

Business Analytics and Intelligence in Digital Era



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Learn Beyond

KPR College of
Arts Science
and Research

Avinashi Road, Arasur, Coimbatore.

**Proceedings of the
International Business Analytics Conference**

On

**Business Analytics and Intelligence in Digital Era
(IBAC-2022)**

Organized by

School of Commerce

Department of B.Com (Business Analytics)

04th and 05th November, 2022

EDITORS

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Dean School of Commerce

Head of the Department
B.Com(Business Analytics)

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B.Com(Business Analytics)

PREFACE

The International Conference on “**Business Analytics and Intelligence in Digital Era**” on 4th and 5th November 2022. Organized by Department of B.Com Business Analytics, KPR College of Arts Science and Research (KPRCAS) promoted by KPR group, is an eminent institution which offers a unique learning experience and equips the young generation with the accurate skill set necessary to meet the unprecedented future challenges in the field of Commerce Specialized with Business Analytics perspectives.

ICBA’22 emphasizes to encourage and promote high quality research on “Advanced Research in Business Analytics and Intelligence in Digital Era” across the globe for Academicians, Researchers, Industrialists to present their novel research ideas and results in their domain. A notable number of research papers have been received in the disciplines of Marketing Analytics, HR Analytics, Banking Analytics, and Cybercrime Analytics, Health Care Analytics, Social Media Analytics, Sports Analytics, Web Analytics, Data Visualization, Cluster and Sentimental Analytics and many more relevant fields

The conference has received more than 100 research papers and the programme was chaired by session chairmen of different Universities in an efficient way. The best and high quality papers will be published in reputed UGC-Care journals. We are deeply indebted to all the session chairs for their magnificent contribution. We sincerely thank the participants for their

research contributions to the conference and to the conference proceedings. We are deeply indebted to all the members of the Advisory Committee, Technical Committee, Session Organizers, Session Chairs and Student Volunteers for their support to make this ICBA’22 highly successful. Their efforts have made a great contribution to the success of the International Conference. This success will reflect in the future endeavor taken by us for the upliftment of our School of Commerce as well as Department of B.Com (Business Analytics).



MESSAGE FROM CHAIRMAN

KPRCAS was established in 2019 to create industry ready Business Analytics, accounting professionals, managers and software professionals to tap the leading companies in various fields. It is an industry driven Institution which provides quality education to cater the needs of the industry and make the students to reach the next heights in their career. My heart overflows with great joy of happiness to witness that B.Com Business Analytics Conducts the International Conference on “**Business Analytics and Intelligence in Digital Era**” on 4th and 5th November 2022.

This would be a great inspiration to the academicians and student community to share their views in banking and financial sectors. This conference provides a wider arena to the global participants to exhibit their research knowledge on the conference theme.

I extend my sincere congratulations to the Principal, Organizing Committee, faculty members and students for their enormous effort in making this conference a global success.

Dr.K.P.Ramasamy
Chairman, KPR Group.



MESSAGE FROM PRINCIPAL

KPRCAS was established in 2019 with a vision of creating proficient students by molding them to be responsible citizens to the society. I appreciate all the delegates and participants of the International Conference on “**Business Analytics and Intelligence in Digital Era**” (ICBA-2022) organized by B.Com Business Analytics on 4th and 5th November 2022. This conference depicts a global vision on the Business Analytics and Intelligence in the Perspective of Digital Era, which will add values in the mind of the participants and delegates.

I appreciate that all the eminent dignitaries from different sectors will be sharing a better understanding of insights to the targeted participants. My hearty congratulations to the organizing team who have taken best efforts to organize this conference in an exceptional manner by adding a different flavor to KPRCAS.

I hope that this conference will act as a medium to all of us to ponder upon the topics of discussion and challenges to strive towards our goal and inspire us at the same time.

Let us look forward to add more flavor to the future academic endeavors. Thank you!

Dr. S. Balusamy
Principal



MESSAGE FROM ADVISOR

I am extremely happy that the School of Commerce, Department of Commerce(Business Analytics)is organizing InternationalConferenceon“**Business Analytics and Intelligence in Digital Era**” on 4th and 5th November 2022.

The conferencecovers a wide range of currenttopics in the perspective of Business Analytics and Digital Intelligence, speakers fromreputedUniversitiesandInstitutionsbothinIndiaandAbroadareparticipating. Thiswillprovideagoodplatform for the Academia and Industry experts around the globe to network and share theirideas in addition to being a very good opportunity for our students to listen and interact witheminentdomain experts.

I wish this conference get a great success.

Dr.S.Ramachandran
Secretary & Advisor.



MESSAGE FROM DEAN

I Heartily Congratulate the Department of B.Com Business Analytics for Conducting the International Conference on **“Business Analytics and Intelligence in Digital Era”** this conference provides a Platform for the Researchers, Students, Academicians, and Business Entrepreneurs to look forward in the perspective of current scenario of Business Analytics and Digital Intelligence.

I welcome all the National and International Delegates and participants on the Behalf of Entire School of Commerce. I thankful to the Entire KPRCAS team for the support and successful completion of the Conference.

My best wishes for the Successful Completion of the International Conference “IBAC-2022”.

Convenor
Dr. K. Kumuthadevi
Dean School of Commerce



MESSAGE FROM HEAD B.COM.BA

On behalf of the Organizing Committee, it is our pride and privilege to invite you for the International Conference on “**Business Analytics and Intelligence in Digital Era**” on 4th and 5th November 2022.

All the faculty members of our department, Heads from various departments of School of Commerce await to welcome the delegates from various universities, colleges globally.

Improving quality in research is the prime motto of this conference. This kind of conference will definitely create a forum for academicians, researchers and young minds to discuss the advancements in the various fields of Business Analytics and Digital Intelligence in current Perspective. Amidst the power-packed technical sessions, the organizing committee is blessed to host a conference conducive to a plethora of knowledge sharing through key note addresses of eminent personalities at global level. We hope that this conference will be an optimistic contribution towards building the younger generation in an efficient manner.

Organizing Secretary
Dr. G. Vengatesan
Head, B.Com (Business Analytics)



**KPR College of
Arts Science
and Research**

Avinashi Road, Arasur, Coimbatore.

**1st International
Business Analytics
Conference (IBAC)**

on

**Business Analytics
and
Intelligence in Digital Era**

**International
Conference**

4th and 5th November 2022

School of Commerce
Department of B. Com
(Business Analytics)

The Keynote Speakers
Chairperson and Co-Chairperson
will be invited from
Singapore, Malaysia and UK.



About the College

KPR College of Arts Science and Research (KPRCAS) is affiliated to Bharathiar University, Coimbatore. It had its inception in the year 2019. The prime vision is to educate the young minds of the nation and to mould and craft them as global icons. The Institution is promoted by KPR Group, a group which is renowned business bacon in Indian Textile, Wind Energy and Sugar Industry.

The Institution offers 12 UG Programs in the domain of Commerce, Management and Computer Science. It aims to provide quality education to cater the global needs of the industry. The innovative academic programs offered by the college facilitate the aspirants to evolve themselves as a responsible citizen who can acclimatize to the trends and modernisms of any industry across the world. The vibrant clubs namely Entrepreneurship club, Ethics club and Research Clubs are initiated to equip the student's life skills and knowledge needed to take up various leadership positions in developing the society. KPRCAS accentuates the students to be academically dazzling by offering inimitable opportunities to excel and visage the challenges in the real corporate world. Various community societies such as NCC & NSS are accessible to facilitate students.

About the School

The School of Commerce commenced its operation in the year 2019 with two Under Graduate Programs and then extended its wings to seven as department of Commerce, Commerce with Computer Applications, Commerce with Professional Accounting, Commerce with Banking & Insurance, Commerce with Business Analytics, Commerce with E-Commerce and Commerce with Information Technology, with richly qualified and experienced faculty members and well-disciplined student fraternity. The core objective of the school is to provide an ICT based curriculum to fall in line with the industrial demand. The school evolves to maintain academic excellence and equip students with the skills to face the challenges in a competitive world at global scenario. There is a blend of theoretical and practical exposure to the students to showcase their talents through Conferences, Seminars, Workshop and Hands on activity. The School of Commerce focuses on research activities to nurture social responsibility among faculties and students with commitment and integrity towards nation building.

About the Department

Department of B. Com (Business Analytics) enables the students to understand the importance of Big Data analytics in today's Business environment. The course imparts knowledge to analyze the data using statistical, mathematical and data mining techniques also, motivates the students to solve the complex problems under uncertainties using advanced analytical tools and equip them to handle the data with the business analytical tools. The department hopes to be a vibrant and innovative Centre for education, inculcate values, identify hidden talents provide opportunities for students to realize their full potential and thus shaping them for global employment, professional excellence, entrepreneurial business ventures and above all a responsible citizen of India.

Vision

- Produce digitally updated, vale based, academically proficient and knowledgeable generations of students.
- Evolve into global center of excellence in commerce education with business analytics.

Mission

- Provide Commerce education supplemented with computer skills to meet the global business challenges
- Establish intense industrial interaction, promote innovation and entrepreneurship skills.
- Produce young corporate leaders with global outlook.
- Inculcate business values and ethics among students.
- Create a brand through extension activities.

Introduction to the Conference

It's our honor to announce our first International Business Analytics Conference being organised by Department of B. Com (Business Analytics). The conference theme for this engaging academic conference is 'Business Analytics and Intelligence in digital era'. The conference will be held on 04th November 2022 at College Campus.

The aim of this Business Analytics and Intelligence Conference is to create a platform and facilitate knowledge sharing on advanced data analysis, business analytics, big data and business intelligence for distinguished academicians, practitioners and researchers from academia and industry.

The conference will also become a venue to review insights on business applications using analytical tools. We invite papers from academicians and practitioners on the listed conference topics and related areas. Applications, case studies, review and discussion papers on these topics and related areas are also welcome.

Papers are invited in the following and related fields of Business Analytics and Intelligence:

- Marketing Analytics
- HR Analytics
- Banking & Finance Analytics
- Descriptive Analytics
- Cybercrime Analytics
- Health Care Analytics
- Predictive Analytics
- Social Media Analytics
- Sports Analytics
- Web Analytics
- Data Visualization
- Data Processing
- Cluster Techniques
- Sentimental Analysis
- & Other related topics



Chief Patron
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Guidelines for Abstract Submission

- Only original and previously unpublished work will be considered. Any submission that is identical to or substantially similar to work already published, under review for another conference or publication will not be considered.
- Authors must send extended abstract of around 250 to 500 words which should clearly indicate the following: Title Purpose of the study Research Objective Research Methodology / approach Findings & Implications.
- Extended abstract should be in word document format, Times New Roman, 12-point font size with single line spacing, 1 inch margins and APA style of referencing the citations
- Please note that the Institute has a strict anti-plagiarism policy so originality of the work should be ensured by the authors
- By submitting an extended abstract, the author(s) makes a good faith commitment to present his/her paper at the conference, Submission should include information about all co-authors including full name, affiliation, and contact email (Maximum of 3 Authors)
- Each author has to make individual registration for the conference.
- All abstracts will be peer reviewed, selected papers will be published as Conference Proceedings with ISBN number.
- Full papers of the best titles will be selected to be published, subject to a peer review in UGC Carelist Journal - Additional Fees need to be paid for the selected papers for Publications.
- Selected paper(s) shall receive the Best Paper Award nominated by the jury after carefully scrutinizing all aspects of the paper
- Kindly submit your abstracts at ibac@kprcas.ac.in

Best Paper Award

The selected papers shall receive Best Paper Award after proper review and scrutiny by the Peer Committee members.

Mode of Registration

Registration can be made by way of sending the Demand Draft drawn in favor of "The Principal, KPR College of Arts Science and Research, Coimbatore, payable at Coimbatore" along with the Registration form. Photocopies of the registration form can be used.

Spot Registration is also accepted.

No TA & DA will be provided

All your correspondence regarding paper submission must be sent to:

E - Mail ID : ibac@kprcas.ac.in

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SOCIAL MEDIA ANALYTICS

Ms. R. Raga Priya¹, Mr. Devanarayanan, M. S², Mr. Akash M³ & Keerthika B⁴

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KPR College of Arts Science and Research, Coimbatore

ABSTRACT

Social media analytics is the process of gathering and analyzing data from the social networks such as WhatsApp, Facebook, Instagram, LinkedIn and Twitter. It is changing how organizations are using it to connect to their key stake-holders. Social media analytics is an essential function of marketing that helps marketers track, measure and analyze the performance of their social campaigns. To keeps track of market trends and competitors and to support critical business decision making. The effects from the social media are very complex and vary from person to person. As experiments with various social media engagement strategies or performed social media network maps can track the impact on the structure of social media spaces.

KEY WORDS: - Social network, Digital marketing, Social media apps, Social networking sites, Google analytics, Online marketing.

INTRODUCTION

Social media analytics is the process of gathering and analyzing data from social networks such as Facebook, Instagram, LinkedIn and Twitter. It is commonly used by marketers to track online conversations about products and companies. One author defined it as "the art and science of extracting valuable hidden insights from vast amounts of semi-structured and unstructured social media data to enable informed and insightful decision making. There are three main steps in analyzing social media: data identification, data analysis, and information interpretation. To maximize the value derived at every point during the process, analysts may define a question to be answered. The important questions for data analysis are: "Who? What? Where? When? Why? And How?" These questions help in determining the proper data sources to evaluate, which can affect the type of analysis that can be performed

LITERATURE REVIEW

Decision Support Systems, 2014 - Elsevier there has been an explosive growth of consumer-contributed comments at social media and electronic commerce Web sites. Applying state-of-the-art social analytics methodology to analyze the sentiments embedded in these consumer comments facilitates both firms' product design strategies and individual consumers' comparison shopping. However, existing social analytics methods often adopt coarse-grained and context-free sentiment analysis approaches. Consequently, these methods may not be effective enough to support firms and consumers' demands of fine-grained extraction of market intelligence from social media. Guided by the design science research methodology, the main contribution of our research is the design of a novel social analytics methodology that can leverage the sheer volume of consumer reviews archived at social media sites to perform a fine-grained extraction of market intelligence.

Business & Information ..., 2014 - Springer In this contribution, introduce "social media analytics" (SMA) as an emerging interdisciplinary research field that, in our view, will have a significant impact on social media-related future research from across different academic disciplines. Despite a number of challenges, we argue that SMA can provide other disciplines – including IS – with methodological foundations for research that focuses on social media. Furthermore, we believe that SMA can help IS research to develop decision-making or decision-aiding frameworks by tackling the issue of social media-related performance measurement, which has been challenging until now. Moreover, SMA can provide architectural designs and solution frameworks for new social media-based applications and information systems.

BENEFITS OF SOCIAL MEDIA ANALYTICS

Social media analytics gives companies insights about their brand and also about what the competitors are doing. It gives companies a better understanding of the problems customers have with their products and services, how their customers use their products and the overall perception of the company. This helps businesses to understand their pros and cons and take corrective action accordingly. When the customers feel that a brand genuinely cares about what they think, it eventually leads to an increase in goodwill and gives companies a competitive advantage over others. Applying analytics for designing, controlling the process and

optimizing business operations in the production of goods or services ensures efficiency and effectiveness to fulfil customer expectations and achieve operational excellence. The benefits are

1. Proactivity & Anticipating Needs:

Organizations are increasingly under competitive pressure to not only acquire customers but also understand their customers' needs to be able to optimize customer experience and develop longstanding relationships. By sharing their data and allowing relaxed privacy in its use, customers expect companies to know them, form relevant interactions, and provide a seamless experience across all touch points. Thus, companies need to capture and reconcile multiple customer identifiers such as cell phone, email and address, to one single customer ID. Customers are increasingly using multiple channels in their interactions with companies, hence both traditional and digital data sources must be brought together to understand customers' behaviors. Additionally, customers expect and companies need to deliver contextually relevant, real-time experiences.

2. Mitigating Risk & Fraud:

Security and fraud analytics aims to protect all physical, financial and intellectual assets from misuse by internal and external threats. Efficient data and analytics capabilities will deliver optimum levels of fraud prevention and overall organizational security: deterrence requires mechanisms that allow companies to quickly detect potentially fraudulent activity and anticipate future activity, as well as identifying and tracking perpetrators. Use of statistical, network, path, and big data methodologies for predictive fraud propensity models leading to alerts will ensure timely responses triggered by real-time threat detection processes and automated alerts and mitigation. Data management alongside efficient and transparent reporting of fraud incidents will result in improved fraud risk management processes. Furthermore, integration and correlation of data across the enterprise can offer for a unified view of the fraud across various lines of business, products, and transactions. Multi-genre analytics and data foundation provide more accurate fraud trend analyses, forecasts, and anticipation of potential future modus operandi and identification of vulnerabilities in fraud audits and investigations.

3. Delivering Relevant Products:

Products are the life-blood of any organization and often the largest investment companies make. The product management team's role is to recognize trends that drive strategic roadmap for innovation, new features, and services. Effective data collation from 3rd party sources where individuals publicizes their thoughts and opinions, combined with analytics will help companies stay competitive when demand changes or new technology is developed as well as facilitate anticipation of what the market demands to provide the product before it is requested.

4. Personalization & Service:

Companies are still struggling with structured data, and need to be extremely responsive to cope with the volatility created by customers engaging via digital technologies today. Being able to react in real time and make the customer feel personally valued is only possible through advanced analytics. Big data offers the opportunity for interactions to be based on the personality of the customer, by understanding their attitudes and considering factors such as real-time location to help deliver personalization in a multi-channel service environment.

5. Optimizing & Improving the Customer Experience

Poor management of operations can and will lead to a myriad of costly issues, including a significant risk of damaging the customer experience, and ultimately brand loyalty. Applying analytics for designing, controlling the process and optimizing business operations in the production of goods or services ensures efficiency and effectiveness to fulfil customer expectations and achieve operational excellence. Advanced analytical techniques can be deployed to improve field operations productivity and efficiency as well as optimize an organizational workforce according to business needs and customer demand. Optimum utilization of data and analytics will also ensure that continuous improvements are instigated on an on-going basis as a result of end-to-end view and measurement of key operational metrics. For example, many organizations, inventory is the largest item in the current assets category - too much or not enough inventory can directly affect a company's direct costs and profitability. Data and analytics can support inventory management by providing uninterrupted production, sales, and/or customer-service levels at minimum cost. The use of data and analytics can provide transparency into current and planned inventory positions as well as deliver insight into drivers of height, composition and location of stock and aid the determination of inventory strategy and decision making. Customers expect a relevant, seamless experience and for companies to know them wherever they engage.

SOCIAL MEDIA ANALYTICS LIFECYCLE

Social media has a definite life cycle. That life cycle has several critical elements and one feeds off of the other. It goes around and when the life cycle has reached its end, it starts all over again. Your responsibility is to understand how it works and to maintain the momentum indefinitely. From everything you have read and

everything you have experienced, social media works because it involves human beings who interact with each other and each person reacts in some way on an emotional/human level. Additionally, the goal is to compel your target audience members to take the content that you are sharing with them and share it with other people whom they know and trust. Interestingly, you are the only person who holds *no credibility* when it comes to singing the praises of your content. If you talk about how wonderful and valuable your content is, it means nothing. On the other hand, if someone else (anyone else) does the same thing, you can get a great deal of mileage from it. Social media marketing starts with relevant content creation and interaction. It ends with affection and transaction.



Source: www.socialmediacenter.com

CONCLUSION

Social media has taken its position into the real world and has interfered with the lives of many. As users log on to their social media profiles, they are being removed away from the real world and placed into the virtual dimension. Social media has a significantly detrimental effect on the emotional well-being of chronic users and their lives, negatively impacting their real-life relationships and academic achievement. Social media can be a powerful tool for any organization. It can increase your visibility, enhance relationships, establish two-way communication with customers, provide a forum for feedback, and improve the awareness and reputation of the organization. For these reasons, social media websites have become an important platform for organizations.

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A PERSPECTIVE STUDY OF FINANCIAL ANALYTICS IN ACCOUNTING

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ABSTRACT

Finance analytics can be used to comprehend a company's financial performance. Financial analytic programmes use a lot of accounting and finance data, frequently based on prior enterprise financial transactions, to uncover and understand trends. Numerous data analytics ideas are now being used to improve accounting operations as a result of the fusion of accounting and data science. Accounting professionals use data science approaches in a variety of ways, including to track and improve accounting and financial procedures, estimate the risk involved in strategic choices, and foresee and satisfy client needs.

INTRODUCTION

Finance analytics can be used to comprehend a company's financial performance. Financial analytic programmes use a lot of accounting and finance data, frequently based on prior enterprise financial transactions, to uncover and understand trends. These patterns can be used by organisations to forecast performance, improve corporate efficiency, and guide decision-making. Finance analytics often have a strong computer modelling foundation and are frequently integrated with statistical analysis, forecasting, and modelling. Finance analytics can be used to comprehend a company's financial performance. Financial analytic tools absorb substantial amounts of accounting and finance data, frequently based on prior enterprise financial transactions, in order to identify and understand trends. These trends can be used by organisations to foresee and improve corporate decision-making as well as to influence performance. Financial analytics frequently combine statistical analysis. The discipline of financial analytics offers both high- and granular-level insights of a company's financial data, assisting in enhancing its operational performance. Predictive, data-driven insights support your team throughout the entire process by comprehending and analysing previous performances, forecasting future performance strategies, and outlining actions to take to create wiser, more assured decisions.

PURPOSE OF THE STUDY

- To be able to prepare for the constantly changing demands of the market, every company need careful financial planning and future forecasting.
- For visibility and usefulness, it's crucial to consolidate all of your important financial data in one location.
- Financial analytics provides in-depth perceptions into your financial situation that raise financial visibility, profitability, and shareholder value.

RESEARCH OBJECTIVES

1. To study the changing roles of Finance department

2. To study the advancement in Business process.

KEY FACTORS IN FINANCIAL DATA ANALYTICS

Cash flow: Instantaneous indicators that show you how much money is coming in and going out each day as well as how much you need to keep your company operating efficiently.

Customer profitability: Information that confirms you have adequate sales from customers by segmenting your customer base and evaluating the total value of each client.

Predictive sales: These analytics determine whether your sales forecast will be successful and suggest solutions to make future projections even more accurate.

Product profitability: Information that identifies profitable products while ensuring that expenses are appropriated across diverse goods that may share manufacturing methods or cost structures.

Value for shareholders: Once your company is big enough to have shareholders, you'll want to make sure they always get a profit. These analytics determine a company's value by factoring in the dividends you'll give shareholders.

Value driver: By monitoring these important metrics, you can make sure your company is on course to achieve all of your short- and long-term objectives.

ROLES OF A FINANCIAL ANALYST:

A financial analyst, generally speaking, uses financial data to assist businesses in decision-making. Even though a financial analyst's precise duties can vary, they frequently carry out the following duties:

- Create financial models to carry out financial predictions, forecast business scenarios, and give additional data analysis to aid in business decision-making.
- For perspective while making business decisions, research economic and commercial trends.
- Encourage organisations' use of budgets
- Compile written reports on the financial conditions and suggestions

ADVANCEMENT IN BUSINESS PROCESS

Accounting and finance professionals now have more opportunities to provide their business clients with higher-quality services in three areas because to developments in data analytics

- More comprehensive and in-depth understanding of the company's finances and other operations
- More precise forecasts of market and industry trends in the future
- Automating repetitive operations will increase accounting accuracy and cut costs.

Data Analytics in Accounting:

Uses advanced techniques to help firms capitalize on the massive amounts of data they collect. The goal is to create value and growth by leveraging three emerging technologies:

- Cloud storage capacity and computing power have both greatly increased. Because scalable processing and storage provided by services like Amazon Web Services expands dynamically to meet demand, datasets can be enormous and complicated.
- There are numerous data sources available, including social media sites, mobile apps, open government data sources, internet service providers, and sensors and other embedded devices.

- Today, there is an open-source software-based digital infrastructure. Open networks make it simple for domain professionals who are experts in particular industries, such as accounting and finance, to communicate with data specialists who have skill in utilising data.

Shift in accounting and finance sectors :

New technologies are redefining the accounting and finance industries. 90% of respondents agreed that there had been a cultural change in accountancy, according to a 2019 Sage international study of accountants. Changes in employment procedures, business services, and the industry's stance on analytics, artificial intelligence, and other cutting-edge technology are all readily apparent.

This change seizes the chance to broaden the selection of services that accountants and other financial experts provide to their clients while also raising the calibre of the services they already provide. Numerous accounting and financial areas will be impacted by the changes:

The qualifications and education needed for careers in accounting and finance

Adoption of technology and its integration with current practises and procedures

Greater consumer expectations about the type and quality of services offered

Accounting and big data:

Big data in accounting aims to gather, arrange, and use data from a variety of sources to produce new business insights instantly. For instance, accountants and financial analysts have access to up-to-the-minute information from any location with a network connection, rather than relying on monthly financial reports for their assessments.

Now, in addition to email and text files, social media posts, website content, information acquired from mobile devices, and unstructured data such as audio, video, and photos, they may also integrate these types of data in their analysis. Analysts were previously only able to analyse data that could be transformed to a structured format, typically a spreadsheet or relational database.

- Data analysis is enhanced by using visualization software that offers accountants and their clients unique views of the data that supports their decisions.
- Auditors are now able to process larger amounts of accounting data in a variety of formats simultaneously, which means their work is done more quickly and is more accurate.
- Big data improves risk analysis by providing accountants with access to more timely data. Advanced analytics tools allow them to process the data quickly.

Improved grouping, connection, and categorization of accounting data. To find commonalities in huge data repositories, data mining systems employ three basic techniques:

- Each object in a dataset is classified, also known as categorise, into a certaincategory, class, or group based on shared traits and characteristics.
- Based on recognisable patterns, clustering automatically builds a meaningful or practical grouping of data elements.
- By examining the connections between the items in a single transaction, association can reveal trends in the data, such as the things that customers typically buy together.

CONCLUSION

By providing accountants and their clients with distinctive views of the data that underpins their judgments, visualisation software improves data analysis. In order to complete their task more quickly and accurately, auditors are now able to process higher volumes of accounting data simultaneously in a number of forms. By giving accountants access to more recent data, big data enhances risk assessments. They can quickly process the data with the help of advanced analytics technologies.

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DATA ANALYTICS IN SUPPLY CHAIN MANAGEMENT

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ABSTRACT

The volume of data being produced and shared online is rapidly expanding, which poses challenges for organizations expecting to benefit from the analysis of this massive influx of big data. These statistics are so clear and accurate that they can be used in decision making. Big data provides special insights into a variety of topics, including market trends, client purchasing trends, maintenance schedules, and strategies to save costs. Based on the type of analytics (descriptive, predictive and prescriptive) and the LSCM (Logistics and Supply chain Management) focus on the use of Big Data Business analytics (BDBA) on LSCM, which further refer to as Supply Chain Analytics (SCA) (strategy and operations). Functional, Process-based, Collaborative, Agile and Sustainable SCA are few examples of capacity levels that can be evaluated. Along with the role of SCA in LSCM, the employment of ways and tactics to collect, disseminate, evaluate and use big data driven information is underlined. The research further stress that in order to allow integrated enterprise business analytics, managers must understand BDBA and SCA as strategic assets that should be integrated across company processes. The limits of the research are then explored along with recommended directions for further research.

KEYWORDS: Big Data Analytics, Supply Chain Management, Benefits of big data analytics in SCM, Supply Chain Analytics.

INTRODUCTION

Data Analytics

To create a good visual interpretation, the data analytics is used. For this purpose, a lot of data were collected and analysed. These types of discoveries overlap the data collected. Through the visual interpretation, the data which is gathered is found to be lost in sea of knowledge. But through the essence of data analytics, the companies can retrieve the data from the enormous volume of data. As a result, visualization is an important tool for data analytics. To make analytics very effective, automation tools that spit out visual information are used. Visualization can facilitate businesses decision making by providing relevant and reliable reports.

Supply Chain Management

The End-to-End Supply chain begins with product design and can continue all the way to product return. Nature of business determines the nature of work. It would be preferable to divide into the primary elements of supply chain management in order to comprehend where the supply chain stops. The main components of end-to-end supply chain management are demand /supply planning, procurement, sourcing, purchasing, manufacturing, warehousing, transportation, after sales service, reverse logistics.

Data Analytics and Supply Chain Management

A business's supply chains frequently produce enormous amounts of data. Supply chain analytics reveals patterns and generates insights that might otherwise go missed, helping to make sense of all this data. The ability to manage all data becomes incredibly crucial and

more global supply chain that necessitates rigorous data analysis for a number of reasons. Using supply chain analytics for instance can assist a company in better planning for the future by examining historical trends, etc. For Example, Production can be increased if the forecast calls for good weather because ice cream sales rise when its sunny.

Objectives

- To determine how data analytics and supply chain management indulge in the Manufacturing and Consumer goods sectors.
- To evaluate the benefits of data analytics and the strategies utilized in Supply Chain Management.
- Elaborating the stages involved to extract information to data analytics.

Role of Big Data Analytics in SCM

In the today's globalized world and with growth of information technology, operating system requires a lot of data. Leveraging big data in SCM regulates the flow of money, information and items in the supply chain. The main goal of data analytics guarantees clients high levels of product availability and service at the most affordable cost. Supply chain managers may keep an eye of these flows via data analytics and they can use the results to perform better at work.

Supply Chain big data in manufacturing:

The fourth industrial revolution in the manufacturing is driven by data. There are many useful cases as well, such as obtaining telemetry data for proactive equipment maintenance, gathering contextual intelligence to remove bottlenecks for high throughput and forecasting demand. Most of the manufacturers increased visibility into everyday operations and improved the effectiveness of its business model by integrating data from many sources including ERP, CRM, cloud and salesforce. In order to make the impact more noticeable throughout the entire chain the company went one step further and shared reports with suppliers.

Supply Chain Big Data in consumer goods:

Big data analytics provides answers to queries whether strategies, including marketing expenditure are generating the promised return or whether a new product feature would improve the customer experience for Consumer Packed Goods (CPG) companies.

For Example, in order to insight on their client experience, Sounds United LLC - a company that specializes in creating audio / video products and service, leveraged IOT data from its products IP and MAC address as well as app data. With the help of these revelations, Sound United was able to understand user preferences and create new features in line with them. Additionally, the company was better able to predict demand because it knew how much inventory its retail partners were holding versus selling.

BIG DATA ANALYTICS TECHNIQUES IN SUPPLY CHAIN MANAGEMENT

Despite the fact that consumer insight has seen the most growth in the field of data analytics, analytics has various applications throughout the whole supply chain. Large-scale data has been discovered to be contaminated, as the capture and transportation cost each entry are being driven to be as low as possible. Any of the data sources constantly produce data in real time, therefore analytics are frequently required. Applications of cutting-edge analytical methods to supply chain management have been described using Descriptive, predictive, and prescriptive analytics which is mostly used to categorise

supply chain data analysis. The primary functions of the big data technologies available for supply chain analytics include data exploration, data integration, statistical analysis, appropriate visualisation techniques, and comprehension of the data warehouse system.

A. Descriptive Analytics:

Descriptive analytics (DA) is mostly used to examine "what is happening" right now in order to provide an explanation for "what happened" in the past. 90% of firms use this method at the first level of analytics to improve the future. DA locates the old data and examines the pattern. The primary goal of descriptive analytics is to pinpoint issues and opportunities in the SCM space inside the current processes and functions. To identify the areas, descriptive analytics use methods including data modelling, regression analysis, visualisation, and OLAP (online analytical processing) operations like drill down, up, and across. Shipments, products, logistics, clients, suppliers, and other parameters like rates and cost may all be included in supply chain OLAP processes. Descriptive analytics applications give managers access to real-time information about the quantity of commodities and their locations in the supply chain.

B. Predictive Analytics:

Predictive analytics (PA) estimates the past and future degrees of business process integration among functions or firms, as well as the associated costs and service levels, by analysing historical and real-time data.

Projecting what will happen in the future and why it might happen is the goal of predictive analytics. Algorithms and techniques used in PA include

1. Time series methods and Advanced forecasting. (In SCM, these techniques are used to forecast sales)
2. Statistical algorithms like Bayes networks, k-NN, Naive Bayes (NB), and discriminant analysis (BN).
3. The hierarchical sequential structure is used by decision trees, CART, and random forests.
4. Algorithms for clustering data sets' homogeneous components.
5. Common mining algorithms for patterns

Based on the planning process for network design, production planning, inventory management, and capacity planning, predictive analytics is primarily focused on forecasting at the strategic, strategy, and operational levels. To forecast the patterns in data, predictive analytics uses mathematical algorithms and programming.

C. Prescriptive Analysis:

Whereas DA and PA concentrate on what will happen when, Prescriptive Analytics looks ahead. "Why it occurred," It continuously gathers data to re-predict occurrences, allowing decision-makers to boost prediction accuracy and make better decisions. Prescriptive analytics identifies the causes of specific events. It primarily has simulation and optimization as associations. Prescriptive analytics seeks to enhance corporate performance.

Under this analytics, three classes of algorithms are used.

1. Decision trees
2. Fuzzy Rule-Based System
3. Switching Neural Networks (Logic Learning Machine)

To provide decision support tools that are based on descriptive and predictive methodologies, prescriptive analytics is concentrated on the optimization of mathematical and simulation techniques. In order to deliver the decision support tools that have been

developed, prescriptive analytics is concentrated on the optimization of mathematical and simulation methodologies on techniques for description and prediction.

Benefits of Data Analytics in Supply Chain Management

When making decisions to alter the routing of port operations, managers can do so by using data analytics to support their choices. The following are some important benefits of data analytics in supply chain management.

1. Reduce cost and improve process:

With analytics in supply chain management, we can obtain most crucial data at a lesser cost with analytics. This makes operational efficiency and strategic planning easier which enhances corporate procedures.

2. Risk prevention:

Supply chain analytics can help you to analyze the risk and forecast the future problems. This results in more effectively resolving issues and preventing from the problems.

3. Increase precision of planning:

The ability to forecast demand is facilitated by in depth customer data analysis. In order to recognize for your business. In order to recognize less lucrative product and comprehend the wants of the customer following the initial order.

Main Stages of data analytics in Supply Chain Management

The preparation of data and use of technologies for dashboard organization are both part of the supply chain analytics process. The key phases of the procedure are as follows:

1. Data Collection:

This is the foundation of supply chain analytics and it can be done in variety of ways. The business must be aware of many sorts of data it holds and employ the proper tools to manage them.

2. Data Processing:

At this stage supply chain managers keep the data's quality high by filtering and cleaning it all so that it supports the company plan for developing a logical flow.

3. Data Analysis:

Using software, a set of data is separated at this stage so that the analyst may get the appropriate conclusions.

4. Data Interpretation:

This step involves reviewing the data gathered in order to reach a conclusion. The information from the supply chain analysis is interpreted and comprehended what was discovered and then it is transformed into reports and graphs.

BIG DATA FOR THE SUPPLY CHAIN: CASE STUDIES

Capgemini using Big Data in Supply Chain Management:

Capgemini is a global leader in consulting, technology and outsourcing service across more than 40 nations. More than 1,90,000 people employed in Capgemini. The company has growth through acquisitions. Most recently, Capgemini has grown by purchasing business including IGATE, Fahrenheit 212, Tcube and Idean.

Capgemini invested in data integration service that consolidated 40 apps around as part of endeavor. For instance, salesforce was used to consolidated all CRM applications. Integration from beginning to finish of programs that handle HR tasks, including recruiter

and resume analysis through recruitment and user creation and transferring the data into payroll systems.

IBM uses weather data to inform bakery supply:

With the use of **PREDICTIVE ANALYTICS SYSTEM** that makes use of metrological data, IBM has made it simpler for bakers to meet changing consumer demand. Since temperature can have a significant impact on the types of food we tend to desire. Supply chains may be better protected if this data is used to predict demand. The AI- powered process is controlled by bakeries, estimations for ingredient and material requirements are sent to them. As a result these companies waste less food and give their customer their savings.

FINDINGS

- It reduces the risk of infrastructure investment and contracted external capacities. It enables in monitoring the performance as well as improving planning and managing information.
- It creates market intelligence for small and medium size enterprises.
- Getting back a real time capacity availability and providing a quicker response and vendor managed inventory

CONCLUSION

The idea of big data and big data analytics in supply chain are reviewed in this paper. Big Data's size is thought to be the primary driver behind Supply Chain adoption. Important insights into the potential of Big Data Analytics were gained after examining the sources of Big Data generation in Supply Chain processes and activities. Combining the intricate information from supply chain activities with the size of Big Data Practical applications for data in terms of volume, variety, speed, veracity, and value exist even in recent years, the supply chain has suffered the most common difficulties. It was discovered that analytics, a relatively new concept, was causing infrastructure development to accelerate. Data volume must increase. It was discovered that the lack of specialists with the necessary skill sets can supply chain's use of big data analytics. As global supply chain networks become more sophisticated It was discovered that analytics, a relatively new concept, was causing infrastructure development to accelerate.

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CUSTOMER LOYALTY PROGRAMME – AN INSIGHT

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ABSTRACT

Marketing as a process originated and developed along with the industrial revolution. In the buyer's market, every seller is bound to adopt different strategies to attract and to retain the customers. The strategies employed differ based on the product / services, place of sales and behaviour of the consumer. In the current situation every business houses are compelled to analyse their data to find out the hidden facts about their product / services or strategies that they have adapted to meet the ends of their customers. If they fail to change in tune with the mindset of their customer and with the competitive environment, they will be thrown away by their competitors. To sustain or to improve their market share, the business community have to depend on business analytics. In this backdrop, the present study has made an attempt to find out the level of awareness, to locate the extent of patronage and to point out the determinants that are associated with various consumer loyalty programme among the college girls. Data required for the study have been pooled from respondents through well structured questionnaire by adopting convenient sampling method. Simple percentage, weighted average and chi-square test have been administered to analyse the data. The study identified the level of awareness, extent of patronage and the determinants that are associated with consumer loyalty programme. Due to impact of digital era and the density of the competition, the trading community forced to get the assistance from the business analytics to expand their marketing potentials.

KEYWORDS: Consumer loyalty programme, Extent of patronage, Business analytics

INTRODUCTION

The problem of marketing of goods and services starts from the time, when the process of marketing enters into the era of buyer's market. During the industrial revolution, the public bound to buy the goods and services which are sold out by the trading community, without raising any questions. But in the buyer's market, they have the chance to buy a variety of goods, based on fashion, quality and price. This scenario compels every trading partners to redesign their marketing methodology to maintain their level of profit and number of customers. In this context every seller is making sincere effort to develop a variety of customer loyalty programmes to meet the different segment of consumers. The origin of loyalty research within the marketing field were first discussed in the 1920, thanks to (Cope land, 1923). The loyalty programme is defined by the American Marketing Association (2016) as, "Continuity incentive programmes offered by a retailer to reward customers and encourage repeat business". The primary motive behind a loyalty programme is rewarding customers for their repeat purchase behaviour, encouraging, maintaining and subsequently enhancing the level of loyalty by providing the customers with targets at which various benefits can be earned by them. By implementing effective reward programme marketers retain their old customers i.e., earned their loyalty. In addition, it can attract new customers some of whom will become loyalist in the long run (O'Malley, 1998). This present trend compels every sellers to keep their finger on the pulse of consumer interest in product and services related to their business can also help them to respond quickly to change in consumer behaviour trends and capture new demand.

Jeevananda, (2011) in his article titled “Influence of customer loyalty programme on buying decisions” made an attempt to find out the level of influence of loyalty programme on customer preference and to study the level of satisfaction with respect to the loyalty programme. The study reveals that the influence of the loyalty programme on the buying process of consumers was very minimal. Mathew, Agarwal (2012) in their article, loyalty programme membership a study of factor influencing customer decision tried to identify the factors that affects customers decisions to accept or not to accept the membership of loyalty programme. It reveals that purchase, attitude, concerns, loyalty programme characteristics and sales person expertise plays a major role in deciding about customer’s loyalty programme. Khairawati (2020) in the article “ Effect of customer loyalty programme on customer satisfaction and it’s impact on customer’s loyalty” found out that, member card loyalty programme significantly effect customer satisfaction. Bonages, Giang vu (2022) in their article, consumer’s perspective on loyalty programme and it’s influence on purchasing decisions- A study on fast fashion retailers consumers in the Swedish market pointed out that, shopping criteria, benefit perception and behavioural impulse are the three main factors are linked to customers perception towards loyalty programme. These studies reveals that the factors associated with the customers loyalty programme varies, and also it indicates that the preference towards customers loyalty changes based on the place of buying and the type of products / services. Hence, this situation clearly compelled to rethink about the current scenario about the customers loyalty programmes. The reviews of related literature clearly indicate that no one has made an attempt to find out the level of awareness and extent of importance on customer’s loyalty programme and the factors which are associated with them among college girls. To fill this gap the present study made an attempt to locate the factors which are associated with them.

Objectives

In order to find out solution to the statement of problems, the present study has been carried out with the following objectives

1. To find out the level of awareness on customer’s loyalty programme
2. To know the extent of importance given to customers loyalty programme and
3. To identify the factors that are associated with them.

Sampling

The data required for the study have been collected from 72 girls who are doing under graduate programme in women’s college in Coimbatore, Tamil Nadu through convenient random sampling. Structured questionnaire has been used to collect data from 100 girls. The questionnaire which are not properly answered are not taken into account. Hence the analysis for the study is based on the responses from 72 girls.

FRAME WORK OF ANALYSIS

For this study, the required data have been collected from the primary sources by using questionnaire. The qualitative information which have been collected were quantified by applying an appropriate scaling techniques. The level of awareness and the extent of importance on customers loyalty programme have been computed by applying three point scale. The individual score of the respondent have been converted into percentage. The mean and standard deviation have been computed to classify the respondent into three groups. The percentage, weighted average and chi-square test have been administered at the appropriate places to interpret the data.

SIGNIFICANCE AND LIMITATION OF THE STUDY

The findings of the study will immensely helpful to trader in redesign their customer loyalty programme. Care has to exercised while extending the results to the other areas.

FINDINGS AND SUGGESTION OF THE STUDY

The results of the study have been explained in the following paragraphs with the appropriate headings.

Socio-economic Profile and Information Seeking Behaviour

Of the 72 students majority of them (72.20%) residing in urban areas, 52.80% of them are day scholar, around 54.20% are with family income less than Rs.60000 per month. Only 25% of the students are having pocket money more than Rs.1000 per month. The results clearly indicates that the impact of social media is high with the college girls and the interest towards studying print media is gradually declining among them.

Table. 1 Socio-economic Profile and Information Seeking Behaviour

Particulars	No of Students (N = 72)	Particulars	No of Students (N = 72)
Area of residence Rural Urban	20 (27.80) 52 (72.20)	Pocket money per month Up to Rs. 500 Rs. 501 to Rs. 1000 Above Rs.1000	21 (29.20) 33 (45.80) 18 (25.00)
Student Category Day Scholar Hostel	38 (52.80) 34 (47.20)	Reading of Tamil/English news Occasional Regular	66 (91.70) 06 (08.30)
Mode of Transport Two Wheeler Public Transport College Bus	17 (23.60) 26 (36.10) 29 (40.30)	Viewing Social Media Occasional Regular	06 (08.30) 66 (91.70)
Monthly Family Income Up to Rs. 60, 000 Rs. 60, 001 to Rs. 90, 000 Above Rs. 90,000	39 (54.20) 22 (30.60) 11 (15.30)	Membership in Clubs Yes No	66 (91.70) 06 (08.30)

BUYING BEHAVIOUR

The table 2 and 2.1 exhibits the buying behaviour of the college girls.

Table. 2 Buying Behaviour

Particulars	Cosmetics	Dress materials	Electronics items
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Place of buying			
Nearby Shop	29 (40.28)	08 (11.11)	06 (08.33)
Speciality Shop	25 (34.72)	41 (56.94)	43 (59.72)
In Mall	04 (05.56)	13 (18.06)	01 (01.39)
Online shopping	14 (19.44)	10 (13.89)	22 (30.56)
Extent of participation in buying			
Regular	07 (09.72)	21 (21.17)	02 (02.78)
Occasional	65 (90.28)	51 (70.83)	70 (97.22)
Extent of considering the views of seller			
To a maximum extent	17 (23.61)	19 (26.39)	23 (31.94)
To some extent	45 (62.50)	46 (63.89)	41 (56.94)
Not at all	10(13.89)	07 (09.72)	08 (11.11)

Table. 2.1 Buying Behaviour(cont'd)

Particulars	No of students (N = 72)
Extent of interest in knowing marketing strategies	
To a maximum extent	48 (66.70)
To some extent	24 (33.30)
Interested to move to other brand	
Often	54 (75.00)
Occasional	18 (25.00)
Extent of consideration	
Price - High	19 (26.39)
Moderate	52 (72.22)
Low	01 (01.39)
Quality / Brand - High	45 (62.50)
Moderate	26 (36.11)
Low	01 (01.39)

Of the 72 respondents, majority of them bought the cosmetic items in the near by shop, the dress materials and electronic items are acquired in the speciality shops. The study reveals that, majority of them are occasionally took part in buying activities irrespective of the products. Only to some extent they are considering the views of the seller. It is very clear from the table 2.1 that around 66.70% of them are interested in knowing the marketing strategies employed by the sellers and 75.00% of them are tempted to move from one brand to another. The factor price is moderately considered and 62.50% of the respondents are interested in quality / branded items.

Level of Awareness and Extent of Importance on Customer Loyalty Programme.

The table 3 and 3.1 reveals that the majority of the girls are with moderate awareness and used to give moderate extent of importance to point, club and hybrid programmes. Majority of them are aware and they used to give maximum importance to online shopping and door delivery. It is also supported by weighted average score in both cases.

Table 3 Level of Awareness on Customer Loyalty Programmes – Weighted Average

Loyalty Programmes	Level of Awareness			
	Highly Aware	Aware	Not at all	Weighted Average Score
Point Programme	13	44	15	1.97
	(18.06%)	(61.11%)	(20.83%)	
Club or VIP member	17	50	5	2.17
	(23.61%)	(69.44%)	(6.94%)	
Hybrid Programme	7	48	17	1.86
	(9.72%)	(66.67%)	(23.61%)	
Online Shopping	41	31	0	2.57
	(56.94%)	(43.06%)	(0.00%)	
Door Delivery	39	32	1	2.53
	(54.17%)	(44.44%)	(1.39%)	

Table 3.1 Extent of Importance in Consumer Loyalty Programme – Weighted Average

Loyalty Programmes	Extent of Importance			
	High	Moderate	Low	Weighted Average Score
Point Programme	10	47	15	1.93
	(13.89%)	(65.28%)	(20.83%)	
Club or VIP member	12	46	14	1.97
	(16.67%)	(63.89%)	(19.44%)	
Hybrid Programme	6	51	15	1.88
	(8.33%)	(70.83%)	(20.83%)	
Online Shopping	41	31	0	2.57
	(56.94%)	(43.06%)	(0.00%)	
Door Delivery	38	34	0	2.53
	(52.78%)	(47.22%)	(0.00%)	

Factors associated with Level of Awareness and Extent of Importance on Customer Loyalty Programmes.

In order to find out the association between selected variables and awareness, the level of awareness of each one have been calculated by assigning the three point scale. The individual score is converted into percentage. In order to classify the respondent average and standard deviation are computed. The average level of awareness is 73.94 and the standard deviation is 11.90. The respondent, whose level of awareness is less than 62.04 are termed as low, the respondent whose level of awareness ranging between 62.05 and 85.83 are pooled under the moderate group and respondent with the awareness more than 85.84 are considered as highly aware. Of the total respondents, 10 are with low level of

awareness, 46 of them are with moderate and 16 of them are highly aware about the customer loyalty programme. Similar to this, same methodologies has been employed to classify the respondents based on the level of importance that they used to provide to the different customers loyalty programmes. The average level of importance is 72.50 and the standard deviation is 12.10. Of the total respondents, 10 of them are used to give a low level of importance to the loyalty programmes whose level is less than 60.40. 51 respondents who provide moderate importance to the loyalty programmes whose level of importance ranges between 60.41 and 84.59. Only 11 of them use to give a high level of importance to the loyalty programmes who are with the index which is more than 84.60.

Table 4 Factors associated with Level of Awareness and Extent of Importance on Customer Loyalty Programmes

Factors	Level of Awareness	Extent of Importance
	χ^2 (chi-square)	χ^2 (chi-square)
Area of residence	8.227*	0.597
Students category	5.569	10.276**
Mode of transport	4.761	9.358
Pocket money	4.062	6.398
Viewing of social media	3.102	1.834
Interest in knowing marketing strategy	1.455	5.390
Interest to move to other brands	1.562	3.789
Level of awareness on CLP		15.638**

*significant at five per cent level **significant at one per cent level

With regard to the level of awareness, of the selected seven variables only the factor, area of residence is found to be associated at five per cent level with the level of awareness. In the case of extent of importance of the selected eight variables category of the students and level of awareness of the respondents are found to be associated with the extent of importance at one per cent level of significant.

SUGGESTIONS

In tune with the findings of the study the following suggestion are placed before the trading community to sustain their marketing share. The sellers have to decide about the type of loyalty programmes based on the area of residence and category of students community. In addition to this they have to focus on educating the young generation about the various loyalty programme. They have to concentrate on educating the young student community about the various loyalty programmes to enjoy the fruits of the customers loyalty programme. Customer is the king of the past, and now they are emperor of the future. It is the right time that the business community have to develop different steps and styles in the area of customer loyalty programmes, to dance according to the customers mind voice by getting assistance from business analytics.

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AN ENHANCED STUDY ON SOCIAL MEDIA ANALYTICS AND ITS APPLICATIONS IN FUTURE

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ABSTRACT

Social media proliferates interaction among individuals to a greater extent. Information is shared and ideas getting exchanged all over the universe through virtual communities and networks. It will be a driving force in the nearing future, introducing new trends and techniques to enhance business. A collection of videos, images, blogging, podcasting, rating, and forums attracts and drags more people inside this new world every day. The rapid growth of social media development results in spurring innovations and deeper findings in its purpose. Marketing, stock, and campaign are a few of the practical applications that are tremendously making breakthrough advancements in recent days.

Analysis of this clustered information on various applications like Facebook, Instagram, Twitter, and LinkedIn provides the ability to support decision-making business solutions. It also acts as a great influencer among all age categories of people from teenagers to elderly people. A study reports that 70% of the increase in social media rises among people aged 56-69 years. The participation and engagement of this increased percentage drag tech giants, producers and consumers into this field to read people's minds. In this paper, we provide insights on social media analytics types, tools, techniques and the greater impact of this trending technology in the future market. Social media analytics is a kind of environment that will improve and evolve to higher heights for a longer period of time. Therefore, understanding the technology and its application usage is essential in this rapidly changing environment. The main objective of this study is to focus on future trends and the impact of social media analytics.

KEYWORDS: social media analytics, applications, future impact

INTRODUCTION

Social Media Analytics (SMA) gather data to accumulate and find significance in information assembled from social channels to help business choices and measure the exhibition of activities in light of those choices through online entertainment. Social media analytics is broader than metrics such as likes, follows, retweets, previews, clicks, and impressions gathered from individual channels [1]. It also differs from reporting offered by services that support marketing campaigns such as LinkedIn or Google Analytics [2].

Social media analytics uses specifically designed software platforms that work similarly to web search tools. Data about keywords or topics is retrieved through search queries or web 'crawlers' that span channels. Fragments of text are returned, loaded into a database, categorized and analyzed to derive meaningful insights. Social media analytics includes the concept of social listening. Listening is monitoring social channels for problems and opportunities. Social media analytics tools typically incorporate listening into more comprehensive reporting that involves listening and performance analysis.

RELATED WORK

In “Searching Social Media Streams on the Web,” [3] Jonghun Park, Yongwook Shin, Kwanho Kim, and Beom-Suk Chung observe that much of social media content takes the form of streams—dynamically arriving and updated series of texts with structured and unstructured components. They develop a search approach called FeedMil with topic-driven search and retrieval capabilities from a variety of live social media streams. Their technical research mainly focuses on identifying potentially relevant streams based on user queries and ranking these streams based on relevance scores and query-independent quality measures, such as the streams' popularity, authority, and activity.

Davide Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Yi Huang, Volker Tresp, Achim Rettinger, and Hendrik Wermser also focus on a stream-based view of social media in [4] “Deductive and Inductive Stream Reasoning for Semantic Social Media Analytics,” but with a distinctively different goal. They have developed reasoning methods to support management of changing knowledge drawing from stream-based content and structured background knowledge bases. Their approach is based on the notion of RDF streams as time-stamped RDF triples, which provide a representational framework to enable integration of inductive and deductive reasoning techniques.

“Using Social Media to Predict Future Events with Agent-Based Markets” [5] by Efthimios Bothos, Dimitris Apostolou, and Gregoris Mentzas proposes a prediction market approach using computational agents as opposed to human participants. Such agents embody human-user sentiments—as well as their knowledge, beliefs, and assessments, all extracted from social media—and participate in prediction markets to predict future events. This type of automated approach could potentially overcome implementation difficulties associated with standard “wisdom of crowds” approaches such as prediction markets with human participants.

Collaborative tagging and social search are among the most successful social media and “wisdom of crowds” applications in which users annotate webpages or other resources using tags. Such tags are shared among users and can be explored to enable a range of information retrieval and recommendation capabilities. One major obstacle hindering the adoption of tagging-based systems or services is the presence of noises and ambiguities in user-provided tags. In their article “Modeling Social Annotations via Latent Reason Identification,” Xiance Si, Zhiyuan Liu, and Maosong Sun propose the Tag Allocation Model to tackle this challenge. They show their generative model delivers good performance in tag recommendations and tag-hierarchy discovery [6].

Three-dimensional virtual worlds such as Second Life have drawn a lot of attention from research communities and the industry. User-generated social media content through avatars abounds in virtual worlds. Yet, systematic data collection from this relatively new social media channel and behavioral analysis of avatars have been underexplored. Yulei Zhang, Ximing Yu, Yan Dang, and Hsinchun Chen's article “An Integrated Framework for Avatar Data Collection from the Virtual World” proposes an integrated approach that combines bot-and spider-based techniques to collect avatar behavioral and profile data. They also report empirical findings examining differences in avatar behavior based on avatar gender and age [7].

“Using Social Media to Predict Future Events with Agent-Based Markets” by Efthimios Bothos, Dimitris Apostolou, and Gregoris Mentzas proposes a prediction market approach using computational agents as opposed to human participants. Such agents embody human-user sentiments—as well as their knowledge, beliefs, and assessments, all extracted from social media—and participate in prediction markets to predict future events [8].

SOCIAL MEDIA APPLICATIONS

From an application perspective, many websites dedicated to social media are among the most popular—Wikipedia (collective knowledge generation), MySpace and Facebook (social networking), YouTube (social networking and multimedia content sharing), Digg and Delicious (social browsing, news ranking, and bookmarking), Second Life (virtual reality), and Twitter (social networking and microblogging), to name just a few.

Since web-based entertainment is as of now a basic piece of the data environment and as online entertainment stages and applications gain broad reception with uncommon reach to clients, customers, electors, organizations, and philanthropic associations the same, interest in virtual entertainment from varying backgrounds has been soaring from both application and examination points of view [9].

Revenue driven organizations are taking advantage of virtual entertainment as both a rich wellspring of data and a business-execution stage for item plan and development, shopper and partner relations the executives, and promoting [10]. For them, social media is an essential component of the next-generation business intelligence platform[11].

For politicians, political parties, and governments, social media represents the ideal vehicle and information base to gauge public opinion on policies and political positions as well as to build community support for candidates running for public offices [11]. General wellbeing authorities might actually involve virtual entertainment as important, early hints about sickness flare-ups and to give input on public-health policies and response measures [11].

For homeland security and intelligence analysis communities, social media presents immense opportunities to study terrorist group behavior, including their recruiting and public relation schemes and the grounding social and cultural contexts. Even think tanks and social science and business researchers are conceptually using social media as an unbiased sensor network and a laboratory for natural experimentation, providing valuable indicators and helping test hypotheses about social production and interactions as well as their economic, political, and societal implications [12].

For many individuals, social media has become a unique information source to deal with information-and cognitive-overload problems, find answers to specific questions, and discover more valuable opportunities for social and economic exchange [11]. Moreover, it has turned into a stage for them to organize and add to a wide range of dynamic discoursed by imparting their mastery and insights. It is protected to guarantee that web-based entertainment has proactively infiltrated a range of utilizations with exceptional effect. Given the proceeded with interest and the steadily developing data and meta-data produced through online entertainment, it is normal to keep empowering new intriguing applications and changing many existing ones [13].

Intelligence Research: Social media analytics is concerned with developing and evaluating informatics tools and frameworks to collect, monitor, analyze, summarize, and visualize social media data, usually driven by specific requirements from a target application [14].

From a technical perspective, social media analytics research faces several unique challenges.

a. Social media contains an enriched set of data or metadata, which have not been treated systematically in data-and text-mining literature. Examples include tags

(annotations or labels using free-form key-words); user-expressed subjective opinions, insights, evaluation, and perspectives; ratings; user profiles; and both explicit and implicit social networks.

b. Although social media promises a new approach to tackling the noise and information-overload problem with Web-based information processing, issues such as semantic inconsistency, conflicting evidence, lack of structure, inaccuracies, and difficulty in integrating different kinds of signals abound in social media.

c. Social media data are dynamic streams, with their volume rapidly increasing. Nevertheless, social media intelligence presents great potential with important practical relevance as a rich, new area of inquiry, potentially drawing on disciplines from within AI as well as other fields.

d. Social media intelligence research calls for highly integrated multidisciplinary research. Although this need has been reiterated often in this growing field, the level of integration in the existing research tends to be low. In many cases, the informatics research methodology and research questions are taking a dominant role, whereas research focusing on methods and issues from other equally relevant disciplines, such as social psychology, media theory, political science, and social sciences, among others, has been scattered; there have been few highly integrated research programs that consider both informatics and domain sciences.

e. It requires well-articulated and clearly defined performance measures because much of it must be conducted in application settings with an aim to support decisions. However, in a broad spectrum of applications in which social media intelligence could be relevant, it is challenging to quantify these measures. This measurement problem makes it especially hard to judge social media intelligence's return on investment (ROI), and it leads to modeling difficulties.

APPLICATIONS IN FUTURE

1. Social media analytics(SMA)

Governmental institutions and political stakeholders make use of social media tools in various ways and for different purposes. These actors are active on Facebook and Twitter which they use, amongst others, for promoting their policies, campaigns, or popularity, whilst the purposes, tools and goals vary [15].

“Social media strongly supports network communications and enables governments to communicate better within the multiple networks outside of government and the informal organization (networks) within government. Leveraging these networks offers enhanced opportunities to achieve public goals

2. Privacy and data protection aspects

Seriously communicating with nearby states and NGOs, the United Europe consortium has experienced difficulties of a legitimate and moral nature that can serve in a model way for related projects or comparative undertakings. These are in parts because of the delicate strategy field that United Europe is working in, yet - in a bigger part - likewise to the powerless legitimate balance of SMA and the eccentricities of government end clients [15].

3. In Hospitality and Tourism [16]

The evolution of social media has established a very new communication environment for general tourism marketing as well as crisis response and recovery practices. Social media generates large scale data due to its pervasive

use. It is available for public communication in times of crisis, and communication in social media is participatory, interactive, and traceable. Social media analytics facilitates collecting, monitoring, and analysing social media data. Understanding the dynamics of information flow, and, further, identifying key influencers and locating them in the strategic point within the social communication network, are important to timely and widely distributing accurate and reliable information and to effectively managing crisis organization's reputation in crisis response and recovery phases

4. In Marketing research and business Intelligence [17]

Marketing research chiefly utilizes online entertainment examination to extricate promoting bits of knowledge for specific advertising purposes at the strategic level. Future examination could go past this level to look at online entertainment examination in showcasing according to an essential point of view. Marketing discussions such as consumer behavior, strategy, branding, product management, pricing, sales forecasting, personalized marketing, and performance measurement are the different perspectives and analytics performed.

Business Intelligence [18] focuses interaction and relationship between customers, understanding their needs, emotional change to new technologies and brands etc.

CONCLUSION

Coming from the rising significance of virtual entertainment in numerous social orders, likewise with respect to political correspondence and civic engagement, I propose to present a study on social media analytics applications and its impact in future. Also extended, to analyze online social media as data and criticism source, and whether this is genuine and powerful. Therefore, more applications and automate tools will be utilized by ideological groups and confidential organizations, however fundamentally for business purposes. Several governments exhibits clear interest with regards to active social media presence, but also show activities using social media (manually) for receiving feedback on their performances.

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GROWTH OF CONTENT MARKETING THROUGH LINKEDIN CHANNEL

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ABSTRACT

Social media analytics is the ability to gather and find meaning in data gathered from social channels to support business decisions — and measure the performance of actions based on those decisions through social media. LinkedIn is a social website which had been launched for the purpose of creating professional network and connect, like education and Business. LinkedIn marketing is a great tool for large B2B companies looking to promote their brands by reaching professionals through ad campaigns. This social website allows business people to perform various tasks like posting promotional videos, customising attractive company profile, participating in active chats with the live customers. This suggests that people on LinkedIn are generally interested in informative and educational content, which seems fitting for a professional social work. This research also emphasizes on content marketing applications such as SlideShare, Pulse and company pages which will support B2B. The Objective of this study is to analyse the various promotional strategies used by B2B business through LinkedIn channel. This study also concentrates on the benefits of existing customers flowing through LinkedIn. The sample size of this study is restricted to 100 and the area of the study is restricted to Tamilnadu. This Study enhances that for many Influencers and content creators, social media channels are the primary source of business and income. In this note, LinkedIn has a strong base of followers and these followers will help to increase the brand audience. Henceforth, this study brings out the benefits of digital marketing and gaining social knowledge.

KEYWORDS: Social media analytics, LinkedIn, B2B Business, Brand Audience.

INTRODUCTION

The ability to acquire and interpret data from social media channels to support business choices as well as track the effectiveness of actions taken in response to those decisions through social media is known as social media analytics. The scope of social media analytics goes beyond channel-specific data like likes, following, retweets, previews, clicks, and impressions. It also differs from the reporting provided by sites like LinkedIn or Google Analytics that help marketing campaigns. Similar to web search tools, social media analytics make use of specially created software platforms. Search requests or web "crawlers" that cross channels are used to retrieve information about keywords or themes. Text fragments are returned, loaded into a database, categorised, and examined to produce insightful conclusions. Social listening is a component of social media analytics. Listening involves keeping an eye out on social media for issues and possibilities. In more thorough reporting that includes listening and performance analysis, social media analytics solutions often contain listening.

An American internet service focused on business and employment, LinkedIn is accessible through mobile apps and websites. The platform was introduced on May 5, 2003, and is primarily used for networking and career development. It enables both employers and job

seekers to post positions and resumes. Since 2015, the majority of the company's income has come from offering recruiters and salespeople access to information about its users. It has been a fully owned subsidiary of Microsoft since December 2016. LinkedIn had 830+ million registered users as of February 2022, coming from more than 200 nations and territories. LinkedIn enables users to build profiles and connect with one another in an online social network that may mirror actual professional relationships in the real world. Any person, whether they are a member already or not, can accept an invitation to connect. Additionally, LinkedIn may be used to plan offline gatherings, participate in groups, produce articles, post job listings, and more.

Users can build profiles on LinkedIn using its basic functionality, which commonly includes a curriculum vitae outlining the user's education and training, work experience, abilities, and a personal photo for employees. Employers can post open positions and look for possible applicants. Users can locate businesses, persons, and employment possibilities that have been recommended by a contact. Users have the option to save the jobs they want to apply for. Additionally, users have the option of following various businesses.

The website also gives users the option to "link" with one another in an online social network, which might be a representation of actual business contacts. Anyone can accept an invitation from a member to connect. Users can learn about connections of connections and connections of connections of connections (also known as second-degree linkages) (termed third-degree connections).

REVIEW OF LITERATURE

Honglei Zhang & M. Asim Amin (2022)¹, as analysed that social media analytics collect and analyze data from various social networks such as Facebook, Instagram and Twitter. Big data - assisted social media analytics for business (BD - SMAB) model increases awareness and affects decision - makers in marketing strategies. This proposed method examines social media analysis impacts on different areas such as real estate, organizations and beauty trade fairs. As a result, the BD - SMAB method enhance customer satisfaction and experience and develop brand awareness.

Mike McGuirk (2021)², Businesses have been growing as consumers' use of social media platforms and their consumption of digital media has increased. Looking for new approaches to monitor, track, and analyse this online customer activity to support a wide range of business functions including customer assistance, marketing, and customer experience management. This article gives a summary of the main functions and features of the Brandwatch for Classrooms platform and offers a number of ideas for using the platform in undergraduate and graduate marketing analytics courses. The objective is to give educators useful knowledge about social media analytics and pointers for effectively incorporating social listening platforms into their course designs.

UthayasankarSivarajah& Kamran Mahroof (2020)³,The digital transformation is an accumulation of various digital advancements, such as the transformation of the web phenomenon. Its ability to facilitate sustainable business- to - business (B2B) activities has lacked focus in the business and management literature to date. This qualitative research is exploratory in nature and fills this gap through findings arising from interviews of managers and by developing taxonomies that highlight the capability of participatory web over passive web to enable different firms to engage in business operations. This research finds that it will be useful for both academics and managers who are interested in understanding and further developing the business sustainability. Hence, this may be considered as a distinct way of attaining sustainability.

OBJECTIVE

- This study is to analyse the various promotional strategies used by B2B business through LinkedIn channel.
- This study also concentrates on the benefits of existing customers flowing through LinkedIn.

PROMOTIONAL STRATEGIES USED BY B2B BUSINESS

Sponsored Content:

A potent strategy for connecting with professionals on the LinkedIn feed is through sponsored content. Use these suggestions for producing powerful advertisements, utilising cost-free tools, testing, and optimising to get the most of your campaigns.

Sponsored Messaging:

A native advertisement delivered directly to the LinkedIn Messaging of your target audience is an efficient method to contact your audience through sponsored messaging. That implies that you interact with them when they're in a professional frame of mind and where they spend a growing amount of their time. With these suggestions for deciding your goal, producing quality content, and demonstrating the effectiveness of your advertising, you can get the most out of your Sponsored Messaging campaigns.

Text Ads:

Text Ads are basic advertisements displayed at the top or on the right side of the LinkedIn desktop feed. To manage your spending, create CPM (cost per thousand impressions) or PPC (pay per click) bids. Utilize these suggestions to get the best outcomes from this adaptable ad structure.

Video ad:

A powerful method of reaching a professional audience is through video ads on LinkedIn. With these suggestions for determining your goal, producing quality content, and demonstrating the worth of your video advertising, you can get the most out of your campaigns.

Carousel ad:

You may utilise carousel advertisements on LinkedIn to convey an engaging story that will motivate your target audience to take action. With these suggestions for determining your goal, producing quality content, and demonstrating the worth of your carousel advertising, you can get the most out of your campaigns.

Dynamic ad:

LinkedIn's Dynamic Ads give you the opportunity to interact with prospects through right-rail ads that are automatically tailored for each user depending on their profile.

BENEFITS OF OUTSOURCING LINKEDIN

Suitable leads:

Hiring an outside team gives you access to skilled lead generating specialists. These professionals have the knowledge and experience needed to maximise your B2B LinkedIn lead generating efforts. You won't have to spend any time, money, or effort training new workers to create and carry out lead generation initiatives. Additionally, the outsourced workforce manages risks resulting from unforeseen changes in business and industry situations by utilising their experience and availability..

