"21st Century Innovations in Management, Science and Technology, Education and Social Sciences"

First Volume

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Editors' Note

Editing a book with multiple contributions requires a sincere teamwork. The first and foremost responsibility was to choose a contemporary area which is not only as per the modern-day requirement of the business and industry but also appeals to a wide variety of academic streams. Fortunately, we finalized the best suitable title for this book – "***21st Century Innovations in Management, Science and Technology, Education and Social Sciences***". As the editors of this book, we had a huge responsibility of collecting, checking, and editing the papers. The process of editing requires a thorough work of giving timely feedback to authors about the changes they need to make to improve the quality of papers. The whole work was a teamwork and not possible without the support of our associates, publisher, and team managers.

We whole heartedly thank all our contributors who have come up with the new ideas and thoughts and not only sent their best piece of work but also edited it as per the requirements of the book and our recommendations.

We are deeply obliged to the Editorial Executive of this book **Ms. Megha Mittal,** Managing Director, Research Education Solutions for her tireless efforts towards the publication of this book. She took all the responsibility of coordinating among all team members – editors, authors, and publisher. Without her constant and active support, it was not possible for us to shape up this book.

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Content

Role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations: An Empirical Study

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Abstract

The Internet of Things (IoT) is becoming increasingly popular in the contemporary technological era due to the growth of its intriguing application potential and practical usage. Conceptually, Internet of Things (IoT) is a channel of computer gadgets, people, or animals that have been assigned unique identifiers. The data is transferred without any human-computer or human-human interaction. IoT developed primarily from the convergence of microelectromechanical systems, micro services, wireless technologies, and the internet. The merging aids in bridging the chasm that exists between information technology and operations technology, allowing in order to analyse device-generated data in the technological platform. Furthermore, the term "Big Data" relates to a significant number of organized as well as unorganised data related to daily living. The quantity of data that can be created and kept on a global scale is mind-boggling from this perspective. Furthermore, the importance of big data is determined not by how much data one has, but by what one does with it.

Keywords: Internet of Things (IoT), business, data, technology, big data analytics.

I. Introduction

The Internet of Things (IoT) and its related innovations may link traditional networks with networked instruments and gadgets in a seamless manner. IoT has played an important role since its inception, including anything from conventional tools to common home products, and has recently drawn the focus of experts from academia, business, as well as governmental bodies. There is a grand vision in which everything can be readily regulated and supervised, can be automatically recognized through other means, can interact with one another over the internet, and can even make choices for themselves. Many analytical technologies are being incorporated into IoT to make it smarter; one among the most important technologies in data mining.

According to **Sheoran, S., & Vij, S. (2021)**, developments in electronic communication, data processing, and internet technologies provide simple access to and interaction with a wide range of physical equipment all around the world. Our entire environment is surrounded by a blanket of numerous smart gadgets outfitted with sensors and actuators. A thorough exploration of the Internet of things (IoT) with cloud technologies enables the collection of massive data produced by this diverse surroundings and its transformation employing data mining tools, into useful information. Additionally, the knowledge generated will perform an important role in intelligent decision making, device productivity optimization, as well as optimal asset as well as service administration.

Data mining is the technique of identifying innovative, intriguing, and possibly valuable patterns in big data sets and using algorithms to extract hidden information. Data mining is also known as KDD, information retrieval, raw data or pattern interpretation, database excavation, data scouring, and informational threshing. The goal of any data mining method is to create a reliable prognostic or evocative model of a vast quantity of information that not merely perfectly suited or describes it, but also has the ability to extrapolate to fresh data. Data mining is the methodology of uncovering relevant data acquired from enormous volumes of data kept in database, database warehouse, or other stores of information's, according to a wide perspective of data mining capabilities. Several studies in the literature focus on knowledge, technique, and application. Meanwhile, no prior attempt has been made to evaluate the many perspectives of data mining systematically, especially in today's big data; wireless communication and Internet of Things (IoT) are growing quickly, as well as some data mining experts are shifting their focus from data mining to big data, we've come a long way.

II. Literature Review

Saleem, T. J., & Chishti, M. A. (2019) examined and found that the growth of big data and the Internet of things (IoT) is fast advancing, and influencing every field of technology and business by increasing advantages for companies and personalities. The explosion of data generated by IoT has had a significant impact on the Big Data environment. Big data may be divided into five categories: (a) volume, (b) variety, (c) veracity (d) value, and (e) velocity. Gartner pioneered the use of these categories to define the parts of big data difficulties. Owing to the pre-processing and gathering of data via various interfaces in the Internet of Things (IoT) environment, the broad adoption of IoT has made big data analytics difficult. Big data analytics and data mining in IoT strives to help alliances for industries and other groups gain a better data comprehension and, as a result, make more effectual and well-informed judgments. Analytics based on big data allows data miners and researchers to evaluate massive volumes of unorganised data that would otherwise be inaccessible using standard technologies. Furthermore, big data analytics strives to retrieve perceiving information quickly employing data mining methods that aid in creating forecasts, discovering current trends, uncovering hidden information, and making judgments.

Xue, L. (2021) stated that the Internet of Things (IoT) and data mining are two of the most powerful and visible technologies of the twenty-first century. They are constantly improving businesses, finance, digitalization, research, governance, and diverse industries like healthcare, retailing, logistics, production, and so on. The Internet of Things (IoT) relates to the interconnectedness of anything and everyone via the Internet. It is an appealing notion since it opens up numerous possibilities with items interacting with each other. Things have gotten smarter as a result of this communication capacity. This generates a vast amount of data, necessitating the retrieval of important and intriguing information. The phrase "Big Data" refers to a huge and diverse body that contains electronic data might be the result of combining data from many sources. We manufacture a total of 2.5 quintillion bytes of information per year, which means that 90 percent of the facts on the planet now were created in the last two years. Security and assurance issues are often disseminated as a result of the efficiency, quantity, and combination of large amounts of data, for example, large-scale cloud systems, transforming origin of knowledge and setup factors, the gushing nature of information acquisition, and the cloud movement to a large extent. IoT is a fantastic notion for everyone, as well as the ideal way for the era of invention.

According to **Zhong, R. Y., and Ge, W. (2018)**, Big Data, Data Mining and Internet of Things (IoT) are often employed in numerous applications throughout the world. Many academics are available at all hours of the day and night to develop Data mining and Internet of Things (IoT) services. There are several flaws with both technologies. The most typical of these is its privacy. Big Data, Data Mining and Internet of Things (IoT) both need security concerns. The reason for this is that big data and Internet of Things (IoT) application are increasingly relying on the cloud. In many circumstances, the data saved in the cloud is very confidential. As a result, from a security standpoint, these technologies must be taken carefully. Some academics are indeed focusing on RFID and the Internet of Things (IoT) in a collaborative effort. RFID is indeed a new technology, and owing to its shortcomings, RFID technology is being extracted by various companies.

Dagnino, A. (2021) examined and found that big data use and comprehension are critical competitive advantages for top firms. To the degree that businesses can discover new information if they can acquire extra data from present facilities and customers, they will be able to discover hidden insights that their opponents do not possess access to. From internal insights to front-facing client engagements, Big data may open up a slew of new commercial opportunities. Mechanisation, in-depth analytics, and data-driven judgement are the three primary corporate potentials. The IoT is a revolutionary approach which has changed customary living into a high-tech way of existence. Smart cities, home automation, pollutant control, energy efficiency, efficient mobility, and sustainable industry are examples of Internet of Things (IoT) changes. Many significant research projects and inquiries have been carried out in order to advance innovation through IoT. However, there are other problems and concerns that must be solved before IoT can reach its full potential. These challenges

and concerns must be addressed from a range of angles, including applications, constraints, facilitating technology, societal and ecological implications, and so forth.

Da Xu et al. (2014) investigated and discovered that as IoT deployment develops, firms across all industries struggle to keep up with the massive datasets that are rising at an exponential rate. IoT devices and sensors, for example, may gather gigabytes of data in a matter of hours—and that's before you factor in data from your CRM, social media channels, financial reports, and so on. Simultaneously, Big Data analytics, AI, and machine learning are advancing at breakneck speed. Organizations can swiftly extract important information from these enormous, diverse data sets and adapt to real-time situations by using AI to IoT data management and analytics. These technologies, when combined, are enabling game-changing advancements. For example, the intrinsic properties of Big Data are ideal for rapidly training AI and ML systems. These smart apps may then be utilized in real-time to automate operations, forecast equipment breakdowns, and identify security threats. In the case of completely autonomous systems, AI takes the wheel, guided by a network of linked IoT devices. Real-time analytics may assist drivers with safety features like as automated braking, parking, and accident avoidance by providing data as autonomous driving progresses at all levels. While there are several instances of what AI, advanced analytics, and the Internet of Things (IoT) can do, they cannot deliver on their promises without the proper tools. The combination of IoT, Big Data, and AI-powered analytics opens up a slew of new potential for businesses to develop more competitive business models. According to Forrester's 2020 Predictions, corporate planning is more important in enabling digitalization. Whereas the research states that influence in Big Data has dropped in recent years, advances in AI and machine learning are creating fresh interest by presenting new ways to analyse data and put it to use.

Sharma et al. (2020) analysed and concluded that the Internet of Things (IoT) has arisen as a new opportunities in recent years. As a result, all technologies, including cell phones, public transit, and household appliances, are exploited as data-generating devices. All of the electrical devices that surround us assist us in our daily lives. Wristwatches, panic sirens, shutters, and so on household appliances like fridges, ovens, air - conditioners, and boilers, are linked to an Internet of Things network and may be managed remotely. Approaches such as Big Data and data mining may be used to enhance IoT stockpiling and optimization difficulties, as well as data transfer, assessment, and interpretation on the Internet of Things (IoT). The goal of this study is to look at the thesis on IoT that has been done using big data and data mining technologies in order to identify subjects that should be focused more on the present and upcoming exploration routes. The Internet of Things and data mining play a critical part in the evolution of sustainable manufacturing and product dissemination. Industries profit from analysing massive amounts of data derived from the Internet of Things (IoT) and big data. They give enhanced judgments in monitoring and discovering improved methods of enhancing the business, as well as supporting the business and other organizations in achieving a detailed grasp of data in order to make efficient and well decisions across all sectors. This study focuses on achieving manufacturing process sustainability through making use of data mining

and the internet of things, as product production plays a vital role in sustainable industrialization. Data mining and the Internet of Things (IoT) provide the path for sustainable industrialization while taking into account sociological, economical, and ecological facets. The Internet of Things (IoT) and data mining enable effective data capture, and predictive analysis improves overall reliability and corporate performance. Regarding product advancement with power e□ciency, asset preservation, safe and skill-enhancing working constraints, reduction in waste production, meeting the needs of future generations, and minimizing cost and implementation period, the review approach encapsulates a template with factors such as administration style, provider consolidation, intrinsic corporate procedures, calibre maintenance, consumer consolidation, green lean systems, and improvement.

III. Objectives of the Study

1. To find the Role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations
2. To ascertain the Role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations

IV. Research Methodology

The present study is descriptive in nature wherein the Role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations was analysed. The sample taken for the study is 160. The information was gathered with the assistance of an organized poll on a five-point scale and investigated with the assistance of the mean qualities and t test.

Table 1: Demographic profile of the respondents

Variables	Number of respondents	% age
Gender		
Males	78	49%
Females	82	51%
Total	**160**	**100%**
Profession		
Businessman	64	40%
Teacher	23	14%
Housewife	39	24%
Student	34	22%
Total	**160**	**100%**
Age		
20-35	57	35%
35-50	68	43%
50-65	35	22%
Total	**160**	**100%**

Table 1 presents demographic profile of the respondents on the role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations. There are 49% males and 51% females in the study. Among the respondents 40% are into business, 14% are teachers, 24% are housewives and 22% are students. The 35% of the respondents are 20-35 years of age, 43% are 35-50 years of age, and 22% are 50-65 years of age.

Table 2: Mean Value of the role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations

Sr. No.	**Statements**	**Mean Score**
1.	Internet technologies give an easy access to everything across the world	4.00
2.	IoT creates a win win stuation for both buisnesses and the consumers	4.10
3.	IoT as well as data mining are considered to be the strongest technologies of the century	4.08
4.	IoT and data mining help in improving business	4.04
5.	Businesses can easily discover new data with these technologies which can give them an edge over their competitors	3.98
6.	These technologies help in identifying security threats	4.09
7.	IoT helps on reducing the operational costs	4.01
8.	IoT helps in reducing error risk	4.11
9.	IoT has a huge potential for businesses	4.12
10.	If used in the right manner IoT can help businesses in increasing their profits	4.14

Table 2 shows the opinions of the respondents. It is observed that If used in the right manner IoT can help businesses in increasing their profits with the mean value of 4.14. It is followed by IoT has a huge potential for businesses (4.12), IoT helps in reducing error risk (4.11), and IoT creates a win win stuation for both buisnesses and the consumers (4.10). These technologies help in identifying security threats (4.09), IoT as well as data mining are considered to be the strongest technologies of the century (4.08), IoT and data mining help in improving business (4.04), IoT helps on reducing the operational costs (4.01) and Internet technologies give an easy access to everything across the world (4.00) were also considered important. Reasons like Businesses can easily discover new data with these technologies which can give them an edge over their competitors (3.98) were also viewed as important.

Table 3: Role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations

Sr. No.	Statements	Mean Score	t-Value	Sig
1.	Internet technologies give an easy access to everything across the world	4.00	6.436	0.000
2.	IoT creates a win win stuation for both buisnesses and the consumers	4.10	7.772	0.000
3.	IoT as well as data mining are considered to be the strongest technologies of the century	4.08	7.632	0.000
4.	IoT and data mining help in improving business	4.04	6.963	0.000
5.	Businesses can easily discover new data with these technologies which can give them an edge over their competitors	3.98	6.291	0.000
6.	These technologies help in identifying security threats	4.09	7.602	0.000
7.	IoT helps on reducing the operational costs	4.01	6.633	0.000
8.	IoT helps in reducing error risk	4.11	7.969	0.000
9.	IoT has a huge potential for businesses	4.12	8.002	0.000
10.	If used in the right manner IoT can help businesses in increasing their profits	4.14	8.405	0.000

Table 3 shows the results of t-test. It is found from the table that the significance value for all the statements is below 0.05, hence all the statements regarding role of Internet of Things and Data Mining for Enhancing the Effectiveness of Modern Business Organizations are significant.

V. Conclusion

The notion of the Internet of Things (IoT) arose due to the requirement of administer, digitalize, and investigate all of the world's gadgets, mechanisms, and sensors. For resilience thinking and operational enhancement, data mining technologies are coupled with IoT technologies to make sensible judgments for both people and objects in IoT. Data mining is the discovery of innovative, fascinating, and possibly valuable patterns in data, as well as the use of algorithms for the discovery of concealed information. In this study, we review data mining from three perspectives: understanding, methodology, and applications. We look at categorization, aggregating, similarity measures, time-series forecasting, and analysis of outliers in the context of knowledge. In terms of application, we look at the conventional data mining application, which includes e-commerce, business, affordable Medicare, and government operations. The technique perspective is considered in conjunction with the expertise view and the utility view. Big data is currently a prominent issue in data mining and Internet of Things (IoT); we also address the new attributes of big data and assess the obstacles in data extraction, data mining techniques, and system for

data mining areas. A recommended large data mining system is provided based on a study of existing research.

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Golden Triangle: A Popular Tourist Destination of India

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Abstract

Three popular destinations of India - Delhi, Agra, and Jaipur are known as India's Golden Triangle, as there are numerous icons and secrets of these fascinating locations. Massive forts, history, opulence & grandeur of palaces of Rajasthan, buzz & bustle of bazaars and markets and traditions of heritages are the limelight of these regions and attract numerous tourists from domestic as well as international regions every year. Travel in these areas that are full of different cultures, traditions and history provides unforgettable and life experiences to the tourists. Visiting sites from Humayun's Tomb, Lotus Temple, India Gate, Akshardham Temple, Jama Masjid, Red Fort, Qutab Minar of Delhi, Taj Mahal, Fathepur Sikri of Agra, City Palace, Jal Mahal, Hawa Mahal, Amber Fort of Jaipur have their flavor and history and tourist feel as in the different world at every site. This study was done to highlight the popularity and importance of the Golden Triangle- Delhi, Agra, an d Jaipur tourist locations.

Keywords: Destintions, Golden Triangle, Tourists

I. Introduction

India is a diverse and intense mixture of many languages, terrains, cultures, cuisines, and architecture, and all these features make India the most fascinating place for tourists. Golden Triangle includes 3 important locations in North India regions i.e. Delhi, Agra, and Jaipur. These locations are situated with a distance from each other of 200 to 250 Kms and are filled with heritage, culture, and history. These diversities formulate this route as a perfect journey. When these locations are plotted on the map, these cities make an equilateral triangle.The Golden Triangle is India's most popular route for tourists. Delhi, Jaipur, and Agra site locations are such that they capture the imaginations of tourists and take them into a passionate, corrupt, and fascinated world of maharajas and Mughals. These locations consist of the best architecture in the world i.e. from Delhi's Qutub Minar to Jaipur Amber Fort and for sure the Taj Mahal of Agra. These three cities involve India's rich cultural history ranging from Jaipur Hindu Rajput Kingdom's brave history to the capitals of Agra and Delhi of the

Mughal empire (Ghelani, 2017). These destinations provide tourists the experience of a lifetime.

Protection of the Golden Triangle is one of the biggest responsibilities of tourism and the government of India as these locations are very popular and are endangered with overcrowding, pollution, and the negative impact of mass tourism (Dixon, 2021). When tourists visit Golden Triangle, Architecture is on the top of the list. Marvels used by Mughals like Agra Fort and Taj Mahal in Agra, Humayun Tomb & Red Fort in Delhi, and Fathepur Sikri's Buland Darwaza shows that they liked to make masterpieces to spot their presence. Rajasthan showcases the architecture of the royal world of Rajputana and is famous for its grand & fabulous interiors and complicated details. With geometric and comprehensive ethnic influences, the Amber Palace of Jaipur is one of the finest. Golden and blue interiors of the City Palace of Jaipur are as marvelous as marble columns & geometric windows of Hawa Mahal Palace.

The government is taking many initiatives to protect these sites and one of the major steps taken by the Modi government is the inauguration of flight services in 2017 that will connect tourists of Golden Triangle. This will help in more time saving of traveling among tourists and they can spend more time enjoying the site rather than traveling. Tourism is always the center of attraction for all countries as it has the potential to enhance economic growth, alleviate poverty and employment and its wide-ranging framework is very well appreciated by our Prime Minister Narendra Modi. Consequently, this is the right time when "Incredible India" can move to the next level. In 2019-20, the Ministry of Tourism has spent around 37 crores to promote domestic tourism in India.

Ministry of Tourism has taken an initiative i.e. "Dekho Apna Desh" launched in January 2020 to create awareness among the citizens of India regarding the culture and rich heritage of the country & to promote domestic tourism. Prime Minister Narendra Modi addresses this initiative and asks every Indian citizen to visit at least selected 15 destinations by 2022. According to the initiative, the ministry will carry out activities for promotion such as online pledges, webinars, and programs to increase awareness of the public regarding tourism products or destinations. Iconic places identified by the Ministry include Taj Mahal, Fatehpur Sikri, Ajanta and Ellora, Red Fort and Qutub Minar, Colva, Amber Fort, Dholavira, Khajuraho, and Humayun's Tomb. Most of these destinations are of Golden Triangle locations and will be benefited from domestic tourism.

II. Literature Review

The Golden Triangle is the most popular tourist route in India representing the magnificence, beauty & history of India. It is a tourist track that joins Jaipur, Agra, and Delhi (the national capital of India). The total circuit is approximately 720 km by road. It is called the Golden Triangle due to the formation of triangular shapes made by these locations **(Micka-Maloy, 2019).** If Started with Delhi then move to the south

to Agra with Taj Mahal then move to the west to Rajasthan landscapes make a triangle route. Well, the traveled route is available now with good spectrums of different landscapes of the country. The Shatabdi express train connects Jaipur and Agra with Delhi. Golden Triangle is a named equilateral triangle that is plotted on the map by these cities.

India's Golden Triangle is a well-trodden tourist track. It is called "Golden" due to its extraordinary historical and religious sites. Delhi includes Mughal's Museums Red Fort with popular Sound and Light Show, QutbMinari.e. UNESCO World Heritage site and is of 72 meters high and structure construction commenced in 1193AD **(Wiley, 2015)**, British Raj-era India Gate, Humayun's Tomb, Chandni Chowk (market created by Shah Jahan), Jama Masjid, Raj Ghat, Akshardham Temple, Laxmi Narayan Temple, Bahai Temple, and India Gate.

Agra's main sight is the magnificent Taj Mahal. It is synonymous with glory, love, and grandeur. Agra Fort is situated on the Yamuna's river right bank. Fatehpur Sikri, Akbar's City of Victory, lies on a hilltop almost 40 km from Agra. It is India's medieval city and was founded by Sultan Sikandar Lodi. Agra is globally praised for spectacular architecture, world-famous monuments, and UNESCO world heritage sites.

Jaipur is popularly known as "Pink City" due to pink colored buildings. Jaipur is Rajasthan's capital and is the center of a bunch of historical sites like Hawa Mahal, City Palace, old city, Jantar Mantar, Amber Fort, etc. Hawa Mahal is an iconic building that hides many secrets of the ladies who once resided there. The most fascinating scientific instruments can be seen in Jantar Mantar. Jaipur is quite popular for traditional designs and crafts. Colorful fairs, beautiful architecture, marvelous heritage hotels, rich ethnicity, and festivals are the major attractions for tourists of this place.

The Golden Triangle in India is very well connected by public transport. Agra, Delhi, and Jaipur are three cities that capture the imagination of people and take them into a passionate, fascinating, and decadent world of the ***Maharajas***. World's best architecture can be seen in this Golden Triangle from Qutub Minar in Delhi to the Amber Fort in Jaipur and of course the Taj Mahal in Agra.

Ministry of Tourism encourages India's Golden Triangle i.e. "Delhi- Agra-Jaipur". The government of India is marketing "Golden Triangle" Tourism and its infrastructure and operation development are done by private bodies and state governments. For a long time, the Golden Triangle circuit has been attracting domestic and international tourists. A tourist circuit is a series of destinations that are situated in a region and together marketed to grab the attention of future tourists or visitors. Destination selection by marketers and policymakers depends on many factors like accessibility, distance, kind of attention and necessary infrastructure availability, etc (**Choudhary, 2017**). Policymakers also select destination circuits to concentrate on infrastructure development with a focus on tourism development in

that region. Every year a huge number of tourists visit this famous "Delhi, Agra and Jaipur" Golden Triangle of India. Integrated infrastructure is developed to connect all circuit destinations like "Palace on Wheels" connect all the destinations i.e. Jaipur-Agra – Delhi Golden Triangle which in itself has now become a tourist attraction. It is called a triangle as there are three cities included in this with more or less at the same distance. These are very well connected by bus, air, and rail.

III. Package Tours

Package tours are holidays or pleasure trips that "Package" different types of services altogether to make a one "combined" trip. Package tours are usually combinations of services like meals, accommodations, and transport. Other facilities like leader or guide for the tour also may be included in the package. The package can be short or long in duration as well as distance. It also varies based on duration like overnight, a week, month, or more (**Dixit, 2020**).

Packages in the current market are varied and very vast. Makers of packages make sure that all consumers' desires and needs are fulfilled. There are different types of packages available in the tourism industry such as Regional or City tours, tours with Special interest, Group tours, Adventure Tours, and Fully Escorted tours.

Tours with a special interest are planned based on particular interest areas such as sport, arts, agriculture, food, or culture. Specialist tours may also consist of celebrity or expert guides that are related to the tour theme like an expert of gardens guides or accompany on the garden tour, art expert guides art tour, etc.

Adventure Tours are those that are planned where consumers participate and are more based on experience. These tours need some fitness level and are usually physically based and can be modified according to the needs of other travelers. Mountain or rock climbing, diving, skiing, horse riding, etc. are some of the examples of adventure tours.

Regional or city tours are usually for the period of full one day or less. These are planned with a fixed schedule and visit only specific interesting areas. It can be religious, historic, or cultural and meals and refreshments are usually included.

Group tours are also planned with pre-arranged and fixed schedules. They are usually planned based on no. of travelers i.e. certain no. of travelers are needed to plan these types of tours to make it profitable instead of financial loss. Some group members must be specified as more members can also be a problem for the tour mainly in the case of transportation. Group tours are usually led by a tour guide.

Fully Escorted tours are usually planned for single travelers and particularly for women or females traveling alone. This type of tour provides a feeling of security and solution to cultural and language hurdles. These tours are sometimes educational tours like guides that provide historical, cultural, or local information or knowledge to

consumers that become a worthwhile experience and understanding of the place visited.

Packaged tours include both benefits and drawbacks for the consumer as well as travel agents. For consumer packaged tours are cost-saving and in budgets, the operator bears whole responsibility, convenient, time-saving, the possibility of social interaction is more, etc. It also saves time and cost for travel agents and a huge variety of options are available in packaged tours. Sometimes some tours planned are rigid and consumers face issues like they have to follow fixed schedules and arrangements of flight and accommodations whereas travel agents have little control on packaged tours as it is done according to operator choice of accommodations, restaurants, attractions, and services (**Benjamin, A.M. et. al 2019**).

IV. Aspects of Golden Triangle

Many people visit Golden Triangle as they consider it an easy path in traveling in India. Visiting this fraction of the country showers the tourists with incredible sites and it is quite easy to visit these places. There is a proper tourist trail available, transportation in abundance, adequate and excellent accommodations, more English spoken, and a large number of attractive places that are worth seeing (**Kaur, 2018**).

1. **Large Number of incredible monuments:** Humayun's Tomb, Qutub Minar, Jama Masjid, Lodhi Garden, Red Fort, India Gate in Delhi. Hawa Mahal, Amber Fort, Jantar Mantar, Chand Baori in Jaipur; Agra Fort, ItimadUdDaulah Tomb, Fatehpur Sikri in Agra. Taj Mahal in Agra gets all the attention and glory. Visiting the Golden Triangle is the most extravagant sight of one's life.

2. **Three distinct parts of the country:** Delhi, Agra, and Jaipur are not just cities to visit but they also provide tastes or versions of three different types of regions. Agra that is located in Uttar Pradesh is popularly known as pilgrimages and religious landmarks. Jaipur initiates the desert state of Rajasthan and Delhi as capital and full of historical Mughals landmarks. These three random destinations have unique cuisine, culture, and different style of architecture and hence provide all in one single trip.

3. **Exposure to different cultures:** All three cities of the Golden Triangle possess different types of culture. Visiting these cities gives different types of marvelous feelings to tourists. It is a different experience for tourists with iconic culture shock and cultural immersion when they explore the Golden Triangle. These destinations provide the best cultural experience to visitors. In the circuit, every destination is a land full of heritage sites, full of the festival, distinctive traditions, and other elements. To enjoy India's lifestyle, a trip to the Golden Triangle is an epic one (**Pandey, and Sahu, 2020**).

4. **Easy to travel:** Traveling in Golden Triangle is quite easy and accessible, Ubers are easily available, easy to book tickets for trains online in advance, Google Maps

make it more reachable, etc. Lots of visitors are visiting the Golden Triangle that becomes important to set up for them and easy traveling options are available. With air connectivity, six-lane highways, and super fast trains, all three destinations are connected very well and tourists have to spend less time and energy traveling.

5. **Luxurious and Reasonable:** There are different types of options available in Golden Triangle starting from accommodations, food, travel options, etc. It ranges from most expensive to reasonable prices. Tourists interested in luxurious visits or for medium or reasonable, all satisfied with the budget on Golden Triangle. If tourists are looking for a luxurious tour then this Golden Triangle circuit is best for them as it includes amenities such as air-conditioned cabs to travel, boutique hotels, etc. All destinations have top-rated hotels chains and are also connected with luxurious trains of India i.e. "Gems of India of Maharajas" Express and "Treasures of India of Maharajas" Express.

6. **Accessible and safe:** If any tourist is traveling alone still they will not face any issue in Golden Triangle as all the destinations are the iconic attraction for tourists with the straight and clear route. Hence, the visitor will always be surrounded by many tourists irrespective of any season.

7. **Lands of Heritage:** Heritage of these destinations are unavoidable and they are linked with memorable brave history. All destinations of Golden Heritage respect and protect their heritage legacy and build various elegant structures.

8. **Interesting and Educational:** All three destinations of the Golden Triangle are different from each other. All carry different attractions and carry unique beauty. Hence, tourists never feel bored as there are lots of variations in the beauty and it is interesting for every age group of visitors irrespective of the focus of the tour is sightseeing. Jaipur, Agra, and Delhi, all are ruled and controlled by many rulers of different types and different times. Therefore, to learn and feel the different dynasties' colorful past, these destinations are perfect.

9. **Different Cuisine:** Golden Triangle destinations are filled with different types of cuisine. Every destination has its taste and flavor. The focus of Agra cuisine is on sweets, Jaipur is rich with spicy curries, meat, and traditional milk sweets. Mughal dishes and street food dishes in Delhi are very famous.

V. Conclusion

Golden Triangle in India provides the tourist to feel different phases of the country i.e. starting with *maharajas*, Mughals, Britishers, and Modern India. Tourists can see most of the country's history in a very short amount of time. With small travel areas, they can experience different cultures and tastes of three distinct and different faces of the country. Visitors can see palaces, temples as well as Mughal architecture in the Golden Triangle tour. These three countries provide the best glance of authentic

India. Traveling in the Golden Triangle is quite easy and accessible as all are well connected with the road as well as the train. Accommodations are also easily available in these locations vary from reasonable to luxurious. The government has taken many initiatives to protect these heritage sites and to promote these locations for tourists. Many sites among them come under UNESCO sites and are well protected and maintained regularly by the Government. Adequate facilities are available in respective locations to provide security to tourists and make their journey more memorable and hassle-free.

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Issues and Challenges of Data Driven Marketing: A Theoretical Perspective with Reference to Analytics Applications in Marketing Strategies Implementation

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Abstract

The transformation of different areas of activities is happening along with digitalization of the economy. One of he most popular areas of activities is marketing. It is considered to be an integral component of a business. One of the main trends of digitization of economy is the Data Science or Big Data. Capacity of the Big Data in terms of marketing is huge since data is generated always and even collected in the real time and the marketing domain may identify the demands of the users, their problems, interests and goals. The businesses which such data can easily define the efficient ad campaigns as well as channels of sales and even get rid of inefficient ones. Researchers define Big Data, Big Data marketing and digital marketing in different ways. The latest concept of 5E interaction that is result marketing that processes would be based on the knowledge that is acquired due to data assessment and not on the subjective assessment of the marketers. The latest trends in digital marketing like marketing of the visualization, predictive marketing as well as personalized have been highlighted by researchers.

Keywords: Big data, data analytics, data marketing

I. Introduction

Working on data marketing, people often understand that there isn't any such a thing like dull moment. Something or the other is always happening. It is hectic, dynamic and people just fall in love with it. Still, often having to change things around, could be quite overwhelming. After all, executing and managing the data driven strategies of marketing isn't easy.

It is important to ask the right question which might be the obvious one too. How would an individual take the business forward in case he or she doesn't know the questions and the answers which would help them solve the real issues. Clearly, it is wonderful to know the number of visitors that a business had in one day or the amount

of time they spent on the page of the business. However, this might not bring you close to fulfilling your KPIs or the Key Performance Indicators. So, it is important to think of the marketing goals and questions that need to be answered. Whether you would like to convert a greater number of visitors into your paying customers. If yes, then you might have to look into different channels which help in generating most of the conversions and then simply concentrate over them. It is important to remember that even best of data does not matter when you don't know the purpose for using it (**Erevelles, Fukawa and Swayne, 2016)**.

A business generates tons of data each day. Still, in itself it is not a viable reason for not believing that the data would be good for yielding actionable thoughts. Firstly, good quality data should be updated as well as consistent. Timeliness is considered to be one of the primary attributes of the marketing data which helps the businesses in responding to the needs of the customers as they emerge. Good quality data is even as complete as possible. Any kind of information which is missing would just help you in making the decisions on the basis of the educated uses in place of facts.

Something with the marketing data isn't the only thing which is big, it is even fragmented. It can also be quite messy and making way to whatever is needed is not easy always. Since the data flows in through different channels and its accumulated by different groups of people in the business-like finance, sales, marketing, etc. it's also often messy as well as scattered. Resultantly, we get multiple sets of data which are often called silos. Silos can be the nightmare for marketers as they offer not a single overview of the output available and also makes it quite difficult to assess the anomalies within the data. The main thing here is to solve it by simply breaking the silos down and to have all the output updated and all in single place. Figure 1 shows the objectives of the Data Drive Marketing at a glance:

Figure 1: Objectives of Data Driven Marketing
Source: MarketingCharts.com, Data Source Ascend2 and Research Partners, Nov (2015)

Once you get your hands onto the relevant data now is the time for focusing on cleaning as well as harmonizing it. Since its often pulled up from different sources, the data for marketing comes through different formats and thus all of them have to be unified in case you generate the actionable insights from the assessment. In simple words, it's all about developing consistent targeted data scheme. There's no wrong or right way of doing it but as marketing has become specialized increasingly, the professionals are even needed for mastering the specialized techniques as well as approaches for managing as well as assessing the data. The next gen marketing analytics tools could do the thing in the real time (**Xu, Frankwick and Ramirez, 2016)**.

II. Literature Review

Not ever before has the significance of right management of the data has been so obvious as it has been in past few months.

Trump alleges the outsides and the reality star also became the president of one of the most powerful nations of the world and also allegedly through power of data. A small but unknown organization called Cambridge Analytica has performed a miracle. But, how has it worked? How is it possible to figure out the right participant for the information? While addressing him as the best and the content that the company over with, they completely believe in him. Marketing driven by data is a magical word. Its an extremely complex challenge which has a lot of potential. Reaching out to the right users at right time with the right message in right place while motivating them for taking the right action poses one of the most important and major challenges for the companies. It is applicable to the classic off-site marketing and digital advertising as well (**Fan, Lau and Zhao, 2015).**

For meeting the challenge, the companies should assess the potential and the interests as well as behaviour of the current customers and target the users accurately on the basis of the information. The data has also become a cornerstone for modern marketing. However, as more data is collected from various sources, more complex, management of data become. For more accurately analyzing the ever-increasing data, not just is the data strategies necessary, but even the system which makes the data available easily to the managers of marketing or the business analysts. That is why, DMPs or the Data Management Platforms are also becoming indispensable now. DMPs offer companies with right technology which both collects as well as consolidates the data from the different sources while enabling them for organizing and activating the data. Researches have been done asking the question as to how the companies should move ahead for implementing the DMP or the Data Management Platforms and employ it as the profitable part of the marketing strategy. These researches highlight the process of implementation and also address the challenges which are faced by the organizations. Specifically, it helps in describing rapid utilization of the data for user centric campaigns of marketing (**Amado et al., 2018)**.

Between the period of March, 2020 and August, 2020, every 1 in 5 consumers preferred switching the brands and 7 in 10 tried the latest digital shopping channel. The entire retail sector witnessed 10 years growth in terms of digital penetration within a matter of just a few months. However, resultant surge in the data hasn't offered the marketers with a better understanding of the consumers as the outdated data model of the companies is not able to easily capture the shifts with necessary speed and the granularity (**Chong et al., 2017)**.

Rather than simply using data for trying to improve the targeted customers and the tailored messages, a lot of marketers have also reverted to the mass promotions and communications. A lot of businesses have majorly retreated to the mass marketing techniques in place of data driven techniques of marketing as the consumer behaviour is completely changing in a fast manner and thus the historic models and data cannot be really trusted.

However, some of the marketers are also accepting data for bounty and not stepping away from the precision marketing. For instance, a consumer goods brand, anticipated that sale for its beauty products would go up as the communities were easing the lockdown. The marketing teams also tracked the reopening on the basis of country, with the help of epidemiological stats, traffic data and municipal reporting for determine where the focus of their media spending should be. Such tactics drove the double digits rise in sales.

Similar kind of insights helped the businesses in getting a jump on the other emerging trends. The registration of business as well as data of employment signaled that the small-scale healthcare providers in most of the metro areas have been growing at a fast rate as compared to the other small and the medium size businesses. Armed with these insights, the companies have developed healthcare specific products and have launched the paid media advertisements for targeting the locales and businesses. Such moves along with other, similarly campaigns driven by data are poised for increasing the sales in the core products by 10% more (**Calder, Malthouse and Maslowska, 2016)**.

We are living in the world which is influenced significantly by the marketers. Marketing stimuli can be seen around us in different forms, both offline as well as online and the marketers filter of things that we learned from the world. The consumers mainly depend on the marketers for selling the commodities which are safe and which operate as they promise and for telling the taught for whatever they're selling. The data regarding the consumers is used for personalizing the messages of marketing and for gaining better knowledge about the needs of the consumers, which ultimately helps in improving the efficiency of business and increasing the profits. Each day a huge amount of data is created as people leave the trail of their data through millions of emails, messages, videos and phones which are shared online or through the mobile devices. Additionally, data from the sensors such as GPS is also gathered from the mobile devices. The abundance of the data signifies that the marketers may use the huge amount of data of consumers easily. The insights and the

data which is received from it are thus the core of the data driven technique of marketing (**Ducange, Pecori and Mezzina, 2018)**.

In this kind of a setup, the ethical challenges become far more crucial than before. The consumers demand more personalized and individual content that demands the use of data regarding the individual consumers. A balance between privacy and personalization is the critical issue which faces the marketers. On one hand, the consumers wish to have a personalized communication, on the other, they are more concerned about the implications that it might have on the privacy of these individuals. Privacy as the concept is related closely to the ethics, especially the data ethics (**Jun, Park and Jang, 2015)**.

The total amount of data which is collected in modern digital world is huge and thus a threat to the personal privacy becomes even more apparent than ever before. For instance. Amnesty has also expressed a lot of criticism for leading data giant, Facebook and Google and has accused them for their business model as it considers them a threat to the privacy and also to the human rights. A lot of marketers use the marketing tools of these companies and thus it's a matter which should be considered seriously by the marketers.

The entire privacy concept has been researched before widely. A lot of researchers have even studied the importance of data privacy for marketing. However, even though privacy is considered to be the most integral part of the marketing ethics, one of the ethical issues of marketing is not just restricted to privacy. Nor is the domain of marketing restricted to personalization, albeit being an important part of the modem day marketing. The ethics of marketing are gaining a lot of attention, and there's also certain previous researches which have been done on the data ethics. However, mostly these researches have been done on data ethics which focus mainly on the marketing research. There are even certain studies regarding target marketing as well, but most of the studies focus either on the targeting of underage kids or the senior citizens. Some of the researches also aim at gaining the holistic view of a subject along with consumer view regarding use of data as well as its implications on the marketers. The view of the consumers is considered as the marketers should understand that customers as well as their behaviour are important for satisfying the needs of the consumers and the behaviour of consumers is important as its one of the main drivers for collecting the consumer and marketer data (**Greco, and Aiss, 2015)**.

The present ecosystem of marketing is quite complex and almost impossible to deal with the gut feeling all alone. The customers are way more demanding now and they have been switching between the ever-rising number of marketing channels. The competition is also expanding. The budgets are being plummeted. The decision should be made smarter and faster. In simple words, the marketers are now struggling for answering the most deceivingly simple question in such a manner which is effective, relevant as well as profitable (**Donnelly et al., 2015)**.

One big marketing challenge today is proliferation of the channels. Now we have online, written media, mobile, etc. The biggest challenges of marketing include knowing the customers better, what to tell them for keeping them happy and how to balance the budgets for keeping the customers and the management happy (**Chintagunta, Hanssens and Hauser, 2016)**.

What many consider as one single channel, mobile is actually a lot of channels working at once. Even though a huge amount of content has been written already regarding this, most of the companies are struggling with recognition of their customers over different channels. There can't be anything more stressful than filling the details and the requirements online for calculating the rate of insurance and then calling same ban a couple of hours later, only so that a person can ask you same questions again. Still, it happens many times. A lot of organizations are not able to realise that this whole concept of channeling (**Motamarri, Akter and Yanamandram, 2017)**.

Nobody thinks that they were browsing mobile channels for jeans which they went to channel of the store for trying on after which they are now purchasing it through the online channels on their computer since it is cheaper there and also that it's not possible to recognize the consumer across different channels. That is how most of the marketers treat the situation. Not considering them through different channels could be the deal breaker for most of the customers. This is because within a short period of time, digital has overturned the behaviour of the customers completely. They have been connected completely and permanently. They now expect being treated to be unique. In an ocean of so many messages and different types of offers that we receive in a day, they just have patience for the relevant and personalized messages. Social media offers them empowered voice (**Nazaro, Fitina and Juraeva, 2019)**.

III. Conclusion

So, in conclusion, it may be noted that the Big Data is one of the most updated technology of marketing which is allowed for analyzing a lot of factors from the behaviour of the clients to the weather and the demographic transition of the consumers on developing markets. Technology has also created new digitalized world that gives the organizations a possibility of monitoring the digital activity of the people through different types of methods. Such methods help the organizations in assessing the behaviour of the consumers and their shopping habits too individually. Generation as well as collection of the big data in the real time would give insights into the purchase of people, downloading as well as exchanging of information. The data which is collected offline and online could be easily combine for better indicating the likes and dislikes of the consumers, what tempts them to buy, etc. But, its important for the staff to attain certain competences for using the power of the big data analytics technologies.

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Role of IoT in the Transforming Education Sector- Application and Challenges

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Abstract

The Internet of Things (IoT) has significant potential and currently beginning to work on human existence in all areas. For instance, savvy structures might incorporate IoT advances to expand proficiency, security, and solace for occupants in the development and lodging area. In industry, smart wristbands might mechanize timing to record how much time spent working unequivocally. In shrewd urban areas, the IoT advancements might be utilized to screen stopping spaces accessibility in the city, screen sound in various city regions progressively, make bright and climate versatile lighting in streetlamps, and so forth. In schooling, the IoT advances address an incredible chance for schools and might be utilized in different ways: to gather and utilize information to upgrade the opportunity for growth, to help the gathering of the learning objectives, to further develop the public school tasks, and so on Since IoT field is relied upon to fill altogether before very long, it is a must to get ready youthful ages for these progressions.

Keywords: Internet of things, Education sector, Higher Education, Study, Classroom.

I. Introduction

The idea of the Internet of Things (IoT) changed into expressed in late "90s, however, finished the years, IoT had been supplied in one in all a type way in our lives (as an example extraordinary administrations, excellent wearable devices, answers for smart homes and urban areas and so forth). Consistent with the International Data Corporation study, within 2013, 9.1 billion introduced IoT devices with IP networks and conveying without human communication. More, this is relied upon to attain 22.2 billion devices in these 365 days and amplify to 28.1 billion devices in 2020. Considering this normal development, it is miles smooth that instructive establishments need to set up the more youthful understudies - beginning at early ages - for those changes, thru showing them related angles associated with IoT, giving them the skills that could help them apprehend those progressions and face them with pleasure and energy. Today, the Internet of factors is extensively suitable in a collection of public regions (Mongkhonvanit et al., 2015).

The progressions that IoT causes in our lives are made with gadgets that accompany Internet association and could be observed through the Internet (Byrne et al., 2017). Such open doors for the association and further develop educating and

advancing too. Notwithstanding, albeit the actual term was utilized nearly twenty years prior for the first time, its utilization in instruction is known that schooling was not referenced as a field with reasonable utilization of IoT (Arkorful and Abaidoo, 2015). Hence, IoT empowers availability for whatever and for absolutely everyone to be organized everywhere in the planet whenever, and wherever using any enterprise or any assist to perform the goal of smart recognizing, following, and overseeing things. IoT is developing swiftly and becoming an inexorably growing issue that makes strength and anxiousness everywhere on the planet (Bayani et al., 2017). Numerous symptoms display that the IoT will extrude several areas, along with superior training organizations, in particular schools (Bayani et al., 2018). Presently, colleges have a treasured danger to manual the specialized turn of events and the upgrades models for the IoT, and to bring together the heads of the IoT into the future, clearly as to address the TIPPSS potentials for success which has for Trust, Identity, Privacy, Protection, Safety, and Security connected with the IoT (Bayani and Vilchez, 2017). Innovative advancements, for example, distributed computing, enormous information, and the IoT make it conceivable to change overtraining in innovative instruction and assume a significant part in building an intelligent training climate.

The motivation behind innovative training is to give 21st-century abilities and information to the labor force, which will empower it to adapt to the difficulties of the general public (Sun & Shen, 2016). The accomplishment of brilliant instruction depends on an IoT framework comprised of detecting gadgets, client applications, and correspondence joins.

II. Literature of Review

(Bagheri and Movahed, 2016) This study plans to research the viable usage of the Internet of Things (IoT) to collect data and investigate facts beneficial for selection making to paintings at the internet packages in Higher Education Institutions (HEIs). Using the IoT presents a gadget to catch, keep and talk the data to the focused database. While the data is investigated, it will genuinely need to light up the management on areas that ought to be advanced to broaden students' nature of deep-rooted gaining knowledge. With the headway of advances, better-gaining knowledge of institutions' desires to accept the worthwhile open doorways to be successful get up to many difficulties, like conveyance strategies, nature of substance, instructors' gaining knowledge of initiative, instructional hypothesis, instructive innovation initiative, instructive buildings, and philosophy.

(Mongkhonvanit et al., 2015) The article presents an overview embraced with college understudies who tried out technical specializations concerning their viewpoint on various angles connected with IoT advancements, their insight, and their ability to find out about the theme. Since the IoT sway is relied upon to build, the actual undertaking is to train something wide variety understudies as could be prudent on what IoT can upload to their existence and destiny calling. Now, no longer simply the understudies who want to end up engineers are the notion of, thinking about that decrease and higher auxiliary college need to gift associated IoT content material

informal and non-formal training exercises. More, transferring IoT essential capabilities to understudies, starting from an early age, will have an intensive help to be critical withinside the paintings market.

(Cuomo et al., 2016) Today, instructors appear to help the utilization of IoT in schooling, yet they, for the most part, advance thoughts that appear to address the utilization of IoT from an authoritative point of view, leaving little space for conversations fixating on direct, informative possibilities of IoT. Hence, this review features those advantages and examines complex issues, especially regarding admittance to computerized gadgets and the Internet.

It likewise endeavors to give an unobtrusive rundown of late an investigation centering on the practical uses of IoT in instructive settings. In-class rehearses relied upon to zero in on this ill-defined situation. Albeit instructive technologists guarantee that IoT could prompt critical enhancements in learning, they neglect to expound on how this could be accomplished. It is not necessarily the case that school improvement, the board, and grounds life does not decidedly affect understudy learning. Notwithstanding, such an effect would be aberrant rather than self-evident; we want to teach rehearses dependent on IoT applications.

(Chianese et al., 2017) This paper explores the advantages of savvy e-learning in the instructive learning framework. A hypothetical examination is introduced in this article. Utilization of web of things (IoT) innovation as a common peculiarity is rapidly developing and creating in the pervasive figuring and advanced world. The instruction and learning framework is perhaps the most noticeable application of IoT as it emanates ideas.

IoT, on account of its elite quills like long-lasting network between things (IP collectors), is changing the current plan of e-learning and past adaptation of learning framework. In this paper, a short investigation of the advantages that the Internet of things (IoT) can present for the instructive framework was discussed. IoT is changing the plan of the current e-learning design to a progressive savvy learning model. IoT works with the worldwide super durable association of different components of the learning succession like a student, teacher, on the web administrations, and tutoring stage. A complex learning model is created and examined. A succinct hypothetical investigation was clarified the primary benefits of the IoT on e-learning in the shrewd foundations. One might say that with conviction, that simple structure of e-learning in examination with past approaches is changing altogether.

(Veeramanickam et al., 2016) This paper investigated the critical idea of IoT in the instructive area paying regard to how it is overcoming any issues in the instructive process.

