"To the Glory of God"

BISHOP COTTON
ACADEMY OF PROFESSIONAL MANAGEMENT

Church Of South India - Karnataka Central Diocese
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YELAHANKA
Bengaluru - 560064

NATIONAL LEVEL CONFERENCE

"INNOVATIONS IN COMMERCE, MANAGEMENT, TECHNOLOGY & INFORMATION SCIENCE"

26th MAY 2023

BOOK OF PROCEEDINGS

INNOVATIONS IN COMMERCE, MANAGEMENT, TECHNOLOGY & INFORMATION SCIENCE

BOOK OF PROCEEDINGS

With Prayers & Blessings

CHIEF PATRON

Rt. Rev. Dr. Prasanna Kumar Samuel
Chairman & Bishop
Karnataka Central Diocese
Church of South India

EDUCATION COMMITTEE
CONVENER'S MESSAGE

CHURCH OF SOUTH INDIA

KARNATAKA CENTRAL DIOCESE

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Message   from The Convener, CSI KCD Education Committee

I am indeed delighted to know that Bishop Cotton Academy of Professional Management has embarked on a novel idea to hold a Conference which will provide a platform for academicians, researchers, practitioners and students. This will be a unique experience for the students as they interact with professionals in various fields and also gain an insight into what future career paths can be pursued. I am sure this will be a mutually beneficial initiative and I wish the Conference all success. May this be the first of many more to follow and become an annual feature in the academic calendar.

The Bishop Cotton Academy of Professional Management was established in 2007 and in the last decade and a half they have made Herculean strides in several areas. Nestled in the bustling Yelahanka area of Bangalore city the Academy has shown an upward trajectory since its inception. Drawing inspiration from the parent institution, Bishop Cotton Boys' School their programmes have always provided in depth learning experiences for the students and enables them to compete confidently in larger forums.

Change is the only constant as we have witnessed more substantially in the last three decades. Living in a technology driven world, the need of the hour is to either adopt those changes or be left behind and it is heartening to note that the youth of today have embraced technology with open arms. It is imperative to plan and programme ourselves into robots in the making. The most attractive feature of this Conference is by bringing Commerce, Management, Technology and Information Science under one umbrella. These tools are essential to keep the economics and trade wheels turning, thereby enabling the country to progress.

I place on record my profound gratitude to our Chairman and Bishop, Rt. Rev. Dr. P.K. Samuel who encourages and inspires us to scale greater heights. I would also like to thank Dr. N D Solomon Raju, the Diocesan Treasurer and the Chairman of the KCD Education Committee who leaves no stone unturned to provide quality education in all the institutions that fall under the jurisdiction of the Karnataka Central Diocese. Going by the words of the School Song - On Straight On , On Cottonians On.

NEC DEXTRORSUM NEC SINISTRORSUM.

Dr. Mrs. Lavanya Mithran   17/05/23
Convener – KCD Education Committee

FOREWORD

It is with deep satisfaction that I present this foreword to the proceedings of the National Conference on **'Innovations in Commerce, Management, Technology & Information Science'** being held on 26th May 2023.

Our intention is to encourage Researchers and Teaching fraternity in their field of interest and study. I strongly feel that this kind of conferences will help the researchers upgrade their knowledge through interactions and exchange of ideas towards the uniqueness of their own self. A little trigger of a new dimension will lead to great scientific creations in the field of research. This is a great accomplishment to our intellectuals involved in research.

I do appreciate the authors who contributed in the form of research.

My heartfelt thanks to my staff who involved in grading of the papers and made this publication possible in time.

I wish everyone good luck for their interest and efforts they put in and continue to pursue higher level of research and publications.

My heartfelt thanks to our chairman and Bishop **Rt. Rev. Dr. P.K. Samuel** and members of the **Board of Management** for their encouragement.

Our compliments to the sponsors **M/s. Bishop Cotton Boys' School , Bishop Cotton Girls' School, Cathedral Pre-University College & High School and Bishop Cotton Women's Christian Law College.**

Prof. Sam Martin Christopher

Principal / Patron

CONFERENCE CONVENOR'S MESSAGE

This conference is a humble effort to learn, understand and explore the innovations in Commerce, Management, Technology and Information Science.

The main goal of organizing the conference is to enhance and update knowledge in this fast moving information era. Conferences of this magnitude bring students, researchers and educators of varied domains together to share their ideas, views and to interact amongst themselves as well as experts in various areas. We feel that, with presentations and interactions with experts, students are exposed to the innovations in their respective fields. We received many research papers from Karnataka and other states, a total of 38 papers have been accepted and published.

We express our sincere thanks to the Board of Management for their unstinted support. We express our gratitude towards Advisory Committee, Organizing Committee and Editorial Committee, and also acknowledge the authors' efforts, for without their expert input this conference wouldn't have been possible.

Mrs. Vidya Tondihal

Convenor, National Level Conference 2023

THE EDITORIAL

Dear Readers,

'When the winds of change blow, some people build walls,

and others build windmills.'

-   An Ancient Chinese proverb

We are living in rapidly changing times, we are witnessing transformation in every sphere of life, and what equips us to accept this momentum is our ability to innovate… innovate with available resources, innovate to discover something new, and bridge the gap between the two to ensure sustainability and progress.

It is innovation, guided by the unrelenting human spirit, that has steered human race from the stone age era to the present.

Likewise, innovations in the field of Commerce, Management, Technology & Information Science are surely propelling us into deeper unknown waters, and hence, there is a need for us to be better prepared, and pitch in with our talents as and when required.

It is the motive of this conference to bring together academicians, research scholars, subject experts and students to contribute their knowledge of existing arenas and the ones yet to be explored.

We hope you all would benefit from these research papers and case studies that have been worked upon passionately. Your feedback would be highly appreciated.

We thank all the authors for their valuable contribution. Our heartfelt gratitude to our Board of Management, Conference Advisory Committee, Organising Committee and Editorial team for their support and guidance.

Mrs. R. Rebecca Suzan

Editor-in-Chief

National Level Conference - 2023

ABOUT THE COLLEGE

Bishop Cotton Academy of Professional Management was established in the year 2007; it is affiliated to Bengaluru City University and recognised by Government of Karnataka as a Christian college. It owes its name to Bishop Cotton, an Anglican Bishop who was instrumental in starting the Bishop Cotton School in 1865. The institution operates under the aegis of Karnataka Central Diocese, Church of South India.

The main purpose of Bishop Cotton Academy of Professional Management is to impart quality education of Christian character to young boys and girls. The college strives to locate, identify and develop the intellectual power and cultivate interests & train young minds to be responsible citizens. It has been catering to the needs of students from semi-urban and rural societies of Bangalore.

ABOUT THE CONFERENCE

In an increasingly volatile world, "innovation" means adaption to constant change, forcing companies to frequently reinvent themselves, their operating model and their go-to market strategies. This degree of volatility and change requires thoughtful design, rigorous planning and diligent oversight to manage the risk and to maximise the business outcomes.

In today's era, Management, Commerce & Technology have become highly technology-oriented and sophisticated. Information Technology is influencing every walk of business. It has made the world a global village. It is an attempt made to analyse and evaluate the present position of the Indian Economy and new challenges related to this topic.

OBJECTIVE OF THE CONFERENCE

The Conference will provide a platform for leading academicians, researchers, practitioners and students to interact share and exchange their valuable experiences, ideas, innovations and researches for exploring better options to face the emerging and dynamic issues in different subject areas.

We firmly believe that your participation will enrich the academic and intellectual content of this event.

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COMMERCE

E-COMMERCE
ITS IMPACT DURING COVID-19 & THE FUTURE

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ABSTRACT

Over the course of time, markets have been improved and developed through various types of marketing practices, as well as different marketing methods. One such practice is E-Commerce - where transactions are done online, and during the pandemic is when we saw e- commerce in its full potential.

In this paper, we will see how e-commerce impacted the world during pandemic, how & why it began to rise during the most difficult time to humanity, what features it provided, what trends were brought in, its drawbacks, how it will be the future and its benefits.

Keywords: e-commerce, online transactions

I.   INTRODUCTION

E-commerce as we know is a process where we buy and sell goods online- from simple products like brush, soap, perfume, to complex and bigger products like refrigerator, TV, projector, etc. E-commerce is not just a connection between a business and its consumers, but also a connection between one business and another like, Shopify, Alibaba, and also from one consumer to another consumer like eBay, Craigslist, etc.

Nowadays, e-commerce is used by consumers as well as businesses, mainly because e-commerce is very flexible, easy and can get the work done quickly.

II.   OBJECTIVES OF THE STUDY
- To know how e- commerce was used during pandemic
- To know the impact of e-commerce during pandemic
- To know how e-commerce will benefit the future

III.   METHODOLOGY
Information collected from secondary data like journals, websites and newspapers.

IV.   E-COMMERCE DURING PANDEMIC
Covid-19 pandemic that blocked a person's airway and made it difficult to breathe, resulting in death in most cases, with a chance of spreading rapidly from one person to another, made it almost impossible for marketplaces.
As soon as lockdown was announced, many businesses, as well as many markets hit rock bottom; but on the other hand, this was a huge turning point for e-commerce services as consumers obviously opted for online transactions, rather than direct contact.

V.   RISE OF USAGE OF E-COMMERCE DURING PANDEMIC
In 2017, the number of online buyers was around 1.6 billion but currently (2023) the number of online users are around 2.64 billion, this makes around 33.3% of the population of earth. Even though it was expected in 2020, that there might be a steady rate of increase in users

over the years, there was a sudden rise during the pandemic because consumers could not go outside to buy products - from basic toiletry products to fruits, vegetables, food, etc. were purchased online.

Life during Covid-19 was difficult, but certain businesses like Amazon, Flipkart, E-kart, and other e-commerce portals made it possible for people to meet their basic needs with minimal contact, hassle-free delivery, enabling firms to continue operation in spite of contact restrictions and other confinement measures.

GRAPH SHOWING THE SUDDEN INCREASE OF E-COMMERCE SALES DURING PANDEMIC
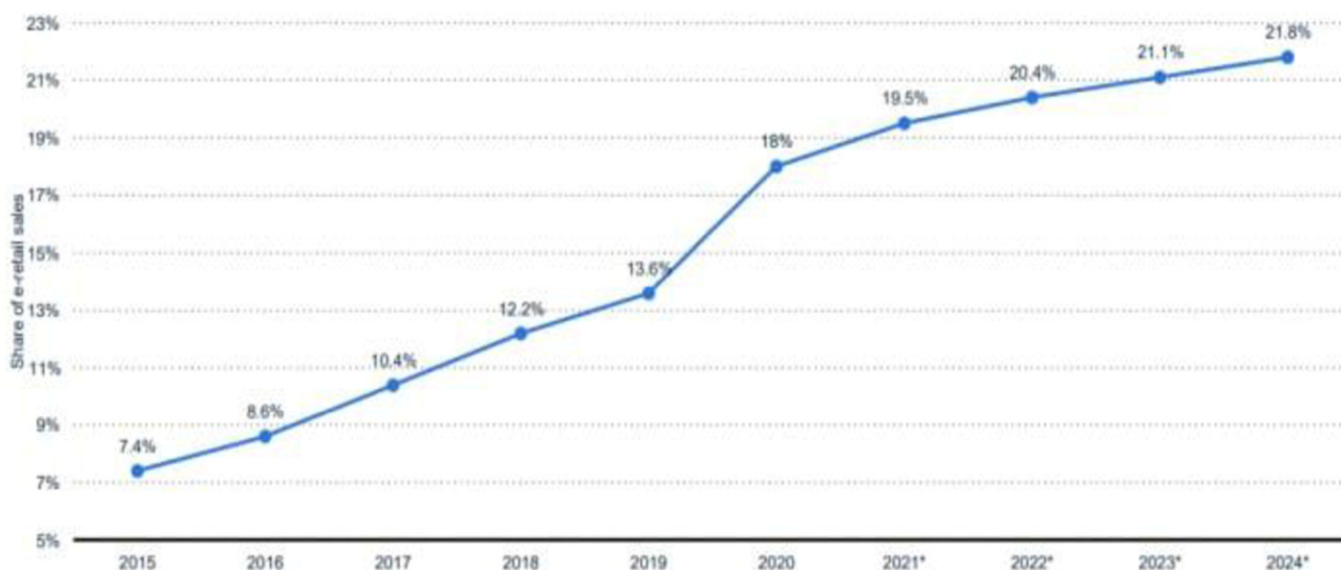
Image source: https://www.trade.gov/impact-covid-pandemic-ecommerce

The above graph shows the increase of E-commerce sales, it also tremendously benefited companies that were providing this service.

Amazon had an increase of 220% of profit during pandemic (2021) with an increase of $108.5 billion in sales and up to $8.1 billion of profit. Shopify on the other hand, had the biggest year ever (2021) with $4.6 billion in revenue. Even Indian companies like Flipkart had an increase of 32% in revenue and Snapdeal saw 70% growth in their company all during the pandemic.

The profit and the amount earned by the companies was brought to light, prompting other companies to opt for e-commerce, and many small startups providing e-commerce services were started.

VI. FEATURES PROVIDED BY E-COMMERCE DURING PANDEMIC

a. Flexible & transparent – Customers love to modify their orders from cancelling to re-ordering or selecting the type of payment methods, e-commerce provided it all, with bare minimum steps and just simple easy clicks. It also provided clear information, with proof, about where the product was, who were delivering it, and status of payment.

b. Sanitisation of the products – To win the trust of the customers, and to ensure safety of workers and customers, businesses like Amazon, Flipkart not only delivered the product safely but also sanitised the product before dispatch.

c. Safety protocols – Companies made sure that workers inside the premises, as well as workers delivering the products were following Covid protocols. Regular health check-up

was conducted, and customers were informed of their body temperature and health status, thus creating an environment of trust.

VII.   TRENDS BROUGHT ABOUT BY E-COMMERCE

a. **Snap & Shop** – This trend increased interactions of customers through internet, in simple terms when a customer finds a certain dress or product that he/she is interested in, he/she can take a screenshot of it and can find the same products in other online markets. This feature became very popular around the world; teenagers started to search products or dresses that were worn or used by celebrities so that they could purchase the same, if not, similar products.

b. **Subscription-based apps** – Even though the idea of subscription-based method was in use before pandemic, it was during the pandemic that more of these were in full action, reasons being customers started to order more online due to Covid restrictions and it was frustrating for them to pay delivery charges, extra charges, distance charges, etc. In order to avoid these, customers decided to pay (Subscribe) a certain amount, either monthly or yearly, to not only avoid these problems but also experience certain features that is only available through subscriptions.

c. **Social payments** – With the rapid growth of e-commerce services and multiple transactions a new trend started wherein payment could be done through popular social media apps like Twitter (Twitter buy) and Facebook (Facebook pay) providing a fun method and multiple sources to make transactions instead of relying on limited options.

VIII.   DRAWBACKS OF E-COMMERCE

a. **Difference in demand of products** –There was a surge of demand of food, medicines, products related to personal protection, groceries, but a drop in demand of products like gym equipment, bridal dresses, furniture, etc. This caused differences between sellers, one gained high profit while the other faced huge losses.

b. **Greed** – Since the market works based on human needs/demand, many shipping companies cashed out as much as possible on products that were on high demand during the pandemic, with asking for extra compensation for costs involved in restrictions. Example: Maersk the world's biggest container shipping company had record-breaking profits during the pandemic (2021) with 55% increase and $61.8 billion in revenue.

c. **Affordability** – It is not affordable by all, e-commerce is a service that works only through online and for that, a device likes smartphone or a laptop and Internet is a basic requirement, and many people around the world during pandemic were not in a stage to afford it. In India itself, more than 27.5% of people are below poverty line, hence affording devices and internet is very difficult.

IX.   E-COMMERCE IN FUTURE

With people purchasing more products and services online, they have learnt how convenient, easy and safe it is to purchase products and services through direct marketing. Many businesses will opt more for online marketing and ever since Covid-19 hit the world, it has become a must to provide online marketing services or else there's a high chance of losing both profit and business because, consumers put their safety and protection in the first priority.

This not only helps the growth of business but also acts as a protection for future uncertainty, and according to Forbes, e-commerce services, will be in use even in the long-run, because these days consumers like to purchase products without any barriers and difficulty but rather with ease and flexibility. This shows that E-commerce is not just flexible and safe but also inevitable, and changes in global business caused by pandemic only accelerated digital transformation, as it benefits both customers, as well as, businesses.

X.   CONCLUSION

In conclusion, e-commerce is very useful to the sellers and us because future is uncertain, and we do not know what new virus or disease may affect mankind and cause another pandemic, hence, it is important to opt for e-commerce services.

Although one may have to spend on devices and internet, e-commerce services did make life a little easier, ultimately showing that both consumers and sellers can rely on this practice.

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4. Future of E- commerce by WeronikaKuzior available at :https://spyro-soft.com/blog/the-future-of-e-commerce-2

IMPACT OF GOODS AND SERVICE TAX ON THE APPAREL INDUSTRY

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ABSTRACT

Taxes are broadly classified as Direct Taxes and Indirect taxes. In the basic scheme of taxation in India, it is envisaged that central government will get tax revenue from income tax, excise, customs and service tax, while state governments will get tax revenue from sales tax/value added tax, excise etc. A good tax system plays an important role in the economy of a country through their impact on both efficiency and equity.

Even after six years of GST implementation, India is facing protest from every part. The society is still unaware about the various aspects of GST and its benefits. The existing studies show that the government also failed to implement GST in a proper way. So the present study is based on some research questions such as, what are the positive and negative impact of GST on selected branded apparel with special reference to Bangalore District, the survey result revealed that there is positive and negative impact of GST on textile industry.

Keywords: GST, apparel, textile
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I.   INTRODUCTION

GST reforms in India has completely changed the perspective of indirect tax system bringing majority of the taxes on goods and services levied on traders, manufactures and sale & consumption of goods and services into single tax umbrella. Ultimate purpose of integrating various indirect taxes into single tax domain under the regime of GST, is to provide transparency and ease to users and support to the growth of Indian economy.

Majority of the suppliers or retailers still display their unwillingness to get registered for GST to avoid burden of new rules and additional expenses of accounting as per the GST rules. Branded apparel industry manufacturers and wholesalers do not seem to be happy with the GST as they feel tax rates are higher and thus not willing to comply with GST. It is also noticed that sales have been decreased. It has also been reported that the branded apparel traders still remain confused about migration process from earlier tax system to GST and billing.

II.   STATEMENT OF THE PROBLEM

The Goods and Services Tax (GST) Laws in India is one of the most significant tax reforms, which would integrate the various Indirect Tax Laws in India. GST will introduce seamless value added taxation across all the goods and services. However, the GST Model as implemented in India is entirely different so far as the specified impact of GST on apparel

sector after its implementation. Instead of mitigating the current anomalies and short comings of existing Indirect Tax Laws, the GST Law will add to the additional tax burden (stranding of taxes) and compliance cost on common man, as the inputs would be covered under GST whereas specified output would continue to be taxed under pre-GST systems.

III.   OBJECTIVES OF THE STUDY
- To study and understand the GST practices prevailing in apparel industries
- To analyze the impact of GST practices on the branded apparel industry.
- To analyze the financial crunch of apparel industry as a result of implementation of GST.

IV.   REVIEW OF LITERATURE
➢ **Desai 2020** studies the impact of GST on hotel industry of Maharashtra. The objective of study is impact of GST on their business. It is a descriptive study, findings show that GST is not difficult to understand to common man as well. Study suggests that it is required to be studied by the government officials to know why the customers' perception towards GST is unfavorable (Desai, 2020).

➢ **Rao 2018** studies goods and service tax (GST) impact on Indian economy and common man, the study reveals that the main rationale behind GST is to eliminate cascading effect (tax on tax and to replace existing taxes like VAT, excise duty service tax and all sales tax with single comprehensive tax, bringing it all under single umbrella (Rao,2018).

V.   RESEARCH GAP
These studies primarily enrich the debate about the way GST Law should be shaped. Therefore, various assumptions have been taken under these studies which may or may not form the basis of GST Laws. Over a period of time, the proposed law has also been reviewed considerably and various issues have been duly addressed under new GST Law. Further, the previous studies were mainly confined to the GST provisions with general coverage role of GST on branded apparel sector only for one year after its implementation. To the best of our knowledge and belief, no such exclusive study has been undertaken to analyse the role of actual GST Laws after its implementation.

VI.   RESEARCH DESIGN
The research definition requires a strategy to — 'collect measure and analyze' data that helps researchers to respond to research questions and achieve research aims. It is usually subjective since each researcher is different, and so preferred methods of research are different for each researcher. The findings are quantitative and descriptive. There have been collections of primary as well as secondary data sources.

VII.   THEORETICAL FRAME WORK

In the modern world, brands are essential to every society's daily existence. Numerous studies and marketing professionals concur that a brand's worth changes depending on how consumers perceive it. To create a favourable and meaningful brand perception in the eyes of consumers, companies that offer consumer goods need to understand the aspects that can influence brand value. Therefore, the theoretical framework of this study aims to investigate the impact of GST on the purchase of branded apparel products, as well as the influence of individual tax rates dimensions on the overall selected brand apparel with respect to the tax regime.

VIII.   GST ADMINISTRATION IN INDIA

Keeping in mind the federal structure of India, there are two components of GST – Central GST (CGST) and State GST (SGST). Both Centre and States simultaneously levy GST across the value chain. The tax is levied on every supply of goods and services. Centre levies and collects Central Goods and Services Tax (CGST), and States levy and collect the State Goods and Services Tax (SGST) on all transactions within a State. The input tax credit of CGST will be available for discharging the CGST liability on the output at each stage. Similarly, the credit of SGST paid on inputs will be allowed for paying the SGST on output. No cross utilization of credit is permitted.

IX.   WHY SGST, CGST, IGST IN INDIA?

India is a federal country where both the Central and the States have been assigned the powers to levy and collect taxes. Both the levels of Government have distinct responsibilities to perform, as per the Constitution, for which they need to raise resources. A dual GST, therefore, keeps with the constitutional requirement of fiscal federalism. The Central and States simultaneously levy GST. Thus, SGST, CGST, IGST, help tax-payers take credit against each other ensuring 'One Nation, One Market, One Tax.

X.   BRANDED APPAREL RETAIL INDUSTRY IN INDIA

The state of the economy and the social standing of people are shown by the industry. In India, after the IT sector, the garment and textile sector is the second-largest sector. It is currently the second largest foreign exchange earner and one of the industry segments with the strongest growth rates. Along with food, drink, and shelter, clothing is a basic requirement of human civilization, 26 percent of all Indian exports are in the garment sector. By 2025, the Indian government wants to see $80 billion in sales in the apparel and textiles sectors.

XI.   WHAT IS APPAREL?

Licensors and licensees are also recognizing that there is life beyond the basic categories of licensing. Today, consumers want to express their individuality everywhere and trade is happy to provide all kinds of customization. To cater to such a growing demand, Tommy Hilfiger, Benetton, and various character licenses from Disney, Nickelodeon, King Features, etc. have launched their bed and bath range via the licensing route. This is just the beginning of the trend as newer brands from art licensing such as Van Gogh, Claude Monet, Leonardo

Da Vinci, and icons such as Marilyn Monroe are set to launch branded merchandise in the home range.

XII.   RETAIL BUSINESSES IN BANGALORE

The old city-center high streets of Brigade Road, Commercial Street, and MG Road are quickly losing their prominence as Bangalore's retail hub in favor of suburbs and malls. Since individuals prefer to live close to where they work, the pattern also reflects how the city's secondary and ancillary business districts have drawn inhabitants there. Significant residential development has fueled the growth of shopping malls and given rise to new high street locales in peripheral business districts like Whitefield, ORR (outer ring road) to Sarjapur, Electronic City, and Tumkur Road as well as secondary business districts like Bannerghatta Road, Jayanagar, Rajajinagar, and Yeshwanthpur.

In terms of gross lettable area, or GLA, secondary and peripheral districts today account for 48% and 42% of the total shopping mall space in the city, respectively. Central business district locations, such as MG Road, Richmond Road, Langford Town, Residency Road, Cunningham Road, contribute just 10% of the total mall space.

XIII.   SHOPPING TRENDS IN BANGALORE

An analysis of shopping trends reveals that apparel remains the hottest-selling commodity lapped up by consumers today. According to a break-up from analysts average of 54 percent of shops on Bangalore's high streets sell footwear and apparel. The number of malls, which are likely to double, is all set to increase the commanding share enjoyed by apparel stores. Furthermore, speaking about the concentration of footwear and apparel stores on highstreets, the study points out that Commercial Street has the maximum concentration of footwear stores, constituting 74 percent, compared to Brigade Road (53percent), Lavelle Road, Vittal Mallya Road (33 percent) and Indiranagar 100-ft Road (37 percent). In stark contrast, bookstores and stationery shops seem to be one of the least preferred businesses, constituting an average of only four percent.

XIV.   BENEFITS OF GST –INDIAN ECONOMY
- A single unified indirect tax system
- Removes cascading effect of taxes
- Reduction in manufacturing cost due to labour
- Unifies India as one marketplace
- A consumption based tax
- Increased demand and consumption of goods
- Boost to the Indian economy in the long run
- Control of black money circulation in the system
- Increased demand will lead to increased supply

XV.   IMPACT OF GST AFTER IMPLEMENTATION

The effect of GST on the cost of products and services varies significantly depending on the product. Additionally, the intervention of the individual state governments in regulating the cost of necessities is a factor. If the State Government provides a subsidy on it, products like milk, curd, which are projected to witness an increase in price following the implementation of GST, can still be sold at lower prices.

Telecom, banking and financial services, air and ground transportation, building and real estate development all experience significant inflationary effects. One frequent criticism of GST is that it was implemented rather hurriedly, without sufficient planning, and without allowing enough time for its design to foresee potential issues.

XVI.   POSITIVE EFFECTS OF GST

There are positive effects of implementation of GST in India without a doubt:

- Dr. R. Vasaathagopal (2011) "GST in India : A Big Leap in the Indirect Taxation System" concluded that switching to seamless GST from current complicated indirect tax system in India will be a positive step towards booming Indian economy. Success of GST will lead to its acceptance by more than 130 countries in the world and a new preferred form of indirect tax system in Asia as well.
- Nitin Kumar (2014) studied, "Goods and Service Tax - A Way Forward" and concluded that implementation of GST in India helps in removing economic distortion by current indirect tax system and is expected to encourage unbiased tax structure.

XVII. NEGATIVE EFFECTS OF GST

- As state-level service tax rates are anticipated to be determined, our phone/mobile bill has experienced an increase in taxes. Commonplace services like telecom, rail, transit, banking, air travel, etc. have all increased in price.
- Online purchases of clothing, accessories, and electronics have become more expensive as a result of the e-commerce sector entering the tax net and being required to pay tax deducted at source for each transaction with its vendors. Therefore, e-commerce businesses have reduced the discounts and freebies they formerly offered as a result of declining profit margins and rising tax compliance costs.
- Due to exemptions, several necessities for the home (such as clothing, books, cooking oil, etc.) are actually subject to a tax of between 5-8 percent. The cost of things increases if the rate reaches 18 percent.

XVIII. CONCLUSION

Goods and Services Tax is a very noteworthy step in the field of indirect tax reforms in India. GST is expected to significantly ease double taxation and make taxation easy for the industries. For the end customer, the most beneficial is in terms of reduction in the overall tax burden on goods and services.

There are various challenges in the way of GST implementation as discussed above in research paper. More analytical research is needed to resolve the battling interest of various stake holders and accomplish the commitment for a cardinal reform of tax structure in India.

Overall, through this study we conclude that GST plays a dynamic role in the growth and development of our country.

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A STUDY ON EMERGING TRENDS IN ACCOUNTING
AN OVERVIEW

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ABSTRACT
Accounting is the backbone of any business firm. In this present era with the huge usage of technology in the field of accounting system, we can see many drastic changes from manual to computer based formats. The new accounting system embraces the use of technology, accomplishes tasks faster and also enables to do more with less.

The business world has witnessed several changes in the way accounting is done; there are various emerging trends of accounting like - Cloud Based Accounting, Offshore Staffing and Remote Work Setup, Digitization with Accounting Software, Big Data, Data Analytics, Automated Accounting Process, Agile Accounting, Outsourcing of Accounting Functions, Block Chain Technology, AI, Forensic Accountancy and Advisory Services etc., all of which meet a wide range of business requirements. All these emerging trends of accounting decreases the work of accountants and improves better decision making through their automated processing system by proving data quality beyond the latest accounting trends and also provides data visualization and avoids unwanted data through data cleaning and data assessment tasks.

The main purpose of this paper is to describe the innovations in emerging trends of accounting and also discuss the main features of various trends in accounting. This paper mainly focuses on secondary data to understand evolution, technological developments, various opportunities and modern accounting skills required in today's business world.

Key words: accounting, technology, trends, digitization, business.

I. INTRODUCTION

In this modern digital world due to the quick changes in technology, accounting system has experienced many developments. In this present era there are plenty of technologies which are emerging in the field of accounting like Cloud Based Accounting, Offshore Staffing and Remote Work Setup, Digitization with Accounting Software, Big Data, Data Analytics, Automated Accounting Process, Agile Accounting, Outsourcing of Accounting Functions, Block Chain Technology, AI, Forensic Accountancy and Advisory Services etc., all of which meet a wide range of business requirements. All these trends of accounting can help to prepare the company's financial reports and also ensure the quality, reliability, safety and security of data.

In 2022, the business world has witnessed a few changes in the way accounting is done; these changes, while not being jaw-droopingly exceptional, have set the tone for few more innovations for the coming years. Technological developments are happening in every area,

and we can see a greater adoption of technology. While technology has not yet brought in a sea of changes it has in other areas, there is no doubt that even this arena is fast moving towards greater automation and adoption of innovative technology. The evolution of cloud computing has increased the possibilities of accounting.

In 2019, a global survey of accountants was conducted, in which there were over 3000 respondents, and a whopping 905 of them were of the opinion that by the coming decade, account will suffer a major artistic shift. This shift is being caused by business services, hiring practices, remote working practices, and arising technologies. Another surprising result of this survey was that the maturity of accountants would begin to hire staff from divergent backgrounds, and those with conventional accounting backgrounds may not remain favoured. They also believed that even with the magnitude of colourful training programmes that are available for accountants, they won't serve to bring them up to speed with the accounting trends for the coming decade.

II.   OBJECTIVES OF THE STUDY

- To study the evolution of emerging trends in accounting.
- To find out which current IT developments are having the most impact on the accounting sector.
- To study the various opportunities provided by emerging trends in accounting.
- To determine the modern accounting skills required for experts in this industry.

III.   RESEARCH METHODOLOGY

Desk research is a method that explores data from existing documents and previous research to gather information over a particular topic.

The present study is conducted in conceptual basis, based on secondary data collected through published sources like articles, websites, reports and magazines etc.,

IV.   TRENDS IN ACCOUNTING

1. Cloud Based Accounting:

It is also called Real - Time Accounting. It is one of the most important accounting trends in industry, almost all the companies use this trend in their systems. The demand for cloud accounting was more during the pandemic. This trend has the ability to take businesses to the next level. Majority of the businesses have shifted to the online system for business processes like ERP (Enterprise resource planning) and CRM (Customer relationship management) software etc., as they are secure, faster and decrease downtime, hence are more profitable.

The access of data not only allows you to see the data, but it also allows to share, edit, copy, and otherwise work on the files and collaborate. It also allows to track stock, sales, expense, purchases and payroll etc.

The benefits of cloud based accounting are:

a. It gives access to your accounts anywhere and anytime.
b. It always allows to work with the latest version of the software.
c. It can reduce the paper work
d. It saves time.

2. Offshore Staffing and Remote Work Setup:

Before Covid-19 the proportionate of remote workers was only around 10- 15% in the entire world, however suddenly since 2020 the number has increased over 85% during the pandemic. Even at present many of the workers prefer to work from home as it saves time, and they are more productive with the convenience of working from home.

Remote work, in combination with technology in accounting, like digitization and pall embracement, has helped reduce expenditure significantly, and in optimizing the business progression too. This trend has been slightly extended with companies now hiring fresh workers offshore; some are stationed in remote work configurations after being hired at the office. This model is putting associations on the fast path to growth; especially for counting forms, they're suitable to decide further benefits from this structure in comparison with the conventional working frame. Grounded on evaluations and prognostications, the coastal and remote working trend is likely to not simply live, but exponentially increase and thrive in the foreseeable future.

3. **Digitization with Accounting Software:**
Digitization in accounting permits an expert to analyze huge amount of information, detects frauds and also provide financial insights at a high speed. Nowadays more number of organizations prefer accounting software rather than manual accounts, even the software systems have robust solutions with advanced features and functions.

4. **Big Data in Accounting:**
Big Data plays a very important role in the accounting field. It also supports businesses and CPA firms through expanded assessment methods. Based on the accounting trends, around 65% of the business firms in the entire world want to adopt the concept big data in the next few years. In the same way many companies are recruiting accountants with highly skilled knowledge in analytics and data science. Accounting firms are shifting from reactive nature to more proactive by using the concept of Big Data.

5. **Data Analytics:**
Although data analytics is not a recent accounting trend, it is now more potent than ever. Such technologies are used by businesses and accounting companies for auditing, risk management, tax advice, and budgeting. We can say that finance functions have become more analytical as a result of accounting data analytics and visualization tools. Moreover, by utilizing the power of data analytics, businesses are becoming more efficient and are managing risks with ease.

6. **Automated Accounting Process:**
The speed, precision, and dependability of the reconciliation to adjustment process are improved by accounting process automation. By automating frequent and significant transactional business activities Automation has already entered the workplace. More than half of C-level accounting executives, according to an ACCA study, anticipate automated accounting solutions in many different firms. Furthermore, businesses that automated their accounting processes saw a significant return on investment (ROI) in 70% of cases. These days, accounting software has a tonne of connectors and speeds up common procedures. Additionally, RPA (Robotic Process Automation) is used to standardize transactional data from various sources in a variety of formats. Harmonization is another name for this procedure. Enterprise Resource Planning (ERP) systems, as opposed to standalone accounting software, are preferred by large businesses.

7. **Agile Accounting:**
Agile Accounting is one of the most important developments in accounting for the future. Agile accounting refers to how quickly we adapt to new situations and take on the newest fashions. It is crucial that you embrace new trends as soon as they emerge if you want to be successful and keep your dominant position in the market.
In contrast to the other firms, 95% of those who embraced an agile strategy showed positive revenue growth, according to a study sponsored by Oracle. The study discovered that agile leaders were more open to using strategies like cloud computing and the use of

shared service centers, which gave their departments and organizations more flexibility and speed in responding to internal changes or market externalities.

8. **Outsourcing of Accounting Functions:**
The majority of organizations have outsourced their accounting duties, and more are starting to do the same. It offers lot of advantages. By concentrating more on their limited resources, businesses can increase profitability through outsourcing. Additionally, it saves them money on employment-related expenses like payroll, taxes, and insurance benefits. One of the most recent accounting trends is the outsourcing of accounting tasks. Many businesses annually express great satisfaction with the value of their outsourced accounting. In order to provide effective services to their clients, CPA companies are now using outsourcing as a viable business strategy. Some businesses go above and beyond to analyze company processes and boost the value of their clients' businesses. Since it is simpler to manage and offers support, many people in Hong Kong are opening online business bank accounts.

9. **Block Chain Technology:**
Due to its close ties to ledgers, block chain is one of the most current accounting trends. Maintaining a ledger account with financial data is the principal function of a block chain. Additionally, it is in charge of transferring ownership of assets in a safe and transparent manner.
Many individuals think that because block chains are decentralised, they are susceptible to fraud and data manipulation. However, it is incorrect. The following illustration clarifies the block chain's safe architecture and how it always upholds data integrity:
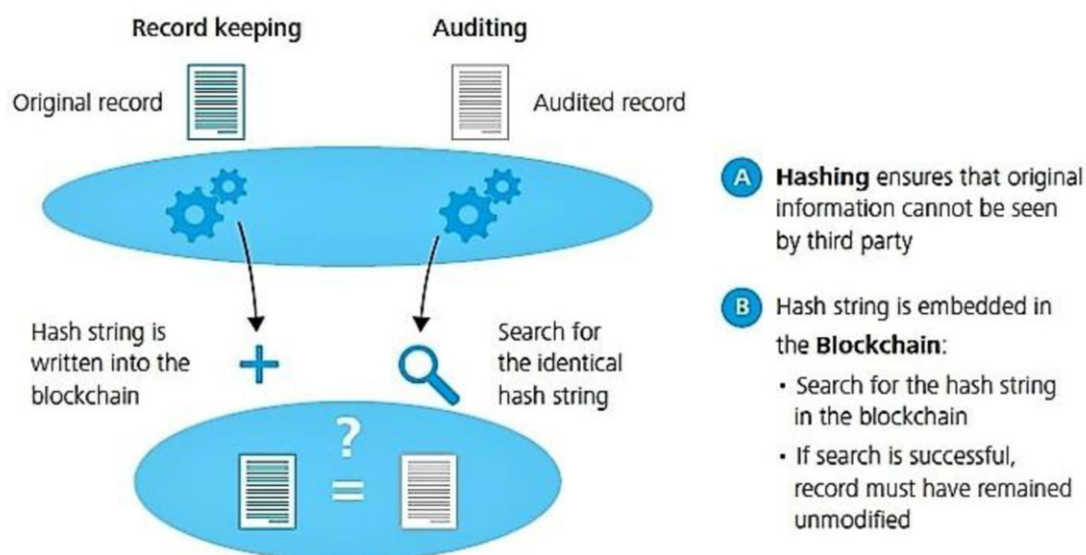
10. **Artificial Intelligence:**
Positive effects of artificial intelligence (AI) are being shown in the accounting sector. It has the ability to quickly and accurately analyze enormous amounts of data. AI can also streamline organizational procedures, work flows, and accounting procedures, which alter a company's fundamental makeup. Many businesses automate repetitive, routine tasks using robotic process automation (RPA) and artificial intelligence (AI). It aids accountants in concentrating their attention on other important tasks.
For example: The accounting company EY utilizes AI to examine leasing agreements. Prior to the start date, AI makes it simpler to swiftly capture information. Additionally, it automatically keeps track of the payment amount and the contract's options for termination or renewal.

11. Forensic Accountancy:

Forensic Accountancy is one of the latest trends in the area of accounting, this is one of the applications or techniques for investigation and detection of financial crime. Basically this will be conducted by an independent accounting and auditing firm in order to prevent, detect and avoid all financial frauds, crimes, corruption and money laundering etc., In this trend all forensic accountants have the skills and thorough knowledge in accounting, tax, law and technology.

How does forensic accounting work?

The best forensic accounting firms:

In 2022, according to Firsthand report, these are some of the best forensic accounting firms in united states, which are listed below:

a. PWC (Price water house coopers) LLP
b. Deloitte
c. Ernst and young (EY) LLP
d. KPMG LLP
e. Grant Thornton LLP

12. Advisory Services:

In 2022, this is one of the recent developments in accounting according to the industry observers. Advisory services are very much needed for each and every owner of the business, to stay up to date with the latest and recent developments in their industry, even though all the technologies and market trends are emerging. A savvy businessman can avail all the advisory services that guide businesses on how best they can leverage new technologies and optimize accounting business.

V.   MARKET SIZE OF ACCOUNTING SOFTWARE FROM 2018 - 2028

By 2028, the market for accounting software is projected to reach $45.3 billion, growing at a 19.6% CAGR over the forecast period.

A computer programme known as accounting software aids bookkeepers and accountants in recording and reporting financial transactions for a business. Larger businesses might decide to use a customized system that combines a vast quantity of data from numerous departments. Small businesses frequently select a pre-made option. The right accounting software is an essential tool for today's businesses. With the use of software, financial transactions can be monitored in great detail, and reporting and analysis may be completed almost instantaneously. Before accounting software, these tasks required the use of extensive transaction diaries and manual labor.

Accounting Software Market Size, By Component, 2018 - 2028
Source: www.kbvresearch.com
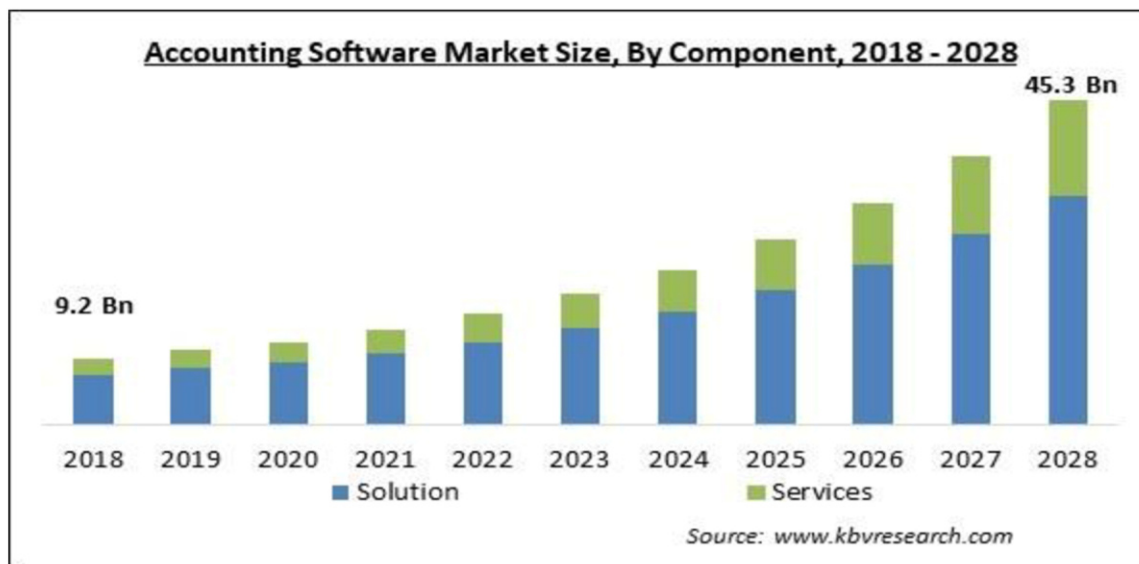
VI.   MODERN SKILLS AN ACCOUNTANT REQUIRES TO BE AN EXPERT:

For both newcomers and skilled experts, accounting offers a wide variety of job alternatives. The job seeker must acquire the most in-demand accounting skills in order to land a position and succeed in the industry. These abilities are a mix of technical knowledge and soft talents rather than just number-crunching abilities. Due to the volume of data that needs to be handled every day, it is essential that the accounts have excellent computer skills. Good computer skills in accounting go beyond the fundamentals of Word and Excel to include a solid working knowledge of a variety of accounting applications. The accounting software used nowadays by accountants must include timekeeping, payroll, resource management, and other systems.

At present the accounting tools in-demand are:
1. Advanced excel and modelling approaches
2. Enterprise resource planning (ERP) tools like SAP, Oracle, etc.
3. Big data analytics and query languages like SQL.
4. Microsoft Visual Basic; and
5. Power BI for Data Visualisation

VII.   CONCLUSION:

The adoption of cloud accounting, AI, big data and data analytics is one of the most highly anticipated developments in accounting. Analysts claim that organisations will gain from using on premise solutions even if they must deploy their cloud-based software. In the upcoming years, it is anticipated that the global accounting software market share will generate a sizable amount of revenue. The market for cloud managed services is anticipated to reach $115.6 billion between 2021 and 2026, with an estimated annual growth rate of 11.6%. The utilisation of cloud technology facilitates the work of accountants. In Sage Advice's 'The Practice of Now 2020: The Essential Report for Accountants', it is said that 67% of accounting specialists have found that cloud technology has improved the calibre of their work.

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IMPACT OF E-PAYMENTS ON BANKING

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ABSTRACT

In the present world scenario, E-Banking, also known as online banking or internet banking is a system that enables banking transactions like transfer of funds, payment of loans and EMI's, deposits and withdrawal of cash virtually with the help of internet.

This research paper includes the concept, development, impacts, importance and the success of E- Banking within the modern society.

This research analysis provides a clear idea of how important the E-Banking system is to every individual. It clearly depicts as to how the introduction of E-Banking has brought in remarkable changes in the banking industry as well as the society. The main purpose of this research is to identify the objectives and ideologies, relevance and key success factors of E-Banking.

The further shown statistical findings depict as to how E-Banking is a stepping-stone towards development of the banking industry and a cashless society.

I.   INTRODUCTION

India's banking system is currently facing a structural reform through the introduction of Information and Communication Technology. It has faced a transformation from paper mode to virtual mode of transactions and other banking techniques as well. E-banking has also provided various digital payment services among which UPI has set up its bar. UPI generally allows users to make banking transactions through their Smartphones. This enables the users to make transactions without disclosing their banking details, in the safest manner.

UPI (Unified Payment Interface) is a potentially innovative way of transferring funds using a virtual payment address established by the National Payment Corporation of India. Hence it is needed to be assessed for its potential to contribute towards achievement of digital economy.

Transactions using UPI requires the user to have a bank account and he must also register on the UPI app. Few examples of UPI payment platforms are PhonePe,Paytm, G-Pay, WhatsApp pay etc. The primary objective of UPI is to facilitate seamless transactions of funds between two bank accounts. UPI uses existing systems, such as Immediate Payment System (IMPS) and Aadhaar Enabled Payment System (AEPS) to ensure seamless settlement across accounts. It facilitates push (pay) and pull (receive) transactions and even works for over-the-counter or barcode payments, as well as for multiple recurring payments such as utility bills, school fees and other subscriptions.

The main objective of this paper is to figure out how the digital payment services of UPI have made its way into the digital transformation of the banking industry. It also examines the UPI's strengths, weaknesses, opportunities and challenges that helps us in exploring the entire e-payment ecosystem of India.

II.   STATEMENT OF THE PROBLEM

This study is in relevance with the complex banking industry and the services rendered by them. This research states the growth of payment gateways and internet banking in the present society.

So, this research not only provides information about the past banking situations but also indicates about the present needs of introducing Information and Communication technology in the field of modern banking.

III.   OBJECTIVES OF THE STUDY

- To explore the growth of various E-Banking platforms
- To analyse the evolution of UPI over the years
- To identify the challenges and opportunities associated with E-Banking and UPI

IV.   REVIEW OF LITERATURE

➢ Kevin Foster, Scott Schuh, and Hanbing Zhang (2010) they examined the consumer payment methods with respect to cash holdings and withdrawals which were decreasing since 2010. There was an increase in card payment system with respect to 2009 in the year 2010, which resulted in less usage of paper currency.
   Since 2010, there has been an increase in usage of debit and credit card payments compared to cash transactions, which slowly took a decline giving rise to prepaid payments.

➢ Singh. A et.al (2012) in his study discussed how secure the internet network should be to make smooth transaction for all the parties and the merchants. The systems are made in such a way so that there is no fraudulent activity takes place people can use their card for transaction in a secure way so that no data is shared. People mostly do digital transactions for e-commerce but they find internet not secure to do so.
   Therefore some strict protocol should be followed and managed to make transaction secure and the data is also protected.

➢ Oladejo, Morufu et.al (2012) in their study examined the improvement of e-payment system in Nigeria. They explored what initiated the people to adopt the e-payment system. A structured questionnaire and some financial statements were collected to analyse the data. The results were such that when banks adopted e-payment system there was a change in the performance level of the banks. With the advent of e-payment system there was a rise in usage of ATMs.

➢ Nitsure (2014) in his study highlighted the issues that were being faced or observed in developing country like India in using the e-payment system, which was due to the low spread of internet and technology. The paper focused on major issues such as security, rules, etc. and that the poor are not given a chance to be informed about such facilities.

➢ Sanghita Roy, Dr. Indrajit Sinha (2014), discussed in their paper that in India there has been a sudden surge in the usage of digitalised payment. But still there is almost 90% transactions, which are done through paper currency. They used the TAM (Technology Acceptance Model) in this study to find out the factors, which are strengthening the e-payment system the factors are innovation, incentives, and legal framework and customer convenience.

➢ Dennehy & Sammon (2015) has analyzed how in the 21st century the usage of digital payment has increased over the years. The focus here was to find out how digital payment system in future will stand. Many papers have been examined to find out

what the views are regarding the digital payment system. With the passage of time technology has been shifting very fast so with the innovation of technology the aim was to make people familiar with digital payment. The merchants also got a new platform to invest to cater the customers. Data was collected by following empirical method i.e. survey, interviews, etc. Lastly, the study was only focused on Google database that was a limitation about the study.

V.   NEED AND IMPORTANCE OF THE STUDY

The main need and importance of this particular research is to spread awareness about E-banking by depicting the developments that has taken place in the economy ever since it was introduced in the banking sector. It also talks about the challenges faced while using E-Banking and UPI with consideration of its security measures.

VI.   RESEARCH METHODOLOGY

The primary data for the research was extracted from Google sources and websites. The secondary data involved is collected from various sources like books, public opinion and reviews, newspapers and media articles.

VII.   DATA INTERPRETATION AND ANALYSIS

Chart 1.1: Graph indicating growth of various e-banking platforms

Growth of various e banking platforms

	UPI	Online banking	Credit cards	Debit cards
2017	90%	100%	125%	175%
2019	220%	170%	250%	215%
2021	380%	300%	415%	290%
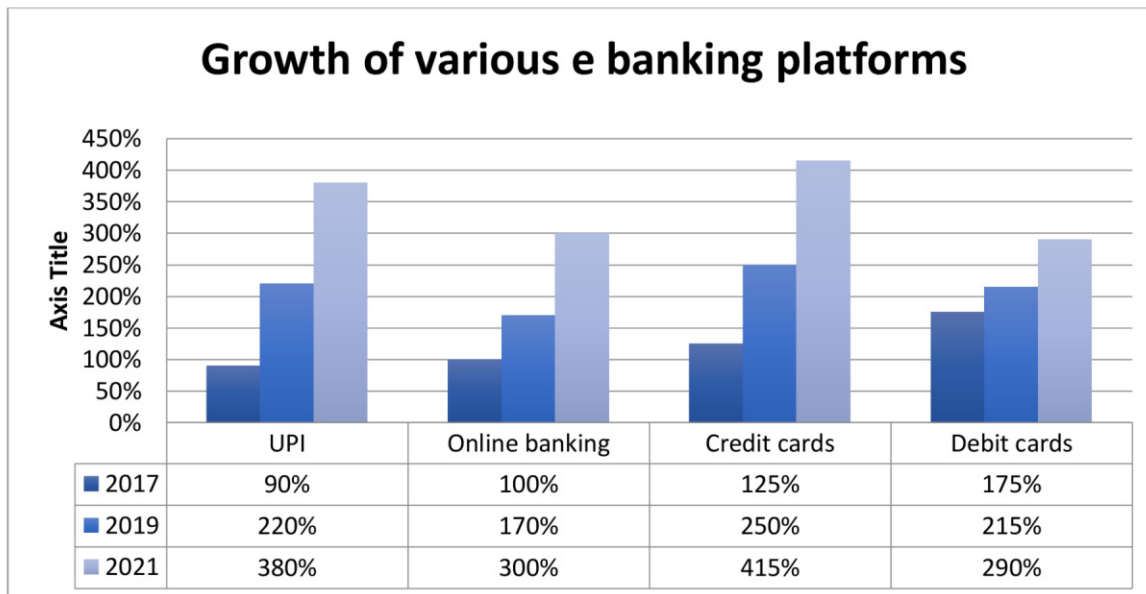
Interpretation

The above-depicted graph indicates the gradual growth of various E-banking platforms through the years. Many people initially did not accept UPI but gradually as it developed, it took over a large population in no time.

A concentrated group of population preferred online banking in the beginning but as its awareness was spread around in the banking sector people made effective use of it. Credit and debit cards, though they existed from the very beginning of advanced banking, people were less aware about its uses in the field of e-banking. Hence, UPI and credit cards have shown more impact over time.

Chart 2.1: Evolution of UPI over the years
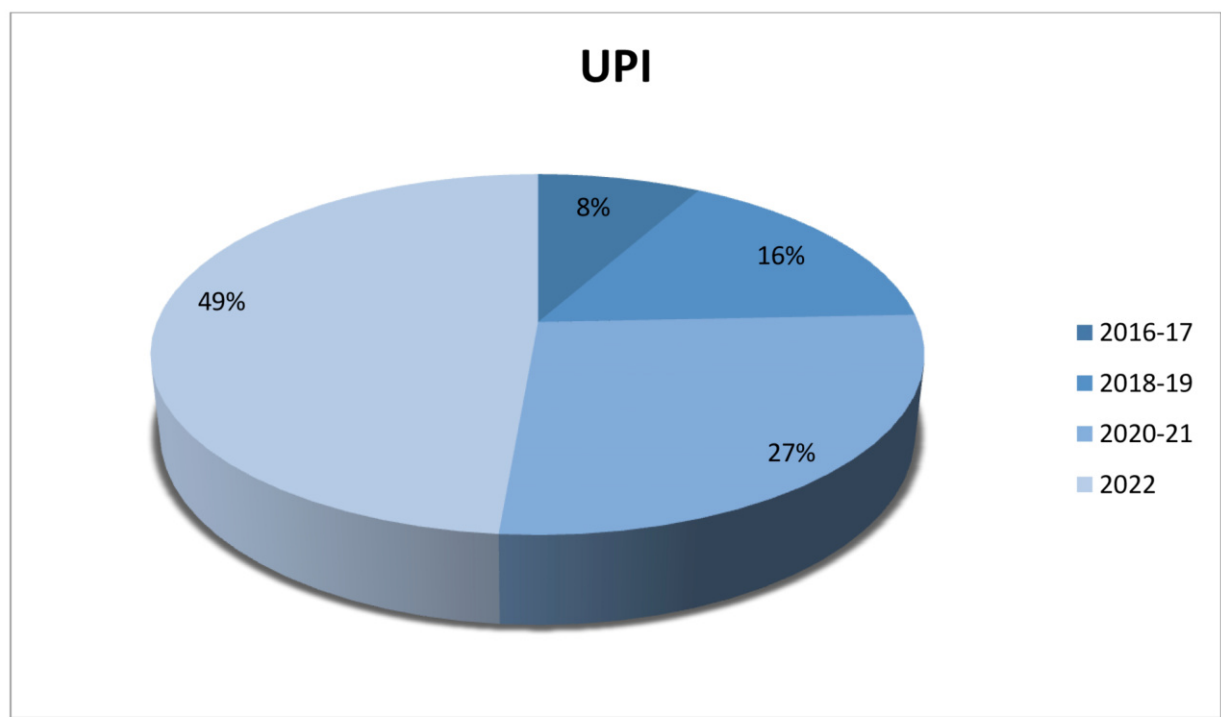
Table 2.2: Percentage rise of UPI

YEARS	UPI
2016-17	15%
2018-19	30%
2020-21	50%
2022	90%

Interpretation

The pie chart above shows that, the growth of UPI over the years has been gradually progressive. In the beginning [2016-2019], users had less knowledge about the safe sides of making transactions using UPI. As the banking sector progressed, it made way for UPI to reach more customers. As a result, UPI was a huge success among the largest part of the population in the upcoming years [2020 onwards].

This graph also indicates that UPI provides a safer gateway of transactions. Only when people realize that UPI and other E-Banking platforms provide safe and reliable transactions with just a touch, they adapt to digitalizing their day-to-day transactions.

Chart 2.3: Market Share of UPI Apps
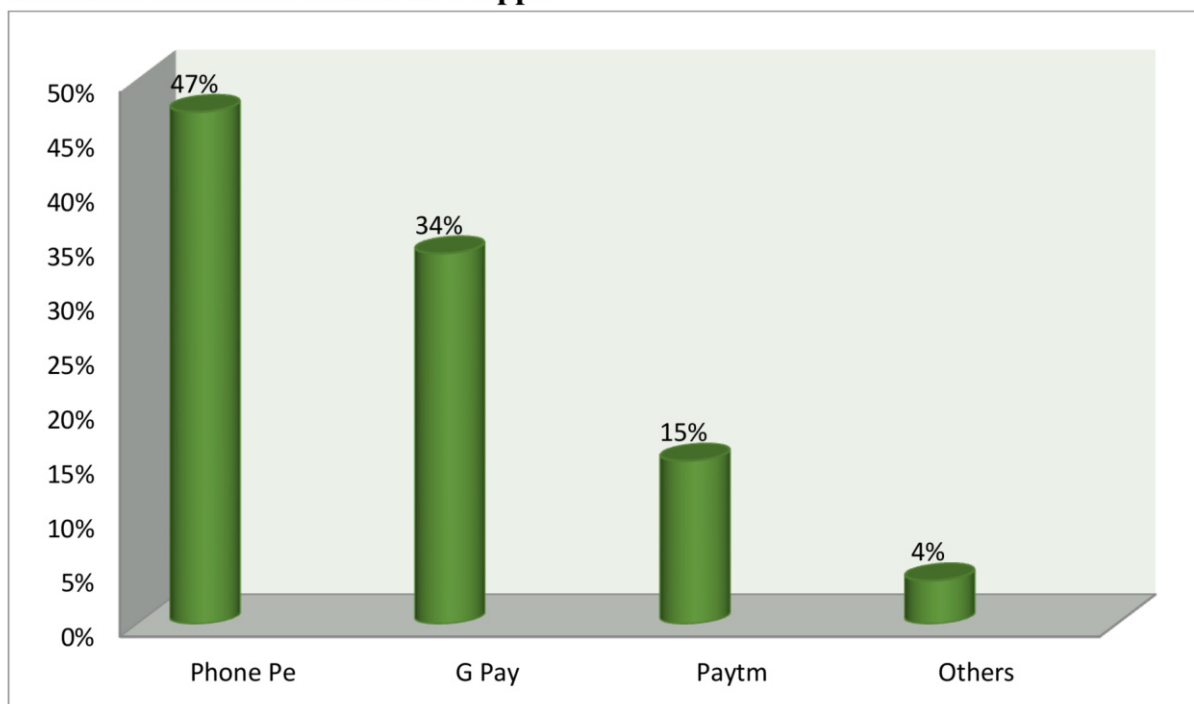
Table 2.4: Table indicating market share of UPI Apps

UPI APPS	MARKET SHARE[in %]
PhonePe	47%
GPay	34%
Paytm	15%
Others	4%

Interpretation

The chart above shows the market share of different UPI apps. The proportion indicates that PhonePe is the most dominant app among others in the current market scenario, followed by GPay and Paytm that are actively being preferred. This analysis shows that despite the vast amount of challenges faced by e-banking and online transactions, people are inculcating the usage of these apps in their daily lives.

VIII. FINDINGS

- E-banking and UPI payments have become very popular quickly.
- UPI offers many services like instant payments, managing wallets, fund transfers, bill payments and insurance renewals.
- NPCI introduced UPI to allow customers to make payments without revealing technical credentials.
- Despite cyber threats, e-banking and UPI still provide very convenient services.
- Initially people had difficulty in adapting to these apps but soon found them useful.
- E-banking and UPI are very effective reforms of digitization.
- The only disadvantage of UPI is that it can only be used for bank account holders and it has not gained much popularity in rural areas where tradition banking is still in practice.

IX.   CONCLUSION

E banking and UPI has been the most effective innovation after the Governments push to a cashless society. UPI provides an effective medium to customers to carry out safe and secure transactions using mobile phones. It is a reliable mode of online payments until date. E banking provides customers a quick and convenient access to financial services in today's digital age. UPI has taken over a large group of population in just few years of it being introduced. However, there are still people in certain parts of the country that are not familiar to the digital forms of payments and follow traditional banking methods. It seems that in the upcoming years UPI may reach out to every part of the country. These digitalisations are also helping in the growth of the country and its economic developments. UPI and E-banking in the future can tend to be the only form of payments and digital money shall take over traditional transactions.

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A STUDY ON INTRODUCTION TO E-COMMERCE ERA

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ABSTRACT

Departed are the days when habitual commercial activities like exchange of goods and services for hard cash happened between parties, now it is set off to a computerized world and manual things are replaced with electronic mode. The advent of e-commerce has enhanced electronic mode such as paying bills or transferring money in just one click. Since the Internet started to permeate the lives of millions of people around the world, the development of technology and information technology has unavoidably had an effect on the corporate world.

Currently, ideas like e-business and e-commerce had no trouble finding their place in the global economy and being applicable because they promoted business models that grew at a rate that was far faster than the traditional economy's typical average growth rate. Despite the fact that the industries experienced censorship in the early 2000s, the situation has improved, causing e-commerce to grow steadily over the past 20 years. This article's goal is to describe some of the characteristics of electronic commerce, the current state of its global application, the major steps that have been made in this direction up to this point, and last but not least, to pinpoint potential development tendencies for the future.

Keywords: e-business, e-commerce, internet, computerized world

I.   INTRODUCTION

The traditional era will come to an end in future as internet and e-commerce have been building an electronic era. Innovations in the area of internet technologies made a drastic change in the online business world. Electronic commerce focuses on the use of information and communication technology to enable the activities and relationships of the business with individuals, groups, and other businesses, while e-business refers to business with help of the internet. Electronic business differs from electronic commerce as it does not only deal with online transactions of selling and buying of a product and/or service but also enables to conduct of business.

II.   OBJECTIVES OF THE STUDY

- To know about the computerized business world and how it works.
- To study the history and development of e-commerce an e-business
- To know and understand the benefits of e-commerce.

III.   METHODOLOGY

This research is drawn with the help of secondary data taken from various sources such as websites, journals and reference books. The purpose of the study is to exhibit some technologies adapted in e-commerce and e-business across the globe and how e-commerce has emerged recently from the last previous decade.

IV.   E-COMMERCE & E-BUSINESS

E-business is all about any online transactions made through internet. The businesses use internet technologies like worldwide web, intranet, extranet etc. and perceiving the knowledge of how to implement them in the business area is the starting point of the concept.

E-commerce is all about trading of goods and services via internet across the world where buyers and sellers meet each other in a virtual world. Business to business and business to customer categories are the two key e-commerce concepts that serve as the foundation of commercial firms. The key elements of the economic process are schematically described by this.

V.   THE BEGINNING AND EXPANSION OF ELECTRONIC COMMERCE

The deployment of EDI, or electronic data and interchange, or the transfer of data from one computer to another across a network, gave rise to electronic commerce.

The adoption of some elements, such the graphical user interface, HTML, and World Wide Web, was essential for the eventual development of the internet.

