IBS
ICFAI BUSINESS SCHOOL
Hyderabad

VOL 3 ISSUE 3 | NOV 2020

IBS ANALYTICS CLUB

ANALYZIA

MAGAZINE

IDEAS | TECHNOLOGY | ANALYSIS | BUSINESS

ANALYTICS THE NEW ESSENTIAL

Exploring Analytics to sensitize the limits of uncertainty

IBS HYDERABAD

DATA TO DECISION

Send your feedback/articles to

IBS-Hyderabad, The ICFAI Foundation for Higher Education (Declared as Deemed University U/s 3 of the UGC Act 1956) Dontanapally, Shankerpalli, Road, Hyderabad-501203.

Feel free to write us back at: editorial.ibsanalytics@gmail.com

Frequency of the Magazine

This magazine is a bi-monthly magazine published in every 2 months with support from IBS Hyderabad, a Constituent of IFHE, and Deemed to be University.

Disclaimer

The views expressed by the contributors represent their personal views and not necessarily the views of their organization. All efforts are made to ensure that the published information is correct. The organization is not responsible for any errors caused due to oversight or otherwise.

Publisher

Student Club IBS Analytics, IBS Hyderabad, a Constituent of IFHE, Deemed University.

Acknowledgement

Club IBS Analytics is extremely grateful to ICFAI Business School, Hyderabad for providing us a platform to unveil our magazine. As a team, we extend our sincere regards to Prof. Madhavi Garikaparthi Ma'am (Coordinator – Student Activities and Associate Professor, Department of Marketing & Strategy) and Prof. KS Venugopal Rao sir (Area Coordinator, Department of Marketing and Strategy) for their constant support and encouragement. We are also grateful to Prof. Dr. Manish Gupta sir (Assistant Professor, Department of HR), Prof. Dr. Vaibhav Shekhar sir (Associate Professor, Department of Marketing and Strategy), and Prof. Saravanan sir (Assistant Professor, Department of IT and Operations) for their immense support and guidance towards the launch of this magazine.

Club IBS Analytics
IBS Hyderabad, a Constituent of IFHE,
Deemed University

Our Coordinator

Prof. Madhavi Garikaparthi
Coordinator- Student Activities,
Associate Professor
Marketing & Strategy
IBS Hyderabad

Our Guide

Prof. Dr. Venu Gopal Rao
Accreditation Coordinator
Head of Department - Marketing & Strategy
IBS Hyderabad

Our Mentors

Prof. Dr. Vaibhav Shekhar
Associate Professor
Marketing & Strategy
IBS Hyderabad

Prof. Dr. Manish Gupta
Assistant Professor
Human Resources
IBS Hyderabad

Prof. Dr. Saravanan D
Assistant Professor
IT & Operations
IBS Hyderabad

CONTENTS

From Editor's Desk

In our 2nd issue we had a look into the wonders created by Data Analytics and Technology on the sustenance of businesses across sectors. We couldn't help but exclaim on the fact that digital transformation is on the loose and businesses are pacing themselves fast to be better adapted to Technology than their competitors.

Data holds the power of knowing your customers better, sometimes even more than they know of themselves. Data paves way for Analytics and Analytics paves way for deeper statistical insights. But have you imagined how analytics has taken the shape an essential strategic tactic for not only business but various other fields as well. Analytics, today, is changing the way we look at sports, health care and as much as our entire Economy. So much so that Human intelligence is gradually taking a backseat leaving better and precise decision making at the hands of Artificial Intelligence. decision making at the hands of Artificial Intelligence.

Throughout this edition you would get to know how modern world technologies such as IOT and AI are dominating the use of data to scrutinize better outcomes be it hiring humans at firms, Sports, Health sector or logistics.

This Magazine is the result of honest efforts and research done by the members of IBS Analytics Club and we hope that the topics that were intriguing to us will also help broaden the horizon of your knowledge and be an enriching experience for all the readers.

We are also proud to introduce, The Club's corner wherein our readers would get an inside look into our events and activities. It is a matter of immense pleasure for the club to present our third issue and we hope the readers find it informative.

We believe in building a nurturing network hence, we welcome your feedback on the topics discussed in the magazine. Feel free to reach out at editorial.ibsanalytics@gmail.com. We would love to hear it from you.

Sanjana Bhardwaj

MBA 2019-2021

Humans Recruiting Humans Using Artificial Intelligence

Artificial Intelligence innovation anyway has contacted individuals in their everyday action from various perspectives. Starting from utilization of cell phones consoles to voice-empowered colleagues in tabs and PCs and even the people quick close to home innovation supporting gadgets – innovation also, its advancement has arrived at each apocalypse among the individuals when contrasted with how it was or how it would be or how it is seen. Indeed, even misuse of AI can happen for the government assistance of people of nation who include themselves in areas like monetary administrations, wellbeing and security administrations, schooling and administration. Nonetheless, AI is nearly executed in each area of the economy. (D. S. Rawat, senior supervisor – ASSOCHAM, Computerized reasoning and Robotics – 2017). Jonathan Kestenbaum (2016), chief head of Talent Tech Labs, an ability procurement innovation expert in New York, recognizes that HR experts may at first feel restless about the effect of AI on their work. However, he says, "Actualizing AI programming just kills everyday assignments and tedious information examination to fill in as a progressing issue solver for HR. In the expressions of Dr. A.P.J. Abdul Kalam (2010), 'The defining moment during the time spent growing up is the point at which you the centre quality inside

Source: www.digitalhrtech.com

you that endures all hurt". The hardest fight, which any human can actually envision battling; and fighting constantly until you show up at your predetermined spot, that is, a UNIQUE YOU. A definitive objective of enrolment measure is to locate the perfect competitor at the perfect purpose of time by human asset chief, which may broaden the movement by using more numbers or sources. For topping off the predetermined opening we would work from different mediums to discover what's more, place the best competitors. From the two central points of enrolment state interior factor or outside factor relies on the viability of each association utilizing unique techniques and cycle while enrolling. The enlistment cycle is effective when it animates and chooses solid hopefuls those plan to perform

effectively at work. Improvement and conveyance of altered data, information and sources while enlistment movement makes its more viable (Rao, 2010).

In an article distributed by Forbes.com named 'The ascent of Facebook enrollment" expressed that, work searchers would have an unmistakable picture about what they are looking for while they also had planned work. Too the selection representatives will likewise have a thought on who will be their planned competitors. Facebook Career Pages assists with having a superior match between an applicant and an organization. For example, Earls is an easygoing eating eatery run in North America has executed Facebook enrolling effort and the explanation for picking FB selecting is since it permitted them to pass on organization strategies, methods and societies as such to likely recruits. They additionally added that as Twitter and LinkedIn didn't fill in as FB accomplished for social enlistment.

The use of AI in Recruitment:

Recruiters and agents have been utilizing AI for quite a long time, and its starting points were unassuming and moderately basic. For instance, utilizing an AI-controlled Applicant Tracking System (ATS) to look over many CVs and search for catch phrases or expressions is currently genuinely normal. Thus, AI innovation presents an incredible route for selection representatives to thin the group rapidly and productively.

The utilization of AI to rapidly look over CVs regularly prompts analysis from work searchers however. They contend that the innovation diminishes an individual's CV to a straightforward 'yes or no' absolutely dependent on a watchword search while that choice ought to be founded on the nature of their experience as well as character characteristics. The issue, in any case, is that the option for spotters is to peruse and assess each and every CV independently. In the previous case of an occupation position with a huge number of candidates, this would take weeks – if not months. All while the candidates are enthusiastically holding on to hear back. With 52% of enrolment pioneers saying that recognizing the correct competitors from a pool of candidates is the most testing aspect of their responsibilities, it appears to be certain that the specialists feel this isn't an assignment that should be possible with an individual's power alone. There are many – many – different instances of the utilization of AI in enlistment. Just to give you a thought: uses of AI can help with the sourcing, predetermination and onboarding parts of your recruiting cycle. Different devices can respond to up-and-comer questions and set up interviews. What's more, the rundown goes on. We

won't have the option to cover these advances today however we will take a gander at some of them.

The Impact of AI on recruitment: The Pros of AI:

1. **Time Saving:**

   Most recruiters are exceptionally bustling individuals. In such a manner, the more repetitive, tedious errands that can be computerized, the better. The utilization of an AI-driven chatbot, for instance, can eliminate stores of these ordinary assignments. Consider replying (straightforward) competitor questions, planning meetings and screening candidates for example. Things that absolutely are significant and should be done, however that can likewise effectively be computerized.

   Alexander Mann Solutions is one of the organizations that utilize AI-injected innovation to robotize cycles, for example, planning meetings and conveying propositions for employment.