Moreover, the listener looks at a part of the ramifications related to IoT in education, which opens up precious open doorways for learning. Thus it empowers college students to get to, broaden, extrude and provide mind and facts in multi-modular correspondence patterns and arrangement. A portion of the advantages of IoT

incorporates further developing mastering abilities, improves mobile learning, helps in simple information assortment and examination.

The eventual fate of IoT was contrasted and the current circumstance in this review. Moreover, this concentrate also clarified why IoT should be embraced in tertiary foundations by utilizing the TAM model and fostering an applied structure from IoT in instruction. To this end, the review exhorted that more exploration should be done around here to work on the current instructive area, particularly the instructive tertiary framework, which will help improve understudies' scholarly execution.

(Charmonman et al., 2015) This paper examined the critical thought of IoT in the informative region paying respect to how it is conquering any issues in the informative process.

The pay attention furthermore studies part of the results of IoT in tutoring, which opens up big entryways for learning. Accordingly, it allows understudies to get to, widen, alternate, and proposition issues and facts in multi-secluded correspondence patterns and routes of action.

A part of the benefits of IoT fuses further creating dominating capacities, works on versatile learning, helps in basic data arrangement and assessment. The inevitable destiny of IoT was differentiated and the current situation in this survey. Also, this concentrate explained why IoT as another development should be embraced in tertiary establishments by using the TAM model and cultivating an applied design from IoT in guidance. To this end, the audit urged that more investigation be done around here to deal with the current enlightening region, especially the enlightening tertiary structure, which will help improve understudies' insightful execution.

(Cata et al.2015) The paper moreover acknowledges and portrays the principle benefits and problems related to the reception of the IoT in superior training. To ruin the impact of the IoT reception within the education climate, the creators endorse an appraisal version depending on six speculations and their definitions and portrayals. They are accepted towards the superior Romanian training framework as fixed evaluation information.

Underlying condition demonstrating (SEM) is utilized in the review to approve the recommended model just as to decide how the reception of the IoT connects with the intra-and extra-college network, to drawing in different assets, to the instructing and learning exercises, to information security and honesty also as to instruction strategies. The last piece of the paper harps on examining many study information and the theories molded thus. The paper likewise incorporates suggestions, just as the primary ends, impediments, and future exploration bearings. It contributes from the hypothetical and commonsense point of view to the improvement of shrewd colleges later on.

(Elsaadany and Soliman, 2017) This paper proposes any other version for coordinating objects to VAC and an adjusted layout for executing and checking out

this new version. The reconciliation of sensible items to the VAC empowers the social occasion of more excellent records approximately sports in labs and new techniques of affiliation among entertainers withinside the VAC and objects. The objects cross from being indifferent additives in labs to being more engaged with helping the teaching-learning system.

The facts amassed should help teachers with information the getting to know machine in extra detail, which means that they could see what quantities of a venture of the lab paintings had been accessible and what elements had been extraordinarily tough that the understudies skilled hassle moreover could not accomplish the getting to know objectives. Educators should use these facts to enhance their entry to understudies and be more unique in their advice. IoT should help with similarly growing educating and increase opportunities, mainly for guides that encompass operating in labs. What is more significant regarding the IoT withinside the teaching getting to know system empowers a communique among savvy protests, which can be handy in instructive situations and understudies and teachers.

III. Objectives of the Study

1. To find the role of IOT in the transforming education sector
2. To ascertain the role of IOT in the transforming education sector

IV. Research Methodology

The present study is descriptive in nature wherein the role of IOT in the transforming education sector was analyzed. The sample taken for the study is 160. The information was gathered with the assistance of an organized poll on a five-point scale and investigated with the assistance of the mean qualities and t test.

Table1: Demographic profile of the respondents

Variables	**Number of respondents**	**% age**
Gender		
Males	87	54%
Females	73	46%
Total	**160**	**100%**
Profession		
Businessman	28	18%
Teacher	67	42%
Housewife	21	13%
Student	44	27%
Total	**160**	**100%**
Age		
20-35	54	33%
35-50	65	41%
50-65	41	26%
Total	**160**	**100%**

Table 1 presents demographic profile of the respondents on role of IOT in the transforming education sector. There are 54% males and 46% females in the study. Among the respondents 18% are into business, 42% are teachers, 13% are housewives and 27% are students. The 33% of the respondents are 20-35 years of age, 41% are 35-50 years of age, and 26% are 50-65 years of age.

Table 2: Mean Value of role of IOT in the transforming education sector

Sr. No.	Statements	Mean Score
1.	IOT has helped education sector grow manifolds within a short period of time	4.10
2.	The main reason for innovative training is giving the abilities and data of the 21st century to the workforce, that would empower them for adapting to the challenges of general public	4.12
3.	IoT increases the interest of students in education	4.01
4.	IoT helps in catching, keeping and discussing the data to a particular database	4.07
5.	The instructors help the students in using IoT and thus the students are becoming are becoming more skilled	4.04
6.	Using IoT helps the instructors in developing new and innovative ways of delivering their lessons	4.02
7.	The framework of learning and instructions is one of the most prominent applications of IoT	4.09
8.	IoT helps the instructors and the students in saving time	4.11
9.	IoT reduces the possibility of error to minimum	4.14
10.	IoT also contributes towards the growth and development of an economy	4.16

Table 2 shows the opinions of the respondents. It is observed that IoT also contributes towards the growth and development of an economy is the most significant statement with the mean value of 4.16. It is followed by IoT reduces the possibility of error to minimum (4.14), The main reason for innovative training is giving the abilities and data of the 21st century to the workforce, that would empower them for adapting to the challenges of general public (4.12), and IoT helps the instructors and the students in saving time (4.11). IOT has helped education sector grow manifolds within a short period of time (4.10), The framework of learning and instructions is one of the most prominent applications of IoT (4.09), IoT helps in catching, keeping and discussing the data to a particular database (4.07), The instructors help the students in using IoT and thus the students are becoming are becoming more skilled (4.04) and Using IoT helps the instructors in developing new and innovative ways of delivering their lessons (4.02) were also considered important. Reasons like IoT increases the interest of students in education (4.01) were also viewed as important.

Table 3: Role of IOT in the transforming education sector

Sr. No.	Statements	Mean Score	t-Value	Sig
1.	IOT has helped education sector grow manifolds within a short period of time	4.10	7.723	0.000
2.	The main reason for innovative training is giving the abilities and data of the 21st century to the workforce, that would empower them for adapting to the challenges of general public	4.12	8.031	0.000
3.	IoT increases the interest of students in education	4.01	6.711	0.000
4.	IoT helps in catching, keeping and discussing the data to a particular database	4.07	7.349	0.000
5.	The instructors help the students in using IoT and thus the students are becoming are becoming more skilled	4.04	7.077	0.000
6.	Using IoT helps the instructors in developing new and innovative ways of delivering their lessons	4.02	6.700	0.000
7.	The framework of learning and instructions is one of the most prominent applications of IoT	4.09	7.674	0.000
8.	IoT helps the instructors and the students in saving time	4.11	7.969	0.000
9.	IoT reduces the possibility of error to minimum	4.14	8.260	0.000
10.	IoT also contributes towards the growth and development of an economy	4.16	8.668	0.000

Table 3 shows the results of t-test. It is found from the table that the significance value for all the statements is below 0.05, hence all the statements regarding role of IOT in the transforming education sector are significant.

V. Conclusion

Current innovation, particularly IoT in the advanced education area, has opened numerous entryways for creative plans to better the instructive climate. Good exploration is led to planning advanced grounds, savvy study halls, and brilliant labs while working with the understudies and instructors as of late. Numerous new gadgets and applications are acquainted with IoT, which will improve after some time. The review points to discovering more common areas to get an additional advantage. It is seen that various difficulties are associated with carrying it out in the training area.

Consequently, it needs more review and thoughtfulness regarding handling these issues. It requires an exhaustive structure and techniques to address these difficulties. Fundamental future difficulties are recorded in the paper, which needs to address as future work.

Academic Institutions can remedy several difficulties, for example, tracking essential assets, fostering admittance to data, bringing together more excellent astute plans, and planning more extraordinary steady grounds. The job of IoT is vast and brings immense qualities to advanced education by connecting with and spurring the understudies and staff and advancing the opportunity for growth.

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Role of Social Media Marketing in Enhancing Impact of Post Covid Business Strategy-An Empirical Study

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Abstract

The worldwide Covid 19 assault has posed several obstacles to various industries, including businesses. It has wreaked havoc on the economy of industrialized, developing, and developing countries. Social media marketing is an effective technique for purchasing and selling things online. Digital marketing is completing a job utilizing the internet or an electronic device. Businesses are improving their purchasing and selling patterns through numerous social media channels. The study intends to examine the effect of social media advertising and marketing withinside the post-COVID-19 era. To enhance cognizance and decorate sales, online advertising and marketing are driven thru distinct social media structures consisting of Facebook, Instagram, YouTube, Twitter, blogs, and WhatsApp, in particular after COVID-19. Pre- and post-buy records can be acquired thru social media and advertising. Advertising is crucial in enterprise advertising and marketing because each employer needs their product to succeed and become famous amongst their goal audience. Therefore it is miles important to put it up for sale. A sample 179 people from the marketing sector was surveyed to know the Role of Social media marketing in enhancing business strategy. Different role of social media marketing in enhancing business strategy were found through the study like Social media platforms helps in brand building and brand trust, helpful to drive online traffic, help the companies to launch their product at wide scale and Social media enhances business by enriching customer's experience.

Keywords: Social media marketing, post covid business, Business strategies.

I. Introduction

Social media has grown to be a brand new and hastily developing fashion that permits organizations to, without difficulty, attain out to particular customers. Described, social media advertising and marketing is the technique of selling a corporation and its items through social media platforms. This kind of advertising and marketing is a subset of marketing and marketing that passes past conventional Web-primarily based merchandising techniques like email newsletters and advert campaigns. Online advertising and marketing have delivered an idea of increasing dispersion. They agree with the communications era to permit purchasers to speak often with deep ties and mass advertising and marketing.New gear is being produced and accelerated for corporations because of this new technique to outreach and

marketing. Social media entrepreneurs gain more robust knowledge by improving the analytic software program to use good social media platforms.

(Mason, Narcum, and Mason, 2021)Founded that, Because of the dearth of Internet-primarily based social media, one character will hook up with an entire bunch of lots of people anywhere the world. People create content, share it, tag it, and discuss it in real-time on social media, which has evolved into the online discussion.All types of social media provide you the opportunity to present yourself and your products to active groups and potential customers. In scientific jargon, social media refers to a collection of apps that enable users to "post, tag, digg, blog," and so on.This social media content material is a locally produced online information resource created and spread. Digg is hired by clients who want to educate everyone about their goods, services, offerings, and challenges.

(Dubbelink, Herrando and Constantinides, 2021)Social media is a developing phenomenon in marketing and advertising. Marketers are beginning to see an increase in the use of social media to connect with customers in their advertising and marketing strategies and campaigns.Social media are utilized in marketing subdisciplines such as promotions, marketing intelligence, sentiments research, media affairs, promotional tools, and product and purchaser management.Because every social media platform (collectively with blogs, online forums, and online communities) impacts marketing and marketing performance (e.g., sales), it is essential to understand their relative relevance and interconnection.

II. Literature Review

(Vasantha, Evangelin&Sulthana.2021)The internet age has ushered in a new era of online shopping. The transition has achieved a peak with the successful use of digital marketing.“There are various forms of digital marketing like Social Media Marketing, Search Engine Optimization, Pay Per Click, Content Marketing, Email Marketing, Marketing Analytics, Influencer Marketing, Viral Marketing and many more ."Today, one of the most effective tools for any business is social media marketing.They mentioned that at some point in the COVID-19 eruption, social media turned into a few of the best communications infrastructures for sharing and getting information. A prevent give up the result of green social media platforms, social media advertising and advertising and marketing and marketing, and advertising is increasing. (Patna. et al .2020) Says that To increase sales, entrepreneurs do social networking web websites to sell their company's merchandise or services.The internet user has an account on at least one social networking platform, “such as Facebook, Twitter, YouTube, Instagram, a blog, LinkedIn, or Pinterest ."Each social media management network has a distinct feature that facilitates the acquisition and sale of goods and services.The research gap in this study is that while there are many articles concerning social media marketing, only a few studies have looked at the impact of COVID 19 on social media marketing.People worldwide are becoming increasingly interested in social media as a result of the COVID-19 eruption.As a result of the

active social media usage, users' online purchases grew due to their fear of visiting stores(Seberíni and Tokovska, 2021).

(Mele, Russo-Spena and Kaartemo, 2020) Stated that, Businesses seeking to sell their goods are viewed as unwanted since social media has grown into a consumer environment in which users get information, interact with other users, and voice their opinions.As a result, enterprises must work actively to develop good brand equity to thrive in the competitive online market.

(Bettiol, et al.2021)However, it is unclear how the COVID-19 outbreak has altered how businesses must establish long-term brand image through SMM while simultaneously quickly adjusting to rapid changes and increased competition in digital media. Furthermore, many firms find it difficult to describe the benefits of a brand and appropriately evaluate brand equity. Contemporary research typically concentrates on consumer-neurobehavior, such as purchasing behavior, consumer decisions, and the ramifications for enterprises. Customers may never learn how a company's finance or human resources departments react to a significant unanticipated event. However, advertising takes center stage, with decisions mirrored in every ad campaign, message, and channel. Taking the best moves and speaking the right message can be challenging, particularly in a fast-paced setting. Even in an unexpectedly converting climate, all corporations need to keep their integrity and trustworthiness. Those with a fantastic or provider this is well-desirable for hard instances need to continue carefully withinside the meantime, lest customers understand they are taking advantage of tragedy (Francisco et al. 2021).

(Kim, 2020)Social media is defined as the beginning of online development and design to facilitate communication, exchange of source material, and cooperation among users.In general, people are used to spending or more than 330 minutes every day on social networking sites. These networks have become simple tools for establishing the online connection between customers and businesses globally, particularly for SMEs in Indonesia. Social media advertising and marketing let customers acquire every other's influential records approximately occasions round the sector consists of pandemics inclusive of Coronavirus. We can captivate audiences and offer them essential records of the unfold and the abolition of the Coronavirus via deploying SMM as a communications and engagement tool. A company may also genuinely develop its emblem and decorate its industrial pastime via the usage of social media. As a result, social media advertising and marketing encourages SMEs in Indonesia to invest extra in virtual advertising and marketing(SEYFİ and ŞIVGIN, 2021).

(John and Walford, 2021)"Web 2.0 programs facilitating the production, modification, and distribution of user-generated content" are classified as "social media."Web 2.0 may be viewed as a technology framework for sharing media and creating user-generated content. SMM is described as "a brand new place and a brand new enterprise exercise worried with the advertising of the products, services, records, and thoughts through on line social media," and it has far used to talk with consumers,

become aware of crucial purchaser influences, expand engagement, and find emblem ambassadors. Because online involvement might also take regions everywhere and is not always confined to a bodily gathering, social media gives customers increasingly alonlineves for online engagement. Furthermore, smartphones provide bonuses that include efficiency, enjoyment, records richness, and money and time savings, which might be valued with the aid of using customers (SaravanakumarSuganthaLakshmi .2012).

The Web revolution has also improved customer knowledge management systems, empowering consumers and minimizing their reliance on the organization.Consumers have become active participants in the process of new product creation due to the virtual environment and the emergence of social networks of consumption and aiding other consumers' customer buying experiences or specialized expertise. Online communities are critical for fostering company innovation by facilitating open information exchange. Marketing processes are improved due to the digitization of relationship management, and marketing tactics may be changed to capitalize on customers' proactive involvement throughout the product lifetime and find new value-generating possibilities(Tien., 2021).

When humans have immersed in facts technology, they input a nation of cognitive immersion (CA). CA entices customers to use social networking websites for a mess of reasons. For one thing, social media permits temporal detachment, which reduces the user's cognizance of the passage of time. Furthermore, social media offers customers centered absorption, permitting them to keep away from life's painful truths—way so as among the purchaser, and this system on social media may deliver greater delight. Users who use social media sense empowered, and social media may additionally fulfill their interest through supplying novelty and wonder.

III. Objective of the Study

1. To know the Role of Social media marketing in enhancing business strategy.

IV. Research Methodology

A sample 179 people from the marketing sector was surveyed to know the Role of Social media marketing in enhancing business strategy. The study is empirical in nature and the data was collected with the help of random sampling through a questionnaire particularly designed for present study. Mean was applied to analyse the data and get the end results.

V. Findings of the Study

Table 1: Role of Social media marketing in enhancing business strategy

S. No.	Role of Social media marketing in enhancing business strategy	Mean value
1.	Social media helps to reach to existing media during pandemic	3.19
2.	Social media helps the company to make new customers	3.27
3.	Social media is helpful to drive online traffic	4.11
4.	Social is used to promote the brands at different platforms	3.84
5.	Social media platforms are used to aware the customers with new brands	3.61
6.	Social media platforms help the marketers to choose their target audience	3.55
7.	Social media platforms attract the customer through good content	3.14
8.	Social media help the companies to launch their product at wide scale	4.00
9.	Social media platforms helps in brand building and brand trust	4.03
10.	Social media enhances business by enriching customer's experience	3.90

Table 1 is showing mean values for the statements related to role of social media marketing in enhancing business strategy. It is found from the table that Social media is helpful to drive online traffic with mean value 4.11 and Social media platform helps in brand building and brand trust with mean value 4.03. Social media help the companies to launch their product at wide scale with mean value 4.00 and Social media enhances business by enriching customer's experience with mean value 3.90. It is also found that Social is used to promote the brands at different platforms with mean value 3.84 and Social media platforms are used to aware the customers with new brands with mean value 3.61. The respondent also says that Social media platforms help the marketers to choose their target audience with mean value 3.55 and Social media helps the company to make new customers with mean value 3.27. Social media helps to reach to existing media during pandemic with mean value and Social media platforms attract the customer through good content with mean value 3.14.

VI. Conclusion

Product merchandising, social media marketing and marketing, and social media websites are pretty successful. The specific social networking networks and structures are valuable resources withinside the merchandising of a firm, growing logo awareness and growing income and traffic. Consequently, withinside the post-COVID-19 age, there are new and potential clients who use social media to buy matters or are looking for advice. Social media will become a vast tool for impacting clients' buying and shopping selections as people speak consumers' evaluations, assisting clients and object use recommendations. The findings display that the relevance of net advertising equipment has grown because the COVID-19 pandemic

changed into announced. As a result, the findings display that social media affects patron decision-making. Social media imagery, information, promotional activities, and the usage of opinion management principles ought to all be leveraged to affect patron shopping for habits favorably. As already said, social media networks are a vital advertising device for brand new businesses, specifically in phrases of logo publicity and enthusiasm.

The study concludes that different role of social media marketing in enhancing business strategy were found through the study like Social media platforms helps in brand building and brand trust, helpful to drive online traffic, help the companies to launch their product at wide scale and Social media enhances business by enriching customer's experience.

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Importance of Timely Adoption of Technology and Innovation: An Analytical Investigation of Modern Business Ventures in India

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Abstract

Given the quick advances and the multiplied dependence on innovation, the subject of ways its miles converting paintings and enterprise is mainly hanging for researchers of hierarchical mind technology and authoritative conduct (OP/OB). This article endeavors to decipher the development, course, and motivation in present-day studies at the influences of innovation on paintings and associations. After a survey of the key ahead leaps within side the development of innovation, we recollect the authoritarian influences of springing up statistics and correspondence technologies. In addition, there is a relationship between's the reach and nature of e-taxpayer supported organizations advertised, what is more, the broadband foundation improvement of the geographic region wherein neighborhood PAs are found. In more broad terms, we show that the mix of interior skills and setting graphic elements is diverse while disclosing the choice to begin e-government exercises versus the force of such exercises. Local variables, connecting with both interest and supply of administrations, appear to influence just the choice to enter e-government exercises.

Keywords: Adoption, Technology, Innovation, Organisation, Importance, Newness, Research.

I. Introduction

Innovation and new information potentially have lain torpid in people's memory or writing pages without the business person. A Korean saying, "Regardless of whether the dabs are excessive, they become treasure after sewn." This infers the significance of a business venture. As a rule, ingenuity and hazard taking are related to enterprising movement and, all the more significantly, are viewed as essential qualities that sway the execution of new information-seeking.

Execution of state of the art innovation in front of different firms is an effective system for firms to accomplish the upper hand (Edmondson et al., 2017). Unquestionably, new item development keeps on assuming a crucial part in the cutthroat business climate and is viewed as a vital driver of firm execution, particularly as a massive type of corporate business (Gosens et al., 2015). Corporate

business is an essential achievement factor for an association's endurance, benefit, and growth. In the beyond 50 years, we have seen the essential changes of the world economy on all its sides. These progressions happened so quickly and had power so solid that monetary specialists, public specialists, and society looked from one viewpoint with the difficulties of adjusting and on the other hand with the breakdown of the qualities frameworks inconsistent with the fundamental factors of the present world (Gupta, 2015). Thus, today we see a world where exchange and capital streams between nations have increased. Hence, a lot, that was to become a reality the expression 'globalization of the world economy. The peculiarity of globalization addresses a subject that has been considered by specialists and has been composed of endless articles and studies since revamping the old impression of financial, political, and social conditions that led the world for a long time. As an outcome of the progression of time and changes, new ages started to have a conclusive job because of the various qualities, various abilities. They were developed and adjusted to digitalization and innovation (Gupta, 2016). These new ages, for instance, age Y, contrasted with past ages, carried changes for the work market, enterprising and the board patterns, consumerist patterns, or creation methods. They are keen on the proportions of social association of the organizations they work or hold (Hon et al., 2016). The work style is portrayed by reliance on super durable association with the web through the state the art innovation and likes to add to the improvement of the organization through creative thoughts. These new highlights have started to be reflected additionally in the enterprising climate (Lai & Zainal, 2015). Figure 1 shows the Technology Adoption Lifecycle the organizations must understand in order to grow and survive.

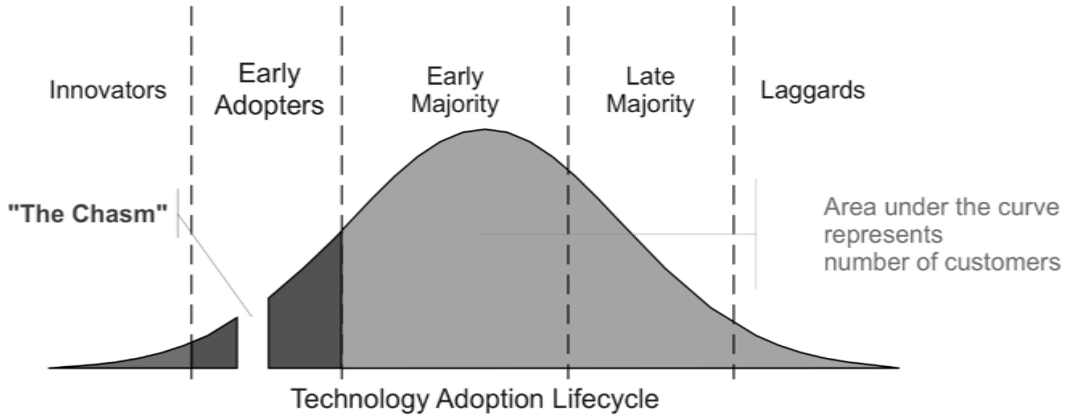

Figure 1: Technology Adoption Lifecycle
Source: https://en.wikipedia.org/wiki/File:Technology-Adoption-Lifecycle.png

Many endeavors have begun to utilize frameworks because of innovation and the web to expand the effectiveness, diminish working expenses and increment the capacity to work information and data between different stages with accomplices from each side of the world progressively. Hence, numerous associations reproject and rebuild business processes by interest in innovations like cloud processing, data frameworks for monetary examination and choice help, or social networks.

II. Literature of Review

Lai (2015) examined the job of an institutional business venture and corporate business to adapt to a firm's stalemates by the reception of the innovation in front of different firms. Too, this paper explains the significance of own particular institutional and corporate business venture made from company's norm. From the discoveries, this paper likewise proposes the significance of firms' dreams or culture from the startup stage since they can turn into a curious standard and become a company's institutional business venture. In much contemporary examination, experts and specialists are recognized as critical institutional business people who depend on their legitimated guarantee to definitive information or specific issue spaces. This contextual analysis shows legitimate information by utilizing their curious standard and culture just as a corporate business venture. This paper has a few impediments. Notwithstanding how the paper shows different productive discoveries, this review is not liberated from our discoveries being restricted to a solitary exploratory case study.

Lai, P. C. (2016) attempted to give a methodical survey and conversation of surviving writing on individual and hierarchical development reception, which may address an initial move toward an extensive structure for comprehension and examining such subjects. To do as such, academic commitments on development reception were inspected, investigated as far as epistemological direction and diary appropriation, lastly, bunched into two particular exploration streams. Potential hypothetical forerunners and decisions were discussed, and a future exploration plan was proposed.

As far as hypothetical points of view, in truth, our discoveries uncover writing be perfectly split between the superior level and the authoritative degree of investigation, with the previous being for the most part centered around adopters individual qualities and the last option described by two explicit exploration sub-veins (for example advancement inborn worth and fad pressures). Expected holes in the writing at the two levels are consequently recognized, invading further exploration.

Bianchi et al., (2016) investigated development to recognize its determinants, attributes and have regularly finished in delivering inconsistent outcomes. This paper advocates the exploration of development with the aid of methodically fostering the creation of an improvement process. The focus has been fused to use the essential hypotheses, types, processes, forerunner and relevant factors, and wellsprings of the improvement process.

The calculated turns of events, age and reception cycles, precursors, and improvement influences on institutions were clarified within the review. Past studies paintings have been coated up with each component of the improvement process. Be that because it may, this paper examines every factor of improvement interplay to consolidate them in a solitary device and talks approximately their dedication to generating more desirable results. By fostering comprehension of improvement as an interplay, this paper plans to complement present speculations of improvement to

expand and propel speculation and studies on development interplay and bring about institutions.

Brunswicker et al., (2015) found the influences of technology during humanity's set of reviews are often archived. The improvement and headway of civilization may be remoted into three intervals according to their separate middle mechanical foundations: the farming time, the present day time, and the automatic time. All these intervals have been notably impacted via the capability to gain new records and information. Nonetheless, they have all required and empowered new economic designs, social upsets, social changes, and paintings models.

This audit gives 3 number one commitments. First, it provides an excellent remedy that innovation, particular facts, and correspondence are gambling in evolving paintings and associations. Second, it sums up and deciphers the advancement, heading, and motive of the momentum studies related to innovation and paintings in associations. Third, it indicates the hints for destiny exam and the OP/OB area in brilliant that move extended methods beyond the original paintings to regulate innovation and the paintings executed in associations.

Caputo et al. (2016) argued that notwithstanding the developing conspicuousness of advancement, restricted investigations analyze the reception of applications that help advancement processes. This review aims to research the reception of advancement the board applications (IMAs). The paper draws on subjective and quantitative proof obtained from advancement improvement and commercialization capacities, including R&D, advertising, an organization at a college, and innovation move office.

This review has pointed toward progressing surviving inadequate information connecting with the reception of images. It adds to surviving writing by providing a model to clarify IMA reception to work with advancement processes while likewise connecting reception with execution. In any case, it likewise experiences a few impediments which can be tended to in future examination.

Holmstrom and Partanen, (2014) discussed that Multi-layered experimental assessments of the reception of advancements in organizations and the impact of elements inside each aspect on the reception periods are scant. This review inspects the impacts of ecological, hierarchical, and top chiefs' attributes on the commencement, reception choice, and execution of advancement. Involving an example of around 1200 public associations in the United States, they observed that while each aspect represents a kind fluctuation in the reception of advancement, authoritative qualities and top chiefs' mentalities toward advancement have a more grounded impact than natural and top chiefs' segment qualities. We likewise tracked down no distinction toward impacts of any forerunner, yet tracked down contrasts in the meaning of impacts of a few forerunners on the periods of advancement reception. We discuss the ramifications of these discoveries and recommend thoughts for future examination.

Lian et al., (2014) investigated the practical accomplishment of a groundbreaking thought, regardless of its innate legitimacy, is reliant upon the disposition of its peers. If convenient, it is immediately taken on. If not, it can passage like a fledgling baited out of the ground by warm daylight, just to be harmed and hindered in its development by the succeeding frost. In synopsis, assuming that radiologists wish to augment the pace of reception of development, they should endeavor to guarantee that it offers a significant relative benefit and that it is moderately simple to incorporate with existing advances and rehearses, direct to learn and use, simple to attempt, and promptly apparent to the individuals who may embrace it.

Montealegre et al., (2014) propels in data and correspondence advances are found in changing the way they live, any place we look. The fundamental financial, social, and schooling aspects require developing and improving another age of business visionaries with trademark abilities like liability, suddenness, versatility, adaptability, drive, and the executive's soul.

These abilities are fundamental for the profile of a business visionary; they produce explicit abilities in recognizing and carrying out suitable methodologies for economic productivity. During a time of critical changes in the world economy, the creation and improvement of high-advancement development firms have been seen as critical variables for extending public (and neighborhood/provincial) abundance and seriousness.

Nylen and Holmstrom, (2014) found that an inventive thought sent off in a tough spot may not convey the results expected. In light of 55 experimental investigations, Bowen, Rostami, and Steel propose that 'timing is everything if development improves hierarchical execution. However, there is likewise a need to comprehend logical elements. The paper presents a hypothetical model addressing the collaboration of thought, spot, assets, and fleeting elements that draw on the Antiquated Greek thought of Kairos, connecting occasions on schedule and ideal activity. Longitudinal investigations of four mediator associations expected to improve SME development capacities are analyzed at various stages in their advancement. The cases feature the setting delicate nature of advancement: a thought that has been effectively executed in one spot may not be fruitful somewhere else or some other time.

III. Conclusion

To comprehend the reception of innovations, it is first essential to recognize the critical partners. In radiologic development, key partners incorporate patients and their families; medical care suppliers, like doctors, medical attendants, technologists; medical care payers, like government and private insurers; sellers who research, create, and market the innovation; and strategy producers and controllers. Advocates of innovation who think about just one gathering of partners are less inclined to prevail than the people who consider all gatherings.

There is a need for additional examination in various hierarchical settings, at various levels, and for various advancements. By comprehending the determinants of development reception and how they are interrelated, new models may enhance hypotheses and be helpful to specialists in acquiring acknowledgment of development inside an association and guarantee it adds to the supported upper hand.

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Application of Artificial Intelligence and Machine Learning in the Medical and Healthcare Sector

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Abstract

Artificial intelligence (AI) is a branch of software development that mimics human cognitive abilities. The rapid expansion of medical services information and insightful techniques have ushered in a paradigm shift in the clinical area. As of late, AI has outperformed human execution in a few clinical field regions, and this is an incredible reception in medical services. Additionally, AI can forestall, identify, analyze, and treat a broad scope of sicknesses using scientific strategies. This research paper will look at various AI approaches and how AI has been used in medical care. It will also provide insight into the future of artificial intelligence inside the medical field. Large volumes of data created by wellness activities such as therapy, diagnosis, etc., are regularly used to train AI systems. Using a large dataset, the algorithm will be able to understand comparative item categories and the link between subject highlights and interest outcomes.

Keywords: Artificial Intelligence, Machine Learning, Health Sector, Medical.

I. Introduction

(AI), has been assuming an essential and filling part on the planet beyond a couple of years. In truth, many individuals do not understand the structure where artificial reasoning can introduce itself in their day-to-day existence. When signing into email accounts, shopping utilizing on the web stages, mentioning vehicle riding administrations, and so forth, this large number of employments artificial consciousness calculations to further develop client experience. Be that as it may, the main field where AI is filling quickly is the clinical field, particularly in treatment the board and analytic.

As a result, Artificial Intelligence has begun to exceed human errands and capabilities. A few research studies have proven that Artificial Intelligence can support the human judgment in the future, assist in healthcare decisions, and improve

therapeutic proficiency (Allam,2015). The AI sector in the U. S. was valued at much more than $600 million in 2014, indicating that it is one of the world's most advanced development firms (Surya, 2016). Artificial intelligence is currently widely employed in various medical care settings worldwide since it has improved the lives of patients and workers by doing complex and vital jobs more quickly and at a lower cost. As a result, AI has many applications in medical care, from discovering genetic code linkages to managing robots during medical treatment. In truth, AI is evolving, and it has aided the medical care business (Davenport & Kalakota, 2019). (Paranjape et al., 2020) As a result, AI applications have been applying advanced registering to surpass human knowledge constraints in the clinical area utilizing a few techniques to assist physicians in medical care environments. One typical strategy is to employ master frameworks that are rule-based and illustrate the processes for translating inputs into meaningful outputs. (Jiang et al., 2017).

There are two types of information in a clinical dataset: organized and unstructured information. Several ways are used to address medical care requirements in this manner. Artificial intelligence (AI) algorithms, neural network frameworks, and modern deep learning methodologies are used to assess data format, including genetic and imaging data. It is crucial to realize that the healthcare application uses Deep Learning technology to classify patients' features or estimate the likelihood of sickness consequences. Figure 1 presents the role of AI in the healthcare.

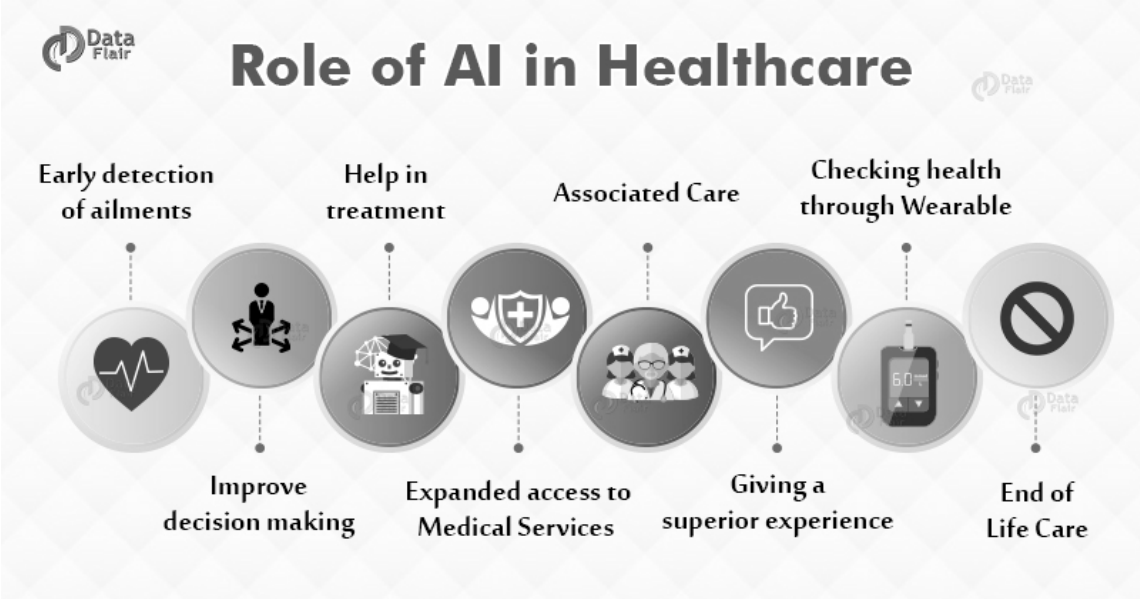

Figure 1: Role of AI in the Healthcare
Source: https://data-flair.training/blogs/ai-in-healthcare-sector/

As a result, the patient's condition is not fixed in stone Machine Learning. Administered learning is the most common type of AI used in therapeutic settings. It makes use of the natural features of a patient, as well as a dataset containing medical services data, to get a more precise outcome. Deep Learning is a new finding that employs artificial intelligence as a data source and then feeds everything into an electronic neural network to improve the outcomes (Reddy et al., 2019). The

acceptance of Experimental activities in medical treatment has resulted in updated treatment approaches and helping the examination interaction, resulting in a fantastic treatment procedure and medication monitoring. Machine learning may also be used to assess and accurately detect indications and side effects within clinical images such as X-rays, CT scans, MRIs, and ultrasounds (Meskó et al., 2018).

II. Literature of Review

Ganapathy et al., (2018) found that "In order to offer more precise clinical options and improve treatment outcomes, Artificial Intelligence (AI) requires a substantial amount of health information to prepare and learn from." Health care information repositories contain sorted and unordered data that is deconstructed using various Artificial Intelligence tools. These approaches offer a more exact and competent diagnosis to a patient, and the sooner and more precise this analysis, the quicker the patient can recover. Computer-based knowledge has been employed in a range of healthcare situations, such as medical record and information monitoring, prescription formulation, therapy planning, etc. Furthermore, AI enables physicians to make more accurate and productive judgments, enhancing a patient's overall treatment.

Etienne et al., (2020) discussed that by auditing the past, present, and future use and utilization of Artificial Intelligence in the clinical area, Al has drawn little consideration in the clinical examination; It is challenging to supplant human insight with Artificial Intelligence. Concentrates on help the above assertion with two primary obstacles, for example, the guidelines which do not have a standard to survey the security and adequacy of the AI framework, and the other obstacle is the information trade (Once an AI framework is sent with verifiable information, the continuation of future and refreshed information turns into an issue). Explores likewise show that the fate of AI in medical care would be extremely helpful in dealing with infections, early analyses, and counteraction.

Nadikattu, (2017) argued that artificial intelligence will be highly advantageous in a nation like India, where hospital attention is out of reach for many people and is regarded as an indulgence by others. With AI, cost allowance in essential medical treatment offices will genuinely desire, and everyone will genuinely want to incur the burden of critical offices in their day-to-day existence. With the growth of communicable and non-communicable diseases and novel pathogen contaminations, as a result of AI, patients will live longer and be able to detect illnesses quicker. Expansion in population is putting much strain on our medical care staff, as a result of which they are not getting enough rest and are being depleted intellectually, as a result of which their productivity in understanding consideration and treatment is diminishing. With AI intelligent robots, we will help our medical care staff by giving more efficient intolerant evaluation and treatment significantly. It will liaise with our medical care staff. AI will enable more individuals to be treated, closing America's interest and supply gap. "With the help of AI-powered smartwatches and bands, everyday people and women will sincerely wish they could

identify minor ailments on their own, which will not only save them time and money by skipping emergency clinic visits." The possibility for artificial thinking is enormous, and it will continue to grow each year as new developments on the broader populace emerge, assisting humanity in remarkable ways.

Diebolt et al., (2019) found that the utilization of Artificial knowledge (AI) has expanded in medical care in numerous areas. Associations from medical services of various sizes, types, and fortes are currently more intrigued by how artificial consciousness has advanced and is helping patient requirements and their consideration, likewise decreasing expenses and expanding effectiveness. This review investigates the ramifications of AI on medical services, the board, and challenges associated with involving AI in medical services alongside the survey of a few examination papers that utilized AI models in various areas of medical care like Dermatology, Radiology, Drug plan, etc. The guarantee of AI in the medical services industry is confirmed in this writing. Artificial intelligence is en route to becoming more valuable at many levels, which leads to better and quicker understanding results. Counterfeit knowledge, AI, profound learning can assist us with appropriate consideration in helping medical procedures, diagnosing sicknesses like malignant growth at beginning phases, and so forth. A few factors that should be considered while investigating AI are likewise referenced in this paper. With the new progressions in AI research, and with the assistance of help and assets from states, it is almost certain that the utilization of computerized reasoning in medical care will develop widely. There is enormous potential for cost investment funds and improvement like administration in medical services.

He J et al., (2019) invested and found that **t**here is developing mindfulness that artificial consciousness (AI) has been utilized to investigate convoluted and extensive information to give yields without human contribution to different medical care settings, for example, bioinformatics, genomics, and picture investigation. Although this innovation can open doors in determination and treatment processes, there still may be difficulties and traps connected with different well-being concerns. To reveal insight into such freedoms and difficulties, this article audits AI in medical care alongside its suggestion for security. This focus reveals that protected plans, security saves, safe fizzle, and procedural shields are vital systems. At the same time, cost, danger, and vulnerability should be separated for every potentially specialized framework to provide more secure innovation using AI. It is also suggested that applicable guidelines and standards be identified and communicated to all parties to develop and use more safe AI applications in the medical care scenario.

Mesko, (2017) discussed that because of advancements in computer technology, analysts have been compelled to design programming to assist experts in making decisions without speaking with them directly. The development of products uses human abilities such as thinking, making decisions, learning (through experience), and many more. Artificial intelligence is not a new concept, but it has been recognized as another advancement in software engineering. It has been used in various settings, including education, business, health care, and manufacturing. The

potential of artificial awareness techniques is investigated in this research, emphasizing electronic healthcare applications. Also offered is a methodology for online clinical determination and expectation.

Capital (2018) discussed that recently, breakthroughs in data frameworks (AI) have accelerated and become a reality in various areas of our daily lives. Various efforts are being undertaken in the healthcare care industry to implement AI innovation for suitable clinical drugs. With the fast advancements in AI calculations and upgrades in equipment exhibitions, AI innovation is relied upon to assume a significant part in viably investigating and using broad measures of well-being and clinical information. Nonetheless, AI innovation has different exciting qualities that are not the same as the current medical services advancements. Therefore, various regions should be enhanced inside the current medical services framework for the AI to be used all the more viably and now and again in medical services. The quantity of clinical experts and the public that acknowledge AI in medical services is still low; additionally, there are different worries regarding the security and dependability of AI innovation implementations. As a result, the purpose of this article is to highlight the current state of investigation and application of Experimental activities in medical services and discuss the difficulties that need to be addressed.

Ali et al., (2018) investigated and found that research in Machine Learning techniques to date stays fixated on mechanical issues and is application-driven for the most part. This letter summarizes the beneficial applications of AI techniques presented during the Workshop on Learning Algorithms in Medical Applications. In the studio, the goal was to cultivate principal and applied experiments with the use of AI methods in the application of clinical knowledge and exploration, to give a gathering to detailing tremendous outcomes, to decide if Machine Learning strategies can support the innovative work on astute frameworks for clinical applications, and to recognize those regions where expanded exploration is logical to yield signs of progress. Various suggestions for an examination plan were delivered, including specialized and human-focused issues. There is compelling evidence that clinical AI can play a critical role in assisting clinicians in providing high-quality medical care in the twenty-first century. There is no doubt that these tactics will help to improve and enhance the clinician's 'clinical insight' into what is to come. Medical AI innovation can increase both access to medical care and the quality of medical services in non-industrial countries.

III. Conclusion

Various AI methods may be used to address a variety of clinical difficulties. Regardless, clinical AI innovation has not been enthusiastically adopted due to a lack of past faith. The physicians' attitude toward using innovation in the dynamic cycle is one rationale for this. Surprisingly, there is no hesitation in tolerating biochemical results obtained from an auto-analyzer or images obtained through appealing reverberation imaging. Nonetheless, dynamic analysts in this sector have pledged to prove that these processes function reasonably. In this approach, it is critical to adopt

more randomized controlled trials to establish the efficacy of Simulated intelligence frameworks in medicine. There is compelling evidence that clinical AI can assist clinicians in effectively delivering medical care in the twenty-first century. There is no doubt that these techniques will help to improve and enhance the clinician's 'clinical insight' into the future. There are a variety of AI processes available that are capable of dealing with a wide range of clinical difficulties. Despite this, clinical AI innovation has not been greeted with enthusiasm, despite previous optimism. The physicians' attitude regarding innovation in the dynamic cycle is one rationale for this.

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Social Entrepreneurship as a New Business Paradigm: A Critical Review of Issues and Challenges

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Abstract

Social science research has progressed at a breakneck pace in recent years because technical and financial advancements necessitate quick responses to new difficulties. As global competition increases, businesses must adapt, react, and exchange their activities and processes. Also, as a result of societal pressure, new entrepreneurial capabilities emerge. In social research, the concept of sustainable development influenced a lot of people's minds. Not only will entrepreneurship become more socially responsible, but it will also be given a new name: social entrepreneurship. Social entrepreneurship is most likely classified differently. Traditional entrepreneurship is viewed as purely financial. However, the "social entrepreneurship" notion, on the other hand, has a significant impact on socially oriented industrial organization activities. Social entrepreneurship is a multifaceted phenomenon with many definitions and approaches, with its most essential capabilities being the ability to generate social value through social innovation, as well as to achieve a variety of social goals at a systemic level, ranging from poverty to unemployment, social exclusion to population aging, and so on. Social enterprise sports are influenced by environmental factors that are most likely part of entrepreneurial ecosystems and contain components whose connectivity and interaction have a substantial impact on the industry.

Keywords: Social entrepreneurship, Business venture, Social environment

I. Introduction

The detailed measurement of social entrepreneurial (SE) sports effects from the two original meanings related to the concept, an extensive one which takes into account "folks that are beginning or presently main any form of activity, agency or initiative that has a mainly social, environmental or network objective," and a slim one, with clean indications/ regulations stating "that this activity, agency or initiative

(i) prioritizes social and environmental price over monetary price; and (ii) operates withinside the marketplace via way of means of generating items and services."

Racolța & Paina, (2018) discussed that results from social entrepreneurs' decisions and actions, particularly those who initiate or lead different forms of social entrepreneurship manifestations. Their main goal is to generate social costs by providing solutions to the social issues at hand without denying or lowering the monetary cost, which is necessary for the organization's long-term viability and the emergence of social costs. The crucial role of the entrepreneur (his or her traits, drive, knowledge, and so forth) is complemented by the path taken to become an entrepreneur, which official and informal institutions heavily influence. SE, defined as an economic reality or a set of contextual and situational actions, is the subject of numerous interpretative analyses and measures, resulting in various current definitions and techniques. As a result, there is still some ambiguity about the meaning of SE and its bureaucracy in various countries. SE, also known as "entrepreneurial interest with an embedded social purpose," plays a critical role, regardless of whether we consult with the Social Enterprise School, in which SE aims to generate profits to serve a social purpose, or the Social Innovation School, in which SE aims to develop new and powerful methods to deal with social problems or meet social needs (Hynes, 2009). Figure 1 shows the 3 major components of the Social Entrepreneurship.

Figure 1: Social Entrepreneurship Components
Source: Business Jargons

SE is the result of the social entrepreneur movement, which takes on a social challenge after identifying a social problem and "addresses it with the aid of social innovation and in terms of making social effect and social price by reaping benefits both the enterprise sustainability and society scalability through reaping benefits both

the enterprise sustainability and society scalability." (Ogutveren & Senyuva, 2020) The social value created by social entrepreneurship is "a positive output of addressing social needs," with the emergence of this phenomenon explained from a variety of perspectives, including "the failure thesis/institutional void perspective," "interdependence theory/institutional support perspective," "welfare state theory," and "supply-side theory." SE and its related initiatives are working to find answers to a variety of structural issues (such as poverty, unemployment, and social exclusion), issues that "go together." As a result, solutions come from civil society rather than the government or the private sector (Greblikaite, 2012).

II. Literature Review

(Seelos & Mair, 2005) People have different ideas on social entrepreneurship and how it should be done. Within the social entrepreneurship category, some include social activists, nonprofits, and philanthropists, while others include any profit-oriented enterprise that produces social outputs for the betterment of society. A 1/3 view limits social entrepreneurship to profit-oriented businesses based on the number one purpose to contribute the answer to a selected social problem, with particular commercial enterprise fashions to serve this mission. All those excellent businesses have distinct commercial enterprise fashions and economic sustainability approaches. Entrepreneurship penetrates to all spheres of these days, beginning from private lifestyles, establishments, and finishing in nearby or United States of America improvement. The significance of entrepreneurship is not argued withinside the improvement of these days economy. Entrepreneurship enables a business to carve out a niche, develop its leisure competitiveness, and toughen its competitiveness. Entrepreneurship is one of the fields whose development is aided by using a large number of economic funds within the European Union. Such assistance may be critical for far less developed countries, their businesses, tiny and medium-sized businesses, and entrepreneurs. (Baporikar, 2016).

