEZ developed at JNPT and efforts across other ports. With an aim to achieve ~5% share in world exports, India's exports need to grow aggressively in next 5 to 10 years and it is imperative for Indian Ports to strengthen maritime capabilities and improve Ease of Doing Business (EoDB). Key interventions identified to enhance efficiency include creation of a National Logistics Portal (Marine), functional processes digitalization across maritime stakeholders, Digital-led smart ports, and system-driven port performance monitoring. The article aims to elicit the inevitability of Artificial Intelligence in the port operations of India.

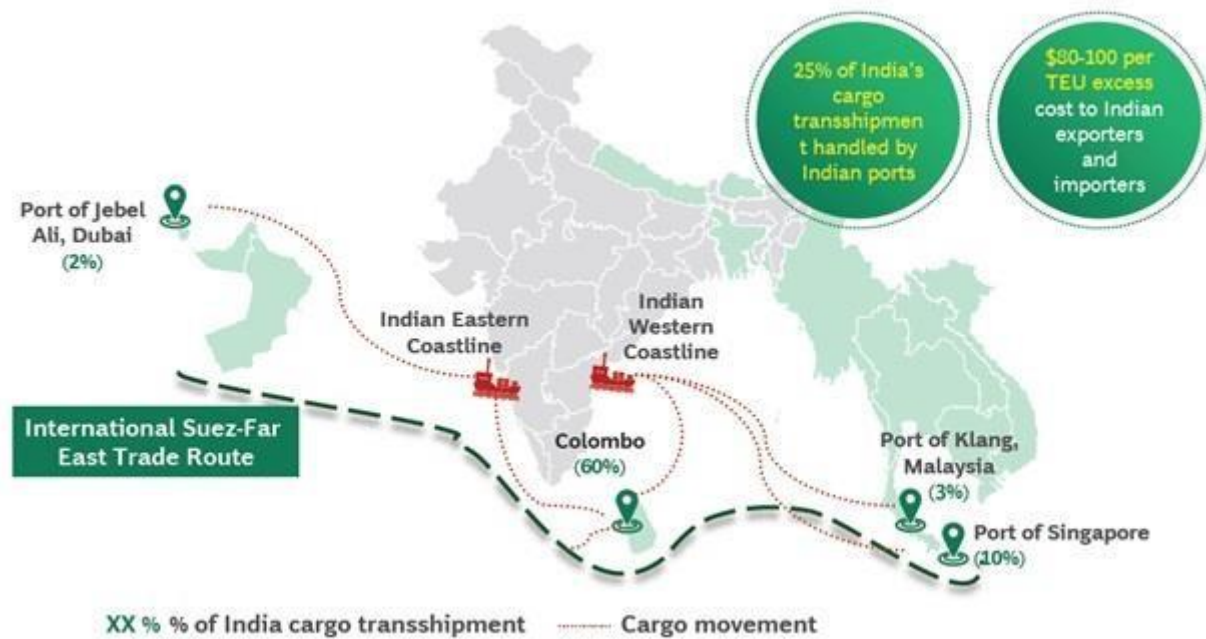
Keywords: *Seaports, Port Infrastructure, Port Equipment, Port Traffic, Smart Ports, Digital Ports.*

INTRODUCTION

India has 12 Major Ports and 205 notified Non-Major Ports along its 7,500 km long coastline and sea-islands¹. The ports are critical economic and service provision units. The total traffic handled at Indian Ports has risen steadily from 885 MTPA in 2010-11 to 1307 MTPA in 2019-20. India's Major Ports have witnessed ~4% CAGR¹ growth over the last 5 years and handled approx. 54% of the country's total cargo in 2019-20. In 2019-20, approx. 25% of Indian cargo transshipment was handled by Indian Ports and rest by International ports leading to lost revenue opportunities for India and a higher risk of trade dependence. Enabling a Transshipment hub in India will not only address the current revenue losses for Major ports but also help take advantage of an attractive position on global maritime routes. Globally, seven of the top 10 ports in the world today (by container throughput) are Chinese ports. Two Indian Ports (JNPT at 33, Mundra at 37) appear within top 402 ports category. There is a significant potential to develop port infrastructure in India and become competitive with other leading maritime nations such as US, China and other South-East Asian regions.

The shipping industry is moving towards mega-size vessels, with more than 40% of the order book in next 3-5 years accounted by ships of size 20,000 TEU and above³. While a Capesize vessel requires 18m+ draft, draft at Indian ports varies widely from 7m to 20m. Hence, Indian ports need to focus on increasing draft availability according to their respective cargo profile. Considering the evolving shipping market, ship sizes, and cargo profile, it is essential for the Indian Ports to further strengthen port infrastructure and drive a greater share of global EXIM trade. Infrastructure is planning to be driven by careful analysis of cargo trends and forecasts.

Indian Ports handled ~16.1 Mn TEUs³² of container cargo in 2019. Nearly 75% of this cargo was gateway (12 Mn TEUs), while ~25% was transshipped (TS) enroute to the destination (4.1 Mn TEUs). Currently, nearly 75% of India's transshipped cargo is handled at ports outside India. Colombo, Singapore and Klang handle more than 85% of this cargo, with Colombo alone handling approximately 2.5 Mn TEUs³². India needs to setup transshipment port alternative that can match competing international ports with regard to location, draft and overall cost economics.



- Indian ports lose up to \$200-220 Mn of potential revenue each year on transshipment handling of cargo originating/destined for India. The loss is even higher when considering the opportunity to handle cargo emerging from other countries in the region.
- Given the extra port handling charges incurred at the transshipment hubs, transshipment of cargo results in logistic cost inefficiencies for Indian industry. The additional port handling cost is to the tune of USD 80-100 per TEU³⁴, which could be saved if the container was imported/ exported as direct gateway cargo instead of being transhipped.
- The routes to/from Europe and America are the most significant currently, but Africa-bound traffic is set to grow faster (6-7%) over the next decade³⁵. While most of the transshipment trade happens in the South East Asian and Middle East clusters, locations in Southern India are geographically an efficient location for transshipment of cargo moving to Africa, EU or East Coast of America.
- A strong economic case therefore exists for enabling a transshipment hub in Southern India that can attract Indian and regional transshipment traffic from the current hubs, save significant revenue loss, reduce logistics inefficiencies for Indian trade, reduce risks to country's export competitiveness and create an opportunity for India to become a large hub for Asia-Africa, Asia-US/Europe container traffic trade.

LITERATURE REVIEW

Alice de Jonge et al (2019) gives a detailed account of how the process of globalization affect large global corporates. They narrate the details of activities of global corporations which facilitates the process of globalization. They have also provided both theoretical and practical insights in the regulatory framework at different levels affecting the operations of global corporations.

Ajeet N. Mathur (2021) narrate that international business is a complex activity as it has to cross different national boundaries. Many economies have rose to the occasion and facilitated international trade and globalization. The author helps players of international trade to make critical decisions based on certain assumptions in business environments, national competitiveness and to formulate global strategies for international trade.

Bagwell, K. and Staiger, R. (2019) conducted an depth study on whether convergence is happening among developing countries due to globalization and international trade by using cross section and time series methods, and they found convergence in some sectors especially service sector. However the convergence was absent in the manufacturing sector. Developing countries, especially OECD countries have benefited to a greater extent. The process of globalization is mainly facilitated by International trade. In addition to economic globalization through International trade, social and cultural globalization is taking place along with increasing trend of International trade.

Anna Triandafyllidou (2018) provides a detailed account of migration of the people taking place as part of globalization. She has also provided tools to understand the extent of population flows which are taking place as a part of economic globalization. There are different view-points about the impacts of International trade on different cross-sections of the society. Impacts are experienced at the level of individuals, different groups and nations; some are benefitted and some are at a disadvantageous position. These are a detailed account of consequences of international trade at various levels. It also affects formulation of domestic policies, economic growth and cultural and social aspects of the people. The detailed analysis of impacts of International trade on different groups in a nation helps policy-makers to formulate suitable economic and trade policies which will ensure sustainable economic development.

Samsul Islam (2018) suggests a simulation method for container trucks to address the problems. It was observed that empty containers causes considerable delay for laden containers. To address this issue, a simulation model can be formulated for the truck arrival process and he suggested truck sharing process. This will help to increase the number of container trucks handled in a specific period of time. Delay and congestion of containers at container ports is a matter of concern, world over.

Epictetus E.Patalinghug (2016) suggests that Government of the respective countries should take initiative to provide proper infrastructure, and formulate policy and regulatory initiatives and to address the concerns of the industry at the national level. Delay and congestion of containers at container ports which result in increase in logistics cost of international trade.

Dong-Wook Song et al (2018) studied in detail the efficiency of container terminals with a special reference to Ports in Korea and UK. They have pointed out that the privatization of container terminals could bring in better efficiency.

OBJECTIVES OF THE STUDY

The primary objectives of the study are given below:

- To identify the existing technological based operations used in Indian seaports
- To study the requirement on the usage of the Artificial Intelligence in the port operations

METHODOLOGY OF THE STUDY

The study uses the exploratory research study in which the researcher has collected information based on the usage of technology in the operations of seaports in India. Even though India has got 12 major ports in the mainland India and more than 160 minor ports, the usage of artificial intelligence in the regular port operations are considerably very less. This shows that the port authorities have to tighten their shoes to stay competitive in the port operations otherwise they may lose their business with the competing ports in the name of transshipment operations.

USAGE OF ARTIFICIAL INTELLIGENCE IN PORTS

Artificial Intelligence (AI), intelligence demonstrated by machines, is making waves in Smart Port

and terminal operations. Artificial Intelligence is a key technology for Smart Ports and the reason for port automation. In fact, without AI Smart Ports could not exist. AI has already impacted global logistics companies and will continue to impact the development of the maritime and shipping industry.

AI converts data with powerful algorithms to replicate the thought process of humans. As port operations are redundant, there is a lot of past and real-time data produced that can be plugged into these AI algorithms and technologies. AI has already automated vessels, trucks, and even a few current port management systems. For example, Port of Los Angeles already uses autonomous cranes and container trucks to transport cargo within the terminal. Port of Rotterdam also employs AI for their digital Smart Port operations. Ports use digital AI technologies for system automation, safety and security improvements, vessel route, vessel turnaround time, and container dwell time optimization. As well as for accurate estimated time of arrival forecasts, real-time performance forecasts, and to create a Digital Twin of their port (a real-time digital representation of the port operations).

Machine learning, a subset of AI when machines are programmed to replicate and imitate human decision-making processes, helps a company to create a digital simulation of what might occur in the real world. For example, Machine Learning can plug in real-time data collected from IoT sensors and block chain databases into AI algorithms to track vessel trade routes. By tracking the trade route of a vessel, a port could know the accurate estimated time of arrival (ETA) and use this data to optimize berthing time. Currently, most ships do not arrive at their predicted ETA, so AI will have a big impact on the improvement of global port operations. According to Danish company Sea-Intelligence in their Global Liner Performance Report for November 2020, the average reliability of a global carrier arriving on time across 34 different trade lines fell to 50.1%. Imagine if 50% of airplanes arrived days late to their destinations – the world would be a mess – and that is the reality for the shipping industry without the help of AI.

Vessel ETA is a big issue in the global shipping industry, and if AI technologies could be used to optimize exactly when a ship arrives and departs, this would cut costs, reduce environmental impact and port congestion, and help comply with standards and regulations. This would also enable authorities to use automated decisions so that cargo is unloaded at the right place and right time.

ARTIFICIAL INTELLIGENCE (AI) IMPROVES EFFICIENCY

Digital Smart Ports using AI can handle an increase in cargo and traffic, optimize employee working hours, cut human error, and make the supply chain more productive. AI improves overall efficiency. For ports and shipping companies, AI and automation projects are known as retrofitting. This is when existing facilities, like ports, employ AI technologies into a traditional system to create a safer and more organized environment. AI enables companies, to create software-based platforms and modules that maritime actors can use for improved business practices. For example, the Smart Port Hub uses AI algorithms to give the maritime industry a 360-degree view of their activities. Essentially, with the help of AI, ports could process their data to help them to make accurate decisions, plan for shipping arrival and departure times and optimum storage solutions, and quickly load and unload containers and cargos from ships.

HOW WILL ARTIFICIAL INTELLIGENCE (AI) AFFECT PORTS AND TERMINALS?

AI has been around a very long time. Ports and the shipping industry have provided multitudes of past data and real-time data from IoT sensors that AI algorithms use in their software platforms. Using AI to improve ports and terminals has a lot of potential yet a long way to go. Within the port, the terminal, and current surrounding modules there is immense potential for improved use of AI. Once quality data can be used in the supply chain, ports will be able to use algorithms to make quality decisions.

There is also a future for AI inside automated equipment. Ports already use AI in terminals to transfer containers and cargo. This allows vehicles to operate with central guidance and transport cargo and containers more efficiently. The way of the future alludes that for ports and terminals there will be a mix of AI systems and human systems. For example, vessels, vehicles, and certain systems will use AI while there will still be the need for a central system controlled by humans. The key issue regarding the use of AI in ports is standardization. There are currently no standards for maritime industry technology. Normally, when ports adopt innovative technology systems it is customized for their specific operations.

DIGITAL-LED PORT OPERATIONS

Most Indian Major Ports need to enhance adoption of digital solutions to improve operations efficiency and stay ahead of competition. Three areas of interventions are:

1. Digitization affects entire functional landscape. Leading global ports have taken an integrated front-to-back approach that goes beyond mere digital-channel functionality.
2. Digital architectural strategy should extend beyond solutions offered by mainstream software and help ports easily accommodate future developments in technology
3. Implementation pathways (such as build or buy) should be carefully chosen because they pose different investment and risk profiles

Smart Ports of the future will be digitized, integrated with the wider end-to-end supply chain, and pioneer new business models that will change the logistics landscape. Smart ports will be data-driven, use automated devices, Internet of Things (IoT), and leverage analytical technologies for safer and more efficient management of resources. Thrust area discussions have identified use cases for use in Major ports and prioritized 57 such digital solutions / use-cases that will drive transformation of Major ports to “Smart Ports”. All Major ports should implement solutions identified as “Must-have” to move towards becoming a Smart port. Post adoption of “must have” solutions, major ports should evaluate the cargo profile and scale of cargo achieved to deploy “Logistics efficiency” solutions in a phased manner. With new technologies maturing, ports can also look to deploy “World Class ports” solutions to as part of their digital journey.

Owing to multiplicity of systems and technologies, many Indian ports need to undertake an integrated front-to-back overhaul of the digital landscape across six architecture layers.