2. **Removal of Bias:**

   With regards to finding the ideal possibility for the work, the exact opposite thing we need is for our judgment to be blurred by inclination. Luckily, there are some intriguing uses of AI with regards to enlistment that can help lessen inclination. There are apparatuses out there to assist spotters with composing a predisposition free occupation advert for instance. Textio is likely one of the organization's that is generally known for this purported expanded composing innovation. Simulated intelligence fuelled preselection programming utilizes prescient investigation to compute an up-and-comer's probability to prevail in a job. This permits selection representatives and recruiting administrators to settle on information driven employing choices instead of choices dependent on their hunch.

3. **Quick Shortlisting of Candidates:**

   AI powered software can break down individuals' online presence, for example, their web-based media profiles and public information. The innovation can make forecasts dependent on this information. For instance, about how probably individuals are to acknowledge a work and what jobs they may be keen on. It can likewise break down the profiles of competitors who have just begun an occupation inside the

organization. By joining all the accessible data, the product can recognize competitors with comparative characters and aptitudes. It can decide which competitors may be keen on specific jobs and legitimately target significant occupation adverts at them.

4. **Improved candidate experience:** We should return to that AI-implanted chatbot we referenced. It never takes a vacation day, which implies it's consistently prepared to respond to applicant questions. Indeed, even at 12 PM. Or then again on a Sunday evening. Accordingly, it can direct the up-and-comer through the enrolment cycle all the more effectively; moment answers right when they need them. Furthermore, this is only one case of how adding AI instruments to your enlistment cycle can improve the up-and-comer experience.

The impact of AI on recruitment: Potential pitfalls:

Certainly, when utilized accurately, the utilization of AI-controlled innovation in enlistment can have huge advantages. In any case, there are potential traps as well. Innovation can utilize AI to identify certain nuances in competitor conduct during a video meet for example. In any case, who's to state that a candidate's non-verbal communication isn't just because of the person in question being anxious instead of them cheating? Human characteristics, for example, sympathy and logical agreement are still (nearly) difficult to supplant with programming. Another dubious circumstance. An AI-driven enlistment instrument may distinguish an applicant as having all the important experience dependent on a watchword search. However, will it miss the way that a similar competitor has changed positions multiple times in a single year?

What does the future hold for Artificial Intelligence in the Recruitment?

So how do you build relationships with the people you want to hire for your company? How do you persuade them that your company is the right place for them to work? And obviously, how does that reflect back internally? One of the recruiters asked "How do you work with your stakeholders within the business, and give them good advice and build relationships with them, and persuade them that a certain person might be right for them?" Artificial intelligence is changing the recruitment industry. There are already some tremendous, AI-driven applications out there and their number is likely to go up (a lot). Whether we like it or not, if we don't at least look into the

possibilities of AI for your organization, we'll be missing out. Not only will it replace the people in the company but it will also free up their time to do important work like looking after the candidates when they need to.

Aishwarya Patra
MBA 2020-2022

The IOT and its work in Health Sector

Online education and "Am I Audible?" these two things getting dominated by current technology on the other side still COVID-19 infected almost 2 person per second. In a shortest period, I guess most adapting and changing sector is Health. And one of the hottest topics in the economy is the cost of health care. A large part of this includes the use of technology to improve longevity, quality of life and, moreover, to restructure the cost of health care. Among the technical fields are diagnostic medical devices, which facilitate the treatment process and the delivery of medicines and services. The most expensive area is to provide health care in a very low-performance environment. All of this benefits directly from the use of IoT technology to improve outcomes and reduce costs. In the current era where the Internet of Things dominated all the sector it also expands its root in the health sector, there are couple things which is mostly notable.

Robotics

Robots are not new to health care and, in many cases, the current robotic plant is already using integrated, intelligent, connected IoT technology to monitor system performance, provide human-assisted control and collect and process health sensor data. By 2020, it should be expected that the range of robot-assisted skills will grow and grow with progress and intelligence.

By assisting with patient monitoring, health care facilities not only control costs but empower them to provide the highest level of patient care. Given the shortage of trained health professionals and those in related health services, robotics is a way to fill the gap in normal procedures. In such applications, IoT technology is essential in providing a health care facility to gather the necessary information and apply it wisely to the patient's health status and, where necessary, deploy other resources to assist with emergency medical problems. At the facility, items such as route sample or delivery are the simplest and most common stages of site management. Expect to see increased use of robots in such activities. In addition, this work should be monitored and integrated with other health management infrastructure and provision

Monitoring health

One of the biggest challenges facing many communities is human aging. It is well known that health care, nursing and assisted living facilities represent the highest quality of care. Knowing how older people can stay home safely for as long as possible shows an opportunity to reduce costs and improve the quality of life. This is an area where significant progress is already underway and is an important source of IoT technology as a potential provider. There are many companies now operating in parts of the solution from wearable devices that monitor vital signs in environmental sensitivity in tracking workflow. All of these are areas where hearing, communicating and building appropriate responses are key. In the past, these were treated as point solutions. Development is underway in these areas. However, a major area to improve the installation of all sensors and monitoring in integrated systems is to ensure that those living at home are not just left in the area.

Artificial Intelligence or AI

Many technologies today are focused on data collection and AI development to create specific sensory responses. In 2020 and beyond, the biggest win from the IoT end will be the consolidation of different pieces of data and used this to intelligently anticipate the onset of health problems or events. IT professionals should not expect advance intelligence by 2020, but it is reasonable to expect that those integrated systems will continue to be smarter.

Monitoring and disinfection

It is well-known that the environment in a health care facility can contain highly toxic bacteria in the air. Hospitals and health care facilities use strict procedures to clean and prevent the spread of germs. In addition to advanced practices and processes, germs persist in these areas and have a poor way of migrating from one place to another. There is an important work going on in the development of disinfection programs using technology without chemical agents.

Among the emerging technologies are those using the most powerful UV LED technology? Fluorescent UV has been around for many years, but heritage systems are not very robust and performance slows down over time. Combined with robots and other permanent infrastructure, UV destruction of LEDs is emerging - especially as the cost and efficiency of technology continues to improve. IoT enters the picture as the deployment and tracking of the use of these systems rolls into the infrastructure of processes and procedure.

Many studies are still underway to quickly detect airborne pathogens in the human body. There is an important IoT role in this. Building low-cost IoT detection devices can identify and differentiate pathogens by specific genetic markers.

While they are in the early stages and unprepared for mass trade, these technologies offer the ability of early detection and diagnosis before those who are exposed are admitted to the hospital premises. As long as the sensors or mobile devices are not able to detect viruses quickly, this information can be analysed in the background infrastructure to distinguish affected people and intelligent mapping between people and places.

Akshay Ghosh
MBA 2020-2022

Data Analytics: An effective tool to improve health care

Humans have come a long way in understanding the workings of our body but it still manages to amaze us. Recently a research study led by Netherlands Cancer Institute and University of Amsterdam found a new organ Tubarial Glands that are a type of salivary glands. Healthcare providers and medical researchers are now using analytics to understand and predict the workings of the human body better.

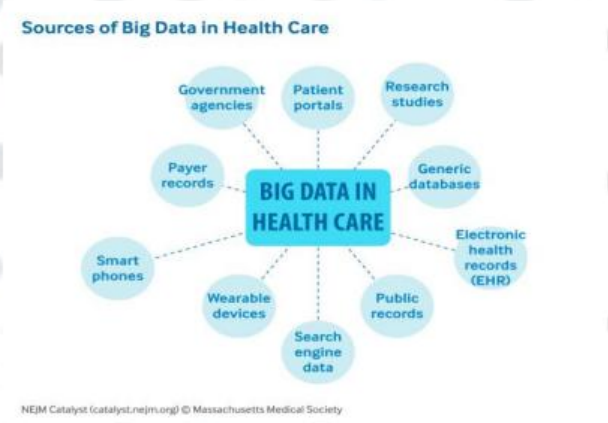
Analytics in healthcare is expected to play a vital role moving forward and the industry is expected to become $84.2 billion market by 2027. Several key players such as IBM, Tableau, Microsoft have already developed offerings tailored to the requirements of Healthcare Industries with IBM being the current market leader.

Health Care Data

Today before an individual can consult a doctor, they have to register themselves with the hospital/insurance database where a unique id is generated and their medical records such as tests, scans, etc are stored electronically linked to their unique id.

Source: www.meticulousblog.org

Medical data is being stored in a digital format for at least the past 15-20 years and today using data mining techniques on these large data sets researchers have been able to generate new insights about the human body and health care systems that can help in developing better treatment options, predicting the onset of critical diseases like Cancer, Heart Failure in early stages, reducing costs along with many other benefits. There are various sources for healthcare data but it needs to be handled with utmost care as protection of patient privacy and compliance of governmental regulations are very important and cannot be disregarded.