Cut out the tedious lead chasing work:

When you are just beginning a new business or new marketing effort, you cannot anticipate immediate results. Building your contact base so requires a lot of effort. Making a clear strategy and an action plan to implement it are the major objectives here. On the other hand, a team that outsources already has a lot of experience and can produce the results quickly.

Additionally, outsourcing can be the ideal option for time-consuming tasks like:

- Repetitive tasks (adding prospects to your database and managing all your B2B LinkedIn lead generation activities.)
- Imaginative tasks (content creation and production.)
- Specific duties (creating infographics or designing images for LinkedIn publications.)

Savings on costs:

The cost is another important issue that firms take into account when employing new employees. It can be advantageous to outsource B2B LinkedIn lead generating even for businesses with strong sales teams. To put it another way, an outsourced team can deliver more qualified, sales-ready prospects who are more likely to invest in the solution you are selling. Sellers reduce the time it takes to convert leads into customers by receiving qualified leads from outsourced efforts.

It is important to note that working with an outsourced B2B LinkedIn lead generation team gives you and your staff access to fresh knowledge, expertise, and experience for a set monthly fee. The benefit in this situation is that instead of you, outsourced services can target, create, and nurture B2B LinkedIn leads. Lead generation specialists will provide your sales team with higher quality leads that will increase both your company's revenue and profits.

Put other things first:

It can be difficult, time-consuming, and energy-intensive to manage a sales force. This includes teaching brand-new hires on how to communicate your company's message to prospective customers in the most effective manner feasible. But by outsourcing, you can save a tonne of time, money, and energy—the three key components of the business world. To put it another way, by outsourcing, you may put this time and effort into other crucial responsibilities. You can focus on developing marketing tactics and new business plans with the use of valuable time.

Furthermore, your sales crew will need tools in order to communicate with prospects. Therefore, in order to carry out their operations, they will require computers, phones, and software. However, if you outsource to a LinkedIn lead creation agency, they will arrive completely prepared with all of the necessary tools. You can save time and money by doing this when developing your infrastructure.

FINDINGS

Percentage Analysis

PERCENTAGE ANALYSIS	GROUP	FREQUENCY	PERCENTAGE
Age of the respondents	18 – 28	24	24.0
	29 – 39	28	28.0
	40 – 50	18	18.0

	Above 50	30	30.0
Gender	Male	53	53.0
	Female	47	47.0
Education	Illiterate	19	19.0
	High School	20	20.0
	Degree	28	28.0
	Master Degree	33	33.0
Occupation	Government employed	16	16.0
	Private employed	26	26.0
	Self employed	58	58.0
Income	Below 200000	12	12.0
	200000 - 300000	14	14.0
	300001 - 400000	40	40.0
	400001 - 500000	32	32.0
	Above 500000	2	2.0
Where do you get information about LinkedIn?	social media	20	20.0
	Friends	52	52.0
	Magazine	28	28.0

Which device do you use for LinkedIn?	Mobile	20	20.0
	Tablet	52	52.0
	laptop/pc	28	28.0
How do you consider LinkedIn against other sort of social media platform?	alternative choice	20	20.0
	substitute	52	52.0
	supportive instrument	28	28.0
Which type of person you in LinkedIn?	minimalist	4	4.0

	Careerist	62	62.0
	entrepreneur	18	18.0
	contributor	16	16.0
Contact and connect with other users	highly preferred	14	14.0
	Preferred	29	29.0
	Neutral	31	31.0
	disapproved	18	18.0
	highly disapproved	8	8.0
Give and Receive Recommendations and Endorsements	highly preferred	14	14.0
	Preferred	29	29.0
	Neutral	31	31.0
	disapproved	18	18.0
	highly disapproved	8	8.0
Use LinkedIn Groups	highly preferred	8	8.0
	Preferred	40	40.0
	Neutral	26	26.0
	disapproved	20	20.0
	highly disapproved	6	6.0
Find new hires- new opportunities	highly preferred	16	16.0
	Preferred	45	45.0
	Neutral	17	17.0
	disapproved	20	20.0
	highly disapproved	2	2.0
Boost Your Organisation Profile	highly preferred	14	14.0
	Preferred	49	49.0
	Neutral	19	19.0
	disapproved	16	16.0
	highly disapproved	2	2.0
Observe Professional Etiquette	highly preferred	10	10.0
	Preferred	42	42.0
	Neutral	24	24.0

	disapproved	20	20.0
	highly disapproved	4	4.0
Reason why you prefer LinkedIn	cost saving	20	20.0
	time consumption	52	52.0
	suitable leads	28	28.0
For how long you have been using LinkedIn	less than 6 months	4	4.0
	6 months - 1 year	62	62.0
	1 year - 2 year	18	18.0
	more than 2 years	16	16.0
Which ad platform you opted to met your marketing objective	Boost your content across devices	20	20.0
	Sponsored Messaging	52	52.0
	Text Ads	28	28.0
Does it is easy to manage your ads with campaign manager	Yes	100	100.0
	No	0	0.0
What are the benefits when you use LinkedIn	Suitable leads	19	19.0
	Cut out the tedious lead chasing work	35	35.0
	Savings on costs	17	17.0
	Put other things first	29	29.0
Measure conversions	highly satisfied	16	16.0
	Satisfied	15	15.0
	Neutral	20	20.0
	dissatisfied	31	31.0
	highly dissatisfied	18	18.0
Analyze performance	Highly satisfied	14	14.0
	Satisfied	20	20.0
	Neutral	20	20.0
	dissatisfied	28	28.0
	highly dissatisfied	18	18.0
Understand your audience	High satisfied	17	17.0

	Satisfied	21	21.0
	Neutral	14	14.0
	dissatisfied	32	32.0
	highly dissatisfied	16	16.0
Keep a pulse on your biggest opportunity	Highly satisfied	41	41.0
	Satisfied	59	59.0
Are the advertisement popping up on LinkedIn is Irritating you	Yes	49	49.0
	No	51	51.0

SUGGESTION

This suggests that people on LinkedIn are generally interested in informative and educational content, which seems fitting for a professional social work. Therefore, if LinkedIn servers have a problem, the danger of losing sensitive information to the public, which could lead to identity theft. Like other social networking services, LinkedIn required to create a visually appealing profile, that is a profile that potential employers and recruiters will find intriguing. However, for one reason or another, people find it difficult to complete their profile information. There is a proverb that states there will always be a Judas among the 12 disciples. Consider the number of Judas that will be accessible on a website with more than 1200 million users. Spam communications from recruiters, businesses, and even job seekers are abundant on LinkedIn. All only intended to attract attention, deceive, and demand money, etc. Fortunately, they do not come cheaply. However, there is a fee for the LinkedIn premium packages. For instance, the monthly cost for a "medium-sized career" is approximately \$29.99. Although this deal has numerous additional advantages, it might still be highly expensive for a small or medium-sized organisation.

CONCLUSION

Businesses are rushing to assure a steady stream of leads due to industry pressure. The ideal place for B2B businesses to create leads and develop them before they become clients is LinkedIn. However, creating B2B leads on LinkedIn may be a time-consuming and expensive process that calls for specialised expertise in this social media site. This is the rationale behind the widespread outsourcing of LinkedIn lead generation by B2B businesses. In short, supplying a sales organisation with a steady stream of quality leads is essential to maintaining its efficiency. A business needs a successful approach for generating new leads and filling the pipeline if it wants to sustain growth and reach its next milestone (especially if it is a start-up).

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ENRICHING CUSTOMER EXPERIENCE THROUGH DATA ANALYTICS – A COMPREHENSIVE ANALYSIS

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ABSTRACT

With the objective of serving the customers better Data analytics is the science that has emerged and is used for analyzing raw data to make conclusions about that information. Data analytics help a business optimize its performance, perform more efficiently, maximize profit, or make more strategically-guided decisions. The rich variety of data that enterprises generate contains valuable insights, and data analytics is the way to unlock them. Data analytics can help an organization with everything from personalizing a marketing pitch for an individual customer to identifying and mitigating risks to its business. As the can gather deeper consumer insights, optimize marketing objectives, and get a better return on investment, many companies are using data analytics to improve the customer experience. This paper focuses on identifying the benefits the product and services companies are reaping by application of data analytics in serving the customers.

KEY WORDS: Data Analytics, Business, Customer Experience

INTRODUCTION

Companies around the globe generate vast volumes of data daily, in the form of log files, web servers, transactional data, and various customer-related data. In addition to this, social media websites also generate enormous amounts of data. Companies ideally need to use all of their generated data to derive value out of it and make impactful business decisions. Data analytics is used to drive this purpose. Data analytics is the process of exploring and analyzing large datasets to find hidden patterns, unseen trends, discover correlations, and derive valuable insights to make business predictions. It improves the speed and efficiency of your business.

Data analytics is important because it helps businesses optimize their performances. Implementing it into the business model means companies can help reduce costs by identifying more efficient ways of doing business and by storing large amounts of data. A company can also use data analytics to make better business decisions and help analyze customer trends and satisfaction, which can lead to new—and better—products and services. Data analytics is the bedrock of customer experience. Every company needs to gather, manage, and interpret data before making any business decisions.

Objectives of the study

To study the applications of data analytics by product and service companies

ANALYSIS OF DATA

Hongkong and Shanghai Banking Corporation Limited (HSBC) Uses Data analytics to Improve Customer Experience

Using information smartly can make a customer's experience smoother and more secure. HSBC built an algorithm to make it easier to apply for a basic life insurance product. The algorithm analyses a range of data, including credit transaction information, to rate a

customer's eligibility for the product, allowing some customers to avoid answering application questions. For example, when the bank is opening a new branch or ATM somewhere, analyse data about customers shopping patterns, land use, journey to work and foot traffic around that area. This helps to decide exactly where to position the branch or ATM, ensuring customers will get the best use out of it. Data also has a role to play in keeping customers safe. By knowing about customers, such as their age and length of time they have been banking online, to set automatic rules for their online banking experience. An older or more vulnerable customer taking up digital banking for the first time may appreciate support, for instance, HSBC can increase the frequency of pop-up messages offering help, and alerting them to any suspicious activity. By referring HSBC official site, this is how HSBC uses data analytics in improving customer experience.

Maruti Suzuki India Limited Uses Data analytics to Improve Customer Experience

Maruti Suzuki is the most trusted automotive brand in India. For the past 15 years we have been the top-ranking automotive company according to the J.D. Power 2014 India Customer Service Index (CSI) study. We wanted to sustain this competitive advantage. The primary goal was to get a holistic view of our 10 million plus customers to sustain our market leadership in customer satisfaction and management. At Maruti Suzuki we interact with our customers across multiple touch points. We were looking for a platform through which we could cross sell, up sell and repeat sell to all the customers who were buying our products. The customer was at the heart of our marketing efforts. We worked on an analytics CRM solution to shift out marketing strategy from mass marketing to a customer centered approach. Analytics improved our campaign effectiveness significantly. This is how our analytics solution got off to a flying start.

Maruti's IT team has put together lots of applications online and on mobile, supported by a strong, analytics based back-end. "It's a uniform omni-channel experience, which continues when you move from one channel to another. It's one big area we're working on to manage customers and their lifecycle, right from their first car to second car to value car, etc.", said Uppal. "For IT to deliver a platform like this, we've used many technologies—mobility, cloud, analytics, experience management, etc. Moreover, it must integrate seamlessly with our existing systems of dealer management and other applications", he added. By referring Uppal's interview, this is how Maruti Suzuki uses data analytics in improving customer experience.

Nestle Uses Data analytics to Improve Customer Experience

With almost 100 years of history and a 99% penetration rate in Brazil, Nestlé has identified an opportunity to take advantage of the full potential of new technologies to serve its customers. In addition, there was an opportunity to consistently keep up with the ever-changing behavior of its customers during the buying journey. Thus, the company needed to go further and understand their consumers, gaining even more agility to generate and deliver increasingly innovative, surprising and more valuable experiences and with this task, they chose CI&T as their strategic partner.

Nestlé started its digital transformation journey in late 2018, with CI&T as a partner to improve the brand's consumer experience. In addition to adding new digital products in its portfolio, Nestlé invested in the evolution of the organization's culture and mindset, evolving in the area of data intelligence. Integration, better management and analysis of information has become essential in order to innovate and generate results.

Nestlé's process considered the following fronts: focus on the same objective, ensuring alignment of all teams so that they were focused on the consumer and / or performance results; operation of disciplined processes, transforming dashboards into assets that

generate value and drivers, providing teams with insights to arrive at business solutions; dissemination of information, communicating opportunities, projects and solutions developed, giving visibility, creating greater demand and potential for innovation.

Tata Uses Data analytics to Improve Customer Experience

As many as 14 Tata companies are partnering Tata Insights and Quants (Tata iQ), a Big Data company incubated by Tata Industries Ltd 18 months ago, to analyze data collected from users and consumers and make sense of it to put changes in place.

TCS' PredictCX Analytics is a complete digital solution that comes with in-built product and service customizations to improve customer experience. The solution studies customer interactions across various touchpoints, such as call centers and networks, and analyzes their preferences and behaviors. It understands customer mindset through their sentiments, feedbacks and complaints to improve loyalty and reduce churn rate.

CromaRetail.com, a subsidiary of Tata Sons, has tied up with MIT – backed Infinite Analytics, Inc. (IA) to provide personalized recommendations to its online users. IA's personalization platform has allowed consumers to discover related and new products serendipitously, based on an understanding of the user, the product catalog and the contextual data.

From a technology standpoint, the top priorities for Tata Motors are to improve end user experience, speed up business processes through digitization, facilitate employee collaboration and team work, and improve speed of delivery of ICT. In Commercial Vehicles, Telematics capabilities help us understand customer journey cycles, usage patterns and help improve up times. We are also significantly focused on in-car connectivity that can seamlessly merge the drive experience with the user's lifestyle. We have an integrated CRM with a very capable call center to execute these new services for the customers. Underlying all these is analytics which supports decision making with the help of all data collected.

Hyatt Uses Data analytics to Enhance Customer Experience:

The global hospitality company Hyatt, not only listens to their guest's needs but takes the time to get to know them. The company is committed to anticipating what customers expect when they arrive at any one of the more than 600 hotels, across 12 brands and more than 50 countries.

To show how data enhances the guest experience at Hyatt, A housekeeper noticed that a particular guest who frequently stays at the Hyatt in San Francisco routinely used a blanket to do yoga on the balcony. So, as someone who cares, the housekeeper brought a yoga mat, towels, and water to her room. Caught in the routine of travel, this guest was touched by the thoughtful gesture that was so specific to her needs. And the same housekeeper shared this guest's preferences so that it could be added in the central MDM system. This ensures that her unique details could improve her experience across not just this hotel but all Hyatt hotels globally for her next visit.

What is the result? A few months down the line, as she checked into a Hyatt hotel in Saigon, the front desk agent was able to see her preferences and placed a yoga mat in advance in her room. As customers, every one of us looks for moments when companies make us feel valued.

Hyatt is a company of listeners. Its colleagues not only win customers' hearts by showing how much they care about them but by simply noting and securely sharing guest preference data, they also deliver a more personalized experience that helps each guest to be their very best. To build the data management system to enable this across 600+ hotels each with varying systems, a loyalty program, and other complicating factors

Clean customer data benefits global systems as well as local systems within the hotel, like the property management system, food and beverage system, and local human resources and finance systems. Hyatt's system captures as many inputs as possible at multiple customer touch points (like requests for a rollaway bed or extra hangers made at the time of reservation), and this data feeds a customer hub and an enterprise data warehouse for real-time integration so every system around the world has a consistent view of the customer.

Emirates Uses Data analytics to Enhance Customer Experience:

The Dubai-based Emirates has been and will need to continue bringing together advanced data and analytics capabilities to build a new, high-quality passenger experience for customers

Emirates use the data to deliver very personalized experiences. They want to deliver data-driven offers that appeal to frequent flyer members as well as new customers. We want to cater to each customer's preferences. This could even apply to enable us to personalize a traveller's in-flight entertainment ahead of time, so each person has automatic access to the movies, music, and other content they want as soon as they step on the plane. We can also use data throughout the customer journey, allowing us to take our passenger-focused business to the next level.

More recently, Emirates has also begun to look into more theoretical ways of enhancing service efficiency and improving the customer experience. The airline has launched a Data Science Lab at Oxford University as part of a five-year partnership. The goal is to apply Emirates data and expertise from Oxford's mathematics, engineering, and social science faculty to analyze data, develop machine learning techniques, and better understand how customers interact with the airline. The collaboration could provide Emirates with industry-leading insight on passengers, and better capabilities to process their own data in the future.

Emirates customers are mainly insurance brokers. It is very important for them to know exactly how they navigate through all of the underwriting steps so that we can see how they use data to put together the best solutions and pricing packages for their customers. Often, brokers have a customer sitting in front of them, and it's incredibly beneficial for them to have immediate access to reliable data

We use the data to deliver very personalized experiences. We want to deliver data-driven offers that appeal to frequent flyer members as well as new customers. We want to cater to each customer's preferences. This could even apply to enable us to personalize a traveler's in-flight entertainment ahead of time, so each person has automatic access to the movies, music, and other content they want as soon as they step on the plane. We can also use data throughout the customer journey, allowing us to take our passenger-focused business to the next level.

CONCLUSION

Customer satisfaction and data analytics go hand-in-hand. Without accurate and reliable customer-centric data, marketers cannot hope to make impactful decisions that drive growth and boost user satisfaction. Data-driven organizations are 23X more likely to acquire customers, 6X as likely to retain customers, and 19X as likely to be profitable as a result. In an Consultancy and Adobe survey, 65% of respondents expressed that Improving data analysis capabilities to better understand customer experience requirements was the most important internal factor in delivering a great future customer experience. Businesses today have become customer-obsessed and for good reason. With information comes power and this adage holds for any customer-facing business. Whether it's driving

personalization or catering to the customer's needs, data plays a central role in helping brands connect with users on an emotional level—a winning strategy in today's competitive landscape.

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RECENT TRENDS IN CLOUD COMPUTING

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ABSTRACT

Cloud computing appears to be one of the trending technologies from its stage of discovery. It includes various concepts like virtualization, grid and utility computing. Without the installation or storage of software in their PC, cloud-enables its users to access the shared resources through the internet. Most of the IT industries are moving onto cloud to meet their high computational requirements with reduced cost. The paper gives a brief idea about various concepts involved in cloud computing. And covers the growing trends in the field of cloud computing in detail.

KEY WORDS: cloud computing, cloud models, recent trends.

INTRODUCTION

The Internet has undergone several advancements from an early stage. The various technologies like distributed computing and grid computing focuses on efficient utilization of unused resources on the internet. Along with these technologies, the pay-per-usage model and virtualization contributed to the evolution of cloud computing. Both play a major role. Thus cloud computing allows the users to run any application irrespective of their computational needs [1]. Today, there are various cloud service providers like Amazon, Verizon, IBM, Google, Microsoft and Rackspace and so on.

Cloud computing can be defined based on the kind of service it offers to the end users. In the 1960s, John McCarthy stated that all computational demands can be met by providing resources as a utility [2].

OVERVIEW OF CLOUD COMPUTING

2.1 Layered Model of Cloud Computing

The cloud computing architecture can be modeled into various layers based on the service they provide to the end users. The Application Layer forms the visible part of the cloud application and the layers underneath are virtualized for the end user. A few examples of applications in this layer include GoogleDocs, YouTube etc. The Hardware Layer consists of the physical hardware needed to carry out the user applications in the cloud environment [6]. The Infrastructure Layer also called Virtualization layer creates pools of virtual machines which can be created and destroyed according to the customer demands [6]. This layer provides the scalability and flexibility to the cloud. The Platform Layer is built on the top of the infrastructure layer which offers a computing platform as a service [6]. This layer enables the consumers to run their applications in the cloud without buying the needed hardware and software [7].

2.2 Cloud Models

Based on the location where the cloud is hosted, we can classify clouds into four types – private, public, hybrid and community cloud.

2.1.1 Public Cloud

The whole cloud computing infrastructure is fully controlled by the third party providers like Google, Amazon and opens for the usage of the public based on pay-per-use model But it offers poor security and hence the data is prone to malicious attacks.

2.1.2 Private Cloud

The purpose of private cloud is to meet the internal computational needs within an organization. This cloud offers more security as it is implemented within the internal firewall. Every aspect of cloud implementation is fully controlled by the organization and hence security will be enhanced.

2.1.3 Hybrid Cloud

The combination of private and public clouds forms the hybrid cloud. The organization uses the public cloud services along with its own cloud to perform resource intensive applications [7] [3].

2.1.4 Community Cloud

The computing infrastructure created by a group of organizations having similar security interests [8]. Member organizations or a third party provider can hold the responsibility of managing the cloud.

CLOUD SERVICES

Cloud computing can offer the services dealing with the data, software and computation through the internet and hence there are three broad classifications namely IaaS, PaaS and SaaS. *Structure as a Service (IaaS)* provides computing and storage resources as per the requirements of clients [9] [8]. Examples include Amazon, Mosso, Sun etc. *Platform as a Service (PaaS)* provides a computing platform as a service to the users [4]. The entire software and hardware that the client needs to run an application will be offered as a Service [4] [9]. GoogleAppEngine, Force.com, Microsoft Azure are a few of the leading companies offering PaaS .

Software-as-a-Service(SaaS) provides the entire application as a service to the clients through the internet on demand [1] [8]. Some of the SaaS vendors are Salesforce.com, Oracle and IBM [10] [8].

RECENT TRENDS IN CLOUD COMPUTING

The cloud computing technology when merged with existing technologies of computing can revolutionize the ways of data communication and storage.

3.1 Open Source Cloud Computing

With the help of open standards, different technology firms have started powerful cloud services. One of the prominent examples is the creation and development of Hadoop Framework [8]. The framework divides the application into different clusters and assigns to various independent nodes to carry out the work. [5].

Many open source cloud computing platforms with a unique set of characteristics are available which meet different kinds of user requirements [1]. A few examples include Open Nebula, Eucalyptus, Open Stack, Nimbus, XCP, Cloud Foundry, etc. [3]

3.2 Private Clouds

Numerous companies are moving onto private clouds to provide business solutions in an efficient and cost effective manner [6]. Various beneficial aspects of private clouds are

driving Small and Medium Businesses to build private clouds which includes [3] [1].

- Scalable architecture to cater the needs
- On demand resource provisioning
- Improved resource utilization
- Reduced hardware and software costs

The features of private cloud are specifically beneficial to Small and Medium Business (SMB) and start-up companies as they can use world-class infrastructure without buying hardware and maintaining large support teams and pay only for what they have used. But a private cloud will function smoothly if a fast, highly reliable network connects the physical servers. For this reason, the entire network infrastructure must be analyzed beforehand. The network must satisfy all the requirements for the private cloud setup or the components have to be upgraded to meet the needs. Ultimately, even minor losses in transmission speed can lead to extreme drops in performance. This means a private cloud also presents new challenges to network monitoring and as the name private, it insists the need of private network monitoring.

3.3 Mobile Cloud Computing (MCC)

The term mobile cloud computing was defined in the Open Gardens blog as the availability of cloud computing services in a mobile ecosystem especially in smartphones and tablets[2]. The clouds, integrated with the mobile ecosystem, manage the computation and storage of data. A few examples include mobile Gmail, Google Maps etc. [1].The limitations associated with mobile devices regarding battery life, storage and processing capabilities will be addressed by the cloud and the mobile user requires a browser to access the applications [2]. .Mobile devices like smartphones, tablets, and iPhones are connected to the cloud through their mobile networks. Irrespective of the mobile operating system, users can access any application that has a suitable browser.

Even though the mobile technologies are advancing at a faster pace, the inherent features of mobile devices regarding their storage capacities, processing speed, screen size, battery life etc. possess a serious issue towards implementation of MCC The wireless connectivity in mobile devices is also a major issue as the data rates and signal strength varies based on network coverage. So MCC technologies should concentrate on resolving issues of reliability, latency and throughput

3.4 New Cloud Services

With the ever-growing developments in the field of cloud computing, the services being offered are achieving newer and newer dimensions. Some of the new services include MaaS, C-MaaS, CaaS, DaaS and XaaS.

Monitoring-as-a-Service: MaaS is a service outsourced to enterprises to monitor their applications distributed in the cloud.NewRelic, AppDynamics, and Cordiant are some of the vendors who offer MaaS [2].

Cloud Migration as a Service (C-MaaS): deals with migrating servers in-house to cloud setup. It facilitates the customers to move their physical and virtual servers into any cloud computing platform. One such example is RivermeadowenCloud that enables customers to migrate to cloud in a cost effective manner. It includes four steps in migrating namely Collects, Converts, Deploys and Synchronize

XaaS or 'anything as a service' refers to any feature provided to customers through cloud rather than depending on in-house technologies. A few XaaS services include Storage as a Service, Unified Communications as a Service (UCaaS), Network as a Service (NaaS), Desktop as a Service (DaaS) etc.

CONCLUSION AND FUTURE WORK

Cloud computing is a combination of various computing technologies and it can play a major role in bringing significant improvement in data transfer and communication. This paper provides a basic understanding of cloud computing which includes the cloud architecture, services and types of clouds. Future work aims at understanding the basic technologies involved in cloud and also to get an insight of various security and privacy issues associated with cloud.

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ARTIFICIAL INTELLIGENCE- TRENDS AND ITS APPLICATIONS

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ABSTRACT:

This paper mainly focuses on the importance of Artificial Intelligence, the “Simulation of Intelligence demonstrated by Machines and Systems” which is training the machines using algorithms and sample data to predict and make decisions. It also discusses on the current trends of Artificial Intelligence, Real time applications and its Pros and Cons.

KEYWORDS: Artificial Intelligence, Machine Learning, Decisions, Trends

INTRODUCTION

AI is the term associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.

WHAT IS ARTIFICIAL INTELLIGENCE

AI means to convert the old hardworking minds into new automated minds. Artificial Intelligence is a technology that enables the Machine to replicate Human Behavior and Machine learning being the **subset of AI** enables the machine to automatically Load from the preprocessed sample data or past data without programming externally. Machine Learning is an idea in which the machines should be capable to learn and adapt from the past experience while Artificial Intelligence is a widespread idea where the machines can finish the given task in an “smarter way”. Artificial Intelligence is used to solve actual and complex problems



Fig.1.1 Artificial Intelligence

CURRENT TRENDS IN AI

Artificial Intelligence is drawing more amount of attention due to its widespread applications. These technologies are being incorporated in many fields and sectors in the present world. Few of the current trends in AI are:

- Reinforcement Learning
- Quantum Computing
- Facial Recognition
- Neural Networks
- Biased data

3.1 Reinforcement Learning

Reinforcement Learning is training the machine models using the concept of training data to make a sequence of decisions. In Reinforcement Learning, the Artificial Intelligence undergoes a game like situation. To make the machine to do what the programmer wants as an output, the Artificial Intelligence draws either penalties or rewards for all the actions it performs. In opposition to the people, the Artificial Intelligence can collect experience from thousands of lateral Game plays if the algorithm of Reinforcement Learning runs on an adequately powerful computer environment.

3.2 Quantum Computing

Quantum Computing is similar to traditional computing that actively demonstrates that 0's and 1's to encode information. Quantum computing started in the early 1980s, when physicist Paul Benioff proposed a quantum mechanical model of the Turing Machine. Machine Learning and Artificial Intelligence technologies are the two key areas of research in the application of Quantum Computing Algorithms[12]. This type of Computing increments the number of calculation variables machines can juggle and it also allows them to give faster answers. Computers that perform quantum computations are referred to as **Quantum Computers**. Quantum computers are believed to be ready to solve certain computational problems.

3.3 Facial Recognition

The Facial Recognition system is a technology that is used even in our day to day life in our smartphones and computers. It has the capability of matching the human face from image or video frames from the preprocessed Databases of the human faces. These facial recognition are widely used in ID verification services and measuring facial features from a given image etc. The accuracy of facial recognition is less than the fingerprint recognition and iris recognition. Facial recognition is widely adopted due to its contact less process[8]. Facial Recognition is further incorporated in advanced Human and Computer interaction, Indexing of images, Video Surveillance and they are also majorly used by Law enforcement agencies.

3.4 Neural Networks

Neural Networks have the capability to extract Meaning from unreliable and complex data to find and detect patterns and trends that are impenetrable for the Humans and other Computer Techniques. Neural Networks have served us with a greater convenience in our day to day life through Gmail Sorting, Suggestions that are shown when we search in amazon etc. In Neural Networks we have an added advantage that once the Neural Networks are trained they have the ability to learn on their own.

3.5 Biased data

Biased data occurs when an algorithm gives results that are systematically influenced because of some inaccurate assumptions in the process of Machine Learning. Inadequate and incomplete data will produce inaccurate predictions. Biased Data usually grows from problems introduced by individuals training or designing the algorithms and systems. These kind of problems appear due to the use of inadequate or incomplete data sets to train and validate the machine learning systems

REAL TIME APPLICATIONS OF ARTIFICIAL INTELLIGENCE

We humans in day-to-day life are using many products of Artificial Intelligence. Some of

which are:

- Google
- Netflix
- Uber
- Spotify and more.....

4.1 Google

We all are familiar with Googleassistants and Google Camera that are available in Our Smartphones which is a product of ML Technology. But now the technology is more extended into Gmail and Google photos. Gmail now has a new smart reply feature that suggests you brief responses according to the email you have received and based on the content that is present in the email.

4.2 Netflix

Netflix is a most popular site that has been widely used by people all around the world, which is also a product of AI technology. The whole part of that site runs on a Recommendation engine that keeps a track of the user behavior and taste and creates a taste recommendation group and works accordingly.

4.3 Uber

Uber is a widely site all over the world. Machine Learning is a fundamental part of this technology. The time it takes the driver to reach your destination and how far your cab is all determined by the algorithms of ML technology. UberEats also works according to the same algorithm for the time it takes to prepare food and delivery etc. It makes these possible by analyzing the previous data with the current situation.

4.4 Siri & Cortana

These voice recognition systems are purely based on ML. They're being trained in such a way that they can imitate natural relations in exactly the same manner. As the relations do, these apps will learn to know the framework and grammar of the language. With some famous language, these can automatically get started with some pre-recorded responses from the system.

FUTURE PREDICTIONS ON AI

According to the predictions done on the future jobs AI is gonna create millions of jobs and it can also replace a lot of jobs done by humans in the present. There is a chance that AI could outperform humans. AI can also be referred as the technological innovator for the upcoming future. AI is definitely going to be incorporated in most of the sectors all over the world .

PROS AND CONS OF AI

Every coin has both sides similarly AI being the upcoming smartest trend also has some pros and cons.

6.1. Pros

6.1.1. Reduction in Human Error:

Humans make mistakes from time to time. Computers and Machines do not make these mistakes if they're programmed properly. By using the technology of Artificial intelligence, the decisions can be taken from the previously gathered information and applying a certain set of algorithms. By the way, the errors are reduced and the chance of

reaching accuracy may be possible.

6.1.2. No Human intervention needed

When Machine Learning Technology is incorporated, we do not need to monitor it as Machine Learning as they can learn by themselves and make predictions on their own and no human Interference is needed.

6.1.3. Digital Assistance

Organizations use digital assistants to interact with the customers or the users. Digital Assistants are also used to provide help to the users search for things they want. They can chat with the system to look or know about what they want. The chatbots [7] are Programmed in a way that it is hard to determine whether we are chatting with a chatbot or Human being.

6.1.4. Faster Decisions

By using AI technology we can make the Machines take the decisions much faster than the normal Human being and make processes faster and more quicker. As the AI works [5] according to how it is programmed while Humans analyze factors emotionally and practically. So the result is delivered in a faster way.

6.1.5. Continuous Improvement

The AI Algorithm Learns by itself so they keep improving their accuracy as the data you have keeps growing and the algorithms learn by themselves to make predictions faster. Thus it improves the accuracy and efficiency.

6.2. Cons

6.2.1. High Costs of Creation

Machines we use need Maintenance and Repair charges. The hardware and software that we use needs to get updated with time to satisfy the requirements. These kind of charges have a plenty of costs. The creation costs are huge costs due to their complexity.

6.2.2. Making Humans Lazy

AI makes the Humans Lazy as most of the jobs are done by the machines with the applications automating most of the work. Humans mostly get addicted to these inventions which affects the future generation too.

6.2.3. Unemployment

As said in the above cons, these inventions with AI replace the majority of jobs pursued by humans which will create a huge problem in employment standards. Many people Face unemployment issues as AI Robots do the same work with more efficiency.

6.2.4. Lacking Out of Box Thinking

We humans have the ability to think out of box but the Machines that work according to AI work according to the algorithms programmed into them and make predictions similar to the sample data feeded into it.

CONCLUSION

Artificial Intelligence with is widely used in our day to day life without us knowing where it is incorporated and used. Artificial Intelligence are almost used in most of the sectors all over the world, which is an added advantage to the Evolving Smart Future. We conclude

our paper by stating that Artificial Intelligence are going to be in all fields of Business , Education and more..

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ACHIEVING ACADEMIC AND CAREER EXCELLENCE THROUGH EMOTIONAL INTELLIGENCE

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ABSTRACT

Teachers are the lifeblood of the institution. It is their passion, hard work and reliable interactions that help to uphold the reputation of the institution. For more than a decade, the concept of emotional intelligence has conquered wide attention as a potentially productive factor in describing and forecasting one's job performance. Today across the globe, both in educational and corporate race, the significance of emotional intelligence has become more justifiable with a positive enlargement. So this study aim to assess the level of Perception on Emotional Intelligence among Academics. This study is based on primary data which was collected with the help of well structured questionnaire. The questions relating to the personal profile and level of emotional intelligence among academics are framed. Mayer and Salovey (1990) Emotional Intelligence model was used to measure emotional intelligence among Academics. A sample of 75 Academics from Pollachi (TK), Coimbatore have been selected. The statistical tools like simple percentage and Regression analysis is used to analyse the gathered data. Research result indicates that the positive emotions and identifying the emotional clues have impact on Emotional Intelligence. Therefore, the academics are ready to accept any emotional state in any situation.

KEY WORDS : *Academics, Emotional Intelligence & Emotions*

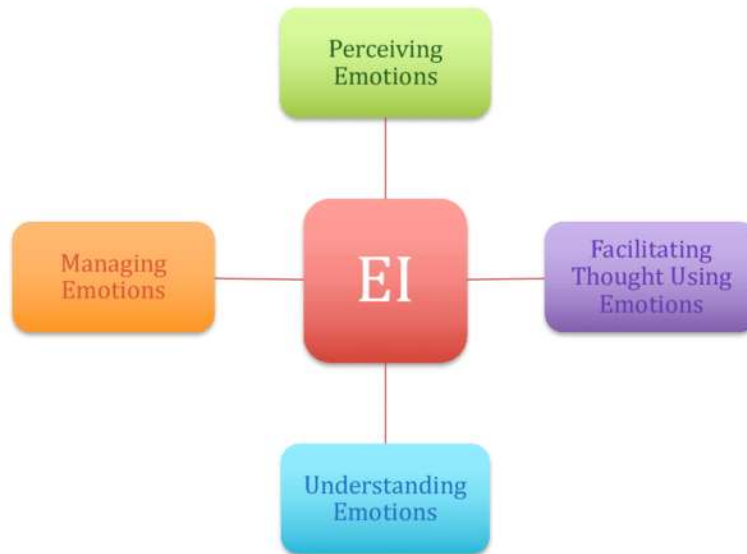
INTRODUCTION

Emotional intelligence is the aptitude to realize your individual emotions and to understand others along with those of people around you. The most realistic conception of Emotional Intelligence in teaching is, a teacher must possess a self-awareness that facilitates you to identify feelings by managing your emotions. EI helps in rising your professional performance. Emotional intelligence also aids in increasing a healthier connection, attain better success at work, and lead a gratified living.

Emotional intelligence enhances teaching practices in today's sprouting educational world. It helps in building an effective teacher-student relationship. Today we see different kinds of conflicts and misunderstandings between the teacher and the learner can be resolved if teachers are emotionally capable and intelligent. This is very important as the current compound education system demands a teacher to have the excellence of relationship-management for supportive communication with fruitful teaching-learning process.

However, a teacher needs to build up EI in herself/himself before promoting emotional intelligence among her/his students. In order to do that, a teacher has to assess himself/herself by examining the teaching assets and limitations. An emotionally intelligent teacher will not only be self-aware but will also demonstrate understanding and empathy towards learners, parents, peers, etc. So this study uses the Mayer and Salovey's (1997) Four branch model of Emotional Intelligence which includes Perceiving Emotions,

Managing Emotions, Facilitating thought using Emotions and Understanding Emotions.



REVIEW OF THE LITERATURE

ShaithSoheel (2021) in their study “Influence of emotional intelligence on academic achievement.” The study aims to investigate the influence of emotional intelligence on academic achievement among students of education faculty. The primary data were collected from 278 participants with simple random sampling method used. The findings shows that the students of the faculty of education from Dr. Bamu Aurangabad have high level of emotional intelligence.

Abdu Hasan(2021) studied “Emotional intelligence and students' academic achievement” The study aimed to explore the relationship between emotional intelligence and students' academic achievement. The research between emotional intelligence (EI) and the academic achievement of Arabic basic school students in China. The primary data were collected from 303 students with correlation and regressions, Chi- Square Analysis .The findings suggests that the final formulation of item's of the emotional intelligence scale that can measure the levels of emotional intelligence of students is significantly positive to academic achievement.

Gaurav Joshi (2020) studied “Association between emotional intelligence and academic achievement of MBA student” The study aimed to measure the association between academic achievement on emotional intelligence of the post-graduate for which correlation and stepwise regression were used for statistical analysis. The result that emotional intelligence is not able to fully predict the academic achievement of the MBA students.

STATEMENT OF THEPROBLEM

The study focuses on analysing the level of emotional intelligence among the academics . When the teachers are dissatisfied and depressed, others easily become lethargic, cynical and discontented and the entire organization becomes a dispirited and uninviting place. Thus teachers play an important role in establishing the complete tone of the college. Teachers need to feel successful and good about themselves and their abilities before they can empower their students to feel the same. If however, teachers experience feelings of failure, nervousness and fear in their relationship with students which results in low EI. The present study focuses on analysing the level of EI among college teachers

OBJECTIVES

The objectives of the study were:

- 1) To study the level of perception of Emotional Intelligence.
- 2) To study the relationship between selected variables and Emotional Intelligence.

METHODOLOGY

Data, sampling and tools of analysis constitute the methodology of the study.

i)Data: The study is based on primary data. Primary data was collected with the help of well structured questionnaire.

ii)Sample size: Convenient sampling is used. The sample size used for the study is 75 respondents

iii)Tools of analysis: The collected data is arranged and categorized according to the purpose of the study. Statistical tools such as Simple percentage and Regression analysis were used.

ANALYSIS AND INTERPRETATION

A. Table 1 : Socio – Economic Profile

Particulars	No of Respondents	Percentage	
Age	Below 30 yrs	17	22
	30-40 yrs	45	60
	Above 40 yrs	13	17
Gender	Male	24	32
	Female	51	68
Marital Status	Married	63	84
	Unmarried	12	16
Educational Qualification	PG	3	4
	M Phil	35	46
	PhD	37	49
Designation	Associate Prof & Head	5	6.7
	Assistant Prof & Head	10	13.3
	Associate Prof	8	10.7
	Assistant Prof	52	69.3
Work Experience	Below 5 Yrs	11	14
	5-10 Yrs	34	45
	Above 10 yrs	30	40
Distance between home and workplace	Below 5 KM	30	40
	Between 5KM-15KM	23	30
	Above 15 KM	22	29
Mode of Transport to	Own Vehicle	50	66.7

Workplace	Bus/Cab	20	26
	By Walk	5	6

From the table 1, majority of the 68% respondents are female, 60% of the respondents age group is below 30- 40 years, 84% of the respondents are married . 49% of the respondents are Doctoral degree holders and in which majority of them are assistant professors and have working experience with 5- 10 years. Majority of the 40% respondents distance between home and workplace is below 5 Kms and their mode of transport is through own vehicle.

B. Table 2, Analysis on Perception on Emotion

Particulars		No	of	Percentage
		Respondents		
Emotions can affect your Performance	Yes	65		86
	No	10		13
Usage of Positive Emotions	To generate new ideas	26		34
	To find novel solutions to problems	13		17
	To make friendly approach	25		33
	To be ready to forgive	11		14
Your action during Negative Emotions	Finding fault with others	14		18
	Focus on details	18		24
	Fear and Anxiety	24		31
	Negative thoughts	19		25
Manage Negative Emotions	By becoming fully conscious of the activities	9		12
	By keeping silence	28		37
	By trying to change into positive emotions	14		18
	By diverting mind to other activities	15		20
	By diverting mind to other activities	9		12
Identifying Emotional Clues	Yes	58		77
	No	17		22
Identifying Emotions of others	Facial expression	32		55
	Tone / voice	22		37
	Posture	2		3
	Artistic expression	2		3
	Others	0		0
Influence upon your Emotional State	Always	38		50
	Sometimes	27		36
	Never	10		13
Balance between Professional and Personal life	Yes	58		77
	No	17		22

From table 2, Analysis on perception on Emotions. Majority of the 86% respondents say that their emotions affect their performance. Majority of 34% of respondents use positive emotions to generate new ideas. Majority of 31% respondents face fear and anxiety during their Negative emotions and majority of 37% respondents keep silent for managing their Negative emotions . 77% of the respondents identify emotional clues and 55% of the majority of respondents can understand facial expressions to identify the emotions of others and majority of 50% of respondents always influence upon their emotional state and 77% of the respondents balance between professional and personal life.

Analysis On Determinants Of Emotional Intelligence - Regression Analysis

Table 3, Regression Analysis

Variables	Regression Co-efficient	S.E	T
Age	-.092	.165	-.557
Gender	.093	.159	.582
Marital status	-.080	.243	-.329
Educational qualification	.251	.161	1.554
Designation	-.046	.090	-.515
Work experience	-.097	.157	-.617
Distance between you home and workplace	.012	.096	.120
Mode of transport to work place	-.069	.139	-.500
Nature of the category of your college	.219	.136	1.619
Total teaching experience	.075	.204	.370
Type of family	-.004	.146	-.030
Gross monthly income	-.051	.089	-.581
Gross family income	.140	.130	1.077
Do you think that some of your emotions can affect your performance	.245	.210	1.164
Why do you use the positive emotions	.133**	.063	2.120
What is your action during negative emotions	-.082	.049	-1.671
How do you manage your negative emotions	-.035	.060	-.590
Can you identify emotional clues	-.414**	.185	-2.233
How often do you realize others influence upon your emotional state	-.195	.101	-1.924
Can you make a balance between professional and personal life	.134	.079	1.703

*Significance @1% level

**Significance @5% level

In order to find out the factors which influences the Emotional Intelligence the 21 selected variables have been Regressed on the EI index. The following regressions equation has been framed to ascertain the impact of variables on the Emotional Intelligence scale.

$$EI = a + b1A + b2G + b3MS + b4EQ + b5D + b6WE + b7DI + b8M + b9N + b10T + b11TF + b12MI + b13FI + b14EP + b15PE + b16NE + b17MNE + b18EC + b19ES + b20BPP + E$$

EI = Emotional Intelligence

A = Age

G= Gender

MS= Marital Status

EQ = Educational Qualification

D =Designation

WE = Work Experience

DI= Distance

M= Mode

N = Nature

T =Total Teaching Experience

TF= Type of Family

MI = Monthly Income

FI = Family Income

EP = Emotional affect your performance

PE =positive Emotions

NE -Negative Emotions

MNE = Manage Negative Emotions

EC = Emotion Clues

ES = Emotion State

BPP = Balance between Professional and Personal Life

Constant : 1.731 Standard Error: .930

Adjusted R2:364 R2 :128

The result of regression shown in the above out of 20 variables, the following have no impact upon EI they are. Age, Gender, Marital Status, etc....The Variables which are found to be influencing the EI are explained below.

(a) Use of Positive Emotion:

Use of positive Emotions among the academics influence the Emotional Intelligence. The regression co-efficient indicate that use of positive Emotion shall increase the Emotional Intelligence by 13% at 5% level of significance.

(b) Identify Emotional Clues:

Identifying Emotional clues among the academics influence the Emotional Intelligence. The regression co-efficient indicates that identifying emotions clues increase the emotional intelligence by 41% at 5% level significance.

CONCLUSION

Emotional Intelligence is the capacity to acknowledge ones and other's emotions, then influence emotional information to adapt thinking and behaviour to the environment and to achieve ones' goal. It is found in the study that use of positive emotions influence the Emotional Intelligence of the respondents and they approach a friendly manner to show their positive emotions. Majority of the respondents are abled to identify the emotional clues in which they identify the emotions of others through their facial expressions. Therefore, the academics are ready to accept any emotional state in any situation.

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AN ANALYTICAL STUDY ON THE SOCIAL MEDIA ANALYTICS OF INSTAGRAM

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ABSTRACT

Social media is a toolset that can be used to offer consumers a variety of services in addition to being a crucial part of mass communication. There are various distinctive features of social media. First of all, user-to-user interactions and user-generated material are both covered by social media. Social media allows users to communicate their thoughts and feelings, which encourages the strengthening of interpersonal bonds through platform engagement. Additionally, through a wealth of user-generated material, it creates and maintains user-to-user relationships. People can create information, share information, filter it through discussion and review, and then broadcast it. Additionally, social media is a very technologically dependent informational medium. Social media provides news updates about friends, families and various trends around the world. They have a snapshot of job openings, new technology development, entertainment and news updates from around the world. With its precise target user placement, Instagram, the most representative visual-oriented social networking site in the world, enables users to shoot photographs and videos and share them on other platforms. This paper conducts an extensive literature review of Instagram, focusing on the research methods that researchers use to collect and analyze data.

INTRODUCTION

Social media has become more significant in people's lives as a result of the rapid advancement of mobile Internet technologies worldwide. After years of growth, it is now contributing to society in a variety of different ways. Social media is now used to offer a variety of services to individuals, not just as a platform for mass communication. The fastest-growing social network in the world, Instagram, is a good example of how social media is used in contemporary life. It helps users share their photos and movies on various platforms in addition to enabling them to take photographs and films. Social media is a web-based technology that makes it easier for many individuals to communicate socially through a network. The Internet is a commonly used network. Social media platforms, however, are also used by local networks. Because of the most recent technology revolution, social media is expanding quickly and becoming an essential component of daily life. Due to the rising popularity of smartphones like BlackBerry, Q-Mobile, Androids, and iPhones, this astounding growth has been observed. With these smartphones, nearly everywhere access to any social media platform is simple. These social media platforms' mobile versions are so simple to use that they are user-friendly. Additionally, the use of Map services on mobile devices for navigation was impressive.

PURPOSE OF STUDY

The ability to acquire and interpret data from social media channels in order to support business decisions and evaluate the effectiveness of actions taken as a result of those decisions is known as social media analytics. Social media analytics aids businesses

in identifying market trends, understanding dialogues, and analyzing client opinions about goods and services.

Companies may stay updated about the latest from rivals, client reactions, and avoidable behaviors by tracking and analysing unstructured information. Social media analytics is a tool that enables users of online social networks to promote their websites, products, or services to a wider audience than would be feasible through traditional advertising channels. It is a young and developing subject that can assist organizations in developing and implementing measurement methodologies for gaining insights from social media interaction and for assessing the performance of their own social media activities. With the aid of a good social media analytics, businesses can enhance their performance management programme across numerous company functions.

OBJECTIVES

Customer engagement, increased revenue, enhanced customer experiences, and thought leadership positioning are the typical marketing objectives for social media.

TOOL:

Instagram Insights:

Utilize your Instagram insights to find out more about the general trends among your followers and how well your material is performing with your audience. You can also check insights for specific posts, articles, videos, reels, and live videos you've made to see how each one performed and how users interacted with it. Only business or creator accounts can access insights, which are free.

RESEARCH METHODOLOGY

★ One of the many reasons we advise upgrading to an Instagram business or creator profile is

that Instagram Insights are only accessible to those accounts.

★ You can simply check your analytics using the Insights tab in the Instagram app if you have a creator or company profile.

★ The analytics for your business or creator profile will open if you hit the menu button in the top right corner of your profile and select the Insights tab. You can also click the Insights button on your profile page as an alternative.

★ You may access a wealth of analytics and insights for your posts, stories, and audience demographics after you open your Insights.

Note: Only posts and stories that were published after you changed to a business or creator profile are eligible for analytics on Instagram.

FINDINGS

You can view these Insights from your profile in the Instagram App:

o Recent highlights

o Insights overview, which includes Accounts reached, Accounts engaged and Total followers

o Content you shared

In the insights from your profile you'll have access to a summary page, as well as trappable metrics that lead to different screens with more details. On each of these screens, you can tap the (i) in the top right corner to see definitions for each metric listed on the screen. You can also tap the drop-down at the top of the screen to select a preset or

custom timeframe, within the past 90 days, for when to view insights.

You can also tap View Insights under individual posts, videos, and reels, or swipe up on your stories and IG Live videos, to view insights specific to that piece of content, including:

- Accounts reached
- Accounts engaged
- Content interactions
- Ad
- Plays

View the insights names and definitions available for professional accounts on Instagram:

- **Recent Highlights:** This section announces any notable increases in account performance in your selected preset or custom timeframe within the past 90 days.

- **Overview:** This section showcases the number of accounts reached, accounts engaged, total followers and approximate earnings (if applicable) for your selected preset or custom timeframe within the past 90 days. Aggregated demographic data is based on a number of factors, including information users provide in their Facebook and Instagram profiles. You can tap on each of these metrics for a more detailed breakdown.

- **Accounts reached:** Number of unique accounts that have seen your content on screen at least once and demographic information on the accounts you've reached, including top countries, top cities, top age ranges and gender breakdown. To view audience demographics, use preset timeframes and reach over 100 accounts. If you can't see audience demographics for the Last

7 Days, you can try choosing a longer preset timeframe such as Last 30 Days, Previous Month or Last 90 Days.

For reels, accounts reached are the number of unique accounts that have seen your reel on screen at least once, whether or not your reel was played. Reach is different from impressions, which may include multiple views of your reel by the same accounts.

Note: These metrics are estimated and in-development.

- **Accounts engaged:** Number of unique accounts that have interacted with your content and demographic information on the accounts you've engaged, including top countries, top cities, top age ranges and gender breakdown. To view audience demographics, use preset Timeframes and engage over 100 accounts. If you can't see audience demographics for the Last 7 Days, you can try choosing a longer preset timeframe such as Last 30 Days, Previous

Month or last 90 days. For posts, stories and Instagram Live, you can see the Accounts engaged metric broken down into followers and non-followers.

Note: These metrics are estimated and in-development.

- **Total followers:** View trends across your followers when you have at least 100 followers.

These insights include:

- ❖ Growth (number of followers you've gained or lost)
- ❖ Top locations of your followers
- ❖ Age range
- ❖ Times they're most active on Instagram

Note that the total followers metric is in-development. This means that the total number of followers you see may change, even within a short time.

- Content you shared: The content you've posted and boosted across feed, stories and video for your selected preset or custom timeframe within the past 90 days. If you want to see all the posts, Stories, videos, reels, and live videos on your account, you can tap under each content type to go to the media library. Here, you can view and filter all your content by media type, reach, interactions and time frame.
- Content interactions: Actions people take when they engage with your content, such as likes, comments, saves, shares and replies.
- Ad: This section provides more information on your post if it's been boosted.
- Plays: Number of plays, which are counted when a video starts to play automatically or because someone clicked to play the video. In some cases, such as when people see your reel on the web browser of their mobile device, your video may not play automatically.

CONCLUSION

Social media has grown quickly in response to technology advancements on the Internet, which encourages the development of complex social network ecology. It is conceivable that social media will alter people's communication habits in the near future, which would afterwards alter their way of life. Instagram, as a new social network Smartphone application, draws a sizable following of devoted users because of its precise target market placement, flawless features, and straightforward user interface. This study depicts the usage of Instagram insights. It helps the Instagram users to get insights of their Id.

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THE STUDY ON MARKETING ANALYTICS

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ABSTRACT

This essay explores the significance of marketing analytics for marketing research and practice and gives a comprehensive evaluation of marketing research on the emerging new field of "marketing analytics." The systematic review of studies and conclusions on marketing analytics that is provided in this article adds to the body of marketing literature and allows for additional recommendations. We list the key ideas and concepts linked to marketing analytics that are prevalent in marketing research and compare how academics, practitioners, and researchers have approached the subject. An overview of the most recent findings and a more natural manner to apply and translate theoretical findings in practice are also provided for practitioners by the study. The importance and advantages of marketing analytics can be promoted and illustrated by academics in the classroom using these findings.

Given the proliferation of data, the emergence of digital marketing, social media, and marketing analytics, marketing academics have observed that marketing science and practice are undergoing an analytics disruption. As researchers have noted, it might be difficult to incorporate large and small data, marketing analytics, and online and offline integration into marketing decisions and operations. This points to a crossroad in effect measurement, big data, and online/offline integration. Due to the widespread use of small technology devices like watches, cameras, and the Internet of Things, experts expect an even more comprehensive development of big data. This study aims to analyze the present status of marketing analytics research and evaluate the key study variables, research interests, findings, and analytical techniques used.

KEYWORDS: Marketing Analytics, Big data, Marketing metrics.

INTRODUCTION

Marketing researcher have noted that Big data, marketing analytics, and data mining, according to marketing researchers, appear to be here to stay in the marketing industry, where data analysis is seen as a particularly important problem. When taking into account the requirements for suitable measurements and analytical techniques to enhance data driven marketing operations and decision making, marketing analytics play a crucial role. According to studies, firms can employ marketing analytics more frequently to produce favourable and long-lasting performance results. The goal of this study is to examine the present state of marketing analytics research and evaluate the key themes, research areas, findings, and analytical techniques used. The application of marketing analytics in marketing research practise is also being evaluated, and we are comparing real-world interests to academic ones in published papers and in academic courses.

This article adds to the body of marketing literature by providing a systematic review of research on marketing analytics and its findings, which enable additional suggestions. We begin by describing the historical context. Then, we present the findings of a thorough literature review of marketing journals, comparing the co-occurrences of words found in academic research with those that include marketing research forms to represent the practitioner point of view as well as to business schools to reflect the state of education and MBA training at the time. We then offer advice for academics working as researchers and

as educators and for practitioners.

MARKETING ANALYTICS OVERVIEW

Marketing data used to be typically available in aggregate form on an annual or monthly basis. To track product sales in retailers, Nielsen founded one of the first and most well-known market research firms in 1923. Nielsen began gauging radio and television audiences in the 1930s and 1950s. Marketers were becoming accustomed to the usage of UPCs, scanner data, and biweekly audit data from AC Nielsen thirty years ago. The INFORMS Society of Marketing Science was also founded in the 1980s. Traditional analytics reached its maturity in the middle of the 1990s, Internet marketing started to take off, and advertisers began to see the potential of using log files to track user interactions on websites. Additionally, at the time, CRM software According to Moore's law, which states that electronic storage capacity per unit volume doubles every two years, these advanced with the growth of the Internet and the sharp increase in data processing speed and data storage capabilities.

Even marketing research has been impacted by the new analytics, giving researchers the chance to use web-based interactive survey tools, online qualitative analysis, mining, and massive database analysis. Due to the digital platform, businesses were able to access enormous consumer databases that contained data on client purchasing patterns, marketing contacts, and other traits. Real-time data have multiplied thanks to the Internet and social media, which have also enhanced data generation and collecting, driven down the cost of computation, and advanced statistics. Currently, organisations use analytics as a significant tool.

DATA AND A STRATEGY FOR A COMPREHENSIVE REVIEW OF MARKETING ANALYTICS

We employ a three-phase systematic review approach to evaluate the current status of research in marketing analytics. In phase 1, we searched the databases ABI Inform and EBSCO Host for peer-reviewed articles with the words "marketing analytics" in their titles that had been published between 2007 and 2018. 31 articles were listed by ABI, and 60 were listed by EBSCO. 27 articles were kept for analysis after duplicates, book reviews, editorials, presentations of special issues, and items not specifically linked to analytics were removed. In the complete text of renowned marketing journals including the Journal of the Academy of Marketing Science, Journal of Consumer Psychology, Journal of Consumer Research, Journal of Marketing, Journal of, we then concentrated on searching for the keywords "marketing analytics. We identified 35 publications on the subject of marketing analytics from the leading marketing journals. The sample for analysis includes 62 articles in total.

The table outlining the crucial aspects of each of the 62-research examined is shown in the appendix. This summary table displays the 62 papers that were examined, along with the research theories, methodologies, and data types used in the marketing analytics study. We also considered the top 20 market research to provide an overview of marketing analytics in practise and to compare and contrast this idea with marketing analytics research. The second phase of data collection involves deepening our understanding of the evolution of marketing analytics with regard to pedagogy, specifically the course and specialisation offerings of business schools, in order to specifically collect and compare the practitioners' focus from these organisations' descriptions of their marketing analytics offerings and services. Phase 2 of this process involved searching the websites of the top 25 global universities for economics and business, as determined by U.S. News, and extracting details about their specialisations in marketing analytics, course offerings, and course

descriptions. After conducting a literature review, To find the main themes in the evaluated papers, we used qualitative content analysis and cluster analysis techniques. In the next part, we use the findings from the systematic literature review and analysis to provide what appears to be a definition of marketing analytics, define the key issues for marketing research and practise, and assess the state of the field's present understanding.

DEFINITION OF MARKETING ANALYTICS

As a result of our comprehensive evaluation, we start by defining marketing analytics. Since different components of business analytics have been used by marketing researchers in their studies, the definitions used also differ, as is seen in. At the same time, many marketing studies take into account data mining and big data analytics, which are defined as the collection of data and the development of insights that serve as decision-aids, economically extracting value from extremely high quantities of a wide range of data. Definitions of analytics According to Metharbital and Rust and Huang, big data analytics (BDA) is the collection of data and the creation of insights that serve as decision-making tools.

By enabling high-velocity capture, discovery, and/or analysis, BDA is "a new generation of technologies and architectures, designed to economically extract value from very large volumes of a wide range of data," according to IDC.

Advanced analytics, according to Forrester Research, is "any solution that supports the identification of meaningful patterns and correlations among variables in complex, structured and unstructured, historical, and potential future data sets to predict future events and assess the appeal of different courses of action." Data mining, descriptive modelling, econometrics, forecasting, operations research optimization, predictive modelling, simulations, statistics, and text analytics are common components of advanced analytics.



SCHOLARLY STUDY AND MARKETING ANALYSIS

In this section, various research in analytics components are explained in greater detail. First, data concerns are defined, followed by descriptions of measures and metrics. A review of the papers examined reveals the increase in interest in the subject of marketing analytics during the previous few years, since more than half of the research under consideration were published in the last two years. Species distribution The investigations

demonstrate the concept's rising status and the journal interest in articles that are devoted to summarising the idea and developing it theoretically. There is a lot of talk about marketing strategy and marketing channels in many papers when it comes to the research focus. Many of the marketing-related publications that were reviewed had decisions about marketing strategy, predictive analytics, and online consumer behaviour in common. Content analysis, grounded theory, econometric modelling and simulation, forecasting, lexical semantic analysis (used in this study), SEM, regression, sentiment analysis, and text mining are just a few of the analytical techniques and data sets that highlight the uniqueness and benefits of marketing analytics. Ayanso and Bend Letwin Given the benefits of predictive analytics and statistics, researchers have observed that the use of metrics in the study of small-business success is crucial for both researchers and practitioners.

The studied studies emphasise that marketing analytics can assist in gathering and analysing information about customers' preferred brands, shopping habits, and purchasing trends. Our model, which was created based on prior research in marketing analytics, underlines the significance of these factors for managers and employees in terms of business success, adding value, and achieving and assessing results. Marketing metrics are crucial to measuring marketing performance in various sectors of marketing, including sales and advertising, as shown in the conceptual map. The third cluster highlights the ability of a business to use marketing analytics and metrics as an effective way to gain market insights, to track and optimise performance, and to be competitive Huang and Big data is identified as a topic of significant interest for contemporary business research in the context of retail and services. Numerous studies under consideration show the advantages of big data analytics, including those on commerce services, the success of new products, and marketing communications. Jobs and co. It speaks of the advantages of marketing analytics in gathering consumer data and offering a user interface that may inspire changes in how businesses interact with customers.

The papers in cluster 5 are concentrated on the potential value addition that marketing analytics could provide, in a cooperative setting that takes a macro-level perspective and takes marketing research, practise, and academia into account. An examination of the papers in this collection highlights the importance of marketing to each of these stakeholders in the field of analytics. The research in cluster 6 that focus on modelling and business performance in general are the last group. These articles demonstrate how organisations can benefit from marketing analytics to raise profitability and shareholder value by using it to improve company decision-making, strategy, and performance. To encapsulate the key conclusions from our study and evaluation of the literature, gives a summary of the key ideas in relation to the themes that emerged from the marketing analytics research approach. It covers the key components of the definition of marketing analytics, such as the measurement, data collecting, and analytical goals, as well as the tight ties to current big data and social media trends lists the most important marketing topics that were covered in prior research on marketing analytics.

These topics could benefit from future studies that can clarify the application of analytics in areas including consumer behaviour, business-to-business (B2B), and innovation. The most popular research techniques are also shown, and they show how the characteristics of the data under study—including social media and big data—relate to techniques like data mining, sentiment analysis, and social network analysis. These articles offer a summary of the essential components of the output of marketing analytics, including benefits for both customers and marketers, such as an enhanced customer experience and a higher ROI.

MARKETING ANALYTICS IN ACADEMIA FOR EDUCATORS

Different academic initiatives, such as businesses started by academics or based on their research, have been highlighted in studies as having an impact on marketing practise. Through the training and mentorship provided by business schools, academics play a significant role in the diffusion and evolution of marketing analytics in practise and research. We conducted a search on the websites of the top 25 global institutions for economics and business, as determined by U.S. News (2018), and extracted details about their course offerings, specialities in marketing analytics, and course descriptions for this purpose. Many graduate-level and some undergraduate courses in marketing analytics are offered at the majority of elite universities. A Master's in Marketing Analytics is offered at the University of Chicago, and New York University offers a B.S. in Marketing Analytics. Other universities also offer degrees in marketing analytics. In addition to offering the free MOOC course Marketing Analytics: Data Tools and Techniques on the EdX platform, the University of Pennsylvania has created the Wharton Customer Analytics Initiative, an academic research centre focusing on the creation and application of customer analytics approaches. In addition to the house courses on EdX, other universities including Columbia University and the University of California at Berkeley also offer free marketing analytics courses.

We also sought to assess the amount of interest in marketing analytics at business schools that were not included in the U.S. News list but were thought to be less cutting edge. Ten business schools that the AACSB recently accredited in the previous year were examined for this reason. On its website, only one of them made reference to a marketing analytics course. Data analysis is crucial to business models, business decisions, marketing measurements, and knowledge, as evidenced by the conceptual focus of the marketing analytics courses. Even in the conceptual map, regression appears to be the most popular technique, but other tools, such as competitive analysis, the quantitative strategic planning matrix (QSPM) decision model, the Monte Carlo analysis decision model, conjoint analysis, promotion analytics, and budgets for traditional and social media are also used. The emphasis is on teaching students the fundamentals of data analysis so they can make judgments and develop models using the analytics gathered, as shown by the model.

ACADEMIC STUDY

The review of marketing analytics research to date indicates that the concepts and terminologies regarding the many domains of marketing and their applications of or benefits from marketing analytics still seem to be rather fragmented. As an illustration, consider the variety of methodologies used to define marketing analytics as well as the range of topics covered by these approaches in the literature. The trend in current marketing analytics appears to be slightly more toward practical and concrete marketing features, yet When creating a conceptual model, these investigations should benefit from taking a more rigorous theoretical foundation into account. Given the influx of big data from the actual world and the related practical concerns, it may be obvious why this concentration is more practical than theoretical. We support the recommendation made by top researchers in marketing analytics that academics provide theory-based standards for managers to employ when interpreting marketing metrics. Given the close ties between academia and business in the field of marketing analytics—perhaps closer than in many other areas of the field—academics and practitioners may benefit from even more connections to further their studies. Given the rapid development of marketing analytics in practise and the slower rate of marketing academic scholarship, there is probably some reason for the gap that has existed up to this point

Due to big data and online content, many data analysis techniques have become more popular, including sentiment analysis, semantic analysis, and social network analysis,

some of which were employed in the studies under review. Both the requirements for the rigour criterion for them and the function of these methodologies in marketing research need to be made apparent. Additionally, even when the data are not particularly "large," it is equally crucial to employ the concepts, methods, and metrics of marketing analytics. The majority of marketing concerns might be better answered with marketing analytics since it provides a rigorous framework for thinking about relationships in addition to a wide range of relevant analytical tools.

ACADEMIA in Its ROLE as EDUCATOR

Given the research and, especially, practitioner interest in this field, academic marketing departments should incorporate marketing analytics into their overall curriculum to give students a convincing career advantage. For advanced undergraduates as well as MBAs, this course of study is likely to start with a strong statistics course and a class in marketing research before expanding to cover various models for various forms of data. Additionally, academic marketing departments should give their students opportunity to experience data collecting, analysis, interpretation, and decision-making in the actual world. This can involve working on practical projects with nearby companies, internships, and student business incubators. Students would have a better knowledge of our standard caveats in theory development, dealing with populations (as opposed to samples), and using skewed samples as the basis for comprehending consumers.

The findings of non-random samples cannot be generalised, much as interpreting qualitative research. Students will learn that with huge samples and populations, any effect becomes statistically significant while being of zero value by being exposed to one or more big data datasets. Additionally, a variety of subjective, non-theoretical proprietary performance measurement models are readily available. Executive programmes are a final component of education that may be put into place very rapidly. Changes to full-time programmes typically necessitate additional red tape and vetting, whereas executive programmes can be created, promoted, staff, and operated with little to no delay. The need for such retooling and retraining among marketing professionals, who would not have been exposed to such material during their MBA or undergraduate days but who can understand the need to be facile with the concepts and analytical tools to be part of today's marketing dialogue, is probably currently unmet.

A MANAGERIAL TECHNIQUE

Although the data and necessary technologies are valuable, there are other factors at play. We all know that data and technology are only relevant to the extent that they are effectively and systematically applied to generate insights and conclusions from the data, despite the fact that our models demonstrated a clear practitioner focus on business decisions and prescriptive information. There are no widely accepted standards for metrics, analytics, or interpretation, as seen by the variety of marketing measures and techniques of analysis in the evaluated studies. This diversity is valuable and should be promoted, at least until certain types of data or models clearly outperform others.

A comprehensive approach, a variety of methods, ideally using various forms of data, fitting the company's profile, and joint interpretation are required for marketing analytics. Collaboration with researchers and professors on various market analytics subjects is a potentially fruitful activity, especially at universities where this field is established. This is because many market research organisations were formed by academics.

CONCLUSIONS

A thorough analysis of marketing research on the subject of marketing analytics was

offered. Big data, marketing metrics, and the significance of marketing analytics were identified as the main topics and concepts in marketing research using a semantic and cluster analysis. We also provide an analysis framework for the components of marketing analytics as seen by academics, practitioners, and researchers in the field. We provided recommendations for researchers based on the analysis' findings for the direction of future marketing analytics research. The development of theories and the creation of integrative models should be the main areas of emphasis in this area. The use of a holistic approach and a more methodical, theoretically-based approach for practitioners might also be beneficial.

Academic educators can aid in the advancement of various fields as well as the preparation of capable managers. By incorporating important marketing analytics studies and giving a summary of the current state of research, this article adds to the body of marketing literature. Recommendations and a summary of the review are given to practitioners so they can apply theoretical findings in practise more naturally. These findings can be used by academics to explain and illustrate the use and advantages of marketing analytics in the classroom.