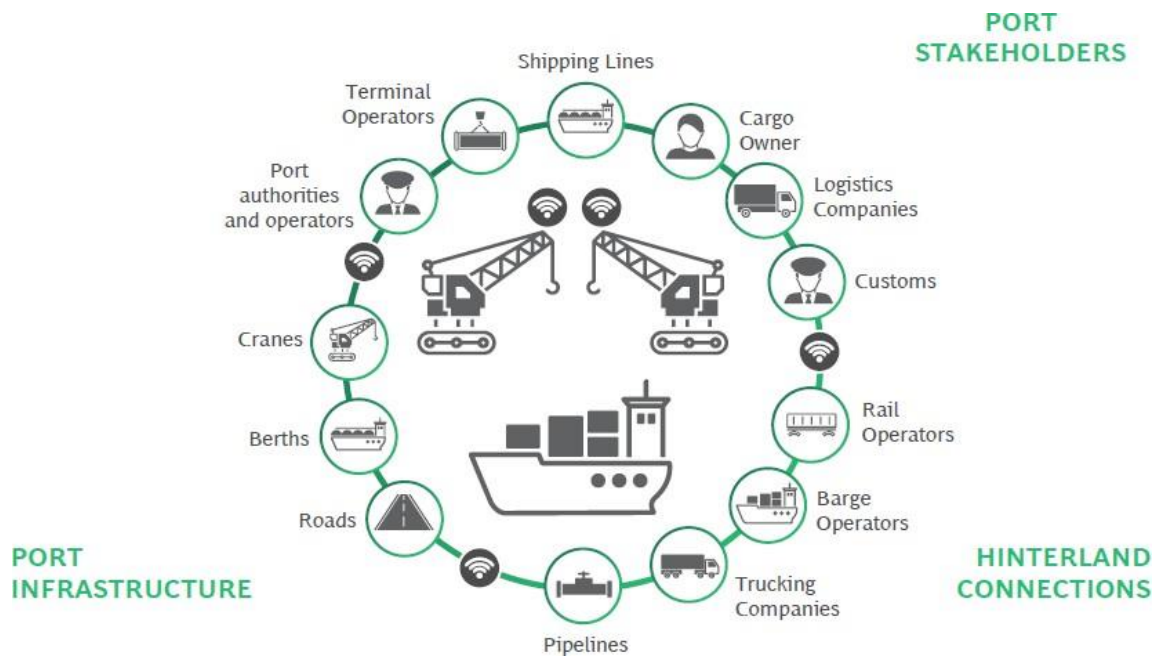
- a. Digital front end: Provides device-, location-, and context-aware customer interfaces and enables ports to deliver a tailored and rich multichannel digital customer experience.
- b. Data analytics: Aggregates all the data and makes it available for reporting, analytics and other services. This layer offers tailored customer-centric services and personalized risk profiles by using automated decision engines and artificial intelligence.

- c. Enterprise core systems: Contains all systems of record for the core business (operations, vessel logs, daily output, etc.) and its support (risk management, finance, etc.).
- d. Infrastructure: Captures all data (both structured and unstructured) for real-time processing and analytics. It envisages cloud solutions replacing on-premises legacy infrastructure.
- e. Integration: Manages the integration of applications with external parties based on open Application Programming Interfaces (APIs).
- f. Cyber security: Layer involves incorporation of proprietary interfaces with partners, aggregators, shippers, and clients, with perimeter security and data privacy confined to enterprise systems.

By 2030, Major Ports are envisaged to be multi-modal, connected hubs, playing a major role in India's growth. There exists a critical need for coordination and governance for this digital transformation of Major Ports. Digital Centre of Excellence (DCoE) will improve cross-port collaboration and drive ability to scale benefits for prioritized technology initiatives. It will be mandated to guide Major Ports in expediting their digital maturity on key components like ERP, digital applications and network infrastructure. DCoE will be part of the Indian Ports Association (IPA) and act as a central authority to drive digital transformation of Major ports. It will primarily focus on following goals:

- Standardization of technology core components (e.g. PCS 1x, NLP Marine, EBS, etc.)
- Acceleration in adoption of digital solutions (e.g. “must-have” solutions across ports)
- Collaboration with industry to develop new technologies
- Cyber security and compliance across Major Ports

The Global Smart Ports integrating all stakeholders in a connected ecosystem is shown below:



CONCLUSION

Global cyber threats alongside sustained pressures over environmental regulations have always been a challenge for the shipping industry which made digitization an indispensable alternative for the maritime industry. All over the world, major shipping industries have been keen on improvising systems to nurture and innovation and find solutions to these concerns. When it comes global shipping, AI has emerged as one of the prime technologies that have practical use cases which organizations are adapting in their organisational work routine. However, while most of these technology implementations are in the conceptual stage, to achieve business value and traction out of it will take the due course of time. AI and automation play a significant role in the shipping industry and businesses are having great success with AI blending well with machine-human interaction and logistics collaboration. In this article, we list down how these technologies are transforming the shipping industry at large.

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IMPACT OF MACHINE LEARNING IN THE GLOBAL MARITIME SECTOR

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ABSTRACT

Machine Learning is a subdomain of Artificial Intelligence. It is applied in all walks of life. This article discusses the introduction of Machine Learning in Maritime Business, barriers for ML implementation to the fullest extent, and the Overall Benefits of using ML over barriers in Maritime Business. It also discusses already existing ML technology companies in Maritime industries and a model for portfolio prediction of shares of Shipping Corporation of India. For forecasting, Python with Machine learning libraries is used to predict. This ML model can be simulated for any other problem like weather forecasting, sea routing, optimization of port usage, voyage resource usage etc. This obviously throws some light for data downloading from yahoo finance, creation of visual graphs to depict the state of shares and the prediction using Machine Learning.

Keywords: *Machine Learning, Artificial Intelligence, Maritime Sector, Neural Network*

INTRODUCTION

Artificial intelligence is a subdomain of Artificial Intelligence. Machine learning is automating without explicit programming. It has a lot of libraries with many algorithms for learning and mimicking human decision-making processes. Machine learning is nowadays very extensively used in many industries to predict share price, suggest a good product for the customer, predict a customer churn, driverless car driving, etc.. Similarly, the Maritime business is a volatile and dynamic one and has a lot of challenges with uncertainties. To reduce uncertainties, we use ML for the shipping industry. It can reduce emissions while driving for growth and profitability. We have to use immense data available for financial and environmental data to forecast and reduce uncertainty like a loss. The benefits of leveraging technology in maritime have the power to impact your predictive capabilities and make your operations more efficient. Some implementations include real-time analytics, improved scheduling, automated processes, and much more benefits. It is an Opportunity that shippers should be looking at very seriously. Maritime operations have been extremely

optimized, but there is definitely “last nautical mile” efficiencies such as vessel precision Operations using various geographical data to exactly make ETAs/ETDs, fine-tuning container routing, and re-routing, fuel-consumption models that offer “Fuel Savings Guarantees.

BARRIERS TO ML IMPLEMENTATION IN SHIPPING SECTOR

There are advantages and disadvantages to any technology. AI is no different. Despite the benefits of ML, there are some obstacles in Maritime Industries like in all other industries. Locally, People fear to use in the beginning, globally it has the challenges like data, pure data, quality of data, integration of data, trust issues, limitations in time and energy, shortage of domain knowledge in the industry with respect to applying ML.

BENEFITS OF ML IN THE SHIPPING INDUSTRY

ML uses data as a tool to learn from the past to help you improve decision-making in the future is invaluable. It can explain what, why, and how it happened, in the past and what will happen in the future in this scenario. Some of the outstanding benefits of MLI in the shipping industry include improved data analytics for automation, safety, route optimization, and increased efficiencies.

- 1. Advanced analytics** - used to make phenomenal valuable business insights from many data sources. This will help ensure your actions are based on data-proven methods and fool proof..
- 2. Automated equipment** - ML and automation play a role in the shipping industry. Machine learning capabilities will help in the analysis of past data by considering such things as weather patterns or busy/slow shipping seasons. Automating processes can help identify problems like storms and tsunamis before they happen. This allows time to make adjustments.
- 3. Safety and improved security** - Accidents can be reduced using ML. It can also detect submarine activities under the sea like threats and other malicious activities.
- 4. Route optimization** - Route optimization would build optimization models to determine the most fuel-saving efficient route to take. With the help of MLI, a prediction of the best path among many routes with minimum fuel consumption, and considering the weather can be calculated.

5. Performance forecasting - Performance forecasting could take the relationship between speed and power to predict changes in performance due to underwater fouling. You could use historical data to understand the rate of the degradation of the performance of the vessels.

Machine Learning, where computers learn using data sets easily over time by applying algorithms like linear regression, logistic regression, neural network, recurrent neural network, and convolution network, deep learning that will improve with experience. For example, as stated above, ML in the shipping industry can be utilized to optimize and enhance ship traveling routes. ML can determine the best course at the best speed. The power of ML helps to forecast and optimize future performance and so much more.

TECHNOLOGY COMPANIES ALREADY IN ML FOR SHIPPING INDUSTRIES

It is a paradigm shift ML in the Maritime Industry. Below are just a few studies of ML in the works. It can cut down on fuel consumption, improve shipping operations, and enable sustainable societies with smart technologies.

1. Cut fuel consumption

Hitachi Europe Ltd., a subsidiary of Hitachi, Ltd., has partnered with Stena Line, one of the largest shipping companies in Europe. Their goal is to implement artificial intelligence technology on ships to reduce fuel consumption costs and become an essential tool in the company's efforts to minimize environmental impact. Controlling fuel consumption is vital to Stena Line's business since it is a major part of their total cost base. By leveraging cutting-edge AI technologies, Hitachi will be able to identify the key factors causing high fuel consumption and, critically, advise how to make operations more efficient.

2. Using AI to improve shipping network operations

Orient Overseas Container Line (OOCL) teamed up with Microsoft's research arm in Asia to use AI to enhance shipping network operations. OOCL has a proud track record of adopting new technologies with real business impact. It has fully embraced a hybrid cloud infrastructure with auto-switching and auto-scaling throughout its business.

Using IoT to collect seasonal current live data like sea conditions, wind speed, lat-long on earth, voyage impacting factors both on and off the ship. Predictive analytics, one among Predictive, Descriptive, and Diagnostic analytics, with ML lead to operational adjustments and actions to keep vessels moving in the most effective routes. Such insights will captain to save fuel, and vary the speed to port for the optimum time. Similarly, course-balance route time could be amended to avoid anticipated port traffic, congestion, or deteriorating water. It can improve the operational flexibility of multiple vessels to smooth out the transfer saving human resources, time, and money at multiple points. Logjams will be avoided and underutilized routes and schedules could be recast ad made port more profitable. Shipping Giant Orient Overseas Container Line Limited (OOCL), has come together with Microsoft Research Asia (MSRA) on a digital transformation journey to identify, manage and overcome all sorts of operational uncertainties and create efficiencies.

3. Enabling sustainable societies with smart technologies

Wärtsilä (a global leader in smart technologies for the marine and energy markets) is disrupting the industry by establishing an ecosystem that is digitally connected across the entire supply chain through applications that are secure, smart, and cloud-based. It gives professional training and simulation services, ship traffic control, as well as monitoring, and support. Transas leverages the latest in machine learning and AI to create a unified cloud-based platform for managing operations across the entire marine ecosystem.

ML IS ENHANCING SAFE NAVIGATION

The number of Ships is growing in size and number. And with the increase in growth comes the rise of potential collisions. According to EMSA's (European Maritime Safety Agency) annual review, in the five years from 2014-2019, approximately 4000 collisions and incidents have been reported annually, with 75-96 percent of these marine incidents attributed to human error.

ML Algorithms are being developed for ship-owners and logistics providers. They include autonomous ships, voyage planning, and ship maintenance. How to predict this human error and alarm the captain of the ship. ML gives a helping hand in the following way. Autonomous and remote-controlled ships are being tested in some sea areas. As the industry grows, 3600 sensors will provide data with the help of radar, sonar, LIDAR, GPS, and AIS which will supply data for navigational use. Maritime autonomous surface ships (MASS) are crewless vessels that transport containers or bulk cargo over navigable waters with little or no human interaction.

Different methods and levels of autonomy can be achieved through monitoring and remote control from a nearby manned ship, an onshore control centre, or through artificial intelligence and machine learning—letting the vessel itself decide the course of action. A lot of insights into how AI enhances navigational safety and saves human lives. It can also detect dangers in ports and warn the captains with alarm ahead so that ship will be saved from any damages.

Proposed work.

How to leverage the machine learning algorithm for buying shares of SHI by seeing the share market prices. How of giving a recommendation like this below we will discuss.

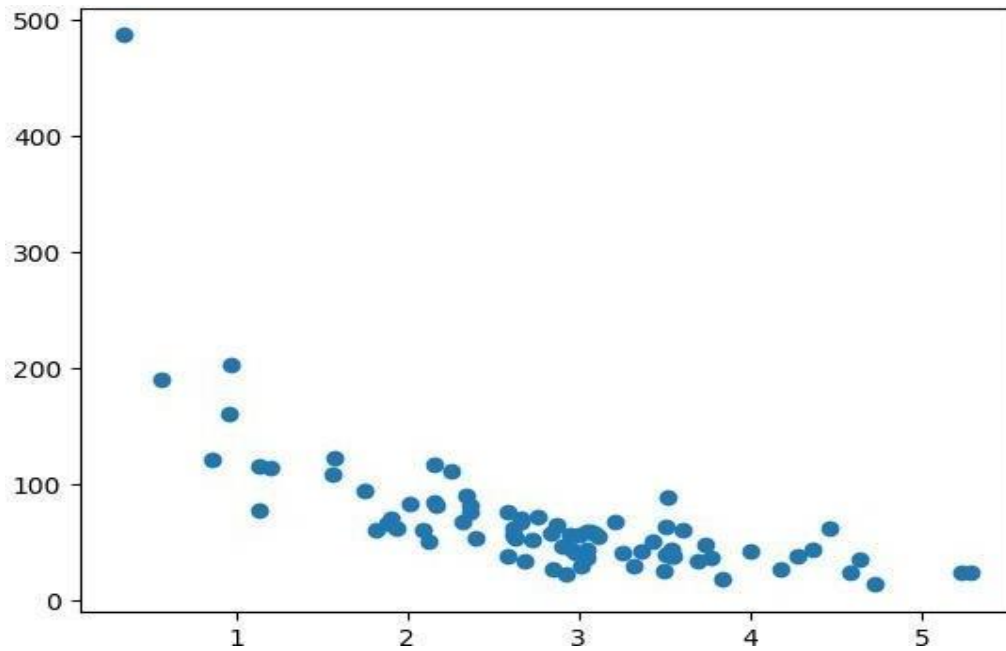
“As on 10th Mar 2022 SCI Share Price closed @ 115.85 and we RECOMMEND Sell for LONG-TERM with Stoploss of 120.56 & Sell for SHORT-TERM with Stoploss of 126.78.” We can extract SHI shares from web site and split in to x and y. Then we propose ML model with the following

1. Data set : Live Data collection from web site yahoo finance
2. Data Cleaning if any error, duplicates, Null values and normalize data
3. Data Analysis : descriptive statistics for understanding data
4. Choosing Linear regression model or Logistic regression Model
5. Training with 70% of data : Training data set
6. Model Creation with Training set.
7. Model testing with Test data set
8. Plotting the graphs
9. Predicting for the given input

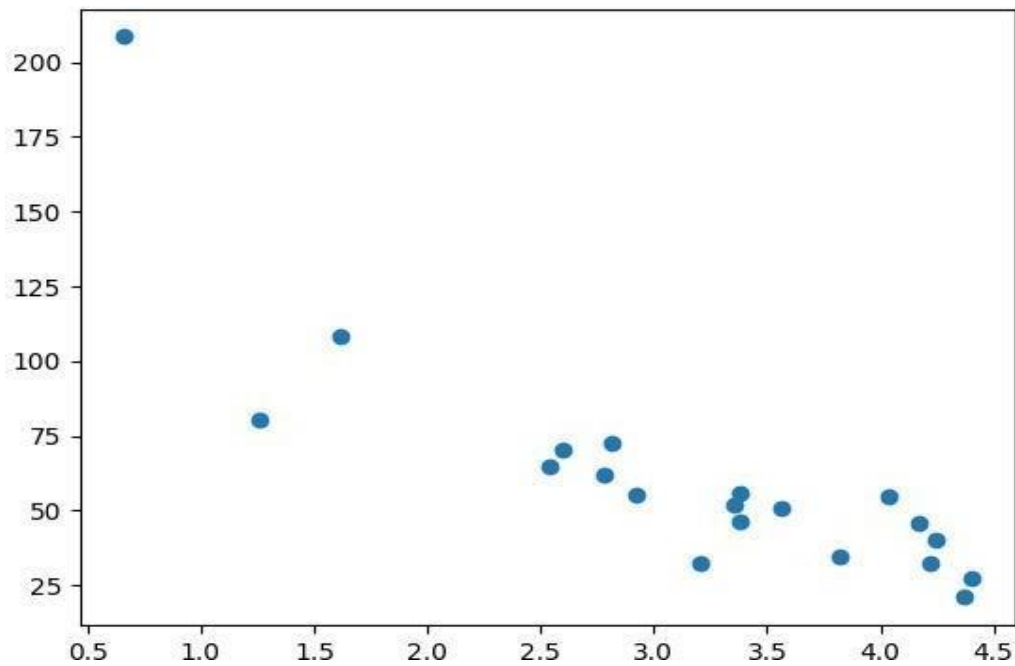
For that, we have to predict the price so that we can suggest. For simplicity, we build model feature data set as x, label set as y. We split it into two one with 80% as a training dataset and another with 20% as a testing dataset.

```
“Import numpy
Import matplotlib.pyplot as plt
From sklearn.metrics import
r2_scorenumpy.random.seed (2)
x = numpy.random.normal (3, 1, 100)
y = numpy.random.normal (150, 40, 100) / x
```

```
train_x = x [:80]
train_y = y[:80]
plt.scatter (train_x, train_y)
plt.savefig('paper1.jpg')
```



