SRIJAN

THE OFFICIAL MONTHLY NEWSLETTER OF SRCC GBO

Cover Story

CHINA : THE STORY BEYOND INNOVATION
China's top manufacturers are betting on innovative technologies, smart product design, and the ability to respond at speed to changing customer needs.

In Focus

DEEP TECH: DEVELOPMENT IN AUGMENTED HUMANITY
Augmented Reality(AR) and multimodal interaction technologies have enabled non-invasive ways to augment human i.e., where humans and machines collaborate.

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Travelogue

Going Places - Fabulous Fukuoka !

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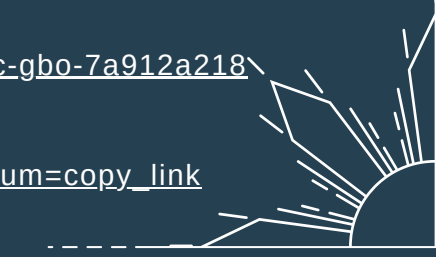
ACKNOWLEDGEMENT

CHINA:
The story beyond innovation

~ Subhangi
GBO IInd Year

In late April 2021, Video streaming app Bilbili got people talking with a huge advertisement in the skies of Shanghai — a scannable QR code formed by drones. Skies in China have become a battleground for advertisers hoping to seize the power of drone performances.

Earlier, Hyundai's luxury vehicle brand Genesis marked its arrival in China by employing 3,281 illuminated drones to paint its logo and other brand-related images over Shanghai.

In the past 30 years, China has come a long way, owing to its policies aimed at developing the economy and increasing capital investment. Today, China has emerged as a global power, with the second-largest economy in the world, and a burgeoning middle class. While many hold the belief that China's economic growth would have to be built on the same foundation as those in the west, many failed to foresee the Chinese government's continuing role as investor, regulator, and intellectual property owner.

Also, In China growth has come in the context of stable communist rule, suggesting that democracy and growth are not always mutually dependent. Many Chinese believe that the Country's recent economic achievements: large-scale poverty reduction, huge infrastructure investment, and development as a world-class tech innovator have been possible because of the government's policies. Here's an analysis of our take on the Chinese consumer growth, its global relevance, and its booming innovation ecosystem.

The Chinese Consumer
China was the first country to grapple with the COVID 19 pandemic. It was also the first country to emerge out of its woes. As the recovery took place, many crucial changes in the Chinese economy became apparent. Before COVID 19, China was already a digital leader in consumer-facing areas. The pandemic accelerated that trend. One of the important aspects here is Mobile payments. The technology of mobile payments was developed by Apple and Alibaba at more or less the same time in

2014. But the trajectories that mobile payments showed in China and the US have been drastically different. In the US, as many as 24% of iPhone users pay using Apple Pay, whereas, in China, WeChat Pay has 84% market penetration. Moreover, in the US mobile payments are mostly used for small transactions, unlike in China where are people are even refinancing their houses through mobile payments. Tech giants like Alibaba and Tencent not envision mobile payments as an entry point to a vast ecosystem of both offline and online goods and services—and they are using the data generated to transform financial services as well as the physical retail industry. Here it is worth mentioning the role of the Chinese state. The state gave banking licenses to Tencent and Alibaba to restrict the monopoly of public sector banks. (Fig 1 shows the number of online payment users in China from 2009 - 2020).

The population born between 1996 and 2010, 'Gen Z' makes up about 15 percent of China's population and represents the next engine of domestic consumption growth. This population has experienced great change in the standard of living, uses the internet as a means of communication, entertainment, and commerce. So, companies looking to tap into this market need to pay close attention to the factors shaping their opinions and preferences. People are increasingly researching purchases and completing transactions online, so brands need to provide an engaging omnichannel customer experience that is consistent and seamless across online and offline touchpoints.

Fig 1 : Number of online payment users in China from 2009 - 2020.
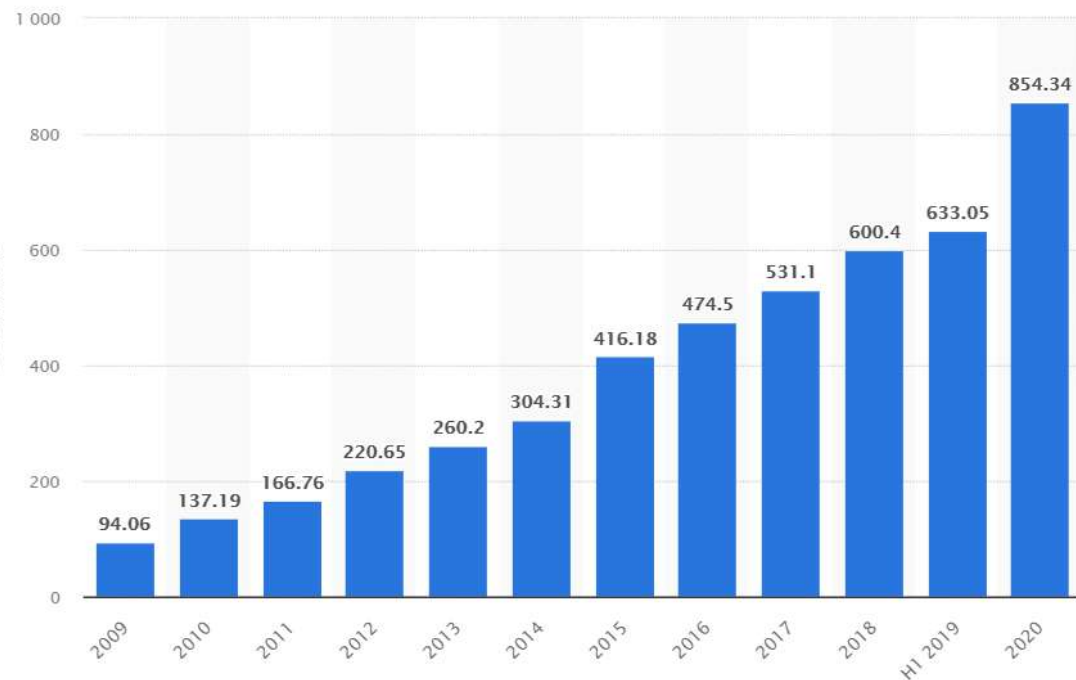
Source: Statista.com

Global exposure

A myriad of political and geopolitical developments has been driving the relations between China and the rest of the World. Before COVID 19, China had been reducing its relative exposure to the world as the majority of economic growth is being generated by domestic consumption, matured and localized supply chains, and enhanced innovation capabilities. The COVID-19 pandemic has made companies think about localizing or relocating their supply chains, amid calls for companies in critical sectors to move production capacity out of China. China has contributed about 25 percent of global GDP growth over the past two decades, according to International Monetary Fund. It is likely to remain an important growth engine for the world, and the extensive supply chains that have evolved to serve domestic demand will continue to be needed. Moreover, few countries possess the mature and highly scaled production ecosystems that exist in China.