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CYBER SECURITY IN DIGITAL MARKETING

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ABSTRACT

The immense growth in the field of technology has each and every person in the planet connected in another world – internet. This has led to the way of digital marketing, which took a different scale in the post pandemic period. With the business in online has been reaching its zeal, the cyber crimes and data breaches are deterring the zeal. A few years ago, some business owners were still having second thoughts and wondering if digitalisation is truly a necessity for their businesses. These doubts must have been suppressed the past couple of years as we experienced a global health crisis. As we are all forced to stay home, businesses need to take major steps and undergo major disruption in order to stay relevant in their respective industry. Transactions are now done online, products are sold in virtual shopping stores, and advertisements are flashed on our mobile phones. We have reached the era where pretty much everything is done online. Digital transformation is bound to happen regardless of whether we like it or not, and the pandemic just rushed it up. While businesses are following each other's suits, they are also considering the two major business essentials in digitalisation—digital marketing and cyber security.

KEY WORDS– digital marketing, cyber security.

INTRODUCTION

Digital marketing is a concept that has been prevailing in the field of e-commerce since the invention of the internet. E-commerce boomed over the years and it wasn't a threat to the physical stores until a few years ago and as one of the major effects of the pandemic. Online transactions offered convenience, thus people spend more time on the internet more than ever, and the consumption of digital content significantly increased. Many organisations took advantage of this, making their digital marketing strategies much stronger for the benefit of their business. The power of social media proved to be the digital marketers' advantage as well.

With the flourishing digital marketing together flourished the Cyber security. Initially cyber security focused only on government agencies and financial institutions. However, the flourishing digital

Economy paved the way for it to be an essential part of the digital transformation across all industries. All businesses, big and small, are highly recommended to implement cyber security measures. As everything else transforms into digital, a huge amount of sensitive data is transmitted back and forth through the internet. These data can be intercepted by cyber hackers, resulting in unfavourable outcomes.

Cyber security attacks can be expensive (PDPA, the costs of loss and other damages, etc.), and so there is not enough reason for organisations to impede their cyber security programme especially if most of their business transactions are done online, and they hold sensitive information of their clients, products, and services (finance, health, and retail industries).

OBJECTIVE OF THE STUDY

The study is held to understand that cyber security is crucial to digital marketing and to

identify the strategies put in place for a successful digital marketing in the midst of incessant cyber threats.

RESEARCH METHODOLOGY

Descriptive type of research is done. The research is to analyze the readiness in acceptability of green financing among entrepreneurs and investors. Secondary data taken from various reports of public and private sector organizations and websites.

Importance of Cybersecurity in Digital Marketing Developing a good digital marketing strategy is crucial for any business growth. However, one also has to consider the security of the entire marketing campaign — from the website to emails to social media.

Neglecting this aspect can cause privacy risks for both businessman and his customers.

Here are some typical forms of cyberattacks that involves digital marketing:

- Malware infection from files downloaded or links clicked
- Browser hijacking and redirection
- Stealing of data and other sensitive information
- Identity theft
- Proliferation of fake news
- DDoS attacks on website
- WordPress malware

There is a huge importance of cybersecurity in digital marketing and day-to-day business.

The 4 most important areas are as follows:

1. **Protecting the Website**

Protecting the website is the first thing when it comes to digital marketing strategy. A website that is poorly protected and configured can become an easy target for cybercriminals. If the website is hacked or compromised in any way, users won't be able to access all or parts of the website. It may result in financial losses, damage to reputation, and regulatory fines. Once hackers get hold of the website, they can steal sensitive data, credit card information of customers, and more.

To protect the website one should have implemented IGA i.e. 2 factor authentication (2FA) which strengthens the overall website security and reduces the chances of hacking. Web Application Firewall (WAF) which carefully screens the traffic going through it. Besides that, ensure that WordPress plugins are updated. Choose a strong hosting provider

2. **Handling Data Transactions**

While using third party payment services for transactions, the website should be 'https secured'. Also 2FA authenticity should be enabled.

3. **Protecting the Social Media Accounts**

Social media is one of the most targeted cybersecurity issues in digital marketing. Despite the improvement in security by social media websites, they are still hacked at times. This can create a negative image and damage the brand reputation. To protect your social media account, ensure there is a complex but secure password (at least 20 characters in length) and restricted access to only those who really need to post anything on that account. As well, consider 2-factor authentication for added security.

4. **Protecting the emails**

Email interception and email phishing is still the most widely used tactic to distribute malware. According to one report, 97% of users cannot identify a sophisticated phishing email. If one cannot identify a phishing email, anyone is more likely to click on a link that contains viruses and malware. A new piece of malware called ransomware can even lock

up all the data behind a paywall. The hacker then ask ransom of thousands of dollars to release the data from the attack. To avoid email phishing, employees should be trained to recognize a fraudulent email and to not click on any links. They should also be using a VPN at all times.

SUGGESTIONS

Digital marketers are responsible for managing the website that generates revenue for the business. Cyberattacks are constantly looming online. To stop a cyberattack, a digital marketer must understand how they work and what potential it has to bankrupt a business. Creating a solid cybersecurity strategy should be included in every marketing strategy.

CONCLUSION

Cyberattacks are not just expensive, it also has the great risk of damaging the brand. It also has significant effects on consumer perception. If a cyberattack is experienced that will shut down the website (DDoS - Distributed Denial of Service), potential customers might think twice about patronizing the brand and doubt the overall competence. Digital marketing is powerful in so many ways. It can influence the consumer, guide them to the products and services that they need, provide them with a personal connection, and make the consumer feel empowered. It is likewise dangerous because as a digital marketer is also a guardian of sensitive data which can make or break the brand. Fortunately, anyone can avoid the dangerous side by working with cyber security professionals.

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AN ANALYTICAL STUDY ON THE MARKETING TECHNIQUES OF BRAND COCO COLA

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ABSTRACT

This study examines the significance of marketing analytics for marketing research and practice and gives a comprehensive evaluation of marketing research on the developing new field of "marketing analytics." The systematic review of research and conclusions on marketing analytics that this article provides adds to the body of marketing literature and enables additional suggestions. We list the key topics and themes that are prevalent in marketing research connected to marketing analytics and compare how academics, practitioners, and researchers have approached the subject. The study also offers practitioners a synopsis of the most recent findings and a more straightforward method of implementing and putting into practice theoretical findings. The value and advantages can be promoted and illustrated by academics in the classroom using these findings of marketing analytics. Both an overview of the discipline of marketing analytics and a discussion of how these elements might be improved and incorporated into twenty-first century marketing research are included in the design of this paper. As a result, this paper is presented as a perspective based on years of experience in the field and ought to be used as the starting point for conversation and discourse among academics and practitioners. Coca-Cola has added machine learning (ML), real-time analytics, and artificial intelligence (AI) to the mix. Customers may now buy drinks in advance using their mobile apps, which enables Coca-Cola's scientists to follow long-term consumer behaviour in incredibly fine detail.

INTRODUCTION

Analyzing data gathered from multiple sources, such as marketing campaigns, is known as marketing analytics, and it is done to assist the marketing team in evaluating their endeavours. When necessary, it also aids in improvement. There are many options available to customers today. They have grown sceptical of new goods and services due to the abundance of alternatives. While a high-quality product is essential, the marketing teams also need to persuade consumers to test out the company's goods or services. Tools for marketing analytics offer thorough insights into the gathered data that are impossible to find manually. The data can reveal a customer's journey from the very beginning and can be contextualised. The proper use of analytics tools can aid a business in making improvements to its goods and perhaps increasing their sales. The ability to turn a business into a lucrative enterprise through the use of the proper analytics, new development areas, discovery of untapped markets, untapped end audiences, and new marketing opportunities, among other things, is another crucial part of marketing analytics. Every step of the marketing process can benefit from data-backed customer insights, and one of the best strategies is combining analytics with other business inputs and related methods. Analytics for marketing data is the use and research of data for marketing-related tasks. When it comes to ROI, conversions, consumer behaviour and preferences, and organic traffic, data analytics in marketing are utilised to assess the performance of previous initiatives.

Marketing departments should be able to leverage patterns or trends to optimise activities, resource allocation, and campaign planning by examining the data from previous campaigns using marketing analytics.

PURPOSE OF STUDY

A market study not only shows past and present sales of a market, but also the trajectory of future growth. Potential analysis emphasises potential, employee market entry hurdles, success factors, as well as current development and trend, for this goal. Businesses are able to provide useful information on a specific market with the aid of market analysis. Market analysis may help you identify and evaluate the opportunity and risk of a market if you are starting a business, want to research your present market, or simply want to look at new markets. You can create specific market strategies based on market study and implement your business idea successfully. Monitoring and assessing market trends is what marketing analysis entails. In a nutshell, the process of this research is to determine whether items or services are suitable within a certain market and how the product can be sold.

OBJECTIVES

- You may evaluate the effectiveness of your strategies and make wise decisions about how to change them going forward to get greater results for your organization.
- Customer surveys are used to determine the customer journey's key points and how the business compares to its rivals

RESEARCH METHODOLOGY

- Both an overview of the discipline of marketing analytics and a discussion of how these elements might be improved and incorporated into twenty-first century marketing research are included in the design of this paper. As a result, this paper is presented as a perspective based on years of experience in the field and ought to be used as the starting point for conversation and discourse among academics and practitioners.
- **Analysis techniques:**
 1. **Marketing mix modeling**
 2. **Demand forecasting**
 3. **Comprtitor analytics**
 4. **Unmet needs analytics**

TECHNIQUES OF MARKET ANALYSIS:

1. Marketing mix modeling

Marketing mix modeling (also known as media mix modeling or MMM) is a marketing analytics technique that uses big data and statistical analysis to assess the performance of your marketing campaigns across different channels.

- **Product:** The selling points and benefits of the product or service itself.
- **Price:** The price point at which the product is offered, as well as any discounts or promotions.
- **Promotion:** The method(s) by which the product was promoted, including special offers, email newsletters, and social media campaigns.
- **Place:** The channel(s) in which the product is marketed and sold (e.g. online, in stores, by mail).

2. Demand forecasting

Demand forecasting is a marketing analytics technique that attempts to predict future

demand for a product or service, based on historical sales data or market analysis. The most common form of demand forecasting is time series analysis, which examines past sales in order to identify cycles and trends that are likely to reoccur in the future.

3. Competitor analytics

Regardless of your own marketing strategies, it's always a smart idea to keep an eye on your competition. The goal of competitor analytics is to obtain more accurate information about your business rivals' internal operations.

4. Unmet needs analytics

Unmet needs analytics is a marketing analytics technique that's complementary to competitor analytics. Rather than trying to find the fatal weaknesses of your competitors, unmet needs analytics seeks to find weaknesses in your own products and marketing strategies.

Coca-Cola Marketing Strategy

A uniquely formulated Coca Cola marketing strategy is behind the company's international reach and widespread popularity. The strategy can be broken down into the following:

Product strategy

Coca-cola has approximately 500 products. Its soft drinks are offered globally, and its product strategy includes a marketing mix. Its beverages like Coca-Cola, Minute Maid, Diet Coke, Light, Coca-Cola Life, Coca-Cola Zero, Sprite Fanta, and more are sold in various sizes and packaging. They contribute a significant share and generate enormous profits.

Pricing Strategy

Coca-Cola's price remained fixed for approximately 73 years at five cents. The company had to make its pricing strategy flexible with the increased competition with competitors like Pepsi. It doesn't drop its price significantly, nor does it increase the price unreasonably, as this would lead to consumers doubting the product quality and switching to the alternative.

Place Strategy

Coca-cola has a vast distribution network. It has six operating regions: North America, Latin America, Africa, Europe, the Pacific, and Eurasia. The company's bottling partners manufacture, package, and ship to the agents. The agents then transport the products by road to the stockist, then to distributors, to retailers, and finally to the customer. Coca-Cola also has an extensive reverse supply chain network to collect leftover glass bottles for reuse. Thus, saving costs and resources.

Promotion Strategy

Coca-Cola employs different promotional and marketing strategies to survive the intense competition in the market. It spends up to \$4 million annually to promote its brand, utilizing both traditional and international mediums for advertisements.

FINDINGS

Five forces analysis

Michael Porter has explained the competition in an industry using an economic structure that is shaped by five basic competitive factors that include, new entrants to the industry, the bargaining power of the customers and the suppliers, the threat of substitute products and the rivalry amongst existing firms.

a) Competition from rival sellers (Moderate to High)

There is a very hostile competition in the beverage industry, in this case the main rivals are Pepsi Cola and Coca cola. Both these companies have the highest shares in the soft drinks market, the cost of switching between them is very low. Additionally, Coca cola has Dr Pepper and RC cola as their rivals as well

b) Threat from potential new entrants (Low to Moderate)

There is quite low possibility for the threat of new entrants to the beverage industry, as company such as Coca cola has different distribution deals and special licensing deal with fast food chains like Mc Donalds (Gelles, 2014). Additionally, they have brand dominance in the market.

c) Competition from producers of substitute products (Low to Moderate)

The main substitutes of Coca cola are the Caffeine products like Nescafe and Lipton iced tea as well as fruit juices. There is a high number of substitutes for Coca cola and the switching cost are low for the customers, in addition, the substitutes are of good quality so the threat from substitutes is moderate.

d) Supplier bargaining power

Coca cola rely on ethical standard while choosing their supplier, they consider it as an important base for their growth. They ensure that their suppliers and bottling partners are matching the standards as per the law. Additionally, the suppliers are being assessed as per the Supplier Guiding Principles and they are being trained well ethically. They have high number of suppliers which reduces their power from moderate to low.

e) Customer bargaining power (Low to Moderate)

Large retailers, like Wal-Mart and Coca cola, have bargaining power because of the large order quantity, but the bargaining power is reduced because of the consumer brand loyalty. Whereas customers have low bargaining power as they buy in low quantities which doesn't affect the bargaining power.

CONCLUSION

A thorough analysis of marketing research on the subject of marketing analytics was offered. Big data, marketing metrics, and the significance of marketing analytics were identified as the main topics and concepts in marketing research using a semantic and cluster analysis. We provided recommendations for researchers based on the analysis' findings for the direction of future marketing analytics research. The development of theories and the creation of integrative models should be the main areas of emphasis in this area. The use of a holistic approach and a more methodical, theoretically-based approach for practitioners might also be beneficial. Academic educators can aid in the advancement of various fields as well as the preparation of capable managers. By incorporating important marketing analytics studies and giving a summary of the current state of research, this article adds to the body of marketing literature.

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A STUDY ON CUSTOMER'S SATISFACTION OF MOBILE BANKING SERVICES IN PANNAI PATTI VILLAGE, DINDIGUL DISTRICT

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ABSTRACT

Internet banking additionally called online banking , is an outcome of computer /mobile banking .Internet banking utilizes the internet as the conveyance channel by which saving money action is performed ,for instance ,exchanging stores, paying bills, seeing and checking bank account balances, paying home loans and buying monetary instrument and testaments of store . An internet banking client gets to his or her records from a program-programming that runs internet banking keeping money programs inhabitant on the bank's world wide web server ,not on the client's PC.

INTRODUCTION

The smart phone revolution in India has paved way for an unprecedented growth of Mobile Commerce and Mobile Banking in India. The Mobile banking services are playing a significant role in the interactions between consumers and financial service providers. The unique feature of Mobile banking is that it enables Anywhere Anytime Banking and is the most convenient and easy way to stay connected to the bank. Banks are permitted to offer Mobile banking services (through SMS, USSD or Mobile banking application) after obtaining necessary permission from the Department of Payment & Settlement Systems, Reserve Bank of India. Mobile banking services are made available to bank customers irrespective of the mobile network.

It virtually allows consumers to do all their banking activities such as obtaining financial account information, conducting financial transactions with their financial institution and allowing consumers' to transfer money and make credit card payments anywhere. These services have recently broadened with array of options like banking transaction details, viewing of account balance ,mini statement, self-transfers, third party transfer of funds, utility bill payments, ticket booking features etc. has led to a surge in Mobile banking transactions.

With the advent of Mobile banking, banks have also embraced Mobile Applications popularly called as Apps. The last two years has witnessed an increase in the number of customers using the mobile for banking transactions. India stands fourth¹ worldwide, ahead of all G7 countries and the cumulative value of the banking transactions by these customers have shot up over 11-folds during the period as per the BCG consulting group's report. Thisreport has also forecasted that by end of December 2015, \$350 billion in banking transactions and payments could flow through mobile phones, compared with about \$235 billion of total debit and credit-card transactions today. Another KPM Greport has predicted that more than 25 per cent of the world's population will use Mobile banking in the next four years. Mobile banking is clearly replacing all other channels as the main portal between the bank and the consumer. Increasing smart phone adoption and initiatives such as media promotions and awareness programmes for Mobile banking has led to this uptrend.

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Mobile Commerce and Mobile Banking in India. The Mobile banking services are playing a significant role in the interactions between consumers and financial service providers. The unique feature of Mobile banking is that it enables Anywhere Anytime Banking and is the most convenient and easy way to stay connected to the bank. Banks are permitted to offer Mobile banking services (through SMS, USSD or Mobile banking application) after obtaining necessary permission from the Department of Payment & Settlement Systems, Reserve Bank of India. Mobile banking services are made available to bank customers irrespective of the mobile network. It virtually allows consumers to do all their banking activities such as obtaining financial account information, conducting financial transactions with their financial institution and allowing consumers' to transfer money and make credit card payments anywhere.

Mobile banking services

Account balance enquiry	Credit/debit alerts
Account statement enquiries	Minimum balance alerts
Cheque status enquiries	Bill payment alerts
Cheque book requests	Bill payment
Fund transfer between accounts	Recent transaction history requests.

Bank offering mobile access are mostly supporting some or all of the following service

Objectives of the study

1. To know the socio economics background of the M- banking users in pannaipatti (dindigul district)
2. To make out the customer's pursuit in using M-banking conveniences
3. To study satisfaction level of M-banking customers in pannaipatti (dindigul district)

REVIEW OF LITERATURE

AMBILY JOSE & Dr. ROSHNA VARGHESE 2018, The past decade has been the emergence of digital mobile devices as the main means of communication among consumers. Internet banking has been in existence during the past few years. The natural progress from that is Mobile Banking. The purpose of this paper is to examine the key factors influencing Indian customers' adoption of mobile banking. The research model was based on the Technology Acceptance Model (TAM). This was extended by adding perceived risk and trust as an external factors. Correlation and t – test was conducted to analyse the data collected from the field survey questionnaires administered to a convenience sample of Indian mobile banking users. The result showed that mobile banking adoption is significantly influenced by perceived usefulness, perceived ease of use, perceived risk and trust. This submission has attempted to fill this gap by empirically examining some of the important factors influencing the adoption of mobile banking from the Indian customers' perspective.

Inder Pal Singh and Dr. PayalBassi, 2017 Bank plays a very important role in the economic development of a country. A bank is money related foundation that acknowledges stores and channels those deposits into loaning exercises either straightforwardly or through capital markets. A bank interfaces clients which have capital deficiencies to those clients with capital surpluses. The saving money industry in India is confronting sure difficulties i.e. difficulties of value administration, consumer loyalty, client retention, customer satisfaction, Quality service assumes a noteworthy part in accomplishing consumer loyalty, and creating brand dedication in keeping money

division. Now-a-days internet is widely used by various private and public sector banks to provide various banking services to the customers. In this paper a review on the work of various authors has been presented on the study of customer satisfaction with internet banking in public and private sector bank.

Anukool Manish Hyde 2015, A feature of the banking industry across the globe has been that it is increasingly becoming turbulent and competitive, characterized by an increasing trend towards internationalization, mergers, takeovers and consolidation of the banking industry. Moreover a number of nonbanking companies are entering the banking industry by offering financial products and services (e.g., Toyota's credit card, GM's auto financing, Merrill Lynch investments). This has given a myriad of options to customers in choosing banking services. Internet banking has attracted the attention of banks, securities trading firms, brokerage houses, insurance companies, regulators and lawmakers in developing nations since the late 1990s. With the rapid and significant growth in electronic commerce, it is obvious that electronic (Internet) banking and payments are likely to advance. This study attempts to explore literature review on e-banking and gives conclusion on the basis of past studies.

METHODOLOGY

The rapid growth of Information and Communication Technology (ICT), along with internet and wireless technologies, has revolutionized the whole world and that has changed the business philosophy. The transformation of the financial information after liberalization period is a successive development of innovation base that has resulted in various self-service technology enabled mediums between bankers and customers. They consist of ATM, Plastic money, Tele Banking, Internet Banking, Credit/Debit cards and mobile banking.

Selection of the area

Dindigul Taluk is selected as the Universe for the study since it has a heterogeneous group of mobile banking users engaged in private and government concerns. The study is aimed to analyse the consumer perception towards home loan- A case study of Pannai patty.

Selection of sample

A sample consisting of 40 house loan respondents adequately representing different salaried class people working in both public sector and private sector purposively selected for the study purposive sampling method was adopted as investigator has the right to select or reject any item in an investigation.

Sources of Data

This study is an empirical one by using the primary data to know the study the consumer Perception Towards Mobile Banking- A Case Study Of Pannai patty.

Collection of Data

The required data are collected with the help of questionnaire prepared for the Mobile banking in Pannai patty and a sample of 40 respondents are taken. These sample respondents are drawn from.

- Government employees
- Private concern
- Agriculturists and
- Business peoples.

TABLE EXPLANATION

Education status

Education status	No. of respondents	Percentage
Primary education	4	10.0
Higher school	4	10.0
Higher secondary	5	12.5
Graduate	12	30.0
Post graduate	9	22.5
Diploma	3	7.5
Others	3	7.5
Total	40	100.0

The above table states the educational qualification of the respondents in 30 percent in graduate, 22.5 respondent in post graduate, 12.5 percent respondent in higher secondary, 10 percent in respondent in higher school, 10 percent respondent in primary education , 7.5 percent respondent in diploma 7.5percent respondent in others in education qualifications.

Monthly Income

Monthly Income	No. of respondents	Percentage
Below 10000	6	15.0
15000-20000	9	22.5
20000-30000	15	37.5
30000-40000	8	20.0
Above 50000	2	5.0
Total	40	100.0

The above of the table monthly income 37.5 per cent of the 15 respondents they are income of the 22.5 per cent the 9 respondents in income 20.0 per cent the 8 respondents the income of the 15 per cent the 6 respondents of the monthly income they are 5 per cent of the 2 respondents.

Public sector

Public sector	No. of respondents	Percentage
Indian Overseas Bank	9	22.5
State Bank of India	11	27.5
Indian Bank	9	22.5
Bank Of Baroda	5	12.5
Canara Bank	6	15.0
Total	40	100.0

The above of the table state bank of India 27.5 per cent of the 11 respondents to the, belonged to the Indian bank 22.5 per cent of the 9 respondents Indian overseas bank 22.5 per cent the 9 respondents the Bank of Baroda 12.5 per cent the 5 respondents, canarabank 15 per cent the 6 respondents.

Types of mobile phone uses

Types	No. of respondents	Percent
Feature Phone	11	27.5
Smart phone	29	72.5
Total	40	100.0

The above 27.5 percent of the respondents using their Feature Phone, and 72.5 per cent of respondents using their Smart phone.

SUGGESTIONS

- Majority of the customers using mobile banking for know their account balance due to the poor internet connection, fear about hackers they are not ready to doing further transaction. Hence the bank should provide new emerging technologies for safe and secure for using mobile banking and also simply the procedure for using mobile banking in anybody
- The awareness about smart/mobile banking has to be given before or once the technology is launch
- All the commercial bank in India motivation to search early thinks of helping the customer / user registration procedure for mobile banking services it doesn't expect to visit the bank branch
- Give proper to customers for using mobile banking

CONCLUSION

The study has analyzed the overall customer satisfaction on mobile banking in public and private banks. The relatively small size of the sample limits generality of the outcome of the study. The study is concerted on a particular location and hence the result the may vary with locality and the demography of the people. Mobile banking has numerous advantages and it brings out a number of customers to this service. The study measuring the factors influencing customer satisfaction in mobile banking on their mobile are highly satisfied once, because of reasons availability of mobile banking facilities of balance checking, access to account and card statement, checking recent transactions , ordering of cheque books, blocking of lots cards , Alert through SMS for balance , bill payment Alerts, cheque book request, status enquiry and information of stop payment on cheque, due date of payment (functionality for stop, change and deleting of payment),/transport/ movie ticket booking/ mobile /DTH recharging , access to loan statements, convenience perception on risk and lifestyle and current needs of customers . These factors have a well –built and positive effect on customers to accept mobile banking system.

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A STUDY ON OCCUPATIONAL HEALTH HAZARDS OF AGRICULTURE WORKERS WITH SPECIAL REFERENCE TO PALAKKANUTHU VILLAGE, DINDIGUL TALUK, DINDIGUL DISTRICT

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ABSTRACT

Agriculture is an important sector of Indian economy as more than half of the population relies on agriculture as principal source of income. Agriculture workers are the main pillars for growth and development of this sector. Agricultural work is subject to the health risks inherent to a rural environment and at the same time to those deriving from the specific work process involved. This sector of activity being most unorganized, very little attention has been given to the occupational health problems of these workers; though the need of investigation and intervention towards these problems. These health problems of workers in agriculture may be accidents (machine injuries, snake and insect bites), toxic hazards (chemical exposures and insecticide poisoning), physical hazards (extreme conditions, solar radiation), and respiratory problems (farmer's lung, occupational asthma). The lack of coordination of policy making between agriculture and health undermines efforts to overcome ill health among the agriculture workers and gives short shrift to agriculture's role in alleviating many of the world's most serious health problems. Hence the study is undertaken to know the occupational health hazards of agriculture workers with special reference to Palakkanuthu village, Dindigul Taluk, Dindigul District and suggest measures to prevent the health hazards in agriculture.

INTRODUCTION

In the fourth report of the joint ILO/WHO committee, an agriculture worker means any person engaged either permanently or temporarily, in activities related to agriculture, irrespective of his/her legal status .In India Ministry of Labour includes ploughing, sowing, weeding, transplanting, harvesting, cultivation, forestry, plantation, fisheries, and others as principal agricultural operations .The term 'Agriculture' is generally used in a broad sense including all activities directly related to cultivating, growing, harvesting and primary processing of agricultural products, animal and livestock breeding including aquaculture, and agro forestry. The term also refers to all agricultural undertakings, irrespective of size. An estimated 1.3 billion workers are engaged in agricultural production worldwide. This represents half of the total world labourforce. Almost 60% of them are in developing countries. A great majority of agricultural workers are found in Asia, which is the most densely populated region of the world, with more than 40% of the world's agricultural population concentrated in China and more than 20% in India.

Agriculture sector in India provides employment to the largest number of persons, which is presently about 58% of the total workforce. This sector constitutes the backbone of the National economy. Development, growth and productivity of this sector affects the growth of the other sectors. Since long time, agriculture is the prime occupation in India; even today about 58 per cent of the population relied on it as prime occupation. It plays a

dominant role in India's economic development although its share to GDP has been declining continuously from 57 per cent in 1950-51 to 17 per cent in 2016-17 (including allied activities). Despite declining its relative share in GDP, this sector has registered the reasonable growth in last few decades. However, one of the major bottlenecks that has emerged and can become an insurmountable problem is the issue of shortage of agricultural labour. Due to the low wage rate, wage monopoly, insecurity, seasonal employment in agriculture and other factors have pushed the agricultural labourers to migrate from agricultural sector to rest of other sectors.

This sector is very vital and the most important sector of our economy but according to the International Labour Organisation (ILO), the agricultural sector is one of the most hazardous to health worldwide. Agricultural work possess several characteristics that are risky for health; exposure to the weather, close contact with animals and plants, extensive use of chemical and biological products, pesticides, difficult working postures and lengthy hours. The use of chemicals in modern agriculture has significantly increased productivity. Ill health arising from agricultural work has negative implications for agricultural productivity. The economic costs arising from the occupational health hazards of agricultural often arise because of the economic intensives of agricultural work.

Health and injury burdens depend on the type of farming activity, the type of worker, and the geographic location. Research in India suggests that agricultural workers using powered machinery are most at risk from fatal accidents, but that injuries are actually more common in less mechanized villages, probably owing to lower adherence to safety standards. Basic hazards like sharp tools and snake bites can also cause debilitating wounds and fatalities.

Agricultural workers are at risk from a wide variety of hazards, e.g. machinery, biological, chemical, dust, ergonomic, psychosocial and physical, as well as from long hours of work. Poorly designed tools, difficult terrain and exposure combined with fatigue in older workers increase the risk of injuries. Although technological change has reduced the physical demands of agricultural work in some areas, it has introduced new risks, e.g. associated with the use of sophisticated machinery and the intensive use of chemicals such as pesticides without appropriate safety and health risk control measures, information or training.

It is a known fact that functional health decreases in many people as they grow older from 40 years of age, anatomical and physiological systems are declining, as is the interaction between brain, sensory organs, locomotive organs and circulatory organs. The prevalence of chronic pain, problems with hearing and eyesight, and also slower reaction times and work-related exhaustion seem to increase with age. This all contributes to older people being at higher risk of injury than middle-aged and young people. Older agricultural workers also seem to take longer to recover and go back to work after an accident. Since functional ageing affects the body and mind of workers in an ageing workforce, many more workplaces will have to be age-adapted.

REVIEW OF LITERATURE

Yuvaraja, U (2019) in his article "Socio-economic Conditions of the Agricultural Labourers: An Analysis" told that, basically, agricultural labourers are poor (voiceless, powerless, and choice less) and they are powerless to rise the voice to get desired wages from the land holders. Agriculture sector has been facing the seasonal and discussed unemployment problems since long moment in India. It is evidenced from the study that agricultural labourers in the study region were hardly stroked by 6 days of unemployment (per month) in Kharif Season and 10 and 12 days of hardship (per month) in getting employment in Rabi and winter seasons respectively. In those unemployed days

(particularly Rabi and winter season days) they are hardy fight to get their subsistence which in turn causes for low level of living standard of them. So, in this respect government has to provide assured days of employment under MGNREGA in Rabi and winter seasons. The stock of labour force in agriculture sector is already locked and the best way to improve their living standards directly would be the boosting of farm productivity.

Thi-Hai-yen Nguyen, et al.,(2018) in their work “Multiple Exposures and Coexposures to Occupational Hazards among Agricultural Workers: A Systematic Review of Observational Studies” told that agriculture is one of the occupations most exposed to various hazards. It is also associated with the highest rate of adverse health outcomes each year worldwide. Agricultural workers have been shown to be exposed to a variety of chemical hazards, such as pesticides and other chemical substances Farm work may also expose workers to strenuous physical exercise and an extreme environment (i.e., low temperatures). Furthermore, during their daily activities, agricultural workers operate various types of vehicles, machinery, and equipment which can result in excessive exposures to noise and vibration It has been suggested that these occupational exposures increase the risk of musculoskeletal disorders due to the harmful effects of biomechanical and physical factors or cancer, Parkinson's disease, and respiratory diseases due to pesticides which may also cause other occupational diseases.

The relationship between a single occupational exposure and several adverse health outcomes has been well documented yet, an agricultural worker is very likely to be exposed simultaneously or sequentially to multiple occupational hazards, by various routes of exposure, from a variety of sources and over varying periods of time. Similarly, occupational disease or health impairment may often be due to exposure to multiple risk factors. Therefore, there is a need in documenting real working life situations of multiple and co-exposures in line with the rising attention given to “exposome” and its potential relevance for reflecting workplace exposures. This concept also raises other concerns, including potential for confounding and identifying synergistic or additive associations between multiple exposures and occupational health. Although some approaches for assessing combined exposure to multiple chemicals have been developed, there is still a challenge in incorporating nonchemical stressors into toxicity studies and cumulative risk assessments. This is, of course, of particular importance not only in terms of hazard identification and risk assessment but also when it comes to target interventions to prevent occupational diseases in the agricultural sector.

Maya Ramaswamy (2018) in her paper “Assessing occupational health among transitional agricultural workforces: a mixed methods study among U.S. beginning workforces: a mixed methods study among U.S. beginning farmers and South Indian tea harvesting worker”revealed that,agriculture is a hazardous industry worldwide, and certain groups of agricultural workers are at increased risk of experiencing adverse health outcomes. Agricultural workforces are becoming increasingly transitional, as established and experienced workers exit the industry and new workers take their place. Limited occupational health surveillance exists among certain transitional agricultural workforces. In the US, beginning farmers, i.e., agricultural workers with 10 years or less experience operating a farm, may differ from established farmers in terms of their demographics, length of experience within the agricultural industry, and occupational exposures and health outcomes. Separately, South Indian tea harvesting workers are exposed to occupational physical demands that are risk factors for musculoskeletal health outcomes. However, few studies have examined associations between occupational demands and musculoskeletal pain among these workers. Furthermore, no studies have identified additional occupational health issues within the tea harvesting process.

Sangamithra and Arun Kumar (2017) in their article “A study on occupation related health problems among agriculture workers in Theni District” stated that agriculture workers are subject to the same range of illnesses and chronic diseases as is the general population, however, there is evidence that they are at increased risk for occupational acute injury, certain chronic diseases, and pesticide illness. Farm workers are at increased risk for a number of important non-occupational conditions. The major underlying factor affecting chronic disease risk is low socio-economic status. This may be further influenced by low educational levels, poor housing conditions, and reduced public health services. For example, obesity rates and associated health problems have been shown in several studies of farm workers to be increased, reflecting in part the general rise in these conditions among low-income immigrant besides the normal health problems, agricultural workers, in general suffer from certain specific health hazards due to extensive use of fertilizers, insecticides and pesticides and mechanization. The increasing use of chemicals and biological agents with hazard potential unknown to people; the indiscriminate use of agro chemicals including pesticides, agricultural use of agro chemicals including pesticides, agricultural machineries and equipment, and their impact on health and safety of exposed population; pose serious safety and health risks for agricultural workers. Since the occupational safety and health service are out of the reach of this group their vulnerability is further accentuated.

STATEMENT OF THE PROBLEM

Besides the normal health problems, agricultural workers, in general suffer from certain specific health hazards due to extensive use of fertilizers, insecticides and pesticides and mechanization. The increasing use of chemicals and biological agents with hazard potential unknown to people; the indiscriminate use of agro chemicals including pesticides, agricultural use of agro chemicals including pesticides, agricultural machineries and equipment, and their impact on health and safety of exposed population; pose serious safety and health risks for agricultural workers. The conditions of farmers in Tamil Nadu seem to be very unpleasant and therefore farmers do not want their children to continue farming and as farmer of Tamil Nadu also face health hazards due to pesticide and insecticides used by farmer for the good yield. The health status of agricultural workers in rural is lower than in urban district. The drift of the population to cities has contributed to a concentration of health services in large urban areas, resulting in an imbalance in the distribution of health resources to the detriment of the rural sector. Limited funds are available, in particular in preventive and primary health care, those areas where a greater impact could be made among the rural populations. Small rural health centres often find it difficult to attract and retain the stand. Hence the study is undertaken to know the occupational health hazards of agriculture workers with special reference to Palakkanuthu village, Dindigul Taluk, Dindigul District and suggest measures to prevent the health hazards in agriculture.

OBJECTIVE OF THE STUDY

The study has the following objectives,

1. To know the socio-economic status of the agricultural labourers in the study region.
2. To find out the occupation related health problems among agricultural workers.
3. To create an awareness about causes of health hazards, risks and fatalities in agriculture.
4. To impart the knowledge on preventive measures of health hazards in agriculture.

SCOPE OF THE STUDY

Labour is the most important factors of production in traditional agricultural system. India's economic development is heavily relied on the growth of agricultural sector. In order to increase the living standard of the agricultural labourers and bring them into the mainstream, since first five-year plan on words, the central and states governments have set a number of programmes. In India agricultural labours do not possess any other skills and they have little employment opportunities in any other sectors. Agricultural workers face a large number of health problems in the form of physical factors like extreme weather conditions, sunrays, etc.; chemical, toxicological hazards in the form of pesticides/fertilizers, etc. many of which arise from their work. Prevalence of some specific diseases and behavioural health problems are also found to be more among them. The overall objective of this study was to extend knowledge about how to decrease risks and work injuries among agricultural workers through a systematic review of evaluations of previous intervention programmes with this.

METHODOLOGY

Research Design

Descriptive as well as exploratory research design are made use to carry out this study. While most of the issues related to socio economic conditions and general health hazards of agriculture workers are in explanatory form, the analysis of data is mostly logical and systematical in nature.

Selection of Universe

Palakkanuthu Village in Dindidul Taluk, Dindigul District is selected as the universe for the study. The study is aimed to analyze the socio-economic background, employment status, occupational and general health hazards of the workers.

Sample Selection

Palakkanuthu Village in Dindigul Taluk, Dindigul District of Tamil Nadu is located 23 km towards west from District headquarters Dindigul. According to 2011 census, population of this village was 9977. Village literacy rate is 70.77%. The total Agriculture workers are 2633, of which 1200 are males while 1433 are females as per population census 2011. Among which 40 male agricultural and 20 female agricultural workers are selected randomly for the study.

Collection of Data

Primary data was collected from the sample respondents by the way of preparing a questionnaire. The questionnaire was prepared with the guidance of the experts in the relevant field. Necessary corrections were made in the questionnaire to complete the research work successfully.

Analysis of Data

The data collected were analysed on parallel with the objectives of the study on hand. Conventional tools like descriptive tables, percentage and chi square test were used for the purpose of analysis.

Health Status of the Workers

Health status of the workers	No. of Respondents	Percentage
Very poor	3	5
Poor	3	5
Average	30	50
Good	24	40

Total	60	100
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It is known from the above table that majority (50 per cent) of the respondents had average health condition. 40 per cent were good in health, and each 5 per cent of them had poor and very poor health status. On the whole 60 per cent of them had some kind of health issues.

Types of Illness in General

Type of illness in general	No. of Respondents	Percentage
Body pain	15	25
Heat Exhaustion	27	45
Injuries	9	15
Women Specific illness	3	5
Other major health issues	6	10
Total	60	100

Health conditions of most of the respondents are adversely affected due to heat exhaustion. 45 per cent of them commonly affected with heat exhaustion and 25 per cent of them have body pain due to their regular field work and 15 per cent of them have frequent injuries and another 15 per cent of them have diabetes and 10 per cent of them have other major health issues and rest 5 per cent of them have women specific illness.

Problems Due to the Hot Weather

Problems due to the hot weather	No. of Respondents	Pe
Dehydration	18	30
Muscle cramps	9	15
heat stroke	6	10
Sunburn	15	25
Blisters & Rashes	12	20
Total	60	100

Most of the agricultural workers tend to work in hot weather which leads them to various health issues. 30 per cent of the respondent workers were affected with dehydration, 25 per cent had sun burns, 20 per cent of them had blisters and rashes, 15 per cent of the respondents had muscle cramps and 10 per cent of them suffered by heat stroke.

Health Issues Due to Heat Exhaustion

Health issues due to heat exhaustion	No. of Respondents	Percentage
Heavy Sweating	9	15
Fast or weak pulse	9	15
Nausea	9	15
Tired & Dizziness	24	40
Fainting	6	10
Cold, pale and clammy skin	3	5
Total	60	100

It is clear from the above table that due to heat exhaustion agriculture workers are suffered with heavy sweating, fast or weak pulse, nausea, fainting and had cold, pale and clammy skin. But majority (40 per cent) of the respondents were tired and had dizziness due to heat exhaustion.

Fatal or Injurious Bites and Stings by Snakes and Insects

Fatal or injurious bites and stings by snakes and insects	No. of Respondents	Percentage
Affected	15	25
Not Affected	45	75
Total	60	100

It is shown from the table that 75 per cent of the agriculture workers did not affected by fatal or injurious bites and stings by snakes and insects and 25 per cent of them were affected.

Injuries by Using Sharp Tools

Injuries by using sharp tools	No. of Respondents	Percentage
Injured	18	30
Not injured	42	70
Total	60	100

It is inferred from the table that 70 per cent were not injured by using sharp tools and 30 per cent were injured by using sharp tools.

Heath Issue in the Case of Physical Labour Carrying Loads

Heath issue in the case of physical labour carrying loads	No. of Respondents	Percentage
Back pain	18	30
Body pain	42	70
Total	60	100

The above table shows that 70 per cent of the agriculture workers had total body pain while carrying loads and 30 per cent of the agriculture workers had back pain.

Chronic Poisoning Due to Pesticides

Chronic poisoning due to pesticides	No. of Respondents	Percentage
Experienced	24	40
Don't have that experience	36	60
Total	60	100

Many agricultural workers are exposed to chemicals on a daily basis. Pesticides can enter the body through many routes, but the most common ways are through the skin and by inhaling. To prevent skin contact and inhalation of pesticides, applicators should wear personal protective clothing and equipment. It is known from the table 4.20 that 40 per cent of the respondents experienced poisoning due to pesticides. 60 per cent of them didn't have that experience.

Irritation in Eyes and Respiratory Tract Due to Dust

Irritation in eyes and respiratory tract due to dust	No. of Respondents	Percentage
Yes	24	40
No	36	60
Total	60	100

The agricultural workers were facing irritation in eyes due to dust. Among the 60 respondents about 40 per cent of them had this problem and the rest of them have no problem with the dust.

Skin Diseases of the Respondent Farm Workers

Skin diseases of the respondent farm workers	No. of Respondents	Percentage
Fungal infection	24	40
Allergic reactions	36	60
Total	60	100

It is understood from the table that 60 per cent of the agriculture were slowly affected with allergic reactions and 40 per cent of the agriculture workers had fungal infection.

Parasitic Diseases Faced by the Respondent Farm Workers

Parasitic diseases faced by the respondent farm workers	No. of Respondents	Percentage
Malaria	9	15
Sleeping sickness	21	35
Look worm	30	50
Total	60	100

It is known from the above table that, 50 per cent of the respondents were affected by look worm and 35 per cent of them by sleeping sickness and the rest 15 per cent of them were affected by malaria.

Other Problems of the Respondents

Other problems of the respondents	No. of Respondents	Percentage
Electricity shocks	6	10
Road accidents	12	20
Fire	9	15
Livestock and wild animal attacks	12	15
Falling into wells	3	5
psychological Depression	18	30
Total	60	100

Majority of the agricultural workers have been facing various problems in which psychological depression is the most common problem among them. About 30 per cent of them affected with this problem. 20 per cent of them were affected with road accidents and each 15 per cent of them affected by wild animal attacks and fire each. 10 per cent of them were affected by electric shocks and the rest 5 per cent of them faced the problem like falling into wells.

CONCLUSION

Agriculture workers are subject to the same range of illnesses and chronic diseases as is the general population, however, there is evidence that they are at increased risk for occupational acute injury, certain chronic diseases, and pesticide illness. Farm workers are at increased risk for a number of important non-occupational conditions. The major underlying factor affecting chronic disease risk is low socio-economic status. This may be further influenced by low educational levels, poor housing conditions, and reduced public health services. Besides the normal health problems, agricultural workers, in general suffer from certain specific health hazards due to extensive use of fertilizers, insecticides and pesticides and mechanization. Since the occupational safety and health service are out of the reach of this group, their vulnerability is further accentuated. Also due to low education and awareness levels among the group they are subject to greater health and occupational hazards. Hence government has to take step in educating farmers regarding the risk of pesticides and other problems involved in agriculture and create awareness program in order to avoid a major occupational hazards related to agriculture.

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A STUDY ON “CONSTRUCTION OF SECTORAL INDEX IN TELECOM INDUSTRY- AN EMPIRICAL APPROACH”

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ABSTRACT

A market index is very important for its use as a barometer for market behavior, as a benchmark portfolio performance, as an underlying in derivative instruments like index futures, and in passive fund management by index funds. A stock market index is created by selecting a group of stocks that are representative of the whole market or a specified sector or segment of the market. Among the various sector index of NSE, BSE there exists no separate sectoral index created for the telecom industry, the researcher has made an effort to create a separate index of telecom industry. This telecom index is named as “TELEX”. The study will give an opportunity to analyze the fluctuation in telecom industry and to find out if there is significant correlation between “TELEX” and other broad based indices.

The research provides significant knowledge and practical insight about how indices are calculated using free float market capitalization and the usage of IWF (investible weight factor). This study will give an insight into the performance of the telecom companies to investors.

This research paper is significant for those who are interested in knowing the index of the telecom companies. Telecom index (TELEX) is the sectoral index of telecom industry and is a free float market capitalization weighted index of seven selected stocks representing a sample of well established and financially sound telecom companies. This empirical study can acquire a unique place in the collective consciousness of investors as it compares the performance of TELEX with SENSEX , NIFTY, BSE 100 & CNX 500.

KEYWORDS: Sectoral Index, Free Float Market Capitalization, Telecom Sector, IWF & TELEX.

INTRODUCTION

An Index is used to give information about the price movements of products in the financial, commodities or any other markets. Financial indices are constructed to measure price movements of stocks, bonds, T-bills and other forms of investments. Stock market indices are meant to capture the overall behavior of equity markets. A stock market index is created by selecting a group of stocks that are representative of the whole market or a specified sector or segment of the market. An Index is calculated with reference to a base period and a base index value.

A stock index represents the change in value of a set of stocks which constitute the index. More specifically, a stock index number is the current relative value of a weighted average of the prices of a pre-defined group of equities. It is a relative value because it is expressed relative to the weighted average of prices at some arbitrarily chosen starting date or base period. The starting value or base of the index is usually set to a number such as 100 or 1000. For example, the base value of the Nifty was set to 1000 on the start date of November 3, 1995.

A market index is very important for its use as a barometer for market behavior, as a

benchmark portfolio performance, as an underlying in derivative instruments like index futures, and in passive fund management by index funds.

Since there is no separate sectoral index created for the telecom industry, the researcher has made an effort to create a separate index of telecom industry. This telecom index is named as “TELEX”.

Telecom index (Telex) is the index of telecom industry and is a free float market capitalization weighted index of seven stocks representing a sample of well established and financially sound telecom companies. Among the various sector index of NSE, BSE there exists no index for telecom sector. So the researcher has made efforts to develop an index for the telecom sector. This study can acquire a unique place in the collective consciousness of investors.

STATEMENT OF THE PROBLEM

There is no separate index for telecom sector either in National stock exchange (NSE) or Bombay stock exchange (BSE), so this research aims at developing a separate sectoral index for telecom sector, so that significant changes in the index can be viewed and analyzed by the investors.

OBJECTIVE OF THE STUDY

- To construct a separate index for the telecom industry- TELEX
- To compare the telecom index with SENSEX, NIFTY, BSE 100 & CNX 500.
- To study the volatility of Telecom stocks listed in NSE under CNX 500 Index
- To establish the concept of IWF and Free-float Methodology.

SCOPE OF THE STUDY

- This study can be used by investors, traders and other professionals as a supplement to their own research.
- Practical insight about how index is constructed and the use of free float methodology
- Comparison of telecom index with other indices.

RESEARCH DESIGN

Type of Research	Empirical Research (Empirical research is a way of gaining knowledge by means of direct observation or experience.) From the Broad based Index of CNX 500, all Telecom stocks are selected to be part of the Telecom Index (Telex). CNX 500 consisted of 7 telecom stocks which represents only 1.32% of the broad based index. (Bhartiartl- 0.71%, Infratel- 0.36%, Strtech- 0.09%, IDEA- 0.11%, RCOM- 0.02%, HFCL- 0.02%, ITI- 0.01%)
Type of Data	Secondary data from Official website of BSE & NSE using Market Tracker.
Research tools	Correlation analysis using Spreadsheets (MS Excel for data collection, tabulation, compilation and Data analysis)

LIMITATIONS OF THE STUDY

This study was conducted purely based on secondary data and the time period of the study is for only 6 months, therefore it analyses the Indices movement for a short duration. Those Telecom stocks which are not part of CNX 500 are excluded from TELEX as they do not meet the selection criteria of TELEX, may have certain impact on the sectors performance.

REVIEW OF LITERATURE

JaafarPyeman& Ismail Ahmad (2017) conducted a study to investigate the dynamic movement between sectoral indices in the Malaysian Stock Market and the three macroeconomic variables, namely oil price (OP), gold price (GP), and exchange rate (ER) during the period 1995-2014. Using the Augmented Dickey-Fuller and Phillip Perron unit root test, the underlying series are tested as non-stationary at the level but stationary in first difference. The use of Johansen-Juselius (1990) Multivariate Cointegration and Vector Error Correction Model indicate that there is long run linkages between macroeconomic variable and sectoral indices specifically in Technology sector. Meanwhile, the analysis based on Vector Auto regression Model technique indicates that there are short run linkages between macroeconomic variable and sectoral indices namely Financial, Industrial, Consumer Product, Industrial Product, Properties and Trade and Service.

R. Rajesh Ramkumar et al (2012) - The Study on “An Analysis of Market Efficiency in Sectoral Indices with a Special Reference to Bombay Stock Exchange in India” covered market efficiency of different sectors (Sectoral Index) of the economy. The BSE Sectoral Indices are considered important and therefore, the paper tested the market efficiency across the Sectoral Indices listed at the BSE using daily Index Returns. The study tested the sectoral indices of BSE and to examine the market efficiency by using the Runs Test and Autocorrelation Test. The study found that the returns of BSE Automobile Index, BSE Bankex, BSE Capital Goods Index, BSE Health Care Index, BSE Metal Index, BSE PSU Index and BSE Realty Index were significant at 5% level during the study period.

The above literature provides an overview of different models used to study the sectoral Indices. There was no comprehensive study carried out in Indian Stock Markets exclusively by constructing a Sectoral Index in Telecom sector. Thus an attempt has been made in this study to create a sectoral Index for Telecom sector in the Indian Context, and this Telecom sectoral analysis is typically employed to help investors who plan to select better stocks to invest in a particular sector. The investors normally identify the most promising sectors and review the performance of companies within the sector to determine which individual stock would provide better returns and purchase such stocks. The study will also help to understand the growth potentials of Telecom sector in India.

CONCEPTUAL FRAMEWORK

Characteristics of TELEX - Telecom Index	
TELEX- Telecom Index	The index is designed to reflect the behaviour and performance of the Telecom sector which includes telecommunication service providers and telecommunication equipment manufacturers. The index comprises of maximum of 7 stocks and base date of the index is 4th May, 2018 and a base value of 1000 points .
Calculation Frequency	Every Friday closing Bell
Index Constituents	1. Bharti Airtel Ltd. 2. Bharti Infratel Ltd.

	<ol style="list-style-type: none"> 3. Himachal Futuristic Communications Limited 4. ITI Ltd. 5. Reliance Communications Ltd. 6. Sterlite Technologies Ltd. 7. Vodafone Idea Ltd.
<p>Index Methodology</p>	<p>Free Float Market Capitalization The calculation of TELEX involves dividing the Free-float market capitalization of 7 companies in the Index by a number called the Index Divisor. The Divisor is the only link to the original base period value of the TELEX. It keeps the Index comparable over time and is the adjustment point for all Index adjustments arising out of corporate actions, replacement of scrips etc.</p> <p>Eligibility Criteria for Securities Eligible Universe: To be considered for inclusion in TELEX index, companies must form part of eligible universe. The eligible universe includes:</p> <ul style="list-style-type: none"> • Companies ranked within top 800 based on both average daily turnover and average daily full market capitalisation based on previous six months period data • Companies traded for at least 90% of days during the previous six months period • Companies should form part of respective sector universe. • The company should have a listing history of 6 months. <p>Data Source: Prices of index constituents are sourced from NSE. The stock prices are in Indian Rupees. Index Precision: The level of precision for index calculation is as follows:</p> <ul style="list-style-type: none"> • Index values are published rounded to two decimal places • Shares outstanding are expressed in units • Float-adjusted market capitalization is stated to two decimal places • Investible Weight Factor (IWF) is rounded to two decimal place

Understanding Free-float Methodology&Investible Weight Factors (IWFs)

Free float methodology is globally regarded as an ideal methodology for calculation of equity indices. As per this methodology, free-float market capitalization of all index constituents is considered for calculation of the index. Free-float market capitalization of the index constituents is derived by applying IWFs on full market capitalization of respective companies in the index. This approach aims to limit the influence of a particular company in the index to the extent of its actual free float and reduces influence of large promoter/ strategic holding (which generally is not available for trading) on the index, thus making it truly investable.

Free float methodology in index calculation aids both active and passive investment strategies. Active managers are able to compare their portfolio return vis-à-vis the investable index and at the same time passive fund managers are able to offer low tracking error by introducing passive funds such as index funds, exchange traded funds linked to investable indices calculated based on free-float methodology.

IWF as the term suggests is a unit of floating stock expressed in terms of a number available for trading and which is not held by the entities having strategic interest in a

company. Higher IWF suggest greater number of shares held by the investors as reported under public category within a shareholding pattern reported by each company.

The IWFs for each company in the index are determined based on the public shareholding of the companies as disclosed in the shareholding pattern submitted to the stock exchanges on quarterly basis. The following categories are excluded from the free float factor where identifiable separately: *Shareholding of promoter and promoter group, Government holding in the capacity of strategic investor, Shares held by promoters through ADR/GDRs, Strategic stakes by corporate bodies, Investments under FDI category, Equity held by associate/group companies (cross-holdings), Employee Welfare Trusts, Shares under lock-in category.*

MAINTENANCE OF TELECOM INDEX (TELEX)

One of the important aspects of maintaining continuity with the past is to update the base year average. The base year value adjustment ensures that replacement of stocks in Index, additional issue of capital and other corporate announcements like 'rights issue' etc. do not destroy the historical value of the index. The beauty of maintenance lies in the fact that adjustments for corporate actions in the Index should not per se affect the index values. When a stock is replaced by another stock in the index, the index divisor is adjusted so that the change in the index market value that results from the addition and deletion does not change the index level.

Divisor Adjustments

To understand how and when index funds trade, one must understand how the index is put together. The key to index maintenance is the adjustment of the divisor. Index maintenance –reflecting changes in shares outstanding, corporate actions, addition or deletion of stocks to the index – should not change the level of the index.

Example: If the S&P 500 closes at 1250 and one stock is replaced by another, after the market close, the index should open at 1250 the next morning if all of the opening prices are the same as the previous day's closing prices. This is accomplished with an adjustment to the divisor.

Any change to the stocks in the index that alters the total market value of the index while holding stock prices constant will require a divisor adjustment.

INDEX CALCULATION

Cap-Weighted Index Defined

$$Index = \left(\sum_j P_j \times S_j \right) / Divisor$$

In words, multiply each stock's Price (**P**) by its Shares (**S**) to find its market cap and then divide the sum of market caps by the divisor.

“Cap weighted” means that each stock's weight in the index is its capitalization compared to the sum of all the stock's capitalization.

INDEX SHARES AND FLOAT ADJUSTMENT

COUNTING SHARES

A company's shares can be counted in different ways and sometimes have different names. FASB and GAAP define basic and diluted share counts. The number of shares used in index calculations start with basic shares. However, a company's shares change often as employee options are exercised or shares are bought back or other things happen.

- “**Index Shares**” refers to the share count used in its index calculations. Index Shares are multiplied by the IWF in calculating the index.
- If an index fund manager wants to track the index exactly he needs to know this number, exactly. Data on index shares are valuable.

$$\text{Index} = \frac{\sum P_j \times S_j \times IWF_j}{\text{Divisor}}$$

CHANGES IN INDICES

The stocks in an index change from time to time because of mergers, acquisitions or bankruptcies and sometimes companies just don't fit anymore. When indices change, the index level should not change –otherwise market moves would be confused by index maintenance. The Divisor is the key to maintenance.

Adjusting the Divisor when a Stock Changes

$$(P_{out} \times S_{out} \times IWF_{out} + \sum_j P_j \times S_j \times IWF_j) / D_{old} = \text{Index} =$$

$$\text{Index} = (P_{new} \times S_{new} \times IWF_{new} + \sum_j P_j \times S_j \times IWF_j) / D_{new}$$

In words, calculate the market capitalization of the index before and after the change. Before the change we know the market cap, the index level and the divisor. After the change, we know the market cap (with the new stock instead of the old stock), we know the index level (which will not change) and we can solve for the new divisor.

The index calculations are done after the market closes. The index opens the next day with the new stocks and the new divisor, but the index level only changes if the prices of the stocks change.

Solving for the New Divisor

$$\text{Index} = [(P_n \times S_n \times IWF_n + \sum_j P_j \times S_j \times IWF_j)] / \text{Divisor}$$

Solve this for the Divisor to calculate the new divisor.

$$Divisor = [(P_n \times S_n \times IWF_n + \sum_j P_j \times S_j \times IWF_j)] / Index$$

THE DIVISOR CAN ALSO ADJUST FOR SHARES CHANGES...

$$(P_k \times S_k \times IWF_k + \sum_j P_j \times S_j \times IWF_j) / D_o = Index$$

$$Index = [(P_k \times (S_k \pm s) \times IWF_k) + \sum_j P_j \times S_j] / D_n$$

- In words, if the shares of stock k change by s, the Divisor is adjusted so the index level doesn't change. This way, an index can be adjusted when companies issue or buy back shares. The same basic approach is used for stock price adjustments, such as when a company spins off a unit.
- As with stock changes, these are done "after the close."
- There are many kinds of corporate actions that require divisor adjustments.
- One common action that does not require a divisor adjustment is a stock split – shares increase and prices decrease in proportion.

DATA ANALYSIS & INTERPRETATION

The table-1 (a) & (b) below shows the calculation of Telecom Index for the first two weeks -4th & 11th May 2018

Table-1 (a)

DATE	Friday, May 4, 2018					
Company Symbol	Total Number of equity shares	Close Price (Rs)	Full Mkt. Cap. (in crores)	Investable weight factor	Free-Float Mkt. Cap (in crores)	Weight in Index (%)
Bharti Airtel Ltd.	3997400107	396.75	158596.85	0.33	52051.49	48.74
Bharti Infratel Ltd.	1849608246	322.45	59640.62	0.46	27703.07	25.94
Himachal Futuristic Communications Limited	1239377194	28.1	3482.65	0.62	2148.79	2.01
ITI Ltd.	897000000	114.65	10284.11	0.10	1028.41	0.96
Reliance Communications Ltd.	2765533050	15.35	4245.09	0.46	1959.11	1.83

Sterlite Technologies Ltd.	402247925	337.1	13559.78	0.46	6256.48	5.86
Vodafone Idea Ltd.	8735139393	62.5	54594.62	0.29	15652.28	14.66
TOTAL			304403.71		106799.63	100.00
DIVISOR (base market cap)					106799.63	
INDEX					1000.00	

Full Mkt. Cap = Total Number of equity shares × Close Price

Free-Float Mkt. Cap = Total Number of equity shares × Close Price × IWF

Index = 106799.63 / 106799.63 × 1000

Index = 1000 points.

This is often indicated by the notation 4th May 2018 = 1000 points.

Table-1 (B)

DATE	Friday, May 11, 2018					
Company Symbol	Total Number of equity shares	Close Price (Rs)	Full Mkt. Cap. (in crores)	Investable weight factor	Free-Float Mkt. Cap (in crores)	Weight in Index (%)
Bharti Airtel Ltd.	3997400107	386.6	154539.49	0.33	50719.86	49.75
Bharti Infratel Ltd.	1849608246	319.85	59159.72	0.46	27479.69	26.96
Himachal Futuristic Communications Limited	1239377194	27.35	3389.70	0.62	2091.44	2.05
ITI Ltd.	897000000	111.8	10028.46	0.10	1002.85	0.98
Reliance Communications Ltd.	2765533050	13.7	3788.78	0.46	1748.52	1.72
Sterlite Technologies Ltd.	402247925	324.8	13065.01	0.46	6028.20	5.91
Vodafone Idea Ltd.	8735139393	51.4	44898.62	0.29	12872.43	12.63
TOTAL			288869.77		101942.99	100.00
DIVISOR (base market cap)					106799.63	
INDEX					954.53	

Full Mkt. Cap = Total Number of equity shares × Close Price

Free-Float Mkt. Cap = Total Number of equity shares × Close Price × IWF

Index = 101942.99 / 106799.63 × 1000

Index = 954.53 points.

NOTE: Similar calculation is done for the period of six months from 4th May 2018 to 19th October 2018 to construct the Telecom Index.

MOVEMENT OF TELEX, NIFTY, SENSEX, BSE 100 & CNX 500 FROM 4TH MAY 2018 TO 19TH OCTOBER 2018

(Table -2)

Date	Telex	Change	Change %	NIFTY	Change	Change %	SENSEX	Change	Change %	BSE 100	Change	Change %	CNX 500	Change	Change %
4-May-18	1000.00	Nil	NIL	10618.25	Nil	NIL	34915.38	Nil	NIL	10998.00	Nil	NIL	9339.75	Nil	NIL
11-May-18	954.53	-45.47	-4.55	10806.50	188.25	1.77	35535.79	620.41	1.78	11135.47	137.47	1.25	9416.35	76.60	0.82
18-May-18	921.85	-32.67	-3.42	10596.40	-210.10	-1.94	34848.30	-687.49	-1.93	10901.90	-233.57	-2.10	9209.20	-207.15	-2.20
25-May-18	955.30	33.44	3.63	10605.15	8.75	0.08	34924.87	76.57	0.22	10928.90	27.00	0.25	9215.55	6.35	0.07
1-Jun-18	958.81	3.51	0.37	10696.20	91.05	0.86	35227.26	302.39	0.87	10995.66	66.76	0.61	9255.10	39.55	0.43
8-Jun-18	954.56	-4.24	-0.44	10767.65	71.45	0.67	35443.67	216.41	0.61	11080.44	84.78	0.77	9316.25	61.15	0.66
15-Jun-18	944.41	-10.16	-1.06	10817.70	50.05	0.46	35622.14	178.47	0.50	11119.57	39.13	0.35	9343.70	27.45	0.29
22-Jun-18	928.31	-16.10	-1.70	10821.85	4.15	0.04	35689.60	67.46	0.19	11112.05	-7.52	-0.07	9296.65	-47.05	-0.50
29-Jun-18	941.87	13.56	1.46	10714.30	-107.55	-0.99	35423.48	-266.12	-0.75	10987.71	-124.34	-1.12	9162.45	-134.20	-1.44
6-Jul-18	907.82	-34.05	-3.61	10772.65	58.35	0.54	35657.86	234.38	0.66	11039.34	51.63	0.47	9194.50	32.05	0.35
13-Jul-18	905.61	-2.21	-0.24	11018.90	246.25	2.29	36541.63	883.77	2.48	11247.09	207.75	1.88	9349.05	154.55	1.68
20-Jul-18	872.01	-33.61	-3.71	11010.20	-8.70	-0.08	36496.37	-45.26	-0.12	11213.31	-33.78	-0.30	9286.10	-62.95	-0.67
27-Jul-18	915.26	43.26	4.96	11278.35	268.15	2.44	37336.85	840.48	2.30	11535.04	321.73	2.87	9579.05	292.95	3.15
3-Aug-18	926.45	11.19	1.22	11360.80	82.45	0.73	37556.16	219.31	0.59	11633.83	98.79	0.86	9685.70	106.65	1.11
10-Aug-18	926.62	0.17	0.02	11429.50	68.70	0.60	37869.23	313.07	0.83	11697.12	63.29	0.54	9724.45	38.75	0.40
17-Aug-18	914.32	-12.30	-1.33	11470.75	41.25	0.36	37947.88	78.65	0.21	11747.65	50.53	0.43	9770.20	45.75	0.47
24-Aug-18	913.61	-0.71	-0.08	11557.10	86.35	0.75	38251.80	303.92	0.80	11870.00	122.35	1.04	9850.80	80.60	0.82
31-Aug-18	930.96	17.36	1.90	11680.50	123.40	1.07	38645.07	393.27	1.03	12016.97	146.97	1.24	9992.00	141.20	1.43
7-Sep-18	920.22	-10.74	-1.15	11589.10	-91.40	-0.78	38389.82	-255.25	-0.66	11894.69	-122.28	-1.02	9875.20	-116.80	-1.17
14-Sep-18	904.01	-16.21	-1.76	11515.20	-73.90	-0.64	38090.64	-299.18	-0.78	11805.54	-89.15	-0.75	9792.75	-82.45	-0.83
21-Sep-18	882.44	-21.58	-2.39	11143.10	-372.10	-3.23	36841.60	-1249.04	-3.28	11406.65	-398.89	-3.38	9425.55	-367.20	-3.75
28-Sep-18	804.01	-78.42	-8.89	10930.45	-212.65	-1.91	36227.14	-614.46	-1.67	11140.99	-265.66	-2.33	9116.00	-309.55	-3.28
5-Oct-18	739.62	-64.40	-8.01	10316.45	-614.00	-5.62	34376.99	-1850.15	-5.11	10538.49	-602.50	-5.41	8624.95	-491.05	-5.39
12-Oct-18	744.45	4.83	0.65	10472.50	156.05	1.51	34733.58	356.59	1.04	10694.42	155.93	1.48	8767.10	142.15	1.65
19-Oct-18	743.36	-1.09	-0.15	10303.55	-168.95	-1.61	34315.63	-417.95	-1.20	10534.93	-159.49	-1.49	8640.65	-126.45	-1.44

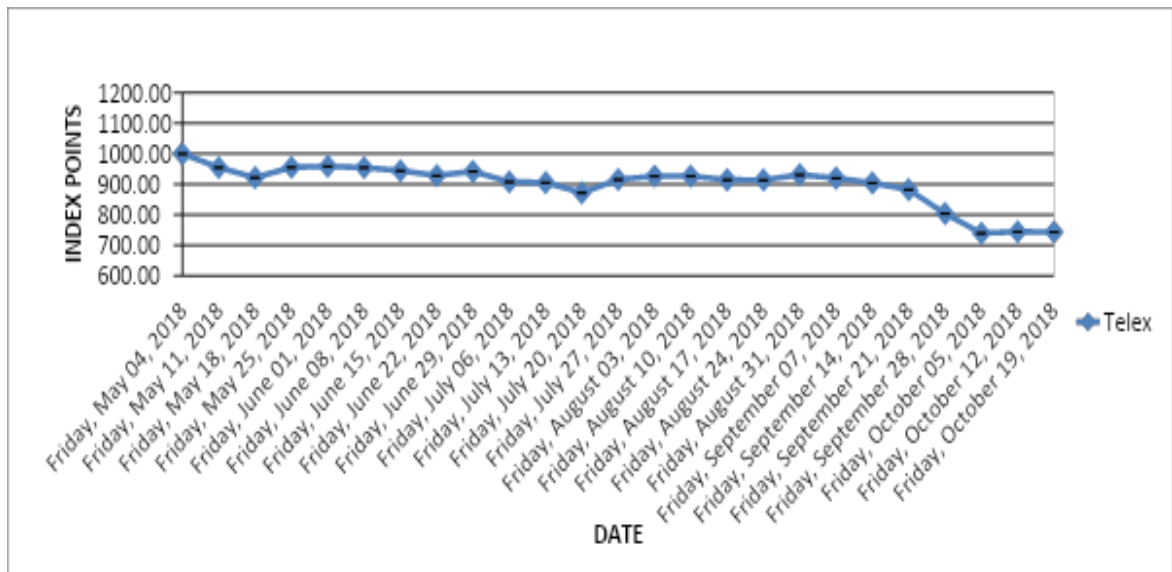
6 months High & Low of TELEX, NIFTY, SENSEX, BSE 100 & CNX 500

Table-3

INDICES		6 months Lowest	6 months Highest
Telecom Index	Date	5-Oct-18	4-May-18
	Points	739.615	1000
NIFTY	Date	19-Oct-18	31-Aug-18
	Points	10303.55	11680.50
SENSEX	Date	19-Oct-18	31-Aug-18
	Points	34315.63	38645.07
BSE 100	Date	19-Oct-18	31-Aug-18
	Points	10534.93	12016.97
CNX 500	Date	5-Oct-18	31-Aug-18
	Points	8624.95	9992

GRAPHICAL REPRESENTATION OF TELECOM INDEX

(Graph -1)



PRICE MOVEMENT OF ALL SEVEN TELECOM STOCKS

Graph-2



CORRELATION AMONG TELECOM STOCKS

Table -4

Companies	Bharti Airtel Ltd.	Bharti Infratel Ltd.	Himachal Futuristic Communications Limited	ITI Ltd.	Reliance Communications Ltd.	Sterlite Technologies Ltd.	Vodafone Idea Ltd.
Bharti Airtel Ltd.	1.00	-	-	-	-	-	-
Bharti Infratel Ltd.	0.65	1.00	-	-	-	-	-
Himachal Futuristic Communications Limited	0.60	0.66	1.00	-	-	-	-
ITI Ltd.	0.57	0.53	0.21	1.00	-	-	-

Reliance Communications Ltd.	0.64	0.22	0.28	0.44	1.00	-	-
Sterlite Technologies Ltd.	0.22	-0.04	-0.28	0.50	0.64	1.00	-
Vodafone Idea Ltd.	0.77	0.77	0.83	0.25	0.44	-0.07	1.00

**6 months High & Low of Telecom Stocks
Table -5**

COMPANY NAME	DATE	6 MONTHS HIGH(Rs)	DATE	6 MONTHS LOW (Rs)
Bharti Airtel Ltd.	4-May-18	396.75	19-Oct-18	287.3
Bharti Infratel Ltd.	4-May-18	322.45	5-Oct-18	260.2
Himachal Futuristic Communications Limited	15-Jun-18	33.25	5-Oct-18	18.9
ITI Ltd.	31-Aug-18	115.3	5-Oct-18	77.45
Reliance Communications Ltd.	10-Aug-18	19.45	19-Oct-18	11.15
Sterlite Technologies Ltd.	10-Aug-18	362.65	29-Jun-18	275.4
Vodafone Idea Ltd.	8-Jun-18	64.15	5-Oct-18	33.55

FINDINGS

- From the Graph-2, it is evident that Sterlite Technologies and Bharti Airtel are the most volatile telecom stocks during the 6 months.
- The stock price movement of Reliance communications and Himachal Futuristic Communications are the least volatile stocks.
- Table -5 shows that Excluding Sterlite Technologies, all the remaining stocks have shown 6 months low during the month of October 2018.
- Table -4 shows that Vodafone Idea Ltd has the same correlation between Bharti Airtel Ltd and Bharti Infratel Ltd.
- The stock price movement of Reliance communications, Himachal Futuristic Communications Ltd and Vodafone Idea is similar during the six months from May to Oct 2018.
- In a period of six months the telecom index has shown the highest level of 1000 points on 4th May 2018 (base date) to the lowest level of 739.62 points on 5th October 2018.
- On 5th October 2018, telecom index was at its lowest level with 739.62 points and after watching all the scrip's of telecom index on that particular day, it was found

that 4 out of the 7 stocks witnessed their lowest stock prices in the 6 months price movement.