VI.   HISTORY OF E-COMMERCE

- 1969 - CompuServe was initiated
- 1979 - Michael Aldrich invented electronic shopping
- 1982 - Boston computer exchange was launched
- 1992 - Book Stacks Unlimited was launched as first online book market place
- 1994 - Netscape navigator was launched as a web browser
- 1995 - Amazon was launched
- 1998 - PayPal launched as an e-commerce payment system.
- 1999 - Alibaba was launched
- 2000 - Google introduced Google Awards as an online advertising tool
- 2004 - Shopify was launched.
- 2005 - Amazon introduced Amazon Prime membership.
- 2009 - Big commerce launched
- 2011 - Google Wallet was introduced as a digital payment method
- 2014 - Apple Pay introduced as a mobile payment method
- 2017 - Shoppable Instagram was introduced
- 2020 - Covid-19 e-commerce growth

VII.   EMERGING TRENDS IN E-COMMERCE

1. **Voice commerce:** Owing to the advancement of AI-based voice recognition technology, a subset of e-commerce known as voice commerce is evolving. Instead of typing out requests for internet searches, placing orders, and finishing the purchasing procedure, online customers find it more comfortable to utilise their voice. Blind people and those with physical disabilities can simply use voice search to access the internet. There are many virtual digital applications / assistants such as Google Assistant, Siri or Alexa that help integrate the online shopping experience with everyday life.

2. **Artificial intelligence:** Algorithms for artificial intelligence and machine learning are sufficiently advanced to be employed frequently in online retail and present more opportunities for enhancing customer experience. One of the top AI applications in e-commerce is image recognition, which has fueled the growth of visual commerce. Examples are provided to illustrate how image analysis software might enhance shopping activities.
   - Image classification
   - Object Identification
   - Inappropriate Content

3. **Mobile shopping:** Mobile shopping is expanding incredibly quickly as more and more consumers use their handheld devices to look for products, compare prices from different vendors, and find in-depth product details, reviews, and testimonials. Additionally, as mobile technology has advanced, mobile payments have improved in terms of convenience and dependability. Mobile shopping has become convenient to the users as it provides 24/7 availability for shopping and convenience to shop from anywhere anytime. People can shop through their smartphones and can receive the product at their doorstep.

4. **Chatbots:** Chatbots are a very helpful marketing tool for enhancing customer service. Businesses can benefit from chat rooms by working continuously around-the-clock, saving money, and automating tasks that improve customer service. Artificial intelligence and machine learning algorithms have developed to the point where they are routinely used in online shopping and offer more options to improve customer experience. Image recognition, one of the most popular AI applications in e-commerce, has sped up the development of visual commerce. Examples are given to show how image analysis tools may improve the purchasing experience. Natural Language Processing Technology has been used by more and more e-commerce companies to create Chatbots that can converse with online customers in a manner similar to that of a real sales assistant. This becomes ease to connect with many customers at once.

5. **Video commerce:** Compared to other types of information, video content is more enticing to online shoppers. Users who see a video showcasing a product's features and benefits are 64%–85% more likely to want to purchase it, because animations are appealing and simple to understand, video commerce draws in customers.

VIII.   ADVANTAGES OF E-COMMERCE ACTIVITY

1. **Advantages for producing company**
   - With only minimum capital, they can contact the suppliers or even business partners worldwide
   - Provides logistical flexibility
   - Maintains and strengthens relationship with customers and suppliers

- Improves communication speed
- Reduces costs associated with various business processes
- Adoption of online sales as an alternative way to trade.

2. Buyers advantage
- Quick shopping without taking into account the time element
- Fast delivery and high convenience of customer available at 24/7
- Participation in activities such as online auctions
- The possibility to perform a more effective comparison between different products

3. Producers advantages
- It is an opportunity to attract consumers
- Easy access to markets that is inaccessible in other factors
- Reduced costs beyond what concerns the provision of goods and services

4. Overall advantages
- Removal of intermediaries from an economic activity
- Reduces the time devoted to various activities
- Some of the geographical barriers are dissolved

IX.   DISADVANTAGES OF E-COMMERCE ACTIVITY

In any firm, there will always be drawbacks, and in this case, the biggest ones are security risks with transactional operations and a lack of the necessary infrastructure.

Other disadvantages are:-
1. Lack of a proper framework
2. The cost of an investment is not justified given that in some geographic zones or areas of activity there are not enough customers.
3. The internet is too expensive

X.   DIRECTIONS FOR FUTURE DEVELOPMENT
The following areas are the focus of the primary medium-term forecasts for trade using internet technologies:
1. **M-commerce**: Mobile commerce is the use of numerous devices, such as smartphones, PDAs (Personal Digital Assistants), or mobile phones, which have had a growth rate over the past few decades to reach a global total of over 4 billion subscriptions.
   The three primary services are mobile banking, mobile tickets, and mobile brokerage. Sales of audio and video content are also offered, and maybe most crucially, everyday information (news, sports, weather, traffic, etc.) can be obtained. The primary fact to consider when examining the growth of m-commerce is the rapid rise in smartphone ownership.
2. **Social trade** based on user activity and presence on well-known websites or social networking sites (Facebook, Twitter, MySpace, Bebo, etc.). Decisions are made by prospective customers based on user feedback and suggestions.

3. **Placing advertisements** in video content, and having more users pay to access audio and video content.
4. **Customization of** goods and services within the B2C concept to a very small set of customers' tastes and preferences.
5. The growth of small and medium-sized businesses in online commerce through search engines, websites, and social networks.

XI.   E-COMMERCE AUTOMATION

Many of the manual, repetitive, and time-consuming procedures that lower productivity are eliminated by e-commerce automation. Three ways that E-commerce automation is boosting productivity include by making cross-border commerce easier, lowering the chance of human error when managing several stores, and providing best-in-class shopping experiences.

- Pre-load storefront changes for major events.
- Rollback those changes automatically
- Put flash sales and product drops on autopilot.
- List new products on multiple channels.
- Tag and segment customers for retention.
- Streamline tracking and reporting.
- Identify and cancel high risk orders
- Schedule inventory alerts for reordering and marketing.
- Standardize merchandising for discoverability.
- Integrate third-party apps to trigger work flows outside your e-commerce ecosystem like e-mail win back sequences.

XII.   CONCLUSION

We have seen how e-commerce has made a drastic change in human lives .It has enhanced the buyers and sellers to trade through online virtual world across the globe. Given the current process of globalisation, this activity will likely see an increase in sales in the upcoming years. However, if it is important to consider the emerging markets in particular at this time—some of which are still in the early stages of expansion—and if evolution can be understood globally and according to key indicators, the question of what will happen to the development of specific firms and companies remains. Some of the questions are still in the minds of people whether the future market will have more loss or more profit or how to tackle the problem. But it is sure that future generations and future technology will increase even more than today and human lives will be computerised everything will be done in just one click, definitely it will have an effect on individuals. May be future generations may suffer due to direct contact between individuals and maybe we are the luckiest generation who are in under developing e-commerce era.

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ROLE OF LIQUIDITY IN WORKING CAPITAL MANAGEMENT OF THE INDIAN CEMENT INDUSTRY

A COMPARATIVE STUDY

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ABSTRACT
Working capital is one of the integral fields of financial management. As Liquidity and Profitability are two important fields of working capital which affects the large scale as well as small scale organization. This is a comparative study of five cement companies that shows the liquidity position. This study covered a period of 5 years starting from 2016-17 to 2020-21. The data collection source is purely secondary. The techniques applied in this study are basically calculation of Mortal's Comprehensive Test of Liquidity and Karl Pearson correlation. In this study it results that if there is increase in the liquid assets of the company that affect the positive working capital of the firm, but if the firm has a negative working capital then it does not affect to the liquidity position of the firm.
Keywords**:** Liquidity, Working capital, Profitability.

I.   INTRODUCTION

In today's competitive world maintaining financial strength on a day to day basis has become a challenge. Every firm wants to see themselves financially sound. It is that amount of funds which is required to carry out the day-to-day operations of an enterprise whether big or small. These operations consist of cash, marketable securities, semi-processed goods, raw materials, sundry debtors, bills receivable, inventories etc. These types of assets are normally temporary in nature. Working capital helps the firms to maintain proper balance between the inflow and outflow of funds i.e. Cash.

In other words, working capital is the excess of current assets over current liabilities and can be calculated by using following formula:

- Working capital = Current assets –Current liabilities.

Working Capital Management is defined as 'a business strategy which is designed to ensure a company and can operate more efficiently by monitoring its current assets and liabilities to its best effect. Liquidity is an important part of working capital management that measures the firm's ability to pay their debts. The success and failure of an enterprise depends upon the existence of an adequate liquidity and its careful working capital management.

II.   STATEMENT OF THE PROBLEM

The rationale of the research is to examine the role of liquidity in working capital management of the Indian cement industry. Earlier literature depicts mixed results, which shows the comparison of the past data but was not able to show the impact of liquidity position in the cement company. So, in this research to identify the liquidity position, liquid assets is derived by adding Quick Assets and cash equivalent. In this study, Current Assets is taken as a base by adopting Mortal Comprehensive test of Liquidity and Karl Pearson Correlation are used for this comparative study, so that an accurate result is obtained.

III. OBJECTIVES OF THE STUDY

- To examine the working capital management of the selected cement company.
- To analyze and compare the liquidity position of company.
- To study whether the positive working capital or negative working capital affects the increased/decreased liquidity position of the firm or not.

IV.   REVIEW OF LITERATURE

- ➢ **Reddy (1995)** in his study on "Management of working capital", studies about the state of Andhra Pradesh during the period from 1977 to 1986 which included issues related to working capital management among private large scale companies .
- ➢ **Singh and Pandey (2008)** suggested that, for the successful working of any business organization, fixed and current assets play a vital role, and that the management of working capital is essential as it has a direct impact on profitability and liquidity.
- ➢ **Chakraborty (2008)**, in the study on "Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industry" evaluated the relationship between working capital and profitability of Indian pharmaceutical companies.
- ➢ **Panigrahi A.K. (2013)** the study was conducted for negative working capital to analysis the efficiency of the corporate, which enhances the earning capacity of the firm. This study discloses that negative working

capital exist, profitability is more and shareholders are getting more dividend and capital appreciation.

➢ **Schilling (1996)** proved that the increase in cash conversion cycle increases minimum liquidity requirements of the business organizations, as decrease in cash conversion cycle decreases the minimum liquidity requirements of the business organizations.

V.   RESEARCH METHODOLOGY

Data Set and Sample:
A sample size of five Indian cement companies listed in BSE has been purposefully selected for the study purpose. The data for the study period 2016-2017 to 2019-2020 have been collected from secondary sources i.e. Annual reports of the company as well as from the website www.moneycontrol.com. Keeping in view, it was decided to select five large companies on the basis of total assets and whose financial information is available for the entire study period so as to meet our requirements.

Data Analysis:

A. Ambuja Cement:

Table 1.1

Year	Current Assets	Current Liability	Working Capital (C.A-C.L)	Quick Assets (trade receivables +cash & cash equivalents)	Trade Receivables	Cash & Cash Equivalents
2016-2017	11094.56	8877.32	2,217.24	7,163.11	931.53	6,231.58
2017-2018	12406.85	8394.26	4,012.59	7,743.82	1,304.54	6,439.28
2018-2019	14319.01	9070.31	5,248.70	10,423.11	1,068.56	9,354.55
2019-2020	12804.83	9260.4	3,544.43	9,496.76	561.13	8,935.63
2020-2021	17022.42	11227.89	5,794.53	12,340.12	645.83	11,694.29

Table 1.1 depicts the analysis of Ambuja Cement's financial position from the year 2016-17 to 2020-2021. From the table it can be stated that there is a rise in working capital of Ambuja Cement as in the year 2016-17, but in the year

2019-20 it decreases to 3,544.43, that affected the company's financial position but after that it showed a tremendous increment in the year 2020-21 to 11227.89.

Mortal's Comprehensive Test of Liquidity
- Working Capital (WC) to Current Asset Ratio = Working Capital x100/ Current Assets
- Stock to Current Asset Ratio = Inventory or Stock x100 /Current Assets
- Liquid Resources (LR) to Current Asset Ratio = Liquid Resources or Quick Assets x100 /Current Assets.

	Table 1.2 Mortal's Comprehensive Model Analysis.		
Year	**Working capital to Current Assets**	**Quick Assets to current Assets**	**Stock to Current Assets**
2016-2017	19.98492955	64.56416478	22.15743572
2017-2018	32.34173058	62.41568166	23.8407815
2018-2019	36.6554671	72.79211342	14.64137535
2019-2020	27.68041434	74.16545163	12.87467307
2020-2021	34.04057707	72.49333526	16.0849045

In the Table 1.2 current assets is taken as a base for calculating working capital, quick assets and stock. In the working capital to current assets shows an increment of 36.6554671 in the year 2018-19 and in 2020-21 it decreases to 34.04057707 and that of quick assets to current assets decreases to 72.49333526.

Table 1.3		
Correlation	**Working capital to Current Assets**	**Quick Assets to current Assets**
Working capital to Current Assets	1	
Quick Assets to current Assets	0.398265374	1

The table 1.3 shows about the Karl Pearson correlation among two variables of Ambuja cement it can be stated that there is a positive correlation of 0.398265374 between two variables working capital to current assets and quick assets to current assets.

B. UltraTech Cement:

Table 2.1

Year	Current Assets	Current Liability	Working Capital	Quick Assets	Trade Receivables	Cash & Cash Equivalents
2016-17	13,325.67	8,328.61	4,997.06	4,005.87	1,757.09	2,248.78
2017-18	11,461.31	11,515.44	-54.13	2,439.70	2,220.63	219.07
2018-19	12,954.24	15,533.25	-2,579.01	3,526.71	2,787.03	739.68
2019-20	14,721.46	16,580.58	-1,859.12	2,923.13	2,383.22	539.91
2020-21	24,050.29	20,591.72	3,458.57	4,579.28	2,571.73	2,007.55

The above table is about UltraTech Cement, it can be stated that there is a positive working capital in the year 2016-17, it was 4,997.06 that decreased to -54.13 in the year 2017-18; and in the year 2020-2021 it increased to 3,458.57 that lead to positive increasing working capital.

Table 2.2 Mortal's Comprehensive Model Analysis.			
Year	Working capital to Current Assets	Quick Assets to current Assets	Stock to Current Assets
2016-17	37.49950284	30.06130273	18.02
2017-18	-0.472284582	21.28639745	28.51

2018-19	-19.90861679	27.22436824	31.64
2019-20	-12.62863874	19.85625067	28.42
2020-21	14.38057504	19.04043569	16.71

In the Table 2.2 current assets is taken as a base for calculating working capital, quick assets and stock. In the working capital to current assets is 37.49950284 in the year 2016-17, But in the next year 202-21 it increases by 2% and reaches to 14.38057504.

Table 2.2:2 Mortal's Comprehensive Model Analysis

Year	Working capital to Current Assets	Stock to Current Assets	Quick Assets to current Assets
2016-17	15.24796107	24.84173074	60.02772807
2017-18	29.59529893	25.12386976	59.30713717
2018-19	37.6443513	15.15587485	70.00240226
2019-20	43.13563264	10.66764671	76.42789423
2020-21	42.07908284	12.28530539	77.27299028

In the above Table current assets is taken as a base for calculating working capital, quick assets and stock. In the working capital to current assets is 15.24796107 in the year 2016-17, as later on it became highest in the year 2019-20 to 42.07908284.

Correlation	Working capital to Current Assets	Quick Assets to current Assets
Working capital to Current Assets	1	
Quick Assets to current Assets	0.347107596	1

The above table shows about the Karl Pearson correlation among two variables and it can be stated that there is a positive correlation of 0.347107596 between two variables working capital to current assets and quick assets to current assets.

C. ACC Cement: Table 3.1

Year	Current Assets	Current Liability	Working Capital	Quick Assets	Trade Receivables	Cash and Cash Equivalents
2016-2017	5,654.92	4,792.66	862.26	3394.52	665.97	2728.55
2017-2018	6,684.44	4,706.16	1,978.28	3964.35	867.37	3096.98
2018-2019	7,534.57	4,698.23	2,836.34	5274.38	626.65	4647.73
2019-2020	8,448.63	4,804.26	3,644.37	6457.11	451.41	6005.7
2020-2021	10,369.3	6,006.04	4,363.34	8012.73	489.02	7523.71

In the Table 3.1 depict about the ACC cement it can be stated that there is a rise in working capital of ACC cement as in the year 2016-17 it was 862.26 and it increase of 4,363.34 in the year 2020-21.

Table 3.3		
Correlation	**Working capital to Current Assets**	**Quick Assets to current Assets**
Working capital to Current Assets	1	
Quick Assets to current Assets	0.874545277	1

The table 3.3 shows about the Karl Pearson correlation among two variables of ACC cement that there is a positive correlation of 0.874545277between two variables working capital to current assets and quick assets to current assets.

D. J.K. Lakshmi Cement:

Year	Current Assets	Current Liability	Working Capital	Quick Assets	Trade Receivables	Cash & Cash Equivalents
2016-2017	1118.75	1329.72	-210.97	100.61	90.41	10.2
2017-2018	1077.27	1497.79	-420.52	113.96	101.51	12.45
2018-2019	1009.98	1553.16	-543.18	129.23	109.8	19.43
2019-2020	1255.71	1702.06	-446.35	128.67	95.92	32.75
2020-2021	1481.98	1483.66	-1.68	426.35	54.5	371.85

The above table is about the J.K. Lakshmi Cement, it can be stated that there is a negative working capital from the year 2016-17 to 2020-21, as it was -210.97 in the year 2016-17 and it was -1.68 in the year 2020-21.

Table 4.2: Mortal's Comprehensive Model Analysis		
Year	Working capital to Current Assets	Stock to Current Assets	Quick Assets to current Assets
2016-17	-18.85765363	28.71061453	8.993072626
2017-18	-39.03571064	33.01029454	10.57859218
2018-19	-53.781263	34.87494802	12.79530288
2019-20	-35.54562757	38.26998272	10.24679265
2020-21	-0.113361854	24.71018502	28.76894425

In the Table 4.2 current assets is taken as a base for calculating working capital, quick assets and stock. In the year 2016-17 the working capital to current assets is -18.85765363, while in the next year it becomes negative to -0.113361854.

Table 4.3

Correlation	working capital to Current Assets	Quick Assets to current Assets
Working capital to Current Assets	1	
Quick Assets to current Assets	0.687885241	1

From the above mentioned table 4.3 of J.K. Lakshmi cement it can be stated that there is a positive correlation of 0.687885241 between two variables working capital to current assets and quick assets to current assets.

E. Shree Cement

Year	Current Assets	Current Liability	Working Capital	Quick Assets	Trade Receivables	Cash & Cash Equivalents
2016-2017	3282.19	1989.02	1293.17	446.22	335.12	111.1
2017-2018	5700.25	2967.15	2733.1	580.22	459.25	120.97
2018-2019	4719.22	2126.58	2592.64	1463	1023.71	439.29
2019-2020	7893.82	4015.56	3878.26	1694.66	1080.45	614.21
2020-2021	8187.33	3700.81	4486.52	1394.25	685.9	708.35

In the above Table, depict about the Shree cement it can be stated that there is a rise in working capital of Shree cement as in the year 2016-17 it was 1293.17, that increased to 2733.

Table 5.2: Mortal's Comprehensive Model Analysis.

Year	Working capital to Current Assets	Stock to Current Assets	Quick Assets to current Assets
2016-17	39.39960819	40.04947916	13.59519102
2017-18	47.94701987	27.52545941	10.1788518
2018-19	54.93789228	39.63176118	31.00088574
2019-20	49.13033234	21.70672754	21.46818651
2020-21	54.79832864	20.95579389	17.02936122

In the Table 5.2 the working capital to current assets is 39.39960819 in the year 2016-17 and reaches to 54.93789228 in the year 2018-19 at its maximum then it falls by 5%.As in Stock assets to current assets it showed a rapid fall in the year.

Table 5.3		
Correlation	**Working capital to Current Assets**	**Quick Assets to current Assets**
Working capital to Current Assets	1	
Quick Assets to current Assets	0.592977642	1

From the above mentioned table5.3 of ACC cement it can be stated that there is a positive correlation of 0.592977642 between two variables working capital to current assets and quick assets to current assets.

VI.   LIMITATIONS OF THE STUDY
- The study is based only on five selected companies listed in BSE.
- The data is collected from the secondary sources so the interpretation might change of different companies.
- In this study data analysis is taken from the year 2016-17 to 2020-21.

VII.   CONCLUSION
Working Capital Management is essential for maintaining the company's liquidity. The goal of liquidity management is to ensure that the business has ability to convert assets to cash or acquire cash through loan., so every businessman need cash whenever required, for that liquidity management plays an important role. The techniques applied in this study are basically calculation of Mortal's Comprehensive Test of Liquidity and Karl Pearson correlation. As this is a comparison test among the selected company it is concluded that ACC cement rank first with 0.874545277 of correlation in the comparison among other company relating to liquidity position of their company then comes J. K. Lakshmi with 0.687885241, Shree Cement with 0.592977642, Ambuja Cement with 0.398265374 and UltraTech Cement with 0.347107596. Thus, every firm needs to maintain their liquidity position by improving their long term financing, managing their receivables and payables, paying their liabilities and by minimizing their costs.

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A STUDY ON INVESTMENT AWARENESS AND AVENUES AVAILABLE FOR UNDERGRADUATE STUDENTS

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ABSTRACT
Making investments is important, if you are working hard for money then your money should work hard for you. Investing is a way to take charge of your financial security. Investment is important because it helps you to grow your wealth and makes for an additional income. Investment is one of the best ways to achieve your financial goals. Before investing in anything do get enough knowledge about investments like why investment is important, investment requires knowledge. Experience also plays a huge role in investing. As we know, not everyone has the basic knowledge regarding investments and that's the reason for losses.

Remember, acquiring knowledge and experience can change your life. So, do invest and eventually learn why investment is important. Investments are the modern way to earn nowadays.

In this article, we have discussed why investment is important and what the investment avenues are for the investors. This research is exclusively focused on how investments can begin at a young age, with minimum amount, for students.

Keywords: investment, undergraduate students, awareness, various investment plans, initial investment.

I.   INTRODUCTION

In the post-covid era, a variety of investment possibilities are being taken into consideration, and there is an increased emphasis on well-being and wealth management. These can be anything from investment cum insurance products to stock market bets that might yield long-term gains.

II.   OBJECTIVES OF THE STUDY

- To identify the awareness level among undergraduate students regarding investment plans.
- To bring out the opinion of each student about early investment plans which will help them analyze the need for financial planning.
- To build the habit of savings and mobilize the savings into investment.

III.   STATEMENT OF THE PROBLEM

The investment platforms are most likely used by adults aged about 23 and above, because they would be earning a monthly income, whereas investments are available to all age groups, with a minimum amount to invest, which helps in long term returns.

Why should one invest money?

Some people favour saving above investing. Savings, though, might not be enough in a changing environment to ensure ongoing financial stability. Money sitting idle in safes or even bank accounts could not be useful. Through capital growth, investments may be able to reduce inflation. Wealth generation benefits from the power of compounding. Investing can also help you achieve future objectives like buying a home, travelling abroad, or setting aside money for retirement.

Where to invest money?

There isn't a single, universal investment strategy. The perfect portfolio for each investor will vary depending on a number of different variables, including age, investing horizon, goals, and risk tolerance. Your ability to take risks may be greater when you are younger. As a result, purchasing stocks and mutual funds can be a wise decision. Older investors are able to take on less risks, allowing them to invest in safer instruments like fixed deposits.

Low-risk instruments are a better bet because shorter investment horizons diminish risk-taking capacity. Longer time horizons provide investors more freedom to invest in stocks and wait for profits. This sort of goal is important because investment needs to be more cautious for non-negotiable goals like education. The decisions an investor makes regarding their investments can also be influenced by a number of other factors, including their disposable income, financial situation, and obligations to dependents.

How to invest money?

Making a plan is the first stage in the investment process. Establish clear investment objectives, specify their timeframes, and assess your risk tolerance. Investigate options for achieving these objectives. Before making an investment, make sure you conduct enough research. Additionally, evaluate the tax ramifications of investments, diversify your investments to spread out risk, and plan recurring reviews. Takeaway investing is important for future financial security. Making poor choices might result in the loss of hard-earned money. As a result, you require sound judgement and investment understanding. Consider hiring a financial adviser if you're unaware of how to organise your money.

Avenues of investing money in India

There are multiple investment options to choose from in India:

1. **Fixed Deposits:** These are deposits where an investor is provided with a fixed rate of return for a specific period and considered as a low-risk option as the lumpsum amount deposited will be withdrawn after a fixed tenure or period. The rate of interest differs from bank to bank, from time to time.

2. **Mutual Funds:** When you invest in mutual funds, you fund a mechanism that gathers money from various participants and invests it in a variety of assets. Equity funds invest in equities, debt funds invest in fixed-income securities, and hybrid funds invest in both. Mutual fund schemes differ depending on the type of assets they concentrate on. Systematic Investment Plans (SIPs) allow investors to make one large investment or to allocate a specific amount on a regular basis. The performance of the fund may affect the returns you get.

   Equity mutual funds: A mutual fund that invests in equities on behalf of a group of investors is known as an equity mutual fund.

   - Availability - one can easily invest through SEBI-approved individuals, agencies, and stock brokerage firms, both online and offline. The greatest amount that can be invested is generally unlimited, but most mutual funds need a minimum commitment of INR 1,000.
     A demat account and a trading account are prerequisites for investing in equities mutual funds. Investing in equity mutual funds, sometimes referred to as growth funds, is an option and there are primarily eight different types available. A demat account is not necessary to accomplish this.
   - Maturity - Investors in open-ended equity mutual funds scheme are able to redeem their investment. The stock mutual funds have provided a 5-year annualised return of up to 35% and as high as 1175 in 2021, a year of historic highs, in the case of equity-linked savings programmes. The return is based on market swings and the overall state of the economy.
   - Taxation - If there is a short-term capital gain, a 15% rate plus a 4% cess is imposed. The investment return is totally tax-free for long-term capital gains if the profits are less than INR 1 lakh in a fiscal year. Long-term capital gains that exceed INR 1 lakh are subject to a 10% tax plus a 4% cess.
   - Risk- medium to high

3. **Recurring Deposits:** Recurring deposits are one of the most amiable investments for all age groups, especially to students as it provides the platform to invest every month, from minimum deposit to maximum deposit. Risk is nil and provides guaranteed returns.

4. **Public Provident Fund:** The PPF is a long-term savings plan that is supported by the Indian government and has a lock-in period of 15 years. However, PPF investments are tax deductible and also reasonably secure. The PPF interest rate is typically updated by the government every three months. When specific requirements are met, investors are also qualified for PPF loans and partial withdrawals. Given that the government guarantees the returns on this fixed-income programme, it can be said to be a risk-free investment.

   - Availability - There is no upper age limit to open an account, and it is available at practically all banks and post offices in India. You may only open one account. Up to the age of 18, a minor's guardian manages their account.
   - Investment amount - 500 INR is the yearly minimum investment amount. The annual maximum is 1.5 lakh rupees. One can deposit one to twelve times in a financial year.
   - Return on investment - Currently, the annual interest rate is 7.10%. The fact that PPF interest rates are variable means they could alter on a quarterly basis. In general, the interest rate change ranges from 0.25% to 0.75%.
   - Maturity - A PPF fund matures over a 15-year period, and partial withdrawals are permitted five years following the account's establishment.
   - Taxation - The PPF investment is tax-free. Earned interest is not subject to tax.
   - Risk level- low to nil

5. **National Savings Certificate:** The NSC is a fixed-income investment programme backed by the government that is viewed as a risk-free investment.
   - Availability - The certificate is easily available at all post offices, some private banks, and state banks in India.
   - Investment amount - There must be a minimum investment of INR 1,000. Any amount greater than 100 can be invested in 12 equal payments over the course of a year, or all desired deposits can be made at once. The amount that can be invested has no maximum.
   - Return on investment - Interest is paid at the conclusion of the maturity

period and compounded annually at the rate announced by the minister of finance every quarter.

- Maturity - The five-year lock-in term for National Savings Certificate allows for early withdrawal under certain circumstances, such as the demise of the certificate holder.
- Taxation - Under section 80c of the Income Tax Act, investments up to INR 1.5 lakh annually are not included in calculating your taxable income. Every year's interest is regarded as reinvestment and is not subject to taxation; however, the final portion of the interest will be subject to your regular tax rate.
- Risk level- low to nil

6. Post Office Monthly Income Scheme: The scheme allows account holders to profit from interest accrued on lump sum deposits that are paid each month. Both individual and joint accounts are eligible for the 6.60% interest rates offered by the government-backed programme.

- Availability - The Indian Postal Service offers single accounts and joint accounts (up to three adults). A guardian or parent of the minor is required to open an account on their behalf, and the maximum balances for single and joint accounts are INR 4.50 lakhs and INR 9 lakhs, respectively.
- Maturity - The account may be closed five years after it was first opened. Premature closure, however, is not permitted before the year. If the account is closed between one and three years, 2% is subtracted from the principle, and between three and five years, 1%. If the depositor passes away prior to the maturity period, nominees may submit a claim.
- Return on investment - The programme offers a 6.66% annual interest rate that is payable on a monthly basis. The depositor's savings account may automatically receive the interest amount or it may do so via an electronic clearing service.
- Taxation - The deposit's interest is taxed.
- Risk- nil to low

7. Government Bonds: In order to promote domestic involvement in the sovereign bond market, the Indian government has enabled the direct purchase of bonds for individual investors who previously could only trade in government bonds through mutual funds.

- Availability - The government makes its bond offering public before the auction date. These bonds are issued by both the federal and state governments. State development loans are the name given to the bonds issued by the state, while G-Sec, or simply "government bonds," is the name given to the bonds issued by the centre. To buy government bonds, you must have a bank account at a bank. You can keep government bonds

in a demat account.
- Investment amount - the government announces bonds, the price of the bond is also disclosed. The E-Kuber app, preferred by the central banking authority, the reserve bank of India's, is the simplest way to invest in G-Sec.
- Return on investment - Most government bonds have fixed interest rates, which means they have a fixed rate of interest until they mature. You receive a half-yearly interest during the required bond holding period, based on the coupon rate decided at the time of bond purchase.
- Maturity - Depending on the offering, a government bond's maturity period may be one year or longer.
- Taxation - The revenue from the interest one receives from these bonds will be taxed according to a person's income bracket. Any increase in the bond's price will likewise be treated as a capital gain and taxed as such.
- Risk level- low to nil

IV.   RESEARCH METHODOLOGY
The questionnaire method was adopted for the research, with a sample size of 199 students who are undergraduates.

V.   DATA ANALYSIS AND INTERPRETATION

Course

199 responses

- B.com
- BBA
- BCA
- Option 4

28.6%
19.6%
50.8%

Semester

199 responses

- 1st semester
- 3rd semester
- 5th semester

28.6%
35.2%
36.2%

Do you have any idea about the term investment

199 responses

- Yes
- No
- Maybe

26.6%
28.1%
45.2%
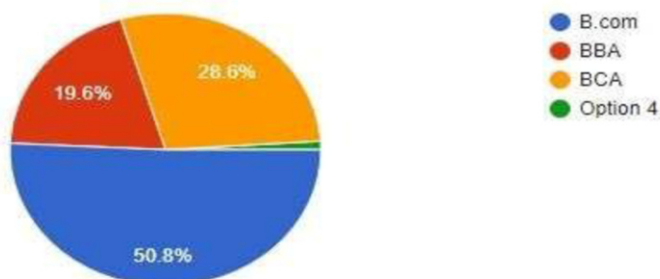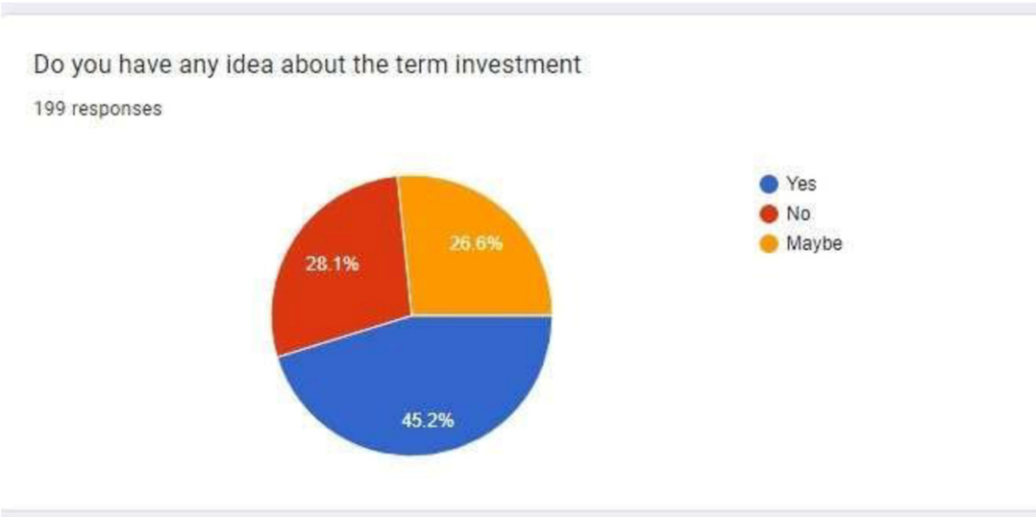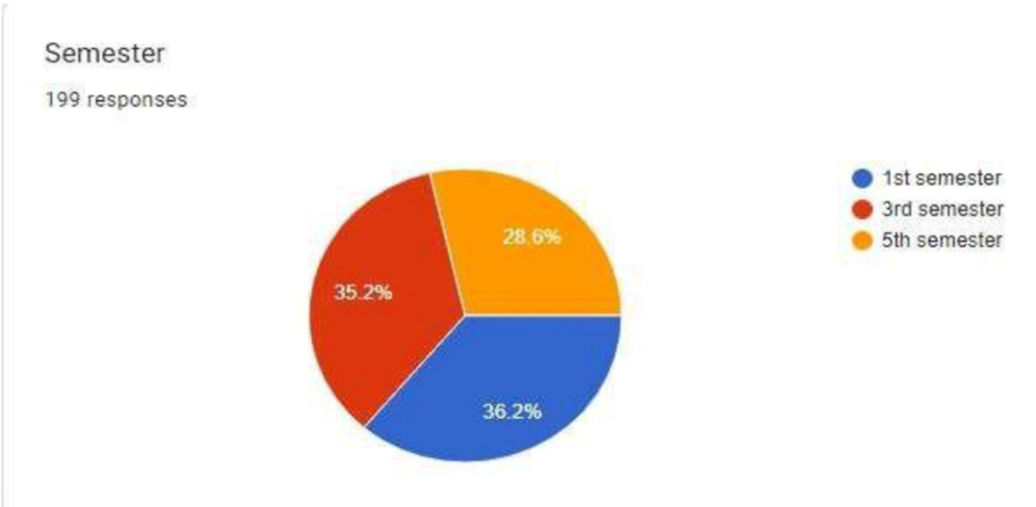
Apart from academic context have you come across the term investment or investment plans?

199 responses

- Yes
- No

54.8%

45.2%
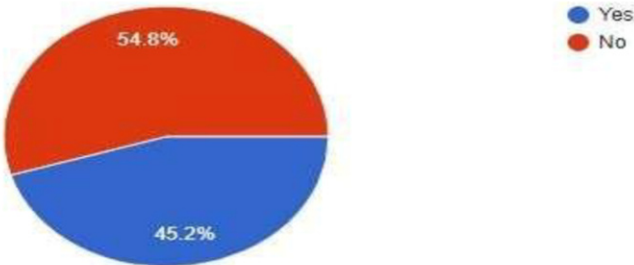
Are you aware of these investment platform

199 responses

- Clear funds
- Groww
- Zerodha coin
- Kuvera
- Trade plus
- Alice blue
- 5 paisa
- Upstox Pro trading

8%
29.6%
8%
6%
20.6%
24.1%
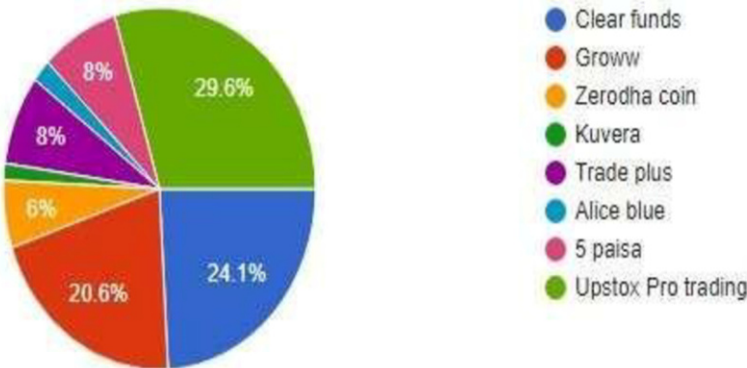
Do you have any interest in gaining knowledge regarding the investment?

199 responses

- Yes
- No
- Maybe

12.6%
22.1%
65.3%
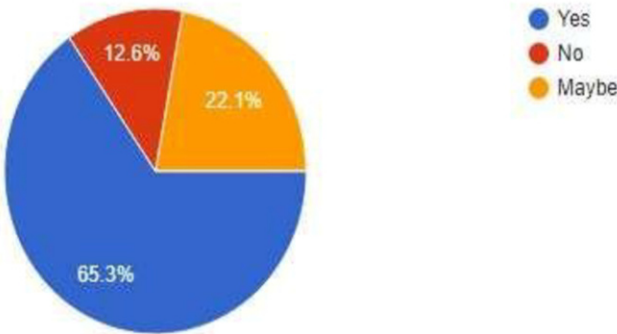
What would be your pocket money/monetary allowance you receive from your parents/gaurdian for a month?

199 responses

- 1,000-2,000
- 2,000-3,000
- 3,000-4,000
- Above 4,000

11.1%
9%
74.9%
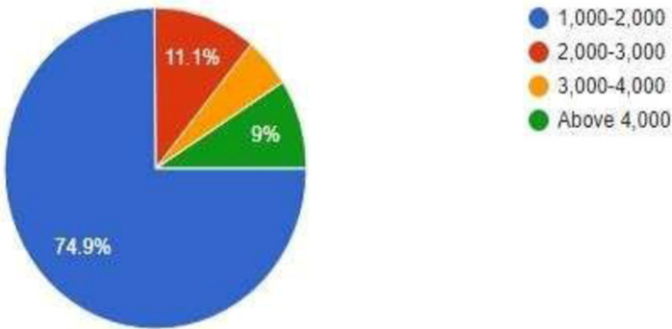
Do you have any trading experience

199 responses
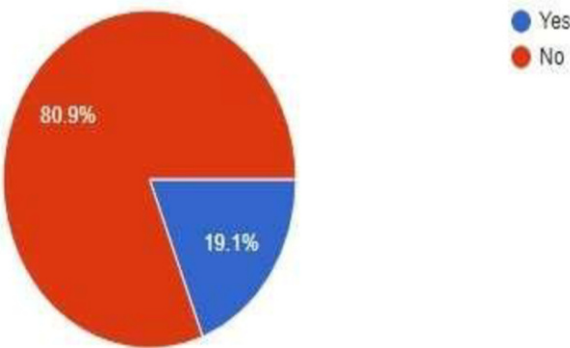
Do you know anyone from your social circle who have made investment at the early age

199 responses
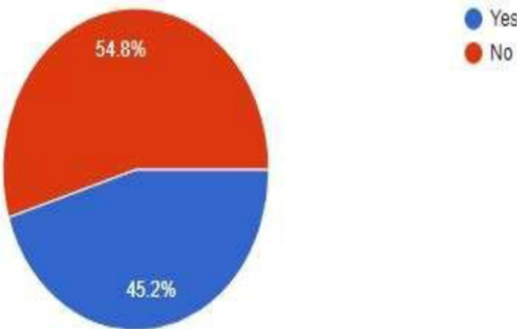
What would be your fear when it is related to investing your money?

199 responses
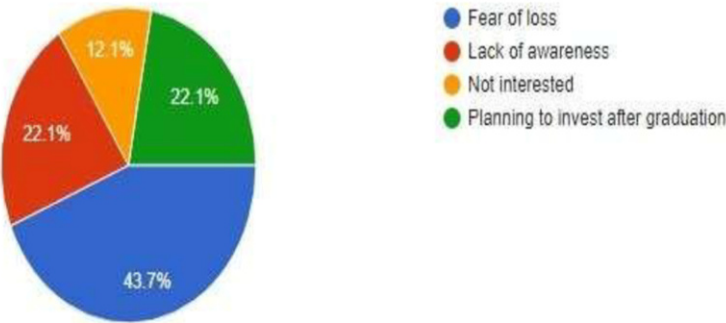
Would you be interested to know more about investments?

199 responses
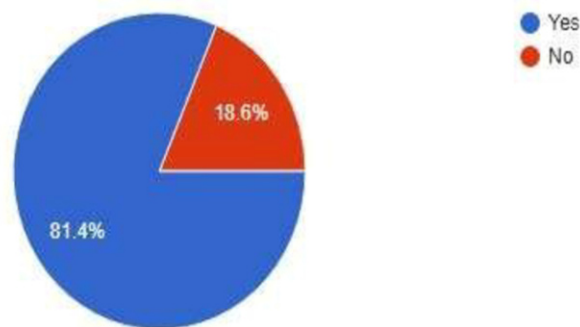
VI. FINDINGS

1. The stock market, debentures or bonds, money market instruments, mutual funds, life insurance, real estate, precious metals, derivatives, and non-marketable assets are some of the several paths and investment options. All are distinguished based on their unique characteristics, such as risk, return, period, etc.

2. Most of the students lack confidence to take the first step to invest.

3. The investment avenues available in India can promote their apps through various promotional activities, so that they can pursue many young investors.

4. Savings is not a kind of investment; some people think otherwise.

5. Various platforms are available with government security.

VII.   CONCLUSION

There are many safe and risk-free investment avenues available for the undergraduate students, this particular research paper focused on the platforms available to them with a minimum amount to invest.

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2. https://www.policybazaar.com/life-insurance/investment-plans/best-investment-options-in-india

3. International Journal of Management and Commerce Innovations ISSN 2348-7585 (Online) Vol. 8, Issue 1, pp: (16-22), Month: April 2020 - September 2020, Available at: www.researchpublish.com Page | 16 Research Publish Journals A STUDY ON INVESTOR'S PREFERENCE TOWARDS DIFFERENT INVESTMENT AVENUES SPECIFICALLY IN BARDOLI REGION.

4. © 2018 IJRAR September 2018, Volume 5, Issue 3 www.ijrar.org (E-ISSN 2348-1269, P- ISSN 2349-5138) IJRAR190E017 International Journal of Research and Analytical Reviews (IJRAR) www.ijrar.org 82 Emerging Investment Avenues – A Conceptual Framework.

CORPORATE SOCIAL RESPONSIBILITY
GOOD AND FAIR SOCIETY

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ABSTRACT

Globalisation has made the world shrink in economic terms. It gave immense freedom to trade, movement, provide services and enhance the economy of a nation- Technology, Communication network and Internet access, Growth of economic cooperation and Movement of free trade. Thus generating opportunities that can generate growth, jobs and prosperity, however all these come with its own aspects of risk. Although there are positive sides of growing market economies but historically the corporate business houses do have the record of participating in major human rights abuses.

Enterprises can affect the human rights of their employees, their customers, workers in their supply chains or communities around their operations. Experience shows that enterprises or corporations or business houses can and do infringe human rights, where they are not paying sufficient attention to this risk of human rights violation and how to reduce it.

Nevertheless, several companies started approaching social issues through their selective involvement of corporate social responsibility (CSR) programmes, these initiatives were undertaken selectively, based on what the company voluntarily chose to address arguing that CSR initiative is one of the noblest thing which they can do. On the contrary a human rights approach requires companies to respect all human rights; they do not have the option of picking and choosing to deal with only those issues which they feel comfortable.

Human rights framework provides a universally recognized, people-centred approach to companies' social and environmental impacts. The current paper deals with three important issues, firstly CSR of human rights is just not only philanthropy which companies claim to be doing a noble thing but beyond that they do have other obligations due diligence which cannot be neglected. Secondly human rights impacts the responsibility and obligation of the companies in the light of international standards. Finally the study focuses on the implementation of CSR in the India from philanthropic approach to statutory compulsion

Keywords: globalisation, companies, human rights, corporate social responsibility, due diligence.

I.   INTRODUCTION

Globalisation is multifaceted[1], however the dominating character is associated with the speed of growth of economy, and the economic transaction across the world crossing all boundaries and territories, bringing with it the vast technological approach and liberalisation, accumulating wealth thus helping economic growth. The down side of the growth of globalisation was that the economic interest took over the human rights and basic fundamental rights, and this had seriously affected the society at large. Economic issues affected the social, cultural and political aspects of a nation, causing a broken society and despair, where the fault lines appeared in class discrimination, gender discrimination, widening gaps between the rich and the poor.

II.   EMERGENCE OF CORPORATIONS AND GLOBALISATION

The emergence of Globalisation saw the emergence of Transnational corporations (TNC) and multinational corporations (MNC) entering the boundaries of the developing and the under developed nations with promises of economic growth, significantly effecting the human rights of the people of those nations. With the concept of maximising profits by the TNC's and MNC's human rights took a back seat. Therefore it can be understood that there is a direct link between business and human rights. Mary Robinson, UN Commissioner, was one's asked 'why business cares about human rights?' she answered 'business needs human rights and human rights needs business'[2]. The understanding of her statement is that every employer to succeed in business need to respect fundamental rights and if he does not respect that individual or community where the business is carried out he cannot flourish as he will lose his reputation and suffer in business[3].

So the point to ponder is how the business upholds its reputation and escapes from the negative impacts that comes as part of globalised economy/ economic globalisation. Therefore they (MNC's and TNC's) need to come up with a code of conduct[4] to carry out trade in the globalised economy and stream line the impacts that comes with its inception. It needs to prove time and again that they are socially responsible. Other than this the other aspect is to make business responsible by legally binding them. The imposing of obligation to

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[1] Mr. Nisar Mohammad bin Ahmad, The Economic Globalisation and its Threat to Human Rights",International Journal of Business and Social Science Vol. 2 No. 19 [Special Issue - October 2011]
[2] Mary Robinson, "The business case for human rights", in Financial Times Management, Visions of Ethical Business (London: Financial Times Professional, 1998). p. 14
[3] Mr. Nisar Mohammad bin Ahmad, The Economic Globalisation and its Threat to Human Rights",International Journal of Business and Social Science Vol. 2 No. 19 [Special Issue - October 2011]
[4] Ibid

safe guard the human rights and fundamental freedom, there raises yet another argument that the responsibility to safe guard the human rights and fundamental freedom is the duty of the State and only the state, secondly it is the state that has its control on the TNC's or the MNC's that is doing business in that particular vicinity. There rises another argument that when state has the control over the private entities in regards the business it is the duty of the state to safeguard the human rights and fundamental freedoms of its people from these private entities[5]. The gap widened between the developed states and the developing and under developed states, because the MNC's and TNC's dictated their terms of economy for these developing and under developed nation, they became the law makers and exploited the resource of the nations in the name of helping to improve their GDP or helping them to tackle various aggression towards their governments. In the process conducted gross violations of human- murder, disappearance of people, forced displacement , employing child labour, causing inhuman conditions of labour, slavery, forced and bonded labour, exploitation of environment, effecting right to food, shelter, education and health.

III.   SOFT LAWS

The soft laws under the international law are non-binding on the corporations, like the ILO Tripartite Declaration of Principles and the OCED Guidelines on Multinational enterprises and social policy, the Global Impact. Even if the corporations decide to follow them as code of conduct as a desired behaviour[6], during the appraisal of these corporations it is realised that they have no direct responsibility or a binding obligation, though they can become customary international law. The conventions that can control the conduct of the corporations such as the 1998 Council of Europe Convention on the Protection of the Environment through Criminal Law, OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, and the UN Convention on the Suppression of the Financing of Terrorism may be regulated by international law, however they are not obligated to control.

These treaties do not impose obligations directly on corporations. Because though they are part of international law it is for the state to follow and impose upon the corporation which become domestic in nature. Giving more responsibility to the States rather than the corporations. Again liability can be brought upon only in individual capacity rather than on a

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[5] Janet Dine, "Companies, International Trade and Human Rights". Cambridge University Press (2005), p. 168
[6] S. R. Ratner, 'Corporations and Human Rights: An Theory of Legal responsibility', 111 Yale Law Journal (2001-2002), p. 486.

corporation. As in the case of committing a tort by the corporation, it is not liable under international law rather held liable under the Alien Torts Law, but that again converted to domestic approach on the corporation, but in the case of Kadic v. Karadzic[7] a criminal approach for crimes under international law, as Karadzic was sued for genocide, war crimes and crimes against humanity[8] in his individual capacity not the corporation.

PROFESSOR JOHN RUGGIE

It was Professor John Ruggie, Special Representative of the United Nations endorsed the Guiding Principles on Business and Management in 2011[9], to the United Nations Human Rights Council. Prof John Ruggie made an in-depth research and in consultation with various parties such as the government, business, stakeholder and investors, civil societies, communities and effected individuals put out that to bring out- Protect, Respect and Remedy Framework. This laid emphasis on both the business and State that, firstly State's duty to protect the Human Rights, secondly Corporation needs to respect this human rights and finally provide access to remedy for those whose victims' rights that have been infringed due to business related abuse. The UN Working Group (UNWG), encouraged all states to adopt a National Action Plan (NAP) to implement the guiding principles.

IV.   INDIA AND HUMAN RIGHTS LAWS

India being a signatory to the International treaties is mandated as per Article 51 of the Constitution to make laws as per the binding effect of the international treaties, thus imposing obligations upon corporations as per the UN guiding principles of Prof John Ruggie[10]. Duty to protect comes from the various international instruments to which India is a signatory. India is a signatory to conventions–International Covenant on Civil and Political Rights (ICCPR) and International Covenant on Economic, Social and Cultural Rights (ICESCR), Geneva Convention,   Convention on the Prevention and Punishment of the Crime of Genocide 1948, International Convention on the Elimination of All Forms of Racial Discrimination 1965, Convention on the Elimination of All Forms of Discrimination against Women 1979 (CEDAW), Convention on the Rights of the Child 1989, Convention on the Rights of Persons with Disabilities 2006 (CRPD), Optional Protocol to the Convention on the Rights of the Child on the Involvement of Children in Armed Conflict 2000, Optional

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[7] A. Clapham, Human Rights Obligations of Non-State Actors (Oxford: Oxford University Press, 2006), p246
[8] ibid
[9] The Corporate Responsibility to Respect Human Rights, an Interpretive Guide, United Nations New York and Geneva, 2012
[10] The Corporate Responsibility to Respect Human Rights, an Interpretive Guide, United Nations New York and Geneva, 2012.

Protocol to the Convention on the Rights of the Child on the Sale of Children, Child Prostitution and Child Pornography 2000, Forced Labour Convention 1930, Equal Remuneration Convention 1951, Abolition of Forced Labour Convention 1957, Discrimination (Employment and Occupation) Convention 1958[11], are some of the international instruments which India has signed to safeguard the rights of its citizens from human rights violations by corporations and by itself.

There are ways when these corporations have been punished by the public who boycotted their products which have been manufactured by gross violations of human rights, or even conducted rallies asking the corporation to wind up and leave the country.

V.   HUMAN RIGHTS VIOLATIONS IN INDIA BY CORPORATIONS

Some of the violations conducted by the corporations in India are: Bhopal gas disaster[12] on 3rd December 1984, violation of human rights and environmental damage, legal battles still continues even after 39 years in both Indian and USA courts; Enron's Dabhol[13] in 1990, power plant project in Maharashtra, alleged for corruption and violation of human rights where the government was complicit with corporation; Coca Cola bottling plant in Plachimada, Kerala[14], criticism against the corporation for extracting more ground water thus effecting the wastage and shortage of underground water and causing environmental pollution; Vedanta's Indian subsidiaries[15](Uk) in collaboration with Odisha Mining Corporation that violated the rights of the tribals on the Niyamgiri hills which was considered sacred by the tribes, and caused their eviction; Pohang Steel Company [16](POSCO) a South Korean MNC in 2005 in the state of Odisha human rights violations was caused during the signing of the   MOU, caused   displacement of tribal people and also conducted environmental pollution and ecological sustainability, and many more.

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[11] Surya Deva, Background Paper for India's National Framework on Business and Human Rights, Ethical Trading Initiative, Respect for Workers Worldwide.

[12] See, for details, Amnesty International, Clouds of Injustice: Bhopal Disaster 20 Years On (London: Amnesty International, 2004); Surya Deva, Regulating Corporate Human Rights Violations: Humanizing Business (London: Routledge, 2012).

[13] See, for details, Human Rights Watch, The Enron Corporation: Corporate Complicity in Human Rights Violations (New York: Human Rights Watch, 1999)

[14] Perumatty Grama Panchayat vs State Of Kerala on 16 December, 2003

[15] 6 See Surya Deva, 'Development, Sovereign Support to Finance and Human Rights: Lessons from India' in Juan Pablo Bohoslavsky and Jernej Letnar Černi (eds.), Making Sovereign Financing and Human Rights Work (Oxford: Hart Publishing, 2014) 289

[16] Norwegian NCP publishes final statement in POSCO/ NBIM case' (27 May 2013), http://oecdwatch.org/ news-en/norwegian-ncp-publishes-final-statement-in-posco-nbim-case; 'Publication final statement POSCO, a.o. - Lok Shakti Abhiyan, a.o.' (18 September 2013), http://www.oecdguidelines.nl/latest/news/2013/9/18/ publication-final-statement-posco-a.o.---lok-shakti-abhiyan-a.o

VI.   ISSUES THAT RAISE CONCERNS: Concerns of CSR in Business Operations Requirement of Corporate Accountability- Make Responsible Business—Create Shared Value—It is Beyond Philanthropically Approach—Sustainability.

Historically it has been proved human rights violation by Corporations in insurgencies and wars--- Companies profited from slavery and the slave trade--Providing Goods and services to Nazi Germany that enabled war crimes and crimes against humanity--Forced Labour in Asia during World War II- Selling to the Apartheid Government in South Africa Military governments in Latin America products that they used in perpetrating abuses.

Violation of Human Rights of Labourers—Discrimination in employment—long Working Hours and les or no Wages—Poor or no concerns of Industrial health and safety—No Prohibition of child labour –No prohibition of forced labour

Human rights violations—Property rights—Freedom to expression and to form associations/unions—Right to health—Sexual harassment –Rape and Torture—Privacy—displacement of indigenous people.

Environmental Concerns—Pollution of clean drinking water—Air pollution—Water pollution—Injurious material used in Packaging —Climate change--In 2007, the International Panel on Climate Change (IPCC) concluded that the Earth's surface has warmed .74° C since pre-industrial times and that half of this warming has occurred since 1970

Many Dimensions of Ethical Business Practices-- Product Quality, Product Safety-- Avoiding Misleading Advertising-- Avoiding Corrupt Business Payments

Many areas are of interest in addition to generic problems of misleading or offensive ads, for instance--The Marketing and Advertising of Alcohol--The Marketing and Advertising of Cigarettes--The Marketing And Advertising Of Fashion Items--The Marketing and advertising of toys

Corruption Reduces Economic Growth--Corruption reduces Government Revenue and also Misallocates Scarce Resources--Corruption Violates Human Rights--The human rights consequences of corruption are widespread. First of all, corruption represents theft from a country's revenue which is devoted to development. For instance, it represents losses to health care and to education. Additionally, a country with widespread corruption is typified by other human rights violations involving murder, torture, violation of fair trial rights, and denial of other basic rights such as privacy and freedom of expression. Corrupt Governments have to deny basic rights in order that corruption can thrive

VII.   IMPLEMENTATION OF CSR BACKED BY LEGAL SANCTIONS

Therefore CSR does not concern a single issue; rather, it truly concerns a broad range of quite distinct issues. **Adoption of CSR in Business Operations and the Need for Law to implement CSR is the need of the hour.**

The Philanthropic Approach—setting up of Schools and Universities--Hospitals—Funding Research on social problems, Disease etc., may be considered but the damage is way beyond and the corporations cannot be given an option to do activities to their interest because it would lead to voluntarism and confusion.

It is important that Business leaders are given obligations with clear rules. UNIDO[17] adopted the Triple Bottom Line (TBL) Approach in applying CSR. This approach helps developing nations to set bench mark to corporations to meet social and environmental standards and also remain competitive in the market. The TBL helps the corporations to attain sustainable goals of development being in line with competitive market, minimize its negative impact and at the same time fulfil the social norms of responsibility towards the society at large.

The Indian government adopted the CSR Voluntary Guidelines in 2009[18], Preamble emphasised that

> *CSR is not philanthropy and CSR activities are purely voluntary- what companies will like to do beyond any statutory requirement or obligation. Businesses are an integral part of society, and have a critical and active role to play in the sustenance and improvement of healthy ecosystems, in fostering social inclusiveness and equity, and in upholding the essentials of ethical practices and good governance. This also makes business sense as companies with effective CSR, have image of socially responsible companies, achieve sustainable growth in their operations in the long run and their products and services are preferred by the customers[19], .It is of the greatest possible importance to encourage companies and consumers to take their carbon emissions into account when pursuing their activities*

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[17] https://www.unido.org/our-focus/advancing-economic-competitiveness/competitive-trade-capacities-and-corporate-responsibility/corporate-social-responsibility-market-integration/what-csr, Visited On 6.5.2023 at 5.20pm

[18] Corporate Social Responsibility Voluntary Guidelines 2009, India Corporate Week Dec.14-21,2009, Ministry of Corporate Affairs , Government of India, Published by Ministry of Corporate Affairs, Government of India, New Delhi.

[19] Ibid

VIII.   CORE ELEMENTS

1. Care for all Stakeholders: 2. Ethical functioning 3. Respect for Workers' Rights and Welfare: 4. Respect for Human Rights: 5. Respect for Environment: 6. Activities for Social and Inclusive Development:

To fulfil the above, The Companies Act 2013 that replaced the Companies Act of 1956 on 29th August 2013, a new chapter on CSR was initiated under the Companies Act 2013 that mandated the submission of CSR Report. Section 135 of the New Act added clause on Corporate Social Responsibility obligations ("CSR") for those companies operating in India. The section lays down the essential prerequisites pertaining to the execution, fund allotment and reporting for successful project implementation[20], thus making India the first nation to legislate law for imposing CSR policy upon Corporations.

Schedule VII lays down the activities that can be considered by companies as CSR, they are:

(i) Eradicating hunger, poverty and malnutrition, 'promoting health care including preventinve health care and sanitation including contribution to the Swach Bharat Kosh set-up by the Central Government for the promotion of sanitation and making available safe drinking water.

(ii) promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly and the differently abled and livelihood enhancement projects.

(iii) promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centres and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups.

(iv) ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air and water including contribution to the Clean Ganga Fund set-up by the Central Government for rejuvenation of river Ganga.

(v) protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries; promotion and development of traditional art and handicrafts;

(vi) measures for the benefit of armed forces veterans, war widows and their dependents;

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[20]Corporate Social Responsibility (CSR) in India, https://csrcfe.org/about-csr-in-india-public-policy/, visited on 18.05.2023, at 0.50 hrs.a

(vii) training to promote rural sports, nationally recognised sports, paralympic sports and olympic sports

(viii) contribution to the prime minister's national relief fund or any other fund set up by the central govt. for socio economic development and relief and welfare of the schedule caste, tribes, other backward classes, minorities and women;

(ix) Contribution to incubators funded by Central Government or State Government or any agency or Public Sector Undertaking of Central Government or State Government, and contributions to public funded Universities, Indian Institute of Technology (IITs), National Laboratories and Autonomous Bodies (established under the auspices of Indian Council of Agricultural Research (ICAR), Indian Council of Medical Research (ICMR), Council of Scientific and Industrial Research (CSIR), Department of Atomic Energy (DAE), Defence Research and Development Organisation (DRDO), Department of Biotechnology (DBT), Department of Science and Technology (DST), Ministry of Electronics and Information Technology) engaged in conducting research in science, technology, engineering and medicine aimed at promoting Sustainable Development Goals (SDGs).

(x) rural development projects

(xi) slum area development.

Explanation.- For the purposes of this item, the term `slum area' shall mean any area declared as such by the Central Government or any State Government or any other competent authority under any law for the time being in force.

(xii) disaster management, including relief, rehabilitation and reconstruction activities[21]

IX.   CONCLUSION

Thus the properly implementation of CSR concept can bring a variety of competitive advantages, like enhanced access to capital and markets and its visibility, increased sales and profits, operational cost savings, improve productivity and quality, provide efficient human resource base, improve brand image and reputation, enhanced customer loyalty, better decision making and risk management processes.

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[21] Ibid

MANAGEMENT

IMPACT OF SOCIAL COMMERCE
ON CONSUMER BUYING PATTERN

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ABSTRACT

Social commerce refers to the usage of social media platforms like Instagram, Metaverse, Snapchat and so on to facilitate online purchases. It also includes the role of social influencers. This paper gives special reference to influencers on social media only.

Keywords: Social commerce, Social influencers, Consumer interest, Buying pattern, Decisive potency, Conclusive decision.

I.   INTRODUCTION

The term 'Commerce' meaning business has taken new avatars in the current era. The ultimate goal of commerce being connecting with customers and making money has reached new heights with the emergence of the word 'Social Commerce'. Reaching and connecting with not just customers but also with target and non-target community, as a whole has been the agenda of social commerce. Some of the players under this concept are Influencers, Vloggers, Bloggers, and Video Streamers and so on.

In this digital era, consumers are increasingly cautious of their purchases on digital platforms. Social Influencers on the other hand are unhesitant in making complete use of social media platforms. With nearly 80 million content creators in India, we can picturize the trend of influencers' content and its impact on consumers. They are not only giving information but also influencing the purchase pattern of consumers. They not only collect information about a brand, product or service, but also analyse them and take conclusive decisions regarding purchase.

Keywords: Social commerce, Social influencers, Consumer interest, Buying pattern, Decisive potency, Conclusive decision.

II.   STATEMENT OF THE PROBLEM

With an increased number of product and service content creators on social media, consumers find it difficult to assess and take conclusive purchase decisions. The reasons may be due to the accuracy of information, over or under publicity to certain brands, products or services, information overload and so on. This study was conducted to assess and understand the prominent factors causing a stir in the decision making potency of consumers.