Source: www.catalyst.nejm.org

Use of analytics in healthcare

The ongoing pandemic has strained the healthcare systems all over the world as the infection began to spread rapidly. Many countries have resorted to using the patient and travel databases to build prediction models to find out how the virus may spread. This helped several countries in reducing the severity of outbreak. One such example is of Taiwan which is an autonomous region of China. It was expected that Taiwan may face a serious outbreak due to frequent flights between China and Taiwan and also a significant proportion of Taiwan citizens live and work in China. Taiwan immediately went into high alert status once the COVID-19 situation worsened and since it was around the time of Lunar New Year when many of the Taiwanese and Chinese would return home for holidays. Taiwan utilized their insurance database and analysed it along with their customs and immigration data to track symptoms and travel history of patients visiting clinics to identify cases. Every patient was assigned with a risk rating ranging from low to high and suitable instructions were given which played a key role in restricting the number of cases in Taiwan. Predictive models have been developed by analysing patient health record data to predict the patients who are most likely to skip their appointments and this has helped in improving the efficiency of the hospital

Source: www.catalyst.nejm.org

while also maximizing the care a doctor can provide during their clinical hours. Healthcare providers can predict their staffing requirements by analysing the patient data and surgery schedule which will reduce costs and also maximize the efficiency of staff.

Nowadays many people are purchasing smart watches, wearables that track their fitness data which can be used to prevent onset of serious disease and also reduce the risk of hospitalization while improving an individual's awareness about their own

health. The ECG feature on the Apple Watch monitors the condition of heart and detects an anomaly then it indicates that there is a chance of heart attack to the user and emergency services. This feature has saved several lives.

A medication requires a lot of time and trial testing to get approved for clinical use. This delays the availability of life saving medication and trial testing on humans can carry a risk of them developing side-effects. The US Food and Drug Administration authority started using computer models and simulations based on previous drug testing data to simulate how a drug may interact and predict any side effects before clinical trials. This reduces the risk of side effects and also shortened the time required to get approvals.

Pfizer analysed data from medical records, drug trials and genetic testing to develop a drug called Xalkori that can be used to treat lung cancer patients with an ALK gene mutation. This drug could not have been developed without data analytics as patients without the specific genetic mutation would not have responded to the drug and it would have not passed the clinical trial phase.

Conclusion

Leveraging analytics to improve healthcare has several benefits such as better decision making by doctors, patients and administrators, reduction in costs, finding anomalies and many more. It will also play a key role in developing targeted therapies, finding new drugs and improve our understanding of the human body.

Ananda Bhargav Potluri
MBA 2020-2022

Artificial intelligence is the impending future in logistics

It has been pretty long time that AI has been implemented in supply chain practices used by the organizations worldwide, still there are opportunities, where AI can leverage the potential of the companies, especially at logistics. When the world is perturbed with the vicious pandemic of COVID-19, organizations are trying to minimize the human involvement in manufacturing, procurement and definitely transportation by entailing artificial intelligence into the cycle. A research says that, there will be a mass inclusion of AI in global logistics and supply chain market which will expand by 42.9% in the period 2017-2023. This article will manifest the readers how AI is going to be the impending future in logistics. Before that, we should understand, why this is the right time to harness AI in logistics?

The network-based structure of logistics industry provides opportunity to the organizations to implement AI to boost the human components in this highly organized global supply chain network. Researchers say that, only 10% of the current systems and data in the world, uses AI analysis and its interpretation. Logistics is such a sector, where it is rightly positioned to be benefitted by AI in all aspects of supply chain. Most of the structured and unstructured data generated in supply chain network are underutilized, which can be exploited by AI. Logistics companies also depend upon the network, both physical as well as digital as this industry is transitioning from traditional ERP system to advanced analytics, automation, robotics etc. AI helps the logistics companies to make their network more balanced and efficient which is not possible with humans thinking alone.

In order to understand, what the circumstances in logistics are where AI can be implemented, we should know, which the best real-world practices in other industries are.

1. **AI in consumer's daily life:**

   63% of the global consumers, cannot realise, they are using AI on daily basis and this tradition will keep increasing and will enable the consumers to see the world in a new way. In 2017, **Pinterest** launched a technology that identifies an object in picture and using ID tags, it shows photos as search results. Nowadays, people are using the same

technology on their Android phone with **Google Lens** to have search results. Smart tutoring App like **Duolingo** uses automatic speech recogniser and natural language processing (NLP) to identify grammatical errors and pronunciation in a language and corrects it. A lot of unstructured content are being generated on social media every day and IBM's **Watson Personality Insights** tool uses NLP to analyse the content generated by any particular person to understand his/her character, behavioural changes even sometimes purchasing pattern.

2. **AI in enterprising the business:**

   More and more companies nowadays are welcoming AI to multiply their business activities mostly in four categories.

   Customer support: - Chatbot is the main tool that companies are using to interact with the customers with virtual agents. Statistics says that the global market size of chatbots will be $1.25 billion by 2025. Chatbots can help the global businesses to save 30% of $1.3 trillion they spend on customer service requests. **Autodesk, Freshdesk, Salesforce** are some of the front runners who provide complete helpdesk software solutions.

   Input management: - In an organization, an average knowledge worker has to send or receive near about 120 emails per day. The person has to scan the documents and spreadsheets, has to take care of the destinations where the documents are to be sent. **VKB**, a German insurance company has developed an AI based input management tool, with the help of IBM Watson, that identifies the topics and the sentiments of the mails and letters, prioritize, and route them towards the correct department they are supposed to be sent.

3. **AI in retail:**

   A research says, only 2% of the customers buy on their first visit on e-commerce sites. Therefore, companies use re-targeting to acquire those non-converted potential customers. Still, 40% of them be convinced by the re-targeting as most of them find it scripted and impersonal. Here comes the essence of AI driven Recommender System for e-tailers and retailers as well. 80% of the contents are watched on OTT platform **Netflix** are the fruit of

recommendation system. **Amazon**'s 30 % revenue comes from product recommendations only. AI is not restricted within online platform but also providing exciting in-store shopping experience as well. American retailer **Lowe's** is using a customer support robot called **OSHbot** that provides the specific product details and accompany them to find the exact location where that particular product is kept.

4. **AI for autonomous transportation:** Using deep learning algorithm, the autonomous cars try to identify the objects nearby, read the street marks and traffic signals, feel the road conditions and adjust the speed limit accordingly. More the new environments the car has approached, more it develops its capabilities. All top automobile manufacturers like Ford, BMW, Toyota are into the journey of developing autonomous cars. Tesla has already developed their own autonomous cars using patent AI manufacturing techniques and Bosch, Nvidia are making the sensor components, chips and algorithms to support further development.
5. **AI in manufacturing:** Accenture estimated, by 2035, AI powered technologies will increase labour efficiency by 40% across 16 industries including manufacturing. AI is performing manufacturing, quality control, shortening the design time, reducing the waste, and improving product reuse, performing predictive maintenance and many more.

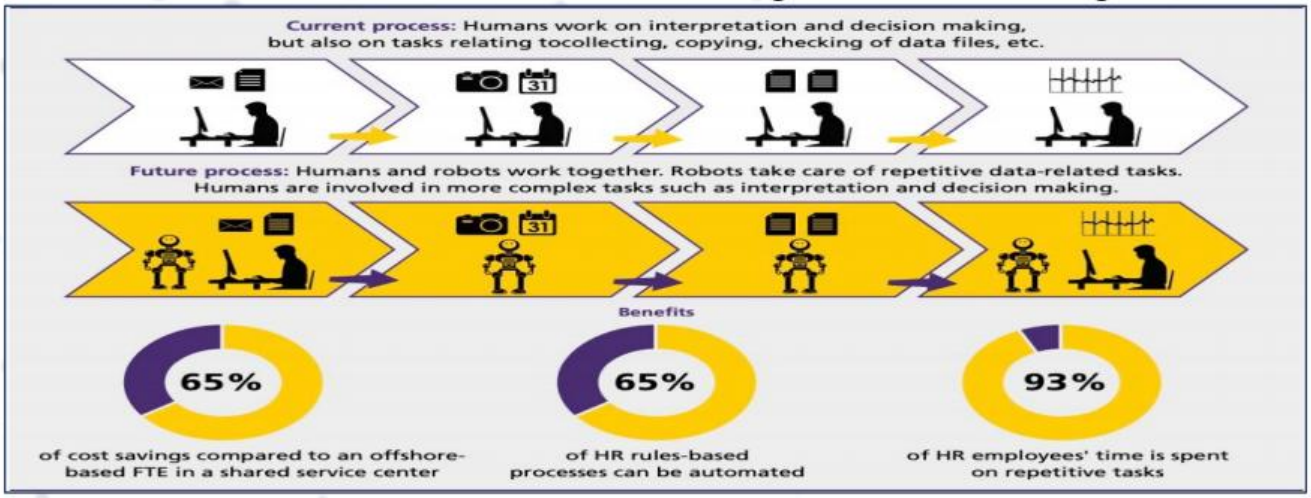
Artificial Intelligence in logistics

Back Office AI: The global organizations face immense pressure to handle all their internal functions like finance, HR, legal and IT, comprised of large amount of detailed data and repetitive tasks. Here comes the solution.

Cognitive automation: It is a complex and automated business process designed with combination of AI and robotic process automation (RPA). Here, RPA performs all the repetitive tasks, and provides the processed big data sources accessible to AI. AI makes the decisions and judgements learning from human bases on the data handed over by RPA.