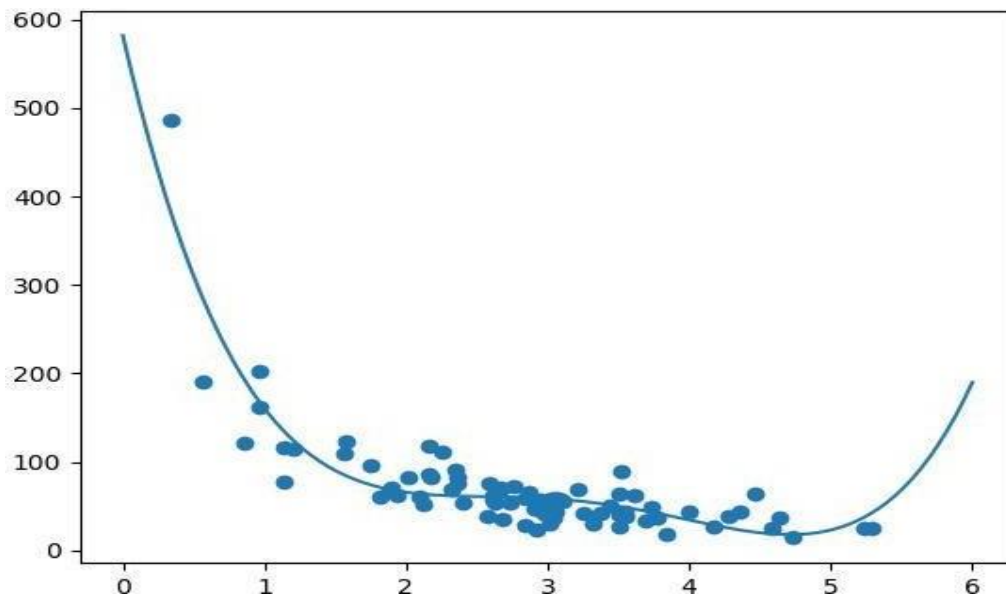
```
test_x = x[80:]
test_y = y[80:]
plt.scatter (test_x,
test_y)plt.savefig
('paper2.jpg') plt.show ()
```



From the above figures we infer nothing. So we model with logistic regression.

```
Mymodel = numpy.poly1d (numpy.polyfit (train_x, train_y,  
4))r2 = r2_score (test_y, mymodel (test_x))  
Print (r2) # 0.8086921460343581
```

R2 co-efficient in this model says, it is 80 %. Say it is ok. With this model how we can predict,
After fitting with polyline modelling, the figure will be



The poly line clearly goes through most of the point. It is a good model. If it does not go through, we have to use some mother algorithm to fit. With this model how we can predict for $x = 5$, it gives prediction 22.87962591812061

CONCLUSION

ML can be modelled for any number of features as x , (here for simplicity single column is taken), output column to be predicted (label) set as y . This article is very fundamental one with polynomial fit model. A lot of algorithms for neural network, Deep learning algorithms with Convolution Neural Networking and Recurrent Neural networking are available. Robot taxi, Driverless cars are using Tensor flow from google in predicting the path, obstacles in the path and made driverless car driving possible. Commercially driverless taxis are modelled by Amazon (Zoox).

APPLICATION OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN MARITIME INDUSTRY

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ABSTRACT

Artificial Intelligence and Machine learning play a major role in the modern world. The shipping industry needs the latest IT-based infrastructure in shipping companies across the world to increase their revenue and also give a cutting edge competition in the other company which is related and unrelated to the business. This article tries to explain the needs and role it plays in the industry.

Key Word: Ability, Business, Process and Capability

Introduction

Artificial intelligence (AI) refers to the ability of machines to understand the world around them, learn and make decisions, in a similar way to the human brain. AI and automation play a role in the shipping industry. Machine learning capabilities will help in the analysis of historical data by considering such things as weather patterns or busy/slow shipping seasons. Automating processes can help identify problems before they happen.

Role of AI and ML in shipping

The maritime business started applying Artificial Intelligence (AI) and Machine Learning (ML). Since IT plays a major role in all the industries/businesses. Machine learning is a branch of artificial intelligence that the maritime industry wants to make use of it for their achievement. Machine learning works with both small and large datasets, it examines the data and compares it to give a uniform pattern, and explores its usefulness. The scope of Artificial intelligence is increasing day by day. There is a tendency among the common people that Artificial intelligence is a science and engineering-based concept that deals with computers and software.

Shipping companies focus on faster communication which is highly needed in the ships and gives a lot of benefits to the engineering and captains, and also to the shipping company. Most of

The feet implemented the remote control program to their offices in a ship that needs high-speed Internet access, virtual networks, email, route planners, and systems and applications to the captain and crew. But it is time for shipping companies for further development and to immediately implement the IT-based infrastructure for the achievement in the long term.

Recently shipping companies started investing in IT in order to improve the standard of the vessel operations. The company's costs involved in the new infrastructure head have to be invested. It will surely help them to improve their business processes.

There comes AI and ML for discussion and implementation. Computers will help the mariners to process huge data at a faster rate than humans. ML algorithms will give a great benefit to the ship owners after successful implementation in their business operations. After the investment in AI/ML, the company yields a lot of benefits in big data analysis competencies. ML algorithms help the captains to handle data in the vessel operation.

AI and ME in Stena Lines and Port of Rotterdam

Industries that implemented AI/ML technology had gained a lot in their business activities. Stena Lines is the world's largest ferry operator implemented the AI/ML to bring down the use of plastic on board and to reduce the accidents in the ship movement. To bring down the fuel economy and usage of battery-powered power plants in ships. The port of Rotterdam implemented the ML-based system to find and inform the arrival of ship time.

It is highly known that data is highly needed to reduce uncertainty in shipping. ML algorithms if implemented will help the company and ship to improve their data process which will be highly helpful for the shipowners. Nowadays Data mining plays a major role which is very limited in the maritime industry.

The application of ML techniques in the maritime industry is a new phenomenon and recently started its implementation in other industries. Machine Learning helps the users to introduce intelligent algorithms and also to study the database which helps to solve the major problems in maritime transport. These ways and techniques can be used in marine network planning, voyage planning, cargo optimization, maintenance process etc.

Conclusion

Implementation of AI in the maritime industry is underway and also the implantation of AI technology across the board, but in India, it is still a long way away from widespread application. Although It is in the testing stage across borders in many industries. But the initial commercially viable solutions also showed their existence in a few sectors.

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A STUDY ON JOB SATISFACTION OF EMPLOYEE WITH REFERENCE TO A CONFECTIONARY COMPANY IN CHENNAI

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ABSTRACT

Job satisfaction is another important technique used to motivate the employee to work harder. It has often been said that “a happy employee is a productive employee “. A happy is, generally, that Employee who is satisfied with his job. Job satisfaction is very important because most of the People spend a major portion of their life at their working place. According to Keith Davis “job satisfaction is the set of favorable or Unfavorable feeling with which employee view their work”.

The main objective of the research is to study the job satisfaction of employee in lotte India Corporation limited. The research design used for this is of the Descriptive research. Primary data were collected through questionnaires. Simple random sample was selected for this study with 100 sample size. Chi-square, correlation & percentage analysis are the statistical tools used for data analysis.

From the finding of the study, it is identified that employees are not much satisfied with the working environment.

Key words: job satisfaction, working condition, working environment.

INTRODUCTION

Job satisfaction is another important techniques used to motivated the employee to work harder. It has often been said that “a happy employee is a productive employee “. A happy is, generally, that Employee who is satisfied with his job. Job satisfaction is very important because most of the People spend a major portion of their life at their working place. In simple words, job satisfaction can be defined as the extent of positive feeling or attitudes that individuals have towards their jobs. When a person says that he has high job satisfaction, it means that he really likes his job. Feels good about it and values his job highly.

According to Field man and Arnold, “job satisfaction will be the defined as a amount of overall

affect or (feeling) that individual have towards their jobs.” According to Keith Davis, “job satisfaction is the set of favorable or Unfavorable feeling with which employee view their work”. We can say that job satisfaction is a result of employee perception of how well their job provides those things which are viewed as important. In the field of organizational field, job satisfaction is considered the most important and frequently studied attitude.

Job satisfaction cannot be seen, it can only be inferred relates to one’s feeling towards one job.

Job satisfaction is often determined by how outcomes meet the expectation will exceed the expectations. If the employee working in the organization feel that They are working much harder than others in the department but are receiving Lower rewards, they will be dissatisfied and have a negative attitude towards the Job, the boss and the co-workers. On the other hand, if that they are being paid equitably and treated well by the organization; they will be satisfied with their Jobs and will have positive attitudes.

REVIEW OF LITERATURE

Wanyama & S.N. Mutsotso studied the influence of employee productivity on organization performance as how employee satisfaction lead to customer satisfaction. The result from this study add to the individual is physically present at a job and also the degree to which he or she is (mentally present) or efficiently functioning while present at a job. Companies must address employee satisfaction health and moral in order to maintain high work productivity.

Komal Khalid Bhatti & Tahir Masood Qureshi found out that Job satisfaction, employee productivity and employee commitment, increasing employee participation will have a positive effect on employee job satisfaction, employee commitment and employee productivity.

Dr. R. Anitha analysed the satisfaction level of paper mill employee and found out that the organization lack the relationship between worker and supervisors .working condition, canteen, rest room facilities, reward, recognition and promotion policy, a reward system of the employee and promotion must be given based on merit, educational qualification and experience, and these factors are given little more care, the company can maintain high level of satisfaction .organization commitment and involvement. This will in turn lead to effectiveness and efficiency in their work which lead to increased.

Sakthivel Rani Kamalanabhan & selvarani analyzed the relationship between employee’s satisfaction and work life balance. The study was conducted on a total of 210 respondents working in IT organization. This study makes a contribution to join two distinct research streams, namely employee satisfaction, and work life balance. Finding suggests that high correlation exists between work task and employee satisfaction with a mediator variable namely work life balance”.

Padmakumar Ram examined the relationship among service climate, employee job satisfaction, employee engagement, and customer satisfaction. A total of 369 usable questionnaires were analyzed and the finding indicate that work environment influences services climate which in turn influence employee job satisfaction, employee engagement, and customer satisfaction.

Dr. Samina Nawad studied the impact of employee compensation on their job satisfaction and employee organizational commitment among Pakistani university teachers .enhancing organizational commitment ,eventually result in their higher employee commitment ,enhancing retention and they will perform better .this study also aims to develop a course of a action for university administrative to come up with practice which would enable them to attract and retain top level faculty at their institutions.

Daljeet Singh wadhwa, found out that all the three variable that are environmental, organizational and behavioral factors have a positive impact on job satisfaction it means that if the employees are treated equaled and fairly and they are properly supervised job satisfaction. Hence from this research it can be concluded that organizational factors are the almost important aspect for jobs satisfaction of employee in a company.

NEED OF THE STUDY:

The study is carried out to find the employee job satisfaction level in a confectionary company in Chennai. The study of employee job satisfaction is help the company to maintain a standard and increase the productivity by motivation the employee. It will be helpful to know the job satisfaction of employees.

OBJECTIVE OF THE STUDY

The main objective of this research is to study the job satisfaction of employee in a confectionary company in Chennai.

RESEARCH DESIGN:

Research design used for this study is of the descriptive type. Descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual or a group.

- **SAMPLE METHOD:**

Simple random method was adopted for this study.

- **SAMPLE SIZE:**

The sample size consisting of 100 respondents were selected for the study.

STATISTICAL TOOLS

- To identify the relationship between the satisfactions level of employee work and stress in job.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.316 ^a	1	.251
Continuity Correction ^b	.777	1	.378
Likelihood Ratio	1.281	1	.258
Fisher's Exact Test			
Linear-by-Linear Association	1.303	1	.254
N of Valid Cases ^b	100		

SPEARMAN'S RANK CORRELATION

- To identify relationship between gender & work condition

	Gender	working
Gender		
Pearson Correlation	1	.106
Sig. (2-tailed)		.294
N	100	100
Working		
Pearson Correlation	.106	1
Sig. (2-tailed)	.294	
N	100	100

From the above table it is inferred that the rank correlation is positive correlation ($r=0.106$) therefore there is relationship between gender and satisfaction towards work condition.

WEIGHTED AVERAGE METHOD

ATTRIBUTES	I	II	III	IV	V	VI	TOTAL	Weg.avg	Rank
Salary	21	21	22	11	12	13	389	3.89	2
Working Condition	17	19	18	24	11	11	374	3.74	3
Working Environment	16	16	9	18	23	18	330	3.30	4
Job Security	31	18	23	10	13	5	429	4.29	1
Empowerment	6	8	11	20	22	33	207	2.07	6
Training	8	18	17	16	19	22	314	3.14	5

FINDINGS

- 68% of employee said that their job is interesting. 10% of employee said that their job is monotonous. 22% of employee said that their job is others.
- 32% of employee are highly Satisfied with the company promotion policies. 49% of employee are Satisfied with the company promotion policies. 19% of employee are Neutral with the company promotion policies.
- 33% of employee are highly satisfied with the working environment. 56% of employee are satisfied with the working environment. 10% of employee are neutral in their opinion with the working environment. 1% of employees are dissatisfied with the working environment. 0% of employees are highly dissatisfied with the working environment.
- 87% of employees are satisfied with the training program. 13% of employees are unsatisfied with the training program.
- 23% of employees are highly satisfied with their relationship with supervisor & co-worker. 60% of employee is satisfied with their relationship with supervisor & co-worker. 15% of employees are neutral with their relationship with supervisor & co-worker. 1% of employees are dissatisfied with their relationship with supervisor & co-worker. 1% of employees are highly dissatisfied with their relationship with supervisor & co-worker.
- 69% of employees are always recognition for their work. 28% of employees are occasionally recognition for their work. 8% of employees are not at all at recognition for their work.
- 25% of employees are highly satisfied with the working condition. 57% of employees are

dissatisfied with the working condition. 1% of employees are highly dissatisfied with the working condition.

- 20% of employees are highly satisfied with the welfare facilities. 65 % of employees are dissatisfied with the welfare facilities.
- 65% of employees said that they have work stress.
- 11% of employees said that the organisation takes measures to relief employee stress.
- 59% of employee are no of organisation takes measure to relief employee stress.

CONCLUSION

The study of Job satisfaction in a confectionary company was revealed that most of the employees are not satisfied with their job. Majority of the employees are dissatisfied due to job stress, work environment, working condition, relationship with company co- worker and supervisors & welfare facilities.

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IMPLEMENTATION OF GREEN SUPPLY CHAIN MANAGEMENT PRACTICES

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ABSTRACT

Inventory network the executives is one of the most fundamental parts of leading business. Many individuals outside of the immediate local area in exploration and industry don't understand this on the grounds that a customary buyer regularly encounters just its belongings. Rather than business-to-customer exchanges, store network rehearses promptly affect business-to-deals. All the above mentioned and a few different encounters that customers have on a standard premise are immediate outcomes of inventory network rehearses followed by firms.

Keyword: Business-to-Consumer, Consumer, Business-to-Business Transactions.