At the same time, China will continue to require global technology inputs to maintain productivity growth. In China, business and politics are not detached from each other. The Chinese government is interested in economic growth, but also equally interested in controlling and shaping their future. China considers its history of relations with the rest of the World while making its decisions. China's growth trajectory will be its kind, it would not be like any other country's growth story. Many experts are of the view that with economic growth and increasing prosperity, China will become a liberal model for economy and politics. But it has an
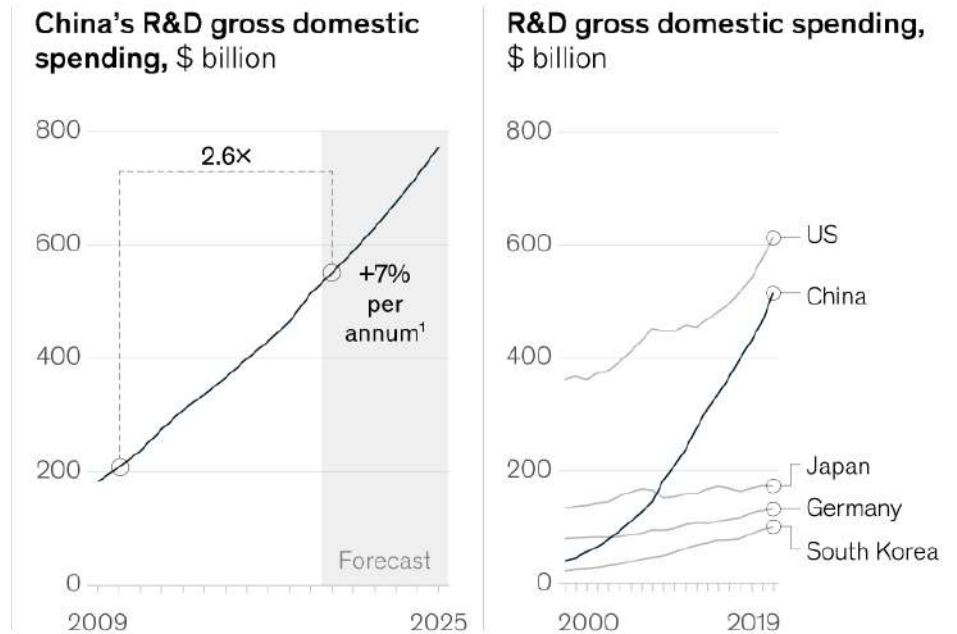
altogether different vision for the long term. In July, China celebrated the centenary of the founding of the Communist Party of China. The diplomacy of 'wolf warrior' was evident when Xi Jinping said, "We will never allow any foreign force to bully, oppress or subjugate us. Anyone who would attempt to do so will be crushed to death before the Great Wall of steel built with the flesh and blood of over 1.4 billion Chinese people". Today China is a world-class innovator, on the back of the State's policies. The way China tackled the pandemic situation has helped them recover quickly. When we talk about China for trade, investment, or doing business there, it is crucial to understand that the Chinese government will have an initial and a continuing role as co-investors, as intellectual property owners, and as a regulator.

Innovation and its adaptation

The Chinese middle-class is one of the fastest-growing consumer societies in the world. The majority of middle-class Chinese today living in cities have improved greatly in the past 30 years. The pace of change and the willingness of people to adopt is a major factor in the incredible innovation ecosystem of China. For example, consider Taobao, which can be considered the Chinese equivalent of Amazon. It started as a small player and outrooted the dominant player eBay in China. Taobao leveraged the network effects to increase the consumer willingness to pay, without having the benefit of scale. E-bay had the leverage of 'power sellers' or middlemen. It was essentially a B2C platform. And Alibaba responded by planning Taobao in the C2C space. This took place in 2003.

Fig 2 : China's R&D investment have grown by 2.6 times, and is estimated to increase 7% a year.

Source: Based on 14th year Plan, OECD, and McKinsey & Company

China's R&D gross domestic spending, $ billion

2.6×
+7% per annum[1]
Forecast
2009   2025

R&D gross domestic spending, $ billion

US
China
Japan
Germany
South Korea
2000   2019

To overcome the early internet users' anxiety, Taobao organized its website in the way department stores are organized in China. Also, it built Alipay, hence creating earning trust among the consumers. It is worth mentioning here that Taobao created its customer base, instead of eating into its competitor's market share.

When we talk about innovation, we should not miss the pace of its adoption by Chinese consumers. The global rise of Chinese companies is fueled by its population that has lived through unprecedented changes over the 50 years and has a propensity to adopt and adapt to innovations, at an impressive scale and pace. An innovation becomes worthless unless being used by the masses. If we look at the current scenario of India, we will observe that India should have had transformed at a greater pace than it is transforming. (Fig 3: Per Capita GDP growth in the top 40 economies, 1990 - 2019)
We have 560 million internet users. Whereas China has 1.03 billion internet users. That is mainly because the scale of transformation the Chinese lifestyle has gone through is much greater than the scale of transformation the Indian lifestyle has undergone. The innovation ecosystem and consumer behavior that exists in both countries are surely transforming, but the scale and pace vary significantly. Additionally, the leading Chinese companies possess as much as 90% of the total profit in the economy. Their return on invested capital is 14.6%, which is more than twice the national average (6.8%). So, the Chinese ecosystem is highly competitive, where giant companies have

the best digital capabilities and high labor productivity. The disparate performance across sectors and companies hurt employees. Employees of vulnerable companies had to change the way they work in response to market shocks. Though significant financial resources are directed towards helping companies reduce the risk of job losses, and the government is supporting vulnerable companies via the banking system. During the pandemic, digitally agile companies did good business, while 64% of the companies in the top quintile were not able to retain their market position.

Land, labor, capital, technology, and data
The rise of the $4 trillion Chinese tech sector has been one of the successes for the country. Alibaba hosts twice as much e-commerce as amazon. With 1.2 billion users, WeChat is the world's most popular app. Digital healthcare, ed-tech, AI have brought China to the front and have challenged American supremacy. But in a series of regulatory crackdowns, the top tech companies have lost $1 trillion in combined market capitalization since February. However, this is not just at the Chinese state controlling the tech sector. There's more to it. There are legitimate public policy reasons behind these regulatory actions.
Concerns have been emerging around the world to handle the Big Tech's dominance, privacy issues, competitive practices, and data collection. The U.S. has made it a priority to act on some of the same issues as Chinese regulators, with many similar policy proposals. Much of the concern globally has rightly been about tech companies amassing

excessive power. For instance, Tencent blocked WeChat users from sending links to Alibaba's e-commerce websites, and the U.S. equivalent would be iMessage and WhatsApp refusing to forward Amazon links. Exclusivity agreements force many merchants or start-ups to choose either Alibaba or Tencent, as they need access to the large market chunk that Alibaba and Tencent possess.