Financial anomaly detection: - Today, logistics service providers often depend upon the third parties to hire common couriers, staffs, charter airlines or vendors to support their business operations. It generates millions of invoices, ledgers, bills for the vendors, partners or service

providers which put massive load on the accounts department. Natural language processing can fetch the data like billing amounts, accounts information, transaction dates and name of the parties involved and transfers these data to the RPA system. Then it inputs the data into the existing accounting software and generates order, performs the payments, send the confirmation emails without any human involvement.



Source: Earnest and Young

Cognitive contracts: - Business contracts are often written in bombastic complex legal language. Natural language processing can read and interpret the

paper in fraction of time and classifies the legal clauses.

Predictive Logistics:

Logistics service providers have already adapted predictive analytics to forecast the parameters involved in their day to day operations so that, they can take proactive actions in response of any inconvenience arises.

Predictive network management: -

In air freight industry, being on time and in-full shipment are very important factors as this industry carries 1% of global trade in tonnage but 35% in terms of value.

Though most of their air freight routes and networks are designed by historical data and prowess of professionals, **DHL** has developed an AI based tool that predicts whether the average daily transit time for a particular lane is expected to fall or rise in a week advance. It also finds the causes,

influencing the shipment delays.

Predictive demand and capacity planning: -

DHL's Global Trade Barometer is a unique uncovering of an indication tool. It is connected with live data of millions of

data sources related to global trade. Using enormous logistical data, AI and analytical models, it generates a rough outlook of the global economy. It is continuously gauging 240 million variables from seven countries (US, UK, Germany, India, Japan, S Korea, and China) that is a volume with 75% of global trade and expressing a single measure that represents the weighted average of current trade growth worldwide and for upcoming two months down the line of global trade.

Intelligent route optimization: - Route optimization is very critical for any logistics service provider to have an approximate optimal route for specific performance of the vehicle such as shortest distance, minimum time etc. from source to destination, avoiding the obstacles associated. **Deutsche Post DHL Group** introduced the routing initiative called **Smartruck,** creating a routing algorithm for their truck drivers. Nowadays, soft infrastructures like satellite maps, traffic patterns, and social media check-in locations are leveraging the system to improve the truck driver's on road experience. An imaging company **DigitalGlobe** has tied up with **Uber** providing high resolution images of planet surfaces to improve the selection of pick-up or drop-off locations and navigation.

Seeing, Speaking and Thinking Logistics Assets:

Computer robotic sorting: - It is an effective and useful technique in parcel industry which till date relies upon human workforce for sorting letters, parcels and palletized shipments. A Finnish company **ZenRobotics** has developed a robotic

Source: DHL

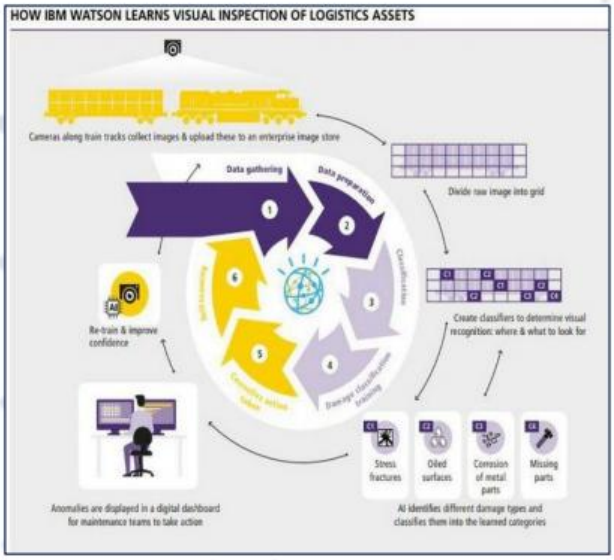
waste sorting system, combining computer vision machine learning algorithms and embedded it into robotic arms. It automatically sorts and picks recyclable items from the moving conveyer belts. The same technology can be implemented at parcel industry as well.

Autonomous guided vehicles (**AGV**) are playing crucial role at industrial units as a medium of movement of goods between locations replacing traditional forklifts or wheeled tots.

AI powered visual inspection: - In an industry like logistics, daily wear and tear of equipment is very frequent. Many firms are

using IBM Watson's cognitive visual recognition, for maintenance purpose of their physical assets.

Autonomous fleet & truck platooning Autonomous vehicles have the potential to change the future logistics industry. It's being already used in intra logistics, line haul tracking and last mile delivery by various organizations. **Truck platooning** refers to interconnection between two to five trucks with help of machine-to-machine communication and collaborative assisted cruise control technology. Here all the trucks follow the leading truck with automatically synchronized acceleration, braking and distance in between. The platoon will be controlled by a human driver on the leading truck with a back-up driver in each if required. The **British Transport Research Laboratory** together with **DHL** and **DAF Trucks** conducted a platooning project on UK motorways in 2019.It is imminent that AI is the budding future in logistics industry. As



Source: IBM

the global supply chain leaders are keeping their transformation towards being digital, AI will become bigger and

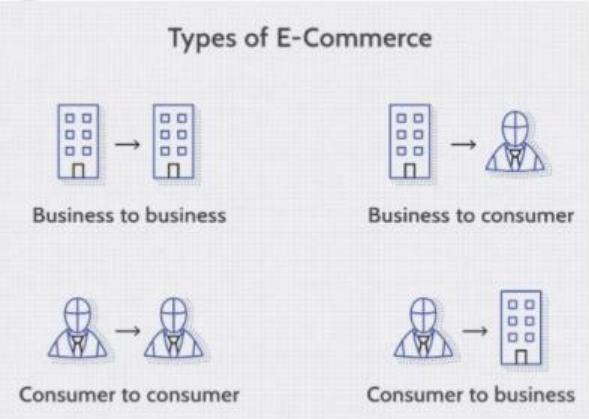
intrinsic part of day-to-day businesses, advancing the path towards proactive, predictive, automated and customized future for logistics.

Debpratik Ghosh
MBA 2019-2021

Need of Data Analytics for E-Commerce

E-commerce refers to trading via internet. It refers to selling and buying process happen between firms and individuals over internet. There are four types of E-commerce businesses exist.

- Business to business (B2B)
- Business to customer (B2C)
- Customer to customer (C2C)
- Customer to business (C2B)



Source: Bloomidea_E-commerce

E-commerce helps to provide convenient shopping to customers by being online 24 hours a day and offers wide variety of goods for choice. But it does not facilitate

services to experience the product before purchasing as in traditional shopping.

Online Market Workings:

Now a days, the online business is growing up, reason is very simple that we can

compare the products, availability and prices at the different sites and compare them for the best suitable product for customer's need or want. Also, the benefit of making payment by the different options like credit card, debit card, COD, etc. and easy return policy, made the shopping very convenient. The flow of task performed during the online process is as follows:

Step1: Customer interface with online site.

Step2: Selection of Products.

Step3: Get best offering by comparing on different sites with best prices.

Step4: Fixing the product through the specific site.

Step5: Selection of COD/Other Payment Options.

Step6: Order confirmation.

Step7: Details about Easy return policies.

So, this whole E-commerce business industry is having large amount and large scale of data which should be handled and organized with proper and perfect

Mechanism, such as Big Data. The following are various sources of big data.

- Web logs
- Sensor network
- Social media
- Internet text and documents
- Internet pages
- Search index data
- Atmospheric science, astronomy, biochemical, medical records
- Scientific research
- Military surveillance
- Photography archives

How Big Data Analytics will help the E-Commerce Business?

Companies have started using data analytics to streamline operations and improve their business processing. But using and implementing analytics data is not easy as it seems to be. Three major goals our ability to reduce cost, increase profitability and improve risk management.

Now it's a time where the analytics is used for everything from predicting Supreme Court cases outcomes to enhancing marketing campaign, sales analysis and job analytics. If organization will understand how it helps it will address the long term and short-term success in itself. Some major following importance's are:

I. Analysing data to identify business opportunities: Analysing increase efficiency, but also helps identify new business opportunities. This reflects potential for growth and profitability and makes people of organizations more intelligence based. Companies get clear picture about what customers buy and give but products should be highlighted or updated with the help of computer models based on data analytics. It can also be utilized as the AI and machine learning in transformation of hiring processes and other human resource tools like decisions on promotion performance evaluation employee engagement and professional development.

II. Using analytics to prevent shipping breakdowns: E-Commerce having logistic challenge of delivering millions of packages each day turned to analytics to maximize the performance and reliability of their vehicles. And the sensor data in vehicles can help companies to keep track of the state of parts and vehicles and determine what parts may be proved to be problematic. if company address the problems before they become major issues it will help them to stay their vehicles on road and don't interrupt the floor business and help them to reduced driver down time, overall

maintenance cost and customer dissatisfaction. And use of analytics in mechanical maintenance, E-Commerce has made it more efficient.