- Major increase in telecom index can be seen on 27th July 2018 (from 872.01 points to 915.26 points) with a positive change of 43.26 points, and positive % change of 4.96 %.
- Major decline in telecom index can be seen on 28th September 2018 (from 882.44 points to 804.01 points) with a negative change of 78.42 points, and a drop of 8.89% in the Index.
- The findings show that the telecom index performance has been poor in the month of September and October 2018.
- The market has been bearish on most occasions, since all the five indices (telecom index, SENSEX, NIFTY, BSE100 & CNX 500) has a marginal decline every month and a very sharp decline in the 1st week of October 2018.
- The movement of SENSEX and NIFTY is similar and there is a perfect positive correlation between the two indices.
- The movement of telecom index and CNX 500 is almost similar, The correlation between TELEX and CNX 500 is significant, however the correlation among TELEX, SENSEX , NIFTY & BSE 100 is not significant.
- The telecom index is the least volatile index when compared with other Indices under the study, followed by CNX 500.
- Bharti Airtel plays a significant role in the telecom index because of market leadership and high free float market capitalization.
- Bharti Airtel is the only telecom constituent in SENSEX, whereas both Bharti Airtel and Bharti Infratel are part of NIFTY, Bharti Airtel, Bharti Infratel & Vodafone Idea Ltd are constituents of BSE 100.
- Himachal Futuristic Communications Limited & Reliance Communications Ltd. are the low priced stocks in the telecom index.
- Sterlite Technologies Ltd. is the least correlated stocks in comparison with the other constituents in the Telecom Index.

SUGGESTIONS

- Bombay stock exchange (BSE) and National stock exchange (NSE) can introduce a separate sectorial index for Telecom industry as it does not exist currently.
- Since the Indian telecom industry ranks second in terms of number of telecommunication subscriptions, internet subscribers and app downloads globally, there is a lot of scope for investors to earn high returns by investing in the telecom sector, Prospective investors can include telecom stocks in their portfolio to earn high capital appreciation.
- Investors can look to capture the gains of the Indian telecom boom and diversify their operations outside developed economies that are marked by saturated telecom markets and lower GDP growth rates.
- With 493.96 million internet subscribers, as of March 2018, India stands second in terms of total internet users. As of June 2018, Investors can buy and hold the stocks of Bharti Airtel & Bharti Infratel Ltd because of its high growth opportunities and higher market capitalization.
- Vodafone India and Idea Cellular have merged into ‘Vodafone Idea’ to become India’s largest telecom company which will have a positive effect on the sector.
- India is currently the world’s second-largest telecommunications market with a subscriber base of 1.17 billion and has registered strong growth in the past decade and half. The Indian mobile economy is growing rapidly and will contribute substantially to India’s Gross Domestic Product (GDP), according to report

prepared by GSM Association (GSMA) in collaboration with the Boston Consulting Group (BCG). App downloads in the country grew approximately 215 per cent between 2015 and 2017.

- The liberal and reformist policies of the Government of India have been instrumental along with strong consumer demand in the rapid growth in the Indian telecom sector. The government has enabled easy market access to telecom equipment and a fair and proactive regulatory framework that has ensured availability of telecom services to consumer at affordable prices. The deregulation of Foreign Direct Investment (FDI) norms has made the sector one of the fastest growing and a top five employment opportunity generator in the country.
- Sterlite Technologies stocks can be bought and sold often to gain from price fluctuations.
- Rise in mobile-phone penetration and decline in data costs will add 500 million new internet users in India over the next five years, creating opportunities for new businesses. The monthly data usage per smartphone in India is expected to increase from 3.9 GB in 2017 to 18 GB by 2023 as per the *Cellular Operators Authority of India (COAI)*, *Telecom Regulatory Authority of India (TRAI)*, *Department of Telecommunication (DoT)*, *Department of Industrial Policy and Promotion (DIPP)*, *India Services Sector Report by Deloitte* . Therefore Telecommunications companies developing new strategies for Smartphone users will find a bigger opportunity for gaining telecom market share in the future.

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CUSTOMER LOYALTY PROGRAMME – AN INSIGHT

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ABSTRACT

Marketing as a process originated and developed along with the industrial revolution. In the buyer's market, every seller is bound to adopt different strategies to attract and to retain the customers. The strategies employed differ based on the product / services, place of sales and behaviour of the consumer. In the current situation every business houses are compelled to analyse their data to find out the hidden facts about their product / services or strategies that they have adapted to meet the ends of their customers. If they fail to change in tune with the mindset of their customer and with the competitive environment, they will be thrown away by their competitors. To sustain or to improve their market share, the business community have to depend on business analytics. In this backdrop, the present study has made an attempt to find out the level of awareness, to locate the extent of patronage and to point out the determinants that are associated with various consumer loyalty programme among the college girls. Data required for the study have been pooled from respondents through well structured questionnaire by adopting convenient sampling method. Simple percentage, weighted average and chi-square test have been administered to analyse the data. The study identified the level of awareness, extent of patronage and the determinants that are associated with consumer loyalty programme. Due to impact of digital era and the density of the competition, the trading community forced to get the assistance from the business analytics to expand their marketing potentials.

KEYWORDS: Consumer loyalty programme, Extent of patronage, Business analytics

INTRODUCTION

The problem of marketing of goods and services starts from the time, when the process of marketing enters into the era of buyer's market. During the industrial revolution, the public bound to buy the goods and services which are sold out by the trading community, without raising any questions. But in the buyer's market, they have the chance to buy a variety of goods, based on fashion, quality and price. This scenario compels every trading partners to redesign their marketing methodology to maintain their level of profit and number of customers. In this context every seller is making sincere effort to develop a variety of customer loyalty programmes to meet the different segment of consumers. The origin of loyalty research within the marketing field were first discussed in the 1920, thanks to (Cope land, 1923). The loyalty programme is defined by the American Marketing Association (2016) as, "Continuity incentive programmes offered by a retailer to reward customers and encourage repeat business". The primary motive behind a loyalty programme is rewarding customers for their repeat purchase behaviour, encouraging, maintaining and subsequently enhancing the level of loyalty by providing the customers with targets at which various benefits can be earned by them. By implementing effective reward programme marketers retain their old customers i.e., earned their loyalty. In addition, it can attract new customers some of whom will become loyalist in the long run (O'Malley, 1998). This present trend compels every sellers to keep their finger on the pulse of consumer interest in product and services related to their business can also help them to

respond quickly to change in consumer behaviour trends and capture new demand. Jeevananda, (2011) in his article titled “Influence of customer loyalty programme on buying decisions” made an attempt to find out the level of influence of loyalty programme on customer preference and to study the level of satisfaction with respect to the loyalty programme. The study reveals that the influence of the loyalty programme on the buying process of consumers was very minimal. Mathew, Agarwal (2012) in their article, loyalty programme membership a study of factor influencing customer decision tried to identify the factors that affects customers decisions to accept or not to accept the membership of loyalty programme. It reveals that purchase, attitude, concerns, loyalty programme characteristics and sales person expertise plays a major role in deciding about customer’s loyalty programme. Khairawati (2020) in the article “ Effect of customer loyalty programme on customer satisfaction and it’s impact on customer’s loyalty” found out that, member card loyalty programme significantly effect customer satisfaction. Bonages, Giang vu (2022) in their article, consumer’s perspective on loyalty programme and it’s influence on purchasing decisions- A study on fast fashion retailers consumers in the Swedish market pointed out that, shopping criteria, benefit perception and behavioural impulse are the three main factors are linked to customers perception towards loyalty programme. These studies reveals that the factors associated with the customers loyalty programme varies, and also it indicates that the preference towards customers loyalty changes based on the place of buying and the type of products / services. Hence, this situation clearly compelled to rethink about the current scenario about the customers loyalty programmes. The reviews of related literature clearly indicate that no one has made an attempt to find out the level of awareness and extent of importance on customer’s loyalty programme and the factors which are associated with them among college girls. To fill this gap the present study made an attempt to locate the factors which are associated with them.

OBJECTIVES

In order to find out solution to the statement of problems, the present study has been carried out with the following objectives

1. To find out the level of awareness on customer’s loyalty programme
2. To know the extent of importance given to customers loyalty programme and
3. To identify the factors that are associated with them.

SAMPLING

The data required for the study have been collected from 72 girls who are doing under graduate programme in women’s college in Coimbatore, Tamil Nadu through convenient random sampling. Structured questionnaire has been used to collect data from 100 girls. The questionnaire which are not properly answered are not taken into account. Hence the analysis for the study is based on the responses from 72 girls.

FRAME WORK OF ANALYSIS

For this study, the required data have been collected from the primary sources by using questionnaire. The qualitative information which have been collected were quantified by applying an appropriate scaling techniques. The level of awareness and the extent of importance on customers loyalty programme have been computed by applying three point scale. The individual score of the respondent have been converted into percentage. The mean and standard deviation have been computed to classify the respondent into three groups. The percentage, weighted average and chi-square test have been administered at the appropriate places to interpret the data.

Significance and Limitation of the Study

The findings of the study will immensely helpful to trader in redesign their customer loyalty programme. Care has to exercised while extending the results to the other areas.

FINDINGS AND SUGGESTION OF THE STUDY

The results of the study have been explained in the following paragraphs with the appropriate headings.

Socio-economic Profile and Information Seeking Behaviour

Of the 72 students majority of them (72.20%) residing in urban areas, 52.80% of them are day scholar, around 54.20% are with family income less than Rs.60000 per month. Only 25% of the students are having pocket money more than Rs.1000 per month. The results clearly indicates that the impact of social media is high with the college girls and the interest towards studying print media is gradually declining among them.

the 72 respondents, majority of them bought the cosmetic items in the near by shop, the dress materials and electronic items are acquired in the speciality shops. The study reveals that, majority of them are occasionally took part in buying activities irrespective of the products. Only to some extent they are considering the views of the seller. It is very clear from the table 2.1 that around 66.70% of them are interested in knowing the marketing strategies employed by the sellers and 75.00% of them are tempted to move from one brand to another. The factor price is moderately considered and 62.50% of the respondents are interested in quality / branded items.

Level of Awareness and Extent of Importance on Customer Loyalty Programme.

The table 3 and 3.1 reveals that the majority of the girls are with moderate awareness and used to give moderate extent of importance to point, club and hybrid programmes. Majority of them are aware and they used to give maximum importance to online shopping and door delivery. It is also supported by weighted average score in both cases.

Table 3 Level of Awareness on Customer Loyalty Programmes – Weighted Average

Loyalty Programmes	Level of Awareness			Weighted Average Score
	Highly Aware	Aware	Not at all	
Point Programme	13	44	15	1.97
	(18.06%)	(61.11%)	(20.83%)	
Club or VIP member	17	50	5	2.17
	(23.61%)	(69.44%)	(6.94%)	
Hybrid Programme	7	48	17	1.86
	(9.72%)	(66.67%)	(23.61%)	
Online Shopping	41	31	0	2.57
	(56.94%)	(43.06%)	(0.00%)	
Door Delivery	39	32	1	2.53
	(54.17%)	(44.44%)	(1.39%)	

Table 3.1 Extent of Importance in Consumer Loyalty Programme – Weighted Average

Loyalty Programmes	Extent of Importance
--------------------	----------------------

	High	Moderate	Low	Weighted Average Score
Point Programme	10	47	15	1.93
	(13.89%)	(65.28%)	(20.83%)	
Club or VIP member	12	46	14	1.97
	(16.67%)	(63.89%)	(19.44%)	
Hybrid Programme	6	51	15	1.88
	(8.33%)	(70.83%)	(20.83%)	
Online Shopping	41	31	0	2.57
	(56.94%)	(43.06%)	(0.00%)	
Door Delivery	38	34	0	2.53
	(52.78%)	(47.22%)	(0.00%)	

Factors associated with Level of Awareness and Extent of Importance on Customer Loyalty Programmes.

In order to find out the association between selected variables and awareness, the level of awareness of each one have been calculated by assigning the three point scale. The individual score is converted into percentage. In order to classify the respondent average and standard deviation are computed. The average level of awareness is 73.94 and the standard deviation is 11.90. The respondent, whose level of awareness is less than 62.04 are termed as low, the respondent whose level of awareness ranging between 62.05 and 85.83 are pooled under the moderate group and respondent with the awareness more than 85.84 are considered as highly aware. Of the total respondents, 10 are with low level of awareness, 46 of them are with moderate and 16 of them are highly aware about the customer loyalty programme. Similar to this, same methodologies has been employed to classify the respondents based on the level of importance that they used to provide to the different customers loyalty programmes. The average level of importance is 72.50 and the standard deviation is 12.10. Of the total respondents, 10 of them are used to give a low level of importance to the loyalty programmes whose level is less than 60.40. 51 respondents who provide moderate importance to the loyalty programmes whose level of importance ranges between 60.41 and 84.59. Only 11 of them use to give a high level of importance to the loyalty programmes who are with the index which is more than 84.60.

Table 4 Factors associated with Level of Awareness and Extent of Importance on Customer Loyalty Programmes

Factors	Level of Awareness	Extent of Importance
	χ^2 (chi-square)	χ^2 (chi-square)
Area of residence	8.227*	0.597
Students category	5.569	10.276**
Mode of transport	4.761	9.358
Pocket money	4.062	6.398
Viewing of social media	3.102	1.834
Interest in knowing marketing strategy	1.455	5.390
Interest to move to other brands	1.562	3.789
Level of awareness on CLP		15.638**

*significant at five per cent level **significant at one per cent level

With regard to the level of awareness, of the selected seven variables only the factor, area of residence is found to be associated at five per cent level with the level of awareness. In the case of extent of importance of the selected eight variables category of the students and

level of awareness of the respondents are found to be associated with the extent of importance at one per cent level of significant.

SUGGESTIONS

In tune with the findings of the study the following suggestion are placed before the trading community to sustain their marketing share. The sellers have to decide about the type of loyalty programmes based on the area of residence and category of students community. In addition to this they have to focus on educating the young generation about the various loyalty programmes. They have to concentrate on educating the young student community about the various loyalty programmes to enjoy the fruits of the customers loyalty programme. Customer is the king of the past, and now they are emperor of the future. It is the right time that the business community have to develop different steps and styles in the area of customer loyalty programmes, to dance according to the customers mind voice by getting assistance from business analytics.

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SOCIAL MEDIA INFLUENCES ON STDUENTS

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ABSTRACT

Social media's influence is one of the increasingly complex situation in today's world. The youths of the nation are the ones who are getting adversely affected by the constant usage of the various social media platforms (SMPs). This study serves as an eye opener to all the students who are getting desperately impacted by the media platforms like Instagram, Twitter, etc. This study is made by using tools such as Percentage Analysis, Likert Scale Analysis and Rank Analysis This research predominantly enlightens to find out the impact and constant obsession towards the social media platforms by using "quantitative approach".

KEY WORDS:*Social Media, constant obsession, academic challenges.*

INTRODUCTION

Social media network is a platform in which an individual can share, socialize and express views that is personally liked by them. This medium provides tools for communicating, sharing information and creating new relationships. Social networks play a significant role in learning the social environment in which an individual resides. Social media has its implications in various aspects and it is a hug threat which the entire students' community face by its constant usage. Even though these platforms contribute more to the knowledge of the students, it also has certain drawbacks which affect them mentally and psychologically. This study keenly observes how a student is influenced by those social media platforms.

SOCIAL MEDIA PLATFORMS

Social Media platforms are the medium through which the people share and express their thoughts which they are willing to express it socially which can be viewed and liked by other peoples. Social Media Platforms can be defined as the rapport that exist between the networks of people. It is a platform where people can create content as per their willingness for entertainment, educational purposes etc. Social Media Platforms are multi-disciplinary in nature as every information from all domains can be accessed by having a login to it. These Platforms also provide connectivity among people across various countries all over the world.

SOCIAL MEDIA - A BOON OR A BANE

Social media is a virtual world where people interact freely, sharing and discussing ideas and information, know about each other and their lives, sending messages etc. by using a multimedia mix of personal words, pictures, videos and audios. Social media is different from any other media in many ways including quality, reach, frequency, usability, immediacy and durability. Social media is around us since the ancient times when first time humans began to talk; its evidences are still on the walls of caves in the form of wall paintings. After the development of electronic computers in 1950s, internet came into

existence. In the year 1969, Compuserve was the first major commercial Internet Service provider for the public in U.S. The first email was delivered in 1971. The American Online (AOL) services opened in 1985. In 1998, Google became popular as a major internet search engine and index. In 2001, Wikipedia started as an online encyclopaedia. In 2003, Myspace and LinkedIn were launched as social networking sites. In 2004, Facebook, another social networking site came into existence.

OBJECTIVES OF THE STUDY

- To find the purpose of using Social Media Platforms.
- To find the age of group of people who use the Social Media Platforms.
- To find the hours of Usage of Social Media Platforms by the Students.
- To analyze the factors influencing the students to use Social Media Platforms.

REVIEW OF THE LITERATURE

1. **Tarek A. El-Badawy&Yasmin Hashem (2015)** titled “**The impact of social media on the academic development of School Students**” have stated that the technology is booming rapidly day by day in their study. The younger ones are trapped in its boom. It was social media which attracted students and made them get addicted to it. So their academic performance has become extremely poor. They made a survey by collecting the responses regarding the number of hours spent on SMPs, frequently use platforms, etc. There were about 110 responses received in which most of the Egyptian students who were between the ages of 16 and 17. They have concluded their study stating that the social media does not impact the students’ academic performance in any way as they can still manage or reduce the hours of usage.

RESEARCH METHODOLOGY

- **Area of Study**

- The study took place around the Coimbatore city.

- **Period of Study**

- The study was made for the period from 12-09-2022 to 18-09-2022.

- **Sampling Technique**

- The study was made with the Convenient Sampling Technique.

- **Tools Used**

- The following are the tools used in the Study
 - Rank Analysis
 - Percentage Analysis
 - Likert Scale

ANALYSIS AND INTERPRETATION

Table 1: Gender of the Respondents

Gender of the Respondents	Number of Respondents (200)	% Analysis
Male	93	46.5%
Female	107	53.5%

Source: Primary Data

Table 1 States that the maximum responders are females belonging to various age groups. It can be found that females use Social Media Platforms both academically and Non Academically by receiving 53.5% of responses. It's normally found that safety and security can't be assured to them. This may also seem as a threat to them if the usage goes high.

Figure: 1

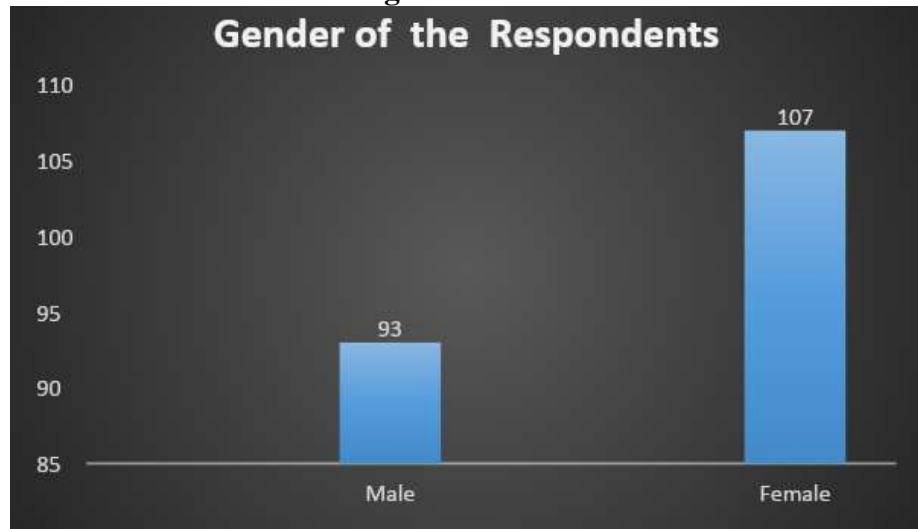


Table 2: Age group of People Using Social Media Platforms

Age Group	Number of Responses (200)	% Analysis
15-17 Years	23	11.5%
17-19 Years	127	63.5%
19-22 Years	40	20%
22-25 Years	10	5%

Source: Primary Data

Table 2 states that the Students who belong to the age between 17-19 years use the Social Media Platforms constantly by receiving 63.5% of responses from nearly about 127 responses. Teenage is a stage of life in which the students get addicted into something that they use or get into it constantly.

Figure: 2

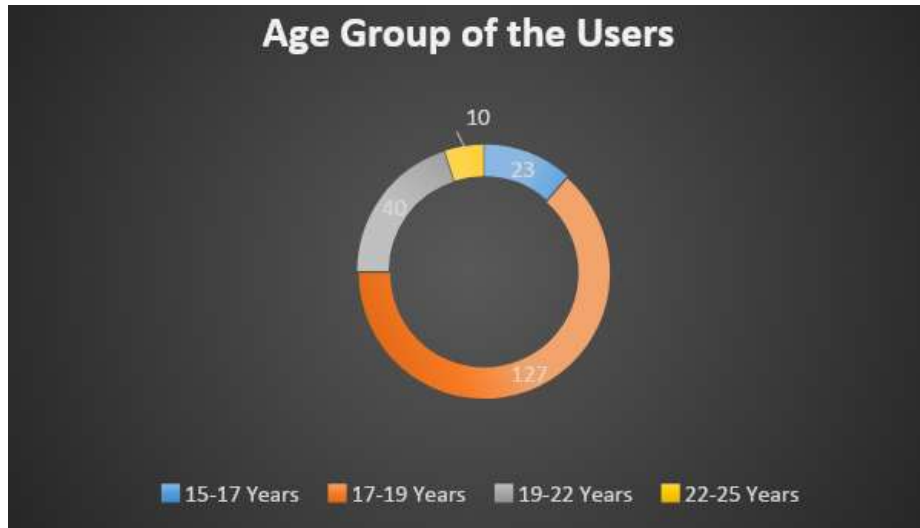


Table 3: Most Commonly used SMPs

Social Media Platforms	Number of users (200)	Rank Analysis
You Tube	50	II
Facebook	30	III
Linked In	14	V
Twitter	15	IV
Instagram	90	I

Source: Primary Data

The Table 3 states that Instagram is assigned Rank I since it is used by the majority of the respondents. YouTube is assigned as Rank II with 50 respondents. Linked In is assigned Rank V with 14 respondents. Instagram is platform which is predominantly used for recreation and entertainment purposes. It is a platform in which an individual can share his pictures, videos, ideas and thoughts in the form of posts, stories and reels.

Figure 3

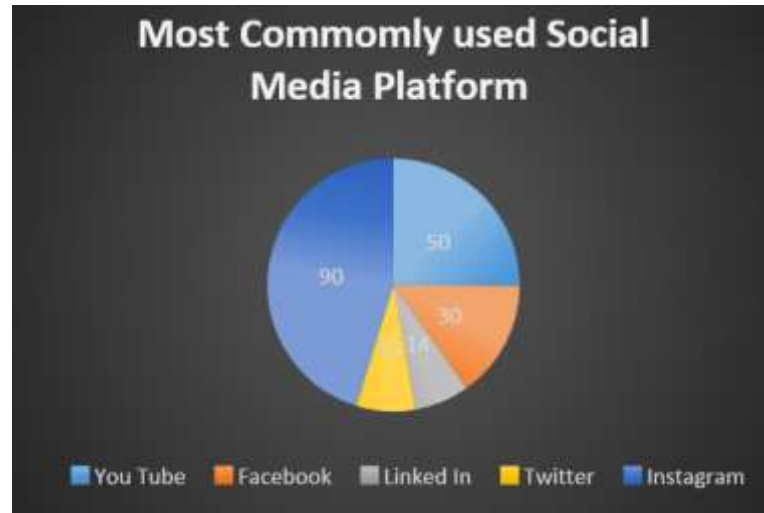


Table 4: Main Purpose of Using SMPs

Main Purpose	Number of responses (200)	% Analysis
Connectivity with new people	43	21.5%
Academics	34	17.0%
Entertainment	90	45.0%
Employment opportunities	17	8.5%
Sharing opinions	11	5.5%
Posting pictures and videos	5	2.5%

Source: Primary Data

Table No.4 states that entertainment is the purpose for which most of the students use social media platforms. It is leading among other reasons with the highest percentage of 45%. Posting photos and videos is the least preferred option. When people go on using those platforms for entertainment then their academic activities will get abruptly affected.

Figure: 4

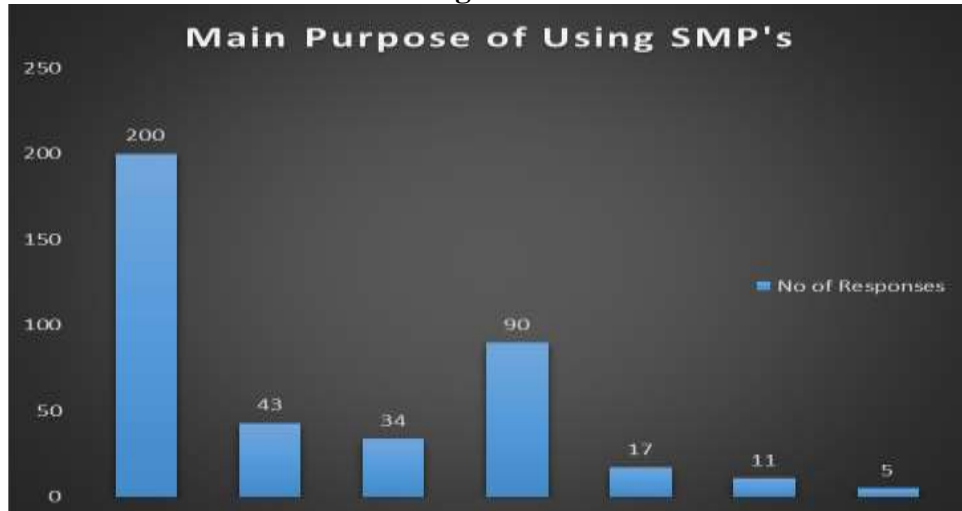


Table No: 5 Time Spent on Social Media

Time Spent	No of Responses (200)	%Analysis
1-3 Hours	65	32.5%
3-6 Hours	80	40%
More than 6 Hours	55	27.5%

Source: Primary Data

Table No 5 states that the students that the students use their social media handles for about 3 to 6 hours. Using Social Media for about 3-6 hours per day is miserable. Constant usage of it leads to addiction. Due to heavy usage they may lack concentration in other activities they do.

Figure 5

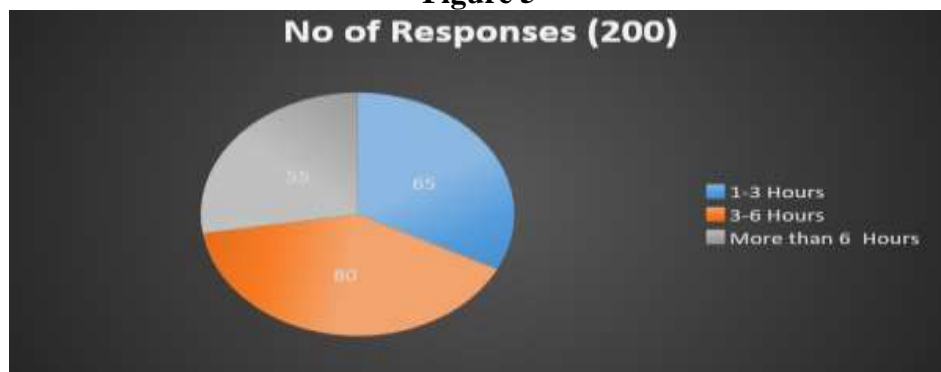


Table No. 6: Factors that Influence Students to Use SMPS

Factors	Agree	Neutral	Disagree
Worldwide Accessibility	151(453)	41(82)	8(8)
Sharing valuable contents	120(360)	55(110)	25(25)

Networking with people	85(255)	95(190)	20(20)
Stay updated	100(300)	90(180)	10(10)
Entertainment	145(435)	49(98)	6(6)

Source: Primary Data

Table 6 states that majority of the respondents agree with the factor worldwide accessibility as the factor which influences them to use social media platforms. It is observed that most of the respondents have a neutral opinion about the usage of social media platforms for networking factor. It is to be noted that maximum number of respondents disagree with the factor of sharing valuable contents.

FINDINGS

- Most of the respondents use Instagram as the social media platform.
- Majority of the respondents are females with 53.5%.
- Majority (45%) of the respondents use social media platform for the entertainment and recreation.
- The Respondents use their Social Media Platforms for about 3-6 hours per day.
- Maximum number of students have agreed that the factor worldwide accessibility has influenced them to use social media platforms.

SUGGESTIONS

- Students should reduce the hours of usage of social media platforms to avoid visionary issues and other health related problems.
- Since the Majority of the responders are females they must be highly conscious in posting their private pictures and videos as they may be misused by hackers which may lead to big social issues.
- Students can also use these handles for job and career opportunities by accessing the websites of the institutions which post their requirement.
- Students can enrich their academic knowledge by reducing the time that they spend towards entertainment in these platforms.
- Social issues like harassment, abusive contents and filthy activities can be eradicated when they use social media platforms in a precautionary manner.
- Students instead spending their precious time on these platforms for entertainment can share their own copyrighted, patented contents.

LIMITATIONS

- The collected does not include the students from other districts and cities as the survey was made only around city of Coimbatore.
- The study also does not consider other platforms which are in existence as we considered only few Platforms for this study.

CONCLUSION

The main motto to carry out this study was to analyze the most popular social media platform among the students between the age group of 15 to 25 and the influences that they have on them. Recently there has been a massive evolution in social media, in the way by which people communicate or socialize. The study observed that the higher proportion of students accessed to internet through mobile phone leading. Social media is used on daily basis and time span in per day is three hour or higher by most of the students.

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SENTIMENT ANALYSIS'S EFFECT ON SOCIAL MEDIA TO MEASURE CUSTOMER SATISFACTION: CASE OF INDIA

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ABSTRACT

In the information age, sometimes referred to as the 21st century, customer happiness is a crucial component of business. However, businesses of today continue to struggle with the notion of client expectations. The internet has made it possible for people to share their ideas through blogs, Social Media (SM) platforms, forums, and news comments. As a result, the enormous volumes of data generated by such platforms are growing tremendously. The active ability to rate firms, understand consumer requirements, and modify company plans is made possible by the active extraction of opinions from those enormous data sets. In order to get insight into the reviews acquired from SM applications, this study proposes a concept for developing a rating system using Big Data Analytics (BDA) approaches that apply the current Sentiment Analysis (SA) algorithms. The technology would enable listing several service categories and assessing them in light of consumer feedback.

Additionally, this study aims to manage a sizable amount of data in order to rank the institutions, offer a workable solution for competitive and marketing analysis, and monitor the rise in customer satisfaction in both the public and private sectors in order to support 's excellent service delivery.

KEYWORDS: Sentiment Analysis, Social Media, Customer Satisfaction, Big Data Analysis, Big Data Processing.

INTRODUCTION

In addition to fundamentally altering our daily lives, social media sites produce vast amounts of data every day. They are a crucial factor in the ability of businesses to make wise business decisions. Businesses have adopted a variety of services from Google, Facebook, Twitter, Instagram, LinkedIn, and other SM in order to stay competitive by leveraging digital advertising, building brand awareness, boosting inbound traffic, and enhancing search engine optimization (Parveen et al., 2015). Additionally, some businesses have used information retrieval and BDA strategies to their benefit in order to maintain their marketing strategy, customer service initiatives, and creative insights.

is featured in developing nations where customer service is still a major issue. The n government has put in place the measures necessary to establish a tradition of providing exceptional service in both the public and commercial sectors.

Service providers can profit from competitive analyses and turn SM's huge data into insight for decision-making as the number of SM users grows in . To the best of this study's knowledge, there isn't adequate data or research on the state of customer satisfaction in right now, nor is there any SM competitive comparison of the top companies (Pagolu et al., 2016).

One of the many active study areas in Natural Language Processing today is SA, or opinion mining (NLP). It is a technique for extracting information from texts that enables a variety of enterprises to increase customer satisfaction. Additionally, it emphasizes the SM analysis and has a particularly significant impact on management, politics, the social

sciences, and economics because all of these fields are impacted by people's beliefs. In human behaviors and actions, opinions are crucial. Most of the time, when someone has to make a decision, they will need to be aware of other people's perspectives. Consider the situation where people must cope with over a thousand evaluations from various sources (Kharde&Sonawane, 2016).

Objectives

1) The methods for managing enormous amounts of data collected from various SM platforms.

2) The use of SA techniques now in use to rank and suggest the finest services in Based on the feedback, the rating application seeks to rank different services. It will help consumers who are looking for the best services in a particular location save time.

The findings of this study will also be used to assess the standard of service delivery in

This essay is organized as follows: Section II lists pertinent earlier research on the role of BDA and SA.

Section III provides a detailed description of the system's abstract design. In section IV, we come to the study's conclusion and future work regarding ovulation.

RELATED WORKS

BDA and SA are currently the subject of numerous scientific studies. Additionally, as active areas in both academia and business, the data size in the storage, analysis, and processing of big data is expanding.

Data are frequently unreliable, noisy, and inconsistent in the real world. Prior to analysis, the data preprocessing step in the data mining process helps to extract as much accurate information as possible from the texts (Alkilani et al., 2013). Massive amounts of data are involved in this investigation, hence a Big Data Preprocessing (BDP) needs to be created and put into action. A BDP system based on Hadoop was proposed by Dai et al. (2016) by leveraging idle CPU resources to process data in local storage nodes (Xiang et al., 2015).

This study takes into account using Apache Spark and Hadoop to speed up text preparation. The data are prepared for use after preprocessing analysis. SA technique so plays a part in this research. The One of the SA techniques that generates a list of Expressions and words of opinion. (Mostafa, 2013), developed a proposal to solicit opinions using the terminology connected with positive or negative polarity for particular subjects found inside texts as opposed to examining the complete (Grover et al., 2020) also suggested a technique. of using the lexicon-based method to rank a fan page on Facebook. The study recommended utilising various to improve and generate results that are more accurate, lexical databases (Blanchard, 1900) of the analysis.

The classification methods, on the other hand, use Machine Learning (ML) approaches, where the classifier receives a large amount of text data as input before producing the output of the appropriate category, such as positive, negative, or neutral.

(Yadav &Roychoudhury, 2019) used the Naive Bayes (NB) statistical text classifier, SVM algorithms, the semantic unsupervised scheme of sentiment classification, and SentiWordNet as a lexical resource in their research. Additionally, (Sharma et al., 2020) used the SA model, which executes the NB algorithm, to examine the impact of Twitter on school policies (Manoharan, 2020). As her research advanced, she added the Python tool Scikit-learn to categorise the tweets as favourable, negative, or neutral. Additionally, the quantitative technique was used to gather information and determine if the public should be involved or whether ideas from social media should be taken into account when formulating education policy (Raja &Priya, 2021).

The NB and Logistic Regression (LR) algorithms are the two most used simple classifiers

in SA. The performance comparison between the NB and LR algorithms was elaborated by (Vo et al., 2020). They came to the conclusion that NB is a superior option at first.

The performance of the NB will eventually be surpassed by LR, nevertheless, if the quantity of training instances rises (Jena, 2020). Additionally, (Kharde & Sonawane, 2016) chose a Multinomial Logistic Regression approach for their SA investigation since it was competitive in terms of CPU and memory utilisation.

Since this study also works with huge data from several sources, LR is regarded as the training starting point. Additionally, it is vital to look at the connections between user responses while carrying out the (Păvăloaia et al., 2019) talked about how crucial it is to take into account tweets and their associated ones when performing a functional analysis of sentiment. To improve Twitter sentiment classification, use 1) Subjectivity classification, 2) Polarity classification, and 3) Graph-based optimization. In the first stage, assess whether the tweet is positive or negative about the target, in the second step, and in the third step, view related tweets.

Deep Learning recently demonstrated its promise in SA performance. For the classification of sentiment, (Kar, 2021) suggested a hybrid deep learning structure that combines a probabilistic neural network and a restricted Boltzmann machine (Chauhan & Shah, 2020).

SUGGESTIVE SYSTEM DESIGN

The suggested system is made up of the four primary tasks depicted in which include gathering information from various social media platforms, using a big data management system to store and preprocess aggregated data, extracting and categorising attitudes, and visualising the outcomes. The output will help visualise data on the dashboard and provide a list of services with their respective ratings.

A. Data Gathering

There are a tonne of opinions being formed today across a variety of platforms, including Twitter, Facebook, Google My Business (GMB), blogs, YouTube, and TripAdvisor. Additionally, each platform offers a method for accessing the data. The vast quantities of data that are currently accessible via the internet and Application Programming Interface In this study, the Twitter and GMB APIs were examined to extract sentiment texts from tweets and google reviews given to every specific business.

B. Big Data Management

At this point, big data environments like Apache Spark and the Hadoop Distributed File System (HDFS) are being evaluated for storing and analysing enormous volumes of data. They will help to match and categorise the services and reviews provided to each organisation during the integration process by assuring the efficient design and implementation.

Additionally, they make it possible to combine data from many sources for analysis. The following procedures are used for data preprocessing, storage, and integration:

1) Preparation Due to its excellent performance and capacity to accelerate BDP, Apache Spark is used in the study. The Resilient Distributed Dataset (RDD) from Apache Spark is a representation of a set of data that is scattered across several machines and has APIs that allow developers to interact with it. RDD is a distributed, fault-tolerant, collection of immutable items that can be used concurrently.

Texts that have been combined from numerous sources are generally disorganised, lacking, and inconsistent.

To further improve the accuracy and performance of the SA process, the pretreatment approach is necessary to omit improper data and eliminate non-text data.

The preprocessing step often includes the following duties for SA:

- Since this study is now only concentrating on the English language, leave out any writings written in any other language.
- Tokenization, which makes it simple to distinguish between words that are helpful for SA and words that are superfluous, such as special characters (@, #), punctuation, numbers, emoticons (such as:) or:-), and stop-words (such as to, of, is, are, this, for).
- Eliminating hashtags, usernames, and URLs
- Normalization, which changes and reforms some words or sentences using just capital letters, prolonged words (such as Yes, No), and abbreviations.

2) Storage and Integration: After preprocessing, the study uses data consolidation from various sources and links to each institution for orderly storage. Additionally, the integration process gathers all the data from various sources and combines it to produce an exhaustive analysis. With the combination of Apache Spark and Hadoop that runs on clusters, the storage design enables quick and effective access, ready for the sentiment classification procedure.

C. Classification and Extraction

This stage's tasks are on top of those from the previous stage. which addresses the administration of massive data. The text vectorization, which is the first step, Tokens are converted into a binary feature vector by applied. This task's primary goal is to create a counter. for how frequently tokens are used in the text. Then substitute Term Frequency-Inverse Document for counters. Values for the frequency (TF-IDF) to improve the performance in the following the characteristics in the training procedureextractions.

The work then focuses on the classification of emotion words to rank services using supervised ML techniques. The discriminative model was used as the study's starting point. The model that can be used to estimate the probabilities between positive and negative labels after vectorization is LR. LR will be a preferable alternative for training for binary classification of 1 and 0 to present the categories of positive and negative, respectively, as data predicted to be greater.

D. Visualization of Results

The purpose of this work is to use a graphical presentation to clearly convey the categorization process's outcome. The following information is to be represented:

To provide users with suggestions for services to think about.

Which services have the best ratings?

Which service categories are receiving the best reviews?

What phrases appear most frequently in negative reviews?

To obtain reports that aid in analysis and business decision-making.

The visualisation is crucial to this research because the system's end user must obtain the report through each company's dashboard. Additionally, the results will assist in visually interpreting the results and in recommending appropriate services through a ranking list of great services.

SUMMARY AND FUTURE WORK

In addition to ranking the services in India using big data, the research discussed the effects of SA on SM and suggested a rating system based on their responses.

Four primary actions were introduced throughout the talks of the proposed system in Fig. 1. These responsibilities, which include gathering, managing, mining, and presenting text data that reveals customers' evaluations of services, can be seen as discrete modules of the programme. Additionally, such modules can be maintained and changed independently of

one another.

However, the following are the outstanding tasks and difficulties that must be taken into account in order to enhance the effectiveness of the suggested method as this research develops:

- The biggest obstacle to this study's completion continues to be the collecting of data on several SM locations. The majority of social networking websites offer APIs to make it possible to access their data. However, there is a finite amount of data.
- Additionally, they could alter their API for a number of reasons. Due to privacy and security concerns, Facebook has modified the limits and disabled some of their APIs.
- This study served as a representation of big data management strategies. To increase the assistance of data preprocessing for the analysis, additional research on the architecture is required.
- The study must carefully address security because it depends on some open sources.
- LR served as the classification's foundational algorithm.
- To enhance the classifier or identify a new one that is suitable, more research is required.

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FMCG INDUSTRIES OF INDIAN MARKET

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ABSTRACT

The main concept of rural marketing in Indian economy played role in lives of people and think rural marketing is all agricultural marketing. Rural marketing determines carrying out of business activities in flow of goods from urban to rural region. Fast moving consumer goods are the goods which sold quickly at low cost. FMCGs has short life of consumer demand which would be high. As FMCG in rural market there are ads which marketing form of communication, and promote a message or sell a product and service. The Indian Government has made specific plans to development the rural areas, villagers, farmers to earn higher incomes. People in rural area are watchers today and get updates information through smart phone and television now a days.

KEY WORDS: Consumer goods, FMCG, Rural

INTRODUCTION

Fast moving consumer goods (FMCG) are the products that are sold quickly at lowcost. Examples ofFMCG generally include a frequently purchased consumer products such as soap, cosmetics, teeth cleaning products, shaving products and detergents, as well asother non-durables such as glassware, light bulbs, batteries, paper products and plastic goods.FMCG may also include pharmaceuticals, consumer electronics, packaged food products anddrinks etc. FMCG products are fully used up over a short period, usually a few days or weeks, or months, but within oneyear.Fast Moving Consumer Goods constitute a large part of consumers budget in all countries.

FAST MOVING CONSUMER GOODS(FMCG)

FMCG are products that are sold quickly and relatively low cost. FMCG is also called as Consumer packaged goods(CPG). FMCGs have a short life because of high consumer demand (Ex: soft drink, toilet paper, meat, dairy products). These goods are purchased frequently, priced low, and are sold in large quantities. They also have a highturnover rates, low prices, or short live.

CHARACTERISTICS OF FMCGS

Low Buying Effort:

FMCGs are usually low effort purchases for the consumer. For example, with shampoo, most people know that they prefer a particular brand or type without testing it. This means that most people enter the store knowing exactly what they want and buy it straight away.

Rapid Consumption:

The time between buying the product and consuming it is very short, often only a number of hours. For example, a loaf of bread might be purchased in the morning and consumed at lunchtime that same day.

High Turnover Rate:

FMCG sales are higher than other product types sales are purchased frequently by consumers. This means that retailers can keep inventory for these products for shorter periods of time, which ultimately reduces costs.

Highly Distributed:

Since these goods have high demand and low cost, they usually need to be widely available and distributed across different locations and regions. For instance, there might be several different supermarkets in a town that all sell the same bread brand.

Low Unit Cost:

As FMCGs have a high demand and low cost, they usually have a low unit price for consumers. This means that retailers can sell these products at a low price and still retain the same profit margin. This is different from luxury items that usually have a high unit cost but lower demand, meaning that they must be sold at a higher price to maintain the retailer's desired level of profit.

Non-Durability:

FMCGs are not built to last. This is because they have a short time span from production until consumption. They are also required in large quantities so manufacturers do not need to preserve them for long periods of time, which allows them to be sold at lower prices.

CONSISTENCY IN FORM, SIZE, COLOUR AND PRICE

FMCGs are standardised which allows them to be produced cheaply in bulk quantities. For example, if a manufacturer produces packets of shampoo, they are all the same size and contain the same amount of liquid. This means that when one purchases a packet of shampoo from their local store, they know exactly what they are getting.

GROWTH OF FMCG SECTOR IN INDIA

The Indian FMCG market offers a level playing ground for both domestic and international players. All Indian brands and international brands enjoy higher acceptance in the urban market, the rural market is often dominated by the regional and local producers. The Consumer Market, especially Fast Moving Consumer Goods (FMCG) sector in rural and semi-urban . The Indian Rural FMCG market is mostly unorganized and it is generally dominated by small time retailers. The organized FMCG market is only confined to the urban areas of India. Rural India mostly depends on agriculture, directly or indirectly for livelihood.

TYPES OF FMCGS

Food and Beverage:

Food and beverage products usually fall into the FMCG category due to their short life span and high turnover rates. Types of food and beverage products that are usually classed as FMCGs include but are not limited to: Processed food, such as bread, pasta and potato chips. Ready to eat food, such as packets of nuts or crisps. Beverages, such as bottled water, coffee cups and cans of soda.

Personal Care Products:

Personal care products, such as shampoo and toothpaste, can also be classed as FMCGs because they are needed frequently by most consumers, usually bought at a low cost and not built to last. These include lotions, hair dyes, lipsticks, cosmetics, deodorants, bath soap, dental care products, etc.

Healthcare Care Products:

Healthcare care products are also classed as FMCGs because they are usually highly demanded, not built to last and very distributed. These include products like plasters, bandages, syringes, condoms, etc.

Home Care Products:

Products that are used for household purposes also fall into this category because they are usually standardised, low durability goods that are highly distributed and sold at a usually low unit price. They include cleaning products, kitchen towels, toilet rolls, bleach, dusters,

etc.

FMCG COMPANIES EXAMPLES

COCA-COLA:

Coca-Cola is an American multinational corporation that is currently among the world's largest beverage companies. The Coca-Cola Company manufactures, distributes and sells beverages. The company operates in over 200 countries and focuses its product range on sparkling soft drinks such as Coca-Cola and Diet Coke, still drinks such as Minute Maid, and energy drinks such as Powerade.



NESTLE S.A

Nestlé S.A often styled as NESTLÉ, is a Swiss transnational FMCG company headquartered in Vevey, Vaud, Switzerland. It is the largest food company in the world measured by sales. The company deals in baby food, medical food, bottled water, coffee and tea, confectionery, dairy products, frozen food, pet foods, ice cream, breakfast cereals, and snacks.



RURAL MARKET IN INDIA

In recent years, rural markets have acquired significance in countries like China and India, as the overall growth of the economy has resulted in substantial increase in the purchasing power of the rural communities. On account of the green revolution in India, the rural areas are consuming a large quantity of industrial and urban manufactured products. In this context, a special marketing strategy, namely, rural marketing has taken shape. Rural India, mostly termed as “high opportunity” market, is no longer just an opportunity, but is now yielding results. The concept of Rural Marketing in Indian Economy has always played an influential role in the lives of people.

CHALLENGES FACED BY FMCG SECTORS FOR RURAL MARKETING

The peculiarities of the rural markets and rural consumers pose challenges to the marketers in reaching them effectively. While making out a case for opportunities that are rapidly developing in rural markets, one should not underestimate the several daunting problems in planning for growth. There are a large number of small villages which are not easily accessible because of weatherbeaten roads. Rural consumers are far less homogeneous than urban consumers. The main problems of rural marketing are

Transportation Problems:

Marketing activities require transportation facilities. Due to poor transportation facilities, farmers and marketers find it difficult to reach markets. Transportation infrastructure is quite poor in rural India. Nearly 80 percent of villages in the country are not connected by well-constructed roads. Warehousing: In the rural areas, there are no facilities for public as well as private warehousing. Marketers face the problem of storage of their goods.

Packaging:

It is the first important step of product processing. If the packaging cost is high, the total cost of products goes up. It is suggested that the marketers should use cheaper materials in packaging for the rural markets.

Media Problems:

Media have lots of problems in rural areas. Television is a good medium to communicate message to the rural people. But due to non-availability of power, as well as television sets, majority of the rural population cannot get the benefits of various media.

Seasonal Marketing:

The main problem of rural marketing is seasonal demands in rural areas, because 75% of rural income is also seasonal. For example, the demand for consumer goods will be high during the peak crop harvesting period, because this is the time when the rural people have substantial high cash flow. Rural marketing depends upon the demand of rural people and demand depends upon income and consumer behaviour.

Low Per Capita Income:

Per capita income is lower in rural areas compared to those in urban areas. Again, the distribution of rural income is highly skewed, since the land holding pattern, which is the basic asset, is skewed. Thus the rural population presents a highly heterogeneous spread in the villages.

Distribution:

An effective distribution system requires village-level shopkeeper, Mandal/ Taluka- level wholesaler or preferred dealer, distributor or stockiest at district level and company-owned depot or consignment distribution at state level. The presence of too many tiers in the distribution system increases the cost of distribution.

Cultural Factors:

Culture is a system of shared values, beliefs and perceptions that influence the behavior of consumers. There are different groups based on religion, caste, occupation, income, age, education and politics and each group exerts influence on the behavior of people in villages. There are several difficulties confronting the effort to fully explore rural markets. The concept of rural markets in India are still in evolving shape, and the sector poses a variety of challenges. Distribution costs and non-availability of retail outlets are the major problems faced by the marketers. The unique consumption patterns, tastes, and needs of the rural consumers should be analyzed at the product planning stage so that they match the needs of the rural people.

FEATURES OF RURAL MARKETING

Large and Scattered Population:

The rate of increase in rural population is also greater than that of urban population. The rural population is scattered in over 6 lakhs villages. The rural population is highly scattered, but holds a big promise for the marketers.

Higher Purchasing Capacity:

Purchasing power of the rural people is on rise. Marketers have realized the potential of rural markets, and thus are expanding their operations in rural India. In recent years, rural markets have acquired significance in countries like China and India, as the overall growth of the economy has resulted into substantial increase in purchasing power of rural communities.

Market Growth:

The rural market is growing steadily over the years. Demand for traditional products such as bicycles, mopeds and agricultural inputs; branded products such as toothpaste, tea, soaps and other FMCGs; and consumer durables such as refrigerators, TV and washing machines has also grown over the years.

Development of Infrastructure:

There is development of infrastructure facilities such as construction of roads and transportation, communication network, rural electrification and public service projects in rural India, which has increased the scope of rural marketing.

Low Standard of Living:

The standard of living of rural areas is low and rural consumers have diverse socio-economic backwardness. A consumer in a village area has a low standard of living because of low literacy, low per capita income, social backwardness and low savings.

Marketing Mix:

The urban products cannot be dumped on rural population; separate sets of products are designed for rural consumers to suit the rural demands. The marketing mix elements are to be adjusted according to the requirements of the rural consumers.

CONCLUSION

Following the decades of opening of Indian economy to the outsideworld and the accompanying intervention in rural economy by the government in the form of various development schemes and programmes, and also decentralization of power institutions have opened new vistas of opportunities to the rural people. These together have made rural market attractive for FMCG industry in India. This relationship has grown over the years in a reinvigorating manner leading to the revitalization of the same.

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THE ROLE OF PREDICTIVE ANALYTICS IN TRANSFORMING BUSINESSES

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ABSTRACT

Predictive analytics allows businesses to use information to predict future outcomes. Organizations have more data than they realize, from a variety of sources. Predictive analytics allows you to use past information to predict future business outcomes. Analytics can help you identify future opportunities, better serve your customers, and make more informed business decisions over the long term. This article is for business owners and managers who want to use data and predictive analytics to drive thoughtful change in their organizations.

KEYWORDS: Data, Big Data Analytics, Artificial Intelligence, Machine learning, Businesses, Technology, Finance.

INTRODUCTION

Every business has an enormous amount of data, from customer transaction data to shipping statistics. The key is figuring out how to use it to improve the future of your business. One of the ways for companies to solve this problem is to implement predictive analytics. This involves iterating on past information to derive models and analytics that help predict future outcomes.

The goal is to learn from past mistakes and successes and know what to change and what to repeat. Helps you identify what your customers want and don't want, maximizing the efficiency of your business. This helps the company identify and resolve issues as they arise.

PREDICTIVE ANALYSIS

Predictive Analytics uses artificial intelligence to make accurate predictions based on the data the customer provides. Advanced algorithms make connections between data points much faster and more accurate than humans can, resulting in reliable and actionable insights.

According to Eric Siegel, former professor at Columbia University, "Predictive analytics is technology that learns from data to predict what individuals will do, from wealth and donations to theft and car crashes." Predictive Analytics uses digital data to generate actionable predictions that help businesses streamline operations in the least amount of time.

PREDICTIVE ANALYSIS TOOLS AND SOFTWARE AVAILABLE TO BUSINESSES

Applying predictive analytics to the enterprise requires specialized software, available from several vendors such as IBM, SAP and SAS. User interface, the premise is the same. They all work by first analyzing all the information collected by the company. This includes sales and customer statistics, employee productivity, and social media data. Now insert this data into the forecast model. It can predict future trends and problems based on past behaviour using specially designed algorithms.

These models help companies anticipate changes in various consumer trends and employee productivity, guiding supply and marketing decisions and helping drive efficiency. Predictive analytics software was previously only an option for large enterprises, but recent developments have made it more accessible to small businesses. This type of software is available from vendors such as Emanio and Angoss, and is now sold at a lower price. Instead of installing directly on your company's servers, you can run it from any PC.

IMPLEMENTING PREDICTIVE ANALYTICS IN BUSINESSES

Predictive analytics was originally used by large retailers and financial institutions. Today, businesses of all industries and sizes use it to gain a competitive advantage.

According to IBM, businesses can use predictive analytics in a number of ways, including:

- Improve capacity limits and profitability by selecting the right people, processes and assets.
- Reduce risk to minimize risk and loss
- Extend equipment life
- Reduce equipment failure and maintenance costs
- Focus maintenance activities on high-value issues
- Increase customer satisfaction

For example, Sephora, in the US, analyzes customers' purchase histories and preferences to predict which products will appeal most to them. These customized recommendations resulted in 80% of customers being completely loyal to the company.

Similarly, Harley-Davidson uses predictive analytics to highlight quality leads targeted by marketers and sales reps.

The popularity of predictive analytics among businesses has led to other types of organizations using this software. For example, healthcare companies use it to predict how patients will respond to certain drugs and treatments, helping doctors to better spot life-threatening illnesses and early warning signs of disease.

Government agencies use predictive analytics software to prevent crime, deliver social services, and better serve their citizens. For example, more than 20 US cities use predictive analytics to identify where crime is most likely to occur. Then use this data to better allocate resources and reduce costs while fighting crime.

In the future, there will definitely be a minority of companies that do not use predictive analytics software to make decisions.

ADVANTAGES AND DISADVANTAGES OF USING PREDICTIVE ANALYTICS

Despite the huge potential of predictive analytics, only 19% of midsize companies are actively planning analytics initiatives, according to BDO Digital. This is because the technology has potential drawbacks.

Here we look at the pros and cons of predictive analytics today.

ADVANTAGES

- Provides useful information.
- Saves time on manual research and testing.

- Workflow optimization reduces running costs.
- Reduce wasted capital from ineffective marketing campaigns.
- Reliability improves over time.

DISADVANTAGES

- Takes longer to produce meaningful results.
- Requires considerable data collection work and preparation.
- Initial cost is high and initial failure may occur.

BEST USES OF PREDICTIVE ANALYSIS

Due to the potential downsides, predictive analytics must be applied correctly to benefit. One of the most important aspects is using trusted and clean data. Without high quality data these algorithms will not give accurate results. As a result, Gartner research believes businesses lose \$15 million a year to bad information. This can be avoided by collecting and cleaning data from trusted sources. This includes matching with other sources, removing redundancies, and standardizing formats.

As with any new technology, it's best to start small. Initial cost and disruption can be minimized by applying predictive analytics to one area first and expanding it over time as the organization learns to manage it. It also helps employees understand how to use these technologies more effectively.

Finally, predictive analytics data should be reviewed regularly to maintain reliability. Algorithms may need to be fine-tuned and adjusted as circumstances change. By monitoring their performance, businesses can reap the benefits without taking too much risk.

PREDICTIVE ANALYTICS REVOLUTIONIZES ENTERPRISES

Predictive analytics has changed the way many companies work. Companies in virtually every industry have seen noticeable improvements after implementing this technology. As more people realize these benefits, it could become the norm.

As with any technology, predictive analytics is not a panacea. Not all problems facing businesses can be solved. It can be of great help, especially without careful planning and implementation. It will undoubtedly change the way companies work. Companies use predictive analytics to solve tough problems and discover new opportunities.

Common uses include:

Fraud detection: Combining multiple analysis methods can improve pattern recognition and prevent criminal activity. As interest in cyber security grows, powerful behavioural analytics examines all network actions in real time, detecting anomalies that can indicate fraud, zero-day vulnerabilities, and advanced persistent threats

Marketing campaign optimization: Predictive analytics are used to determine customer responses, purchases, and drive cross-selling opportunities. Predictive models help businesses attract, retain, and grow their most profitable customers.

Operational improvements: Many businesses use predictive models to forecast inventory and manage resources. Airlines use predictive analytics to set ticket prices. Hotels try to predict the number of guests on a given night to maximize occupancy and generate revenue. Predictive analytics enable organizations to work more

efficiently.

Risk Mitigation: Credit scores are used to assess a buyer's likelihood of default and are a well-known example of predictive analytics.

CONCLUSION

Predictive analytics is a branch of advanced analytics that uses historical data combined with statistical modelling, data mining techniques, and machine learning to predict future outcomes.

Businesses use predictive analytics to find patterns in this data and identify risks and opportunities. Predictive analytics is often associated with big data and data science. Businesses use predictive analytics to manage inventory more efficiently and help meet demand while minimizing inventories.

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HUMAN RESOURCE ANALYTICS AND TRENDS A FUTURE PERSPECTIVE

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ABSTRACT

Many businesses now employ human resources professionals that work in data-driven organisations where every choice made at the operational, functional, and top levels of an organisational hierarchy is based on data. The introduction of data has led firms to efficiently accomplish their goals, eradicating the decision-making style based solely on intuition. The human resources industry is undergoing significant transformation, and HR managers constantly pick up new skills. The perspective of human resource analytics has evolved throughout time as a result of the quick and dynamic advances in science and technology, the rising usage of artificial intelligence, and the expansion of the gig economy. Decisions are made by HR professionals using data to assist them recruit, retain, and develop their workforce. While many businesses employ business intelligence and analytics for tasks like supply chain management, finance, accounting, and marketing, they haven't fully embraced them for HR management. Businesses are taking significant actions in response to the enormous opportunities presented by the use of analytics, such as developing a culture where important decisions are supported by data-driven methodologies and hiring analytics experts in fields with high expected returns. The significance of analytics for HR's transformation into a more valuable resource for the firm is still emphasised by experts. Only by keeping abreast of the most recent developments in the field of HR Analytics can an organisation remain viable over the long term. As we start a new decade, it is important to comprehend the global developments taking place and their consequences for organisational success. This descriptive study focuses on human resource analytics trends and how they might help organisations become more effective in the coming years.

KEYWORDS: *HRM, analytics, strategies, and human resources*

INTRODUCTION

The term "HR analytics" refers to a subset of analytics that focuses on improving employee performance and lowering employee turnover in a business through procedures like people analysis and the application of analytical methods to human resources. [1] Due to data-driven decision making, businesses who invest in human resource analytics see a better return on their investment. Each human resource management should be familiar with the following five primary categories of human resource analytics:

Employee Churn Analytics:

Employee Churn Analytics: It also entails a workforce evaluation. In order to predict the future and specify the rate of employee turnover starting from the moment the employee joins the firm, historical data must be collected. [1]

Capability Analytics:

Capability analytics is the process of identifying, attracting, hiring, developing, retaining,

and promoting experts who support the achievement of corporate objectives through the use of recognised competencies. [1]

Organizational Culture Analytics:

Organizational Culture Analytics refers to the collective unstated norms, processes, and patterns of human behaviour that define the culture of each organisation. [1]

Capacity Analytics:

It involves a behavioural examination that aims to ascertain a person's capacity as they need to develop. [1]

Leadership Analytics:

The establishment of leadership is essential for enhancing leadership performance. The focus of this type of analytics is employee retention, which in any firm demands extreme prudence. Methods including surveys, polls, focus groups, and ethnographic research are used to get the data. [2]

Predictive analytics, one of the most significant types of big data analytics, is strongly related to HR analytics. One of the biggest game-changers in the sector, HR predictive analytics enables employers and employees to maintain positive networks before any kind of issue arises. With the help of this method, unstructured data is processed in order to extract crucial knowledge about the organisational setting that can be applied to daily decision-making. Companies can acquire valuable insights from HR analytics that are essential for all HR professionals. [2] The following are just a few of the crucial information that HR analytics may provide:

1. Current Rates of Employee Turnover.
2. The percentage of workers that are most likely to depart the company
3. Salary projections for newly developed functional jobs in an organisation
4. Predicting how freshly hired staff would perform.
5. Evaluating the financial impact on HR practises. [2]

Every HR professional may benefit from using predictive analytics to guide their firm toward development. These tools provide a critical assessment of the personnel both before and throughout their employment with the company, which significantly contributes to the financial position of a company. A variety of forecasts may be made using the predictive function in HR analytics, including those on cultural fit, engagement levels, skill upskilling, and compliance with industry laws and regulations. In addition, this approach comprises rating several HR functional areas and explaining the probability of an event occurring. [2]

EFFECT OF HR PREDICTIVE ANALYTICS ON COMPANIES PROFITS

According to an interview with the HR technologist and CEO of Edge Networks, Arjun Pratap, predictive analytics can be used to estimate the organization's future needs while also enabling quick decisions to be made. It assists in achieving organisational goals that can't be reached through manual decision-making. [3] The following are the main effects of HR analytics on a company's profit:

Identifying the individual who fits the organization's culture:

The use of predictive analytics enables the identification of personnel profiles that are both job- and person-fit for the firm. Engagement, significant collaborative contributions, attrition rates, and growth predictability are the kind of metrics that assist establish how well a person fits into a company. According to Aditya Narayan Mishra, CEO of CEIL

HR, there are significant changes taking place in the recruiting process, and it is possible to match an employee's demographic information with their performance and behaviour to identify the success elements.

Hiring vs Upskilling:

Although the firm lacks access to these key resources, HR analytics utilise an algorithm to estimate what talents and other resources are necessary. Data based on employee performance and educational background provide helpful insights for HR to forecast which workers can upskill to become experts. In addition, it saves time and money by allowing the business to address skill gaps rather than investing a lot of time on hiring new employees and integrating them into the organisation.

Employee Retention Rates:

The most difficult element of people is the attrition rate of employee management. Predictive analytics assists in overcoming this obstacle to a greater extent by identifying employees who are more likely to leave the company organisation. Understanding the promotion opportunities, climate, and employee-employer interactions aids in our ability to ascertain who is motivated to join the company. This helps to prevent the business from suffering significant losses due to high staff turnover rates.

Contribution of Employees to Business Results:

Metrics are used in predictive analytics to identify areas where businesses may improve and to identify the personnel most likely to contribute to such improvements. This is of great relevance to the organisation since one of the primary investments in a business that may help it accomplish its strategic goals is human capital. In the long term, no company can exist without good employees.

HR analytics is a significant development in the area of human resource management that satisfies the needs of the business to achieve success. Since technology is ever-evolving, it's possible that it won't be important for the business's performance in the future. The business operations of Nokia, a significant corporation in 2000 with the largest market, may be used as a classic example to illustrate the significance. Nokia continued to operate with its current technology and, regrettably, entered the decline stage of the product life cycle when its rival businesses released android technology. Since businesses are often technology-driven, this holds true for all aspects of them. The next portion of this article outlines the key developments in the field of HR analytics during the next ten years.

III.THE MAJOR TRENDS IN HR ANALYTICS

Introducing new technology into the business aids in streamlining the current procedures. In order for businesses to use the data for their primary decision-making processes, it is necessary to rethink how data is collected, processed, and reported. Some of the key trends in HR analytics are examined further. [4]

Automated Hiring:

Data collection for candidates that fulfil the bill is necessary for automated recruiting a company's culture. Artificial intelligence is used to weed out applicants who don't fit the company's profile. Major duties also fall under this category, such as posting jobs, monitoring applications, screening applicants, recruiting via social media, finding candidates, and ranking them.

Artificial Intelligence-Based Recruitment of New Hires:

Data analysis performed by artificial intelligence aids HR managers in selecting individuals who will fit in with the company. Decisions are made impartially. For instance, Chabot's uses NLP (Natural Language Processing) to automate crucial jobs, manage all customer- and marketing-related chores, and handle talent acquisition tasks. [4]

Interactive Employee Training:

Virtual training is a component of interactive training for both new and existing employees. This calls for the application of important strategies such as being tech-savvy, creating ground rules, concentrating on the agenda, cooperating, and holding interactive learning sessions with trainees. This works well to keep trainees interested.