(Kumar&Puranik.2018) Social entrepreneurship is all about creating a massive change inside society, and social marketers act as a change agent and catalyst for social revolution. According to Peter Drucker, social marketers influence a society's overall performance potential. Social marketers aim towards intractable social problems such as poverty, hunger, unemployment, unemployment, environmental challenges, sustainable energy, human rights, and others, with such large-scale goals. Social marketers regularly pick out their reasons from regions of society that can be underserved through authorities' coverage and economic support. As a result, they typically paintings in challenging situations related to excessive threat and confined sources in underdeveloped markets, excessive-threat regions with unreliable infrastructure, or even untested technology. Demanding situations and inadequate sources require fantastic plans and a long system to make development closer to scalable, progressive solutions to widespread social problems.

(Konda, Starc, & Rodica.2015) In order to define social enterprise, it is also necessary to establish barriers and provide examples of sport that are particularly

praiseworthy but no longer fit our criteria. If no restrictions are identified, the term "social entrepreneurship" will become so broad as to be meaningless. Many different types of socially valued hobbies desire to stand out due to social entrepreneurship. Social carrier provision is the first type of social undertaking. In this situation, a bold and dedicated individual recognizes an unlucky solid equilibrium – AIDS orphans in Africa, for example – and devises a strategy to handle it, such as constructing a school for the children to secure their care and education. The new college has the potential to help the children it serves, allowing a number of them to break free from poverty and rebuild their lives. It is not likely to result in a brand new advanced equilibrium unless it is far intended to achieve large scale or is so attractive as to release legions of imitators and replicators. These social service businesses never escape their constricted frame: their impact is limited, their service area is limited to a surrounding community, and their extent is determined by the resources they can recruit. These businesses are naturally vulnerable, resulting in the interruption or a loss of service for the people they serve. Millions of such firms exist worldwide, all of which are well-intentioned, noble in aim, and consistently exceptional in execution. However, they no longer need to worry about social entrepreneurship. A college for AIDS orphans may be rebranded as social entrepreneurship. However, that might require a plan with the aid of using which the college itself could spawn a whole community of colleges and steady the idea for its ongoing support. The final results could be a solid new equilibrium wherein, even supposing one college closed, there could be a sturdy gadget in a region thru which AIDS orphans could mechanically acquire an education (Davies, Haugh & Chambers, 2018).

(Terziev & Arabska.2017) The real definition of social entrepreneurship is presently in the middle of extensive controversy. The simplest generalization concerning social entrepreneurship that garners any form of consensus is their cap potential to leverage assets to deal with social troubles together with freedom, equality, and tolerance – all-important additives for a healthful social environment. Beyond this easy generalization is wherein definitions tend to diverge. Some students outline social entrepreneurship as a manner wherein non-income businesses may also facilitate commercial enterprise principles, even as others may also describe it as traditional entrepreneurship following company social responsibility, an final results of prepared philanthropy and social innovation, or as not anything extra than economic ventures developing advantageous social externalities. In this, take a look at social entrepreneurship. Social entrepreneurship is commonly described throughout four key factors: character traits, operational proximity, system, aid utilization, and undertaking of the social entrepreneur. In addition, a look at evaluation concluded that a definition primarily based totally on character traits results in greater discussion; a concrete definition is in no way reached. A few consider the variety of subjects referring to social entrepreneurship is just too vast; an unmarried definition is impossible. Nevertheless, maximum tries to outline social entrepreneurship attention normally at the undertaking statement. There may be a relative consensus that a social entrepreneur balances financial and social price creation to a few degrees. Financial price advent is partially important for the advent of social price. Without financial sustainability, those agencies might not generate sufficient assets to create social

prices. On the one hand, it can not be left out that social price advent can also cause economic effects that produce greater monetary assets to perform social price initiatives. Therefore, one can also additionally say that social price advent is unavoidably tied to a few shapes of financial price advent, no matter whether or not or now no longer it is miles said withinside the enterprise's project statement. Distinguishing Social Entrepreneurship Social entrepreneurship and the advent of social price may be identified throughout many enterprise structures – a herbal outcome of its ambiguous definition. The tie among the two enterprise pastimes of industrial and social price may be visualized while gazing at the traits of non-authorities agencies (NGO), hybrid social enterprises, and socially-devoted everyday enterprises. NGOs are now no longer-for-earnings agencies whose number one goal is social price advent; however, at least five percent of their sales depend on market-primarily based income. Hybrid social establishments are intuitive groups that proportion each business and social goals, frequently with social goals in thoughts but with the personal agency as a method to this end. Finally, everyday establishments also typically pursue business and for-income goals. However, additionally, contribute a few diplomas closer to social means. These various organizational systems indicate to a few diplomae what the social entrepreneurial spectrum seems like (Maniam, Engel & Subramaniam.2018)

A social organization is an enterprise pushed to use a social or environmental cause. As with all businesses, social businesses compete to supply items and services. The distinction is that social cause is on the very coronary heart of what they do, and the earnings they make are reinvested towards attaining that cause. A social organization is an enterprise that has each social and business goal. What makes it exclusive from different businesses is that it locations a firm emphasis on tackling social problems. This pleasing effect is as vital toits enterprise goal as any economic backside line. Individuals with entrepreneurial answers to social and financial problems. 'They cowl a variety from beginning small network business enterprise constructing social capital and cohesion, proper via the dimensions to predominant ventures turning in social and economic impact, and which includes humans with a leap forward innovation models.' The global social Entrepreneurship Network1, A social entrepreneur, is a person who works in an entrepreneurial manner, however for public or social benefit, to make money. Social marketers may match moral organizations within the private sector, governmental or public bodies, or the nonprofit and community sector (Racolța & Paina, 2018).

Social initiatives have two crucial outcomes: impacts and transformation, both of which are required to produce and retain social benefits. The impact of an organization's actions and consequences on the well-being of its communities and the environment as a whole is referred to as a social impact. Any public or private actions that regulate the techniques in which human beings live, work, play, communicate to at least each other, set up to fulfill their demands, and generally cope as participants to society are referred to as having a social impact. The charge brought to the community by an organization is dealt with by social change and social effect. Social entrepreneurs make an effort to distinguish between their organizations' "outputs," "outcomes," and "impacts." (Kumar&Puranik.2018).

III. Conclusion

Sustainable development has evolved into a global metaphor that leads many international activities and allows for a unique framing of the complex mix of issues and opportunities that underpin economic and social development. Our assumptions about human behavior and economic activity are put to the test by the phenomenon of social entrepreneurship. It also strains our perceptions of where entrepreneurship fits in society. Social entrepreneur is a complementary monetary strategy based entirely on rate creation and functions under its own set of rules and rationale. Because social improvements have a significant impact on sustainable development, they are vital for resolving social, environmental, and financial issues. Employment, social inclusion, population changes, medical services, education, finance, national structures, and integration are all areas that need improvement.

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Maritime Logistics and Supply Chain Security: A Quality Study of Issues and Solutions

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Abstract

Maritime logistics is usually described as the global transportation of commodities along with fully completed commodities. Following the effects of the global financial downturn, international commerce returned strongly in late 2010, with record-high development. An rise in foreign visitation has been fostered by an expansion in global trading. The majority of this traffic expansion was driven by maritime logistics, which could move cargo in enormous volumes at lower transportation prices. Maritime logistics generally accounted for approximately more than half of international shipping capacity due to its low expense and easy accessibility. Maritime logistics, on the other hand, offers a larger supply chain vulnerability since the ocean vessels employed for maritime logistics are more subject to unforeseen climate, infringement assaults, terror group abduction, as well as cargo destruction on the open sea than any other means of conveyance. Furthermore, due to the broad territories covered by marine logistics, it is much more challenging to secure maritime logistics practises from possible risks as well as vulnerabilities. Supply chain security is a subset of supply chain management that emphasizes on managing risk for foreign providers, suppliers, logistic, as well as transportation.

Keywords: *Maritime Logistics, Supply Chain Security, business opportunities, digital innovation, Maritime Security.*

I. Introduction

The tremendous growth of global commerce over the last decade has reshaped the global marine sector, resulting in new advancements, deregulation, liberalisation, as well as increasing competitiveness. As a result, a marine operator's ability to provide high-quality logistics operations as well as the comprehensive as well as effective convergence of transportation and logistics systems has become critical. Intellectuals have gradually been more interested in maritime logistics, which is the principal way of moving components and completed items on a worldwide scale. The primary value of Maritime Logistics has been identified as delivering a high level of operational efficiencies as well as service efficacy. A supply chain is a collection of operations as well as organisations that commodities pass through as they go from primary providers to ultimate clients. Its mission is to detect, evaluate, as well as manage the risks associated with collaborating with other businesses as part of a supply chain. Supply chain security includes both physical product security as well as cybersecurity for software as well as services. The Maritime Logistics and Security

Program's primary goal is to prepare naval officers with the skills as well as abilities needed to operate complicated maritime and multimodal supply chains, as well as to engage in tackling the security concerns confronting the marine transportation industry. This is accomplished through a combined curriculum of research as well as experience learning. Figure 1 shows about the maritime logistics and supply chain flow:

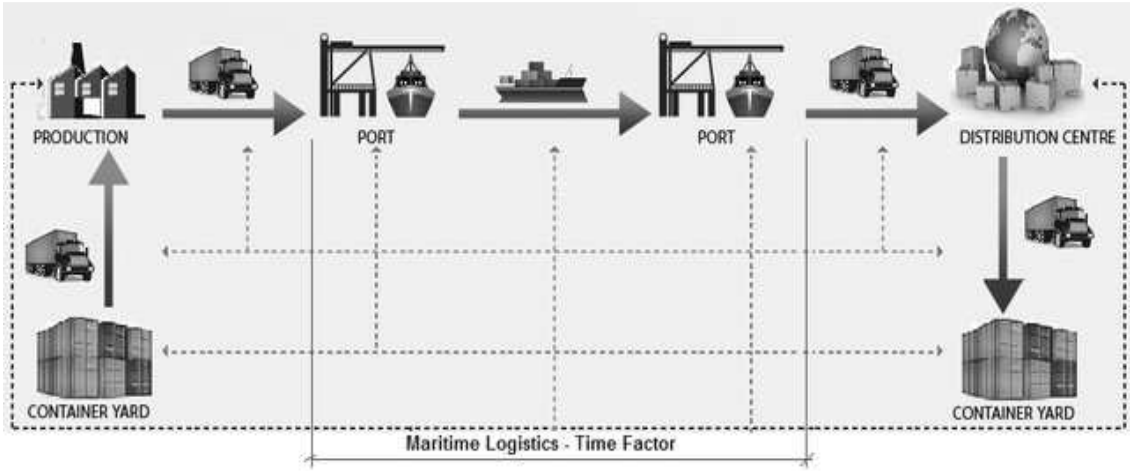

Figure 1: Maritime Logistics and Flow of Goods
Source: Florin, et al. (2016)

Hokey (2012) examined and found that, due to the world economy's strong reliance on worldwide commerce, the world economy's continued success is dependent on its capacity to enable world commerce by proficiently as well as productively controlling global supply chains. The global supply chain, on the other hand, is frequently loaded with environmental, political, financial, as well as management hazards. The analysis suggests "integrated" security methods to assist government agencies as well as commercial enterprises throughout the world in detecting and managing these dangers. The total maritime security management (TMSM) model, which reveals the notion of entire system approach that includes every supply chain companion at every phase of maritime logistics within the global supply chain as well as facilitates to establish strategic partnerships among supply chain collaborators in recognising as well as alleviating threats, is at the heart and soul of these security precautions. Panayides (2006) investigated how the inferred requirement for marine transportation has developed from a desire for the acquisition of products to an integrative request for ownership of things that are beneficial, punctual, dependable, as well as cost-effective. This gave surge to the basic idea of maritime logistics, which is the focus of this special subject of Maritime Economics as well as Logistics. The study examines the history as well as achievements of marine logistics. The study indicates how far the aspects have condensed as well as what current work has been done in the field, and how this analysis may be pursued out further.

II. Literature Review

Panayides & Song (2013) investigated and stated that maritime logistics comprises the incorporation of logistics principles in maritime shipping, which has lately garnered the concern of practitioners as well as researchers. As a method of improving their financial as well as logistical efficiency, a growing number of businesses are implementing maritime logistics approaches as well as solutions. Businesses across the shipping industry are recognising the importance of comprehensive as well as comprehensive information throughout the supply chain in order to develop close cooperation as well as collaborating ties with consumers as well as providers. Deployment of logistics ideas by businesses opens up new options to drastically transform the consumer interaction as well as increase quality of service while managing expenses as well as increasing profitability as well as competitiveness edge. The emergence of maritime logistics as an expanding profession has been driven primarily by the expanding and diverse needs of shippers as well as consumers, as well as the continuously shifting significance of ports in logistics service supply chains. Ports are currently operating in a dynamic atmosphere that emphasises logistics as well as supply chain management, global sourcing, multimodal activities, as well as logistics outsourcing. Ports must expand from their original roles of supporting load as well as discharging activities, although more efficiently, to become a reference in a wider logistics chain, part of a worldwide dissemination route, in order to accomplish this purpose. The purpose of this analysis is to give an overview and basis for comprehending the area of maritime logistics, as well as to appraise its potential as an innovative model. In order to do this, a paradigm for comprehending the numerous parts of marine logistics strategy as well as implementation is created. By combining numerous investigations that constitute the foundation of this approach, a reconciliation of current knowledge on marine logistics is achieved. The study gives an adequate example of how much the area has expanded as well as developed in recent years, as well as an even greater indicator of its standing as an emerging paradigm. The continued attention in marine logistics as a profession, investigation, as well as pedagogy will contribute to its ongoing growth as an evolving field.

Song & Lee (2009) researched and analysed how, as the world economy becomes more diversified and interconnected, the international logistics and marine (shipping and port) businesses face problems while also benefiting from increased commercial prospects. **Song & Lee (2009)** examine how various types of global terminal operators affect logistics performance. Tiered Data Envelopment Analysis is used to assess the comparative technological performance of major international ports, taking into consideration the degrees of involvement of global terminal operators in container manufacturing. The research suggests that gaining access to vital regional port amenities is a significant incentive for operators to engage in terminating events. There's been some consolidation of Maritime Transport as well as Maritime Logistics, which can be credited to the actual fusion of transportation mode powered by container shipping, as well as emerging end-user requirements that necessitate the application of logistics notions in relation to their use mechanisms as well as the accomplishment of logistics objectives.

According to **Yuen & Thai (2017)**, given the fast expansion in global commerce as well as offshore manufacturing, the marine logistics industry performs a vital role in meeting producers' requests for logistics with additional value operations as well as multimodal transportation. The practice of organizing, executing, and coordinating the transportation of products as well as data engaged in ocean conveyance is referred to as maritime logistics. Shipping lines, port operators, as well as cargo transport companies are all physically, economically, as well as organizationally integrated when it comes to offering marine logistics services. It is well known that supply chain integration (SCI) is associated to improving efficiency in the maritime logistics business. The purpose of this research is to uncover as well as explore the fundamental impediments to SCI in the marine logistics business. Because of this research, it appears that increased connectivity in maritime logistics business may be accomplished through changing people's attitudes. This might be accomplished predominantly via effective education, training, incentive, empowerment, as well as top management support. Subsequent studies should thus include an evaluation of the strategies used by shipping companies to circumvent SCI hurdles.

Lam & Zhang (2013) researched and found that marine shipping, which accounts for more than 90% of world trade turnover, is a significant aspect in supply chains. Rather than typical disjointed transportation services, manufacturers are looking for comprehensive logistics solutions that may add worth to their goods via the supply chain travels. As a result, marine service provider are progressively being assessed based on logistics as well as supply chain efficiency metrics such as improved supply as well as demand management, complete resource usage, reduced costs, as well as increased consumer interaction. The notion of maritime logistics stems from the intersection of maritime transportation as well as supply chains. The study's goal is to provide an improved logistics service provider (LSP) architecture that allows LSPs to connect supply chains in the most efficient way possible by using their distinct skills as well as knowledge. In the approach, the improved LSP acts as a single interface for shippers as well as takes the initiative in supply chain optimization through appropriate information exchange as well as invoicing procedures.

According to **Kalogeraki et al. (2018**), maritime transport is the propelling power behind international trade. Maritime logistics has steadily as well as worldwide flowered with the introduction of "containerisation intermodalism," owing to the bidirectional as well as physical integration of transport modalities, necessitating overall organisational integration. This study presents an information administration approach as well as a supplementary technology for the maritime logistics and supply chain (MLoSC), with the goal of enabling supply chain expertise exchange as well as suggesting methods for recognising cyber risks over CIs. The research introduces the MITIGATE approach for identifying cyber risks on CIs by simulating the essential aspects of MLoSCs.

Lam (2012) stated that, in the face of intense rivalry in the worldwide marketplace, corporations have moved their focus from battling among themselves to

fighting on supply chain management in order to optimise total profitability. The purpose of this research is to thoroughly examine as well as examine the categorization of supply chain risks as well as disturbances in order to provide a viable technique for identifying maritime hazards. Its goal is to investigate the consequences of port interruption on the supply chain as well as mitigating techniques. Scientific interaction among research universities, government entities, marine as well as insurance firms is unquestionably beneficial to maritime logistics research, which involves a diverse set of stakeholders. A pre-emptive strategy to risk management will guarantee that specific enterprise, as well as the supply chain as a whole, are more organized as well as less susceptible, resulting in increased aggregate performance.

Seo, et al. (2016) examined and concluded that freight has played crucial impact in promoting international commerce in many highly globalized sectors, owing to the fact that producers in global supply chains mostly employ marine transportation services. In accordance to ultimate consumers' needs, ports as well as harbour users have to look farther for chances to work with one another in order to construct efficient as well as responsive port supply chains throughout the previous era. Despite the fact that shipping is viewed, as a complicated system comprised of several maritime enterprises mixed with the behaviour of container transport service operators, it has endeavoured to completely incorporate the logistics as well as SCM approach. Underpinning efficient SCM is supply chain cooperation (SCC) in the marine environment, which is characterized as the extent to which ports as well as port users collaborate to assure the provision of dependability, timeliness, services with additional value, performance, as well as superior supply chain efficiency. This study looks at the relationship between Supply Chain Collaboration (SCC), collaborative benefit, as well as port efficiency in a maritime logistics scenario. The findings demonstrate that SCC has a beneficial impact on the advantage of collaboration, which aids in the improvement of port performance. According to the findings, collaboration benefit has a significant mediating impact on the link SCC-port effectiveness. Future research should address the dynamics of diverse interactions amongst port users. Future research could investigate this association further by classifying ports as well as port users as collaborative leaders, collaborative coordinators, as well as remaining collaborative participants.

III. Conclusion

Port, offshore, as well as shipping sectors are critical components of any country's economy, affecting budget patterns, commercial efficiency, as well as standard of living. Another critical aspect of the economy is marine transportation architecture. This component includes ports, ships that convey merchandise as well as people, rivers, locks, dams, canals, and a network of transportation modes that link to ships in port, such as railways as well as refineries. Ships transport more than 80% of the world's trade by capacity. Supply chain security management has quickly evolved into a niche speciality set of skills in both the corporate and governmental sectors. Ahead to shipment to the final consumer, a strong as well as reliable supply chain maintains the authenticity of the items as well as cargo in that network. Supply chain

security professionals protect the security of the whole chain environment, frequently through research as well as pre-emptive inspections. Without maritime security, the worldwide commerce and economic structures would face problems that will have a detrimental impact on all sectors, notably the retail business. It is critical to remember that before protecting warehouses as well as various supply chain sites, items must be protected against the accompanying threats before reaching one or more endpoints.

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Role of Technology in Effective Knowledge Management Practices in Educational Institutions: An Empirical Study

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Abstract

Now a days several changes has happened in the practices of Educational Institutions. Under the influence of digital era the transformation has become the urge of HEI. The urge of transformation paved the way for Knowledge Management Practices. In the last couple of decades knowledge has become a commodity. Knowledge is created by the people and when it is managed strategically it would be available to right person at a right time. Knowledge Management is an effective way to take knowledge out of restricted boundaries and make it available to everyone. Now a days it is also being used rapidly to avoid fragmentation and to promote the flow of knowledge. Through Knowledge Management global scope of outsourcing is also increasing. Knowledge management can be referred as a strategic management as it not like data management. Management expertise are focusing more on the Knowledge management technology to make it more effective so that more and more institute adopt it to overcome the difficulties associated with storing and sharing knowledge. A sample of 127 respondents was collected from respondents through a "standard questionnaire," which was created on a five-point interval scale.

Key Words: Knowledge Management, Sharing & Storing Knowledge, Educational Institutions

I. Introduction

Knowledge is created and applied by Higher educational institutions (HEI) in the period of action and process. During the last couple of decades, the competition is increasing among HEI and in order to give their best institutions are under pressure. As it is said that necessity is the mother of invention here this saying fits very well. It is determined that to compete with competitors the need of knowledge management (KM) came in existence. It is analyzed that the invention of KM is affecting the higher educational institutions in various ways. If the KM is implemented in the right direction, it would be highly beneficial for the institutions in decision making and at the time of action **(Bhusry, Ranjan & Nagar, 2011).**

Each and every institution contributes in knowledge. They are vital part of the society that create and distribute the knowledge in various domains. They develop various type of technique and information over the time. After creating the knowledge to spread the same information to different people should be the main focus of the institutions so that more and more people would get the benefit at the time of

knowledge need. Most of the times the knowledge or information particularly created by the specific institutions does not reach to other persons and in lieu of the technology management maintaing the past record of knowledge for further use become difficult. Academic institutions are the hub of knowledge but if the knowledge is not organized in the proper manner, it would be of no use. University of Pune has also understood the utilization of the KM to record the past knowledge of their institution to enhance and speed up the productivity. They have also understood the importance of sharing knowledge. For the development of the country different countries are adopting the KM as they understand the sharing of knowledge is mandatory in order to increase the productivity. Internet has given the access to different researcher to research the particular information in real time and if all the institutions would take the initiative in this new technology of KM the outcome would be outstanding and beneficial for everyone **(Dhamdhere, 2015).**

II. Literature Review

Higher education institutions are source of generating and sharing knowledge hence they are considered as a business of knowledge. Knowledge Management helps the institute to collect and share their knowledge and improve the further research work. Since long time knowledge was contributed through various platforms for instance libraries, data, notes and the information on the web site. Knowledge Management is playing various role it is an asset and at same time it is also coming up as a challenge. Through knowledge management institutes would be able to explore the new opportunities but they have to make lots of changes in their existing framework for effective knowledge management (Rowley, 2000).

The term KM is not new it is been around us since very long. It was defined in 1980 by Peter Drucker than it is been developed from time to time. It is multi-dimensional approach to share the knowledge and experience of organization expertise. The management are trying to analyze the reliability and validity of the KM. Storing and sharing knowledge with others is really valuable and reliable as all the KMI generate the knowledge at different levels and when they share such experience in the form of information the reliability of that particular institute increases. In other words when the organization contribute its valuable knowledge not within the organization only but also globally the credibility of the knowledge increase when it is implanted for the particular circumstances. Eventually, Knowledge Management in the sector of education reminds us that education is a serious effort (Chawla & Saxena, 2016).

Every organization wants to get success in their respective domains in this context they are searching for better ways to survive and win the race. In academic institutes the past management initiatives were not up to the mark so managers are eager to explore new ways. In order to sustain in the competitive world of education the management has to take the initiative to adopt the KM. Institutes creates knowledge and knowledge is the asset of the institute in this way the success of the

institute can be evaluate with the information they store and share. KM is the process of creating and sharing the organization information with others (Wiig, 1997).

In research and training centers KM plays a pivotal role. It is seen that there is an intense relation between innovation performance and KM practices. In this context innovation improves quality, efficiency and productivity and KM practices could boost experimentation. In KM one can acquire knowledge through study of past experiences or knowledge of others expertise hence it can help to speed up the innovation by removing all the hindrance that has to be face if there is lack of knowledge. By the improvement of knowledge, the innovation performance would definitely increase in near future. The government institutions also have to understand the significance of KM in order to improve organizational performance in innovation (Susanty, Yuningsih & Anggadwita, 2019).

It is determined that now a days KM has become an effective tool for all the educational institutes as it would give provision for growth and expansion. For the development and growth adoption of KM at all levels is important for all the academic institutions. It is determined that KM could be considered as an effective tool for faculty and research work. All the institutes have to understand the advantages of KM before adopting it. HEI are the most suitable place for KM as they are the bastion of knowledge Those who are not accepting it or understanding the importance of KM would be leg behind in the race .KM is an unusual way of getting success in the era of competition. It would also improve the credibility of the institutes as it brings transformation in the entire knowledge system. It would create an effective learning environment for both the teachers and students. The performance result would get better in the influence of KM technology (V Nair & Munusami, 2019).

Knowledge Management is gathering and sharing knowledge or experiences so that other can utilize it whenever they need. To transfer personal knowledge or experience into the data or other form of information so that can be used in future for the better productivity is KM. KM is a fundamental instrument in order to achieve better result in academic institutions. KM is essential for teachers as well as for students at all levels. Hence to increase the productivity exposure is must if the students and teachers have the data or information of past experience, they would be able to do better job without any repetition of work moreover they don't have to waste time on things which were already experienced by former faculty or students and in this way they would be able to do new researches in real time. The main objective of KM is to transfer the knowledge effectively so that other can take advantage of this technology to achieve the goals (J. Ikenwe, Ogagaoghene U. Idhalama, 1970).

In the knowledge-based economy higher education institutes plays a vital role. Higher education institutes shape the future by enhancing the skills and knowledge of individuals. In social and economic development higher education institutes can be considered as a corner stone as they effectively contribute in enhancing the knowledge production. Since last couple of decades KM gaining popularity among all the HEI as they understand the value of sharing knowledge and to conquer the challenges related

to HEI. KM is an effective tool to link the faculty, students, researcher and external entities. KM promoting the culture of sharing of knowledge and empowered the institutes in decision making and give access to the institution for quick decision on the basis of stored knowledge. KM is an effective tool in higher education, as it enables to collect and scan information. The main motive of KM is to transfer the tacit knowledge into the explicit knowledge and to make it accessible at the time of need for better result. Furthermore, it's a prominent tool for linking different people and help them to create the fresh knowledge on the basis of existing knowledge of expertise (Pinto, 2014).

Knowledge Management practice allows the educational institutions to find, scan, sort out and store valuable data for future students and faculty. It is also determined that KM is being utilized for years to enhance the ability of HEI. Educational Institutes are also depending upon the resources in order to generate and share the knowledge. Institutes have to take the advantage of KM in order to survive the competition. KM empowering the institutes to create and share the knowledge in an effective way. Higher Education Institutes have to adopt KM process to achieve the goal. Conceptual framework of Knowledge Management consists knowledge perception, knowledge creation, knowledge diffusion and knowledge gathering. The universities require to adopt KM in a systematic way as it is transferring the entire education system (Nawaz, Durst, Hariharasudan & Shamugia, 2020).

The rapid revolution in technology also affected the education system. Now a days people understand the value of knowledge. The educational institutes need to manage the knowledge in systematic way so that it can it be utilized for further use. In such a way term Knowledge management created. Over a past decades KM gained popularity. While there is no specific definition but almost all are similar the purpose of KM is creation, sharing and storing of knowledge. When we want to solve the problem and explore the opportunity, KM plays a pivotable role. The main purpose of the KM is to make existing knowledge available to more than one person (Laal, 2011).

As no. of Higher Education Institutes increases hence the competition has become even more difficult in higher education. The sense of competition motivates the institute to look out for the innovative ideas to stand out in the business of education. Higher Education Institutes paying more and more attention to improve the quality of teaching and learning. They need to think of strategic planning to set the benchmark for themselves. Knowledge Management add value to the credibility of institute. When an institute transform their tacit knowledge into the information form it became more valuable. In result it increases the enrollment rate in institute that eventually is the proof of success. Knowledge Management has become a fundamental part for all the Higher Education Institutes. KM is an important character in facilitating the composition and development of strategic partnerships in education business (Elezi, 2021).

The genuineness or excellence of the institutes depends on the good management of the institute that includes gathering of knowledge, contribution of

knowledge and implementation of the knowledge. The knowledge-based organization has become the necessity of competitive era of education rather than this fact managers are facing challenges to transform their firms via knowledge practices. It is determined that the conceptual framework of knowledge is essential for effective KM (Gold, Malhotra & Segars, 2001).

Rapid usage of Internet gave a birth to the concept of knowledge management and in 1990 it came into focus. Furthermore the sudden globalization of knowledge was so swift and trouble free that the management of the knowledge became necessary especially in HEI. Higher Education Institutes is considered to be the main source of creation and distribution of knowledge. Teaching, research and service are the main agenda of the knowledge management. In India knowledge management in HEI is a matter of discussion. Knowledge Management is the process of creating, storing, sharing and utilizing data at the time of knowledge need. If the knowledge stays with the creator in that case, it would not reach to others hence the flow of knowledge is essential and here comes the role of knowledge management (Bangotra & Chahal, 2020).

Sustainability is important for Higher Education Institutes in the competitive business of education. Providing the effective knowledge is now the major focus of the universities so organizations are focusing on the innovative ways to gain more and more knowledge to achieve the success. This gives a reason to the universities to manage the knowledge in effective way. Knowledge Management has become a fundamental tool as it is considered as an asset for the organization because it helps in quick decision making. Organizations are motivated to adopt the knowledge management as it helps to generate and distribute the knowledge and, in a result, it would boost the process of productivity and learning. KM promises the development of the universities as it speeds up the research work and create an environment for innovation. KM can be considered as a communication platform to enhance the skills on the basis of past experiences of expertise (Dei & van der Walt, 2020).

III. Study's Objectives

1. To know the role of technology in effective knowledge management practices in educational institutions.

IV. Methodology

The study is empirical in nature. 127 respondents participated in the study. The data was collected from them through a structured questionnaire. Mean and t-test application was done to identify the results. The method of sampling was convenience sampling.

V. Finding of the Study

Table1 displays the Mean values for statement for the study conducted to know the "Role of Technology in Effective Knowledge Management Practices in Educational Institutions," the first statement is about capturing data "Technology is used for capturing data and information to manage knowledge" the mean score is 4.29, next statement is "Technology supports collaboration and categorization of different forms of knowledge at lower cost" scores the mean value of 4.23. Third statement is about search and recover information "Technology facilitates the process of searching and recovering information" the mean value is 4.12, next statement is regarding the role of facilitator "Technology facilitates the process of searching and recovering information" the mean score is 4.09. Fifth statement is "Information Technology increases the efficiency and capability of Knowledge management" mean value is 4.30, next statement is about knowledge seekers, "Technology is capable of assisting knowledge seekers and others who are involved in knowledge acquisition" the mean score is 4.05. Seventh statement is about the interaction between users, "Technology enables interaction between users by providing them communication platform" mean score is 4.33, next statement "Technology is a facilitators and practical means of national as well as global knowledge integration" has scored the mean score of 4.01, the last two statements are ICT plays the role as a catalyst for knowledge management" and "Technology help people locate each other and share knowledge through computer, telephone, and knowledge transfer" the mean value of both statements are 4.12 and 4.17 respectively.

Table 1: Role of Technology in Effective Knowledge Management Practices in Educational Institutions

Serial No.	Statement of Survey	Mean Value
1.	Technology is used for capturing data and information to manage knowledge	4.29
2.	Technology supports collaboration and categorization of different forms of knowledge at lower cost	4.23
3.	Technology facilitates the process of searching and recovering information	4.12
4.	Technology plays the role of facilitator in Knowledge management	4.09
5.	Information Technology increases the efficiency and capability of Knowledge management	4.30
6.	Technology is capable of assisting knowledge seekers and others who are involved in knowledge acquisition	4.05
7.	Technology enables interaction between users by providing them communication platform	4.33
8.	Technology is a facilitators and practical means of national as well as global knowledge integration	4.01
9.	ICT plays the role as a catalyst for knowledge management	4.12
10.	Technology help people locate each other and share knowledge through computer, telephone, and knowledge transfer	4.17

VI. Conclusion

Knowledge is an information that one gathered from the experience or learning. Educational institutions are the source of knowledge for the learners to enhance or polish their knowledge under the roof of HEI. Furthermore, knowledge can be classified as explicit and tacit knowledge. Explicit knowledge is easily accessible, stored and can be reused at the time of need. Tacit knowledge is the personal experience or knowledge that embedded in the mind of individuals hence it has to be framed in such a language that can be understand by others. Knowledge management is not a new concept it is been in use since couple of decades hence the term knowledge management came in existence since few years back. In this high-tech technology era, the management of the knowledge came into focus. Knowledge management is done by the technical expertise and in this technology the expertise emphasizes on the content and knowledge management strategy. The knowledge management is an essential driver to the success as it helps to draw the conclusion, promote innovation, gathering and combining the knowledge for better results hence this technology has to be implemented for the better efficiency. Now a days Higher Education Institutes evaluating the importance of knowledge management. There is no single definition of Knowledge Management but overall it is concluded that it consists analysis, categorization, mining and mapping of data. Linking and repackaging of knowledge are also the prominent tools of knowledge management.

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Role of Corporate Governance in Organizational Performance: A Theoretical Study

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Abstract

Several studies have been done for examining the impact of corporate governance on the performance of the organization in financial institutions. The objective of these researches has been to assess the relationship between the performance of financial institutions and corporate governance. The conceptual framework of these studies has been developed for measuring the linkage between the performance of financial institutions and corporate governance. The strategies of communication, size of the board, the mechanism of corporate governance, and the code of conduct are some of the variables of measurement of corporate governance that have been considered for these studies. The findings of these studies show that the performance of the organization and corporate governance are at a high level. Also, a very strong and positive relationship has been found between the performance of the organization and corporate governance. Corporate governance is known to significantly impact the performance of financial institutions.

Keywords: Corporate Governance, Organisational Performance, Financial Performance, Stakeholders, Governance

I. Introduction

The best practices of corporate governance as suggested by different codes include maintaining a balance in board of directors in terms of competencies and skills and outside and inside representation, separating rile of a Chairman and a CEO and also defining a criterion for the independence of the directors, along with establishing audit as well as other committees like nomination, remuneration, strategy committees, etc. Having a transparent and a robust for the appointment of directors, conducting efficient evaluation of performance, linking the rewards with performance and also adequately communicating with the investors. All these things are important for improving the independence of the board, accountability and transparency to shareholders and the other stakeholders of the company and its efficiency for fulfilling performance and conformance functions (Arora and Dharwadkar, 2011). There are four major parameters of the corporate governance. Figure 1 shows the same:

Figure 1: Major Parameters of Effective Corporate Governance
Source: www.corpbiz.io

The question is doing the system of best practices has an impact on the performance of the company. The proof is that best practices which have been studied by researchers aren't associated strongly with high performance of the firm. According to a study, around 42 companies targeted at improving the practices of corporate governance which outperformed standard poor stock index by about 52% in 5 years' time following the involvement of Calper. On the other hand, these companies trailed an index of about 66% during 5 years before the involvement of Calper. Although these figures are quite significant, it's difficult to know about the amount of improvement done in the stock price which may be attributed to the involvement of Calper and efficient governance and the research hasn't been through a rigorous peer review before the publication for giving assurance of the methodological quality.

Another study done by the consultants of McKinsey explored if the monetary value might be placed over good governance. This study defines good corporate governance based on the conventional perception of the best practices. It has been defined as having maximum number of outsiders on board, having independent directors without ties with the management and who owns a good number of shares of the enterprise, who are given the remuneration to a larger extent by shares and who are evaluated formally. This study states that the investors are ready to pay about 11% of the premium for the companies that they think has an effective corporate governance. It's also important here that results of the study don't show an effect of the best practices on the performance of the firm. The results of the study show that the perceptions of the investors regarding existence of the best practices as per a particular measure of the performance, price of the stock, are based on the views of the investors, and not on what they do that could diverge considerably.

According to some surveys which were conducted by some researchers, they prove that they have been quite influential for drawing the attention of the public towards the organizations whose boards are either excel or have been cited as worst. The basic criteria that have been used include the accountability of the board, the independence of the board and the quality of the board. Surprisingly enough, the report stated that efficient governance cannot be guaranteed with superior performance as it has been seen by recent results of a few studies. They show that in past few months, the performance of 2 companies trailed rigorously their peers.

Some more research done on the effect of the directors on the performance is quite extensive which focusses on these aspects like the size of the board, representation of the outside directors, equity of the director, experience and background of the director duality of the CEO, involvement of the board in strategizing, power of the board and the other attributes of the board. The researches have given mixed results, however, does not lend a clear support to the attributes of the board as important determinants of the performance of the organization. The reasons for such mixed result are the conceptual issues and the methodological issues like ignoring the other contextual attributes and their effect on the boards and performance of the company (**Aggarwal, Jindal and Seth, 2019)**.

II. Literature Review

Corporate governance is a way through which the companies are operated and managed. A whole range of high-profile scandals of corporate in the past few decades involving corporate giants like Tyco, Enron, WorldCom, etc. caused an instant need to revamp the guidelines and norms of corporate governance amongst the policymakers and the governments. Some of the most popular recommendations of corporate governance are recommendations of the Cadbury Committee in the UK and organizations for economic cooperation and development. Various rushes of such advancements abroad mostly moved over to the Indian subcontinent and invigorated the development of various panels on corporate administration like the Committee of Naresh Chandra, the Committee of Kumar Mangalam Birla, the Committee for Narayana Murthy, and so on SEBI or Securities and Exchange Board of India has made a divulgence of corporate administration rehearses in yearly reports which is mandatory for the Indian partnerships through provision 49 of the posting arrangement. A further developed exposure brings about further developed straightforwardness and this is viewed as a significant component of sound acts of corporate administration (**Al-ahdal et al, 2020)**.

The whole concept of performance of the organization is considered to be a significant aspect that is being used in different areas of business researches and it's also quite difficult to give a basic or a general definition as well as measurement by reasons of constantly expanding the boundaries. Some researchers define the performance of an organization as an evaluation of efforts that are devoted order to achieving the goals of the business. Researchers mostly argue that the definition of performance of an organization is incorporated with effectiveness and efficiency.

Some researchers also state that the performance of the business or the firm is the subset of the effectiveness of an organization which covers the financial and operational outcomes (**Ali, Ansari, and Memon, 2020)**. On the other hand, researchers indicate that the effectiveness of an organization is the broader construct that captures the performance of an organization, however with grounding in the organizational theory which entertains the goals of alternate performance. The relationship between organizational performance and corporate governance is still one of the most basic issues for researchers. Some of the researchers have spotted a positive relationship and few of the scholars have not been able to show the positive relationship. That is why, these studies are considered to be important for finding out what type of association the financial institutions might have (**Luo and Tang, 2020)**.

Corporate Governance is viewed as a framework through which the ventures are controlled just as coordinated. The directorate is fundamentally answerable for the administration of the associations. The job of the investors in administration is for the most part for designating chiefs and evaluators and for fulfilling themselves that the well-suited construction of administration is there. The responsibility of directors comprises of the setting of the strategic aims of the company, offering leadership for putting them in effect monitoring management of the business while reporting to the stakeholders on the stewardship. The actions of the board are subject to the rules, regulations and laws, and stakeholders in a general meeting (**Cho et al., 2020)**.

In a comprehensive sense, the concept of corporate governance mainly comprises all forces which affect the process of decision-making of a firm. It helps in protecting not just the rights of the stockholders, but even inbounding the agreement and also in collapsing the power of the debtors. Corporate governance mainly gains the commitment of suppliers, customers, and employees. Additionally, it is the power of diffusing the risk by combining different forces. Further for making the path for corporate governance clear, the manual helps readers. The companies listed aren't just monitored by the ruling enterprise but even from the share exchange where they are listed (**Campanella et al., 2020)**.

The whole complexity of corporate governance mainly focuses on the values like accountability, transparency, responsibility, and fairness. The base of a structure of the concept of corporate governance is considered to be disclosure. The positive notion of openness and disclosure gives impetus and merit to the concept of corporate governance as the progressive governance structure based on honesty. Researchers have observed that the suppliers of the financial system employ corporate governance for ensuring returns on investment. Separation of the roles between the people who offer capital and the ones who handle it requires the structure of corporate governance which ensures that the responsibilities of each group are checked constantly for adherence and consistency to lay the standard operating procedure (**Tommaso, 2020)**. The groups falling in a matrix of the structure of corporate governance include the managers, board of directors, debtholders, shareholders, customers, suppliers, and the employees. The community wherein the firm operates offers an environment that has a political impact, rules, regulations, laws, and generally the market that is important

for the operations of the company. Politics and laws have a huge impact on corporate governance and also on the way a firm function (**Furlotti and Mazza, 2020)**.

Efficient and strong corporate governance mainly helps in cultivating the culture of a company about integrity, causing a positive performance and sustainable business. Importantly, it also exists for increasing accountability of the people and the teams in a company, working for avoiding any kind of mistakes before they occur (**Velte, 2020)**.

While an enterprise has strong corporate governance, it mainly signals to the market that it is managed well and also that the interests of the management are in sync with the external stakeholders. Resultantly, it may offer the company a strong and effective competitive edge (**Khan et al., 2020)**.

Some researches indicate that the Anglo-American structure is mainly based on the principles of the normative free market, depends on different pre-requisites for the successful operation of the firm, guides regarding the corporate governance signifying that it focuses on the relationship between the shareholders and the directors of the company. For alleviating the issues of corporate governance, a different kind of system is attained under the governance model of Anglo American for streamlining benefits of the directors concerning the shareholders (**Gallego-Álvarez and Pucheta-Martínez, 2019)**. This model of Anglo American focuses mainly on the independence of the directors as it's an integral part of the control of corporate governance as these are considered to be the ears and eyes of the stakeholders and it could even invite the constituents of objectivity for internal communication of the company. Secondly, it emphasizes independence not just because it is capable of helping in the internal discussion but even because commandments generally consider the BOD responsible for different types of integral duty of the company. Another contrasting viewpoint on the importance of independence inefficient corporate governance has emerged by the Organization of Economic Cooperation and Development which indicates that effective corporate governance depends mainly on the severity of power that connects the managers, directors, and minority and majority shareholders of the company. These studies are held accountable for managing under self-governing oversights by BOD and the external auditors. Efficient political and economic governance might result in good economic output and also for the prosperity of the business, efficient corporate governance is important that could be assured through accountability. Also, corporate governance helps in ensuring that the stakeholders and electorates in the corporates are considered accountable. According to a report, a lot of Asian businesses are characterized intrinsically by insufficient transparency (**Mason and Simmons, 2014)**. As per the manual on corporate governance, transparency is important as it helps in countering efficient corporate governance and it even helps in guiding for transparency that could be attained with the help of 3 main elements. The accounting standard, openness, and compliance report. The efficiency of the enterprise and the market depends profoundly on the assurance and trust of the investor's incorrectness as well as the availability of the information provided to the general public (**Paulet, 2011)**. Transparency may even be

confirmed through accounting methods that have been recognized globally and are considered to be mandatory for assuring with the goal of the financier so that he may successfully interpret as well as contrast the data of the company. It's also been amended in the corporation's code of listings of the enterprises in the stock exchange and thus these enterprises need to act responsibly and transparently now. Certain other arguments which have been discussed in the researches stress transparency. They state that transparency is an imperative attribute for a good system of corporate governance as it helps in motivating the shareholders in the enterprise. Another significant element of corporate governance that may help in improving the functionality of efficient corporate governance is considered to be accountability. Being a key component of accountability of a company elaborates the duty of the director towards the shareholders (**Huang, 2010)**.

III. Conclusion

The researches that have been done on corporate governance have helped in finding and understanding the effect of corporate governance on the performance of the organization of financial institutions. They conclude that the financial institutions are extreme corporate governance enterprises. This signifies that they are successful in using practices of corporate governance in the organization. They have also incorporated the mechanism of corporate governance and the strategies of communication at the highest level for pursuing corporate governance. As per a report, the strategies of communication have a huge impact on financial institutions. It offers transparency in terms of the activities of the company to all stakeholders. Also, effective communication amongst the stakeholders ensures a better understanding of the performance of the companies. The mechanism of corporate governance also has a huge impact on financial institutions. It helps in making better decisions and also helps in the future planning of the companies. However, the results of these studies state that the board size, as well as the code of conduct, haven't contributed significantly towards the performance of the organization. It may be suggested that the BOD needs to focus on its role in leading the enterprise successfully. Meanwhile, financial institutions have a high level of performance. Therefore, such institutions focus more on the satisfaction of the customers as well as employee commitment. However, the financial institutions are not able to focus on the reputation of the corporates. Therefore, they need to focus on the risks of investment and even on the future growth of the companies.

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A Study on Academic Anxiety of High Achiever and Low Achiever School Children

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Abstract

Today anxiety is a common phenomenon of everyday life. It plays a crucial role in human life. Academic Anxiety is a state anxiety which relates to the impending danger from the environment of the academic institutions. The objective in this present study is to determine the effect of academic anxiety of high achiever and low achiever of school children. The academic anxiety scale was used to measure the academic anxiety between high and low achiever. The sample was comprised of (N=60) high and low achiever. high achiever(n=30) and low achiever (n=30) selected purposefully from city Cuttack Odisha Test was used for Statistically analysis. The study reveals that there is difference in academic anxiety of high achiever and low achiever. The low achiever has more academic anxiety than the high achiever. We can also help them to get rid of their anxiety by the appropriate guidance from the teachers, and school counselor. Lastly from this study we found that High achievers are less prone than anxiety low achievers.

I. Introduction

Today, anxiety is a common phenomenon of everyday life. It plays a crucial role in human life because all of us are the victim of anxiety in different ways. Generally, anxiety can be either a trait anxiety or a state anxiety. A trait anxiety is a stable characteristic on trait of the person. A state anxiety one which is aroused by some temporary condition of the environment such as examination, accident, punishment etc. Academic anxiety is a rind of state anxiety which relates to the impending danger from the environment of the academic institutions including teacher, certain subjects like Mathematics, English. Academic anxiety arises out of the apprehension of rebuke from teachers, parents and peers regarding the failures of performing the responsibilities of an academic properly. Developing a state of academic anxiety. Causes a decrease in attention span, concentration and memory which can result in having a negative effect on the performance of the individual. Causes a decrease in attention span, concentration and memory which can result in having a negative effect on the performance of the individual. Academic anxiety afflicts students during school related situation! If academic anxiety isn't properly addressing. It can have many serious and lasting consequences, such as causing a student to procrastinate, perform poorly on school work, fail in classes and withdraw from socializing with peers or pursuing activities that interest him. Academic anxiety is to a certain extent, unavoidable, necessary and even productive, since it motivates to

spend time for academic tasks. Academic anxiety is a common issue that students cannot ignore. If they want to succeed in school. If often leads to problems concentrating while studying and remembering information while completing test, which makes the student, feel helpless and like a failure. If academic anxiety isn't properly addressed. It can have many serious and lasting consequences, such as causing a student to procrastinate perform poorly on school work, and with a draw from socializing with peers or pursuing activities that interest him. Academic anxiety in children and adolescence can be challenging to recognize since it can have much in common with other disorder.

High Achiever: High achievers are those who achieve a goal. In school, a high achiever would be a student who get high marks, good grades. They do the work that is required and do it well. They tend to be well organized with good time management sills, which is why they turn in neat and tidy work on time. They also tend to be well behaved, adjusting well to classroom, environment and participating enthusiastically in classroom discussion.

Low Achiever: The term "Low achiever sometimes refers to those children with IQ levels lower than average but not low enough to categorize them as learning disable on mentally disable. Low achiever is those who are not conscious about his/her study. They are not physically or mentally or socially good. In school they are sit on last bench. They are always avoiding their study and engaged other activities. In school, a low achiever, would be a student who gets low marks. They aren't well good and well organize.

Effect of Academic anxiety on Performance: Anxiety is not a bad thing. It is true that a high level of anxiety interferes with concentration and memory. which are critical for academic success without any anxiety, however most of us world lack the motivation to study for exams, write papers, on do daily home work. A moderate amount of anxiety actually helps academic performance by creating motivation.