III.   OBJECTIVES OF THE STUDY

- To understand both positive and negative impact of social influencers on consumers.
- To analyse which age group and gender, having specific educational qualification and profession, are highly influenced by social influencers.
- To interpret the positive and negative outcome of influencers' content on consumers' buying pattern.

IV.   REVIEW OF LITERATURE

➢ **Wu Y., Nambisan, S., Xiao, J., et al**. Consumer Resource Integration and Service Innovation in Social Commerce: The Role of Social Media Influencers. J. of the Acad. Mark. Sci. 50, 429-459 (2022).
This paper studies the emerging roles of social media influencers in service innovation. It says that influencers are both communicators and innovators. The paper explains how social media technology can be incorporated with businesses to achieve innovative and profitable outcomes. This paper is a study purely on technology integration with social media in service innovation.

➢ **Yoonaisil, T., Protopapa, I., Montecchi, M.** (2023). The Influencing Factors of Social Presence on Loyalty in Social Commerce: Mediating Role of Trust and Customer Satisfaction: An Anstract. In: Jochims, B., Allen, J. (eds) Optimistic Marketing in Challenging Times: Serving Ever-Shifting Customer Needs. AMSAC 2002. Developments in Marketing Science: Proceedings of the Academy of Marketing Science. Springer, Cham.
This paper has examined the effects of social presence on consumers' loyalty in social commerce. This paper has stressed on social presence theory. It considers two main variables such as social presence of other buyers and social presence of interaction with sellers. This paper focuses on consumers' trust.

➢ **Burklin, N., Henninger, C.E., Boardman, R. (2019)**. The Historical Development of Social Commerce. In: Boardman, R., Blazquez, M., Henninger, C.E., Ryding, D. (eds) Social Commerce. Palgrave Macmillan, Cham.
This paper is based on a literature review with an aim to depict historical evolvements of social commerce. This paper give implications to marketing managers. This paper collaborates the ideas of social commerce through computer sciences, information technology, marketing, and communications. The paper gives implications for strategic use of social commerce.

➢ **Alam F, Tao M, Lahuerta-Otero E and Feifei Z (2022)** Let's Buy With Social Commerce Platforms Through Social Media Influencers: An Indian Consumer Perspective. Front. Psychol. 13:853168. doi: 10.3389/fpsyg.2022.853168
This paper uses PLS-SEM (Partial Least Square – Structural Equation Modelling) to study customer trust and s-commerce intentions. It also studies Indian social media influencers and s-commerce intentions and their importance for boosting buyer's purchase decision. The paper has concluded by suggesting various managerial actions that could enhance the value of s-commerce for franchises, executives, e-retailers and e-marketplaces.

➢ **Wang, P. and Huang, Q. (2023)**, "Digital influencers, social power and consumer engagement in social commerce", Internet Research, Vol. 33 No. 1, pp. 178-207.
This paper has attempted to understand and explain the role of digital influencers and their impact on consumer engagement and purchase behaviour in online social media platforms. It also focuses on the theories of social power and social. The findings of the paper contributes to community managers, users who pursue popularity and companies who targets business goals.

V.   RESEARCH METHODOLOGY

Sample Size:
- Stratified random sampling method is used for data collection.
- Primary data in the form of closed-ended questionnaires using google forms are used to collect data from 150 heterogenous respondents belonging to different age, gender, income, education and occupation in Bengaluru North.
- Papers published by research scholars, YouTube content and newspaper articles are few of the sources of secondary data.

Scope:
- The study considers influencers from across all social media platforms like Instagram, Metaverse, YouTube, Twitter and so on.
- The study gives a picture of various parameters and variables affecting the decisive potency of consumers.

Limitations:
- The study uses stratified random sampling, and therefore does not cover the entire population.
- This study is not restricted to a single social media platform or any influencers in particular.
- This study is conducted only in Bengaluru North region. Hence, it does not give inferences to the entire country.

VI.   ANALYSIS & INTERPRETATION

Table No. 1: Table showing Age profile of respondents:

18-20	53	35.3333%
21-30	77	51.3333%
31-40	12	8%
41-50	5	3.3333%
>50	3	2%
Total	150	100%

Interpretation: From the above table, it is observed that maximum number of respondents belong to the group 21-30 accounting to 51.33%.

Table No. 2: Table showing Educational qualification of respondents:

SSLC / 10th	1	0.6667%
PUC / 12th	23	15.3333%
Diploma	4	2.6667%
Degree / Graduation	72	48%
Post Graduation	45	30%

Professional course	5	3.3333%
Total	150	100%

Interpretation: From the above table, we can say that graduates have responded the most to the study with a count of 72 out of 150 (48%).

Table No. 3: Table showing Profession / Occupation of respondents:

Student	104	69.3333%
Employed	30	20%
Self-employed	5	3.3333%
Professional	11	7.3333%
Total	150	100%

Interpretation: From the above table, it is observed that students have responded more as compared to other profession respondents.

Table No. 4: Table showing Income level of respondents:

Nil	90	60%
<10,000	13	8.6667%
10,001-20,000	12	8%
20,001-30,000	13	8.6667%
30,001-40,000	9	6%
40,001-50,000	5	3.3333%
>50,000	8	5.3333%
Total	150	100%

Interpretation: From the above table, it is observed that respondents with NIL income have responded more to the study with a statistic of 60% as compared to other income level respondents.

Table No. 5: Table showing awareness of social influencers to respondents:

Yes	118	78.6667%
No	32	21.3333%
Total	150	100%

Interpretation: From the above table, it is observed that majority of the respondents are aware of social influencers in social media.

Table No. 6: Table showing the excitement of respondents to follow influencers on social media:

Yes	72	48%
No	78	52%
Total	150	100%

Interpretation: From the above table, it is evident that majority of the respondents are not following influencers on social media.

Table No. 7: Table showing the discounts or offers received by respondents referring influencers' description link:

Applied but not received discounts	12	8%
Applied and received discounts	14	9.3333%
Not applied any coupons or offers	124	82.6667%
Total	150	100%

Interpretation: From the above table, it can be analysed that 82.6667% (majority) respondents have not applied any coupons or offers and have not availed any discounts in spite of being aware of them.

Table No. 8: Table showing the accuracy of information given by influencers:

Always	13	8.6667%
Most of the time	32	21.3333%
Sometimes	66	44%
Never	39	23%
Total	150	100%

Interpretation: From the above table, it is observed that 44% respondents feel the accuracy of information given by influencers are sometimes/rarely correct.

Table No. 9: Table showing the encouragement of influencers' attractive content in making unnecessary purchases by respondents:

Always	16	10.6667%
Most of the time	28	18.6667%
Sometimes	70	46.6667%
Never	36	24%
Total	150	100%

Interpretation: From the above table, it can be said that 46% respondents are rarely / sometimes encouraged by influencers' attractive content to make unnecessary purchases.

Table No. 10: Table showing respondents' frequency of content-reference before making purchase decision:

Always	12	8%
Often	18	12%
Sometimes	67	44.6667%
Never	53	35.3333%
Total	150	100%

Interpretation: From the above table, it is observed that majority of the respondents are rarely / sometimes refer influencers' content before making any purchases.

Table No. 11: Table showing respondents' change in buying decision from 'Yes to No' or 'No to Yes':

Yes	39	26%
No	52	34.6667%
Rarely	59	39.3333%
Total	150	100%

Interpretation: From the above table, it is observed that majority of the respondents rarely change their buying decision from 'Yes to No' or 'No to Yes'.

Table No. 12: Table showing respondents switching brands after viewing influencers' content:

Yes	43	28.6667%
No	59	39.3333%
Rarely	48	32%
Total	150	100%

Interpretation: From the above table, it can be observed that majority of the respondents rarely switch to other brands after viewing influencers' content.

Chart No. 1: Chart showing Respondents' ability to track information accuracy based on their educational qualification:

Respondents' ability to track information accuracy based on educational qualification
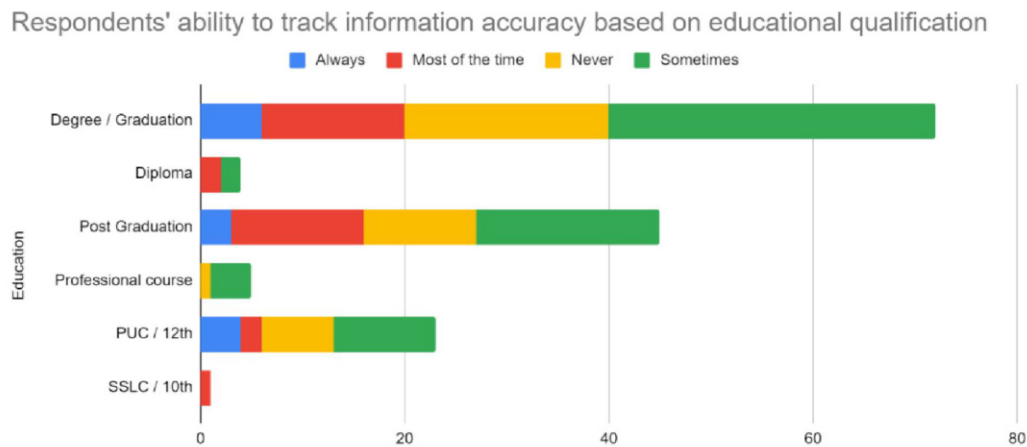
Interpretation: From the above chart, it is evident that Graduates have given maximum response to the study. And they have also showed immense analysing ability when it comes to tracking information accuracy of influencers' content. Graduates have felt that influencers rarely or sometimes provide accurate content. Educating consumers is the key to assess and analyse innovation in any sector.

Chart No. 2: Chart showing respondents' frequency in referring influencers' content before purchase based on their awareness of influencers on social media:

Respondents referring influencers' content before purchase based on their awareness
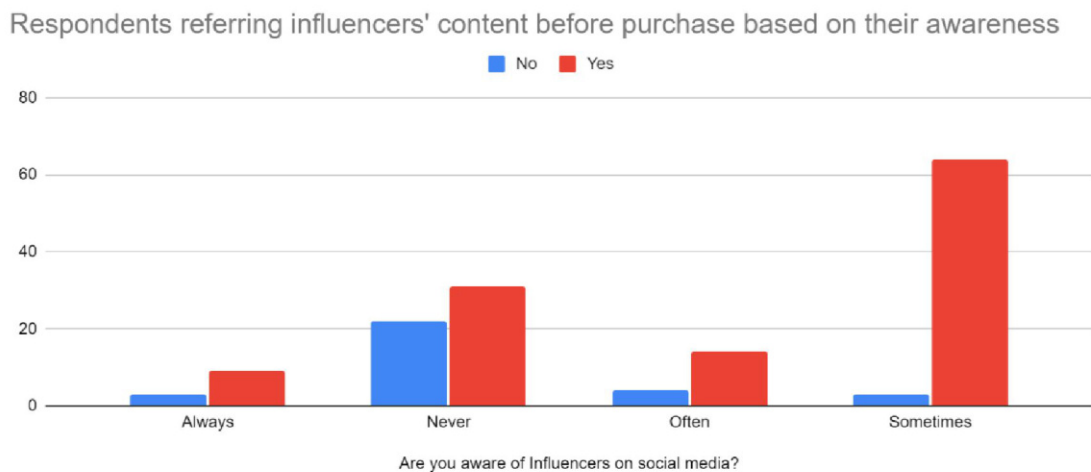
Interpretation: From the above chart, we can say that majority of the respondents are aware of influencers' on social media, but it is also evident that only 'Sometimes/rarely' they refer influencers' content before making any purchases. The 2nd most statistic records reveal that even though consumers are aware of influencers, they would never want to refer them for making purchases. This might be due to information overload, inaccurate information, unattractive content, lack of simplicity in content, confusion and so on.

Chart No. 3: Chart showing respondents switching to other brands based on influencers' content:

Respondents switching to other brands based on influencers' content
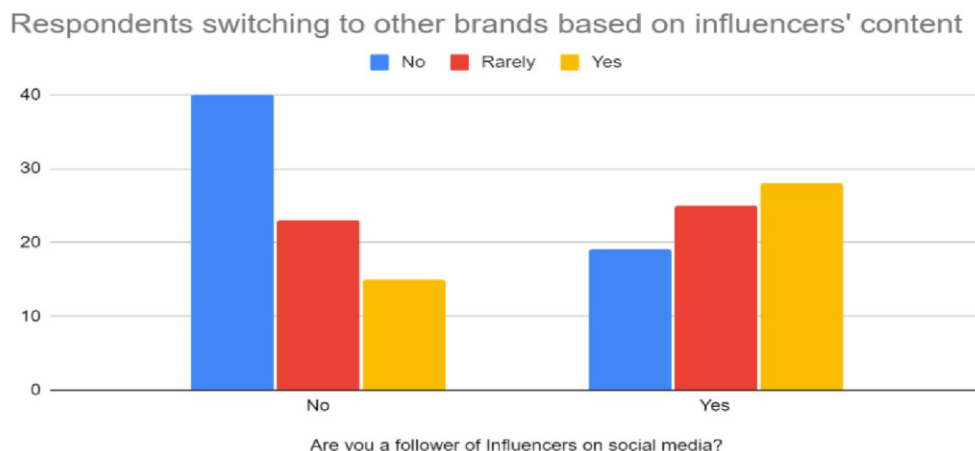
Interpretation: From the previous and the above chart, it is evident that even though many respondents are aware of influencers on social platforms, many don't follow them and neither are they switching to other brands based on their content which is a positive effect on companies, brands and their products / services.

VII.   FINDINGS

1. It is found from the study that even though majority of respondents are educated (graduates-48%) and belong to young age group of 21-30 (51.3333%), they are still hesitant to follow the influencers. This might be due to the accuracy level of information given, attractiveness of content, overload of information, exaggeration of content, confusions created by various influencers on the same content and so on.

2. It is observed from the study that majority of respondents are students (69.3333%) with Nil income category (60%), yet most of them are influenced to buy unnecessary products or services after viewing influencers' content. This can be interpreted that due to poor financial planning respondents might end up in financial distress in the long run.

3. It is understood from the above analysis that even though 78.6667% of respondents were aware of influencers, many of them (52%) are hesitated to follow them and apply their offers or discounts. The main reason may be due to the lack of trust on influencers and their content based on past experiences.

4. Majority accounting to 44% respondents rarely feel the accuracy exists in their content and 44.6667% rarely refer them for making purchases. This may be due to poor / satisfactory research practices of influencers because of which consumers are left confused.

5. It is evident from the above study that 39.3333% of respondents rarely change their decision to purchase from 'Yes to No' or 'No to Yes' and the same statistic tells that respondents do not switch brands based on influencers' content. This may be due to customer loyalty and brand satisfaction which the influencers are unable to break (some of them being paid influencers to promote a brand, product or service).

VIII.   RECOMMENDATIONS

1. It is advisable for the influencers to check the accuracy of their content before going online.
2. Building loyalty on social media is a challenging job which the influencers must focus on.
3. Consumers are advised to recheck the accuracy of content before making any purchase which would avoid unnecessary purchases and confusions.
4. Influencers are suggested to make quality content and not quantity based on deadlines of number of posts. This would enhance consumer interest in referral of content while making purchases.
5. Consumers are suggested to go through time saving contents which are not only attractive but also effective in giving what is required instead of long duration contents.

IX.   CONCLUSION

To conclude, the study was able to reveal that even though our country has around 80 million influencers on social media, many have failed to reach consumers the right way. Especially in a market like India, consumers expect accuracy of information, no exaggeration of content, neutral or unbiased publicity to brands, straight to the point contents, and many such factors. This was a successful study which has helped in bringing out both positive and negative factors influencing consumer buying pattern with special reference to social influencers.

X.   REFERENCES

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A STUDY ON EMPLOYEE WELL-BEING AS AN IMPORTANT ASPECT IN AN ORGANIZATION - AN EMPLOYEE PERSPECTIVE

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ABSTRACT

After nearly two years of constant disruption, fatigue is a real contributing factor to employee churn and decreased engagement. Employers need to listen to their employees and implement initiatives that help take care of employees, and these initiatives should be based on the needs that the employees themselves express. If employers want to retain their best talent and keep staff engaged and excited about their work, they can no longer afford to ignore their workforce. Covid-19 measures will impact these themes in various ways. For example, if an organization's hybrid working policy doesn't fully support employees when they're working from home, retention will decrease. Missing out on the office environment and being at home more may cause some employees to experience mental health issues and burnout. This research brings out the importance of employee well-being from employees' perception towards the organization, how this could help the employee remain in the organization, to improve productivity and a few suggestions towards improving the existing work environment.

Keywords: Employee well-being, office environment, retention of employee, work from home.

I. INTRODUCTION

The goal of employee well-being is to promote everyone's health. When discussing healthy and effective persons or workers, it is not just about physical well-being but also other aspects of well-being that cannot be overlooked. In other words, the concept of employee well-being has evolved from the conventional perspective and now focuses on offering employees medical treatment. Employers today are concerned with improving their employees' happiness and health because they are aware of the myriad factors that go into employee well-being. With the current Covid-19 outbreak, employee well-being is more crucial than ever because many organisations have observed the link between employee well-being and performance, and ultimately a successful company. Employers had to discover solutions to meet the growing demands for empathy towards employees since they were frightened and worried.

Companies began to realise that preventing difficulties related to poor employee well-being, such as burnout, stress, or sickness, was more profitable than reacting to all these issues after they had already occurred as a result of decreased absenteeism and healthcare expenditures. Companies started introducing wellness programmes because of their many advantages.

Employee well-being programmes have shown to be economical for employees, notwithstanding their variability in scope and focus. Employees feel more connected, their health improves, and as a result, their happiness rises. All of these factors help to increase employee engagement levels, but employee engagement is also influenced by employee recognition and effective feedback practises.

On the one hand, research indicates that employees who smoke are twice as likely to take time off work and that employees with obesity take three to six more sick leaves yearly than employees who are of normal weight. Employees who manage stress better, on the other hand, are less susceptible to burnout.

Overall, when an employee's well-being is maximised, they are more productive and engaged with their task. We learned how crucial it is to preserve employee morale throughout the Covid-19 crisis. The morale of your employees can be greatly raised by implementing employee well-being programmes like a mental health workshop or a fitness competition amongst departments or teams. To draw in and keep employees, 78% of firms provide wellness programmes. Since there is fierce competition for the greatest talent available, top candidates have several options when selecting their next company. If you want to draw in the top prospects who will guarantee the success of your company's business, it is crucial to offer employee well-being perks that are compatible with your staff.

II.   STATEMENT OF THE PROBLEM

It has been found that well-being can be reliably enhanced drawing on two models - strength & a practice model of psychological assessment.

What impacts employee well-being?

1. Recognizing employee's work - Employees are more content and pleased in their work when their efforts, devotion, and teamwork are recognised. Employee appreciation also fosters a culture of gratitude and has a beneficial impact on productivity. Overall, employee appreciation has the ability to motivate staff and help them understand how important they are to the business.

2. Facilitating seamless communication – The pandemic has caused more work disruptions than ever before for employees. Even while it takes a less intrusive form now than it did during the worst of the pandemic, remote work is here to stay. Employee well-being was in danger in many organisations during crises, but this risk was reduced by effective and prompt communication.

3. Collaboration: For many workers, working on projects in large teams can be stressful. If workers cannot track each other's work or evaluate their contribution to a bigger project concept, it can become irritating and monotonous.

4. Listening to employees: - Employers want to be heard, and when their employees' complaints go unresolved, they begin to feel as though their opinions don't matter. Additionally, giving in to your staff's suggestions and following them might help them feel appreciated in your community.

5. Showing empathy: - Despite the tremendous urge to make the workplace more human, there is no clear guidance on how to demonstrate empathy at work. The transition to workplaces that prioritise their employees' needs over those of customers and employees has already begun.

III.   OBJECTIVES
- To identify how many employees are aware about the employee well-being concept.
- To bring out the effectiveness of employee well-being followed in work environment.
- To observe the various resources provided to the employees to meet their mental health.
- To analyze how good health impacts and contributes to the productivity at work environment.
- To implement employee wellness program at work environment.

IV.   RESEARCH METHODOLOGY
The data is collected through primary sources. The sample size is 112. The employees have responded through the questionnaires provided through the google form.

V.   DATA ANALYSIS AND INTERPRETATION

1. Age group of the respondents
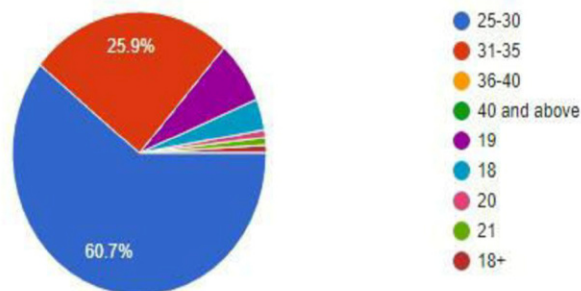
2. **The designation of the respondents include data analyst, financial analyst, accountants, IT professionals**
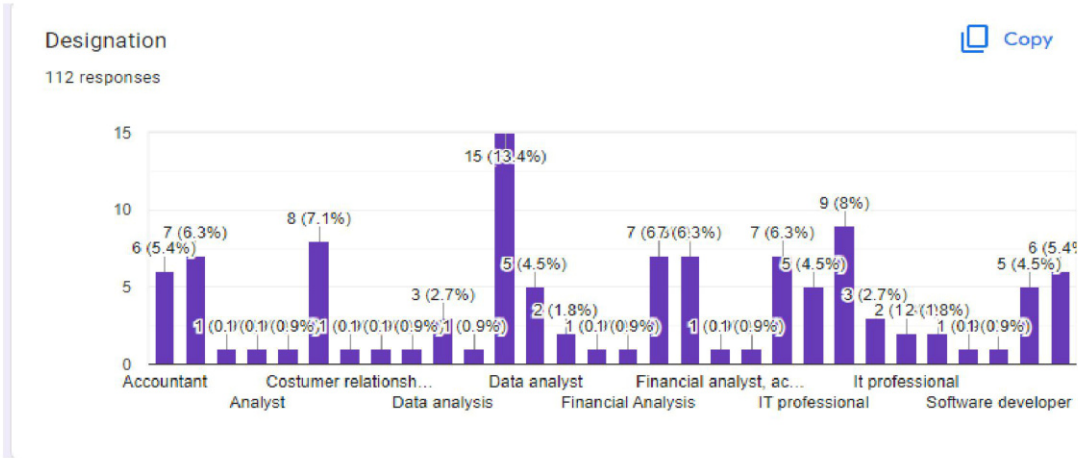
3. **Work experience of the respondents**
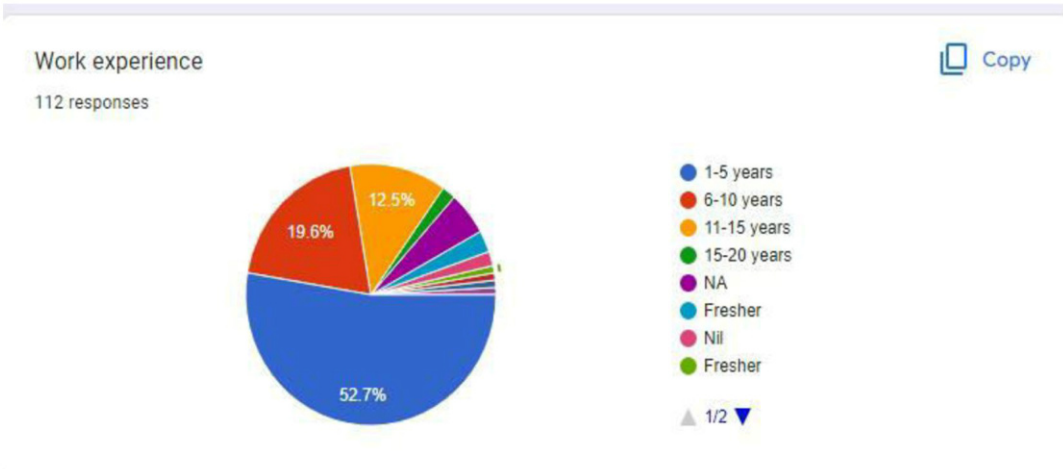
4. **Gender of the respondents**
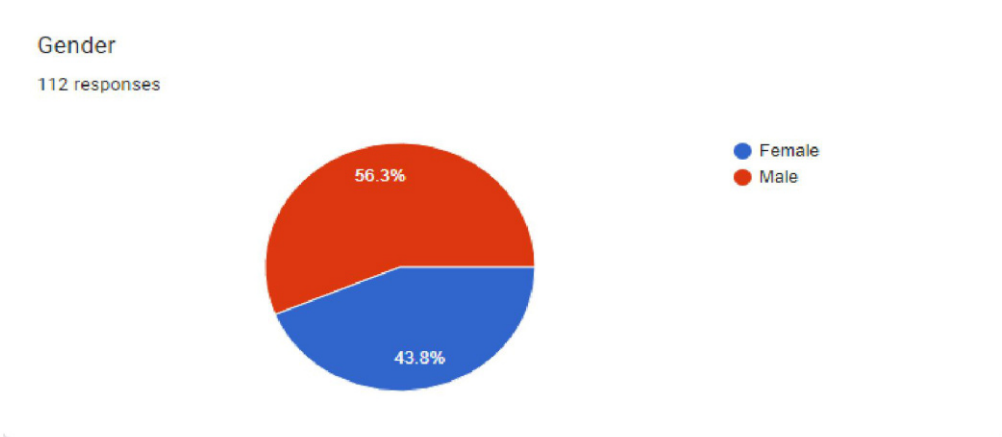
5. How often do the employees take a snack break?

Do you often snack during your work hours?   Copy

112 responses

- Yes
- No
- May be at times
- May at some times I usually get up at early morning 4 am or 5 am to be help to parents apart of ther work so I will be sleepy at Working hours at that I need...
- Maybe at some times I usually get up at early morning 4 am or 5 am to be help to parents apart of ther work so I will be...

40.2% 12.5% 45.5%
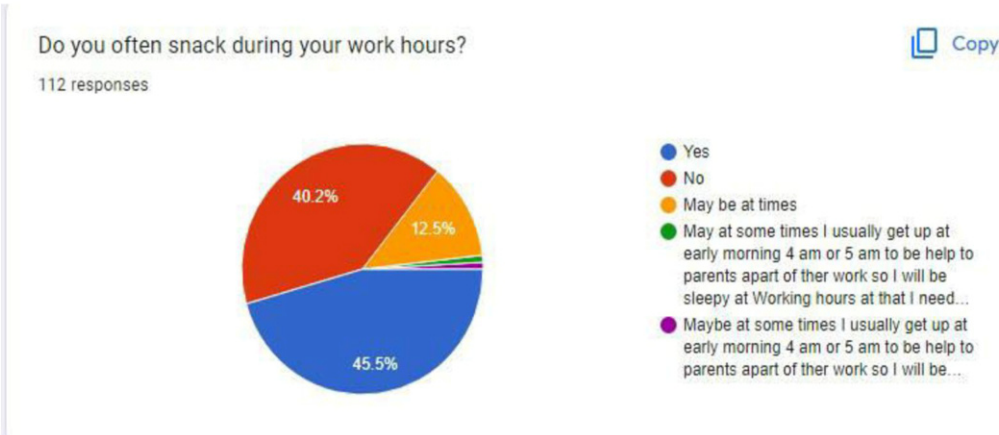
6. Is conducting a wellness program beneficial?

Do you think conducting wellness program during office hours is helpful?   Copy

112 responses

- Yes
- No
- Maybe
- Yes, because of the how the organization will be take care about the employees health and at that time employees with good health have a lo...
- Yes, because of the how the organization will be take care about the employees health and also at that tim...

18.8% 74.1%
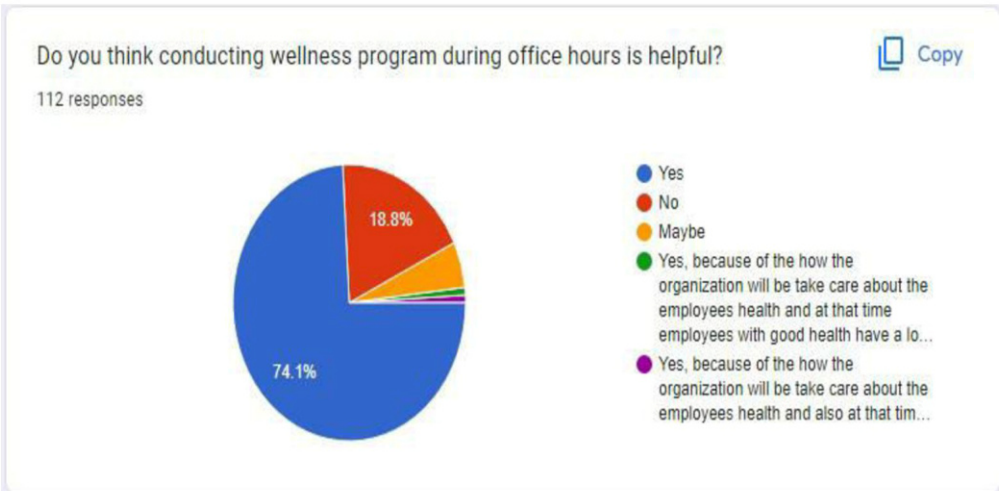
7. How important is employee wellness?

Personally is employee wellness is important to you   Copy

112 responses

- Yes
- No
- Maybe
- Maybe , according to our requirements to improve productivity level
- Maybe , according to our requirements to improve productivity level personally we can take care

20.5% 74.1%
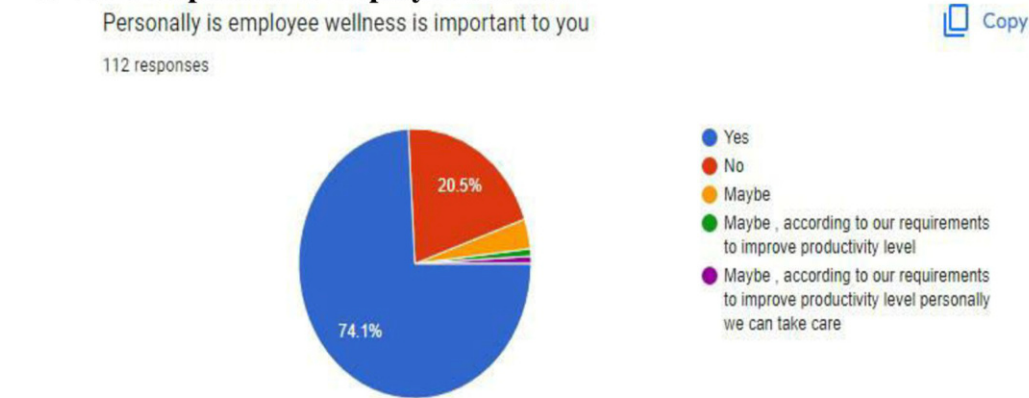
8. **How many employees have invested in health insurance plan?**

Have you invested in a good health insurance plan?

112 responses

- Yes
- No

45.5%

54.5%
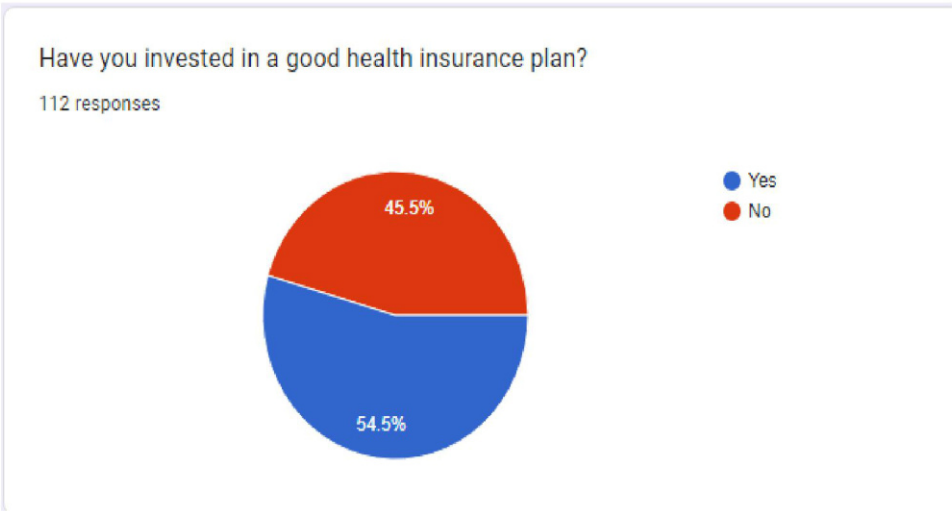
9. **Does an employee exercise regularly?**

Do you follow any exercise or training routine?

112 responses

- Yes
- No
- Yes , I have

35.7%

63.4%

10. **Does work stress affect personal life?**

Do you feel stress from work is affecting your personal life?   Copy

112 responses

- Yes
- No
- No, because when I liked to work I love the what am doing
- No, because If we like to work the we loved to working on it

55.4%

42.9%
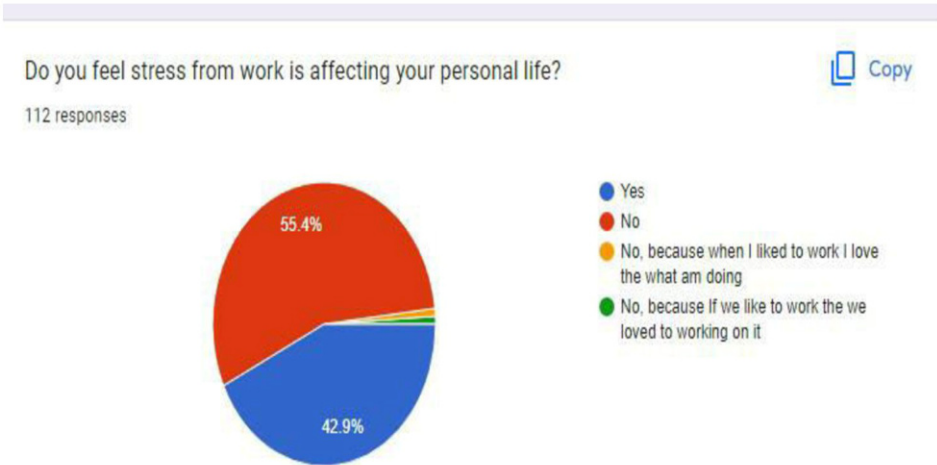
11. Does an employee show interest in attending wellness programs?

Do you think you will be interested in attending a wellness program at work?

112 responses
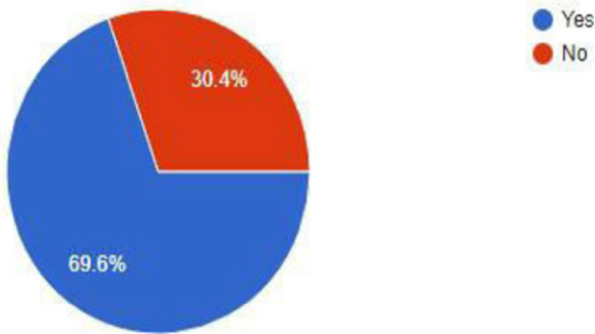
12. How far employees are aware about wellness programs?

Do you think most of the employees are aware about employee well being at organisation?

112 responses

13. Resources available

Does your employer provide sufficient resources to help employees to meet their mental health needs?

112 responses

- Yes
- No
- No idea

26.8%

72.3%
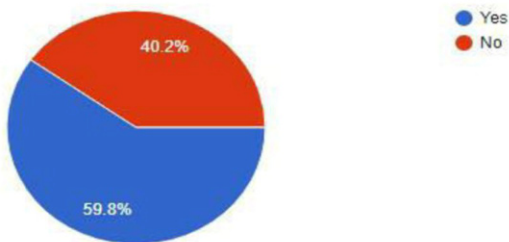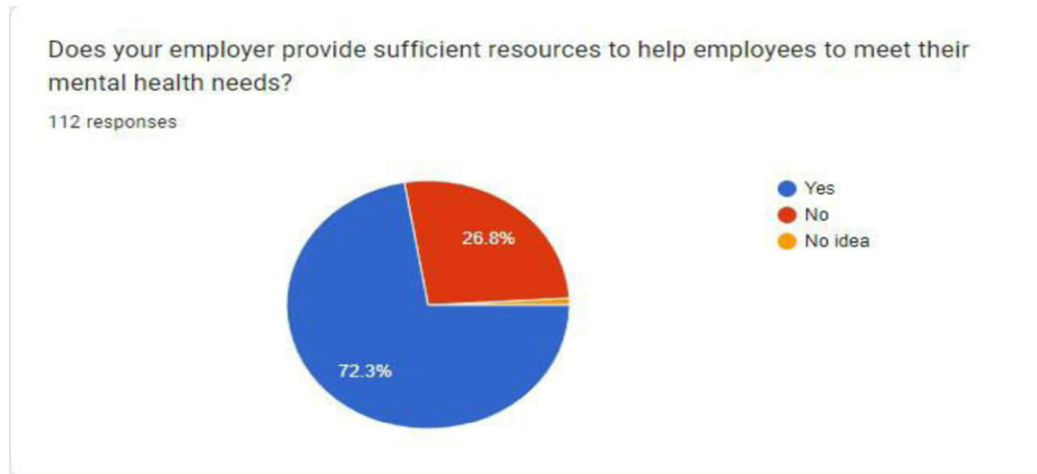
VI.   RECOMMENDATION

1. Offering health screenings to staff once a year is an excellent way for them to address any potential health issues. Moreover it increases the likelihood of preventing disease because it may result in early disease detection.
2. Health insurance is a benefit that a firm should offer to all of its employees, giving them with a variety of plans so they can choose the one that best suits their individual requirements.
3. A gym membership is a fantastic employee bonus that will keep your staff in shape. Going to the gym is a great way to keep the staff healthy and can also help them relieve stress.
4. Introducing fitness programmes like a company-wide jogging or cycling competition is a terrific way to get staff moving while also fostering a sense of teamwork and competition.
5. A lot of workers' poor health is related to their nutrition. Due to the time-consuming nature of meal preparation, many workers choose fast food for lunch. Employees can stay healthy and be more productive at work if employers start offering healthier lunch alternatives in the cafeteria or bargaining with restaurants to offer healthy menu selections.
6. A business can research several mindfulness and meditation apps and recommend them to its staff. Inform them of the advantages of mindfulness and meditation for managing stress in daily life.
7. By providing psychological therapy services, businesses can connect their staff with mental health professionals who can assist them in resolving their problems. There will be less stigma attached to seeking psychological assistance.
8. Employees' ability to combine work and life is improved when employers provide flexible work schedules or remote work opportunities.

VII.   CONCLUSION

Employee well-being should be an important matter for the organization as indicated by its links to employee turnover and performance. Introducing fitness programmes like a company-wide jogging or cycling competition is a terrific way to get staff moving while also fostering a sense of teamwork and competition.

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A STUDY ON LAYOFFS AND ITS VICTIMS
YEAR 2022 ONWARDS

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ABSTRACT

When a worker is laid off, his position is terminated, and they are dismissed without regard to performance or policy violations. The most prominent reason explained previously by researchers regard layoffs in 2022 is, the economic downturn, and the reasons for layoffs in 2023 are cost-cutting, relocation, reduction, and economic recession. This research also includes factors which determine layoffs, and also focuses on the aftermath of layoffs. Individuals' personal opinions and e-sources are used as sources of data.

Keywords: layoff, cost-cutting, economic downturn, recession

I. INTRODUCTION

A layoff means that a position is eliminated by the employer, and the person who held that position will now have to leave. The sudden downsizing of corporate companies has raised concern amongst employees about their job security. The victims are not only affected financially but even affected mentally.

Major companies such as Amazon, IBM, Cisco, Uber, Facebook, Microsoft, and SAP are implementing layoffs and downsizing. During the period of the Covid recession, temporary layoffs contributed to about 11.5% of unemployment, which was the highest since 1967, although the layoffs of 2023 are starting to look much worse.

Corporate employees are not the only ones who are facing the consequences of layoffs, even start-ups such as Meesho, Dunzo, Toppr, Blinkit, etc. are in the same path.

Factors of layoffs include downsizing, right-sizing, and natural attrition.

II. OBJECTIVES OF THE STUDY

- To understand layoffs and their effects on individuals.
- To analyse the expenditure pattern of individuals
- To analyse the recovery period of an individual's employment
- To study the coping mechanism of an individual, due to unemployment, physical and mental activities.

III. REVIEW OF LITERATURE

➢ According to thehindubusinessline.com, the total layoffs across the globe were around 1.39 lakh employees in 2022. However, around 1.03 lakh employees have already been laid off across the globe till February 20, 2023. That is almost three-fourths of 2022's figures (Layoffs above 100 employees in a company/start-up have been considered for analysis in this report).

➢ As per peoplematters.in , the tech industry, known for its rapid expansion and explosive growth, is now facing a new reality. The economy is cooling, and consumer spending is slowing, prompting major players such as Google, Microsoft, Amazon, and Salesforce to take drastic measures to stay afloat. With significant cuts already announced in the new year, the industry braces for a wave of layoffs that could have far-reaching consequences. While many tech companies are still larger than they were three years ago, the trend of downsizing is set to continue in 2023 as the industry shifts its focus from rapid expansion to cost-cutting measures. Wed bush analysts predict that tech layoffs will remain a trend throughout the year, as companies in Silicon Valley adapt to the evolving economic climate.

➢ According to Angelo J Kinnicki, the rrocess of coping with job loss varies over time as different predictors of problem- and emotion-focused coping emerge during the anticipatory and outcome stages of job loss. For example, economic discrepancy induces individuals to engage in problem-focused coping but not in emotion-focused coping in the anticipatory stage, whereas it has direct effects on both coping strategies during the outcome stage. This stronger delayed effect may occur because people do not feel acute economic discrepancy until they are unemployed for several months. This notion further implies that displaced workers do not simultaneously use problem- and emotion-focused coping until they experience more extreme economic discrepancy.

IV. SCOPE OF THE STUDY

Our research includes respondents, instruments and statistical tools used to analyse and interpret the data. In this study explanatory research design was used to illustrate our study on layoffs. Our design mainly emphasises on studying the outcomes of layoffs on individuals. The data was collected through an online survey and was further collected by individuals who had faced the consequences of layoffs themselves.

The study was conducted in and around Bangalore. The motive behind this choice is that Bangalore is considered to be one of the largest metropolitan cities, bearing many IT hubs and tech parks. The respondents were open to sharing their experiences and thoughts on the subject of our study. Therefore, our probability of reaching many respondents was possible.

V. METHODOLOGY

a. Type of data: Mixed methods - secondary data, survey method
b. Type of Research: The study is based both on primary and secondary data. The research is empirical, it also focuses on qualitative and quantitative outcomes.
c. Sources of data: Primary data was collected from respondents via social media and online surveys using Google forms. The target respondents were from tech companies like Amazon, Goldman Sachs, Stuncroft, and Google. Secondary data was collected through news articles, published research papers and e-sources.
d. Sample design
        Sampling technique – probability sampling
        Sample size - 42 individuals
e. Data processing: The data processing was completed with the help of the survey method, both the dependent and independent variables were segregated by preparing graphs and tables.
f. Limitations of the study: A majority of irrelevant responses were found in the online questionnaire survey.

VI. FINDINGS

The questions asked in the survey and the interpretation of the collected data, are presented in the graphs below:

1. Age

The below graph shows that most of the individuals who faced layoffs are of the age group 20-24, who fall in the category of freshers who have just kick-started their careers. The second highest

majority of the individuals are of age 31-36, who fall in the category of middle-aged employees who have certain years of work experience.
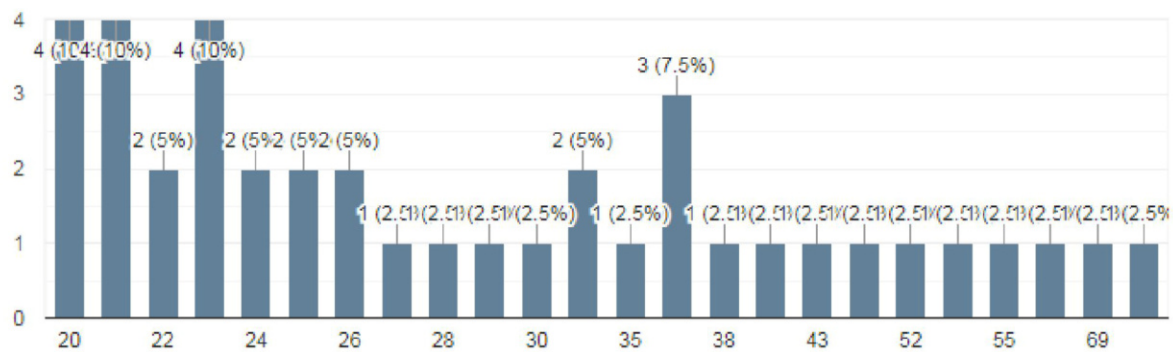
2. Companies individuals have been laid off of

The below graph shows the companies our respondents got laid off of. As it is evident, Amazon has been laying off its employees on a large scale (25.6%), followed by companies such as Wipro (7.7%) and Goldman Sachs (7.7%) and many other large scale and medium scale companies, namely, Blue Dart, Philips, Microsoft and Stuncroft.
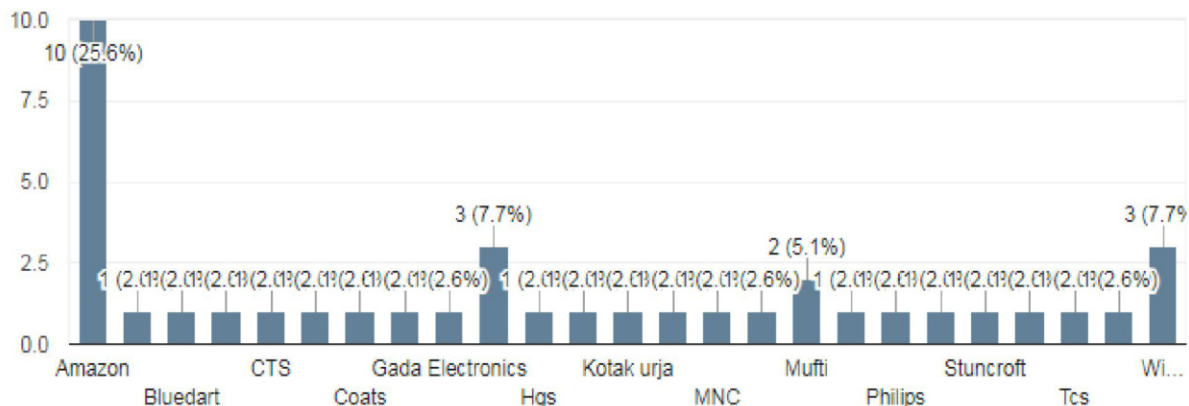
3. Individuals' responses concerning the reason for their layoffs

A majority of the individuals have not been aware of the reason for their layoffs, followed by the second highest majority which is cost-cutting. The other major reasons are the pandemic and the post-pandemic effects, recession and relocation.

4. What time were the layoffs occurring the most and least?
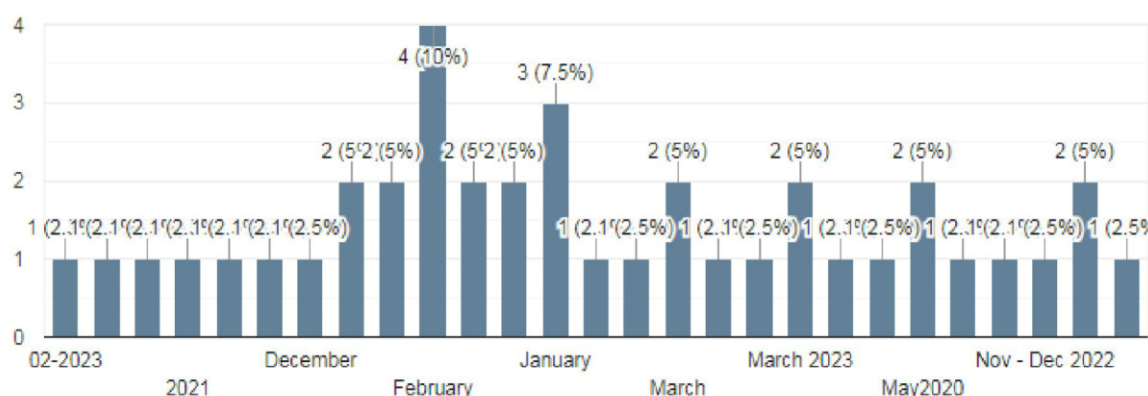
According to the graphs, layoffs have been occurring majorly in the months between January and March. The reason being cost cutting, relocation, workforce reduction, economic recession, mergers and acquisitions. The rate of layoffs has been varying throughout the time frame but ever persistent.

5. Duration of re-employment
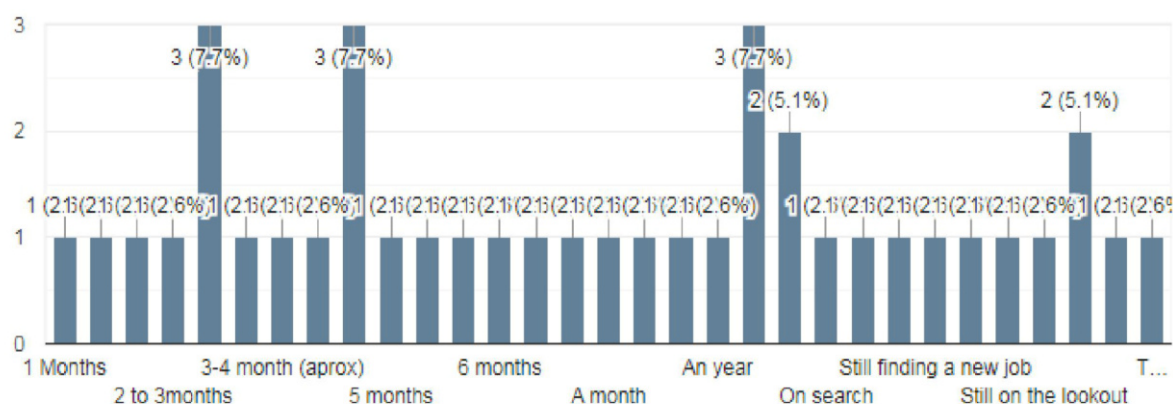
A majority of individuals got re-employed with other companies within a span of 2 to 12 months. Very few respondents have been re-employed within a short period, immediately after getting laid off or within a month.

6. Scale showing how layoffs affected them financially:
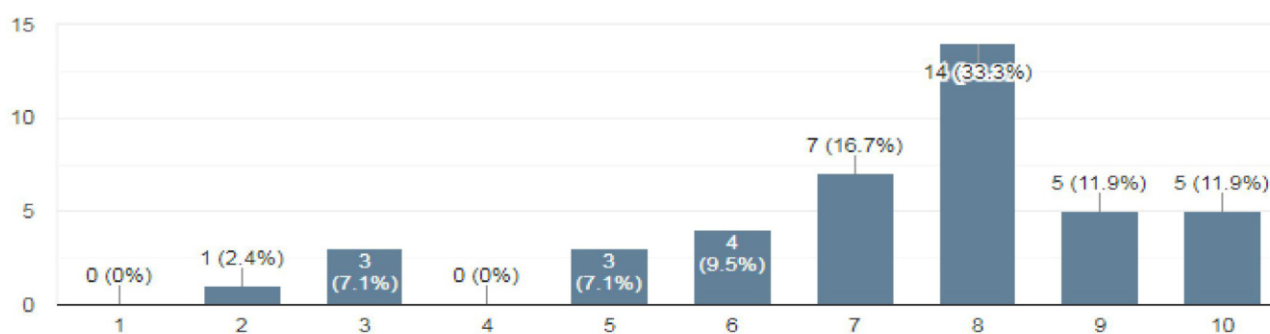
The above graph shows that everyone has been affected by the layoff in some or the other way. The respondents were given a scale of 1 to 10, 1 being the lowest and 10 being the highest. The majority of the respondents have chosen 8, which shows that they have been highly affected financially but were able to manage their basic needs.

7. Problems, other than financial, faced due to layoffs

The respondents shared that they faced mental agony, stress, mental pressure, anxiety and even depression. A majority of the respondents were the sole breadwinners of their families which caused a lack of harmony and peace in their households.

8.Severance pay:
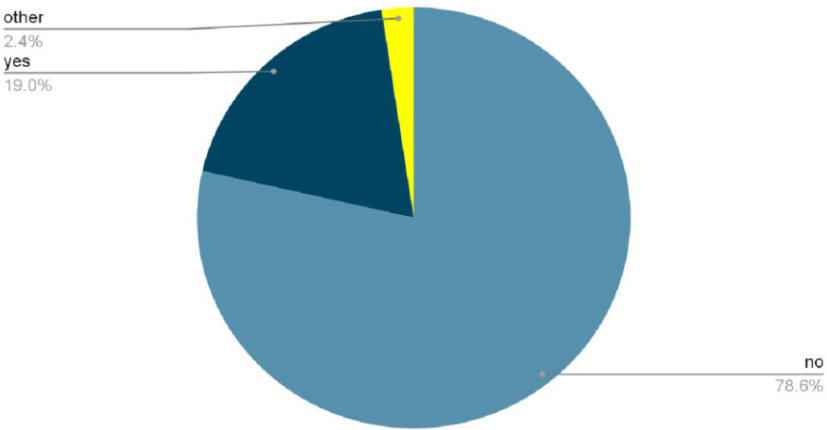
Majority of the respondents did not even receive severance pay to manage their basic needs while looking for a new job. Few of the respondents received severance pay and some received other compensations.

9. Effect on purchase behaviour
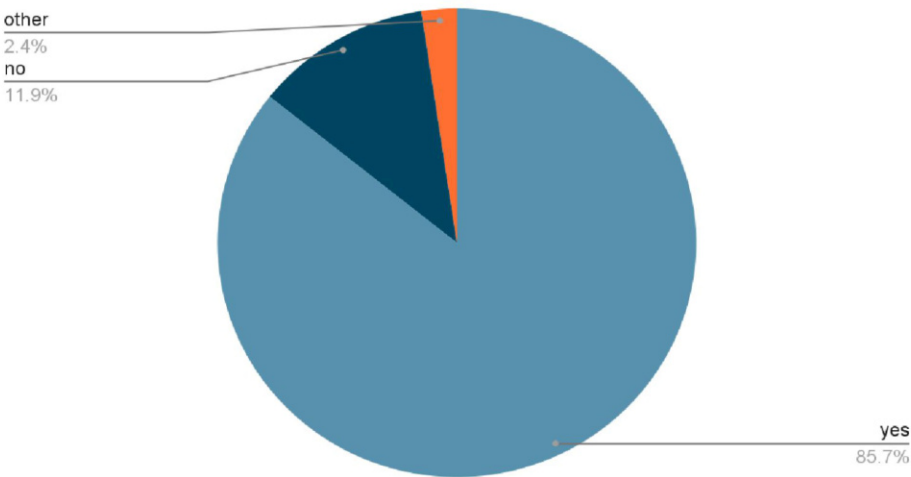
The above graph shows how layoffs affected individuals' purchase patterns. A collective percentage of nearly 87.5% of individuals' purchase behaviour had been affected.

10.Adjustability in a new environment

The below pie chart shows the individuals' ability and comfort to cope with their new jobs. A majority of 64.9% of the respondents have found it manageable to cope with their newly found jobs and their work culture, whereas the second majority of the respondents 27% have found it hard to do so. A percentage of 8.1 of the total respondents are yet to find a job.
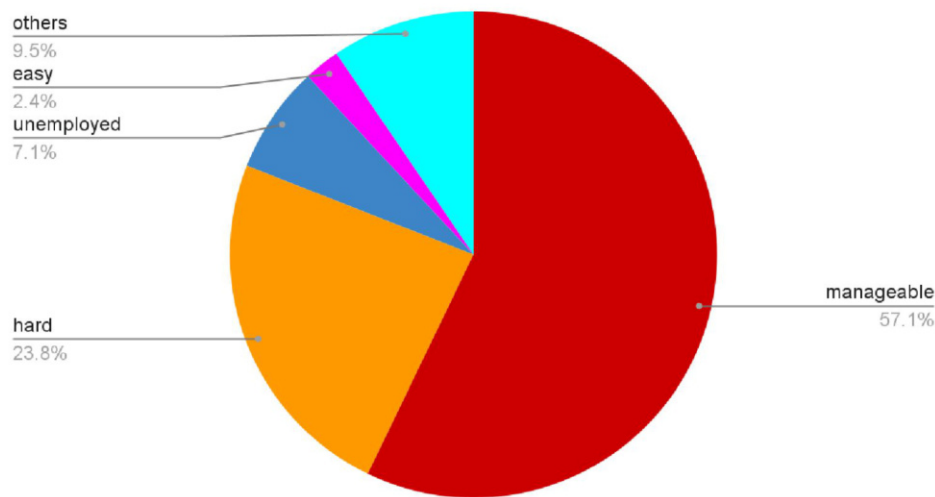
11. Compromises that had to be made
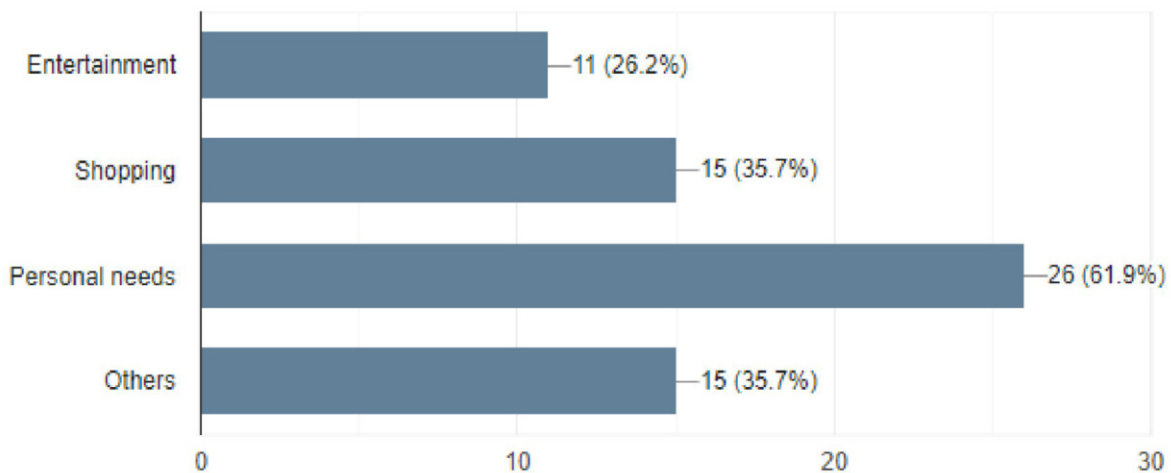
When asked about the compromises the respondents had to make due to the financial instability caused by layoff, a majority of 61.9% stated that they had to compromise on their personal needs, which was followed by the second majority of 35.7% being shopping compromises. The third highest 26.2% showed compromises being made on entertainment.

12. Coping mechanisms
From secondary data sources it is found that laid off employees used different coping mechanisms which were both negative and positive. The negatives were alcoholism, binge watching and eating, oversleeping and so on, while the positives were self-care, spending time with loved ones, taking up online courses of their interest, working on their hobbies and such.

VII. CONCLUSION

Layoffs have shaken up the lives of many individuals, especially millennials. Many have had to deal with their stress with unhealthy coping mechanisms. Leading tech companies like Amazon, Google, and Microsoft, have been leading in layoff rates as well. The reasons received other than, the recession, pandemic, and relocation included, the recession in America, and hiring freshers with lesser pay expectations. Our survey targeted different personalities and each responded differently. Some had to settle for a lesser paying job than their previous company, some had to sacrifice their relationships within the workplace, and some simply lost motivation to put in the effort. The scenario of 2023 layoffs is only getting worse with no sign of respite.

VIII. RECOMMENDATIONS

The major reason for layoffs being cut-offs, companies should focus on purchase management, cost reduction, and avoiding overstaffing. Inculcating offline or remote jobs is another great way to dodge major expenses. When laying off employees it is very important to deal with them politely and provide them with severance pay at least. The salary of employees can be reduced for a short period instead of laying them off.

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IMPACT OF COVID-19 ON ENTREPRENEURSHIP

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ABSTRACT
The COVID-19 pandemic has had a profound impact on entrepreneurship, with many businesses forced to change their strategies or shut down altogether. However, entrepreneurs are adapting new technologies, new strategies and new opportunities to run their businesses. The research paper includes the opportunities, impacts, problems and challenges faced by entrepreneurs who started new companies and already existing small-scale industries who just entered the market. The main purpose of conducting this research is to analyze post-COVID entrepreneurship and to identify the challenges faced by entrepreneurs and small businesses.

Keywords: entrepreneurship, COVID-19, industries, challenges, opportunities.

I.   INTRODUCTION

Entrepreneurship and the MSME sector are important to the Indian economy as they contribute to nearly 1/3rd of India's GDP. They typically have fewer resources than large businesses but due to impact of COVID these small businesses have faced unbearable losses. The pandemic has caused significant disruptions to the global economy, with all businesses struggling to survive. The pandemic has forced businesses to adapt to new ways of operating, online sales and virtual meetings. Entrepreneurs have adjusted their business models to meet new challenges. One of the most significant challenges was the disruption of supply chain. Many businesses depend on imports from other countries for raw materials, labour, capital and machinery. Due to the disruption of supply chain there was a difficulty to meet consumer demands. Many people are losing jobs and they are less likely to spend money on non-essential items, due to this there is a decrease in sales, especially in hospitality and tourism. Despite these challenges it has created new opportunities for entrepreneurs who are willing to adapt and innovate and there is a rapid increase in use of digital technologies in businesses which has helped to reach the customers faster. Many entrepreneurs shifted their focus towards E-commerce and other digital channels. It has particularly created a demand for healthcare products in the market. It has also created a big challenge for business to be innovative and adaptable to meet the demands of dynamic market and consumer needs, entrepreneurs should be prepared for future uncertainties, as the pandemic has led to preparing contingency plans to deal with uncertain events. This includes diversification of supply chains and cash reserves to develop or generate revenue. Government has also played a vital role in conducting

support programs for the promotion of entrepreneurship by providing loans and tax incentives for small businesses for the purpose of innovation, research and development of the businesses.

II. REVIEW OF LITERATURE

➤ The COVID-19 pandemic has led to a global health crisis with severe economic, social, and psychological consequences. Despite the fact that there were multiple crises in recent years, such as natural disasters, economic crises, and even epidemics, the coronavirus pandemic is the first in 100 years to severely affect the entire world.