In one of its policy papers, China has observed the five factors of production i.e., land, labor, capital, technology, and data. China is looking to boost the supply of technology and cultivate the data market. It is not only looking to frame policies regarding data collection, privacy, and competitive practices, but it is also focusing on building a digital economy in the long run. the regulators are envisioning an ecosystem where data can be well understood, non-sensitive data can be utilized to support social initiatives or start-ups, while sensitive data is highly protected. The focus of the Chinese government will be the entrepreneurial and technological advancement in deep tech and hard tech while shifting from focusing on GDP growth to a much more equality growth.

Per capita GDP growth in the top 40 global economies, 1990–2019
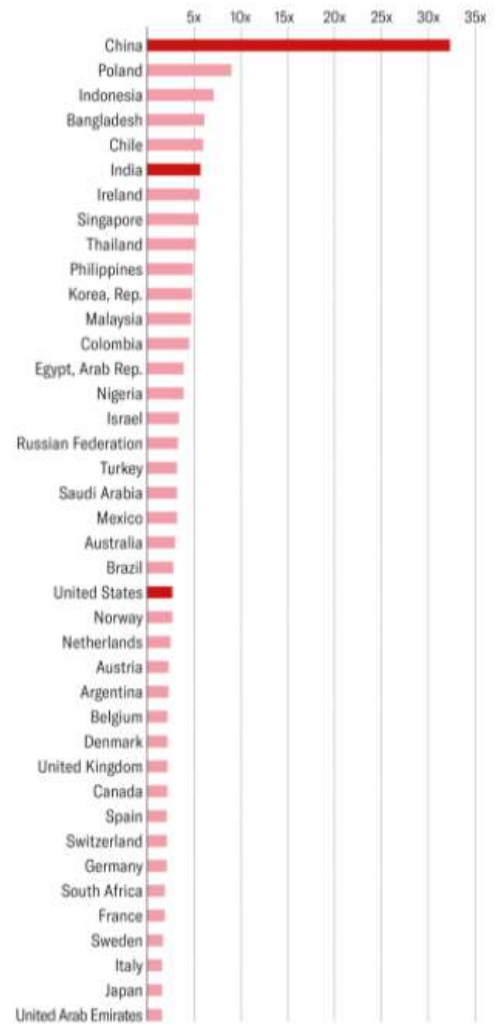
Source: The World Bank; calculations made by Young China Group   HBR

Fig 3 : Per Capita GDP growth in the top 40 global economies, 1990 - 2019

Source: The World Bank (Based the calculations of Young China Group), hbr.org

DEEP TECH : Developments in Augmented Humanity

~ Lakshay Juneja
GBO Ist Year

Around ten to twelve million years ago, the ancestral primate lineage split through speciation into new and distinct species were formed from one common ancestor into two major groups. These two lineages evolved separately to become the variety of species we see today. Members of one group were the early version of what we know today as the Great Apes. The other group evolved in a different way. They became terrestrial, i.e., they lived on land. From being quadrupeds, they evolved to bipeds, i.e., they moved on their two back legs. In addition, the size of their brain increased. This is the group that, through evolution, gave rise to the modern Humans.

Speaking of the present, we have attained the wisdom and ability to decide how the Human Race can evolve further. The answer to evolve humans beyond the current potential is 'HUMAN AUGMENTATION'. Our race has been working on it for more than 100 years now. The first step to evolution took place during WWI, where the soldiers were going through the medical marvel called 'Plastic Surgery' which helped in restructuring or changing the whole face of a person. Later, the use of medicines came up to enhance physical abilities of a human but they turned out to be invasive. But lately, augmented reality and multimodal interaction technologies have enabled non-invasive ways to augment humans i.e., where Humans and Machines collaborate.

WHY AUGMENTED HUMANITY?
The Human Augmentation technology can be conceptualized into three pillars- enable, enhance and experience. Earlier this year, IDC research analyst Giulia Besana looked at the importance of enabling technology that fosters inclusion and improves accessibility.
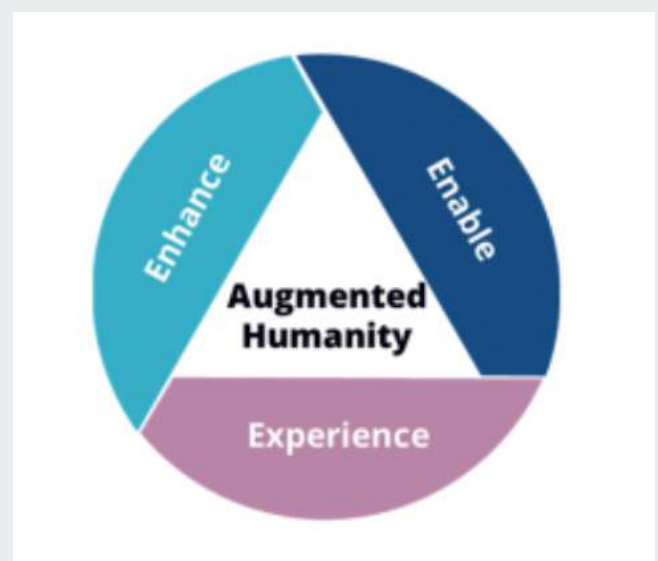
Let's take a closer look at how technology can enhance and extend human skills and abilities, and enable us to do things better, faster and with greater efficiency and precision and also how far we have cope up with this man-machine merger nowadays:
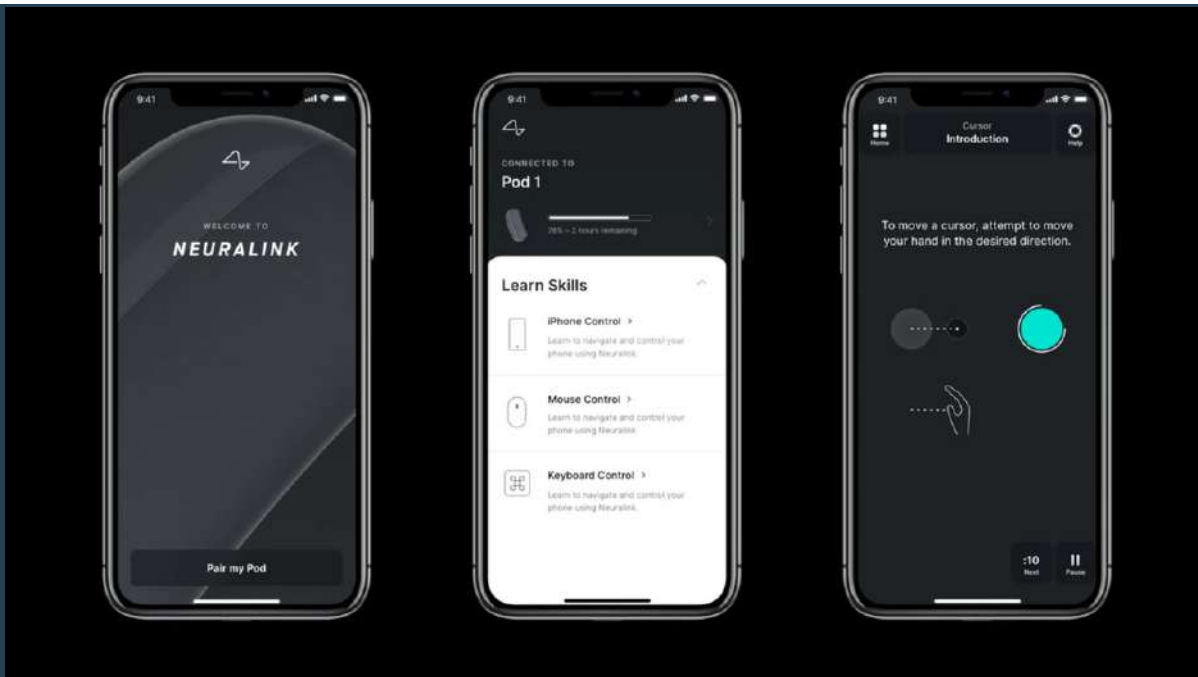
- **Memory**