Factors Influencing Academic Anxiety: Both genetic and environmental factors influence normal anxiety traits as well as anxiety disorders. In addition, it is becoming increasingly clear that these factors interact to produce specific anxietyrelated behavior. For example, in humans and in monkeys' mutations in the gene encoding for the serotonin transporter result in increased anxiety in adult life when combined, with a stressful environment during development. Another recent example comes from twin studies suggesting that a small hippocampus can be a predisposing condition that renders individuals susceptible to post traumatic stress disorder. Such example illustrates how specific mutations leading to abnormal brain development may increase vulnerability to environmental insults which may in turn lead to specific anxiety disorders.

According to Cornell University, "Academic anxiety is the result of biochemical processes in the body and the brain that make your attention level increase when they occur. The changes happen in response to exposure to a stressful

academic situation, such as completing school assignments, presenting a project in class on taking a test. When the anxiety becomes too great, the body recoils as if threatened, which is a normal fight - or-flight reaction.

With reference to Lummeburg (1964) found a negative correlation between test anxiety and achievement scores in a sample of 213 boys and girls studying in grade IV to V.

A manageable level of academic anxiety is actually a good thing, according to Greenfield community college. Moderate academic anxiety provides the motivation students require to exert effort completing assigned school work and preparing to take examinations. Academic anxiety only becomes a problem that needs a solution when the amount experienced grows so excessive that a student is no longer able to function productively.

A study conducted by Ojha (2005) revealed that the boys have more academic anxiety than girls, several investigators found that girls have also suffered significantly more academic anxiety than boys, Ghaderi, et.al, (2009) studied the depression, anxiety and stress among the Indian and Iranian students. Result revealed that the depression. Anxiety and stress level of Indian students are significantly higher than those of Iranian student Furthermore gender difference is not found significant.

Singh and Asha (1984) conducted a study on "Neuroticism anxiety and academic achievement. The result showed that a greater number of high achievers had high anxiety than the low achievers. When the correlation between high achiever and anxiety was calculated, it was found that high achievers had high anxiety.

Daulta (2008) studied the impact of home environment on the scholastic achievement of children. The study was conducted on a sample of 220 students drawn from Senior Secondary School of Panipat, Results showed that good quality of home environment had significant positive correlation with high level of scholastic achievement. This finding demonstrates that home adjustment affects scholastic achievement significantly.

II. Objective

To assess the academic anxiety of High achievers and low achievers of high school children.

III. Method of Study

Sample: In the present study 60 subject were taken, out of which 30 were high achiever, and other 30 were low achiever of class 8 student. Categorization of high achiever and low achiever has been done by taking the previous year Annual Examination result of the students.

Description about tool: The academic anxiety scale for children was used for the of the assessment academic anxiety of high achiever and low-class achiever school students of 8". The questionnaire consists of 20 items. There are two possible alternatives YES or NO of each statement.

Scoring of the Tool: The maximum possible score of this test is 20. In academic Anxiety scale for children, each item of the test is scored as either +1 or 0. There are two types of items- positive and negative. All positive items which are endorsed by the subjects as Yes' and all negative items No.4,9,16 and 18 which are endorsed by the subjects as NO' are given a score of +1. A score of zero is awarded to all other answers. Thus, high score on the test indicates high academic anxiety and low score on the test indicates low academic anxiety.

Procedure: In the present study the total number of 60 subject was taken which consisted of 30 high achiever and 30 low achiever class 8" student. I met them individually and gave them the academic anxiety scale for children questionnaire with certain instructions.

Results

Test		High Achiever	Low Achiever	T
Academic Anxiety scale	Mean	11.46	14.066	7.02

**P<0.01

IV. Discussion

After the administration it was found that High achievers are goal oriented, well organized. But low achiever is not well organized they are also aggressive sky in nature. In this study high achiever's anxiety was less than low achievers. The study was conducted to determine difference between academic anxiety or High achiever and low achiever of class 8th school children. Total number of 60 subject was taken out of which 30 were high achieve and 30 were low achievers (according to their previous year Annual examination. Result also evident that high achievers have less level of anxiety than low achiever. High achievers are free, relax, they are close with their teachers and knowledgeable person. They are concerned about their study and they clear their doubt every situation. High achievers have moderate amount of anxiety, which might be helpful for their academic performance on the reverse it was found that the low achievers are not interested in clarifying their doubts. They are also aggressive in nature, Majority of the time they remain absent in class room. If we all are conscious about low achievers. We can also help them to get rid of their anxiety by the appropriate guidance from the teachers, and school counselor. Lastly from this study we found that High achievers are less prone than anxiety low achievers.

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Exploring the Impact of Marketing and Promotional Strategies on Purchase Decision of Consumer: A Study with Special Reference to Children

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Abstract

Purpose: The purpose of this paper is to offer a historical view of how advertisement has affected children as a consumer and how their role as a consumer is changing. Using qualitative approach and the various methods employed to engage in the promotional campaign of the marketers. With an enhanced interest of marketer and researchers this segment of audience and consumer. The paper tries to provide an understanding on the selective approach.

Design: The paper has taken an exploratory approach to study advertisement and children as consumer and audience. Taking the research statement and insights from the marketers and researchers area on this segment.

Finding: This is a new and old category of consumer which is getting more focus to design specific promotional strategies and advertisement designs. Since this category is unique and have a different way to being influenced.

With a passage of time children have emerged as a segment which has a huge influence on the purchase decision of products and brand choices made by their parents, relative and friends.

The purchase power has improved and influence on others have also. This could be due various reason.

Research Limitations: The study is mostly on western country. And the studies done are mostly in qualitative approach and trying to understand the psychology and other consumer behaviour theories.

Article Implications: Strategies can be designed to influence children with the new and better advertisement considering the effect it has on children.

Originality: This paper will help in understanding the segment which is unique and have a different perception forming and influencing system how to study and use them to promote the product or change the brand image.

Key words: Children, advertisement, influence, information processing.

I. Introduction

Marketer and researcher are increasing the interest to understand the children and the marketing strategies designed specifically for them to influence their choice and perception.

From the marketer perspective the effort put by them in Advertisement and promotion of product and services is an effort to fulfil certain economic and non-economic objectives.

In the year 1920 it was realised that the surplus produced can be sold by persuading the consumer as they will not buy things some times on by themselves to persuade the purchase action promotional activities is to be done and that is advertisement. This strategy worked well and had a huge response to the sales. (L. Mazur, "Marketing Madness 1996). That was the time that developed work like US was awaking to advertisement in business to promote sales in various product category for adults and children. (Calvert L Sandra 2008).

Children have emerged and shown a significant role as an influencer and the buyer of the product for themselves and others. To access the influence of advertisement on children is of a great interest to researchers in the last few decades. (Bukingham 2000)

Though children as a segment of customer was ignored and neglected from the theories of consumer but the promotional activities for them or how they feel or experience a product or understanding the effect of its promotion was making the interest around in academicians and markets both. (Jacobson, 2008)

Research indicate that over the period role of children has improved as a decision maker, influencer and consumer. (Buijzen and Valkenburg 2008)

With the increased exposure of TV and other media to promote products and services the effectiveness is improved. In 2004 the total spend estimated was $ 15 billion and now as quoted by an advertisement firm as $ 1.2 trillion per year (Digitas 2010).

Huge amount is spend and many promotional acts are done on TV, internet, cinema hall to promote product for children and also some product where children have role as influencer. (Desrochers and Holt 2007; Gantz et al. 2007, Hag and Auty 2011)

Today Children are exposed to various things in the environment they live in and the exchange of information happens through various means.

From various innovation strategies in advertisement taking one towards children is a strategy for a specific product category; this was the opinion for a long

time. However over the period advertisers are focusing on children and designing advertisement not only for the products for children rather for other product category also Children are the focus of interest for the marketer and researcher both. (Jacobson 2008). Reason being discretionary income of children and the number of TV channels available with a great amount of advertisement on them programmes. Other sources like digital interactive technologies etc. have given more scope for children to get engaged in the advertisement displayed on them and they also have access to the avenues. With a change in the society's lifestyle, culture, and the demographic pattern are the change in the overall society few new segment marketer is getting focus upon children to enhance the sales. He is adopting various ways to affect the choice making of children.

Marketer have used various ways to influence the adults and children to increase the sales and other objectives and various economic models are developed to understand the theory of advertisement and its effectiveness.

II. Literature Review

Buyer behaviour, perception decision making was all topics of major interest since 1920. Most of the decision making models were also made in 1960 – 1980. How consumer perceive and consume was evolved way back in 1945 (Ostergaard 2000). Over the same period it was realised that studying the information process is complex and what ultimately derive the decision make purchase decision is also a complex process to understand.

Purchase decision

There are various models which explain the buyer behaviour and there are some which explain the decision process and among them is very elaborative model of EKB.

All the models have described the step by step process of buying and decision making which is a sequential process and various variables play a role at different stages to make the process complete.

Influencing variables among them family, Children, relatives and friend's role in decision making is explained (Davis, 1970; Blackwell, Miniard & Engel, 2006). In this paper the focus is on children and if we see at different stages their role varies and also the level. (Blech 1985)

Cognitive Development

Piaget (1970, Selmon (1980), Barenboim (1981) and John (1999) have given insight about the development stages and socialisation process of children as consumer. Their work also describes different age groups and at different age groups how it effect the decision and how commercialization takes place. They elaborated

that age is the key factor in children which defines the level of influence. (Anne Martensen, Lars Grønholdt, 2008)

Children use TV to learn and gather information and when children feel the persuasive intent of the advertisement they don't show much interest in them. (Ward 1974). Attitude formation happens from the age of 10 – 11 and acceptance and rejection at the stage when they are becoming young adults (Robertson and Rossiter, 1974).

Consumer is not a rational individual rather an emotional and driven by various factors. (Malene Gram 2011)

In the year 1974 a definition came to describe child as a consumer:

*"Process by which young people acquire skills, knowledge and attitude relevant to their functioning as consumer in the market place". (*Sharma Adya and Sonwaney Vandana 2013)

Research on children started in 1960's and in 1970 was the period people were showing their concern for the children, media exposure, advertisements, and products to impact the children's tender mind.

Comprehension and understanding of advertisement by children

The advertisement which have persuasive intent are not liked and how well children understand the promotion gives effect to the influence and later turning in to purchase decision Attention, Recognition, Comprehension, Purchase decision. Also there are various theories (Petty R. E. 1981, Hovland 1953)

- Learning theories of Persuasion
- DAGMAR (Defining advertisement goal for measuring advertising results.)
- ELM (Evaluation Likelihood Model)
- Aware, Inquire, Desire, Action

But how these theories apply to children as consumer not much research are done. Many studies have been done to understand how to create the attention of the children. Comprehension of the advertisement varies with relevance to various factors like, age, family upbringing, knowledge level and information processing system.

Studies done on the various stages of Advertisement persuasion have found causal relationship in the advertisement exposure and effect on child and the purchase decision of family and others. (Buijzen and Valkenburg 2008). It effects not only purchase but it has various other effect on them which could be negative or positive. (Eunji Cho, Seung – Chul Yoo 2014)

Perception and Attitude formation

Perception theory says that "it is formed over a period of time with experience and knowledge through a designed process which is defined as "Is defined as a process by which an individual selects, Organizes and interprets stimuli (sensation) into a meaningful and coherent picture of the world". (Leon Shiffman Kaunk Leslie Lazer 2004) though process is same for the children also but perception of an adult is much different than a child. And how he processes and advertisement and perception formed of an advertisement is very much different than an adult.

With the change in the age of the child the attitude and the perception also varies. The message and the comprehension of the message defines the attitude formation and change in the perception (Aaustin, Ruble and Trabasso, 1977)

Various theories were developed to understand how child becomes a consumer taking from Piagets's theory to Debroh John making a three tier model to understand the child development as a consumer and socialisation process: Perceptual, analytical and reflective stage. (D. John 1999)

Attitude formation happens due to some cognitive process and component in response to some advertisement (Shimp 1981) some other researcher say attitude formation and changes happens due to the images and the information processing (Rossiter and Percy 1980) and positive negative effect gets generated.(Caldwell 1981).

Understanding the vulnerability of the child and their choice is a difficult task for the advertisers and designing promotional strategies to influence this segment is also a challenging role. Since their choice and taste changes very fast and doesn't remain same for a long period and easy to mislead or lead them in the desired direction. Buckingham, 2000; O'Sullivan, 2005).

Demography

Demographic profile of children provided knowledge of his information processing, his influence level and effecting the decision.

Individualistic society have more influence of promotion or advertised product. In collective culture the message of the advertisement is more filtered and effect gets deviated from the real object of the marketer. Modern society which have all the technology and TV and digital media exposed to the children the impact of the same is very high in terms of the knowledge gathering and playing active role in the decision making process.

Gender of the children, age, and exposure to advertisement and social media defines there level of influence. (McNeal 1969). Gender difference doesn't show much difference in the effect and decision except personal care and hygiene products. (Hansen & Halling 2002). Younger children focus on feature rather than forming any

perception or information processing (John 1999). Older children have more influence on the purchase decision compared to younger children below 10 years. (Robertson and Rossiter, 1974)

Industry observation

Media strategies and promotion act are based on qualitative understanding of market and firm economics (Gensch 1970).

Industry has acknowledged that children are unique and they are not like adults and their perceptions are not yet formed they are in the process of forming so the advertiser need to take a special care for this category of audience while making advertisements.

It is a difficult task to know the unknown and also where the vulnerability is high. It is easy to underestimate the children and how they influence. There is a difference between how a child evaluate product and how an adult. However once the observation to understand children as consumer begins it opens a huge world of challenge and scope.

Therefore what, how and where an advertiser should say depends on who is the audience and how he wants him to be influenced. Considering Child or parent or both the message would vary and the reaction would vary too**.**

Children as consumer have been studied by the advertisers and academician in past however assessing the influence of an advertisement on children is not studied much. Since the perception of a child is changing much faster than the adult.

Marketer is very interested in understanding how he can change the perception of the consumer and same way which advertisement would help him in forming an attitude for the product or services of the company. With the same interest role played by children in today's market and how to target them is a challenging task for them.

Therefore what, how and where an advertiser should say depends on who is the audience and how he wants him to be influenced. Considering Child or parent or both the message would vary and the reaction would vary too.

It has been observed by the marketer and the researcher that Child and adult perception are not same whereas in case of child the perception is not yet formed it is in the processes of forming so utmost care should be given to this category while making promotional strategies for them.

Influencing Children

Marketer through advertisement try to influence children with a selective approach. To have better influence they use academic theories.

With the help of understanding the cognitive development of children, age and comprehension capabilities varies at different stages of their growth and same way it impact the decision making process. Understanding the advertisement and content depends on the attention and comprehension of the children. Influencing the unknown audience is challenging task. An understanding how children gets influenced to provoke the purchase decision is the ultimate goal. (Lloyd & Clancy 1991)

Academicians in different marketing, psychology communication medicine, health have done studies to understand the effect of advertisement on the children and how advertisement influence children. (Hoffman and Batra 1991).

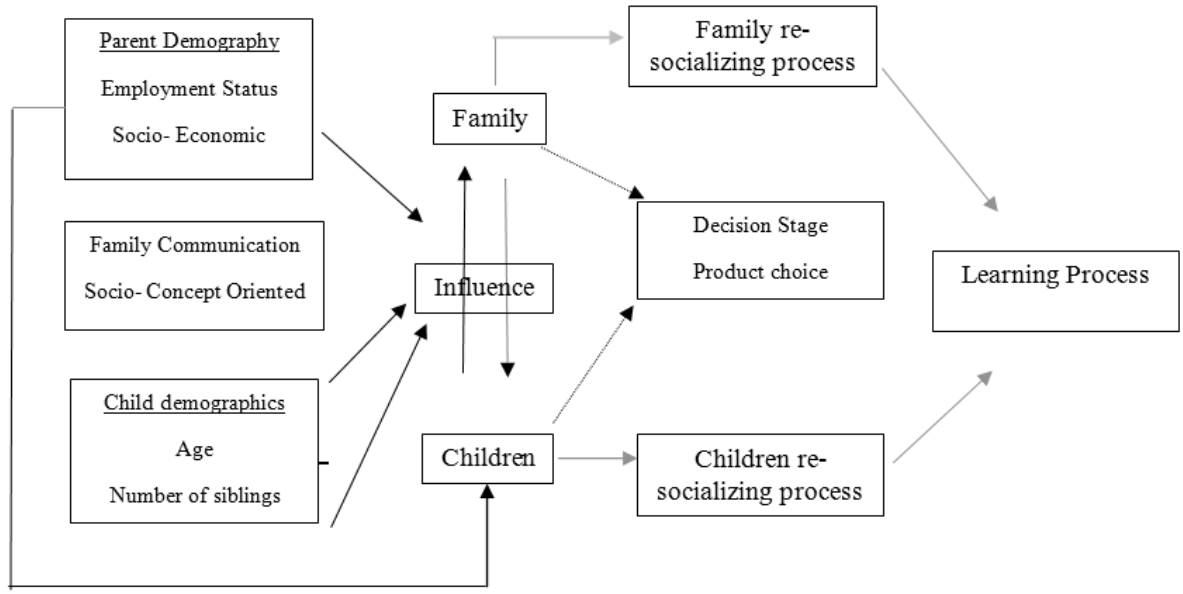
The influence of advertisement is not immediate it can be in the future (Pavelchak et al. 1988; Mathur & Chattopadhyay 1991)

Past experimental and survey studies

Various quantitative research have been done children and effect of advertisement through experiment studies which has shown significant result in terms of influence of TV commercial on children and their food habit and choices (Gom and Goldberg 1982). Studies have done with controlled experiment and effect of TV commercial has shown not so significant relation. Similarly in 1972 and 1981 survey/ correlation with some predictive variable have shown that TV commercial have not so much effect on the purchase and choices made. (Handerson 1980, Gorn and Goldberg 1982, other products like toys also more influenced by children then mothers (Prasad and Rao 1978).

In an experimental study (Atkin 1981) says that quantity of exposure of TV advertisement defines the level of influence. With correlation/survey study it has shown some significant results on the influence TV commercial has on the choice made by the children. However while conducting the studies there a wider range of variables which effect the correlation and establishing causation in the relationship of variables and their influence (Hoveland 1959)Researchers have shown that there is a negative impact of advertisement on children through because children are vulnerable and not able to understand the persuasiveness of the advertisement. Children influence the decision of final purchase and the purchase for self-use product as well.

Model: Influence of Children on decision making



This model gives an understanding of how decisions are influenced by the children and the parent both. (Sharma Adya and Sonwaney Vandana 2013)

In 1960's the study on children as consumer also begin and slowly getting recognized but promotion of products through children was not viewed as a positive thing and many organisations in US, Europe were formed to protect the children from the negative effect caused by the advertisement on children.

III. Methodology

There are not many studies which show how an advertisement shows effect on children as consumer. The researcher has tried collecting data through exploratory method and has gathered variables which effect the decision making process for final purchase. Taking Children in the centre of decision making.

In- depth interview, Experimental study were used by researchers to study the effect of advertisement on children.

This paper has also tried to investigate the influence on final purchase decision. Here to test the effect and estimate the findings from the literature

Author has conducted a pilot study to investigate the children behaviour while making purchase in departmental stores in Indian Metro city.

Data was collected through in- depth interview and observation study on 50 children age group 3- 12. Detailed in- depth informal interview conducted with a sample size of 25 children to understand their purchase behaviour and decision making process along with how they influence others decision making process.

The researcher did an observational study on 25 children in the stores of various verity to see how they make purchase. Sample selection was completely random.

Focus group interview with family members of 10 children. To understand their buying decision process.

In the entire process of data collection focus was on understand the influence, advertisement and the final outcome of the impact of children viewing advertisement and their influence.

IV. Finding

Advertisement exposure

1. If the children are exposed to advertisement they have a better understanding of the message and uses of the product at display.
2. The purchase decision is quicker when the exposure is repetitive
3. Quick recall of the brand and the product uses along with product attributes.
4. It effect the choices made by them and other variables play major role in impacting their decision of purchase.

Income of parents

Lower level of income has more influence of TV advertisement since their exposure to TV also is high.

Though TV viewing is increased with a passage of time and income levels have significantly improved. But higher income parents try to engage children in various activities along with watching TV.

Higher income group have more access to other gadgets and since technology has advanced and children have access to the various media. Viewing commercial and they too see the promotional campaign and the sources are different.

Gender difference

Though gender difference play a role in the viewing of the advertisement if the product is meant for male or female. However it is seen that it is only in certain products related to personal grooming and hygiene.

Whereas products showing boy in advertisement or girls has an impact on the product choice and it also have other variables impacting the decision of choices made.

Female do more shopping for clothing. Personal care products vary with taste and age.

Work profile of parents

Parents work profile defines the knowledge and independence of the children and their decision making power.

Working parents children have more influence on their decisions and purchase due to the children's and their involvement in advertisement.

Age

The age play a major role in the advertisement effect. The cognitive development as defined by the theories have shown relation to the understanding of the message and giving the desired results.

The age group of 2-3 is mere viewing the characteristics, colours and images. And they television viewing is with curiosity and trying to understand the images. From 4- 6 is a tender age and they take the message in their daily life and relate their world with the message and the promotion since they don't understand the persuasive intent of the advertisers. A guided hand is required to make them comprehend it better from the marketer point and also parents have their own way to making them understand. That doesn't necessarily give the desired effect for which it was designed. These two age group are the category which will put emphasise on the purchase of the product with more nagging style and pressurizing the parents. And that serves the marketers purpose. But parents play other role also by giving their opinion and guidance eon the product and services offered to the children through advertisement. From 7- 10 is the group which behaves very different than the earlier two groups. Their purchases are self- made and also their comprehension is better. And influence also is higher on the purchase for self and for others. Age of 6- 8 also understand advertisement as information gathering tool. And remember the products of food and games. Age group 10 to 15 are immature adults and they behave like adult. They are more confident and sure of what they are viewing and the purpose of the message. The influence is much higher and also various other factor which contribute to their decision making and influencing others. The product category which is different than 5 to 10. Age group of They are more conscious of health, fashion, style and knowledge about movies.

Choice of the purchase

Choice of the product purchased is made by the display on the self and integration of the advertisement they have viewed and with the interaction of other factors (Keeping them constant for the current study.

The advertisement plays a role in making the selection from the clutter of the brands available in the store from the marketer's prospective. The offers and schemes attached to the product will be searched faster than the other product. Children search only for those products which have offers attached to them.

In the entire process what is learnt by the researcher was that parents play a major role as the regulator of choices made by children. Also explaining the advertisement message to the children when required.

Limitation and future scope of the study

Limited research by Asian author to study the subject. And most of the studies are done in US and Europe and the same finding and analysis can't be implied in Indian or western population completely. Reason being the demography, social values, culture is different to an extent.

The author is observed in the journey of working on this topic realised that taking theories of consumer behaviour, decision process and the various variables identified in the entire process of purchase decision studies can be conducted to relook in to the models and theories with the insertion of child.

Experimental study can be conducted to see how the advertisement has effected the child.

1. It is difficult to reach poorly understood audience for a marketer
2. Perception and attitude formation of the children is much different than the adults.
3. It is a challenge to promote through the children
4. Quantitative study can be conducting to identify the variables and their relationship in terms of influence on final purchase.

Further study can be conducted to understand the variables which affect the choice of product and brand apart from viewing the advertisement in relation to advertisement.

V. Objectives of the Study

1. To find the role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers
2. To ascertain the role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers

VI. Research Methodology

The present study is descriptive in nature wherein the role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers was analysed. The sample taken for the study is 160. The information was gathered with the assistance of an organized poll on a five-point scale and investigated with the assistance of the mean qualities and t test.

Table 1: Demographic profile of the respondents

Variables	Number of respondents	% age
Gender		
Males	72	45%
Females	88	55%
Total	**160**	**100%**
Profession		
Businessman	52	32%
Teacher	61	38%
Housewife	35	22%
Student	12	8%
Total	**160**	**100%**
Age		
20-35	36	22%
35-50	62	39%
50-65	62	39%
Total	**160**	**100%**

Table 1 presents demographic profile of the respondents on the role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers. There are 45% males and 55% females in the study. Among the respondents 32% are into business, 38% are teachers, 22% are housewives and 8% are students. The 22% of the respondents are 20-35 years of age, 39% are 35-50 years of age, and 39% are 50-65 years of age.

Table 2: Mean Value of the role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers

Sr. No.	Role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers	Mean Score
1.	Children influence the purchase decision of their parents	4.02
2.	Advertisements influence the purchase decision of children as consumers	4.09
3.	With an increased exposure to media channels, the effectiveness of advertisements has increased manifolds	4.06
4.	A huge amount of money is spent on advertisements to pamper the buyers	4.00
5.	Children are the main focus of marketers	3.99
6.	It is important for marketers to have an impact on children	4.08
7.	Television is the main place for children to learn and thus a great place to promote products and services too	4.04
8.	Television and other digital media channels have a huge contribution in the buying decisions in case of children	4.12
9.	Gender is also an important attribute for children to decide what to buy and what not to buy	4.03
10.	Same things don't influence children and adult for buying a product	4.01

Table 2 shows the opinions of the respondents. It is observed that Television and other digital media channels have a huge contribution in the buying decisions in case of children with the mean value of 4.12. It is followed by Advertisements influence the purchase decision of children as consumers (4.09), It is important for marketers to have an impact on children (4.08), and With an increased exposure to media channels, the effectiveness of advertisements has increased manifolds (4.06). Television is the main place for children to learn and thus a great place to promote products and services too (4.04), Gender is also an important attribute for children to decide what to buy and what not to buy (4.03), Children influence the purchase decision of their parents (4.02), Same things don't influence children and adult for buying a product (4.01) and A huge amount of money is spent on advertisements to pamper the buyers (4.00) were also considered important. Reasons like Children are the main focus of marketers (3.99) were also viewed as important.

Table 3

Sr. No.	Role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers	Mean Score	t-Value	Sig
1.	Children influence the purchase decision of their parents	4.02	6.437	0.000
2.	Advertisements influence the purchase decision of children as consumers	4.09	6.869	0.000
3.	With an increased exposure to media channels, the effectiveness of advertisements has increased manifolds	4.06	6.359	0.000
4.	A huge amount of money is spent on advertisements to pamper the buyers	4.00	4.849	0.000
5.	Children are the main focus of marketers	3.99	4.987	0.000
6.	It is important for marketers to have an impact on children	4.08	6.657	0.000
7.	Television is the main place for children to learn and thus a great place to promote products and services too	4.04	6.440	0.000
8.	Television and other digital media channels have a huge contribution in the buying decisions in case of children	4.12	8.178	0.000
9.	Gender is also an important attribute for children to decide what to buy and what not to buy	4.03	6.353	0.000
10.	Same things don't influence children and adult for buying a product	4.01	6.153	0.000

Table 3 shows the results of t-test. It is found from the table that the significance value for all the statements is below 0.05, hence all the statements regarding role of Advertisement Effect and Marketer influence on final Purchase Decision of Children as Consumers are significant.

VII. Conclusion

Advertisement and other promotional campaign have their target audience. If designed carefully then strategies would vary to influence the target audience with a desired effect.

Children have emerged as a segment which is now a seriously targeted consumer since they have disposable income and also they influence the parents buying decision to a great extent. New technologies have emerged and children's reach to the same is also increased. Marketers have become careful in terms of designing the advertisement and the effect it has.

Designing specific advertisement for children and airing in the TV programmes which children watch mostly and carefully studying the vulnerability and cognitive development which is in the making stage and perception which changes very fast it is a challenge and demands for support to make the effect as desired.

Advertisement and their effect also calls for a regulatory system in place to monitor the negative impact it has on children and provide guidelines to design the promotional activities and products in the standards set for them.

Practical Implication

Knowing the future customer is always helpful for the marketer and it helps in designing better and effective strategies. Since Children are the current and future customer bother knowing them early will help the marketer to design strategy more focused.

Understanding the decision process and stages will help in integrating the same with product life cycle and the selling process. Understanding the role played by children in the purchase decision and the level of influence will help in allocating the budget and appropriate advertisement designing. Understanding the children and designing appropriate strategies for products related to them will be very help full for the marketer.

Since understanding children and their behaviour, ways to communicate with them better will be effective tool of promotional campaign.

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Minimization in Information Leakage in Multi-cloud with TAFC

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Abstract

The cloud is a new technology, and cloud-based storage is a novel concept that allows users to not only upload data to the web, but also to have instant access to available resources and share data with anyone at any time. However, cloud is a technology that presents a difficulty to those researching and locating forensic evidence that may aid in forensic analysis, because data saved on cloud can be accessed from anywhere and from any device, leaving very few traces behind. This research offered a dynamic method to data leaking in the cloud with resource optimization. The project also provides a time-saving way for finding and deleting duplicates by employing file checksum algorithms to calculate the digest of files. This approach advises eliminating duplicate data, but the user has been given some powers, and each user has a unique token, according to the duplication hunt. This method is more dependable and utilizes fewer cloud resources. The proposed scheme has also been proved to have a low overhead in duplicate removal when compared to standard deduplication techniques. This research looks at deduplication of file data in the cloud at both the content and file level.

Keywords: Data Mining, RBAC, Multi cloud data security, Proxy Key generation,

I. Introduction

Several contemporary RBAC systems with diverse middleware partners use the user authentication mechanism. Unauthorized access to centralized data is common among end users. The suggested study looks into the security of private data sharing, unauthorized access, security against SQL injection attacks, bruited forced attacks, and collusion attacks. End customers will be able to authenticate their requests in less

time as a result of the anticipated change. The fundamental technique displays the numerous verification organizations that are capable of determining an end-user verification threshold. In both secure and untrustworthy cloud environments, the proposed verification methodology works. Identity-based encryption is occasionally used in conjunction with end-to-end encryption utilizing the ring signature approach. The protection of network applications from external attacks requires a high level of data security. In runtime applications, snapshot creation is one of the most secure mechanisms. To take a snapshot and study it so that future attacks might be avoided. This is the most effective strategy for detecting both the attacker and suspicious behavior. This has advantages for both the application system and the cloud environment. The proposed solution both detects and prevents user harmful behavior. The system is also capable of preventing future environmental threats. The issues of digital forensics in the cloud are the topic of this research. Many clients have recently been misusing the cloud environment to store and distribute unlawful material. For cloud environments, a specific digital forensic framework is required.

In a cloud context, the system presents an efficient solution to data leakage detection and prevention. To reduce the time it takes to rule out false positives, the current study used file data checksum extraction. The user id, filename, height, extension, checksum, and date-time table are all stored in the target file, whereas the user id, filename, height, extension, checksum, and date-time table are all stored in the source file. When a user uploads a file, the device first calculates the checksum, which is then compared to the database's checksum data. If the file already exists, the record will be updated; if not, a new database entry will be generated. Owners of data, cloud servers, data customers (users), and authority (admin). Cloud computing includes virtualization, distributed computing, networking, apps, and online services.

A cloud is made up of clients, datacenters, and distributed servers. Fault tolerance, high availability, scalability, versatility, fewer user overhead, lower total cost of ownership, and on-demand services are just a few of the characteristics it offers. Data de-duplication is a technique for recognizing duplicate data in storage. Deduplication strategies are identified, and non-unique data is removed.

II. Literature Survey

As indicated by Kaiping Xue [1] propose another heterogeneous engineering to settle the single-point execution bottleneck issue and give a more strong access control conspire with an evaluating instrument Multiple quality specialists are utilized in our framework to appropriate the weight of client authenticity check. In the interim, a CA (Central Authority) is executed in our plan to make stowed away keys for clients whose authenticity has been tried. Not at all like other multiauthority access control frameworks, our own handles the whole characteristic assortment separately for every power. We additionally recommend an inspecting component to distinguish the AA (Attribute Authority) has directed the legitimacy check strategy inappropriately or malevolently to further develop security.

Kan Yang and et. Al.[2], proposed a revocable multi-authority CP-ABE plan, and use it to plan the information access control plan's fundamental methods. Both forward and in reverse assurance can be accomplished easily utilizing our trait disavowal device. In multi-authority distributed storage frameworks, where various specialists coincide and every authority might give credits independently, the framework frequently plan an expressive, solid, and revocable information access control conspire.

The framework [3] proposed a solid technique for hostile to intrigue key dissemination that doesn't rely upon outsider organizations, and clients can get their private keys from the gathering proprietor in a protected way. Second, this approach can have fine-grained admittance control; any client locally can get to the cloud source, and disavowed clients can't re-access the cloud in the wake of being repudiated. Third, the component will shield the plan from plot assaults, which guarantees that regardless of whether disavowed clients converge with an untrusted cloud, they cannot get to the genuine information record. In this technique, the framework can finish a safe customer refutation contrive by utilizing polynomial capacity; at long last, this arrangement can accomplish fine execution, suggesting that previous customers don't have to invigorate their denied from the local area.

As indicated by [4] proposes The main element of the key-approach highlight is that it depends on KP-ABE with non-monotonic access designs and standard code text size. The framework additionally proposes the principal Key-Policy Attribute-based Encryption (KPABE) approach that upholds non-in all actuality access structures (i.e., those with invalidated characteristics) and has a steady code text size. To achieve this, the structure initially shows that in the specific set model, a specific class of personality based transmission encryption plans yields monotonic KPABE frameworks. The framework then, at that point, depicts another character based repudiation instrument that, when joined with a particular occurrence of our overall monotonic development, yields the main truly expressive KP-ABE acknowledgment with steady size figure text.

As indicated by F. Zhang and K. Kim [5] proposed a Both techniques are centered around bilinear pairings and the Java matching library, and both depend on ID-based ring marks. Also, the framework assesses their security and execution in contrast with different existing procedures. For information encryption and unscrambling, the Java Pairing library (JPBC) was utilized. Some client access the board arrangements are intended for end clients while additionally ensuring the information proprietor's protection and classification.

In approach [6], propose the main Identity-based edge ring mark strategy without java pairings. It proposes the principal edge obvious ring mark method in view of personality. The strategy likewise analyzes whether the singular underwriters' security is saved despite the fact that the Identity-based framework's PK generator (PKG) is utilized. At long last, the gadget shows how to join character intrigue and other existing base plans. The structure proposed in this paper really structure a set-up

of Identity based sift old ring mark techniques, which are comparable to some genuine frameworks with differing levels of underwriter vagary they support.

In [7], framework initially approves the security prerequisites of entire engineering, and after that adds to in the security design. Framework proposed AES 128 16 digit encryption approach for start to finish client confirmation and information encryption/unscrambling reason.

As per Kan Yan [8], System proposed CP-ABE (Cipher text-Policy Attribute-based Encryption) is a promising technique for controlling admittance to encoded information. It requires the administration of all credits and the dispersion of keys in the gadget by a confided in power. Different specialists coincide in distributed storage conditions, and every authority can give credits autonomously. Because of the failure of unscrambling and renouncement, current CP-ABE plans can't be expressly stretched out to information access control for multi-authority distributed storage frameworks. In this paper, structure proposes DAC-MACS (Data Access Management for Multi-Authority Cloud Storage), a productive unscrambling and denial information access control plot. Specifically, the framework fosters a new multi-authority CP-ABE plot with proficient unscrambling just as an effective property disavowal technique that gives both forward and in reverse insurance.

The framework [9] proposed CaCo is a viable Cauchy coding method for cloud information stockpiling. To start, CaCo creates a lattice assortment utilizing Cauchy framework heuristics. Second, CaCo creates a succession of timetables for every framework in this assortment utilizing XOR plan heuristics. CaCo chooses the most brief timetable from every one of the delivered plans in the subsequent advance. Thusly, CaCo can observe an ideal coding plan for some random overt repetitiveness setup that is inside the capacities of the present status of the craftsmanship. CaCo is likewise executed in the Cloud dispersed record framework, and its exhibition is contrasted with that of "Cloud 2.5." Finally, the creator proposed that this technique work on the security of conveyed document frameworks by utilizing an effective information stockpiling plan.

Ibrahim Adel [10] characterizes HDFS presently has another copy position technique. The issue of burden adjusting is tended to in this paper by disseminating imitations similarly among bunch hubs. Subsequently, there is no requirement for any heap adjusting programming. The recreation results show that IDPM can create reproduction disseminations that are totally even and stick to all HDFS imitation position laws. IDPM is planned for use in bunches where all group hubs have similar registering abilities. The new proposition has a ton of potential for future work. HDFS imitation arrangement strategy Since information block copies can't be consistently appropriated across group hubs, HDFS presently depends on a heap adjusting utility to adjust reproduction disseminations, which takes additional time and assets. These troubles require the making of keen techniques for settling the information situation issue and accomplishing high productivity without the utilization of a heap adjusting utility.

III. Problem Statement

The proposed study's purpose is to design and implement a solution that protects data from collusion assaults in both trusted and untrustworthy cloud settings. The system will focus on long communication situations between data owners, end users, and authorities, using numerous security mechanisms to provide the highest level of protection of all current systems.

IV. Implementation Details of Module

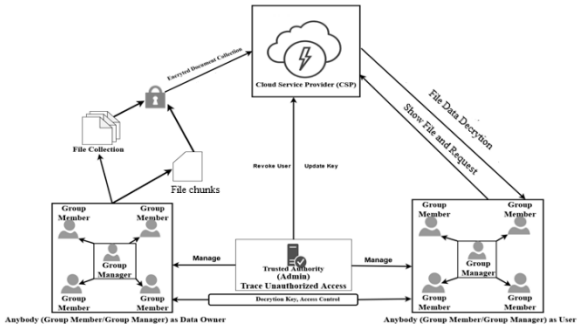

Figure: System Architecture

We proposed a secure information sharing plan. Initially, we offer a secure way for key distribution using secure communication channels, and clients can obtain their private keys from the gathering chief in a secure manner. We use three different entities in our proposed system: the data owner, the group manager, the cloud server, and the attacker, who is an untrusted entity. In this module, the data owner uploads the data file to the cloud server using a cryptography method. Once the data is stored in the database, the owner receives a message that the file has been successfully stored. The data owner has complete access to any data file that he can share or access, so the data owner can share any file with any group manager, and it will be accessible to all group members immediately. Members of a shared group can view each file via a cloud server at any time. In the first phase, if the data owner prevents a user from accessing a file, that user is unable to access that file. Even if he is able to create a collusion attack using SQL injection queries, our system will detect it and block it. Second, the data owner can share and revoke files to specified users or groups, and third, once any user is revoked, the system will issue proxy keys, which means that existing keys will expire. The total strategy significantly increases system efficiency and security. For safe de-duplication, the framework is proposed to incorporate efficient de-duplication with system stability for file-level and block-level de-duplication, respectively.

Our system does a first-level replication scan when a user tries to upload a file. If a file is duplicated, the storage server will reject it, saving space equivalent to the file length. If the file is not duplicated, it is divided into fixed-size blocks. Using safe secret sharing systems, data is separated into fragments and stored at various nodes. Before uploading these blocks, they are duplicated at the block level. The system's

security will be evaluated in two ways: duplicate check authorization and data confidentiality. The stable de-duplication scheme is made up of convergent encryption, symmetric encryption, and the POW scheme. Encrypting data before transmitting it to the storage server ensures data security.

V. Conclusion

The proposed matrix approach, access control mechanisms, and encryption standards were all investigated. We'll use it to create independent cloud-based secured data recovery solutions with multifactor authentication for organizations. a novel process that includes all current matrix and scheduling algorithms, is the focus of the proposed study. As a result, it can classify an ideal coding structure for a given period redundancy configuration within the current state-of-the-art. Decision-making process has a standard difficulty and can be sped up with parallel computing.

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Designing a System for Vedic Sanskrit Recognition Using OCR and CNN Algorithm

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Abstract

One of the most dynamic and hard study fields in the realm of image processing has been handwritten and online recognition. The major goal of the paper is to employ a dictionary-based approach to recognise handwritten Sanskrit (Vedic) words. The majority of current work in these fields, however, is limited to English and a few oriental languages. Information extraction from a significant corpus of cultural and historical materials has been hampered by the absence of appropriate solutions for Indian scripts and languages such as Sanskrit. The word picture is recognised and represented using the CNN (Convolutional Neural Network) Algorithm and an ORC-based method.

Keywords: Smoothing, segmentation, classification, ORC, CNN Algorithm

I. Introduction

Both online and handwritten character recognition are included in offline character recognition (HCR). Handwritten characters come in a wide range of styles from one person to the next. Due to the wide variety of variances, it is difficult for a machine to recognise. Optical Character Recognition (OCR) research has been ongoing for decades, but the field's aim remains elusive. The bulk of studies have used image processing and pattern recognition to try to tackle the problems.

In Pattern Recognition research, OCR (Optical Character Recognition) is a popular issue. The two qualities that may be used to identify OCR techniques are the data collecting procedure, which can be on-line or off-line, and the kind of text, which can be printed or handwritten. Sanskrit is the oldest language in the world, dating back over 2000 years. However, scholarly work on Sanskrit languages is severely limited due to the language's intricate structure and history. This research explains the phases involved in the recognition process. HCR is divided into three phases: pre-processing, feature extraction, segmentation, and classification. The goal of the pre-processing stage is to provide a clean character image that the programme may use directly and effectively.

The stylistic differences of various writers' handwriting, as well as different styles of the same writer at different eras, have a significant impact on character identification in handwritten texts, whether online or offline. Character recognition is further affected by the distortion and noise created during digitisation, which reduces recognition accuracy. This solution uses an efficient feature extraction methodology and a genetic algorithm-based classifier to overcome these challenges.

II. Literature Survey

Different research on the identification of various characters have been undertaken. OCR systems designed for characters and languages comparable to English, Chinese, and Japanese are the most powerful and efficient. A large research effort on Indian languages and scripts has just been proposed. Sanskrit scripts have dominated Indian character recognition research in the past and now. The technique is also used on compound words for identification and classification purposes by extracting different properties. In order to enhance recognition accuracy, several classifiers were compared. Sanskrit in its pre-Classical form is known as Vedic Sanskrit. The Rigveda is the earliest Sanskrit text known, dating from the mid- to late-second millennium BCE. Despite the lack of written records from such a distant time, researchers believe the writings were passed down orally: they are ceremonial literature, and the precise phonetic presentation and preservation of the texts were part of the historic tradition.

Namita Dwivedi et al. [1] preprocessing technique to recognise Sanskrit words uses Prewitt's operator for extracting features from an image thinning process. Thinning is an important pre-processing step in OCR. The purpose of thinning is to get rid of extraneous data while maintaining the image's identifiable features. For feature extraction, a heuristic technique is employed in the domains of analysis and pattern recognition. For nonlinear segmentation of many characters, a genetic method is utilised. For better level classification accuracy, this recognition model was constructed using SVM classifiers.

Sarbajit Pal et al. [4] proposed a statistical technique for handwritten character identification based on projections. They suggested four-sided character projections that were smoothed out using polygon approximation. Using virtual reconfigurable

architecture-based evolvable hardware, Wang Jin et al. developed a variety of identification systems. A statistical pattern recognition-inspired technique was presented to increase the recognition accuracy of the suggested systems.

Gradient feature extraction strategy for identification of Sanskrit words was developed by Nikita Gaur and Dayashankar Singh et al. They employed the sobel operator for edge detection. In image processing, the Sobel operator is commonly employed in edge detection techniques. It's a discrete differentiation operator that computes an approximation of the picture intensity function's gradient. The MLP network was fed with skeletonized and normalised binary pixels of English characters as inputs. The findings of the structural analysis demonstrate that as the number of hidden nodes grows, so does the number of epoches required to recognise a handwritten character. Many attempts have been undertaken to achieve a level of accuracy of 94 %.

III. Proposed System

Preprocessing, feature extraction, categorization, and so on are some of the general phases in classification and recognition. Smoothing and binerization are two technologies used in preprocessing. The curve of the character, which determines the form of the character, is the feature extracted. In the classification stage, a genetic algorithm will be employed for classification and optimization.

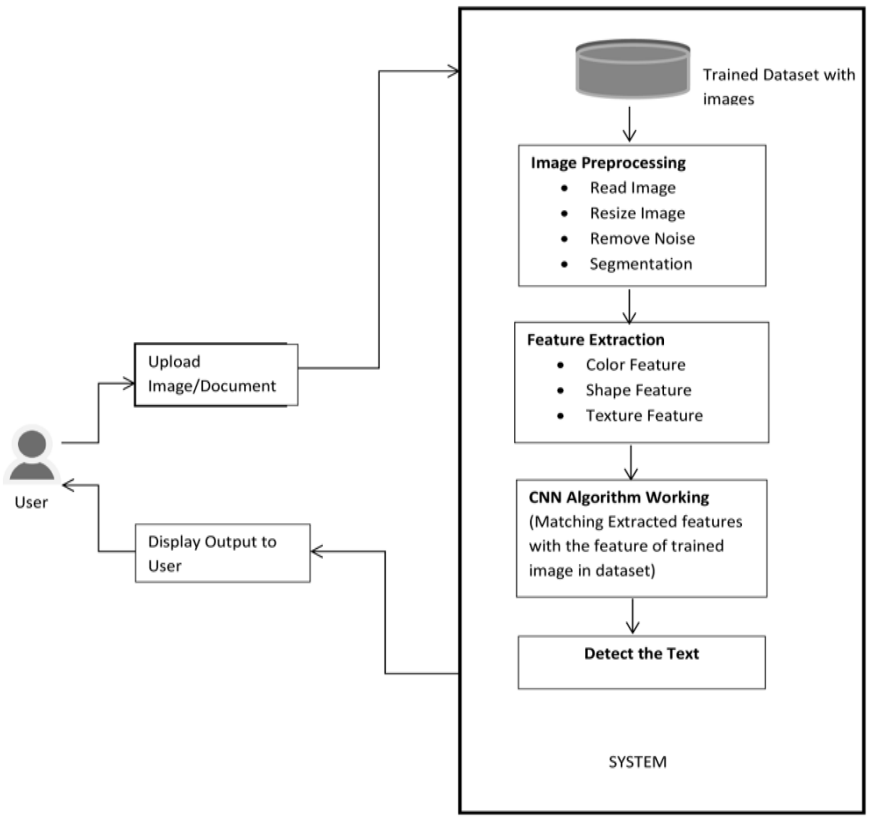

Figure 1: Proposed System

3.1 Image pre-processing

Pre-processing involves converting a scanned document to a binary image and using different noise-reduction algorithms to make it ready and suited for feature extraction and subsequent recognition computations. Segmentation to extract individual characters, skeletonization, contour creation, normalisation, filtering, and other procedures are among them.

3.1.1 Smoothing & Binarization

In off-line OCR, a sensor, such as a scanner or a camera, captures the handwritten picture to be identified. The removal of noisy areas, smoothing of background texture, and contrast enhancement between background and text sections all need pre-processing of grayscale source images. The input grey level picture is first filtered using the Wiener filter and then binarized using Otsu's approach for smoothing. Filters are often used to remove undesired items or objects from a spatial domain or surface. The majority of photos in digital image processing are influenced by numerous disturbances. The filters' major goals are to increase picture quality by boosting the interoperability of the information contained in the images for human use.

The original picture is linearly estimated using the Wiener filtering.

Binarization or thresholding is the process of converting a grayscale image to a binary image. For converting a grey level image to binary form, there are two methods: global threshold and local or adaptive threshold. The global threshold picks a single threshold value based on the image's intensity histogram's assessment of the background level. The local or adaptive threshold assigns various values to each pixel based on the information available in the immediate region. Binarization is used to determine the size of items while simultaneously concentrating on form analysis. Thresholding is done using a variety of approaches, including the Otsu method. The most popular method for finding the threshold is to examine the histogram of grey values.

3.2 Feature Extraction

Smoothed pictures are used to extract characteristics useful to classification after they have been pre-processed. The retrieved characteristics are stored in a database, which is used as input for the classifier's recognition phase. Feature extraction is critical in recognition systems since the classifier relies on it to categorise data. Freeman is mentioned in [1].