➤ A study by Saeed et al. (2021) found that the pandemic has led to a decline in entrepreneurial activity in many countries, as well as a shift towards more established businesses. The study also found that government support programs have been crucial in promoting entrepreneurship during the pandemic.

➤ Another study by Wyrwich et al. (2021) found that the pandemic has led to a surge in entrepreneurship in some sectors, particularly those related to health tech and e-commerce. The study also found that entrepreneurs have been using digital technologies to adapt to the new business environment.

➤ A study by Brouwer et al. (2021) found that the pandemic has led to significant changes in consumer behavior, which has affected entrepreneurship. The study found that consumers have become more focused on health and safety, which has led to increased demand for healthtech products and services. However, the study also found that consumer uncertainty and reduced purchasing power have had a negative impact on entrepreneurship.

➤ A study by Kuckertz et al. (2020) found that government support programs, such as grants and loans, have been crucial in helping businesses survive during the pandemic. The study also found that these programs have helped promote innovation and new business ventures.

➤ According to a study by McKinsey & Company, the pandemic has accelerated the adoption of digital technologies and created new opportunities for entrepreneurs. The study found that businesses that were able to quickly pivot to digital channels and e-commerce were more likely to survive and even thrive during the pandemic.

➤ Another study by the Global Entrepreneurship Monitor (GEM) found that while the pandemic had a negative impact on entrepreneurship in the short term, it also created new opportunities for innovation and growth. The study found that entrepreneurs who were able to adapt to the changing market conditions and customer needs were more likely to succeed in the post-COVID world.

➤ A report by the International Labor Organization (ILO) highlighted the impact of the pandemic on small and medium-sized enterprises (SMEs), which are the backbone of many economies. The report found that SMEs were particularly vulnerable to the economic shocks caused by the pandemic, but also noted that they were more agile and adaptable than larger businesses.

III. STATEMENT OF THE PROBLEM

COVID-19 has affected entrepreneurship in India. This study mainly concentrates on challenges faced by small businesses in this COVID era and aims at finding how the businesses have recovered from this crisis.

IV. OBJECTIVES OF THE STUDY

- To analyze post COVID entrepreneurship.
- To identify the challenges faced by entrepreneurs and small businesses in post COVID era.
- To identify how pandemic has affected businesses
- To find out what kind of businesses gained more opportunities after COVID era.

V.   RESEARCH METHODOLOGY:

Primary data was collected from observations of COVID situations from the beginning of pandemic.

Secondary data for the study was collected from internet and books.

VI.   DATA ANALYSIS AND INTERPRETATION

Table 1.1: Table showing challenges faced by businesses during COVID-19

Challenges faced during COVID	New businesses (<1 year old)	Young businesses (1-5 years old)	Young businesses (5-10 years old)	Mature businesses (>10 years old)
Finding new customers	80%	76%	70%	69%
Keeping existing customers	68%	59%	61%	54%
Funds to start business	72%	56%	39%	39%
Technology	38%	33%	29%	32%
Laws, policies and regulations	52%	42%	46%	43%

Graph 1.1:
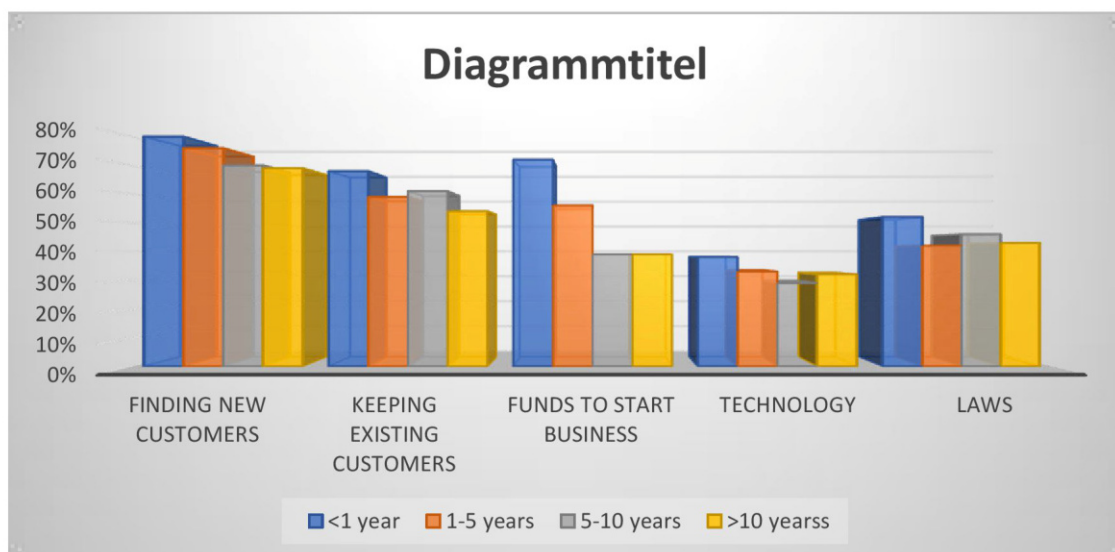
Interpretation:

The graph above shows how the businesses faced challenges during COVID. As shown in this table or graph new businesses have faced the highest level of challenges compared to other businesses

Table 1.2: Table showing opportunities post COVID.

Business	Paycheck protection program	Paycheck protection program	Economic disaster loan	Economic disaster loan	Small business loan forgiveness	Small business loan forgiveness
	requested	received	requested	received	requested	received
Manufacturing	69.3	65.7	21.2	19.1	24.4	19.5
Retail trade	69.9	66.3	25.1	21.3	24.9	19.2
Educational services	69.1	67.9	27.8	23.9	23.8	17.9
Health care	71.0	67.3	26.2	23.3	26.9	22.7
Accommodation and food	58.8	56.2	27.9	23.8	19.5	15.6

Graph 1.2
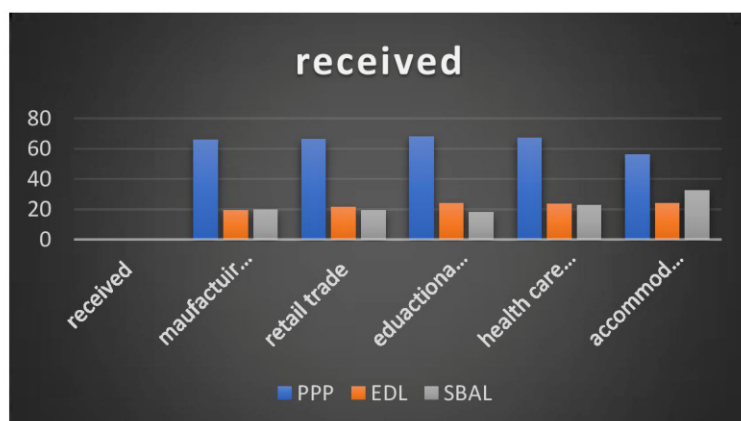
Interpretation:

These both graphs show that government schemes have helped the above businesses and given them opportunity to recover from this crisis. Compared to all other businesses, health care and education services have received more opportunities with these schemes during pandemic.

VII.   FINDINGS

Entrepreneurship has been very negatively affected by COVID. Many businesses have not survived after the significant drop in demand caused by confinement and other significant restrictions on mobility that countries imposed to stop transmission.

Businesses like health care, education services, accommodation and food services have gained a lot of opportunity during the pandemic.

VIII.   CONCLUSION

In this study we have found that COVID had both negative and positive effects on every business. Especially the small-scale industries have got a lot of opportunities and they have updated their businesses by adapting or using new technologies. Firms like start ups and young businesses have faced a lot of losses due to which they had to shut down their firms. Gaining new customers was a major challenge faced by the young and mature businesses. Government schemes have also helped these entrepreneurs to cope with their losses during economic crisis.

Additionally, health and wellness has gained more focus. However, securing funding for new businesses may still be a challenge for entrepreneurs. The post-COVID era will require entrepreneurs to be adaptable and innovative to succeed in the new normal.

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MAKING MILLENNIALS MORE EMPLOYABLE
IN CORPORATE SECTOR
-   THE IMPACT OF NCC TRAINING

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ABSTRACT
The New Education Policy 2020 has given a new approach to education, a holistic development of the students. But these same concepts have been implemented by National Cadet Corps (NCC) in its curriculum long back since 1948. NCC, an Indian youth organisation, has now become the largest uniformed youth organisation.
The changing technology has a great impact on the society where we live, how we think and what we value. The advancement in technology has given rise to lot of challenges among the young generation as they are too much technology-driven which has made them Millennials.
Millennials are a group of individuals who are born between 1980 and 2000 and entered the work force since 2012. The characteristics of Millennials are the biggest challenge for corporates who wants them as their prospective employees in their organisation, train and retain them.
The generation Y is hyperactive, restless, tech-addicted and confused. There is a need for more research to understand the impact of NCC training to this generation which makes them more employable. Understanding this trend could lead to greater chances of Millennials getting appointed, trained and retained in the corporate sectors. The goal of this study is to describe the impact of NCC training on millennials, in moulding their behaviour, discipline values and learning ability, which may positively affect corporates hiring millennials, and identify useful millennial retention strategies.

Key words: Strategic Management, Millennials, Generation & NCC Training

I.   INTRODUCTION

Any change is inevitable, technology is changing the generation in their thinking lines and behavioural pattern to a greater extent. The generation Y is hyper when compared to the generation X. A mother faces lot of new challenges in upbringing of a single child, whose parenting style gives the child a voice.

"The Millennial child was consulted for meal choice, family vacation, attire, hairstyles and in most of the decisions. The school systems are the extended version of the same which gave variety of decision-making opportunities to the child. The choice and the voice nurtured the generation as self-centred individuals' who first think about their existence than how their action relates to those around them."

"Millennials grew up differently than past generations and these differences impact the way they best work and learn. In 2009, a gap in work expectations and performance in working Millennials was discovered by psychologist by the name Christy Price". Anu Galhotra, CPLP

II.   OBJECTIVES OF THE STUDY

- To learn the impact of NCC training in making millennials more enjoyable in corporate sector
- To know the role of NCC in training millennials

III.   ADVANTAGES OF MILLENNIALS

- Highly-educated
- Intelligent
- Technically strong
- Independent in nature
- Quick learners
- Trainable
- Innovative – bring new prospective
- Open to changes
- Loyal to those who value and trust them.

IV.   DISADVANTAGES OF MILLENNIALS

- Restless
- Not focused
- Less committed
- Addicted to social media
- Not interested in team work
- No work ethics
- Loose interest easily, holding them for long is a challenge

V.   CHALLENGES

Now corporates which employ these millennial hyper generation need to prepare itself to face the challenges in large scale.

1. **Communication:** Millennials communicate differently, they have the right skill and knowledge to use modern technology. They always use text messages and emails than phone calls. Most workers in this generation use their phones up to 40 times a day. This often means they are more comfortable with mobile and online learning environments. Millennials also have different learning styles. They prefer exercise programs that offer choice and variety to suit their tastes.

2. **Comfortable working hours:** The global workforce is growing. More and more workers are starting to work from home, at least part of the time. Much of this change is due to millennial preferences. Most employees of this generation appreciate flexible working hours and unconventional office hours. They believe their worth should be measured by their contributions, not by the amount of time they spend in the office. Traditional instructor-led training programs are not very effective when it comes to training remote workers. This poses a unique challenge for L&D teams.

3. **Hopping with opportunities**: Millennials are also the generation most likely to leave their jobs. This is worrisome as they make up a large portion of the current workforce.

This generation wants to work for an organization that invests in development. If they feel left out, they may look elsewhere for better opportunities. Giving employees too much information also leads to lower engagement from this generation. Millennials grew up with internet access. They only evaluate the most relevant information. Training programs for millennials should offer only the most engaging and most relevant learning content.

4. **Expects positive feed backs:** Feedback is an important part of building relationships with this generation. Millennials want more feedback than previous generations. Works well in a collaborative environment, but when they feel like they aren't getting feedback they become demotivated.

It has become a daunting task for an organization's HR department to think in all directions to train and retain employees. First of all, planning a training program for Millennials is a daunting task, and many Millennials, for various reasons, do not stick to one employer for their career. There are numerous opportunities in the market that offer higher salaries and benefits. Gen Y is so confused and unfocused about their careers that it is becoming increasingly important for employees to understand them. Understanding how Millennials learn helps coaches and instructional designers create effective training programs.

Business moguls need to change training practices, management styles, compensation patterns, and other perks to keep this Millennial generation in the company. Management styles have always proven difficult to educate and retain Millennials.

VI. ROLE OF NCC IN TRAINING MILLENNIALS

The NCC being a voluntary organisation plays an important role in moulding the character and discipline, and has a great impact on the behaviour of young generation.

The NCC aims at developing character, comradeship, discipline, and a secular outlook, the spirit of adventure and ideals of selfless service amongst young citizens. Further, it aims at creating a pool of organized, trained and motivated youth with leadership qualities in all walks of life, who will serve the Nation regardless of which career they choose.

The following are the goals of NCC, as approved by MOD, in March 2001:
a. To instil in the country's youth character, comradeship, discipline, leadership, a secular worldview, a sense of adventure, sportsmanship, and selfless service principles.
b. To develop a human resource that is well-organized, well-trained and well-informed.
c. To provide a good environment to motivate the youth in order to take up career in the Armed Forces.

NCC training provides all those characteristics which a HR Manger looks for in a prospective employee. NCC training inculcates the best practices among students by moulding their personal traits to absorb hardship of life, nurture their character, shift their introvert trait to extrovert and also teaches them decision making and helps to take responsibilities at corporate sectors more confidently.

HR managers feel that the possibility of any job applicant, who is an NCC cadet, to get selected to the job is more than 99% as they show the following qualities:

- Work best collaboratively
- High leadership qualities
- Initiative
- Disciplined and committed
- High communication and working relationships
- Compatible with high-pressure learning environments
- Trained to motivate and inspire & be loyal

NCC training comprises Common Subjects and Service Subjects in the ratio 70:30. Curriculum for training in a military environment with greater emphasis on soft skill development, awareness of social responsibilities and adventure and sports is designed in such a way that it is centred with overall development of the students. NCC training develops the ability among the Millennials to work great at collaborating. In spite of different learning styles and preferred training methods of individuals, NCC provides cadets training to adjust, adopt and accommodate themselves, which in the long-run makes them mould themselves to the needs of the organisation very easily.

NCC cadets are trained to get information that is relevant to them. These relevance characteristics make them increasingly diverse in learning different knowledge bases and learning styles. It can be easy for the training department to create a training program that covers all the bases with lot more interesting prospective.

NCC cadets are trained to understand the reason behind instructions and rules they are to follow which keeps them rational while learning new content. NCC training equips this generation to value and practice what they learn and its level of importance.

Millennials with NCC training do greatly with communication and working relationships. Training for Millennial employees is often heavily centred on e-Learning blended with social learning. NCC training develops these learning styles very naturally among the cadets and teaches them to value healthy working relationships by motivating, inspiring and being loyal.

VII. CONCLUSION

The shift in the current workforce has created a substantial need for a new approach to Learning and Development. Today's learning programs need to be developed for diverse audiences and that includes the growing millennial workforce.

Quality Learning and Development opportunities that are designed with the NCC training helps organisations in working with Millennial, excellent employee training & retention. This will also ensure that you have a workforce both skilled and engaged.

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WORK-LIFE BALANCE
FOR EMPLOYEES AND ORGANIZATIONS

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ABSTRACT

Work-life balance has emerged as a crucial issue in today's workforce due to its potential benefits for both employees and organizations. Despite the considerable amount of research on work-life balance, there is a lack of comprehensive review and analysis of its benefits for employees and organizations.

This research paper provides a thorough review and analysis of the existing literature on work-life balance and its benefits. The paper's main contribution is its comprehensive review and analysis of the benefits of work-life balance for both employees and organizations. The findings of this paper have implications for both research and practice, as they contribute to a better understanding of work-life balance and its benefits for employees and organizations.

Keywords: Work-life balance, benefits, employees, organizations, literature review, research gap, well-being, job satisfaction, performance, interventions.

I. INTRODUCTION

Work-life balance has become an important topic of research in recent years due to its potential benefits for both employees and organizations. However, while there is a considerable amount of research on work-life balance, much of it is fragmented and focused on specific aspects of the topic. This has led to a lack of comprehensive review and analysis of the benefits of work-life balance for both employees and organizations, which is the research gap that this paper aims to fill.

Our paper contributes to a better understanding of the benefits of work-life balance for both employees and organizations. This can help organizations design and implement work-life balance interventions that promote employee well-being, job satisfaction, and performance.

II. FACTORS CONTRIBUTING TO WORK-LIFE BALANCE

Work-life balance has emerged as an important issue in today's workforce, as employees seek to balance their personal and professional lives. The ability to achieve work-life balance has been linked to higher levels of job satisfaction, better physical and mental health, and improved productivity. However, achieving work-life balance can be challenging, especially in the face of increasing work demands and a constantly changing work environment. In this article, we will discuss the factors that contribute to work-life balance and how they can be leveraged to promote employee well-being and organizational success.

1. Flexible Work Arrangements:

Flexible work arrangements, such as telecommuting, flexible schedules, and job sharing, have been found to be effective in promoting work-life balance. These arrangements allow employees to have more control over their work schedules and work from home, which can reduce the time and stress associated with commuting. This leads to greater job satisfaction and a better work-life balance.

2. Organizational Culture:

Organizational culture plays a critical role in promoting work-life balance. A positive organizational culture, which promotes work-life balance, can lead to greater employee satisfaction and retention. A culture of trust and support can also help employees feel more comfortable discussing their work-life balance needs with their managers and colleagues.

3. Workload Management:

Managing workload is essential for promoting work-life balance. High workload can lead to stress and burnout. To promote a better work-life balance, organizations should ensure that employees have reasonable workloads, prioritize tasks, and have access to resources and support.

4. Time Management:

Time management is critical for achieving work-life balance. Employees who can effectively manage their time can work more efficiently, meet deadlines, and have time for their personal lives. Organizations can support employees in developing time management skills, such as prioritizing tasks and using time-tracking tools.

5, Employee Support Programs:

Employee support programs, such as counselling and wellness programs, can help employees manage stress and improve their overall well-being. Organizations can also provide resources for employees, such as child and eldercare, to help them balance their personal and professional lives.

6. Technology:

Technology plays a critical role in promoting work-life balance. It enables employees to work remotely and collaborate with colleagues regardless of their location. However, technology can also lead to increased work demands and blur the lines between work and personal life. To promote work-life balance, organizations should ensure that technology is used in a way that supports employee well-being.

7. Leadership:

Leadership is critical in promoting work-life balance. Leaders who promote a positive work-life balance culture and model work-life balance behaviours can inspire their employees to achieve a better work-life balance. Leaders can also set clear expectations for workload and provide support for employees who need it.

III. BENEFITS OF WORK-LIFE BALANCE FOR EMPLOYEES

Work-life balance is important for employees as it helps them manage their professional and personal lives effectively, leading to greater satisfaction and well-being.

1. Reduced Stress:

Achieving a work-life balance can reduce stress levels, which can lead to better mental and physical health. High levels of stress can lead to burnout, fatigue, and even physical illness. By balancing work and personal life, employees can reduce the negative effects of stress and improve their overall well-being.

2. Improved Health:
A work-life balance can also lead to improved health outcomes for employees. A better work-life balance can lead to increased physical activity, better sleep patterns, and improved eating habits. This can lead to reduced risk of chronic diseases such as heart disease and diabetes.

3. Greater Job Satisfaction:
A work-life balance can lead to greater job satisfaction. When employees have time for their personal lives and hobbies, they feel more fulfilled and happier. This can lead to a greater sense of purpose and fulfilment in their professional lives as well.

4. Improved Relationships:
Balancing work and personal life can lead to improved relationships with family and friends. When employees have more time for their personal lives, they can prioritize relationships and spend quality time with loved ones. This can lead to stronger social connections and a more fulfilling personal life.

5. Increased Productivity:
A work-life balance can also lead to increased productivity at work. When employees have time to recharge and pursue their personal interests, they return to work refreshed and motivated. This can lead to improved creativity, problem-solving skills, and overall job performance.

6. Higher Retention Rates:
A work-life balance can also lead to higher retention rates for organizations. When employees feel satisfied with their work and personal lives, they are more likely to remain with their current employer. This can reduce the cost and time associated with turnover and recruitment.

7. Better Time Management:
A work-life balance can also lead to better time management skills for employees. When employees achieve balance in work and personal life, they become more efficient and effective in managing their time. This can lead to improved productivity, better time management skills, and better work-life balance.

IV. BENEFITS OF WORK-LIFE BALANCE FOR ORGANISATIONS:
Work-life balance is not only beneficial for employees, but it also has several advantages for organizations. We shall now discuss the benefits of work-life balance for organizations and how it can positively impact their operations.

1. Increased Employee Engagement:
Organizations that prioritize work-life balance can increase employee engagement levels. When employees feel valued and supported, they are more likely to be engaged and motivated at work. This can lead to improved productivity, increased job satisfaction, and reduced absenteeism.

2. Improved Talent Attraction and Retention:
Organizations that offer a work-life balance can attract and retain top talent. In today's competitive job market, employees are looking for employers that offer a positive work environment and prioritize work-life balance. By offering flexible work arrangements, organizations can attract and retain top talent.

3. Reduced Health Care Costs:
Offering a work-life balance can also lead to reduced health care costs for organizations. When employees have a work-life balance, they are less likely to suffer from stress-related illnesses and

chronic diseases. This can lead to reduced health care costs for organizations and a healthier workforce.

4. Increased Productivity:

Organizations that promote work-life balance can also increase productivity levels. When employees have a work-life balance, they are more likely to be motivated and engaged at work. This can lead to improved productivity, increased creativity, and better problem-solving skills.

5. Improved Corporate Reputation:

Organizations that prioritize work-life balance can improve their corporate reputation. By offering flexible work arrangements and supporting employee well-being, organizations can be seen as socially responsible and employee friendly. This can improve their reputation and attract positive attention from stakeholders.

6. Reduced Employee Turnover:

Offering a work-life balance can also lead to reduced turnover rates for organizations. When employees feel valued and supported, they are more likely to remain with their current employer. This can reduce the cost and time associated with recruitment and training.

7. Increased Innovation:

Organizations that promote work-life balance can also increase innovation levels. When employees have a work-life balance, they have more time and energy to pursue personal interests and hobbies. This can lead to increased creativity and innovation at work.

V. STRATEGIES FOR PROMOTING WORK-LIFE BALANCE

In today's fast-paced world, work-life balance has become increasingly important for employees and organizations alike. Promoting work-life balance can lead to several benefits, we will now discuss strategies for promoting work-life balance in the workplace.

1. Flexible Work Arrangements:

Offering flexible work arrangements can be an effective way to promote work-life balance. This can include options such as telecommuting, flexible work schedules, and compressed work weeks. By providing employees with the ability to balance their work and personal commitments, organizations can improve employee satisfaction and reduce stress levels.

2. Employee Wellness Programs:

Employee wellness programs can also be an effective strategy for promoting work-life balance. These programs can include activities such as yoga classes, fitness challenges, and healthy eating initiatives. By supporting employee health and well-being, organizations can reduce stress levels and improve overall work performance.

3. Time Management Training:

Time management training can be a useful strategy for promoting work-life balance. This can include training on how to prioritize tasks, delegate responsibilities, and set realistic goals. By providing employees with the tools and skills to manage their time effectively, organizations can improve productivity levels and reduce stress levels.

4. Encouraging Time Off:

Encouraging employees to take time off can also be an effective strategy for promoting work-life balance. This can include offering paid vacation time, personal days, and sick leave. By encouraging employees to take time off, organizations can reduce stress levels and improve overall work performance.

5. Creating a Positive Work Environment:

Creating a positive work environment can also be an effective strategy for promoting work-life balance. This can include initiatives such as team-building activities, open communication channels, and employee recognition programs. By creating a positive work environment, organizations can improve employee satisfaction and reduce stress levels.

6. Setting Realistic Workload Expectations:

Setting realistic workload expectations can be a useful strategy for promoting work-life balance. This can include setting achievable goals and deadlines, providing adequate resources and support, and avoiding overloading employees with work. By setting realistic workload expectations, organizations can reduce stress levels and improve employee satisfaction.

7. Encouraging Work-Life Integration:

Encouraging work-life integration can also be an effective strategy for promoting work-life balance. This can include initiatives such as on-site childcare, flexible work arrangements, and telecommuting options. By providing employees with the ability to integrate their work and personal lives, organizations can reduce stress levels and improve overall work performance.

VI. CONCLUSION

Work-life balance is a critical issue for employees and organizations in today's fast-paced and demanding work environments. Achieving work-life balance has been associated with a range of positive outcomes for employees and organizations, and promoting work-life balance has become a key priority for many organizations. By implementing flexible work arrangements, supportive policies and programs, and a culture that values work-life balance, organizations can promote employee well-being and productivity, improve retention and recruitment, and enhance their reputation as employers. Further research is needed to better understand the factors that contribute to work-life balance and to identify effective strategies for the same.

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THE PRUDENTIAL STEP OF INNOVATION BY RESERVE BANK OF INDIA – ISSUE OF DIGITAL CURRENCY

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ABSTRACT

The concept of currency is as old as the Modern Civilization. As business knows no boundary, currency also knows no forms. It can be in any form either abstract or non-abstract. The issuance of Digital Currency formally called as Central Bank Digital Currency (CBDC), in India it is referred to as **e₹** or **eINR** or E-Rupee (Digital Rupee), is issued on the basis of its unique utilities.

The approach of RBI to issue **e₹** or **eINR** or E-Rupee (Digital Rupee) is to create a digital rupee as an alternative to paper currency and managing the process of introducing without any interruptions. This paper emphasizes on the key determinants namely the Technology, the Design Choices, types of Utilities, Issuance Mechanisms, impact on the Banking System, Monetary Policy, Financial Stability, Privacy Issues and others.

Keywords: Central Bank Digital Currency (CBDC), **e₹** or **eINR** or E-Rupee (Digital Rupee), Technology, the Design Choices, types of Utilities, Issuance Mechanisms, impact on the Banking System, Monetary Policy, Financial Stability, Privacy Issues.

I. INTRODUCTION

Section 22 of Reserve Bank of India Act – 1934 draws the authority for management of currency. In true sense, Reserve Bank of India (RBI) is the sole authority for issuance of Currency (it executes the functions of designing, production and overall management of country's currency). The concept of currency is as old as the modern civilization. As

business knows no boundary, currency also knows no forms. It can be in any form either abstract or non-abstract. The issuance of Digital Currency, formally called as Central Bank Digital Currency (CBDC), and in India it is referred as **e₹** (or eINR or E-**Rupee** Digital Rupee), is issued on the basis of its unique utilities. The approach of RBI to issue **e₹** is to create a digital rupee as an alternative to paper currency and managing the process of introducing without any interruptions.

II. REVIEW OF LITERATURE

- ➢ **Ganesh Kumar:** Today, digital transactions leave an audit trail and a trace. Information about identity, purchases, and location is known every time a debit or credit card is swiped. Another difference between a cash transaction and a digital one currently is that with cash, settlement happens at the time of the transaction. In other words, it is a "delivery-versus-payment" arrangement.

- ➢ **Manpreet Kaur (2020):** The demonetization of currency in year 2016 by Sri. Narendra Modi government revolutionized the movement towards usage of digital payment methods in India. Though it was strenuous decision for country like India where 90% of the transactions are in cash, people adopted digital mode of payments in short span of time. The adoption of digital methods for payments is facilitated by phenomenal increase in ownership of smart phones and presence of user friendly payment modes like PAYTM and BHIM UPI. The paper tries to explore the global trends in digital currencies in select countries and tries to examine the implications of digital currency for India through SWOT analysis.

- ➢ **Dr. Neha Narula (2021):** The potential promise of a CBDC goes beyond payment efficiency and financial inclusion. Digital currency is an opportunity for a ground-up redesign of our legacy payment systems. If designed in the right way, a system to create and support a digital dollar might increase competition and standardize disparate data models, leading to more interoperability and creating a platform for innovation in payments, much as the Internet created a platform for innovation on top of the transfer of information. It is possible that in this redesign additional opportunities for increasing financial inclusion and solving challenges in the legacy financial system will also be uncovered.

- ➢ **Debesh Bhowmik (2022):** All over the world, the pilot projects to introduce central bank digital currency have been running with the initiative of Bank for International Settlement. India is one of them to issue CBDC very soon after passing the law. The merits of CBDC, the digital payment situation in India as well as banking literacy are the prime issues of this paper in discussing the several analytical frameworks of central bank digital currency monetary policy avenues as developed by several economists who are involved in the research of CBDC issuances, designs and applications some of which positive impacts are still unexplored.

- ➢ **Shambhavi Mehrotra (2022):** CBDC or Central Bank Digital Currency is a legal tender issued by the Reserve Bank of India. A CBDC is an electronic record or digital token of a country's official currency, which fulfils the basic functions as a medium of exchange, unit of account, store of value, and standard of deferred payment. According to the RBI website, CBDC is the same as currency issued by a central bank but takes a different form than paper (or polymer). It is sovereign currency in an electronic form and will appear as liability (currency in circulation) on a central bank's balance sheet. CBDCs should be exchangeable at par with cash.

- ➢ **Hayashi and Toh (2022)** showed that although central banks in several emerging markets and developing economies have implemented or plan to implement a

general-purpose or retail CBDC to promote financial inclusion and improve their payment systems, central banks in many advanced economies have not yet found a compelling case to issue a retail CBDC.

➤ **Xu (2022)** examined the case of China CBDC. The author showed that Internet and technology companies may join commercial banks in distributing the China CBDC. The author also showed that the China CBDC will help improve domestic financial monitoring and policy implementation. Also, the China CBDC will play a role in the RMB's internationalization or even the international monetary system's evolution.

➤ **Jasdeep Kaur (2023):** Central Bank Digital Currency (CBDC) is a digital counterpart of government-backed fiat money. This kind of digital currency is connected to the nation's currency and issued by its central bank. The same would be the case with the 'digital rupee' in India as it will be backed by the central bank of India, i.e. RBI. The development of CBDCs is underway in more than 100 nations across the world, and it is in various phases. Some countries have already released their digital currencies, while some have abandoned or stopped working on their initiatives.

➤ **Peterson K. Ozili (2023):** The benefits and issues surrounding the digital Rupee, also known as the eRupee or the central bank digital currency in India. The study found that Indian people who were interested in 'cryptocurrency' information were also interested in 'central bank digital currency' information. The study also showed that the introduction of CBDC has potential benefits such as reduced dependency on cash, higher seigniorage due to lower transaction costs and reduced settlement risk. However, the India CBDC has associated risks that need to be carefully evaluated against the potential benefits. The introduction of a digital rupee or CBDC in India will require legal and regulatory changes to make the phased CBDC implementation possible.

III. HISTORY OF DIGITAL CURRENCY

The introduction of Digital Currency was traced to a research paper titled "Blind Signatures for Untraceable Payments" by David Chaum, he introduced DigiCash an electronic cash company in Amsterdam to commercialize the notion of his research.

In 1998, the firm was dissolved due to bankruptcy. In 1996 e-gold was introduced and reached several millions of users but the US government terminated it in the year 1998. In 2009, crypto currency, a block-chain based digital currency, was launched with no central server and reserve backing.

In India, Digital Rupee was proposed in January 2017 and was formally launched in the financial year 2022-23 blockchain distributed-ledger technology.

IV. HISTORY OF INDIAN DIGITAL CURRENCY

The Digital Rupee (e₹) or eINR or E-Rupee is a tokenised digital version of the Indian Rupee, to be issued by the Reserve Bank of India (RBI) as a central bank digital currency (CBDC). The Digital Rupee was proposed in January 2017 and was launched in the 2022–23 financial year. Digital Rupee uses blockchain distributed-ledger technology. Like banknotes, it will be uniquely identifiable and regulated by Central Bank, liability lies with RBI. Plans include online and offline accessibility. RBI launched Digital Rupee for Wholesale (e₹-W) catering to financial institutions for interbank settlements and Digital Rupee for Retail (e₹-R) for consumer and business transactions. The implementation of Digital Rupee aims to remove the security printing

cost borne by the general public, businesses, banks, and RBI on physical currency which amounted to ₹49,848,000,000.

RBI broadly defines CBDC as the legal tender issued by a central bank in digital form. The factor behind the issue of Digital Rupee (e₹) in India is reduction in operational costs involved in physical cash management, fostering the financial inclusion, brilliance resilience efficiency, innovation in payment system adding efficiency to the settlement system, boosting innovation in cross-border payments space and providing public with uses that any private virtual currencies can provide without any risk.

The Bank of International Settlement has laid down 'Foundation Principles' and 'Core Features' of a CBDC. The foundation principles focus of the financial stability and the coordination with existing forms of currency promoting innovation and efficiency. Claiming on the merits of its existence the RBI also has an implicit challenge. As an informal finance the crypto currencies may disrupt the rational financial system and bypass the established and regulated intermediation and control arrangements that play a crucial role of ensuring integrity and stability of monetary and financial eco-system.

Union Minister of State for Finance, Shri Pankaj Chaudhary, in LokSabha, stated that the CBDC pilot launched by the RBI in retail segment has components based on blockchain technology. The RBI had launched pilots of CBDC in both Wholesale and Retail segments. The pilot in wholesale segment, known as the Digital Rupee - Wholesale (e₹-W), was launched on November 1, 2022; the pilot in retail segment, known as Digital Rupee-Retail (e₹-R), was launched on December 01, 2022, within a closed user group (CUG) comprising participating customers and merchants.

He further stated that the RBI had identified eight banks for phase-wise participation in the retail pilot project. The first phase included four banks, namely the State Bank of India, the ICICI Bank, the Yes Bank and the IDFC First Bank. Subsequently, another four banks, viz., the Bank of Baroda, the Union Bank of India, the HDFC Bank and the Kotak Mahindra Bank would participate in the retail pilot.

V. DIGITAL RUPEE (E₹) DESIGN CHOICES:

The design of Digital Rupee (e₹) depends on the functions it is expected to perform, this also has an impact on the payment systems, monetary policy structure and stability of the financial system.

[1]Hence, the key design choices to be considered for issuing Digital Rupee (e₹)

a. Types of Digital Rupee (e₹) to be issued (wholesale or Retail)

b. Models of issuance and management of Digital Rupee (e₹) (Direct or Indirect or hybrid model)

c. Forms of Digital Rupee (e₹) (Token-based or Account-based)

d. Instrument design (remunerated or Non-remunerated)

e. Degree of Anonymity

a. Types of Digital Rupee (e₹):

Digital Rupee (e₹) can be categorised into

- General purpose or retail CBDC–R **(e₹-W)** – it is an electronic version of cash meant for retail transactions and used by all
- Wholesale CBDC-W **(e₹-R)**– is designed for restricted access to the select financial institutions, used for settlement of interbank transfers and related wholesale transactions

b. Model for Issue and Management of (e₹-R) (CBDC):

There are two models of issue and management of (e₹-R) Direct Model (Single Tier Model) and Indirect Model (Two-Tier Model). Under the Direct model the central bank is responsible for managing all aspects of the CBDC system (issuance, account-keeping and transaction verification); in the Indirect model, the central bank issues CBDC to consumers indirectly through intermediaries (other banks and service providers) and any claim by consumers is managed by the intermediary.

c. Forms of Digital Rupee (e₹-R):

CBDC can be structured as 'Token-based' or 'Account-based'. A Token-based CBDC is a bearer instrument like banknotes and whoever holds the tokens at a given point of time would be presumed to own them - CBDC–R (e₹-R). On the other hand the Account-based system would require maintenance of record of balances and transactions of all holders of the CBDC and indicate the monetary ownership of the monetary balances -CBDC–R (e₹-W).

d. Instrument Design (Technology Choice)

The infrastructure of CBDC's can be on a conventional centrally controlled data base or on Distributed Ledger Technology. These technology considerations should carry a forward thought to forecast the risk associated with security, technical stability, resilience and sound technical governing standards. This technological considerations must be kept flexible and open-ended with a view to incorporate the changing need of the economy.

e. Degree of Anonymity

The CBDC should reflect all the features of a physical currency representing the feature of anonymity, universality and finality. Therefore, a reasonable similarity of small value of transactions associated with physical cash may be a desirable option, the absence of a precedential existence an extensive consultation along with

iterative technology design may be required that will meet the requirements of all the stakeholders, and to provide as an additional payment avenue to users without replacing the existing payment system.

VI. CONCLUSION

To conclude, with the use of state-of-art payment system that are affordable, accessible, convenient, efficient, safe and secure, the Digital Rupee (e₹) will further boost India's Digital Economy, and help in making the monetary and payment system more efficient, and contribute to furthering the financial inclusion.

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TOTAL QUALITY MANAGEMENT
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ABSTRACT

Total Quality Management has been considered as an infrastructural strategy in the operations management research field. It is one of the most recognized models for operational excellence besides lean operations, supply chain management and technology management. Both manufacturing and service organization tend to implement the strategy in order to maintain their competitive advantage. The purpose of this paper is to develop the conceptual model of TQM implementation in relation to organizational performance. This paper is organized along two main themes: the evolution of TQM considered as a set of practices, and its impact on organizational performance.

I. INTRODUCTION

Total Quality Management is a management approach which focuses on continuous improvement and standardization of processes, products and services in order to ensure customer satisfaction. It aims at meeting customer expectations by making every employee involve in the quality improvement process in the organization.

Total Quality Management is completely a customer focused approach. Its aim is to meet the needs, expectations and satisfaction of customers, by providing them standardized and high-quality products and services and for which it requires a deep study and understanding of customer needs, wants and preferences, which can be achieved through customer feedback, surveys and market research.

It is one of the main strategies used by every organization to meet their targets and fulfill their customers' needs and preference.

By adapting Total Quality Management [TQM] one can monitor the company's resources and gain customers' attention. It is a measuring tool which helps in measuring key performance indicators, goals and targets and helps in improvement and monitoring progress. TQM also helps in optimum use of resources and reduces the wastage of resources. The TQM approach is used to simplify supply chain management, as well as to detect, reduce or remove errors. It also focuses on continual internal monitoring and process of improvements over the long term, thereby enhancing the quality of produced products or services.

It is necessary that the firms have to learn to be customer- focused, often in response to competitive crisis. A quality conscious company plans its products and the system that makes or delivers those products, with a focus on fulfilling the needs and expectations of customers.

Customers are not dependent on business but the businesses are always dependent on customers. Customers are the bloodline of every business. Unwavering customer orientation, or a focus on both internal and external customers, is a fundamental TQM principle. Each department is responsible for identifying the tasks that are crucial for both internal and external customers, as well as for managing quality across the whole customer journey.

II. OBJECTIVES OF THE STUDY

- To provide high-quality products and services that meet or exceed customer expectations
- To measure and monitor customer satisfaction and feedback
- To provide excellent customer service and support

III. STATEMENT OF THE PROBLEM

Many organizations struggle to meet the needs and expectations of their customers, resulting in low customer satisfaction and loyalty. This can lead to lost revenue and decreased competitiveness in the marketplace.

IV. REVIEW OF LITERATURE

- **Karia and Asaari (2016)** examined the implementation of Total Quality Management in Malaysian manufacturing firms. The study found that the successful implementation of TQM requires top management commitment, employee involvement, and a focus on continuous improvement. The study also found that TQM implementation leads to improved quality, customer satisfaction, and employee morale.
- **Yusof and Aspinwall (2000)** examined the factors that influence the success of Total Quality Management implementation in the UK manufacturing industry. The study found that top level management's commitment, employee involvement, and training and education were critical factors for success of TQM.
- **Ahire, Golhar, and Waller (1996)** investigated the impact of Total Quality Management on organizational performance in the US manufacturing industry. The study found that the firm that implemented TQM experienced significant improvements in quality, productivity and profitability.
- **Prajogo and Sohal (2001)** identified several critical success factors for Total Quality Management implementation, including leadership, employee involvement, customer focus, continuous improvement, and measurement and analysis.
- **According to Deming (1986),** Total Quality Management philosophy emphasizes on the importance of customer satisfaction. He argued that customer satisfaction should be the primary goal of any organization, and that TQM can help achieve this goal by focusing on continuous improvement in all areas of the organization.

➢ **Anderson and Fornell (1994)** found that companies that implement TQM practices had higher levels of customer loyalty than those that did not.
➢ **Kaynak and Hartley (2008)** found that Total Quality Management practices were positively related to customer loyalty in the service industry.

V. RESEARCH METHODOLOGY
Conceptual research based on Secondary data collected from the internet, books and articles.

VI. DEFINITION OF TOTAL QUALITY MANAGEMENT (TQM)
Total Quality Management is a structured approach to organizational management that seeks to improve the quality of products and services, through ongoing refinement in response to continuous feedbacks.

Total Quality Management describes a management approach to long term success through customer satisfaction.

In a TQM effort, all members of an organization participate in improving processes, services, and the culture in which they work. The methods for implementing this approach come from the teachings of quality leaders such as Philp B. Crosby, W. Edwards Deming, Armand V. Feigenbaum, Kaoru Ishikwa, and Joshep M. Juran.

Key concepts of Total Quality Management
• Structured system for exceeding customer expectation
• Continuous improvement
• Management-centered approach on improving quality
• Leads to higher profit
• Reduced cost and better-quality management

VII. DEFINITION OF CUSTOMERS
A customer is an individual who purchases a company's goods or services. Customers are the most important people in any business because they drive revenues, without them, businesses can't continue to exist. The main goal of all commercial enterprises is to attract customers, clients and make them purchase what they have on sale.

Types of Customers
• Potential
• Loyal
• New
• Discount
• Internal
• External

VIII. CUSTOMER ORIENTATION
Being customer-focused implies that an organization is clear about who its customers are at every level and stage. Being customer-oriented does not mean being oriented towards the

end users alone. It includes focusing on the needs of internal customers also in the value-added chain.

For example, in a hospital, the registration process is designed to meet the needs of the admitting department, business office of medical records, rather than to meet the needs of external customers, that is the patient.

IX. CUSTOMER'S PERCEPTION OF QUALITY

Understanding how the customer perceives quality is crucial. There is no acceptable quality level for the customers because their requirements, values, and expectations are continually evolving and growing more demanding. As a result, quality must be continually improved to satisfy client expectations.

Even when their consumers are not complaining, businesses that place a strong emphasis on services are constantly seeking for and implementing new ways to serve their clients more effectively. A product warranty is an organization's pledge to the public that it will provide high-quality goods and back it up with a promise of customer satisfaction.

Customers are now willing to spend more to get value for their money. Each consumer, however, has a unique idea of value in respect to each good or service. Customers frequently share their negative experiences with a product or service far more quickly than their positive ones. Once more, consumers of today are willing to pay a premium for a well-known or reputable brand name and frequently end up being loyal to such brands.

X. SERVICE QUALITY AND CUSTOMER RETENTION

In the modern world, the economy of a country is becoming more and more dependent on the service sector. Due to the growing significance of services as a means of strategically competing in the market, management of customer satisfaction and retention of consumers is crucial for the growth of service businesses. One of the biggest issues managers and executives are currently dealing with is service management.

The contact between staff and clients is essential because many services are intangible. The consumer and service provider must interact directly on a one-to-one or face-to-face basis. The cost and earnings, economies of scale, market share, and unit cost will all be significantly impacted by customer defection caused by subpar service.

XI. ADVANTAGES OF TQM

- Improved quality
- Employee participation
- Team work
- Working relationship
- Customer satisfaction
- Employee satisfaction
- Productivity
- Proper communication
- Profitability
- Market share
- Enhanced customer loyalty and retention
- Increased adaptability to global markets

XII. DISADVANTAGES OF TQM

- Initial introduction cost
- Benefits may be seen after several years
- Workers may be resistant to change
- Leads to too much attention
- Extremely demanding of management and staff time
- Not a quick fix, TQM takes time to implement

XIII. FINDINGS

- This study shows that organizations focus on providing high-quality products and services in order to meet customer satisfaction.
- This study shows that by measuring and monitoring customer satisfaction and feedback, organizations can identify areas for improvement and take action to address customer complaints and concerns.
- This study shows that TQM continuously helps in providing customer service and support in order to retain customers.

XIV. CONCLUSION

Total Quality Management is practiced by many business organizations around the world. It is a proven method for implementing a quality-conscious culture across all vertical and horizontal layers of the organization.

TQM is a customer-focused approach to managing an organization that emphasizes on continuous improvement in all aspects of the business, from product design to customer service. The ultimate goal of TQM is to provide high-quality products and services that meet or exceed customer expectations.

TQM also promotes employee involvement, team work, and a culture of continuous improvement, which can lead to profitability. The success of TQM depends on the involvement and commitment of all employees in the organization.

By focusing on customers, and by listening and responding to them, TQM helps organizations identify their needs and preferences, and develop strategies that can improve customer satisfaction and loyalty.

TQM emphasizes the importance of measuring and monitoring customer satisfaction, as well as using customer feedback to drive continuous improvement.

Overall, TQM is an effective approach for organizations that want to build long-term relationship with their customers and achieve sustainable success in today's competitive marketplace.

In conclusion, Total Quality Management focusing on the customer is a powerful approach to improving organizational performance. By placing the customer at the center of all the operations, organizations can deliver high-quality products and services that meet customer expectations. This leads to increased customer satisfaction, loyalty, and ultimately business success.

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INFLUENCE OF TOTAL QUALITY MANAGEMENT IN CUSTOMER SATISFACTION

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ABSTRACT

The business of an organization may be into manufacturing or providing service to the customers. The main focus on quality in the manufacturing sector is related to procurement of right quality of raw material since it enhances the quality of the finished product, using superior manufacturing process with the help of advanced and latest machinery, preservation of the finished products, packing the products according to the requirement of the customers, maintaining the shelf life of the product, and finally taking care of the delivery of the product to the customer according to his requirement in the right quantity at the right time and providing after sales services and customer support with an effective customer relationship management in order to maintain an effective customer relationship. This will reflect on the business growth of the organization and at the same time help to manage the competition. In this study, we discuss the influence of total quality management on customer satisfaction and analyze the role of quality in service delivery process in order to enhance the growth of business and manage the competition with an effective customer relationship management.

Keywords: service delivery, quality, customer relationship, customization

I. INTRODUCTION

The success of any business organization is attributed to various factors related to quality. The core business for any organization may be into manufacturing or providing service to the customers. The main focus on quality in the manufacturing sector is related to procurement of right quality of raw material since it enhances the quality of the finished product, using superior manufacturing process with the help of advanced and latest machinery, preservation of the finished products, packing the products according to the requirement of the customers, shelf life of the product, and finally the delivery of the product to the customer according to his requirement in the right quantity at the right time and providing after sales services with an effective customer care in order to maintain customer relationship. This includes the service business as quality plays an important role and there is no tangibility in providing satisfaction to the customers; but at the same time quality can be the main focus by providing a very effective customer care and customer reach or customer penetration to the next level that is adding value to the business by

providing customer satisfaction with quality with a better buying experience and an effective customer relationship through a superior service delivery.

II. OBJECTIVES OF THE STUDY

- To bring more clarity to total quality management.
- To know the recent trends related to customer satisfaction and quality.
- To analyze factors influencing customer service.

III. RESEARCH DESIGN

Methodology of the study

- This paper is developed on the basis of referring secondary data from books, journals, magazines, e-sources, websites and newspapers.
- Source of information are books, reports, documents and articles published in research journals, International and local magazines and websites.

Limitations of the study

- The study is limited to secondary data only
- The findings of the study cannot be generalized
- The authenticity of data provided by research reports, Journals and websites cannot be verified.

IV. TOTAL QUALITY MANAGEMENT

Total quality management (TQM) is a continuous process by organizations which involves detecting and reducing or eliminating errors in manufacturing, streamlining supply chain management, improving the overall customer experience, and ensuring that employees are updated with training.

Total quality management consists of significant efforts 'to make a permanent climate where employees continuously improve their ability to provide on demand products and services that customers will find of particular value over a period of time.'

TQM ensures superior quality products and services which can be evaluated in terms of performance.

V. TQM IN MANUFACTURING

Manufacturing plays an important role in providing quality products by adopting a superior manufacturing technology and superior raw materials in order to manufacture superior finished products. The manufacturing unit needs to be organized around a formal quality management system that supports consistent procedures, personnel policies, advances, efficient and safe equipment, a robust purchasing and inventory, process control, Information management, management of database documents & records with effective backups

TQM philosophy mainly revolves around various factors of customer focus, continuous improvement, employee empowerment, quality tools, product design, process management, and quality of materials supplied. Every organization involved in TQM has

to follow a critical Quality Policy, commitment from top management and continuous improvement in quality, training and education to implement TQM.

There is no widespread agreement as to what TQM is and what actions it requires for organizations apart from manufacturing and gives a rough understanding of how the organization benefits from TQM.

ZERO DEFECTS

Zero Defects (ZD) is a collaborative programme or philosophy within an organization, where everyone works together towards the ideal goal of there being no defects in quality in any of the products manufactured or services provided. It is not only applicable to manufacturing but it is applicable to all the functional areas of management like production, finance, sales and marketing and human resources management.

VI. TQM IN SERVICE

TQM concentrates on customer satisfaction, process improvement, cost reduction, and increased efficiency to improve the quality of goods and services in service sectors. The plan takes into account all parties, including partners, suppliers, clients, and other stakeholders.

TQM's emphasis on quality aids organisations in identifying employee skill gaps and the necessary upgrading of training, education, or mentorship needed to meet those requirements or areas as per necessity.

TQM has a strong emphasis on improving quality within a process, rather than inspecting quality into a process. This not only reduces the time needed to fix errors, but makes it less necessary to employ a team of quality assurance personnel for managing TQM.

The primary characteristics of good customer service are palpability, dependability, responsiveness, assurance, and empathy. Making sure the customers receive the best service will benefit the company in a number of ways, including increasing customer loyalty, enhancing brand recognition, enhancing reputation, giving the company a competitive edge, boosting employee morale, boosting revenues, luring more clients, and boosting customer conversion rates.

SERVICE DELIVERY PROCESS

Service delivery process is a process enabling the delivery of a service. It requires a connection between the provider and consumer and sometimes with a medium. The service is returned as long as the connection exists. When it stops, the service ends and each stakeholder find back its freedom. Important element of service delivery process is to identify business and commodity services required by business units, identify key stakeholders and priority for each business service, develop an enterprise, socialize across different enterprise, develop and execute work plan, measure service delivery. Continuously improving service delivery is a system or framework that provides products or services to customers in need. This framework can also include the channels of communication and interaction between a consumer and a service provider. The important service quality dimensions are tangibility, reliability, responsiveness, assurance, and empathy.

Tangibility is the appearance of physical facilities, equipment, personnel, and communication materials, reliability of the organization to attend to the customers, responsiveness to address issues raised by customers, providing customer assurance, empathy and delivering quality service.

It affects customer's individual behavior, and his motivation towards availing the service has a strong influence on his buying experience and decision-making process until the service delivery is complete.

SERVICE DESIGN

Creating service design and delivery processes enables those in the service industry to establish a baseline in order to provide consistent service to the customer and builds up a systematic mechanism, that not only ensures a better experience to the customer, but also allows organizations to understand what is working.

The important elements of service delivery (pre-service, point-of-service, and after-service) incorporate the production or creation of the service and include primarily operational processes and marketing activities.

Service delivery system is a complex, interrelated set of organizational and technological inputs and processes, resulting in provision of such services as mental health interventions, public health programs, social welfare, and education.

Efficient service delivery leads to the utilization of resources to their greatest advantage and minimizes associated costs. Unfortunately, the characteristics of services often make efficient delivery difficult if the organization does not have an effective service design. Research, ideation, prototype, and execution are the four main steps in the service design process. Each of these crucial tasks can be completed using a wide variety of tools and techniques, which can then be combined in a variety of loops.

SERVICE DELIVERY PLATFORM

A service delivery platform (SDP) is a group of elements that offers service delivery architecture, including service development, session control, and protocols, for a particular type of service given to consumers, including both individual and business customers. Despite being frequently used in relation to communications services, it can be used to describe any system that offers a service, such as VOIP telephone, Internet Protocol TV, or Internet service.

SDP often requires integration of IT capabilities and the creation of services that cross technology and network boundaries. SDP available today tends to be optimized for the delivery of a service in a given period of time with technological or network support. They typically provide environments for service control, value and monitoring of issues which have not been solved for a long period of time.

SERVICESCAPE

Servicescape is a model developed to study the role played by the physical environment in which the service process is delivered. The main aim of servicescape is to analyze the behavior of people within a service environment with a view to find and design environments that play an important role in accomplishing organizational goals. When consumers visit a service or retail store, the service environment is the first factor to be

considered - the service that is perceived by the customer during this stage, influences impressions that are likely to form of the level of service they will be receiving during the service delivery process.

It is understood that servicescape is the environment in which the service is assembled and delivered to the customer and it is the place which facilitates the interaction between the seller and customer. The servicescape is often referred to the intangible and non-human elements of the environment in which service encounters occur in a specific time and for a specific duration of time.

The servicescape does not include processes like methods of payment, billing, order generation etc. however, external promotions like advertising, publicity, public relations, social media, websites etc. contribute to it.

The servicescape includes facilities which are exterior like landscaping, exterior design, signage, parking, surrounding other environments like indoor plants, garden, fountain, art work, and interior like interior design and decor, equipment which add ambience, layout and ambient conditions which even includes the air quality, air purification system, temperature and lighting.

GREAT CUSTOMER SERVICE

The main purpose for contacting a customer service center is to resolve an issue or to get knowledge of products and services; and prompt response in case of value addition, first call or instant resolution are expected.

The important factors of good customer service are it should be personalized, competent, convenient, and proactive. These factors have the biggest influence on customer experience which over a period of time becomes customer delight.

Good customer service means consistently meeting customers' expectations. Great customer service is quick and instant, easy and simple, personalized and customized, and empathetic. Companies that deliver excellent customer service take the time needed to understand the needs of their unique customer base in order to fulfill the expectations of customers.

VII. TQM IMPLEMENTATION TO ENHANCE CUSTOMER SATISFACTION

Everything comes down to customer satisfaction. If customers are happy, your improvements worked. If they're dissatisfied, it's time to reevaluate your strategy.

Total employee involvement - every employee should be invested in the common goal of continuous improvement. It is important for business organizations to build an effective and long-term customer relationship by providing effective customer satisfaction which, over a period of time, provides multiple benefits for the business organization.

Apart from providing volume and value sales, it reaches other areas of business by satisfying various stakeholders in the business, like suppliers, investors, financial institutions, distributors, the government and the general public at large.

Investment on quality is an investment into the future of the business organization - to effectively manage competition and be prepared for upgradation, modernization, and implementation of new and advanced technology, not only in the manufacturing process but also in providing services and building long term relationship with customers, which brings brand loyalty. Once a business organization produces brand loyal customers, it

reduces the financial burden for the business as there is no need for large investments towards advertising and competition can be managed effectively.

VIII. CONCLUSION

Companies which practice an effective TQM system, find themselves in a better position to manage competition, satisfy customer's needs and wants with superior products, reduce wastage, produce zero-defect products, enhance efficiency, maintain quality standards and are recognized with quality certification by different certifying agencies.

They are always in a position to implement change in different functional areas of management like production, finance, human resource, sales and marketing, research and development, and over a period of time the satisfied customer will bring in more customers by becoming brand ambassadors for the products and services.

This builds a customer base for the organization which translates into brand loyalty and customer delight, which further leads to increase in sales and profit.

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A STUDY ON QUALITY OF WORK LIFE OF ACADEMICIANS WITH REFERENCE TO EDUCATIONAL INSTITUTIONS IN BANGALORE

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ABSTRACT

Work environment is very important for every employee as they build their career and contribute towards organisations' growth. A healthy balance between work and personal life is seen in the quality of one's working life. QWL is one such topic which has gained a lot of importance in the recent past. This study mainly aims at exploring various factors affecting QWL with reference to academic sector, Bangalore. One of the major challenges faced by private colleges is to retain the best workforce. Questionnaire method is used to collect the data from academicians. Walton model of quality of work life is analysed. Data is collected from 60 samples. Demographic factors are also taken into consideration to find out which factor has more influence and which factor has the lowest influence in workplace.

Keywords: QWL, Factors, Walton model, Academic staff, Demographic

I. INTRODUCTION

Quality of Work Life is the quality of relationship between work environment and employee's personal life.

According to Chelte (1983), the quality of the working environment includes consideration of human factors as well as technological and financial factors. QWL is essential for sustaining qualified and skilled staff in this hostile work climate. High QWL would help in meeting employees' requirements, efficiently achieving organizational goals.

According to Saraji and Dargahi (2006), the concept of quality of work life is a dynamic, multi-dimensional construct that comprises ideas like job security, reward systems, training and professional growth, and decision-making opportunities.

According to Eyan (1995), the majority of studies on the standard of labour in the 1960s concentrated on people's psychology and how they saw the workplace.

Huzzard (2003) also notes that the term "quality of work life" was used broadly in the 1980s to refer to a variety of characteristics in several disciplines, including organization, work environment, and collaboration.

A notion similar to "humanization of work" in Germany, "improvement of working conditions" in France, or "protection of workers" in several Eastern European nations was quality of work life.

These variations imply various perspectives on elements of working life quality. In other words, the concept of quality of working life began to decouple psychology and move towards a social approach in the 1980s, which was a technical view of teamwork and organization.

Furthermore, according to Hamidi and Mohamadi (2012), the idea of quality of work life is connected to social-technical systems in job enrichment, which are linked to employees' participation and obligations in their own right. Retention of the best talent in an organization has become one of the major challenges in private organizations.

II. REVIEW OF LITERATURE

➢ Linda (2006) in her study says that salary was the main element of Quality of work life which provides satisfaction to employees among the University of Hawaii.

➢ Jeevan (2010) in his study about QWL in Higher Educational Institutions shows that good QWL decreases the employee intention to leave the organizations.

➢ Shahbazi (2011) in his study suggests that QWL has a direct impact on employee performance.

➢ Islamand Malarvizhi (2012) in his study suggests that compensation plays an important role in attracting and retaining skilled employees towards an organization.

➢ Bindu and Yashika (2014) in their study confirm that there is low QWL in Indian academic sector and also suggest that changes in the work environment is necessary to improve QWL

➢ Jegadeeshwaran and Bhavani (2014) in their study show that there is a positive relationship between QWL and job satisfaction. They also suggest that work environment has more importance than job security or compensation.

➢ Mehrotra. R., and Khandelwal. V., (2015) in their study suggest that there is a relationship between gender and salary. Employee satisfaction is higher among women than among males.

➢ Sharma and Kaur (2016) conducted a comparative study among public and private universities in Punjab. The study shows that better working hours, rewards, leave plan has a lot of impact on employee performance.

➢ Yitbarek (2017) in his study about government colleges reveals that better QWL always leads to employee commitment

➢ Kaur. K (2018) in the study reveal that the universities should provide more opportunities to employees to retain them.

III. OBJECTIVES

• To study the various factors affecting QWL with reference to academic sector in Bangalore.
• To study the factors which contribute the most towards QWL.

IV. METHODOLOGY

Data Collection: Primary data was collected from the respondents using questionnaires. Secondary data was collected from various journals, articles, books etc.

Sample Size: 60 college teachers in Bangalore.

Tool used for data collection: Structured questionnaire was used for sample collection. The questionnaire was adopted from an extensive literature survey (Richard, E Walton, 1975).

Sampling Method: Simple Random Sampling

Area of Sample Collection: Bangalore

Table 1.1 The existence of QWL is determined by various factors

Sl. No.	QWL measure index	% agreed by academicians	% disagreed by academicians
1	Total job involvement	73.2	26.8
2	Full job satisfaction	39	61
3	Feel competent	87.5	12.5
4	Counted as performer	82.9	17.1
5	Considered a contributor in the productivity of the institute	82.5	17.5

From the above table it is analyzed that the majority of academicians—73.2% said they feel completely engaged in the work assigned to them by the institution. While 39% of academics admitted that they are still unsatisfied with their jobs, on the other hand. Approximately 87% of the respondents acknowledged that they felt qualified to carry out their assigned tasks at the colleges, which included instructing the subjects that were given to them. A little over 82.9% of academics acknowledged that they are valued performers in their individual institutions, and an additional 82.5% said that they are valued contributors to the reputation of their teaching institutions.

It is clear from table 1.1, that more than 70% of academicians agreed with four out of the five characteristics, indicating that there is positive workplace quality in private colleges in Bangalore. Regarding the existence of QWL in the colleges of Bangalore, four out of the five deciding factors are viewed favorably.

Table 1.2

Sl. No.	Factors contributing to QWL	% agreed	% disagreed
1	Compensated as per the efforts	30.8	69.2
2	Facilities like cleanliness, safety measure and basic amenities present	85	15
3	Timely feedback given	55	45
4	Talent utilized	65	35
5	Think job is challenging enough	55	45
6	Enough opportunities given to progress and grow	42.5	57.5
7	Trustworthy, upward advancing, self-esteem fulfilling and equal treating environment	71.8	27.2
8	Provision to challenge management decision	30	70
9	Freedom of speech	67.5	32.5
10	Balance of personal and work life well	72.5	28.5
11	Institute more concerned about social causes	53.8	46.2

Table 1.2 summarizes the contributing elements to the existence of QWL. The percentage of academics who believe that they get paid according to their work is about 30.8%, while the percentage who disagree with this statement is about 69.2%. Approximately 85% of academics agreed that facilities like cleanliness, safety precautions, and basic amenities are present in their institutes, with 15% of them disagreeing and emphasizing the benefits of QWL's presence.

Indicating the presence of QWL in the institutes of Bangalore, 55% of academics agree that there is a timely feedback mechanism regarding the academics' work progress, with 45% still disagreeing. 65% of academics agree that the institute makes use of their talent, yet 35% still disagree that this is a sign that QWL exists. A little over 55% of those surveyed agree that the tasks assigned to them are sufficiently difficult to spur them on to do well, while 45% feel that their work is not difficult enough. This continues to suggest that QWL exists in Bangalore region.

42.5% of academicians think that opportunities for growth and advancement are provided in private institutions, but 57.5% dispute that QWL is not present. About 71.8% of academics think that they work in a reliable, forward-moving, self-esteem-fulfilling, and equally treated environment, while 27.2% disagree.