The Development Of Predictive Reporting:

By analysing variables like attrition, its effects, and potential solutions, predictive reporting may help address these problems. Utilizing data that applies to the entire firm is quite beneficial for businesses. The major applications for this include financial modelling, social media analysis, insurance, risk management, and commerce, among others.

Employee Participation:

One of the newest trends in 2019 was employee involvement, which will only grow in importance in the future years. Companies want to obtain positive employee feedback and learn how to raise employee engagement levels inside the company. Many businesses have had success investing in high employee engagement strategies. Major businesses that have had success with this technology include:

1. Google

By promoting innovation and teamwork and attempting to remove obstacles for its staff, Google operates transparently. 20% of the activities that Google workers might engage in can be in their areas of interest. [5]

2. HYATT

Employees at the Hyatt hotel company have a solid track record of being retained through promotions at all levels, and they actively listen to one another's issues and provide solutions.

3. South West Airlines

Southwest Airlines strives to build relationships with its passengers and staff on an equal basis.

4. Virgin

Virgin is renowned for listening, and it promotes constructive brainstorming and discussion sessions. It also cherishes the input of each and every employee.

5. L'Oreal

L'Oreal engages its staff members through its annual Citizen Day volunteer events. 27,600 people took part in this programme, totaling 170,000. This event benefitted 855 organisations in 2018, receiving volunteer hours from 63 different countries.

Increased Performance Measurement Needs:

In order to keep a skilled staff and increase efficiency, organisations discontinued utilising the procedures of once-a-year employee evaluations. The Continual Performance Measurement (CPM) tool, which is a continuous streamlining processing to grasp the defects in operations and take fast action if necessary, has been purchased by 200 businesses across the world. Since a feedback system only conducts a review once a year, it's possible to overlook value items that are crucial to an organization's operation. [6]

On the Job Training:

The workforce is continuously trained and developed using on-the-job training techniques, which aid in skill development and overcoming change resistance. Some of the key methods that would become increasingly prevalent include

1. Augmented Reality

It is a collection of digital components that assist determine how well-off someone is fit for a business by giving workers a real-world scenario to answer to rather to asking them hypothetical ones.

2. Gamification

It covers real-world business settings and procedures, primarily those utilised in hiring, training, and development processes.

3. Geo-Fencing

It works well for tracking employees' attendance depending on location. Simply said, it's a way to keep tabs on the workers and exert control over the employees.

HR professionals should concentrate on implementing tactics that are crucial for them to keep up with these current developments. The following sections provide a quick overview of methods for staying current with technology.

KEY STRATEGIES FOR HR'S FUTURE

According to SHRM, the Society for Human Resource Management, HR practitioners should concentrate on many facets of corporate strategy as well as, of course, new developments in analytics. Due to the fast advancement of technology, shifting economic conditions, and shifts in supply and demand, among other factors, the function of HR managers has occasionally altered. [6]

According to the US Bureau of Labor Statistics, more jobs will be produced, but there will be fierce competition. The advantages for C-suite roles are more likely to go to those with master's degrees. The following are a few crucial tactics:

Utilize analytics and stay current with the available technologies when businesses face increasing competition.

1. Professionals in human resources must comprehend how to support the organization's vision, purpose, and goals. Numerous positions are open in the field of human resources including

- Chief technology officer/data scientist for human resources.
- Specialist in employee experience.
- Head of technology selection for talent acquisition
- Head of the applicant experience.
- Performance consultant.

2. HR managers incorporate into consulting jobs, which are crucial for retaining and attracting top talent.

3. It is important to realise that not just Millennials will be employed in the future; instead, more and more gig workers with higher levels of creativity will be needed.

4. Businesses should fund employee initiatives like financial wellness programmes, carer leave, increased fertility benefits, support with gender reassignment and change, etc.

5. HR professionals need to work toward earning credentials like PHR SPHR. The SHRMCP makes care to maintain skills current.

CONCLUSION

The area of HR analytics is the most recent to develop. Organizations are unable to

function without data. In the digital age, there is an increase in HR professionals who are competitive. Employee motivation, recruitment, and training are ongoing needs. Technology makes it easier for HR professionals to adapt to a changing workforce and improves their performance. Due to the advantages analytics provides to businesses, its power has increased significantly. This research provided a general introduction of HR analytics, including what it is, how HR managers use predictive analytics to perform HR functions, the most important HR trends, and the crucial strategies or elements that businesses must take into account to thrive in the market. In light of this, organisation depends on data from decision making.

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SURVEY ON RECOMMENDED SYSTEM IN E-COMMERCE

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ABSTRACT

Recommender systems are evolving from novelty utilised by a select few e-commerce sites to important commercial tools that are reshaping the e-commerce industry. Recommender systems are already being used by several of the biggest e-commerce websites to assist users in finding things to buy. A recommender system gains knowledge from a consumer and suggests goods from the available goods that will find most valuable. This study analyzes six sites that use recommender systems, including some sites that use several recommender systems, and provides an explanation of how recommender systems assist e-commerce companies in boosting sales. We develop a taxonomy of recommender systems based on the examples, which includes the consumer interfaces they present, the technology used to make the recommendations, and the inputs they need from customers. We conclude with ideas for new applications of recommender systems to E-commerce.

KEYWORDS :Electronic commerce, recommender systems, interface, customer loyalty, cross-sell, up-sell, mass customization.

INTRODUCTION

E-commerce websites employ recommender systems to make product recommendations to its users. The products can be suggested based on the top overall sellers on a website, the customer's demographics, or an analysis of past purchasing patterns that predicts future purchasing patterns. In general, these methods are a part of site personalization because they enable the site to adjust to every user. Automated personalization on the Web is made possible by recommender systems, offering unique customising for every user. One approach to implementing Pine's ideas on the Web is through this level of personalization. Thus, Jeff Bezos, CEO of Amazon.com, would likely concur with Pine when he said, "If I had 2 million customers on the Web,, I should have 2 million stores on the Web."

Recommender systems boost online sales in three different ways:

From browsers to buyers: Many website visitors browse the site without ever making a purchase. Customers can find the things they want to buy with the use of recommender systems.

Cross-selling: By urging customers to buy additional products, recommender systems enhance cross-selling. The average order size ought to rise if the recommendations are sound. For instance, a website may suggest further items during the checkout process based on the items you already have in your shopping cart.

Gaining customer loyalty: is a crucial business strategy in a world where competitors are just a few clicks away from a website (Reichheld and Sesser, 1990). (Reichheld, 1993). By fostering a relationship between the website and the user that adds value, recommender systems increase client loyalty. Websites make an investment in user research, operationalize that research using recommender systems, and deliver tailored user

interfaces that satisfy user requirements. Customers reward these websites by visiting the ones that best meet their demands again and again. Customers become more devoted to a website the more they use the suggestion system and teach it what they want. "A customer... would have to expend an excessive amount of time and work even if a competitor were to build the exact identical capabilities."

Five new insights on recommender systems in e-commerce are provided by this research. First, we offer a selection of recommender system examples that cover the gamut of potential uses for recommender systems in online shopping. Second, we examine how each case makes use of the recommender system to increase site income. Third, we outline a mapping between recommender system applications and a taxonomy of ways to implement the applications. Fourth, we look at how much work users must put into finding recommendations. Fifth, we outline a number of ideas for fresh recommender system applications based on areas of our taxonomy that the current applications haven't looked at.

Customer Comments: Customers can obtain text recommendations based on other customers' reviews using the Customer Comments function. Each book's information page has a list of customer reviews that have been read, with ratings from 1 to 5, along with their written comments. Customers can choose to take these suggestions into account while making a purchase.

EXAMPLES OF RECOMMENDER SYSTEMS

In the section below, we list six e-commerce companies that use one or more different types of recommender system technology on their websites. We provide a quick summary of the system's characteristics for each site and each variation. As we describe the kinds of recommendations made, the kinds of technology employed, and the kinds of information gathered in later sections, we make reference to these examples. These websites have been alphabetized for organisation. The above examples were accurate as of May 31, 1999. They might no longer be valid given how quickly the Internet is evolving.

1. 2.1 Amazon.com

In the Amazon.com books department, we put a lot of emphasis on recommender systems. Customers who Bought: Similar to many other e-commerce websites, Amazon.com™ (www.amazon.com) is set up with a page for each book that provides information on the text and how to order it. Each book in their catalogue has an information page that includes a section titled "Customers who Bought." In actuality, there are two distinct suggestion lists. The first lists books that consumers who bought the chosen book have commonly bought. The second suggests authors whose books are regularly bought by clients who have already bought books by the chosen author.

Amazon.com Delivers: A variant of the Eyes feature is Amazon.com Delivers. Customers use checkboxes to pick specific categories or genres from a list (Oprah books, biographies, cooking). The editors at Amazon.com periodically notify subscribers through email of their most recent picks in the subscribed categories.

Book Matcher: Customers can directly comment on books they have read using the Book Matcher function. Customers give their favourite and least favourite books a 5-point rating on a scale of 1 to 5.it." Customers can seek recommendations for books they might enjoy after rating a sample of books. At that moment, a dozen unrated texts are shown that match the user's reported preferences. Customers can rate one or more of the suggested books using the "rate these books" option, which allows feedback on the recommendations.

Customer Comments: The Customer Comments feature allows customers to receive text recommendations based on the opinions of other customers. Located on the information page for each book is a list of 1-5 star ratings and written comments provided by customers who have read the book in question and submitted a review. Customers have the option of incorporating these recommendations into their purchase decision.

1.2.2 CDNOW

Album Advisor: CDNOWTM's (www.cdnow.com) Album Advisor function operates in two different ways. Customers find the information page for a certain album in the single album mode. The method suggests ten additional albums that are comparable to the one in question. Customers can enter up to three artists in the multiple artist mode. The system then suggests 10 albums that are associated with the relevant performers.

Your CDNOW: Customers can create their own music store on My CDNOW based on the albums and artists they enjoy. Customers list the albums they own as well as their favourite musicians. CDNOW purchases are automatically added to the "own it" list. Customers can review "own it" ratings even though they are first seen as a sign of favourable likes. distinguish between "own it and like it" and "own it but dislike it."

My CDNOW: Customers can create their own online music store using My CDNOW, based on the albums and performers they enjoy. Customers list the albums they own as well as their favourite musicians. CDNOW purchases are automatically added to the "own it" list. Customers can discern between "own it and like it" and "own it but despise it" even though "own it" evaluations are originally interpreted as a positive like. When users ask for recommendations, the algorithm suggests six albums based on what they currently own. Customers have the ability to provide input for any of the albums on this prediction list by leaving a comment such as "own it," "move to want list," or "not for me."

1.2.3 eBay

Feedback Profile:

Through the eBay.comTM (www.ebay.com) Feedback Profile function, buyers and sellers can add to the feedback profiles of other clients they have worked with. A satisfaction rating (satisfied/neutral/dissatisfied) and a detailed statement regarding the other customer make up the feedback. Buyers, who can read the profile of merchants, can utilise feedback to establish a recommender system. This profile includes an overview summary and a table showing the number of ratings received during the last week, month, and six months (e.g., 867 positives from 776 unique customers). Customers can look through each seller's unique ratings and reviews upon request.

1.2.4 Levis

Style Finder: Customers of the Levi StrausTM (www.levis.com) website can use Style Finder to get suggestions for Levi's clothing items. Customers first select their gender, browse three categories (Music, Looks, and Fun), and rate a minimum of four "terms" or "sub-categories" inside each. In order to accomplish this, they offer a rating on a 7-point scale that ranges from "leave it" to "love it." They can also select "no opinion" as their rating. Customers may choose "receive recommendations" after entering the required minimum number of ratings. Here, six pieces of suggested apparel are shown to them in thumbnail form. By using the "tell us what you think function," which enables users to offer an opinion, customers can provide feedback.rating for the recommended article of clothing. Feedback may change one or all of the six items recommended.

1.2.5 Moviefinder.com

Moviefinder.com's Match Maker (www.moviefinder.com) enables users to find films that share the same "mood, theme, genre, or cast" as a specific film. Customers who click on the Match Maker symbol on the movie's details page are given a list of suggested films as well as connections to other movies directed by and starring the same actors as the original movie.

We Forecast: Customers receive movie recommendations from We Predict based on the interests they have previously declared. Customers rate the movies they've seen using a 5-point scale that ranges from A to F. There are two separate applications for these ratings. The textual prognosis on the information page for unrated movies is the simplest way to put it, they say (go see it – forget it). Customers can use Powerfind to search for top recommendations based on syntactic factors like genre, directors, or actors in a form of this, and they can opt to have them ranked by their own forecast or by the average of all customers.

1.2.6 Reel.com

Movie Matches: Reel.com's Movie Matches (www.reel.com) offers suggestions on the information page for each movie, much like Amazon.com's Customers who Bought. Each set of recommendations has up to a dozen hyperlinks to the information pages for each of these "matched" films, and they are divided into "close matches" and/or "creative matches." The hyperlinks are annotated with one-sentence summaries that highlight the similarities between the new film and the relevant source film ("Darker thriller raises equally troubling questions...").

Reel.com's Movie Map tool promotes movies to users based on grammatical characteristics. Customers make queries based on genre, movie types, viewing format, and/or price, and request results be limited to "sleepers" or "best of this genre."

1.2.7 Synopsis

For all of the example apps, we provide a summary of the applications, user interfaces, recommendation technology, and how users find recommendations in Table 1. Each application is simply listed in the first column along with the E-commerce website where it is located. The interface used to give the recommendations is described in the second column. The third column lists the inputs needed for the site's recommendation technology as well as how it works. How users utilise the application to find recommendations is described in the fourth column. This paper's parts, which each focus on a different column of Table 1, describe the significance of the elements in the table and how they enable recommender systems for e-commerce.

Browse: A consumer might enter a video store in the old days and ask the salesperson to suggest "a comedy from the 50s." The cashier should ideally suggest a few films, after which the consumer can go look for them, peruse the box art, and decide which ones they like. However, the effectiveness of the recommendations depended on how well-versed the individual clerk was in a wide variety of motion pictures. When Reel.com incorporates browsing into their Movie Map tool, there are various benefits. First, regardless of the query parameters, it is possible to aggregate the recommendations of numerous clerks or editors to provide higher-quality recommendations. Additionally, links to the recommended items are immediately returned, so you may stop scanning the store.

Similar Item:

The recommendation of a similar item is another modification of conventional business strategies. Systems like Reel.com's Movie Matcher, Amazon.com's Customers who Bought, and one version of CDNOW's Album Advisor make an effort to introduce users to products they might have forgotten about or just been unaware of. They enable more specialised and individualised recommendations on e-commerce sites. The products that are displayed can be completely chosen based on the item or items that a buyer has expressed interest in. Sites that accomplish this should be able to sell more things each order and expose customers to their product line.

Email: As an extension of conventional direct mail strategies, recommendations can also be sent directly to clients via email. With the help of their Eyes function, Amazon.com may alert buyers as soon as a product is made available for purchase. With the help of Eyes, Amazon.com can draw customers to their store before rival retailers selling the same item can reach them. Additionally, the website can keep a consumer informed about the site and any things they might have missed thanks to Eyes and Amazon.com Delivers. Customers value the email recommendations because they make it easier for them to keep an eye out for new goods they might want to buy. These features help the website generate revenue by boosting user loyalty and the frequency of return visits.

RECOMMENDATION INTERFACES AND WAYS TO MAKE MONEY

Table 1: Recommender System Examples

Business/Applications	Recommendation Interface	Recommendation Technology	Finding Recommendations
Amazon.com			
Customers who Bought	Similar Item	Item to Item Correlation <i>Purchase data</i>	Organic Navigation
Eyes	Email	Attribute Based	Keywords/freeform
Amazon.com Delivers	Email	Attribute Based	Selection options
Book Matcher	Top N List	People to People Correlation <i>Likert</i>	Request List
Customer Comments	Average Rating Text Comments	Aggregated Rating <i>Likert</i> <i>Text</i>	Organic Navigation
CDNOW			

Album Advisor	Similar Item Top N List	Item to Item Correlation <i>Purchase data</i>	Organic Navigation Keywords/freeform
My CDNOW	Top N List	People to People Correlation <i>Likert</i>	Organic Navigation Request List
eBay			
Feedback Profile	Average Rating Text Comments	Aggregated Rating <i>Likert</i> <i>Text</i>	Organic Navigation
Levis			
Style Finder	Top N List	People to People Correlation <i>Likert</i>	Request List
Moviefinder.com			
Match Maker	Similar Item	Item to Item Correlation <i>Editor's choice</i>	Navigate to an item
We Predict	Top N List Ordered Search Results Average Rating	People to People Correlation <i>Aggregated Rating Likert</i>	Keywords/freeform Selection options Organic Navigation
Reel.com			
Movie Matches	Similar Item	Item to Item Correlation <i>Editor's choice</i>	Organic Navigation
Movie Map	Browsing	Attribute Based <i>Editor's choice</i>	Keywords/freeform

Text Comments: Websites are increasingly giving clients recommendations based solely on the text comments left by other users. By enabling customers to choose an item of interest and peruse other customers' opinions, Amazon.com's Customer Comments and eBay's Feedback Profile expedite the gathering of "the word on the street." By offering

unbiased information about the products/services being sold, this aids websites in generating revenue using the rationale that if many people agree that a book is good or a seller is reliable, then it is probably accurate. This should boost a site's loyalty and assist in turning browsers into consumers. Customers are more likely to return the following time they discover they can trust these third-party suggestions.

Average Rating: Even simpler access to “the word on the street” is the *average rating* feature.

Top-N: A top-N list is used by applications like My CDNOW, Levi's Style Finder, and Amazon.com's Book Matcher to leverage recommendations. Each site is able to supply the information once it has discovered specifics regarding a customer's preferences.

consumer with an individual list of the most often unrated products for that customer. It seems possible to place all the clothing items that would be of interest to a specific customer on a single rack without confusing them with other goods. The vendor benefits from this in various ways. It does two things: first, it increases exposure to the vendor's goods, but only to those that should genuinely interest the consumer. This is another example of turning browsers into buyers. Second, it might aid the buyer in deciding on products that they had been on the fence about up until that point - the recommendation from the website might be an additional argument in favour of the item.

A TAXONOMY FOR MAPPING APPLICATIONS TO RECOMMENDATION TECHNIQUES

This section provides a detailed explanation of Table 1's Recommendation Technology column. We begin by outlining the various applications of recommender systems in a taxonomy of suggestion types. The italics table entries, which represent the various user inputs, are subsequently described. The taxonomy is built around the aspects that E-commerce site visitors value most in order to give a fully user-focused comparison of the various recommender systems. The degree of automation and the persistence of the recommendations are the two main dimensions in the taxonomy (Figure 1).

The automation axis includes both entirely automatic and fully manual recommendations. From the viewpoint of the client, automatic refers to the state where no customer can alter it.

For instance, the average customer reviews that are shown by Moviefinder.com and Amazon.com are not tailored recommendations. These recommendations are not at all related to the specific client that the recommender system is trying to reach. When it comes to non-personalized recommendations, eBay's feedback profile takes a somewhat different approach. Rather than on things, customers comment on one another! Buyers can then use the average and individual feedback to determine if a specific selling is a good risk, and sellers can use it to determine whether a specific buyer is a good risk. The Automatic is almost entirely used by all three of these systems.

1.4.2 Attribute-Based Recommendations

Products are recommended to clients based on their grammatical qualities by attribute-based recommender systems. An example of an attribute-based recommendation is when a consumer searches for a historical romance book and the e-commerce site answers with a list of three suggested books. Since the consumer must expressly ask for the advice by specifying his desired syntactic product characteristics, attribute-based recommendations are frequently manual. Depending on whether the e-commerce site retains the attribute preferences for a consumer, attribute-based suggestions can either be Ephemeral or

Personal.

1.4.3 Item-to-Item Correlation

Items that clients have demonstrated interest in are used by item-to-item correlation recommender systems to provide product recommendations. For instance, the recommender system might suggest complementary products to a consumer who has a few items in her shopping cart to boost the order amount. If item-to-item correlation recommender systems are based on observations of the customer's constant behaviour, they may be automatic. If the customer must specifically type in multiple items of interest in order to get a recommendation, they may also demand some manual effort. Item-to-item correlation recommender systems are typically ephemeral since they may provide recommendations based just on the products a customer has chosen without needing to know anything about her past.

1.4.4 People-to-People Correlation

Consumers are given product recommendations via people-to-people correlation recommender systems based on their similarities to other customers who have made purchases from the E-commerce site. Because it began as an information filtering technique that employed group viewpoints to recommend information items to individuals, this technology is frequently referred to as "collaborative filtering" (Resnick et al. 1994; Hill et al. 1995; Shardanand and Maes; Konstan and colleagues; 1995). Although the term "correlation" in the approach's name alludes to nearest-neighbor methods based on linear correlation, the methodology can also be used with a variety of different technologies (Breese et al. 1998). We distinguish based on user experience rather than technical specifics since we are interested in how the strategy affects users. Since the recommendations are created automatically by the system, people-to-people correlation recommender systems are similar to Automatic. Yes, the system must gradually learn from users.

Examples of persistent but not quite automatic people-to-people correlation recommender systems include Amazon.com's Book Matcher, Moviefinder's We Predict, and Style Finder. Products are expressly reviewed by users, and additional products are then suggested based on the reviews. These methods are not regarded as totally automatic because the ratings are just entered to obtain recommendations.

Since consumer opinions are derived from the steps a client takes to put up his personal music site within the CDNOW E commerce site, My CDNOW is a fully Automatic example of this technique. In the context of the personal music portal, recommendations are given voluntarily.

1.4.5 User Inputs

Since consumer opinions are derived from the steps a client takes to put up his personal music site within the CDNOW E commerce site, My CDNOW is a fully Automatic example of this technique. In the context of the personal music portal, recommendations are given voluntarily.

Purchase information: The products that a customer has bought. Systems like My CDNOW and Customers who Bought on Amazon.com base all of their suggestions only on patterns of "co buy" amongst different customers. In theory, the quantity of each thing the customer has bought may be added to this.

Likert: A customer's assessment of a product, usually on a scale of 1 to 5 or 1 to 7. The scale must be completely ordered and can either be numerical or textual. Likert inputs are used in systems like Levi's Style Finder and eBay's Feedback Profile.

Text: Written remarks that are meant to be read by other customers. Typically not understood by computers. Currently present in programmes like Customer Comments on Amazon.com.

Editor's decision category decisions done by human editors, typically employed by Despite the fact that independent editors are theoretically conceivable, the E-commerce site. The editor's pick is crucial in both the Match Maker on Moviefinder.com and Reel.com's Movie Matches/Map.

Editor's choice: A category's selections are selected by editors who are typically employed by the e-commerce site, though independent editors are theoretically feasible. The editor's pick is crucial in both the Match Maker on Moviefinder.com and Reel.com's Movie Matches/Map.

E-COMMERCE OPPORTUNITIES

There are already many different types of recommender systems in use. For these kinds of systems, we have already looked into a variety of interfaces, technologies, and information requirements. However, there are still plenty of chances for recommender to grow.

systems in online stores. These can be straightforward modifications of current systems or completely original system types.

The ability of recommender systems to gather enough data to generate useful recommendations for new users is one of its drawbacks. Sharing user data across websites is one method to hasten the shift. Users benefit from shared information because they receive more accurate recommendations faster, while individual sites suffer since users are less devoted to them. Sites have no motivation to exchange information with rivals because they own the data they gather. Consortia of non-competing websites could nevertheless establish with the intention of sharing data to boost the value to businesses inside the consortia. Customers of these consortia will require reassurances that their privacy would be adequately secured even while their data are shared outside of a single site.

CONCLUSION

The five essential techniques for attaining mass customization are listed in Joe Pine's book Mass Customization. Using recommender systems, the first four of these objectives can each be accomplished:

Create specialised services based on standardised goods and services: Recommender systems offer a tailored service that enables e-commerce firms to more effectively market their primarily commodity products.

Recommender systems are a customizable product of the e-commerce website. "Create customisable products and services"

"Provide point of delivery customization": For the e-commerce site, the recommender system directly customises the point of delivery.

We forecast that recommender systems will be utilised in the future to forecast product demand, enabling early communication back to the supply chain. "Provide swift reaction throughout the value chain"

A vital component of automating bulk customization for e-commerce sites is recommender systems. Future firms will place a greater emphasis on the long-term value of customers to the company, making them more significant (Peppers & Rogers 1997). The worth of a customer to an e-commerce site will be maximised by offering the pricing and services that

they believe will result in the best possible connection with the consumer

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A STUDY OF CYBER SECURITY CHALLENGES AND ITS EMERGING TRENDS ON LATEST CYBER SECURITY TECHNOLOGIES

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ABSTRACT

Cyber Security plays an important role in the field of information technology. Securing the information have become one of the biggest challenges in the present day. Whenever we think about the cyber security the first thing that comes to our mind is 'cyber crimes' which are increasing immensely day by day. Various Governments and companies are taking many measures in order to prevent these cybercrimes. Besides various measures cyber security is still a very big concern to many. This paper mainly focuses on challenges faced by cyber security on the latest technologies. It also focuses on latest about the cyber security techniques, ethics and the trends changing the face of cyber security.

KEYWORDS:cyber security, cybercrime, cyber ethics, social media, cloud computing, android apps.

INTRODUCTION

Today man is able to send and receive any form of data may be an e-mail or an audio or video just by the click of a button but did he ever think how securely his data id being transmitted or sent to the other person safely without any leakage of information?? The answer lies in cyber security. Today Internet is the fastest growing infrastructure in everyday life. In today's technical environment many latest technologies are changing the face of the mankind. But due to these emerging technologies we are unable to safeguard our private information in a very effective way and hence these days cybercrimes are increasing day by day. Today more than 60 percent of total commercial transactions are done online, so this field required a high quality of security for transparent and best transactions. Hence cyber security has become a latest issue. The scope of cyber security is not just limited to securing the information in IT industry but also to various other fields like cyber space etc.

Even the latest technologies like cloud computing, mobile computing, E-commerce, net banking etc also needs high level of security. Since these technologies hold some important information regarding a person their security has become a must thing. Enhancing cyber security and protecting critical information infrastructures are essential to each nation's security and economic wellbeing. Making the Internet safer (and protecting Internet users) has become integral to the development of newservices as well as governmental policy. The fight against cybercrime needs a comprehensive and a safer approach. Given that technical measures alone cannot prevent any crime, it is critical that law enforcement agencies are allowed to investigate and prosecute cybercrime effectively. Today many nations and governments are imposing strict laws on cyber securities in order to prevent the loss of some important information. Every individual must also be trained on this cyber security and save themselves from these increasing cyber crimes

CYBER CRIME

Cybercrime is a term for any illegal activity that uses a computer as its primary means of commission and theft. The U.S. Department of Justice expands the definition of cybercrime to include any illegal activity that uses a computer for the storage of

evidence. The growing list of cybercrimes includes crimes that have been made possible by computers, such as network intrusions and the dissemination of computer viruses, as well as computer-based variations of existing crimes, such as identity theft, stalking, bullying and terrorism which have become as major problem to people and nations. Usually in common man's language cyber crime may be defined as crime committed using a computer and the internet to steal a person's identity or sell contraband or stalk victims or disrupt operations with malevolent programs. As day-by-day technology is playing in major role in a person's life the cyber crimes also will increase along with the technological advances.

CYBER SECURITY

Privacy and security of the data will always be top security measures that any organization takes care. We are presently living in a world where all the information is maintained in a digital or a cyber form. Social networking sites provide a space where users feel safe as they interact with friends and family. In the case of home users, cyber-criminals would continue to target social media sites to steal personal data. Not only social networking but also during bank transactions a person must take all the required security measures. technology and healthcare executives nationwide, Silicon Valley Bank found that companies believe cyber attacks are a serious threat to both their data and their business continuity.

- 98% of companies are maintaining or increasing their cyber security resources and of those, half are increasing resources devoted to online attacks this year
- The majority of companies are preparing for when, not if, cyber attacks occur
- Only one-third are completely confident in the security of their information and even less confident about the security measures of their business partners.

There will be new attacks on Android operating system based devices, but it will not be on massive scale. The fact tablets share the same operating system as smart phones means they will be soon targeted by the same malware as those platforms. The number of malware specimens for Macs would continue to grow, though much less than in the case of PCs. Windows 8 will allow users to develop applications for virtually any device (PCs, tablets and smart phones) running Windows 8, so it will be possible to develop malicious applications like those for Android, hence these are some of the predicted trends in cyber security.

Table I

The above Comparison of Cyber Security Incidents reported to Cyber999 in Malaysia from January–June 2012 and 2013 clearly exhibits the cyber security threats. As crime is increasing even the security measures are also increasing. According to the survey of U.S.

TRENDS CHANGING CYBER SECURITY

Here mentioned below are some of the trends that are having a huge impact on cyber security.

1. Web servers:

The threat of attacks on web applications to extract data or to distribute malicious code persists. Cyber criminals distribute their malicious code via legitimate web servers they've compromised. But data-stealing attacks, many of which get the attention of media, are also a big threat. Now, we need a greater emphasis on protecting web servers

and web applications. Web servers are especially the best platform for these cyber criminals to steal the data. Hence one must always use a safer browser especially during important transactions in order not to fall as a prey for these crimes.

2. Cloud computing and its services

These days all small, medium and large companies are slowly adopting cloud services. In other words the world is slowly moving towards the clouds. This latest trend presents a big challenge for cyber security, as traffic can go around traditional points of inspection. Additionally, as the number of applications available in the cloud grows, policy controls for web applications and cloud services will also need to evolve in order to prevent the loss of valuable information. Though cloud services are developing their own models still a lot of issues are being brought up about their security. Cloud may provide immense opportunities but it should always be noted that as the cloud evolves so as its security concerns increase.

3. APT's and targeted attacks

APT (Advanced Persistent Threat) is a whole new level of cyber crime ware. For years network security capabilities such as web filtering or IPS have played a key part in identifying such targeted attacks (mostly after the initial compromise). As attackers grow bolder and employ more vague techniques, network security must integrate with other security services in order to detect attacks. Hence one must improve our security techniques in order to prevent more threats coming in the future.

4. Mobile Networks

Today we are able to connect to anyone in any part of the world. But for these mobile networks security is a very big concern. These days firewalls and other security measures are becoming porous as people are using devices such as tablets, phones, PC's etc all of which again require extra securities apart from those present in the applications used. We must always think about the security issues of these mobile networks. Further mobile networks are highly prone to these cyber crimes a lot of care must be taken in case of their security issues.

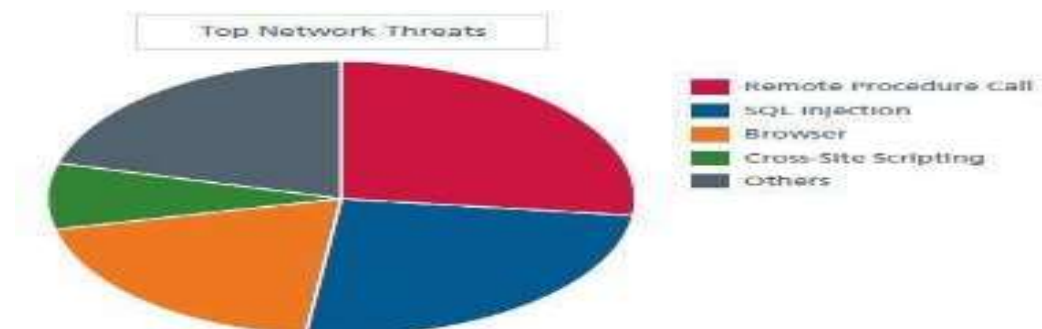
5. IPv6: New internet protocol

IPv6 is the new Internet protocol which is replacing IPv4 (the older version), which has been a backbone of our networks in general and the Internet at large. Protecting IPv6 is not just a question of porting IPv4 capabilities. While IPv6 is a wholesale replacement in making more IP addresses available, there are some very fundamental changes to the protocol which need to be considered in security policy. Hence it is always better to switch to IPv6 as soon as possible in order to reduce the risks regarding cyber crime.

6. Encryption of the code

Encryption is the process of encoding messages (or information) in such a way that eavesdroppers or hackers cannot read it. In an encryption scheme, the message or information is encrypted using an encryption algorithm, turning it into an unreadable cipher text. This is usually done with the use of an encryption key, which specifies how the message is to be encoded. Encryption at a very beginning level protects data privacy and its integrity. But more use of encryption brings more challenges in cyber security. Encryption is also used to protect data in transit, for example data being transferred via networks (e.g. the Internet, e-commerce), mobile telephones, wireless microphones, wireless intercoms etc. Hence by encrypting the code one can know if there is any leakage of information.

Hence the above are some of the trends changing the face of cyber security in the world. The top network threats are mentioned in below Fig -1.



Incidents	Jan- June 2012	Jan- June 2013	% Increase/ (decrease)
Fraud	2439	2490	2
Intrusion	2203	1726	(22)
Spam	291	614	111
Malicious code	353	442	25
Cyber Harassment	173	233	35
Content related	10	42	320
Intrusion Attempts	55	24	(56)
Denial of services	12	10	(17)
Vulnerability reports	45	11	(76)
Total	5581	5592	

Fig -1

The above pie chart shows about the major threats for networks and cyber security.

ROLE OF SOCIAL MEDIA IN CYBER SECURITY

As we become more social in an increasingly connected world, companies must find new ways to protect personal information. Social media plays a huge role in cyber security and will contribute a lot to personal cyber threats. Social media adoption among personnel is skyrocketing and so is the threat of attack. Since social media or social networking

sites are almost used by most of them every day it has become a huge platform for the cyber criminals for hacking private information and stealing valuable data.

In a world where we're quick to give up our personal information, companies have to ensure they're just as quick in identifying threats, responding in real time, and avoiding a breach of any kind. Since people are easily attracted by these social media the hackers use them as a bait to get the information and the data they require. Hence people must take appropriate measures especially in dealing with social media in order to prevent the loss of their information.

The ability of individuals to share information with an audience of millions is at the heart of the particular challenge that social media presents to businesses. In addition to giving anyone the power to disseminate commercially sensitive information, social media also gives the same power to spread false information, which can be just being as damaging. The rapid spread of false information through social media is among the emerging risks identified in *Global Risks2013* report.

Though social media can be used for cyber crimes these companies cannot afford to stop using social media as it plays an important role in publicity of a company. Instead, they must have solutions that will notify them of the threat in order to fix it before any real damage is done. However companies should understand this and recognise the importance of analysing the information especially in social conversations and provide appropriate security solutions in order to stay away from risks. One must handle social media by using certain policies and right technologies.

CYBER SECURITY TECHNIQUES

1. Access control and password security

The concept of user name and password has been fundamental way of protecting our information. This may be one of the first measures regarding cyber security.

2. Authentication of data

The documents that we receive must always be authenticated before downloading that is it should be checked if it has originated from a trusted and a reliable source and that they are not altered. Authenticating of these documents is usually done by the anti virus software present in the devices. Thus a good anti virus software is also essential to protect the devices from viruses.

3. Malware scanners

This is software that usually scans all the files and documents present in the system for malicious code or harmful viruses. Viruses, worms, and Trojan horses are examples of malicious software that are often grouped together and referred to as malware.

4. Firewalls

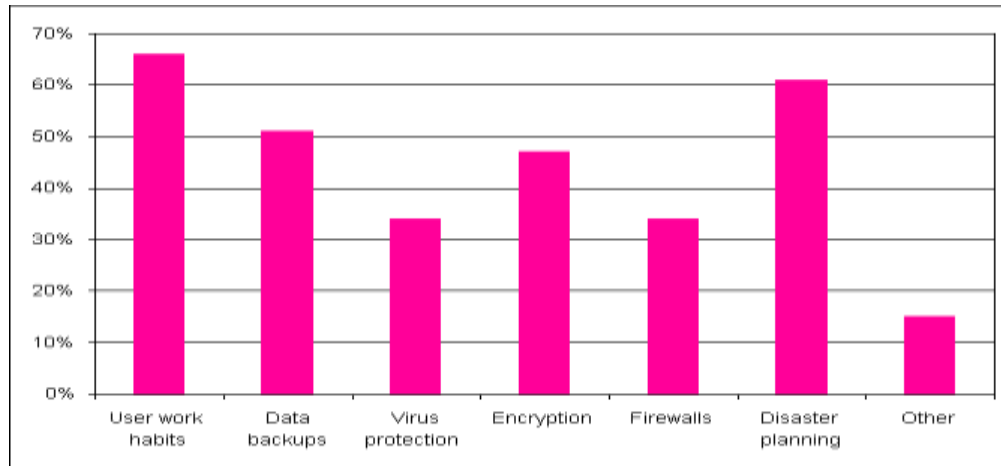
A firewall is a software program or piece of hardware that helps screen out hackers, viruses, and worms that try to reach your computer over the Internet. All messages entering or leaving the internet pass through the firewall present, which examines each message and blocks those that do not meet the specified security criteria. Hence firewalls play an important role in detecting the malware.

5. Anti-virus software

Antivirus software is a computer program that detects, prevents, and takes action to disarm or remove malicious software programs, such as viruses and worms. Most antivirus programs include an auto-update feature that enables the program to download

profiles of new viruses so that it can check for the new viruses as soon as they are discovered. An anti virus software is a must and basic necessity for every system.

Table II: Techniques on cyber security



CYBER ETHICS

Cyber ethics are nothing but the code of the internet. When we practice these cyber ethics there are good chances of us using the internet in a proper and safer way. The below are a few of them:

- DO use the Internet to communicate and interact with other people. Email and instant messaging make it easy to stay in touch with friends and family members, communicate with work colleagues, and share ideas and information with people across town or halfway around the world
- Don't be a bully on the Internet. Do not call people names, lie about them, send embarrassing pictures of them, or do anything else to try to hurt them.
- Internet is considered as world's largest library with information on any topic in any subject area, so using this information in a correct and legal way is always essential.
- Do not operate others accounts using their passwords.
- Never try to send any kind of malware to other's systems and make them corrupt.
- Never share your personal information to anyone as there is a good chance of others misusing it and finally you would end up in a trouble.
- When you're online never pretend to the other person, and never try to create fake accounts on someone else as it would land you as well as the other person into trouble.
- Always adhere to copyrighted information and download games or videos only if they are permissible.

The above are a few cyber ethics one must follow while using the internet. We are always thought proper rules from out very early stages the same here we apply in cyber space.

CONCLUSION

Computer security is a vast topic that is becoming more important because the world is becoming highly interconnected, with networks being used to carry out critical transactions. Cyber crime continues to diverge down different paths with each New Year

that passes and so does the security of the information. The latest and disruptive technologies, along with the new cyber tools and threats that come to light each day, are challenging organizations with not only how they secure their infrastructure, but how they require new platforms and intelligence to do so. There is no perfect solution for cyber crimes but we should try our level best to minimize them in order to have a safe and secure future in cyber space.

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DATA AND INFORMATION VISUALIZATIONS

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ABSTRACT

Data visualization is a general term that describes any effort to help people understand the significance of data by placing it in a visual context. Patterns, trends and correlations that might go undetected in text-based data can be exposed and recognized easier with data visualization software.

The utility of data visualization can be divided into three main goals: **to explore, to monitor, and to explain**. While some visualizations can span more than one of these, most focus on a single goal.

KEYWORDS - Data visualization, Information Visualization, Scientific Visualization, Big data.

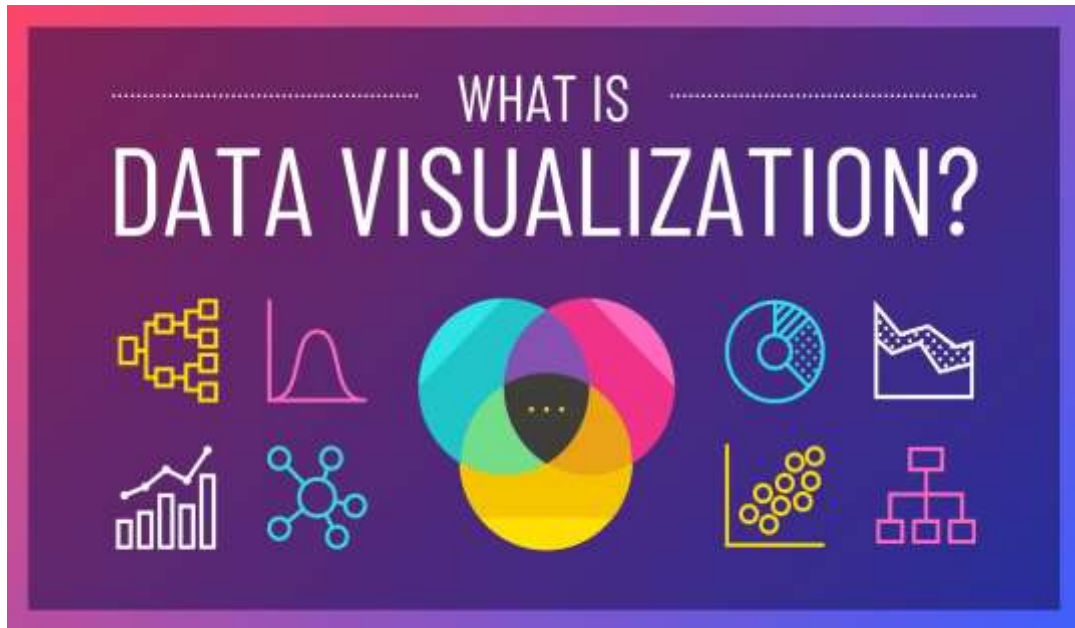


DATA VISUALIZATION

INTRODUCTION

Data visualization is the graphical representation of information and data. By using visual elements like charts, graphs, and maps, data visualization tools provide an accessible way to see and understand trends, outliers, and patterns in data. Additionally, it provides an excellent way for employees or business owners to present data to non-technical audiences without confusion.

Data visualization tools **make it quick and easy to create charts and graphs which can be added to a customizable dashboard.**; Besides looking beautiful, data visualization tools give us the ability to process information faster and to use that information to boost productivity and results.



THE ADVANTAGES OF DATA VISUALIZATION:

Our eyes are drawn to colors and patterns. We can quickly identify red from blue, and squares from circles. Our culture is visual, including everything from art and advertisements to TV and movies. Data visualization is another form of visual art that grabs our interest and keeps our eyes on the message. When we see a chart, we quickly see trends and outliers. If we can see something, we internalize it quickly. It's storytelling with a purpose. If you've ever stared at a massive spreadsheet of data and couldn't see a trend, you know how much more effective a visualization can be.

Some other advantages of data visualization include:

Advantages

- It allows us to **quickly visualise trends and patterns** thanks to its graphic nature.
- Easily understandable** way of displaying complex data.
- Provides the possibility of **interactively exploring** different aspects and opportunities of the data displayed.
- It provides an **easy way of sharing** information.
- It allows for **better understanding of relations** within the data.

THE DISADVANTAGES OF DATA VISUALIZATION:

While there are many advantages, some of the disadvantages may seem less obvious. For example, when viewing a visualization with many different datapoints, it's easy to make an inaccurate assumption. Or sometimes the visualization is just designed wrong so that it's biased or confusing.

Some other disadvantages include:

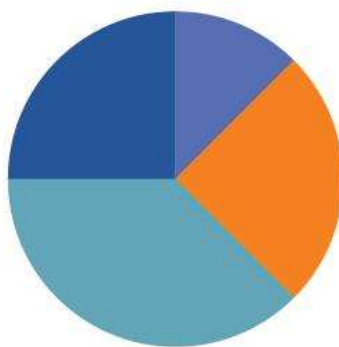


DIFFERENT TYPES OF VISUALIZATIONS:

When you think of data visualization, your first thought probably immediately goes to simple bar graphs or pie charts. While these may be an integral part of visualizing data and a common baseline for many data graphics, the right visualization must be paired with the right set of information. Simple graphs are only the tip of the iceberg. There's a whole selection of visualization methods to present data in effective and interesting ways.

General Types of Visualizations:

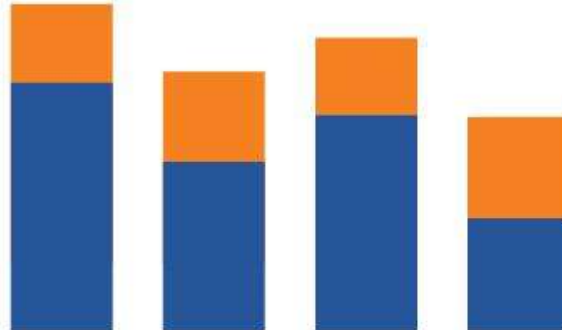
1. PIE CHART



A pie chart helps organize and show data as a percentage of a whole. True to the name, this kind of visualization uses a circle to represent the whole, and slices of that circle, or “pie”, to represent the specific categories that compose the whole. This type of chart helps the user compare the relationship between different dimensions (Ex. categories, products, individuals, countries, etc.) within a specific context. Usually, the chart splits the numerical data (measure) into percentages of the total sum. Each slice represents the proportion of the

value, and should be measured accordingly.

2.BAR CHART



Bar charts enable us to compare numerical values like integers and percentages. They use the length of each bar to represent the value of each variable. For example, bar charts show variations in categories or subcategories scaling width or height across simple, spaced bars, or rectangles.

This bar chart is called a side-by-side bar chart.

- It highlights the dominant set of data with a dark color, and the other set with a neutral color,
- Sorted from earliest to latest year,
- Not too many dimensions compared.

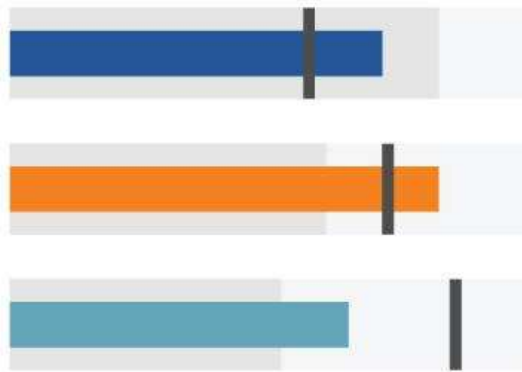
3.LINE CHART



- A line chart, also referred to as a line graph or a line plot, connects a series of data points using a line. This chart type presents sequential values to help you identify trends. Most of the time, the x-axis (horizontal axis) represents a sequential progression of values. The y-axis (vertical axis) then tells you the values for a selected metric across that progression. This is a common chart and is great to use when you want to show data over time. One use case could be tracking the interest of consumers in a type of product or service throughout the year to make predictions for the year ahead.

- In Simple Words, The line chart is a **simple, two-dimensional chart with an X and Y axis, each point representing a single value**. The data points are joined by a line to depict a trend, usually over time.
- And analyze a line chart to changing slope of the line segments emphasize changes, trends, and patterns. For a single series of data, assess the changes in the line to identify trends and patterns. When you have multiple metrics, compare their lines to determine whether they have the same trend and patterns.

4.BULLET GRAPH



- A bullet graph is a bar marked with extra encodings to show progress towards a goal or performance against a reference line. Each bar focuses the user on one measure, bringing in more visual elements to provide additional detail. The bullet graph, designed by Stephen Few, replaces meters and gauges that dominated early dashboards and reports. It provides more information in a smaller space; making it ideal for a compact dashboard.
- The bullet graph depicts a single primary measure. It includes measures from other fields to enhance the graphical display for analysis. One might display the current year's revenue, measured against a goal, while contrasting it with performance from a previous year. The axis measuring the data uses tick marks and labels to support analysis at a glance. Bullet graphs, being a form of bar chart, start at zero to support visual interpretation of the data.
- And It is mostly using comparing the performance of a primary measure to one or more other measures.

CONCLUSION

Data visualization is the process of representing data in a graphical or pictorial way in a clear and effective manner. It has emerged as a powerful and widely applicable tool for analyzing and interpreting large and complex data. It has become a quick, easy means of conveying concepts in a universal format. It must communicate complex ideas with clarity, accuracy, and efficiency. These benefits have allowed data visualization to be useful in many fields of study.

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HIGHEST PAID ATHLETE ANALYSIS WITH PYTHON

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ABSTRACT

Sports analytics is a developing scientific field that has numerous applications in numerous industries. These can include forecasting an athlete's or a team's performance, estimating an athlete's talent and market value, and forecasting a potential injury. In order to better their strategies, teams and coaches are increasingly willing to use such "tools" into their training. This essay examines the body of work on sports analytics and suggests a fresh method of forecasting. To anticipate a player's position on the field, we ran trials on data linked to football using the appropriate algorithms. The amount of shots a player takes during a game, which is known to be connected with goal scoring likelihood, as well as statistics from previous seasons were also gathered to forecast a player's goal scoring performance in the upcoming season. Results demonstrate good accuracy and are quite encouraging, especially given that the anticipated and actual goal totals were fairly close.

KEYWORDS—Sports Analytics, Prediction, data mining, classification.

INTRODUCTION

Although the idea of sports analytics has been around for a while, there are still many steps that must be taken in order to comprehend and enhance team performance. Recently, there has been a growing interest in the subject. More teams are attempting to employ these techniques to boost productivity. In this essay, we'll primarily concentrate on football (soccer). Our goal is to forecast each player's performance using data from prior seasons. In three key fields, we attempted to forecast the outcomes. We might estimate a player's goal scoring performance for the upcoming season by compiling data from prior seasons. The use of machine learning techniques and implementations in sports to make insightful predictions is known as sports analytics. Such judgments may have an impact on an athlete's performance, the team's performance as a whole, for a particular game or the entire season. Additionally, it can assist organizations in forecasting emerging potential, a player's market value, and the likelihood of an injury. It is a field that is growing in popularity right now and is expected to be adopted by a tone of teams, coaches, athletes, and businesses. [3] Additionally, to sharpen concentration, the amount of We might estimate a player's goal scoring performance for the upcoming season by compiling data from prior seasons. The use of machine learning techniques and implementations in sports to make insightful predictions is known as sports analytics. Such judgments may have an impact on an athlete's performance, the team's performance as a whole, for a particular game or the entire season. Additionally, it can assist organizations in forecasting emerging potential, a player's market value, and the likelihood of an injury. It is a field that is growing in popularity right now and is expected to be adopted by a tone of teams, coaches, athletes, and businesses. [3] Additionally, to sharpen concentration, the amount of the

complete team. This kind of data have to do with the player's average stats, such as the number of goals that they score, the number of fouls they commit, with how many red and yellow cards they are booked, how many tackle-ins they do, how many kilometers they run during a match (the use of cameras helps for these stats) and many more. However, it is difficult to compare all those stats in successive matches, because a player's performance depends on his opponents as well. In other words, a striker who faces an ineffective defense or a subpar goalkeeper may score a lot of goals. Additionally, there are statistics that reveal information about how a team scores a goal. For, example how many passes they achieve before they score a goal, what is the average ball possession, and the field that they occur. Obviously, it is different to keep the ball close to the opponent's goalpost. Sometimes, though, there are outliers that show that other factors play important roles as well, because teams win in football even if they have little ball possession. So, it is required to use data that are more difficult to collect. These data have to do with players' physical condition, such as pulse rate Track a player's sleep and monitor sweating when they are calm and when they are racing. However, the majority of these data couldn't be gathered until recently because these gadgets weren't permitted in football games. It was in March 2015 that the use of Electronic Performance and Tracking Systems (EPTS) was allowed and gave the opportunity for sports analysts to explore other aspects of the game. There are aspects that affect a team's performance such as the weather conditions, the condition of the field, and even psychological factors, such as the fans support. Another factor is injuries which sometimes could be predicted or prevented.

THEORETICAL BACKGROUND OR LITERATURE REVIEW

Sports talent can be discovered through a variety of techniques depending on the country. Three general categories can be used to characterize them: Governmental systems that are systematic; non-governmental systems that are systematic; and non-systematic approaches (Hadavi&Zarifi, 2009). During the entire process of athlete cultivation, it is crucial to discover promising athletes as early as possible and provide them with the proper training (Vaeyens, Güllich, Warr&Philippaerts, 2009). From a methodology standpoint, the conventional approach to identifying athletic talent is based on the athlete's performance rating or the coach's prior experiences. But as information technology has developed, some academics and coaches have begun to see the advantages of using scientific techniques to identify athletes with talent. To explain, the core of scientific talent identification depends on adopting scientific theories and cutting-edge techniques to increase the success rate of athlete talent identification through specific tests and studies. Therefore, the primary goal of scientific talent identification is to identify and develop an athlete's innate athletic ability and to use that potential through methodical training. Research design, methodology, and data analysis The selection and training of athletes in the present has made extensive use of scientific athlete identification, but the identification process itself lacks a clear methodology. In this study, a thorough analysis of scientific-methodological literature was carried out in order to completely comprehend the approaches taken by scientific talent identification. As a result, the current study made an effort to compile, evaluate, and synthesize the pertinent literature in order to synthesize and generalize the numerous approaches. 82 papers on athletic talent identification that were written between 1994 and 2015 were gathered and compiled. The final results were organized and reported according to the items used for athlete talent identification and the respective sport categories.

SYSTEM SPECIFICATION

1.1.1. HARDWARE CONFIGURATION

PROCESSOR	intel® core™ i5-8265u cpu @ 1.60GHZ 1.80GHZ
RAM	8.00GB (7.88GB usable)
HD	64-bit operating system, x64-based processor

1.1.2 SOFTWARE SPECIFICATION

EXISTING SYSTEM

But it wasn't until the early 19th century that contemporary sport began to take shape. Even while organized amateur footraces began to take place in England as early as 1825, athletics didn't really take off until 1860. The first amateur-only competition was hosted by the West London Rowing Club in 1861, and the first English championships were held by the Amateur Athletic Club (AAC) in 1866, the year it was created. All of these competitions focused on competition for "gentlemen amateurs," who were not paid. The Amateur Athletic Association received governing authority from the AAC in 1880. (AAA).

The New York Athletic Club, founded in the 1860s, hosted the first meet in North America, which took place close to Toronto in 1839.that gave the sport a strong foundation in the country. The club hosted the first indoor competition in history and worked to support the establishment of the National Association of Amateur Athletes of America (NAAAA) to hold national competitions in 1879. Nine years later, amid allegations that the NAAAA was lax in upholding amateurism, the Amateur Athletic Union (AAU) took over as national regulatory organization.

By the late 1800s, numerous nations had established athletics, but it wasn't until the resurgence of the Olympic Games in 1896 did the sport become truly international. Although begun modestly, the Olympics provided the inspiration and standardizing influence that was to spread interest in athletics worldwide. In 1912 the International Amateur Athletic Federation (IAAF) was founded, and by theMore than 170 national members were a part of that organization when it celebrated its 75th anniversary in 1987. Before 1936, when the IAAF also became the regulatory body for women's athletics, its regulations only applied to men's competition.

Before World War II, significant international contests included the Olympics, British Empire Games, and European Championships; but, following the war, athletics underwent its greatest phase of expansion, gaining hold particularly in the developing nations. World-

class athletes from Latin American, Asian, and African nations were having remarkable success at international competitions by the 1950s.

2.1 PROPOSED SYSTEM

In professional team sports, collecting and analyzing athlete monitoring data is standard procedure with the goals of evaluating performance potential, detecting tiredness and subsequent adaptation responses, and reducing the risk of injury and/or illness. Athlete monitoring systems should be supported by adequate data interpretation and analysis to enable quick transmission of straightforward feedback that is supported by science. The confidence of conclusions made from data can be increased by applying the appropriate scientific and statistical methods. statistics on athlete monitoring. A process framework for the conception, development, analysis, and interpretation of athlete monitoring systems hasn't been extensively studied in research, though.

2.2.1 FEATURES OF AN ATHLETE

- [1] Self-confidence: The top athletes have an intuitive sense of self-assurance and a sincere belief in their ability to triumph. Additionally, they are self-assured enough to handle any unforeseen circumstances that may emerge and, when necessary, to speak out for themselves or their teammates.
- [2] Motivation: High-performing athletes are driven by the desire to outperform their competition and personal records. When honing their abilities and concentrating on their objectives, they will exercise patience and perseverance.
- [3] Self-Control: Professional athletes are aware that success takes time to achieve. They possess the self-control to train in the early morning hours, forego social engagements in favour of additional practise, and persevere despite painful muscles and tiredness. They also exercise self-control while it comes to their diets, making sure they only fuel their bodies with beneficial nutrients.
- [4] Optimism: Athletes who lack this trait tend to underperform since they don't believe they will succeed. A good athlete must have faith in their abilities and maintain optimism in the face of challenges.
- [5] Acceptance of Criticism: If someone is unable to take helpful criticism, how can they improve? Successful athletes are aware of the significance of maintaining a coachable attitude while also admitting and growing from their mistakes. They will also be receptive to suggestions from teammates and accepting of official decisions.
- [6] Poise under Stress: Athletes regularly cope with a variety of sources of stress. From the pressure to perform well during competition or training to the stress caused by losing a game, getting injured, Stress is a constant in an athlete's life, whether they are competing or trying to improve a talent. A top athlete may compete and even flourish when under strain and stress and still win.

[7] A strong athlete must be able to maintain their commitment to their training by keeping their attention on their objectives and the broader picture. They must also be able to tune out whatever going on in their personal life or in the stands with other viewers when they are competing and concentrate only on the task at hand.

SYSTEM DESIGN

In this study, the case of track will be highlighted where an athlete's movement and heart rate are recorded by a motion sensor and heart rate sensor respectively on the field and transferred to a big data server where the data is stored and then shown in a web form. The system is constructed as shown in Figure 1.

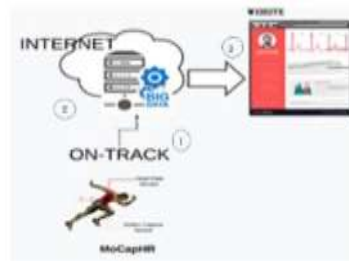


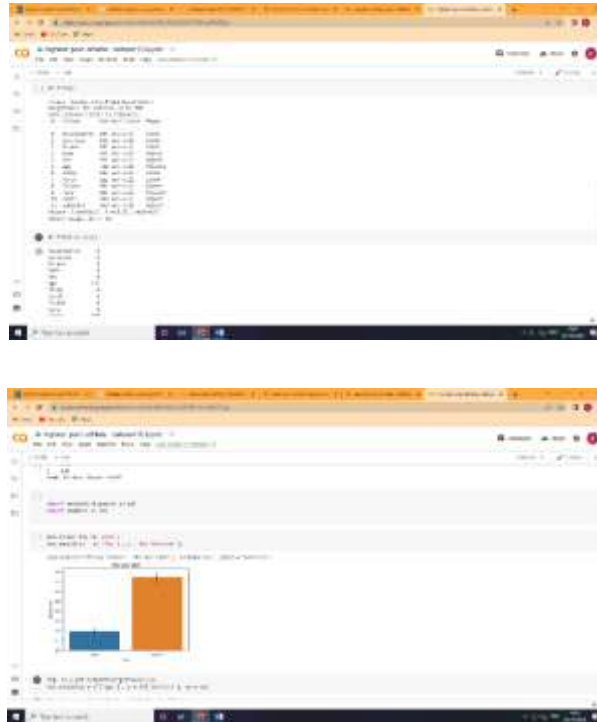
Figure 1: SMAP System Design

The motion capture sensor and heart rate sensor are the first two parts of the Athletes Performance Monitoring Platform design system. The second part is the data storage portion using a big data server, and the third part is for visualizing it in the form of a website.

INPUT DESIGN



3.2. OUTPUT DESIGN



3.3. DATABASE DESIGN

Below is a preliminary table (an normalized table) I've created to store and display information in my database:

Surname	Forename	Age	Gender	Nationality	Sport	Event	Medal	Ranking
Elison	Brady	29	M	American	Archery	Men's Individual	Bronze	3 rd
Bolt	Usain	31	M	Jamaican	Track & Field	Sprint	Gold	1 st
Farah	Mo	34	M	British	Track & Field	Sprint	Gold	1 st
Stenson	Henrik	41	M	Swedish	Golf	Men's Individual	Silver	2 nd
Ko	Lydia	20	F	New Zealand	Golf	Women's Individual	Silver	2 nd
Foster	Chris	32	M	British	Cycling	Men's Time Trial	Bronze	3 rd
Armstrong	Kristen	44	F	American	Cycling	Women's Time Trial	Gold	1 st
Williams	Venus	37	F	American	Tennis	Mixed Doubles	Silver	2 nd
Sands	Bethanie	32	F	American	Tennis	Mixed Doubles	Gold	1 st
Murphy	Annelise	28	F	Irish	Sailing	Laser Radial	Silver	2 nd

I created this graphic to better grasp the fundamental connections between my current set of tables (Athletes, Events, Medals & Country). However, because various Sports contain various events, I also see the necessity to construct a Sports table in addition to an Events table.

3.4 PERFORMANCE

Decisions can be made more rationally and less speculatively thanks to objective information. Athletes who receive comments based on data are better able to pinpoint exactly what they did to achieve success or failure. Athletes and coaches can perform consistently by using this knowledge to make the appropriate choices at the right times.

Benefits for Sportspeople

- enhanced technical and tactical understanding
- greater decision-making

Benefits of increased self-assurance for coaches

- aids in understanding the strengths and weaknesses of athletes
- improves their own teaching and development techniques
- enables thorough performance evaluation.

CONCLUSION

The results of this study show that athletes at the state level and above believe that social support, performance tactics, and lifestyle factors are crucial to athletic success. Additionally, their answers suggest that they would be open to the adoption of educational tactics, rehabilitation techniques, and access to service provider's sooner in their sporting careers.

The athlete acknowledged the significance of psychological skills and attributes, interpersonal relationships, performance factors and strategies, and lifestyle practices, all of which should, whenever possible, be taken into account in holistic models of athlete development and support. Furthermore, in such models, it is important to be mindful that the sport psychologist's influence may go beyond specific characteristics of athletic performance to encompass a wider range of athlete well-being.

The perceptions of successful and aspiring athletes are nevertheless significant in revealing their expectations of which support services and attributes are needed to most effectively enable their success, even though athletes' perceptions of the perceived benefits of services and lifestyle factors do not prove their significance in contributing to improved athletic performance and success. Additionally, it is acknowledged that athletes are unique persons with unique wants and expectations. In fact, the relative importance of the qualities and services among the variety of athletic events and sports with their diverse physical, mental, and technological requirements will also vary. However, in order to facilitate the most efficient assistance for and development of athletes, athletic organizations, coaches, support personnel, elite and aspiring elite athletes.

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SOCIAL MEDIA ANALYTICS TOOLS, TECHNIQUES AND PRESENTDAY

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ABSTRACT

The existence of web-based application programming interfaces (APIs) for social networking websites has made social media research a significant area of study and corporate activity. Because of the huge applications and market demands, this environment is changing quickly. This report offers a thorough analysis of the top social media analytics tools accessible on different social networking sites. To assess the suitability of the free and subscription-based technologies for a certain organisation, a comparative analysis of them was conducted. Businesses that want to support their knowledge-based business strategy with social media analytics tools must overcome a number of obstacles. In line with this, the current issues facing businesses in adopting social media analytics for business choices have been described. Social media nowadays is among the ‘best possibilities available’ to an item to get in touch with potential customers. Community social networking websites are the method to interact socially. These new media win the believe in of customers by linking with them at a deeper level. Community online marketing is the new mantra for several manufacturers since early a season ago. Promoters are considering many different social media possibilities and beginning to apply new social projects at a higher rate than ever before. International companies have identified social media promotion as a potential promotion system, used them with enhancements to power their marketing with social media promotion.

KEYWORDS:social media analytics, data mining, decision support, knowledgecreation.

INTRODUCTION

People are engaging in an increasing number of online activities thanks to the growth of the internet and mobile communication. A large-scale social media network with improved awareness and reactivity has resulted from this. By 2021, Statista (2017) projects that there will be 3.02 billion active monthly users on social media platforms worldwide. Customers can now communicate online and express their opinions about the many goods and services they use thanks to social media sites like Facebook, Twitter, Skype, YouTube, Flickr. Social media data is the primary, most complete, and current proof of human behaviour, according to Batrinca and Treleaven (2015). This may present fresh opportunities for comprehending

individuals, social groupings, and society. The medium of communication between customers and marketers has altered as a result of social media marketing and the internet (Kumar and Pradhan, 2015). The current focus of all brands is on what consumers think of the goods and what they want. The use of new investigative methods by businesses as a source for marketing research includes online surveys, reviews, and live chats via social media (Kumar and Pradhan, 2016). Social media data is the primary, most complete, and current proof of human behaviour, according to Batrinca and Treleaven (2015). This may present fresh opportunities for comprehending individuals, social groupings, and society. The medium of communication between customers and marketers has altered as a result of social media marketing and the internet (Kumar and Pradhan, 2015). The current focus of all brands is on what consumers think of the goods and what they want. The use of new investigative methods by businesses as a source for marketing research includes online surveys, reviews, and live chats via social media (Kumar and Pradhan, 2016).

SOCIAL MEDIA ANALYTICS

An organisation must clearly state what it hopes to accomplish through its use of social media. Social media analytics are typically used by businesses to learn more about their clients. The practise of gathering raw data from various types of talks on social media platforms is known as social media analytics. The data can be transformed into practical information that results in better business decisions and customer opinions for brands and companies. According to Lovett and Owyang (2010), social media analytics is a discipline that enables businesses to evaluate, analyse, and make clear the performance of social media initiatives in relation to certain business objectives. Metrics and measurement are concepts that are related to one another. Metrics are a quantitative system of measurement used to monitor and assess a certain business process's status (Ayodeji and Kumar, 2019). On the other hand, measurement is a technique for analysing how particular parameters or qualities affect an organization's behaviour in terms of a marketing campaign or a crisis (Siragusa, 2010). Social media analytics are interpretations of numerical data or metrics that might provide details about certain actions, occasions, or conversations. They offer perceptions into how people behave on social networking sites. Numerous companies have developed systems for tracking a variety of social media channels, including blogging, online video, and internet forums. They are instruments that enable an integrated analysis of an organization's strategic choices and objectives, as well as their measurement and operational performance metrics. Additionally, these technologies analyse various social media variables that relate to performance indicators. Social media monitoring is becoming seen as a necessary business strategy. With the use of social media analytics, businesses could enhance their performance measurement programmes. Data collection, data interpretation, and data presentation are the three main processes in social media analytics, according to Fan and Gordon (2014). Data collection: This stage focuses on gathering enough social media data by monitoring and preserving pertinent data and collecting relevant information from different sources of social media. This approach involves gathering a sizable amount of essential data from numerous social media sources using news feeds or APIs. Both larger, more popular websites like Facebook, Twitter, LinkedIn, YouTube, Pinterest, Google+, Tumblr, etc. as well as smaller, more intimate channels like web forums, blogs, microblogs, etc. are used by the capture stage.

SOCIAL MEDIA ANALYTIC TOOLS

The tools are based on an analysis logic that includes data selection, pre-processing, transformation, data mining, and evaluation of hidden patterns. Social media analytics, according to Boone and Kurtz (2013), is the ongoing monitoring of social media platforms. Typically, this involves tracking social media activity on blogs, wikis, news pages, microblogs like Twitter, social networking sites, websites for sharing videos and photos, forums, message boards, and user-generated content. Social media monitoring services use a variety of technologies for tracking and measurement. Social media monitoring solutions can link to Facebook's Graph API to gather data from social media networks. Every time a user generates a query, many organisations engaged in social media monitoring and analytics get in touch with data suppliers. Companies may listen to, manage, measure, and respond to social online conversations about their brand with the aid of social media management tools. Numerous businesses have created tools to assist in tracking a variety of social media platforms, including blogging, online video, and internet forums. Keeping track of what is happening has grown challenging as more and more social media analytics solutions appear on the market. Depending on their functionality and accessibility, social media analytics tools can be further divided into different categories. The Social Media Analytics tools can be divided into two main categories:

OPEN SOURCE TOOLS

For social media applications, open source tools are quite popular. These are the technologies whose source code is voluntarily made available for usage and updated from its original design. They don't require a commercial licence and are freely usable. The licences are held by a user community, not a for-profit business. The following list of open source social media analytics tools has been provided: Social networking site Socioboard: This free, open-source programme aids companies in comprehending and utilising the potential of social media to boost revenue. Functions such as maintaining accounts for social media, analytics and reporting are performed by these tools. The dash board has all of the features needed for predictive analysis. Data points from various data sources are gathered and classified according to more than a thousand groupings, facilitating the provision of consumer-focused data that is made available to various businesses and manufacturers. It aids in sentiment analysis and operates in real time. The best app for managing social media data is offered by Socioboard and may be used at any time, anywhere.