3.3 Classification

The extracted features are sent into the classification algorithm as input. In current systems, techniques such as the K-Nearest Neighbour approach, neural

networks, and SVM classifier are used to categorise character characteristics. The devnagari Sanskrit character is classified using SVM. In, the accuracy of SVM and NN for classification of devnagari Marathi character recognition is 99.62, 91.08, respectively. The devnagari character is classified using a Neural Network classifier with an accuracy of 91.02 percent. A GAs is a computer science optimization and search approach for finding fairly accurate solutions to problems. To recognise wordimage, a genetic algorithm is meant to be used for classification and optimization.

IV. Performance Analysis of Classification, Recognition of Character

The features extracted, pre-processing methods employed, feature extraction, several classifiers used for classification, and classification and recognition accuracy rates are shown in the table below.

Ref. NO.	Purpose	Feature Extracted	Classifier	Accuracy %
Namita Dwivedi, Nilam arya[1]	Sanskrit word recognition	Edge detection, Sobal operator Gradient Feature	MLP	95
U. Pal, B.B. Chaudhury[2]	Recognition of Offline Handwritten Devnagari Characters	Chain code feature	Quadratic classifier	80.36
U. Pal, Wakabayashi, Kimura[3]	Offline Handwritten Character Recognition of Devnagari Script using Genetic Algorithm for Improve Efficiency	-	Genetic Algorithm	98.78
Vedgupt Saraf, D.S. Rao[5]	Devnagari Script Character Recognition Using Genetic Algorithm	-	Genetic Alorithm	98.78

V. UML Design of System

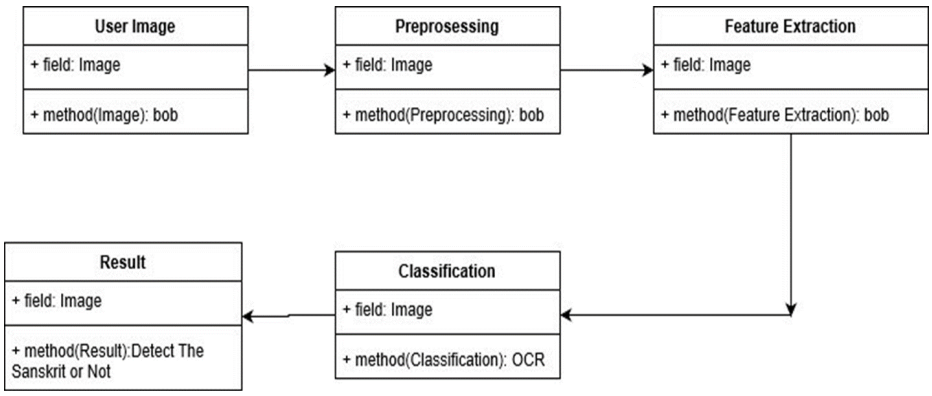

Figure 2: Class diagram

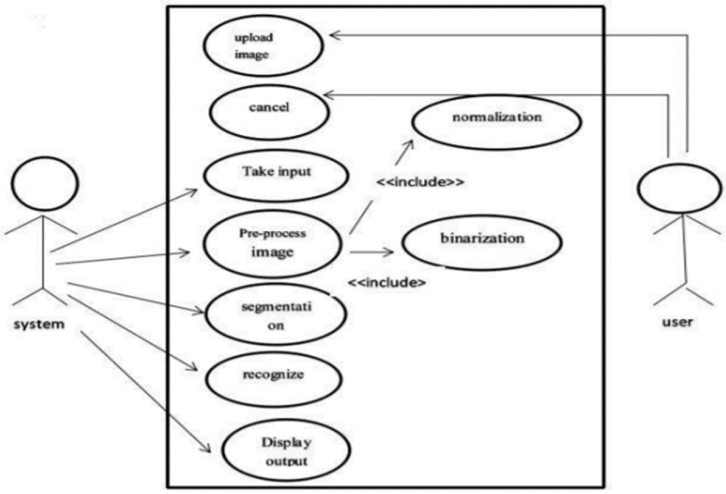

Figure 3: Use case diagram

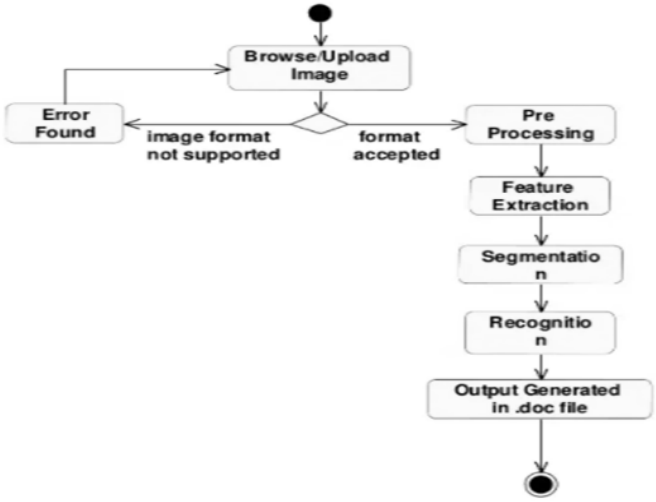

Figure 4: Activity diagram

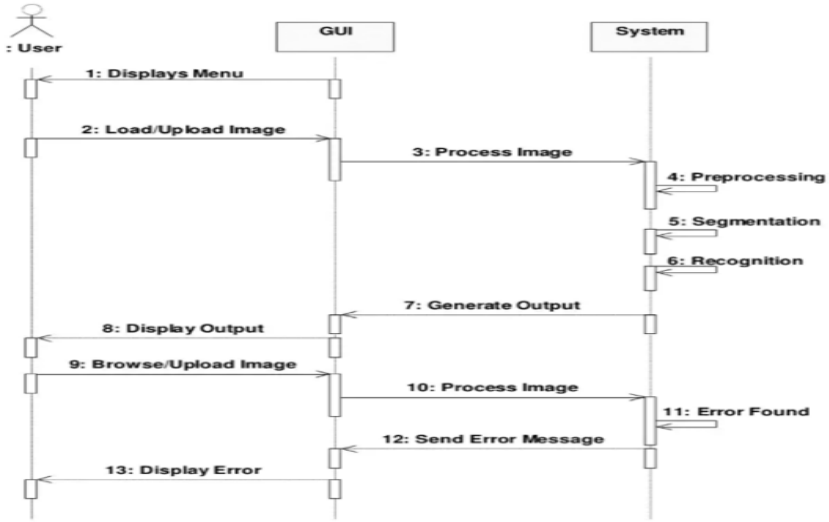

Figure 5: Sequence diagram

VI. Conclusion

Various methodologies and strategies for character categorization and recognition offered by various authors are presented. With the use of image processing, many approaches were proposed, and numerous characteristics were extracted before for the classification and recognition of various distinct characters. Varying classifiers have different levels of classification accuracy. While using the same classifier, the accuracy differs for various sets of characteristics. Two or more characteristics can be retrieved for improved categorization and grading. Designing of the proposed system was done.

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A Review on Voice Assistant and Chat BOT Using Machine Learning

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Abstract

Chatbots have become a more common way to connect with people as the smartphone market has grown exponentially over the previous decade, and their acceptance and usage are fast expanding.

A chatbot is indeed a conversational technology that emulates intelligent human interaction through linguistic terms. Chatbots started as a computer that mimicked a human's language, spoken/textual dialogue, and reaction, but today there has been a huge leap forward in the evolution of Assistants and Chatbots utilising thorough description technology.

This paper provides a framework for scholars to use in selecting topics for developing Conversational Chatbot technique. We'll look at how Chatbots are developed, as well as the Natural Language Processing Deep Learning techniques and algorithms that are used in this review paper. We'll also talk about how chatbots are revolutionizing industries including education, finance, payment service providers, and start - up companies like internet retailers.

Keywords: Machine Learning (ML), Deep Learning, Natural Language Processing, Voice Assistant, Chatbots.

I. Introduction

Voice is among the most effective tools of communication between people; thus, it is the goal of researchers and practitioners of interaction to enhance

language processing interaction in order to imitate human voice contact. Human-machine interaction with modern networked computer systems has gained a lot of interest in recent years, due to initiatives by Google, Android, and IOS, these large titans. As a result, speech interaction will play a critical role in personalising robots in the not-too-distant future. Increased human voice recognition rates have been the focus of much research, and the technology is now on the verge of being feasible for speech-based interpersonal interactions with Chatbots.

Voice interaction is divided into several categories, including Natural language processing (NLP), speech parsing, speech recognition, keyword extraction, Chabot architecture, artificial intelligence, and so on. A chatbot is a computer software that can have a human-like conversation utilising Natural Language Speech. Client satisfaction in the insurance business, such as credit card insurance, is rising in recent years. In addition, sources of information, policies, guidelines, and processes were needed for insurance staff. It's difficult for them to get all of the information they require. To get the answer, insurance agents had to brush through a huge amount of work. As a result, calling underwriting or marketing assistance for solutions to Queries or basic "how-to" queries was the only method to receive assistance fast. Because it takes a very long time to execute a single application, this overburdened contact center, resulting in excessive latency. Client experience with a company's products is frequently viewed as the key to a strategic and long profitability and growth. In a saturated market like credit or debit card insurance, a successful promotional approach is essential.

II. Literature Work

The concept and development of a smart speech recognition chatbot are presented in the paper [1]. Paper proposed a solution: a voice recognition framework for recognising voice which was used as a voice chat bot for websites to interact with users. The front-end interface, decoder, and language model are the three crucial parts of the speech framework. The voice input is collected and assigned by the front-end. The linguistic and acoustic model is being used to convert from a standard language (which serves as the system's input) utilising a dictionary and word creation from a look-up table (LUT). The characteristics and LUT are then used by a search manager in the decoder to decode the incoming speech into a result set.

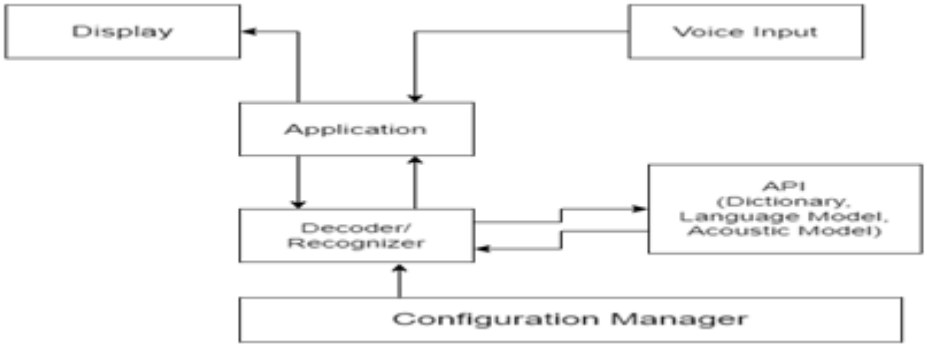

Figure 1: Speech Recognition Framework

The Paper [2] presents an AI based voice assistant. The principle behind this voice assistant is Automatic speech Recognition (ASR). This ASR system, at first records voice input then a wav file is created which contains words heard by device and next this wav file's acoustic analysis is done. In acoustic analysis, acoustic modelling, pronunciation modelling and language modelling is done. After analysis, the ASR system generates Text content.

Again, to convert text to speech it is sent to GTTS (Google text to speech). The GTTS engine will convert text into audio files.

Figure 2: Process of ASR

The Paper [3] presents Comparative Study on Voice Based Chat Bots like Amazon ALEXA, Microsoft Cortana, Google Assistant, Apple SIRI. Technologies used by them were NLP (Natural Language Processing) and CI (Conversational Interfaces). Google assistant and Alexa use NLP and CI. Cortana and Siri use NLP. Paper [3] also presented a short overview of NLP.

Working of NLP engine: -

Figure 3: Natural Language processing engine

Paper [4] presents various analyses and reports of usage of voice assistants like Amazon ALEXA, Microsoft Cortana, Google Assistant, Apple SIRI. Paper also tells

us about various applications where this voice assistant is used. They also showed the growth of Voice assistants in the current era. In this, they have attempted to investigate the usability details, and the satisfaction obtained after using the VAs for people who speak English as their secondary language and compare them with the native English speakers.

The Paper [5] presents the design and development of an Artificial Intelligence Voice Assistant. It makes use of artificial intelligence to improve one-on-one communication and hence increase consumer happiness. It will take the user's voice as an input, analyse the speech, and respond with appropriate output using various technologies such as Speech Recognition, Natural Language Processing and Text Analysis, Information Retrieval, Knowledge Representation, Speech Synthesis and Machine Learning. They also have implemented a simple mobile application for testing their proposed framework. A mobile application takes voice as input, converts into text and then responds with the required answer with audio as well as text.

[6] The SUS test, abbreviated as Semantically Unpredictable Phrases, based on the experimental results, there is a requirement of valid syntactic structure but the semantic meaning is not necessary.

For the SaaS (Software-as-a-Service) platforms, automatic translation services and assistive features can be enabled using a speech-to-speech pipeline.

Text streams are the converted product of speech audio streams, which is translated by a speech recognition phase, and this process is continued by the synthesis phase because of which the text is translated back into sound by the usage of a computer-generated voice

To check the simulation of how a message on the speaker's phone might be converted into text, Mozilla's version of Baidu's Deep Speech architecture was used to transcribe the uncompressed audio samples. Later, the transcriptions were saved as text files.

Following table represent WER abbreviated as Word Error Rate Analysis of the selected compression method paper [6]

Table 1: Analysis of the Error Rate in Words.

	Words	Correct	Subst.	Ins.	Del.	WER (%)
TTS	6.77	5.87	0.61	0.09	0.29	14.49
TTS(Perfect)	6.78	6.06	0.47	0.05	0.25	11.16
PCM 0% loss	6.82	6.27	0.36	0.07	0.19	9.00
PCM 5% loss	6.76	6.10	0.36	0.06	0.30	10.60
PCM 10% loss	6.74	5.76	0.36	0.10	0.61	15.95

The words were normalized so that words with similar sounds but different spellings could be included.

The Word Error Rate (WER) was used to measure the sentences back then, which represents that, to obtain the hypothesis sentence, The statement about the underlying data had to be modified.

$$WER = \frac{S + D + I}{S + D + C}$$

The outcomes of Correct words (C), Insertion (I), Deletion (D), and Substitution (S) are often averaged and reported as the fewer edits necessary to transform one phrase into the other, and is therefore referred to as the 'edit distance' between the sentences. This equation, which is expressed in percent, shows how many ground truth sentences were altered to create the hypothesis.

Paper [7] The CMU pronunciation dictionary is meant to convert graphemes to phonemes in the North American English dialect, making it useful for speech synthesis and recognition. The vowel pronunciation has to be changed to make it suitable for Indian English.

Table 2: Rules for phoneme sequence.

Grapheme	CMU phoneme	Revised phoneme
o	aa	ao
au	aa	ax
au	ae	aa
a	ih	eh
i	ax	ih
u	ax	uw (if preceded by y phoneme)
u	ax	uh (if preceded by f phoneme)

Table no 1 rules are defined to refine phoneme sequence of CMU dictionaries [7].

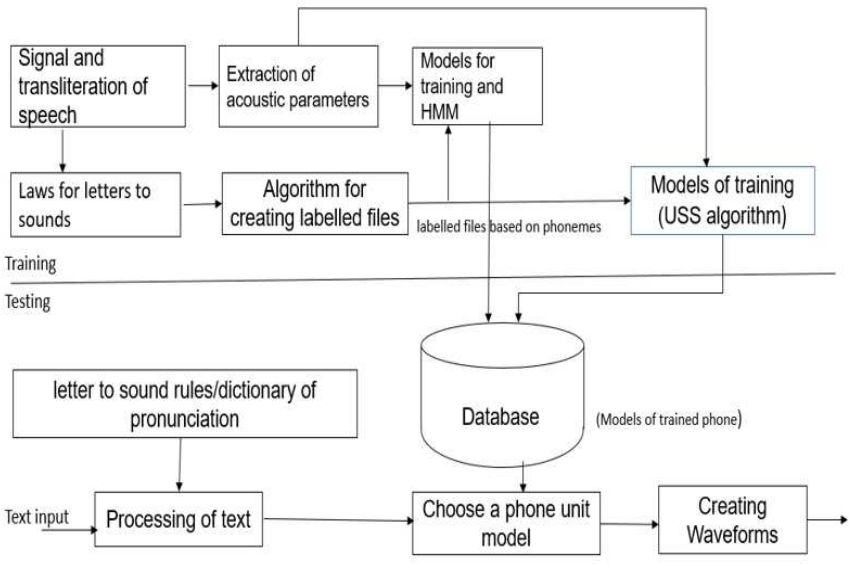

Figure 4: Following figure, no 4 shows the/ process of proposed technique [7]

Paper [8] Text-to-Speech (TTS) technologies are used to create high-quality, natural-sounding speech. The Linear Predictive Coding (LPC) technique, which is a sophisticated Digital Signal Processing (DSP) filter, was used to synthesize the input voice. The Natural Synthetic Speech Approach (NSSA) is a real-time speech synthesis augmentation methodology that reduces noise.

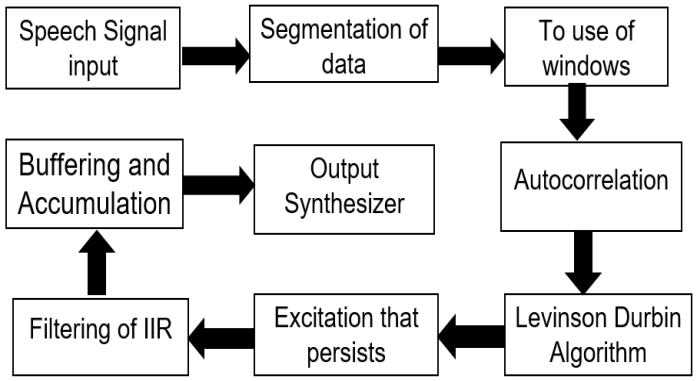

Figure 5: Levinson-Durbin algorithm and linear predictive coding (LPC) algorithm usage

Above Fig no 5 displays the entire process by showing the Levinson-Durbin algorithm and linear predictive coding (LPC) algorithm usage to form the input voice signal to the synthesizer system's output.

Paper [9] focuses on the use of chatbot in the educational domain. It uses Ensemble learning as Random Forest (RF) to develop a chatbot which gives answers to questions asked by users. RF reduces the overfitting problem and the result is obtained by taking the majority of classification results given by each decision tree.

Table 3: Evaluation of proposed chatbots using precision, Recall, F-measure.

K-fold values	Weighted			Macro		
	Precision	Recall	F-Measure	Precision	Recall	F-Measure
K=10	0.864	0.882	0.867	0.869	0.888	0.874
K=20	0.867	0.884	0.868	0.860	0.877	0.861
K=30	0.873	0.889	0.875	0.869	0.886	0.867
K=40	0.863	0.886	0.867	0.871	0.888	0.872
K=50	0.869	0.888	0.870	0.862	0.883	0.865

Above Table shows that the proposed system gives an average F-measure score as 0.87. This paper uses 1000 questions-answers pairs for experimentation and got accuracy of 88.6% and have successfully deployed as telegram bot

Paper [10] also focuses on implementation of chatbot in the educational domain. Designed chatbot gives answers about any University related questions asked by the user in Myanmar Language. Bot is implemented on the Pandorabots server.

Figure 6: Human Computer Interaction.

Artificial Intelligence Markup Language (AIML) is used to build a knowledge base which is fed by 970 question-answer pairs. Various AIML tags were used to get required information from the bot.

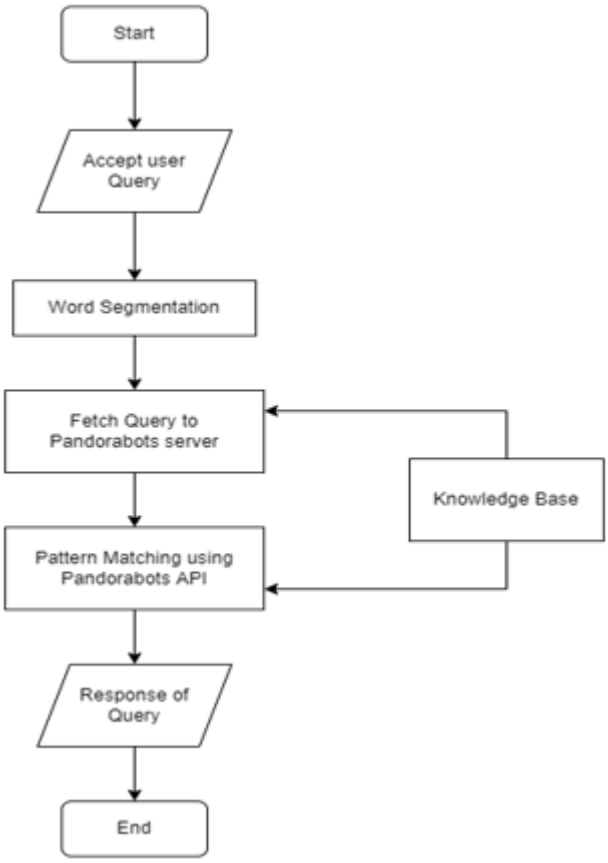

Figure 7: Above Diagram shows the flowchart of the proposed system of this [10] paper.

Paper [11] uses Crowd Computing to provide the below chatbot architecture which uses parallel processing ML and AI enabled chatbot.

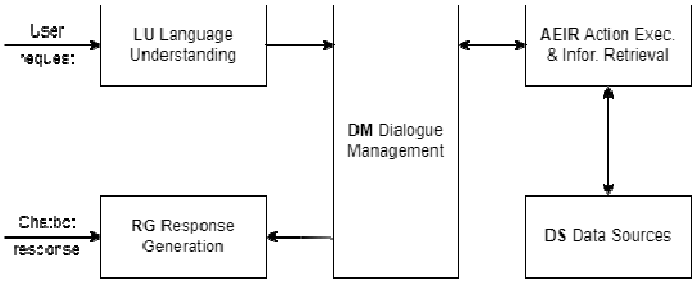

Figure 8: Chatbot Architecture.

The above architecture is similar to 3 tier layered architecture. Language understanding (LU) decodes the user input and Response Generation (RG) unit gives the expected response to the user. DM unit extract the required information form data source (DS).

This paper mainly focuses on how Enterprise Crowd Computing can support Human Aided Chatbots in terms of capacity and privacy.

The Paper [12] discusses the use of voice assistants in the service industry. The paper gives a quick overview of voice assistance, facilities, accuracy, and the use of speech technology by various service businesses.

The paper primarily provides an outline of three topics –

1) How does the growing number of voice assistant providers affect the skill set of voice assistant devices?
2) How an industrial titan employs these abilities to expand their consumer base.
3) How do consumers become a part of this ecosystem by purchasing these devices?

They discuss how UBS uses his voice assistant, "Amelia," to interact with client sales associates to transfer cash from the deceased to the beneficiaries and to help employees in validating facts and filling out forms in this document.

They discuss how the voice assistant has revolutionized the banking industry. Customers have been using financial applications for personal banking for a long time since they allow them to do their banking on the go. Mobile devices are used for tasks that do not require personal involvement. Customers benefit from the ease and accessibility given by the company. They have the luxury of speech-enabled digital banking. The early notion of voice assistance services attracted Bank of America, which invested in Erica, a start-up that combines predictive analytics and cognitive messaging to help people manage their finances.

In the field of education, voice assistants are helping to educate both children and adults. Alexa, Amazon's personal voice assistant, has a skill that allows teachers to create content automatically using voice commands.
Alexa is also beneficial in the healthcare field for scheduling appointments, patient information, pharmacy information, and pharmaceutical information facts.

The paper [13] shows how to use Python to create an AI-based voice assistant. As we can see, all voice assistants rely on cloud technology to execute their functions, but this article proposed a way for building a local voice assistant that does not rely on online services, allowing for a considerable increase in the applicability of such devices in the future.

Table 4. illustrates the technologies utilised to construct intelligent systems that communicate with humans using natural language.

Voice Technology	BRAIN TECHNOLOGY
Voice Activation	Voice Biometrics
Automatic Speech Recognition (ASR)	Dialog Management
(Teach-To-Speech (TTS)	Natural Language Understanding (NLU)
	Named Entity Recognition NER)

The phases involved in the proposed framework's implementation

1) They started by analysing the audio commands that the user gave through the microphone. This can include obtaining any information, manipulating the computer's internal files, and so on.
2) After analysing the audio commands received, the spoken input is converted to text using speech recognition.
3) This text is then sent to the central processor, which detects the command's type and invokes the appropriate script for execution.

They explored the design and execution of a Digital Voice Assistance in this study. The project is made up of open-source software modules that have the support of the PyCharm community and can be updated in the near future.

The study [14] investigates how chatbots and voice assistants are utilised in regular activities and whether they have the potential to be used for educational purposes.

The problems are the primary emphasis of the paper.

1) What role do smart speakers and voice assistants play in the lives of children, adults, and the elderly?

In this paper, they discuss a study conducted by several academics to see how families pick up new Alexa abilities such as storytelling, music and gaming and integrate it into their daily lives.

After their discussions with the families, they shared that Alexa's interactions with them usually resulted in a lot of shared laughter and a few instances of mockery. All of the above activities, according to the study, led to social and emotional connection, resulting in increased family cohesiveness.

Data on the usage of voice assistants by elderly persons is inadequate due to the late introduction of voice assistance. According to a few studies, older individuals mostly utilise voice help for search engines and other computer skills, but sometimes as a translator or even a teacher.

They also discussed how voice assistance is a lifesaver for those with disabilities in this section. Nearly 38% of evaluations referenced difficulties related to

people who are visually impaired or eyesight, indicating that voice assistants could be very useful for this population.

2) What role have voice assistants and smart speakers played in education?

Artificial intelligence (AI) may be used in education to help students learn more effectively by giving timely and accurate information.

This paper discusses Scarlet, an Artificial Teaching Assistant, however it has yet to be tested in an educational setting.

Natural language processing, pseudo contextual data processing, and trial - and - error learning are the three components that make up Scarlet.

3) What types of security issues do consumers have when using voice assistants and smart speakers?

The Children's Online Privacy Protection Act (COPPA) and the Family Educational Rights and Privacy Act (FERPA) are sure to cause difficulties since equipment can differentiate children's voices (FERPA).

After conducting a survey by researchers, it was discovered that 56% of participants were unaware that their recordings were saved forever and that they could review them.

Only 3% of participants went back through their recordings and erased them. Moreover, just 5% of the participants used their smartphone's mute button to stop listening, and only 4% unplugged their handset to stop listening. Privacy protections are underutilised, according to the studies.

To summarise, research on the use of these technologies in the classroom is still in its early phases, and further research is required.

III. Conclusion

The suggested study will assist learners to gain the fundamental approaches employed in constructing their own voice Assistant / Chatbot Assistant. The different methods and obstacles of current strategies are examined in this paper. Experiments in various papers show that voice assistants and chatbots can be used to improve the interaction of users with systems for various applications. In a review, chatbot applications are extremely significant in industries where rapid responses are required, such as banking, online services, credit card services, and so on. More study is needed in this area to increase efficiency to respond to users' query accurately.

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The Urge for Technology in Organic Food Sector

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Abstract

A tremendous growth is being witnessed in organic food industry over rising popularity on all-natural and organic products, which means the need for marketing the organic food products. This rise made the marketers to think about a better and quick way to advertise organic products and that leads to digital platform. Organic food sector along with technology represents an emerging opportunity. When we go through the previous studies related to this area it can be clearly understood that technology (i.e) social media is one of the important factor via which consumers get to know more about organic foods. This paper puts-out the urge of technology in organic food sector and perspectives of consumers towards the same, as this would help the organic food marketers to make use of the emerging and cost friendly opportunity to market their products.

Key words: Consumer Perspectives, Organic Food Sector, Technology in Food Sector, Urge of Technology.

I. Introduction

As the millennial age is progressively getting to be mindful of the geniuses appended to being healthy, the organic products have increased huge ubiquity in last couple of years (Rishabh Chokhani 2019). In recent years, organic food has risen to prominence as a significant component of the food retailing industry, moving away from niche markets (Leila Hamzaoui, et.al 2012). Despite the fact that there are a significant number of studies in the literature examining dairy farmers' attitudes on organic farming and it's social and economic implications (Oluwasefunni, et.al 2020). In the countries that lead organic food growing and consumption, distributors promote their own line of organic food goods under distinct registered brand names (Leila Hamzaoui, et.al 2012). Awareness along with demand, support from government, e-commerce hike, etc., are major factors that are deeply involved in the surge of India's organic food industry (Rishabh Chokhani 2019). Now-a-days most of the consumers are online and they highly look for the brands that provide both offline and online services. And the marketers also think that technology is the most accessible platform to reach and communicate with more number of consumers (Bizadmark 2021). It cannot be avoided mentioning that "Technology fixing the supply chain to enable fair-practice and A natural, organic - healthy way of living are the new normal" (NuFFooDS 2021). Recently there is a notable compelling growth in the platforms of e-commerce that specifically deals organic products. As per their need and

affordability, these platforms equip the consumers to pick the best for themselves (Rishabh Chokhani 2019).

II. Literature Review

Oluwasefunmi, et.al (2020)[1]: the goal of this project is to create a mobile application for marketing organic farm products that includes automated geo-location services, preferred goods delivery services, and easy access to various organic farm products. As a result, "Orgfarmob marketplace" was created, a mobile application that aids in the buying and selling of organic products by providing users with access to an e-commerce platform.

Jun-Jer You, et.al (2020)[2]: in order to overcome the information that consumers use social media to receive messages about organic food asymmetry, and that social media is playing a critical role in the promotion of certified organics, the study focused on developing an integrated model to explain and predict consumers' purchase intentions for organic foods based on the concepts of Bhattacherjee's Post-Acceptance Model (PAM) and Goodhue and Thyssen's Task-Technology Fit (TTF) model.

Iryna Novytska, et.al (2021)[3]: the availability of digital technologies for a wide range of businesses creates fundamentally new options for market and consumer data collecting and analysis, marketing communications with customers, and brand awareness building. It has been established that social networks are the primary channels of digital marketing firms – organic product producers – since they do not necessitate the expenditure of additional funds to hire a marketing specialist.

III. Technology in Organic Food Sector

Changes have been made in the methods of farming with the hasty use of innovations like AI – Artificial Intelligence, Smart Farming, ML – Machine Learning and Precision Data. This further strengthens the sustainability of fair-trade practice sequence, as technology in sourcing ethical products like organic foods can be an aid. Farmers and Local vendors being a vigorous part of our ecosystem sovereign marketplace, is ensured by the elimination of middlemen (Shivranjani Gupta 2021). Technology is used as a podium by which the desired information regarding organic foods can be displayed by the marketers or gathered by the consumers (Bizadmark

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2021). In order to ensure community well-being the organic food producers are trying to connect with their buyers directly with the help of better technology. On the other hand online shopping has been familiarized millions via digitalization. This has been additionally boosted up during lockdown as most of the people bought their things through e-commerce (i.e) online platform (Shivranjani Gupta 2021). The following are some of the reasons state the importance of technology in organic food sector: Provides ease and convenience; Increase brand awareness; Introduces marketers to global audience; Lets experiment / experience different ad formats and Reaches ideal customers / marketers (Bizadmark 2021). In India, online availability coupled with shifting consumers' preference would be the key factors that are anticipated to enhance the demand level of organic food products. Organic food consumption is expected to increase through FY2026 due to the expansion of marketing patterns and distribution channels, as well as an increase in the number of health-conscious people in our country – Research and Markets (2021). Most effective ways used to promote organic food products using technology are: Amazon like online gateway, Website advertising, then Marketing with the help of Google Ads; last but not the least Social media, which by default includes Facebook, Instagram, Pinterest, YouTube, Snapchat, etc (Bizadmark 2021).

IV. Perspectives of Consumers

A healthy diet is directly proportional to the improvement not only in reduction in diseases but also in overall health. This led to healthy eating trend, which is getting traction along with evoking consumers' interest, made demand propulsive for organic produce (Meticulous Research Analysis 2020). Digital mode of shopping ensures easiness and safety makes the people those who used to rely on physically shopping in conventional retails stores to switch. To put straight even during rough times, amplification of customers interest towards certain products was helped through digitalization (Shivranjani Gupta 2021). Other than WOM – Word of Mouth which is one of the most plausible ways of advertising, consumers' believes on traditional marketing are bygone today. This evidently proves the significance of adopting appropriate marketing strategies to make the organic products reach the consumers (Alessandro Scuderi 2019). Covid-19 pandemic has made favorable impact on consumer behavior towards organic produce, changes in buying patterns have made to extent that this shift may become an embedded side of their purchasing habits (Shivranjani Gupta 2021). Including confectionery and baked foods, the labels for indulgent items are being constantly scrutinized by the consumers (Bizadmark 2021). People are becoming more and more conscious on building better well-being and improving immunity, after realizing the significance of organic nutrition and zero-chemical products (Shivranjani Gupta 2021).

V. Conclusion

Based on various survey reports, during the upcoming years it is expected that food sector would become as e-commerce's most important part worldwide. Food industry being one of the primary sectors for e-commerce, as it got turnover put 40 to

50 percent showing its potential for growth, while organic food sector got the dominant potential. As we all know the new-fangled supply chain for organic food products especially after such a global pandemic includes stores on-line, allowed numerous effective responses from the consumers specifically those who prefer collect via click; which clearly show the urge for technology in organic food sector.

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The Impact of Social Media on Women Empowerment

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Abstract

The development of technology and the increasing dependence on it over the years, has had a direct impact on women empowerment. Social media has become a powerful tool of digital media and has worked towards expanding the communication network across the world. In the midst of the ongoing pandemic, the importance of these digital platforms has doubled. Social media and social activism have become highly interrelated over the past few years. Social media has given a platform to women to discuss their issues, opinions, perspectives through blogs, discussion forums, online campaigns, chats etc. This paper highlights how social media can be constructively used to bring about women empowerment in the society. It also discusses the pros and cons of the excessive dependence on the social media platforms in the path of women empowerment.

This paper is divided into five sections. The first part deals with the importance of social media and how different social media platforms have become so prominent over the last few years. The second sections deals with the meaning and concept of women empowerment. The third section analyses how social media has impacted the lives of the women and how it has become a tool of women empowerment. The fourth section covers the shortcoming faced by these social media and platforms and what steps need to be taken to tackle these problems. The last section concludes the theoretical findings of this paper.

Keywords: Social change, women empowerment, digital media platforms, gender stereotypes.

I. Introduction

Article 19 of the Indian Constitution entitles every Indian citizen to the freedom of speech and expression. Our fundamental rights were granted to us under Part III of the Constitution in mid 20th century i.e., in the age of print and television media but today every single individual has access to the news with the help of digital and social media platforms. The world has become a global village and the social media networking websites are playing a crucial role in connecting people across the globe. Media is now emerging as an important fourth pillar of democracy along with legislature, executive and judiciary. In the present day world, social media has become a medium of social change. The combination of social media and internet has developed a new type of media that has substantially boomed in a last decade or two.

Not only does the social media platforms help in connecting the individuals, but it also acts as a powerful agent to bring about women empowerment in the society by mobilizing the attention of the masses towards the long prevailing stereotypes. The development of social media platforms has opened a plethora of opportunities for the women. Social media platforms like Facebook, Twitter, Instagram, Snapchat, YouTube etc. have emerged as important networks that are being widely used to raise awareness amongst the masses. Social media has given women and activists a platform to openly express their opinions and thoughts when their views are mostly restricted by the societal norms. It acts as an alternative medium to raise important issues of concern for the women. Just being able to raise their views at a finger tap, gives women a certain amount of sense of freedom, something that they had not experienced over the centuries.

A. Khan and A. Moin in their research, 'Women Empowerment: Role of New Media' (2013) reasoned that the development of Wi-Fi and network services in all the households has enabled the access of all the women to the everyday important affairs. Celestine Lugaye Ukpere and Andre D. Slabbert in their research article, 'Rising Trend in Social Media Usage by Women Entrepreneurs Across the Globe to Unlock their Potentials for Business Success' (2014) highlighted that social media has taken over the traditional media sources due to the ease, widespread approach and creativity involved in these new platforms. Narayan and Ahmad in their paper, 'Role of Media in Accelerating Women Empowerment' (2016) explained that media holds a good potential to ensure women empowerment if used effectively. G. Padmaja in the article 'Media's Role in the Empowerment of Women in India' (2017) analyses how women empowerment helps in the overall development of the lives of the women and how the media helps in breaking the stereotypes and gender barriers.

II. What is Women Empowerment

Women constitute approximately half of the Indian population of 150 crores. In terms of rights, they have become almost equal to their male counterparts over the last few years. But has legal equality brought about empowerment of women in the real sense?

The term empowerment can be associated to the concept of power. Empowerment is necessary for the development of any nation. Empowerment is mostly about taking control of one's own life, setting their own agenda and taking their own decisions (Thanavanthi, 2018). Empowerment is building confidence of the women in their own capacities. It is a multi-dimensional social process that can either be political, wherein women have complete freedom to participate in the political field, contest elections or hold any office of power, or it can be economic, wherein women have financial independence and access and control of financial resources or it can be social, wherein, there is an overall transformation in the society and women have full freedom in all aspects of life. An empowered women is the backbone of the nation.

III. The Impact of Social Media on Women Empowerment

Why social media has become so important is mainly because of the ease of opening an account and its reach to the millions of people at a click of a button at almost no or negligible cost. It has become a medium for self-expression for the women. It has empowered women socially, psychologically and financially. It has enhanced the participation of women in the social, political and cultural fields. It has helped in the capacity-building of the women, which has in-turn encouraged their participation in the decision-making processes.

The social media has given a new platform to the female ideologies. Due to the technological innovations, women issues have gained a centre stage. It has become an information guide for the women that helps them connect to the outside world.

The hashtag activism has helped women spread awareness regarding issues faced by them. One prominent example is of Manal-al-Sharif, who posted a video of herself driving in 2011. Through this video on YouTube and Facebook, she highlighted how a basic right like driving was denied to millions of girls in Saudi Arabia and across the globe. This led to a viral #Women2Drive Movement across the world and eventually due to its influence, women were given the driving rights in Saudi in 2018. Another landmark example is of 2012 Delhi gangrape, wherein the agitation by different activists on several social media platforms compelled the authorities to take stringent actions and amend the laws at the earliest. In 2014, United Nations promoted #HeforShe Movement by inviting men and members other genders to support women to ensure gender equality and end all forms of gender discrimination. #knowyourLemons Campaign was also introduced in 2014 to spread awareness amongst women regarding breast cancer. In 2017, #LahuKaLagaan Campaign was started by Mumbai based NGO, She Says India, to abolish the Goods and Services Tax on the sanitary pads and they even achieved success in 2018 when government made the sanitary napkins became tax free. In 2017-18, #MeToo Movement gained worldwide momentum when prominent figures were accused of sexual assault and harassment.

Many women have now started their own businesses through the medium of social networking sites as the investment required is very less. Many such ventures boomed during the lockdown. Thus, the social media has been actively involved in encouraging the entrepreneurial skills of the women. It makes easy for the women to start new businesses, to market their products and to reach out a number of customers easily. There are several prominent women who have gained recognition because of their online businesses that were started or promoted on the social media platforms. Few examples being Aditi Gupta (Menstrupedia), Richa Singh (YourDost), Richa Kar (Zivame), Shradha Sharma (Yourstory.com), Sabina Chopra (Yatra.com) and Chhavi Mittal (Shitty Ideas Trending).

IV. Shortcomings and what needs to be done?

We live in a very free and fair world where everyone has access to all the information, whether true or false. This age of social media has made the spread of information even easier. But the question remains that is this easy flow of information advantageous to all or is it having a negative impact. Social media on one hand is an important medium to empower women but on the flip side, is proving dangerous in certain aspects too. It has helped in democratizing the access to information but has also highlighted the major fault lines that are still prevalent. This has become an issue of major concern at the global, national and regional levels.

The hashtag culture might be a powerful tool to empower women but at the same time it has been observed that it is being widely used to threaten women. Slut-shaming and threatening of rape and murder by unknown accounts has become extremely common. At times, excess transparency on social media can actually infringe upon the right to privacy of an individual. Also, the prevalence of so many hashtag movements cause a certain kind of activism fatigue and prevents the major movements from getting the required attention.

Internet and social media platforms, that were earlier praised for creating an unbiased platform for marginalized narratives is now being misused by certain sections for promoting their motives of self-interest based on who pays the most. The recent technological innovations have enabled an unrestricted access to data and most of the citizens lack the ability to differentiate between correct information and fake news. In this power contest, the genuine voices get lost at times. While some groups tend to spread propaganda to manipulate public opinion through these tools, it is the real voices of real women which are ignored.

Also, the increasing percentage of cyber-crimes are not unknown to anyone now. These crimes pose a major threat to the security of the person and the victim becomes extremely vulnerable to the offences like hacking, morphing, online trolling, harassment, cyber-defamation, dark net, obscene websites, fake profiles, cyber-bullying etc. The presence of a large amount of sexually-exploitative content on the internet, poses further threat to the safety of women. Thus, it is the need of the hour to ensure that strict laws need to be made. IT Act 2000 needs to made stronger to tackle the increasing cases of cyber-crime.

Lastly, digital divide is quite evident in India. Women in the rural areas do not have any access to internet and thus, cannot use any of the digital platforms. This issue needs to be addressed at the earliest. Google India and Tata Trusts in 2015 came together to start an initiative to improve digital literacy amongst women in rural areas. The internet connectivity in the suburbs and rural areas need to be improved and women should be trained to use these facilities effectively.

V. Conclusion

Empowerment of the women is a basic human right that they need to be entitled to. Social media helps them tackle the new challenges posed to them in the modern-day world. The use of these social media platforms should be encouraged to ensure that women rights can be advocated to the maximum extent. By facilitating the women's access to all these platforms and websites, it would ensure that all opportunities are available for all. So, despite all the backlash that social media receives, it can be said that a regulated media can actually be more beneficial than dangerous in the longer run.

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Behavioural Finance and Investment Decisions: Impact Analysis and Mitigation Strategies in the context of COVID Pandemic and DIY Investing

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I. Introduction

For a long time, it was thought that investors are rational and logical while making their investment decisions. Numerous theories and models in finance such as Capital Structure (Modigliani & Miller, 1958); Capital Asset Pricing Model (Sharpe,1964); Efficient Market Hypothesis (Fama, 1970); Options Pricing model (Black and Scholes, 1973) propounded, in one way or another, that the investors base their investment decisions on available information and behave in a completely logical and rational manner to achieve their investment objectives. Chin (2012), however, argued that if indeed the investors are so rational, then the volatility in stock market needs to be explained. Collapse of several big corporates due to stock market volatility further strengthened the arguments of some experts that there are certain anomalies in the hypothesis of traditional financial theories and there are changes that need to be incorporated in contemporary theory of rationality (Nofsinger and Verma, 2014).

The fact that investing is not just analysing numbers and following complex mathematical theory of prediction, was propounded by Kengatharan (2014) who argued that investors' decisions frequently deviate from logic and reason and there are numerous behavioural biases that impact the choice of investment avenues. This led to resurgence of behavioural finance and widespread acceptance of modern finance theories. Behavioural finance commends that investors are irrational and this irrationality is biological, psychological and sociological (Ahmad, 2017)

II. Objectives

The paper aims to achieve the following objectives:

1. To understand and review the impact of various behavioural biases on investment decision making.
2. To suggest strategies to mitigate their impact so as to assist investors to arrive at better investment decisions.

The paper also describes two types of investors at the opposite ends and find ways to strike an appropriate balance between the two.

III. Discussion

It is now widely accepted that investment decisions are not just guided by quantitative aspects of an investment product or service but qualitative aspects also. While the quantitative aspects are objective in nature since they include analysing numbers, charts etc., the qualitative aspects are subjective as they relate to human emotions, personality, beliefs and preferences. It is these qualitative aspects that bring behavioural biases in investment decisions. These behavioural biases cloud one's rational thinking and make them susceptible to poor choices of financial products thus jeopardizing achievement of financial goals. If an investor becomes aware of these biases, he can develop strategies to overcome them, thus achieving his investment goals in a more efficient way. Being aware of these biases has become all the more important in the present times of covid pandemic and consequent advancement and acceptance of technology which encourage investors to move away from traditional investing to Do-it-Yourself investing. Numerous apps and portals have come up recently which offer online investing and financial robot-advisory services tailormade to suit one's needs which makes investing per se quite a simple task that can be done from the comfort of home. Hence, if the investors become aware and are able to recognise behavioural biases, they may be able to achieve financial well-being by learning and adopting strategies to mitigate them.

There are many types of behavioural biases in literature. They are categorized as either cognitive errors or emotional biases. Cognitive errors are basic statistical or information processing errors that result from faulty reasoning because of an inclination to maintain and persevere belief or errors in mental accounting. They are easier to detect and correct. Emotional biases are more complex as they stem from feelings, impulse or intuition like over confidence, regret, loss aversion etc. which are harder to change and correct. However, most of these biases are not mutually exclusive and deep interactions and overlapping exist among them. The most common biases and probable strategies to overcome them are outlined below:

1. ***Representation Bias*:** occurs when investors base their investment decision on recent performance of a stock. As a result, they buy when prices are higher than the intrinsic value in the hope that prices would increase further, ignoring stocks whose prices are below their intrinsic value, thus behaving in absolutely contradicting way to the most basic rule of investing- buy low, sell high. Also known as belief bias, beliefs have an important bearing in decision making and a lot of investors lose money because of these beliefs. Numerous studies have concluded that there is positive relationship between belief bias and investment decision-making ((Waweru (2008); Chin (2012); Coutts (2019)).

2. ***Regret Bias*:** Regret, in the context of investment decision making is a situation when an investor laments and regrets about the loss of investment which he made in the past. Regret bias is an "emotion of pain and anger" (Shefrin, 2010) and has a positive relationship with future risk aversion. Such investors, who have suffered loss in the past fear not buying right financial products for them and making the

same mistakes. As a result, "they become risk-averse to minimize the pain associated with additional losses." Furthermore, they find solace and validation in buying short-term bonds to deal with volatility in stock market. Also, they typically are reluctant to sell and book their losses as it reminds them of their bad decisions in the past. Also known as snakebite effect or bias, "it makes investors less confident in their investment decisions" (Chin, 2012)

3. ***Disposition Effect*:** refers to a phenomenon of selling the stocks (winners) too early while retaining the losers for too long. Such investor then monitors and track the sold stocks and regrets selling them early if their prices have increased further. In this sense, disposition effect is closely associated with regret bias. Disposition effect can reduce the potential returns as such investors who sell in short-term have to pay higher capital gain taxes.

4. ***Familiarity Bias*:** occurs when investors almost always tend to make investment in 'familiar' financial products or services resulting in under diversification and sub optimal returns on his portfolio. Local or home bias are a part of familiar bias wherein the investor portfolio consists of only domestic securities which he is familiar with. To overcome this bias, investors should cast their net wider and invest oversees to reap the gains of diversification of portfolio.

5. ***Worry*:** is a human emotion which is common as far as investing is concerned. Ricciardi (2011) in his study found that investors associate worry more with common stocks (70 percent) than with bonds (10 percent). Higher perceived risk associated with a security increase worry and vice versa. To overcome this, investors should align their asset allocation strategy with their unique risk tolerance, other factors being constant. If they experience sleepless nights and anxiety, they must adopt a more conservative approach to investing, as otherwise it would ultimately lead to poor asset choices and sub optimal portfolio.

6. ***Anchoring*:** refers to a situation when investors tend to hold on a specific piece of information (for example, initial purchase price of a stock, stock market collapse etc.) and let that information control their cognitive decision-making process. They find difficulty in accepting and adjusting to new piece of information. Anchoring bias is closely associated with belief bias and to overcome this it is suggested that investors should not make their investment decisions on the basis of a single initial reference point but must stay open to any new piece of information.

