

A General Overview of Recent Big Data Applications and Social Media Platforms

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ABSTRACT

The exponential expansion of technology in recent years and rising data production are primarily changing the way businesses and individual industries are working. Technical advances have led to a major amount of data related to various fields which is currently generated in our daily life. Governments, businesses, and research institutions are beginning to understand how crucial it is to use this data to further their missions. As a result, Big Data research has become increasingly popular among academics working in various fields of study. We provide an overview of big data and its potential applications across a range of industries in this paper. Social media feeds are full of impending for analysis and data mining. Platform providers are beginning to limit unrestricted access to this kind of data as they become aware of its potential. This change presents significant difficulties for social inventors and other nonprofit researchers that examine public posts in an effort to better understand human behavior and enhance human welfare. This paper pursues to outline some of the topical modifications in social media data analysis. Some of the most influential and popular social media platforms are also discussed.

Keywords: Big Data, Healthcare, Energy, Transportation, Auto Car Driving, Internet of Things.

INTRODUCTION

Today's businesses employ Big Data to make their operations more enlightening and provide the ability to make business decisions by giving data scientists, analytical modelers, and other experts

the capability to assess huge numbers of exchanged-based information. Big Data is the powerful and valuable fuel that drives the 21st-century's large IT industries. Big Data is a technology that is increasingly being used in every industry. Industries must be aware of the importance of Big Data technology solutions as well as what they indicate for both their business processes and customers. Social media platforms are online environments that let users connect with one another and produce, share, and interact with information.

APPLICATIONS OF BIG DATA

Large volumes of data are gathered, processed, and analyzed using huge data in many different industries to improve decision-making, gain knowledge, and expedite procedures. Lists of the various applications that can be utilized to expand on valuable insights from the data are illustrated in the Figure – 1:



[Figure-1: Applications of Big Data]**Education Sector**

Big Data is used for student personalized learning, identifying areas of improvement, and performance analysis in educational systems. Big Data is employed by organizations that conduct online educational courses to find candidates who are interested in those courses. If someone searches for a lecture recorded on YouTube related to a certain subject, an offline or online course provider will subsequently send that person an advertisement for their course. To make sense of this Big Data in education, new academic fields like educational and learning analytics data mining are emerging [1].

Healthcare Sector

Big Data is helping the healthcare industry with a crucial challenge. The affordability of low-cost, wearable sensors has led to a revolution in healthcare informatics. Utilizing the advancement of Internet of Things detectors, smart hospitals have developed Remote Patients Monitoring pattern to keep an eye on patients when they are at home [2]. Data on patient experiences such as medical images, patient records, genomics data, and other health-related information are gathered and utilized by doctors to provide improved care using Big Data tools. It assists in Electronic Health Records, disease prediction, personalized medicine, drug discovery, and enhancing overall healthcare results. The goal of Clinical Decision Support is to improve outcomes by raising the standard of healthcare systems [3]. IoT technology can identify a sign of a disease that is likely to develop in the anatomy and discontinue it from receiving early treatment. Internet of Things detector put close to the patient or newborn baby constantly observes several fitness situations like heartbeat and blood pressure. Every time a parameter above the safe limit, an alarm is sent to a doctor so they can take immediate, remote action.

Financial Services

Financial services are not inhabitant to the digital background and have had to experience an extensive process of adaptation that has mandatory technological and behavioral change. Big Data in finance has led to important technological innovations in the past few years, which have allowed personalized, convenient, and secure results for the company. As an outcome, Big Data analytics has handled to change not only individual company procedures but also the whole financial services department. The financial services industry now a day is measured one of the leading data-intensive services, representing an exclusive opportunity to analyze, process, and control the data in constructive ways. To know consumers and enhancement their fulfilment it is important to gather information through their virtual communications and activities [1]. The financial sector employs Big Data for risk analysis, fraud detection, customer segmentation, credit scoring, algorithmic trading, and improving investment policies.

Energy Sector

Big Data is useful for managing smart grids, predicting maintenance needs, and optimizing energy use. Smart electric meters gather data on power utilization every fifteen minutes and transmit it to a server for examination. From this analysis, it is possible to determine what time of day the town's power consumption is smallest. Using this method, a housekeeping department or manufacturing facility can cut their electricity expenses by running their heavy gear at night, when power demand is lower. Electronic equipment, such as temperature sensors, smart energy meters, servers, and other IT hardware, produces semi-structured record information that documents every action [5].

Media and Entertainment Sector

Big Data is used to examine content recommendation, user preferences, audience engagement, and advertising optimization in the entertainment and media industry. Businesses that provide entertainment and media facilities, including Spotify, Netflix, and Amazon Prime, examine the customer data they collect. Information is analyzed and gathered regarding the kinds of movies and music that customers are watching to, in what way long they stay on a website, etc. in order to decide on the next business strategy.