Hootsuite is a social media analytics platform that offers both free and commercial services. It studies real-time data and has a single dashboard that enables users to monitor and post messages on Facebook, Twitter, LinkedIn, Google+, and a number of other social networks. Marketers have the ability to delegate, communicate, and schedule messaging. It boosts ROI for any kind of company. This tool's capability of creating weekly reports, in addition to its strong team management capabilities, is particularly helpful when there are numerous employees managing the social media accounts. It provides features like bulk scheduling and auto content scheduling and can monitor up to 10 social media accounts.

www.socialharvest.io, Social Harvest It is free and open source software that is intended to act as a data-gobbling device on hardware or in the cloud. This primarily works for Facebook and Twitter. Widgets on a highly customizable dashboard can be used to visualise any data. Its

objective is to give small enterprises and people insight into social media. This tool's main goal is to offer cost-effective hosting while also giving users a scalable and adaptable platform. The real-time tool aids in performing predictive analyses. It is an extremely effective and versatile tool. It was not created to be an enterprise tool, nevertheless.

Search engine notifications (<https://www.google.co.in/alerts>): This free application employs targeted keywords to keep track of a lot of blogs and the most recent websites. If any new content is received, it sends alerts or batch reports. It generates batch reports in real time and is compatible with blogs, news websites, etc. Google Alerts are email updates that are based on the most recent relevant Google results (news, blogs, etc.) according to a user's searches. A preview of the kind of results that will be received can be shown after entering the topic that will be monitored. Google Alerts can be used for a variety of practical purposes, such as producing news stories, monitoring competitors' and industry-related news, and keeping tabs on current events.

PROPRIETARY TOOLS

This kind of software is a computer programme for which the software's creator or another user has intellectual property rights, which are often protected by copyrighted sourcecode. They are the exclusive property of their authors or publishers and cannot be duplicated or distributed without adhering to their licencing terms. The following are the most common proprietary solutions for social media analytics:

Meltwater (<https://www.meltwater.com>) is an online business intelligence service. It isconstantly looking for new sources of relevant keywords for its customers. MeltwaterBuzz is a web-based social media measurement tool to track and analyse user-generatedcontent. It has a database that connects journalists to their most relevant topics usingnatural language processing technology. It works in real time and is a paid tool. Solutionsformany marketing andbusinessproblemscanbeobtainedfromMeltwater.

Buffer(<https://buffer.com>)– Schedulingthesocialmediapostsis Buffer'sprimaryfunction. It enables posting to a single platform to be scheduled. Users can view how their postings performed over the course of a single day, week, month, or quarter. It supports Twitter, Facebook, LinkedIn, Google+, Pinterest, and now Instagram. It also provides a breakdown of the most and least popular posts, as well as those that had the most hits, mentions, and retweets. This utility is both a paid and a free tool, and it can operate offline. Itkeepssharingthecontentfortheentireday. This assists in creating or customising the photos to the appropriate size. Additionally, it offers ways to boost traffic and boost fan engagement. There are effective publishing solutions that make it simple to share material across many platforms.

DataSift is a platform for paid social media analytics that provides a variety of solutions (datasift.com). It functions on websites like Facebook, LinkedIn, and Twitter. It is a social media data platform that enables companies to gather, analyse, and extract information from open social interactions. DataSift is a pioneer in human data intelligence. It is the sole independent source of social data for news and blog data. It combines news, social media, and blog data in one location and provides a normalised, augmented perspective for precise real-time analysis. When both historical and real-time data filtering are required, it saves time to apply a single filter across several data sources.

Crowdboost is an analytics tool that works best for Facebook pages and Twitter profiles (crowdboost.com). The statistics produced by Crowdboost are collected in a dashboard that can be customised and offer insights into the most valued followers, the best time to post content, and notable statistics and mentions that may need special attention. It is a real-time tool that costs money. It also discusses the advantages of a one-time social media campaign for long-term participation. Crowdboost analyses the data to instantly inform everyone of the best times to post, who may participate, what is doing well, and where room for growth exists. With this tool, weekly reports can be acquired.

CHALLENGES IN USING SOCIAL MEDIA ANALYTICS TOOLS

Initially, real-time tracking of fans, followers, and website visits was the principal purpose of social media analytics. Big data can now be broken down into a more manageable set of measurements thanks to the availability of many improved technologies. Being able to analyse and predict customer and consumer behaviour using social media data represents a significant paradigm shift for many businesses. If effectively implemented, it can increase a company's adversity, efficiency, responsiveness, anticipation, and capacity to meet customer needs by identifying blind spots and making smarter decisions (Senetal.,2016). Unfortunately, many companies continue to oppose the use of social media analytics and fail to derive useful insights from these indicators. Organizations confront a variety of obstacles when attempting to use social media analytics. These consist of:

Lack of Technical Skills and Tool Ignorance: According to Bogra Metal (2017), businesses have been facing production problems due to a lack of electricity, a lack of capital, a lack of raw materials, a high cost of raw materials, a lack of technological advancement, a lack of machinery and equipment, a lack of quality controls, a lack of knowledge, a lack of demand, a lack of production capacity, a lack of education, etc. As a result, many decision-makers occasionally lack technological expertise. Social media is frequently neglected and undervalued within organisations. Particularly, real-time social media analytics pose significant difficulties for any organisation. Organizations typically operate according to an established pattern that involves collecting data for months before conducting analysis. The following limitations prevent these organisations from using social media analytics for strategic decision-making.

Real-time complex data visualisation: Social media data is becoming increasingly important, and because of its potential to have an impact on virtually every sector of the economy, it has the potential to be considered as a new choice for businesses. Real-time social media analytics data visualisation is a crucial step in creating important details. When values are simply represented graphically, it facilitates the quick interpretations required for real-time decision-making. However, many organisations also fail to successfully integrate technical and analytical systems in order to benefit from some of the potential knowledge of these instruments. Many of the early uses of gathering a huge volume and variety of data were in large organisations. Larger businesses have mostly started measures to supplement their analytical skills..

Uncertainty of Reliable Data: The development of a data analytics application also entails the blending of a variety of data kinds that are not always held by enterprises. Currently, information is available from a variety of sources, including market data and online public

statistics services (Coleman et al., 2016). However, because formats in the latter are frequently hard to understand, accessibility does not necessarily go hand in hand with usability of such data. It is possible to gather social and structured data from a variety of sources. It is challenging to determine which source is the most trustworthy. As a result, no information can be used to build trustworthy social media analytics. This dynamic IT infrastructure requires expertise in a range of areas, including system setup and configuration, database management, programming, analytical, explanatory, and creative talents. Unlike small organisations, which have fewer IT teams, large organisations and projects spread these talents among a vast number of people.

CONCLUSION

Social media platforms have been adopted by businesses as a constant, affordable, and efficient source of communication and advertising. The long term and constant monitoring of data metrics can help companies, in gaining knowledge about the customers from different perspectives. This calls for careful consideration in the selection of social media analytics tools, as well as continuous monitoring of social media platforms. The specific knowledge requirements of the organisation should be translated to the available social media analytics technologies before they are adopted and monitored. For the social media analytics tools to be truly beneficial, it is important to fully comprehend their results and incorporate them into the business strategy.

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BILLIONAIRES ANALYSIS USING PYTHON

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ABSTRACT

Why are there more people who are extremely wealthy in some countries than others? A minimalist state that doesn't care about the fate of the many is sometimes suspected of being the only way to amass extraordinary wealth, which is frequently viewed with envy. This begs the question of whether a large number of billionaires and a highly taxed, interventionist, social and welfare spending government can live side by side. The analysis in this paper is focused on these two issues. A quantitative examination of the global Forbes list of billionaires is conducted to provide answers. The billionaire analysis is a compilation of information about each person's wealth, income, annual revenue, source of revenue, and position in the business world. In the I took a course in the spring semester of my first year at Harvard "Using Big Data to Solve Economic and Social Problems" is the title of the topic. One of the topics we looked at was equality of opportunity, which was opportunity exists in the US. We discovered that kids' The likelihood of earning more than one's parents varies: It differs largely based on thei , gender, and place of origin up. Where available the estimated value of art collections, realestate, etc. is also included. There are more than 2,200 American billionaires in the world as of 2018, and their total fortune has increased from US\$7.67 trillion in 2017 to US\$9.1 trillion as of 2018. The top eight richest billionaires collectively hold as much wealth as "half the human species," according to a 2017 Oxfam analysis. Ten people—each with a net worth of at least \$100 billion—have attained the designation of USD hector billionaires as of October 2021. All but one—Bernard—are citizens of the United States. The dependent variable is each nation's proportion of billionaires. The rounded average from 2001 to 2003, as published in Forbes (2001, 2002, 2003), is used to balance out uncommon anomalies of a particular year.

KEYWORDS—FORBES, extraordinary wealth, state, analysis, Social Problems", American billionaires and Solidity

INTRODUCTION

A person is considered a billionaire if they have a net worth of at least one billion (1,000,000,000, or one thousand million) units of a specific currency, typically a significant currency like the US dollar, euro, or the British pound. Forbes, an American business publication, publishes a an annual update to the world's known billionaires in U.S. dollars This list is available online in real time. American crude Magnate John D. Rockefeller was officially the first American. in 1916 and continues to maintain the distinction of history's second-richest person. wealth person Empirical data analysis of the costs revealed that transfers of stablecoins, which are mainly used in decentralized environments, were, on average, up to eight times more expensive than those carried out with 'centralized' tokens. This difference could be attributed to an efficiency trade-off in of decentralization.

Unexpectedly, not much research has been done to determine the reasons for the difference in the incidence of remarkable wealth. In fact, it appears that this is the first study to consider the problem from a worldwide viewpoint. There are, however, single-country studies that examine the industries in which huge fortunes were made and determine whether these industries are characterized by competition-restraining practices ; see, for example, Siegfried and Roberts (1991) for the UK, Blitz and Siegfried (1992) for the USA, Siegfried and Round (1994) for Australia, and Siegfried (1997) for New Zealand. The economic sector where the fortunes were first made was found in each of these studies.

Experts in economics and economic history were then questioned to assess the level of competition. In every country study, it was discovered that wealth was generated across a wide range of industries. Contrary to expectations, over two-thirds of fortunes were established in industries that experts considered to be highly competitive.

The dependent variable is each nation's proportion of billionaires. The rounded average from 2001 to 2003, as published in Forbes (2001, 2002, 2003), is used to balance out uncommon anomalies of a particular year. As a fortune is likely to come from the same source, the lists typically count it as one entry even if it is owned by several members of the same family. At share market pricing, ownership of publicly traded corporations is valued. Estimates of revenues and current share price to revenue ratios for comparable publicly-traded companies were utilized to determine the value of privately held enterprises (Forbes, 17 March 2003: 140). The estimated worth of art collections, properties, etc., where accessibleThe billionaire analysis is a compilation of information about each person's wealth, income, annual revenue, source of revenue, and position in the business world. I took a course at Harvard called "Using Big Data to Solve Economic and Social Problems" during the spring semester of my freshman year. The equality of opportunity in the United States was one of the most fascinating topics we looked into. We discovered that there are considerable differences between children's odds of out-earning their parents based on factors like ethnicity, gender, and where they were raised, among others. What influences the global concentration of super-rich people? The number of citizens from each nation mentioned in Forbes (2001, 2002, 2003) as having an estimated fortune of more than \$1 billion USD is shown in Table 1 as a rounded average for the years 2001 to 2003. The top of the list is undoubtedly dominated by large, wealthy nations. The USA has a disproportionately high number of billionaires compared to all other countries in the globe, which is possibly the most startling finding. However, billionaires can be found in many nations, even developing ones. War, pandemic and sluggish markets hit the world's billionaires this year. There are 2,668 of them on Forbes' 36th-annual ranking of the planet's richest people—87 fewer than a year ago. They're worth a collective \$12.7 trillion—\$400 billion less than in 2021. The most dramatic drops have occurred in Russia, where there are 34 fewer billionaires than last year following Vladimir Putin's invasion of Ukraine, and China, where a government crackdown on tech companies has led to 87 fewer Chinese billionaires on the list. Still, Forbes found more than 1,000 billionaires who are richer than they were a year ago. And 236 newcomers have become billionaires over the past year—including the first ever from Barbados, Bulgaria, Estonia and Uruguay. America still leads the world, with 735 billionaires worth a collective \$4.7 trillion, including Elon Musk, who tops the World's Billionaires list for the first time. China (including Macau and Hong Kong) remains number

two, with 607 billionaires worth a collective \$2.3 trillion. We used stock prices and exchange rates from March 11, 2022 to calculate net worth. See below for the full list of the world's billionaires and our methodology. For daily updated net worth of all 2,668 billionaires, check out our real-time billionaires rankings.

LITERATURE REVIEW

The dependent variable is each nation's proportion of billionaires. The rounded average from 2001 to 2003, as published in Forbes (2001, 2002, 2003), is used to balance out uncommon anomalies of a particular year. As a fortune is likely to come from the same source, the lists typically count it as one entry even if it is owned by several members of the same family. At share market pricing, ownership of publicly traded corporations is valued. Estimates of revenues and current share price to revenue ratios for comparable publicly-traded companies were utilized to determine the value of privately held enterprises (Forbes, 17 March 2003: 140). The estimated worth of art collections, properties, etc., where accessible. On a scale of one to five, the very foundation of private property is connected with a high incidence of extraordinary wealth, according to the first theory. Unfortunately, the average numbers between 1995 and 2001 are utilized because the Heritage Foundation's data only dates back to 1995. Of all, much of the present generation's tremendous wealth was created years or even decades ago and then passed down to them. It is very likely that the degree of property rights protection will increase over time. However, a further fairly arbitrary metric is used in the absence of accurate historical data on the extent of private property protection, namely the number of years a country's economy has been governed by communism. The first economic freedom is the ability to possess property and use it for one's own financial gain. This is due to the fact that entrepreneurial aptitude, intelligence, perseverance, leadership, and other economically significant human attributes vary greatly among individuals. These inequalities will necessarily produce significant and frequently extraordinary differences in economic prosperity in nations where people are free to pursue their own economic interests. The US Heritage Foundation's (2003) Index of Economic Freedom (PROPERTYRIGHTS), which assesses the safety and enforcement of property rights, is used.

Ordinary least squares estimation cannot be used to estimate the FIA model with the dependent variable being the number of billionaires in each nation (OLS). This is due to the dependent variable only being partially continuous and having positive probability mass at zero. The Tobit estimator is a suitable estimate for such a model.

ANALYSIS AND METHODS

Using artificial intelligence and machine learning, cyber threats and their creators have found new ways to spy, sabotage, spoof, destroy and commit frauds. This analysis is a technique used by cybercriminals to deceive and persuade people so that they provide confidential information or take a specific action, such as making a wire transfer or clicking on a malicious attachment. Spoofing and impersonation are techniques, terms used to refer to scams in which cybercriminals try to impersonate a company, brand, or known person. With different algorithms, hackers can analyze in detail different target aspects.

The World's Billionaires is an annual ranking by documented net worth of the richest billionaires in the world. This list is compiled and published by the American business

magazine Forbes, and it was first published in March 1987. The total net worth of each individual on the list is estimated and is cited in United States dollars, based on their documented assets and accounting for debt and other factors. Forbes released its 35th annual world billionaire list in April 2021, which included 2,755 billionaires with 493 among them being newcomers. In total, they are worth \$13.1 trillion, higher than the \$8 trillion in last year's list. Real-Time Billionaires rankings published by Forbes keep tabs on the daily peaks and valleys of the world's wealthiest people. The wealth-tracking website offers regular updates on the wealth and position of any person whose billionaire status has been verified by Forbes. When relevant stock markets are open, the value of people's public holdings is updated every 5 minutes (there will be a 15-minute delay for stock prices). Net worth updates will be made once daily for people whose fortunes are heavily reliant on private enterprises., to discover the most active days of week, to find the top 10 or top 20 most active users or more, as the case may be, to also the activities of each users and the number of messages sent by the users of the group and also the analyse the word count of users on the platform.

3.1 System Architecture: The system architecture is represented in figure 1. It shows the general architecture of the system. This includes the data collection stage, the data input state, data transformation, data exploration and data visualization. The data collection stage is shown in figure 2 while the data input, data transformation, data exploration and data visualization are handled by Python and its libraries.

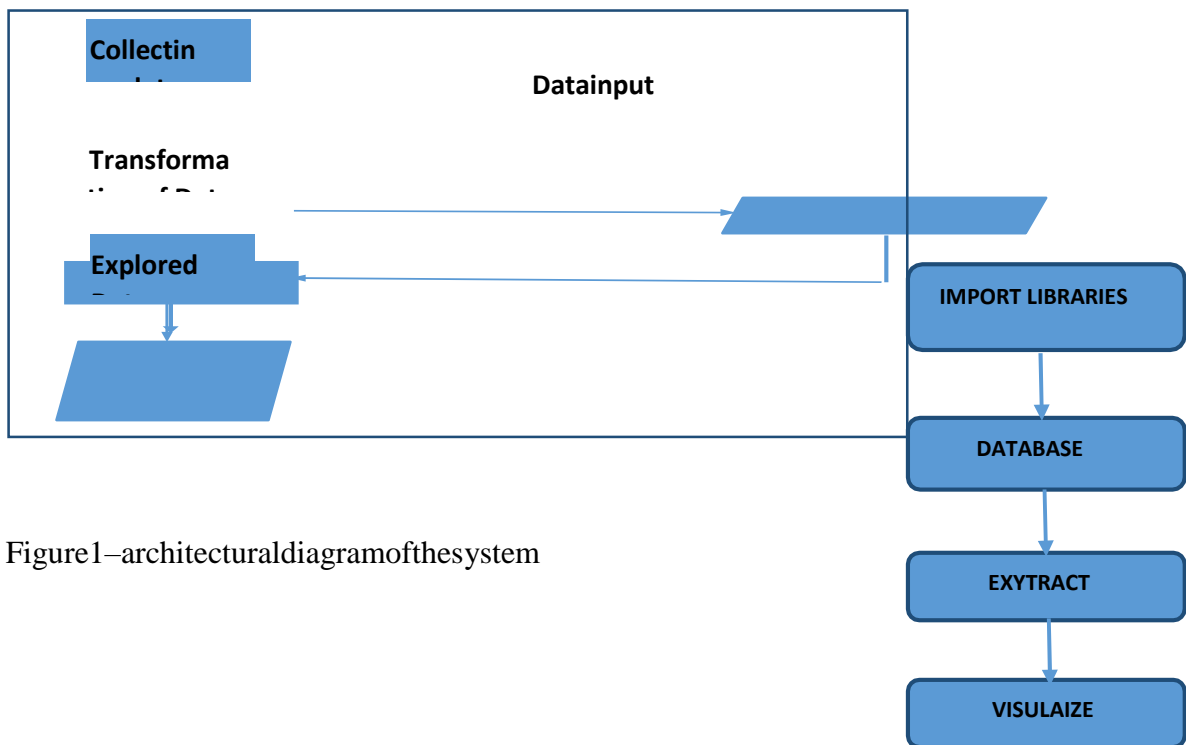


Figure 1—architectural diagram of the system

3.2 Data Collection stage.

The Forbes- dataset that I am using to examine the information about billionaires throughout the world was downloaded from dataset. The dataset includes details about the world's billionaires in 2022. Names

Net Worth

Country

Source

Rank

Age, Industry

3.3 Implementation Tools

a) Python Programming Language- Python is the programming language used for this work. It is a free open source programming language. It is a High level programming language. It supports object oriented and structured programming fully. Python is compatible with Major Platforms and Systems. It supports many operating systems. Also, it has a very Robust Standard Library. The data input, data transformation, data exploration and data visualization are handled by Python and its libraries.

b) Pandas for data extraction and preparation - Pandas is a Python library that provides high-level data structures which are simple to use as well as intuitive. It was the tool that enabled the extraction of the data to be analyzed. It was used to fetch the dataset in Python from the CSV, Excel, JSON files and manipulated the data to perform operations on it.

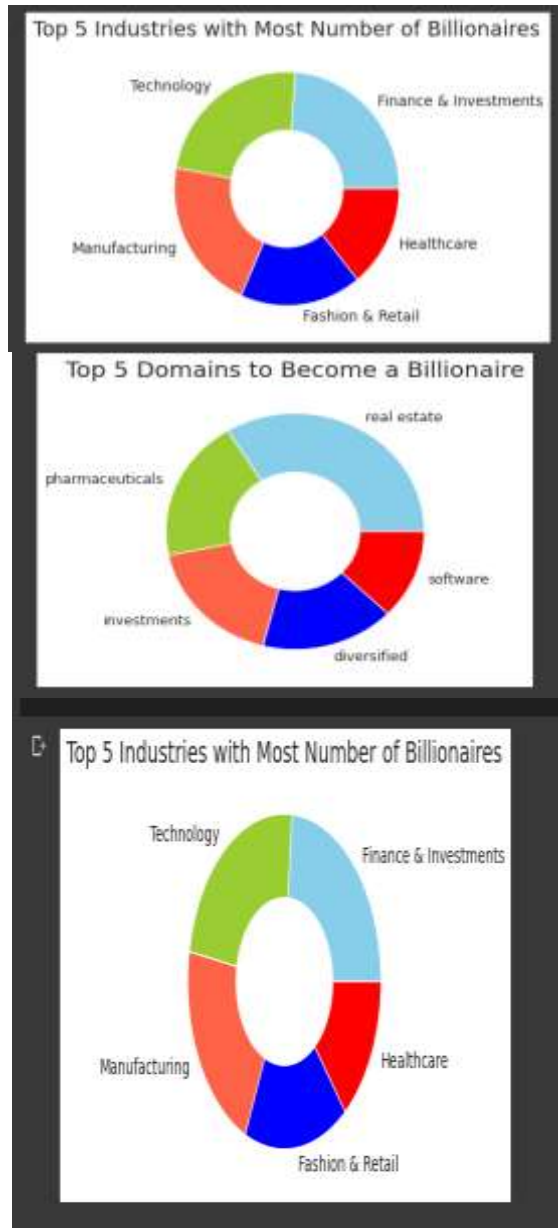
c) Numerical python
was the Python library used to handle the multidimensional arrays and functions that were needed for the classification of the chats into days, hours, minutes and seconds.

d) Mat plot lib- Matplotlib was used for the data visualization of this system. It is a standard Python library used for creating 2D plots and graphs. It was imported in this work to create a graph of the dataset.

e) Seaborn- Seaborn data visualization library was also imported in this work. It builds on Matplotlib's foundations. Being a higher-level library, it was able to expand the plot and better beautify it. It doesn't work alone hence it works on Matplotlib foundation.

RESULTS AND DISCUSSION

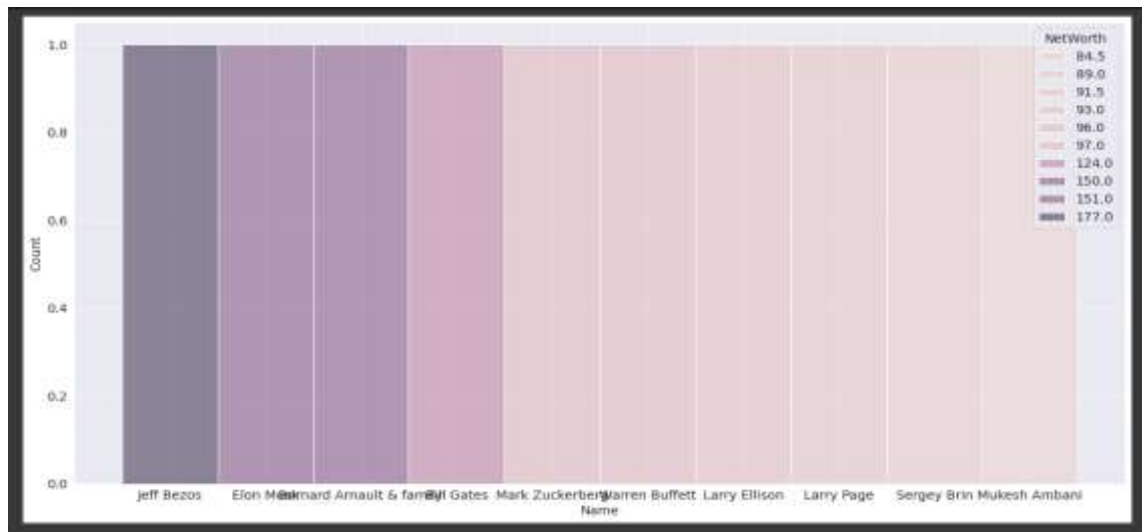
When relevant stock markets are open, the value of people's public holdings is updated every 5 minutes (there will be a 15-minute delay for stock prices). Net worth updates will be made once daily for people whose fortunes are heavily reliant on private enterprises. Where a private firm represents 20% or more of an individual's net worth, the company's valuation will be modified in accordance with an industry- or region-specific market index given by our colleagues at FactSet Research Systems, when applicable. The top of the page features a



According to the image above, the majority of billionaires originate from China and the United States. Accordingly, the business climate and startup success rate in the US and China are significantly better than the rest of the globe.

This dataset's NetWorth column lists Billionaires' Net Worth with a \$ sign at the start and a B at the conclusion. Therefore, we must get rid of these indications and change the NetWorth column's type to float:

	Name	NetWorth	Country	Source	Rank	Age	Industry
0	Jeff Bezos	\$177 B	United States	Amazon	1	57.0	Technology
1	Elon Musk	\$151 B	United States	Tesla, SpaceX	2	49.0	Automotive
2	Bernard Arnault & family	\$150 B	France	LVMH	3	72.0	Fashion & Retail
3	Bill Gates	\$124 B	United States	Microsoft	4	65.0	Technology
4	Mark Zuckerberg	\$97 B	United States	Facebook	5	36.0	Technology



CONCLUSION

After finishing the project's analysis, I was able to identify the bulk of the solutions, but there are still a lot of unresolved problems. This project is just getting started because there isn't much time or data yet. In order to better understand the reasons impacting each person's net worth changes over the preceding five years, I plan to examine each person's net worth. Additionally, success does not seem to depend on a low level of competition. Private property needs to be protected and upheld, and wealthy nations are easier to build up than poorer ones. The system was done with Python, and Python libraries that were implemented include NumPy, Pandas, Matplotlib and Seaborn. At the end of the work the expected results were obtained and the analysis was able to show the level of participation of the various individuals on the given billionaire analysis. The business climate of a nation has a big impact on how successful a business or startup is. The conclusion I reached from my examination of the world's billionaires was that China and the US had the most billionaires, indicating that these two countries had significantly superior business climates and startup success rates than the rest of the world.

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TESLA STOCK PRICE PREDICTION USING MACHINE LEARNING

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ABSTRACT

Founded by a group of engineers in 2003, Tesla aims to the electric vehicle served as evidence that people could drive without making any sacrifices better, faster, and more enjoyable to drive than gasoline-powered cars are possible. In the present, Tesla produces infinitely scalable products in addition to electric vehicles. Products for generating and storing sustainable energy. Tesla maintains that the faster the world stops using fossil fuels and works toward a future with no emissions, the superior. The Roadster debuted Tesla's cutting-edge technology in 2008. The batteries and electric drivetrains. Following it, Tesla created the Model S is the first luxury all-electric sedan built from the ground up. Which has emerged as the top vehicle in its class in all categories. Combining Model S has re-calibrated for efficiency, performance, and safety.

KEYWORDS: Electric vehicle, evidence, gasoline, sedan, tesla, drivetrains.

INTRODUCTION

Bond price prediction is a popular, challenging, difficult, and complex subject in the field of computation that typically involves a lot of interaction between people and computers. Investor emotion, market whispering, physiological, rational, and irrational behaviour, as well as physical components of the stock market, are some of the trends for predicting stock prices. Due to the interaction of all these factors, stock values are incredibly complex and extremely challenging to predict with any degree of accuracy. [15] Sequential prediction algorithms can effectively predict the stock market due to the linked nature of stock values. Pattern recognition, logic analysis, forecast determination, and other capabilities of ML approaches can be used to make predictions that are always accurate. [8] From simple algorithms like Simple Average and Linear Regression, we have investigated a several number of various methods to forecast the stock market.

We provide a research technology that makes use of the enhanced Long Short Term Memory (LSTM) variant of RNN, retaining the weights for each data variable using stochastic gradient descent. [8] so that we can provide results that are more effective and accurate than those produced by stock price prediction systems at the time. TESLA Inc. from Yahoo Finance is the stock prediction model that we developed using the TSLA dataset. Using data-frame closing prices, we have examined future stock prices, developed,and trained the LSTM model, generated stock forecasts using a sample of the data set, and computed additional RMSE to ensure accuracy and efficacy. Based on these results, LSTM is suggested for stock market projections. We have also shown a variety of algorithms for comparison predictions.

LITERATURE SURVEY

There is a wealth of sentiment analysis publications in the literature that examine the use of tweets, financial news, and other pertinent information to forecast market movement [2], [4]. This section focuses on recent studies that use social media data to forecast stock market

trends.

The causal relationship between moods and stock market trading is controversial, though. Researchers are split between supporting and disproving this association. The two opposing points of view stem from two antiquated theories. The first one is based on the Efficient Market Hypothesis (EMH) [12], according to which it is difficult to continually outperform the market since the stock market reacts instantly to every given piece of news. The second pole of viewpoints is based on the RWT [13] is a random walk theory in which the stock Price prediction is thought to be impossible, and the market. It is impossible to use a random algorithm and outperform the market. Consequently, we make distinctions between the works in our review proposing utilising to forecast changes in the stock market works that refute sentiment analysis.

PROPOSED METHODOLOGY

Numerous studies have been published in the literature that support the use of sentiment analysis to forecast stock market trends. Bollen produced one of the original pieces. They discovered that social, political, cultural, and economic events are significantly associated to the public mood levels (POMS), and when sufficiently big and representative data are available, machine learning models may produce accurate prediction results [5]. In a different study, Bollen looked at the assets that are influenced by public mood. They have focused on the historical association between the closing value of the Dow Jones Industrial Average (DJIA) and the public mood condition [3]. Correlations between features were determined using Granger's causality analysis, and a self-organizing fuzzy neural network was trained to forecast DJIA values using different combinations of historical DJIA values and data on public mood. Ichinose and Shimada [14] created a one-day stock price model that uses the articles' content from Yahoo Japan Finance News to forecast the Nikkei Stock Average. SVM and linear perceptron machine learning models were employed. The model inputs were simple bag-of-words (BOW) and BOW weighted by the absolute and actual values of the volatility score. Various models and feature combinations were examined, and an accuracy of about 60% was attained. Pagolu et al. investigated the relationship between changes in stock prices and the sentiment of the general public as gleaned from tweets [15]. Using N-grams and Word2vec features derived from tweets on Microsoft stock, logistic regression, random forest, and SVM models were used to predict stock movement. They concluded that there is a significant association between "rise" and "fall."

A.WORK RELATED TO STOCK PREDICTION CRITICS

In order to examine the relationship between sentiment signals and stock price changes, Mudinas et al. used a variety of sentiment signal sources and different time periods in their research. According to experimental findings, some equities showed significant cross-correlation within specific time periods. In other instances, though, it was not present [23]. Porshnev et al. looked at the improvement in stock market prediction accuracy utilising information on the mental states of Twitter users [7]. They investigated the usage of two various lexicon-based methods in Twitter data, namely word frequencies and the eight fundamental emotions. The findings showed that adding data from Twitter did not significantly improve prediction accuracy. Li et al tests used news articles and prices from the Hong Kong Stock Exchange during a five-year period. Even while the suggested models that included sentiment analysis outperformed the bag-of-words model at the level of individual stocks, sectors, and indexes, they fared poorly since they only considered sentiment polarity. Five well-liked lexical resources and two brand-new lexicons were compared using a variety of sentiment analysis techniques by Oliveira et al. [9]. They used data from nine major technology businesses to classify everyday words and individual tweets as their basis for their

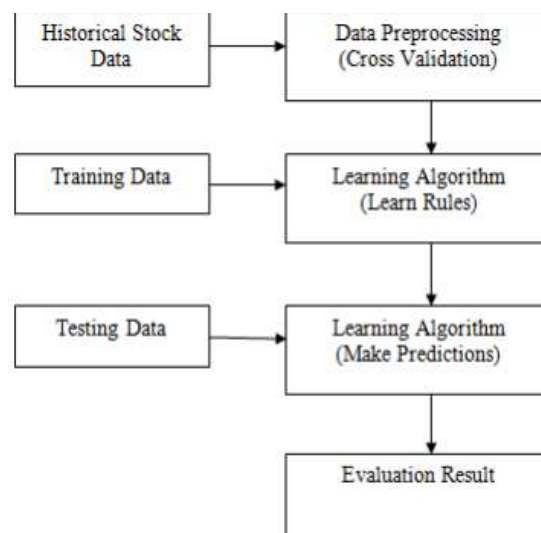
sentiment indicators. They discovered little proof that emotion indicators can explain stock returns. Lachanski et al. [24] carefully examined Bollen et al. [3]'s work in effort to confirm the results. They were unable to duplicate Bollen's p-value pattern or predict the stock market accurately outside of samples. In their review, serious questions concerning the veracity of Bollen's findings were also raised. In this work, we are trying to reach an understanding between the two points of view. We are empirically examining the predictability of stock market movement direction utilising numerous finer-grained textual variables in addition to sentiment polarity or the Bag-of-words. The effectiveness of classification is evaluated rigorously and presented. Additionally, the Granger causality test and Latent Dirichlet Allocation (LDA) for tweet corpus authentication are utilised whether to determine or not twitter sentiment lags could have the ability to forecast stock movement.

B.PROBLEM DEFINITION

Humans have become increasingly dependent on data and information in society over the past two decades, and as a result, technologies have developed for massive data storage, analysis, and processing. Data mining and machine learning have not only used them to get knowledge and make discoveries, but also to investigate certain hidden patterns and ideas that have helped make difficult-to-predict future events possible. Stock, also known as shares, is another challenging object to predict that drew our attention. One of the most significant areas of study in academic and financial research is stock price prediction. In the investigations, various data mining approaches are widely used. in order to fix this issue. However, adopting a machine learning or deep learning technique will provide a more accurate, exact, and straightforward solution to such stock and market price-related problems. There is a wealth of information available on stocks, but predicting the price of these equities based on historical data is both challenging and fascinating.

C.SUMMARY OF WORK

One of the most significant activities in the world of finance is stock trading. Trying to anticipate the future value of a stock or other financial instrument traded on a financial exchange is known as stock market prediction. This describes how machine learning was used to predict a stock. Majority of the stockbrokers employ technical, fundamental, or time series analysis when making stock predictions. In this article, we suggest a Machine Learning (ML) method that will be taught using the stock market data that is currently accessible, gain intelligence, and then use the learned information to make an accurate prediction.



EXPERIMENT AND RESULTS

	High	Low	Open	Close	Volume	Adj Close
Date						
2020-01-02	28.713333	28.114000	28.299999	28.684000	142981500.0	28.684000
2020-01-03	30.266666	29.128000	29.366667	29.534000	266677500.0	29.534000
2020-01-06	30.104000	29.333332	29.364668	30.102667	151995000.0	30.102667
2020-01-07	31.441999	30.224001	30.760000	31.270666	268231500.0	31.270666
2020-01-08	33.232666	31.215334	31.580000	32.809334	467164500.0	32.809334

	High	Low	Open	Close	Volume	Adj Close
Date						
2020-01-02	28.713333	28.114000	28.299999	28.684000	142981500.0	28.684000
2020-01-03	30.266666	29.128000	29.366667	29.534000	266677500.0	29.534000
2020-01-06	30.104000	29.333332	29.364668	30.102667	151995000.0	30.102667
2020-01-07	31.441999	30.224001	30.760000	31.270666	268231500.0	31.270666
2020-01-08	33.232666	31.215334	31.580000	32.809334	467164500.0	32.809334

	High	Low	Open	Close	Volume	Adj Close
Date						
2010-06-29	1.666667	1.169333	1.266667	1.592667	281494500.0	1.592667
2010-06-30	2.028000	1.553333	1.719333	1.588667	257806500.0	1.588667
2010-07-01	1.728000	1.351333	1.666667	1.454000	123282000.0	1.454000
2010-07-02	1.540000	1.247333	1.533333	1.280000	77097000.0	1.280000
2010-07-06	1.333333	1.055333	1.333333	1.074000	103003500.0	1.074000

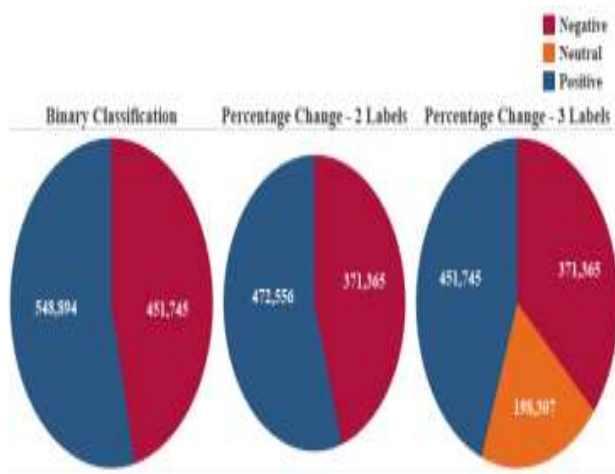
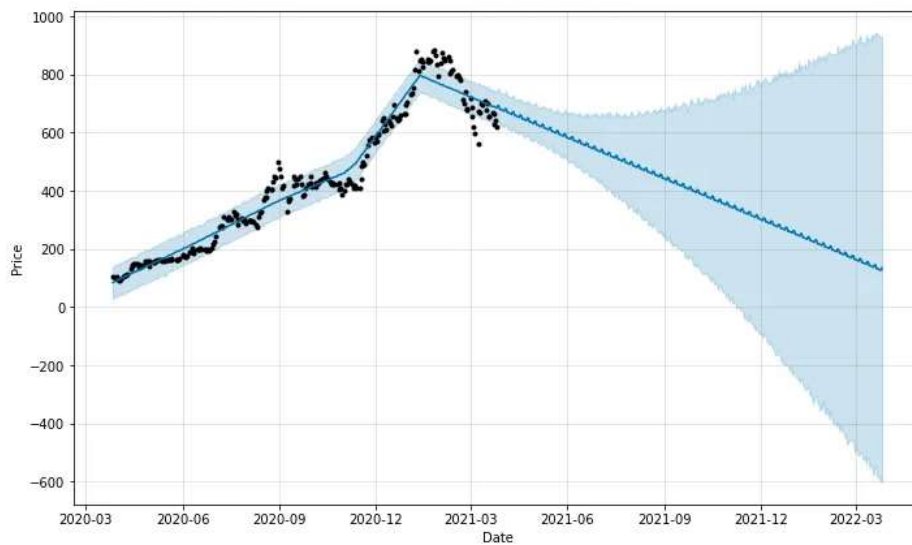


TABLE AND GRAPH



SAMPLE CODE

```
import pandas as pd
import numpy as np
from collections import deque
import yfinance as yf
import matplotlib.pyplot as plt
import seaborn as sns
import sns.scrape.modules.twitter as sntwitter
import csv
from datetime import datetime, date, timedelta
import glob
import os
```

```
import re
import copy
import talib as ta
from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer
from concurrent.futures import ProcessPoolExecutor, ThreadPoolExecutor
import multiprocessing as mp
import threading
from sklearn.ensemble import RandomForestClassifier
from sklearn.model_selection import GridSearchCV
from sklearn.preprocessing import MinMaxScaler, MaxAbsScaler
from sklearn import metrics
from joblib import dump, load
from pprint import pprint
import json
import warnings
warnings.filterwarnings("ignore")
```

CONCLUSION

If Tesla doesn't come up with a new idea for expressing their goal, it appears that the company's stock prices will fall in the near future. This might be feasible given that other businesses have started producing electric cars at a far lower cost than Tesla. I hope you enjoyed reading this post about using Python to estimate Tesla Stock Price using machine learning. After examining numerous papers, we discovered the best technique for estimating a stock's market price based on various historical data sources. Due to the algorithm's extensive training on historical data and selection following testing on a sample set of data, brokers and investors will find it to be a fantastic asset when trading in the stock market. The experiment shows how a machine learning model can forecast stock value more accurately than earlier data mining techniques.

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SUSTAINABILITY OF BANKS IN INDIA – AN ANALYTICAL STUDY WITH SELECTED BANKS

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ABSTRACT

The banks have a unique working environment and unique technique for their sustainability. This study is to determine how the business goal is aligned with the trends of markets and sectors. The sustainability of a bank works with the internal, external and financial strategies of the banks and the people works under those banks, which also helps them improve their competitive advantage by integrating the internal, external and financial practices and services implemented in their business field. This study presents the business case for sustainable banking that is drawn on responses of top-level management, bank managers and also staffs of the bank, that is in three categories of people as response. A survey is conducted with 40 top level managers, 8 branch managers, and 80 bank staffs the sampling used to select sample was stratified random sampling and judgemental sampling. The data is collected through a structured questionnaire. The has used both the primary and secondary data. The primary data is collected and analysed using simple percentage, averages, standard deviation, factor analysis and chi-square test. The findings are based on the data supplied by the responses given by the various response of the study. The analysis stated that long term growth and market value are the influencing factors for the sustainability of banks. The findings also stated that two third of the banks and three fourth of the sample banks top level management conceded the fact that banks shall have knowledge and competent in maintain the internal stability. In regard to HR policies are found to be commending in all the three categories which resulted in meeting up with the gap of supply and demand. The study has given a conclusion stating sustainability meant different aspects to the different dimensions of banks.

KEYWORDS: *Private sector banks, sustainability, HR policies, financial sustainability, Regulations, Managerial people, banking business.*

INTRODUCTION

The public and customers are provided with financial services by various financial institutions from those banking is the major finance providers throughout the world. And so, their performance and the sustainability is more important. They have undergone evolutionary and revolutionary changes in the banking industry. In the growth of nation banking and their services plays a major role. In recent times the technological development and worldwide earnings are made possible just because of the banking services.

As the banking institutions in India enlarge and become gradually complex under the impact of deregulating, innovation and technological upgrade, it is important to uphold balance between efficiency and sustainability. In recent last 30 years since nationalization drastic changes have taken place in the financial institutions and markets as well in the banking industry because of financial sector reforms. The banks of India have shacked their traditional purposes and have been improving, innovating, and coming out with new concepts of services to cater incipient needs of their own customers. The Banks in India was given greater autonomy to frame their own policies and also quick advancement of technology has included to significant reduction in transaction costs, facilitated greater expansion of selection and improvements in credit delivery of banks. The working condition and the understanding

of new technological improvements by the bankers is a hectic task.

In the recent competitive word, the banks crave their sustainability, which is in various aspects like internal sustainability external sustainability and financial sustainability, this study concentrated internal sustainability. The internal sustainability with the branch manager, top-level manager and also the bank staff as response of primary data.

STATEMENT OF PROBLEM

The study is to determine how the business goal is aligned with the trends of the market and sectors in which they operate. The internal sustainability dimensions serve a guide for strategic planning for the institution with the help of improvising the standard and policies. The competitive advantage demands the internal sustainability to meet the social and market environment. The sustainability of a bank works with the internal, external and financial strategies of the banks and the people works under those banks, which also helps them improve their competitive advantage by integrating the internal, external and financial practices and services implemented in their business field. Banking sector reforms induced stiff competition where public sector, private sector and foreign banks. The customers choices make the difference and so the internal functioning has to deal with the people psychology. The present research aims to concentrate the internal sustainability of 3 levels of people working in Private sector bank.

SCOPE OF THE RESEARCH

The scope of the study incorporates the internal sustainability of Indian Private sector banks. The internal sustainability of banks includes HR sustainability, technological sustainability, infrastructure and institution building sustainability. The sustainability of human may differ from person to person. And so the perception of internal sustainability is determined through the questionnaire with the three sets of people working in the bank. Top level management, bank manager and banking staff, three categories of people from Private sector is taken and analysed.

OBJECTIVE OF THE STUDY

- To identify the factors, influence bank sustainability in Indian context.
- To find out the internal sustainability of selected private sector banks.
- To analyse the human resource and financial techniques of the same banks.

RESEARCH METHODOLOGY

The independent, dependent and extraneous variables are identified. After then objective-wise and hypothesis based questionnaire framed with proper constrains. The pre-lasting of questionnaire provided directions and reinforced the questions relating to the study. The data was collected from top management people, branch managers and bank staff, analysed and interpreted appropriately. According to the analysis and interpretation major findings, conclusion and suggestions have been shown in the paper. It is a fact finding study on the banks sustainability in regard to sample Private sector banks. The researcher meticulously portrays the past and the present facts on internal sustainability of banks under the study at the present scenario.

For the primary data the methodology adopted was Survey with descriptive cum analytical one. Structured questionnaire was used to collect the sample respondents. As well the secondary data have been congregated from articles, reports, RBI bulletins, news papers, magazines, journals, and web resources.

For the purpose of analysing data, the statistical tools and techniques such as percentages, standard deviation, factor analysis, chi-square test, and Croanbach's Alpha, have been used.

To make the raw data into a meaningful form.

LIMITATIONS OF THE STUDY

The study encountered certain inadequacies. The findings are based on the data abounding by the sample respondents. The banks sustainability cannot be stated as true statement for all the banks. This is because each bank formulates and enforces specific sustainability strategies in their own areas. The facts and values may differ since the results were from a set of selected banks response.

ANALYSIS AND FINDINGS

Personal/ work profile - Simple Percentage Analysis

- The simple percentage analysis stated that majority of the respondents were between the age group of 40-60 years (54.3%).
- Out of which 75% are married, and 61.9% of the respondents are in nuclear family.
- Majority of the respondents post graduates (83.8%).
- The banks are random chosen which is of 15 in count.

The finding regarding the objective stated above.

- HR sustainability was determined with 73 items scale where there is an observation of extensive degree of growth features. The policy framing, maintenance of records, customer feedbacks and the staff satisfaction gave positive results from the analysis.
- The findings also stated that two third of the banks and three fourth of the sample banks top level management conceded the fact that banks shall have knowledge and competent in maintain the internal stability.
- In regard to HR polices are found to be commending in all the three categories which resulted in meeting up with the gap of supply and demand.
- Change in the ongoing process of bank activities stated the necessary change is happening that favors both the employees and customers of the relevant banks.
- The negative trait of the results stated that the lowest level people that are staff members are the one who are sufferer where as the top level and the middle level is enjoying the benefits and the concerns of the same.
- The competency of the employees in work is the success factor of the results for the particular study.
- Information technology and the up coming generation changes with technology in banking sector is also unstoppable. New banking upgradations are the emerging results of technological improvements where e-forms and electronical communications are getting improvised in the recent era.
- The sample banks are implementing best practices to measure and assess the risks around the human world. The banks reputations must be improvised by increasing the credibility among their customers.
- The impact of banks sustainability on its business performance and social wellbeing is measured through correlation of the independent variables where it resulted in influencing the dependent variable. In simple words human resources have an influence over the bank's sustainability.

SUGESSTION

- The findings suggested that HR competency need to be monitored in the aspects of changing technology and skill sets. The rapid technological changes makes certain jobs redundant and so the training is needed for the banks to survive, the hands on trainings or experience must be provided.
- For some reasons the bankers must hance a separate business environment committee

- with the customers. Which may be an advisory committee on the beneficial to the banks.
- The regulations and policies of the banks employees may not be too rigid in regard to the communication and maintaining relationship with the customers it shall be flexible .
 - The banks must upgrade and modernize the applications and the other internet platforms and some people must be appointed for the same to taken control of the same.
 -

CONCLUSION OF THE STUDY

With the objective based findings of the study the analytical results concluded that banks sustainability is provided by the people and the insights of the relevant constrains. The study needs more detailed instigation in the other fields like public and foreign banks. The results concluded that sustainability of the banks is the undercurrents for the survival in the field of financial institutions. In this study sustainable meant different aspects like human power, customer responses, solvency, profitability, competence and technological situations. Under such circumstances maintaining sustainability in the competitive market sector is uphill task. Three forth of the banks have achieved the desired results through internal sustainability in spite of the competition they face.

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A SENTIMENT ANALYSIS MODEL FOR HOTEL REVIEWS BASED ON SUPERVISED LEARNING

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ABSTRACT

As the widespread use of computers and the high-speed development of the Internet, E-Commerce has already penetrated as a part of our daily life. For a popular product, there are a large number of reviews. This makes it difficult for a potential customer to make an informed decision on purchasing the product, as well as for the manufacturer of the product to keep track and to manage customer opinions. In this paper, we pay attention to online hotel reviews, and propose a supervised machine learning approach using unigram feature with two types of information (frequency and TF-IDF) to realize polarity classification of documents. As shown in our experimental results, the information of TF-IDF is more effective than frequency.

KEYWORDS: Sentiment classification; supervised machine learning; Online reviews

INTRODUCTION

With the high-speed development of the Internet, E-Commerce has already penetrated as a part of our daily life. Currently most information on the Internet exists in unstructured or semi-structured forms, and presented the explosive growth. Besides, along with the development of E-Commerce, the more appeared reviews not only help potential consumers to make decisions of the products in a certain extent, but also provide some good feedback for merchant. For instance, when a consumer plans to select comfortable hotel for his trip, he will surf on the BBS or review sites to read the opinions from experienced consumers.

However, for a popular product, the number of reviews can be in hundreds or even thousands. This makes it difficult for a potential customer to read them to make an informed decision on whether to purchase the product. It also makes it difficult for the merchant of the product to keep track and to manage customer opinions. Moreover, there is also some noise such as misleading articles often appearing in the first few pages, which would affect the comprehensiveness of browsers' information acquisition and correctness of their judgment. Nowadays, some websites have made quantized expressions for the sentiment orientation (SO) of their local review information, such as *Amazon.com*, which has coarse-grained rating (5-star scale) for each review on its website, and the 5-star is the best, while the 1-star is the worst, then giving the total rating.

In the past few years, many researchers transfer their interests from text classification [1, 2] to sentiment analysis [3,4,5,6,7,8,9]. Current researches mainly focused on proposing novel analysing and processing technologies based on different domains, according to the large scale review data acquired from Internet, such as 1) Using Part-Of-Speech (POS) to tag the sentences, several researchers summarized some rules to focus the object of opinion and sentiment items [6, 10], and utilized the distribution rules of POS to extract the corresponding template for sentiment analysis [11]; 2) some scholars also started to make researches in

sentiment orientation of different sentence structures [12, 13]; 3) Kim and Hovy used the technology of semantic role labelling (SRL), which was mainly utilized in news and public's opinion analysis, to help identify two main components of opinions: opinion holder and topic [14]. Of course there were also some scholars aiming at the reviews in a special website, and proposing special processing methods, so as to obtain the sentiment orientation of reviews [15].

This article mainly has two contributions: 1) to propose a supervised machine learning approach to realize sentiment classification of online hotel reviews; 2) to utilize TF-IDF information to set up unigram feature, this information is more effective than frequency evaluated by our experiment results.

The rest of this paper is organized as follows. Section 2 presents related work. Section 3 introduces the theory of machine learning of support vector machine. Section 4 describes the experiment set and shows the experimental results. Finally we conclude and prospect our work in section 5

RELATED WORK

There is presently a huge amount of online hotel reviews which are beyond the visual capacity of any human beings. Hence, there is an urgent need for innovative techniques that can automatically analyze the attitudes of customers in their reviews. As such, sentiment classification (sentiment analysis or opinion mining) can perform the tasks of automatically understanding the online reviews [3,4]. Mining opinions from reviews on web pages, however, is a complex process, which requires more than just text mining techniques. The complexity is related to a couple of issues. First, data of reviews are to be crawled from websites, in which web spiders or search engines can play an important role. Moreover, it is necessary to separate the data of reviews from non-reviews. The sentiment classification process can then be conducted. Pang et al. found text mining algorithms on sentiment classification do not perform as well as that on traditional topic-based categorization [4]. Topics can be identified by keywords but sentiment would be expressed in a more subtle manner. As such, sentiment classification requires more understanding than the usual topic-based classification [4].

Sentiment classification aims to extract the text of written reviews of customers for certain products or services by classifying the reviews into positive or negative opinions according to the polarity of the review [5,16]. The method has been attempted in different domains such as movie reviews, product reviews, customer feedback reviews, and legal blogs [4,17]. Other potential applications include extracting opinions or reviews from discussion forums such as blogs, and integrating automatic review mining with search engines to automatically provide useful statistical data of search results or to build sentiment analysis systems for specific products or services. Tourist destinations, naturally, would be one of the good application areas. In relation to opinion mining applications, the extant literature indicates two types of techniques have been utilized, including machine learning and semantic orientation [3].

The first one is based on the simple statistic. Turney, Nasukawa and Yi mainly made simple statistics for orientation values to obtain the whole tendency of texts [3, 18]. This method is generally applied to the document-level sentiment analysis, such as Tsou makes statistics for the sentiment orientation of news articles and measures the opinions of celebrities from the public through calculating the sentiment orientation of the words and comprehensively considers the spread, density and semantic intensity of the polarity elements [19]. Although the sentiment analysis based on the simple statistic belongs to coarse-grained orientation classification, because of its simple realization and not bad accuracy, it occupies a particular weight in the beginning of the orientation study.

The second one is based on machine learning, generating orientation classification model through the training of numerous labeled corpuses, and then classifying the test texts using generated model. Pang adopted the technology of standard bag-of-words and three machine learning methods (naive bayes, maximum entropy classifications and support vector machine (SVM)) to make text orientation classification for the film reviews, and respectively compared them with the outcome of manual classification [4,20]. The result of experiment shows that the method of SVM has the best effectiveness among several classifications. Chaovalit and Zhou also used the methods of machine learning and sentiment orientation to deeply mine the film reviews [21]. Mullen and Collier proposed an approach to sentiment analysis which uses SVM to bring together diverse sources of potentially pertinent information, including several favorability measures for phrases and adjectives and, where available, knowledge of the topic of the text [22]. It indicates that the accuracy improves by joining the category feature of semantic orientation. Whitelaw presented a method for sentiment classification based on extracting and analyzing appraisal groups which is represented as a set of attributes values in several task-independent semantic taxonomies [23]. They used semi-automated methods to build a lexicon of appraisal adjectives and their modifiers and classified movie reviews using features based on these taxonomies combined with standard bag-of-words features, and reported the accuracy of 90.2%.

Previous experiments show the method of SVM has the best effectiveness [4]. This study therefore makes an initial attempt to apply supervised machine learning algorithms of SVM to the realistic online reviews of some hotels.

SUPPORT VECTOR MACHINES

A classification task usually involves with training and testing data which consist of some data instances. Each instance in the training set contains one target value or class labels and several attributes/features. The goal of support vector machine (SVM) is to produce a model which predicts target value of data instances in the testing set which are given only the attributes.

SVM has been shown to be highly effective at traditional text categorization, generally outperforming Naive Bayes (Joachims, 1998)[24]. They are large-margin, rather than probabilistic, classifiers, in contrast to Naive Bayes and MaxEnt. In the two-category case, the basic idea behind the training procedure is to find a hyperplane, represented by vector w , that not only separates the document vectors in one class from those in the other, but for which the separation, or margin, is as large as possible (Fig. 1). This search corresponds to a constrained optimization problem; letting $y_j \in \{1, -1\}$ (corresponding to positive and negative) be the correct class of document d_j , the solution can be written as

$$w = \sum_j I_j y_j d_j, \quad I_j \geq 0, \quad (1)$$

where the I_j are obtained by solving a dual optimization problem. Eq.(1) shows that the resulting weight vector of the hyperplane is constructed as a linear combination of d_j .

Only those examples that contribute to which the coefficient I_j is greater than zero. Those vectors are called support vectors, since they are the only document vectors contributing to w . We used Joachims's SVMlight package¹ for training and testing, with all parameters set to their default values, after first length-normalizing the document vectors, as is standard (neglecting to normalize generally hurt performance slightly). As well as Radial basis

¹ <http://svmlight.joachims.org>

function is selected as kernel function in our experiment because it has better generality.

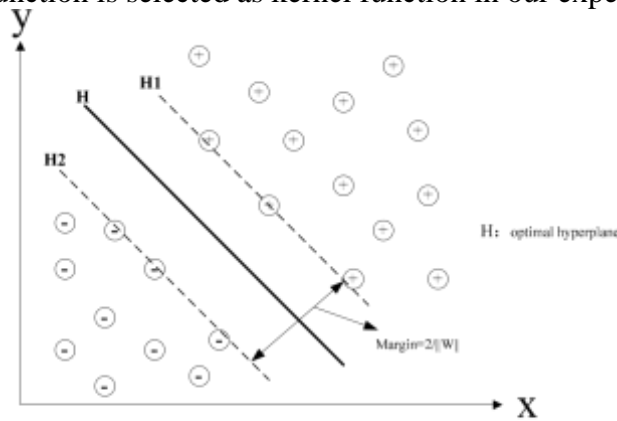


Figure 1. The theory model of SVM

4. Experiment

The basic mechanism of sentiment classification by supervised machine learning algorithms is depicted in Fig. 1. In this research, we applied SVM-based supervised machine learning models for sentiment classification of online hotel reviews.

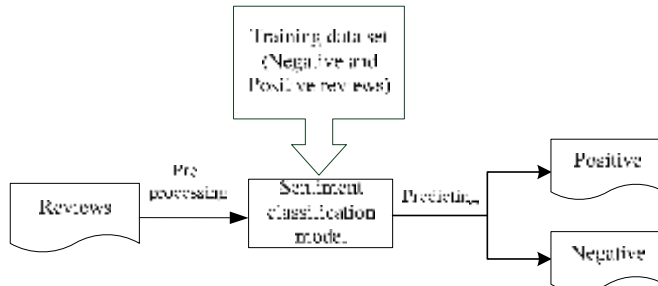


Figure 2. The flow chart of supervised machine learning algorithms

4.1. Experimental Set-up

We used documents from the hotel-review corpus presented by Tan S.H. (<http://www.searchforum.org.cn/tansongbo/corpus-senti.htm>), which have reviews of 4000 (half positive and the other half negative, respectively). We then divided this data into four equal-sized folds, maintaining balanced class distributions in each fold. All results reported below are the average four-fold cross-validation results on this data (of course, the baseline algorithms had no parameters to tune). Each document is first segmented using ICTCLAS developed by Chinese Academy of Sciences (http://www.nlp.org.cn/project/project.php?proj_id=6).

For this study, we focused on features based on unigrams (segmented Chinese word). There are 12745 unigrams appearing at least one time in our 4000-document corpus.

4.2. Performance evaluations

To evaluate the performance of sentiment classification, we adopted three indexes that are generally used in text categorization: Recall, Precision, and F-score. The indexes can be calculated according to the figures in Table 1 and the following formulas, respectively,

$$\begin{aligned}
 Recall(pos) &= A/(A+C), \quad Precision(pos) = A/(A+B), \\
 Recall(neg) &= D/(B+D), \quad Precision(neg) = D/(C+D) \\
 F &= 2 * Recall * Precision / (Recall + Precision)
 \end{aligned}$$

TABLE.1 PERFORMANCE EVALUATIONS

	Actual positive reviews	Actual negative reviews
Predict positive	A	B
Predict negative	C	D

Here, Recall(pos) and Precision(pos) are the recall ratio and precision ratio for actual positive reviews. Recall(neg) and Precision(neg) are the recall ratio and precision ratio for actual negative reviews. F-score is the overall evaluation of certain sentiment classification models.

4.3. Experiment result

Experiment result is shown in table 2. Unigrams are the segmentation sequence based on hotel reviews.

TABLE. 2 EXPERIMENT RESULT

	Features	Frequency or TF-IDF?	Recall	Precision	F-score
(1)	unigram	Frequency	88.4%	84.5%	86.4%
(2)	unigram	TF-IDF	89.2%	85.2%	87.2%

In one experiment, we select TF-IDF as one feature.

The TF-IDF feature (term frequency–inverse document frequency) is a weight often used in information retrieval and text mining. This weight is a statistical measure used to evaluate how important a word is to a document in a collection or corpus. The importance increases proportionally to the number of times a word appears in the document but is offset by the frequency of the word in the corpus. This result shows the information of TF-IDF is more effective than frequency.

CONCLUSION

In this paper, we first previous research on sentiment classification, and then propose a supervised machine learning approach using unigram feature with two types of information (frequency and TF-IDF) to realize polarity classification of documents. As shown in our experimental results, the information of TF-IDF is more effective than frequency.

In our future work, we will explore semi-supervised machine learning to increase training data set, thus improve the effectiveness of experiment. As well as we will introduce some natural language processing (NLP) techniques to further improve the performance of sentiment analysis.

ACKNOWLEDGEMENTS

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THE DATA DRIVEN MAGIC - INDUSTRY 4.0

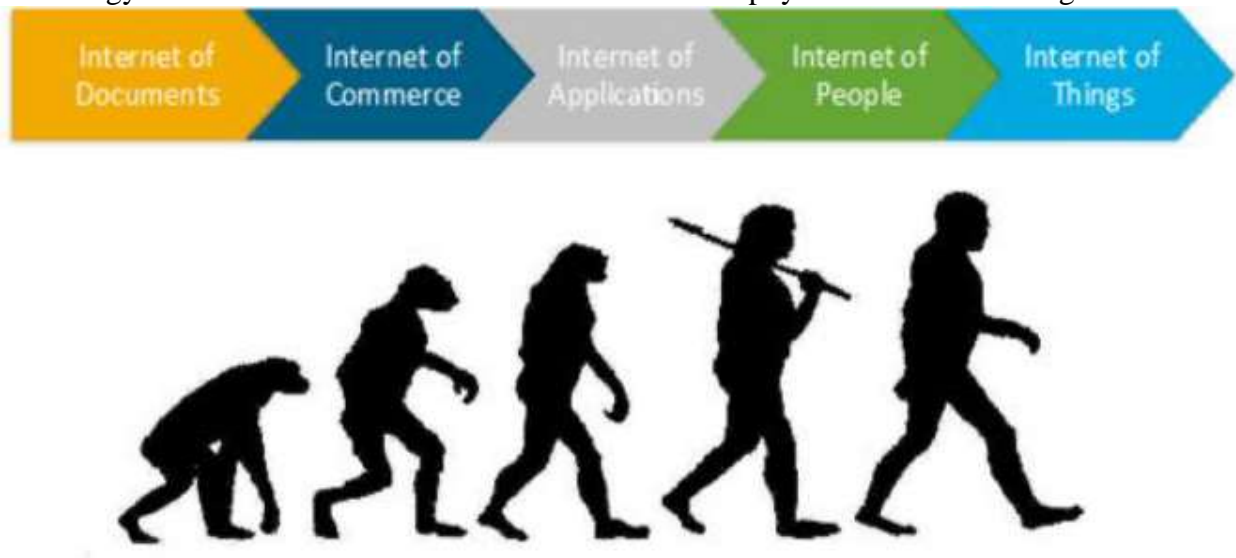
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ABSTRACT

IoT is a collection of physical objects with software, sensor and other technologies which facilitate to exchange and connect data with other devices, cloud or within the devices through internet. It remotes more towards health monitoring system. This article shows up the applications that are essential in the deployment of successful IoT-based products and services and discusses about problems faced during the implementation of IoT.It also examines about the new invention Data Lake which is mainly applied in Industry 4.0.

INTRODUCTION

The concept of Internet of Things was firstly proposed by Kevin Ashton in 1999.This inventory made to identify new connection objects with radio-frequency identification technology. Own identifies and attributes are available for physical and virtual things in IoT.



APPLICATIONS

2.1.Sensors

When the auto driving car arrives near the gate it automatically opens. The reason behind the automatic open of gate is IoT i.e., due to preloaded details of car makes it open only when the data suits to the particular car. Sensors play a vital role in Iot application in our practical life.

2.2.Smart Home

All the applications in home like lighting,air conditioner,thermostat are connected to a single systemwhich are easily controlled by smart phones. As it dosenot have the role of cabling it has less installation cost. For example, installation of Jarvis software at Mark Zuckerberg's house which makes smart house!

2.3.Smart Vehicles

The high dependence of IoT is for the invention of self driving cars.. These cars require more sensors like the traffic spots, location to reach. IoT takes the major role in self driving cars as it requires an accurate result on all basis. For example, Tesla cars are self-driving cars which use Internet of things and Artificial Intelligence.

2.4.Manufacturing Industry

Making the process easy is done by Internet of things with cordial support of Artificial intelligence. In manufacturing industry IoT is used for employment safety,real time inventory, etc.,.

PROBLEMS FACED IN IOT

3.1.Compatibility

As devices from different manufacturers will be interconnected in IoT, presently, there is no international standard of compatibility for tagging and monitoring equipment.

3.2.Security

IoT have the responsibility to look over all the devices and technologies. It leads to a high risk when a huge amount of data is communicated.

3.3.Lesser intervention of menial staff

IoT is defined as the way of connecting devices with internet and not physically. So, due to this there is less work for the human beings to engage.

DATA LAKE

The concept of Data lake was appeared on 2010 which was introduced by James Dixon. A data lake refers to the vast storage of repositories which hold massive raw data in the native format which is required to processed and analysed for the output. As IoT receives a high non-intergrated data , it takes large time to provide the precautions taken by IoT and AI. To solve this problem, Data Lake was introduced by providing a scheme less repository for raw materials with a common access interface.

CONCLUSION

In this paper, the applications, problems of IoT and about data lake has been presented. Iot has developed rapidly and a large amount of enabling technologies have been made in the few past years.

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FINANCIAL ANALYTICS

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ABSTRACT

Finance plays an important role in increasing the value of your business. Finance is finding its way as an important business function that overlaps with analytics in many areas. Financial executives are finding out new ways in the field of finance to increase the value of their organization. Financial analytics is a field that gives different views of a company's financial data. It helps to gain in-depth knowledge and take action against it to improve the performance of your business. Financial analytics has an effect on all parts of your business. Finance analytics provide insight into the financial performance of an organization. Financial analytic applications digest volumes of finance and accounting data, typically based on historical enterprise financial transactions, to discover and understand patterns. Financial analytics can help companies determine the risks they face, how to enhance and extend the business processes that make them run more effectively, and whether organizations' investments are focused on the right areas.

KEY WORDS: Time series analysis, Predictive analysis, In-depth knowledge, Determine the risk.

INTRODUCTION

A financial analyst is a specialized, undertaking financial analysis for external or internal trades as a core feature of the job. The role may specifically be titled securities analyst, research analyst, equity analyst, investment analyst, or ratings analyst. The job title is a broad one in banking, and industry more generally, various other analyst-roles cover financial management and (credit) risk management, as opposed to focusing on investments and valuation these are also discussed in this article. Financial analysts are employed by mutual- and pension funds, hedge funds, securities firms, banks, investment banks, insurance companies, and other businesses, helping these companies or their clients make investment decisions. In corporate roles, financial analysts perform budget, revenue and cost modelling and analytics as part of their responsibilities credit analysis is likewise a distinct area. Financial analysts invariably use worksheets (and statistical software packages) to analyze financial data, spot trends, and develop forecasts. The analyst often also meets with company officials to gain a better insight into a company's prospects and to determine the company's managerial effectiveness.