7. ***Self-attribution Bias*:** is a phenomenon when investors associate successful outcomes of their investment decisions to themselves and adverse outcomes to external factors. Such investors, in general, possess low emotional maturity and are reluctant to accept responsibility of their mistakes. It also works as a self-protection and self enhancement mechanism. Such investors are more disposed to overconfidence bias described below.

8. ***Overconfidence Bias*:** Closely related to self-attribution bias, overconfidence bias is a bias where investors believe that they 'know more'. They become overconfident of their ability to assess a financial product or market accurately based on their knowledge, skill and/or available piece of information. It has several adverse "consequences for investors such as lower expected utility, a higher tendency of leaving the market, excessive transactions, and lower returns on investment" (Agrawal, 2012). To overcome this bias, investors should be vigilant and cautious to not attribute their short-term gains on superior knowledge or analytical or market timing abilities. They should consciously guard against trading on short term basis.

9. ***Status Quo Bias*:** refers to a phenomenon where investors tend toward a status-quo position as far as their investment portfolio is concerned. They exhibit inertia and fail to update their position even if it results in potential gains. They adopt buy and hold strategy to extremes and remain inactive in bull as well as bear phases of market. Similar inactivity is seen in other investment avenues also, whether opening or revision in fixed deposits accounts, retirement accounts, investment in mutual funds, real estate, gold etc. To avoid this bias, investors should actively strive to rebalance their portfolio at least once a year and align it with his investment goals and life stage.

10. ***Trend-chasing or herding bias*:** occurs when the investors base their investment decisions solely on the basis of 'what others are currently doing.' They tend follow the crowd and do not trust their own analysis and judgement. Herding biases could result in market bubbles or crashes or more efficient markets depending on rationality or irrationality of herding behaviour. If herding is rational and is based on analysis of available information, it could lead to efficient markets and hence favourable outcomes for all stakeholders. On the other hand, if herding is irrational and is driven by emotions of fads, greed and quick money, it could to asset valuations different from their intrinsic values and create artificial bubbles and consequent market crashes.

Besides above, there are many other biases (illusion of control, over-optimism etc.) which relate to or overlap the above biases. Further, studies are conflicting as to the relative importance of these biases. According to Lim (2012) overconfidence and regret positively influence investment decisions. Herding bias was found to have no significant relationship. In contrast, Kengatharan and Kengatharan (2014) found that while anchoring bias has high impact on investment decisions, herding bias do not seem to significantly influence the investment behavior of individual investors. In yet another study by Kafayat (2014) it was propounded that overconfidence and self-attribution bias have a negative impact on investment decisions.

IV. Concluding Remarks

Investment decision making is influenced by numerous behavioural biases that investors possess. While some biases have high impact, others have moderate to low

impact. Irrespective of relative influence of these biases, it is certain that they influence investment behaviour and unless an investor is vigilant and identify the bias, his portfolio is bound to suffer. For example, overconfidence bias makes an investor overestimate the accuracy of his judgement and intuition. Coupled with optimism bias they believe that they are less prone to risk and loss in their investment decisions. This involuntarily leads to under diversification of their portfolios especially if they also suffer from familiarity bias. An investor needs to align his asset allocation strategy according to his risk tolerance and investment goals and then rebalance his portfolio periodically to achieve superior gains. Although emotions in investing is unavoidable, efforts must be undertaken to reign them as much as possible to avoid mistakes. Fig 1 effectively outlines the play of emotions in stock market investment. By being aware of them and the resultant pitfalls, an investor can optimize his portfolio.

Figure 1: Play of emotions in Stock Market
Source: https://blog.dnabehavior.com/5-tips-to-managing-your-advisors-behavioral-bias/

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Stress among Employees

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I. What is Stress?

Stress can be defined as any change that causes physical, emotional or intellectual stress. Stress is your law's reaction to anything that requires attention or movement. Everyone is stressed for some diploma. However, the way you respond to stress can make a huge difference in your daily routine.

Sometimes, a fantastic way to deal with your difficulty involves changing your affairs. In exceptional cases, the surprise method involves changing the way you respond to the situation.

It is very important to develop a clean specialization of the ways in which stress affects your physical and intellectual fitness. Understanding how your mental and physical fitness affects your stress levels is also very important.

Symptoms

Depression can be short-term or long-term. Both can target a variety of signs and symptoms and signs and symptoms, however persistent stress can cause a significant increase in the body over time and enable long-term exercise results.

Some unusual symptoms and signs of stress include:

Mode changes in mood

Clamy or sweaty palms

Inter sexual power is low

Diarrhea

Sleep Difficulty falling asleep

Digestive problems

Dizziness

Feeling annoyed

Frequent illness

Tooth grinding tooth

Headache

Power Low power

Muscle anxiety, mainly in the neck and shoulders

Physical aches and pains

Heart racing heart rate

Trembling

II. Identifying Stress

Depression is not usually easy to understand, but there are some signs and symptoms and signs that can cause you to experience high levels of stress. Sometimes the strain can come from an obvious distribution, however sometimes the pressures from every day art work, college, own family, and even friends can have a detrimental effect on your thoughts and law.

If you think stress will affect you, here are some things you may notice:

- Psychological Symptoms with Problem Focusing, Demand, Tension and Problem Remembering
- Emotional signs and symptoms that include irritability, anger, mood swings or irritability
- Physical symptoms including high blood pressure, changes in weight, common colds or infections and changes in the menstrual cycle and libido
- Self Symptoms of Behavior with Poor Self-Care Now, you do not have time for pleasurable possessions, or intend to handle pills and alcohol

III. Reasons

There are many things in lifestyle that can cause strain. Some policy sources for the strain include paintings, price range, relationships, parenting and everyday things.

The body's reaction to a danger or danger known as the war or air reaction can be aimed at stress.2 During this response, positive hormones such as adrenaline and cortisol are released. It accelerates coronary heart rate, slows digestion, prevents blood buildup to primary muscle groups, and modifies special autonomic frightening abilities, thus providing strength and electricity to the body.

Originally named for the ability to physically fight or run while facing danger, the war-or-air reaction is now activated, in situations where no response is appropriate — like a site visitor or all in a chaotic day in paintings.

Structures are designed to return to the everyday aspect through the rest of the reaction when it is long beyond the perceived possibility. Three but during continuous

stress, the relaxation reaction no longer arises sufficiently, and being in a stable country of combat- or flight can be detrimental to the body.

Stress can lead to three dangerous habits that can have a devastating effect on your fitness. For example, many people deal with stress through overeating or smoking. This dangerous behavior damages the law and creates big problems in the long run

IV. Types of Stress

Not all styles of stress are dangerous or negative. Some elegant types of strain you may experience include:

- **Pressure Acute Stress:** Acute depression is a very short-term strain that can cause great or excessive stress; This is the stress we often come across in normal lifestyles.
- **Stress Chronic Stress:** Chronic strain, like the strain of a horrible marriage or almost taxing hobby, can never seem to end and be inevitable; Continuous stress can develop from demanding assessments and early life trauma.
- **Episodic Acute Strain:** Episodic Acute Strain is a severe strain that appears to be widespread and a means of survival, fostering a lifestyle of persistent suffering.
- **Eustace:** Eustace is fun and enjoyable. This is known as a high quality stress, which excites you. It is associated with adrenaline surges, which include when you are snowboarding or racing to meet deadlines.

V. The Impact of Stress

The connection between your thoughts and body is clear when you look at the impact on your lifestyle.

Being forced into a relationship, money or your life affairs can create physical health issues. The reverse is similarly correct. Health Problems Whether you are dealing with high blood pressure now or you have diabetes, your strain level and even your intellectual fitness can be affected. When your mind reviews infinite limits, your frame works as a result.

Severe severe depression, such as engaging in a natural disaster or engaging in verbal argument, can trigger coronary heart attack, arrhythmia, or sudden death. However, it is more common in people who already have coronary heart disease.

Stress additionally causes an emotional impact. Some strain may additionally create feelings of mild anxiety or frustration, leading to chronic stress burns, tension problems and depression.

Chronic stress can have the right effect on your fitness. If you enjoy constant stress, your autonomic fear device may be overactive, which can damage your body.

VI. Conditions Affected by Stress

Diabetics

Hair loss

Heart disease

Hyperthyroidism

Es obesity

Disc sexual dysfunction

Dental and gum disease

ulcer

VII. Treatment

Depression is not always a fantastic medical analysis and there is no single solution to it. It specializes in the treatment of changing conditions, developing skills to cope with stress, implementing relaxation techniques, and treating symptoms or conditions that may be caused by persistent stress.

Some effective interventions may include solution, medical medication and filler and potentially medical medication (CAM).

Psychotherapy

Some types of solutions that may be particularly helpful in relieving the signs and symptoms of depression, including cognitive behavioral therapy (CPD) and attitude-based absolute stress reduction (MPSR). Just as MBSR uses meditation and memory to reduce stress levels, CPD specializes in discovering and exchanging terrifying thought styles.

Medicine

Medications may be prescribed each time to deal with a few unique signs and symptoms that may be associated with strain. Such medications include sleeping aids, antioxidants, antidepressants and anti-anxiety pills.

Complementary and alternative medicine

Includes acupuncture, aromatherapy, rubbing, yoga and meditation.

VIII. Coping

Although strain is inevitable, it can be manageable. When you understand the number of steps it takes for you and your stairs to fight stress, you can take responsibility for your fitness and reduce the stress on your balance.

Learn to understand the signs and symptoms of burns. Excessive pressure can put you at risk for excess fuel. Burning can make you feel tired and careless about your activity. 6 When you begin to experience signs and symptoms of emotional exhaustion; This is a signal that you want to find a way to deal with your stress.

Try to get regular exercise. Physical curiosity has the greatest impact on your mind and your body. Whether you enjoy Toy Chi or just want to start browsing, exercising reduces discomfort and improves many of the symptoms related to intellectual pollution.

Be safe. Incorporating daily self-care activities into your daily lifestyle is important for stress management. Learn how to take care of your thoughts, frame and spirit, and find a way to equip your self to sustain your incredible life.

Practice your presence attentively. Practicing for 10 minutes every day is not a problem. It can also be a way of life. Discover how to live with more mindfulness in the course of your day so that you can be more alert and aware of the direction of your life.

What is coping?

Overcoming Opping is a conscious effort to deal with or reduce stress or conflict, a strain or a problem that is natural to each other or to each other. Psychological coping mechanisms are commonly called coping strategies or coping skills. In psychology, coping involves spending a conscious effort to treat individual and each other's harassment, and to understand, reduce, or tolerate stress or conflict.

And it can come as a safety mechanism when effort and control are unconscious!

Dealing with Aware Awareness can also be effective/adaptive or passive / misleading.

IX. Basic Types of Cop Coping Strategies

1. **Evaluation-Objective:** Adaptive cognitive rise towards the general non-assumptions of a difficult person, while at the same time changing the way the individual expects them, for example: to use denial or to distance themselves from the problem. By watching humor in a situation, they can control people from reconsidering an issue with the help of changing their dreams and values: “Some people are advised that comedy may play a greater role as a stress evaluator among women.

2. **Problem-goal:** Reducing or eliminating a stress, adaptive behavior. People use harassment-targeting techniques to try to deal with the cause of their harassment. They try to do this by discovering the facts in the problem and learning new skills to handle the problem. Problem-centered coping helps to change or eliminate the distribution of stress. Managing three problem-centered coping strategies approved with the help of Folkman and Lazarus, seeking information and comparing industry and disadvantages.

3. **Emotion-centered:** Relieving emotions, distracting oneself, overcoming hostile emotions, meditating, or using formal relaxation approaches. Emotion-centered coping "is about dealing with the emotions that come with the concept of strain.

Five emotion-centered coping techniques: driven on the path to changing one's own emotional reactions

Positive reassessment

Exercising with determination

Accepting duty or guilt

Escape-Avoidance

Denial

A CNN Based Face Recognition Application using MobileFaceNet

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Abstract

The project "A CNN Based Face Recognition Ap-plication using MobileFaceNet" presents a CNN based face recognition system that can be operated easily and entirely offline on android mobile phones for security or other inventive purposes. Daily security in housing societies, malls, gyms, etc in developing countries like India is job that is highly in demand. Due to lack of funds, technology has not yet been properly implemented in these jobs, hence, you usually see pen paper method. The proposed system aims to build a face recognition application that can be used with a basic android device, without an active internet connection. The proposed system uses the Firebase ML FaceVision to detect the face in the image and MobileFaceNet, which is a CNN model to recognise faces. The only necessary hardware is an android device with a working camera.

***Index Terms*: MobileFaceNet, Mobile Face Recognition, CNN, MLVision**

I. Introduction

As we all know, as technology progresses, more and more tasks and data is being digitised/automated to reduce hassle and increase ease of application. One could argue that all the tasks being automated could be counterproductive, but what we can all agree upon is that security can always use the help of technology. But why is it that in developing countries like India, security personnel such as guards, bouncers etc are still using pen and paper to store most records? The answer is that security is in high demand but the funds to digitise the process everywhere, simply isn't available. The process doesn't have to be automated, but technological support to make the task more efficient and hassle free can definitely help the security workers. A face recognition system that could be operated in a normal android device could be accessible to

everyone. Since everyone these days has a smartphone. Creating a face recognition system that can be operated with a simple smartphone could then open up a multitude of different purposes of simple, mobile face recognition.

II. Literature Review

In 2017 a work was published by Lipin Yuan et al about using CNN based on TensorFlow for facial recognition. The goal of this paper was to develop a face recognition system that could outdo traditional face detection systems by outperforming in uncontrolled aspects such as illumination, varying facial expressions, different pose and so on. For the CNN structure training, they collected 778 pictures from google for face recognition, out of which 712 were selected as target face images. Their system achieved an accuracy of 87.0% much better than the opposed traditional method (LBPH) which scored 77.55%. Upon trying with colour images, no difference was shown in accuracy, even tho the image contains more data. Perhaps the accuracy could be improved by using a CNN cascade algorithm. [1]

In 2018, a paper is published by Prashanth Balraj Balla et al. about IoT Based Facial Recognition Security System. This project is aimed to be a complete system for face recognition: easy to build, and cost effective. In this, Raspberry Pi model acts as a centre of the system which will control the action/performance of other devices. It has USB ports, LAN ports, and uses a 5mp camera. It works at a voltage of 3.3 volt. Main purpose is to be set as an alert for home visitors and provide information about the visitors in a dynamic website and phone application. Whenever a visitor presses the doorbell, an integrated camera captures a picture of them. Once it is matched, it gives notification to the owner using IOT for providing the access. If the image does not match then it is stored in Database under unknown visitor's folder for future reference. [2]

In October 2019, a work was published by Tata Sutabri et al. proposing a web-based student attendance system that uses face recognition. In the proposed system, CNN is used to detect faces in images, deep metric learning is used to produce facial embedding, and K-NN is used to classify student's face. The face recognition is carried out using these basic steps- Face retention, Face extraction and Face recognition. The system successfully recognises the face of a student who is making an attendance. Student data that has been identified in the form of the student's ID number, date and time, is used by the system to record student attendance. This system makes the student attendance process automatic and aspires to be able to replace the old manual attendance process, which is currently used. [3]

In 2019, work was published Ciya James, David Nettikadan et al. The paper is based on student monitoring system in school bus by using facial recognition. They have used open CV library and implemented it using python. For face detection Haar-Cascades classifier has been used, for face recognition Eigenface is used and for local binary pattern they used histogram. This paper also presents an attendance system in classroom with the help of that the teacher can save lots of time of taking attendance. [4]

In 2018, Real-Time Multiple Face Recognition using Deep Learning on Embedded GPU System was developed by Savath Saypadith et al in which they proposed a framework for real-time multiple face recognition. The recognition algorithm was based on CNN which is a state-of-art algorithm. The framework consisted of a tracking technique and used the minimal weight of the model. This reduced the processing time and network parameter to learn recognize multiple face feature in real-time Results showed that the system can recognize multiple faces at the same time in real time with up to 0.23 seconds of processing time and with the minimum recognition rate above 83.67%. [7]

III. Proposed System

The proposed system is a mobile application that performs offline face recognition, based on a Convolutional Neural Network (CNN) model called MobileFaceNet. The system uses Firebase ML kit to detect a face, and crop the image to fit the face, which is then sent to the MobileFaceNet model which stores the face data in the form of an array, and can compare the face in the next instance.

A. Face Detection

In a completely fresh database instance, the user will have to create an entry by choosing the register option. Upon pressing authenticate, the front camera opens up. If a face is present, a green box is shown outside the face, and a photo is to be captured. The captured photo is then pre-processed by Firebase MLVision Kit, which detects the presence of a face and identifies the location of it in the image, crops it to a rectangle that only contains the face. This image is then forwarded to the MobileFaceNet (CNN) model. If the face to be scanned is that of a person existing in the database, authentication button is to be pressed, and the same process is carried out by the MLVision Kit.

B. Face Recognition

Upon receiving a cropped image from MLVision, the Mo- bileFaceNet model identifies the features and distances in the face which is translated into an array.

- If you're completing the registration procedure, the appli- cation will ask for your name, and then save the data (name and ML output).
- If it's the authentication process, the application searches the database, comparing the Euclidean distance between the ML output of the image and the ML outputs stored for each

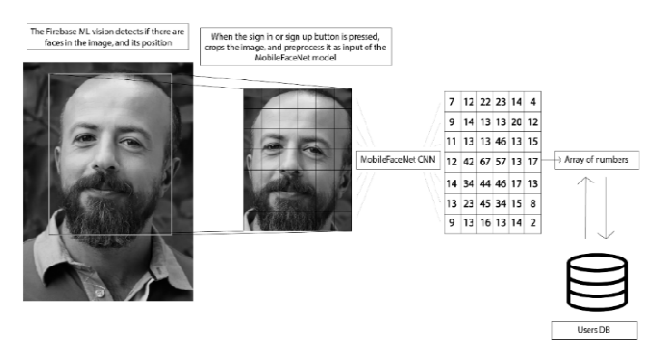

Figure 1: Flow of data

$$d(\mathbf{p},\mathbf{q}) = d(\mathbf{q},\mathbf{p}) = \sqrt{(q_1 - p_1)^2 + (q_2 - p_2)^2 + \cdots + (q_n - p_n)^2}$$
$$= \sqrt{\sum_{i=1}^{n}(q_i - p_i)^2}.$$

Figure 2: Euclidean Distance Formula

IV. Description of Software Used

A. MobileFaceNet

MobileFaceNets are a set of CNN models with fewer than 1 million parameters that are designed for high-accuracy real-time face verification on mobile and embedded devices. MobileFaceNet is a neural network that achieves 99.28 percent accuracy on the labelled faces in the wild (LFW) dataset and 93.05 percent accuracy on the AgeDB dataset. [5]

Network	LFW	AgeDB-30
MobileNet	98.63%	88.95%
ShuffleNet	98.70%	89.27%
MobileNetV2	98.58%	88.81%
MobileNetV2GDConv	98.88%	90.67%
MobileFaceNet	99.28%	88.95%

Table 1: Table Comparing Accuracy of Different CNN based face recognition models. [5]

B. Firebase MLVision Kit

Using the ML Kit Face Detection API You can detect faces in images, identify key facial features, and get the contours of detected faces. It performs greatly in terms of preprocessing the image to detect the cropping zone and then processing the image using the MobileFaceNet model.

V. Algorithm

A. Registration

The user takes a photo of the face to be registered

The ML models process it and create an output (array of numbers) to be stored in a database.

If face already exists:

- Display: person exists in database Else:
- Name is requested
- Person is added to database.

B. Authentication

The user takes a photo of the face to be authenticated The ML models process it and creates an output

The output will be compared against the outputs already stored in the database (it compares by proximity the closest one it finds).

If Face does not exist:

- Display: Authentication Failed.
  Else:
- Display: Authentication Successful.

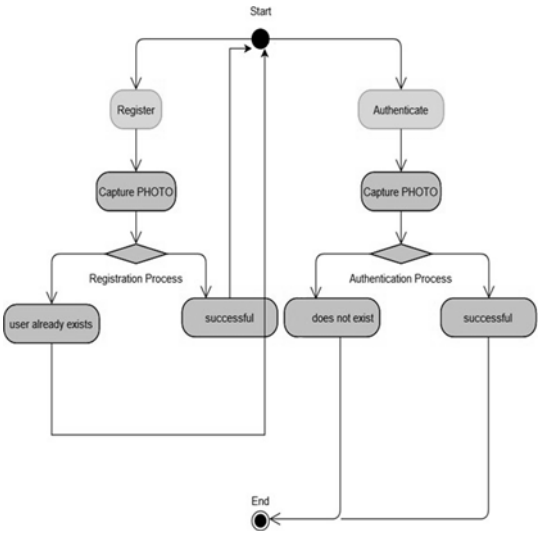

Figure 1: Flow chart of algorithm

VI. Results

Taking inspiration from a github repository [6] by Marcos Carlomagno, the system was implemented and tested on multiple android devices. The system worked flawlessly under different lighting, angles, distances, expressions, apparel and face accessories. The system performed the face recognition function reliably quickly and efficiently.

In figures 3 and 4, the images show the accuracy under different lighting conditions and facial accessories. The person is shown to be wearing glasses in figure 4. But the system ac- curately predicts their name. Similarly, the lighting conditions are different in figure 4 but the system yet again accurately predicts the person being verified.

In figures 5 and 6, we have portrayed the systems ability to give accurate results with different distances and angles. This is a crucial aspect of face recognition because faces will not always be scanned the same way. As you can see in figure 5 the difference in distance between the person is drastic yet the system predicts the person accurately.

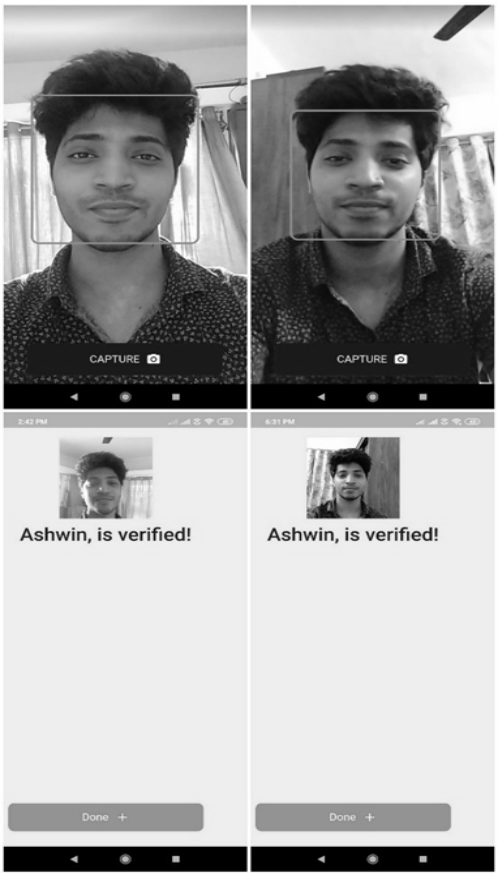

Figure 3: Showing accuracy with different lighting conditions.

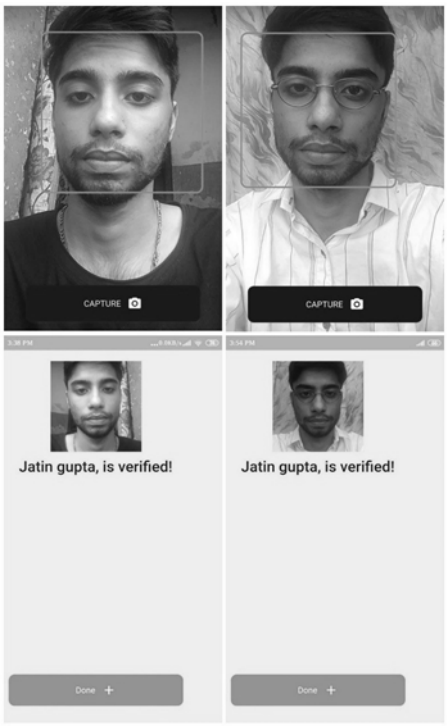

Figure 4: Showing accuracy with different facial accessories.

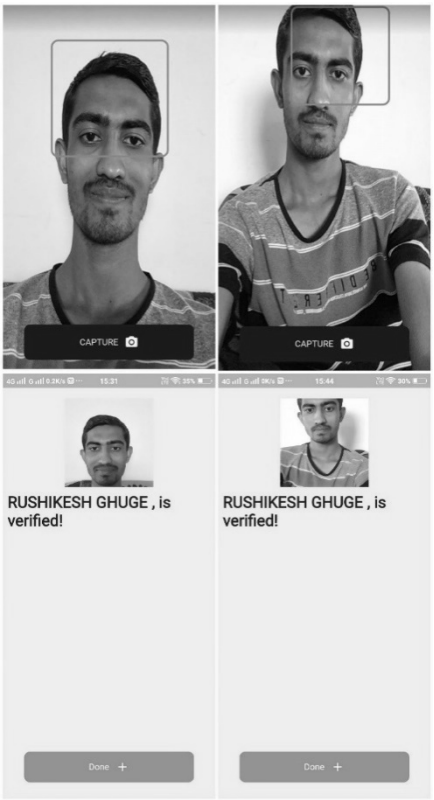

Figure 5: Showing accuracy with different distances

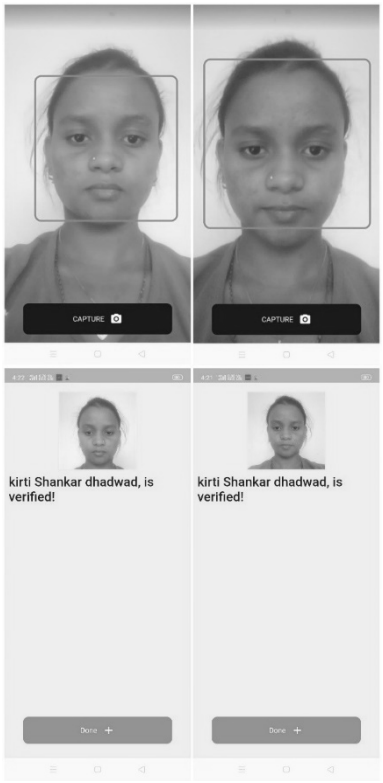

Figure 6: Showing accuracy with different angles and distances.

The system was further trained and tested manually using 20 different faces for a total of 150 instances. These instances consisted of faces of the same 20 people with different facial hair, accessories, angles, lighting and even age. For example, let's say we trained the model to recognise *Sachin Tendulkar*. Now, for testing purpose, different images of Sachin were scoured from the internet, from when he was 20 years old to 40. When he sported different hairstyles, facial hair styles, and so on. The system was almost always able to recognise the face correctly. The system wasn't able to correctly recognise the face a handful of times, but this was solved when you tried again with the same image. The system achieved an accuracy of 92% considering total instances (out of 150). The system achieved an accuracy of 100% considering the number of faces recognized. (Out of 20)

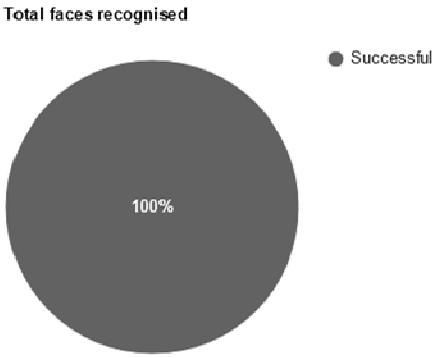

Figure 7: Showing accuracy in terms of total faces successfully recognized. (Out of 20)

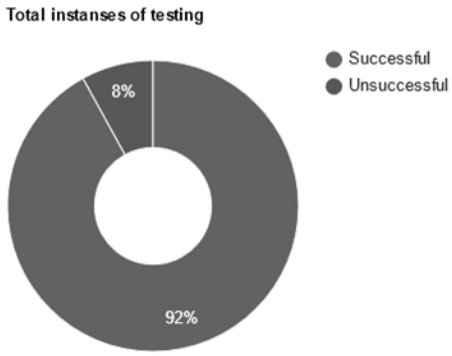

Figure 8: Showing accuracy in terms of total successful instances. (Out of 150)

VII. Conclusions

The system was successfully implemented on android devices. It showed consistent and reliable accuracy in different conditions. One limitation that is observed is that it requires the face to be looking forward in most cases. This can limit its implementations. The current system only provides a base for facial recognition, but it can be modified in the future according to certain requirements such as security systems, attendance system, help for law enforcement etc. There's a multitude of ways a system like this can evolve. In the future we will try to implement this into a security application that provides on the go face verification for people entering private or public premises. The simplicity it offers due to it being a mobile application is what sets it apart from other face recognition systems.

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Prediction of Loan Approval Using Machine Learning

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Abstract

Stretching out credit to people is vital for business sectors and society to work without a hitch. Assessing the expectation that a person would default for the credit or not, is important for financial institutions picking if to approve or not to approve a development for the person. We study to inspect the social affair system which is a mix of something like two estimations and draw comparatively better results when stood out from stay lone models. The exhibition is additionally upgraded through the outfit model.

In business advance loaning, to calculate borrowers' monetary sufficiency is the primary issue to be tended in the financial institutions. Risk recognition clearly defined as borrowers will fail to meet with their development responsibilities. Credit score model can be used for expecting the risk behind loan and decreasing the criminal tendencies. Such structures are useful for making decisions which falls under customers' information. Making advance conclusions, moneylenders need to restrict the risk factor behind every decision, and comprehend some profit which do pay for the risk. All things considered, Banking Industry accomplishment and frustration relies upon credit risk. To recognize all out could not gather exactly as expected, then, at that point, the bank will be fiasco. Hence, bank advantage is associated with an incredible hazard. Credit risk is a dire test and a stupefying assignment to direct and overview. Credit scoring tries can be withdrawn into two get-togethers, for example, score using application and score using direct method. Scoring using application means depicting the credit contender into 'uncommon' and 'repulsive' danger get-togethers. Lead scoring task means bunching the current customers dependent on the installment records and individual data of them.

Keywords: **Loan, credit risk, Banking Industry, Decision, Maximization**
Introduction.

I. Introduction

Machine learning is the branch of programming that melds the study of models certain confirmation, computational learning hypothesis in man-made care. PC based insight for the most part suggests the developments in structures that all out tries related with artificial intelligence (AI).Such assignments combine attestation, assessment, arranging, robot control, choosing, and so forth It looks into the overview and progress of evaluation that can lead to a supposition based on information. Man-made reasoning is utilized to produce programs with its tuning limits that are changed stunningly to become their working by adjusting to prior information. Reenacted insight can be broken into two classes:

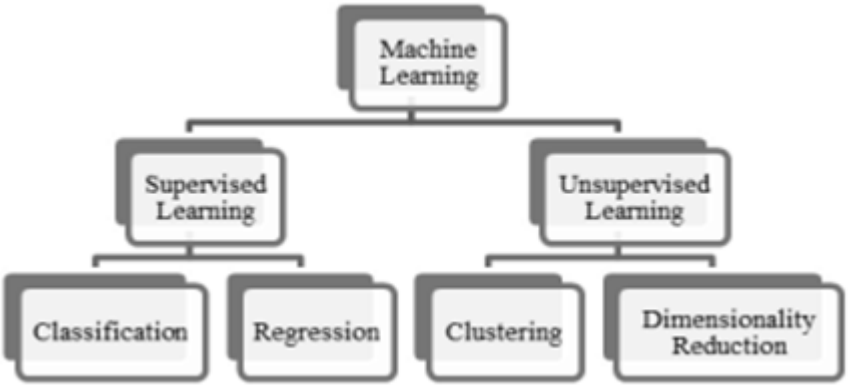


Figure 1: Categories of Machining Learning

In business advance crediting, to calculate credit of borrowers' unwavering quality is the primary issue to tend to in the financial sector. The situation such that the customers will disregard to come up to development responsibilities is known as Recognize peril. This scoring structure is useful for expecting the credit danger and to minimize the criminal tasks. The conclusions are made using the borrowers' information by using this scoring structures. Making advance decisions, moneylenders need to restrict the risk for each crediting decision, and some profit which do pay for the risk. Generally speaking, banking sectors' accomplishment and frustration relies upon bad credit possibilities. The acknowledgement total could not be calculated correctly, then the bank will be disaster Thus, bank benefit is connected amazingly hazard. Credit hazard is a pivotal test and a complicated undertaking to oversee and assess. Credit rating undertakings can be isolated into two gatherings, for example, scoring using application and scoring using conduct. Scoring using application is to characterize the credit candidate into ' great' and ' awful' hazard gatherings. Conduct scoring task is to characterize the current Dr. C. Senthamarai Department of Computer Applications Government Arts College Salem, Indiasenthamaraiksrct@gmail.com clients dependent on their installment history and individual data. Business advances have consistently been a significant piece of the financial business and moneylenders

are constantly estimated to limit their credit hazard. To take care of this credit hazard issue is excessively troublesome. Credit hazard assessment model is utilized to observe the credit hazard. To assess the current client and arranging the new potential client utilizing credits assessment system. Information mining is the cycle to find valuable data from a huge dataset. It comprises of order, bunching and affiliation rule mining. Order is the principle capacity of the information mining process.

There exist various request systems that are open now. Systems like decision tree, support vector machine, neural association, k-nearest neighbor, determined backslide, etc. These portrayal procedures are at this point used and assessed for this problem. In any case, still presently could not observe which procedure is appropriate for what sort of dataset. Accordingly, the aim of this paper is to use the KNN algorithm to cultivate a system for credit scoring for a business advance. Moreover, the place of such audit is describing customers' default applications in advance and no client by default pack that is used for credit moneylenders. Conclusions of survey are incredibly valuable for banks make credit decisions.

II. Literature Review

Ameera Kamil Ibrahim Hasan, Ajit Abraham [2] built an advanced default predictive system utilizing a few neural organizations preparing calculations. The point is testing precision utilizing characteristic channel method and foster a model identified as troupe model using the joining of the three calculations' aftereffects. The trial performed on a few boundaries like preparing R, Time, MSE cycle for correlation. Most correct calculation was Levennberg-Maarquardt since it contained first is biggest R and the least fast calculation is One Step Secant. In order to know exactness reason, the sifting capacity was tested on unique dataset that delivered two another datasets, After that, at that point, for every informational collection diverse preparing neural organization's calculation is tested on model and the sifting capability gave the perfect system out of every one of the system.

A.R.Ghatge, P.P.Halkarnikaar[3] fosters the counterfeit neural organization system for foreseeing the credit hazard of a financial institution. They credit default is gauged by utilizing the Feed-forward back proliferation neural organization. They likewise contrast the outcomes and the estimations of the financial institution directed in the range of 2004 to 2006. The outcomes give better presentation over estimations of financial institutions.

Sures Ramaakrisnan, Mariyam Mirza and Mahmood Bakri[5] explore Ada-boost outfit technique and does a test assessment. The essential target is pondering outfit classifiers. Such audit researches Ada-boost and pressing outfit for primary assumption showing up diversely corresponding to a couple of classifiers consisting of Logistic-Regression, Decision-Tree, counterfeit Neural- Networks and support vector machine as base student.

Dr. A. Chithra and S. Umaa[4] presents a double level troupe system for expectation of a time sequence dependent upon outspread inclination work network, a k closest neighbors elf-getting sorted out map. The point is to expanding the forecast precision. They develop the model titled PAPEM for example forecast Ensemble Model that utilizes Sunspots dataset, Mackey, Stock Price dataset and Mackey dataset as dataset and demonstrates that the proposed model is superior as compared to people. Comparison between different classifiers done using RMS, mean outright rate mistake and expectation exactness. The outcomes reveal that the PAPEM system is better compared to independent classifiers.

Alaraaj M. Abood, M.[6] present a system of credit hazard which depends upon both heterogeneous and homogeneous classifiers. The Outfit system depends on 3 classifiers which are calculated counterfeit neural organization, backing vector machine and strategic relapse. The outcomes reveal that the heterogeneous classifiers outfit provided us with further developed execution and precision when contrasted with homogeneous classifiers troupe.

III. Proposed System

With the improvement in the monetary region, a heap of people who apply to the bank credits anyway credit institutions have their confined benefits those need to permit to few persons just, hence searching to which people the development should be yielded so that will be a safe decision for the sake of the banks is an average cycle. In this paper we decrease the peril factor of picking the secured individual to minimize use of banks assets and tries. This was done by data big data-mining of the past databases of person to whom the development was surrendered beforehand and in view of these experiences the system was arranged by the AI model that produces the solid result. The primary goal of this paper is to foresee whether or not doling out the credit to specific individual will be protected. The paper is divided into four areas (i) Collection of data (ii) Comparing the AI models on gathered information (iii) Training of framework on generally encouraging model (iv) Testing

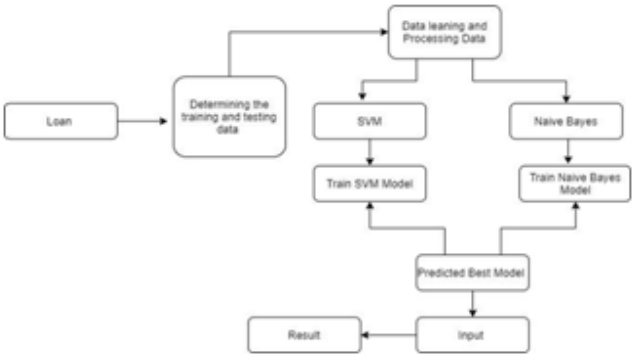


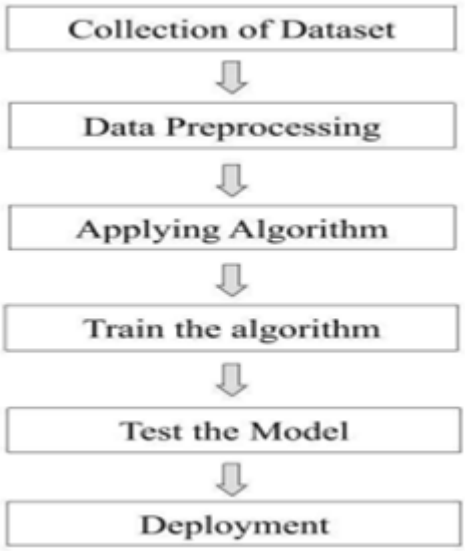
Figure 2: Architecture Diagram

In the loaning business, financial backers offer advances to moneylenders to reimburse revenue. Assuming that the borrower pays the credit, then, at that point, the loan specialist will create a gain on the interest. Be that as it may, in case the borrower

neglects to reimburse the credit, the moneylender loses the advance. Subsequently, moneylenders deal with the issue of anticipating the danger of the borrower not having the option to reimburse the advance. The fundamental reason for this undertaking is to anticipate which of the clients will be reimbursed with their credits or not.

From Test Data Analysis, we can create experiences from information. It tends to be found in the preliminary of three models that Logistic Regression improved assessment by 89.7059% than others, Random Forest(77.4566%), Decision Tree(85.4054%). Also, SVM and Naïve Bayes can be considered as the best calculation for Loan expectation utilizing Machine Learning. Candidates with a low record as a consumer neglect to be acknowledged, most likely on the grounds that they get an opportunity of not paying. More often than not, Applicants with a high charge are probably going to be qualified for a discount, which is probably going to reimburse their advance. A specific sexual direction and conjugal status appears past the span of the organization.

IV. Methodology



a. Dataset: Information for the review has been recovered from an openly accessible informational collection of loaning club storehouse credit information. The recovered information is the set of both defaulted and non-defaulted advances. This Information includes segment, monetary data of customers and advance installment history. This dataset consists of eight example records and test ascribes. We study 10,000 records for the inspections of the work. The example information has the defaults and non-defaults client gatherings. The dataset contains 73 free quality.

b. Data preprocessing: Can allude to control or dropping of information before it is utilized to guarantee or upgrade execution, and is an important stage in the process of information mining. The "trash in, trash out" is especially expression material for mining of information & AI based projects. Techniques of Information

gathering are constantly approximately controlled & coming about in out-of-range esteems (e.g., Income: −10000), inconceivable information blends (e.g., Sex: M/F, Pregnant: Y/N), and the missing qualities, and so on.

V. Applying Algorithm

To apply an SVM algorithm and Naïve bayes algorithm to train the module and result accuracy.

Support vector machines (SVMs)

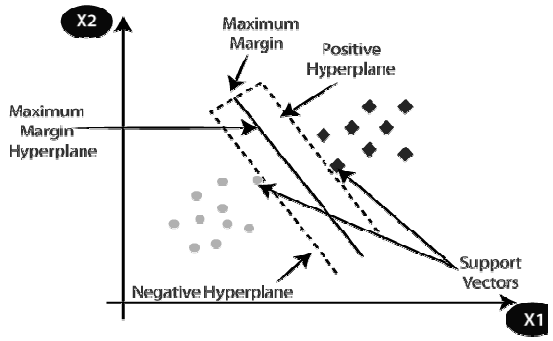
Are one of the supervised learning methods used for classification & regression also outliers detection.

The advantage of SMVs:

1. Productive in high dimensional spaces.
2. Still efficient in the cases where no. of dimensions is greater than the no. of samples.
3. It's also memory efficient.
4. Versatile: Various Kernel utilities are specified in favor of decision function. We provide common kernels, since we can further customize specific kernels.

VI. Steps

1. Import the dataset.
2. Visualize given the data to know how they look.
3. Preprocessing of the data.
4. Divide the data into two parts:
   a. Labels
   b. Attributes
5. Divide the data:
   a. Training set
   b. Testing sets.
6. Train the SVM algorithm.
7. Make the prediction.



Visualization of data points

Naive Bayes Algorithm

Input:

Training dataset T,

F= (f_1, f_2, f_3,.., f_n) // value of the predictor variable in testing dataset.

Output:

A class of testing dataset.

Step:

1. Read the training dataset T;
2. Calculate the mean and standard deviation of the predictor variables in each class;
3. Repeat

   Calculate the probability of f_i using the gauss density equation in each class;

   Until the probability of all predictor variables (f_1, f_2, f_3,.., f_n) has been calculated.
4. Calculate the likelihood for each class;
5. Get the greatest likelihood;

VII. Conclusion

From a suitable examination of positive spotlights and necessities on the part, it will in general be safely derived that the thing is an uncommonly useful part. This application is working suitably and meeting all Banker necessities. This part can be easily associated with various systems. There have been numbers cases of PC fizzles, botches in content and most huge heap of features is fixed in automated gauge structure, So as soon as possible the so – called programming could be made more secure, strong and dynamic weight change. In not really far off future this module of assumption can be join with the module of robotized taking care of system. the system is ready on old, getting ready dataset in future programming can be made with the ultimate objective that new testing date should moreover partake in planning data after some fix time.

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Emotion Recognition System Based on Machine Learning Classifiers

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Abstract

Facial Expression and gesture are very important in any interview. Human emotion and gesture recognition is crucial part of interpersonal skills. The Face Recognition Technology (FERET) program was introduced in the 1990s by NIST and DARPA agency. It is a database that was designed to measure algorithm performance to identify faces from a database. This evolution happened to encourage the face recognition market and this started getting popular. When ML, AI, etc. technology started growing bigger these behavioral features of humans started getting demand in the software field. Nowadays it can be inculcated into various security practices. Automatic emotion recognition has been an active research topic for a long time. A lot of work has been done on this and many applications are developed based on emotion detection. Emotions get reflected from speech, hand and head gestures of the body, and facial expressions. To design a machine that can mimic human behavior, particularly about the natural flow of speaking and responding to spoken languages has fascinated engineers and scientists for centuries. Hence extracting and understanding emotion has high importance for human and machine interaction.

Keywords: Face Recognition, speech emotion recognition, communication skills, machine learning, SVM, Fuzzy Logic.

I. Introduction

Humans tend to express emotion through facial expression, speech, gesture, body language. Recognizing emotions is difficult for computers compared to humans. Facial expressions and speech vary person to person. Recognition of facial expression and speech has become a challenging and demanding topic in research.

In this era of increasing technology, interaction through computers is getting advanced. In a conversation, emotions play a very important role. Emotions and Speech lift a conversation. In simple terms, emotion recognition is nothing but the process of identifying human emotions. Speech recognition enables a program to process human speech into a written format.

Advancement in machine intelligence introduced the need for machines to understand and develop human features like emotions which indeed has a lot of importance in varied sectors. Broader aspects and applications are in mobiles (face lock feature), security, entertainment, gaming, etc. advanced safety doors have security mechanisms that include speech or face detection as a verification method.