III. Better targeting customers with business analytics: Predictive analysis can be used for a ton of information companies have that help to understand a customer's experience with a brand. The right tools to examine your company's buying and internet browsing habits and implementing them to provide reliable and actionable intelligence should be there to activate buyers instance and create your brand image into customers' minds.

IV. Improve internal processes with data: Business operators can have a clear picture whether they're operating efficiently or inefficiently with the help of data analysis. Professionals with an analytics background can answer the following questions after identification of problem

- What was the cause of the problem? (Reports)
- Why did it happen? (Diagnosis)
- What will happen in the future? (Predictions)
- What is the best way forward? (Recommendations)

These questions can be answered by the data mining and analysis which will help any E-commerce business to have confidence that they're going on a correct path with best approach. Data mining helps in improving the business processes in many areas (from streamlining the communication in organization's supply chain to improving quality and relevance of its offerings).

Deepanshi Dhawan
MBA 2020-2022

Supply chain 4.0 and Amazon

Industry 4.0 breaking the traditional barriers and is changing the face of supply chain. Industry 4.0 is driven by the blend of disruptive technology, like Big Data and analytics, 3D printing, automation, artificial intelligence and augmented reality. With the change in industry, supply chain too is under transformation. Supply chain digitization, or "Supply Chain 4.0," Promises to eliminate inefficiencies and reduce costs while at the same time enhancing efficiency. Technology drives a huge opportunity, but it is also the biggest challenge to supply chain management.

Digital supply chain is the application of electronic technology in every part of the supply chain. The disruptive technologies that are transforming a traditional supply chain to digital supply chain are:

1. The Internet of Things (IoT)
2. Business Intelligence
3. Big Data
4. Advanced Analytics & Artificial Intelligence
5. Predictive Analytics
6. Machine Learning
7. Virtual Reality
8. Augmented Reality
9. Robotics
10. Robotics Process Automation
11. Autonomous Vehicles
12. Drones

Efficient supply chain and responsive supply chain were always traded off in the traditional supply chain. But Supply chain

4.0 makes it possible to become both EFFICIENT and RESPONSIVE Supply chain.

Source: Businessinsider.com

From the traditional supply chain, it is observed that Cost and Responsiveness are traded off. To be a cost-efficient supply chain, the response time is high. To be a responsive supply chain, the cost is high. The direction of improvement is towards low cost and short response. Supply chain

4.0 made it possible. Let's take a look at Amazon, which uses Supply chain 4.0

Amazon has always been the one to invest and use disruptive advancements in digitization of its Supply Chain. Amazon has always been the flag bearer in adopting the supply chain 4.0.

The impact of digital market place changed the retail business model. Customers like the fast response. To make the delivery fast, distribution centres should work continuously. Orders are not processed in batches. They are processed as soon as the orders are created from the warehouses. Is that all, no. To keep the inventory moving fast, more deliveries should be scheduled at the distribution centre, inventory managements becomes the key, vendor managed inventory process helps to fill the orders in a faster demanded schedule. Also, for faster deliveries, smaller and frequent deliveries or logistics is required. With the change in consumer preferences, Amazon also is making relentless changes in its supply chain.

How does Amazon do it?

By integrated planning & execution, logistics visibility, smart warehousing and analytics. Distribution mistakes are reduced and order fulfilment process is expedited by matching orders to its nearest distribution centres automatically

Source: digital.hbs.edu

by its ERP system. Big data analytics is used to understand and predict purchasing patterns and expedites the delivery.

Amazon is investing heavily to automate its fulfilment centres. Automated Mobile robots are used for order picking and packing process, by Kiva systems. Amazon has 45000 robots in its warehouses.

Dash buttons are small buttons that allow consumers to buy normal household products just by one-click, making it easy. More than 300 dash buttons for various products are in use and more than 5700 orders are received daily. Amazon also got approval for delivery of packages by drones by FAA, on September 1st 2020. Amazon's self-piloting drones are used to deliver ordered items in 30 minutes. No doubt Amazon is ahead of its competitors, but the real competitor is the changing behaviour of consumer. Amazon should focus on consumer choices on sustainable cost basis. Will it be able to justify and

sustain the cost of last mile delivery with respect to the small value orders?

Amazon's Supply chain is in pace with the Industry 4.0, but the real question is, can it survive and continue with the innovations without compromising the profits in long term?

Source: www.scmr.com

Hareen Sankar
MBA 2019-2021

Key Role of Data Analytics in Gross National Happiness

We can't buy happiness with money. From this, the idea of Gross National Happiness (GNH) came up in a country named Bhutan, where the former king of the country thought that the increasing/decreasing of Gross Domestic Product (GDP)/ Gross National Product (GNP) doesn't define the happiness between people and countries. It is the economic measurement and also the moral progress of a country, which depicts the qualitative information of a country rather than focusing on quantitative data. There are four pillars and nine dimensions that build GNH. The pillars are, promotion and advancement of sustainable development, keeping intact the cultural values of the country, preservation of the natural environment, and formation of good corporate governance. The nine dimensions are:

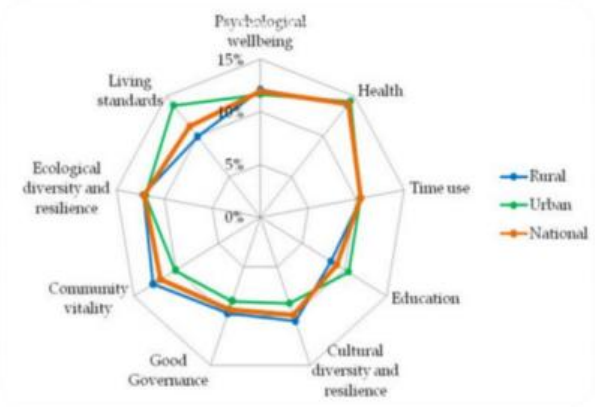
GNH represents the all-encompassing necessities of the human individual - both physical also, mental health. Its reasons that while the material turn of events measures contribute, unquestionably, to upgrading actual prosperity, the perspective which is maybe, more significant than the body, isn't moulded by material conditions alone. We know that

Source: www.jeninbhutan.wordpress.com

happiness is the final goal and also is desired by all human beings, but not followed by all beings. It becomes essential for an economy to realize the happiness within a country so that the government can provide the right sustainability.

This is where Big Data Analytics comes into play, the country should be able to change Gross National Happiness into Gross National Happiness Index (GNH Index) where the qualitative data is turned into quantitative data and thus, the Government can make wise decisions and bring in the necessary changes into the nation.

So, Analytics used in Gross National Happiness through occasional delegate overviews of the population (With 20 districts there will be a 1% population of respondents). The first one was done in 2006 which was followed by other national surveys in 2008 and 2010 from which the index started developing. The survey that was created had 72 questions which described the 33 indicators of the 9 dimensions). The data is then brought together for further analysis and interpretation. It is analysed to determine from which part unhappiness is arising from which the government can make the necessary changes in their policies. Taking an example from the data, rural Bhutan is unhappy in the sector of 'less education, living standards, and balanced use of time'. At the same time when this is observed in urban Bhutan, people are unhappy in the areas of culture, community vitality, and psychological wellbeing. Through analytics, the country was able to identify the areas in which their people were unhappy, and thus the Government has brought in the necessary changes.



Source: www.ophi.org.uk

Rural and Urban Populations

Being able to identify the 'happiness' within a country through analytics the country and its government is able to reform its policies and with the nine dimensions, they are able to better it. Looking at the picture, it is evident that the rural sector of the population is less happy than the urban population of the country. Through analytics the country is able to:

Setting an alternative framework of development

Since the country has policies that are related to the economic statistics, the GNH indicator gives the government to build policies that help the people in developing their inner – self which results in a positive outcome.

Providing indicators to sectors to guide development

With understanding where the 'unhappiness' in a sector lies in the country, the government is able to bring in new changes and also new ideas into the country. Through analytics, they are able to identify the problems and are able to better it.

Allocating resources in accordance with targets and GNH screening tools

Although using GNH completely wise, the analysis of the data gives the government a clear idea as to where to use the right resources for the development of the country.

Measuring people happiness and well-being

The analytics of understanding 'happy' and 'unhappy' gives the country an overview of the human development index which helps in understanding where their people stand at the moment.

In Bhutan a data science workshop had occurred on November sixth to eleventh, that had examined and discussed questions that identified with the estimation of joy with specialists in data science, Buddhist authority had to make a decision over Gross National Happiness. The Data Happy gathering and workshop will include an elevated level of participatory cycle, cooperatively investigating ways by which people can add to the estimation of Gross National Happiness consistently.

Getting a little deeper into the analysis and understanding of analytics in gross national happiness, the nine dimensions of GNH are broken down into 180 questions which collide with each of the dimensions. The survey is then conducted in the country of Bhutan. When the surveys are collected, the data received is analysed and interpreted to understand what keeps the people of the country 'happy' and 'unhappy'.