Linking your brain with AI (Artificial Intelligence) in order to enhance the ability of a person to produce long term memories and retain information. Suppose, someone with impaired eyesight goes through AI implants where these implants will be backed up with respective company's artificial vision platform and he/she could observe real-time insights of every person encountered throughout the day.

ELON MUSK, who is called the real-life Tony Stark, holds a vision. According to him AI will completely overpower the human race because, today AI has already outperformed humans in memory, strength and precision. If it realizes it's true potential then it will be dangerous for all of us and that's why Elon Musk fears it. So, he puts forth a proposition or we can say a solution to this by the introduction of Neuralink, a matter to somehow merge our own intelligence with machine intelligence which will bring the World Wide Web on our fingertips.
The ability of writing, reading and processing will boost up to unbelievable precision, and all this will be done by physically merging a microchip brain implant.
N1 is the very first Neuralink, a tiny 4X4 mm square chip that will be directly implanted into the brain, and attached to it are tiny wires that are ten times thinner than the human hair which coincidentally has the same thickness as a neuron. The wires are embedded into essential parts of the brain where they can decipher messages that are transmitted between neurons. The threads then relay the information back to the chip where it records the

impulses, evaluates the data and then stimulates its own responses. The chip and wires not only read the information that the brain communicates but also inputs back into the brain as well. A single Neural link chip will connect and communicate to 1,000 thousand brain cells and an individual can house 10 such implants giving us a connection with 10,000 brain cells. Elon Musk also stated that the installation of this chip into the human brain will be as easy as laser eye surgery.

For the time being, the scope of Neuralink technology will be to help those with physical and mental disabilities, used to help paraplegics with movements, amputees control artificial limbs and those with memory loss reform connections. When musk will be able to make necessary equipment which will be replacing a brain surgeon for implantation procedure (that piece of machinery being more efficient), he will initiate the process of implanting chips with this machine.

- **Strength**

Prolonged physical exertion at work could lead not only to employee dissatisfaction, but also to physical injury. Employees' physical and mental well-being is high on the agenda for businesses, which explains why there is such strong demand for these solutions.

Exoskeletons or Exosuits are the perfect fix for this issue. It is a metal framework fitted with motorized "muscles" that can multiply the wearers' strength far beyond that of normal humans.

Ford Motor Company and BMW are among the few automobile companies who incorporated such technology into their working environment. Their employees who perform repetitive overhead tasks are now receiving assistance from an upper body exoskeleton. They are using the exoskeletons to reduce the physical toll on employees during the vehicle assembly process, reducing the chance of worker fatigue, injury, or discomfort. According to Ford, since 2005, incidents at global facilities that resulted in lost time fell 75 percent.

Military Grade Exoskeleton
Various countries are now investing millions of dollars in exoskeleton technology to make soldiers stronger and more resilient, in what experts say is part of a broader push into advanced gear to equip a new generation of "super soldiers." These will be designed to be worn over a pair of pants, way up connecting to the spine and further to the shoulders and arms from the back of the soldier. This will help a soldier to carry necessary gear like body armor, night vision goggles, advanced communication radios, guns, ammunitions, food supplies, etc., which are quite heavy and exceeds 3 times the limit of a soldier. Currently, USA, Russia and China were competing in a race to develop the most practical and advanced Exosuits but now India has also joined the race, where the DRDO (Defence Research and Development Organisation) is developing Exosuits especially for our soldiers who are posted on higher altitudes because these altitudes give a major test on a soldier's fatigue.

Exoskeletons are wearable devices that work in tandem with the user. These can be made out of rigid materials such as metal or carbon fiber, or they can be made entirely out of soft and elastic parts. They can be powered and equipped with sensors and actuators, or they can be entirely passive. Exoskeletons can be mobile or fixed/suspended (usually for rehabilitation or teleoperation). Exoskeletons can cover the entire body, or just the upper or lower extremities, or even a specific body segment such as the ankle or the hip.

• Speed

People working in large warehouses or factories where they have to keep a check on stock availability, delivery status or a quality to check of products, often carry a tablet or a check list which leaves a scope for errors.

There is a solution to deal with this now, invention of external equipment complemented with AI to keep a check on these items with enhanced precision. For instance, in one of its distribution centres in Greece, Coca-Cola equipped pickers with AR smart glasses, which provide real-time guidance, instructions and quantities.