II. Literature Review

James Pao worked on emotion detection with facial features. Suggested the use of the FisherFace algorithm with other algorithms like SVM to detect emotion and for face detection, viola jones classifier is used. The face detection is done using Viola-Jones's Haar-like feature cascade detector and PCA is used for the dimensionality reduction. [1]

Nitisha Raut used a popular machine learning technique to perform FER and describes the use of SVM and its different kernels like linear, poly, RBF to detect emotion, and also Logistic regression is used which give higher accuracy. [2]

Jyothi et al. experimented on Expression Recognition using SVM and the proposed method of feature vector where the difference between feature peaks of neutral and the target expression is calculated and thus feature vector is created and using this feature vector expression recognition is done. [3]

E.M.Bouhabba et al. worked on real-time face emotion detection method. Here classification is done using SVM. Significant accuracy is achieved using the SVM algorithm. [4]

Faisal Ghaffar focused on Facial Emotion Recognition using a multi-layer Convolutional Neural Network and here classification is done using CNN. Significance is three CNN layers in which every layer is backed up by one pooling layer and three dense layers. JAFFE and KDEF both datasets were used. [5]

Paweł Tarnowski et al. worked on Emotion recognition using facial expressions. Paper says Microsoft Kinect is used for 3D face modeling. The proposed system was based on 3-NN and MLP. [6]

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Shih et al. compared the performance of different algorithms on JAFFE dataset. Give a detailed comparison of SVM used with different feature representations like PCA, LDA. Linear SVM is best for the proposed system. [7]

Mustaqeem et al. worked on enhancing audio signal processing using CNN model. The paper author defines the concept of speech emotion recognition. Many researchers are doing work in this domain. This shows SER has a wide scope for research. A study of different algorithms is given here and proposed deep stride CNN model applied on datasets. [8]

Humaid Alshamsi et al., suggested a smart phone app to recognize speech and face emotion. This combined both facial recognition and speech emotion analysis and achieving the best accuracy for SVM with a selected dataset. The algorithm used is efficient. And to store dataset cloud technology was used. [9]

Leila Kerkeni et al., mainly focuse on emotion recognition from speech and its application, the definition of emotion and relation with speech, experimenting with different algorithms, and using the noise cancellation method for better accuracy. [10]

M. L. Dhore et al. worked on only one but popular algorithm support vector machine. Extracted speech features from the Berlin database and classified them in different emotions using SVM. [11]

Humaid Alshamsi et al. suggested "Automated Speech Emotion Recognition on Smart Phones" Uses RAVDESS and SAVEE dataset as a test input into the SVM classifier, the acoustic features are used because compared to other types of features only this feature relate to energy and frequency of speech. And emotion can be differentiated based on speech signal energy. Silent areas were contributing nothing. So, for preprocessing part, they were removed with the help of threshold energy and measuring zero crossing rates. Give detection rate as 95.3 % for the RAVDESS dataset. [12]

Sourabh Suke et el. introduces a system "VoiEmo", which is a speech emotion recognizer. They have proposed a system in which they used CNN, SVM, and MLP classification based on selected acoustic features. And they used RAVDESS and TESS datasets as input and Flask framework for UI implementation. [13]

Siyuan Zheng et al. in paper show importance to acoustic segment. The research in this paper shows that for frontend, Mostly Gaussian Mixture Models (GMM) with MFCC models the features frame wise. And for backend, there were multiple classification models used for speech emotion recognition. The most popular multi class classifier for SER is SVM. The paper proposes a novel model for SER based on ASM. [14]

Moataz el Ayadi et al. studied different algorithms, databases, classification methods, and features for SER. The paper says that finding the most powerful feature, distinguishing the emotions is a very challenging task. They found three important points for SER implementation: 1) structure of speech emotion dataset 2) choose high weighed vocal features for better classification performance of model and 3) classification method used to recognize emotion. [15]

Stuart Cunninghamet al. experimented with different Supervised Machine Learning for Audio Emotion Recognition. They have used ANN and multiple regression. 35 features were extracted which consists of energy entropy. zenergy, spectral centroid, harmonic ratio, spectral entropy, 12 chroma vectors, fundamental frequency and the first 13 MFCCs using matlab Audio Analysis Libray and Matlab software. 2 layered feed forward ANN was configured with 1 additional hidden layer. [16]

Kosai Raoof et al., focuses on Speech Emotion Recognition: Methods and Cases Study. Used first 12 order MFCC and MS features as an optimal feature set for we Recurrent Neural Networks (RNN), Support Vector Machine (SVM) and Multivariate Linear Regression (MLR) classifiers to identify the state of emotion of signals. Implemented models with two open emotional databases: Berlin-DB and Spanish- DB. Accuracy is 90.05 for Spanish dataset. [17]

Yi-Lin Lin et al. focuses on two classification models, first one is support vector machine (SVM) and second is hidden Markov model (HMM) with Danish Emotional Speech (DES) Database, to classify five emotional states - neutral, surprise, happiness, anger and sadness. In the HMM method, 39 impactful features were extracted from vocal signal. Gender independent and dependent experiments were conducted. The accuracy of SVM classifier was 88.9% for female, 89.4% for male, and 88.9% for gender independent case. For HMM classifier, correct classification rates of 98.9%, 100%, and 99.5% were obtained for female, male and gender independent type respectively. [18]

Anusha A U et al. developed model to analyze emotion. In this paper a system is proposed real time facial emotional analysis with the speech dataset and video dataset. They utilized multi Model fusion and features of speech dataset. The analysis of audio signals was done with amplitude & maximum peaks of the signals, uses random forest algorithm for implementation. [19]

Kiavash Bahreini et al. focuses on application of real-time SER and FER. This paper represents the voice emotion recognition as a part of improving pupil learning through web cameras and microphones. This paper focuses on the real-time scenario for emotion recognition to have affective E-learning. Software offers periodically feedback on the basis of learners' expression, with the help of that teacher can decide teaching method, can guess particular decisions of pupil, etc. The software was tested with 12 learners. The accuracy of software is 67 % based on recognized emotions.[20]

Sr.No	Paper	Algorithm used	Metric used	Result
1	Jyothi et al, "Expression Recognition using SVM"	SVM	Accuracy	SVM-87.9%
2	Nitisha Raut "Facial Emotion Recognition Using Machine Learning	SVM Logistic Regress ion	Accuracy	90%
3	E.M.Bouhabba et al., "Support Vector Machine for Face Emotion Detection on Real-time Basis	SVM	Accuracy	87.9%
4	James Pao "Emotion Detection Through Facial Feature Recognition"	SVM Viola jones Fisher face	Accuracy	80%
5	Faisal Ghaffar, "Facial Emotions Recognition using Convolutional Neural Network"	CNN	Accuracy	78%
6	Paweł Tarnowski et al.," Emotion recognition using facial expressions"	k-NN MLP	Accuracy	96%
7	Shih et al., "Performance Comparisons of Facial Expression Recognition in JAFFE Database"	SVM	Accuracy	89%
8	Mustaqeem et al., "A CNN-Assisted Enhanced Audio Signal Processing for Speech Emotion Recognition	CNN	Accuracy	92%
9	Humaid Alshamsi et al., "Automated Facial Expression and Speech Emotion Recognition App Development on Smart Phones using Cloud Computing	SVM	Accuracy	85%
10	Dhore et al., "Speech Emotion Recognition Using Support Vector Machine".	SVM	Accuracy	Using RBF Kernel: 93.75% Using polynomial kernel: 96.25%
11	Jonathon Phillips, "Support Vector Machines Applied to Face Recognition".	SVM	Accuracy	78%
12	Saurabh Suke et al., "Speech Emotion Recognition System"	3 layered CNN	Accuracy	85.71%

On video inputs (Module A) and the other one will be trained on audio inputs (Module B).

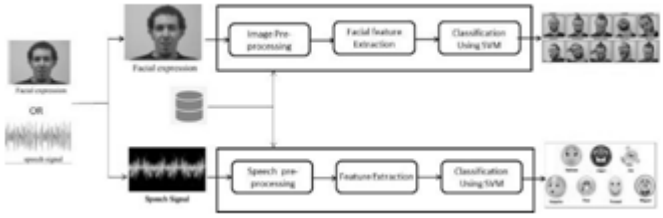

Figure 1: System Diagram

- **Module A**

For video inputs, firstly the model will be trained on a set of images to detect various emotions to achieve maximum accuracy. Frames captured from the video recording will be provided as input to the model. And the detected emotion will be displayed on the screen.

- **Module B**

The audio inputs for emotion recognition will be fed to the trained model. According to the model, these recorded audios will be classified as one of the eight categories of emotions on which the model was trained.

Finally, the combined result will be displayed to the user. In this way, the user can keep track of his facial expressions, confidence level, for future interviews.

Methodology

Users will be provided with options face or speech based on selection and respective modules will be implemented.

- **Module A**
  a. Face will be detected through video capturing.
  b. Recorded video is fed to the classifier.
  c. Captured video is divided into frames.
  d. Recognized emotion will be displayed.

The input is in the form of video i.e., frames captured will be provided as input to respective classifiers. Then the face will be detected and preprocessing will be done on an image to extract features. After Feature extraction, emotion will be detected and provided as output.

Video input is taken for nostril detection and for automatic detection Gabor feature-based boosted classifier is used.

III. Proposed System

System possesses two modules. In all two different classifiers will be developed, one of which will be trained

- **Module B**
  a. Recorded audio is fed to the classifier.
  b. Recognized emotion is displayed.

Final output will show the emotion, confidence level of the user throughout the interview and which will help them to improve.

Feature extraction and selection is the most important part in the SER system. The Mel frequency cepstral coefficient features (MFCCs) are a set of about 10 to 20 features. For extracting features we'll be using librosa. The output will be passed to the SVM model for classification. And the final result of SER is in the form of one emotion out of 8 emotions (sadness, fear, happiness, neutral, disgust, surprise, anger).

IV. Software Design

Python: We'll implement the module in python language.

Librosa: It is a package in python used for audio and music analysis.

Ski-kit learns: It is a simple and efficient tool for predictive data analysis. Mostly it is a useful library for machine learning in python. We'll be using it to use the SVM model.

OpenCV: OpenCV is an open-source library and is usually used for image processing**.**

Our System is divided into two modules:
1. FER (Face Emotion Recognition)
2. SER (Speech Emotion Recognition)

1. **FER [MODULE A]:** The images of various expressions are taken and noise is removed from the images. The neutral emotion face is taken and compared with other emotion other than neutral and difference between the vectors is calculated for each expression. That is eigen vector for each expression is calculated which is called as feature vector and using tis vector target emotion is determined.

   The Steps included in FER are as follows:
   a. Facial Image Acquisition
   b. Image Segmentation
   c. Features Extraction
   d. Training and Classification.

a. Facial Image Acquisition: Retrieve an image from source. In our case the source will be Video frame.

b. Image Segmentation: Image preprocessing includes resizing of image so that the same size of image will be given as input to model. Changing brightness or color that is converting the image to black and white. After that we will use a face detection cascade classifier to detect faces and use it for feature extraction.

- Open CV can be used for image preprocessing. First, we will read the image using cv2.imread (). Then we will resize the image using cv2.resize (). We will remove noise from image to smooth our image using Gaussian blur which is also known as Gaussian smoothing. cv2. GaussianBlur () is used.

- We will convert image into black and white using imgGray = cv2.cvtColor(img,cv2.COLOR_RGB2GRAY) Finally, we will use face detection cascade classifier to detect face face_cascade = cv2.CascadeClassifier()

c. Feature Extraction: After preprocessing the vector of each expression image is taken and the Euclidean distance between the neutral expression and the target expression is calculated and stored in form of a feature vector and using vector target emotion is determined for unseen data. We can calculate the Euclidean distance using the norm function.

d. Training and Classification: Feature vector of each emotion and the target label is used for training the SVM model and target emotion is detected

The entire process of FER can be summarized as follows:

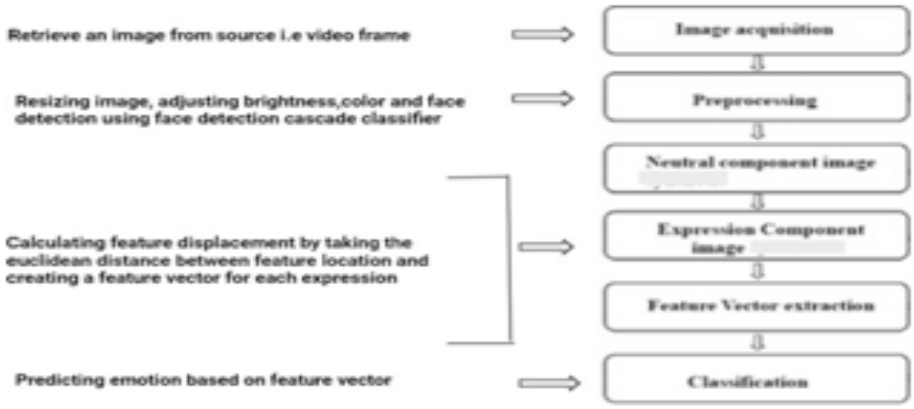

Figure 2: FER Process

2. SER [MODULE B]: Speech emotion recognition system is a collection of algorithms, methodologies that process and classify speech signals to recognize the embedded emotions. The audio input of various expressions (calm, happy,

fearful, surprise, sad, angry and disgust) from the RAVDESS dataset is taken and noise is removed from the audio signal for better output. After pre-processing, features such as Chroma and MFCC are extracted and passed to the machine learning algorithm. The model is trained using the SVM algorithm. This is a multi-class classifier as we have 7 types of emotions. Finally, the module is ready for testing and recognizing the expression from speech signals.

The steps included in SER are as follows:

a. Speech signal recording
b. Pre-processing or noise removal
c. Feature extraction and selection
d. Training and classification

a. Speech signal recording: This step includes recording audio from the source. In this case, the source is the user's microphone.

b. Pre-processing: The first step is to turn audio waves into numbers so that they can be fed to the Machine Learning algorithm. Before extracting features, the audio signal is manipulated by using pre-processing.

Pre-processing includes the removal of silence or unwanted noises in the speech for better output. This will be done using the threshold-based pre-processing method. It includes three steps which are as follows:

Firstly, step by step read the file with the 16000 sampling rate.

In second step, find the relationship between amplitude and energy in waves. Then compute the maximum amplitude in each frame with following equation $D = A \times \sin(2 \times \pi \times f \times t)$. And then remove noise and silent part with suitable threshold and save it in the form of array.

For the third step, generate a new audio file with the similar sample rates without silent signals and noise. In Equation $D = A \times \sin(2 \times \pi \times f \times t)$, D is the displacement of the particle, A represent peak of signal or amplitude, f denoted the frequency with respect to the time t.

c. Feature extraction and selection: We are going to collect the acoustic features such as

MFCCs and chroma features will be extracted using the Python library - Librosa.

1. **MFCC:** Mel Frequency Cepstral Coefficients are the mostly used for speech detection and recognition. It represents the spectral property of voice signals. The shape of the vocal tract identified in the short time power spectrum envelope, and the task of Mel Frequency cepstral coefficients is to accurately represent this envelope.

Hearing in humans is not a linear scale and for that reason MFCC uses the Mel scale. For this frequency scaling uses logarithmic intervals over 1000Hz, to convert into mel scale form. The formula for converting frequency to the Mel scale is [12]:

$$Mel(f) = 1125 \times \log(1 + f/700)$$

2. **Chroma:** From a waveform or power spectrogram it computes chromograph. It shows the energy distribution around every note. Each note has a certain frequency range. [21] It calculates the energy density in frequency ranges of the relevant notes.

3. To select relevant features we use Recursive Feature Elimination (RFE) technique. RFE uses a model which gives weight to every feature and removes features having least weight ultimately having less or no importance and high weighed features will be used for next iteration. This process repeated until required number of features doesn't reach. The goal is to select small or minimum required set of features.

d. Training and Classification:

- The set of acoustic features is used as an input to a SVM classifier.
- For the given labeled training data (supervised learning), the algorithm provides an optimal hyper plane that classifies new inputs.
- Classification methods via kernel achieve better performance due to the optimal separating hyperplane.
- As we have 7 types of emotion for speech. So, this is a multi-class classifier.
- The accuracy in the form of percentage will be calculated and the emotion which will have highest percentage will be the target emotion.
- The output from one of the seven is returned to the user.

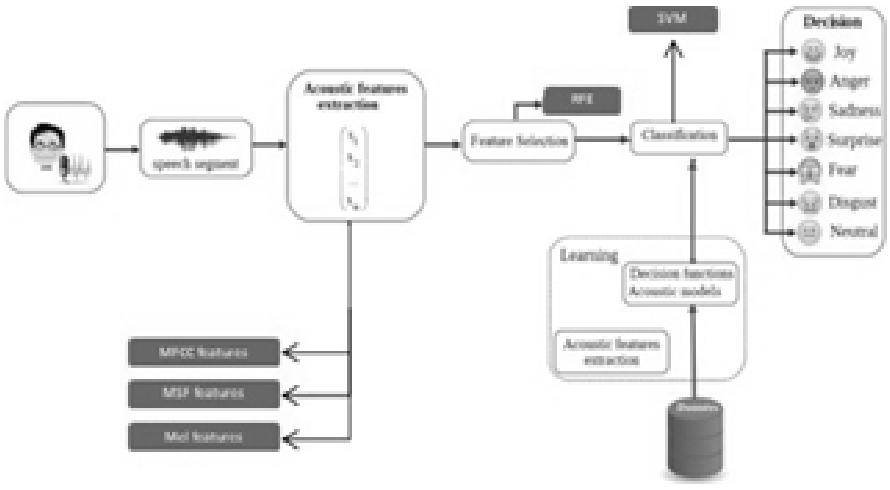

Figure 3: SER Process

V. Algorithm

A. Support Vector Machine (SVM):

SVM is the popular supervised machine learning model that is used for classification. It is an optimal margin classifier in machine learning, also used widely in many studies related to audio emotion recognition and face emotion recognition [9].

SVM are divided into two types:

a. Linear SVM: This type of SVM is used for linear data, which means data that is linearly separable that is if a data can be classified with the help of straight line, then the classifier is known as Linear SVM.

b. Non-Linear SVM: Non-linear SVM is used for non-linear data which means data that is not linearly separable, that is if a dataset is not separable by a straight line, then that data is termed as non-linear data and classifier used is said to be Non-linear SVM.

B. Hyperplane and the Support Vectors:

Hyperplane: There are multiple decision boundaries that separate the data in n-dimensional space, but the best decision boundary that helps to classifies and divides the data points or classes is called as hyperplane.

It's dimensions depend on the features in the dataset, which means if there are two features (as shown in image), then the hyperplane will be a straight line. And if there are three features, then the hyperplane will be a two-dimensional plane.

Support Vectors: The data points which are the closest to the hyperplane are called Support Vectors. These vectors supports the hyperplane, therefore the vector is called a Support vector. Removing support vectors can change the position of hyperplane.

- **Steps:** Support Vector Machine (SVM) take data points and plot them on x and y axis

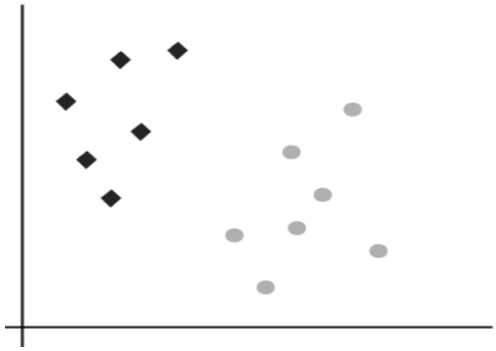

Figure 4: Data Points

There are many data boundaries that separated the data but we have to choose the boundary that is best which means which has maximum distance from each data point

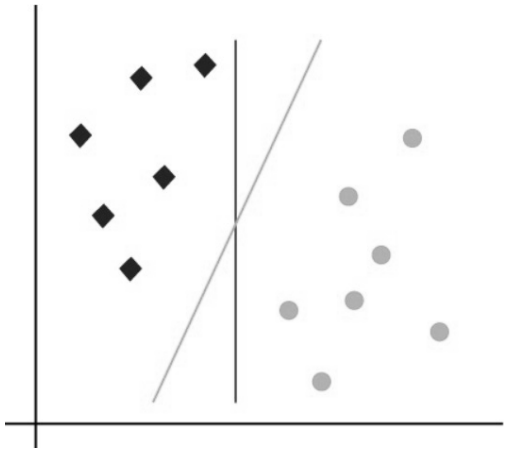

Figure 5: Hyperplane SVM

Plot data points on the x and y axis and give the hyperplane that best separates the points or tags with a line. This line is called as the **decision boundary.** Points which fall on one side of it, we will classify as *one class*, and anything that falls on the other as *other class.*

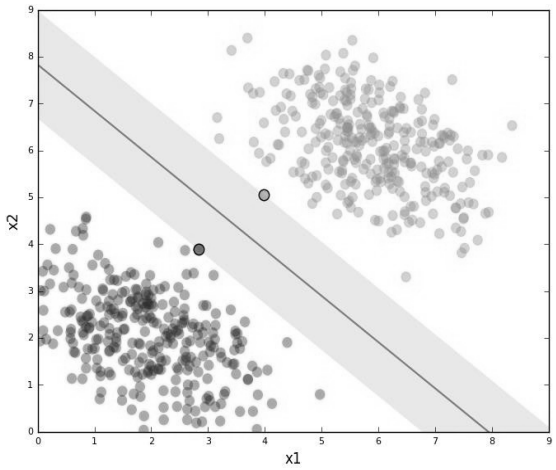

Figure 6: SVM Plane

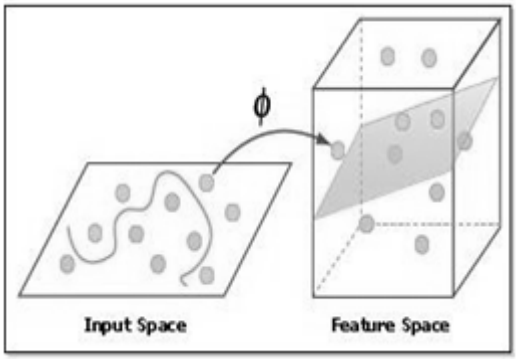

Figure 7: SVM 3D Plane

The best hyperplane is chosen as the one whose distance to the nearest element of each class or tag is the largest.

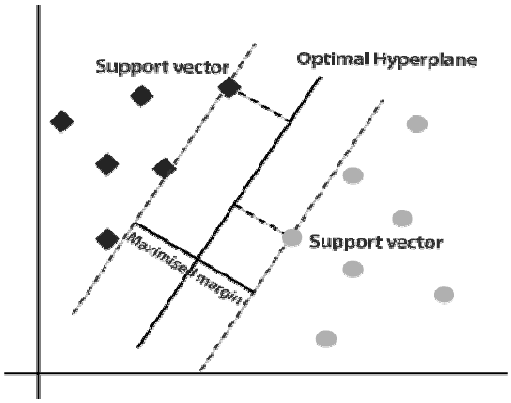

Figure 8: Hyperplane SVM

The major advantage of SVM is with limited dataset it gives good classification performance compared to other algorithms [8]. The purpose of selecting this model is it gave 95.43% accuracy for the RAVDESS dataset [8].

VI. Databases

The RAVDESS [9] dataset contains video and audio emotion recordings. For SER only audio dataset will be used. It contains eight emotions like neutral, angry, sadness, calm, happy, disgust, fear, surprise. The accent of audio clips is North American. Performed by twenty-four professional actors, twelve of them are female and other 12 are male. The sampling frequency of audio files is 48 kHz.

The Radboud Faces Database (RaFD) contains images of various models including males and females displaying different emotions like anger, sadness, happiness, contempt, fear, etc. It contains images of high quality.

The JAFFE dataset has 213 images of different emotions of ten different Japanese females. Each person was asked to do seven facial expressions and the images were annotated with semantic ratings on each facial expression by 60 annotators.

VII. Conclusion

Group discussions assess the overall personality of an individual in a group. It helps the panelists to select the right candidates from the group. Just-A-Minute or JAM has become a part of every selection process these days. The candidate is given a topic and has to express his/her views on it in one minute. Group Discussions and interviews test the candidate's communication skills, confidence, social and behavior skills, leadership skills, politeness, teamwork, listening ability, general awareness, etc. So, in the case of the recruitment process, practice group discussions and interviews play an important role.

An emotion and gesture detection-based system will help students to improve their skills required for interviews. It will help them to keep track of what improvements are needed and build confidence in them to face interviews.

In this paper, we have compared the results of various algorithms and concluded that a support vector machine (SVM) performs better than other algorithms if the dataset is limited.

The aim of our work is to propose a system that will be used in the practice of group discussion for an individual, to improve the performance of the candidate in the recruitment process.

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An Overview of Decision Support Systems for Precision Farming using Deep Learning

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Abstract

Agriculture is among the world's oldest and most essential occupations. It 19.9 percent of GDP and employing more than half of the workforce in India, Despite considerable demand, attractive potential the sector faces problems such as price volatility, low farmer income and a lack of capital. As the global population grows and resources become scarce a more technology-oriented approach is needed. Use of Machine Learning (ML) Techniques can help improve both productivity and profitability for farmers. Four major problem domains covered in this review article are Weed Detection, Crop Disease Detection, Weather Prediction, Crop Price Prediction. We compare many proposed solutions that can be utilized for precision agriculture and to develop decision support systems for farmers.

Keywords: Machine Learning (ML), Deep Learning (DL), Computer Vision (CV) Decision Support Systems, Precision Farming, Weed Detection, Crop Disease Detection, Weather Prediction, Crop Price Prediction

I. Introduction

Agriculture directly impacts human sustenance on this planet and being an old occupation still mainly follows medieval practices. We have identified four major problem domains where precision farming can benefit farmers and agricultural sector.1) Weed Detection - Weed growth that is unchecked can have a significant impact on agricultural output and quality. Weed-infested areas can be identified using CV models such as CNN, ANN and be used to target weed-infested with selective chemical treatment. 2) Crop Disease Detection -It is very difficult for farmers to identify various diseases that develop in agricultural plants. According to estimates Crop diseases cost the world economy some $220 billion each year. In the detection of

agricultural diseases, typical tools and processes are ineffective. Using CV and ML models crop disease detection system can be created that can easily mitigate such problems.3) Weather Prediction - Agriculture may be severely harmed by unfavorable weather. As a result, accurate and fast weather forecasting is critical so that we can take the required safeguards to reduce weather-related threats to agriculture and our livelihood. RNN and ADNN, CNN and other such ML and DL algorithms can predict weather to a certain extent which can help farmers plan their cultivation accordingly and can help them make best possible decisions. 4) Crop Price Prediction – ML techniques are being used to solve time series problems Similarly, these techniques can also be used in the field of agriculture to predict crop price. This will help farmers by providing them with an estimate value of their produce ahead of time based on market conditions and plan their cultivation.

II. Literature Survey

The Literature Survey comprises of the study of various papers to help understand the various problem domain and to study the different solutions being developed. It consists of summary of individual papers to help identify the ideal problem domains to work with among the various available problem domains.

In paper [29] the authors have performed the literature survey of various different ML techniques to find novel approached. They have given the basic steps used in model development as shown below.

Figure 1: Common flow diagram for Developing ML Model from [29]

The authors have also found the most efficient algorithms like Random Forest for classification, CNN with RELU and optimized parameters as the most efficient neural network for image processing and K-Means for clustering etc. The most common evaluation metrics were Accuracy, precision, Recall and FScore. Most of the decision support systems developed focus on single areas of farming like crop yield prediction, fertilizer recommendation etc.

2.1 Weed Detection

In paper [1], Image processing were used for weed detection. To detect weed following sequence of operations were done – converting image to Grey format, subtracting green pixels from it, increasing contrast of image then comparing sizes of plants to identify weed. This image processing-based algorithm gives 97% accuracy in this case while identifying weed correctly and it was 79% accurate to identify crop plants accurately. But in the case where size of crop plants and weed plants was similar, accuracy of algorithm was dropped to 50%.

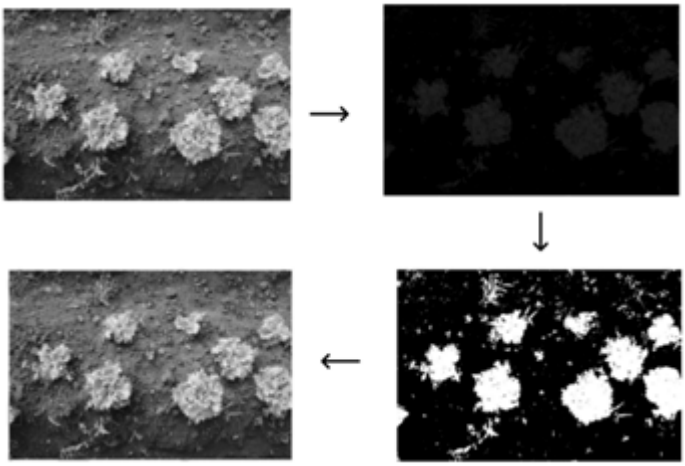

Figure 2: Example of Image processing from [1]

In paper [2], ML algorithms such as SVM, ANN and CNN were compared with each other to classify weed and crops plants. This paper concluded saying, CNN performs better than ANN and SVM. SVM gives accuracy of 87% and ANN gives maximum accuracy of 93%. CNN gives accuracy more than 98% for classifying weeds and crops plants. The confusion matrix below provides crop and weed classification validation for several classifiers. The confusion matrix aids in comprehending the difficulty in class recognition. In comparison to CNN, SVM and ANN recognize weeds as crops more frequently.

In paper [3], PWDS (Parallel Weed Detection System) is a suggested weed detection system that uses CNN to produce a real-time, scalable, and resilient weed detection system. This algorithm was able to conduct inference in real time with 92 percent accuracy.

In paper [4], weeds were detected in wheat fields. Author used background subtraction algorithms to detect weeds and wheat crops. In background subtraction method, first images of barren land were captured. Then, images of field with wheat crops are taken. Now, using background subtraction newly grown plants are detected from the frame. After that Hue, Saturation and value (HSV) is applied to differentiate between crops and weeds. Here color of wheat and weed plants were different in every stage of its growth so it was easy to classify weed plants in image by applying threshold value for HSV.

In paper [5], Author proposed ANN algorithm to detect weed in field. Proposed ANN algorithm was 99% accurate but it was extremely slow. Algorithm takes 27 Hours to analyze 12Mpixel image on i7 processor. Architecture of neural network consisted of just one hidden layer. The author trained a neural network with varying numbers of neurons to determine the optimal number of neurons in that layer. The author arrived at the conclusion that 10 neurons are sufficient for obtaining accurate findings. The time taken to identify weed, however, makes it challenging to implement in real-time systems.

In paper [22] the research presents a semi-supervised GCN-ResNet-101 network to increase crop and weed recognition accuracy. GCN-ResNet-101 is divided into two sections: CNN feature extraction and GCN-based recognition. The suggested GCN-ResNet-101 approach increases the recognition accuracy of crops and weeds by leveraging feature associations and increasing the effective exploitation of the limited labelled data by combining the advantages of CNN features with a semi-supervised learning ability of the graph.

The study [24] describes the development of algorithms for detecting weeds in soybean crop photos and distinguishing between grass and broadleaf weeds. In addition to optimizing the time spent constructing the picture collection, the SLIC Super pixel technique was an efficient segmentation tool for photos of plantations captured by UAVs. The dataset created in this study has over fifteen thousand photos of soil, soybeans, and weeds. The usage of ConvNets yielded excellent results, with classification accuracy of more than 98 percent across all classes. The studied algorithms all produced strong classification results.

The paper [27] focuses on real-time weed detection employing four image processing processes. Pre-processing of raw data, weed and plant segmentation, feature extraction, and classification, for example. The classification of weeds and crops was based on biological morphology, spectral properties, visual textures, and spatial contexts, among other factors. Because weeds and crops typically share similar characteristics, it can be difficult for the model to distinguish between them. There are also a number of challenges in real-world applications, such as leaf overlapping, fluctuating light circumstances, and varied growth stages. General Adversarial Network (GAN), self-taught learning, and semi-supervised learning was recommended because the dataset available is restricted.

In paper [28], Data preprocessing and data segmentation approaches were studied in 70 relevant papers, and it was discovered that the majority of the papers used supervised learning techniques with various DL models. The findings obtained following hyperparameter adjustment of pre-trained models on any plants provide very high accuracy, but only in constrained experiment setups such as a small set of crops and weed species.

The paper [26] discusses the many weed detection methods investigated, including an end-to-end encoder-decoder semantic segmentation network, which

differs from traditional CNN and can achieve a 95 percent accuracy rate. Along with CNN, approaches for automatic dataset creation by manipulating the shapes and sizes of the leaves, the alignment of leaves in the plant, the leaf number, and tweaking the lighting are also investigated. The SegNet classifier provides an accuracy of 90% when a combination of real and synthetic data is used. A method based on cNET is also presented, which offers an accuracy of 90-95 percent. The author presented a concept that incorporates multiple sensors to create an IoT device capable of weeding with the aid of a sprayer.

In paper [25], the author addressed the approach for semantic segmentation, which is only employed on a small scale in agriculture due to the lack of labelled pictures at the pixel level. The photos are first segmented using maximum likelihood classification, and then the weed pixels are manually labelled. For ResNet-50 and VGG16 base models, the paper compares UNET and SegNet meta-architectures. On the dataset used, it is discovered that SegNet outperforms UNET. With a mean intersection over union value of 0.8288 and a frequency weighted intersection over union value of 0.9869, the ResNet-50 based SegNet model produced the best results.

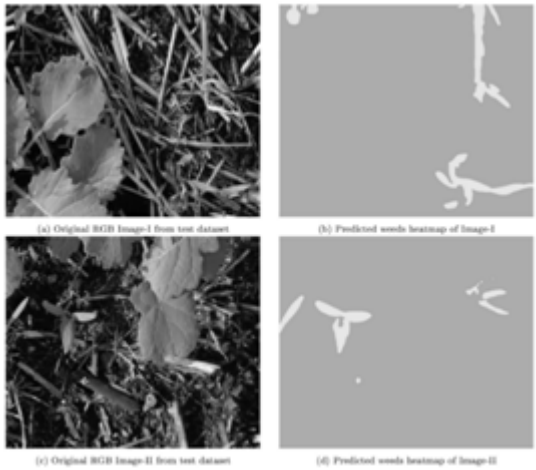

Figure 3: Original RGB test images and predicted heatmaps from [25]

2.2 Crop Disease Detection

In paper [6], A dataset including more than 50,000 photos of more than 35 illnesses affecting 16 plant kinds, as well as 15000 photos from the internet, was utilized. The CNN model was used.60% of the total photos were utilized to train the model, while the remaining 40% were utilized for validation. The models' final output is preserved to be utilized in validation later. Overall, accuracy of more than 93 percent was obtained.

In paper [7], They employed the Histogram of an Oriented Gradient to extract image characteristics (HOG). There were three component descriptors employed. 1) Hu Momemts: can be used to describe the outline of a specific leaf. 2) Texture of Haralick: The textures of healthy and sick leaves are usually different. To tell the difference between healthy and ill leaves by their textures, we use the Haralick texture

feature. 3) Color Histogram: A color histogram shows how the colors in a picture are represented. The RGB color space is first transformed to HSV color system, after which the histogram is computed. The Random Forest method was employed in this study. A 70 percent accuracy was achieved. The dataset that was employed was quite little. When using a large number of images to train, the accuracy can be improved.

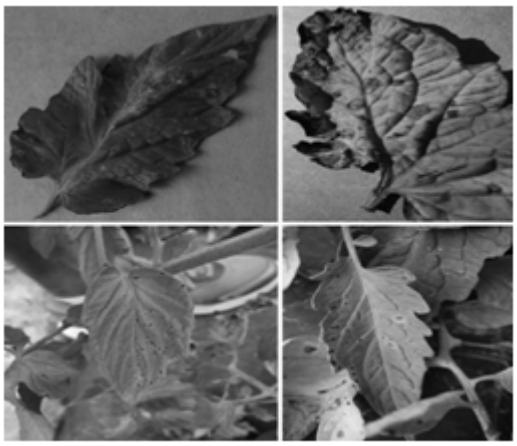

Figure 4: Samples of images in laboratory conditions (up) and in field conditions (down) from [8]

In paper [8], 87848 pictures were utilized in the collection. Different CNN architectures were implemented and compared. The majority of the photos were taken in a lab. They obtained outstanding accuracy for laboratory-based photos, while accuracy for field-based photos dropped dramatically. This shows that it is difficult to control the variables in an actual field like laboratory and thus makes it difficult for models trained on dataset of plant images that are grown in laboratory to accurately provide prediction for plants in actual fields. The following success rates were observed AlexNet (99.06%), AlexNetOWTBn (99.44%), GoogLeNet (97.27%), Overfeat (98.96%), VGG (99.48%).

In paper [9] Image capture was the initial phase, followed by Image pre-processing, image segmentation, and feature extraction, which took color, shape, and size into account.65% images used for training and 35% images were utilized for testing. They used two classification techniques Support Vector Machine (SVM) – (89% accuracy) and Neural Network – (80% accuracy). Because their dataset was limited, they were able to improve the accuracy of the SVM model. They further claim that as compared to unhealthy wheat; the healthy wheat histogram has the highest peak incidence.

In paper [10], They suggested a decision-making system based on image content characterization and supervised classifier type back propagation with a feed forward neural network. Pre-processing, feature extraction, and classification are all stages of image processing. An input picture was scaled during processing. Then, from an input for network training, color and texture characteristics were retrieved

and identified. The system was used to classify the test images automatically to decide plant either abnormal or good one. CNN classifier was used.

In paper [21], they presented a CNN model for disease detection in soyabean plants. The research on soybean leaf disease identification in complicated scenes is uncommon due to a lack of data and technical limitations. As a result, this paper proposes that the CNN model be trained using a synthetic image dataset. In the training dataset, there are 2200 total target items. Only synthetic data was used to train the CNN model.

In paper [23], The use of a CNN model to detect 9 distinct diseases in tomato plants has been proposed. For tomato crops, they employed a dataset with 14,529 labelled training images and 3,631 labelled validation images. After image augmentation, image pre-processing was employed to improve the performance of the proposed CNN model by adjusting image brightness by a random value of a random width of image. The test accuracy improves as the number of epochs increases and with 5000 epochs it is providing the best results. The accuracy of the model was 98.4 percent.

2.3 Weather Prediction

The focus of this paper [11] is on Artificial Neural Networks (ANN). An Artificial Neuron is a biological neuron that has been engineered. It consists of multiple inputs and just one output. An ANN is made up of a large number of small processing units that are linked and stacked together. Output Quality of an ANN may be unpredictable and may be prone to over fitting.

In paper [12] showed how CNN is better than ANN for solving many complex problems. CNN can be used efficiently for all types of sequential data including 1D for audio, 2D for image processing as well as 3D for Video processing. Particularly image-related applications, such as the world's biggest image classification data set (Image Net), computer vision. CNNs are still not very efficient in solving problems of NLP and Sequential data than RNN's and LSTM's.

The paper [13] studies Long Short-Term Memory (LSTM) and Simple Recurrent Neural Networks (RNN) algorithms. In general, the LSTM is better than simple RNN however LSTM takes longer to learn than the RNN algorithm. LSTMs perform better in tests than basic RNNs. The vanishing gradient problem was virtually completely eliminated due to LSTMs. LSTMs demand a large amount of time and data to train and prepare for practical uses. Overfitting is an issue with LSTMs, using the dropout approach to solve it is problematic.

In paper [14], discusses potential of DL techniques for weather forecasting, DL approaches using hierarchical weather representations developed from huge weather time series data for weather forecasting. Both CNN and RNN have been proven to be useful in the development, training, and testing of weather forecasting models. When

used to predict rainfall, a RNN provided acceptable accuracy. However, using a CNN or RNN model alone does not provide sufficient accuracy; instead, ensembling is necessary to achieve superior results.

In Paper [15] Adaptive Deep Neural System (ADNN) and ANN were used to estimate future approaching crop models based on the previous year's weather connected data. When compared to existing methodologies, the suggested ADNN-based prediction model shows constant improvement in all five districts, demonstrating its usefulness and effectiveness. Also, RNN‘s and LSTM’s work better than simple DNN’s.

2.4 Crop Price Prediction

In paper [16] When the system receives the location, pre-processing begins. The data was separated into three sections. Training accounts for 80%, testing accounts for 10%, and validation accounts for 10%. The model is then built using an LSTM RNN for vegetable prediction and an ARIMA for price prediction. Finally, the program displays crops which will be more profitable and forecasted future vegetable prices for a certain area. Prediction price data of last 10 years was used to predict price of each crop considering the location as well. LSTM and ARIMA are evaluated using MAPE. Here ARIMA performs slightly better than LSTM in terms of accuracy.

In paper [17] traditional time series models like Holt-Winter’s Seasonal Method, SARIMA (ARIMA that can capture seasonal trends) model and LSTM were compared. LSTM can overcome the vanishing gradient problem making it useful for time series forecasting. The LSTM model on Non stationary data gives RMSE of 146.86 which is very high. Hence after making the data stationary using lag difference the RMSE score of LSTMS (stationary data) is 7.27 which is greater than SARIMA – 16.54 and Holt-Winter’s Seasonal Method – 18.05 making LSTM the better model. Lack of data available to train LSTM models is a major drawback.

The paper [18] studies ARIMA, PLS, ANN and RSMPLS to investigate linear and non-linear relationship between historical prices. The algorithms are compared using mean absolute percentage error (MAPE). The Algorithms with Lowest MAPE scores are in the tables mentioned. The Algorithm PLS performs better for short term prediction and ANN for long term prediction.

The paper [19], the author proposes a decision-making support model for prediction of prices of agricultural commodities. The proposed solution is a portal for farmers to get price forecasting. Explores a of number of different techniques of Data mining, Regression, ARIMA, PLS, Multilayer Feedforward ANN for prediction of Agricultural Commodities. The study highlights the interdependence of Climatic conditions, soil fertility and yield on the price of crops.

The paper [20] explores the RNN models LSTM and GRU to predict time series of prices while also considering the probability distribution of price movement

for evaluating the models along with accuracy. Because LSTM can accurately record the direct relationship between a point in time in the past and a point in time in the future, its average error is higher than that of GRU. In comparison to GRU, LSTM can catch the sharp convex of a price line that correlates to a quick spike or decrease in price.

III. Proposed System

The Literature Survey helped us identify Weed Detection and Crop Disease Detection as our thrust area. So, to solve these specific problems using the above studied techniques we propose the following system.

3.1 Image Capturing: The images of the field for weed detection and crops leaves for crop disease detection will be provided to the system separately. The images for weed detection can be generated from height or an aerial drone to detect weed patterns in the field, whereas the images for crop disease detection will require closeup images of leaves.

3.2 Weed Detection: The images passed for weed detection will be preprocessed to remove noise and will be passed to a DL model which will use bounding box technique to provide the co-ordinates of the weed in the image in real time to the system. This data can be used along with an automated robot or machine system to spray weedicide at the affected location.

3.3 Crop Disease Detection: The images passed for crop disease detection will be preprocessed to remove noise. After preprocessing the DL model will identify if the crop is infected or not and if it is infected the model will provide the details of the most likely diseases along with their probability to the system. The system will then create a detailed report for the user which will comprise of the possible diseases and remedies.

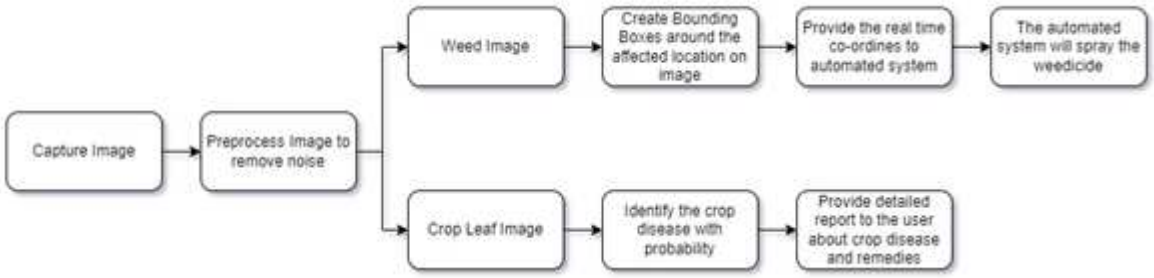

Figure 5: The Flow of Proposed Model

IV. Conclusion

In this literature survey for agricultural decision support system for precision farming we compared different ML and DL algorithms and explored possible uses of these algorithms to solve multiple problems related to farming. Many algorithms like

SVM, Random Forest, CNN were used to detect plant diseases. The result shows that CNN detects a greater number of diseases of plant with high accuracy and can be applied to a wide variety of plants / disease types. Scenarios where there is huge difference between size or color difference between crop and weed, image processing-based algorithm works well. Because of its capability to learn important characteristics from the image, CNN outperforms SVM and ANN. ANN is incredibly accurate, but it takes a long time to train and requires a lot of data. For weather forecasting research shows that that different models such as ANN, CNN and RNN can be used. Out of these models LSTM (type of RNN) works exceptionally well for sequential data of weather prediction. Many algorithms like ARIMA, SARIMA and RNN algorithms such as LSTM and GRU can be used to predict agricultural prices. The results show that in general LSTM models perform better than others with higher data while ARIMA and SARIMA can perform reasonably well even with less data. The proposed system tries to provide solution to two major challenges namely Weed and Crop Diseases faced by today's farmers and agricultural sector DL Algorithms.

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A Research Project Analyzing the Contemporary Dynamics of Gender Equality and Its Impact on the Sustainability of International Peace and Security

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Abstract

Thinking about international security from a gender perspective allows us to redefine what the term *'International Security'* signifies. Currently, the meaning of the word *'Security'* is largely influenced by ancient and neo-realist theories. Although the truth is a major player that has long existed within International Relations (IR), it is in the field of security studies especially that the truth really seeks a *'Throne'*. There is a close relationship between those working on foreign security policy, and political reality, so realistic ideas about security often have a profound effect on policies that affect people's daily lives and experiences. For many gender experts, challenging the hegemony of facts is key to making a female interpretation of safety studies. Therefore, this research project will use the concept of gender to analyse realist and neo-realist international security studies, challenge the dominant definitions of *'International Security'* and *'Threat'*, and use gender inspired ideas to redefine these key concepts. The structure of the research is as follows: first, the research project has found out what the ruling, traditional International Relations (IR) rhetoric tells us about the global system, what it is, and what it means to be potentially secure and safe in an international arena of diverse cultures and communities. The research project then examines how the world has undergone significant changes since the Cold War, thus requiring that security as a concept be redefined. As the author of this research paper, I believe that the most effective way to do this is to use the concept of gender, so that I can redefine the two key concepts of the security sector – the nation state and the potential threat – using a framework that also upholds gender equality.

Keywords: Cold War; Foreign Security Policy; Gender Equality; International Relations; International Security; Political Reality; Realism.

I. Introduction

A general narrative with knowledge of the facts tells us that the world was made up of provinces competing in anarchic system to increase their power (Mearsheimer, 2001: 30). This narrative, which is believed to be the only narrative worthy of attention in IR research, thus presents provinces as independent, rational and self-governing (Mearsheimer, 2001: 31). This true expression defines security in the strongest terms (Mearsheimer, 2001: 56). According to the influential neorealist Mearsheimer, the *"most powerful"* nation state is that of the *"most formidable land forces"* (2001: 56).

The *'threat'* to global security arises in the form of military attacks against state borders (Mearsheimer, 2001: 33), At its core, security studies are concerned with the question *'how do states think about the use of force'* (Fierke, 2009: 17). Finally, a key component of the facts is its commitment to positivist methodology, and its pursuit of *'unprecedented'* security policies and *'objectives'*, and as such can be applied globally (Tamang, 2016: 229; Tickner, 1992: 29).

Undoubtedly, this definition of security – which focuses on inter-provincial conflict –can be used to describe world events of the twentieth century. Mearsheimer argues that German actions from 1868 to 1945 can be understood as the pursuit of *"regional hegemony"*, with numerous attempts to expand its borders (2001: 170, 181).

Similarly, Waltz describes the Cold War as a framework that emphasizes the distrust of the United States and the Soviet Union, the fear of possible military power and the use of both offensive and defensive tactics in their struggle for control (1988: 628). Therefore, some argue that realistic ideas can be useful if we only consider the actions of *'Superpowers'* during the twentieth century.

However, I believe that a few earthquake changes have taken place since the end of the Cold War which have contributed to significant changes in the formation and reformation of the dynamics of international security. Globalization has had such a profound and reflective effect on the world that the real definitions of *'International Security'* and *'Threat'* have been made superfluous.

Although globalization took place during the twentieth century, over the past 30 years globalization has accelerated to the point where the flow of information, goods, and people across national borders has reached unprecedented peaks (Fukuda-Parr, 2004: 36; Bausch, 2004: 6). Thus, globalization is the cause of a multitude of new threats to international security, that realism and neo-realism have somewhat failed to define. This creates a void in the dynamics of international security, that a gendered-informed approach can help to resolve.

II. Results and Findings

2.1 Globalization, Realism, and the Contemporary Dynamics of Gender Equality: The Keys to Discover and Resolve New Terrorizations of Global Insecurity

Gender education, like globalization, is by no means a new concept in the 21st century, yet in this new world order of the post-Cold War gender ideology has become increasingly important in understanding security. The concept of sexuality compels safety subjects to re-examine their common thinking (Hudson, 2005: 155).

By incorporating gender, safety studies find themselves embracing very different research agendas, priorities and definitions. For many gender experts, rapid globalization is the key to understanding new forms of global insecurity (Bausch, 2004: 5). Globalization has created new threats, while increasing old ones. Some of these current threats include cyber warfare, international terrorism, international crime and human trafficking (Fukuda-Parr, 2004: 35).

A threat similar to cyber warfare is made possible only through technological advances, thus becoming a completely modern threat. Some, such as terrorism, are now 100 years old, yet they have taken on an international dimension and a completely different character due to globalization. The 9/11 terrorist attacks, for example, made extensive use of cellular networks (Blanchard, 2003: 1306). Money laundering is now a global phenomenon due to the interaction of international banks and financial services (Fukuda-Parr, 2004: 37). Freedom from travel has allowed human trafficking to flourish (Fukuda-Parr, 2004: 38). Almost every threat to the world today is very different from the one that we faced in pre-World War II.

It is, therefore, very important, for international security studies to remain useful and relevant, to address these questions anew. I believe the most effective way to do this is through a gender-informed novel approach. The next section will highlight the importance of gender perspective, and how it can be used to redefine regime, the threat and the concept of *'International Security'*.

2.2 Analysis of the Importance of a Gender-Informed International Security Strategy in Redefining the State-Centric Dimensions of International Security

The state-centric nature of international security is a problem that is often debated in deliberations on gender equality (Hudson, 2005: 156). Today, insecurity is a more common issue (Peterson, 1992: 31). Thus, IR's strong commitment to statistical conflict has made security studies ineffective.

The next section will use the concept of gender to analyze the concept of nation state. As discussed, the general literature of security studies is almost entirely focused on government, so if we want to think of another way to understand security, it is important to challenge state governance. According to facts, a state is an atomic, rational, and self-serving socio-political actor (Tickner, 2004: 44). These aspects of

the state are based on what Hans Morgenthau calls the *"human nature"* (1978: 4). Human nature, according to Morgenthau's *Politics Among Nations*, is unchanging, and is based on the concepts of *"objectivity"*, *"rationality"* and *"reason"* (Morgenthau, 1978: 4). Therefore, we must understand the dynamics of contemporary international security as anthropological, reasonable and justifiable.