Psychological well-being

This dimension understands and assesses the evaluation of the level of fulfilment and idealism in one's life. The pointers examined are confidence, feeling of ability, stress, profound exercises, and the predominance of good and negative feelings.

Health

The dimension analyses the adequacy of wellbeing arrangements, with standards, for example, self-appraised wellbeing, incapacity, examples of danger conduct, work out, rest, sustenance, and mental health.

Use of time

This dimension plays a crucial role in the analysing and interpretation of well – being. The utilization of time is one of the main components in personal satisfaction, particularly an ideal opportunity for amusement and associating with loved ones. A reasonable administration of time was assessed, incorporating time spent in traffic, at work, in instructive exercises, etc.

Community vitality

This dimension primarily focuses on relationships between people. There is a sense of belonging, the love and also the fact that is there care and giving in the people they know in their community.

Education

The country has both, rural and urban parts to it, which means the education sector is very important to understand the happiness of an entire community. This depicts the skills, capabilities, knowledge, values and also the importance of culture and environmental education.

Culture

Keeping in mind, every country has its own traditions and values to follow. So there is an evaluation of the core values, festivals, is there any problem of discrimination in the country regarding race or gender, and what is the scope of improving artistic skills.

Environment

In this dimension it is the understanding of the environment of the country. It is related to the quality of air, water, forest etc. This depicts how concerned the people of the nation are towards environment.

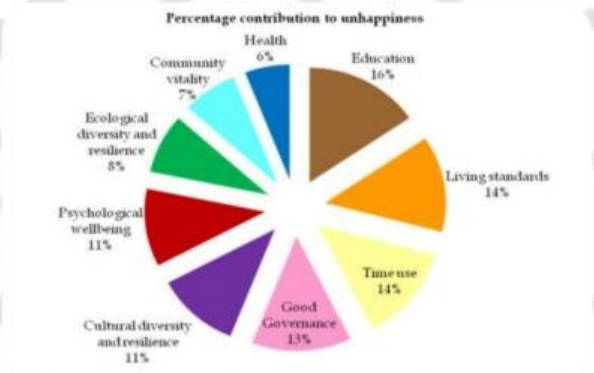
Governance

This is related to how the population of the country views the government and also the media and how well it understands the judiciary, the system and how much they believe in it.

Standard of living

Assessed individual and family pay, monetary security, the degree of obligation, business security, the nature of lodging, etc. Through the help of analytics after the survey results are submitted, they are analysed and interpreted into making little pictorial diagrams to understand where the country lacks behind and also allows them to improve on it.

In the pie chart, it is quite evident that the lowest contributor to happiness is the health dimension. This means that the people of the country are very well versed in the policies given by the government in this sector. Now, the government knows that it has to focus more on other sectors like education and time used to improve the Gross National Happiness. The people who are still unhappy play an important role as they should also be affected positively by the changes and the new policies brought into the country.



Source: www.ophi.org.ukHappiness-Chapter

In conclusion, Gross National Happiness is an extremely important indicator in terms of understanding the people's needs and wants in terms of the nine dimensions and the 33 indicators.

With the help of data analytics, the country is able to bring together all the data and is able to interpret qualitative data into quantitative data. This data is then used to understand the necessary changes to be made in the policies to better the living standards, physical health, and mainly the mental health of the people.

Harshita Chowdhary Kamma
MBA 2020-2022

When AI meets IoT

AIoT: When AI Meets the Internet of Things

The Internet of Things (IoT) is an innovation pushing us to rethink everyday life, but artificial intelligence (AI) is the real driving force behind the IoT's full potential.

From its most fundamental applications of tracking our fitness levels, to its wide-reaching potential across enterprises and metropolitan arranging, the growing partnership between AI and the IoT means that a smarter future could happen sooner than we might suspect.

AI + IoT = Superpowers of Innovation

IoT gadgets use the internet to convey, gather and trade information about our online exercises. Every day, they generate **1 billion GB** of data.

By 2025, there's projected to be 42 billion IoT-connected devices around the world. It's just normal that as these gadgets number develop, the swaths of data will too. That is the place where AI steps in, loaning its learning abilities to the network of the IoT. The IoT is empowered by three key rising advancements:

- **Artificial Intelligence (AI)**
  Programmable capacities and frameworks that empower gadgets to learn, reason, and cycle information like humans.
- **5G_Networks**
  Fifth generation mobile networks with turbo speed, near-zero slack for real time data processing.
- **BIGDATA**
  Enormous volumes of data processed from numerous web associated sources.

Source: www.visualcapitalist.com

Together, these interconnected gadgets are transforming the manner, we interact with our gadgets at home and at work, creating the AIoT ("Artificial Intelligence of Things") simultaneously.

The Major AIoT Segments

So where are AI and the IoT headed together?

There are four significant segments in which the AIoT is making an impact: wearables, smart home, smart city, and smart industry:

1. Wearables

Wearable gadgets such as smartwatches ceaselessly screen and track client inclinations and propensities. Not just has this prompted to impactful applications in the health-tech sector, it additionally functions admirably for sports and fitness. According to leading tech research firm Gartner, the global wearable gadget market is assessed to see more than **$87 billion** in revenue by 2023.

2. Smart Home

Houses that react to all our solicitations are not, at this point confined to sci-fi. Smart homes are able to leverage appliances, lighting, electronic gadgets and more, learning a homeowner's propensities and creating robotized "uphold".

This seamless access also brings about extra advantages of improved energy efficiency. Hence, the smart home market could see a compound annual growth rate (CAGR) of 25% between 2020-2025, to reach **$246 billion**.

3. Smart City

As more and more people flock from rural to metropolitan territories, urban communities are evolving into secure, more convenient places to habitat. Smart city innovations are keeping pace, with investments going towards improving public safety, transport, and energy efficiency. The practical applications of AI in traffic control are already becoming clear. In New Delhi, home to some of the world's most traffic-blocked roads, an Intelligent Transport Management System (ITMS) is in use to make 'real time dynamic decisions on traffic streams.

Category	Today	Tomorrow
Edge computing	Smart thermostats Smart appliances	Home robots Autonomous vehicles
Voice AI	Smart speakers	Natural language processing (NLP) ePayment voice authentication
Vision AI	Massive object detection	Video analytics on the edge Super 8K resolution

Source: This table is developed by the author

4. Smart Industry

To wrap things up, ventures from manufacturing to mining rely on digital transformation to become more proficient and lessen human blunder.

From real-time data analytics to supply-chain sensors, smart gadgets help forestall exorbitant blunders in industry. In fact, Gartner also estimates that **over 80%** of enterprise IoT projects will consolidate AI by 2022.

The Untapped Potential of AI & IoT

AIoT innovation is only hastening, and vows to lead us into a more connected future. The AIoT fusion is progressively becoming more mainstream, as it continues to push the boundaries of data processing and intelligent learning for years to come.

Rohith Sugantham

MBA 2020-2022

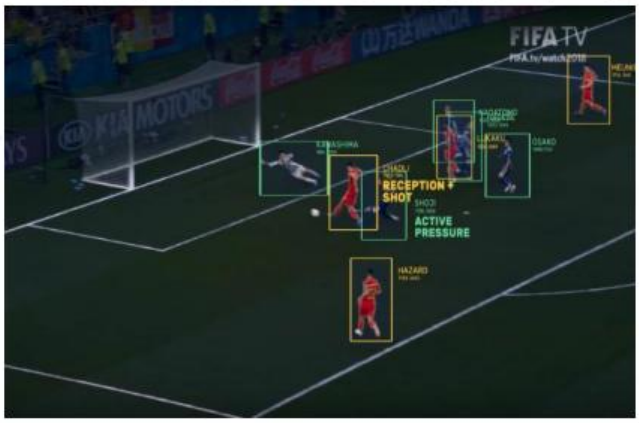
Analytics and Sports: The Dawn of a New Era

The era of digitization has transformed the lives of people. Along with digitization comes large volumes of data that are conveniently termed as Big Data. The amount of data that exists today has largely been generated over the last 4-5 years. This data revolution has helped transform various industries like entertainment, manufacturing, corporate, and is now making waves in the sports industry as well. Big data and the advancements in analytics tools have given rise to what can be termed as sports analytics. Sports analytics can be broadly defined as the use of various data analysis techniques to glean through data and obtain insights that help in formulating strategies for the games.

One of the sports that has employed the use of analytics is Football. Football or Soccer as it is known in some places is one of the widely followed sports around the world and is hugely competitive. Teams have turned to analytics to help them stay ahead in the race and win titles. They employ sports analysts to mainly obtain information about the team's performance and find out ways to improve the performance levels to better the odds of winning. The data is collected through the equipment that is worn by players and is then thoroughly analyzed to get results. The data can be used in the predictive analysis to find insights as to how the team should look like and what their approach to the game should be. This can help at an individual level as well as on a team level. From an individual perspective, the data can tell the coaches how well a player performs, what conditions suit the player the best, the number of sprints made, ball retrievals, passes made, and much more. It can also help the physicians analyze the body response of the player after a game, which can help in early detection of any injuries, alert them to the possibility of an injury that can be sustained. All these insights help in formulating individual training regimes, diet plans, gym sessions, and specific exercises to strengthen the players to prevent injuries as much as possible. The modern game is demanding both physically and mentally, making it more important to manage the workload of the players more effectively and this is where analytics can be the game-changer. Interactive dashboards with the help of software like Tableau can help the coaching staff obtain subtle details and also enables them to view the data in a more detailed manner. The match

footage can also be analyzed to get valuable information about the opposition players and identify certain areas of weakness and make plans to take advantage of them. From a team perspective, it allows coaches to set their teams up in such a way that the players' performance is high and they can penetrate the opposition and gain a victory.