Way Forward

Wearable technologies such as Google Glass and virtual reality (VR) headsets are prime examples of augmented humanity devices as well. That's because they heighten their users' senses and perceptions. Implantable technologies, such as near-field communication (NFC) chips that take the place of access cards, are also part of the augmented humanity spectrum. Software that automates research and data analysis are also considered augmented humanity devices. Like other forms of technology, implementing augmented humanity is not without challenges. Augmented humanity has the potential to cause biases and discrimination in the workplace since augmented humans have an advantage over those who are not. Enhanced

Enhanced individuals, for example, could accomplish their tasks faster than those who don't utilize devices to enhance their performance. At the same time, individuals who don't rely on augmented humanity technologies can discriminate against those who need "boosters" to make up for shortcomings.

HR TRENDS: Keeping up with changing work and life

~ Sarita Shabnam Toppo
GBO Ist Year

Organizations are trying ways to re-introduce in-office work. new business trends are emerging and so are the importance of leveraging HR technology to keep the distributed workforce connected. Commonly HR is considered as a soft skill and emotion-based industry but it's also highly data driven like the rest of modern business. Despite the pandemic, halting growth in many sectors, the technology in the world of HR has shown a positive growth in 2020. The use and importance of HR tech is more than ever, with processes like remote work and virtual onboarding becoming the new normal, there are hopes of some more trends coming in 2021. Following are the trends, these are not particularly new they are followed by some but it's only after pandemic people are realizing its importance.

Some Key HR Technology Trends to look for in 2021
1. HR Virtual Assistants & Chatbots
Virtual assistants and chatbots are the products of AI (Artificial Intelligence), both are often confused for one another, but they are significantly different. Virtual assistants are simply an assistant that follows your commands in conducting business, like reminding you of meetings, managing your to-do lists, taking down notes and so on like Amazon Alexa. Human Capital Management (HCM) virtual assistants (VA) on other hand are computer-generated AI applications with the knowledge of HR professionals has become busier. Along with keeping up with the digital transformation, they are also expected to be innovative and creative. HCM VA combines with the HR software to automate HR functions that automatically track and record data by administering and collecting forms and surveys from your employees so you can keep an eye on HR initiatives.

Some of the instances are remote virtual assistants used in **Randstad** a Dutch multinational for HR services and staffing agency and then the most popular is **AMELIA** created by iSOFT is referred as AI powered HR coordinator which can work in various business ranging from Banks to Retails. It can handle requests about payments, HR, providing information, managing accounts and plenty more. It can operate in more than 40 languages. **Some of the companies who have adopted Amelia are Vodafone, UBS Bank America and Accenture.** Chatbots are automated programs used as a medium to interact with humans via textual or auditory means they are generally used for information acquisition and are used in customer service wherein Customers interact with chatbots to clarify their queries regarding a product or even book an appointment with the product manager. A Chatbot called **CoachBot developed by the London-based HR company called Saberr** is used in British NHS, a national healthcare provider . Tasks

required to perform are short interviews with staff, asking about the problems and challenges in their daily work. Also, the chatbot can deliver short instructions that aim to improve the team's performance and well-being. Another example comes from **MYA systems**. The company delivers an AI assistant in the form of a chatbot that supports the recruitment process. It guides the candidate with a natural conversation
to improve the hiring experience. It also supports the onboarding process and prevents retention. **According to the company, the system saved cosmetics giant L'Oréal an average of 40 minutes per candidate review. That sums up to over 45 working days in six months.**

2. AI-Based Recruiting

Artificial Intelligence is becoming an integral part of most new-age HR technologies, one such is AI based recruiting. A manual recruitment is a very tedious process, filtering data that are unqualified for the role. AI- based recruit helps the HR team by scanning the resumes applied for various posts, AI are programmed to look for specific skills or phrases in a resume thus eliminating the repetitive tasks. An example is **Unilever**, which recruits more than 30,000 people a year from among 1.8 million job applications. Finding talent from such a huge pile of CV is a bit challenging and Unilever can't afford to lose those talents. To address this issue **Unilever partnered with Pymetrics, a specialist in AI recruitment. Unilever claims to have cut 70,000 person-hours of interviewing and assessing candidates, thanks to the automated screening system.** The candidates are initially assessed from their own homes, in front of a computer or mobile phone screen, next they are asked to play a selection of games that test their aptitude, logic, and reasoning, and risk-taking behaviour. Machine learning algorithms are then used to assess their suitability for whatever role they have applied for, by matching their profiles against those of previously successful employees. The second stage of the process involves submitting a video interview. The videos of the candidates are then examined for around 30 minutes by the machine learning algorithm. Through a mixture of natural language processing and body language analysis, it is determined who is likely to be a good fit.

3. Internal Talent Marketplaces

Internal market place brings the best talent out of the Organizations without the hassle of conducting recruitment from outside. Pandemic created a lack of employees for prospective positions as recruitment and interview processes were halted. Organizations pay far more attention in searching and recruiting people from outside than locating talent within.
Internal talent **not only mobilizes the talent internally but it also enriches the experience of the existing employees that helps them to feed and develop expertise**. To bring the best out of people, jobs are designed around people and not the other way round. Employees are assigned projects that pertain to their skills and abilities and what they are best at. It's one of the best strategies for hiring for the critical role without the cost of hiring externally. **American Express and IBM are two very good examples of organizations that implement a talent marketplace strategy.**

4. AR/VR Applications for Training and Development

Augmented Reality (AR) and Virtual Reality (VR) applications can be used for training by simulating experiences that are difficult or impossible to

replicate in real life. AR takes in the world a user sees and overlays graphics on top of it to enhance and change the surroundings like Pokémon Go. While VR is fully immersive—it simulates a completely new environment around the user, almost like you would see in a video game.
It can be used to train a new employee by immersing him in a work environment that he has never been before, allowing him to experience different work environments and situations. Such replication of real-life situations can be helpful in developing soft skills.
In 2017 Lloyds Bank of Britain was the first organization to use virtual reality assessment.

5. Gig economy
Gig economy in layman terms refers to freelancing, that is jobs that have short term engagement. Such jobs are usually flexible in nature and hired for a specific period of time.
According to information in vizier.com 60% of work is being done by gig workers and it's going to increase in the coming future.
The reason being most of them seek work life balance, flexibility and work for oneself even at the cost of less job security. Pandemic was also one the reasons as most people lost their regular jobs. Employers are realizing that using a combination of contractors, freelancers, and full-time employees is the best way to reach results faster.
Traditionally, the Gig economy was associated with creative jobs like writers, designers etc. and extended to some non-creative jobs like SEO Analysts.

More People are entering into the gig economy through gig marketplaces companies like Uber, Airbnb, Lyft, Postmates, Amazon Flex, Zomato, Swiggy etc.
They provide on demand services that are both seasonal and year round. It's the role of the HR to identify these roles and bring all the talent to one place using productivity tools or apps and make arrangements for the GIGS.