Only 30% of academics agree that it is possible to challenge management decisions, and 70% of academicians deny that such a provision exists in their institutions, indicating that QWL does not exist. While 32.5% of academicians disagree with the existence of this factor in their institutions, 67.5% of academicians agree that freedom of speech is a factor indicating the presence of QWL. The criterion that 72.5% of academicians feel strongly indicates the presence of QWL is balancing work and

personal life, with 28.5% still disagreeing. According to the concerned academicians, 53.8% of private institutes in Bangalore demonstrate care for social causes, while 46.2% continue to disagree, demonstrating the general presence of a culture of Quality of Work Life in the educational institutions.

Out of the 11 factors that contribute to the existence of QWL in an organization, it can be said after analysis by looking at the tables above that, mostly (approximately 72%), or 8/11, factors exist as acknowledged by more than 50% of the academicians interviewed. This proves that there is QWL in private colleges.

V. FINDINGS

1. It can be seen from table 1.1 that more than 70% of academicians agree on issues like feeling competent, being seen as a performer, contributing to the expansion of the private educational institution, and overall job involvement.

2. Approximately 61% of academics who worked at private educational institutions in Bangalore, India, did not experience complete job satisfaction.

3. The academicians in the private institutes find that four of the five dimensions indicative of QWL, namely feeling of competency, being counted as a performer, being counted as a contributor to the growth of the private institution, and total job involvement, are the most agreeable.

4. From table 1.2, it can be deduced that eight out of the eleven contributing criteria for QWL were accepted by more than 50% of the academics, showing the prevalence of QWL in the institutions.

5. The presence of facilities such as cleanliness, safety precautions, and basic amenities (85%), a good balance between one's personal and professional lives (72.5%), and a work environment that is dependable, upwardly mobile, self-esteem-fulfilling, and equal treatment (71.8%) are the top three most frequent factors influencing QWL in private institutions, in that order.

VI. CONCLUSION

1. Four of the five variables used to assess the presence of QWL in private institutions in Bangalore region are valid, according to more than 70% of academics. Based on this, we can conclude that QWL is present in private institutions in Bangalore.

2. Full work satisfaction is the only indicator of QWL at the institutions that is missing from private institutions in Bangalore. Academicians feel capable of handling any task that is given to them. They are also pleased with the fact that they are recognized as performers in their institutions.

3. Of the 11 factors considered in this study that contribute to the development of QWL, 8 were discovered to be present, demonstrating the existence of QWL in the private institutions in Bangalore.

4. The existence of amenities like cleanliness, safety precautions, and the availability of basic necessities, the balance of personal and work life, and a trustworthy, upward-moving, self-esteem-fulfilling, and equal-treating atmosphere are the top factors most frequently found to affect QWL in educational institutions.

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A STUDY ON LATEST TRENDS OF
CONTENT MARKETING IN BUSINESS

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ABSTRACT

One of the key components of digital marketing is Content Marketing. It is a marketing tactic that aids in luring clients. It has become more well-known in recent years. Compared to conventional marketing, it is more efficient. Content marketing adds value by giving consumers information about all goods and services that they might find valuable. Giving consumers the advantage of information is the primary goal of content marketing. Traditional marketing is becoming less effective as a result of content marketing's increased effectiveness. The goal of content marketing is to educate and engage target audiences while establishing brand awareness and trust. They include blogs, social media posts, influencers, videos, newsletters, podcasts, and many others.

Keywords: social media, digital marketing, potential customers, etc.

I.   INTRODUCTION

Material marketing is a type of advertising that helps identify, distribute, and publish the required material to the intended audience. The process of organising, producing, disseminating, and publishing material through a variety of platforms, including social media, apps, press releases, and more, is known as Content Marketing.

Although not a new concept, content marketing is currently becoming more popular in the eyes of today's generation as a result of the increased effectiveness of social media and digital media. The phrase 'Content Marketing' was first used in 1996 during a roundtable discussion at the American Society for Newspaper Conference, but it wasn't officially adopted until 2008–2009.

Due to the fact that today's generation uses social media and its applications more than any other, content marketing is quickly replacing traditional marketing as consumers become accustomed to it. Consumers are the most crucial element in every aspect of marketing, and content marketing has succeeded in achieving this element as a result of its rising popularity in recent years.

II. OBJECTIVES OF THE STUDY

- To understand the insights of content marketing techniques.
- To discover the significance of content marketing in the digital arena.
- To learn the key drivers for companies to adopt content marketing.

III. STATEMENT OF THE PROBLEM

Content Marketing has changed over the past few years in the commercial world. It would be beneficial for organisations to learn and adopt its techniques.

IV. REVIEW OF LITERATURE

People will have distinct customer profiles on numerous platforms; therefore, they won't want to read the same information everywhere, so there must be differences in the material on each one. Each piece of content should have a unique narrative while still containing the relevant data. The study of content marketing focuses on the effects of brand recognition through the use of social media and, consequently, on consumers' purchasing habits.

- ➢ According to Cheung et al. (2019), content marketing is one of the social media marketing methods that is effective in cultivating and promoting effective articles, videos, and podcasts in order to engage, retain, and attract an audience. Regarding the impact of social media marketing on brand awareness, the journal article is useful. Brand awareness is the degree to which consumers can recognise a particular brand in a variety of contexts.
- ➢ According to Ansari et al. (2019), the influence of social media marketing and content marketing can affect consumers' purchasing decisions. Strong content can aid clients in understanding the company's mission and also serve to showcase the components that the brand is attempting to convey.
- ➢ According to Vinerean (2017), interactions through internet media have made customers a crucial component of marketing. The most crucial element for customers to share their experiences with products and services is content sharing.
- ➢ According to Dabbous and Barakat (2020), social media marketing is influencing how efficiently brands and businesses engage with their target audiences. The study examines the relationship between offline and online media, and it has been determined that the businesses are making high-quality goods.

Overall, the analysis of the literature on content marketing shows that it is quite effective at retaining customers, building brands, and giving customers useful information.

V. RESEARCH METHODOLOGY

Conceptual research using secondary data obtained from websites.

VI. TOP CONTENT MARKETING COMPANIES

1. HubSpot

It is one of the most dominant businesses in the field of content marketing. Brian Halligan and Dharmesh Shah founded HubSpot. According to reports, they are a true leader in the area of digital marketing. By the time a salesperson looks to make a sale, it's thought that 70% of the customer's trip has already been accomplished. Their blog generates over 10 lakh visits each month, demonstrating how unmistakably it holds the top ranking in SEO.

2. TED

They organise seminars and conferences all around the world where influential people and competitive leaders present in their respective fields of expertise. These videos are widely disseminated through blog postings and social media.

They have over 22 million YouTube subscribers, their videos have reportedly been seen a billion times.

3. Hawke Media

This Santa Monica, California-based, brand-focused business creates digital marketing solutions for companies of all sizes. E-mail marketing, Facebook advertising, media buying, influencer marketing, SEM, design, and other areas are some of the specialties of content marketing.

Hawke, a minor up-and-coming player in the business world, has also worked with other well-known companies, including Verizon and Raleigh.

VII.   INDIAN BUSINESSES WHO ACHIEVED PROMINENCE THROUGH CONTENT MARKETING

1. Oreo India

Oreo India has figured out how to keep its audience interested in the material it produces. Oreo initially had several difficulties because Britannia and Parle controlled a large portion of the Indian market. With the help of Daily Dunks and Bollywood star Ranbir Kapoor, they launched a brand awareness campaign. The At Home with Oreo campaign aims to inspire and encourage playfulness when indoors. Oreo has always been a brand that encourages and supports fun family times. A fun competition that recruits participants by essentially passing the Oreo baton. The playful spirit is, after all, at its finest when it is shared. Top competitors of Oreo India include Tango, Delta Automation, Adult Daycare, Moula, Close the Gap, Yello Springbok, Winkflash, Coinloan, and others.

2. Spotify Wrapped Playlists

One of the music streaming service's most effective content marketing initiatives is Spotify Wrapped. Every year, around the holidays, Spotify subscribers receive a wonderful compilation of all the songs they've listened to. The compilation is presented with graphics in vibrant colours and is divided by genres, years, musicians, and more. Users then have the option to share their wrapped playlists on social media, which is a crucial component that has caused the campaign to trend on social media every year since its beginning. It then generates a personalised playlist of the user's most-listened-to songs.

3. LinkedIn

Although it initially found it difficult to compete with Facebook, LinkedIn has grown to be a well-liked network for content exchange, especially among B2B businesses. Its utilisation of best practises for content marketing is largely responsible for this achievement. LinkedIn has so far used applications like Sales Navigator and TeamLink to boost the effectiveness of its content marketing campaigns. Ralf VonSosen is LinkedIn's Head of Marketing for Sales Solutions. Making useful tools can be a terrific way to give your consumers extra value.

4. Coca Cola

Another iconic brand utilising the potential of content marketing to increase its market share is Coca-Cola. Since soft drink sales have been falling for the past ten years, it is imperative

that the company improve its branding approach. The company's repositioning has been aided by content marketing. Although the industry's income is still declining, the company is still facing difficulties, but it has fared better than other companies like PepsiCo. and Cott. This year, sales have begun to increase, and Business 2 Community author Hephzy Asaolu claims that there is solid evidence demonstrating that revenue growth is highly correlated with content marketing initiatives, which have aided Coca-Cola in connecting with clients around the globe.

VIII. FINDINGS

1. Content marketing has aided in bringing in the most customers for the company in recent years.
2. Content marketing is used by 73% of B2B and over 70% of B2C marketers.
3. In terms of brand awareness, more than 88% of marketers have succeeded.
4. 80% is the average open rate for all industries.
5. According to the report, there are 2.78 clicks every second on average.
6. According to recent studies, content marketing is more successful at generating sales.
7. Many businesses with a content strategy have experienced a 30% higher growth thanks to content marketing.

IX. CONCLUSION

Due to rapid growth of social media marketing and its applications in today' s era , the usage of internet, online apps , digital information are also increasing. Most B2B marketers use content marketing to promote their brand. Content marketing has achieved their targeted audiences.

Content marketing is providing valuable information to the customers above their business and are able to retain their customers. Content marketing is helping customers build trust and be confident in buying their desired product. This study has achieved the concept of the study of recent trends of content marketing in business by analyzing the top dominating companies all over the world.

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QUANT MUTUAL FUNDS - DOES IT REALLY WORK?

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ABSTRACT
Investments in expectation of higher return comes with higher risk. There are varied number of investment products in capital market but there is one quantitative fund which is based on algorithms and mathematical models in the mutual fund sector which has more probability of earning higher returns on investments. Quant mutual funds gained popularity from 2017 which was introduced by Quant Money Managers Ltd. who actually pioneered the concept of quant mutual funds. These funds have outperformed the market in the year 2021 and the fund house's AUM has exponentially increased by 35 times i.e., its reached Rs.5000 crore. The study analyses the top 5 quant mutual funds for the last 3 years in order to check its growth in terms of NAV and yearly returns. It is evident that from the last 3 years especially in the year 2021, all these funds have outperformed the benchmark index and given good returns. Even though volatility is high in these funds, there is no negative return found in the last 3 years. The study suggests that quant mutual funds can be a good investment avenue for high risk takers and for those who rely on the mathematical or quantitative models for prediction.

Key Words: Quant Mutual funds, Mathematical models, AUM, Risk & Return.

I.   INTRODUCTION

Investments in expectation of higher return comes with higher risk. In the capital market there are numerous investment products for all types of investor classes like equities, mutual funds, debt instruments, derivatives etc. Investors adopt different types of investment strategies depending on their risk profile, amount of funds available, time period, purpose of investment etc. In 1996, a mutual fund type based on the quantitative tools and mathematical models was developed by Sandeep Tandon, founder of Quant groups which adopted the dynamic and active style of fund management with a focus on predictive analysis. This reinforced the fund to perform even in the adverse market situations. Quant mutual fund has vast range of schemes across tax saving, equity, debt and other categories.

The concept of Quant fund was originally started by Quant Money Managers Limited "QMML" (AMC) in the year 1995, got approved by SEBI to act as AMC in the year 2017. Currently, the AMC handles Rs. 6,506 crores worth of assets. Quantitative funds, also known as quant funds, are investment funds that employ sophisticated algorithms and data analysis to guide their investment decisions. Unlike traditional funds that rely on human fund managers' judgment, quant funds utilize computerized models to identify patterns and trends in financial markets. These models incorporate diverse inputs such as financial statements, economic data, news articles, and even social media sentiment. Quant funds can be managed by hedge funds or mutual funds and can be further classified into different types based on their investment objectives and strategies.

II.   TOP QUANT MUTUAL FUNDS IN INDIA

Scheme Name	Category	3 Year Return (%)	AUM (Cr.) (Rs.)
Quant Active Fund - Direct Plan - Growth	Multi Cap Fund	42.61	3687.61
Quant Small Cap Fund - Direct Plan - Growth	Small Cap Fund	65.47	3578.84
Quant Tax Plan - Direct Plan - Growth	ELSS	46.58	3198.18
Quant Mid Cap Fund - Direct Plan - Growth	Mid Cap Fund	41.39	1665.5
Quant Absolute Fund - Direct Plan - Growth	Aggressive Hybrid Fund	36.93	1073.76
Quant Liquid Plan - Direct Plan - Growth	Liquid Fund	4.99	1,450.12
Quant Infrastructure Fund - Direct Plan - Growth	Sectoral/Thematic	55.31	853.19
Quant Large and Mid-Cap Fund - Direct Plan - Growth	Large & Mid Cap Fund	29.52	709.33
Quant Multi Asset Fund - Direct Plan - Growth	Multi Asset Allocation	39.47	683.07
Quant Focused Fund - Direct Plan - Growth	Focused Fund	30.49	237.78

III.   STATEMENT OF THE PROBLEM

Mutual fund industry has outgrown in past few decades with a gradual increase in the Asset under management which is currently 39 lakh crores. It offers wide range of schemes for different investors classes based on their risk and return objectives. All these funds are managed by fund managers who use their expertise in maximising the return with minimal risk exposure. Funds like quant funds are analysed using algorithms and mathematical models along with the human judgement, these funds have outperformed the market post Covid and also shown positive returns. Literature has shown very minimal importance

towards the analysis of these quant mutual funds, so this study throws light on the selected funds based on quantitative models to highlight their importance in Indian financial market.

IV. NEED FOR THE STUDY

As investors sacrifice their present consumption in expectation of a future return, financial intermediaries need to adopt different strategies to maximise the return even in adverse market conditions. Most of the analysis of fund houses are dependent on the manager's expertise and manual calculations but there are funds which are based on quantitative techniques which can be adopted to analyse and invest the funds, hence there is a need to understand these types of funds and their risk and return profile so that investors can consider the quant mutual funds for their investment decisions.

V. OBJECTIVES OF THE STUDY

* To study the concept of quant mutual funds in Indian financial market.
* To analyse the growth of quant mutual funds on the basis of NAV and return.

VI. LIMITATIONS OF THE STUDY

The study concentrated only on top 5 selected funds for the time period from 2020 – 2022.

VII. RESEARCH DESIGN

The study is based on the descriptive research design in which growth of top 5 performing quant mutual funds are analysed on the basis of their NAV and return percentage for the last 3 years. All these funds are held by Quant Money Manager's Ltd.

VIII. SELECTED QUANT MUTUAL FUNDS

1. Quant Small Cap Fund - Direct Plan - Growth

The Quant Small Cap Fund focuses on investments in small-cap companies, or businesses with a modest market capitalization. These businesses frequently have rapid expansion potential, but they also could be riskier. To find small-cap firms with promising growth potential, the fund uses quantitative methodologies and its own models. The small-cap segment's market trends, financial stability, and potential for growth are among the considerations the fund manager uses to choose stocks. With a focus on small-cap companies, this fund exposes investors to a market which is recognised for high growth potential but also greater volatility when compared to larger-cap companies.

2. Quant Tax Plan - Direct Plan - Growth

The Equity Linked Savings Schemes (ELSS), which are tax-saving mutual funds in India, include the Quant Tax Plan. Under Section 80C of the Income Tax Act, these funds offer tax advantages to investors while pursuing capital growth. To achieve capital appreciation, the fund primarily invests in stock and equity-related assets. In order to maximise returns while minimising taxes, the investment approach focuses on finding equities in a variety of market segments with growth potential. This fund offers tax advantages to investors, making it a desirable choice for people looking for long-term gain prospects in the equity markets as well as tax savings.

3. Quant Infrastructure Fund - Direct Plan - Growth

The Quant Infrastructure Fund concentrates in investments in businesses engaged in infrastructure-related activities, such as transportation, energy, utilities, and building. The fund wants to take advantage of this industry's growing prospects. The fund primarily invests

in infrastructure company equities and equity-related derivatives. The investment approach entails in-depth investigation and analysis of variables that affect the infrastructure sector's financial stability, regulatory climate, and macroeconomic conditions. Targeting businesses involved in developing and sustaining important infrastructure projects, this fund gives investors exposure to the infrastructure sector. Compared to funds that invest in wider market segments, it offers a narrower concentration.

4. Quant Mid Cap Fund - Direct Plan – Growth
The Quant Mid Cap Fund is primarily focused on making investments in mid-cap companies, or businesses with a medium market capitalization. These businesses typically strike a balance between established operations and room for expansion. The focus of the fund's investment strategy is locating mid-cap stocks with potential for long-term capital growth. The fund management chooses mid-cap stocks based on aspects like financial health, growth prospects, and market trends within the mid-cap group using quantitative methodologies and proprietary algorithms. Mid-cap companies, which are bigger than small-cap but smaller than large-cap corporations, are the exclusive focus of this fund. It provides access to a market sector noted for its potential for growth.

5. Quant Absolute Fund - Direct Plan - Growth
Regardless of the state of the market, the Quant Absolute Fund aims to produce absolute returns. No matter whether the overall market is rising or falling, the goal is to generate positive returns. The fund uses a dynamic asset allocation strategy, which involves constantly adjusting how much money is invested in various asset classes, including debt, equity, and derivatives. To choose the best allocation at any given moment, the fund manager makes use of quantitative models, proprietary frameworks, and market signals. This fund is focused on producing good returns regardless of the state of the market, unlike many other funds that try to outperform a benchmark or generate relative gains. With the goal of maximising returns under various market conditions, the fund is able to adjust its portfolio according to the dynamic asset allocation method. With this strategy, the fund stands apart from others that have a more conventional focus on relative performance or certain market areas.

IX.   DATA ANALYSIS AND INTERPRETATION

Table 1.1: NAV growth of 5 Quant Mutual Funds from 2020 to 2022

Mutual Funds	NAV (In Rupees)		
	2020	**2021**	**2022**
Quant Small Cap Fund - Direct Plan - Growth	71.9818	138.0081	153.4609
Quant Tax Plan - Direct Plan Growth	144.4924	235.9061	269.358
Quant Infrastructure Fund - Direct Plan - Growth	11.9025	21.9239	25.2871
Quant Mid Cap Fund - Direct Plan - Growth	81.4326	125.2807	150.2585
Quant Absolute Fund - Direct Plan - Growth	196.2858	283.8014	327.1057

(Source: money control.com)

Graph 1.1: Growth of NAV of selected Quant Mutual Funds
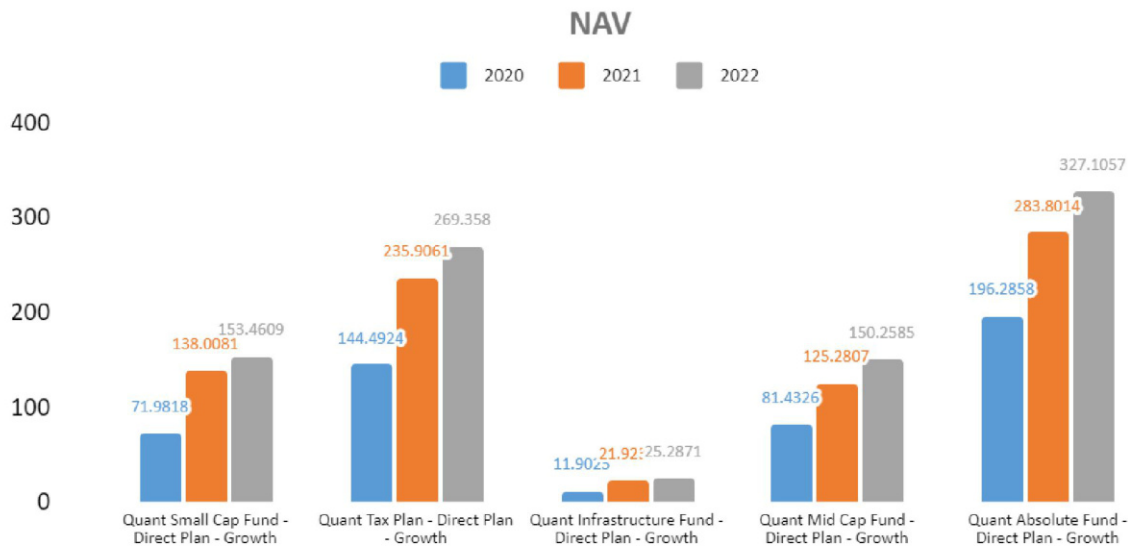
Inference: It is evident from the above representation that the NAV of all 5 Quant Mutual Funds have shown an increasing trend from last three years irrespective of the type of fund. Strategies such as active portfolio revision, VLRT methodology, and dynamic approach have attracted the investments towards the Quant Mutual Funds.

Table 1.2: Return Analysis of 5 Quant Mutual Funds from 2021 to 2022

Mutual Funds	Return (%)		
	2020	**2021**	**2022**
Quant Small Cap Fund - Direct Plan - Growth	75.14%	88.17%	11.20%
Quant Tax Plan - Direct Plan - Growth	49.85%	60.60%	14.18%
Quant Infrastructure Fund - Direct Plan - Growth	34.13%	81.35%	15.34%
Quant Mid Cap Fund - Direct Plan - Growth	44.09%	50.26%	19.94%
Quant Absolute Fund - Direct Plan - Growth	37.25%	42.67%	15.26%

(Source: Money control.com)

Graph 1.2: Return Analysis of selected Quant Mutual Funds
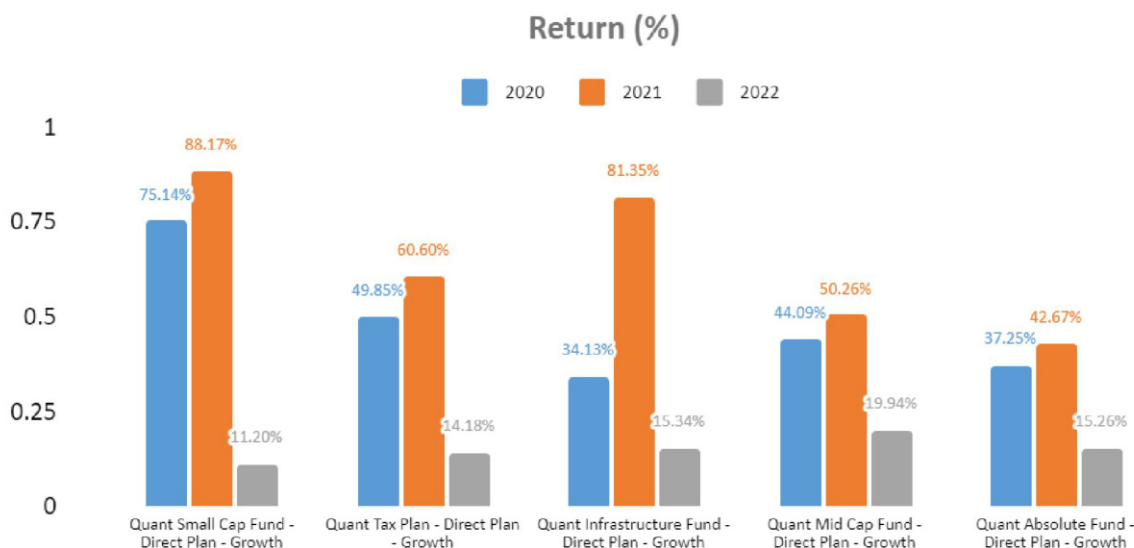
Inference: The returns of all the selected quant funds for the last 3 years are positive. There is an exponential growth in the returns in the year 2022 but this growth has been drastically reduced in the following year (2022). But even in adverse market conditions, the returns have not reached the negative line.

X.   FINDINGS & SUGGESTIONS

It is identified from the study of selected quant mutual funds in Indian financial market that, the dynamic approach of quant mutual funds eliminating the human bias and streamlining the algorithms according to the investment requirements have reinforced the funds to outperform the benchmark indices and yield positive returns. The selected funds have shown increasing trend in NAV as well as returns in the year 2020 and 2021, and a drastic decrease in the year 2022, but the returns have not reached the negative line during the study period.

The financial institutions can create awareness about these mutual funds among different investor classes who are ready to take up high risk in the equity market. Investors have to wisely select the funds and it's always suggestable to invest for a longer time horizon for greater returns.

XI.   CONCLUSION

The study depicted that the investments in quant mutual funds earn better returns with higher risk dimension. The analysis shows that there is a gradual growth in the NAV And returns of selected quant mutual funds in the last 3 years. The designing of quant funds based on quantitative models by eliminating the human judgement has made these funds different and attractive when compared to other funds. Inspite of criticisms in respect of rationale embedded in the quantitative models which sometimes may not consider the market sentiments, these funds have shown better performance. Investors can choose among various types of quant mutual funds depending on their risk and return profile for long term.

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UNDERSTANDING GENERATION Z
-   THE FUTURE WORKFORCE

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ABSTRACT

Generations born in the 1990s and raised in the 2000s during the most profound changes in the century, who exist in a world with web, internet, smart phones, laptops, freely available networks and digital media are considered as the Generation Z.

Social media has been a part of Generation Z's upbringing, and they place a strong emphasis on technology. In order to attract and engage with Generation Z candidates and develop them into the company's future leaders, recruiters must first have a thorough awareness of their traits and preferences.

Generation Z tends to be impatient, instant minded, lacking the ambitions of previous generations, have acquired attention deficit disorder with a high dependency on the technology and a low attention span, individualistic, self-directed, most demanding, acquisitive, materialistic and entitled generation so far.

In this conceptual study we try to understand the role of Generation Z and its impact on human resources.

Keyword: Generation Z, workforce, technology, work place

I.   INTRODUCTION

Generations born in the 1990s and raised in the 2000s during the most profound changes in the century who exists in a world with web, internet, smart phones, laptops, freely available networks and digital media are considered as the Generation Z. Generations Z is raised with the social web, they are digital centric and technology is their identity. They are also referred to as Generation I, Gen Tech, Digital Natives, Gen Wii etc. They are born and raised in the digital world and what distinguishes them from other generations is that their existence is more connected to electronics and digital world.

According to **Knoll (2014),** while companies are struggling to recognise and understand the demands of Generations X and Y in the twenty-first century, they now have an entirely new generation, namely Generation Z, with which

to work. Organisations must not only cater to Generations X and Y, but also anticipate the needs of the emerging Generation Z in the workplace in order to facilitate efficient collaboration among diverse generations.

However, nothing is known about the traits, requirements, characteristics, and working habits of this Generation Z. Employers and HR managers should therefore anticipate workplace requirements and alter their approach for attracting, inspiring, and keeping these developing young workers who will soon be arriving. Understanding them is essential if you want to keep the best talent from the newest generation and take advantage of their advantages to keep the business growing. Understanding the traits and preferences of Generation Z will help recruiters draw them in and establish connections with them in order to groom them to become the company's future leaders. Without a proper understanding, businesses will struggle to find and keep the most talented Generation Z candidates, and they will also fail.

According to the **Institute for Emerging Issues (2012)**, Generation Z is the most ethnically diverse and technologically sophisticated generation. Generation Z has an informal, individual and straight way of communicating, and social networking is a vital part of their lives. They are a Do-It-Yourself generation.
In the study conducted by **Dan Schawbel (2014)**, Generation Z tend to be more entrepreneurial, trustworthy, tolerant and less motivated by money than Gen Y. They are more realistic about their work expectation and optimistic about the future.
Based on the findings of **Generational White Paper (2011)**, Generation Z tends to be impatient, instant minded, lacking the ambitions of previous generations, have acquired attention deficit disorder with a high dependency on the technology and a low attention span, individualistic, self-directed, most demanding, acquisitive, materialistic and entitled generation so far.

II.   OBJECTIVES OF THE STUDY
- To comprehend the characteristics of Generation Z.
- To understand the expectations and work culture of Generation Z.

III.   WORKFORCE SAMPLE FOR GENERATION Z
A workforce sample for Generation Z would include individuals born between the mid-1990s and mid-2010s who are currently employed or actively seeking employment. This sample might include:

1. Individuals who are recent graduates from high school, college, or vocational schools and are entering the workforce for the first time.
2. Individuals who have been in the workforce for several years and are looking for opportunities to advance their careers.
3. Individuals who are currently unemployed or underemployed and are actively seeking employment.
4. Individuals who are currently working part-time or in the gig economy.

It is important to note that Generation Z is a diverse group, with individuals from a wide range of backgrounds, experiences, and perspectives. A sample of this generation should strive to be representative and diverse in order to accurately reflect the experiences and attitudes of the entire generation.

IV.   METHODS USED BY ORGANIZATIONS TO STUDY GENERATION Z:

Some common methodologies that are used to study the Generation Z are as follows:

1. **Surveys:** Surveys are a common method of collecting data on the attitudes, opinions, and behaviours of Generation Z. These can be conducted online or in person, and may include both open-ended and closed-ended questions.
2. **Interviews:** Interviews can provide in-depth insights into the experiences, values, and attitudes of Generation Z. These may be conducted in person or via video conferencing software.
3. **Focus groups:** Focus groups bring together a small group of individuals from Generation Z to discuss a specific topic or issue. This can be a useful method for exploring attitudes, opinions, and behaviours in a group setting.
4. **Observational research:** Observational research involves observing individuals from Generation Z in their natural environment, such as in a school or social setting. This can provide insights into their behaviour and interactions.
5. **Secondary data analysis:** Researchers may also analyse existing data sets to understand the characteristics and trends of Generation Z, such as demographic data or social media usage statistics.

V.   CONCLUSION

Generation Z represents a new and unique addition to the workforce. Born between the mid-1990s and mid-2010s, this generation is defined by its computer literacy, digital fluency, global outlook, and passion for social causes. Researchers and experts have studied about this generation's attitudes and behaviours towards work, finding that they prioritize meaningful work, work-life balance, and a positive work culture and convert their work into productivity.

This generation is also known for diversity, inclusion, and sustainability, and expects their employers to prioritize these values as well. The covid pandemic has had a significant impact on the Generation Z workforce, with many experiencing job loss, economic uncertainty, and disruptions to their education and career plans. However, this generation has also demonstrated resilience and adaptability, and are used to technology and creativity to find new opportunities and ways of working.

Employers will need to adapt to the expectations and preferences of the Generation Z workforce, including offering flexible work arrangements, prioritizing diversity and inclusion, and providing opportunities for meaningful work and career growth.

Additionally, employers will need to understand the unique skills, expertise and strengths that this generation brings to the workplace, with digital fluency, creativity, and a passion for social causes.

Research, study and understanding the Generation Z workforce is crucial for creating a positive and productive work environment that benefits both employees and employers and growth of the organization for now and the future.

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A STUDY ON THE DYNAMICS OF VIRAL MARKETING IN HIGHER EDUCATION SECTOR

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ABSTRACT

This study examines the dynamics of Viral Marketing campaign in the higher education sector. Viral Marketing is becoming increasingly popular as a marketing technique in the higher education sector, with universities and colleges around the world using it to promote their academic programs and services. The aim of this research is to explore the dynamics and driving forces of viral marketing in the educational sector so that HEI's understand how to best utilize its potential.

The findings suggest that viral marketing can be an effective marketing strategy in the higher education sector as it can help spread word-of-mouth, increase brand awareness and improve student engagement. Viral marketing is an effective tool for universities and colleges to promote their institutions, engage potential students, and generate leads. By leveraging influencers, creating engaging content, and delivering targeted campaigns, universities and colleges can effectively reach their desired audience and maximize the impact of their marketing efforts.

Keywords: Viral Marketing, Campaign, Dynamics

I. INTRODUCTION

Higher education institutions in India are universities and colleges that provide higher education to students. These institutions are categorized based on their affiliations, such as Central universities, State universities, Deemed universities, and Private universities. These institutions offer a wide range of courses, such as undergraduate, postgraduate and doctoral programmes in various disciplines. Apart from the universities, there are also many autonomous institutions.

In the current competitive environment, the promotion of higher educational institutions is crucial to attract students from a dynamic region at the national and international level. The real interest in developing a higher education institution is to create a brand image, and product values that are in line with market needs and to meet the long-term vision of the nation and society at large. Education is a state subject and state intervention is much needed to design a marketing strategy by combining skills with other educational institution strategies, so that the institution can meet the modern needs of a constantly changing business environment.
(Bangari & Monika, 2011)

II. OBJECTIVES OF THE STUDY

- To identify the awareness of viral marketing strategy among students of HEI.
- To explore the dynamics of viral marketing in HEI.
- To analyse the driving forces influencing the success of viral marketing strategy tailored to HEI's.

III. REVIEW OF LITERATURE

➢ "Effectiveness of viral marketing lies in the fact that it conveys an implied endorsement from social ties." **- Mochalova & Nanopoulos (2014)**

➢ "The role played by viral marketing has received considerable academic and digital media attention recently. Key issues in viral includes self-replicating on the basis of quality difference, individuals' emotional needs, as well as how users are connected across various social networks" **- Tsang & Ren (2015)**

➢ **Alison B. Shields & Adam Peruta (2019),** suggested that, although students may not report on visiting social media sites or may report that social media does not affect their decision to complete their matriculation when asked for a survey, in interview most students reported of using social media to learn more about higher education.

➢ **Jakob Ahlberg (2018),** identified many different factors that go into creating a successful viral marketing campaign. There needs to be a combination of Viral Marketing Principles, Emotional Framework, Divorce Strategy and Occasional Observance and Interaction with Online Culture.

➢ **Balpreet Kaur (2017)**, opined marketers should develop their own viral marketing strategies in a way that will attract responders with a balanced view of viral marketing. The results reveal that philanthropic behaviour, perceived intrinsic benefits, satisfaction and loyalty are the main reasons consumers share their knowledge of using others in the forums of visible ideas.

➢ **Supriya Khaneja (2016),** concluded that Viral marketing is a powerful tool that transcends many boundaries and borders. For companies and firms to be successful in viral marketing they need to combine viral marketing with mainstream media such as print media, electronic media etc. However, the author also identified some challenges faced by viral marketing such as spam, attack privacy etc. but in order to continue to grow, it is an indispensable tool.

➢ **Karpagavalli G.& B. Manuel Pinto (2015),** suggested that the moment when a business or company decides to go public with marketing strategies, total sales and product recognition are enhanced, which leads to great profit.

➢ **Kallol Saha, Dr. Pranam Dhar, Dr. Sandeep Poddar (2005),** were able to identify that, though the three exploratory factors do not have a direct relationship with each other, but has a statistical influence on awareness of the concept of Viral marketing based on the Preference, Internet Efforts & Cost, Restlessness.

IV. RESEARCH GAP

The literature review shows that the prior studies in the domain of Viral Marketing have been investigated, through an examination of research journals, articles, and dissertations from both national and international sources. Numerous studies have been conducted on the various aspects of Viral Marketing.

Previous research has specifically looked at the efficacy of a viral marketing campaign in enterprise product development program, yet its implications in the Higher Education Sector remains largely unknown.

The present study is done on the basis of the identified research gap.

V. RESEARCH METHODOLOGY

This study is descriptive in nature and adopts conceptual framework. Secondary data has been used from various sources such as case studies, books, open access journals, research articles, PhD thesis, online databases and websites.

VI. CONCEPT OF VIRAL MARKETING

Viral marketing is a marketing technique in which customers and prospects are encouraged to share information about a product, service, or institution with their friends, colleagues, and family. It allows institutions to engage with their target audience in a more personal way, by allowing them to share their experiences, impressions, and opinions about the institution with their friends and family. Viral marketing campaigns in higher education are typically conducted through social media platforms, such as Facebook, Twitter, and Instagram.
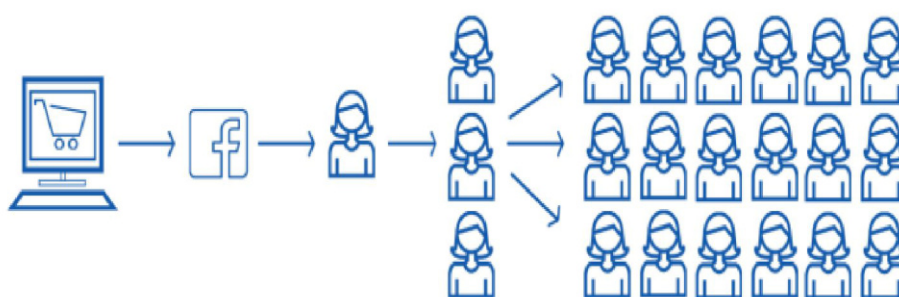

Illustration of exponential spread through viral marketing (te Vaanhold, 2018)

VII. EMPIRICAL EVIDENCE ON AWARENESS OF VIRAL MARKETING STRATEGY AMONG STUDENTS OF HEI

Viral marketing in HEI can be a powerful tool for getting the word out about an institutional program. It involves using people's existing networks to share information about the institution with their friends, family and colleagues.

- A recent study conducted by **T. R. Aishwarya and V. Preethi (2019)** sought to explore the awareness of viral marketing among students in India. Results showed that a majority of the respondents had heard of viral marketing, with 90% of them having heard of the term. The majority of the respondents (86%) also agreed that viral marketing has the potential to reach large numbers of people quickly.
- A study conducted by **Dr. S.K. Prabhu et al. (2013)** found that students in Bangalore had a general understanding of viral marketing, though their knowledge was limited. The study found that students were aware of the concept of viral marketing, but had limited knowledge about the different strategies and techniques used by marketers. The results also revealed that the students had a limited understanding of the potential benefits and disadvantages of viral marketing.
- Study conducted by **N.P. Kulkarni et al. (2013)** found that the majority of students in Bangalore had a basic understanding of viral marketing, but lacked knowledge of the different strategies and techniques used in viral campaigns. It is also evident that students have a positive attitude towards the concept and believe that it can be a useful tool for increasing awareness of a brand or product.

- Study conducted by **Ramesh and Rajesh (2010)** showed that most of the undergraduate students in India had heard of viral marketing and were familiar with various aspects of it, such as the use of social media and word-of-mouth techniques.

VIII. DYNAMICS OF VIRAL MARKETING IN HEI

Due to the rise of social media, viral marketing has become one of the most effective tools for universities and colleges to reach students. In the higher education sector, viral marketing can be used to promote universities and colleges in a cost-effective way like creative content, such as videos, articles, and images, to engage students and encourage them to share the content with their networks. Universities and colleges can also leverage influencers, such as student ambassadors, to promote their institutions on social media and reach a larger audience.

Once the content has been created, higher education institutions can use social media to further spread their message. By sharing content across multiple platforms such as Facebook, Twitter, Instagram, and YouTube, institutions can reach a broader audience and increase their brand visibility.

Here are some dynamics:

1. **Social Sharing:** Viral marketing relies heavily on social sharing, as users are encouraged to share content, they find interesting or engaging, with their friends and family.
2. **Leverage Influencers:** Identifying and leveraging influential users can help to amplify the message and increase the reach of viral campaign.
3. **Reward Sharing:** Rewarding users for sharing content can encourage them to do so and help the message to spread further.
4. **Unique:** Creating content that is unique and stands out from the rest is key to making the content go viral.
5. **Analyze Performance:** Tracking the performance of viral campaign is essential to understand what works and what doesn't and making adjustments accordingly.

IX. DRIVING FORCES INFLUENCING THE SUCCESS OF VIRAL MARKETING STRATEGY TAILORED TO HEI'S

1. **Alignment with Brand Values:** Viral marketing should align with the values and mission of the higher education institution. This helps to create a consistent brand image and reach the right target audience.
2. **Quality Content:** Quality content is essential for viral marketing. It should be informative, entertaining, and relevant to the higher education sector. High-quality content will make people more likely to share it with their friends and acquaintances.
3. **Social Media:** Social media is an important tool for viral marketing. It can be used to spread information about the admission process and to engage potential students. Platforms like Facebook and Instagram offer excellent reach and the ability to target audiences with specific interests, making them great channels for creative and engaging content.
4. **Influencers:** They can be utilised to spread the word about the admission process of the higher education sector and make it more visible.
5. **Timing:** Timing is key when it comes to viral marketing. It's important to post content during peak times when people are most likely to be online.
6. **Consistency:** Consistency is also important when it comes to viral marketing. It's important to post content regularly and consistently in order to keep the audience engaged and to generate more leads.
7. **Reach:** The key to successful viral marketing is the ability to reach a wide audience quickly. Higher education institutions need to ensure they have a broad network of contacts and use social media, influencers, and other channels to reach potential students.

8. **Collaborations:** Working with other higher education institutions or influencers can help to boost the reach and effectiveness of viral marketing campaigns. This can help to increase the chances of success.

9. **Measurement:** It is important to measure the success of viral marketing campaigns to ensure that they are achieving the desired results. This can help to ensure the campaigns are improved and more successful in the future.

10. **Brand Awareness:** If a higher education institution is able to generate positive buzz around its organization and brand, then it can ignite a viral campaign.

11. **Engaging Platforms:** Developing engaging platforms or experiences that the target audience will interact with is a great way to encourage them to share your message. This can include creating interactive quizzes, competitions or viral videos that encourage viewers to 'share' or 'like' the content.

12. **Rewards and Incentives:** Offering rewards can incentivize the target audience to engage and become brand ambassadors, thereby promoting the service or message on a wider scale.

X. LIMITATIONS OF THE STUDY

The study has several limitations as only secondary data has been used. Viral marketing in higher education is limited by the lack of available data. Accurately assessing and measuring the effectiveness of such campaigns is a challenge.

Finally, due to the nature of viral marketing, it is often difficult to identify the source of a viral marketing campaign, making it difficult to measure its success.

XI. CONCLUSION

Viral marketing has become increasingly popular in recent years, and awareness of it is increasing among college-bound students. A recent survey conducted by the National Association for College Admission Counseling (NACAC) revealed that 66% of students have seen or heard of viral marketing techniques and strategies. Additionally, more than half (54%) of students have seen a viral marketing campaign used by a college or university.

Over three-quarters of students (77%) said they would be more likely to trust a message if it came directly from the school.

In conclusion, viral marketing is an effective way for higher education institutions to increase brand awareness and reach a wider audience. By harnessing the power of network theory and word of mouth marketing, higher education institutions can create powerful viral marketing campaigns that can reach a wider audience and increase their visibility. However, it is important for colleges and universities to ensure that their campaigns are creative and engaging in order to capture the attention of their target audience.

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A STUDY ON RECENT TRENDS IN DIGITAL MARKETING IN INDIA

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ABSTRACT

Digital marketing can be identified as the term that is used interchangeably with Internet marketing. It is also referred to as electronic marketing because it encompasses the use of electronic media and internet platforms for the execution and management of marketing activities. The concept of digital marketing first emerged in India in the 1990s, as Internet use had increased drastically in the country. Digital marketing is yet another term similar to Internet marketing. Digital marketing involves applying these technologies, which form online channels to market: Web, Email, databases, plus mobile, wireless, and digital television. Digital marketing and its associated channels are necessary but not significant. It is not only enough to know customers. To do certain activities like that, one must need a consolidated view of customers' preferences and expectations across all channels like the Web, social media, mobile, direct mail, point of sale, etc. Digital marketing has also provided a new career opportunity for young people, supporting the country's rapid growth of the economy. This article studies the need for a fundamental change in teaching marketing in today's environment. Finally, the new major is discussed in the context of specific challenges associated with the new marketing age.

Keywords: Digital Marketing, Internet Marketing, Digital Marketing and India, Digital Marketing Trends and India.

I.   INTRODUCTION

Digital marketing can be identified as the term that is used interchangeably with Internet marketing. It is also referred to as electronic marketing because it encompasses the use of electronic

media and internet platforms for the execution and management of marketing activities. The concept of digital marketing first emerged in India in the 1990s, as Internet use had increased drastically in the country. Digital marketing is yet another term similar to Internet marketing.

Digital marketing involves applying these technologies, which form online channels to market: Web, E-mail, databases, plus mobile, wireless, and digital television. Digital marketing and its associated channels are necessary but not significant. It is not enough to only know the customers. To do certain activities like that, one must need a consolidated view of customers' preferences and expectations across all channels like the Web, social media, mobile, direct mail, point of sale, etc. The digital market can use this information to create and anticipate consistent, coordinated customer experiences to move customers along in the buying cycle.

During the last five years, there has also been significant growth in the use of social media platforms, such as Twitter and Facebook. Marketers and business managers started to find more value and efficiency in social media marketing, as content creation helped attract more readers and consumers. Social media was a significant marketing and advertising platform for small and medium-sized enterprises seeking a better marketplace.

The word "Digital Marketing" refers to a wide range of online marketing strategies. Digital marketing refers to connecting with customers through online channels such as websites, apps, search engines, e-mails, and social media. The use of digital channels and techniques allows organizations and enterprises to track the effectiveness of their marketing initiatives, even in real time, which makes it easier to identify what works and what doesn't. This is the major distinction between digital marketing and traditional marketing. Businesses that invest in digital marketing are expanding quickly and seeing financial success.

II.   OBJECTIVES OF THE STUDY
- To study the growth of digital marketing in India
- To understand recent trends in Digital marketing in India
  To study the significant challenges and suggestions encountered by the digital market in India

III.   REVIEW OF LITERATURE
- ➢ **Yasmin, Tasneem, and Fatima (2015)** focused on the importance of digital marketing, stating that digital marketing uses electronic media by marketers to promote items or services in the market. Digital marketing's primary goal is to attract customers and allow

them to interact with the company via digital media. Their research examined several types of digital marketing, their success, and their impact on a company's sales.

➤ **Kaushik (2016),** in the paper, mentioned that Digital marketing is in great demand, and its use is increasing in India. Digital marketing has more excellent prospects to increase sales and brand recognition & loyalty effectively.

➤ **Bharti (2018)** found that the critical reason for a radical change in the shopping approach of the Indian consumer is the increasing use of e-commerce. The papers suggest that for the growth in digital marketing, marketers should try to identify the trends and patterns in consumer behavior. Consumers can also post online feedback through social media.

➤ **Rajaiah and Srinivasulu (2019)** concluded that People are being influenced by digital marketing and advertising to purchase and sell online, and e-commerce is growing. In the following years, the future of digital marketing in India and the scope of digital marketing will brighten.

IV. METHODOLOGY

This study uses secondary data such as the articles published in press reports of the Coir Board, reviews from research journals, and data collected from web sources on Digital marketing in India.

V. THE GROWTH OF DIGITAL MARKETING IN INDIA

The digital marketing industry in India has spread to almost all business areas. Expansion of the digital footprint is growing exponentially, and 2014 was the year that witnessed the most significant growth in digital marketing in India. After 2014, content creation, including blogs, case studies, white papers, e-book forums, news infographics, etc., grew with the increasing number of Internet users. During the last five years, there has also been significant growth in the use of social media platforms, such as Twitter and Facebook.

VI. GROWTH STATISTICS OF DIGITAL MARKETING IN INDIA

• Comparing 2019 to 2018, digital advertising climbed by 26%, or by Rs. 13, 683 crore.

• According to a recent survey from Dentsu Aegis Network, advertising as a whole experienced a satisfactory 9.4% increase.

• The digital media market in India reached USD 3931.3 million in 2022.

• The value of the entire Indian advertising sector at the end of 2019 was Rs. 68,475 crore.

- The sector was anticipated to increase by 33% per cent by 2022.
- Between 2023 and 2028, it is predicted that the country's digital media would grow by a compounded annual rate of 32.1%.
- Digital marketing value reached 4.5 billion USD in the year 2022.
- 1.5 billion dollar increase in total investment from 2012 to 2022

VII.   TYPES OF DIGITAL MARKETING

1. Content Marketing

Content marketing is digital marketing focused on creating and distributing valuable, relevant, and consistent content to attract and retain a clearly defined audience and, ultimately, to drive profitable customer action. Custom Content Marketing campaigns will play a vital role for every business, as 75% of CEOs believe that custom content marketing is the future of online marketing. Companies will follow many channels to boost organic results and enhance customer engagement with the help of a custom content marketing campaign.

2. Mobile Marketing

Mobile became even more significant in 2015 as it overtook desktop traffic, and Google released the mobile-friendly algorithm update to boost the rankings of mobile-friendly pages. According to TRAI, the mobile user base in India increased to 980.81 million users in the second quarter of 2015. As per data, 7.26 % of people worldwide have the privilege of carrying mobile phones. Data says that 6.64 % of people carry smartphones, implying that mobile marketing can be a hot idea nowadays.

3. Wearable Technology

With technical advancements like greater speech recognition, marketers may also concentrate on producing more informative content. Based on what their customers desire and the technology they are utilizing marketers need to scale and adjust their present marketing methods. Due to the growing popularity of voice search, marketers must adapt their marketing plans to account for voice-based searches.

4. Social Media Marketing

One of the most popular news recently was that Facebook had killed organic search, which seems accurate. Many organizations are paying attention to the social presence of their brand. It helps generate awareness in many people, increasing the return on investment (ROI) for businesses. Here are some of the popular social media platforms such as Facebook, LinkedIn, and Twitter for making social networks, YouTube for streaming videos, Instagram and Pinterest for sharing images, Blogs, increment of

website traffic to build conversions, creating brand awareness, making paid social ads a popular trend.

VIII. CHALLENGES OF DIGITAL MARKETING IN INDIA

1. Problem of integration
The fact that marketing efforts use a variety of offline and online promotional channels, including the press, brochures, catalogs, TV, mobile phones, e-mail, the internet, social media, etc., is one of their biggest issues. A comprehensive strategy that integrates the many old and modern channels of marketing communication as elements of an integrated organization makes up for the deficit.

2. Lack of face-to-face contact
Customers like to talk to store personnel face-to-face, touch the related product with their hands, and socialize with others. Virtual marketplaces cannot provide this function with offline shopping and lack personal interaction.

3. Security and privacy
It is obvious enough that customers' data can now be easily shared with other businesses without their consent. Moreover, hackers have access to their more sensitive personal information.

4. Lack of trust
These days, despite the rapid growth of online dealings, many people still suspect electronic payment methods and doubt whether the purchased items will be delivered. On the other hand, online fraud has made customers hold negative or doubtful attitudes towards online transactions.

IX. SUGGESTIONS TO IMPROVE DIGITAL MARKETING IN INDIA

1. New layer of e-mail filtering
Mail may end up in rarely seen folders as a result of Gmail's Priority Inbox and Facebook's Social Inbox. This can negatively impact opening rates and other performance indicators. To help ensure that the message reaches more important recipients, we will need to work harder to make sure that our customers are opening, clicking, sharing, and forwarding our emails. It signals the end of one-way communication and creates fascinating possibilities for customer participation while on message.

2. Trigger-based e-mail
Right message, right person, right time has been a maxim of the direct marketing industry for years. The right time now might be a window of perhaps two minutes. In time, the role of trigger-based email that can engage and interact after a specific action, perhaps reviewing a promotional webpage, will be increasingly critical.

3. **Catering to consumer interest**

   Urban Glen contends that when a business stands up for its clients, those clients will do the same for the business. A business must use all available means to serve the interests of its customers. He demonstrated through several examples how many businesses of various sizes and industries employed a wide range of approaches to satisfy the demands and interests of their clients.

4. **Focus on gender**

   The purchasing habits of male customers are partially different from female customers, this is also true in e-commerce. Male consumers prefer fast-loading websites and secured websites (their privacy is better protected). Meanwhile, female customers are confident to purchase online mostly because they listen to other females. This can be considered as a big difference between males and females in perceiving Internet marketing.

5. **Consumer privacy**

   Many customers feel confident to order only after making a few purchases. They are afraid their privacy can be revealed and misused without their knowledge. If buyers do not trust the company which provides online sales services, they will never want to make any online buying decisions.

X.   CONCLUSION

The digital marketing technology world is a formal system that helps to gather, integrate, compare, and analyze and dispense internal and external information in a practical, systematic, and timely manner, supporting the management in their work. Innovation drives consistency and congruity with brand communication strategy. Many businesses now consider using digital marketing channels as crucial to their overall strategy. There is now a very affordable and effective way for small business owners to sell their goods or services. Digital marketing is limitless. The corporation can advertise the company and its goods and services using a variety of devices, including smartphones, tablets, laptops, televisions, gaming consoles, digital billboards, and media, including social media, SEO (search engine optimisation), videos, content, e-mail, and much more. If user demands are prioritised, digital marketing may be more successful and can be achieved without effort and error.

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STARTUP AND INNOVATION IN INDIA

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ABSTRACT

In recent years, startups have been receiving increased attention in many parts of the world. In India, the number of startups has increased fast and more support has become available in all dimensions.

This paper analyses the current state of the Indian startup ecosystem and has three goals: to provide an understanding of the growth drivers and motivations of Indian startup founders; identify challenges facing these startups; and outline the pillars in place that support them.

The analysis uses data collated from semi-structured interviews with startup founders, investors, and representatives of support organisations. In addition, a survey of relevant literature strengthens the robustness of the findings.

I.   INTRODUCTION

India's startup ecosystem has gained momentum in recent years, fuelled by its vast talent pool, a large market, and a supportive regulatory environment. Funding options, including angel investors, venture capitalists, crowdfunding, and government schemes, have provided crucial support for entrepreneurs. Incubators and accelerators have also played a critical role in providing startups with mentorship, networking, and funding, helping them scale and grow.

The Indian government has launched several initiatives to promote startups, such as the Startup India program, which aims to provide a conducive environment for startups to flourish. Emerging sectors such as Fintech, E-commerce, Healthtech, and Agritech have attracted significant investment, highlighting the immense potential for innovation and growth.

Co-working spaces offer startups an affordable and collaborative environment to work in, further stimulating creativity and innovation. The country's wealth of highly skilled professionals in engineering, data science, and business management also provides an abundant source of talent for startups.

India's dynamic and supportive startup ecosystem, combined with its vast market potential and talented workforce, positions it as a leading destination for startups. As the country continues to evolve, its startup ecosystem will undoubtedly play an increasingly critical role in driving innovation, creating jobs, and shaping the future of the global economy.

II.   **OBJECTIVES**
- Identify the key players and stakeholders in the Indian start-up ecosystem, including entrepreneurs, investors, mentors, incubators, accelerators, and government agencies.
- Assess the current state of the start-up ecosystem in India, including the level of funding, the number and types of start-ups, and the availability of resources and support for entrepreneurs.
- Analyse the challenges faced by start-ups in India, such as regulatory hurdles, lack of infrastructure, limited access to funding, and talent shortages.
- Evaluate the impact of government policies and initiatives on the Indian start-up ecosystem, such as the Start-up India program and various funding schemes.

Overall, the objective of studying the start-up ecosystem in India is to gain a deeper understanding of the challenges and opportunities for entrepreneurs, investors, and other stakeholders, and to develop strategies for promoting the growth and success of start-ups in India.

III.   **LITERATURE REVIEW**
The review focuses on successful start-ups and industries in India. Despite the large number of startups in India, many have failed due to lack of research on timing and audience.
➢ **According to Chokhani (2017)** on the Challenges Faced by Startup Companies Skilled ability is reluctant to join new businesses, as they have seen in the past mass terminating and scaling back.
➢ **Chauhan and Saumya, (2018)** in their investigation introduced an officially organized portrayal of the issues looked by female business visionaries in a way which is fundamentally unrelated and by and large comprehensive. With regards to rising economies in quick creating countries, for example, India.
➢ **Singh (2018)** recognized the Challenges for Indian Startups as, sustain development, be productive, make genuine organizations.
➢ **Kamaldeep (2017)** exhibited some Startup business difficulties and open doors for Startups. In India, the open doors for the new businesses are monstrous, however so are the difficulties.
➢ **Chokhani (2017)** expressed that, it will take consolidated endeavors from the legislature and the new companies to beat these difficulties.
➢ **Sunanda (2017)** contended about dealing with the Startups to keep away from disappointments through contextual investigation .
➢ **Bhagmar and Verma** suggest that groundbreaking imagination and integrated vision are crucial for entrepreneurial success.
➢ **Goyal and Parkash** believe that entrepreneurial activities are essential.
➢ **Sangeeta, Surendra,** and **Tailang** found that technology has played a critical role in lifting India's economic development.

IV.   **RESEARCH METHODOLOGY**

This study is backed on the published data provided for the year 2022. For the purpose of the study, data has been extracted from various resources, some of them being from various newspapers, articles, journals and websites, particularly from Niti Ayog, The Economic Times, World of Statistics, Department for Promotion of Industry and Internal Trade (DPIIT). Some of the other sources which were also analysed and considered were The Startup Outlook for the year 2022, Global Innovation Index 2022 and States Startup Ranking Report 2022 by DPIIT.

The analysis of the data from above-mentioned reports has happened as and when required using representative figures for the year 2022.

V.   **MAJOR FACTORS AND STAKE HOLDERS OF INDIAN STARTUP ECOSYSTEM**

The Indian startup ecosystem is a vibrant and rapidly growing space, with a diverse range of players and stakeholders. Here are some of the key players and stakeholders in the Indian startup ecosystem:

1. **Entrepreneurs:** They are the key players in the startup ecosystem. They are the ones who come up with innovative ideas and take the risk of starting a new venture.

2. **Investors:** There are various types of investors in the Indian startup ecosystem, including venture capitalists, angel investors, and corporate investors. They provide the much-needed funding for startups to grow and scale.

3. **Incubators and Accelerators**: These are organizations that provide support and resources to startups, such as mentorship, office space, networking opportunities, and funding.

4. **Government:** The Indian government has launched various initiatives to support startups, such as the Startup India program and the Digital India campaign. The government also provides funding and tax incentives to startups.

5. **Academia:** Universities and research institutions play an important role in the Indian startup ecosystem by conducting research and development activities and providing talent to startups.

6. **Service providers:** These are companies that provide services to startups, such as legal, accounting, marketing, and HR services.

7. **Customers:** Startups need customers to buy their products or services in order to generate revenue and grow. Customers are therefore an important stakeholder in the startup ecosystem.

With the exponential growth of the Indian startup ecosystem over the last few years, many founders have also turned angel investors, backing early-stage promising tech startups.

Amidst the funding winter in 2022, which saw the funding raised by Indian startups declining 40% year-on-year (YoY) to $25 Bn, seed and bridge-stage funding continued to grow. While seed funding grew 27% YoY to $2 Bn in 2022, bridge funding rose 11% to $709 Mn.

Despite the funding slowdown, 21 startups entered the unicorn club in 2022. In the process, India also got its 100th unicorn as many investors continued to show their faith in the Indian startup ecosystem.

More than 9,500 investors, including venture capital firms, CVC funds, investment banks, accelerators, government bodies and angel investors, backed Indian startups in 2022. Of these, angel investors held the largest share at 53.9% (or about 5,120 angel investors), followed by venture capital firms (23.3%), CVC funds (9.1%), and investment banks (6.0%).

In recent years, the Indian startup ecosystem has witnessed exponential growth, leading many founders to transition into angel investors and support promising tech startups at their early stages. A carefully curated list of the top 31 active startup investors who backed Indian startups in 2022 has been compiled based on their deal participation that year.

It should be noted that only publicly disclosed deals recorded in a particular database were taken into consideration while compiling this list. However, additional angel investors are welcome to be nominated and added to this list by contacting editor@inc42.com.

In the meantime, a supplementary list highlighting additional angel investors supporting Indian startups has been included.

One such angel investor is Kunal Shah, the founder of CRED, who has invested in over 50 startups in 2022 alone, including Driffle, EekiFoods, and OSlash, among others. In total, Shah has invested in 200 startups, with some notable investments being Zilingo, Toplyne, Razor Pay, Leap, and Mensa Brands. Shah has also successfully exited 11 startups, including Avail Finance (acquired by Ola), Flyrobe (acquired by Rent It Bae), and Daily Ninja (acquired by Big Basket).

Another notable angel investor is Nitish Mittersain, founder of Nazara, who invested in 35 startups in 2022, including LifeChat, MoEving, Lysta, TradeX, Nojoto, and Rigi. Some of the prominent startups in his portfolio include Money yapp, StockGro, RAAHO, and myHQ. Mittersain currently serves as a founding angel at The Nudge Institute, having previously served as a board director at MEF Mobile from 2013 to 2015.

Furthermore, Varun Alagh, the founder of D2C unicorn Mamaearth, has invested in 30 startups across diverse sectors such as pet care, edtech, and traveltech in 2022. Some of the startups he invested in that year include Supertails, Mokobora, and AlmaBetter. In 2021, Alagh invested in over 40 startups, including Cuvette Tech, Beep Kart, and Ship rocket. Prior to founding Mamaearth, Alagh worked with major companies such as Coca Cola, Smirnoff, and Hindustan Unilever Ltd (HUL).

Another active angel investor is Deep Bajaj, the founder of feminine hygiene startup Sirona, who invested in about 20 startups across various sectors such as wealthtech, healthtech, pet care, and wellness in 2022, including Sudo, House

Easy, EKAM, CREST, and Beanly. Before founding Sirona, Bajaj cofounded Pramiti Care in 2014. However, he exited Pramiti Care in 2017. Currently, Bajaj serves on the board of Carpet Couture by Rashi (CCbR) and has worked with major companies such as Thyme, Protocol Services, and Birla Sun Life Insurance in the past, according to his LinkedIn profile.