LITERATURE REVIEW

Journal of Financial Markets, 1998 In this research, investigate the informational role of financial analysts. Using a trade-based empirical technique, estimate the probability of information-based trading for a sample of NYSE stocks that differ in analyst coverage. It determines how this probability differs across stocks followed by many analysts, and investigate whether analysts increase or create the flow of information. And also determine the 'normal' level of noise trading in each sample stock, thereby giving us the ability to assess the depth of the market for stocks with differing analysts' followings.

Financial Analysts Journal, 1999 - Taylor & Francis study reported here focused on determining what analytical techniques financial analysts who are members of AIMR actually use. The study achieved a response rate of 33.75 percent. Questions covered 16 areas, including the use of present value analysis, the importance of quarterly earnings' announcements in decision making, belief in efficient markets, acceptance or rejection of market anomalies, and belief in the importance of international diversification for risk reduction.

P Andersson - EFI report, 2004 Empirical research on performance of various types of financial experts is reviewed. Financial experts are used as the umbrella term for financial analysts, stockbrokers, money managers, investors, and day-traders etc. The goal of the review is to find out about the abilities of financial experts to produce accurate forecasts, to issue profitable stock recommendations, as well as to make successful investments and trades. On the whole, the reviewed studies show discouraging tendencies of financial experts.

USES OF FINANCIAL ANALYTICS

Financial analytics can help companies determine the risks they face, how to enhance and extend the business processes that make them run more effectively, and whether organizations' investments are focused on the right areas.

- **Analysis of financial statements** – Whenever a firm is interested in investing in a small business, the financial analysts then examines its past and present financial statements. The idea here is to determine the probable weaknesses and problem areas if any, to be discussed with the other company owners.
- **Ratio analysis** – This helps in comparing values within the company against other companies and the industry every year. It includes the liquidity ratio, debt ratio, etc. Business owners and management teams might use ratio analysis in their day-to-day planning to measure where they stand in the industry. If the ratio analysis shows that the company has more debt than other businesses in the same industry, the owner might be encouraged to pay off or reduce some loans.
- **To analyze future performance** - Financial analysts assist small businesses in their future planning. This planning involves the evaluation of the company's income statement, balance sheet and cash flow statement. This helps in interpreting the trends and identifying the strengths and weaknesses. By following the trends of the general economy the analyst can estimate how well the company will be able to fare in the coming years. Accordingly, they can plan the equipment to be purchased and take other initiatives.
- **Making investment decisions** – Expert financial analysts are able to make investment decisions and recommend ideas based on sound reasoning. Every company should have dedicated financial analysts who would keep a watch over the strengths and weaknesses of the company and advise the management accordingly. In some cases, they can also hire the services of financial consultants on a periodic basis.

ADVANTAGES OF FINANCIAL STATEMENT ANALYSIS

Cash Flow Review

A cash flow statement is one of the financial statements used in financial analysis. As the name implies, it accounts for money in and money out. It shows the financial solvency of a company to pay its liabilities at any point in time. Some companies have cyclical revenues but consistent expenses. Knowing that the Christmas rush needs to fund a slow first quarter of expenses is important for business owners to manage financial resources.

Company Liability Review

The financial statements show the existing liabilities. These include business loans, lines of credit, credit cards and credit extended from vendors. A business owner who is planning to apply for a business expansion loan can look at the financial statements and determine if he needs to reduce existing liabilities before applying. Lenders look at the financial statements and consider the revenues, assets and existing liabilities.

Review Assets and Inventory

The balance sheet is a component of the financial statement. Assets are included on the balance sheet. Analyzing whether there is too much inventory or too little helps business owners prepare for upcoming sales months. Keeping too much inventory on hand is a potential problem that ties up money, while not having enough inventory can lead to losing customers and market share.

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Seeking Investment Capital

When a business seeks partners or investors, the financial statements are critical. Analyzing the statements not only helps investors determine if a company is making money, but it also helps to identify a reasonable cost per share. Shareholders usually invest capital in a company for growth; thus, shareholder equity is defined based on the capital investment added to assets, with liabilities subtracted, to define total shareholder equity.

IMPACTS OF FINANCIAL ANALYTICS

Related to business intelligence and enterprise performance management, finance analytics impacts virtually all aspects of a business, playing a critical role in calculating profit, answering questions about a business, and enabling future business forecasting. Big data analytics helps organizations harness their data and use it to identify new opportunities. That, in turn, leads to smarter business moves, more efficient operations, higher profits and happier customers. Businesses that use big data with advanced analytics gain value in many ways, such as: Reducing cost. The increased emphasis on data and the work to implement Big Data effectively within an organization provides an opportunity for finance and accounting professionals—who traditionally are proficient at pulling data from a variety of information systems, manipulating that data, and gleaning insights from it—to assume a business partnering role with others in their organizations. To better understand the implementation of Big Data in companies and its impact on accountants and finance professionals, we conducted a survey of IMA (Institute of Management Accountants) members to ask about the use of Big Data in their companies, including who and what are driving its use, the areas in which it's being applied, the stage of implementation, and more. Their responses not only help shed insight on the current state of Big Data and the areas in which companies are using it, but they also identify areas of opportunity for the future as companies strive to become data-driven organizations.

CONCLUSION

The conclusion is financial analytics is an important tool that should be used by small as well as large business owners to manage and measure the process of the business. It will help the business to adapt to the trends affecting their operation. Financial analytics will provide more reliable and timely financial reports which is the main factors of measuring the success of the company

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AN ANALYTICAL STUDY ON IMPLEMENTATION OF BLOCK CHAIN IN CRYPTO CURRENCY AND IT'S REAL WORLD USE CASES

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INTRODUCTION TO BLOCKCHAIN

Blockchain is a chain of blocks or, in other words, it's a linked list. Each entry in this list is linked to the previous one and so on it connects transitively to the very first one. Think of it as train car analogy where each one is chained to the next one. There is a worth reading Russian article by Nikita Likhachev, where the same concept is spelled out for mere newcomers. My analogies are partially borrowed from there.

Let's consider the example below.

Arun's friends constantly drain him of money. Arun is kind and very forgetful. A week later, he no longer remembers who did not return the debt and hesitates to ask his friends to remind him. Therefore, one of those days he finally decides to get organized and writes it all down on his handy chalkboard.

From now on, Arun no longer forgets that Gopi has returned everything and Jeff's debt is over ₹700 while keeps growing. On Saturday Arun invites Jeff into his place for a drink. When Arun turns away to mix a nice drink, Jeff wipes off the entry "Lent to Jeff: ₹200" and fills out the empty line with "Jeff brought back ₹500."

Arun trusts his list. Therefore, he forgets about the debt and loses ₹700. Arun is disappointed. He decides to lock down his records.

Last year Arun learned about cryptography on the programming course. He still remembers that any string can be turned into an unrecognizable set of characters – a hash. Changing any single character in that hash would completely mess up the entire encrypted content.

Let's say, adding just a dot at the end of the sequence would make the final hash unrecognized. It gives him an idea!

Arun applies the well-known **SHA-256** hash to each record on his chalkboard. Then he scribbles the resulting hash right next to its unencrypted corresponding part. Now he can sleep soundly knowing that his records aren't been altered. When in doubt, he can always decrypt them and compare with the originals.

But the EVIL JAPANESE GENIUS RAGU is also skilled in SHA-256 and can change the information with its hash. Especially if the hash is scribbled right on the board next to its unencrypted original.

That's why, for a better protection, Arun decides not only to encrypt the record itself but to chain it up to the hash from the previous transaction. Now all his following entries depend on the previous ones. If you change one single dot, you will be doomed to recalculate the entire hash cascade tailing below.

Now Arun has a personal linked list.

One day Ragu creeps in at night, changes one of the records and updates hashes for the entire list down to the very bottom. It takes him a great deal of effort, but Arun sleeps soundly and does not know what's going on. In the morning, Arun discovers a perfectly correct list – all hashes match. But he still feels deceived. How else on earth could he protect himself from the nightmare Ragu?

Arun decides to make Ragu's life even more complicated. Now, before adding a new entry to his list, Arun will solve a complex mathematical equation. Then he will chain up the solution to the final hash.

Arun is a brilliant math student. But adding a record takes about ten minutes even for him. However, this time is worth it! If Ragu breaks in again, he will have to solve all the equations for each transaction below. There might be dozens of them. This will make him think twice since each record equations are unique and logically tailored to the original content.

However, keeping an eye on the list is still simple. First, you compare the hashes and then check the solutions of the equations with a simple substitution. If the ends meet, the list was not altered.

In reality, the equations are not always smooth. Computers quickly crack them easily. And where to store tons of unique equations? Considering all that, the blockchain inventors came up with a more elegant task. There should be a number (nonce) which final hash of the entire record would start with 10 zeros. The nonce is difficult to dig up but the result can always be examined simply with bare eyes.

Hashing mini-game

Try this. It's too exhausting to search manually for a hash starting with ten zeros, so let's try to search for the one starting with two zeros. Write anything in the field Nonce. The game stops as soon as the hash of your input starts with two zeros (00).

Put any characters in the field Nonce until their hash starts with two zeros (00):

Nonce:
Hash: bd4aeafc255acfa9df974dd3e68795e6ac7f198856a9d12c922cd0577b6c564f
Attempts: 0

Now smart Arun verifies all hashes and additionally(!) makes sure that each of them starts with a specified number of zeros. Nightmare Ragu, even on a powerful laptop, won't have enough time and patience to calculate all hashes according to the rule.

This financial mechanism invented by Arun is a simple model of the blockchain. Its security is guaranteed by mathematicians. They ensured that hashes cannot be calculated anyhow but by the search for each individual record hash. It is called mining. Let's take a closer look at how it works.

Classics: Centralization of Trust

Our friends liked the idea of keeping a forgery-proof list of "who owes whom". They also do not want to bother themselves remembering who paid for whom at the bar and how much they still owe to each other: everything is written on the board. They discussed ups

and downs of the idea and came to the agreement that now they need to combine one list for all.

But who may be entrusted to run such important bookkeeping? When it comes to money, trust becomes the primary criterion. We would rather not trust strangers with our money. Our ancestors invented the whole banking idea for this very purpose. Later on, it became credible backed by licenses, laws, and insurances of the Central Bank.

Friends trust each other. They choose the most responsible person to do bookkeeping. But what if we deal with strangers? A big city, country, or the whole world, as for instance in bitcoin mining? In this case, no one can trust anyone.

Decentralization: No One Trusts Anyone

So they came up with an alternative approach: everyone keeps the copy of the list. The attacker will not just have to rewrite one list but to sneak into each house and to rewrite everyone's list. Then it turns out that someone kept several lists at home that nobody knew about. This is called decentralization.

The downside of this approach is that in order to make new entries you will have to stay in touch with all other participants and to constantly bend their ears about new changes. However, if the participants aren't humans but even-tempered calculating mechanisms, bothering them ceases to be any problem at all.

There is no single point of trust in this system, and hence no possibility of a bribery or a fraud. All network participants act in accordance with a strict rule: no one trusts anyone. Everyone trusts only personally possessed information. **This is the main law of any decentralized network.**

Transactions

When you buy lunch you may enter your debit card PIN allowing the food chain to ask the bank if you have 5 bucks on your account. In other words, you confirm with your PIN a ₹5 transaction, which the bank confirms or rejects.

Our records like "Lent to Jeff: ₹500" are also transactions. But we have no bank authorizing the person initiating them. How could we verify that Jeff on the sly did not insert into the list a new entry "Gopi owes Arun ₹100,500"?

For this purpose blockchain uses a mechanism of public and private keys, IT people for a long time use them for authorization in the same SSH.

Briefly how this complicated yet beautiful math works: you generate a pair of large prime numbers on your computer – public and private keys. A private key is considered super-secret because it can decrypt what is encrypted publicly. But it perfectly works backward as well: if you disclose the public key to your friends, they will be able to encrypt with it any message addressed to you so that only you as a private key holder can open and read it. Besides, with the public key, you can verify that the data was encrypted with your private key without decrypting the data itself.

We live in the world of the decentralized Internet where no one can trust anyone. A transaction signed with both private and public keys together is sent to a special place –

depository of unconfirmed transactions so that any member on the network could verify that it was you who initiated it and not someone else attempting to steal your money.

This mechanism safeguards openness and security of the network. If in the real world the banks are usually the ones responsible for keeping the money safe, in blockchain this function is delegated to math.

Your public key is the number of your crypto wallet. It means that you can create a wallet for any cryptocurrency without even leaving the network.

Plain users, not interested in learning about private keys, can always get help from online wallet services. Convenient QR codes were invented for the purpose of copying of long public keys.

Absence of Balance

As you could see, both Arun's chalkboard and blockchain consist of transaction history only. They do not keep track of balance in each wallet. If they did, we would have to find additional protective measures.

The wallet holder's identity is verified by the private key alone. But how would other network members know that I have enough money to buy?

Since we do not track the balance, you must prove it. Therefore, the blockchain transaction includes not only your signature and how much you want to spend but also links to the previous transactions in which you received the corresponding amount of money. That is, if you want to spend 400 rupees, you run through all your income and expenses history. You attach the proof of income where you were given $100 + 250 + 50$ rupees to your transaction thereby proving that you have 400 rupees.

Each member of the network will double check that you have not attached the income twice and that you haven't spent those ₹300 that Gopi gave you last week.

In blockchain, these transaction-linked earnings are called inputs, and all the recipients of the money are called outputs. Since one of the outputs will most often be you, the sum of all inputs is rarely exactly the same as you want to transfer at a time. In other words, the blockchain transaction looks like "I received 3 and 2 BTC, 4 BTC out of them I want to spend and the remaining 1 BTC want to send back to myself".

Going a bit forward, you can also specify some little commission for your transaction so that the miners would more actively add it to the blocks. In this case, the miner will get some petty cash, and you'll get a little less change. Mining is discussed in details below.

The good thing about blockchain is that the inputs do not necessarily have to come from the same wallet. Nothing is checked but the key. If you know the private key of all inputs, you can easily attach them to your transaction and pay off with that money. As if you were paying in a supermarket with several cards at once.

However, if you lose your private key, if your hard drive dies or laptop gets stolen, your bitcoins will be locked out forever. Nobody can use them anymore as input for new transactions. This amount will be unavailable to the entire world forever as if you had burned a bundle of banknotes. There is no "bank" on the network where you could drop a

complaint and get a refund for your lost crypto money. And if there were, then the “bank” would have to create a certain additional amount of new bitcoins.

Problem of Double-Spending

I mentioned that transactions are added to a special “unconfirmed transactions depository”. Why would we need some kind of intermediate entity if we sign all our transactions? Why not write them directly into the blockchain?

Because the signal from point A to point B always travels with delay. Two transactions can choose two different paths. The transaction initiated earlier can reach the recipient later as it followed a longer way. That is how **double-spending** occurs. The same amount is sent to two recipients at once. And they do not even know about that! This is not how the regular paper Aruns work.

For a decentralized network where no one can trust anyone, this problem is particularly acute. Here’s how you make sure that one transaction happened exactly before the other one? Ask the sender to attach the dispatch time to it, right? But remember – you can not trust anyone, even the sender. Time on different computers will always vary and there is no way to synchronize it. A copy of the blockchain is stored on every computer on the network that each participant trusts.

So how can you make sure that one transaction was earlier than the other?

The answer is simple: it is impossible. There is no way to confirm the transaction time in a decentralized network. And here comes the third important idea of blockchain invented by Satoshi and called blocks.

Blocks as Blockchain Basis

Each working computer on the network selects any preferable transactions from a common depository. The first choice is usually given to the highest commission offered. The computer collects the transactions until their total size reaches the agreed limit. In Bitcoin, this limit on the block size equals to 1 MB (after SegWit2x will be 2 MB), and in Bitcoin Cash – 8 MB.

In networks like Ethereum, everything is a little more complicated, the number of transactions per block depends on the computational complexity of the included smart contracts. But the idea remains the same – there is a limit.

The entire blockchain, in fact, is a list of blocks, where each one depends on the previous one. It can track any transaction for the entire history unwinding the blockchain down to the very first record. This list weighs hundreds of gigabytes and should be copy-pasted to all participating computers. However, possessing a copy is not necessary to simply create new transactions and transfer the money. It gets downloaded from all nearest computers on the network as if you were downloading a series from the torrents. The only difference is that new series appear every 10 minutes.

After collecting transactions in the depository your computer starts organizing them into the same type of list Arun had on the board. But it’s structured as a tree – hash records go in pairs, the result is paired again, and so on until there is only one hash left – the root of the tree added to the block. I did not find the answer why it should be necessary a tree form, but I guess it’s just quicker. For details, see The Merkle Tree on the wiki.

The tree structure makes it possible to delete unnecessary (spent) transactions from the block. Let's say, there are two transactions joined by a hash, and one or both are no longer needed. All they had is given away by other transactions – so these old ones can be deleted, and their hash can be kept, as the result, nothing gets wrecked in the structure. See [Chapter 7. Reclaiming the Disk Space](#) in Satoshi's article.

Since the **actual blockchain** is already downloaded, our computer knows exactly what its last blocks. Everything it needs is to add a link to it into the header of the block, hash it all and inform the other computers on the network “look, I made a new block, let's add it to our blockchain.”

The others should check that the block is built according to the rules and that we did not sneak unnecessary transactions into it. After that, they add it to their chains. Now when all incoming transactions are verified, the blockchain increased by a block and everything goes well, right?

Not really. Thousands of computers are working on the network at the same time. As soon as they assemble a new unit, they rush to report almost simultaneously that their unit was built first. From the previous section, we know that it is impossible to prove who really the leader was in a decentralized network.

Thus, to add the block to the chain, our computers must solve some complicated problem that would take some of their time.

Like in high school, when a class was solving a serious math problem, the answer was submitted simultaneously on the very rare occasions.

For a human, a complicated task is planning some vacation getaway, for the machine – to add a specific number (nonce) to the end of the block. The resulting SHA-256 hash for the entire block would start with 10 zeros. This particular problem must be solved in order to add a block to the Bitcoin network. Requirements for other networks may vary.

So we come closer to the concept of mining that became so popular in recent years.

Mining

Bitcoin mining is not some kind of sacred mystery. Mining has nothing to do with digging new bitcoins somewhere on the Internet. It's called mining when thousands of computers around the world are buzzing in the basements, grinding millions of numbers per second, trying to pick a hash starting with 10 (or even 16) zeros. They do not even need to be on the network for this.

Video cards with their hundreds of parallel cores solve this problem faster than any CPU.

Why exactly 10 zeros? Just because. There's no point in it. This is what Satoshi offered because this is one of those tasks where there is always a solution. But it certainly cannot be discovered faster than by a long monotonous search of options.

The complexity of mining directly depends on the size of the network, its total capacity. If you create your own blockchain and run it yourself at home on two laptops, then the task should be simpler. You can generate, for example, the hash starting with one zero or the sum of the even bits to be equal to the sum of the odd ones.

One computer will spend decades searching for a hash that starts with 10 zeros. But if you combine thousands of computers into a huge network and search simultaneously, then according to the theory of probability this task will be solved on average in 10 minutes. This is the exact time window for the new blocks to be added to the blockchain. Every 8-12 minutes someone on earth finds a requested hash and gets the privilege of announcing their discovery and thus avoiding the question of who was the first.

To find a correct answer, each computer (according to information of 2017) receives 12.5 BTC – this is the amount of compensation generated by the bitcoin system “from the thin air”. The amount decreases every four years. Technically, it means that each miner always adds another transaction to his block – “create 12.5 BTC and send them to my wallet.” When you hear “the number of bitcoins in the world is limited to 21 million, now 16 million are already being cashed out” – they are mostly spent on the network generated rewards.

Any blockchain exists only while its miners exist.

It is the miners who add the emerging transactions to the blockchain. So if someone tells you that he or she “will make a block for ***”, the first question they should answer is who and why he will be mining there. The most common correct answer is “everyone will be mining because we offer bitcoins for that and the miners’ wallets will grow “. But it does not apply to all projects. For example, if the Ministry of Health creates its own closed blockchain for medical personnel, who will mine it? Therapists on the weekends? But what benefit will miners have afterward, when compensations run out or become too miserable?

According to the Creator’s idea, by that time people will be believing in the reality of bitcoin and mining will begin to pay off with the number of commissions included in each transaction. In 2012, all commissions were zero, miners worked only for rewards from the blocks. Today, a transaction with a zero commission can hang in the pool for several hours, because there is also a competition, and many people are ready to pay for the speed. That means that the essence of mining lies in resolving meaningless tasks. Would it be so impossible to redirect all this enormous power to something more useful, e.g. search for a cure for cancer?

The essence of mining is to solve any computational problem. This task should be simple enough that the network participants have a stable probability of finding the answer. Otherwise, it will take the eternity to confirm those transactions. Imagine that at the checkout in the store you need to wait every time for half an hour until the bank confirms your transaction. Nobody would work with such a bank.

But at the same time, the task should be complex so that all users of the network would not find the answer immediately and at the same time. Because if they do, they will announce a lot of parallel blocks with the same transactions to the network. In turn, will trigger the probability of “double spending” we spoke before. Or even worse – a split-up of the entire blockchain into several branches, where no one longer will tell apart confirmed and confirmed transactions.

If the reward in 12.5 BTC is awarded only once every 10 minutes and only to the one who found the block, it turns out I’ll need to burn my video cards for a number of years thinking that one day I will win ₹ 40,000 (at the current rate)?

This is how bitcoin works. But it was not always like that. Previously, the networks were smaller, the difficulty was lower, and therefore, the probability of finding a hash for a new block single-handedly was higher than now. But also bitcoins themselves were not so expensive.

Today, nobody mines bitcoins individually anymore. Instead, the participants join special groups, mining pools where every miner tries to find the right hash. If someone in the group succeeds the entire reward is split between the participants, depending on the size of their contribution to the mutual work. It turns out that you rush and you lose a penny every week from the total share.

From the other side, individual mining is quite possible on some other networks. Until recently it was easy to mine Ethereum where the blocks are added every 10 seconds. The reward for the block is much lower but the probability of generating some little money is higher.

So even if we burn thousands of video cards and there will be no way out?

Yes, but there are some ideas. I described classic mining called Proof-of-Work here when each machine proves that it worked for the benefit of the entire network by solving meaningless problems with a given probability.

Some guys start building blockchains utilizing other principles of mining. Today, the second most popular concept is **Proof-of-Stake (proof of ownership)***. In this kind of mining, the more coins are gathered by the network participant the better is this alpha's chance to insert his block into a blockchain.

Anyone is free to bring forth other types of mining. As it was suggested, all computers on the network could possibly collaborate on the cancer treatment research with the only difference that you will have to figure out how exactly they are to contribute to the cause. Maybe I could also claim that I was there but with my video card turned off. How to measure each team member's contribution and his effort made towards? You think it up. If you dare to mine your CancerCoin, be ready for the media at your doorsteps.

Blockchain

Imagine a situation when despite all our theory of probability, two miners still found the right answer at the same time and sent two absolutely faithful blocks down the network. These blocks are guaranteed to be different because even if the miners miraculously pick the same transactions from the pool built absolutely identical trees and guess the same random number (nonce), their hashes will still be different since each one of them will still provide his own wallet number for the reward.

Now we have two valid blocks and again there is a problem of whom to consider the winner. How will the network behave in this case?

The blockchain algorithm specifies that the network participants simply accept the first correct answer they receive. After that, they keep playing by their standards. Both miners will collect their rewards, and all the others will start mining, relying on the latter block each one of them personally received, discarding all other correct replicas. That, in turn, creates two absolutely correct blockchains on the same network. What a paradox!

This is a regular situation when probability theory comes again handy. The network will function in such bifurcated state until the time one of the miners discovers the next block

linked to one of these chains. As soon as this block is inserted, the chain becomes longer, and thus one of the blockchain network agreements comes to power: **under any circumstances, the longest chain of blocks is accepted as the only true for the entire network.**

A short chain despite all its correctness is rejected by all network members. Its transactions return to the pool (if they have not been confirmed in the other transaction), and their processing starts from the zero again. The miner loses his reward because his unit no longer exists.

With the growth of the network, such coincidences from “very unlikely” go into the category of “well, sometimes it happens.” Old-timers remember the cases when a perfect chain of four blocks had been discarded with no regrets.

Three blockchain tail security (end of chain insecurity) rules were presented in order to address the above problem:

1. Mining fees can be spent only after 20 more confirmed blocks after they were received. For bitcoin, it's about three hours.
2. If you received bitcoins, they can be used for an input in new transactions only after 1-5 blocks.
3. Rules 1 and 2 are only written in the settings of each client. Nobody watches their observance. But the law on the longest chain will still destroy all your transactions if you try to deceive the system without respecting them.

Trying to Fool Blockchain

Now when you've learned everything about mining, blockchain and the rule of the longest chain, you might have a question: would it be possible to outrun blockchain by building the longest chain on my own, and thereby legalizing all my previous fake transactions?

Suppose you have the most powerful computer on earth! Google and Amazon data centers merged at your disposal and aim collectively at calculating the longest blockchain on the network.

Since you cannot calculate several blocks of the chain in advance because each next block depends on the previous one you decide to count each block as fast as possible on your huge data centers, faster than all other participants in their joined efforts to increase the main blockchain. Would it be possible to outrun them? Probably yes.

If your computing power exceeds 50% of the power of all network participants, then with a 50% probability you can build a longer chain faster than all other network members together. This would be (in theory) a possible way to deceive the blockchain by building a longer chain of transactions. Then all transactions of the real network would be considered incorrect, you would collect your pot of gold and lay yet another cornerstone in the history of the cryptocurrency titled “separation of the blockchain.” It did happen once in the history of Ethereum due to the bug in the code.

But in reality, no data center could be comparable in power to all computers in the world.

One and a half Arunion Chinese with ASICs, another half Arunion of Indians – that is a HUGE computing power. No one in the world can compete with them alone, even Google.

That would be like running out the door and brainwashing every person in the streets that 1 dollar now costs 1 ruble, indoctrinating the entire world before you get busted in the media. If you accomplished all that, you could even cause the global economy to collapse. In theory, it is possible, right? But in practice, for some reason [wink], nobody ever succeeded that far.

This probability bears the entire blockchain concept. The more participants-miners are involved in a network, the more security and trust exist on the network. Therefore, when in China another large mining farm shuts down, the cryptocurrency course collapses. Everyone is worried that somewhere in the world there is an evil genius who has already gathered a mining pool with a whopping ~ 49% capacity.

In fact, it had already happened several times back in 2014, when one of the mining pools temporarily became more powerful than the rest of the network. Luckily, there were no manipulations reported regarding this issue.

Conclusion

Blockchain Beyond Cryptocurrency

Blockchain is not a strictly defined set of algorithms. It is a robust model for building up a forgery-proof decentralized network where no one can trust anyone. I am pretty sure that while you were reading this text, you kept thinking about your own list of possible blockchain applications and how this very idea could be utilized better or socially more responsible. It means that you understand blockchain, I congratulate you.

Some folks worldwide also understood it and decided to improve or adapt it to certain specific needs. Cryptocurrencies aren't everything the world wants even though they get very diverse too. Below is a short list of some ideas and projects gaining a certain popularity due to a rethinking of the concept of blockchain.

CYBER CRIME ANALYTICS

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ABSTRACT

It is the process of protecting systems, networks and programs from digital attacks. Cyber security is the protection of internet-connected systems such as hardware, software and data from cyber threat

KEYWORDS: white-collar crime, data security, authenticity, monitoring, fraudulent user.

INTRODUCTION

Internet is a communication media which is easily accessible and open to all. Information technology is widespread through the computers, mobile phones and internet. There is a lot of scope and possibility for misuse of information technology. Computer systems in general are vulnerable. Special care must be taken explicitly in order to ensure that valuable data do not get into wrong hands. Hence, the need to be protected. A cybercrime is a crime which involves computer and network. This is becoming a growing threat to society.

GUIDELINES

Honesty: users should be truthful while using the internet.

Confidentiality: users should not share any important information with unauthorized people.

Respect: each user should respect the privacy of other users.

Meaning of the word CYBER

It is a combining form relating to information technology, the internet, and virtual reality.

CYBER CRIME

Cybercrime is an intellectual, white-collar crime. Those who commit such crimes generally manipulate the computer system in an intelligent manner.

Example: illegal money transfer via internet.



Some computer crimes:

Malware: malicious programs that can perform a variety of functions including monitoring user's computer activity without their permissions. It's malicious software which is especially

designed to disrupt or damage computer systems. It is used for stealing the money, extracting personal passwords etc.



Harvesting:A person or a program collects login and password information from a legitimate user to illegally gain access to others accounts.

Spam:distribute unwanted e-mail to a large number of internet users.

Software piracy:

Software piracy is “unauthorized copying of software”. An entirely different approach to software piracy is called **shareware**. It publishers encourage users to give copies of programs to friends and colleagues but ask everyone who uses that programs regularly to pay the registration fee to the program’s author directly.



Hacking: Hacking is intruding into a computer system to steal personal data without owner’s permission or knowledge. Hacking may be harmless if the hacker is only enjoying the challenge of breaking systems defences, but such ethical hacking should be practiced only as controlled experiments.



Cracking:Cracking is where someone edits a program source so that the code can be exploited or modified. A cracker is a malicious or criminal hacker. Crackingmeans trying to get into computer systems in order to steal, corrupt, or illegitimately view the data.



CYBER CRIME ANALYTICS

Security analytics, also known as cyber analytics, uses both current and past data to find threats. Because it permits a more proactive approach, it is more advanced than traditional security or older security information and event management (SIEM). Instead of waiting for an attack to occur, teams can monitor activity and create plans to defend against unauthorized access.



CYBER SECURITY

Cyber security is a collection of various technologies, processes and measures that reduces the risk of cyberattacks and protects organizations and individuals from computer threats.

The term cyber security is used to refer to the security offered through online services to protect your online information. With the increasing amount of people getting connected to internet, the security threats that cause massive harm are increasing also.

Cyberattacks: cyberattacks are launched primarily for causing significant damage to a computer system or for stealing important information from an individual or from an organization.





TYPES

Viruses: a virus is a program that is loaded onto your computer without your knowledge and runs against your wishes. It is a small piece of computer code that can repeat itself and spreads from one computer to another by attaching itself to another computer file. Common virus, TROJAN it is a program that appears to perform one function but actually performs malicious activity when executed.



TROJAN HORSES

These are email viruses that can duplicate themselves, steal information, or harm the computer system. These viruses are the most serious threat to computers.



HOW TO AVOID TROJANS?

Security suites, such as AVAST internet security, will prevent you from downloading TROJAN HORSES.

Worms: worms are self-repeating and do not require a computer program to attach themselves. It is continually look for vulnerabilities and report back to the author of the worm when weaknesses are discovered.

Spyware: spyware can be installed on the computer automatically when the attachments are open, by clicking on links or by downloading infected software. It is a malware the hackers

use to spy on you in order to gain access to your personal information, banking details, or online activity. We should protect ourselves by an anti-spyware tool.



Ransomware: ransomware is as scary as it sounds. hackers use this technique to lock you out of your devices and demand a ransom in return for access.

Ransomware puts you in a critical situation it is best to know how to avoid it. It is a malicious program that demands payment after launching a cyber-attack on computer system.



CYBER SECURITY THREATS

In the recent years, most of the individuals and enterprise are facing problems due to the weaknesses of inherent in security systems and compromised organizational infrastructures



Types:

- Phishing
- Pharming
- Cookies
- Firewall and proxy servers

Phishing:

It is a type of computer crime used to attack, steal user data, including login name, password and credit card numbers etc, through the emails. It is a fraudulent attempt, usually made through email, to steal your personal information.

It is an attempt to obtain sensitive information such as username, password, and credit card

details, often for malicious reasons through an electronic communication.

A common online phishing scam starts with an email message that appears to come from a trusted source but actually directs recipients to provide information to a fraudulent website.



Pharming:

Pharming is a scamming practice in which malicious code is installed on a personal computer or server, misdirecting users to fraudulent web sites without their knowledge or permission. It has been called “phishing without a trap”. It is another way to manipulate users on the internet. It is a cyber-attack intended to redirect a websites traffic to a fake site.



Cookies:

A cookie is a small piece of data sent from a website and stored on the user’s computer memory by the user’s web browser while the user is browsing internet.



Websites use cookies for the following reasons:

1. To collect demographic information about who has visited the website.

2. Sites often use this information to track how often visitors come to the site and how long they remain on the site.

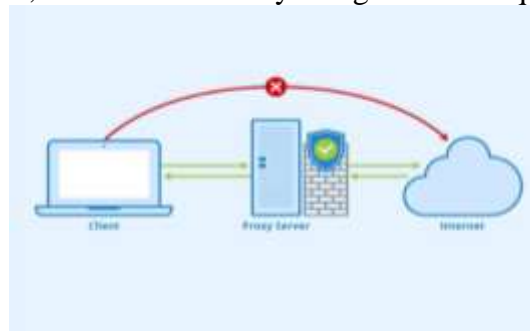
Firewall and proxy servers:

A firewall is a computer network security system that monitors and controls incoming and outgoing network traffic based on predefined security rules. A firewall commonly establishes a block between a trusted internal computer network and entrusted computer outside the



Network.

A proxy server acts as an intermediary between the end users and the web servers. The proxy server examines the request, checks authenticity and grants the request.



NEED OF CYBER SECURITY:

Cyber security is necessary since it helps in securing data from threats such as data theft or misuse, also safeguards your system from virus.



ADVANTAGES OF CYBER SECURITY:

- a) Security will defend from hacks and virus
- b) The application of cyber security used in our pc needs update every week
- c) The security developers will update their database every week once.
- d) Hence the new virus also detected.

Tips:

- e) Always use the latest and update antivirus software.
- f) Never send your credit card number to any site that is not secured.
- g) Always keep back up volumes so that one may not suffer data loss.
- h)

BENEFITS OF CYBER SECURITY:

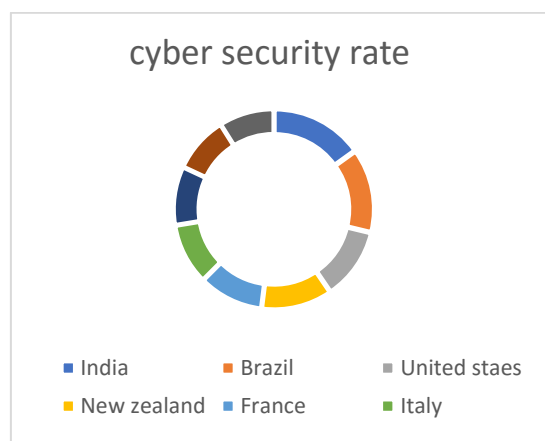
- i. Data protection
- ii. Preventing financial fraud

- iii. Protection of intellectual property
- iv. Prevention of fraud through financial transactions like wire transfers etc.



DISADVANTAGES:

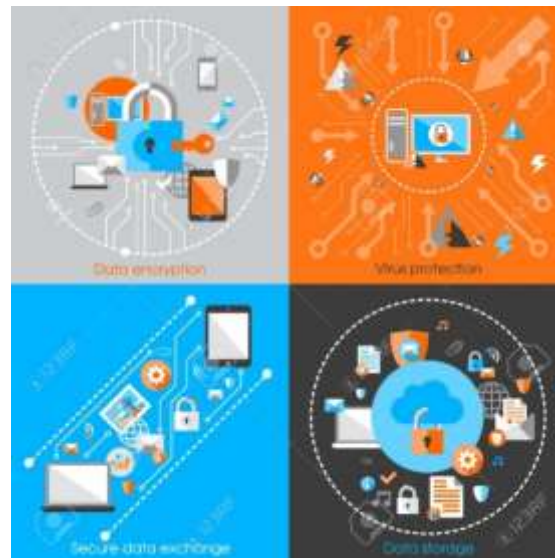
- It was expensive; most of the users can't afford this
- A normal user can't use this properly, requiring special expertise.
- Lack of knowledge is the main problem.
- It makes the system slower.
- It was not easy to use
- The need for constant monitoring.



ELEMENTS OF CYBER SECURITY

1. Application security
2. Information security
3. Network security
4. Disaster recovery planning

5. End-user security or education
6. Operational security
7. Business continuity planning
8. Leadership commitment



INFORMATION TECHNOLOGY ACT:

In 21st century there is a e-revolution this changed the lifestyle of the people. Apart from positive side there is also negative side of computer, that is the internet and ICT in the hands of criminals. To tackle the problems of cybercrimes cyberlaw or cyber space law or information technology law or internet law were introduced.

In India cyber law and IT act 2000 is an act to provide legal recognition for transactions carried out by means of Electronic Data Interchange (EDI) and other means of electronic communication.

It is a primary law in India dealing with cybercrime and e-commerce is a electronic data exchange or electronic filling of information.

PREVENTION:

25% of cybercrime remains unsolved. To protect the information the following points are to be noted:

- Complex password setting can make your surfing secured.
- When the internet is not in use, disconnect it.
- Do not open spam mail or emails that have an unfamiliar sender.
- When using anti-virus software, keep it up-to-date.



CYBER CRIME ANALYTICS STATISTICS

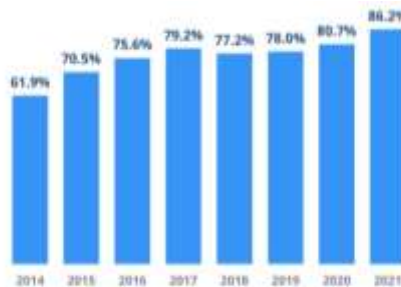
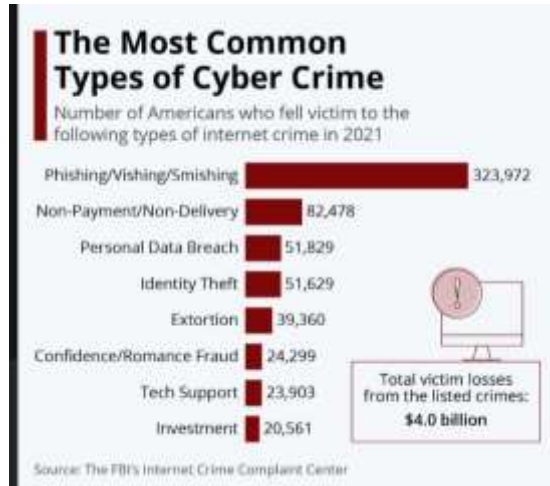


Figure 2: Percentage of organizations compromised by at least one successful attack.



CONCLUSION

Cyber security has an advantages and disadvantages. But if everyone will not handle the problem of cyber security effectively this may lead lot of problem to people and themselves. That is why cyber security requires the greatest amount of focus, research, inventiveness and action.



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WEB ANALYTICS

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ABSTRACT

Web analytics is the technology and method for the collection, measurement, analysis and reporting of websites and web applications usage data. Web analytics has been growing ever since the development of the World Wide Web. It is used to measure many aspects of direct user-website interactions, including number of visits, time on site, click path, etc. The fundamental goal of web analytics is to collect and analyze web traffic and usage patterns. The most basic measure is a page view, which is a single request for a web page. There are two major methods to collect usage data: web server logging and page tagging. Additional data, such as HTTP headers, process id, scripts, request rewrite, etc., can be logged in proprietary formats or Extended Log File Format. Web analytics largely depends on the use of cookies for data collection and transmission to the server. Web analytics is a field of web traffic data collection and analysis.

INTRODUCTION

Web analytics is the technology and method for the collection, measurement, analysis and reporting of websites and web applications usage data. Web analytics has been growing ever since the development of the World Wide Web. It has grown from a simple function of HTTP (Hypertext Transfer Protocol) traffic logging to a more comprehensive suite of usage data tracking, analysis, and reporting. The web analytics industry and market are also booming with a plethora of tools, platforms, jobs, and businesses. Web analytics technologies are usually categorized into on-site and off-site web analytics. On-site web analytics refers to data collection on the current site. It is used to effectively measure many aspects of direct user-website interactions, including number of visits, time on site, click path, etc. This chapter provides an overview of on-site web analytics, with a focus on categorizing and explaining data, sources, collection methods, metrics and analysis methods.

DATA COLLECTION AND ANALYSIS

The fundamental goal of web analytics is to collect and analyze web traffic and usage patterns. The most basic measure is a page view, which is a single request for a web page. Count of user actions such as mouse clicks can also be used as a measure. Various metrics are calculated based on basic measures and dimensions. Both measurement data and dimensional data come from a number of sources, which can be categorized into the following 4 types:

1. Direct HTTP request data
2. Application level data sent with HTTP requests
3. Network level and server generated data associated with HTTP requests.
4. External data.

□ An HTTP request consists of a request command (the first line) and HTTP headers. The request command includes the required URI (unified resource identifier) information

□ . A URI generally includes a host's domain or IP and a directory path. If the host information is not included as a part of the URI, then the "host" header has to be provided

□ . The URI is the key information that leads to the count of a page/resource views. HTTP headers are pairs of field names and values. HTTP 1.1 specification defines a set of headers that can be included. These headers describe request and client characteristics. Most of the header data are dimensional type of data used in web analytics.

□ User-Agent field holds client information such as browser type and operating system type. This information can be used to profile client technologies.

□ Referer (not “referrer”) field keeps the previously visited URL that leads to the current URL. This header can be used for the click stream analysis where user visiting paths can be constructed by chaining a serial of requests. It also can be used for metrics like entry rate, exit rate, etc.

□ Accept-Language field contains the list of natural languages that are preferred in the response.

The list is determined based on the OS default locale. This can be used to track user’s language,

e.g. en, en-US, es (Spanish), zh-cn (China).

□ Cookie field holds application level information stored at the client side. This can hold various

kinds of data that is beyond HTTP’s role, such as keyboard and mouse actions. Application level data is generated and processed by application level programs (such as JavaScript, PHP, and ASP.Net). Some common examples are: Application level data is usually embedded in HTTP requests. There are three common places to hold this information. First, they can be appended to a request URL as URL parameters. Server side programs can parse these parameters. For example, Google uses specifically constructed URLs in their search results to redirect users to the target while capturing extra information . Second, application data can be sent as the HTTP cookie header. Cookies are small text files that usually store user profile and activity data. The type of data that can be stored is directly determined by the client software and settings .Third, application data can also be included in the HTTP request body when an HTTP “POST” method is used (common for form submission).

CONCLUSION

Web analytics is a field of web traffic data collection and analysis. It had gained wide adoption and become one of the important tools to help web application management and business analysis. With the recent Web 2.0 and cloud service advancements, it has quickly evolved from simple system level data logging to more comprehensive information collection and analysis. With the continuing expansion of data sources, Web/digital analytics will play an even more important role in the future.

MARKETING ANALYTICS

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ABSTRACT

Marketing analytics, the name indicates the data analytics used for studying,evaluating and predicting trends in marketing within the consumer market place.the digital platforms expansion and the existing success observed in digital and online marketing has made marketing analytics a must for all organizations aiming at maintaining significance in this technological field. With the help of implementing and embracing the different tools of marketing analytics the marketers can answer number of questions. Marketing analytics is a tool that used for collecting information regarding the use of a particular website, along with using that data in a way that assists in providing measurements associated with the web traffic. These measurements provide a no. of benefits to marketers. Each data area can be used in addition to other collected data or on its own for predicting customers future behavior and providing insight into the best manner for enhancing the customer experience. This paper is focused on different techniques of marketing analytics.

KEYWORDS: Marketing analytics, tools

INTRODUCTION

Marketing is the process of getting potential clients or customers interested in your products and services. The keyword in this definition is "process." Marketing involves researching, promoting, selling, and distributing your products or services.

This discipline centres on the study of market and consumer behaviours and it analyses the commercial management of companies in order to attract, acquire, and retain customers by satisfying their wants and needs and instilling brand loyalty.

Marketing Analytics is a broad range and is an essential tool or strategy that is used to unlock the customer's relevant insights, increase the ROI (Return on Investment), profitability, and to make the brand perception popular among the audience or the end-users. If you wish to learn more concepts, take up this marketing analytics course for free from Great Learning.

Another important aspect of marketing analytics is that you can convert the business to a profitable means, by implementing the right analytics, by discovering new areas of development, uncovering unknown markets, new end audiences, and areas of future marketing, and much more. *Data-backed* customer insights can be used to enhance marketing efforts at every stage of the process, and one of the most effective tactics is using analytics along with other business inputs and relative techniques.

Many Marketing life cycle techniques are used. But, in our case, we are going to see the most predominant one which is being used widely by firms. We will be seeing how the Marketing analytics are implemented or imputed into each stage. The following life cycle is a prominent and interrelated one. It goes as a one large continuous loop.

History of Marketing Analytics

It didn't take long after the printing press was invented for marketing ads to appear. But it wasn't until 1865, when the banker Sir Henry Furnese described beating his competitors by analysing his own marketing and promotional techniques, that the term *business intelligence* entered the public domain. Fifty years later, the University of Pennsylvania introduced the world's first marketing course. In 1942, when television ads began running, businesses knew there was value in determining which ads were converting viewers into customers.

The advent of the internet sped up the evolution of marketing analytics. Marketers began using digital attribution models to examine consumer behavior on a more granular level. These models measured the value of each consumer touch point to determine where and when a person engaged most meaningfully with a brand. Multitouch attribution soon followed, allowing marketers to analyze a consumer's path along multiple devices and channels.

Today, marketing analytics is a common practice at most businesses. In fact, more than 80% of marketers say most of their decisions today are data driven. The abundance of data combined with the accessibility of powerful analytics tools has made it possible for marketing teams to evaluate every aspect of their digital marketing campaigns, giving businesses what is commonly described as a 360-degree view of the customer.

Why Marketing Analytics is necessary for your business

- With the exact market trends and purchase, the behaviour is two major parameters in designing a campaign. Every single trend can add to the effectiveness of a campaign.
- It gives you a thorough analysis of your campaign and shows whether a campaign is likely to score or not from the investment standpoint.
- With the help of marketing trends, it easily predicts the future result effortlessly.
- In Search Marketing, keywords act as a yardstick of analyzing the mindset of the customers. Analytics help you choose the right targeting keywords for optimizing your campaign by

Customer surveys – You can easily draw comparative precedence of competing interests by keyword frequency data analysis.

Industry trends – Understanding and forecasting trends become easier with Marketing Analytics.

Product design – It's necessary service/solution to understand what exactly people want from a product. Keywords will help you in detecting what people want. After all these evaluations of Marketing Analytics, Marketers are often found confused about how and where to start with Marketing Analytics tools?

The availability of search engines, search engine marketing, search engine optimization and paid search promotions it is easy to incorporate marketing analytics in your business operations.

There are plenty of Marketing Analytics tools available in the market for business support. Here are some best-performing tools spur the efficiency of implementing Marketing Analytics in your business.

DIGITAL MARKETING ANALYTICS

Digital marketing analytics is defined as the translation of customer behavior into actionable business data. Digital marketers collect customer data, use digital marketing analytics tools to examine this data, and identify patterns that inform future marketing strategies. According to SocialMediaToday, "Analytics tell you what you're doing right, and what you're doing

wrong. What's working and what's not working on all facets of your marketing, from social media to content to email marketing. If you're not measuring you're guessing."

The Future of Digital Marketing Analytics

What is the future for digital marketing analytics and how will it continue to shape the way businesses interact with their customers online? The first consideration is the evolution of data and analytics. Data science and machine learning are forcing marketers and advertisers to remain agile. New technologies are emerging such as AI-assisted algorithms and blockchain-enabled data storage. How do these innovations affect digital marketing analytics?

1. Digital Marketing Analytics and Artificial Intelligence

When sci-fi movies of the past envisioned robots taking over, they probably didn't picture AI algorithms taking over tech jobs in Silicon Valley. AI's primary presence in digital marketing analytics is its ability to quickly interpret and act on large sets of data.

This means that AI algorithms are able to turn mass amounts of unorganized data and create actionable insights. The capabilities of these AI formulas are in their infancy and are expected to evolve significantly over the next few years. In the future, digital marketing analytics will rely heavily on AI due to its accuracy, speed, and increasingly advanced ability to track, predict and alter customer behavior online.

2. Digital Marketing Analytics and Personal Digital Assistants

Hey Alexa, what's the future of digital marketing analytics and personal digital assistants? Alexa, Google Home, and other personal digital assistants are mini AI robots that live in your house to learn your preferences, help you search inquiries and even order items of your choice.

Although personal digital assistants are ever-present, they're expected to become increasingly popular; the market size was valued at USD 2,166.0 million in 2019 and is expected to grow at a compound annual growth rate of over 33% throughout 2020-2025. These PDAs collect data throughout the day and will be essential for data analysis of consumer behavior. Digital marketing analytics experts will see PDAs as valuable sources of information in creating customer profiles.

3. Digital Marketing Analytics and Chatbots

Chatbots are powered by AI and enable better customer service on a website. Website visitors can ask questions, resolve issues and be redirected without having to contact a real-life customer service representative. How is this relevant to digital marketing analytics? Digital marketers can begin to collect and analyze chatbot data to determine the frequently asked questions visitors have on their site or common pain points. Chatbot data can help marketers enhance on-site UX.

4. Digital Marketing Analytics and Voice Search

Personal digital assistants, mentioned in point two, raise yet another novel technology for digital marketers' consideration: voice search capability. At present, the primary form of search engine optimization (SEO) revolves around what users are typing into the search bar online.

Voice search is a new avenue that will be increasingly present in digital marketing analytics. Not only do people voice search through PDAs, but they also ask their smartphone queries. The way people type and talk differs, meaning popular search queries could change. Digital marketers will need to analyze verbal long-tail keywords and tailor their content to match this new formula.

5. Digital Marketing Analytics and Influencer Marketing

Influencer marketing is expected to change drastically in the future. According to Social Media Today, “Today’s largest group of consumers - Millennials and Gen Z - prioritize authenticity above all else when choosing which brands they support and their trust in traditional influencers is at an all-time low.”

This means that organic influencer marketing will continue to take off. Organic influencer marketing is when influencers promote a brand without being paid or swayed to post a promotion simply because they use and enjoy the product or service.

Marketing and advertising agencies will be using real people and less celebrities or athletes to promote their products and services. Digital marketing analytics will continue to track this trend and capitalize on the trend by creating content that prioritizes authenticity.

6. Digital Marketing Analytics and Virtual Reality

Virtual reality has primarily been used for entertainment, with the introduction of VR goggles, but in the future, it could be used for much more. In fact, VR is expected to reach 98.4 million sales by 2023 with a population penetration of 2% worldwide, according to Forbes. Innovative marketing strategies could use VR to engage in immersive brand storytelling.

Marketers could even showcase their products in an immersive VR experience and track real-time biological reactions from their customers. This means digital marketing analytics could take behavioural analysis offline. Brands are already offering similar experiences. VR is already being used in a healthcare setting to help patients with anxiety disorders and phobias face their fears in an augmented reality.

VR is also being used to help enhance the education experience by creating virtual classrooms and even virtual tours through museums and art galleries. VR experiences will become ever-present in the future of digital marketing analytics.

Problems /disadvantages in Marketing Analytics

59% of businesses say that one of their biggest challenges is managing outdated, irrelevant, and inconsistent analytics data.

Unguaranteed Success

A market analysis does not guarantee an accurate diagnosis of a market. It merely analyses a fragment of the market covered in the research, which would not be a fair representation of the whole market. It may not also be possible to have a single market analysis covering all the parameters in the market such as price, demand and consumer preferences.

Data Misinterpretation

Data misinterpretation from a market analysis can be detrimental to your marketing campaign. It can lead to wrong marketing decisions or create unrealistic financial projections. Therefore, before making decisions based on the information gathered from a

market analysis, you should seek the advice of a professional market analyst. The analyst can identify any pitfalls and help you avoid an inept marketing strategy based on a flawed analysis.

Inappropriate Data Collection Methods

Inappropriate data collection methods can lead to inaccurate information. For example, using questionnaires to retrieve data can be unfruitful when you construct questions in the wrong way. The structure of the questions can influence the response from the respondents, which would make the market analysis invalid. Poor data collection also occurs when using interviews if an interviewer is biased. A respondent's perception of the interviewer can also affect his responses toward the questions.

Huge Expenses

Market analysis is financially taxing because it involves expenses such as data collection, processing and hiring of market analysis experts or research agencies. Such costs can be discouraging and unnecessary. A small business may not have adequate resources to hire experts and conduct a comprehensive market survey. Therefore, small firms may opt to use secondary data, which is not customized to their marketing needs.

Types of Marketing Analytics Tools

1. Event-Based Tools

Commonly known as 'Click Analysis' this is an important tool for online marketing. This tool observes the performance of things that matter the most to a business such as a shopping cart i.e. a necessary element for an e-commerce website. This tool tracks user performance on both the website and app.

The capacity of marketing tools is wide-ranging. For floating offers through different devices and channels these tools are extremely useful.

There are some event-based tools which observe the collection of marketing data like website analytics tools, app analytics tools, marketing analysis and data performs. Here is the list of some of the best event-based marketing analytics tools

1. MixPanel – Tracking different events through the website and mobile apps are the prime functions of this analytics tool. You just have to make sure what you want to track, MixedPanel will handle the rest. It was originally created for product management and it can solve the marketing purpose as well. The basic package is available at \$99 per month which can be increased as per the advancement of business needs.

2. Heap Analytics – Despite being a new kid in the block, the performance of Heap Analytics is unquestionable. Like MixPanel Heap Analytics too can track well the actions on websites and mobile apps. Preference can be manually set, rest you can leave on this marketing analytics tool. You can also create a lead funnel using Heap Analytics. Additionally, you can review the analytics report to evaluate and enhance your campaigns.

3. Oribi – Easy-interface makes Oribi stand ahead of the competitors. The user-friendly attribute is purposely designed to make it serve real-time data-driven decision. There is no need for manual adjustment as it can track actions on website and mobile apps automatically. Even there's a minor modification in the website, Oribi tracks and points out in the dashboard. The subscription charges are \$79 (monthly) or \$799 (annual).

4. KissMetrics – This is one of the top slot holders amongst the marketing analytics tools. It tracks your website activity effortlessly and helps you with an accurate analytics report so that you can boost your audience engagement on the website. It also highlights the impact of changes that you probably bring in your website thereby fine-tuning the outcome.

2. Testing Tools

Marketers use this tool to test multiple alternative methods of marketing and messages.

Testing is one of the pivotal parameters of marketing to let you know the real impact on your audience which can be used for collecting exact data. In the business world, there is no place for a hunch, data holds a louder voice than branding ideations.

These tools can enrich your contact list through varied channels like emails, push notifications, in-app notifications, and even through web-hook. Here are some AB testing tools used by marketers:

1. Optimizely – For testing multiple variants of any page and element related to the website this is one of the best-used apps. The analytics report will further help you decide which alternative would bring the best result against your marketing tactics.

This is how you can test multiple options for your website and pinpoint the best one that works according to your marketing goals.

2. VWO – Visual Website Optimizer aka VWO performs alike Optimizely. It also helps you choose the right alternative out of the whole slew. However, the best feature of this marketing analytics tool is a visual editor. It enables you to create and tweak alternatives and thus finding the best one.

3. Visual Behaviour Tools

These tools make a count on how much time a user spends looking at his/her device screen. This influences data collection while using cursor movement as a proxy. This is how you can practically segregate the data based on the scrolling down by the user.

This data is crucial for the marketers as they can reorganize their interfaces so that they can bring positive changes in their marketing efforts. Following are the best marketing analytics tools in this segment-

1. Hotjar – Hotjar has many marketing analytics features that you can use for making your campaigns scoring. Here are some of the prime features of this tool- Feedback from polls, lead conversion funnel analysis, surveys and registration form analysis.

It gives you a data visualization process which you can use to track user visit and user behaviour on your website.

2. Crazyegg – Similar to Hotjar Crazyegg too offers a heatmap regarding how people are taking actions on your website which include scrolling navigation, clicking numbers, scrolling pattern and so on.

The analysis report is extremely information-rich can be used for strategic ROI optimization.

4. Digital Marketing Analytics Tools

Collecting data from various advertising channels is the key role of this marketing analytics tool. They can be categorized into 5 groups-

Search Engine Optimization tools which monitor how a website is performing on the search bar.

Social media analytics tools which take care of the user behaviour on a particular product and overall brand performance on several platforms.

Search Engine marketing tools which guide marketers in perking up their performance over the rivals.

Display ad platforms allow marketers to brush up their success rates.

Predictive-scoring model platforms help marketers to attract audience attention and prospects based on purchase behaviour or brand fascination.

These are some tools to predict such prospects-

(i) Google Search Console

(ii) MozPro

(iii) SEMrush

(iv) Google Analytics

5. Marketing Dashboard Tools

Data collecting and data consolidating would be the perfect aspects to define the functionality of these tools.

From a marketing perspective, data consolidation is a must-requisite. Not only it saves a lot of time consumption, but also the unification of data prohibits duplicity. Brands can easily reach and resolve their customers' queries through the integrated data and much-organized dashboard.

These tools are helpful for those who love to maintain simplicity in their business operations. Dashboards also refresh data automatically which are supposed to be removed from the excel sheets. Here are some top-rates Marketing Dashboard Tools-

1. Cyfe – Multiple data deriving from varied marketing tools can be monitored from a single dashboard through Cyfe. Cyfe can track data from social media platforms effortlessly. Marketers who are keen on experimenting with multiple data influence on a single dashboard, this tool is a perfect choice for them.

2. Klipfoli – Klipfoli helps you build your own dashboard with all marketing data analysis of your requisition. You can manually add the data showing up from multiple tools on this dashboard.

TECHNIQUES

1. Marketing mix modelling

Marketing mix modelling (also known as media mix modelling or MMM) is a marketing analytics technique that uses big data and statistical analysis to assess the performance of your marketing campaigns across different channels.

MMM uses a statistical technique known as multiple linear regression, which seeks to find a relationship between a dependent variable and two more or independent variables. In MMM, the dependent variable is the volume of sales (or some other performance metric), and the independent variables represent different elements of a marketing campaign.

In particular, MMM is concerned with four different types of factors, known as the “four Ps”:

- **Product:** The selling points and benefits of the product or service itself.

- **Price:** The price point at which the product is offered, as well as any discounts or promotions.
- **Promotion:** The method(s) by which the product was promoted, including special offers, email newsletters, and social media campaigns.
- **Place:** The channel(s) in which the product is marketed and sold (e.g. online, in stores, by mail).

2. Demand forecasting

Demand forecasting is a marketing analytics technique that attempts to predict future demand for a product or service, based on historical sales data or market analysis. The most common form of demand forecasting is time series analysis, which examines past sales in order to identify cycles and trends that are likely to reoccur in the future.

While it's important for all parts of the business, demand forecasting is particularly important for your marketing team. By making more accurate forecasts, you can better plan your future marketing campaigns. For example, determining the best time to launch a new product, or holding sales during times of sluggish demand.

3. Competitor analytics

Regardless of your own marketing strategies, it's always a smart idea to keep an eye on your competition. The goal of competitor analytics is to obtain more accurate information about your business rivals' internal operations.

Competitor analytics is a marketing analytics technique that can help you answer questions such as:

- What is the unique value proposition of our products and services that differentiates them from those of our competitors?
- What are the strengths and weaknesses of our competitors' products? Can we take advantage of these weaknesses to attract customers away from them?
- Are there any markets, customer segments, or product categories that are currently underserved by our competitors? Can we distinguish ourselves by entering these new markets?
- How successful was our competitor's previous marketing campaign? Can we replicate any elements in our own campaigns?

4. Unmet needs analytics

Unmet needs analytics is a marketing analytics technique that's complementary to competitor analytics. Rather than trying to find the fatal weaknesses of your competitors, unmet needs analytics seeks to find weaknesses in your own products and marketing strategies.

There are a variety of ways to perform unmet needs analytics, including:

- **Data from customer support and technical support.** These records can help you identify customers' most common complaints, requests, and issues, which you can potentially use to build a better product.
- **Interviews with the sales team.** Your sales representatives have a great deal of insight about the behaviours and motivations of your target audience. This may include the reasons why some prospective customers are reluctant or

unwilling to purchase your products, or what attracts them to your competitors.

- **Focus groups and customer interviews.** Sitting down face-to-face with your customers gives you information straight from the horse's mouth: what problems they face, how they choose a solution, and what features they'd like to see. Skilled interviewers can even tease out subconscious thoughts that your customers weren't aware of.

5. Pricing analytics

Pricing analytics is a marketing analytics technique that measures the effectiveness of your pricing strategy and seeks to calculate the optimal prices for your products and services.

The successful application of pricing analytics can dramatically improve your company's profitability and market share. According to Deloitte, pricing analytics can increase profit margins by 2 to 7 percent in just 12 months, with an ROI above 200 percent.

Setting the optimal prices for your products depends on a variety of interlocking factors: the price sensitivity of your customers and prospective customers, your competitors' pricing strategies, and broader economic conditions, just to name a few.

6. Market size analytics

If your pricing analytics results aren't turning into profitability, there may not be a sufficient market for your products and services. To prevent this issue in the first place, there's market size analytics: a marketing analytics technique that examines the plausibility of a given business model.

Market size analytics looks at factors such as:

- The number of customers who would be interested in your business.
- The potential demand for your business proposition, as measured in the number of units sold, the total value of all sales, or the sales frequency.
- The status of competitors and potential competitors in the market.
- The growth potential for your business model.

By applying market size analytics, you can successfully identify the most promising areas for future expansion—or save yourself an expensive investment that won't pan out in reality.

How marketing analytics works

Marketing analytics requires more than just flashy tools. Marketing teams need a strategy that puts all their data in perspective. Here's how marketing analytics works for most organizations.

1. Identify what you want to measure

Define exactly what you're hoping to accomplish through your marketing. Start with the overall goal of your marketing strategy, then start drilling down into specific campaigns and marketing channels. Metrics can include return on investment, conversion rate, click rate or

brand recognition. You also want to define benchmarks and milestones along the way that will help you evaluate and adapt your marketing techniques.

2. Use a balanced assortment of analytic techniques and tools
To get the most benefit from marketing analytics, you'll want a balanced assortment of techniques and tools. Use analytics to:

- **Report on the past.** By using techniques that look at the past, you can answer questions such as: What campaign elements generated the most revenue last quarter? How did social media campaign A perform against direct mail campaign B? How many leads did we generate from this webinar series vs. that podcast season?
- **Analyse the present.** Determine how your marketing initiatives are performing right now. How are customers engaging with us? Which channels do our most profitable customers prefer? Who is talking about us and where?
- **Predict or influence the future.** Marketing analytics can deliver data-driven predictions that help you shape the future. You can answer questions such as: How can short-term wins be moulded into loyalty? How will adding more sales representatives in underperforming regions affect revenue? Which cities should we target next?

3. Assess your analytic capabilities, and fill in the gaps

Marketing analytics technology is abundant so it can be hard to know which tools you really need. But don't start there; start with your overall capability. Assess your current capabilities to determine where you are along the analytics spectrum. Then start identifying where the gaps are and develop a strategy for filling them in.

4. Act on what you learn

Using data is one of the greatest challenges facing marketing professionals these days. There's just so. Much. Data! That's why Step 1 is so important: If you know that what you're currently doing isn't helping you reach your goals, then you know it's time to test and iterate.

Applied holistically, marketing analytics allows for more successful marketing campaigns and a better overall customer experience. Specifically, when acted upon, marketing analytics can lead to better supply and demand planning, price optimization, and robust lead nurturing and management – all of which leads to greater profitability.

Chief marketing officers (CMOs) spend around 6.5% of their marketing budgets on analytics.

28% of marketers say their marketing analytics data helps them to measure the performance of their campaigns more effectively.

38% of businesses say that data analytics is among their top five biggest issues, while 21% say

it's the single most effective way to obtain a competitive edge.

54% of companies that extensively use marketing analytics end up with higher profits than average.

Marketers who use five or more tools in a marketing analytics stack are 39% more likely to see overall marketing campaign improvement.

37.7% of CMOs say they use marketing analytics in their projects before a decision is made.

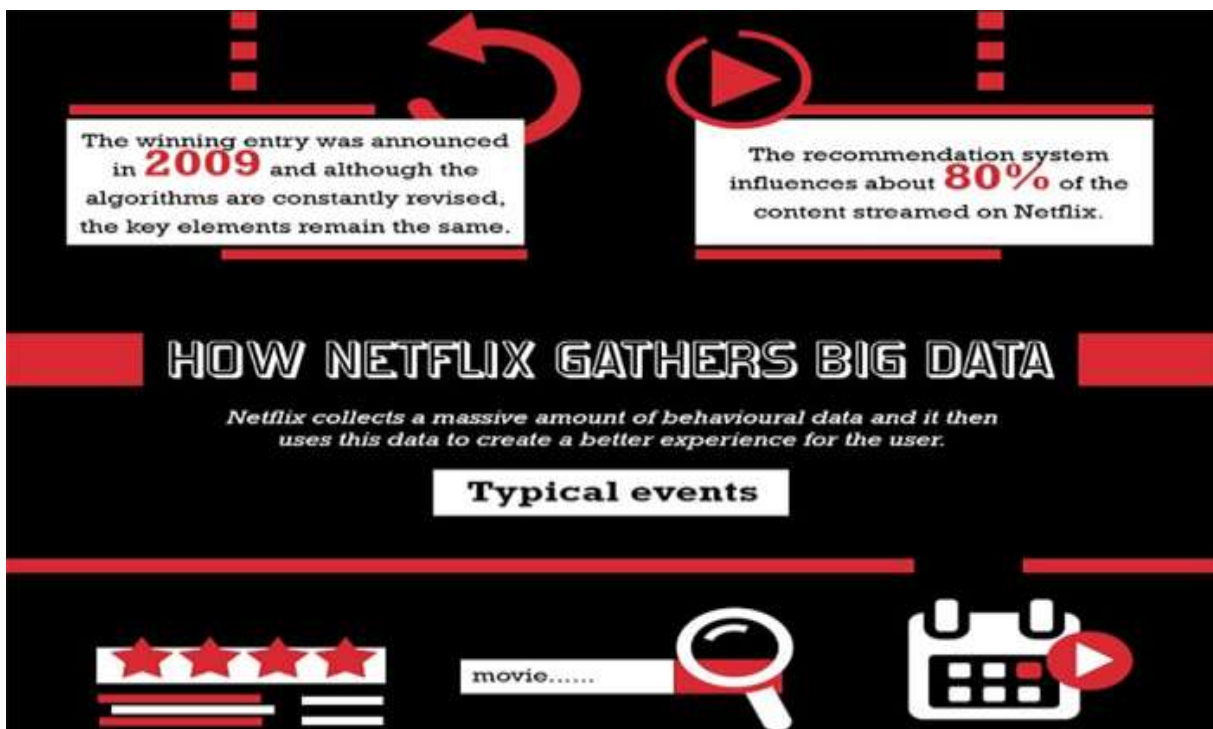
Marketing Analytics Examples

Amazon Fresh and Whole Foods



This campaign is one of the best Marketing Analytics Examples that showcase how analytical data helped Amazon gauge how customers purchase groceries. It also updated the company about how suppliers would do their interaction with the grocer.

Netflix use of Marketing Analytics for Target Adverts:



Netflix used the analytics data to find out specific inclinations of their audiences. Accordingly, company sent emails to their subscribers about the programs that would be best fit for them.

These marketing analytics examples facilitate the smooth operation of an online marketing campaign. Online marketing campaign depicts how the online appearance of your site is and that is solely responsible for how your website fares among the users.