Smart Traffic System/ Transportation

Big Data plays an essential role in managing navy operations, optimizing routes, improving overall transportation efficiency and predicting maintenance needs. Beyond tourism, geo-tagged public images (from surveillance or dash cams, for example) could be arranged in a particular sequence for traffic management applications to expose patterns of travel or identify congested routes between locations for the purpose of public transportation planning [4].

Auto Driving Car

Big Data analysis enables autonomous vehicle operation. A sensor is positioned in each location where a car camera is used, and it collects information such as the size of the adjacent cars in the area, the distance from obstacles, etc. These data are analyzed, after which numerous calculations are made, such as how many positions to rotate, what speed is appropriate, when to stop, etc. Automatic action is aided by these computations.

Internet of Things (IoT)

IoT devices generate huge amounts of information. The quantity of real-time Big Data stream applications has significantly expanded due to the effective utilization of numerous internet resources, including IoT, mobile devices, social networks, and sensors [6]. In order to provide actionable insights and create Internet of Things applications, big data analytics is utilized to analyses and process this data. Manufacturing businesses integrate IOT sensors into their machines to collect operational data. Through the analysis of this data, a company may determine how long a machine will last between maintenance needs and regular operation. This allows the company to take the necessary action before the machine breaks down or acquires number of complications. Consequently, it might not be required to replace the computer in its entirety.

Tracking Customer Spending Habit, Shopping Behavior

Data is returning to the provider as a result of the mobile and internet technology. Retailers who can make speedy use of that information by suggesting, for example, further purchases gain a competitive edge [5]. Big Data analytics is now being useful at every phase of the retail procedure

functioning out what the well-liked products will be by forecasting where the demand will be for those products, predicting trends, recognizing the customers likely to be paying attention in them, optimizing pricing for a competitive boundary, and working out the most excellent way to approach them, taking their capital and lastly working out what to sell them after that.\

Social Media

Big Data is engaged to evaluate sentiment analysis, user behavior, and social network analysis. Businesses are spending money to collect these kinds of statistics, with big data playing a major role in keeping an eye on social media activity, especially on social networking sites like Facebook, Twitter, and LinkedIn [7]. Statistics show that social networking sites, including Facebook, produce 500+ Terra Bytes (TB) or more of fresh data each day. The information is mostly in the form of movies, photos, message exchanges, etc. The use of social networking sites generates a lot of data, which is stored and used for analysis as needed. Since the amount of data saved is in TB, processing takes a long time. Big Data is a remedy for this issue.

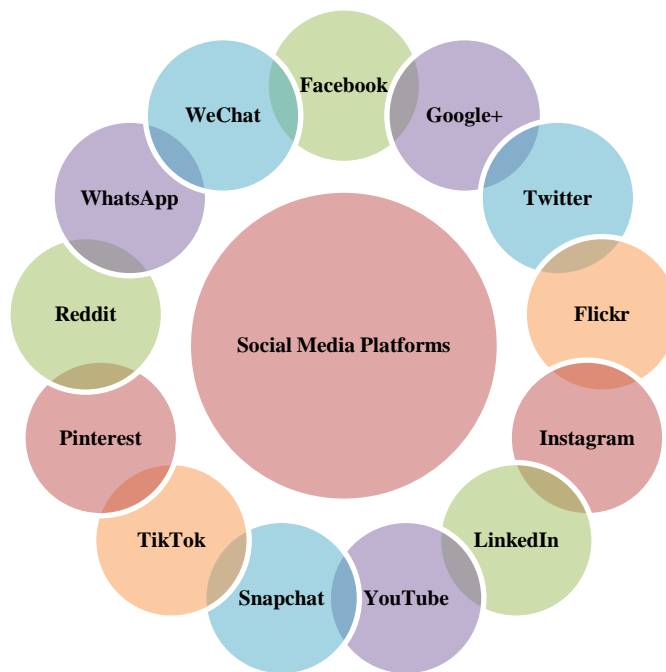
Recommendations

Recommendation has grown to be the call for the hour and has significantly altered the communication among web sites and user. Large retail establishments provide recommendations to their patrons by monitoring their purchase habits and patterns. Products are suggested on online retailers such as Walmart, Amazon, and Flipkart. They monitor the products that clients are interested in and make recommendations about those kinds of goods to them based on that data. E-commerce platforms make considerable use of recommender systems to enhance user experience and ultimately increase usage. By making recommendations, this technology makes it possible to turn a web browser into a customer [8].

Above all are various applications through which Big Data is generated. But Social media platforms are considered as the primary and largest source of massive data creation.