Additionally, Ghazal Alagh, the co-founder of Mamaearth, has also become an active angel investor and has invested in 14 startups in 2022, including Humpy Farms, unScript AI, and Wishlink. Some of the startups she has backed over the years include BlissClub, Uvi Health, and UnScript.ai. Prior to founding Mamaearth, Alagh founded fitness platform dietexpert.in, which closed down in 2013, according to her LinkedIn profile.
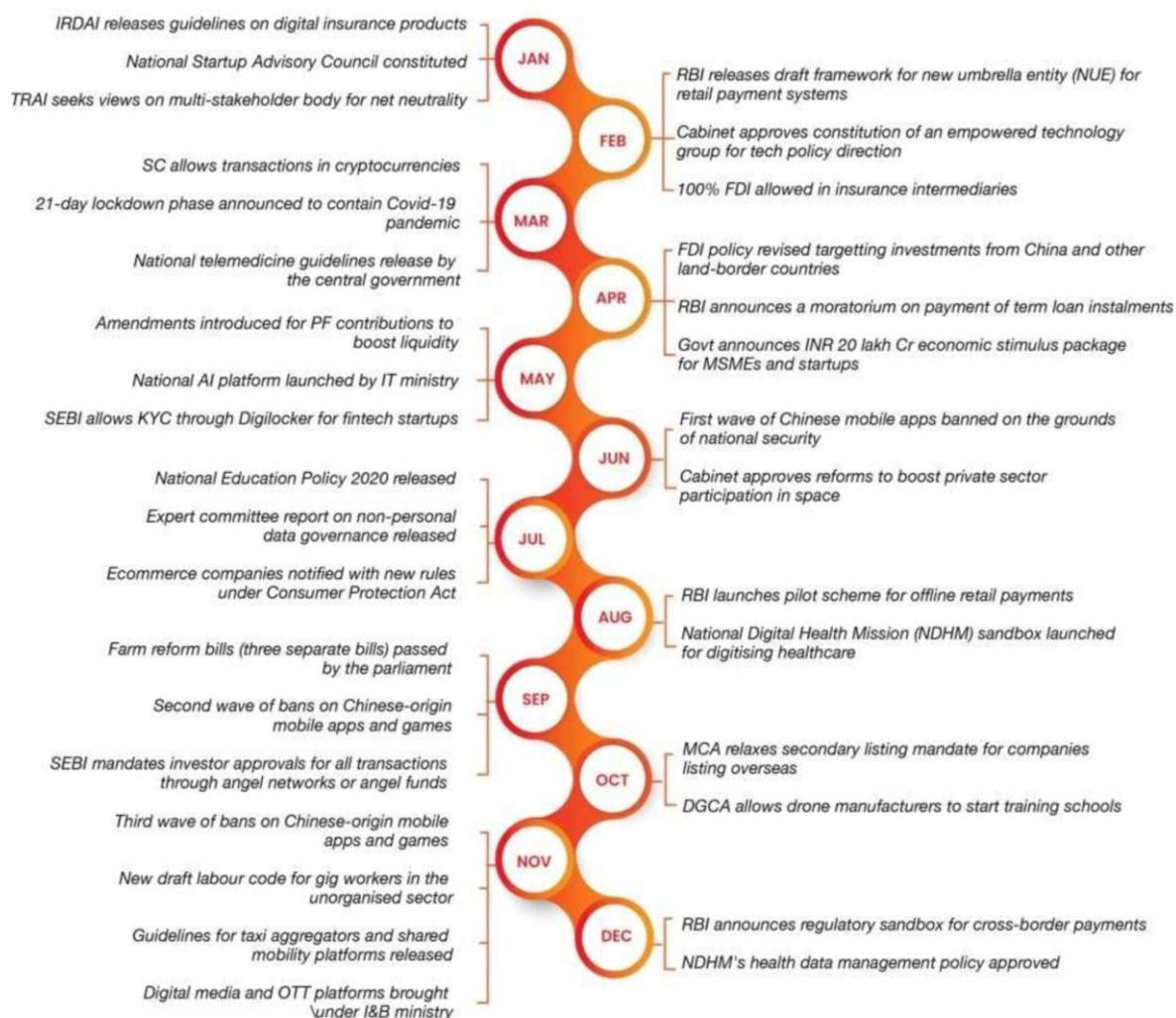
VI. STARTUP POLICIES AND INITATIVES

India has implemented several policies and initiatives to support and promote startups in the country. Some of these policies are:

1. **Startup India:** This initiative was launched in 2016 by the Indian government to promote entrepreneurship and create a conducive environment for startups to grow. It includes several schemes, such as tax benefits, funding opportunities, and regulatory simplification.

2. **Stand-up India:** This scheme aims to promote entrepreneurship among women and scheduled castes and tribes by providing loans for starting new businesses. The loans can be up to Rs. 1 crore, and the scheme also provides handholding support to the beneficiaries.

3. **Atal Innovation Mission:** This initiative aims to promote innovation and entrepreneurship among students and entrepreneurs by establishing incubation centres, tinkering labs, and other support mechanisms. It also provides funding support to startups and encourages collaboration with industry and academia.

4. **Make in India:** This initiative aims to promote manufacturing and entrepreneurship in the country by providing various incentives and simplifying regulatory procedures. It also aims to attract foreign investment and promote exports.

5. **Digital India:** This initiative aims to transform India into a digitally empowered society and knowledge economy by promoting the use of technology in various sectors. It includes initiatives such as e-governance, digital literacy, and digital infrastructure development, which can benefit startups in various ways.

Overall, these policies and initiatives aim to create a favourable environment for startups to thrive in India, and have contributed to the growth of the startup ecosystem in the country.

The Government Policies That Impacted Indian Startups In 2020

JAN
- IRDAI releases guidelines on digital insurance products
- National Startup Advisory Council constituted
- TRAI seeks views on multi-stakeholder body for net neutrality
- RBI releases draft framework for new umbrella entity (NUE) for retail payment systems

FEB
- Cabinet approves constitution of an empowered technology group for tech policy direction
- 100% FDI allowed in insurance intermediaries

MAR
- SC allows transactions in cryptocurrencies
- 21-day lockdown phase announced to contain Covid-19 pandemic
- National telemedicine guidelines release by the central government

APR
- FDI policy revised targeting investments from China and other land-border countries
- RBI announces a moratorium on payment of term loan instalments

MAY
- Amendments introduced for PF contributions to boost liquidity
- National AI platform launched by IT ministry
- SEBI allows KYC through Digilocker for fintech startups
- Govt announces INR 20 lakh Cr economic stimulus package for MSMEs and startups

JUN
- First wave of Chinese mobile apps banned on the grounds of national security
- Cabinet approves reforms to boost private sector participation in space

JUL
- National Education Policy 2020 released
- Expert committee report on non-personal data governance released
- Ecommerce companies notified with new rules under Consumer Protection Act

AUG
- RBI launches pilot scheme for offline retail payments
- National Digital Health Mission (NDHM) sandbox launched for digitising healthcare

SEP
- Farm reform bills (three separate bills) passed by the parliament
- Second wave of bans on Chinese-origin mobile apps and games

OCT
- SEBI mandates investor approvals for all transactions through angel networks or angel funds
- MCA relaxes secondary listing mandate for companies listing overseas
- DGCA allows drone manufacturers to start training schools

NOV
- Third wave of bans on Chinese-origin mobile apps and games
- New draft labour code for gig workers in the unorganised sector

DEC
- Guidelines for taxi aggregators and shared mobility platforms released
- Digital media and OTT platforms brought under I&B ministry
- RBI announces regulatory sandbox for cross-border payments
- NDHM's health data management policy approved

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VII. FACTORS AFFECTING ECONOMIC GROWTH

There are several factors that could affect India's startup and economic growth. Some of these factors include:

1. **Infrastructure:** India's inadequate infrastructure, particularly in areas such as transportation, energy, and digital connectivity, can be a significant hindrance to economic growth and startup development. Improving infrastructure can help create a more conducive environment for businesses to grow and thrive. India's regulatory environment can be complex and challenging for startups, particularly in sectors such as healthcare, education, and Fintech. Simplifying

regulations and reducing bureaucratic red tape can help create a more favourable environment for startups to operate.

2. **Access to finance** remains a significant challenge for startups in India, particularly early-stage companies. Improving access to venture capital, angel funding, and other forms of financing can help fuel startup growth and create more job opportunities.

3. **Skilled workforce:** India has a large and growing workforce, but there is a need for more skilled and trained professionals, particularly in sectors such as technology and engineering. Developing more specialized training programs and promoting entrepreneurship can help create a more skilled workforce and foster innovation.

4. **Political instability**: Political instability can disrupt economic growth and deter foreign investment. India has experienced political instability in the past, and a stable political environment is essential for sustained economic growth and development.

5. **External factors:** External factors such as global economic conditions, trade policies, and geopolitical tensions can also affect India's startup and economic growth. For example, a slowdown in the global economy or trade tensions between major economies can have significant implications for India's economy.

Overall, addressing these factors can help create a more favourable environment for startups to grow and contribute to India's economic development.

ET tech

Indian startup 🦄 unicorns in 2022

	Unicorn	Date	Valuation (in $billion)	Sector
1.	Mamaearth	Jan 1	$1.15	D2C
2.	Fractal	Jan 5	$1	AI & Analytics
3.	Lead School	Jan 13	$1.1	Edtech
4.	Darwinbox	Jan 25	$1	HR Tech
5.	Dealshare	Jan 28	$1.6	Social commerce
6.	Elastic Run	Feb 7	$1.5	B2B ecommerce
7.	Livspace	Feb 8	$1.2	Interior design
8.	Xpressbees	Feb 9	$1.1	Logistics
9.	Uniphore	Feb 16	$2.5	Artificial intelligence
10.	Hasura	Feb 22	$1	SaaS/Developer Tools

Source: ETtech research

India's unicorn surge

Aggregate valuation of Indian unicorns*

Year	Valuation
2022**	$535 B
2021	$497 B
2020	$384 B
2019	$257 B
2018	$215 B
2017	$141 B
2016	$116 B
2015	$103 B

According to data from Iron Pillar there are close to 130 Indian unicorns.
*Data also includes companies that may be domiciled out of India, but develop products for India.
** Includes data as of March 31, 2022.
Source: Iron Pillar India Tech Trends Volume IV Report

VIII. CONCLUSION

India has emerged as one of the fastest-growing startup ecosystems in the world. The country has a vast pool of talent, a large market, and a favourable policy environment, making it an attractive destination for startups. Here's an overview of the startup ecosystem in India:

1. **Funding:** Funding is a crucial factor for the success of any startup. In India, there are several sources of funding available, including angel investors, venture capitalists, crowdfunding, and government schemes.
2. **Incubators and Accelerators:** Incubators and accelerators play a crucial role in the startup ecosystem in India. They provide mentorship, networking opportunities, and funding to startups, helping them grow and scale up.
3. **Government support:** The Indian government has launched several initiatives to support startups, including the Startup India program, which aims to provide a conducive environment for startups to grow and thrive.
4. **Emerging sectors:** India's startup ecosystem is seeing growth in several emerging sectors, including fintech, e-commerce, healthtech, edtech, and agritech. These sectors are attracting significant investments and have a vast potential for growth.

5. **Co-working spaces:** Co-working spaces have become increasingly popular in India, providing startups with affordable office space and a collaborative environment to work in.

6. **Talent pool:** India has a large pool of talented professionals in the fields of engineering, data science, and business management. Startups in India can tap into this talent pool to hire skilled and experienced employees.

Overall, India's startup ecosystem is dynamic and growing rapidly. With supportive government policies, a large market, and a talented workforce, India is poised to become a leading destination for startups in the years to come.

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INNOVATIONS IN CURRICULUM FOR ENTREPRENEURIAL DEVELOPMENT OF VOCATIONAL EDUCATION FOR COLLEGE STUDENTS

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ABSTRACT

According to Van der Kuip & Verheul (2004), entrepreneurship has firmly cemented itself on policymakers' agendas as a tool for economic growth through innovation, venture creation, and economic growth. Academic research has examined the connections between economic, social phenomena and entrepreneurship which has contributed to a growing body of knowledge in this area.

According to certain arguments, (e.g. Van der Kuip and Verheul, 2004; Gibb and Hannon, 2006), education has a significant effect on the growth of entrepreneurial activity. The ambiguity surrounding what should be considered relevant outcomes for modern entrepreneurship programmes, as well as how and when they should be measured, is brought to light by Schramm's remarks. These difficulties have been extensively examined in the literature (Duval-Couetil, 2013; Fayolle, Gailly, and Lassas Clerc, 2006; Pittaway, Hannon, Gibb, and Thompson, 2009; Rideout, 2012), and the subject still sparks lively discussion at entrepreneurship conferences.

In accordance with the National Education Policy (NEP 2020), at least 50% of students should receive vocational education and training by 2025. To meet this goal and recognise the various challenges that face vocational education and training, the policy made a number of recommendations and suggested structural changes, including focusing on the formation of entrepreneurial skills for vocational college students based on skills gap analysis.

It must be planned to direct, stimulate, and assist vocational education in fostering entrepreneurship in order to guarantee the successful execution of the idea "Entrepreneurship as an alternative career" for all vocational college students. To promote entrepreneurial behaviour amongst students' entrepreneurial skills must be widely integrated into vocational education.

There must be improvements in entrepreneurship-focused courses, as well as assistance for new learners and even support with business startups. It is crucial to incorporate entrepreneurship education, 21st century skills, and new age skills into the curriculum for vocational college students. The study's goal in this scenario is to look into how the curriculum of vocational college students and the growth of entrepreneurial skills are related.

Keywords: Vocational Education, Entrepreneurship Curriculum design, Self-efficacy, Role Model.

I. INTRODUCTION

Over the past two decades, entrepreneurship has become increasingly popular as nations recognise it as a promising source of economic vitality. Many unemployed people tried to consider starting their own businesses in an effort to pursue their financial needs independently since their employers no longer offered them the career opportunities they once had.

An individual must have a number of characteristics, abilities, and talents that make up the entrepreneurial behaviour and profile in order to be a successful entrepreneur. In order to accomplish the suggested goals, this profile must demonstrate innovation, creativity, initiative, adaptability, self-confidence, risk-taking, teamwork, and the capacity to construct and manage projects.

Setting up a firm also requires developing entrepreneurial skills to manage, expand, recognise, and capitalise on market opportunities (Liţoiu and Negreanu 2011). The development of these competencies necessitates an appropriate framework for implementation, which is why it's crucial to improve educational opportunities and broaden the entrepreneurial curriculum.

II. NEED FOR THE STUDY

A number of empirical studies on the impact of entrepreneurship education curriculum and its influence on the development of entrepreneurship competencies of undergraduate students.

The higher education system has an important role in nurturing the entrepreneurship attitude, competencies amongst undergraduate students.

Though the major focus of NEP is to develop curriculum for enhancing the entrepreneurship skills of higher education students, there is lack of research in the field of vocational education and further research may help to understand and shed light on the issues revolving around the need for an innovative curriculum for entrepreneurship, specially focusing on vocational education for students.

This paper presents the research into the relation between programme of study relating to vocational education and regular undergraduate programme with a focus on aspects of entrepreneurial readiness like self-efficacy, risk taking behaviour and role model exposure that was not a subject of interest of theoretical discussions and research of previous researchers.

III. LITERATURE REVIEW AND HYPOTHESIS

Entrepreneurship Curriculum

The content of entrepreneurial curricula teaches students how to recognise possibilities, shape them, evaluate business concepts, create operational plans, raise capital, launch initiatives, and expand new businesses. Numerous entrepreneurial courses still use behaviourist teaching methods, which have been replaced, by more experiential methods. **Krueger (2012)**
There is growing interest in trying to teach students not just about entrepreneurship but also through it **(Kirby, 2006; Gibb, 1999)**, using new educational initiatives to promote students in acquiring a variety of business knowledge as well as transferable skills and competences.

Vocational Education

Vocational education is a sort of educational facility created expressly to offer vocational education (B.Voc) in higher education, in the context of this study. Vocational

entrepreneurship education is linked to particular approaches and modes of instruction, such as direct student-teacher interaction and knowledge alignment with market demands. It must enable students to acquire entrepreneurial behaviour for various occupations and entrepreneurship education offers distinct benefits in various educational settings and modes.

Risk Taking Propensity

Richard Cantillon, an entrepreneur and economist in the 18th century, first made the connection between taking risks and entrepreneurship. Later studies came to the conclusion that entrepreneurs take risks to a moderate amount **(McClelland 1965)**.

Risk propensity refers to a person's inclination to engage in risky behaviour **(Sitkin and Pablo, 1992)**. It is a persistent propensity to take risks that reflects how people view risk in general. When it comes to risk-taking, a high risk propensity suggests a high readiness to take risks, and a low risk propensity, a low desire to take risks. The likelihood of students starting a business in the near future can be predicted using the dimension of risk preference.

Self-Efficacy

According to research by **Chen, Gene Greene, and Crick (1998)**, **Krueger & Dickson (1993)**, perceived self-efficacy is positively correlated with the desire to start one's own firm and pursue new chances. One of the most significant factors influencing young people's decisions on their future involvement in venture creation is self-efficacy. According to recent studies a significant portion of young people in India intend to start their own business.

Self-efficacy, which is described as one's perception of oneself as an entrepreneur, is associated to the intention to launch the firm. However, knowledge, awareness, gaining information and experience is crucial for boosting self-efficacy.

Role Model

Numerous studies reveal a link between the role models and the positive link amongst student's entrepreneurial intention. According to research, family factors are essential for the formation of young people's professional ambitions **(Jodl et al., 2001)**. According to **Matthews and Moser (1996)** and **Scherer et al. (1989)** research evidence points out that student's entrepreneurial intentions are stimulated by close interaction with entrepreneurs. The significance of role models is underscored by the fact that students perceptions that entrepreneurship is a realistic and attractive career can be influenced by family members' entrepreneurial education/socialization and role modelling **(Krueger et al., 2000)**.

Hypothesis

- **Hypothesis H1:** Students in vocational education have much greater levels of entrepreneurial self-efficacy when compared to students enrolled in general education.
- **Hypothesis H2**: Students in vocational education tend to take more risks than students enrolled in general education do.
- **Hypothesis H3**: Exposure to role models and the entrepreneurial appeal of students enrolled in vocational education are positively correlated.

IV. OBJECTIVES OF THE STUDY

The main aim of the study is to examine how well the curriculum of vocational education prepares students for entrepreneurship.
The research specifically aims to:

- determine whether students in vocational education have higher levels of entrepreneurial self-efficacy than general undergraduate students;
- determine how well vocational education students can undertake risks compared to regular undergraduate students;
- investigate if the influence of role models amongst students enrolled in general education and vocational education are the same.

V. METHODOLOGY

Research design and data collection

The section illustrates the selection of the measurement tool for the constructs, the creation of the questionnaire, the sample size, the gathering of data, and the relationships between the constructs. All of the concepts and elements came from reputable sources of entrepreneurial literature.

Measurement Instruments
Participants of the study

All variables were measured by using the questionnaire adapted from the Entrepreneurship Readiness Scale developed by Alicia Coduras. The five-point Likert-scale from "Strongly Disagree" to "Strongly Agree" was used to measure all constructs.

The dependent variable for this study is entrepreneurial readiness, which is assessed using sixteen items covering topics including self-efficacy, risk-taking inclination, attractiveness to entrepreneurship, and exposure to role models influence.

Primary data for the study was gathered from undergraduate students of two colleges that are affiliated with Bengaluru City University. Responses were gathered via a questionnaire and random selection was used.

Both, students enrolled in regular undergraduate courses and those enrolled in the NEP Bachelor of Vocational Education (B.Voc) course responded, and their responses were recorded. 66 students responded in total, 33 of whom had done the B.Voc course and 33 of whom had taken regular undergraduate courses.

VI. DATA ANALYSIS AND DISCUSSION

Table 1- t-Test: Paired Two Sample of Entrepreneurial Self Efficacy

	B.Voc	General Education
Mean	3.788787879	4.033333333
Variance	0.672348485	0.479166667
Observations	33	33
Pearson Correlation	-0.311987485	
Hypothesized Mean Difference	0	
Df	32	
t Stat	-2.127980706	
P(T<=t) one-tail	0.020568955	
t Critical one-tail	1.693888748	
P(T<=t) two-tail	0.04113791	
t Critical two-tail	2.036933343	

Table 1 shows the mean value of B.Voc students is 3.78 which is lower than the Mean value of General Education students (Mean 4.03) which indicates

that the entrepreneurial Self -efficacy is higher in General education students. The P(T<=t) is 0.04 which is lower than the significance level, alpha, of 0.05.

Table 2-t-Test: Paired Two Sample for Risk Taking Propensity

	B.Voc	General Education
Mean	4.170606061	3.424242424
Variance	1.933712121	2.376893939
Observations	33	33
Pearson Correlation	-0.187284194	
Hypothesized Mean Difference	0	
Df	32	
t Stat	1.616580754	
P(T<=t) one-tail	0.057893078	
t Critical one-tail	1.693888748	
P(T<=t) two-tail	0.115786156	
t Critical two-tail	2.036933343	

The mean values (4.17) of B. Voc students show a higher mean value compared to General Education students (Mean 3.42) which indicates that the propensity is higher amongst B.Voc students for risk taking to general education students. Also, the p value or the observed level of significance P(T<=t) is 0.115 is higher than alpha of 0.05.

Table 3- t-Test: Paired Two Sample of Role Model Exposure

	B.Voc	General Education
Mean	3.32625	3.94125
Variance	1.157258065	1.434475806
Observations	33	33
Pearson Correlation	-0.06415647	
Hypothesized Mean Difference	0	
Df	31	
t Stat	-0.745246975	
P(T<=t) one-tail	0.230867888	
t Critical one-tail	1.695518783	
P(T<=t) two-tail	0.461735777	
t Critical two-tail	2.039513446	

Table 3 shows that the Mean value of B.Voc students and the General Education students with respect to role model exposure is lower. The p(T<=t) two tail shows a value of 0.46 which is greater that alpha of 0.05.

VII. FINDINGS

The results show that B.Voc students show lower entrepreneurial Self Efficacy when compared to general education students.

The analysis shows that the B.Voc students have an higher inclination to risk propensity. The positive outlook towards risk propensity is evident among both groups.

The finding of the study also shows that role model exposure among B.Voc students is lower when compared to general education students.

VIII. LIMITATIONS OF THE STUDY

Some of the research limitations are that the study is limited to selected academic institutions and the sample size is small. Thus, future research can consider the possibilities of conducting this study on a large sample set and also explore the influence of various factors impacting the entrepreneurship competency development of vocational education students.

IX. SUGGESTIONS AND RECOMMENDATIONS

The research shows that vocational education students score lower in terms of self-efficacy and role model exposure. But they have a higher inclination towards undertaking risk which is a significant trait for venture creation and entrepreneurial readiness.
In order to give students another setting to discuss entrepreneurial strategies and gain knowledge of the successes and failures of new ventures, case studies, problem-based learning (PBL) and entrepreneurial learning through extracurricular activities needs to be incorporated into the B.Voc curriculum (Kourilsky, 1995; OECD, 2010).

It is necessary to switch from the customary top-down method to a bottom-up one while delivering entrepreneurship education which can enhance the entrepreneurial self-efficacy. The two strategies differ in that the former begins with the students and the latter with the curriculum for instruction.

Guest talk by role model entrepreneurs, incubators, case studies, action-based learning, experiential learning, classroom approach, use of technology, and success and failure stories. The inclusion of role model entrepreneurs' interaction will provide students actual insight into the life of an entrepreneur and their way of behaving, thinking, feeling, organising, communicating etc.

Being part in the teaching and planning of the entrepreneurship curriculum may stimulate students' interest in the subject while also allowing them to do business on campus gives them an opportunity for experiential learning.

X. CONCLUSION
The entrepreneurship curriculum should place a strong emphasis on an entrepreneurial mindset and behaviour. This means that the curriculum's subject matter should be chosen such that students will have a favourable attitude towards engaging in entrepreneurship. (Dreisler,2007). Thus the main aim of entrepreneurship curriculum for vocational education students should be to give a chance to students to be more pragmatic and realistically focused instead of considering entrepreneurship as a theory course.

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EMPLOYEE RETENTION IN TEXTILE INDUSTRY

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ABSTRACT

Employee Retention is a major concern for every organization. Since employees are considered as assets of the organization, retaining skillful and committed employees is a must. It is therefore essential to have strong retention strategies in an organisation to prevail in this competitive era. Different organisations implement different retention strategies. This study intends to find and investigate employee retention problems prevalent in the textile industry.

Keywords: retention, attrition, retention strategies

I. INTRODUCTION

Human Resource Management is encountering new challenges every day. It has become essential to keep up with the changing environment. The organization finds it challenging to keep up with evolving approaches to managing human resources. Numerous problems are being faced by organisations while managing work force, some of them include attrition, retention, stress management, recruitment problems, etc. In this research we explore attrition problems and the strategies used to retain employees.

Retention is a problem as employees discontinue work in the organisation. Retention strategies are required to retain employees in the organisation. There are various strategies used to retain employees, which include: fringe benefits, increments, resolving issues through communication, etc.

II. OBJECTIVES

- To study the factors that help in retention of employees in the organization.
- To identify the area of consent and opportunities for improvement of employee retention.

III. STATEMENT OF THE PROBLEM

In today's world, attrition and retention of employees is given more importance because of developing sophisticated technology and heavy competition in industry. In order to increase organizations' performance and make best use of available resources, human resource in any organization has to be well managed. If the strategies adopted by the company for reducing the attrition rate and to retain the employees in the organization are not proper then it may cause a heavy loss to the company which will ultimately affect the efficiency and effectiveness of the organization. Thus, this study was conducted to evaluate which strategies are followed in organizations to retain employees.

IV. REVIEW OF LITERATURE

- **Smithy, Daskalaki & Brown** examined employee turnover and management of employees. According to them the employer's needs are essential in high-turnover. Employers should use strategies to retain them. Employees can be retained by providing them with extra benefits such as bonus, fringe benefits, etc. these things motivate employees to stay in the organization and to contribute towards the achievement of organizational goals.

- **Winterton** said, the issue of skill retention has been neglected. Labour can be retained by ensuring the employees have job satisfaction and by proper motivation their morale is boosted, so that they contribute more towards their organizational objectives.

- **Joy & Radhakrishnan** said that, organizational culture is an important aspect in companies. Difference in culture has a significant impact on the rate at which new employees terminate employment on their own will.

- **Flynn**, **Duncan**, and **Jorgensen** said that non-profit organizations rely on the mission to attract resources and guide decision-making. The company's mission helps employees by motivating them to achieve organizational goals. Employees behave positively towards organizational goals, this leads to satisfied employees who wish to continue to work with the company. As employees who are paid less do not have a similar perception, they are difficult to retain. The conclusion was it helps to attract employees but does not help retain them. Sometimes it also depends on the Image and Brand of the company.

- **Balakrishnan & Vijayalakshmi** said that, companies are known by the people they employ. It is easy to attract employees but not easy to retain them. It is very important and difficult to retain key employees; to measure long term goals and achievements of the organization, it is essential to have retention strategies to see effectiveness of their performance. Thus, it must be implemented in the hiring process itself. It can be done through having a good work environment that includes respect and performance recognition, and building trust, and nurturing career goals of employees.

V. METHODOLOGY

Descriptive research design was used for the research. The sampling type adopted was non-probability sampling, and convenience sampling method was used to collect data. Employees from the Textile Industry were the sampling unit for the study.

VI. FINDINGS

The retention strategies adopted in the organization to reduce attrition are the following:
1. The employees were offered promotions, bonus and fringe benefits.
2. There is an appraisal system in the organization which gives small appraisals time and again which keeps the employees encouraged.
3. The organization rewards the employees annually for their contribution and performance.

4. There is a sense of belongingness created by the employer that keeps the employees with the organization. Many employees share a good rapport with the employer himself.
5. Accommodation is provided to employees who have relocated for the purpose of job; this reduces their burden of house rentals.
6. Increments are provided as per industry standards.
7. Good training is provided in the organization which helps employees to enhance skills and perform well.

VII. CONCLUSION

Retention strategies are a must for every organization nowadays. Retaining employees reduces cost to the organization, which in turn will help the organization have satisfied employees as that would allow the organization to pay better salary. Happier employees are easier to retain, this motivates them and helps them to perform better. Retention also increases the productivity and quality of work. Various strategies can be used to retain their employees. The organization could concentrate on the reasons for attrition and retain employees accordingly. Human resource must be retained for the growth and development of the organization and there are several strategies to do so.

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A STUDY ON DIGITAL MARKETING

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ABSTRACT

The study of digital marketing describes a framework that highlights strategies in the marketing process, as well as effects and impact of marketing process by using different technological tools and social media platforms.

The purpose of this research paper is to find out different social media options used for digital marketing. This paper mainly focuses on the importance of digital marketing and differences between digital marketing and offline marketing.

This research paper has been prepared to nurture small scale industries to integrate digital advertising in their business models and to utilise social media marketing.

Digital marketing aims to reach the business globally by using various social media platforms like Facebook, Twitter, Instagram, LinkedIn etc.

Keywords: Google Adwords, Artificial Intelligence, competitor analysis, SEO, SEM.

I.   INTRODUCTION

As CSNL launched its internet services in India in the year 1995, primitively it was the start of digital marketing in India. Its outcome did not perform well as very less percentage of the population was depending on the internet till 2020.

It is a form of marketing that uses internet and digital technologies such as mobile phones, laptops and other platforms to promote products and services. It involves activities like buying and selling of goods and services online. It helps small business to compete with large business in international level.

It provides e-commerce 24x7, so that the consumer can buy any product from anywhere in the world. Essentially, if any marketing involves digital communication, it's none other than digital marketing.

Today's internet facility has opened a gate of vast variety of opportunities in the field of business. The speed and ease with which the digital media transmits information helps to boost a business is amazing, it achieves targets of marketing a business through various online channels and mediums.

The main challenge of marketing a business is in finding and understanding customers. So Digital marketing helps in reaching the customers worldwide but for a newly started business usually it takes a long time to get ranked in the search engine optimization (SEO).

Hence, social networking website is the best solution to this challenge.

II. RESEARCH METHODOLOGY
Conceptual research using secondary data collected from websites.

III. DIGITAL MARKETING ERA

It is a form of marketing that uses Internet, online based technologies and other social media platforms to promote products. Its development started during the 1990s and 2000s.

Brands and business do marketing using technology. Nowadays, digital marketing platforms are increasing day by day as people are more interested in shopping online instead of visiting shops as it is time consuming. Digital marketing has become more preferential in the field of marketing, by using search engine optimization (SEO) and search engine marketing (SEM), content marketing, e-commerce marketing, pay-per click, social media marketing etc.

Entertainment programmes have prompted people to get updated with technology and started using a lot of social media platforms like Instagram, Twitter, Facebook etc. This gave a boost to digital marketing. No business is successful without digital marketing or without internet today.

With over 560 million users in India, it makes it the 2nd largest online market worldwide. After, the arrival of digital marketing, we can see a massive change in user behavior with regard to the way users consume content, news, shop or stream video from their devices. Users spend 25% more time on their smartphones than before. Gone are the days when we could spend money extravagantly and there were no parameters to measure the effectiveness of the campaign, but now we are in an era where every penny could be tracked and we can also easily calculate the return on investment (ROI). We all want growth in the field of business but we also need to be considerate about the budget.

This is where digital marketing comes in, with the help of internet and knowledge of reaching out to people, it helps to get a better output with the least cost.

In the current era, digital marketing is a vast field with a high volume of sales benefit. A company that uses digital marketing generates 68% more business. Every business wants to improve its product with the help of digital marketing by posting it on social media and making people aware of the product.

Survival of a business in this era is possible only if you're using the technique of digital marketing. You need to improve your services through the latest technology by giving a hyper-connected user experience. Hence, digital marketing helps to create success with the best strategies, helping the business develop in all situations.

IV. DIFFERENCE BETWEEN TRADITIONAL MARKETING AND DIGITAL MARKETING

Traditional Marketing
Traditional Marketing doesn't mean its old fashioned, it still plays a significant role in people's lives with the ever-growing need to step out of the digital world. The wonderful experience of watching television, reading a newspaper, magazine are as important today as they were 20 years ago because of their everlasting effects on our memory. Subconsciously, we attach ourselves to a brand emotionally, and it is always in our memory.

It is also called Offline Marketing, which uses offline media to reach customers. Example: newspaper ads, print ads and radio advertisements. It is not cost effective as there is no promotion of the product. It does not increase brand awareness, as it reaches only few of the customers. Once the ads are posted in the traditional marketing method, the ads cannot be altered as it does not use any online techniques, customers have no option to skip the ads, but to watch the ad.

Digital Marketing

Digital marketing is just as important as traditional marketing, if not even more so. It uses every touch of our daily use of the internet. For instance, if one is searching 'ideas for weekend' on Google, chances are that soon a holiday package ad from another website will be displayed.

Using the internet for several hours every day is a common part of human lives. Hence digital marketing uses this as an advantage to know the wants and needs of the customers. Online marketing uses digital technologies to connect with customers for the purpose of selling and buying goods and services. It is very efficient and fast for brand building; it also promotes products as it is more cost effective in nature.

The ads can be altered even after posting. It also gives the option of skipping the ad for the customer. It reaches globally.

V. CHANGING TRENDS IN DIGITAL MARKETING

Digital marketing trends and strategies are never ending and even before you know it a new digital marketing trend will be on its way. Every marketer would move forward quickly to check what's next in digital marketing.

Here are some new trends in 2023:

1. **Influencer Marketing**: It is a type of marketing practice that enlists influencers like celebrities, businessmen and someone popular who has massive fan following in social media, so that the customers will gain interest to buy the products by looking at their favorite celebrities.

2. **Omni Channel Marketing**: It stands as a true definition for digital marketing because it makes use of multiple channels and mediums to attract customers, and provides a seamless experience. It is also one of the effective ways to reach the target audience.

3. **Artificial Intelligence**: It refers to the evolution of smart computer systems that can perform related functions like the human brain. Companies use artificial intelligence to gauge the needs and demands of the customers. Example: robotics, facial recognition and Chatbot.

4. **Video Marketing**: Video Marketing is the use of video content to promote or inform audience about the company's brand, products and services. Brands can use videos across a variety of digital channels and formats, including their own website. Example: Instagram, YouTube and LinkedIn etc.

5. **Long-form content**: It is the most popular trend of digital marketing where the companies use mobile phones often to promote their products and services by posting articles or blogs.

6. **Social Media Shopping**: The arrival of social media has helped many businesses to interact closely with the audience. The combination of social media and e-commerce has opened a huge online market, so that customers from different strata of society can buy products and services that match their expectations.

VI. PROS AND CONS OF DIGITAL MARKETING

A. Pros

1. **Brand loyalty**: If the product satisfies the customers' expectations they tend to use the product of same brand repeatedly instead of going to other brands. Hence the customers will be very active in gaining more information about the product.
2. **Global reach**: As we all know digital marketing is online marketing, it helps in reaching customers worldwide, and hence each and everyone can buy products from any part of the world.
3. **Greater benefits for company**: In this updated technology internet plays a preferential role in our lives. So the companies use digital marketing techniques to earn more profits.
4. **Effective targeting**: Digital marketing helps extract data to see which audiences will work best for us and optimize our campaign around them.

B. Cons

1. **High competition**: Digital marketing campaign should grab the attention of customers. Hence the competition has grown; any repeated method will decrease the awareness of brand.
2. **Dependability on technology**: Digital marketing is purely dependent on technology and internet. Sometimes due to some network issues websites may not load, it may take long time this leads the customers to switch to other brands.
3. **Security issues**: Privacy is the primary need for any brand. Websites and customer information need to be protected in digital marketing by using firewalls and VPN.
4. **Confronting negative feedback**: Negative feedback comes from a brand's poor reputation and growth, therefore it can tamper with employees' health and productivity.

VII. CONVERSION

It occurs when a visitor visits the website to fulfill his needs or wants, enters his details on the website page, by obtaining password or OTP in order to purchase products or services.

Conversion tracking: Interaction of consumers with digital for marketing promotions is called as conversion tracking.

A. Advantages of Conversion Tracking

1. **Cost per action (CPA)**: We can find out how much a conversion costs in each advertising campaign. We can also define a monitory amount as a conversion value for conversion and campaign; we also measure and improve the return on investment.
2. **A/B test**: Conversion tracking gives us the information about how many conversions are generated for which advertising channels, target audience, placement in ads. This information is obtained from A/B test.
3. **Conversion optimizes campaign**: Many advertising networks offer the possibility to optimize the campaign to define conversion action. For this purpose the conversion tracking data is used to play out the acts. If possible, the ads are displayed with people who have already triggered conversion, this often leads to better conversion rates and thus to better results from the campaign.

B. Conversion rate: The percentage of total visitors proportionate to purchase decision in the particular website is called as conversion rate.

Conversion rate = Conversion ÷ Number of visitors*100

Example: If the website gets 100 visitors per day and only 20 visitors sign up for website page by giving their mobile number or E-mail Id then the conversion rate will be 20/100*100 = 20%

Hence 20% will be the conversion rate.

C. Types of conversion rate

1. Click through conversion - It is also called as post click, it is a type of conversion where the user clicks on a company ad and makes use of it after some time.
2. View through conversion - It is also called as post view conversion. Where the users only watch the ad but not click on it and convert, making use of it at a later date.
3. Lead conversion - It is used to identify the customers interested in your offering and provide a means for continuing the relationship.
4. Video view Conversion - It is the conversion where the user views a certain amount of a video which could be as little as 3 seconds.
5. Purchase or sale conversion - It refers to any action that leads to exchange of money for goods and services. It is the end goal that occurs at the bottom of the funnel.

VIII. CONCLUSION

Today in the era of internet digital marketing, its features are more beneficial from both the customers and business point of view. Digital marketing is the future of marketing, the creative innovations of digital marketing will help both online and offline world. In the upcoming days there is no marketing of a business without digital marketing, as social media is the only way to connect people globally.

Our study has also revealed that in order to utilise digital marketing in an effective way, the companies are required to design an effective platform.

Infact, online marketing has become a vital focus for most of the companies as they move forward to reach customers online and grow sales.

We can say that almost all the businesses have faced a worse situation during the pandemic, but when it comes to digital marketing it has improved it's situation during the pandemic because there were no physical shops available for the customers and the only way to buy products was through online.

The best solution depends on the type of firm you have. If you have big companies with a huge budget you can rely on digital marketing but if you are a small business trying to spread across the world, it's better to opt for digital marketing strategy.

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TECHNOLOGY

A METHODOLOGY TOWARDS ARTCHAIN UTILIZING BLOCKCHAIN-EMPOWERED STAGE FOR CRAFTSMANSHIP COMMERCIAL CENTRE

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ABSTRACT

Blockchain is an arising innovation that can possibly reform the worldwide business and make a confided relationship in a multi-party business organization. There are various down to earth use situations where blockchain has been applied. One explicit region is the workmanship business, where it is a characteristic fit in the manner that craftsmanship criminology and exchanges are led, followed and recorded. This rouses us to foster the ArtChain stage to help the Craftsmanship Business. In this paper, we present ArtChain, which is co-ordinated exchanging framework in light of blockchain. It incorporates the front end, the back end, the administrations, the shrewd agreement, the chain association and the arrangement scripts from the base to the top. Supposedly, this is the first sent blockchain empowered craftsmanship exchanging stage Australia. It gives a straight forward yet protection saving and carefully designed exchange history for enlistment, provenance, and recognisability of craftsmanship resources. Our objective investigation and assessment show that the ArtChain stage is appropriate and useful. For the interest of different scientists, our framework execution related assets are publicly released on GitHub.

Keywords: Blockchain, DLT, ArtChain, proof of work, proof of authority, content management system

I. INTRODUCTION

Blockchain, otherwise called disseminated record innovation (DLT) [1], is intended to help check driven exchange administrations inside a by and large unconfined in environment. The plan of blockchain innovation guarantees that nobody business substance can alter, erase, or even annex any record to the record without agreement from other organization members, guaranteeing the permanence of information put away on the record. Blockchain is currently being utilized in a few industry applications, for example, blockchain-empowered recognisability and provenance for food handling [2] documentation and cross association work process the executives in exchanging and coordinated operations [3]. With $200 billion of yearly exchanging, the craftsmanship market is quite possibly of the biggest unregulated market on the planet, representing 33% of how much wrongdoing simply behind medications and weapons [4]. A huge number of dollars are moved with practically zero documentation and straightforwardness. Current difficulties and issues in the craftsmanship market are: (1) absence of straightforwardness on costs and proprietorship history (provenance) and deficient control of exchange information because of the data unevenness; (2) the legitimacy and evaluation of high-esteem show-stoppers is troublesome; (3) absence of the worth of fine arts at the essential workmanship market and straightforwardness exchanging at the optional closeout market (both on the web and disconnected); (4) absence of acknowledgment, 1https://github.com/ArtChain Worldwide public consideration and care for an enormous number of specialists; (5) it is hard for the specialists to get an eminence instalment from the optional market. blockchain innovation has a characteristic fit to work on the straightforwardness, keeps and decrease illegal exercises in the craftsmanship market, because of its inborn properties [5] [6].

In this paper, we present our undertaking work, called ArtChain, Blockchain-based craftsmanship exchanging framework, which has been steered and worked as a functioning item practically speaking. It is normal to give a total arrangement towards these difficulties by making another environment for the craftsmanship keeping, exchanging, and moving. ArtChain generally develops the hidden engineering of blockchain to help a business level exchanging stage revolved around workmanship resources.

The guiding principle recommendation of the stage lies in:

A. Security Assurance Shared record alongside permissioned control guarantees the straightforwardness of each exchange which ensures the security in craftsmanship exchanging and provenance.

B. Discernibility continuous following of individual fine arts joined with the blockchain record aids the battle against fake craftsmanship.

 C. Irreversibility the on-chain enrolment of authorities disconnected resources gives a permanent advanced record of the work of art, which ensures the genuine possession, the provenance and the worth of the fine art.

D. Straightforwardness freely showing fine arts to a more extensive scope of expert financial backers, utilizing the transparency of workmanship biological system.

II. BLOCKCHAIN ARRANGEMENT TOWARDS WORKMANSHIP EXCHANGING

The reasoning behind the utilization of blockchain for a craftsmanship commercial centre, and afterward talk about the advantages of this blockchain-empowered stage.

II.1. Reasoning behind utilizing Blockchain

The significant substances or members in our answer are portrayed in the accompanying   .
•Craftsman Laid out specialists alongside new age specialists all have equivalent open doors for proficient assessment and to distribute their works of art. Distributed things will be accessible for exchange. • Craftsmanship exhibition after work of art is enlisted on the blockchain framework, it very well may be followed and situated continuously giving an extra degree of safety to displays.
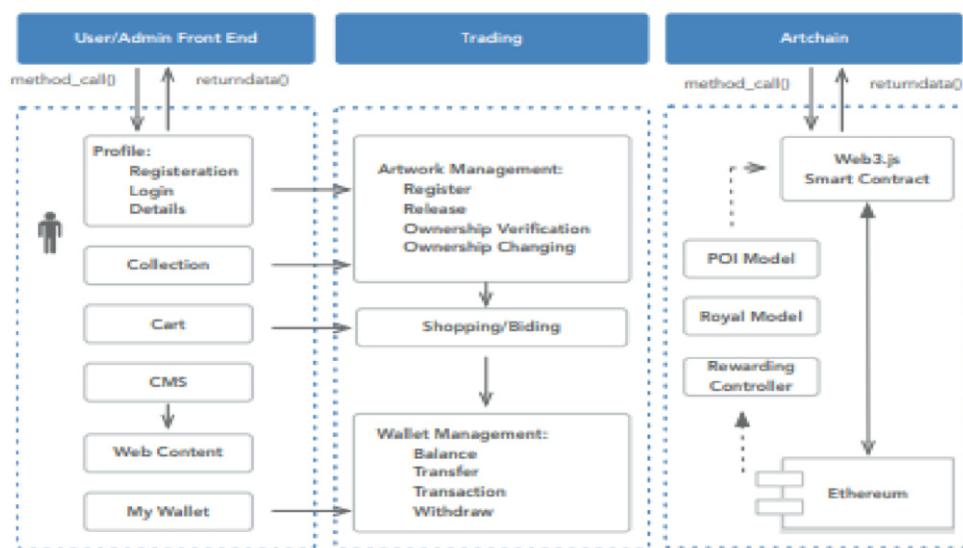
Figure 1.   System architecture

II.2. Advantages of a Blockchain-Empowered Workmanship Commercial Centre

The work of art legitimacy and detectable information can be essentially accomplished. Provenance is urgent with regard to gathering craftsmanship. Not having a record of the possession history for a work of art frequently raises doubt that it very well may be taken or counterfeit, thus a dispersed record can be utilized to follow the exchange of responsibility for period and act as a decentralized data set getting provenance information and other significant data connected with craftsmanship.

This considers fast and undeniable proprietorship move in exchanging. Blockchain review trail assists in identifying with burdening avoidance and tax evasion. Add-on examination or simulated intelligence administrations can foresee the ongoing worth of a work of art in view of shared straight forward information. This helps essential market valuation, which is more troublesome and more theoretical than optional market because of an absence of market history.

III. SYSTEM OVERVIEW

The essential standards the engineering depends on, the significant level design and its primary parts. Then, we present fundamental information model plan and the exchanging system of the stage. Also, we examine the trust and security issues. Assess a few blockchain stages to illuminate our choice on which stage to apply. In light of the business prerequisites and specialized appraisal we choose to utilize the Ethereum private blockchain and Confirmation of Power (PoA) [8] as the agreement calculation. At first, we considered and utilize hyper ledger Texture to execute our framework because of its ability, prominence, and development. In any case, it needs support in local token, which is a key business necessity in our plan as the workmanship exchanging stage desires to coordinate the instalment cycle and the proprietorship move process. We plan and execute a utility token called ACGT to accomplish the elite presentation necessity. Allude to Segment IV-A Tokenization for additional subtleties.

There are three layers in the framework: the client front end, the exchanging back end, and the ArtChain blockchain layer. • Client Front End: incorporates the accompanying capabilities: overseeing Profile for client enrolment, login and client subtleties; showing workmanship Assortment; shopping basket; client Wallet; and CMS (Content Administration Framework) to make and oversee web content. • Exchanging Back End: comprise of Craftsmanship the executives, Shopping/awaiting, and Wallet The board. Work of art the board incorporates fine art enrolment, possession check and proprietorship move. Craftsmen or gatherers direct the enrolment of their fine arts through the evaluation arrangement of expert foundations inside ArtChain. Their masterpieces will then be qualified for exchanging and taking part in the environment. • ArtChain: including the accompanying parts: (1) Eminence model: liable for specialists' sovereignty instalment in the resale of their craftsmanship's. (2) POI model: oversee Verification of Connection (POI) arrangements, which are utilized as motivating forces to develop the environment of utilization.

IV. RELATED WORK

The work that firmly connected with this work, for more work about blockchain and the connected applications, kindly allude to [1], [16]. Craftsmanship as Advanced Resources: Expressions can be viewed as the computerized resource for be put away on the blockchain stage. The blockchain intrinsically holds the property of validness, recognizability, and irreversibility which can impeccably safeguard the advanced resources for every work of art. Normally, the blockchain-based arrangement denotes every work of art with an ID, may signify as token in shrewd agreement. Likewise, numerous conventions are intended to exchange the nonfinancial resources type of tokens on the blockchain stage Blockchain Arrangement: Since advanced resources need appropriate ties both on legitimacy and security, blockchain turns into the essential determination for the prerequisites. There are three choices, including private blockchain, consortium blockchain and public blockchain. Because of the great security of the resources, the most reasonable arrangement is the consortium techniques, which somewhat has a superior compromise among execution and security. The resource put together property is conveyed with respect to the application-layer of the blockchain, managed by the principles characterized in savvy contract. There are a lot of utilization effectively executed on top of blockchain [17] and consequently the foundation [18] turns out to be more finished alongside the turn of events. Our answer gives an exchanging foundation to craftsmanship, and it gives a worldview to other high worth products. Security Assurance: For the valuable advanced craftsmanship resources, safeguarding the protection of assets is principle. There are two sorts of security in research, including personality protection and exchange security. Character protection openly connects the genuine personality and exchange contents, and there are a few social examination methodologies, including hostile to tax evasion and know your client (KYC) to introduce the use diagram. Exchange protection implies the plain items on the record, including

the plain moving worth, account heading, etc. A foe might cause to notice even screen a few records with tremendous measures of property. Besides, there are a few techniques to accomplish the significant level safeguarded blockchain. [19] Utilized the blender to muddle the connections among individuals. Maxwell proposed the Classified Exchange and first and foremost accomplished, carried out with the reach verification plot. [20] [21] completed the security safeguarding conventions in light of ring mark. [22] Fixed the plain sums by utilizing Paillier Cryptosystem. [23] gives a total answer to make the delicate data disjointed for general society.

V. CONCLUSION

The ArtChain, which is a stage planned with enrolment, following, security, and provenance for fine arts empowered by blockchain innovation. We likewise examined how to configure, execute, and send the blockchain stage in activity as a functioning item practically speaking. The proposed blockchain execution and exploratory outcomes demonstrated the way that our framework towards craftsmanship can furnish a total blockchain-based arrangement with the property of irreversibility, verification, detectability, and straightforwardness. In future, we intend to chip away at hostile to duplicating for the first showstoppers by co-ordinating with the brilliant modules of IOT, and actuating pertinent shrewd equipment and other usefulness (e.g. situating/area following) as expected by craftsmen or authorities.

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APPLICATIONS OF COGNITIVE COMPUTING USING CLOUD-BASED RESOURCES FOR EDUCATIONAL SECTOR

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ABSTRACT

Human intelligence is thought to be superior to artificial intelligence (AI) because it can adapt to changes more quickly. Since it is difficult for humans to examine the large amount of data due to the growing data flood, AI systems are in demand in today's society. But these AI systems don't have self-awareness, social abilities, multitasking, or quicker adaptation. By acting as a key driver for knowledge-rich automation work, Cognitive Computing (CC), a subset of AI, functions as an effective solution in resolving these issues. The education sector will benefit from a wide range of new goods and services brought on by cognitive computing. Some of the services may be to introduce the personal cognitive assistant at college/universities based on different user type such as students, faculties, admission team and support teams, the automatic compilation of notes and to deliver digital learning and assisting in providing students the ability to use assessment facilities. The automation of repeated work and activities, like the production of student report cards, a greater level of personalization of services that directly affect students and many more. This paper proposes a simple architecture that will help the education sector by utilizing the Cloud based resources effectively. It also analyses multiple instances in which students in high schools, colleges, or universities might employ cognitive computing.

I. INTRODUCTION

With the recent advancements in cloud computing, artificial intelligence (AI), Machine learning and also technologies related to software and hardware of a computer, cognitive computing has drawn a lot of attention from both academia and business. Cognitive computing is defined as an interdisciplinary research field that incorporates neural networks from science and computers, Signal Processing from electronics and information theory and mathematics to

develop machines that will have reasoning abilities analogous to a human brain. Thus, in this paper, we propose a cognitive intelligence model human-centred computing with cloud based for any educational sector. As shown in Fig. 1, the human-centred cognitive model includes hardware, technologies and human. The hardware facilities networking and necessary devices for communication in the architecture. This new paradigm of human-centred cognitive computing can interact with students, teachers, administrative team and managers. Closed training with data input is the foundation of conventional supervised learning and unsupervised learning. These conventional teaching techniques fall short of what is needed to increase machine intelligence over time. As a result, machine learning's hot research area now includes reinforcement learning. The process of reinforcement learning is very comparable to human learning. As a mother trains the kid to recite a poem and kid starts learning it by repeating it. The mother will support the kid until the kid recites the same poem without mistakes and understand the internal meaning and summary of the poem. The mother rewards the kid to encourage the learning and punish for doing it wrongly. Same way the machine is to be trained with the data related to educational system. The use of cognitive computing in education is anticipated to spike sharply. Cognitive computing will have an impact on all services used by faculty, staff, administrators, and students at a university. If cognitive services are thoroughly considered and planned, schools, colleges, and universities will be able to offer better services that will benefit the students and communities they serve. The education sector will benefit from a wide range of new goods and services brought on by cognitive computing. These involve the introduction of the personal cognitive assistant for students in the learning process, teachers in the teaching process, and support teams, the automated compilation and delivery of online learning can be done and help in providing assessment materials to students, the automation of daily based tasks and activities, like the production of student report cards, a higher level of personal customized support that can be offered directly to provide interactive online education. It focus special consideration to the task of the cognitive assistant as it develops into the main online interface between students, professors, support staff, and the cognitive services that they will all eventually use on their campus.

II. LITERATURE REVIEW

Cognitive computing is strongly linked to the idea of artificial intelligence (AI). Current research indicates that different areas of cognitive computing and AI can be found in the energy sector. As artificial intelligence has many applications in the educational area, cognitive computing has also become very popular. By 21st century, many experts and researchers expected cognitive computing will be the hope for the near future. Technology helps students find the course to take after completion of the current course or any

other information related to current or further. They can also act as personal tutors, guide students in their course work, explaining the problematic sections. Cognitive computing and cognitive assistants simplify the task and enable course teams to differentiate, contextualise and personalize effectively. By automating numerous tedious administrative procedures, cognitive computing enables facilities to conserve resources and improve service. Certainly, teachers and support teams will be more benefited by using services provides by cognitive to that can enhance the education services.

A promising area of application for exploiting cognitive computing is education. Specifically, using the more intelligent academic model (Coccoli et al., 2014), cognitive computing-based applications and services should become adopted. We share some examples of how cognitive computing may accelerate students' academic progress and provide teachers with invaluable support from an E-learning perspective.

Specifically:

(i) Incorporating cognitive computing services into software applications can significantly improve students' performance in computer science classes.

(ii) Research on cognitive computing behaviour can produce important findings in the field of artificial intelligence.

(iii) The use of a cognitive computing layer for digital interactions with students can improve their performance and make administering classrooms and learning resources easier for teachers.

A growing amount of attention is being paid to cognitive computing and related subjects in academic study. The rapidly expanding body of literature in this subject serves as evidence of this. In this regard, Wang et al. (2010) present the structure of a larger discipline including applications of cognitive computing. According to their definition, cognitive informatics is a cross-disciplinary study of computer science, information science, cognitive science, and intelligence science that looks into how the brain and natural intelligence process information internally and how these processes can be applied to engineering in cognitive computing. Such applications have a strict relationship with machine learning, according to early (2015), and this should help to modernize AI.

III.COGNITIVE AI BASED CLOUD ARCHITECTURE FOR EDUCATIONAL SECTOR
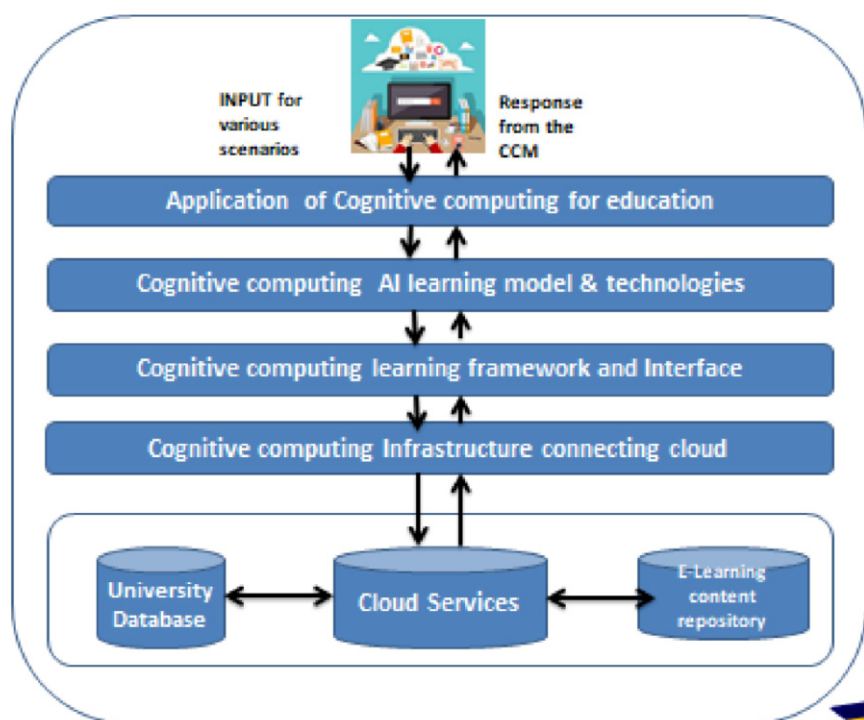
Fig 1. Cognitive AI based Cloud Architecture for educational sector

Fig1. Gives a clear view on how cognitive AI based cloud system can be designed and further based on the framework. We can customize different applications related to education sector. The above architecture is designed to provide cloud based infrastructure connected to educational cloud data that intervene with cognitive learning framework underlying with cognitive AI technologies for modelling different educational based cognitive applications.

IV. ANALYSIS OF VARIOUS COGNITIVE COMPUTING SCENARIOS

The possibilities that people in schools, colleges, or universities that employ cognitive computing are covered in detail in the section that follows:

User Type	Use case	Functionality
Student College Prediction based on marks and to calculate marks required	If a student wants to go to university, but he needs 90% marks to get admitted at top University of his choice, a student would say to	The model can take input from the student and check the criteria of the top colleges or universities and calculate based on the assessment

	the cognitive assistant. What grades must that student receive on his remaining assignments in order to earn the necessary points to enrol in a university?	or evaluation performed for assignment. And display the results accordingly. The cognitive assistant can also give students further information and guidance about the CGPA points inquiry
Student course selection	Students after completion of plus 2 or PUC will always have confusion which course to opt	The Student requests some insight from the cognitive aid. The cognitive assistant has records of every student who has passed the course. The cognitive assistant is also aware of the student's desire to pursue an engineering career. The cognitive assistant will consult this database of knowledge when responding to the student's question before offering potential solutions.
Student Adaptive learning	Student wants to avail answers and information about the topics in curriculum based on his /her capacity of understanding	Each student receives learning and assessment materials that are tailored, contextualised, and customised to fit their needs using the institution's learning management system. Cognitive computing is utilised by adaptive learning environments as they grow and change to better, assist students with their academic work.
Students day to day activities	Information to be provided to a newly admitted student	New students at a school or college or university frequently have a lot of questions about their

		classes, the resources available to help them with their studies, and general inquiries like What will be today's schedule? , Details about the teaching fraternity? Where can I get good lunch to eat? What about the semester schedule? Where is the Examination cell other common inquiries?
Students admission Process	When a student come for an enquiry about the college	The feedback of previous batches can be store to help the student to get more information about the college and the curriculum can be designed based on the student and provide more insight about the admission process
CET passing or scoring preparation	Student can know on which topic more focus is to be applied based on the previous strategy	Cognitive computing can analyse the previous papers , syllabus and help students to prepare
Teacher syllabus completion	Teacher can track the information about how many more classes to be required	The functionality depends on the workload, hours allocated for that subject and classes handled and to be completed by given target.
Exam evaluation process	Teacher can follow the guidelines for the evaluation process	The evaluation can be made easy by preparing answers to the questions and analyse the marks scored by student. Results analysis can be made easy
NET or SET clearance	Teacher can know on which topic more focus is to be applied based on the previous strategy	Cognitive computing can analyse the previous papers, syllabus and help teachers to prepare.

Research	Most trending topics and publication details, Workshop details and FDP details	Encourage and remind about the conferences, workshops to attend and help them to involve in research
Admin staff	Helping the admin staff to conduct admission smoothly	Teams at colleges and universities are focused on offering students career counselling, student financial aid, academic support, exam support, and so on. To collect and examine the data on any particular student they are serving, these teams make use of the institution's primary dataset. With the introduction of cognitive services, the support teams' algorithms will handle a large portion of the retrieval work and decision-making work, enabling them to provide improved assistance for the students under their care.
Student Strength and retention	Many colleges and universities around the world struggle with student retention, and the cognitive computing technologies are perfectly suited to address the issue.	Support teams will be able to combine anecdotal reasoning methods with more trustworthy statistical methods to enhance the stats of probabilistic programming. This will make it easier for the admission support team to track the students who are in planning of dropping out from the course or struggling to complete their coursework. Modularizing

		probabilistic programme enables support teams to increase accuracy in specific issue domains to enhance the system of education. The services provided by using this cognitive based system will be more accurate and trustworthy as they are adopted, as the data grows related to student information. Institutions must be aware of the ethical concerns that come with using cognitive services to assist teams in managing student retention.

V. CONCLUSION

In summary, the architecture is beneficial for education sector that follows brief review of cognitive computing technologies used in education. In this paper we introduced cognitive computing in education and also we propose a cognitive intelligence model human-centered computing with cloud based for any educational sector. This new paradigm of human-centered cognitive computing can interact with students, teachers, administration team and managers. Numerous new services and products are going to hit the market for education as a result of cognitive computing. The researchers can get a better idea of how the personal cognitive assistant can be implanted for education sector based on different type of users such as students, teaching and non-teaching fraternity and support staff, the automation and assembling of web based learning can be delivered easily for better understanding and provide evaluation materials to students. The computerization of daily based tasks and functional activities, example: generation of student report cards, a higher level of customization of services that are offered directly to students and lot more service to enhance the education system.

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BIG DATA ANALYTICS – A REVIEW

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ABSTRACT

Big data consists of data which grows very rapidly in size and it is a combination of structured, unstructured and semi-structured data. It is very difficult to understand and analyse this data using the traditional tools and techniques. The dataset needs to be handled and knowledge needs to be extracted. Different frameworks such as Hadoop, Cassandra, and Spark are used to store and process the big data. In this paper, we would focus on the types of data analytics and recent technologies specifically Hadoop framework and Amazon EMR architecture. The applications of big data analytics are widespread. There are lot of challenges faced in analysis of big data as the variations in the structure of data is huge and the data multiplies very fast.

Keywords: Big data, Data Analytics, Data Storage, Hadoop

I. INTRODUCTION

Big data is a term for datasets that cannot be handled by traditional computers or tools due to their value, volume, velocity, veracity and variety. It cannot be stored, processed and analysed using various traditional methods. There are millions of data sources which generate data at a very rapid rate. Big data contains data of different formats like structured data, semi-structured data, and unstructured data. Traditional database management applications cannot process this data. There is a requirement for a framework that stores and processes big data e.g., Hadoop.

Big data analytics is a process to extract meaningful insights from big data such as hidden patterns, unknown correlations, market trends and customer preferences.

II. EVOLUTION OF BIG DATA

Between 1989 and 1993, the basic technologies required for World Wide Web were created by Sir Tim Berners-Lee. In the 2000s to 2010s, the rise of companies like Amazon, eBay, and Google generated large amounts of web traffic and structured and unstructured data, leading to the creation of Hadoop and NoSQL database queries. Mobile devices and IoT devices led to the collection, organization, and analysis of new types of data, including sensor data, social data, transactional data, and health-related data.