The data and the subsequent analysis do not help only the teams with their performance on the field but also helps them with fan engagement. Any player would agree that fans play a massive role in a game and thus to keep them satisfied and happy is a top priority for the teams. With smart-phones, the expectations of the people are changing and is also changing the way the sport is experienced. Data can help the fans get updates through their smart-devices in real-time, instant-replays, and videos of specific players, player stats, or even ordering food to their seats. The television experience has become better than before with the capability to stream multiple channels, thereby emphasizing the need for teams to use analytics to create a sporting experience like no other. One common and popular way of collecting data is through the launch of membership for the fans that allows them to get content that is not available otherwise. Video interviews, fun quizzes with players, behind-the scenes action are some of the content that is made available through the membership. Various clubs like FC Barcelona, Real Madrid, Manchester City, and Liverpool have launched their apps with also provisions to book a stadium tour and match-day tickets. Understanding the people and their preferences is important even in the sports industry and analytics can help create a world-class stadium experience.



Source: FIFA TV

Though analytics is being employed by more and more sports across the world, no

sport does it as comprehensively as Formula 1(F1) does. In a sport, where every second, every hundredth of a second matter, analytics can be the difference between coming first and second. Today's F1 machines are more than just a car. They are intelligent systems topping speeds of more than 250 kmph across circuits and have signified the evolution of technology in vehicles.

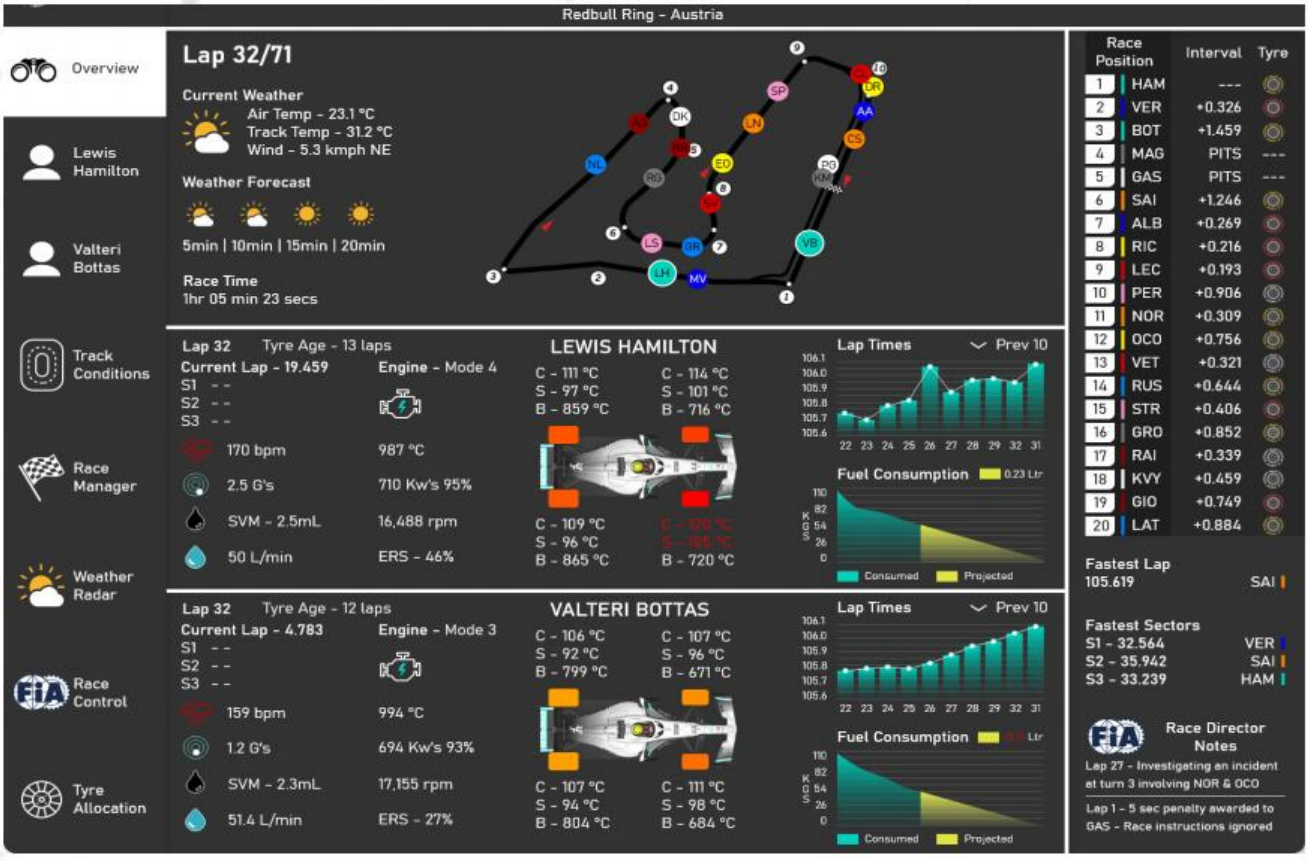
So how do drivers and teams manage to be successful with a car that is loaded with technology? The answer is data and analytics. Modern races no longer depend only on the skills of the drivers, their knowledge of the circuits, and the on-spot decisions they make. Consider the Hollywood blockbuster: Ford vs. Ferrari where Ken Miles played by Christian Bale won the race due to his skills, handling of the car, and knowledge of the circuit. Now imagine the same race with a plethora of data that can be beamed back from the car to the teams at the garages at very high speeds, which can then be analyzed to ensure optimum performance of the car. This is what modern race cars do. They send back volumes of data that allow engineers, mechanics to monitor the car.

This brings the next question: What kind of data is collected? The answer: Almost everything that can be measured. Today's F1 cars have around 200-300 sensors fitted in them. The sensors monitor the performance of the car, the engine, the airflow, G-forces, the tire pressures, tire performance, the wear and tear of the wheels. The conditions of the track are also monitored like the wind speeds, the humidity, and the temperatures at various points throughout the track. These large chunks of data are crucial as they impact the car and its performance. For instance, the wind speeds across the track can have a significant drag effect on the car, thus slowing the car by very minute margins. But in a sport where winners are often decided by these fine margins, it is all the more important for teams to study the effects of such various factors on the car and devise plans to minimize the time lost. The data helps the teams gain insights about the performance of the car during practice sessions and then make strategies for the race-day. Even during the race, the various measurements like the wear and tear, track conditions are monitored and the teams can make decisions to fine-tune certain parts like the power settings, aerodynamics to ensure the car stays out on the track in the best possible condition. The data also helps identify trends that can be beneficial to determine the optimal car setup. But in the previous era's where technology was not as sophisticated as it today, drivers had to flick a switch to collect data whenever it was needed. This meant that at times certain performance

parameters could go unnoticed until very later and it may prove to be detrimental for the drivers. However, the technology of today is robust and fast that data can be sent within the blink of an eye with the data amounting to anywhere between 3TB to 40-50 TB over a race weekend with 2-3 GB of data being sent over each lap. Limitations on the number of crew members who can present in the pits mean that analyzing all the data becomes complicated. Hence the teams send the information back to the team HQ where

sent back again to drivers to enable them to handle their cars better.

Data is also used in the development and testing phase as well. Building an F1 car is no easy task and building a highly robust and competitive car is all the more challenging. This is again where analytics can help bridge certain gaps. The teams with the knowledge about the car's performance in previous races can use them to re-engineer the car and make adjustments that would further enhance



Source: Google Images

every single parameter is analyzed comprehensively and then the results are

the car performance. Predictive analysis, cloud computing is some of the tools that help in achieving the near-perfect race

car. The drivers can perform simulations to understand the car and how it performs. This is one of the reasons that in recent times, drivers who are relatively inexperienced and new to the circuit have managed to win races since they have been able to practice a lot through the simulations thereby reiterating the fact that races nowadays no longer depend only on experience. Another important aspect where data comes handy is during the pit-stops. Pit-stops need to be fast, efficient but they have to be perfectly choreographed and executed, otherwise will result in the loss of valuable seconds. Pit-crews undergo training and data collected from these training can be analyzed to find out where time can be minimized. The biometric data from the crew like heart rate, recovery time, body temperature can be captured which allows teams to assess the crew performance and chart-out further training and fitness programs, to reduce the time taken during the pit-stops by improving their performance. The drivers also have their health parameters monitored constantly to detect any signs of fatigue, illness, or dehydration.