PLATFORMS OF SOCIAL MEDIA

A vast array of websites and online applications generate social media data. The ability to express oneself, keep informed, and interact with a global audience is made possible by different social platforms, which have become an essential component of contemporary communication. Companies may maintain regular communication with their customers by using social media platforms. Figure – 2 describes some of the most significant, influential and well-known social media platforms:



[Figure – 2: Social Media Platforms]

Facebook

The amount of data in the big data era has increased dramatically; on Facebook alone, there are over 300 billion photos. Currently, the digital universe has a volume of 2.7 ZB, and it is expected to grow by 50% annually [2]. Founded in 2004, Facebook is one of the largest social media

networks, with over 2.8 billion monthly active members. Users can interact through posts, comments, and reactions, connect with friends, and exchange links, videos, and other media.

Google Plus (+)

It is an interface designed to enable users to experience social networking by combining all of Google's services into one [1]. The features include the ability to post images and status updates to groups based on interests, group different kinds of links into circles, instant messaging for multiple users, Hangouts text and video chat service location tagging, and the ability to update and also upload images to private cloud-based albums.

Twitter

Twitter was founded in 2006. It is a microblogging platform where users may read and share 140-character "tweets" with others on any topic [1]. To get updates, operators are able to subscribe to other people's feeds. It is widely applied to discussions, trends, and current events.

Flickr

Globally, people use the software media platform Flickr to share and manage their online images. Since its creation in 2004 by Ludicorp, this application has been utilized by both amateur and professional photographers. Users can upload, browse, and comment on images with it. Related photo sharing websites are Instagram and Pinterest [1].

Instagram

Instagram, which Facebook purchased in 2012, focuses on sharing still images and brief videos. Influencer marketing and visual storytelling have made it popular. Users can post transient content with the help of Instagram Stories and Reels.

LinkedIn

LinkedIn is a professional-focused social media platform used for networking and career advancement. The intention is to enable registered users to create an official circle with individuals they trust [1]. Operators construct profiles that highlight their professional background, abilities, and accomplishments. It serves as a forum for conversations about the industry and B2B contacts.

YouTube

YouTube is a platform for sharing videos that Google purchased in 2006 and allows users to create, watch, and engage with videos. It includes a variety of topics, including entertainment and instructional lessons.

Snapchat

Snapchat, which is well-known for its disappearing images and videos, introduced the idea of "Stories," which are transient collections of material that dissolve after a predetermined period of time. It is well-liked among younger users.

TikTok

TikTok, a platform for quick films, rose to prominence thanks to its user-generated content, imaginative challenges, and viral trends. It enables users to produce and distribute 15–60 second videos.

Pinterest

The primary goals of Pinterest are the sharing and discovery of visual content, such as photos and infographics. Users can "pin" information for ideas, recipes, fashion, and other purposes to themed boards.

Reddit

Reddit is a forum for conversations divided into "subreddits," which are devoted to particular subjects. Users' ability to submit, comments, and vote on content results in lively discussions.

WhatsApp

WhatsApp is a messaging service for texting, voice calls, and video calls that Facebook just acquired. It is well-liked for its extensive worldwide use and end-to-end encryption.

WeChat

WeChat is Chinese software that integrates social media, chat, and online shopping. It serves as a single platform for payments, communication, and other functions.

These are just a few examples; there are numerous other social media sites that target particular locations, groups of people, and interests.

CONCLUSION

Huge corporations are implementing these equipment's to perform meet consumer demand, digital transformation, and boost income and loss. Whereas most industries are storing new and important data, they aren't essentially sure how to increase its potential, since the information is unstructured or not collected within the firm. In this paper, various application areas of Big Data such as education sector, healthcare sector, financial services, energy sector, media and entertainment sector, smart traffic system/ transportation, auto car driving, internet of things, tracking customer spending habit, shopping behavior, social media, and recommendations etc. have been reviewed. The way that people connect, communicate, and exchange information has been revolutionized by social media platforms, and they are still reshaping how information is shared and consumed in the digital age. The rapid advancement of technology combined with the increasing number of users of social media platforms like Facebook, Instagram, and Twitter has altered the way people share their ideas, observations, and views regarding a wide range of products and services. This causes enormous amounts of data to be generated and gathered.

FUTURE WORK

The process of digitization across different industries has made it easier for technologies such as artificial intelligence (AI), machine learning (ML), big data (BD), advanced analytics, and cloud computing to change and permeate how businesses compete in the marketplace. The paper's primary goal was to outline current Big Data uses. We want to continue working in this field and pursuing other Big Data applications in the future. Social media and Big Data together open up new possibilities for elevating managerial practice.

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