1. INTRODUCTION

Inventory network Management can be characterized as the administration of stream of items and administrations, which starts from the beginning of items and closures at the item's utilization. It additionally includes development and capacity of unrefined substances that are associated with work underway, stock and completely outfitted products. The principle objective of store network the executives is to screen and relate creation, dissemination, and shipment of items and administrations. This should be possible by organizations with an awesome and tight hold over interior inventories, creation, conveyance, inner creations and deals. Despite the fact that associations consider natural administration their own systems, estimating GSCM execution in light of practices carried out has drawn in little consideration. The current exploration has zeroed in on GSCM execution estimation techniques reflecting native highlights as well as monetary or upper hand of SCM. The current SCM execution estimation techniques are deficient to reflect basic SCM qualities like the association's essential objectives and cooperation's with accomplices. Social and political worries about the climate in laid out new ecological guidelines to execute

natural administration all through the whole production network. In any case, there has been insignificant examination on estimating GSCM execution among the ventures. To beat this issue and to diminish natural contamination, the assembling ventures ought to remember ideas of Green for to their production network. Ecological concern has turned into a significant variable in assembling ventures, so they are needing rehearsing store network worry towards climate or otherwise called Green Supply Chain Management. Green store network the board is characterized as coordinating ecological reasoning into production network the executives, including item plan, material obtaining and determination, fabricating processes, conveyance of the end result to the shoppers as well as end-of-life the board of the item its helpful life. The businesses exposed to study are the limited scale enterprises in India.

2. GREEN SUPPLY CHAIN MANAGEMENT PRACTICES

To carry out GSCM, associations ought to follow GSCM rehearses which comprise of ecological production network the executive's rules. Various examinations have attempted to recognize GSCM rehearses in association which are alluded to such inward frameworks as natural and quality administration frameworks. Inner ecological administration is basic to further developing the association's natural execution the recommended that GSCM and coordinated operations endeavors have urged firms to adjust the shut circle store network. Shut circle inventory network the board means "the plan, control and activity of a framework to augment esteem creation over the whole life-pattern of an item with the powerful recuperation of significant worth from various sorts and volumes of profits over the long haul. To meet purchaser assumptions, shippers need to use stock as a common asset and use the appropriated request the board innovation to finish orders from the ideal hub in the production network. In conclusion, inventory network the board targets adding to the monetary progress of a venture. Notwithstanding every one of the focuses featured above, it targets driving ventures utilizing the inventory network to further develop separation, increment deals, and infiltrate new business sectors.

3. GREEN SUPPLY CHAIN MANAGEMENT – GOALS

- Store network accomplices work cooperatively at various levels to augment asset efficiency, build normalized processes, eliminate copy endeavors and limit stock levels.
- Minimization of store network costs is exceptionally fundamental, particularly when there are financial vulnerabilities in organizations in regards to their desire to monitor capital.

- Cost proficient and modest items are fundamental, however production network chiefs need to focus on esteem creation for their clients.
- Surpassing the clients' assumptions consistently is the most effective way to fulfill them.
- Expanded assumptions for clients for higher item assortment, redid merchandise, slow time of year accessibility of stock and fast satisfaction at an expense tantamount to in-store contributions ought to be coordinated.

4. KEY CONCEPTS OF SUPPLY CHAIN MANAGEMENT

1. Ship - Transport which is exceptionally cost proficient yet in addition the slowest method of transport. Restricted to use between areas are arranged close to safe streams and offices like harbors and channels.
2. Rail - which is additionally extremely cost productive yet can be slow. This mode is likewise limited to use between areas that are served by rail lines.
3. Pipelines - which can be exceptionally proficient however are limited to products that are fluids or gases like water, oil, and gaseous petrol.
4. Trucks - which are a moderately fast and truly adaptable method of transport. Trucks can go anyplace. The expense of this mode is inclined to vacillations however, as the expense of fuel varies and the state of streets fluctuates.
5. Airplanes – Planes which are an exceptionally quick method of transport and are extremely responsive. This is additionally the costliest mode, and it is to some degree restricted by the accessibility of proper air terminal offices.

Electronic Transport - which is the quickest method of transport and is entirely adaptable and cost productive. Nonetheless, it must be utilized for development of specific sorts of items like electric energy, information, and items made out of information like music, pictures, and text. Some time or another innovation that permits us to change matter over to energy and back to issue again may totally rework the hypothesis and practice of inventory network the board.

5. CONCLUSION

The review uncovers the two sorts of dangers the executives are fundamental jobs in those associations' business execution direction was viewed as compelling in overseeing supply risk. Be that as it may, the client direction was found to effects affect assembling and supply risk. The SCM cycles and supply hazard and assembling risk the board execution. Our concentrate further difficulties the current idea that provider reliance influences the inventory risk the executives cycle, as this relationship is setting subordinate, as we tracked down no proof. Which is frequently

restricted in this space likewise critical for assembling associations working in trying to work in the area. Fabricating organizations can enormously profit from the comprehension of the elements between the different variables that can impact their business execution especially the stock and Assembling risk the board. In this way, future examination should zero in on information assortment past future examination could likewise concentrate past assembling and supply chances, and investigate different dangers. The idea of GSCM isn't usually known or carried out in limited scope ventures in India. The impacts of GSCM are viewed as raised costs as opposed to less. To rouse the organizations with GSCM a few general activities were recommended. The idea must be completely carried out when the public authority contribution is more in light of the fact that the information and schooling on the idea can be given to these businesses simply by them. The standards and guidelines should be made obligated and a few auxiliaries ought to be given to the enterprises that carries out GSCM. The expense would be one more principle factor for these businesses to forestall on carrying out green store network. The expense element can be dispensed with by rousing emphatically on the idea and showing the advantages on execution of green production network.

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CHALLENGES FOR THE INDIAN ECONOMY ON COVID-19

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Abstract

This study examines the challenges for the Indian economy can COVID-19. The rampant spread of COVID-19 outbreak, across borders and geographies has severely impacted almost the whole world and triggered significant downside risks to the overall global economic outlook. Due to the lockdown announced by the Indian government, the economy slow over the next few months. For most businesses, the slowdown could be in the form of supply disruptions, fall in consumption demand and stress on the banking and financial sectors. Given the challenges that the businesses and people are facing currently, the Indian economy is most likely to experience a lower growth during the last quarter of the current fiscal. In case the spread of coronavirus continues, growth may remain subdued in the first quarter of FY 20-21 as well. Most multilateral agencies and credit rating agencies have therefore revised their 2020 and 2021 growth projections for India keeping in view the negative impact of coronavirus-induced travel restrictions supply chain disruptions, subdued consumption and investment levels on the growth of both global and the Indian economy.

Keywords: *Economic Outbreak, Consumption Demand, Indian Economy, Coronavirus.*

Introduction

The onset of COVID-19 the global economy is set to undergo a sharp double-dip recession. As many international agencies have already forecasted, the global growth could be 3 per cent in 2020, which it's a decline of about 6 percentage points from the baseline projection of positive 3 per cent growth with no pandemic. Such swings in growth forecasts are unprecedented and this is due to both health scare with lots of deaths and infections also due to the lockdown of a major part of the global economy. Added do this; the pandemic appears to be more severe in the industrialized economy. While the forecasts for 2021 suggest a sharp rebound, the trends suggest that the world may need to endure this for a longer period than expected. Unlike the global economy, Indian economy was already in a slowdown phase before the pandemic affected and there were expectations the economy is on a recovery path. But, with the COVID-19 such hopes are not only dented rather down turn turning out to be much deeper. There are various forecasts that suggest a sharps slowdown. Some forecasts even suggest a negative growth, which was not

beard in the past five decades with the lockdown and with increasing infection, the uncertainty in the economy has increased manifolds.

Impact of Coronavirus

FICCI has attempted to assess the immediate impact of coronavirus on business across the country through conducting interactive sessions and survey amongst the industry members. The survey reveals that besides the direct impact on demand and supply of goods and services, businesses are also facing reduced cash flows due to slowing economic activity which in turn is having an impact on all payments including to those for employees interest, loan repayments and taxes.

While for some of the sectors the work from home proposition is posing implementation challenges as it has a direct on business operations. This is particularly true for manufacturing units where workers are required to be physically present at the production sites and services sector like banking and IT where lot working can enhance security threat. Hence companies operating in those sectors are finding it difficult to implement work from home facility without compromising with their day to day operations. The industry members have also shared suggestions on possible actions that the government and RBI can take to contain the spread of coronavirus in India and mitigate the immediate concerns of the Indian companies. The following section details out the challenges that members of Indian industry are facing either due to decline in consumption demand or due to supply chain disruptions owing to closure of factories in China and the suggestions received from the industry to address their present concerns.

According to the Survey Results

- A significant 53 per cent of Indian businesses indicate the market impact of the coronavirus pandemic on business operations even at early stages
- The pandemic has significantly impacted the cash flow at organizations with almost 80 per cent reporting a decrease in cash flow.
- The pandemic has had a major impact on the supply chain as more than 60 per cent respondents indicate that their supply chains were affected. The companies also highlighted that they are closely monitoring the situation and expect the impact of the pandemic on supply chain to worsen further.
- Organizations have brought in a renewed focus on hygiene aspects concerning the pandemic. Almost 40 per cent have put in place stringent checks on people entering their offices and disinfection. Nearly 30 per cent organizations have already put in place work-from-home policies for their employees.
- Nearly 42 per cent of the respondents feel that it could take up to 3 months for normalcy to return.

Chemicals and Petrochemicals

Petrochemical prices were already pressure, given concerns of global overcapacity and slowdown in demand. The COVID-19 impact is further expected to exacerbate impact on the sector.

- With the weakening in crude oil prices and cascading impact on petrochemicals coupled with uncertain domestic and global demand, petrochemicals prices are likely to remain low.
- Given that China accounts for a third of global petrochemicals capacity, many producers are expected to have large accumulated inventories owing to dormant global markets. Post COVID-19 these producers may adopt aggressive pricing to liquidate inventory and reduce working capital stress.
- This coupled with restrictions at important parts across globe is bound to disrupt the global supply chain and further aggravate inventory accumulation and drive prices down.

Making India's Precariat Visible: the Humanitarian Crisis

In spite of this relaxation, the lockdown was draconian and has bodily affected the Indian Economy for different reasons.

- Factories, shops, agricultural market were shutdown or not functioning normally even, sometimes, despite the fact that there was no ban on them. The zealous use of the lathes (a bamboo stick) by the police contributed to these anomalies.
- Transports services were discontinued and inter-state borders were sometimes closed.

Working Poor and the Larger Indian Economy

Initiatives from the national level have to be well-structured and proportionate to the gravity of the situation from the perspective of work and workers. As of 2018, Indian had about 461 million workers (some estimates put it at 470 million), with 80 per cent of them working in the internal sector, such as agricultural work and in micro, small, medium enterprises (MSMEs) with not more than 10 workers. That is a staggering 369 million workers. The remaining 92 million workers are designed as being in formal sector, but 49 million of them are employees as informal workers and celled variously as contract labour and temporary staff, among others.

If one goes by the employment status of all workers across India, close to 52 per cent are in the self-employed category, which comes to 238 million, and those with casual labour status come to 24 per cent or 112 million. When there is an economy-wide lockdown, is it not incumbent on the national government to think of the livelihood and existential issues faced by this massive group of Indian and their dependents, despite the federal setup of our union, financial resources and the

power to allocate these resources are overwhelmingly concentrated with the central government. What is therefore needed in the context of national emergencies, like the current COVID-19 crisis, is a national economic relief policy with countrywide coverage along with flexible clauses that would allow state government to pitch in with additional resources and schemes. It also should keep in mind that such an initiative is in the larger interest of preserving the macro economy, because it will prevent the breakdown of the larger economic system as well as the sociopolitical fabric of the nation.

As the world and the Indian economy attempt to balance mitigating the health risks of COVID-19 with the economic risks, immediate measures need to be taken to:

- i. Prevent collapse of liquidity.
- ii. Product the valuable, while enabling social distancing.
- iii. Intensity health interventions on a war footing.
- iv. Unclog production and supply chains for this.

Current and Potential Impact on the Sector

- Demand shocks are expected to hurt India's textile exports over the next few quarters.
- With lockdown in China, price of Man-Made Fibre (MMF) impacts is expected to rise significantly, resulting in higher price for some goods in the domestic market.
- If the current scenario persists over the next few months, the domestic retail market would also be impacted significantly.
- From a manufacturing perspective, employment would be impacted owing to limited demand in both domestic and international market.
- The textile and apparel sector production is expected to decline by 10-12 per cent in the Apr-Jon quarter.
- Cotton prices have been reduced by 3 per cent and are expected to be further impacted over the next few months.

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AN AUTOMATION SCHEME FOR SMART AND OPTIMIZED DOUGH MAKER

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ABSTRACT

The current process of dough mixing can be done by human in industries which leads to wrong composition of dough mixing. To overcome this problem the dough mixing process can be automated with microcontroller and moisture sensor to increase the production quality and reduce time in correcting errors. By this approach in the modern bakeries, the problem of obtaining high quality bread continues to exist. It occurs as a result of constant change in the properties of both the basic raw material (flour) and auxiliary recipe components (yeast, lactic acid concentrate, sugar and saline solutions). Therefore, in order to improve the quality of the results of the dough mixing process, bakeries use a variety of control systems for dough - mixing machines. The choice of these programs is not without the intervention of the "human factor", and this can negatively affect the end result.

Keywords: Dough-mixing, metering, automation, microprocessor-based automatic control

1. INTRODUCTION

Dough emerges as a quite significant product at flour and bakery manufacturing plants and factories. There are various stages during dough making. Primarily, it is required storing dough in moisture free environments then transporting to dough kneaders at intended amounts and mixing with proper rates of water in order to become dough. Even if this process seems to be easy, it is very exhausting. With the implementation of this study, it is mixing problem of not being the intended rates, difficulty in this process and leeway will be solved. Therefore, existing lines which have no single or double flow automation

Systems have investigated and developed a method as a solution to that case. Solution to this problem is solved by Internet of Things. The paper give a solution for this problem by using node much and soil moisture sensor to monitor the moisture content of the soil. The data obtained by the sensors is switched to the things peak cloud. The motor in the field turns ON&OFF using the mobile app which is linked to the cloud storage. The app used here is Blynk and the cloud storage is thing speak.

2. LITERATURE SURVEY

Siraj M. Tamboli [1]; stated that as the technology is growing, we want to add more luxury in the human lifestyle. The purpose of his work was to make a dough kneading machine which would have no cleaning problem.

It would have low cost and less time-consuming. This work also focused on issues like safety and environment friendly and noise reduction while operation. The system design comprised of a microcontroller (AT89C51), an ac motor, a belt and a container with suitable blades for the kneading process. First, the flour and water are put into the container where the dough is to be prepared. Then a signal to the microcontroller is given to start the dough kneading process, which in turn starts the ac motor. The ac motor rotates the belt which in turn rotates the blades of the container and we get the dough. The limitation of this model was that it was not at all automated and the measurement of dough and water needed to be done manually.

Felix Reinhart, Sebastian Wessels, Ansgar Trachtler [2]; stated that for good quality and consistent dough the speed of rotation, the time of kneading and continuous monitoring of the kneading process is required. The purpose of this paper was to design an intelligent kneading machine that has the capability to decide the speed of rotation and when to stop so that the consistency of the dough is maintained. The process started with the measurement of the flour and the water that would be required for the dough. The capacity of the bowl was 50Kg and the proportions were 25kg wheat, 14.51kg of water, 0.5kg of salt and 0.5kg yeast. Then the motor was started for mixing the ingredients. This stage consisted of three parts detection, control, and prediction. Detection part identifies the phase of the dough, the reference signal for the rotational speed is determined using the detection part and lastly for the prediction of the expected dough, the aforementioned-idealized model is used. For detection and control part Euler's algorithm is used until a point of optimal dough is reached.

The limitation of this model was that it was very bulky, so it could not be used for domestic purposes.