II.1 ARCHITECTURE
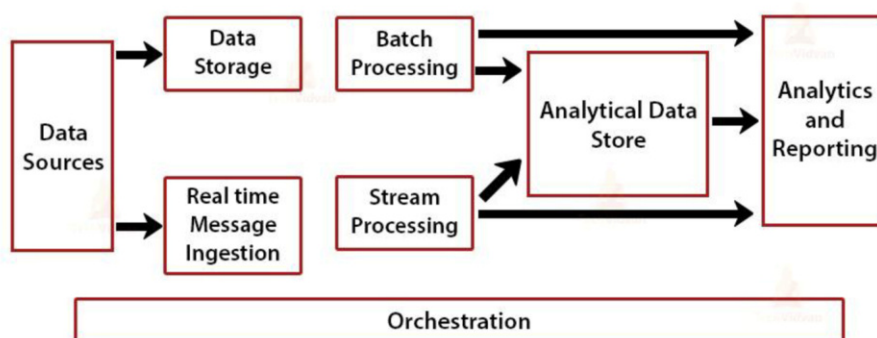
Fig. (1) Big Data Architecture

There are four main layers in the architecture of Big Data:

1. **Data retrieval:** The function of this layer is to gather and retain information from multiple sources. This layer involves retrieving data from diverse sources and transferring it to a data repository. This layer plays a critical role in a Big Data framework as it specifies how data has to be collected, converted, and preserved.

2. **Data cleansing and organising:** The second layer is responsible for processing the data. It gathers information, makes sure it is clean and organized, and gets it ready for analysis. This step is important because it ensures that the data can be used effectively later on.

3. **Data storage and formatting:** The third layer, known as data storage, has the important task of keeping the data in a format that is easy to access and analyze. Its main purpose is to ensure that the data is readily available and can be used by the other layers effectively.

4. **Data visualization to create charts:** This layer is responsible to create pictures or charts that show the data in a way that people can understand easily.

III. CATEGORIES OF BIG DATA ANALYTICS

There are several types of big data analytics:

1. **Summary Analytics:** This kind of analytics focuses on summarizing and understanding past data to learn about previous trends and patterns. It helps describe what happened in the past.

2. **Cause-and-Effect Analytics:** This type of analytics helps identify the relationship between different variables and find the root cause of a problem.

3. **Future Prediction Analytics:** This type of analytics uses past data and advanced techniques like machine learning to forecast future trends and behaviours.

4. **Mathematical model Analytics:** This type of analytics combines data analysis with mathematical models to provide suggestions and solutions for optimizing business processes.

5. **Real-Time Analytics:** This kind of analytics involves analyzing data as it is generated in real-time. It is useful in industries such as banking and healthcare sectors.

6. **Location Analytics:** This type of analytics focuses on analyzing geospatial data to uncover patterns and trends related to specific locations. It is used in fields like urban planning and environmental management.

7. **Text Analytics:** This kind of analytics deals with analyzing unstructured data like text, social media posts, and customer feedback to gain insights into customer behaviour and preferences. It is applied in areas like marketing and customer service.

IV. TECHNOLOGIES USED IN BIG DATA ANALYTICS

The popular technologies used in Big Data analytics are:

1. **Big Storage System:** Hadoop is a free software framework that is used to store and handle large sets of data. It works on the MapReduce model and is commonly used for processing data.

2. **Fast Data Processing Engine:** Spark is an open-source engine used for quickly processing and analyzing data, even in real-time.

3. **Flexible Data Storage:** NOSQL databases are used to store and manage unstructured data. They can handle large amounts of data and are easily scalable.

4. **Structured Data Storage:** SQL databases are used to store structured data. They are used in business intelligence and analytics.

5. **Visual Data Tools:** Data visualization tools help create visually appealing charts, graphs, and dashboards that make it easier to understand and interact with data. Examples include Tableau, Power BI, and QlikView.

6. **Machine Learning Tools:** Machine learning tools are used for predictive analytics and modelling, helping to make predictions based on data patterns.

7. **Cloud Platforms:** Cloud platforms such as AWS, Azure, and Google Cloud are used for storing and processing large datasets. They provide scalable and cost-effective solutions for big data analytics.

8. **Programming Languages:** Programming languages like Python, R, and Java are commonly used for big data analytics. They offer libraries and frameworks for data processing, machine learning, and visualization.

V. HADOOP FRAMEWORK
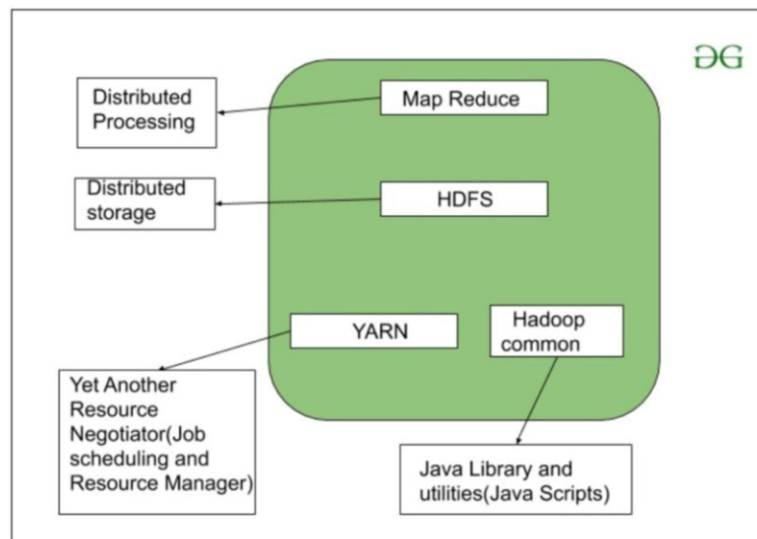
Fig (2) Hadoop Framework

Apache Hadoop is an open-source framework that facilitates efficient storage and processing of large datasets. Hadoop uses a cluster of multiple computers to analyze massive datasets in parallel, enabling faster processing.

V.1 HADOOP CONSISTS OF FOUR MAIN MODULES:

1. **Hadoop Distributed File System (HDFS):** HDFS is a distributed file system that can operate on low-end or standard hardware. Compared to traditional file systems, HDFS offers improved data throughout and also provides high fault tolerance.
2. **Yet Another Resource Negotiator (YARN)**: It is responsible for managing and monitoring cluster nodes and allocate resources efficiently.
3. **MapReduce**: It is a framework designed to support programs in performing parallel computation on large datasets. It transforms the input data into key-value pairs that can be computed efficiently. The output generated is used to process the data and produce the desired output.
4. **Hadoop Common**: It contains Java libraries that can be utilized across all modules of the system.

Hadoop simplifies the utilization of the storage and processing capacity of cluster servers, enabling the execution of distributed processes on large datasets. It also provides a foundation for building other applications and services.

Applications that gather data in various formats can store data into the Hadoop cluster using an API operation that connects to the NameNode. The NameNode maintains the file directory structure and the location of each file, which are replicated across DataNodes. To perform a data query, a MapReduce job with multiple maps and reduce tasks is needed to run against the data in HDFS, which is distributed across the DataNodes. Map tasks run on each node against the input files provided, while reducers handle the final output.

V.2 RUNNING HADOOP ON AWS

Using Amazon EMR, you can easily process and analyze massive datasets utilizing big data processing frameworks, such as Apache Hadoop, Spark, HBase, and Presto, on clusters that can be fully customized and managed.

VI. AMAZON EMR ARCHITECTURE

The layers are:

1. **Storage:** EMR architecture specifies many storage options which includes HDFS, EMR file system, and local file system.
2. **Manage cluster resource:** The layer takes care of cluster resource management and schedules data processing jobs. In Apache Hadoop 2.0. YARN centralizes the management of cluster resources for multiple data processing frameworks.
3. **Framework to process and analyse data:** This layer serves as the primary engine for data processing and analysis. Amazon EMR supports different frameworks like Hadoop MapReduce and Spark. For MapReduce, various frameworks such as Hive can be used.
4. **Applications and Programs:** Amazon EMR offers support for various applications, such as Hive and Pig, which allow the use of high-level programming languages to ease machine learning algorithms, develop stream processing applications, and build data warehouses.

VI.1 FEATURES OF AMAZON EMR

1. **Easy to use:** Easy to launch an Amazon EMR cluster.
2. **Elastic:** Amazon EMR enables you to allocate a single or multiple compute instances to analyze data of any size.

3. **Transient:** Clusters can be run on-demand using the HDFS data that is persistently stored in Amazon S3. After the completion of jobs, the cluster can be shut down while saving the data in Amazon S3.

4. **Secure:** Amazon EMR uses all common security characteristics of AWS services like Access management, Encryption, Security groups to control network traffic, AWS CloudTrail.

Hadoop provides a platform for storing and processing large datasets, which makes it ideal for big data applications.

VII. CHALLENGES AND OPPORTUNITIES OF BIG DATA

1. **Volume:** The amount of data generated on a daily basis is massive, making it a challenge to effectively store, process, and analyze this data.

2**. Speed with which the data is generated:** Handling the speed at which data is generated and processed is also a significant challenge. Real-time data processing demands a high-speed infrastructure and specialized tools.

3. **Different data structures:** To efficiently process and analyze data from various sources, it is necessary to use different tools and technologies as data comes in different forms such as structured, semi-structured, and unstructured.

4. **Veracity:** As data can be inconsistent, it is difficult to ensure data quality and accuracy which is critical for making informed decisions.

6. **Governance:** Maintaining data governance and compliance is a considerable obstacle for organizations. They must ensure that they adhere to regulations, policies, and ethical guidelines.

7. **Cost:** Analyzing and processing large volumes of data can be expensive due to the need for specialized hardware, software, and skilled personnel.

VII.1 Significant opportunities of Big Data are:

1**. Decision making:** Big data analytics can offer useful insights into various aspects of business, including customer behaviour, market trends, and other crucial factors that companies can utilize to make well-informed decisions.

2. **Customization:** Utilizing big data, businesses can customize their products and services to cater to the specific requirements and choices of their individual customers.

3. **Better efficiency:** Businesses can utilize data analysis to pinpoint areas for enhancement and fine-tune their operations, resulting in improved efficiency and cost savings.

4. **Innovative services:** The analysis of big data can provide an opportunity for innovation, allowing businesses to create and offer new products and services that meet the changing demands of their customers.

5. **Medical and Health care:** Big data can play a crucial role in the healthcare industry by facilitating the development of predictive models that can identify health risks and enable early intervention, leading to better healthcare outcomes.

6. **Reduced security breach:** Overall security can be enhanced with the help of big data analytics as it enables the detection and prevention of cyber-attacks and other security threats.

7. **Ecological sustainability:** The use of big data can aid in monitoring and analyzing environmental data, allowing businesses and governments to make better decisions regarding sustainability and environmental impact.

8. **Social good:** Large-scale data analysis, or big data, can play a significant role in promoting social good. For example, it can help in identifying and addressing social inequalities, tracking and responding to natural disasters, and supporting humanitarian aid efforts.

VIII. CONCLUSION

The abundance of big data presents ample opportunities for both businesses and society to utilize data to enhance decision-making, drive innovation, and improve efficiency.

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INTRODUCTION TO BRAIN CHIP INTERFACE

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ABSTRACT

Brain Chip Interface (BCI) is a rapidly developing technology field that involves the direct implantation of microchip into the brain to enhance its cognitive capabilities. These devices can monitor brain activity, stimulate specific areas of brain activity, or even restore lost sensory functions. It is mainly used to treat various neurological disorders, such as Paralysis, Alzheimer's disease and Parkinson's disease. Brain Chip Interface can also be used to augment human intelligence, memory, and sensory perception.

I. INTRODUCTION

Figure 1.1 Brain chip

A brain chip, also known as a neural implant, is a small device that is surgically implanted into the brain. The chip is designed to interface with the brain's neurons and allow for communication between the brain and external devices. The chip is designed to be the size of a coin. The chip can be programmed to perform specific functions, such as storing and retrieving information, controlling bodily functions, or enhancing cognitive abilities. It has a number of insulated wires connected to the electrodes that are used in the process, which are 20 times thinner than hair.

II. OBJECTIVES

- To examine the possible benefits and risks of brain chip technology in healthcare, such as its usage in the treatment of neurological illness or its ability to improve cognitive function.
- To assess the ethical implications of brain chip technology, such as privacy, autonomy and informed consent difficulties.
- To look at the societal implications of brain chip technology, such as how it affects human livelihood, the workplace, education, employment, and social inequality.

III. WORKING OF BRAIN CHIP

An EEG (electroencephalogram) is a device for recording brain activity. A tiny sensor is attached to the scalp to record all brain activity via electrical signals sent by nerve cells, neural impulses from the brain, it records each pattern and transmits it to the computer via the chip.
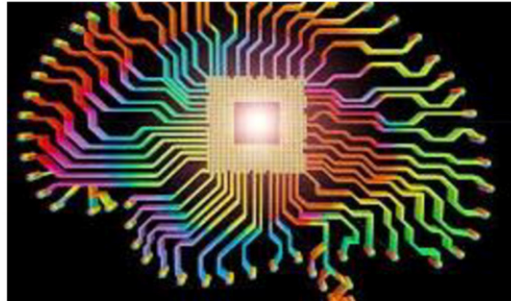
Figure 1.2 Brain chip with neuron nerves

When the chip detects neural impulses from the brain, it records each pattern and transmits it to the computer via the chip. It turns brain impulses into digital data and sends it to the computer after capturing each activity.

This EEG equipment is in charge of converting neural impulses from the brain to digital data. Brain implants can also help to develop new sensory pathways, allowing paraplegic people to manipulate robotic limbs and visually impaired people to regain some sight.

IV. APPLICATIONS OF BRAIN CHIP INTERFACE:

- **Cure Paralysis:** Paralysis occurs when neural pathways in the spinal cord are damaged or impaired. The brain chip implanted inside the skull helps to replace paralyzed parts with prosthetics (robotic parts) and access them through thoughts. The brain chip implants help in the interaction of patients with the computer to read the patient's mind, which helps in the automatic movement of paralyzed parts. The patients with complete paralyzed body can also interact with their thoughts and processes using this brain chip.

- **Cure Blindness:** From the above concept, we recognize how brain chips assist therapy paralyzed our bodies. This same idea could be applied to blindness. The patient could have to put on a virtual digital implanted through a surgical robot into the visual cortex, which could wirelessly transmit a live, visible feed through Bluetooth onto a transportable tool. The device then converts that image data right into a neural signal that is transplanted back into the chip. The chip then transmits this electrical sign into the mind, allowing you to see immediately in the brain the use of this mind chip.
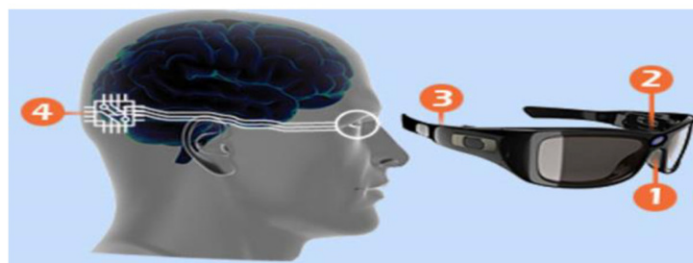
- Figure 1.3 Visual digi_cam

- **Telepathy**: Telepathy is the supposed communication of thoughts or ideas by means other than the known senses. It can be denoted as the invisible communication between the two people with the use of this brain chip interface.

- **Animal Control:** These chips are also used for Controlling animals like dogs, rats, sharks, etc. for military rescue missions. DARPA (Defense Advanced Research Projects Agency) can also use these neural implants in sharks. The shark's unique sensors can make use of these implants, providing data in relation to enemy ship movement or underwater explosives.

V. SOFTWARE BEHIND BRAIN CHIP INTERFACE

The software behind Brain Chip Interface uses algorithms and pattern-matching techniques to facilitate communication. The algorithms are written in C, Java, Python, C++, and MATLAB. Signal processing software algorithms analyze the electrical activity of neurons and translate it into control signals for use in various computer-based applications.

VI. EXPERIMENT DONE ON BRAIN CHIP

Figure 1.4 Monkey (ping pong)

Neuralink, a business that develops BCIs, has tested their technology on macaque monkeys by inserting a chip into the primate brains. A male macaque moved the pointer on the screen without using a joystick in April of last year(2021) according to Neuralink, which claimed that monkeys can play video games (Ping Pong) using their wits. Eight monkeys suffered as a result of the tests, according to case studies released by researchers. One such instance demonstrated that the implant required a six-hour surgery on a 10-year-old female macaque. Her skin was eroded as a result of the implants getting contaminated after the procedure. After another invasive procedure, she passed away. Another incidence included a monkey whose Glue caused internal hemorrhage. She threw up so much that she had an open wound.

VII. ADVANTAGES

Within the next 20 years, neural connections will be created, according to computer experts, that will not only expand the dynamic range of sensations but also improve memory and enable "cyber think"—invisible communication with others. When and where information is needed, consistent, continuous access will be made possible by this technology.
- It enables people who are paralyzed to operate prosthetic limbs with their minds.
- Transfers audible information to a deaf person's mind so they can hear.
- Visual images to a blind person's mind so they can see.
- It enables players to control video games with their minds.
- It enables a deaf person to have their thoughts represented and spoken by a computer.

VIII. DISADVANTAGES

Technology has been on the path of development since when man appeared. It is man that gave technology its present form. But today, technology is entering a phase where it will outwit man in Intelligence as well as efficiency. Man has now to find a way in which he can keep in pace with technology, and one of the recent developments in this regard, is the brain chip implants. Although various applications of Brain Computer Interface (BCI) technology has developed, there are a few risks associated with brain computer interface, which can be a significant limitation to technological development. The BCI system, being directly linked to the human brain, can have a negative impact on its users in case it is not utilized properly. Some of the potential risks associated with BCI are as follows:

- It is difficult to afford.
- Risk of surgery.
- Inaccuracy of results.
- May affect human works.
- Lack of security.
- Still in developing stage.
- The present BCI technology is crude.
- Electrodes outside of the skull can detect very few electric signals from the brain.

IX. CONCLUSION

The development of BCI is a collaborative endeavor including neuroscientists, engineers, applied mathematics, computer scientists, psychologists, neurologists, and clinical rehabilitation experts. The involvement of experts from all the aforementioned fields is essential for, even if the majority of the published BCI research to date has focused on developing better signal processing or other engineering aspects of BCI technology. BCI technology is still in its infancy as a topic of study and a subject of practice. It is tough and continuous to conduct further study on the many BCI development components. Explorations of useful brain signals, signal recording techniques, feature extraction and translation techniques, techniques for involving short-term and long-term adaptations between user and system so as to optimize performance, suitable BCI applications, and clinical validation, dissemination, and support are some of these. The restricted functionality of current BCIs makes them usable for relatively small user populations, making it challenging to distribute these BCI systems widely because they are unlikely to generate considerable commercial interest. A new non-commercial option for BCI dissemination has just been started as a solution to this issue. Since they are unlikely to garner substantial economic interest due to the present BCI's limited capacity, which limit their usefulness to very tiny user populations. A new non-commercial alternative for BCI dissemination has just been launched as a solution to this issue.

Futurist predicts that from there on, superhuman artificial intelligence won't be far behind.

WE CAN... BUT SHOULD WE?

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EEG-BASED BRAIN-COMPUTER INTERFACE:
A COMPREHENSIVE REVIEW OF CURRENT STATUS,
TECHNOLOGIES AND APPLICATIONS

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ABSTRACT

BCI or brain-computer interface, essentially tries to use brain waves to operate various assistive technologies. It is important to note that BCI is not only used in medical settings, and as a result, research in this area has attracted the necessary attention. The substantial amount of linked articles over the past 20 years also demonstrates the advancements and discoveries in this particular subject. However, it is also important to note that despite these advancements, fresh problems continue to arise. This article offers a thorough analysis of the most recent developments in a BCI system. An overview of BCI systems based on electroencephalogram (EEG) is first provided. Second, many widely used BCI applications are examined in terms of electrophysiological control signals, featuring.

I. INTRODUCTION

One of the guiding principles of human civilization is communication, or social contact. Sharing emotions, hopes, and original ideas with other people is made possible by this trait. If this communication is established via speech, gesture, or writing, human communication becomes simpler and unrestricted. However, those who experience locked-in syndrome lack the aforementioned means of communication. Although they are aware of their surroundings, patients with locked-in syndrome are unable to communicate or interact with others (Ashok, 2017). The main causes of locked-in syndrome are multiple sclerosis, cerebral palsy, brain stem stroke, amyotrophic lateral sclerosis (ALS), cerebral palsy, and spinal cord damage (Holz et al., 2013). For a person who is experiencing the locked-in syndrome, it is nearly impossible to Brain-Computer Interface (BCI) is a promising way to give them fundamental communication skills because people with Down syndrome sometimes find it difficult to speak with others. Fundamentally, BCI is the idea that requires people to produce a range of brain waves to connect their devices to their brains that are going to be identified and turned into commands for the devices (Volosyak et al., 2017).

II. KEY COMPONENTS OF BCI TECHNOLOGY

A powerful and efficient technique for user-system communication is the brain-computer interface (BCI). This technique eliminates the need for any external devices or muscle movement between the time the orders are given and the time the interaction is finished (Van Erp et al., 2012). By using control signals generated from electroencephalographic activity, Nicolas Alonso and Gomez-Gil (2012) defined brain-computer interface (BCI) or brain-machine interface (BMI) as a hardware and software communications strategy that enables humans to interact with their surroundings without the use of peripheral nerves or muscles. According to Mason and Birch (2003), any BCI system

generally consists of five parts: the measurement of brain activity, pre-processing, feature extraction, classification, and translation into a command. The block diagram in the figure below shows an example of the various phases of EEG signal.
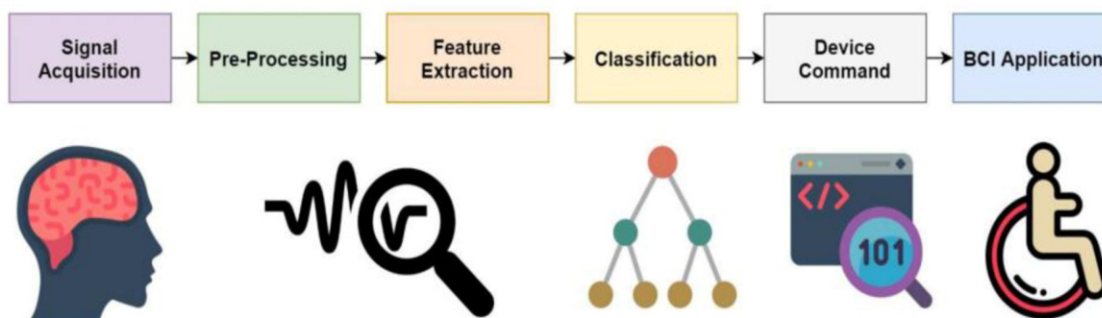
Brain Activity Measurement Varieties

The majority of BCI researchers favour the non-invasive method to avoid the risk of surgery. Among the often used non-invasive modalities include EEG, MEG, PET, fMRI, and fNIRS. Cost, mobility, invasiveness, measured activity, geographical resolution, temporal resolution, and other aspects all have an impact on the measurement technique of choice. Due to its advantageous attributes, such as high temporal resolution, low cost, ease of transport, and non-invasiveness, EEG is the neuroimaging technique that BCI researchers employ the most frequently. According to Baillet et al. (2001), the EEG captures voltage changes brought on by ionic current flow during synaptic excitations in the brain's neurons. In this method, electrodes are attached to the scalp in order to gather brain impulses. Due to its non-invasive nature and low cost, EEG is the modality that the BCI research community uses the most frequently. The electrode count varies between 1 and 256 for various EEG headsets.

III. BCI APPLICATIONS IN EEG CONTROL SIGNALS

The BCI can understand the subject's intentions by using the EEG control signals, which are a subset of neurophysiological EEG signals that have been processed. BCI aims to identify these signals in order to assign commands to each individual neurophysiological signal of a subject. Some of these control signals are straightforward for the user to alter as well as to recognise. The most often employed EEG control signals are SCP, P300, MI, MRCP, ErrP, SSVEP, SSAEP, and SSSEP. A low-frequency negative shift in the EEG recording marks the movement-related cortical potential (MRCP), which starts around two seconds before voluntary movement begins. ErrP, or error-related potential, has recently been used as an ERP component that can be used to repair BCI.

IV. EEG ACQUISITION STRUCTURE FOR BCI APPLICATION

The cerebral cortex and subcortical areas make up the two primary components of the human brain. The subcortical areas are in charge of controlling the fundamental and vital processes, such as body temperature, breathing, heart rate, and emotional reactions, such as reflexes, fear, learning, and memory. On the other hand, the cerebral cortex, also referred to as the cerebrum, controls the processing of sensory and motor information as well as higher-order cognitive processes like language, pattern recognition, reasoning, and planning. The parietal, occipital, frontal, and temporal lobes make up each of the two hemispheres of the cerebral cortex, which are further divided into four lobes. Numerous processes, including spelling, object recognition, manipulation, perception, and spatial awareness, are controlled by the parietal lobe. On the other hand, the temporal lobe's primary functions are language, memory, facial recognition, and emotion generation. Organising, social skills, planning, flexible thinking, problem-solving, conscious movement, attention, and emotional and behavioural control are all functions of the third lobe, or the frontal lobe. The interpretation of visual inputs is related to the occipital lobe. The nervous system, which is divided into the central and peripheral systems, is yet another vital component of the human body.

V. HARDWARE TECHNOLOGY FOR EEG SIGNAL ACQUISITION

EEG signals can be obtained using one of two major techniques: wireless also wired. EEG signal measurements frequently involve a variety of electrodes, ranging from 1 to about 256. The majority of the time, an elastic cap is used to secure these electrodes. The connection using a conductive gel or paste typically improves the contact between the electrodes and the skin. But because of this, the electrode embedding process is typically time-consuming and tedious and because it is a lengthy process, the acquisition phase is frequently problematic.
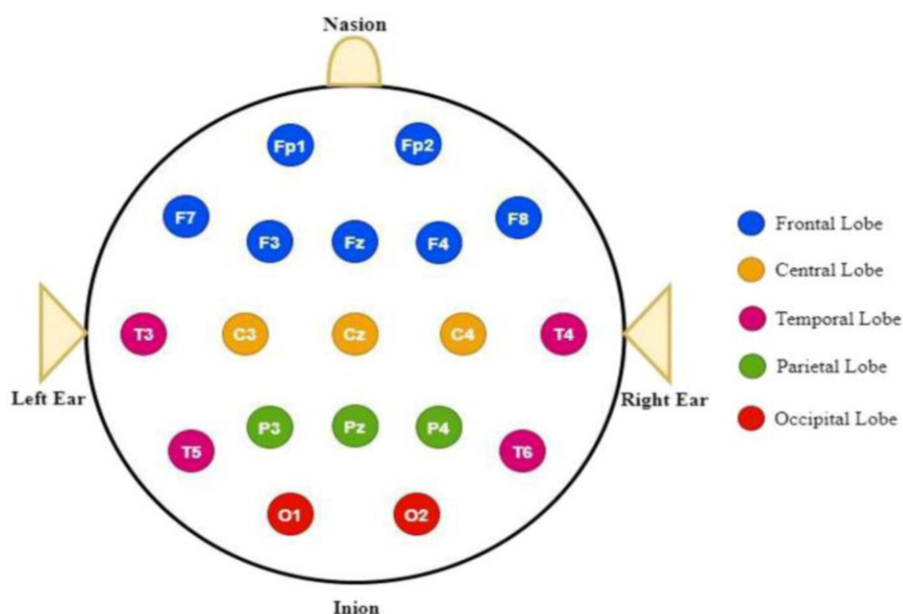
Electrode Placement Diagram

VI. EEG-DATA PRE-PROCESSING STRATEGIES

Among the biggest obstacles to EEG-based BCI application studies are a low SNR and various noise sources. Noise, artefacts, and interference are terms used to describe unwanted signals that are present in the main signal. EEG artefacts can come from external or environmental factors as well as physiological sources. Among the external sources of noise are AC power lines, lighting, and a variety of electronic gadgets (such as PCs, monitors, and TVs, as well as wireless routers, laptops, and mobile phones, among others). Physiological noise is produced by a variety of body processes induced by movement, other bioelectrical potentials, or variations in skin resistance. Somers et al. (2018) identified the most prevalent physiological noises as electrooculographic (EOG, eye), electrocardiographic (ECG, heart), scalp-recorded electromyography (EMG, muscle), ballistocardiographic (heart-related pulsatile motion), and respiratory noises. The wavelet transform (WT) method (Puns wad and Wongsawat, 2017), empirical mode decomposition (EMD) (Zhang et al., 2008), canonical correlation analysis (CCA) (de Clercq et al., 2006), and nonlinear mode decomposition (NMD) (Iatsenko et al., 2015) are examples of more recent attempts. It is important to note that because the BSS methods use independent or principle component analysis (PCA), they are also known as component-based techniques. Dynamic time warping (DTW) and temporal motifs were used to provide a rapid artefact segment identification method that was proposed by Kilicarslan et al. in 1976. Chavez et al.'s (2018) suggested was Surrogate-based artefact removal (SuBAR), a data-driven technique, successfully removes muscle and ocular artefacts from EEG.

VII. FEATURE EXTRACTION APPROACHES IN EEG-BASED BCI SYSTEMS

Following the phase of removing the noise, the most discriminative and non-redundant data from the EEG is extracted using various feature extraction methods. . The time-domain, frequency-domain, time-frequency-spatial, and spatial domain feature extraction methods are most frequently utilised in EEG-based BCIs.

A popular technique for removing characteristics from time-domain data is autoregressive (AR) modelling. The most current observation in a series is regressed against one or more preceding observations. .. A combination strategy was also presented, where each feature vector contains AR coefficients and rough entropies. The AR model has been used as the method of feature extraction in EEG-based BCI systems in a number of recent articles (Lawhern et al., 2012; Zhang and Xiaomin, 2015; Chai et al., 2017b). Researchers use AR models because of their resolution, smoother spectra, and capacity to apply to small data sets. Higher model orders increased noise, whereas lower model orders do a poor job of representing the signal. So choosing the proper AR modelling order is still a challenge. The Bayesian information criterion, final prediction error, or Akaike Information Criterion (AIC) are all commonly used in order estimate modelling. In contrast to any fixed modelling order, Atyabi et al. (2016) proposed that a sufficient blend of AR features produced from several AR modelling orders is a more representation of the underlying signal. The analysis of respiratory rate variability from EEG (GuedeFernández et al., 2019), adaptive Hermite decomposition (Taran and Bajaj, 2018), and RR time series (Tripathy and Rajendra Acharya, 2018) have all been used to extract features for the detection of sleepy state from EEG signals. The Higuchi technique has been utilised to extract the feature in the context of emotion recognition utilising an EEG signal (Anh et al., 2012; Kaur et al., 2018). Sometimes the use of spectral characteristics for feature extraction is useless due to the absence of temporal characteristics. Similarly, time-domain interpretation can occasionally overlook spectral traits that the classifier might find crucial. Numerous time-frequency-based feature extraction approaches have been applied to EEG-based BCIs. The most popular techniques are the continuous wavelet transform (CWT) (Borisoff et al., 2004; Lee and Choi, 2019; Ieracitano et al., 2019), short-time Fourier transform (STFT) (Tabar and Halici, 2017; Chaudhary et al., 2019; Ha and Jeong, 2019; Tian and Liu, 2019), and wavelet transform (STFT) (Tabar and Halici, Wavelet packet decomposition (WPD) (Bong et al., 2017; Dhiman et al., 2018; Wang et al., 2019) and discrete wavelet transform (DWT) (Guo et al., 2015; Bajwa and Dantu, 2016; Djamal and Lodaya, 2017; Ji et al., 2019; Lin and She, 2020) are other terms used to describe these techniques. Spectral pictures have been produced using CWT (Ortiz-Echeverri et al., 2019; Mammone et al., 2020), and STFT (Dai et al., 2019) techniques that may then be categorised using deep learning techniques. Mammone et al. (2020) studied an EEG-based motor planning task using a time-frequency map that was fed into a CNN by beamforming and CWT.

VIII. CLASSIFICATION METHODS

The subject must produce different brain activity patterns that the BCI system can recognise and convert into commands in order to use it. It is important to note that the aforementioned goal could be attained using either regression or classification techniques. The most common method reportedly used now is the use of classification algorithms (Lotte et al., 2007). One or more classification algorithms are selected from a wide range of options while designing the classification stage. There have been various classification algorithms addressed in the published EEG-based BCI research, including support vector machines (SVM), neural networks (NN), linear discriminant analysis (LDA), Bayesian classifiers, k-nearest neighbour (k-NN), deep learning, and its iterations. The aforementioned classifiers are briefly presented, and their key characteristics for BCI applications are underlined.

IX. TYPICAL MACHINE LEARNING METHODS FOR ECG-BASED BCIs

The k-NN approach is based on the idea that distinct clusters will develop in feature space as the characteristics corresponding to different classes do. The characteristics that are physically closer to one another and are recognised as neighbours and are consequently grouped together.

This classifier, classifies a test feature vector by considering k metric distances between the features of the test sample and those of the closest classes. According to Nicolas-Alonso and Gomez-Gil (2012), the metric distances serve as a gauge of how comparable the test vector's and each class' features are to one another. Because they are known to be extremely sensitive to the dimensionality of the feature vector, k-NN algorithms are not particularly well-liked in the BCI community (Borisoff et al.To identify the linear combinations of feature vectors that best characterise the

properties of a given signal, LDA is used. The LDA attempts to differentiate between two or more classes of objects or events that represent several classes. Hyper planes are used to complete this quest. The isolating hyper plane is discovered by seeking the projection that maximises the distance between the means of the classes and minimises intra class variance (Abdul kader et al., 2015). This method is easy to use and has a very cheap computational cost. The small sample size problem is the name given to this topic by Hoffmann et al. (2008). Finding patterns that are too complicated or numerous for other methods is made easy using this tool. It is a fantastic tool for identifying patterns and training the machine to recognise them that are too complex or numerous for a human coder to extract. Rumelhart et al. (1986) introduced the multilayer perceptron (MLP), one of the most well-known ANN topologies. MLPs are adaptable classifiers that can categorise any number of classes and can be used to solve a wide range of issues. The MLP has been used in BCIs to build both synchronous (Haselsteiner and Pfurtscheller, 2000) and asynchronous (Millan and Mourino, 2003) BCIs as well as to classify two, three, and five jobs. In order to increase the separability of EEG features, the MLP has also been used to pre-process EEG signals before the feature extraction step rather than the classification step (Coyle et al., 2010).

X. DEEP LEARNING METHODS FOR BCIs USING EEG

Making the use of EEG more realistic in many applications and less dependent on qualified specialists requires the capacity to achieve a reliable automatic classification of EEG data (Alexander et al., 2018). It is important to note that despite the enormous advancements made in traditional BCI systems over the past few decades, the research still faces significant obstacles in EEG categorization. The difficulties come from a variety of biological and environmental artefacts in EEG, a low SNR, and reliance on human knowledge for feature extraction. Additionally, the vast majority of current machine learning research, if not all of it, concentrates on static data and can't effectively classify quickly changing brain impulses because of this (Lotte et al., 2018). The use of Deep Learning (DL) architectures, particularly to extract pertinent information from the signals that were impossible to obtain using conventional approaches, has been prompted by the availability of huge EEG data sets and has demonstrated success in resolving the aforementioned issues. According to Zhang X. et al. (2019), DL is fundamentally a particular machine learning approach in which the classifier and the features are simultaneously taught from data. For practically all significant EEG-based BCI system types, including P300, SSVEP, motor imagery (MI), SCP, and passive BCI (for emotions and workload detection), DL algorithms have been investigated. Convolutional neural networks (CNN), deep belief networks (DBN), restricted Boltzmann machines (RBM), recurrent neural networks (RNN), and a stacking autoencoder are among the popular DL models used in this application.

According to Abbas et al. (2019), a deep belief network (DBN) is a probabilistic generative model made up of a series of restricted Boltzmann machine (RBM) designs. Unlike the bottom layers, which are connected with directions, the top two layers of the DBN are connected without directions. A hidden layer and a visible layer make up the RBM, and there are no directed connections between them (Abbas et al., 2019). Several studies (An et al., 2014; Tang et al., 2015; Lu et al., 2017; Ortega et al., 2017) have investigated MI classification with DBN. A unique deep learning approach based on RBM was put out by Lu et al.

XI. POPULAR EEG-BASED BCI APPLICATIONS

BCI technology allows for the detection and translation of human brain signals into commands for assistive device control. This technology has extended to include nonmedical applications in addition to medicinal ones. Recent years have seen a rise in the number of BCI applications being studied by researchers all around the world. Spelling systems, wheelchair control, robot control, mental workload, virtual reality, and gaming, environment control, driver fatigue monitoring, biometrics system, and emotion detection are among the most significant developments in EEG-based BCIs.

XI.1 BCI Cursor Control:

In Wolpaw et al. (1991), the first attempt to control a cursor by an EEG signal was documented. Here, a cursor's vertical movement on a video screen was maintained by altering the mu-rhythm's amplitude so that the cursor was moved upward by mu-rhythms of big amplitude and downward by mu-rhythms of small amplitude. The goal hit rate for the second experiment carried out by some of the same authors (McFarland et al., 1993) was 54.85%. The encouraging outcome prompted additional investigation on this topic by other researchers.

There have been suggestions for both single control signals and hybrid control signals. A BCI was reported by Li et al. (2010) that allowed individuals to control both horizontal and vertical movement using P300 and ERD activity, respectively. The respondents were able to identify one of the four targets with average selection times of 25 to 26 s and success rates ranging from 82 to 96%. The average trial duration and target selection accuracy in their second experiment (Long et al., 2012b) were 18.19 s and 93.99%, respectively. The experiments had outstanding overall results, and the subjects were able to move the cursor diagonally by performing both kinds of tasks at once. The system does not provide continuous cursor control, though. While Allison et al. (2012) presented hybrid BCI based on MI/SSVEP for two-dimensional simultaneous cursor control. This programme makes use of a variety of attributes and categorization methods. A synopsis of some recent studies in the field of BCI cursor control.

XI.2 BCI Spellers:

Almost all categories of current BCI spellers have been compiled in a fantastic review study (Rezeika et al., 2018). To increase spelling speed, place a recognisable face above a character (Kaufmann and Kübler, 2014). Townsend et al. (2010) introduced the checkerboard paradigm (CBP) as a means of eliminating the adjacency-distraction problem and double flash problems. In ALS patients, this paradigm produced better accuracy and was more comfortable than a row-column paradigm (RCP). An alternative type of P300 base paradigm that may be used without eye movement, called a "gaze-independent block speller," was also introduced (Pires et al., 2011). Additionally, this paradigm generates information transfer rates to a row-column speller that are almost identical. Rapid serial visual presentation (RSVP) was suggested by Acqualagnav et al. (2010) in an effort to create an effective ERP speller that is not dependent on the user's gaze.

XI.3 BCI Biometrics:

The method of distinguishing one person from others using biological characteristics is called biometrics. To prevent security breaches, biometric technology, such as iris, face, and fingerprint identification, is commonly used. However, the potential for copying, reproducing, or stealing original information has rendered these tools ineffective. Consequently, there has been an increase in interest in developing a better biometric system and biometrics based on brain activity. According to Alariki et al. (2018), an EEG system-based biometric has the benefit of being nearly impossible to duplicate. Ruiz Blondet et al. (2015) investigated the stability of EEG brainwaves over a 6-month period using 15 human subjects. Basharet al. (2016) proposed a method for human identification using EEG signals. The authors used a bandpass FIR filter to remove noise and then divided the EEG signals into two sections. Multi-scale Wavelet Packet Statistics (WPS), Multiscale Shape Description (MSD), and multi-scale Wavelet Packet Energy Statistics (WPES) were utilized as the features.

XI.4 BCI Emotion Recognition:

One of the fundamental steps towards developing emotional intelligence is the collection of data from brain signals related to human emotion. According to Picard (Picard, 2003), emotions are crucial for a number of processes, including learning, perception, and logical decision-making. Researchers working on various BCI devices have lately begun to pay attention to the recognition of emotional changes in EEG signals. On EEG-based emotion recognition, there are three top-notch review articles (Al-Nafjan et al., 2017; Soroush et al., 2018; Xu T. et al., 2018). These articles may aid curious readers in gaining a deeper understanding of EEG-based emotion identification.

XII. CURRENT CHALLENGES AND DIRECTIONS:

A lot of BCI research has been done recently to develop some prospective helpful devices. It is certain that BCI technology will soon be introduced to the market based on the current state of BCIs.In fact, the market has already seen the release of a few commercial BCI appliances. A noteworthy effort, the BNCI Horizon 2020 project, has suggested a future agenda for BCIs. However, in order for the BCI community to advance BCIs, some significant problems and obstacles should be addressed across all BCI paradigm components.

XIII. CONCLUSION

This article on EEG-based BCI has undergone a full review analysis, with a focus on examining its methodological benefits and drawbacks as well as the crucial contributions needed in this area of study. The data acquisition method, control signals, EEG feature extraction, classification strategies, and performance evaluation measures have all been investigated for each BCI application. In order for all related works to adhere to the standard, it may be useful to define standardised BCI measurements. These metrics would be created using EEG or BCI modalities. This would enable reliable and convenient comparisons between linked papers, assisting emerging researchers. Most BCI applications are still in the research stage and are not easily accessible to the average person's daily life. Additionally, BCI technology's lack of commercialization is also partially to blame for limiting its appeal on a global scale. If the aforementioned issues can be resolved, BCI systems may become a common form of human-machine contact in the not too distant future.

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ENSURING TRUST AND PRIVACY IN STUDENTS CREDENTIALS SHARING THROUGH BLOCKCHAIN TECHNOLOGY

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ABSTRACT

With the increasing number of educational institutions and credential issues, it can be challenging for the employing companies and the educational institutions to verify and issue student's certificates. So, we need a much more efficient credential sharing system. This paper provides a more reliable solution by leveraging blockchain technology which can offer a secure and decentralized platform by reducing the risk of unauthorized access and data manipulation. IPFS servers are used to store the certificates because of their data security, privacy, reliability, integrity, and other technological advantages that it offers, enabling the organizations to store their data and control the access to it.

Keywords: Blockchain, Inter Planetary File System (IPFS), Django, Truffle, Application Programming Interface (API), Encrypted Certificate (EC), Content Identifiers (CIDs).

I. INTODUCTION

Student certification documents are essential for a professional career, these documents include transcripts, provisional certificates, letter of recommendations, internship certificates, etc. These are issued by reliable organizations but sharing of them is an integral part. The verification and sharing process of these certificates by the institutions is very time-consuming and tedious, thus requiring a much faster, scalable, and more secure means of file sharing. To address this issue, we are providing an end-to-end student credential sharing system using blockchain and IPFS server. Blockchain is a decentralized technology promoting data privacy, reliability, and data anonymity. IPFS is a peer-to-peer network and a file management protocol for storing data in a distributed storage system. The IPFS provides content identifiers (CIDs) which are linked together using directed acyclic graphs. Due to which the system can be robust, flexible for data storing and sharing, unlike the traditional sharing systems which require costly infrastructure and maintenance and susceptible to single point of failure. Overall, our work contributes to the development of a secured and reliable student credential sharing system that has the potential to tremendously improve the scalability and reliability of this important task.

II. RELATED WORK

1. Proposed a system based on blockchain that uses smart contracts to automate the verification process and controlling the access for certificates to authorized entities only. The authors evaluated the system performance using simulation of Ethereum blockchain and found it to be effective and scalable.

2. It discusses the design and usage of the distributed storage system called IPFS (Interplanetary File System. It uses DHT (Distributed Hash Table) to access the content. The system aims to provide aims to provide a decentralized, resilient, and censorship- resistant alternative to HTTP.
[1] The proposed system uses hyper ledger fabric to co-ordinate all the processes and evaluates its performance using various metrics such as throughput, latency, and scalability. [5] Here the

Authors proposed a secure and trusted system that uses IPFS to store the student certification credentials and evaluate the system's performance and concluded that it is secure, efficient, and privacy enabled system. A similar system that is used for sharing education and employment credentials. It also enables various potent benefits such as reduced fraud, increased efficiency, and improved privacy. The authors also highlighted some of the challenges and limitations of the system [6].

III. SOFTWARE REQUIREMENTS

Truffle is the core tool of the Truffle Suite that provides a development environment for building, testing, and deploying smart contracts. Truffle includes a built-in Ethereum client for testing and a suite of testing tools to ensure that the smart contracts are functioning as intended. Python is a widely-used high-level programming language recognized for its user-friendly nature, clear syntax, and straightforwardness. Programmers benefit greatly from using python since it has extensive library of packages. Python's versatility makes it suitable for various tasks, while its syntax remains unambiguous and succinct. It assists with complex tasks where we use modules like Django, ipfshttpclient, web3, pickle, and mime type among others to construct the proposed system.

The Inter Planetary File System (IPFS) is a decentralized protocol for storing and sharing files among peers, designed to facilitate the development of a distributed web. IPFS works by breaking up files into smaller chunks and distributing them to a network of nodes, where each chunk is assigned a unique hash, which is used to identify and access the file. Solidity is a high-level programming language used to write smart contracts that can be deployed on the Ethereum Blockchain. These Smart contracts contain rules and logic that govern how the system operates. The developers can write the code in solidity to define the functionality of the contracts. Its compatibility with the Ethereum network ensures that the developers can create applications that are secure, reliable, and decentralized.

IV. PROPOSED METHODOLOGY

The system's user base comprise of three different entities Institute, Student, and Company the underlying framework is done using Django and the smart contracts have been deployed and synced with the system. Firstly, the institution signs up using the web UI and creates its profile then the institution can enroll student, upload/update certificate and view certificates using the respective functions. The institution enrolls the student and upload/updates the certificate, the certificate will be encryptedand uploaded into the IPFS, the hash and decryption key are shared with the student by creating a transaction by interacting with the smart contract.

The student then can download the encrypted certificate and able to decrypt it using the key that was sent. He/she can choose to accept the company's request for the sharing of the documents if the request is accepted then the documents will be shared with the company through the smart contract.
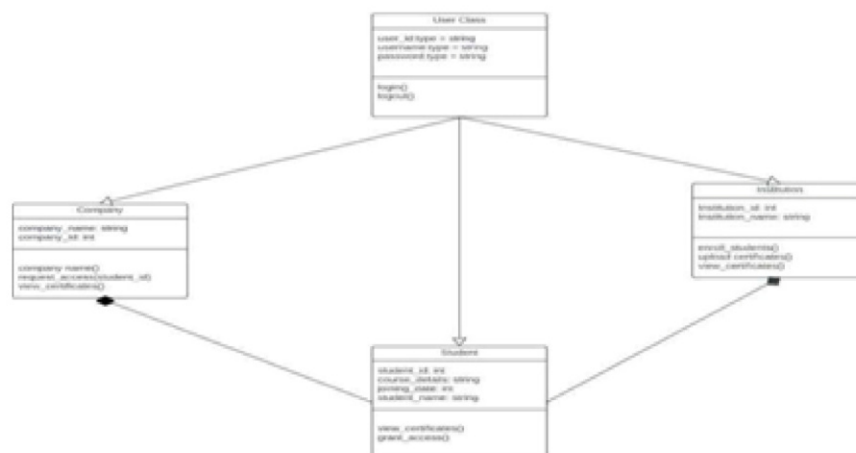
Fig. 1. *Class Diagram*

- **File uploading**

  The Institute only can upload/update the certificates of the student when uploaded it the system automatically generates a random key K and encrypts the uploaded file, we call the file as EC (EncryptedCertificate), the EC will be uploaded to the IPFS through an API, and it will return a hash that is used to identify and access the file. This hash and the decryption key are sent to the student so that he can be able to decrypt the EC and can access the certificates. Fig. 2. Depicts the process of file uploading to the system.
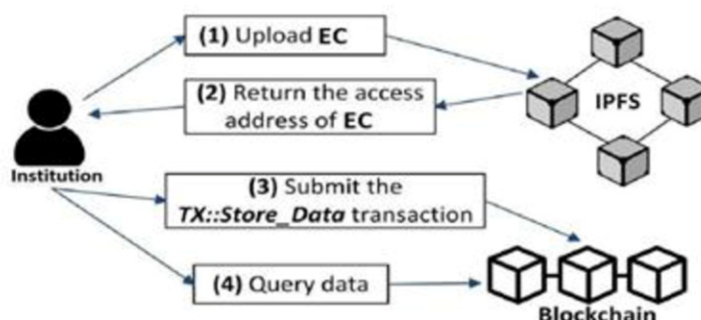
Fig. 2. *File Uploading*

V. CONCLUSION

The employing companies must send an access request to the students in order to access the certificates of the particular student the company can download the EC from the IPFS but in order to decrypt it, the company has to send an access request to the student through the smart contract and if the student is willing to share the details he can accept the request of sharing by sending the decryption key to the company. Then the company will be able to access the certificates of the respective student. The access request method will ensure the integrity of the file.

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HEART DISEASE PREDICTION USING MACHINE LEARNING ALGORITHMS

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ABSTRACT

Machine learning is employed in a variety of industries worldwide. In the healthcare industry, there are no exceptions that determine whether there will be heart problems, locomotor abnormalities, and other disorders can be highly dependent on machine learning. If anticipated far in advance, such information can provide clinicians with critical insights, allowing them to tailor their diagnosis and treatment plan for each patient. To do this, we create machine learning algorithms.

Keywords: SVM, Naive Bayes, Decision Tree, Random Forest, Logistic Regression, Adaboost, XG-boost, Python programming, confusion matrix, correlation matrix.

I.INTRODUCTION

According to the World Health Organization, heart disease kills 12 million people annually. Heart disease is one of the primary causes of morbidity and mortality among the world's population. The prediction of cardiovascular illness is one of the most important subjects in the field of data analysis. The prevalence of cardiovascular disease has been rapidly increasing worldwide since a few years ago. Numerous research has been conducted in an effort to pinpoint the most crucial heart disease risk factors and precisely calculate the overall risk. Because it results in death without any overt symptoms, heart disease is sometimes known as a "silent killer." Cardiovascular disease must be detected early.

Machine learning facilitates decision-making and prediction from the massive amounts of data produced by the healthcare industry. This study aims to predict future cases of heart

disease by assessing patient data that employs a machine-learning algorithm to identify whether a patient has heart disease or not. In this case, machine learning techniques can be of great assistance. Despite the fact that heart disease can present itself in a variety of ways, there is a common set of fundamental risk factors that determine if someone would ultimately be at risk for the condition. By assembling the information from many sources, classifying it under the relevant headings, and using this technique, we can say that it can be extremely well adapted to accomplish the desired thing.

II. OBJECTIVE

The main goal of this work is to suggest a model for foretelling the onset of cardiac disease. This study also seeks to identify the best categorization strategy for diagnosing heart illness in a patient. In a comparison study and analysis to support this work, three classification algorithms—Nave Bayes, Decision Tree, and Random Forest—are used at various levels of evaluations. Despite the widespread use of these machine learning techniques, accurately forecasting heart illness is a significant job. As a result, the three algorithms are assessed using a range of levels and assessment technique types.

We find that, when compared to other methods, the XGBoost technique has higher accuracy after employing a machine learning approach for training and testing. Accuracy is determined using the confusion matrices for each algorithm. The TP, TN, FP, and FN numbers are listed, value has been computed using the equation to ensure correctness. With 81% accuracy, it is determined that severe gradient boosting is the best

III. LITERATURE SURVEY

In recent years, several experiments and researches have been conducted in the area of medical science and machine learning, resulting in the publication of important publications.

1. Purushottam, Et al. suggested a study titled "Efficient Heart Disease Prediction System" that utilize decision tree and hill climbing algorithms. They used the Cleveland dataset, and before using classification methods, data was preprocessed. Evolutionary Learning (KEEL), an open source data mining programme that fills in the missing values in the data set, provides the basis for the knowledge extraction process. A decision tree operates in a top-down fashion. At each level, a node is chosen by a test for every actual node chosen by the hill-climbing algorithm. Confidence are the variables and their corresponding values. Its confidence level is at least 0.25. About 86.7% of the time, the system is accurate.

2. In their study "Prediction of Heart Disease Using Machine Learning Algorithms," Santhana Krishnan, J., Et al. advocated using decision trees and the Naive Bayes method to predict heart disease. The decision tree algorithm builds the tree based on specific circumstances that result in True or False choices. The outcomes of algorithms like SVM and KNN are based on split conditions that can be vertical or horizontal depending on the dependent variables. However, a decision tree is a structure that resembles a tree with a root node, leaves, and branches, and it is based on the decisions made in each tree. The value of the attributes in the dataset is also explained by the decision tree. Additionally,

they used the Cleveland data set. Using some techniques, the data set is divided into 70% training and 30% testing. Thus, formula provides 91%

3. In their study, "Prediction of Heart Disease Using Machine Learning Algorithms," Sonam Nikhar Et al. provide an in-depth analysis of Naive Bayes and decision tree classifier, two techniques that are particularly useful for the prediction of heart disease. Decision Trees had higher accuracy than Bayesian classifiers, according to certain studies that considered the use of predictive data mining approach on the same dataset.

4. The paper "Prediction of Heart Disease Using Machine Learning" by Aditi Gavhane Et al. uses the multi-layer perceptron neural network approach to train and test datasets. There will be one input layer, one output layer, and perhaps more hidden layers in this algorithm between the two input and output layers. Each input node is connected to the output layer by hidden layers. Weights chosen at random are assigned to this link. The second input is referred to as bias, and it is given weight according to the needs of the connection between the nodes.

5. The "Heart Disease Prediction Using Effective Machine Learning Techniques" proposal by Avinash Golande Et al. makes use of a few data mining techniques to help clinicians distinguish between different types of heart disease. Nave Bayes, Decision trees, and K-Nearest Neighbor are commonly used techniques. Additionally, packing calculation, part thickness, sequential negligible streamlining and neural systems, straight Kernel self-arranging guidance, and SVM (Bolster Vector Machine) are used as unique characterization-based procedures.

6. "Machine Learning Techniques for Heart Disease Prediction" by Lakshmana Rao Et al. suggested that there are additional risk factors for heart disease. Therefore, it is challenging to distinguish heart illness. Different neural networks and data mining techniques are utilized to determine the severity of heart disease among patients.

7. Abhay Kishore Et al. proposed "Heart Attack Prediction Using Deep Learning" in which a Recurrent Neural System is used to predict the likelihood of heart-related infections in the patient and to develop a system for heart attack prediction. To provide the most accurate model with the fewest errors, this model employs deep learning and data mining. This study serves as a reliable benchmark for other heart attack prediction programs.

8. To increase accuracy in cardiovascular issues, Senthil Kumar Mohan Et al. presented "Effective Heart Disease Prediction Using Hybrid Machine Learning Techniques". Through the application of the algorithms KNN, LR, SVM, and NN, the prediction model for heart disease with hybrid random forest with linear model (HRFLM) produces an enhanced exhibition level with a precision level of 88.7%.

9. Anjan N. Repaka and colleagues created a model that evaluated and contrasted the performance of prediction for two classification models. The experimental results

demonstrate that, in comparison to previous models, our suggested method's accuracy in determining the percentage of risk prediction is enhanced.

10. The study "Heart Disease Prediction using Evolutionary Rule Learning" was proposed by Aakash Chauhan Et al. Electronic records allow for direct data retrieval, reducing the need for manual operations. The quantity of services is reduced, and a large number of rules are displayed to help with the best heart disease prognosis. On the patient's dataset, frequent pattern growth association mining is done to produce strong associations.

IV. METHODOLOGY

IV.1. EXISTING SYSTEM
Even now, there is a focus on heart disease as a silent killer that results in death without any obvious symptoms. The nature of the sickness has led to an increase in worry about the condition and its implications. In order to prevent the spread of this terrible disease in the past, efforts are still being made in that direction. To satisfy the demands of contemporary health, numerous technologies and methods are routinely tested. In this case, machine learning techniques can be of great assistance. Despite the fact that heart disease can present itself in a variety of ways, there is a common set of fundamental risk factors that determine whether someone would ultimately be at risk for the condition. By compiling data from various sources, sorting it into sectional groups that make sense.

IV.2. PROPOSED SYSTEM
The initial phase in the system's operation is the gathering of information and the selection of the most important attributes. The necessary format is then created by preprocessing the pertinent data. The data is then divided into training and testing data. The model is trained using the algorithms and training data. The system's correctness is assessed by running tests on test data. The modules listed below are used to implement this system.
- Gathering of Dataset
- Choosing the qualities
- Pre-processing of Data
- Data balancing
- Disease Prognosis

IV.2. 1 Collection of dataset
We initially acquire a dataset to serve as the basis of our heart disease prediction algorithm. After the dataset is gathered, we split it into training and testing data. The training dataset serves as the basis for the prediction model's learning, while the testing dataset serves as the basis for its evaluation. In this project, 30% of the data are utilized for testing while 70% are used for training. The project data source was Heart Disease UCI. 14 of the datasets 76 attributes are used by the system during operation.
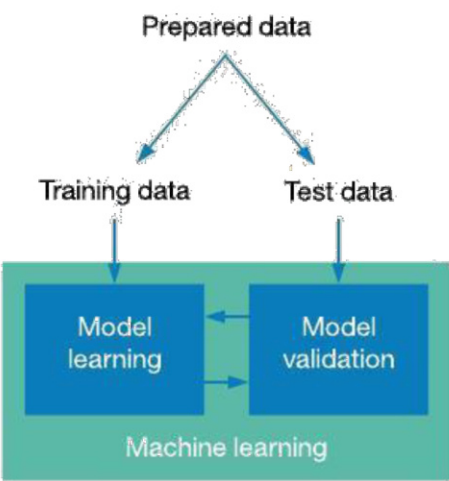
Figure: Collection of Data

IV.2. 2 Selection of attributes

The selection of qualities or features that are appropriate for the prediction system is a part of this process. To increase the system's effectiveness, this is done. A variety of patient factors are taken into account for the prognosis, including gender, the type of chest pain the patient experiences, fasting blood pressure, serum cholesterol, and exang. A correlation matrix is used for this model's attribute selection.

Figure: Correlation matrix

IV.2. 3 Pre-processing of Data

A crucial step in the creation of a machine learning model is data pre-processing. Results can be erroneous if the data isn't initially clean or in the right format for the model. Pre-processing entails converting data to the desired format. It is used to manage the missing values, duplicates, and noise in the dataset. Data pre-processing includes tasks like importing datasets, splitting datasets, attribute scaling, etc. To improve the model's accuracy, the data must be pre-processed.

Figure: Data Pre-processing

IV.2. 4 Balancing of Data

Unbalanced datasets can be balanced using one of two methods. Both under- and over-sampling occur. Under Sampling: In Under Sampling, the huge class size is reduced in order to establish dataset balance. This procedure is used when there is sufficient data. Dataset balance in cases of excessive sampling is attained by increasing the tiny samples. This procedure is considered when there is insufficient data.
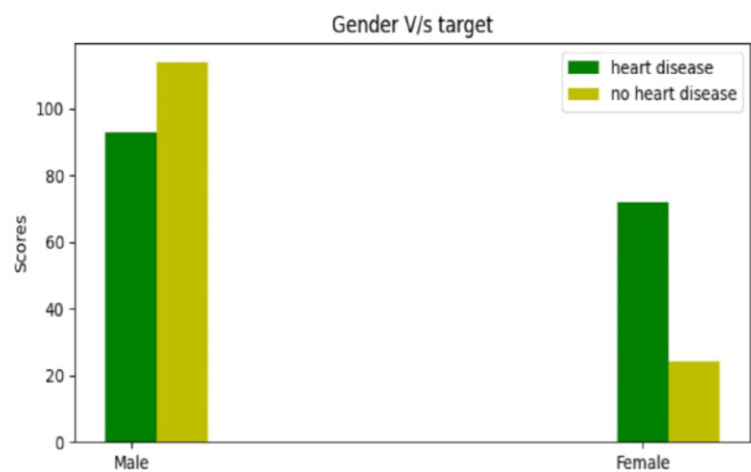
Figure: Data Balancing

IV.2. 5 Prediction of Disease

Several machine learning techniques, such as SVM, Naive Bayes, Decision Trees, Random Trees, Logistic Regression, Ada-boost, and XGBoost, are used for classification. The algorithm that accurately predicts heart disease is picked after being compared to other candidates.

V. EXPERIMENTAL ANALYSIS

V.1 PERFORMANCE ANALYSIS

In order to predict cardiac sickness, this study employs a number of machine learning methods, including SVM, Naive Bayes, Decision Trees, Random Forests, Logistic Regression, Adaboost, and XGboost. When predicting heart illness, only 14 out of the 76 features in the Heart illness UCI dataset are taken into account. Several patient variables are taken into consideration for this project, such as gender, the type of chest discomfort, fasting blood pressure, serum cholesterol, exang, etc. Each algorithm's accuracy needs to be evaluated, and the approach that offers the highest accuracy is chosen to forecast heart disease. The experiment is evaluated using a number of assessment criteria, including accuracy, confusion matrix, precision, recall, and F1-score.

Accuracy: It is the ratio of the number of correct predictions to the total number of inputs in the dataset. It is expressed as:

Accuracy = (TP + TN) / (TP+FP+FN+TN)

Confusion Matrix: It gives us a matrix as output and gives the total performance of the system.
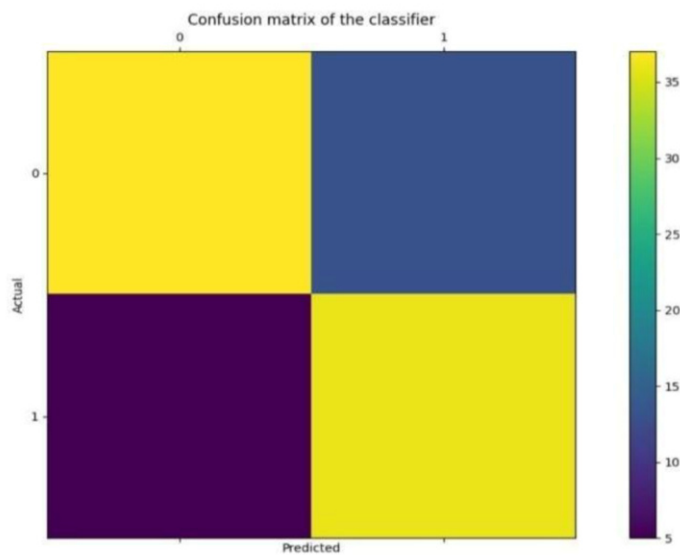
Figure: Confusion Matrix

Where TP: True positive, FP: False Positive, FN: False Negative, TN: True Negative

Correlation Matrix: The correlation matrix in machine learning is used for feature selection. It represents dependency between various attributes.