Look out for

Over the last few months the world has changed a lot. While this change may seem temporary, it is likely to transform the future of work in many ways. In such a scenario, HR tech is also likely to adapt accordingly to meet these changes.

Understanding The Inland Vessels Bill, 2021

~ Ashish Kapse
GBO Ist Year

The Inland Vessels Bill, 2021 was introduced in Lok Sabha on July 22, 2021. It aims to replace over 100 years old Inland Vessels Act, 1917 (1 of 1917) and usher a new era in the inland water transport sector, to make the legislative framework user friendly and promote ease of doing business. Shri Sarbananda Sonowal, Minister of Ports, Shipping and Waterways moved the bill in Rajya Sabha and it passed on Aug 2, 2021.

The Act provides for the regulation of inland vessel navigation by states including the registration of vessels, and safe carriage of goods and passengers. The Bill seeks to introduce a uniform regulatory framework for inland vessel navigation across the country.

The Inland Vessels Bill, 2021 seeks to replace separate rules framed by states with a uniform regulatory framework for inland vessel navigation to support countrywide operation of registered boats, ships, container vessels, sailing vessels and ferries. However, to operate in the inland waterways, vessels will need a survey certificate, which will be issued by states.

The centre will also prescribe standards for qualification for the crew as well as training, examination and grant of certificate of competency, which indicate the fitness of the recipients to serve in the specified roles.

The certificates will be granted by the state governments. The bill will ensure that vessels follow specifications for signals and equipment to ensure navigation safety including ones pertaining to responding to distress signals.

1. **Inland Waterways:**
   About:
   - India has about 14,500 km of navigable waterways which comprise of rivers, canals, backwaters, creeks, etc.
   - As per the National Waterways Act 2016, 111 waterways have been declared as National Waterways (NWs).
   - NW-1: Ganga-Bhagirathi-Hooghly River System (Prayagraj-Haldia) with length 1620 km is the longest National Waterway in India.
   - The Inland Waterways Authority of India (IWAI) is implementing the Jal Marg Vikas Project (JMVP) for capacity augmentation of navigation on the Haldia-Varanasi stretch of Ganga (part of NW-1) with the technical and financial assistance of the World Bank.
   -

   Utilization:
   - About 55 million tonne of cargo is being moved annually by IWT (Inland Water Transport), a fuel-efficient and environment-friendly mode. However, freight transportation by waterways is highly underutilized in the country as compared to developed countries.
   - Its operations are currently restricted to a few stretches in the Ganga-Bhagirathi-Hooghly rivers

- the Brahmaputra, the Barak river (north eastern India), the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari - Krishna rivers.
- Besides these organized operations by mechanized vessels, country boats of various capacities also operate in various rivers and canals and substantial quantities of cargo and passengers are transported in this unorganized sector as well.
- In India, IWT has the potential to supplement the overburdened railways and congested roadways. In addition to cargo movement, the IWT sector also provides a convenient function in related activities such as carriage of vehicles {on Roll-on-Roll-off (Ro-Ro) mode of cross ferry} and tourism.

Need:

It has become important to recognize the potential for water transport in the country and promote it as a more efficient and friendly mode of transport on the congested railway line. The Government has taken several initiatives and declared 111 waterways as national waterways.

The Inland Vessels Act of 1917 was regarded as a pure consolidation law that could be used for limited purposes. The Act had many amendments and final amendments made in 1977 and 2007.

The ministry emphasized the need for a new legal, flexible and supportive state for future technological development, capable of realizing existing trade and transport prospects and sailing securely by domestic vessels.

It will help domestic cargo movement with potentially lower rates, which is expected to help small businesses. The proposed law is in line with the Government's aim to develop inland ports, to harness India's 7,500km coastline and potentially navigable waterways.

Understanding the Inland Vessels Bill 2021

The Inland Vessels Bill, 2021 will help domestic cargo movement with potentially lower rates, which is expected to help small businesses. The proposed law is in line with the Narendra Modi government's aim to develop inland ports and harness India's 7500km coastline and potentially navigable waterways.

The government expects its programme to create 1 crore new jobs, including direct employment of 40 lakh people, in the next 10 years, reduce logistics costs and speed up cargo movement. The new law will replace the century-old Inland Vessels Act of 1917 for the regulation of security, safety as well as registration of inland vessels.

The Inland Vessels Bill, 2021 seeks to replace separate rules framed by states with a uniform regulatory framework for inland vessel navigation to support countrywide operation of registered boats, ships, container vessels, sailing vessels and ferries. However, to operate in the inland waterways, vessels will need a survey certificate, which will be issued by states.

With the new law, the centre will prescribe the minimum number of people that vessels must have, for various roles. Violation of these requirements may attract a penalty of up to Rs 10,000 for the first offence and Rs 25,000 for subsequent offences.

The centre will also prescribe standards for qualification for the crew as well as training, examination and grant of certificate of competency, which indicate the fitness of the recipients to serve in the specified roles. The certificates will be granted by the state governments. The bill will ensure that vessels follow specifications for signals and equipment to ensure navigation safety including ones pertaining to responding to distress signals.

Further, it requires vessels to have an insurance policy to cover liabilities for death, injury or damage caused due to the usage of the vessel including accidental pollution. It proposes that all accidents aboard such vessels must be reported to the head officer of the nearest police station and to the state government appointed authority.

The Inland Vessels Bill 2021 calls for maintaining a central database, an electronic centralised record of data on inland vessels, which will include all information about registration of vessels, vessel crew and certificates issued.

A development fund will be set up for various purposes such as emergency preparedness, containment of pollution and boosting inland water navigation. It requires each state to constitute such a fund and the sources will include stakeholders, schemes of state governments and collections from the sale of wreck or cargo.

Features of the Bill:
- A key feature of the Bill is a unified law for the entire country, instead of separate rules framed by the States.
- The certificate of registration granted under the proposed law will be deemed to be valid in all States and Union Territories, and there will be no need to seek separate permissions from the States.
- The Bill provides for a central database for recording the details of vessel, vessel registration, crew on an electronic portal.
- All non-mechanically propelled vessels will also have to be enrolled at the district, taluk or panchayat or village level.
- It enlarges the definition of 'inland waters', by including tidal water limit and national waterways declared by the Central Government.
- It also deals with pollution control measures of Inland Vessels. This Bill directs the Central Government to designate a list of chemicals, substances, etc. as pollutants.

Benefits of the Inland Vessel Bill:

Currently, there are 4,503 kilometers of waterways in the country, and with the new bill, the government expects not only to improve the development of ports of entry in India but also to develop more ports across the country to encourage the use of cargo ships.

The Department of Industry, Export, and Waterways said the new bill would reduce barriers to international shipping. However, market experts and analysts still have doubts about the development of inland waterways.