Hasbi Apaydm, SukruKitis the primary aim of this paper was to automate the process of dough kneading. The process started with storing the flour in moisture free environment and then transporting it in the intended amount to the mixing cavity where it would be mixed with a proper proportion of water in order to become a dough. But for this process, a five-flow method was considered. This consisted of 5 24V, D.C. pneumatic valves to enable the flow of flour from silo to the kneaders. 5 24V, D.C. solenoid valve to allow the flow of water to the same kneaders, % motors to take the flour from silo and flour line. In order to be able to calculate the liters of water being sent to the kneader water flow meters are installed after each solenoid valve. Motor, solenoid valve, pneumatic valve, water meters are controlled with the designed system to provide automation to the process.

Amit B Solanki [4]; the goal of this paper was to design and develop an automated fast food machine for large food industry applications. Automated fast food machine is a device that squeezes the dough mixture of fast food with following categorized efficiency such as time, human effort, safety, cleaning and quality during fast food making. This designed machine can squeeze dough mixture using screw extruder with electric power and can be extruded out using rotating conveyer from the machine. Therefore, the production rate of the fast food making machine is high as compared with other manual and commercially available machines.

3. BLOCK DIAGRAM AND DESCRIPTION

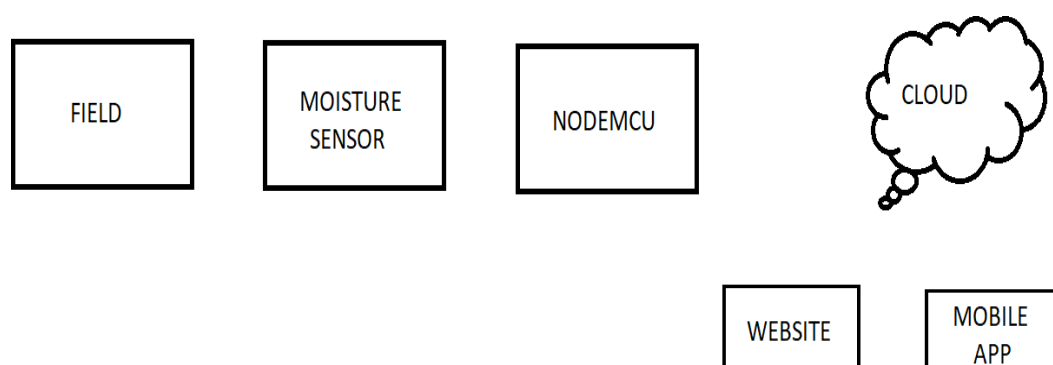


Figure 1 Block Diagram of Dough mixing Automation in Industries

3.1 ARDUINO MEGA 2560



Figure 2 ARDUINO MEGA Board

The Arduino Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega 2560 board is compatible with most shields designed for the Uno and the former boards Duemilanove or Diecimila.

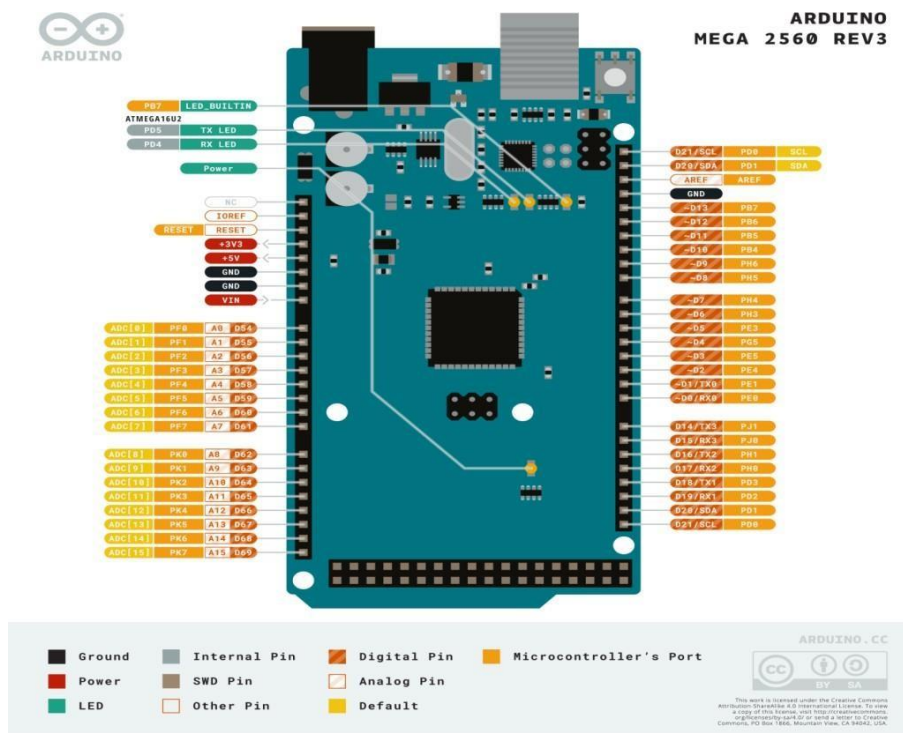


Figure 3 Pin configuration of ARDUINO

3.2 POWER

External (non-USB) power can come either from an AC-to-DC adapter (wall-wart) or battery. The adapter can be connected by plugging a 2.1mm center-positive plug into the board's power jack. Leads from a battery can be inserted in the GND and Vin pin headers of the POWER connector.

3.3 MEMORY

The ATmega2560 has 256 KB of flash memory for storing code (of which 8 KB is used for the bootloader), 8 KB of SRAM and 4 KB of EEPROM (which can be read and written with the EEPROM library)

3.4 INPUT AND OUTPUT

Each of the 54 digital pins on the Mega can be used as an input or output, using pinMode (), digitalWrite (), and digitalRead () functions. They operate at 5 volts. Each pin can provide or receive 20 mA as recommended operating condition and has an internal pull-up resistor (disconnected by default) of 20-50 k ohm. A maximum of 40mA is the value that must not be exceeded to avoid permanent damage to the microcontroller

Serial: 0 (RX) and 1 (TX). 19 (RX) and 18 (TX); Serial 2: 17 (RX) and 16 (TX); Serial 3: 15 (RX) and 14 (TX). Used to receive (RX) and transmit (TX) TTL serial data. Pins 0 and 1 are also connected to the corresponding pins of the ATmega16U2 USB-to-TTL Serial chip.

External Interrupts: 2 (interrupt 0), 3 (interrupt 1), 18 (interrupt 5), 19 (interrupt 4), 20 (interrupt 3), and 21 (interrupt 2). These pins can be configured to trigger an interrupt on a low level, a rising or falling edge, or a change in level. See the attachInterrupt () function for details.

PWM: 2 to 13 and 44 to 46. Provide 8-bit PWM output with the analogWrite () function.

SPI: 50 (MISO), 51 (MOSI), 52 (SCK), 53 (SS). These pins support SPI communication using the SPI library. The SPI pins are also broken out on the ICSP header, which is physically compatible with the Arduino /Genuino Uno and the old Duemilanove and Diecimila Arduino boards.

LED: 13. There is a built-in LED connected to digital pin 13. When the pin is HIGH value, the LED is on, when the pin is LOW, it's off.

TWI: 20 (SDA) and 21 (SCL). Support TWI communication using the Wire library. Note that these pins are not in the same location as the TWI pins on the old Duemilanove or Diecimila Arduino boards

3.5 SOLENOID VALVE



Figure 4 SOLENOID VALVE

A solenoid valve is an electrically controlled valve. The valve features a solenoid, which is an electric coil with a movable ferromagnetic core (plunger) in its center. In the rest position, the plunger closes off a small orifice. An electric current through the coil creates a magnetic field. The magnetic field exerts an upwards force on the plunger opening the orifice. This is the basic principle that is used to open and close solenoid valves.

3.6 MOISTURE SENSOR

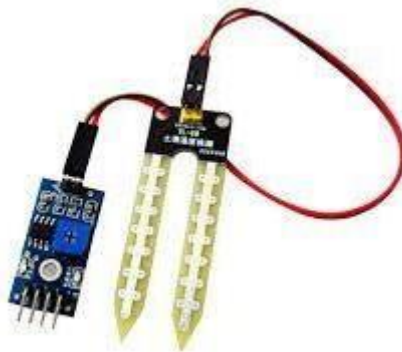


Figure 5 moisture Sensor

The Soil Moisture Sensor uses capacitance to measure dielectric permittivity of the surrounding medium. In soil, dielectric permittivity is a function of the water content. The sensor creates a voltage proportional to the dielectric permittivity, and therefore the water content of the soil. The sensor averages the water content over the entire length of the sensor. There is a 2 cm zone of influence with respect to the flat surface of the sensor, but it has little or no sensitivity at the extreme edges. The Soil Moisture Sensor is used to measure the loss of

Moisture over time due to evaporation and plant uptake, evaluate optimum soil moisture contents for various species of plants, monitor soil moisture content to control irrigation in greenhouses and enhance bottle biology

The moisture sensor module should be connected to the as follows:

- Vcc to 5V
- GND to GND
- A0 to Analog 0 of Arduino

4. WORKING

The working of this device depends upon various mechanisms used. These mechanisms and their working in the sequence of operation are listed below.

4.1 Mechanism for flour

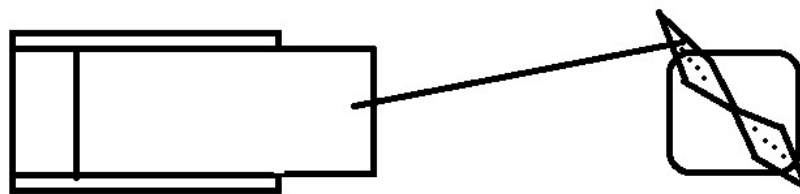


Figure 6 Slider mechanisms for addition of flour

The mechanism designed for pouring an adequate amount of flour in the assembly includes a stepper motor connected via a linkage to a slider plate. The slider plate is kept on rails. Once the input regarding the number of r has been fed into the system via the keypad the stepper motor is made to rotate by a predefined angle by a signal given by the microcontroller. This rotation causes the slider to move for a timed value thus letting flour for one roti to fall into kneading container this completes the job of the flour mechanism.

4.2 Mechanism for water

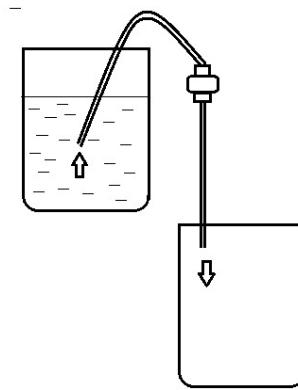


Figure 7 Pump for pouring of water

Once the amount of flour required for a single chapatti has been fed into the kneading container, the water mechanism comes into play. Here essentially, we use a d.c. pump that pumps water from the storage container into the kneading dough. the dc pump is operated for a time that is pre-calculated by trial and error to ensure an adequate supply of water to the kneading dough

- A properly-controlled system will also be energy efficient since production can be optimized with respect to the various inputs. So, a sustainable development of agriculture environmental depends on the factors of monitoring and controlling system for intensive yield is inevitable. Moisture should be tested and monitored for every 2 hours.
- Through software and hardware joint debugging, the results shows that the function of monitoring system can be implemented and the real-time monitoring of essential moisture level parameters in the process of agriculture can be completed with good stability and real-time performance.

5. CONCLUSION

Through software and hardware joint debugging, the results show that the function of moisture monitoring system is implemented, and the real-time monitoring of important water moisture level parameters in the process of agriculture is completed, and is of good stability and real-time performance. Wireless technology in internet of thing (IoT) platform is applied in this system which can realize distributed complex environment monitoring requirements and has a broad market prospects. By utilizing Internet of Things, the larger part of farmers knew about the checking and cautioning discovery strategy in aqua business. This will encourage the “Dough mixing Automation in Industries” to survey the execution of the ranchers doing freely. It empowers to give the ready messages and factual overview answer to the ranchers by

regardless of area.

6. FUTURE SCOPE

The future scope of this paper is to implement every farming land and make the agriculture better. In the future also there might be the accuracy and the performance of the system could be increased while implementing it in real time model.

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ANTECEDENTS OF GREEN LOGISTICS

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ABSTRACT:

Purpose - The purpose of this paper is to explore the Antecedents of Green Logistics

Design/methodology/approach – A survey was sent to a sample of Stake holders in the field of Purchasing and Supply Management in the pvt. Ltd firm. Data were analysed using SPSS (23) a model that relates GSCM drivers/Factors, GSCM approaches and performance in India

Findings – Results show that out of the 8 factors that were chosen for the study, only 2 factors namely the level IS used and Green Suppliers practices are the most contributing factors to green logistics in India.

Research limitations/implications – One of the main limitations of this study is the use of data from a single country (India). The main contribution of the paper is to show that the factors that influence green logistics differ from one place to another depending upon the economic conditions of the country. As further research, the authors suggest the replication of this study in other countries (notably in emerging markets) and industrial sectors.

Originality/value – This study analyses the implications in terms of the various factors influencing green logistics in India.

Keywords: *Green suppliers, Green manufacturing, level if IS used, Top Management support and IT enablement, Government support, regulations and policies, competitors, etc*

INTRODUCTION:

Logistics is by and large the point-by-point association and execution of a perplexing activity. In an overall negotiating prudence, Logistics is the administration of the progression of things between the starting place and the mark of utilization to meet prerequisites of clients or organizations. The assets oversaw in Logistics may incorporate unmistakable products like materials, gear, and supplies, just as food and other consumable things. The Logistics of actual things generally includes the combination of data stream, materials dealing with, creation,

bundling, stock, transportation, warehousing, and frequently security. In military science, Logistics is worried about keeping up armed force supply lines while disturbing those of the foe, since a furnished power without assets and transportation is helpless. Military Logistics was at that point rehearsed in the old world and as present-day military have a critical requirement for Logistics arrangements, progressed executions have been created. In military Logistics officials oversee how and when to move assets to the spots they are required. Logistics the board is the piece of inventory network the executives that plans, carries out, and controls the proficient, powerful forward, and turn around stream and capacity of products, benefits, and related data between the starting place and the mark of utilization to meet client's prerequisites. The intricacy of Logistics can be displayed, broke down, pictured, and advanced by devoted re-enactment programming. The minimization of the utilization of assets is a typical inspiration in all Logistics fields. An expert working in the field of Logistics the board is known as a logistician. Logistics is the way toward conveying merchandise or administrations starting with one spot then onto the next place and furthermore dumping and unloading of this load. Logistics the executives is the piece of inventory network the board.

There are Three Types of

Logistics Cargo Services

Dispatch Services

Warehousing Service

DEFINITION:

Jominian originally defined logistics as:

The art of well ordering the functioning's of an army, of well combining the order of troops in columns, the times of their departure, their itinerary, the means of communication necessary to assure their arrival at a named point

The Oxford English Dictionary defines logistics as:

"The branch of military science relating to procuring, maintaining and transporting, material, personnel and facilities".

According to the Council of Supply Chain Management Professionals;

Logistics is the process of planning, implementing and controlling procedures for the efficient and effective transportation and storage of goods including services and related information from the

point of origin to the point of consumption for the purpose of conforming to customer requirements and includes inbound, outbound, internal and external movements.

GREEN LOGISTICS:

The value of the Indian logistics market is expected to increase from us\$160 bn to us\$215 bn in the next two years initially, the term 'Green' was just a catchword for organizations and individuals to spotlight their methodologies to guard the environment. The tide slowly turned to pave the way for the 'Go green' initiative, which became a worldwide phenomenon when people started associating it with every business; logistics being no exception. A proven source of carbon emissions, conventional transport vehicles constitute to just about 30 per cent of particulate pollution in metro cities. Having a negative impact on the local air quality, transportation of products also generates sound pollution, results in accidents and, in 10 totalities, makes a high-magnitude input to heating.