A few decades later, neorealist Kenneth Waltz wrote *Theory of International Politics*, stating that state behaviour was based on the behaviours of *"economically sound people in the market"* (1979: 110; Tickner, 2018: 22). Although Waltz's epistemology differs from Morgenthau's, his work produces the same ideas about universal morals and values. Despite the intentions of true neutrality, sexists have made it clear that the inherent bias of masculinity is fundamental to the state's view (Tickner, 1992: 29).

2.3 Nation Building amidst Assumptions of Masculinity: Analysing the Role of Masculinity in Encouraging the Idea that Nation States will only Compete and Never Collaborate

Tickner, a key critic of state and security, explores some of these assumptions about masculinity, for example, the notion that nations will only compete and never collaborate. While realists and neorealists have always questioned trust in this independence because of the contemporary implications of masculinity (Mearsheimer, 2001: 33), sexists promote international cooperation as an important solution to tackling international threats and not recognizing national boundaries to prevent terrorism and disease (Tickner, 1992: 133; Abbott, Rogers and Sloboda, 2006: 5).

Another concept of gender is that state perceptions are based on the essence of the family unit in society (Peterson, 1992: 34). Gender experts say that the state contributed to the creation and pursuit of the *"naturalization"* of the family unit, and in this, the state played a role in affirming the gender ideology that places men as economic leaders, and women as home caregivers (Peterson, 1992: 41-43).

Describing the situation as a neutral concept about sex is wrong and misleading. Considering the importance of the state in security studies, it is important to challenge and redefine the current definitions of the *'Nation State'*. In general, sexists define the state as a group of institutions, which contribute to the recognition of gender identity through laws and actions (Waylen, 1998: 7). However, there is no single position for a woman.

Different feminists interpret the relationship between state, security and gender in different ways. Liberal feminists criticized the state for its bias in the interests of the ruling party in society, which, in many cases, was made up of men. Thus, the state is a major force in advancing the interests of men.

Radical feminists see the state as a patriarchal power structure of sexuality by nature; that is why the state itself can act as an oppressor. Alternatively, women social

workers explore how state policies can have a negative impact on women, for example regarding employment or fertility. Although there are differences between the various positions of women's rights in government, these different approaches are similar in distrust of the state in its "*protector*" role (Blanchard, 2003: 1289; Young, 2003: 9).

III. Discussions and Conclusions

3.1 Dominant International Security Theories Versus Gender-Informed Perspectives: Is the Nation State a Protector or Is the Nation State Itself a Threat to Gender Equality?

International security theorists believe that the state is a protector of citizens, with foreign players as a threat. If we look at gender-informed perspectives, however, we can begin to understand how the state itself can pose a threat to its people, or especially, to women. Pettman states that it is often government agents, such as the police and the military, who pose the greatest threat to women (1996: 10). Evidence of sexual violence at the hands of the state can be found in many places throughout history. In the late 1980s, for example, more than 1000 cases of alleged rape of women by Indian police were documented (Watson, 1991: 309). By the 1990s, evidence showed that mass rape had been used as a war strategy in both the Bosnian and Rwandan conflicts (Peterson and Runyan, 1999: 125-127). An estimated 250,000 women were raped in the Rwandan War (Peterson and Runyan, 1999: 127). The sexual harassment of US soldiers against their counterparts is well documented. In a study conducted by US women veterans in 2003, 19% reported being raped by another official. The levels of sexual harassment perpetrated by US servicemen against civilians are similar. In all of these cases the violence was high-profile, mostly perpetrated by those incarcerated in public institutions. Moreover, in each of these cases, the state played a key role in allowing the violence to take place without opposition and with little effect. By understanding the ways in which state institutions can be a direct threat to both women and men, we can begin to discard one of the core concepts of practical security education – that the state is a protector of its citizens and therefore the only threat is external.

Once it is accepted that the state itself can be a threat, a space is created where we can begin to question what the meaning of the *'Threat'* should be. What kinds of problems and events challenge citizens to feel safe? The next section will look at what types of stories were considered *'Threats'* and what did not. In order to understand the difference between threats and non-threats, we will explore the concept of social or confidential segregation. We will then look at a very different way in which the concept of sexuality understands the concept of *'Threat'*.

3.2 War and Statecraft Under the Lenses of International Security Strategists and Realists

Traditionally, security studies have largely focused on war thinking. Realist Stephen Walt argues that security studies – a field he calls "*Statecraft*" – should focus

exclusively on war, as well as war-related issues such as arms control and state negotiations (Walt, 1991: 213).

Realists see war between regions as *"always possible"* (Waltz, 2001: 227), a threat that can be *"treated but never eliminated"*. Despite these visions after the end of the Cold War the frequency of wars between the regions declined sharply. World Health Organization estimates show that in 2001, war caused 0.4% of deaths, and disease caused 91% (WHO, 2002: 190). When we remove our focus from the usual wars and conflicts, we allow space for the analysis of other types of risks. We also find that many of these issues are closely related to gender in the way they affect men and women in different ways. A prime example of this is domestic violence. The WHO report estimates that 35% of women worldwide have experienced the violence of intimate partners (WHO, 2013). However, in the UK in 2016, only 10% of the 1.03 million reported cases of domestic violence ended up being convicted (National Bureau of Statistics, 2016). It shows how domestic violence as a major problem for women around the world has been ignored by the government. This policy of non-intervention (Peterson, 1992: 46) is evidenced by a dichotomy that is a problem between the public and private sectors (Tickner, 1992: 57).

3.3 Threats Versus Non-Threats: An Analysis through the Lenses of Gender Equality as opposed by Social Segregation

Many books discuss the concept of social segregation. In broad terms, the *'Public'* sector is defined as one of politics and economics, and the *'Private'* sector as the family, domestic and reproductive sectors (Hooper, 2001: 91). According to traditional IR, the 'Public' sector – that is, the one outside the nation-state – is characterized by chaos and danger, and the 'Private' sector – or the one inside the nation-state – is considered a place of order (Pettman, 1996: 4). This difference is not automatic.

Receiving threats as external helps to divert attention from any danger created within the state through domestic politics. This limitation is one that gender experts have invested heavily in demolition (Hooper, 2001: 91; Hudson, 2005: 162). By ignoring the problems that allegedly fall within the *'Domestic'* category, security studies ignore some of the most pressing global threats for women (and most men).

Domestic violence is often classified as *'Private'* and is therefore regarded as an issue outside the jurisdiction of the state (Tickner, 1992: 57). The difference between the *'Public'* and *'Private'* threats is evident all over the world. Infanticide and sex-selective abortions have killed 40 times more Indian women since 1980 than in any other Indian war. Also, infanticide and abortion are considered *'Private'* issues, to be regulated at home (Hudson et al., 2008: 21) and are therefore largely ignored by security players. This provides important insight into how security studies have been deficiently represented.

3.4 Time for the Re-Examination of Sexual Violence in Conflicts and Wars: Should International Security Studies be only War-Centric?

Although war continues to dominate security studies, in fact, it is a relatively small threat compared to ordinary citizens (Hough, 2004: 16). When war breaks out, it affects women in some way. As discussed earlier, rape as a weapon of war has been used throughout history. Historically, IR viewed rape during the war as *"normal behaviour"*, an acceptable outcome of conflict, thus being dismissed as a state-centric consequence of war.

Recent studies by gender activists have called for a re-examination of sexual violence in conflict, claiming that rape during war is a *'Military'* and *'Political'* strategy, designed to undermine morality and humiliation for both the individual and the nation. Peterson argues that *"male violence constitutes a global war against women"* (1992: 46).

The current IR security talk fails to question the consistency and repetition of male violence against women, why this violence occurs and why the state allows it to happen. Only if a gender perspective is adopted when sexual violence is added to the security agenda, can this be answered.

In its quest to create a more inclusive sense of security, the gender-equality approach focuses its attention on the individual. Methodology is a major technique by which gender scholars achieve this. Gender studies often draw conclusions from story-driven research, and hence, real-life stories of war crimes committed against women must not be treated as *"normal behaviour"* to implement a nation's military cum political strategy for winning a war.

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Application of Block-Chain in Agriculture Sector for Supply Chain Management

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Abstract

"Tracking the chain of supplying a good from farmland to customers is a demand of a farmer as well as consumers". Supply chains are evolving day by day with more complicated networks and are most important during this nowadays. Also, the requirement for permanently quality food products from the customer is additionally becoming a significant part. It is also hard to trace the source of information and keep a constant look at the tracking system manually. In the trading sector, there is a large scale of dependency on a centralized chain system, but this system does have logs in it, such as a crystal-clear system that is visible to everyone with high security to avoid fraud. Blockchain also gives us many advantages making our daily lives better and easier by holding large data of information but stills have disadvantages in the trading field, securing finance for farmers, affording the cost of this whole blockchain system, and many more on small scale. Hence, we require a better system that ensures traceability, trust, and delivery mechanism in SCMs.

The Supply management system includes new development and innovative solutions that are more secure and reliable for people where trust can be built amongst people irrespective of their identity, caste, religion, but purely a network build and product quality and trust with security.

Keywords: ***Traceability, transparency, accountability, auditability, logistic flow, Supply Chain Management, Block chain.***

I. Introduction

Living in a country like India where farmers and their families totally rely upon farming, agriculture for daily living, it's high time to build a secure platform for them and satisfying customers at the same time. But there aren't any advance technologies such which will create an end- to-end innovative answer to all the questions. We need to develop a market where farmers and customer get satisfied with the goods and products they receive or sell. Business gained a new momentum with the discovery of new concept which is known as Bar Codes labelled for product giving a high tight security for tracking down the product and also a primary

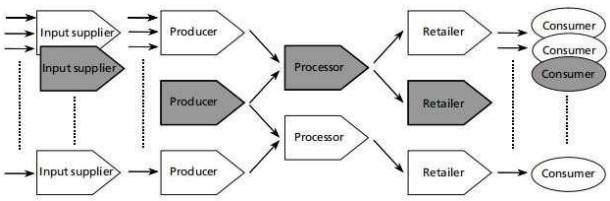
beginning to a new development of uniquely secure solution. Mobile data collection devices, cheaper sensors to trace conditions, followed by the online to remodel links with consumers brought new applications. Electronic devices have made it possible to track down his/her product from anywhere and anytime giving a great flexibility. Barcodes were then replaced with RFID and QR codes. However, yet many problems exist related to traceability of products and transparency in management of the system. Even if database systems that managed transaction records were taken care of in isolation, they weren't responsible for verification of records. While in many cases data had been updated manually or double check the information for verification but this was a lengthy and time-consuming process. Blockchain technology has the potential to handle these gaps and reduce the complex and lengthy work stuff. A blockchain is a DTL that is managed by a network of multiple computing machines which are not hoping on another platforms trust basis. Blocks are maintained using some platforms that share data, process, store, and represent in human understandable text. Every transaction is supplied through the centralized networking which has nodes connected to it and the information is spread over these nodes using protocols and validate the data whether is it true to itself and there is no fake data entry. We can achieve transparency through the use of decentralized and cryptographic hashing methods which is a service that comprises a string of arbitrary inputs to fixed-length string and conversion of data to unique text string. Cryptography can be done in two ways namely asymmetric key algorithm and hashing function. Generally, SHA-256 hash function is used to create hash for every block. Digital asset is distributed instead of copying it to node. The asset is decentralized, allowing full real time access. A transparent ledger of changes preserves integrity of the document which creates trust in the asset.

II. Literature Review

[1] What does one mean by Blockchain SupplyManagement System?

We will understand that Supply Chain SCM is nothing but method of making decisions and executing them with money flow that look forward to fulfill client needs.

The provision chain includes the producer, suppliers, provision flows, transporters, warehouses, retailers, and shoppers themselves. Blockchain SCM new development, marketing, operations, distribution, finance and client service.



The above diagram shows a Generic Supply Chain. It's represented inside the context of what's sometimes mentioned as a 'Total Supply Chain Network '. In this

kind of network, every firm belongs to a minimum of single SC; i.e., it contains n number of suppliers, customers. World Health Organization successively, distribute the processed merchandise through one or additional stores. The key characteristics of blockchain are:

A] **Distributed Ledger** – Every participant in the network has a full copy of all data, updated in real time. This removes the need for verification by creating a single source of truth.

B] **Cryptography** – The integrity and security of blockchain data are maintained with cryptographic functions, and all updates and changes are displayed with timestamp.

C] **Consensus** – All updates, changes and transactions must be validated by all participants. This eliminates the need for central controlling and creates trust.

D] **Smart Contracts** – A computer program which executes itself when certain terms and conditions are met. No human interference is required. It automates the repetitive and 'if else' situation in opreational and commercial processes.

[1] Associate degree agriculture offer chain system includes organizations/ cooperatives that square measure accountable for the assembly and distribution of vegetable, fruits, cereals, pulses or animal-based merchandise. We will differentiate into two methods. Farming of vegetables, fruits, flowers which get into the chain of supply and its management including the cycle of importers, exporters, wholesalers, retailers and everyone which fall in this cycle of management. There is process of supplying packed food to consumers which demand for quality of the product and for manufacturing shopper merchandise a raw material, merchandise square measure is used. Conservation and learning process helps in increasing the merchandise shelf-life.

[2] Agriculture and Food provide Chain Management (SCM) The blockchain technology offers a reliable approach of tracing transactions between anonymous participants. Fraud and malfunctions will so be detected quickly. Moreover, issues is reported in period of time by incorporating sensible contracts. This helps address the challenge of trailing product within the wide-reaching provide chain because of the quality of the agri-food system. The blockchain technology provides transparency among all concerned parties and facilitates the gathering of reliable knowledge. Blockchain will record each step in an exceedingly product's worth chain, go a product's creation to its death. The reliable knowledge of the farming method area unit extremely valuable for developing data- driven facilities and insurance solutions for creating farming smarter and fewer vulnerable. Mone graph, a startup launched in 2014, uses blockchain to secure the usage and sharing rights of digital media like video clips or brand- sponsored content and modify sharing of revenue across the media creators, publishers, and distributors. Skuchain builds blockchain based mostly B2B trade and provide chain finance product targeted toward the $18 trillion international trade finance market that involves various entities together with consumers, sellers, provision suppliers, banks, customs, and third parties. The blockchain technology offers a reliable

approach of tracing transactions between anonymous participants. Fraud and malfunctions will so be detected quickly. Moreover, issues is reported in period of time by incorporating sensible contracts. This helps address the challenge of trailing product within the wide-reaching provide chain because of the quality of the agri-food system. The blockchain technology provides transparency among all concerned parties and facilitates the gathering of reliable knowledge. Blockchain will record each step in an exceedingly product's worth chain, go a product's creation to its death. The reliable knowledge of the farming method area unit extremely valuable for developing data- driven facilities and insurance solutions for creating farming smarter and fewer vulnerable business

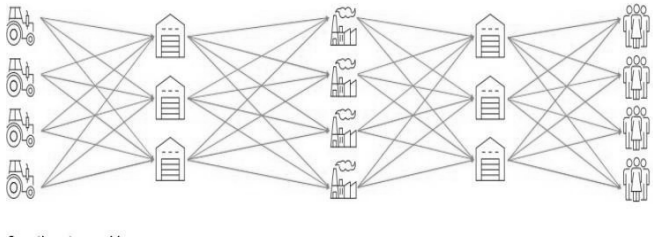


Figure 2

A. Traceability

Blockchain will give reduced price and improved transparency across the availability chain giving a relaxation to farmers and shoppers yet. thence traceability has currently began to become a vital issue within the market that if not wiped out an accurate manner might result in vast loses within the marketplace for several firms. The uneven nature of data and info may be a constant challenge to be overcome in offer chain management, and shoppers are exigent traceable merchandise, transparency, and safety data. Increasing visibility of fabric throughout the complete offer chain; decreasing body costs; and authenticating against counterfeit merchandise. this subject is of interest as a result of shoppers demand a lot of transparency and also the quality of offer chains increase, a good and cheap thanks to trace every material employed in the ultimate product is vital in building confidence with progressively environmental and socially aware shoppers.

Distributed verification technique promotes knowledge integrity and transparency, soundtrack the technology as associate degree enabler of "trustless trust," that means that parties don't got to grasp or trust one another to participate in exchanges of import with absolute assurance and honored intermediaries. Blockchain conjointly doesn't have a central purpose of failure as a result of all participants can have a duplicate of the ledger, creating it a lot of sturdy than a centralized system.

Traceability must check whether or not blockchain prototyping is smart reckoning on the traceability want of the availability chain. Some queries during this class might include: 1] what's the traceability need? 2] UN agency would be getting into data? 3] UN agency would want access to the data? 4] What must stay confidential? and plenty of a lot of however these ar few listed that one must study.

B. Trading, Investment and Delivery

Trade and Investment: Blockchain is taken into account to be one amongst the foremost promising technologies for secure transactions and for varied economic activities, as well as business enterprise. The commercialism sector is in constant evolution, requiring effective alternatives for its method and management. With the number of stylish technology, it takes to method many daily investments in a very $77.6 trillion world stock exchange, it's no marvel exchanges ar a number of the earliest adopters of blockchain in commercialism. In 2015, NSADQA declared its 1st securities dealings victimization blockchain.

Blockchain in money commercialism suggests that clear evaluation, new various markets, quicker payment process and changeless dealings recordkeeping. Blockchain's ledger technology is sanctionative folks to trade for lower price and at quicker speeds than ever before. In line with the 2020 world Trade Survey from the International Chamber of Commerce, trade and trade finance ar in a very state of worldwide uncertainty, partially because of Covid-19. Moving forward with digitizing trade finance needs cooperation between organization. Some verified edges of blockchain-based answer for trade finance ar following new revenue streams through new finance product and alternatives to letters of credit, provide banking services to little and medium enterprises so on. Delivery: more and more globalized and sophisticated offer chains ar having a serious impact on international corporations. Stakeholders inside the provision chains have to be compelled to handle Associate in Nursing exaggerated quantity of knowledge whereas keeping a track of a lot of transactions, recording performance and coming up with future activities. Supplying methodes involving multiple parties need joint execution across each process step. potency can solely be doable if parties work along by sharing knowledge.to create transparency. Many challenges such as transparency, speed and efficiency, traceability, payment yet need to be covered. We believe that there is high potential for blockchain applications within logistics functions. There are many benefits of blockchain in logistics such as enhancing supply chain transparency and traceability, ensure security, immutability and authenticity and many more.

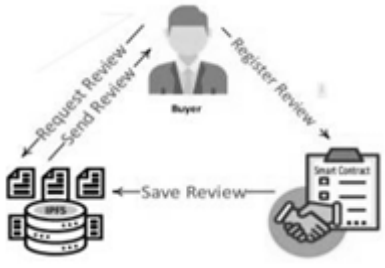


Figure 3

C. Transparency

Supply Chain Transparency is the foundation and one of the pillars in building the foundation of the Blockchain Technology. We need to understand various issues

and develop innovative solutions for all the issues in the transparency. Blockchain can increase transparency at each point in the supply chain. Blockchain has the potential to improve supply chain transparency and provide a wide range of potential benefits. Let's take example of blockchain in shipping logistics. A shipping company uses blockchain to manage freight tracking, providing buyers, sellers, and officials with a mechanism to track goods shipped around the world. This tracking system has made it easy for keeping a constant look on their delivery whenever they want and anywhere, they want. Similar use cases illustrate blockchain has the potential to reduce administrative and logistics timelines. Blockchain technology is applicable to a wide range of industries, and the numerous use cases for it continue to grow by the day. The reasons for why companies, and even governments, are turning to blockchain for everyday business operations are many faster transactions processing times, elimination of middle man and others.

III. Proposed Work

Selected approach

Out of the different approaches studied we are using a blockchain based agriculture and food supply chain which provides a complete solution so that consumers get their best quality food product with trust and transparency. The authors of this paper have provided a complete solution for blockchain based technology for farmers in agriculture domain and food and supply chain for customers which focuses on some important points and smart contracts which use the Ethereum blockchain network. There are many solutions provided by blockchain but still lacks to solve some the issues and they are major milestones which need to be solved such as credibility, accountability of the processes of the trades and to the blockchain which then stores the data into the Interplanetary File Storage System (IPFS). This system then returns a hash of the stored data which makes sure that there is efficiency, security and reliable solution. They also provide smart contracts with algorithms that show interaction of entities in the system. They also provide analyses of security and vulnerability and how smart contracts evaluations and simulations are done.

Limitation

According to the author there are some limitations which mention that whether there is another solution other secondary storage which will store transactional hash on IPFS with total security and having restrictions to its access to authorized users and also making it sure that it is available. Whether all network nodes have information and at the same time maintain the trust for customers and credibility of those nodes. Is there any system which can provide automatic payment system which can keep up the trust of customer without any dispute and providing more security for these transactions. Building a safe and decentralized environment for trading and issues between parties can be solved easily.

We selected this case study for our solution because in literature there is no solution that provides an end-to-end solution. In this paper authors have worked on Ethereum smart contracts with efficiency and build a trusted environment for all the activities of supply chain hence providing an end-to-end solution which works on traceability, trading and mechanism for delivery of products to consumers with transparency and traceability with best quality of products. They have also proposed a system which has reputation for ensured assets and also independent transaction system. The solution offered by the author also fulfills the need of accountability, credibility, auditability, autonomy and authenticity.

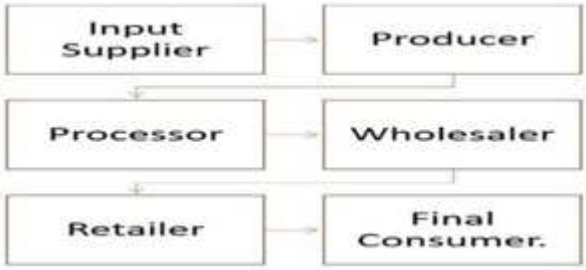
This solution model acts as an alternative representing algorithms for smart contracts and protecting from all thefraud attacks.

They have provided an end-to-end solution right from farmer to customer. Retailer, consumer, logistic company, arbitrator, farmer, processor and finally distributor these are the steps which are included as end-to-end solution.

Blockchain continues to be a aborning technology, so its limitations and enhancements square measure unendingly being discovered and developed. Some limitations and potential risks nowadays include: one. Integration concerns: Blockchain solutions need important changes to—or complete replacement of—existing systems. Potential mitigation: Develop a long- term attempt to determine transition necessities for systems needed to support blockchain adoption. 2. Linking digital to physical: Radiofrequency identification (RFID), 2D barcode, and close to field communication (NFC) square measure used nowadays to link to physical product. However, to make sure flow of data, all steps of the provision chain and every one merchandise can need to be labeled digitally, requiring associate degree overhaul in today's provide chain practices. Potential mitigation: begin strategizing currently a way to physically track objects, and add the digital tagging in existing provide chain to organize for blockchain implementation. 3. Control, security, and privacy: whereas solutions exist, as well as personal or permissioned blockchain and robust encoding, there square measure still cybersecurity breach considerations that require to be self-addressed before the final public can entrust sensitive knowledge to a blockchain resolution.

Potential mitigation: opt for a blockchain resolution partner fastidiously, work along to make sure security and privacy desires square measure happy, and take a look at totally before pilot. 4. Cultural adoption: Blockchain represents a big shift to a suburbanised network, which needs the furnish of its users and operators. Potential mitigation: Socialize the thought of implementing blockchain in your company and collaborate with stakeholders before implementation to attenuate excessive value or adoption risk.

IV. Predictive Model Flow



There ar primary and secondary advantages of blockchain. the first advantages ar, inflated traceability of fabric offer chain to make sure company standards ar met, lower losses from counterfeit/gray market mercantilism, improve visibility and compliance over outsourced contract producing, scale back work and body prices, to achieve finish consumers' trust, the availability chain authorities ought to be economical and correct in delivering data. Secondary potential advantages that ar nothing however intangibles embrace, strengthen company name by providing transparency of materials utilized in merchandise, improve quality and charitable trust of information shared, scale back potential promotion risk from offer chain malpractice, have interaction stakeholders. within the higher than model 1st block is shown for input provider, from input provider the merchandise can then expire to producer. once it reaches to producer it'll then be sent to processor so affected more to distributor. once wholesalers can receive the merchandise, it'll then be distributed to retailers so to the ultimate shopper. By giving associate overall look the model appearance straightforward and straightforward and undemanding however to produce a high security for of these processes is incredibly robust and complicated. Hence, we'd like to figure additional on security, following system transparency for purchasers and farmers also. Businesses will improve their offer chain management through additional clear and correct end-to-end following. Over ninety % of shoppers surveyed list foodstuff transparency as a crucial issue impacting their purchase and expect makers to produce the mandatory data. we have a tendency to need varied steps concerned during this technology to develop an answer and work on that. 1] Develop - Gain bigger access to supply material information to higher inform R&D material selection and alter closed- loop system style. 2] set up - Increase opportunities for co- planning and forecast sharing between suppliers and customers, decreasing forecast and associated inventory risk. 3] supply - Decrease sourcing and body prices by commutation work with sensible contracts and transactions recorded on the blockchain; drive "business initiatives" by facultative clear sourcing. 4] build - Increase visibility and compliance of outsourced producing. 5] Deliver - give regulators and finish shoppers with a transparent image of all product steps on the availability chain journey. 6] come - confirm that batch to recall supported data availability; decentralise come merchandize authorization. Achieving agreement to implement blockchain in offer chains with multiple layers and additional partners involves significantly additional neutral engagement. Incentives and openness of sharing between the partners confirm the danger, practicableness, and worth of mistreatment blockchain.

Blockchain is an efficient resolution wherever there's an absence of central agency of trust. Some aras of blockchain implementation are extremely contingent upon supporting rules, as well as property records, legal contracts, and disintermediation of monetary establishments.

V. Conclusion

We have researched onto the various problems and we came up with solution of creating web application which can overcome the problems of farmers they are facing in day-to- day life. Making a solution which will help farmers with funding and help solve them their issues. So., we choose Blockchain as a solution to overcome this problem because it is highly trending topic in today's life and also will be in future. Blockchain subject has grown in academia in recent years. Across industries around the world, blockchain is helping transform business. Study of technical part gives us idea about how we have to move on with the development and implementation process of our project. What platforms, IDE's will be best suited, algorithms, functions, smart contracts, one by one steps to develop and implement.

Studying various use cases and case studies of the solutions which have been developed, we can use their limitations and develop a new system which will overcome all those limitations also with a plus point of strong foundation.

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Effect of Teaching through Remote Sensing on Geographical Concept Development: A Quasi-Experimental Study

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Abstract

Education is a phenomenon to acquire and explore different physical, psychological, social, emotional, and other skills. It is a purposive and goal-oriented tri-polar process that contains teachers, students, and curriculum. This learning introduces and changes human personal and professional life and helps develop personality and adjust according to society, school, and individual lifestyles. Geography is one of the vital subjects at the higher education level covering various aspects of different disciplines. It deals with location, distribution of features and phenomena, environmental processes, land use and natural resource planning, conservation and estimation, and other aspects critical to human survival, primarily through three branches: physical, human, and environmental. Geospatial technologies (Remote Sensing, Geographical Information System, Global Positioning System) are widely used for geographical studies worldwide. These technologies collect information and observe the earth with the help of maps, aerial photos and satellite images. It also plays a pivotal role in planning and decision-making while solving problems. Therefore, it is also implemented in teaching and learning geography in classrooms.

Therefore, the present study aims to investigate the effects of remote sensing on teaching-learning and new geography concepts development. Findings of the study suggested there are multiple impacts of remote sensing on teaching and learning processes among students at different levels and significant help in developing new geographical concepts.

Keywords: Remote Sensing, Education, Geographical Concepts, Learning

I. Introduction

Education Committee (1964–1966) was India's first commission to look at all elements of education. Informal education starts from the birth of the child and ends at death. Children learn outside the classroom through after-school programs, community-based organizations, museum libraries, or at home by parents, teachers, and peer groups. National Policy on Education (1992) emphasized, "Education is fundamental to our all-round development, material and spiritual". In India, after school education, higher education is considered vital. It offers various courses to students according to their prior learning interest, need attitude, aptitude, and inclination towards the subject. According to the Education Commission (1964-66),

class 9-12 is considered secondary education. Social science is a discipline including Anthropology, Economics, Political Science, Geography that deals with Human affairs and the relationship among individuals within the society. It helps to develop an understanding of morality, mutual respect, human values, and an analytical and creative mindset for critical culture learning. Social science teaches natural and social environments based on observation, identification, classification, and abstraction (National Curriculum Framework 2005).

A geography teacher's primary responsibility is to keep his pupils up to speed on current facts, truth, discovery, and study. Geographical studies are primarily concerned with the placement of localities, natural resource zones, significant land formations, water bodies, international boundaries, transportation networks, and linking routes, among other things. Geographers use maps to collect data from three dimensions on a two-dimensional surface portraying the earth. In addition, geography is concerned with studying the planet, its people, communities, cultures, and the processes and patterns of human civilization. Physical geography's primary goal is to comprehend geographical issues. And impediments related to lithosphere, hydrosphere, atmosphere, biosphere, and pedosphere. Human geography aims to find out how natural events and human actions interact. Environmental geography straddles the lines between physical and human geography and looks at the interactions between humans and their surroundings. Geography is a discipline that encompasses both social science and science. It provides a conceptual framework for understanding the processes that shape the world and the human actions that shape them. Various teaching tactics, such as problem-solving, dramatization, and audiovisual aids, teach geography.

Students are taught geography to have a thorough grasp of the importance of conservation and environmental problems. After the 1960s, geographers began to utilize various tools, models, and procedures to assist them in quantifying geography and giving it a prominent role in science. Geographers use innovation, discoveries, exploration, mathematical computations, and various tools for quantitative data collecting, storage, processing, and displaying this data in maps and satellite pictures. Systematic Geography and Regional Geography are the two most common techniques for studying global geography. There is a need for relevant and high-quality education grounded in reality and interdisciplinary in today's current revolutionary world.

Project-based and collaborative learning methodologies are employed to attain this aim and make teaching and learning more effective and efficient. New inventive technology, such as information and communication technology, has been hired to make education more child-centered. There is a need for relevant and high-quality education grounded in reality and interdisciplinary in today's current revolutionary world. Project-based and collaborative learning methodologies are employed to attain this aim and make teaching and learning more effective and efficient. New inventive technology, such as information and communication technology, has made education more child-centered. It takes advantage of the students' prior knowledge while also learning new material. Furthermore, it makes the topic interdisciplinary by dealing with real-world investigations and transferring them to everyday life.

Satellite photos are capable of extracting, interpreting, and evaluating data. Nowadays, geospatial technologies, including remote sensing, geographical information systems, Google Earth, Global positioning systems, etc., are used to teach geographical concepts using various computer software. However, remote sensing is a system that provides information to its users, and data must be assessed, processed, and relevant and valuable information must be created as a result.

II. Review of Literature

After the success of remote sensing in school, researchers want to know if remote sensing effectively teaches geographical lessons? Second, is remote sensing an effective tool for teaching geography in higher education? Third, is the remote sensing teaching method better in concept development than the traditional method? Finally, are this method help in learning? First, the researcher reviews the related literature on remote sensing and teaching methods for the above questions. Next, examine the associated literature on remote sensing and instructional approaches.

Environmental, land use and natural resource planning are all addressed by geospatial technologies. This data provides the path for geography instruction to be modernized. The science and geography curriculum is employed as a medium for teaching and learning (Voss et al., 2008). It is a powerful medium for teaching spatial awareness that may engage students and urge teachers to use interactive approaches to teach the entire class (Oberle et al., 2010). According to Naumann et al., 2009, incorporating remote sensing into the classroom should become routine and pervasive. Students' deductive and inductive thinking talents are meaningfully developed using a concept attainment strategy, which emphasizes integrating classroom content into the real-life experience (Novak, 2002). The primary goal of incorporating a web-based remote sensing learning portal into school classes is to give pupils a complete and structured learning portal (Goetzke et al., 2013; Vob et al., 2011). This learning site aids in topic comprehension and encourages constructivist teaching methods. Learning is viewed as an active process from the constructivist perception, reasoning, and behavioural patterns. It gives students a comprehensive picture of the world and helps them develop critical thinking abilities (Pritchard, 1994).

Using these (digital and interactive) learning portals, students have a favourable perception of web-based training (Beutelspacher & Stock, 2011). In daily contexts, a student-centered blended learning method is acceptable. Through this thinking, doing, and a new manner of teaching, blended learning engages students in active learning and fosters self-directed learning (Moore & Gilmartin 2010). Sato, 2001 employed spreadsheet VBA and CSV data structures for remote sensing image analysis and discovered that it was successful for raster image analysis by learners in the short class.

Aerial or satellite photos also offer significantly more potential than a simple map of an area. Using satellite images to teach geography benefits encouraging and motivating students to independently solve geographical and environmental problems (Goetzke et al .,2013). As a result, instructors in the classroom use satellite photos to

teach geography and science. Landsat imaging may also be a valuable and vital tool for analyzing situations and solving local, regional, and global issues. As a result, the use of Landsat images for teaching and learning has risen. This multispectral picture analysis requires photos from several seasons and years (Jeannie, 2009).

BLIF, Glokal, and FIS learning portal are examples of software built for schools and used as educational tools to teach geography utilizing interactive geography lessons based on satellite imagery (Goetzke et al., 2013; Neumann et al., 2009; Jahn et al.,2011; Ditter et al.,2011).

In satellite image learning, the instructor serves as an adviser, assisting students in developing learning techniques and bringing learning closer to reality based on prior knowledge. Teachers also employ interdisciplinary and subject-connecting teaching to address geographical issues and make subject difficulties more action-oriented. For the various existing programmes, technological developments demand geospatial tech training. As a result, remote sensing methods in school courses are essential, and instructors will need to be trained in the future to teach creative geography.

III. Research Objective and Hypothesis

After conducting an extensive review of the literature following research objective and hypothesis have been formulated;

Objective: To study the comparison between remote sensing and the traditional method of teaching geography

Research Hypothesis: There is a difference in the concept development of boys and girls students taught with traditional and remote sensing methods

IV. Research Design and Methodology

It is an empirical study, a scientific applied type in which quasi-experimental design is used. Teaching through remote sensing in this research is an independent variable, and concept development is the dependent variable. The researcher created a concept test for item preparation based on Bloom's three stages: knowledge, understanding, and application. These concept tests were given in a one-group format as a pretest and post-test. The 15 questions for both tests were chosen after a pre-and post-tryout to determine the development of concepts before and after teaching geography lessons using the remote sensing approach. Quantitative approaches were used for collecting and analyzing the data (primary and secondary). The undergraduate Students (N=4892) who belong to different departments (N=33) of Guru Ghasidas University have been considered population. Out of 33 departments purposively, one (N=1) department has been selected, which has (N=165) students, and from them, (N=20) students (11 boys and 9 girls) were picked up as a sample

belonging to B.Sc. IV semester (Batch,2014). Furthermore, collected data has been analyzed with the help of the non-parametric Wilcoxon Signed Rank Test.

V. Analysis and Interpretation

To study the comparison between remote sensing and the traditional method of teaching geography. An alternative hypothesis is proposed " **H_1:** There is the difference in the concept development of boys and girls students taught with traditional and remote sensing method.

And for achieving the above objective researcher has conducted Wilcoxon Matched –Pairs Signed –Ranks Test to whether there is any significant difference in the concept development of boys and girls students taught with traditional and remote sensing methods. Results are computed in Tables 1,2 and 3. As remote sensing is the most important and modern application of information, communication, and technology, it has various impacts on the education domain related to different attributes of teaching and learning.

Non-Parametric Tests

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Pretest	20	15.6000	3.64764	10.00	22.00
Posttest	20	18.5500	3.64872	12.00	24.00

Table No-1

Wilcoxon Signed Ranks Test

Ranks				
		N	Mean Rank	Sum of Ranks
Posttest - Pretest	Negative Ranks	3[a]	8.00	24.00
	Positive Ranks	14[b]	9.21	129.00
	Ties	3[c]		
	Total	20		

Table No-2

a. Posttest < Pretest

b. Posttest > Pretest

c. Posttest = Pretest

Test Statistics[a]	
	Posttest - Pretest
Z	-2.507[b]
Asymp. Sig. (2-tailed)	.012
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	

Table No-3

Table No-1 shows descriptive statistics when comparing the pretest and post-test of 20 samples and found that their means are different, but their standard deviations are approximately the same. Table No-2 shows that in the Wilcoxon Signed Rank Test, Positive ranks (14), Negative ranks (3), Ties (3). Finally, table No-3 evaluates boys and girls' concept development changes through traditional and remote sensing methods. For this purpose, a Wilcoxon Signed Ranks Test revealed a statistically significant positive shift in concept development in boys and girls students after teaching with the remote sensing method Z=-2.507 p=.012 with a medium-size effect r=.3963. Furthermore, the present study's findings suggested that remote sensing plays a significant role in teaching geography in modern ways and developing new geographic methods and concepts.

Hence, the proposed alternative hypothesis "**H_1** there is a difference in the concept development of boys and girls students taught with traditional and remote sensing method" has been **accepted. Consequently, i**ts corresponding objective, "To study the comparison between remote sensing and traditional method of teaching geography, "is also **achieved.**

VI. Conclusions and Recommendations

The remote sensing method of teaching geography allows learning according to previous understanding using problem and action-oriented learning programmed. This teaching method helps to correlate theoretical and practical knowledge of the subject that helps in better concept development among the students. This theoretical and practical knowledge allows students to solve various geographical problems after applying the newly acquired knowledge in different situations. The study's conclusion proves that the remote sensing method has helped the students score better on the concept test. The teacher also learns new things during Instruction through this method. The teacher should have previous knowledge to use the remote sensing method in their lessons. The teacher should be able to clear all the theoretical and practical doubts of the students regarding the subject. The classroom environment will be lively, and there will be good teacher-pupil interaction.

Since the present study results after using remote sensing in geography teaching prove the effectiveness of remote sensing in concept development, it can be applied in teaching different topics related to remote sensing. The study helps in the development of lessons related to remote sensing.

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Role of Physics in the Modern Industrialization Process - An overview

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The 21st century has greatly helped us in understanding the fundamental constitution of matter; the origin of universe which enabled us to change our future, our lives and the existing world. The globalization has led to a natural shift from national research and development priorities towards a network of world-wide research activities. Also, the globalised economy resulted in more cooperation and exchanges with various private sector industries which gave birth to large scale innovations in various sectors, providing a giant leap towards new technology. Physics could now play a more important and inclusive role in addressing the challenges of mankind such as food supply, climate change, environment and public health. What physics offered in the 21st century was the careful observation and experimentation which enhanced industrial production significantly. Moreover, the new perspective, of the world of our experience on a more fundamental scale, can drive the century towards spectacular science and technological innovation.As physics innovations turned towards the worlds of atoms and molecules, electric currents, magnetic fields, microbes, viruses, nebulae and galaxies, it played an important role in every walk of life. A large refracting telescope was also as much an important product of heavy industry as were the advanced locomotives. Thus the prospect of applying physics to various problems of industry served as a stimulant for support from public for the subject in the 21st century.

Understanding the behaviour of the electron and the photon (the quantum of light) has been critically important to the fields of chemistry, materials science, and biology, as well as to the development of modern computing and communication. Since last 50 years, there has been a tremendous advance in the experiments based on elementary particles explaining its origin, diversity and properties. In fact, the interactions of the elementary particles revealed various properties of the world. The knowledge about existence of different and unexpected-particles increased with the use of powerful instruments. The development of synchrotron lead to the acceleration of particles, which created new particles and provided new clues about their interactions. Several laboratories now use intense electromagnetic radiation developed as a by-product of accelerating particles in the field of surface chemistry, environmental science, material science and engineering and biology. Several medical imaging techniques now use the devices and technology developed for elementary particle physics research. The detectors developed for particle physics are now widely used for computer aided tomography (CT scan) and positron emission tomography (PET). The high quality superconducting wires developed to meet the demands of accelerators are now part of the billion dollar world market especially for its use in the MRI (magnetic resonance imaging).

The discovery of liquid crystals triggered the invention of rapid miniaturization of electronic devices. The need of electronic industry revitalised the research in liquid crystals and led to the development of twisted nematic effect which further grew into a multi-billion dollar industry. The liquid crystals also found use in thin film thermometers and switchable windows. The liquid crystal based spatial light modulators (SLM), which can display arbitrary patterns have become a backbone of advanced optics. Controlling light with the help of liquid crystals has received must attention due to its important applications in the field of telecommunications, sensing and interferometer. The use of nematic liquid crystals in the application of magnetic resonance has become an important research tool. The molecules which are dissolved in nematic crystal solvents give a highly resolved NMR spectrum. Liquid crystals are also widely used in cosmetic industry especially in the manufacturing of makeup removers, lipsticks and lip glasses. The use of liquid crystal displays is common in digital watches, calculators, and various oscillaographic systems. The toys and decorative materials now rigorously use cholesteric liquid crystals. Liquid crystal polymers have created much needed attention in the industrial applications. The invention of polyester liquid crystals led to the development of fire resistant materials which are further used as a coating material for optical cables due to low coefficient of friction and high surface roughness.

Physics continuously tries to find alternative solutions to the energy crisis experienced by both first world and developing nations. The energy industry is one of the largest in the world and is a sector that's vital to the lives of people across the globe. The renewable energy industry is driving a dynamic expansion of the global economy and is creating more "green" jobs. Advancements in physics related scientific research has resulted in many breakthroughs in renewable energy technologies. The cost of solar electricity has been reduced by many folds in the past two decades and is providing clean and reliable power in many parts of the world. For the last 25 years, the advancement in photovoltaics (PV) technology has demonstrated most dramatic improvement in solar industry and has the advantage of being used for both small and large scale applications.

Hard coatings for cutting application is one of the biggest needs of the industrial market as cutting tools have to withstand severe conditions during its usage like high temperature, high friction, wear and tear, oxidation and corrosion and material fatigue. Hard coatings are commonly deposited on materials to enhance their performance and lifetime. Moreover, the trend of the industry for higher productivity and cost efficiency results in the development of tools with higher lifetime. In addition, reduction of the harmful lubricants and coolants is also one of the prime requirements. To cater the demand of this industry, physics plays an imperative role in the continuous development of hard coatings. Hard coatings are usually carried out by both physical and chemical vapour deposition methods. To improve the cutting performance various coating materials are used with the implementation of advanced modern characterization techniques to enable in-depth analysis. The chemical vapour deposition (CVD) technique has gained popularity in recent years with the availability

of transmission electron microscopy in order to study the thermal and oxidation stability of hard coatings.

The future technology will be dominated by 2D materials and are widely considered for various applications such as optoelectronics, energy storage, photovoltaics, biological engineering, hard materials and medicine. Physics researchers are working on novel 2D materials with unique electronic structure and optical properties.

Nuclear energy is considered as one of the important energy source and it will remain one of the dominant player in the energy industry. To improve the efficiency and safety of nuclear energy, constant innovations are carried out in innovative reactor technologies, new nuclear fuel as well as on radioactive nuclear waste for long term environmental waste management.

Industries based on Data storage, communication, green energy and electrical engines are few of the dominant players of 21st century. The technologies of these industries are based on high performance magnetic materials. Physics researchers are taking huge efforts in finding suitable high performing and non-hazardous materials. One of the most emerging field for magnetic materials is magnetic refrigeration, which can play an important and efficient role at homes and environment in future.

Porous materials have been widely used in various applications such as using porous ceramics for purifying water and for removing dusts in semiconductor industry. For most of the industrial applications porous materials need to be developed having high fraction of open porosity. Physics played an important role in fabricating new porous solids having ordered structures from a wide range of available materials. Research in this field has resulted in the development of materials with unusual properties which has resulted in broadening the range of industrial application ranging from microelectronics to medical diagnosis. There has been a significant improvement in the performance of materials due to introduction of hierarchical porosity. Hierarchically structured porous materials have outstanding properties such as large number available active sites, high surface area and improved mass transport and diffusion. Hierarchically structured porous materials are now widely used in industries involving energy conversion and storage, photocatalysis, adsorption and separation.

Capillary electrophoresis with Laser-Induced Fluorescence (CE-LIF) detection is being developed and applied to new analytical problems. It is one of the most sensitive separation techniques among several electrical separation methods. The use of CE-LIF has gained good reputation in immunoassays and enzyme assays due to its high sensitivity, short analysis time and precise quantification. CE-LIF normally uses lasers as its excitation source. To achieve low limit of detection (LODs), it is essential to maximize the signal and minimize stray light from the optical components and Raman scattering from the solvents. Therefore to achieve high sensitivity researchers have been continuously involved in the development of, instrumental LIF designs.

Plasma technology also offers wide range of application in the industry. Plasma technology is useful for destruction of toxic materials, surface modification of materials and creation of new materials. Thermal plasma is used to destroy the toxic and hazardous substances or to generate anticorrosion, thermal barriers, antiwear coatings, etc. Cold plasmas are used for surface modifications of various materials, ranging from the simple topographical changes to the formation of surface chemistries and coatings that are radically different with respect to the bulk material. The plasma has a large commercial and technological impact where partially ionized discharges are extensively used in the industry.

Nanotechnology is defined as the use of nanomaterials for the benefit of human beings. They have unique physical and chemical properties at the nanoscale (10-9 nm). Nowadays, nanotechnology is providing new products with wide applications in industrial sectors. Nanoparticles are used for drug delivery, gene therapy, disease diagnosis, pulmonary diseases and prevention of other infectious diseases. A variety of nanomaterials, mostly metal-based nanomaterials and carbon-based nanomaterials, have been exploited for their absorption, translocation, accumulation and effects on growth and development of crop plants. Substitution of traditional fertilizers' by nanofertilizers is a way to release nutrients gradually into the soil, which helps in averting pollution of water resources. Nanofertilizers have exceptional features like increase in production, ultrahigh absorption and increase in photosynthesis and substantial expansion in the surface area of leaves'. The usage of nanofertilizer leads to an improved effectiveness of the elements, decreases the toxicity of the soil and reduces the negative effects caused by the excessive consumption of fertilizers. Pesticides have been part of agriculture since long time to improve crop yield and efficiency. However their excessive usage has been a big concern for agriculturists. Nanopesticides are addressing the issue of agriculture and can be an effective solution to various problems arising in its allied industries. Controlled release of imidacloprid, synthesized from polyethylene glycol and various aliphatic diacids using encapsulation techniques, have been used for competent pest management in vaarious crops. In oil industry, nanotubes are used to create lighter, stronger and more corrosion-resistant structural materials. Nanotechnology is helping in improving the oil and gas production by making it simpler to separate oil and gas in the reservoir for instance, through enhanced understanding of processes at the molecular level. The development of advanced fluid mixed with nanosized particles and superfine powder has significantly improved the drilling speed and eliminated the formation of damage in wellborne zones. Nanotechnology can also be used to improve the likelihoods of developing unconventional gas resources. The new inventions are also focusing on liquefied natural gas infrastructure, quality, efficiency and developing gas-to-liquids technology where physics plays an important role. Nanotechnology is already addressing the problems linked with accessing stranded natural gas resources by developing nanocatalysts and nanoscale membranes by creating nanostructured materials. Textile industry is now using nanotechnology like never before. Nanotechnology applied in textile industry has increased the durability of fabrics, enhanced hygienic properties and reduced the cost of production. Nanoparticles possess large surface area and high surface energy that ensures improved affinity for

fabrics and led to growth in durability of the desired textile function. The technology has helped textiles to become multi-functional and produce fabrics with special functions, including easy clean, antibacterial, UV protection, water and stain repellent and antiodor. Nanotechnology has also made its way into the food industry. The technology has an added value that creates highest impact on consumers. The nanotechnology has created major impact on food processing, food packaging and its supplements.

Thus, 21st century innovations in physics spilled over into core areas of technology and led to undreamed capabilities in the industrial revolution.