The Inland Vessels Bill will definitely encourage the use of tourist boats and small ships throughout India, however inland waterways in India are ever-changing depending on the seasonality and cargo-carrying ships might not be able to operate on them throughout the year, said by a market expert from KPMG.

Similarly, the top port of Mumbai and the ship's coordinator said that inland routes are not developing much at the moment, and in industrial use, year-round routes will need to come from the country. However, coastal shipping or shipping within India can find its place in the form of small, medium, and medium-sized businesses that require small shipments across the country.

The implementation of the Inland Vessels Bill is expected to improve the MSME sector in India and sea shipping is cheaper and in some cases faster than the railways. It is said by market experts that MSMEs would be able to hire cargo ships across India which would ensure that there were no barriers to supplying their services.

The Assocham President Vineet Agarwal, Managing Director of Transport Corp of India said commodity prices in India could be significantly reduced through the use of other modes of transport from the industry such as trains and seas.

"The other factor that's a little bit on the outside is that the mix has also started to change a little bit, instead of all products moving only by roads, products have also started to move by rail and other modes of transport. So, that would really help in terms of reducing freight rates because freight rates on rail and coastal shipping are definitely lower," Agarwal had said.

Steps Taken:

The waterways will also be linked to the eastern and western Dedicated Freight Corridors (DFCs), as well as the Sagarmala Project, which aims to promote port-led direct and indirect development.

Further, the provisions of the Indo-Bangladesh (Sonamura-Daudkandi) and Indo-Myanmar protocol (Kaladan) permitting transhipment of goods through Bangladesh and Myanmar waters – which, in many cases, are a continuum of India's inland waterways – enabling quicker shipments and deeper market penetration in India's North East.

Climate change and its catastrophic effects

~ Prasann Agarwal
GBO Ist Year

It is evident that human influence has disturbed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred over the world.

Observed increases in well-mixed greenhouse gas (GHG) concentrations since around 1750 have been due to human activities. Since 2011 (measurements reported in AR5), concentrations have continued to increase in the atmosphere, reaching annual averages of 410 ppm for carbon dioxide (CO_2), 1866 ppb for methane (CH_4), and 332 ppb for nitrous oxide (N_2O) in 20196 . Land and ocean have taken up a near-constant proportion (globally about 56% per year) of CO_2 emissions from human activities over the past six decades, with regional differences.

Each of the last four decades has been successively warmer than any decade, since 1850. Global surface temperature in the first two decades of the 21st century (2001-2020) was 0.99 [0.84- 1.10] °C higher than 1850-19009 . Global surface temperature was 1.09 [0.95 to 1.20] °C higher in 2011– 2020 than 1850–1900, with larger increases over land (1.59 [1.34 to 1.83] °C) than over the ocean (0.88 [0.68 to 1.01] °C). The estimated increase in global surface temperature since AR5 is principally due to further warming since 2003–2012 (+0.19 [0.16 to 0.22] °C). Additionally, methodological advances and new datasets contributed approximately 0.1°C to the updated estimate of warming in AR610 .
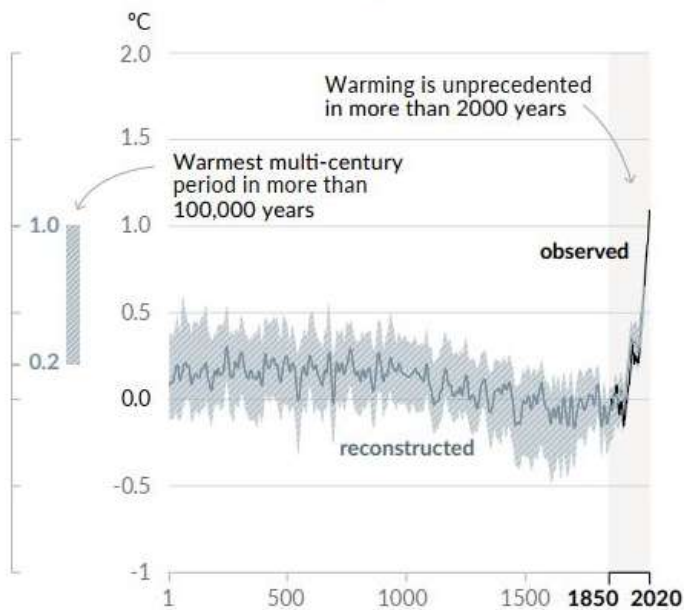
Changes in global surface temperature reconstructed from paleoclimate archives (solid grey line, 1–2000) and from direct observations (**Fig 4**, solid black line, 1850–2020), both relative to 1850–1900 and decadal averaged. The vertical bar on the left shows the estimated temperature (very likely range) during the warmest multi-century period in at least the last 100,000 years, which occurred around 6500 years ago during the current interglacial period (Holocene). The Last Interglacial, around 125,000 years ago, is the next most recent candidate for a period of higher temperature. These past warm periods were caused by slow (multi-millennial) orbital variations. The grey shading with white diagonal lines shows the very likely ranges for the temperature reconstructions.

Changes in global surface temperature over the past 170 years (black line) relative to 1850–1900 and annually averaged, compared to CMIP6 climate model simulations of the temperature response to both human and natural drivers (brown), and to only natural drivers (solar and volcanic activity, green). Solid color lines show the multi-model average, and color shades show the very likely range of simulations.

Let us have a glance at some well known companies that have taken steps towards battling climate change:

a) Change in global surface temperature (decadal average) as reconstructed (1-2000) and observed (1850-2020)

b) Change in global surface temperature (annual average) as observed and simulated using human & natural and only natural factors (both 1850-2020)
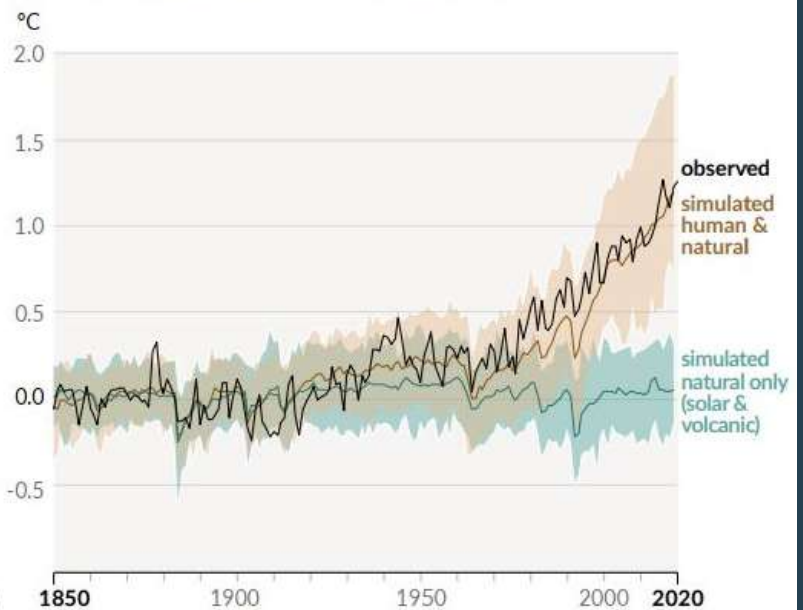
Alphabet Inc.