Being a serious contributor to environment degradation, it became essential for logistics units to follow sustainable practices for his or her business. Adhering to those situations, an increased concern for the ecosystem has been observed among the general public and government entities. This increased consideration towards nature has also led to an excessive amount of pressure on Indian business firms to decrease the environmental impact of their logistics operation. Countering the impact of traditional logistics practices, Green logistics attempts to live and minimize the ecological impacts of logistical activities. It encompasses a good sort of sub- sectors viz. warehousing, transportations, packaging, distribution and disposal. Catering to those benefits, there are firms in India that specialize in transportation through environment friendly and sustainable logistics solutions with their green and emission free vehicles thereby contributing towards cleaner environment. Gaining a gentle pace, following the trail of green mobility services is becoming a standard practice amongst various firms within the country.

GLOBAL SCENARIO:

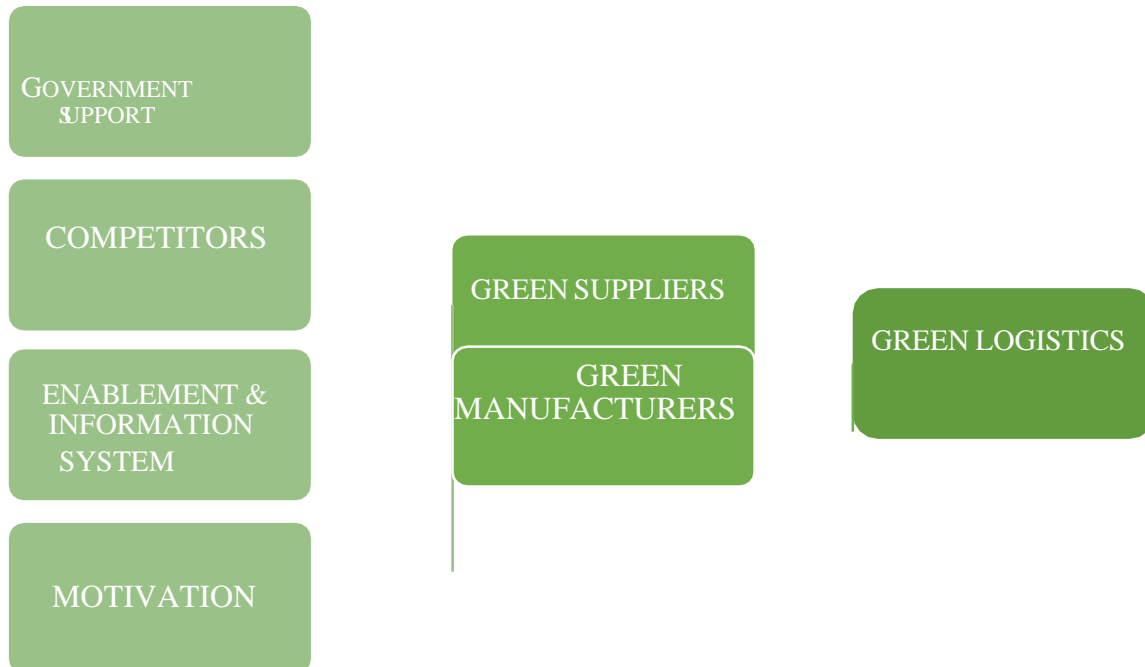
Updated sustainable performance of the industry/sector is of principal alarm for any business or enterprise. AI or Machine learning technologies are viewed due to the foremost innovative technology given its wide applicability and guarantee of addressing complex business problems in most the sectors. Logistics, initially, was one aspect of management but during this era of the thoughtful transformation, it's becoming one of the foremost disruptive fields across the planet. All most all companies have already started using the synthetic intelligence and machine learning to fine tune core strategies like warehouse locations, enhance real-time deciding associated with availability, costs, inventories, carriers, vehicles and personnel. The potential of AI and Machine learning isn't only enhancing everyday business activities and methods but is additionally streamlining the logistics. The increase of data in supply chain and logistics, businesses now focus inbecoming more sophisticated efficient processing solutions which not only help them toanalyse thelarge volume of knowledge but also will give accurate results of the analysis and delivery information. We are globally ready to view the fell costs, producers are exploring aroundthe globe in search for the lowest cost exporters/suppliers. Major players focus overseas markets for outsourcing cheap manufacturing for expanding their businesses. The outbound logistics and acceleration in manufacturing capacity is driving many producers to shutter superfluous plants.

OBJECTIVES OF THE STUDY:

Primary objectives:

- To explore the various factors that are to be considered while implementing green logistics.

Conceptual framework for the study:



REVIEW OF LITERATURE:

Vicenta Sierra (2015) analysed the complex interrelationships among environmental drivers, Green Supply Chain Management (GSCM) approaches and performance. Results show that coercive and non-coercive drivers have different implications, study also stated that monitoring and collaborative practices with their supplier are going to be sufficient to enhance performance of the firm. Lokesh et al., (2015) investigated the impact of organizational size on adoption of green supply chain management (GSCM) practices on organizational performance. Victoria Overland et al., (2016) purposed a piece of writing in applying self-determination theory (SDT) to green supply chain management. The study draws out the importance of GSS, and offers significant insights into how suppliers' motivation and downstream GSCM criteria are often internalised in second-tier suppliers to drive GSCM performance. Sheetal Soda et al., (2016) explored and stated that Indian companies are lacking on the front of adoption and implementation of GSCM measures in their supply chains. Surajit Bag (2017) studied about the activities of the availability chain process of varied Indian manufacturing industries and evaluated their degree of greenness for the aim of measuring performance. The study revealed that there exists a big positive relationship between organizational learning and management support with reference to GSCM.

RESEARCH METHODOLOGY

Research methodology is the way of systematically solving the research problem. It is a science of studying how research is conducted scientifically.

Research design: “A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. In fact, the research design is the conceptual structures within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data” (Sellati, et.al., 1962). Chapter

Descriptive Research Design Descriptive research design is used for this study. It is a fact-finding approach related to the current situation and deals with determining frequency with which something occurs. The main purpose is description of the state of affairs as it exists at present.

HYPOTHESES:

STEPWISE REGRESSION ANALYSIS:

H0: There is no significant difference among the dimensions of the study variables as predictor's inexplaining green logistics

CORRELATION ANALYSIS:

H0: There is no association the dimensions of the study variables in green logistics.

DATA ANALYSIS & INFERENCE:

RELIABILITY TEST:

Cronbach Alpha is a reliability test conducted within SPSS (23) in order to measure the internal consistency i.e., reliability of the measuring instrument (Questionnaire). It is most commonly used when the questionnaire is developed using multiple Likert scale statements and therefore to determine if the scale is reliable or not. Reliability Statistics

Cronbach's Alpha	No. of Items
0.979	51

SOURCE:

PRIMARY DATA

INFERENCE:

Cronbach's alpha test was performed to check the reliability of 51 items. The result states that the overall score is 0.979 indicating internal consistency of the items.

Scale Statistics

MEAN	VARIANCE	Std. Deviation	N of Items
184.95	2028.56	45.04	51

SOURCE: PRIMARY DATA

INFERENCE: The above table shows scale statistics of the reliability test whereby the mean is 184.95, variance is 2028.56, std deviation of 51 items are 45.04

ANOVA with Cochran's Test

Cochran's Test		Sum of Squares	df	Mean Square	Cochran's Q	Sig
Between People		15551.25	39	39.776	139.304	0.000
Within People	Between Items	121.62	50	2.43		
	Residual	1624.50	1950	0.83		
	Total	1746.12	2000	0.87		
TOTAL		3297.37	2039	1.62		
Grand Mean = 3.63						

SOURCE: PRIMARY DATA

INFERENCE: The above table, shows the ANOVA with Cochran's test whereby the total sum of squares between and within the people and the Q value is 139.304 and the grand mean is 3.63.

FACTOR ANALYSIS

Communalities

Factors Initial Extraction

VARIABLES	Eigen value	Extraction values
GOVT 1	1	0.91
GOVT 2	1	0.86
GOVT 3	1	0.8
GOVT 4	1	0.76
GOVT 5	1	0.94
CM 1	1	0.95
CM 2	1	0.87
CM 3	1	0.91

CM4	1	0.86
TM.IT 1	1	0.93
TM.IT 2	1	0.92
TM.IT 3	1	0.9
TM.IT 4	1	0.93
TM.IT 5	1	0.95
TM.IT 6	1	0.87
TM.IT 7	1	0.82
TM.IT 8	1	0.88
TM.IT 9	1	0.93
MOTI 1	1	0.91
MOTI 2	1	0.83
IS 1	1	0.92
IS 2	1	0.86
IS 3	1	0.85
IS 4	1	0.88
IS 5	1	0.89
IS 6	1	0.84
IS 7	1	0.86
IS 8	1	0.9
GMF 1	1	0.93
GMF 2	1	0.91
GMF 3	1	0.86
GMF 4	1	0.91
GS 1	1	0.91
GS 2	1	0.85
GS 3	1	0.86
GS 4	1	0.93
TQEM	1	0.9
TQEM 2	1	0.85
TQEM 3	1	0.93
TQEM 4	1	0.85
TQEM 5	1	0.88
TQEM 6	1	0.94
TQEM 7	1	0.91
TQEM 8	1	0.95

INFERENCE:

The above table shows the initials and loadings of each factor in the study. For the GOVT factor the highest loading is 0.94 and the least is 0.76, For the IS factor the highest loading is 0.92 and the least is 0.84, For the GMF factor the highest loading is 0.93 and the least is 0.86, For the GS factor the highest loading is 0.93 and the least is 0.85, For the TQEM factor the highest loading is 0.95 and the least is 0.84, For the GD factor the highest loading is 0.93 and the least is 0.87, For the CM factor the highest loading is 0.91 and the least is 0.80, For the TM.IT factor the highest loading is

variables chosen for the Green Logistics study.

REGRESSION

Regression Analysis is used when we want to predict the value of a variable based on the value of another variable. The variable we want to predict is called the dependent variable (or sometimes, the outcome variable). The variable we are using to predict the other variable's value is called the independent variable (or sometimes, the predictor variable).

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig.	Dubin Watson
1	0.86 ^a	0.75	0.73	0.46	0.75	417.598	1	38	0.00	1.8
2.	0.89	0.8	0.79	0.41	0.06	11.48	1	37		

Source: Primary Data

INFERENCE: The model 1 and 2 indicate a strong predictor of the independent variables IS and GS with multiple determination R² of 0.74 and F value 109.46. In factor R of multiple cross-correlation, 99 percentage shows high cross-relationship. The table illustrates the result of step-wise multiple regression showing major predictors as level of IS (information system) used and Green Suppliers. Since the Durbin-Watson value is less than 3, the model is good.

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.65	1	23.65	109.5	0.00
	Residual	8.21	38	0.22		
	Total	31.86	39			
2	Regression	25.59	2	12.80	75.8	0.00
	Residual	6.27	37	0.17		
	Total	31.86	39			

SOURCE: Primary Data

H0: There is no significant difference among the dimensions of the study variables as predictors in explaining green logistics

H1: There is significant difference among the dimensions of the study variables as predictors in explaining green logistics

INFERENCE:

The F-ratio in the ANOVA table, tests whether the overall regression model was a good fit for the data. The table shows that, the independent variables statistically significantly predict the dependent variable for model. Since the p value is less than 0.05, we accept the null hypothesis. This means that There is no significant difference among the dimensions of dependent variables in explaining the variance of Green Logistics.

Coefficients:

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.30	0.32	0.86	0.93	.000
	IS	0.87	0.08		10.46	.000
2	(Constant)	0.14	0.29		0.49	0.63
	IS	0.63	0.10	0.62	6.27	0.00
	GS	0.28	0.08	0.34	3.39	0.00

DEPENDENT VARIABLE: GL

- a. Dependent Variable: GL
- b. Predictors in the Model: (Constant), IS
- c. Predictors in the Model: (Constant), IS, GS

INFERENCE:

The output reveals the statistical significance of each of the independent variables. The beta value of the level of IS used was 0.86 and for Green Suppliers is 0.34. These tests are performed whether the unstandardized (or standardized) coefficients were equal to zero in the population. Since the p value was less than 0.05, the table concludes that the coefficients were statistically significant.

Regression Equation:

$Y = a(X) + b$ $Y = 0.141 + 0.631X_1 + 0.282X_2$, $Y = 0.14 + 0.63X_1$; Here X_1 and X_2 are the base.

INFERENCE: The above table shows the variables that were excluded by the regression analysis as they do not contribute as much to green logistics. The excluded variables include GOVT, CM, TM.IT, MOTI, GMF. The regression equation considers only 2 variables namely X1 (Level of IS used) and X2 (green supplier) as only these variables contribute to green logistics. The above table shows that under model 1 the independent variables GOVT, CM, TM.IT, MOTI, GMF, GS are excluded variables.

DISCUSSION FUTURE TRENDS:

1. Logistics counts – it is not a commodity. Logistics is not only a chief catalyst of global trade and a defining component behind value creation – it is also a business of strategic importance in the move toward a low-carbon economy.
2. Technological change will be achieved through a concerted drive from companies, financial institutions and governments. Given the higher price tag attached to new technologies, mutual support and long-term planning by all key players is essential.
3. Collaboration will increasingly be seen as an enabler to attain sustainability. Even erstwhile competitors will cooperate more closely. As carbon-emission reduction becomes a priority for suppliers, business customers and logistics companies, cooperative business models will expand both vertically and horizontally along the supply chain.
4. Business models of logistics companies will change as sustainable innovations open up new opportunities.
5. CO2 labelling will become standardized. CO2 labels allow customers to compare “green” products. Transparency will raise confidence among logistics customers and end consumers when making climate-friendly choices.
6. Carbon emissions will have a price tag. As reducing carbon emissions becomes more important for companies, governments and customers, it will assume a place in a business’s accounting and decision-making process. This will increase calls for a price to be attached to CO2 emissions.
7. Carbon pricing will lead to more stringent regulatory measures. Companies will only accept a price tag on carbon emissions if governments ensure a level playing field.

CONCLUSION:

Green Logistics is the field that incorporates majorly environmental and sustainable issues. Looking through in the present scenario the Green Logistics practices focus on cost reduction and pollution

prevention. The study of Green Logistics was conducted on analysing the various factors like Government support, Competitors, IT enablement & Information system and mainly by Motivators. Green Logistics is the field that incorporates majorly environmental and sustainable issues. Looking through in the present scenario the Green Logistics practices focus on cost reduction and pollution prevention. The study of Green Logistics was conducted on analysing the various factors like Government support, Competitors, IT enablement & Information system and mainly by Motivators. Going green and being greener than your competitors is still not an advantage in Indian logistics industry due to consumer apathy.

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EXPLORING GREEN SHIPPING INDUSTRY AN INFLUENCE ON THE SUSTAINABLE ECONOMY

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ABSTRACT

Purpose – To crack down on the emissions and destructive development by the vessels that pollute the air and seas. To focus on the possible impact of new environmental restrictions that aim to drastically emissions for sustainable economy.

Design/methodology/approach – This paper discuss the approaches instructed by IMO Findings – The reason for dwelling Green shipping

Practical implications – Worldwide hazards, Global warming, Co2 emission, Control emission Originality/value – Discuss on need basis

Keywords: Global Warming, IMO Standards, Smart ships, Sulfur Cap, Control emission

Introduction:

The seaborne container trade has already grown from 100 million tonnes in 1980 to about 1.6 billion tonnes in 2014 before 5 to 7 years. Standardized 20-foot (6-metre) containers are moved using automated systems that connect seaports, airports and train stations. Levinson, 2010. Low-grade marine heating oil contains 3,500 times more sulfur than road diesel. Particulates emitted from ships are dangerous it causes 60,000 cardiopulmonary and lung-cancer deaths annually worldwide Corbett, J. J. et al. (2007). Ships uses more fuel when the container is half-loaded than the container which is fully loaded with cargo. The longer term is green shipping which explains about efficient marine transport with minimal health and ecological damage. Polemis, S. M. (2012). Environmental impacts should be considered in determining the optimal routes and modes for delivery of excellent Lindstad et al. (2015). It is argued that IMO's approach of a worldwide sulfur cap is fundamentally flawed, IMO's standards are at now highly unlikely and thus assume that the principles are going to be implemented as planned.