CONCLUSION

Overall, marketing analytics is extremely crucial for the business to see where they stand in terms of trends and their marketing strategies ; it allows them room for growth and the opportunity to generate more revenue. Data analysis is extremely important from start to finish when trying to determine your target market. Social media is a great way to get a first hand response as well as consider who the demographic is and what areas needed more work. Social media platforms can also be used to help determine which product have the potential sell as well as those who do not; from there on, analytical tool such as google analytics can be used to determine how a business marketing plan is planning out . marketing analytics, as suggested by the name, indicates the data analytics used for studying,evaluating and predicting trends in marketing within the consumer market places. The digital platforms expansion and the existing success observed in digital and online marketing has made marketing analytics a must for all organizations aiming at maintaining significance in this technological field. marketing analytics tools are designed for providing an organization or business with better insight into customer services , exploring newer opportunities on marketing revenue, better customer services holding a competitive edge , and gaining insights into the customer base.After all, when you're making big decisions regarding your business's marketing campaigns and programs, you need to evaluate all of the data available to you. Only with a proper analysis of previous data and current trends can you ensure you're making the best decisions for your company's bottom line.

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MARKETING ANALYTICS AND ITS MODERN TRENDS

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ABSTRACT

Marketing refers to a business activities which deals with the process of buying and selling of goods and services . Marketing analytics is a performance of both academic researchers and practitioners which is used to develop the marketing activity . It is also used to provide information about industries , customers etc., It is a wide range backgrounds which includes marketing, expert systems, statistics, and operations research. This paper provides an elaborate review on the marketing analytics which is very useful for a company to earn profit. The aim of this paper is to understand how to market and also it gives an intelligence and expert systems on its importance , recent trends or modern trends in marketing , types of traditional marketing and marketing segmentation . The opportunity is to gain a wide knowledge about marketing analytics area and also it provides a starting point for youngsters who is interested in maketing. The topics like overview and the history of marketing, importance of marketing , types of traditional marketing and its segmentations are featured . The disciplines of good marketer is also emphasized. For each of these topics, the overview is given, history is also given and carrying through to the present day. Recent innovations for Modern Trends of marketing and its segmentation is also given in an elobrate manner.

KEY WORDS: Analytics , Importance and Types of marketing , Modern trends ,Marketing Segmentation.

INTRODUCTION

Marketing refers to a business activities which deals with buying and selling of productsMarketing is asold as selling.The '**Marketing**' came from **Europe**. A market analytics is used to provide information about the industries, customers, competitors, and other market variables.It is a relationship between supply and demand for a product.

- Let us see the history of marketing,

1500s

During this period , When the merchants were travelling to sell food and other goods to town . Archeological evidence had shown that ancient civilizations in Egypt , greese , and rome had sold branded items for sale

1800s

During this period , the companies had sold the mass productive products so that the marketing had shifted from local activity to national activity .The variety of consumer had grown widely. The business had began to lease billboards in 1860s to communicate with many people .

1872

In this period , a billboard lobbying group has introduced which is called as **International bill posters Association** of North America

1900

During 1900 , A New strategies came into existence in order to gain customers satisfaction and stay competitive . Marketing professionals also had started to communicate

the unique benefits of their offerings and examining demographic data (such as education level and salary).

2000

During this period, Google and MSN had launched search engines which rank websites based on a variety of metrics. Most of the businesses today are using some of the combination like digital tactics which is used to engage with their core audience and to grow their brand. These digital tactics include the search engine of marketing, blogging, online and mobile advertising, email, video, and social media.

IMPORTANCE OF MARKETING

- **Marketing is used to widen the Market:**

Marketing plays a vital role to widen the market. The hidden wants of consumers are taken into consideration and create many new products.

- **Marketing Exchanges the ownership of goods and services:**

Marketing creates time utility, place utility and possession utilities for goods and services. It is useful for both consumer and seller.

- **Marketing Helps in the Transfer, Exchange and Movement of Goods:**

Marketing is used to transfer, exchange and the movement of goods. Goods and services are made available to customers through the wholesalers and retailers etc. Marketing is useful for producers and customers.

- **Marketing Is helpful for Maintaining the standard of living of the community**

Marketing helps the standard of living of the community. In the modern times, because of the emergence of marketing even in the poor section the standard of living has been improved. It is because of the larger production and the lesser prices.

- **Marketing Increases the National Income:**

The marketing increases the net income of the producer and seller so that it increases the whole country's national income.

- **Marketing Acts as a Source of New Ideas:**

The concept of marketing is a dynamic concept. It acts as a source of new ideas. Marketing is an instrument which gives scope for the understanding of new demand.

- **Marketing Provides Gainful Employment Opportunities:**

Marketing creates a climate for more production and services. It provides more gainful employment opportunities to students. It is also estimated that 30% to 40% of total population is engaged in direct or indirect marketing activities.

- **Marketing stabilizes the Economic Conditions:**

Marketing is not only the sets of economy which only revolves, but also it provides a steady and stable economic conditions. It bridges a gap between producer and consumers. Marketing provides a balancing production with consumption, provides stable prices, full employment and a strong economy.

- **Marketing Acts as a Basis for Making Decisions:**

In modern times, marketing has become very complex. It has emerged as a new specialized

activity along with the production process. As a result , the producers are largely dependent upon marketing analytics to decide how to produce , when to produce and what to produce.

- **Marketing Provides Maximum Satisfaction of Human Wants:**

The consumers satisfaction is changing according to the trend. The Marketer analysis the wants and satisfaction of the consumers and they produce the goods according to their wants and needs .

Types of Traditional Marketing :

There are mainly 4 types of marketing

- Product
- Price
- Place
- Promotion

Product

The product is nothing but a good or service which is being marketed to the target audience.



Product can be physical or virtual. Physical products such as cars, furniture, and mobile phones and laptops. Virtual products are offerings of services (such as education, software, and other digital products). A product may include both physical and virtual elements.

Product classifications

There are many ways to classify products like..

- Customer type
- Purchasing 262uthoriz
- Business products
- Industry

Price

The amount that is paid to buy a product.



Pricing is a process of fixing the value that a producers will receive in the exchange of services or goods. The product is only worth if a customer is prepared to pay for it. The needs of the consumer can be converted into demand only if the consumer has the willingness and capacity to buy the product.



An authorized person to fixing a price for any product is CMA – Cost Management Accountant

Types of pricing

- Premium pricing
- Penetration pricing
- Price skimming
- Competitive pricing

Place



Place refers to the place where the goods and services are exchanged. Now a days people are learn about the products and buy through online through online mode, retail locations or through sales professionals.

Promotion



Promotion refers to type of marketing communication used to inform about their product, service, brand and offer to target audience .It helps marketers to create a designation of a consumer to buy for their product .The aim of promotion is create awareness about their product and generate sales or create brand loyalty. It is one of the basic elements of marketing mix. It helps in advertising, direct marketing publicity, personal selling and also include in exhibitions, event marketing and trade shows. Promotion covers the methods of communication that a marketer uses to provide information about their product.

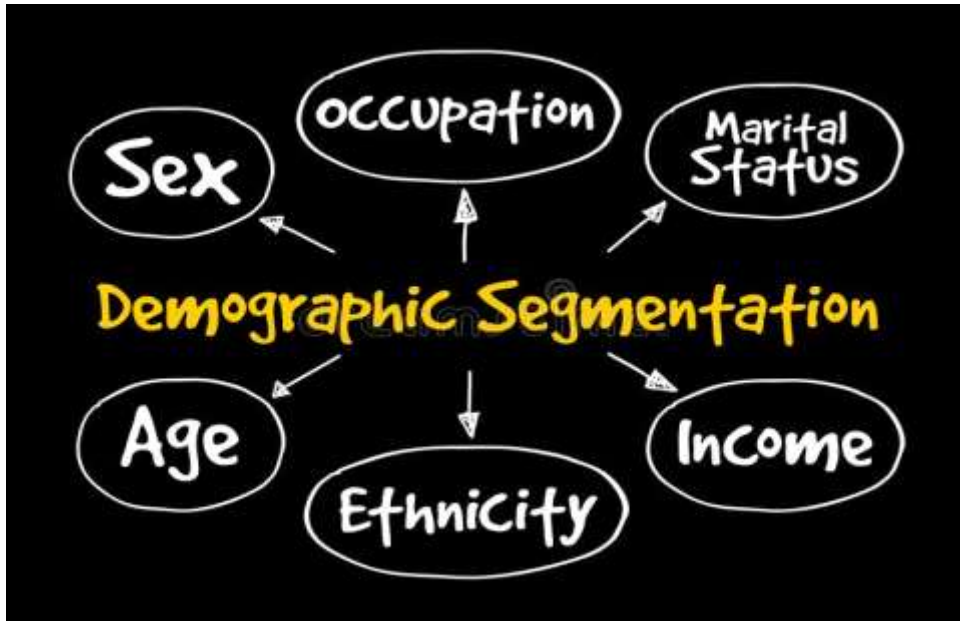
Market segmentation

The marget segmentation is said to be the practice of diving the target market into obtainable group. The market segmentation is classified into various types.

The main types are:

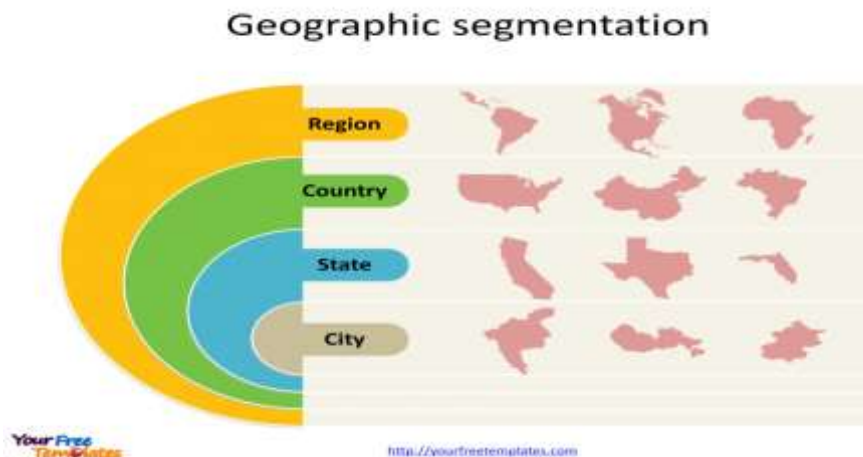
- Demographic segmentation,
- Geographic segmentation,
- Psychographic segmentation,
- Behavioural segmentation,
- Firmographic segmentation.

Demographic segmentation:



The demographic segmentation classifies the market such as family, income, education, race, nationality, etc.,... demographic segmentation is said to be one of the most simplest and commonly used form of segmentation because the ability to pay for the product and willingness to buy a product is depends upon the demographic factors.

Geographic segmentation:



The geographic segmentation is nothing but segmenting the people based on their religion ,by their country they live , by small geographical divisions,or by their region to their city. In short, dividing the consumers by country,religion,or by some geographical boundaries is known as geographic segmentation.

Firmographic segmentation:

The firmographic segmentation is seems to be similar to the demographic segmentation.but it considers only the number of employees in an organization,number of customers,number of branches or the annual revenue of the organization and it does not considers the individuals.



Psychographic segmentation:

The psychographic segmentation is a methodology used to study the consumers and divide them into groups using psychological manner including lifestyle,customers opinion,social status,intrests etc,...



Behavioural segmentation:

The behavioural segmentation is nothing but dividing the people according to their specific behavioural pattern. It includes the components such as purchase and behavior,occasion purchasing,loyalty,benefits seeking etc,...



METHODOLOGY

- **Consumers observations**

First of all , to improve the marketing we have to analyse the consumers observation , we should know the taste of the consumer like color and trends etc...,It is one of the main methodology of marketing

- **Engaging in social media**

The producer should know the social media engagement of people . For example , if people prefer to spend more time on Instagram the producer or seller should analyse it and they have to expose their products in Instagram and should give advertisements about that product in which the price should be reasonable.v

- **Giving a trial of the product**

The demo of a product should be given to attract the consumer . There should be a satisfaction of the product

- **Focus on groups**

Focusing on groups in the main methodology of marketing analytics because if one person is attracted by the product he will insist others about the goodness of the product and they may also buy the product

- **Advertising the product**

The method of selling the products in a World wide is done through the advertisement . The product will sell easily. The advertisement should be based on a good theme. For example : If a sports item should be advertised it should motive all the coacher , it should contain the quality , warranty and guarantee of a product .

- **Promotion**

The promotion of a product is one of the main technique of selling the products. The promotion can be given through many ways like advertisement , or issuing of brochure etc...,

- **Price analytics**

The price of a product should be reasonable a reasonable one , so that it can insist the buyers

to buy the product. Price is one of the main thing which the consumer will think about at the same time there should be a good quality of the product.

MODERN STRATEGIES IN MARKETING:

The buying power of the consumer is dynamic , it changes according to the trend.New strategies have been implemented to improve the marketing. Let us discuss some of the recent strategies in current era.

Importance to quality:

The suppliers concentration is less on the quality of product .They wanted to create the more profit, but through less quantity and quality. But by estimating the value of the product among the customers. We came to know that even small scale and middle scale industries are now looking up for ISO type certification .

Building special relationship with the customer:

Organizations wanted to build a harmonic relationships between the customers .They are even ready to invest some of the resources to build a relationship program. It is more important in recent times

Integration of Departments:

The marketing has been started to work with the multidisciplinary tasks. They are not ready to work only with Marketing department but with all the factors which influences the customer's opinion.

Discipline of ethical Marketing:

Now a days ,while doing marketing the rules and regulations are strictly followed by the authorities . Because of the malpractice it can suddenly tarnish the good image of the brand Products

For example:Volkswagen, they chested the customer by wrong emissions software measurements.

Expanding the marketing network:

Now a days the industries are not only depend upon the wholesalers or retailers though they are marketing their products through other channels For example:amazon, rediff ,flipkart .

Quick adoption of new technology:

The consumers are adopting according to the new technology.

CONCLUSION :

The purchasing method of a customer is changing rapidly.New challenges are faced now a days.In Marketing trends,the main motive of the supplier is to concentrate only on quantity and quality of the product not on profit.Now a days the Firms and industries are trying to build harmonic relationships with consumers to create the consumer relationship centre.The marketing staffs has started a work in multidisciplinary tasks. Develop the marketing factors with the help of consumer's opinion.Under marketing the industries are concentrating more to follow the rule and regulations ,norms imposed by the authority.the marketing analytics,importance,types and marketing segmentation are given here properly.They are establishing their authenticated service centers in town and cities.Industries are not only recruiting the wholesalers and retailers now a days they are marketing their products through amazon,flipkart,rediff.Many organisations adopted new techniques .Some of the strategies and modern trends are enclosed here.

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BUSINESS ANALYTICS & INTELLIGENCE

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ABSTRACT

Business intelligence is a concept which were designed for directs, managers and their supporting analysts. Since then, business organizations have come to realize that decision-makers at all levels in all parts of the organization need access to timely, relevant and accurate information, whether in shop floor, call center, retail outlet or logistics departments. The Business intelligence is a strategy and planning that is incorporated in any business. The special issue on business analytics has been a great endeavor. Business analytics is related to management science. This paper will provide an integrated understanding of business intelligence and business analytics. This paper explores the concept of Business Intelligence, Methods of BI, Categories of BI, Business analytics, Importance of BA and their Reasons.

INTRODCTION

In this modern era business analytics and business intelligence play a vital role among the business organization. In order to adopt with changing market dynamics and make strategical decisions a business person must be ready to axis to the up-to-date high-quality data and analysis. With business analyst a business person can make a confident business decisions informed by real metrics and insights and take the guesswork out of decision making. The global big data analytics market size was valued at USD 240.56 billion in 2021. Although business analytics promises to show enhanced organizational performance and profitability, it will improve the decision making process, better alignment of resources and strategies, increased speed of business decision making and enhanced competitive advantage. It will reduce the burdens of business analyst.

Business intelligence include the factors like business analytics, data mining, data visualization, data tools and infrastructure. BI is the best practices to help organization and make more data-driven decisions. It is increasing the important for businesses to have a clear view of all their data to stay in the competitive world, which is where business intelligence (BI) tools come in. Nearly 50% of all business already started to use business intelligence tools. Not only modern businesses are using BI tools but also the traditional businesses started to use the BI tools and their projections show continued growth in upcoming years. But for those who haven't adopted the BI tool get are simply looking to gather more information's and it will be a challenge to them to understand what business intelligence is. This paper deeply reviews the most important business analytics conceptualization.

ANALYTICS

Analytics is the scientific process of identifying and communicating the meaning full patterns which can be found in data. Analytics is used to convert the raw data into insight for making a better decision. It has been the special hot topic of interest for resources and practitioners alike due to the habit pace at which economic, social and business transactions are moving online. It includes the factors link "decision management, content analytics, planning and forecasting, discovery and exploration, business intelligence, predictive analytics, data and content management, stream computing, data warehousing, information integration and governance". It is mainly used in the area which records lot of data or information. It does not make the change only in business area but also in science, sport and health care. Analytic will

change any field where large amount of data is collected. Analytics would help in the following areas.

- Web Analytics
- Fraud analytics
- Advertisement and marketing
- Enterprise decision management
- Marketing optimization
- Market modeling

BUSINESS ANALYTICS

Now a day's business analytics has become a jargon for companies present in world wide. Every business according to its size, is finding out different ways to make sense of the vast amount of raw data available. It happens because the business analytics have been transforming the way of companies' function over a decade from now. It is "the generation of knowledge and intelligence to support decision making and strategies objective". Business analytics represents the analytical component in business intelligence(Davenport,2006). It summaries all methods, processes, technologies, applications, skills, and organizational structures necessary to analyses past or current data to manage and plan business performance. So in the past, business intelligence was quite the focused on the data integration and reporting descriptive analytics, business analytics is inherently forward-looking and centers its analyses on diagnostics, prediction, and prescription tasks.

The business analysts are the link between the end-user and a project manager. The requirement may vary between position and the business analyst's key responsibilities may differ from company to company, but their main purpose is to analyze, evaluate and refine processes. It is the most important part of any project team. Acting as the key interface between the users and the project manager they gather information, document processes and confirm the final documents with users. Business analysts are responsible for bridging the gap between IT and the business using data analytics to assess processes, determine requirements and deliver data-driven recommendations and reports to executives and stake holders. It engages with business leaders and users to understand how data-driven changes to process, products, services, software and hardware can improve efficiencies and add values. It is a set of disciplines and technologies which help in solving business problems, by using the data analysis and statistical models and other quantitative methods. It would use the analytical modeling and numerical analysis, also it would include explanatory and predictive modeling and fact-base management system to drive decision making.

IMPORTANCE OF BUSINESS ANALYTICS:

The importance of business analytics is:

- Enhanced customer experience
- Easy identifying frauds
- Informed decision making

ENHANCED CUSTOMER EXPERIENCE:

Business turns into analytics to make sure that they retain their customer base. So accordingly, e-commerce company can analyze their customer interacting with them on websites, to know the taste and preference of their customer by seeing or viewing the cart of

the particular customer. Sometime the online marketers would send a notification to the customers, because to make them to buy the product or to male them to add the product in the cart.

EASY IDENTIFYING FRAUDS

Many companies use the business analytics to find out and reduce the frauds in the market. Most common way for doing this is it identify the potential fraudulent purchase, this analysis would be done based on the customers past or earlier transitions done by them. This is mainly used by the financial companies, this is done to check the customers profile and to predict the risk.

INFORMED DECISION MAKING:

The business would outsource there few processes to increase their efficiency. So when they select the vendor for their business, they must know that what help would bring the enhance in the profile. By the help of the analysis the company can evaluate and they would come to know about the performance of the supplier based on their increasing rate and the fulfillment of the required quality.

REASONS:

The reasons are

- Business analytics for a better customer experience
- Better decision, better results
- Keep an eye on the competition
- Reducing employee turnover

BUSINESS ANALYTICS FOR A BETTER CUSTOMER EXPERIENCE:

Business use analytics to ensure that their consumer base is retained. By getting and analyzing the data a company can evaluate client interactions to their customers in their websites. The evaluate theta are done by the companies are buying pattern, predict purchases, and frequency, and through digital platform even analyze their behavior. This would help the business to make the necessary changes that the want to make to attract many customers.

BETTER DECISIONS, BETTER RESULTS:

To improve the efficiency of the product, your choice must be a well-known one in the market. When you are a customer, you should choice the correct supplier to get the products in a correct quality and get satisfied form their service. To ensure it you have to do analysis on the speed, quality, and some other factors and this would help you in selecting the best company in the particular mark that you are going to choice.

KEEP AN EYE ON THE COMPETITION:

At the present every company knows their competitors. Understanding your competitors, their strategy, USPs, and what they're up to is one of the finest methods to stay competitive. Commonly many companies use a SWOT analysis to obtain a sense of how their business in functioning in the comparison of their competitors.

REDUCING EMPLOYEE TURNOVER:

According to this department we refer the business data as “workforces’ analytics”. This helps to understand the bond between data and to know for sure what’s driving workforce trends has ushered in the era of working analytics also known as “HR analytics”.

BUSINESS INTELLIGENCE:

It refers to the procedural and technical infrastructure that collect, stores, and analyzes the data produced by a company’s activities. It is a term that encompasses data mining, process analysis, performance benchmarking and descriptive analytics. It parses all the data generated by a business and present easy-to-digest reports, performance measures, and trends that inform management decisions.

BI METHODS:

- Data mining
- Reporting
- Performance metrics and benchmarking
- Descriptive analysis
- Querying
- Statistical analysis
- Data visualization
- Visual analysis
- Data preparation

DATA MINING:

Using databases, statistics, and machine learning (ML) to uncover trends in large datasets.

REPORTING:

Sharing the reports of the data analysis to stakeholders can draw a conclusion and can make decision in a easy way.

PERFORMANCE METRICS AND BENCHMARKING:

Comparing the current performance with the historical data will help to track the performance against goals, typically using customized dashboard.

DESCRIPTIVE ANALYTICS:

Using the preliminary data or primary data analysis to find out what happened in the business.

QUERYING:

Asking the data-specific questions, BI pulling the answer from the data set.

STATISTICAL ANALYTICS:

Taking the result from the descriptive analysis and using it in exploring the data in statistical

form.

DATA VISUALIZATION:

Turning the data analysis into visual representation such as charts, graphs, and histogram

VISUAL ANALYSIS:

Exploring the data into visual storytelling this would happen because to communicate insights on the fly and stay in the flow of analysis.

DATA PREPARATION:

Compiling multiple data source, identifying the dimensions and measurement, and preparing it for data analysis.

BENEFITS

It helps business and organization ask and answer question of their data. It's important way to keep your real-time view of all your relevant business data. It offers a myriad of benefits, from better analysis to an increase in competitive advantages. some top business intelligence benefits includes:

- Data clarity
- Increased efficiency
- Better customer experience
- Improves employee satisfaction.

CATEGORIES OF BI:

There are three major types of BI analysis, which cover many different needs of uses. These are

- predictive analytic
- descriptive analytics
- prescriptive analytics

PREDICTIVE ANALYTICS:

It would deal with the historical and real-time data and models future outcomes for planning purposes.

DESCRIPTIVE ANALYTICS:

It is the process of identifying trends and relationship in data using historical and current data.

PRESCRIPTIVE ANALYTICS:

It takes about the relevant data to answer the question.

BUSINESS INTELLIGENCE VS BUSINESS ANALYSTIC

BUSINESSINTELLIGENCE	BUSINESS ANALYTICS
BI is about delivering relevant and actionable information to the right people at the right time to make better business decisions	BA is any data-driven process that provides insights to drive tangible and intangible values
BI filters through existing data to discover trends and patterns in the past and present	BA helps interpret data to discover future trends and patterns based on the current data
BI comes under the umbrella term of business analytics	BA is a data management solution used to create insights from historical and contemporary data.
BI can be applied mainly to structured data from enterprise applications such as ERP system	BA can be applied to both structured and un-structured or semi-structured data

CONCLUSION

In this paper, we have examined the innovative topic of business analytics and business intelligent, which has recently gained lots of interest due to its perceived unprecedented opportunities and benefits. Accordingly, the literature was reviewed in order to provide an analysis of the business analytics and intelligence concepts which are being researched, as well as their importance to decision making. Consequently, business analytics and intelligence was discussed, as well as its factors and importance. Moreover, some of the business intelligence methods and categories in particular were examined. Thus business analytics reasons were detailed.

We believe that business analytics is of great significance in this era of data over-flow, and can provide unforeseen insights and benefits to decision makers in different areas. If properly explored and applied, business analysis has the potential to provide a basic for advancement on the scientific, technology and humanitarian levels.

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CYBER CRIME ANALYTICS

Janani J, Janane S G &Dharshna N

ABSTRACT

In this digitalized world, most dangerous crimes happens in computer are becoming higher and it is complex to safeguard it. It requires new technology to handle it but traditional method cannot survive it. Cybercrime is one of the biggest obstacle for e-industry. The afflicted effects of Cybercrime often lead to financial theft, identity fraud, profit driven criminal activity. Criminals use to hack our private security to collect our data. These criminals always pick a painless way to attain more money. Over the past few years there have been several security contravention. It happens because the high usage of internet. Dishonest and rapacious person take advantage and use it to satisfy their needs. These criminals after hacking used to harm the owner. Cybercrime criminals have no age bar(12-67). The evidence of the data can be destroyed without giving any trace. The most common method is that criminals will send us spam messages or links to open by giving any offers, to hack their private. Many people fall in it unknowingly even if they were aware of it. Big data analytics gives us to relief in these threats. Criminals use various techniques like phishing, social engineering and all kind of fraudulent activities. This paper draws the various problems, cause and prevention of Cybercrime.

KEYWORDS:Cybercrime, hack, phishing, spam, fraudulent activity.

INTRODUCTION

In this era Cybercrime is a crime that involves computer, network and its data. Cybercrime may harm someone's security or private. These criminals include theft, fraud, forgery, and mischief all are subject to Indian Penal Code. Mostly Cybercrime used to hack the security as a weapon to earn money easily. This paper draws about the effect, cause and prevention of cybercrime.

CYBERCRIME

The first Cybercrime recorded on 1820 it is believed and argued that cyber are digital crime in India started since 2005. New technology creates new problems and opportunities to many crimes. Cybercrime is known as computer crime, the criminals use the computer as a weapon to accomplish their needs such as Fraud, Child Pornography and Stealing Identities on their privacy. Cybercrime happens widely in computer. Most cybercrime attack on information about the individual, governments and corporations . These Fraud don't attack physically but they attack happens on the personal or government virtual body, which keep information that explains people and institutions on the internet.

Social behaviour of people:

Behaviour of people varies from one to another. The social web ranges higher in this era. The criminals uses false or fake biographies to attack the crime. They focus mainly on famous personalities and government. The crime happened by the fraud by sending fake personalized messages to trust the individuals. People are not aware of it even they are educated ones. In our period humans awaiting for many discounts or offers by this the criminals take advantage to missuse these innocent people.

CAUSES OF CYBERCRIME

❖ Unawareness

The first major reason in cybercrime is unawareness, People in this generation are not ready to get aware until they are affected by it. Criminals uses various methods to hack the computer by the trustable thing.

➤ Solutions:

- The employees in firm should be trained about this mischievous practices
- Students should be given awareness about it because they are the future generation of us

❖ Easy to access

People uses identical password in their privacy, login from different sources, believing the rumours easily, so the criminals take it as advantage and access quickly.

➤ Solution:

- Don't accept any of the text or message unknownly
- Keep a strong password

❖ Believe in rumors

The foremost crime happening in India is because of believing someone with or without knowing. We People click the link or reply the text if we like the offer such as phones, watch etc, by these criminals take advantage to use us

➤ Solution:

- Aware of those link or text
- Don't share something if you don't know about that text or message

❖ Lack of knowledge

Even though people are educated or uneducated, they lack knowledge in these silly things. People should aware of it and get rid of it

➤ Solution:

- Everyone must learn about it
- Should be aware about it

❖ Struggling to investigate

In these crime cases the headquarters we not dealed easy to find the crime. To

investigate it needs a modern method, traditional methods are not in use for finding. It is also hard to find the criminals or the data has been lost

➤ **Solution:**

- Keep their privacy safely
- Once the data is lost it is hard to find

New Trends in cybercrime:

- Social media

Social media plays vital role in crime, People are now depending 24hr/7 in Social media. Through it the hackers find their privacy and use it to earn money. It includes threats, harassing, bullying and stalking others. Safety, personal and others are become dangerous in Social media.

- Pornography:

Under sec 67 of the information technology act 2000, cyber pornography is an offense. Forcing some one, imposing your friends or women to act or to view some porn is criminal. This offense cause harm to people by creating, using or forcing mainly by women. It can be made as a complaint under “India penal code”

- Ransomware:

It is the most common and popular way of crime. Ransomware means threatening someone to publish the individual data or privacy. It is the easiest and cheapest way to regain their files by the victim

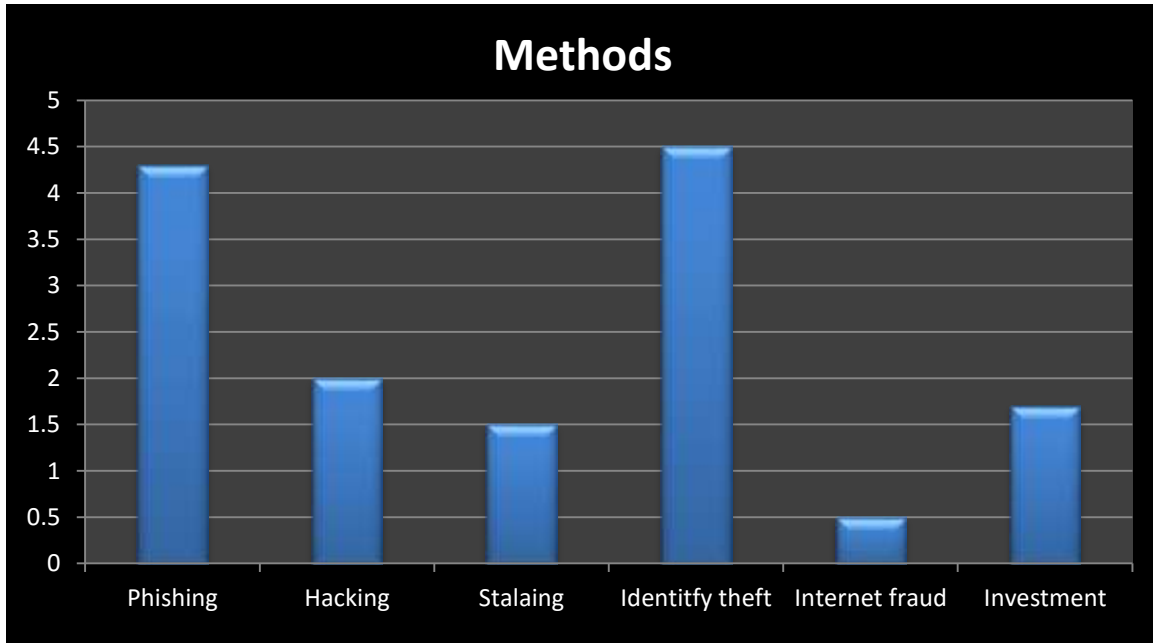
- Phishing:

The most dangerous crime in the world is phishing. It means stealing someone’s confidential personal and institutions. The individual are influenced to give their personal needs like credit card password etc, to the criminals. It has increased to 65% over the last year and it leads to loss of \$12 billion.

RESULT AND ANALYSIS

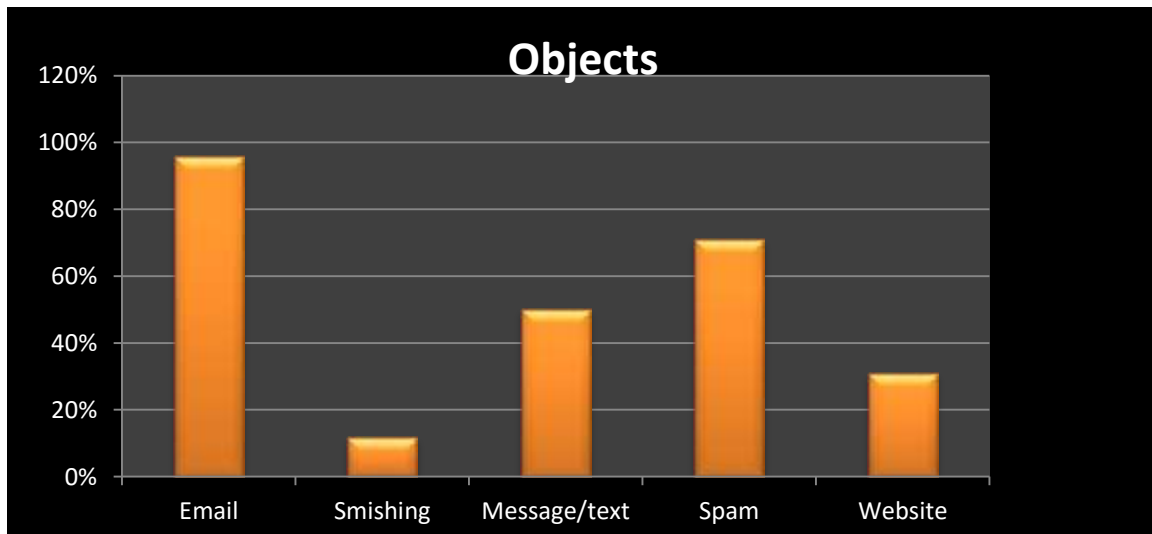
For Analysis we are going to use R programming (provide computing or graphical structure). Fig 1.a shows the major used cybercrime and 1.b shows the object used for it, the R programming shows the visual structure of an thing which will be easily understood.

Figure 1.a:



METHODS OF CYBERCRIME

Figure 1.b:



OBJECTS OF CYBERCRIME

In the 1.a figure it shows the various methods of crime in internet. The top placed is INDENTITY THEFT, means someone steal our private to apply their needs such as loans,credit and medical services. The punishment for it is up 3 years in jail and fine above 1 lakh. The second most crime is PHISING, means stealing someone's personal by influencing. It increases day by day. Investment on other thing may cause fraudulent activity it places the middle place of crime. The internet fraud has been reduced now-a-days.

In the figure 1.b it shows about the object used by criminals to breach the privacy. It includes mail,spam and fraud messages. The top most hack used by criminals is mails it has increased to 96% which plays vital role in hacking. The second places the spam with 71.7% which we

are little much aware of it. By website the hack happens 3% which plays limited among it.

TYPE OF BUSINESS	PERCENTAGE OF LOSS (%)
Business	40 %
Agriculture	6 %
Real estate	35 %
Chemical drug	18 %
Health care	14 %
Finance	29 %

As a result, cybercrime increases day to day. by taking necessary measures cybercrimes can be reduced but it cannot be abolished completely.

CONCLUSION

Cybercrime is also known as computer crime, E-crime or electronic crime. These crimes will affect the people, wastage of time and destroy their files. Though people has awareness, improved law couldn't stop them from these crimes, so people could safeguard their securities, privacies and institutions. Hopefully we can be more careful and never involved in any cybercrimes.

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MANUFACTURING BUSINESS IN DIGITAL ERA: DISPUTES AND REMEDIES

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INTRODUCTION

Manufacturing industries play an important role in the economic development of a country. A country's economic strength is evaluated by the development of its manufacturing industries. The growth in manufacturing industries has modernised farming and has generated maximum employment opportunities. The wealth of human kind has been connected with the ability to use and work with the available materials and tools throughout the life process. The modern manufacturing organization, with the help of factory environment and the division of labour, promote economy's standard of living. The growth of manufacturing processes continued in the early stages of the 19th century with the use of mass manufacturing techniques. The ability to manufacture products has a huge bearing on the wealth and growth of a country. As per sayings, the greater the ability of a country to manufacture, the prospect of the country should be. Manufacturing of the goods must be planned to make optimum use of the resources. This paper enlightens the disputes faced by manufacturing industries and provides necessary remedies to overcome the disputes.

DISPUTES IN MANUFACTURING BUSINESS

The expansion of manufacturing industry is influenced by the development of growing technology, with the help of automated solutions manufacturing system. In contrast, there are different disputes faced by manufacturing business. They are:

1. Forecasting demand for products:

The crucial issue is that, at present we do not have advanced technology like other countries to estimate the future needs of the people. As a result, manufacturing business fail to meet the customer demand. In order to overcome the demand, manufacturers should use proper reporting tools to forecast the customer demands and needs.

2. Inventory control:

Controlling inventory is a big task in manufacturing business. Inventory tracking is a time consumable process that can be done only with the help of software assistance. Checking inventories manually is inefficient and can lead to fraud and error issues like deficit, inaccurate etc.,

3. Enhancement of manufacturing plants:

At present date, manufacturers are hoping for effective ways to minimise the price and improve efficiency of plants and machinery. Many industries have chosen to reduce production cost but this will minimise the profitability because customers who do not prefer those products will stop buying.

4.Failure in increasing Return on Investment(ROI):

Any manufacturer should have the capacity to increase their return on investment which serves as a credit to the manufacturing industry. This can be done by increasing the price of the selling product. When economic condition is poor, this may reduce the purchasing power of the customer.

5.Lackness of skilled employees:

There may be development in the technology like robotics and automated software's. But, still human power plays crucial role in analysing and solving the disputes. With the growing technology in digital era, manufacturing industries are facing the crisis of employee shortage. This is one of the greatest threats faced by manufacturing business in current dates.

6.Management of sales lead:

Sales lead mainly depend on customer taste, preference, behaviour and needs. But manufacturers often feel hard to find customers needs. Hence, they should focus on the needs of customer preference and provide the essentials. This increases the profitability of the business and enhance the growth of the economy.

7.Not updating with growing technology:

Manufacturers fail to update with growing technology which may include Robotics, Software updates etc., So, manufacturers should be flexible to adapt with growing technology and stay ahead in competitive world.

REMEDIES TO OVERCOME DISPUTES IN MANUFACTURING BUSINESS

The manufacturing industry thrives a lot due to emerging technologies. Despite all the challenges in this industry there are still some remedies to overcome these challenges:

1.StrengtheningE-commerce:

It is easy for every manufacturers to diversify their online store portfolio. The manufacturers should expand their online platforms and market places. Create appealing and functional website. This reaches to large audiences and thus makes the process easy.

2.Accentuate good communication:

Make it straight, open and two-way street communication with your subordinates. Employees should feel comfortable to voice their views thus creating a employer-employee friendly environment. This helps in knowing the problems in the industry that you might have not known before.

3.Prediction of market needs:

To forecast and foresee customer demand in a correct way, manufacturers can try using appropriate and accurate reporting tools that makes it simple for the manufacturers to target sales and estimate how many and what to be produced and

what not to be in the future.

4.Tracking inventory:

There are real time tracking technology that can help the manufacturing industry throughout the manufacturing process. Good inventory tracking helps in avoiding theft, providing better customer service, finance management.

5.Automation:

Rise of robotics in this era makes it easy for the manufacturing industry in production. Thereby, satisfying the customer needs for immediacy. Robotics can be expensive and unaffordable for some companies. In this case, the companies have the option to rent robotics.

6.Get customer opinion:

Offering way for customers to get in touch with the producers either online or offline is a direct yet great solution. This helps the manufacturers know how the public perceive their service. The customer feedback assists in setting right the drawbacks.

CONCLUSION

Thus, the article above show that in many developing countries, particularly in Asia, there are great possibilities for the use of modern technology in manufacturing business. In other words, economic situation will be successful with the use of modern technology. At the same time, it should be remembered that large-scale factory production, must remain the basis for the industrial development of the country. Only the development of modern forms of industry can give assurance for the development of the country and steady movement along the road of progress. Manufacturing sector in India is shifting to updated technology and process driven manufacturing country to maximise the efficiency and increase production of the manufacturing industry. Prime Minister of India, Mr Narendra Modi, has promoted 'Make in India' scheme to enhance India as a manufacturing hub and give global recognition to the Indian economy.

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AN EMPIRICAL STUDY ON WOMEN'S INFLUENCE OF EMOTIONAL MARKETING WITH SPECIAL REFERENCE TO COSMETIC INDUSTRY

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ABSTRACT

One strategy that advertisers use to influence purchase decisions is the employment of emotional appeals. To become more competitive, fashion retailers employ emotional branding as a way to engage their customers, addressing the growing trend of consumers seeking emotional relationships with a brand. Emotion is perhaps one of the most powerful forces when it comes to human nature. Emotional marketing uses persuasive messages that tap human emotion to form a deep connection with the audience towards achieving the desired result.

This paper mainly focuses on the marketing strategy of the companies related to cosmetic industry that influence emotions among women to buy the products. Through this research an attempt is to be made to identify the various strategies that company use to influence the women customer for buying the product. The objective of this study is to better conceptualize how women emotionally respond to emotional advertisements (EA) and how emotional marketing influence women to buy the product. Through employing quantitative method, a questionnaire is made. The sample design taken is simple random sampling and the sample size is 50 and the population is women of age group 18-23. This paper describes how cosmetic brands can engage women customers through emotional branding and how this has made an impact among them.

KEYWORDS: cosmetics, emotional marketing, emotional appeals, purchase decisions

INTRODUCTION

Nowadays, on customer purchasing, emotional factors are important as classic functional aspects of product/service. Enterprises with their marketing operations try to arouse the emotions for tying the customer to brand of the company (emotional marketing). It turns out that the current environment of information overload will likely lead to a greater amount of emotional decision making. Human brain research has suggested that, as our minds have more to process, the likelihood to decide emotionally increases. It makes sense that less time for reflection will lead to more decisions that seem irrational. The good news for emotions is that they function to reduce and bound our reasoning which then creates the opportunity to reason more fully. If we can identify which decisions can be addressed emotionally, we generate the opportunity to make more complex decisions rationally. A totally emotional decision is very fast in comparison to a rational decision. One of the world's top neuroscientists, Antonio Damasio, discovered in a study that emotions are very important for choosing. Beauty consumers have highly complex and emotional bonds to their beauty products.

Emotion is what really drives the purchasing behaviours, and also, decision making in general. Studies completed by neuroscientists have found that people whose brains are damaged in the area that generates emotions are incapable of making decisions. Humans are driven by feelings.

(In Zaltman's book, "How Customers Think: Essential Insights into the Mind of the Market," the professor reveals many exciting ideas that can be helpful to marketers and brands).

Science says that an emotion is a complex psychological state that includes an experience, a physiological response and a behavioural or expressive response (per Hockenbury and Hockenbury, 2007). It is precisely within these physiological responses where we see emotions interact with beauty. Beauty consumers have highly complex and emotional bonds to their beauty products

This study is made to identify how this emotional marketing influence women in buying cosmetic products and to better conceptualize how women respond to emotional advertisements.

OBJECTIVES

- To identify the various strategies that company use to influence the women customer for buying the product.
- To better conceptualize how women emotionally respond to emotional advertisements (EA).
- To understand how emotional marketing influence women to buy the product.

REVIEW OF LITERATURE

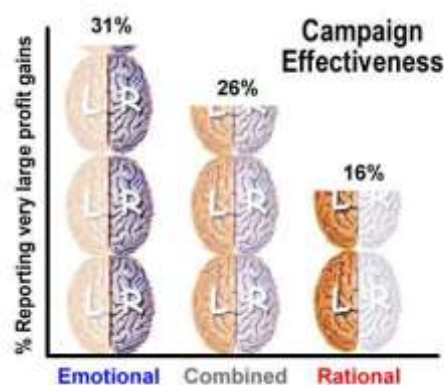
Mahmoud Allan, Tareq Hashem and Nimer Nafez, ⁱInternational Journal of Management (IJM) Volume 11, Issue 9, September 2020, pp. 1245-1260, Emotional marketing develops its customers' satisfaction towards its quality, items and services, then there is a bigger chance that loyalty towards the brand would increase. In a sharp competitive market, and a great desire on the part of many brands to win customer loyalty and satisfaction; Brands need to maintain a certain level of communication with consumers through interactive content that is able to define their needs and expectations.

Jennifer Sonntag (Authorⁱⁱ), 2012 South Bank University London (Business), Emotional brand attachment plays an important role in marketing, particularly, in the cosmetics industry. As a result that both brands effectively use emotional branding strategies to create brand loyalty and that emotions such as happiness, security, safety, reassurance and trust are essential for creating brand loyalty in the skin care market.

EMOTIONAL MARKETING

Emotional marketing is messaging that companies use to target specific human emotions and engage with consumers. These emotions can include happiness, anger or sadness, and companies may reference current events or relatable situations to invoke feelings. Emotional marketing works because consumers often feel comfortable when a company publicly shares an emotion that resonates with them. Emotional content connects to consumers' personal experiences and people often better remember ads or stories that relate to their own experiences. An emotional connection may influence a customer to purchase your products over another brand.

“People don’t buy for



logical reasons. They buy

for emotional reasons.” – Zig Ziglar

EMOTIONAL MARKETING STRATEGIES

Loyalty: Helps prospects to trust you faster (i.e., providing their contact information) and existing customers to spend more over time.

Confidence: Encourages consumers to purchase more in the beginning and turn to you for ongoing support.

Anger: Inspires immediate action and helps you to highlight your solution.

Fear: Strengthens your connection with your audience, increases their reliance on your business, and improves their memory of your brand.

Curiosity: Gets your audience to explore your brand and click through to your content. And we often companies use some words to attract customers Accrue, Appreciation, Bonus, Cashin, Collect and save, Earn, Rewards, Redeem, Perks, Points, Start saving.

Inspiration: Marketers should focus in emotional marketing on what a customer loves more, what they are seeking to satisfy. It is all about what a customer loves,

Pride: Pride with the past, heritage, history of ancestry, many organizations tackle that feeling in customers as an approach to increase their loyalty. As according to Rytel (2010) some organizations depend on old packing, vintage colors and other approaches which have the

ability to tackle customers' feelings of their past.

Greed: Greed is a trait in the human race that always seeks for more. The more a woman involve herself in this field the more she will feel younger, more accepted and attractive, this makes her greedier towards using the brand which makes her more loyal and more satisfied.

RESEARCH METHODOLOGY

Research Design: Analytical Study

Sample Design: Simple Random Purposive Sampling

Sample Size: 50 Women population

Data Selection: Primary Data

Analysis: Descriptive Analysis and Anova

Population , Sample and Method

Employing a quantitative method, a questionnaire is made and responses collected via google form. A sample of (50) females was retrieved from the population of women of age group 18-23.

HYPOTHESIS

HO₁: There is no significant difference between salary and amount spent on cosmetics.

HO₂: There is no significant difference between age and the preference to buy brands advertised by celebrities

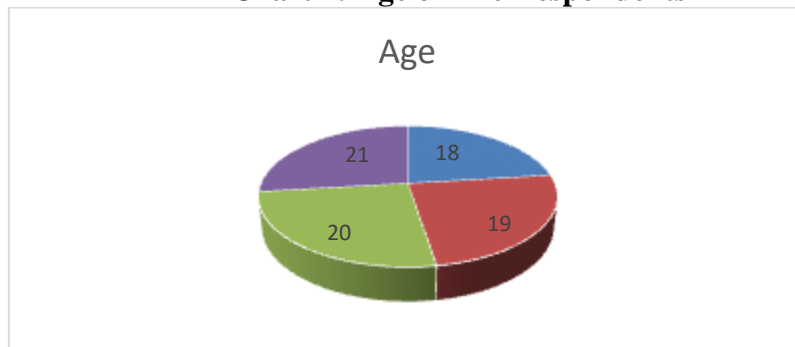
ANALYSIS

Table 1: Age of The Respondents

Age	No. of. Participants	Percent
18	25	50
19	22	44
20	2	4
21	1	2
Total	50	100

Source: Primary Data

Chart 1: Age of The Respondents



Inferences

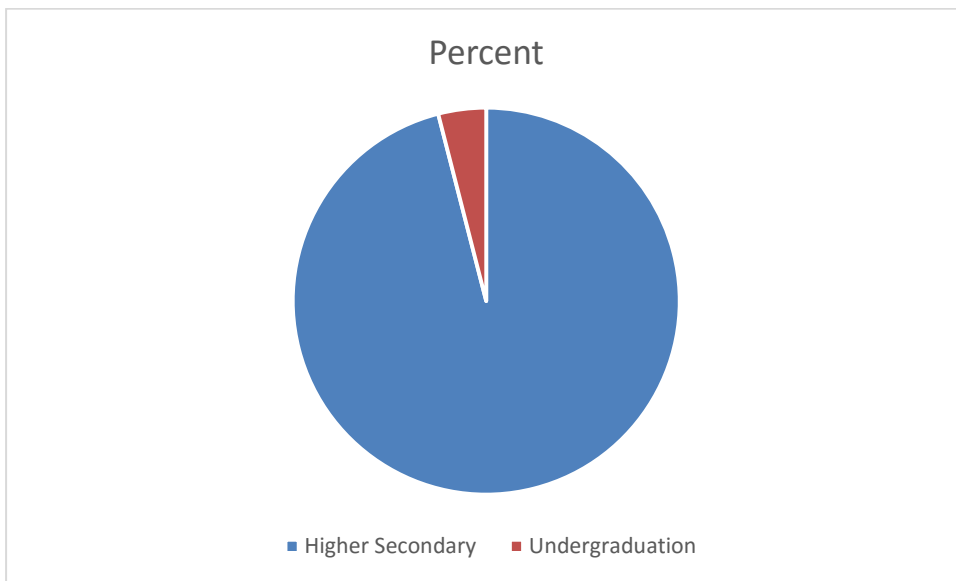
Chart 1: Shows an age wise analysis, it shows that, 50 percent of the respondents belongs to 18 years, 44 percent of the respondents were in the age group of 19, 4 percent of the respondents belongs to 20 years and 2 percent of the respondents belong to 21 years

Table 2 Educational Qualification of the Respondents

Qualification	No. of. Participants	Percent
Higher Secondary	48	96
Under Graduation	2	4
Total	50	100

Source: Primary Data

Chart 2 Educational Qualifications of the Respondents



Inferences

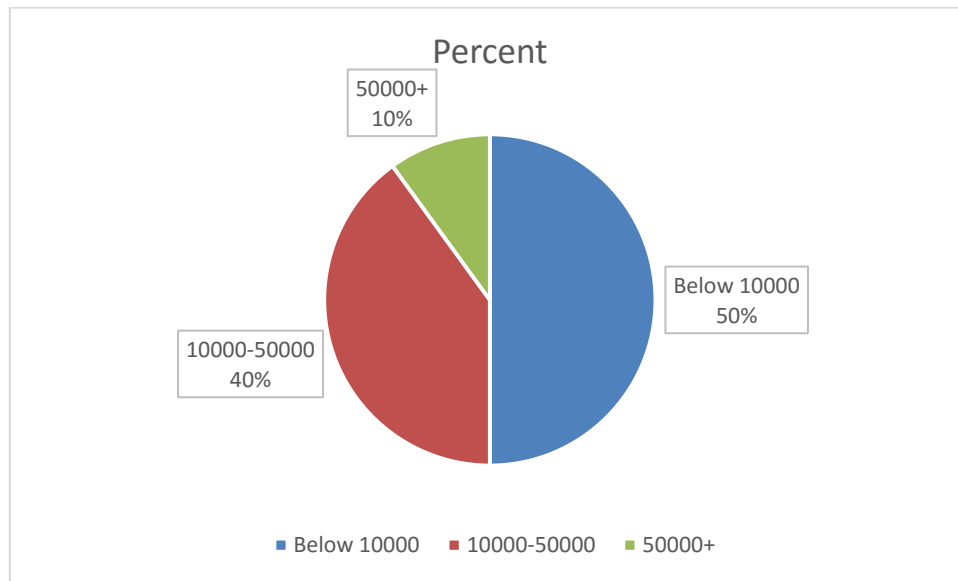
Chart 2 shows Category of educational qualification reveals that 96 percent of the respondents are from Higher Secondary, 4 percent respondents are from Under Graduation.

Table 3 Salary of the Respondents

Salary	No.of Participants	Percent
Below 10000	25	50
10000-50000	20	40
50000+	5	10
Total	50	100

Source: Primary Data

Chart 3 Salary of the Respondents



Inferences

Chart 3 shows, Income-wise analysis of the respondents reveals that there are 50 percent of the respondents are earning below Rs 10000 per month, 40 percent of the respondent are earning Rs 10000 to 50000 and 10 percent of the respondents are earning above Rs 50000 and is concluded that majority of the respondents are earning below Rs. 10000 per month.

ANOVA

Table 4 Salary and Amount spent on Cosmetics

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.144	1	.144	.423	0.003
Within Groups	9.167	27	.340		
Total	9.310	28			

Source: Primary Data

Inferences:

Table 4 presents the results of ANOVA, the test shows that there is no significant difference on using Amount spent on Cosmetics by the salary of the respondents. significant P value of all these is 0.003. So, the hypothesis is rejected and it is evident that there is no significant difference between the salary and the amount spent in cosmetics.

Table 5 Preference to buy brands advertised by celebrities

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.362	2	.181	.534	.592
Within Groups	8.810	26	.339		
Total	9.172	28			

Source: Primary Data

Inferences

Table 5 presents the results of ANOVA, the test shows that there is no significant difference on the Preference to buy brands advertised by celebrities by gender. Significant P value of this is 0.592. So, the hypothesis is accepted and it is evident that there is a significant difference between Preference to buy brands advertised by celebrities by gender.

FINDINGS

From the descriptive analysis of the primary data collected from the women population, 50 percent of the respondents belongs to 18 years, 96 percent of the respondents are from Higher Secondary, 50 percent of the respondents are earning below Rs 10000 per month. Using Anova analysis we came to know that there is no significant difference between the salary and the amount spent in cosmetics and there is a significant difference between Preference to buy brands advertised by celebrities by gender.

SUGGESTION

Incorporating passion in marketing is an effective way to gain and attract customers, interact with them, and encourage them to act according to what is planned, and to succeed in this requires deep knowledge of the customers and target audience and surrounding feelings that will have greater resonance and closer association with the brand.

For example, the marketing campaigns for the brand Maybelline, which focus on every woman's feeling of beauty, which is long lasting and advertised by celebrities which in turn strengthens the customer's attachment to the brand.

CONCLUSION

Social media, however, is about emotional engagement. Creating an emotional connection can fortify their loyalty over time. Cosmetics succeeds in creating engagement without even mentioning a product. Overall, it is important to have a solid overarching marketing strategy that touches on all points of Emotional marketing.

In a sharp competitive market, and a great desire on the part of many brands to win customer loyalty and satisfaction; Brands need to maintain a certain level of communication with consumers through interactive content that is able to define their needs and expectations.

The most successful brands are the ones that succeed in dealing with the important emotional values of the target customers, as when the emotional value is determined correctly, it leads to more customer satisfaction and greater numbers of customers who have brand loyalty and thus reach higher profits for brands.

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ⁱⁱ Jennifer Sonntag (Author), 2012 South Bank University London (Business), Emotional brand attachment plays an important role in marketing, particularly, in the cosmetics industry.

CYBERCRIME ANALYTICS

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1. INTRODUCTION

The Internet is a blessing in disguise but eventually this blessing changes into a curse due to the fever of cyber-crime. With the arrival of the cloud Computing, all enter into the technology zone. And this technology zone is full of trouble of cyber-crime. In this arena of technology, it frequently hears the words of Cyber Crime, Cyber War and Cyber Attack. Identification of Cyber Crime is veritably delicate due to an undetermined and measureless Boundary. In India Cyber Crime victimization is adding day by day. As the trouble posed by major cyberattacks (e.g., ransomware and distributed denial of service (DDoS)) and cybercrime have risen, people, governing organizations, and governments have rushed to concoct countermeasures.

The internet in India is growing fleetly. It has given rise to new openings in the field of entertainment, business, sports, education, and numerous further. With the arrival and adding use of the internet, businesses have crossed the walls of original requests and are reaching out to guests located in every part of the world. Computers are extensively used in enterprises not only as a tool for recycling information, but also for gaining strategic and competitive advantage. Computers can be used both for formative and destructive reasons.

Investigations of Non-Cyber Crimes handled by Police labour force operate on the thesis that culprits will always leave some vestments of crime-trace at the crime point intentionally. Similar traces give first information on the nature of crime to be delved. Of the rarest cases, the crime investigators are left oblivious by the intelligent culprits; similar cases are closed with the label "NOT TRACEABLE". In discrepancy, cybercrimes are completely traceable as it happens in electronic media that registers

every event. still, millions of cyber crimes go untraced, still worse, numerous aren't indeed noticed. The utmost of the cyber crimes reported are profitable crimes; victims are ignorant of the ramifications of other types of cyber crimes. The root cause of all similar problems are the ungovernable volumes of data conjoined with the ignorance of cyber citizens. We can effectively handle cyber crimes only with the help of AI empowered Security Analytics.

2. Understanding the Cyber Crimes

Cyber-crime refers to any crime that involves a computer or a network. It's the criminal activities committed through the use of electronic dispatch media. It's taking the commodity of the computer over the internet. It's a fast growing area of crime. Cyber culprits are exploiting the Internet to commit a different range of felonious conditioning. In the history, cyber-crime was committed substantially by individualities or small groups but now the cyber culprits constitute of colourful groups order similar as Professional hackers, organized hackers, children and adolescents between the age group of 6- 18 times, scammers, phishers, interposers, malware authors, spammers, etc.

3. Categories of Cyber Crimes

The major orders of cyber-crimes can be astronomically classified under the following four groups on the base of their target and impacts

3.1. Crimes against individualities

These types of crime are done to harm particular individuals. These include hacking, cracking, importunity via emails, cyber-stalking, cyber bullying, vilification, dispersion of stag material, dispatch spoofing, SMS spoofing, registering, cheating and fraud, child pornography, assault by trouble, denial of service attack, phony, and phishing.

3.2. Crimes against Property

There are cyber crimes done to detriment the property of an Individual. They can be classified as – Intellectual property crimes, cyber-squatting, cyber vandalization, playing computer system, computer vandalization, computer phony, transmitting contagions and vicious software to damage information, Trojan nags, cyber

trespass, Internet time thefts, thievery or stealing plutocrat while plutocrat transfers, etc.

3.3. Crimes against Government/establishment/Company/Group of individualities

These types of crimes include cyberterrorism, possession of unauthorized information, distribution of appropriated software, web jacking, salami attacks, sense losers, etc. The culprits in these cases want to terrify the citizens of the country.

3.4. Crimes against Society

All the above mentioned crimes have their direct or circular influence on the society at large. Thus, all similar crimes are included in this similar as pornography, online gambling, phony, trade of illegal papers, phishing, cyber terrorism, etc.

4. LITERATURE REVIEW

Digital Crime) includes any felonious demonstration managing PCs and systems (Wired or remote) (Cyber-Crime). Sequestration and data theft will be the top security issues that associations need to concentrate on. Lived in this present reality where all data is in advanced structure. Person to person communication destinations give a space where guests feel defended as they unite with loved ones. On account of home guests, digital malefactors would keep on targeting online networking destinations to take individual information

5. Social behavior of peoples

In social networks one can without a stretch make false memories. The vicious typically make the fake biography of the famed people and alluring women. Men admit the companion demand from ladies anyhow of the fact that they are finished is unknown. You can imagine that it's so profitable to write your casualty's data. The culprits plan youthful ladies and dramatic play with them. Knowledge get-together can without much of a stretch finish SNS. SNS is likewise utilized for information. Violent people can really speak with the broad people. There was a document created in 2010. According to the document cerebral tyrannizer target youths finished these SNS and online picture games. There was a case of Irhabi sweat grounded tyrannizer many times back. He was oriented to hacking

spots and was instructing web hacker moxie to different Jihadis. In Mexico megacity, as per a report created in 2009, misrepresentation drives are the main cybercrime. In USA Air power, there's sufficient individual data accessible in SNS fordigital attacks. Every new technology opens the door to new illegal approaches in India trying to come to the arising country in the field of technology. Internet speed is double, flights for 3G and 4G and finances for the public sector in the field of Technology exploration is a grand step towards the new horizon of Information Technology. But the lack of incognizance and proper legislation make the situation worse.

Cyber-crime is one of the topmost troubles far and wide throughout the world. It is disturbing that because of theincognizance rate of E-exploitation is expanding. E-Victimization is the kind of exploitation that does not happen vis-à-vis. It happened through PC or other electronic widgets or programming. This may purposefully hurt the notoriety of casualty or gathering. Cybercriminal are similar to conventional culprits. In India numerous cyber laws are in the state. In this global technology period, there's a need for secure and dependable cyber space terrain. It's an intimidating situation in underdeveloped countries like India,where cyber-crimes are at their peak.

6. Major causes behind the cyber crime

6.1. Lack of law enforcement agencies in India.

The working of Cyber law enforcement agencies in India is working in limited boundaries. The concept of cyber-crime is different from road crime so the tool and policy must be different from the cyber-crime. Cyber attackers are quicker than the cyber law maker.

6.2. Lack of new legislation

Aged law does not adequately address the difficulties of digital wrongdoing latterly felonious did not get applicable discipline in India. As per a media report, further than 10,000 cybercrime cases are pending in India while 250 affirmed ashamed parties have been set in light of extravagant law. A continuing law is of great significance and with

the donation of 3G invention around the bend, this law turns out to be indeed a more prominent need.

6.3. Lack of cyber forensic

PC criminology (formerly in a while known as PC measurable wisdom is a branch of motorized criminological wisdom relating to licit evidence set up in PCs and motorized stockpiling media. The foundation of Punjab Forensic Science Agency in Punjab checks new periods in our public history. In India numerous cyber-crime is pending due to the attainability of the forensic lab. Proper digital substantiation is needed due to the complicated nature of the crime. Failure of the professed cyber crime fighter Cyber security Professional aren't available in India. In the future there's a need for a Cyber army to control the war on cyber-crime. India does not have a well famed educational institute to produce the professionals in this field thus, all have a deficit of professed labor in this area.

6.4. Lack of cyber crime classes

One of the reasons for lack of attention about the cyber-crime is the inadequately defined Cyber Crime Curricula. There's no cyber-crime class in the course figure of BS and M.Sc. programs. Indeed in the famed IT universities in India.

6.5. Fail to report

In India, victims try not to report against digital wrongdoing in light of the apprehension of police, pressing an individual secret. Some associations also do not inform about the cyber-crime incident due to the reputation of the establishment.

6.6. Negligence in the use of technology

Society isn't by any means arranged for the 2G innovation yet since individualities do not know how to shield their cell telephones from getting addressed. There isn't a good sense Paris is the capital megacity of France and is veritably popular. It's regarded as the City of Light. It's located on the Seine River which divides the megacity, numerous excursionists visit it and have been fascinated by its status of being one of the most charming,

glamorous, and romantic of all the metropolises. The megacity's great retired treasure is its own people. Its people are veritably honest, sincere, warm, and drinking. This is the thing that inspires trippers the most. And no distrust of the sincere guest of its people is also the reason for liking the megacity. The megacity is completely loaded with intriguing and seductive sights. One of the most prominent sights is the Eiffel Tower. While standing on the top of this splendid structure, you can see the knockouts of the megacity. Zeal of technology is lost due to the lack of mindfulness. Karachi police has as of now uncovered that Skype, What is App and Viber are being employed for violations. individuals are moving from Wi- Fi/ DSL systems to 3G grounded virtual worlds and not at all like DSL associations, relating the area of a 3G association is relatively worrisome and that is the reason it can be employed for hijackings in the end.

6.7. Youth's preoccupation

In India youths are obsessed with the use of the Internet. They sometimes do cyber-crimes for the sake of enjoyment. Severance also plays a motivated part in this environment. People want to earn plutocracy in a short time. So they use rearmost technology for their criminal purpose.

6.8. Mental illness

Complaints in the culture can produce different dysfunctional stations in Society. Mental illpeople cannot control their studies and emotions. Indian culture is facing numerous ups and downs nowadays.

6.9. Lack of substantiation

This is a biggest challenge in the law enforcement agencies to collect digital substantiation for the cyber-crime. In India there is not any honored forensic lab for this purpose. Govt. should take this notice and open a new lab in this regard as soon as possible to attack the Cyber war.

7. New trends in cyber crime

7.1. Mobile Apps

Security Predictions for 2012 is that Smartphones and tablets will continue to be targets for cybercriminal attacks. The haste of Mobile Appscyber-crime is adding especially in the mobile banking apps.

7.2. Cyber terrorism

Cyber Terrorism is spreading like wild fire each over the world. IN underdeveloped countries like Indian terrorist Association aligns withcyber-crime specialist to do illegal exertion. These cyber-crime miscreant are also funded by public and transnational terrorist association. There is Cyber war between India and Pakistan which makes the situation worse.

7.3. Hacktivism

Using the internet media for Hacktivism is at its peak in India. DNS seizing is an introductory issue in a similar manner. DNS seizing(now and again indicated as DNS redirection) is a kind of vengeful assault that abrogates a PC's TCP/ IP settings to point it at a revolutionary DNS garçon, in this way negating the default DNS settings.

7.4. Pornography

Social Media crimes Cyber stalking the use of social media is increasing day by day in India. Numerous Women are black correspondence and wearied through the social media Indeed their families are also disturbed. youthful girls are also attacked due to the unawareness of theycyber-crime and they also don't know about the laws which cover and safe Also from this epidemic Cyber complaint. In India numerous divorce are being due to this Cyber blackmailing. Defacement is common through social media.

8.Proactive measure or methodologies

8.1. Awareness campaign

Awareness campaigns should be launched in different associations especially in educational institutions to train the youth. Society donation is necessary for the successful campaign. the forum should also educate millions for this critical issue.

Ethical hacker Cyber fighter

A moral programmer is a Personal Computer and systems administration master who methodically tries to enter a Personal computer frame or system for its possessors with the end goal of discovering security vulnerabilities that a noxious programmer could conceivably abuse. To fight with the cyber-criminal, there is a need for the Ethical fighter or Cyber fighter army. He has to introduce new training programs for producing ethical hackers. Every time the trends of cyber crime increase day by day Because no rules or regulations are easily defined for this crime.

8.3. Curricula development

Cyber Crime Curricula should be developed from the advanced position HEC(Advanced Education Commission) should take notice and broader prospectus. These systems range from particular tracks inside customary educational systems to specific degree titles grew simply with the end thing of delivering digital competent graduates.

8.4. Women awareness cell

Special awareness about cyber-crime and cyber law. Women in India bear special knowledge about the cyber-crime because woman victimization through cyber-crime is adding day by day. Black mailing through social media for illustration through facebook is hitting like a storm. They indeed can not report about the incident to their families. Special comforting is needed in this matter. A Special Cyber Crisis cell should be maintained especially for Women.

9. Result

The main target is the people who were teenagers, a study narrates 90% of people are

aware about those threats while 10% of the people are not aware of those cybercrimes. But in this scenario the age was not an effect or matter in this case all depends on your nature and thinking. In India 55% people use social sites via the internet. Most of the population think that it is a threat while some narrate it as a crime.

10. Conclusion and future work

People aren't aware the true use of technology. This Lack of awareness gives birth new cyber-crime. while finish up the examination by specifying that in India individualities are less aware on digital security. individualities are enthralled in their everyday schedule. Just those individualities who have been the casualty of the wrongdoing have taken some preventative measures. There's a huge responsibility on the shoulder of government and educational institution to work together to exclude this curse. Cyber-crime laws should be proper enforced. Cyber law agencies should be active to combat the problem of cyber- crime Cybercrime is the most popular crime order, since the different specialized advancements have caused the societies to traditionally come societies. So hopethat a specialized change of the once 20times which gave birth to cyber-crime, will find the way to fight this new crime type.

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