It is not just the teams that benefit from the data and their analysis. Fans also enjoy the information that can be accessed to view the performances of their favourite teams. The analysis allows broadcasters to portray information such as lap times, gaps between cars, the probability of drivers overtaking, pit-stop times, and thermal images of the car, live-radio feed between the driver and the engineer, and much more. This helps to keep the audience involved and gives them an inside look as to what happens during a race weekend. Since a lot depends on the right use of the data and its analysis, teams have teamed up with companies to help them analyze the data. While Mercedes has teamed up with TIBCO, some teams have joined hands with Microsoft to help with gaining insights that may be unrecognizable to the naked eye. During one of the race seasons, Mercedes who were comfortably winning suddenly faced stern competition from their rivals, Ferrari. The team quickly gleaned through the data to find out ways to improve their performance and within 4 races were back again at the top.

The use of analytics in sports has picked up pace over the last few years. Sports analytics as a market was valued close to USD 1 Billion and is expected to grow up to USD 3 Billion, though these numbers could get affected due to the current pandemic. Nevertheless, the sports industry needs analytics and will drive more decisions across sports.

The use of analytics has picked up in various sports like baseball, rugby leagues, cricket, and tennis. The future could see more accurate predictive models, further developments in the field of AI, ML that could supplement Big Data and Analytics, helping the sporting fraternity gain valuable insights and knowledge which will help both the teams and the fans.

Saihariharan S.
MBA 2020-2022

INDUSTRY BYTES

Tarun Malhotra
Bank of America
MBA 2018-2020

Brain storming sessions with my seniors in the IBS Analytics Club on hot topics starting from basic science to complex engineering to finance made me realise the potential of analytics. Analytics plays a key role in making or breaking a company. This trend had been there and will continue with the advent of new technologies. This is something that you will learn better when you experiment new things. This is a field where there is no end to learning, there's always something more!

After working on many research projects and papers in the field of academia, I found that analytics plays a very significant role. After presenting and publishing my research studies on various national and international platform in the area of Internet of Things (IoT), Predictive Analytics, Machine Learning, Supply Chain Management (Supply Chain Analytics) I could say that with the help of analytics, one could easily get an edge over others. Interpretation of data is very important and when done in the right direction, helps the organisation in many ways like revenue generation, reduction in process time, cost-saving etc. Having the knowledge of Microsoft Excel, R, SAS I was able to differentiate my work and achieve a competitive advantage in my area.

Laxmi Pandit
MDI Gurgaon
MBA 2018-2020

A Management Discussion on the Topic

"Enhanced Marketing Experience: A Result of Technology Driven Outlook"

Management Discussion is just a tool! You have to aim; the final goal must be a decision.

Research vertical (Matrix) of IBS Analytics Club conducted the MD on **"Enhanced Marketing experience: A result of technology driven outlook"** on 17th of November. Over 98 participants joined the session. It was a very insightful and informative session with detailed explanation of technologies that are being used in marketing. Presentation was in synchronisation with the presenters and was very creative, even if you missed out on what the presenter is speaking you can have a look on the screen and you will be back on the track.

We live in a technological age. Take a close look at the lifestyle you possess. The explanation why you're reading this article is technology. Millions of companies use technology-driven marketing today to carry their brand to a new stage. By making campaigns more personalised, marketing has changed. Many such technologies were discussed and explained with examples.

Business Has Two Words Marketing & Innovation, When Technology Stretched Its Hand in Marketing the Era of Marketing Transformation from Old School to The

Transformation of Millions of Business Sectors. And here comes 'Martech' (Marketing & Technology), the whole MD is on how innovation not only enhances Marketing but also redefines customer experience.

Speaking of AI, what comes first in the mind of Artificial Intelligence or Robots but AI can enhance your marketing experience. Example of Starbucks was given, it uses Predictive Analytics to work out recommendations made for you by their customers. AI in marketing may feel like a science fiction beyond reality to many, but Artificial Intelligence is no longer a distant concept. In fact, by 2021, companies are expected to spend $ 57 billion on AI platforms. Many marketing solutions and customer communication tools are already using some of these in-depth learning programs, and will be a step in the right direction for marketing software as technology continues to evolve.

Artificial intelligence is a rapidly evolving and growing industry, and we can expect to see many new opportunities and marketing software emerge in the next few years.

One area where AI is likely to find human marketers is in SEO. Since SEO is a data-driven exercise and search engines use their algorithms to determine which order to place websites on their results pages, this makes it a natural fit for the technology.

There is already software that creates an automated website that captures design and content in real-time SEO. This not only works for testing and manual testing, but also means that websites can automatically configure algorithm updates without the time and resources required by a personal SEO expert.

Google has invested heavily in in-depth learning and has already released cloud software that allows you to build your in-depth learning software without the need for professional software developers. This is just one indication that while AI is becoming more complex and powerful, it is also easily accessible to anyone to benefit from.

Not just AI or SEO that transforms someone's understanding BIG DATA is also helpful in Marketing. Using IoT or another medium in the Marketing field we can see a variety of changes. When we use 4P's we see that. From Ford, Amazon or Bigbazar the whole industry makes the most of BIG DATA to grow their business. in this context IoT & Cloud computing is very helpful. Since IoT is the main source of any DATA from structured to unstructured and storing that data in the cloud helps to make the whole process easier to manage. Not only is data centralization and automation easy

but also human arrogance or human error now negligible.

By analyzing the data, a marketer is able to understand consumer behavior at a specific time and specific situation. Based on that company can approach the consumer with their existing product or a new product. Basically, product development and penetration will be easy for any company. IoT devices give the opportunity to both the consumer and company in terms of communication. For a company now a customer management system (CMS) is easy. Many online platforms like Netflix, Amazon Prime, or Hotstar recommendation systems work more accurately based on real time data provided by IoT. The consumer now can expand their choices in terms of shopping. Not only its help in C2C & B2C marketing but also B2B marketing can grow with the proper amount of Data. With Cloud Computing businesses become more agile.

Marketers appreciate the liquidity of the cloud, which allows for growth and change as companies require flexibility, helping to gain greater control over their digital assets. It also helps to quickly measure and ship around the world in minutes. We can find in creating a basic idea in its implementation faster than before. This gives them the freedom to experiment and explore new ideas to diversify customer information and transform the business to improve their engagement.

The traditional marketing was outbound where organizations pushed their message to everyone and it was mainly one-way communication like TV ads, tradeshows, cold call and so on but now Cloud hosted services like YouTube and Facebook has facilitated inbound marketing. It is a way of engaging customers with content, marketing social media, search engine optimization and branding. This means that marketers are now able to attract customers through blogging, video tutorials and social media marketing. Cloud based analytics services have eliminated the need for solutions. Services like Google Analytics help businesses track lead on their website platform. This provides better information about each hope and helps to identify prospects that have a higher chance of conversion. Thus, it helps to follow the lead.

Also, Mobile marketing and social media marketing were discussed in brief, how consumers are now dependent on their mobile phones and how marketers are leveraging this to promote their product or service. Social media and mobile rule the world now so, ignoring the rise of mobile phone just isn't an option for the marketers. Several strategies are used to do so, like Mobile app advertisement, in-game

advertisement, voice marketing, etc. these are helpful for all types of businesses. Facebook is an excellent example of both social media and mobile marketing.

The main aim of marketing has never been to just sell more. It involves being able to come with the right kind of product for the customer, which can only be done with a thorough understanding of their behaviour. This is where some of the technologies that we discussed has helped bridge the gaps between the company and the consumer. Marketing is all about determining the needs and wants of the customer, And the technologies when combined with the some of the digital marketing techniques, help them to determine the right marketing strategies to be used and the amount of spending needed to better understand the consumers and their preferences.

The improvements and innovation in various techs have revolutionized the way marketing is carried out. And as the world moves more and more towards digitalization, the technologies become all the more important and the firms that make the right use of this will be the ones that emerge and remain successful.

Vishaka Kaushik
MBA 2020-2022

Akshay Ghosh
MBA 2020-2022

Meet the Team

EDITED BY

Aishwarya Patra

Diptakshi Mondal

Gomathinayagam P

D Madhusudhanan

Vishakha Kaushik

Yuvashree

COMPILED BY

Ankush Kapoor

Akshay Ghosh

DESIGNED BY

Ananda Bhargav Potluri

Shashank Bennur

ADVISORY TEAM

Aravindhan S

Hareen Shankar

Sanika Bhatkar

Sanjana Bhardwaj

Tanya Tonk

VOL 3 ISSUE 3 | NOV 2020

IBS ANALYTICS CLUB

ANALYZIA

MAGAZINE

IDEAS | TECHNOLOGY | ANALYSIS | BUSINESS

IBS

ICFAI BUSINESS SCHOOL

Hyderabad

Survey No. 156/157, IFHE - IBS Campus, Donthanapally, Shankarapalli Road, Hyderabad, Telangana - 501203