Shipping is that the most energy-efficient to move large volumes of cargo. Yet ships emit nitrogen oxides (NO), sulfur oxides (SO), CO₂ and particulate (PM) into the atmosphere. Worldwide, from 2007 to 2012, shipping accounted for 15% of annual NO emissions from anthropogenic sources, 13% of SO and three of CO₂. But, Europe reports are comparatively different in 2013, ships contributed 18% of NO_x emissions, 18% of SO_x and 11% of particles but 2.5 micrometres in size (PM_{2.5}).

While the road transportation, witnesses were 33%, 0% and 12%, respectively. Aviation, against this, accounted for less than 6%, 1% and 1%, respectively, and Rail just 1%, 0% and 0%.

Releases of oils, noxious liquids, harmful substances, sewage and garbage into the oceans are restricted since the 1980s. From 2013, its Energy Efficiency Design Index and Ship Energy Efficiency Management Plan aim to lower CO₂ emissions from shipping through tighter technical requirements on engines and equipment, maintenance regimes and voyage plans. The IMO has found out four 'emission-control areas' — the Baltic, the North Sea, the US Caribbean and therefore the reform the coastal waters of Canada and the US — where ships are required to attenuate emissions mainly of SO_x and NO_x. These regions exclude the world's ten largest container ports, like the Chinese ports of Shanghai, Shenzhen, Hong Kong and therefore the South Korean port of Busan, which are beat Asia (see 'The dirty ten'). It is estimated that these ten sites alone contribute 20% of port emissions worldwide.

Countries, including the US, the UK and Norway, have limited the discharge sulfur content of marine fuel in their national waters to within 1,000 parts per million (p.p.m.). Most developing countries, including India and China, permit dirtier fuels with 35,000 p.p.m. of sulphur the ECU Union fuel standard for cars is 10 p.p.m

It is extremely documented that Ship scrapping causes heavy pollution. Asbestos, heavy metals and oils are toxic. Workers working within the ships are exposed to hazardous fumes. India, Bangladesh, and Pakistan are the countries which are popular for ship scrapping. In Bangladesh, 40,000 mangroves trees that stabilize many tropical coasts and are habitats and breeding grounds for several species were chopped down in 2009 to accommodate ship breaking yards.

Coastal changes destroy the ecosystems this could be understood by the port designers and therefore the government. Over the past three decades, about 75% of mangroves have disappeared from Shenzhen, following port expansion and land reclamation. Plans for the Porto Sul port in Brazil — slated to open in 2019 identified 36 potential environmental impacts, including driving away dolphins and whales and killing seabed fauna.

In the mean solar time, heavy traffic at Panama, complicated navigation and constant maintenance have led to a ten-day delay in voyage times of the passage and lots of a time quite the prescribed days. to need advantage of the Panama navigation business opportunity, construction is scheduled to start out out this year on a 280- kilometre-long canal through Nicaragua. this is often US\$50- billion project, funded by a billionaire-owned Hong Kong company, this project could destroy almost 400,000 hectares of tropical forests and wetlands, home to threatened and endangered wildlife and indigenous communities Huete-Pérez, (2014).

Public concern about the pollution and health impacts of shipping remains muted all due to the industry may be a backbone of the worldwide economy, Ensure cleaner coastal air and reduce ecological damage from shipping. there's a requirement to explore the role of innovation in shipping and review a number of the economic, technological, and policy- driven factors that are reshaping marine fuel consumption patterns in order that can pay thanks to shape the effect of the sulfur cap, industry restructuring, slow steaming, changes in ship design, digitalization, and fuel switching to LNG and electric batteries.

DETERMINANTS TO GREEN SHIPPING CONTROL EMISSION:

A 97% cut in SO_x can be achieved by reducing the sulfur content from 35,000 p.p.m. to 1,000 p.p.m. fuel oil.

OIL QUALITY: Stricter emissions standards will stimulate demand for high-quality fuel.

NEW SULFUR REQUIREMENT

The vessel can run on liquefied gas (LNG), the ship can still use high-sulfur heating oil and process air emissions through an exhaust gas cleaning system (EGCS), more commonly called “scrubber,” which must be fitted on board the ship, alongside dedicated tanks to carry and treat resulting waste water from the process; or they will switch from HSFO to a lower- sulfur fuel, like marine gasoil (MGO) or a replacement sort of residual fuel referred to as low-sulfur heating oil (LSFO).

Installing a scrubber on a ship requires that the high-sulfur heating oil discount (relative to low-sulfur fuel) be wide enough to offset capital and opportunity costs. Switching to low- sulfur fuel will have the advantage of sparing shippers the up-front cost of a scrubber or LNG engine, but it might be a money

loser if the low-sulfur- fuel premium exceeded that cost. Forecasting those inter fuel price spreads, however, is inherently risky.

The global cap only covers SO_x emissions but fails to deal with NO_x or GHG, albeit those also are thanks to come under tighter regulation.

SCRUBBER INSTALLATION

Insist to put in scrubbers for exhaust-gas cleaning on ships. Scrubber units blend the exhaust gas with water or sodium hydroxide to get rid of up to 99% of SO_x and 98%. Shipping companies could recoup the opposite 50% in one year from fuel savings. With a stricter emissions standard, the demand for scrubbers would go up, and therefore the costs down, as production scales.

The business case for scrubbers won't work so well if the worldwide cap is extended to NO_x or GHG rather than being limited to SO_x because scrubbers don't filter NO_x and are relatively carbon intensive. LNG used as a bunker fuel has the advantage of being low in both SO_x and NO_x emissions. There are, however, some concerns that methane leakage—if not properly contained—could make it a source of relatively high GHG emissions (see also Thomson et al., 2015). By one count, but 1% of the world's fleet has been equipped with scrubbers. Maloni, M., Aliyas Paul, J., Gligor, D.M., 2013.

SCR (Reduce harmful Nitrous Oxide (NO_x) emissions)

Selective Catalytic Reduction (SCR) is an advanced active emissions control technology system that injects a liquid-reductant agent through a special catalyst into the exhaust stream of a diesel engine. The reductant source is usually automotive-grade urea, otherwise known as Diesel Exhaust Fluid (DEF). An SCR (Selective Catalytic Reduction) system is a system installed on diesel vehicles to reduce harmful Nitrous Oxide (NO_x) emissions. (Vierth, I.Karlsson, R., Mellin, A., 2015). It works by injecting an automotive grade urea, or Diesel Exhaust Fluid (DEF) through a specially designed catalyst, into the exhaust stream of a diesel engine.

The term Selective Catalytic Reduction (or SCR) is used to describe a chemical reaction in which harmful nitrogen oxides (NO_x) in exhaust gas are converted into water (H₂O) and nitrogen (N₂). A silicon controlled rectifier or semiconductor controlled rectifier is a four- layer solid-state current-controlling device. SCRs are unidirectional devices (i.e. can conduct current only in one direction) Lindstad, H., Eskeland, G.S., Psaraftis, H., Sandaas, I., Strømman, A.H., 2015

IMPROVE PORT MANAGEMENT

Zheng Wan(2016) Making port-business statistics and therefore the results of environmental- impact studies accessible will allow the research community to be involved within the decision-making process. Environmental non-governmental organizations should campaign to extend public awareness of port development. After decades of loose oversight, it's time for shipping to urge an entire lot greener. (Winnes, H., Styhre, L., Fridell, E., 2015)

Shorter routes Global warming melts Arctic sea ice, shipping routes eventually will open over the North Pole and other previously impassable areas, which could greatly reduce travel times for long- haul shipping. Parts of the Arctic are opening up, resulting for instance in additional fishing activity (Egufluz et al., 2016).

DIGITALIZATION

“Advanced analytics exposes an entire new playground of opportunities,” claims Maersk, including “real time network optimization for bunker savings,” predictive repairs, cargo mix optimization, and more. Digitalization saves fuel in a minimum of two ways: by optimizing engine performance (notably, but not exclusively, through predictive repairs) and by optimizing fleet management. Combined with industry consolidation and therefore the pooling of fleets into ever-expanding global alliances, digitalization sets the stage for the “Uberization” of marine transport. during this system, multiple operators pool their fleet capacities and leverage their vessels within the most cost-effective and fuel-efficient way.

CO2 EMISSION:

And transportation across the oceans will still rise within the coming years – by 3.8 percent once a year by 2022. However, ships produce an enormous amount of exhaust gases, like sulfur oxides, nitrogen oxides, soot particles and fine dust, and also CO₂ (CO₂). Market researchers at IDTechEx One have calculated that one single large ship emits the maximum amount CO₂ as 70,000 cars, the maximum amount oxide as 2 million cars, and the maximum amount fine dust and carcinogenic particles as 2.5 million cars. Consequently, ships produce 15 percent of worldwide oxide emissions. due to this, ships are among the foremost serious sources of pollution in seaports. (Burel, F., Taccani, R., Zuliani, N., 2013). Worldwide, maritime transport is liable for almost 2.5 percent of total greenhouse emission emissions, consistent with the International Maritime Organization. It produces one billion plenty of CO₂ annually . The people that sleep in seaports, like Hamburg and Rotterdam, are especially suffering from this. Ships with electric or hybrid drive systems might be the solution .(Rehmatulla, N., Calleya, J., Smith, T., 2017).

ELECTRIC SHIPS

80 percent of oceangoing ships now use a diesel-electric transmission. Diesel generators generate the electricity, which then drives the electrical engine. This moves the ship's propeller. This has many advantages: It saves between five and 20 percent of the fuel. The electrical machines also contain fewer components, are less susceptible to faults, and have less wear and tear. This translates into reduced energy loss and better efficiency. But this is often still not a hybrid drive system. This is often the case as long as the ship can sail without the diesel engines running, a minimum of for a particular length of your time. During this case, the energy comes from the batteries on board. Within the future, the electrical engine could even be furnished with energy by other means, like with rechargeable batteries, liquefied gas (LNG) or solar energy. (Lan, H., Wen, S., Hong, Y.-Y., Yu, D.C., Zhang, L., 2015).

Diesel-electric drive: Diesel generators generate the electricity. The electricity then drives the electrical engine, which moves the ship's propeller.

Hybrid drive: Batteries are on board additionally to the interior combustion engine. On the one hand, they will be switched on additionally for a brief time when an influence peak is required . On the opposite hand, they will store surplus energy, like from the diesel generator. this is able to allow the ship to sail using nothing but electricity for a few time.

Fully electric drive: there's no combustion engine on board, all the energy comes from batteries.

CONCLUSION:

More comprehensive environmental policy could have provided for clearer signposts to enhance the GHG footprint of the shipping industry within the future . By 2050, pollution could rise by a minimum of 50 percent; within the worst-case scenario, even by up to 250 percent. A study by the EU parliament also assumes that by 2050 maritime traffic are going to be liable for almost a fifth of worldwide CO2 emissions. This puts in danger the targets of the Paris Climate Agreement, which specifies limiting heating to well below two percent. The Dutch electric ship builder Port-Liner assumes that it'll take about 50 years until all of them are replaced by electric models – a minimum of at the present rate. Experts predict that it'll be a minimum of 20 years before we see the primary fully electric oceangoing ships. The higher the choice drives work, the quicker this may happen. If battery density also increases and batteries work more efficiently, many ships will in future sail quietly and in an environmentally friendly manner. The unpredictability of oil and gas prices, and hence of the relative costs and benefits of the varied options, is one more reason for market participants to stay sidelined. (Acciaro, M., 2014)

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PATTERNED FABRICS FEATURES EXTRACTION AND SELECTION BASED ON ROBUST FEATURE EXTRACTION AND PARTICLE SWARM OPTIMIZATION METHOD

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ABSTRACT:

In textile industry, defects that occur in fabrics during production processes cause the producers to suffer large losses of money and fabric. Various studies have been carried out to minimize these losses. There are two types of defect detection methods, that are human-focused and machine-focused defect detection. In human-focused systems, defect detection is maintained after the production phase. This does not provide an advantage for the manufacturing. The quality of the fabric can be developed by decreasing defects in the fabric. Defect detection with machine focused method have better results. For patterned fabrics, the key problem is to reduce the influence of texture features. The proposed work focuses on patterned fabric defect detection. The main aim of this paper is feature extraction with selection. There are many features are available in patterned fabrics such as color, textures, shapes, etc., Feature extraction used to extract those features from pattern fabric images. A novel Patterned Fabrics Feature Extraction and Selection method is based on Robust Feature Extraction and Particle Swarm Optimization analyzes two robust feature detector and descriptors. They are Scale-Invariant Feature Transform (SIFT) and Speeded Up Robust Features (SURF). These two robust feature descriptors are extract all patterned fabric features such as color, texture etc., The Particle Swarm Optimization (PSO) algorithm is used to select the appropriate defect features from the robust feature extraction. The observed parameter values significantly increases the success rate of the feature selection.

Keywords: Patterned Fabric, SIFT, SURF, PSO

1. Introduction:

Textile and garment industries are one of the fastest growing and competitive markets worldwide and form a major part of production, manufacturing, employment and business operations in many developing countries. The changes have increased both yield and quality of fabrics, apart from reducing expenses and labor cost. The majority of the companies are paying more attention on improving their

quality of usable finished product and achieving faster production speeds. This is especially more important in textile materials, as defective fabrics reduce its price significantly. producing and selling more first quality fabric, it is essential for textile factories to install advanced machines that can eliminate fabric defects. However, changes in the production processes may lead to introduction of more defects. In general, fabrics can be divided into two categories: Nonpatterned and patterned . Nonpatterned fabrics are usually solid-colored with plain structures. Patterned fabrics are in periodic variations with complex pattern features. The raw data of the patterned fabric are complex and difficult to process without extracting and selecting the appropriate features beforehand.

Digital Image Processing technique is used to extract the features of patterned fabrics. Image processing techniques will help to production increase in fabrics. Image processing techniques will help to production increase in fabric industry; it will also increase the quality of product. In patterned fabric texture contains structural and statistical features. Structural Features can be extracted by different methods like SIFT, SURF, Radon, Haar Transform. There are two main categories of methods for this goal, i.e., Feature Extraction using Robust features SIFT, SURF for local feature extraction and Feature Selection using for PSO optimization method.

2. Literature Review

Zhoufeng Liu, Baorui Wang , Chunlei Li, Miao Yu and Shumin Ding(2020). The defect defection is a key component of quality control in the textile industry. In the current study, we propose a novel fabric defect detection algorithm based on MCNNs and LRD. The proposed algorithm has two contributions: (1) the traditional methods of extracting features are replaced by MCNN to characterize a fabric defect image's texture and (2) LRD is adopted to decompose the feature matrices in the low-rank and sparse parts. The detectionresults are obtained by segmenting the saliency map generated by the sparse part.

Benyamin Ghojogh, Maria N. Samad, Sayema Asif Mashhadi,Tania Kapoor, Wahab Ali, Fakhri Karray, Mark Crowley fbghojogh, mnsamad, samashha, kapoor, wahabalikhan, karray (2019). Discussed the motivations, theories, and differences of feature selection and extraction as a pre-processing stage for feature reduction. Some examples of the applications of the reviewed methods were also mentioned to show their usage in literature. Finally, the methods were tested on the MNIST dataset for comparison of their performances. Moreover, the embedded samples of MNIST dataset were illustrated for better interpretation.

Chaitra GN, Nayan Khare (2015). has included the current methods which has few drawbacks and reason for the same is explained. The proposed method for future enhancement is proposed to enhance the given method. However current method gives 35% accuracy using the inbuilt functions. The proposed method is aimed to give better accuracy of the visually impaired assistive system.