Precision: It is the ratio of correct positive results to the total number of positive results predicted by the system. It is expressed as:

```
Accuracy of svm: 0.8021978021978022
Accuracy of naive bayes: 0.7692307692307693
Accuracy of logistic regression: 0.7912087912087912
Accuracy of decision tree: 0.7582417582417582
Accuracy of random forest: 0.7912087912087912

Majority Voting accuracy score:  0.7912087912087912
Weighted Average accuracy score:  0.8131868131868132
Bagging_accuracy score:  0.8021978021978022
Ada_boost_accuracy score:  0.7362637362637363
Gradient_boosting accuracy score:  0.8131868131868132
```

Recall: It is the ratio of correct positive results to the total number of positive results predicted by the system.

It is expressed as:

F1 Score-It is the harmonic mean of Precision and Recall. It measures the test accuracy. The range of this metric is 0 to 1.

VI. PERFORMANCE MEASURES

- The highest accuracy is given by XGBoost.

VI.1. INPUT

Algorithm	Accuracy
XGBoost	81.3%
SVM	80.2%
Logistic Regression	79.1%
Random Forest	79.1%
Naive Bayes	76.9%
Decision Tree	75.8%
Adaboost	73.6%

VII. RESULT

Therefore, when compared to other methods, the XGBoost technique has higher accuracy after employing a machine learning approach for training and testing. Accuracy is determined using the confusion matrices for each algorithm. The TP, TN, FP, and FN numbers are listed here. Value has been computed using the equation to ensure correctness. With 81% accuracy, it is determined that severe gradient boosting is the best.

TABLE: Accuracy comparison of algorithms Algorithm Accuracy

Algorithm	Accuracy
XGBoost	81.3%
SVM	80.2%
Logistic Regression	79.1%
Random Forest	79.1%
Naive Bayes	76.9%
Decision Tree	75.8%
Adaboost	73.6%

VIII. CONCLUSION

A major social impact would result from the use of cutting-edge technology, such machine learning, to the first prediction of cardiac problems because heart ailments are a primary cause of mortality in India and around the world. An important development in the world of medicine is the ability of high-risk individuals to make decisions about lifestyle changes that will reduce problems with early diagnosis of cardiac illness. More people are given cardiac disease diagnoses each year. This necessitates a quick diagnosis and plan of action. The adoption of suitable technology support in this area may have significant positive effects on both the medical community and patients. The performance of the seven machine learning algorithms used in this study was evaluated using SVM.

The dataset, which consists of 76 features, contains the expected traits that influence the risk of developing heart disease in individuals, and 14 important traits are selected from them to help evaluate the system. The system, the creator gets is less effective if all the

qualities are considered. To increase efficiency, attribute selection is used. In this situation, n characteristics must be determined in order to assess the model that offers the highest level of accuracy. Some dataset features are omitted since their correlations are almost equivalent. All attributes in the dataset are considered, the efficiency drastically decreases. After evaluating the precision of each of the seven machine learning techniques, a prediction model is developed. The goal is to use a range of evaluation measures to accurately predict the disease, such as the confusion matrix, accuracy, precision, recall, and F1-score. Thus, when all seven are compared, the extreme gradient boosting classifier has the highest accuracy (81%).

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SCROLL TO FIT

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ABSTRACT

The Internet Shopping framework empowers merchants to set up web-based shops, clients to peruse shops, and a framework executive to support and reject demands for new shops and keep up with arrangements of shop classes. Likewise, on the plan is planning a web-based shopping webpage to deal with the things in the shop and assist clients with buying them online without visiting the shop. Our web-based shopping site will involve the web as the sole technique for offering merchandise to its purchasers. Shopping will be profoundly customized, and the shopping center will give lower costs than most contenders.

Internet shopping gives extraordinary accommodation to clients anyway it likewise brings issues, for example, size because of no prompt test. Without testing, concluding the size of the item is one of the issues that influence clients' shopping experience, which likewise prompts high item return rates to organizations. Item size wellness expectation and size proposal are accordingly fundamental for internet shopping. Our task's principle point is online style shopping where the customers straightforwardly purchase garments continuously, without a delegate administration over the web. In any case, online design shopping is a sans hands insight and viable too, a pleasing disadvantage of this experience is to not have the option to find your ideal fit as a result of the absence of "size forecast" choice. A web application to find your style fit through basic and inconvenience free advances. A site to lead you to go through a progression of straight forward inquiries or simply clicking or transferring a picture, you are ensured to see as your immaculate fit.

This is where our web application "Parchment 2 fit" comes in. In this venture we concentrated on the size expectation issue and proposed a technique to further develop the forecast exactness. We catch the inconspicuous semantics of client surveys by utilizing a 2D model to become familiar with the inert portrayals. Profound highlights are gained from the survey information, consolidating with clients' body highlights and the item's data to anticipate the item's qualification for a client. The analysis on the genuine internet clothing retailer dataset approve the viability of the proposed strategy.

Web based shopping is the cycle by which purchasers straightforwardly purchase labor and products from a merchant continuously, without a middle person administration, over the Web. It is a type of electronic business. This task is an endeavor to give the benefits of internet shopping to clients of a genuine shop alongside precise size expectation. It helps purchase the items in the shop any place through the web by utilizing an android gadget. Hence, the client will get the help of online shopping and home conveyance from his number-one shop.

Keywords*: online shopping, CNN, WWW, words, machine learning

## I.INTRODUCTION

Internet shopping is the cycle by which customers straightforwardly purchase products, administrations and so forth from a merchant intelligently progressively without a middle person administration over the web. Web based shopping is the most common way of purchasing labor and products from shippers who sell on the Web. Since the development of the Internet, traders have tried to offer their items to individuals who surf the Web. Customers can visit web stores from their homes and shop as they sit before the PC. Customers purchase different things from online stores truth be told, individuals can buy anything from organizations that give their items on the web. For the most part, in the actual stores the estimations have customarily been made physically from actual subjects utilizing a measuring tape, however the ascent of web based shopping and customized devices set new interest for modernized anthropometric estimations. The principle challenge of our venture is to anticipate the exact size and furnish clients with garments of their size. Web based shopping permits you to peruse vast conceivable outcomes, and even offers stock that is inaccessible in stores. Assuming that you're looking for a specialty item that may not be disseminated locally, you're certain to find what you're searching for on the web. What is much more valuable is the capacity to look at things, comparable or not, on the web. You can look through different stores simultaneously, contrasting material quality, sizes and evaluating at the same time.

II. OBJECTIVE OF THE STUDY

It is the investigation of the expenses and pay of a venture to decide if finishing is intelligent and conceivable. It is a sort of money saving advantage investigation of the inspected project, which assess whether carrying out is conceivable. This term implies the assessment and examination of the capability of a venture to help the dynamic interaction, through the goal and judicious distinguishing proof of its assets, shortcomings, open doors and related chances. Moreover, the necessary assets to carry out the task and an appraisal of its odds of coming out on top.

II.1. Architecture of the system
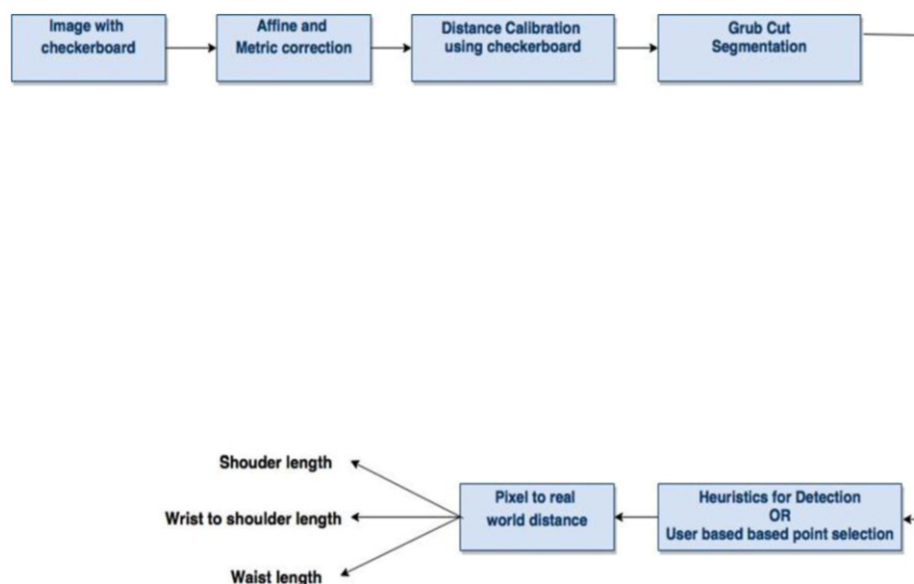
II.2. Input and output design
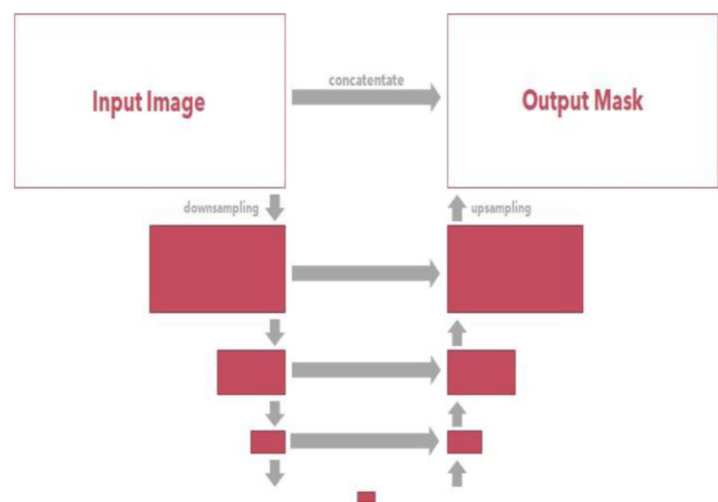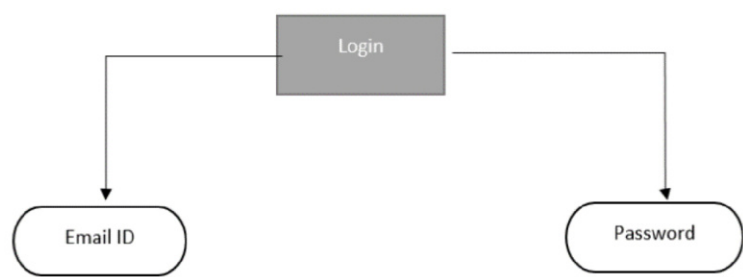

III. STATEMENT OF THE PROBLEM
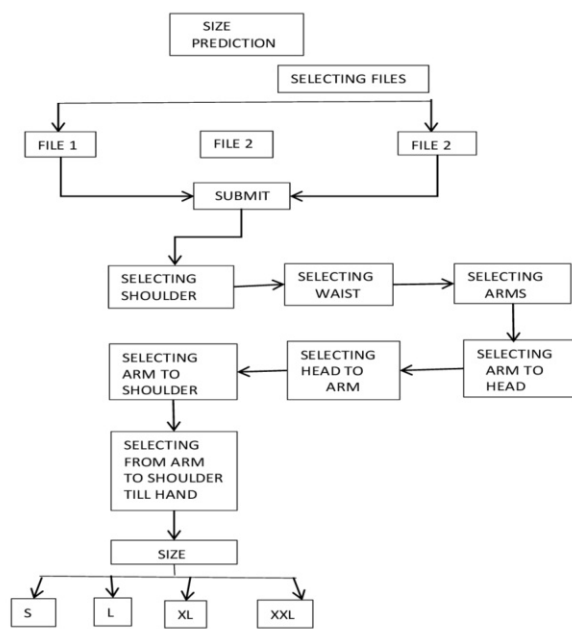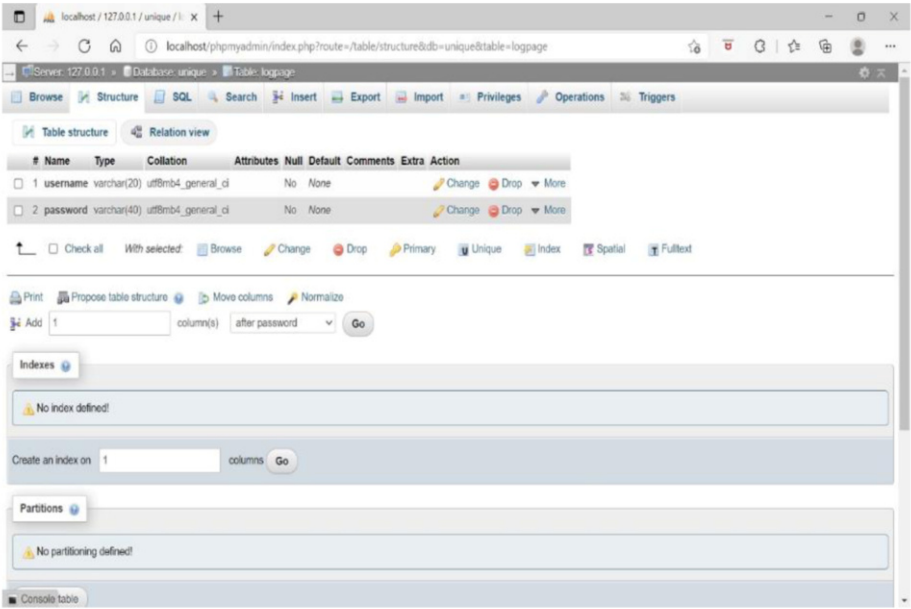

Fig: DFD

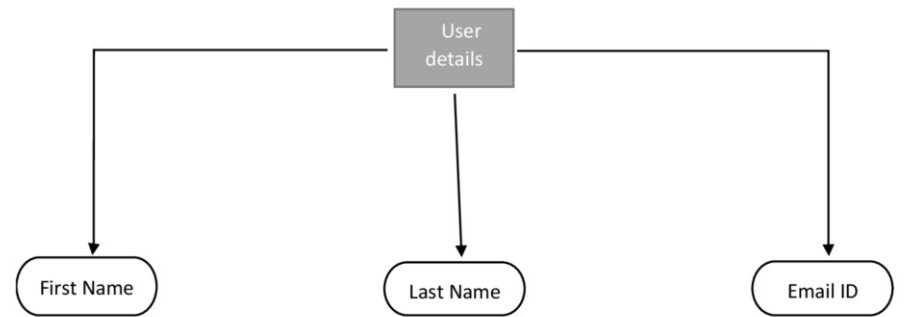**Fig: Database of Login page**

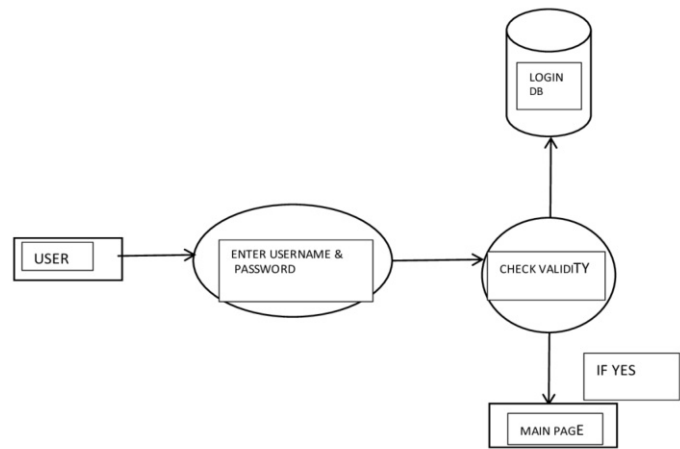**Fig: Database of registration page**
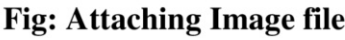
- **User Details**

Fig: DFD

Fig: Login and Registration DFD

Fig: Attaching Image file

- **Selecting Image from folder : Front Arms wide view image**

Fig: Front view neck pointer selected image
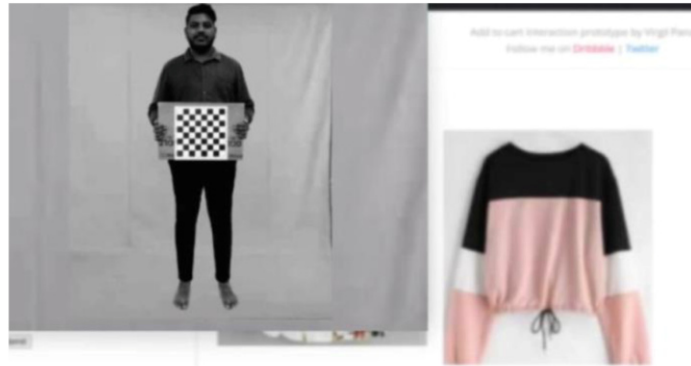
Fig: Front arms wide view neck to wrist pointer selected image

III. REVIEW OF LITERATURE

A writing survey is a complete report and translation of the writing (articles, studies, diaries) for a particular subject (Aveyard, H. 2014).

The essential job of the specialist while leading a writing survey is to attempt to figure out all the exploration. Envision that a diary article is a solitary unique piece; when you are composing a writing survey you are taking these different interconnecting pieces, attempting to inspire them to fit together to at last response your examination question.

As indicated by the Regal Scholarly Asset, a writing survey has four principle goals:

• 	Study the exploration in a given field
• 	Integrate the data
• 	Separate the vital parts
• 	Fundamentally dissect the data introduced.

IV. METHODOLOGY

Functional Possibility implies that a Certified Proficient or functional expert defends that an objective can be finished easily, without utilizing superfluous means and without causing outrageous expenses to accomplish a similar result by eliminating the variable that will require said trouble, pointless means and bringing about outrageous expenses. PC Vision studies have tackled development acknowledgment issues utilizing either RGB or profundity pictures. On the off chance that we consider both RGB and profundity values caught by a specified sensor and consolidate them, the chance of accurately taking care of posture acknowledgment issues increments. In our work, we use top to bottom data for foundation deduction. The RGB data is utilized to create RGB-D pictures that are switched over completely to grayscale by the following strategy.

V. RESULTS AND DISCUSSION

V.1. Experimental Data

The objective of our task was to make 'true body part' estimations utilizing 2D pictures. For our investigation, the vault incorporates strategies to gauge 'shoulder distance, wrist-to-bear estimation, and midriff guess'. Here essentially 3 fundamental pictures are is embedded into the framework. The first picture is a front perspective on the individual's upstanding body. (Note: For this large number of pictures the individual is covered from head to toe in the picture). The second picture being additionally the front perspective on the individual however with the individual's arms wide, on their sides and two a safe distance separated. At last the third picture is a side perspective on the individual.
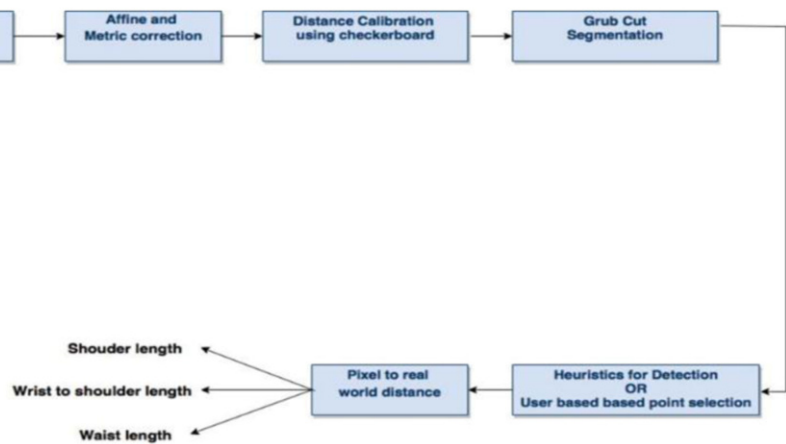
V.2. Experimental Results and Analysis

Fig: Flow of analysis

- **Finding and Corrections**

Name	Shoulder Distance	True S D	Waist	True Waist	Sleeve	True Sleeve
Saket	37.3	38	95	92	52.1	50
Krunal	39.35	38	84	86	54	56
Tanwar	34	35	81.5	82	40.05	45
Mean Error		2.750626566		2.065402353		6.257142857

Table: Results

- **Uses**
  - Help redid online-material exchange and trade.
  - Assist with building virtual-preliminary rooms, since it takes care of the more straightforward issue of material fitting on individual.
  - Act as a virtual designer.

- **Unsuccessful segment approach Grab Cut**

  - It receives a bounding box and image as input and segments it iteratively.
  - It uses color data modelling by iterative energy minimization. Iterations are extremely slow.

Fig: screen segmentation

• Chroma King Technique is used. It segments images based on provided color.

Fig: Heuristics to automate point selection

Beginning from the portioned picture of the human outline for shoulder focuses

•   We first find the tip of the head as the most elevated point in the outline, then move along the level bearings from the tip and stop where there is an exceptional change in the slant in a window

•   giving us the shoulder tips

•   We further utilize a comparable heuristic for the wrist focuses.

•   Approximating the midsection from two pictures

•   We surmised the abdomen of the human body as an oval

•   We ascertain the semi pivot of the oval from two pictures where the individual is confronting the camera in one picture and symmetrical in another

- **Assumptions**

Since we are attempting to inexact the measurement redressed pictures as symmetrical projections we obtain improved results in the event that the human is standing a step farther from the camera.

• We obtain essentially mistaken results in the event that we attempt to gauge the level utilizing this framework since the points made by the lowermost point with the mark of camera focus is adequately huge to cause critical twisting in the redressed pictures

• The individual and the chessboard that the individual is holding are roughly equal and the partition between the two planes is additionally unimportant.

VI. CONCLUSION

We began this venture to make a more straightforward web-based shopping experience for individuals all sizes and shapes. Wherever we have seen individuals endure the problem of proceeding with purchasing incorrectly measures or now and again various outfits itself. We had a thought on the best way to make the experience more tomfoolery and simpler to go through. By creating a product which can distinguish body size and prescribe it to the alleged client. As understudy we have attempted our very best in displaying our insight and abilities through this task. A product which can identify body size and prescribe it to the alleged client. We went through a ton of papers and books on how precisely we can carry out our thought right into it. We utilized JS, HTML, CSS, and PHP for the site page which is likewise the web-based shopping part of our task, while we use python in AI for the recognition of the body, which gauges and predicts the size of the body. We at last associate both utilizing cup programming interface. This task likewise assisted us with abiding into new and obscure waters and get the hang of fascinating things about them.

There is a degree for additional improvement in our venture by and large. One more component we wished to carry out was to make an application in light of our site, plan the page/application into a seriously engaging rendition, live catching of the body for improved results and permit many shopping sites to our own or the other way around. These elements might have been executed except if the time didn't restrict us. We know that our task isn't yet great, and it needs more to work like what we had initially thought yet with our time limit we completed how much ever we can and concocted a palatable outcome. Our unique reason for the undertaking was to make web based shopping simpler and in extraordinary fulfilment can say that we have satisfied this difficulty. Despite the fact that we confronted a few incidents en-route we learnt and experienced through it. How could this project be utilized external to the web-based shopping world? To this question we can say as individuals who have face acknowledgment or thumb acknowledgment at their working environment, for what reason might not a little gadget at any point be introduced and be utilized for the body estimation to be finished in shops everywhere. This task will assist numerous costumers with making their shopping experience to be shiny new and satisfying. All individuals of orientation, size and age (not yet relevant) can involve this and execute this.

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STUDY ON QUANTUM COMPUTING CONVOLUTION NEURAL NETWORK

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ABSTRACT

Quantum computing is a new computing paradigm that uses quantum mechanics to perform operations on quantum bits, instead of classical bits. Because they have the ability to perform some computations significantly more quickly than conventional computers. Quantum computers can be used to solve issues that are currently beyond the capabilities of such machines. The study of quantum computing's convolutional neural network and its potential research directions are the main topics of this paper. This makes it possible for researchers to work in the field of convolutional quantum neural networks. The goal of the paper is to offer a thorough and instructive review of this fascinating and quickly expanding field of study.

I.INTRODUCTION

Deep learning algorithms such as convolutional neural networks (CNNs) are extremely effective in processing and analysing the images. They are commonly employed in face identification, image classification, and object recognition applications in computer vision.

One is that vast amounts of data, such image and video data, can be processed using quantum computers, which have the ability to execute some calculations far quicker than classical computers. AI needs more powerful processing resources as it gains popularity in order to process data and make choices. Researchers and professionals with an interest in quantum computing and CNNs can use this document as a resource to better grasp the possibilities of this technology and the difficulties associated with its development.

The reader should have a good knowledge of what convolutional neural networks for quantum computing, how they operate, and what their potential uses and limits are at the end of the study. The goal of the paper is to offer a thorough and instructive review of this fascinating and quickly expanding field of study.

Artificial neural networks of the sort known as convolutional neural networks (CNNs) are frequently employed for image identification and classification applications. They are modelled after the composition and operation of the animal visual cortex, which is in charge of decoding and interpreting visual data.

CNNs are made up of many layers of connected neurons or nodes that are arranged in a hierarchy. The input data, which in the instance of image recognition tasks would be a pixelated image, is sent to the network's first layer. The following layers execute convolution operations on the input data, which entails swiping a tiny window or filter across the data and running a dot product between the filter and the area of the data it covers. To extract distinct features from the input data, this procedure is repeatedly run with various filters. After passing through pooling layers, which lower the output's dimensionality by taking the maximum or average of a set of values, the output of the convolutional layers is finally produced. This aids in deriving the input data's most pertinent attributes and lowers the network's computational complexity.

Convolutional and pooling layer output is processed by the fully connected final layers of the network to get the final classification or prediction. These layers translate the input data to the desired output using conventional activation functions, such as the sigmoid or ReLU functions.

II. LITERATURE REVIEW

In the paper [1], Farhi and Neven introduce Quantum Neural Networks (QNNs) and explore their potential for classification tasks using near-term quantum processors. They propose a QNN architecture, incorporating quantum convolutional and pooling layers, and demonstrate improved classification accuracy compared to classical neural networks.

This authors [2] present a comprehensive overview of supervised learning with Quantum Neural Networks (QNNs). They discuss various encoding strategies, quantum gates, and optimization techniques for training QNNs. The authors provide insights into the potential of QNNs as an alternative approach to classical machine learning models.

In this Nature Communications paper [3], Cong et al. propose Quantum Convolutional Neural Networks (QCNNs), which integrate quantum computing principles into convolutional neural networks. The authors introduce the concept of quantum convolutional layers and demonstrate their potential for enhancing the efficiency and effectiveness of image recognition tasks.

Wan, Wang, Xiang, and Li [4] present Quantum-Inspired Convolutional Neural Networks (QICNNs) for multispectral image classification. They propose a novel QICNN architecture that incorporates quantum-inspired mechanisms such as quantum convolutional and pooling operations. The paper demonstrates the effectiveness of QICNNs in achieving high classification accuracy for multispectral imagery.

Liu and Luo [5] propose a Quantum Convolutional Neural Network (QCNN) based on the quantum convolution operation. The authors introduce a novel quantum convolutional layer and discuss the computational advantage of QCNNs in image classification tasks. The paper highlights the potential of QCNNs as a promising approach for leveraging quantum computing in convolutional neural networks.

This paper [6] proposes a quantum-inspired convolutional neural network (QCNN) for synthetic aperture radar (SAR) target recognition. The authors combine the principles of quantum computing and classical CNNs to enhance SAR image classification performance.

The authors present a quantum neural network (QNN) approach [7] for image super-resolution, where the quantum convolutional layers are utilized to learn high-resolution features from low-resolution images. The proposed QNN model shows promising results in image super-resolution tasks.

While not directly focused on convolutional neural networks, this paper [8] introduces the concept of the quantum natural gradient, which is a method to optimize quantum neural networks. The authors demonstrate its applicability in the context of quantum machine learning, including quantum neural networks, and discuss potential benefits.

III. OVERVIEW OF QUANTUM COMPUTING AND QUBITS

Calculations are carried out using quantum mechanics in a process known as quantum computing. Quantum computers use qubits, which can simultaneously be in a superposition of both states, as opposed to classical computers, which use bits that can only be in one of two states (0 or 1).

In quantum physics, the wave function used to describe a system's state gives information on the likelihood that the system is actually in each potential state. The wave function in the case of qubits specifies the likelihood that the qubit will be in the 0 state or the 1 state.

Qubits' ability to simultaneously exist in both of their possible states is one of their important characteristics, which enables quantum computers to run tasks in parallel. A classical computer would have to conduct each computation one at a time, whereas a quantum computer with 'n' qubits can perform '2n' operations concurrently.

Entanglement, which happens when two or more qubits become so correlated that their states cannot be represented independently of one another, is the other important characteristic of qubits. Using Shor's technique to factor huge numbers, for example, quantum computers can carry out some operations more quickly than classical computers thanks to this characteristic.
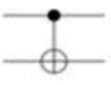
Quantum de-coherence, which happens when the brittle quantum states of qubits are disturbed by external influences like temperature or electromagnetic radiation, is one of the difficulties of quantum computing. To get around this problem, qubits are protected from mistakes and the

accuracy of the quantum computing is maintained by using quantum error correction techniques. The authors demonstrate its applicability in the context of quantum machine learning, including quantum neural networks, and discuss potential benefits.

IV. CLASSIFICATION OF QUANTUM GATES AND OPERATIONS

In quantum computing, gates and operations are used to manipulate qubits, which are the basic building blocks of quantum computers. These gates and operations are analogous to the logic gates used in classical computing, but they operate on quantum states instead of classical bits. Some examples of quantum gates include the Pauli gates, the Hadamard gate, and the CNOT gate.

Gates	Operations and functionality	Applications or Usage
Pauli gates [X] $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$	This is used to flip as a single qubit rotating around π \pi π radians and the x-axis.	if a **Pauli-X** gate was applied to a qubit that is in a superposition state of $|0\rangle$ and $|1\rangle$
Pauli gates [Y] $\begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix}$	This is used to flip as a single qubit rotating around π \pi π radians and the Y-axis.	It performs a rotation about the Y axis instead of the X axis. The Y gate is similar to the X gate in that it flips the value of the quantum state it is applied.
Pauli gates [Z] $\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$	This is used to flip as a single qubit rotating around π \pi π radians and the Z-axis.	Specifically it maps 1 to -1 and leaves 0 unchanged. It does this by rotating around the Z axis of the qubit by π radians
Hadamard gate $\frac{1}{\sqrt{2}}\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$	Hadamard gate can be used to convert the qubit from clustering state to uniform superposed state.	The Hadamard gate maps the $|0\rangle$ state to the state $(|0\rangle+|1\rangle)/\sqrt{2}$ and the $|1\rangle$ state to the state $(|0\rangle-|1\rangle)/\sqrt{2}$.
CNOT (Controlled-NOT)	gate is a two-qubit gate that performs a NOT operation on the	If the first qubit (control qubit) is in the $|1\rangle$

		second qubit (target qubit) $$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$	state. If the control qubit is in the $|0\rangle$ state, then the target qubit remains unchanged.
Controlled Not (CNOT, CX)			

Quantum gates and operations are used to construct quantum circuits, which are analogous to the circuits used in classical computing. These circuits are constructed by applying gates and operations to qubits in a specific sequence, and they can perform certain types of calculations faster or more efficiently than classical circuits.

V. QUANTUM CIRCUITS AND QUANTUM ALGORITHMS

Quantum circuits are used to perform computations in quantum computing. These circuits are made up of quantum gates and operations, which act on qubits, the basic unit of quantum information. Quantum circuits can be used to perform a variety of computations, including data encoding, error correction, and quantum algorithms.

Quantum algorithms are algorithms designed to run on quantum computers, and they are typically faster or more efficient than classical algorithms for certain types of problems. Some of the most well-known quantum algorithms include Grover's algorithm, Shor's algorithm, and the Quantum Fourier transform.

Algorithm	Functionality	Applications
Grover's algorithm	It is a quantum search algorithm, whereas a classical search technique would take $O(n)$ time to explore an unsorted database. Grover's approach locates the target item by applying a series of quantum gates to a superposition of all potential database states and then utilising measurement.	Quantum cryptography also makes considerable use of Grover's technique. It can be used to resolve issues like the Polynomial Root Finding Problem and the Transcendental Logarithm Problem among others. Due to the fact that any optimisation problem can be phrased as a search problem, Grover's approach can solve any numerical optimisation problem more quickly than brute-force search.
Shor's algorithm	It is a quantum algorithm that is thought to be computationally challenging for classical computers to factor huge integers. Shor's algorithm finds an integer's prime factors in polynomial time by utilising a quantum Fourier transform and other quantum gates.	On a sufficiently big and dependable quantum computer, Shor's algorithm offers an effective method for factoring arbitrarily large integers.

Quantum Fourier transform	An algorithm for converting between the time domain and frequency domain of quantum states is the quantum Fourier transform. Many other quantum algorithms, notably Shor's algorithm, employ this approach.	The investigation of mechanical and thermal properties of materials, such as elasticity, the evaluation of the uniformity of structures and the detection of deviations based on picture data.

Quantum circuits and algorithms are still being developed, and there is much research being done in this field. While quantum computing has the potential to revolutionize computing, there are still many challenges to overcome, including the development of more stable qubits, better error correction techniques and the scaling up of quantum computers to handle larger computations.

VI. QUANTUM NEURAL TECHNIQUES

A. Quantum-inspired convolutional neural networks:

A class of neural networks known as quantum-inspired convolutional neural networks (QCNNs) is influenced by quantum computing ideas like entanglement and superposition. Instead of using true quantum gates, QCNNs implement quantum-inspired functions using classical hardware.

Certain picture and speech recognition tasks, as well as ones involving natural language processing, have been successfully completed using QCNNs. They are nevertheless constrained by the computing capacity of conventional hardware.

B. Quantum convolutional neural networks:

A particular kind of neural network known as a quantum convolutional neural network (QConvNet) performs convolutional functions using genuine quantum gates. QConvNets must be implemented using quantum hardware, unlike QCNNs.

In some situations, like image identification and quantum chemistry simulations, QConvNets have the potential to be noticeably faster than conventional convolutional neural networks. But there is still a big problem in developing and scaling quantum hardware.

C. Architecture of a quantum convolutional neural network:

A classical convolutional neural network's architecture is comparable to that of a quantum convolutional neural network. It is made up of several layers of neurons, each of which processes the input data in a particular way.

A quantum state represented by a collection of qubits serves as the input to a QConvNet. Quantum convolutional layers, quantum pooling layers, and quantum activation functions are used to process the qubits.

D. Quantum convolutional layers:

A QConvNet's fundamental building components are quantum convolutional layers. Using a collection of quantum gates, they carry out the convolution operation on the input quantum state. A group of quantum gates are used in the quantum convolutional operation to apply a filter to the input qubits. Similar to a traditional convolutional layer, the filter is moved over the input qubits.

E. Quantum pooling layers:

The output of the quantum convolutional layers is downsampled using quantum pooling layers. They carry out a quantum equivalent of max-pooling or average-pooling that shrinks the quantum state's size while preserving crucial properties.

F. Quantum activation functions:
The QConvNet is made nonlinear using quantum activation functions. They convert the output from the pooling and quantum convolutional layers into a non-linear function. Quantum variations of the sigmoid, ReLU, and softmax functions are some of the well-known quantum activation functions.
G. Quantum data encoding and decoding:
It is necessary to encode classical data into a quantum state before feeding it into a QConvNet. Usually, methods like amplitude encoding or angle encoding are used for this.   The QConvNet's output must also be converted back into conventional data. This is frequently accomplished by the use of quantum measurements, which transform the quantum state into a read-out classical state.

VII. QUANTUM TERMINOLOGIES

- **Overview of quantum computing tools and libraries:** Quantum convolutional neural networks (QConvNets) development and implementation need the use of quantum computing techniques and frameworks. These programmes and libraries offer a high-level user interface for creating quantum circuits, modelling them, and interacting with quantum hardware.Qiskit, Cirq, Forest, and ProjectQ are some examples of well-known quantum computing tools and libraries.

- **Quantum software frameworks for quantum convolutional neural networks:** Software platforms called software frameworks give designers and modellers of quantum circuits a high-level interface. These frameworks can be utilised with a range of different quantum hardware platforms because they are meant to be hardware-agnostic. The creation of quantum convolutional neural networks is supported by a number of quantum software frameworks, including Penny lane and Tensor Network. For the implementation of quantum convolutional layers, quantum pooling layers, and quantum activation functions, these frameworks offer specialised modules.

- **Quantum hardware platforms for quantum convolutional neural networks:** Physical systems that can be utilised to create quantum circuits are known as quantum hardware platforms. Superconducting qubits, ion traps, and topological qubits are just a few examples of the various types of quantum hardware platforms that are currently available. Despite the fact that quantum hardware is still in its infancy, quantum convolutional neural networks have been successfully tested on a few different hardware platforms. As an illustration, researchers have used a superconducting qubit-based quantum computer to create a quantum convolutional neural network.

- **Quantum measurement and quantum state collapse:** Quantum measurement is the process of obtaining information about a quantum system by measuring its properties. When a quantum system is measured, its state can be "collapsed" into one of its possible states, and the probability of each possible outcome is determined by the quantum state of the system. In quantum mechanics, the state of a system is described by a wave function, which is a complex-valued function that contains information about the possible states of the system. The wave function is usually denoted by the Greek letter Psi (Ψ). When a measurement is made on a quantum system, the wave function collapses into one of the possible states, and the probability of each possible outcome is determined by the wave function. Quantum measurement is a fundamental concept in quantum computing, and it is used in many quantum algorithms and protocols, such as quantum key distribution and quantum teleportation. However, the measurement process can also introduce errors and de-coherence into a quantum system, which can make it difficult to maintain the fragile quantum states required for quantum computing. Therefore, developing techniques to minimize errors and de-coherence is an active area of research in the field of quantum computing.

- **Quantum error correction:** Quantum error correction is a set of techniques used to protect quantum information from errors and de-coherence, which can arise from interactions with the

environment or from imperfections in the quantum hardware. Unlike classical computers, quantum computers are sensitive to noise and errors due to the delicate nature of their quantum states. Therefore, error correction is a critical component of quantum computing. Quantum error correction codes are designed to protect against errors by encoding information in a way that is resilient to noise and errors. One of the most well-known quantum error correction codes is the surface code, which encodes information in a two-dimensional lattice of qubits. The surface code uses a set of quantum gates and measurements to detect and correct errors in the encoded information.

VIII. APPLICATIONS OF QUANTUM CONVOLUTIONAL NEURAL NETWORKS

Quantum convolutional neural networks are anticipated to become increasingly useful for a larger range of applications as quantum hardware continues to advance and scale up.

A. Image recognition:
Image recognition is one of the most promising uses for quantum convolutional neural networks. The accuracy and speed of image identification tasks, such as item detection, facial recognition, and medical picture analysis, could be greatly enhanced using QConvNets.   The extraction of features from pictures using quantum convolutional layers is more effective than using traditional convolutional layers. Additionally, the parallel computation capabilities of quantum computers can be used to accelerate methods for image recognition.

B. Natural language processing:
Natural language processing (NLP) is a promising area for quantum convolutional neural networks. The accuracy and speed of activities like language translation, sentiment analysis, and text categorization could be enhanced by the employment of quantum NLP models.   While quantum pooling layers can be used to make the data less dimensional, quantum convolutional layers can be used to extract features from textual data. Quantum activation functions can also be utilised to increase the model's nonlinearity.

C. Quantum chemistry:
Quantum convolutional neural networks can also be used for quantum chemistry simulations. In particular, QConvNets can be used to predict molecular properties and reaction pathways. Quantum convolutional layers can be used to extract features from molecular structures, while quantum pooling layers can be used to reduce the dimensionality of the data. Additionally, quantum activation functions can be used to improve the accuracy of the model.

D. Quantum machine learning:
Anomaly detection, fraud detection and recommendation systems are just a few of the possible uses for quantum convolutional neural networks in machine learning.   The parallel computation capabilities of quantum computers can be used to boost the efficiency and precision of various applications. In addition, using quantum hardware and algorithms may be able to offer a level of security that is not feasible using conventional computer methods.

IX. CHALLENGES AND FUTURE DIRECTIONS

	Limited qubit coherence and connectivity: The implementation of quantum convolutional layers and other QConvNet components may be challenging because to the limited coherence times and connectivity of currently available quantum hardware.
Challenges in quantum convolutional neural networks:	**Lack of quantum data:** A lot of quantum data will be required to train and evaluate

Despite its promise, there are a number of obstacles that must be removed in order for quantum convolutional neural networks to reach their full potential. These consist of:	QConvNets. However, it is currently difficult and time-consuming to produce and measure quantum data.
	Complexity of quantum algorithms: There is still more work to be done to optimise these algorithms for usage on present and future quantum hardware as the development of quantum algorithms for convolutional neural networks is still in its early stages.
Future directions for quantum convolutional neural networks: Despite these obstacles, there is a lot of interest in and funding for the advancement of quantum convolutional neural networks. Future study in this field may go in the following directions:	**Convolutional neural network:** it requires the development of new quantum algorithms that are more accurate and efficient in order to fully utilise the possibilities of quantum hardware.
	Integration of classical and quantum components: To get beyond the limits of the available quantum hardware, hybrid classical quantum machine learning architectures may be required.
	Exploration of new applications: Quantum convolutional neural networks have enormous potential in a variety of applications, and research in this field is likely to increase in the future years.
Potential impact of quantum convolutional neural networks:	Quantum convolutional neural networks have the potential to significantly advance a variety of domains, such as image recognition, natural language processing, quantum chemistry, and more, if the difficulties associated with them can be addressed.
	QConvNets could significantly outperform traditional convolutional neural networks in terms of accuracy and speed, leading to new developments in these areas. Furthermore, the application of quantum hardware and algorithms may provide levels of confidentiality and privacy that are inaccessible using conventional computing methods. Overall, quantum convolutional neural networks are a fascinating field of study that could have a big future influence.

X. CONCLUSION

In summary, we provided an overview of quantum computing and convolutional neural networks, and explored the emerging field of quantum convolutional neural networks. We discussed the challenges and potential applications of QConvNets, as well as the tools and libraries available for their development. Additionally, we discussed some of the future directions for research in this area, as well as the potential impact that QConvNets could have in a wide range of fields.

The development of quantum convolutional neural networks has significant implications and potential in a variety of fields. In the field of image recognition, for example: QConvNets could provide significantly improved accuracy and speed compared to classical convolutional neural networks. Additionally, the use of quantum hardware and algorithms could provide a level of security and privacy that is not possible with classical computing techniques.

The quantum convolutional neural networks are a promising area of research with the potential for significant impact in the future. While there are still many challenges that need to be overcome, the

development of new quantum algorithms and hardware, as well as the integration of classical and quantum components, could help to unlock the full potential of QConvNets and lead to new breakthroughs in a wide range of fields.

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IMAGE PROCESSING APPROACHES IN PULSED THERMOGRAPHY BASED NON DESTRUCTIVE EVALUATION OF STAINLESS STEEL PLATE

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ABSTRACT

Pulsed Thermography (PT) is one of the advanced Non Destructive Evaluation (NDE) methods that are becoming attractive due to its ability to inspect large areas in short time and provide full field images in a non-contact nature. In PT, a short and high energy optical pulse is used to heat the surface of the object under inspection and the surface temperature response is record using an IR camera. The surface temperature modification is used to characterize the underlying defects. Image processing is an integral part of the PT inspection method. Various methods are adopted in PT for reducing the noise in PT data, to reduce the data dimensionality and for automated defect size and depth estimation. In this study Higher Order Statistics, Thermal Signal Reconstruction, Principal Component Analysis and Partial Least Square Regression based image processing methods are evaluated for the characterization of defects in AISI 316L Stainless Steel plates. Stainless Steels are widely used in the nuclear and other industries due to their excellent corrosion resistance and good high temperature mechanical properties. Quantitative measures like Signal to Noise Ratio (SNR) and defect visibility are considered for evaluation and comparison of these methods.

Keywords: Pulsed Thermography, Nondestructive Evaluation, Defect, Stainless Steel, Image Processing

I. INTRODUCTION

Infrared thermography (IRT) is one of the advanced NDE techniques with the advantage of being non-contact in nature and yielding a full-field image in real time. The advent of pulsed and lock-in techniques in thermography has led to infrared (IR) imaging transitioning from a qualitative method to a quantitative method [1–2]. In pulsed thermography (PT), a short and high energy pulse of light impinges on the test surface. The resultant surface temperature response is recorded using an IR camera. Defects and discontinuities alter the heat diffusion rate which in turn causes change in the surface temperature distribution. The hot or cold spots are indicative of the presence of defects or discontinuities. Noise is an unwanted but integral part of a signal. In PT, noise is associated with the temperature response recorded in infrared (IR) camera. This noise can affect the detection of deeper and smaller defects. Reduction of such noise is essential,

which can be considered as a post processing step. In PT numerous image processing methods have been reported for reduction of noise and thus improve Signal to Noise Ratio (SNR), an important parameter which indicates the effectiveness of noise reduction. Some of the important methods based on statistical and regression-based algorithms are Thermal Signal Reconstruction (TSR) [3], Higher Order Statistics (HOS) [4], Principal Component Thermography (PCT) [5], and Partial Least Square Thermography (PLST) [6]. In this paper the above mentioned methods are evaluated for defect characterization in Stainless Steel plates. These steels are widely used in the nuclear and other industries due to their excellent corrosion resistance and good high temperature mechanical properties. The quantitative parameters like SNR and defect visualization are analysed to evaluate the effectiveness of the image processing modalities.

II. THEORETICAL BACKGROUND

2.1 Pulsed Thermography: PT involves the heating of the object surface using a short and high energy light pulse and recording the temperature response using an IR camera. PT can be carried out in two modes, reflection mode and transmission mode. In the reflection mode, the IR camera and lamps are positioned on the same side and the temperature decay at the front surface is recorded. In the transmission mode, the camera and the heating source are kept on opposite sides of the sample and the temperature rise is recorded using an IR camera. In the present experiment, the reflection mode has been used. The schematic diagram of the PT set up is shown in Figure 1.
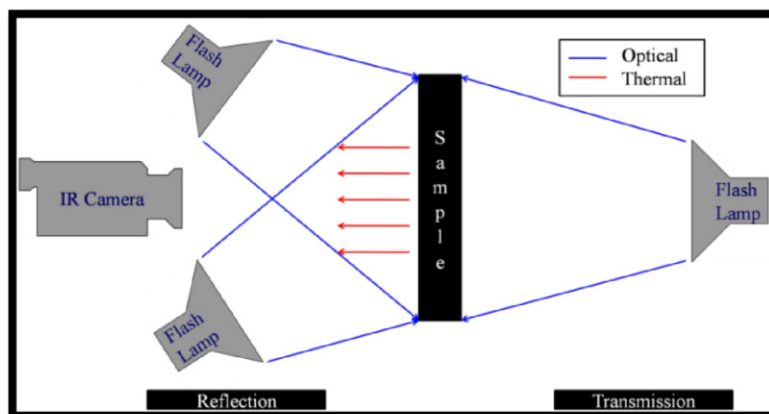

Figure 1: Schematic diagram of the experimental set up showing the reflection and transmission modes.

2.2 Thermal Signal Reconstruction (TSR): In TSR, the time-temperature response at each pixel is considered in logarithmic domain. This response is fitted with polynomial of higher order which is noise free. TSR acts as low pass filter and reduces the data dimension.

2.3 Higher Order Statistics (HOS): Statistical moments namely skewness and kurtosis are computed for temperature response at each pixel, and these moments are then combined to form one image for each of the statistical moment.

2.4 Principal Component Thermography (PCT): PCT constructs a set of empirical orthogonal functions (EOF) from temperature data, which are statistical modes that provide the strongest projection for the data and offers a very compact representation. The thermal behavior associated with underlying defects of a material is compactly described through Singular Value Decomposition (SVD) of the data matrix.

2.5 Partial Least Square Thermography (PLST): Partial least squares regression (PLSR) computes loadings and scores vectors that are correlated with the predicted matrix Y, which describes the variation in matrix X similar. The matrix X is the surface temperature matrix, while Y is the observation time of the thermal images. The result of the bilinear decomposition is a new set of thermal images and observation time vector composed of latent variables in a new subspace which considers only the most important variations.

III. EXPERIMENTAL SET UP

CEDIP Silver 420 infrared camera was used for the experiment. The camera has focal plane array with 320×250 pixels and has Indium Antimonide (InSb) detector with Stirling cooling system with a maximum achievable temperature resolution of 25 mK. It detects the infrared radiations in 3–5 µm region and has maximum frame rate of 176 Hz. For PT experiments 2 xenon flash lamps of power 1600 W each were used.

The material chosen was an AISI 316 L stainless steel plate of length 150 mm, breadth 100 mm and thickness 3.54 mm. Square defects of various sizes at various depths were machined using electro-discharge machining. The depths of defects from the front surface were 0.4, 1.13, 1.78, 2.48, 3.17 and 3.36 mm, and the sizes were 10×10, 8×8, 6×6, 4×4 and 2×2 mm^2. The photograph of the sample is shown in Figure 2.
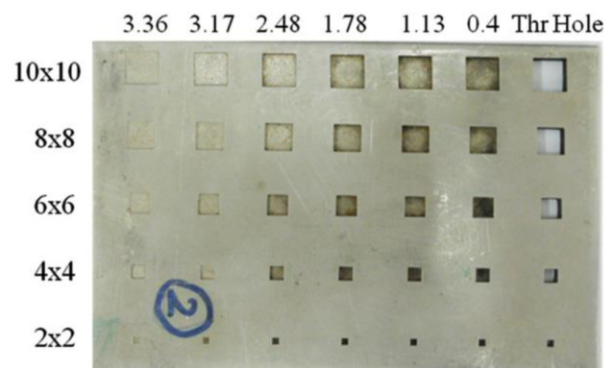

Figure 2: Photograph of the sample—back drilled defects at various depths and of various sizes (depth from front surface, units are in mm).

IV. RESULTS AND DISCUSSION

For TSR polynomial of order 6 was considered. In case of PCT and PLST 1st 5 components were considered for analysis. The typical TSR, PCT and PLST are shown in Figure 3-5. From the Figures, it can be observe that the image enhancing techniques successfully improves the defect visualization by suppressing the noise.
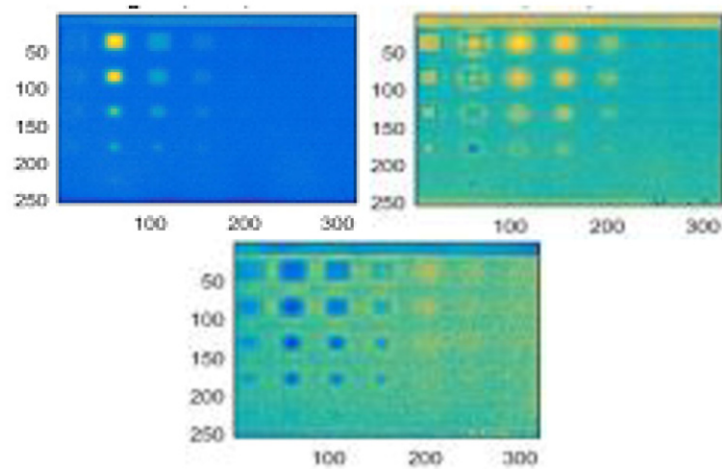
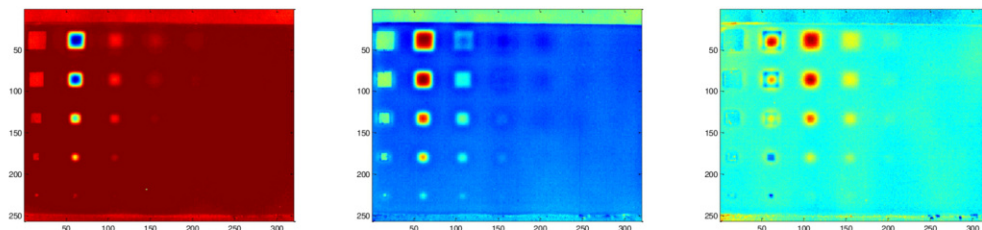**Figure 3:** TSR images (a) reconstructed (b) 1st derivative (c) 2nd derivative

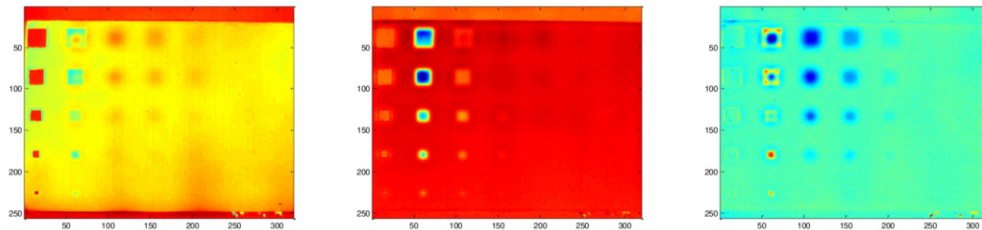**Figure 4:** (a) 1st (b) 2nd and (c) 3rd Principal Component images

Figure 5: (a) 1st (b) 2nd and (c) 3rd PLST images

V. CONCLUSION

In this study various image processing approaches have been used to enhance the defect visualization and SNR in PT of SS plates. The study indicated that TSR method gives best defect visualization while the regression based PCT and PLSR methods give superior SNR.

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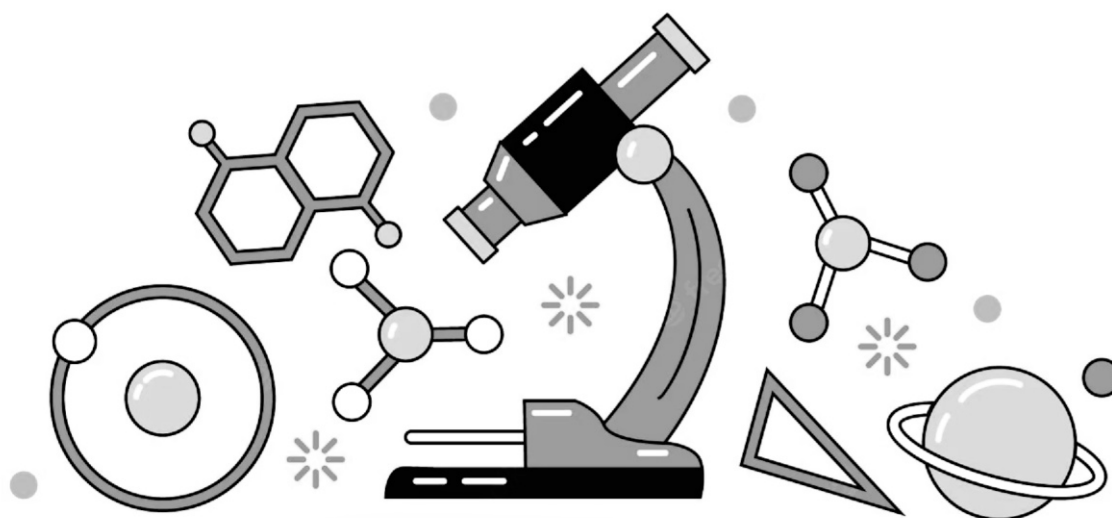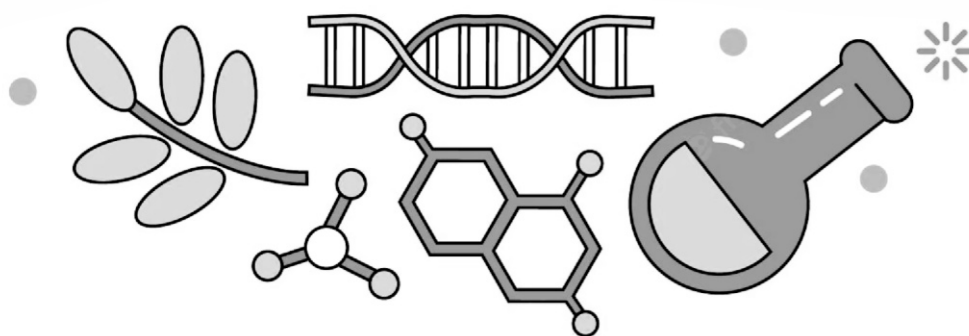
SOCIAL NETWORKING SITES IN ACADEMIC LIBRARIES

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ABSTRACT

This paper focuses on the use of internet for social networking in academic libraries. Nowadays social networking is a popular method among youngsters. The use of collaborative technologies and social networking leads to instant online community in which people communicate rapidly and conveniently. Social networking sites can be used to promote library service and resources to library users. By creating a library account on sites like Facebook, Twitter, YouTube, Instagram and LibraryThing, librarians can share update on new arrivals, upcoming events and other useful information. This helps to engage library users and keep them informed about library related news and services. Librarians can interact with users online, answer their queries and respond to their suggestions. This promotes a sense of community and builds trust between libraries and their users. Social networking sites can be collaborated with other libraries and institution to exchange ideas, share knowledge and resources.

Keywords: Social networking sites, library, social media

I. INTRODUCTION

Social networking sites are a type of online social media platform which people use to build social network or social relationship with other people who share similar personal or career content, interest, activities, background or real-life connections. Social media is a great advantage with enormous tools for libraries to cater their information to its end users. It is essential for librarians to use social media in fulfilling the needs of its user. Social media can help libraries to promote their services, resources, events, pictures etc. These social networking sites have brought the users nearer to the libraries and have helped in disseminating of information. Libraries now frequently use social media sites like twitter, Facebook and Instagram to interact with their audiences.

Graham Faise and Hartman (2009) considered Facebook to be professional tool to public library services. It can be considered as a low-cost tool for promoting library resources and services.
Mitchell Waststein (2007) claims that, "Todays reference and information literacy, librarians have a unique opportunity to step up to the multifaceted challenge of visibility in these environs".

II.   DEFINITIONS OF SOCIAL MEDIA

- Social Media are primarily internet-based tools for sharing and discussing information among human beings. - **Wikipedia**
- "A category of sites that is based on user participation and user generated content. They include social networking sites like LinkedIn, Facebook or Myspace, social bookmarking sites like Del.icio.us social news sites like Digg or Simpy and other sites that are centered on user interaction" - **Lazworld**
- Social Media is a group of Internet-based application that build on the ideological and technological foundation of web and that allows the creation and exchange of user-generated content. - **Kaplan and Haenlein**
- "Social media are work of user-created audio, text or multimedia that are published and shared in a social environment such as a blog, wiki or video hosting site" – **Capilanou**

III.   SOCIAL NETWORKING SITES

Following are some of the social networking sites which can be used for library services:

1.   Facebook

Facebook is the most popular and friendly application media for librarians and library users. Facebook is gaining importance as a tool for sharing library resources and services. Facebook can be used by libraries to advertise new services, new arrivals and other activities. Facebook can be used by librarians to interact with their user community, respond to their inquiries and share the required information, services and resources. Facebook can be used in marketing of services and products of the library. It is the most effective and easiest way of reaching the young users.

2.   Blogs

In order to fulfill the basic ethics of the library, librarians may develop proper guidelines or policy for blogging purpose. It must ensure that blog must well reflect on the objective and purpose of a particular library service to its user community. Library web blogs can be building blocks for communicating news, information, events and others services to its users. Libraries are using the blogs to share information, to get feedback from the user community for communication among the library staff as a reference service tool etc. Blogs have many implications in library services such as:

- Blog as collection development tool
- Blog as a subject guide
- Blog as a marketing tool of libraries
- Announcement of new services etc.

3.   LinkedIn

LinkedIn is known as a prominent professional site. LinkedIn can be a powerful resource for librarians, both as a tool for career development and as a resource to

assist library users. Libraries can use LinkedIn to create a profile that provides an overview of their services and highlights the library expertise. Libraries can also create or join groups on LinkedIn to connect with other libraries to share and discuss topics related to library services. The LinkedIn Learning for Libraries is an online learning platform with courses in business, software technology and creative skill, one can use it to achieve personal and professional goals.

4. Twitter

Twitter is one of the social networking sites used to send and read message known as tweets. It is an ideal platform for libraries to spread awareness about their services, resources and events. Libraries can use Twitter to share news and update about their collection, new acquisitions and upcoming programs. Libraries can use twitter to connect with their user to provide personalized services. It helps to open up with other organizations and institutions to collaborate on projects and share knowledge.

5. YouTube

YouTube is one of the effective social networking site tools for libraries. YouTube can reach the vast community by creating education and entertaining videos for library users. It is an effective tool to connect with different programs, conference, workshop, seminars, and virtual conference and upload those videos on YouTube to promote upcoming events and classes and to share digital content such as e-books and audio books.

6. Instagram

Instagram is one of the mobile friendly social media sites which attracts more usage by the young generation. Librarians can use Instagram to share photographs and study materials to all library users and research scholars who are studying in regular and distance mode.

7. LibraryThing

LibraryThing is a social cataloging web application for storing and sharing books, catalogs and various types of book metadata. It is used by authors, individuals, libraries and publishers. It is a book lover social networking site where members can share their libraries reviews and recommendations. LibraryThing also includes a public library and bookstore directory. User can easily customize and enrich their online public access catalogue after creating LibraryThing account. Librarians can use this site to send a list of current arrivals and news updated information to users. LibraryThing can also be used by libraries to create virtual collection, share bibliographies and to connect with other readers.

IV.   ADVANTAGES OF SOCIAL MEDIA
1. Social Media helps libraries in building collaborative network with the users.
2. Social Media promotes distance learning.
3. Social Media facilitates knowledge sharing with others.
4. It helps students to use library services more effectively.
5. It is a time saver for user communication.
6. Social Media creates awareness of all social issues in the world.
7. Social Media offers marketing of library services.

V.   DISADVANTAGES OF SOCIAL MEDIA:
1. Inadequate financial support for libraries.
2. Communication gap among librarians and friends.
3. Lack of adequate training opportunities for library staff.
4. Slow speed of Internet.
5. Problem of frequent power cut.
6. Lack of usage of knowledge.

VI.   SUGGESTIONS
1. To collaborate with social media, libraries should get enough funding.
2. High speed internet to be provided to work more effectively.
3. Management should provide training to library staff to upgrade their knowledge.

VII.   CONCLUSION

Social media and libraries both have become essential components of modern life. Social networking sites have great potential for academic libraries. By using social media effectively libraries can promote their services, communicate with users, collaborate with other institutions, support e-learning and create a sense of community among users. Therefore, academic libraries should make the most of social networking sites to enhance their services and engage with their users. Social media can be used by libraries to increase access and collaboration, which will ultimately improve user experience for their customer.

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