Veronica Bolon-Canedo , Beatriz Remeseiro (2014). The goal of this section is to perform an experimental study using four representative image datasets extracted from the UCI Machine Learning Repository and some classical widely used FS methods, providing the readers with some baselines for their comparisons..

Samina Khalid ,Tehmina Khalil ,Shamila Nasreen (2014). The objective of both methods concerns the reduction of feature space in order to improve data analysis. This aspect becomes more important when real world datasets are considered, which can contain hundreds or thousands features. The main difference between feature selection and extraction is that the first performs the reduction by selecting a subset of features without transforming them, while feature extraction reduces dimensionality by computing a transformation of the original features to create other features that should be more significant.

3. METHODOLOGY:

Feature extraction and selection methods found much more suitable for automated defect detection of patterned fabric feature selection because of texture feature. Most of the texture datasets related to textile contain noisy data instead of irrelevant or redundant features. Feature selection is used to remove irrelevant and/or redundant features. Single feature selection method that can be applied to many applications. Some methods used to eliminate irrelevant features but avoid redundant features. PSO is a subset search algorithm, that search through pixel feature subsets guided by a certain evaluation measure which captures the goodness of each subset. It can capture the feature from global best and performance best features. The proposed methodology includes 1. Feature Extraction using robust feature method 2. Feature Selection using Particle Swarm Optimization method. Fig.1 shows the flow diagram for feature extraction and selection for patterned fabric.

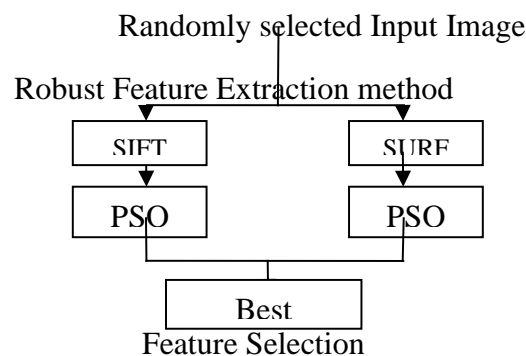


Fig.1. Flow diagram for feature extraction and feature selection for patterned fabric

3.1. Feature Extraction:

Feature Extraction is used to extract the relevant feature properties which may include shapes, colors, textures, spatial informations etc., This paper describes about features that are extracted namely Scale Invariant Feature Transform using SIFT, Speeded Up Robust Features Transform using SURF and statistical features. SIFT is one of the technique for detecting salient, stable feature points in an image. For every such point, it also provides a set of features that characterize/describe a small image region around the point. These features are invariant to rotation and scale . The SURF is the another method (Speeded Up Robust Features) is a fast and robust algorithm for local, similarity invariant representation and comparison of images. The main interest of the SURF approach lies in its fast computation of operators using box filters, thus enabling real-time real time process such as tracking and object recognition.

3.2. Feature Selection:

Feature Selection is a popular processing step which aims to identifying the relevant features, at the same time, removing the redundant and irrelevant features. Feature selection is a method of feature reduction. The reduction criteria usually either improves te accuracy the model complexity. Particle Swarm Optimization (PSO) is form of computation technique used to bringing out the specific features in accelerating each particle toward its particle best and global best locations. It is the method of dealing with the better solution and it can be improved to obtain the quality of the input fabric image.

3.3. Dataset:

The dataset contains 2000 samples of fabric images. The dataset is taken from the datasource as <http://ibug.dpc.ic.ac.uk/resources/fabrics>. From the dataset 5 fabric images are randomly taken for processing.

3.4. Feature Extraction using Robust feature method:

Extraction of features from the gray scale image include variance of overall image matrix, variance of key descriptors. The feature vectors are used as the criteria to classify the given datasets of fabric images obtained from the fabric dataset. The two major Robust feature extraction methods such as SIFT and SURF are used to extract thefeature set. SIFT is used to extract local structural features of the image. The SURF method is a fast and robust algorithm for local similarity invariant representation and comparison of images.

3.4.1. Scale Invariant feature extraction (SIFT):

Scale invariant feature transform is used to extract local structural features of the fabric image. SIFT includes a feature detector and a feature descriptor. The detector extracts from an image a collection of

frames or frames or keypoints. These are attached to structures of the fabric image. The keypoints are covariant, in the sense that they track image translations, rotations and scaling. The effect of such transformations can be wrapping the keypoints to the feature set.

The descriptors are invariant to translations, rotations and scaling of the image due to their statistical nature, they are also pretty robust to others. The three step of SIFT detection and description are, 1.Invocation of image, 2.Matching features 3.Visualization.

Step 1: `I=imread('sample image');`

`I=double(rgb2gray(I)/256);`

`[frames,descriptors]=sift(I,'verbosity',1);`

The sift function returns a $4 \times K$ matrix frames containing the SIFT frames and a $128 \times K$ matrix descriptors containing their descriptors.

Step 2: The siftmatch descriptors selected matching pairs by one per column.

Step 3: The selected image displayed with matching pair.

3.4.2. Speeded Up Robust Feature (SURF):

The SURF (Speeded Up Robust Features) is one of the most commonly used feature extraction algorithms and has a good robustness. SURF is widely used in image processing and machine vision. It is used for extracting dimension feature to improve localization during feature matches.

SURF Algorithm:Input: Input image i , $\text{keypoint}(x, y, L)$ Output: SURF Descriptor, orientation of keypoint Function BUILDDESCRIPTOR(i, x, y, L) $\theta \leftarrow \text{ORIENTATION}(i, x, y, L)$ for $i:=1$ to 4 do (Span the 4-by-4 subregion $R_{i,j}$ of the oriented grid)for $j:=1$ to 4 dofor $u:=-9.5$ to 9.5 step 1 do (Span the subregion $R_{i,j}$ coordinates(u, v))for $v:=-9.5$ to 9.5 step 1 do $(x, y) = S(u, v)$ $(X, Y) = \lceil x, y \rceil$ (Nearest neighbor pixel) $D_x^{Lk} u(X, Y), D_x^{Lk} u(X, Y)$ $(dx(u, v), dy(u, v))$

end for

end for

 $\mu(i, j)$ (compute subregion statistical descriptor)

end for

end for

 $\mu \leftarrow \text{CONCATNATE}(\{\mu(i, j)\}_{1 \leq i, j \leq 4})$ SURF(X) $\leftarrow \text{NORMALIZE}(\mu)$ $\Delta^L(u)(x, y)$ (Laplacian at scale L)Return SURF(X), θ , $\Delta^L(u)(x, y)$

end function

3.5. Feature Selection:

Feature selection algorithms showing that most of the methods handle redundant feature elimination or irrelevant features separately. And very few methods handle noisy data. The selection accuracy achieved with different feature reduction strategies is highly sensitive to the type of data. Feature selection methods broadly categorized into filters and wrappers. Wrapper methods generally result in better performance than filter methods. Particle Swarm Optimization(PSO) is one of the wrapper method. However, they are generally far too expensive to be used if the number of features is large because each feature set considered must be evaluated. It is a successful and valued global search technique. It is a suitable algorithm to the feature selection problems due the following reasons: easy encoding of feature, global search facility, being reasonable computationally, less parameters, and easier implementation. The principal space is the search space through which a subset of principal components or principal features were explored and selected via PSO. The swarm of particle is generated by distributing 1 s and 0s randomly. For every particle, if the principal component is 1, it is selected and the principal component with 0 is ignored. Thus, every particle

indicates a different subset of principal components. The particle swarm is initialized randomly and then it moved in the search space or principal space to search the optimal subset of features by updating its position and velocity are expressed below Eq(1), Eq(2) and Eq(3),

$$x_i = \{x_{i1}, x_{i2}, \dots, x_{iD}\} \quad | \quad (1)$$

Where D is the dimension of the principal search space,

$$v_i = \{v_{i1}, v_{i2}, \dots, v_{i3}\} \quad (2)$$

The velocity and position of the particle i are calculated by

$$v_{id}^{t+1} = \omega * v_{id}^t + c_1 * r_{1i} * (p_{id} - x_{id}^t) + c_2 * r_{2i} * (p_{gd} - x_{id}^t), x_{id}^{t+1} = x_{id}^t + v_{id}^{t+1} \quad (3)$$

Where t denotes the tth iteration in the process and d denotes the dth dimension in the search space. ω is inertia weight and c_1 and c_2 are acceleration constants. r_{1i} and r_{2i} are random values uniformly distributed in [0,1]. p_{id} and p_{gd} represent the elements of p_{best} and g_{best} in dth dimension.

The position and velocity values of each particle are continuously updated to search for the best set of features until stopping criterion is met which can be a maximum number of iterations or a satisfactory fitness value. The applied PSO algorithm is described.

PSO Algorithm

Step 1 (swarm initialization). Robust feature Extraction output randomly initialize the position and velocity of each particle.

Step 2 (particle fitness evaluation)

if fitness of $x_i > p_{besti}$

$p_{besti} = x_i$

if fitness of $p_{besti} = x_i$

$g_{besti} = p_{besti}$

Step 3 Update the velocity of particle i

$$v_{id}^{t+1} = \omega * v_{id}^t + c_1 * r_{1i} * (p_{id} - x_{id}^t) + c_2 * r_{2i} * (p_{gd} - x_{id}^t).$$

Update the position of particle i

$$x_{id}^{t+1} = x_{id}^t + v_{id}^{t+1} |$$

Step 4. If stopping criterion mentioned in the Robust feature Extraction is not met, continue Steps 2 and 3

Step 5. Return g_{best} and its fitness values.

4. Result Analysis:

The structural and statistical feature set extracted by Robust Features SIFT, SURF methods and selected

by PSO optimization method. The Table.1 represent the visualization of SIFT,SURF and PSO selection of 5 images.

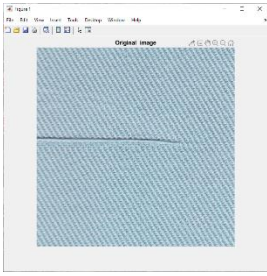
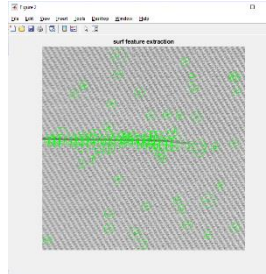
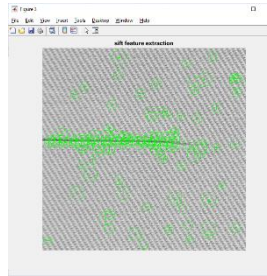
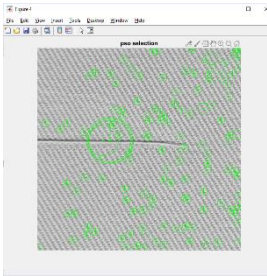
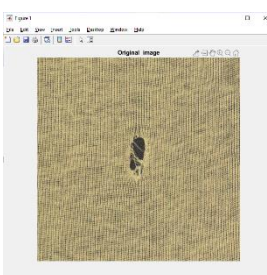
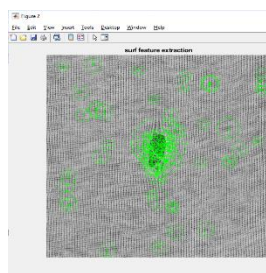
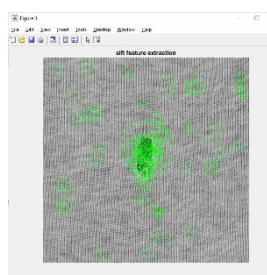
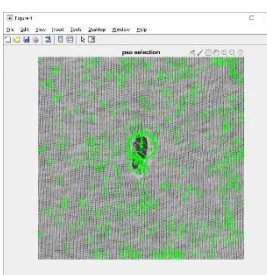
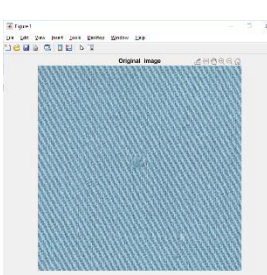
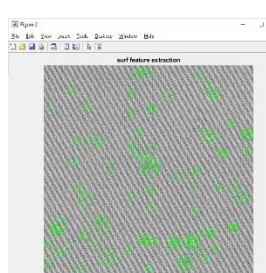
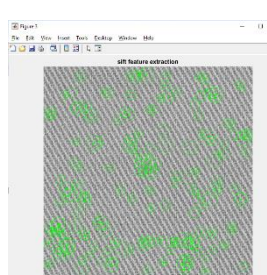
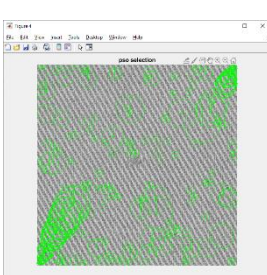
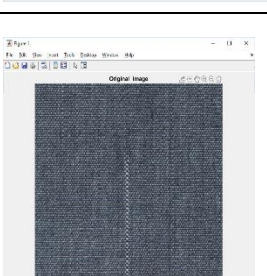
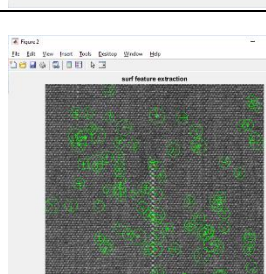
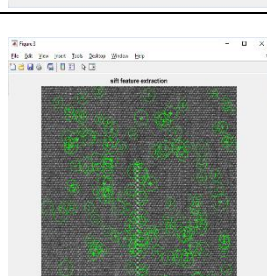
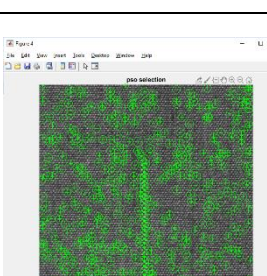
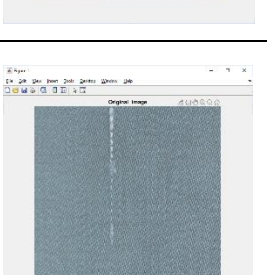
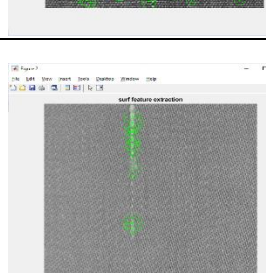
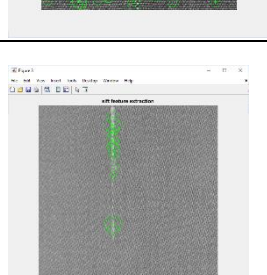
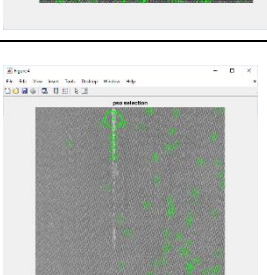
Original Image	SURF Features	SIFT Features	PSO Selection
			
			
			
			
			

Table.1. Visualization of SIFT,SURF and PSO images.

4.1. Performance measure:

The performance of the proposed Extraction and Selection method can be measured based on variance of features. The variant can be calculated as Eq.4:

$$\text{Variance} = \frac{(Z_0 - m)^2 p(Z_0)}{(L-1)^2} + \frac{(Z_1 - m)^2 p(Z_1)}{(L-1)^2} + \dots = \frac{(Z_{L-1} - m)^2 p(Z_{L-1})}{(L-1)^2} \quad (4)$$

The Following Table.2 shows the variance SURF, SIFT, PSO_SURF and PSO_SIFT are 656, 282, 453, 485 respectively.

Images/ Variance (features)	SURF	SIFT	PSO_SUR F	PSO_SIFT
Image 1	196	255	403	418
Image 2	127	236	338	350
Image 3	161	222	524	553
Image 4	71	120	210	258
Image 5	509	580	790	847

Table. 2 . Performance comparison of proposed feature Extraction and Selection method

5.Conclusion:

In Pattern fabric texture has different type of features. The Robust feature method used to Feature Extraction and PSO method used to Feature Selection method. This proposed FES method concluded the variance of feature comparison of Robust Feature Extraction method with Feature Selection method the SIFT with PSO is higher feature variance than SURF with PSO.

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