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Nike

With some recycled materials being present in three-quarters of its products, Nike is an industry trailblazer for sustainability. The Nike Air range of trainers uses at least 50% recycled materials and diverts more than 95% of waste from landfills, while its newest SB Dunk sneakers have had a vegan makeover and feature animal-free leather (pictured). Nike powers 100% of its North American operations with renewable energy and is looking to do the same across its global operations by 2025. Plus, the company has launched a "move to zero" initiative, which has set the goal of reducing carbon emissions across its global supply chain by 2030.

Fig 4 : Changes in Global temperature relative to 1850 - 1900

Source: German aerospace centre, dlr.de, and IPCC Fig SPM.1

Johnson & Johnson

The parent company of the Johnson's, Aveeno and Neutrogena brands, Johnson & Johnson has committed to making sure all packaging is recyclable, reusable or compostable by 2025. Its operations are currently powered by 35% renewable energy, a figure it plans to increase to 100% by 2050.

Microsoft

In 2019 Microsoft upped its internal carbon emissions fee to $15 (£11) per metric ton of carbon dioxide emissions, which comes into effect this year. Alongside this the tech company has unveiled a plan to become "carbon negative" by 2030, meaning it will take more carbon out of the atmosphere than it emits. And by 2050 Microsoft plans to have removed all of the carbon from the environment that it has ever emitted since 1975. In order to achieve this it has planned for its new buildings to run entirely on renewables, with the Microsoft 'corporate campus' aiming to be entirely zero-waste too.

Boosting the public sector through implementing Data analytics

~ Satyansh Kumar Yadav
GBO Ist Year

In the public sector, data and analytics transformation is yet to reach its tipping point considering their operating constraints. Most of the organizations have started using Data Analytics to enhance their performance and they were getting a good result from it too. Investment in analytics is not optional, which may add value at the margins; it should be used as a tool for governments to tackle problems in a cost-effective way. This power can only grow with technologies such as AI, and this can also help them get most of what their men power can produce without it.
 A survey showed that most of the public sector's CIO's ranked Analytics as Differentiator for their organization. Even in organizations where business Analytics were being used were performing a way better than non-using organizations. Even though most of the organizations were not using it even though they have a lot of required data with them.

The possible barriers faced by public sector implementing Business Data analytics:-

- **Lack of internal skills and resources:-** Considering Data analytics to be new for Public domain, they have to relocate their resources in different ways, as they have no prior knowledge they would be under confident about it.

- High cost requirement for training and software:- As now employees are required to learn new skills, organizations have to hire trainers which will surely increase the cost requirement.
- Security and trust issues:- In the public sector, sometimes there is classified data which the government doesn't want to get leaked or published in public ,that's why they sometimes hesitate to use third party analytical sources.
- Time requirement for planning and implementing:-Being a new transformation, the public sector would implement this gradually by proper planning and it's also cost dependent, which requires time to get fully implemented as per pronounced plan.

Despite having some barriers Public sector should focus on final benefits for their organization, which are:-

- **Become a learning organization:-**Using Analytics, public sector workers get to learn something new which will excite them and make them able to use most of the new technologies without hesitating.

- **Time and cost saving:-** Detailed Analytics can provide them proper information which saves their time and by using that

1. information they can also reduce their operational cost.
2. Data management:- By proper utilization they can easily manage large sets of data efficiently.
3. Productive employee:- If an employee gets the proper tool and practice, they will make informed and right decisions which will improve their productivity.

But there are some ways by which we can accelerate the Data and analytics use in public sector:-

1. **Set operable aspirations**:- At the outset, they should not aspire for getting a hell lot from that because it is too broad, there should be a strategic aspiration, depending upon the sector's targeted area. They should focus on small parts of the targeted area and their aspiration should be powerful and should be backed by a dynamic leader.
2. **Impact achiever**:- Getting new technologies influence the worker to use that technology in various resources, chasing something new but they should focus to achieve most from a single source first.
3. **Build the data infrastructure gradually**:- Organization should invest some time in building the new data infrastructure in a better way which will reduce pressure from them, and they will attain the desired position slowly.

Big data's being flexible allows users to use it in different sectors, real time access to analytics provide organisation and base to work upon areas that need attention and make quick decisions.

Transport:-
Road transportation is the blood of any economy, so the public sector can use analytics to ease the crowd in the proper way including road safety, they can analyse the traffic flow on different roads and can decide the traffic timer frequency, which will help them reduce time as well as cost contribution. Countries like USA,FRANCE, JAPAN, SINGAPORE were using data analytics to make best out of it and considering the population CHINA and INDIA were doing the best of what they could.

Weather forecasting:-
Forecasting organizations can use data analytics to analyze the large amount of current data, past forecasting etc., and come up with the right information. Generally every developed and developing country was using analytics. Some common tools were doppler radar, satellite data, radiosondes, automated surface observing systems and supercomputers but developed countries were using these tools more effectively. (The next page shows one sample by INDIAN METEOROLOGICAL DEPARTMENT on maximum temperature dated 23.08.2021)

Cybersecurity:-
Department can use the system that can analyze the internet traffic, malware and unauthorized access. Can be used to identify suspicious behavior. Most of the countries were using Analytics for cyber security like Cyber crime portal in INDIA, Federal bureau of investigation in U.S.

Agriculture:-
As countries depend upon livestock and land they try to keep record of that but it is difficult without data analytics, it can track the type of crop grown in a particular area by which the public sector can manage and support farmers on the basis of that. Countries like China, India and Russia were top producers in the agriculture sector but countries like the U.S, Canada, and the Western Europe were using Analytics more efficiently as they have very little land and countries like India, and China were facing variability of weather.

Healthcare:-
 Healthcare is a basic amenity all over the word. Most people rely on government support, therefore the government can use analytics to have a clear picture about where they should allocate the money and in what amount. During Covid-19 most of the countries got exposed as they failed to analyse the data correctly or they were just hiding the data by some Political concerns. Other than this Europe was using data analytics in healthcare efficiently and India's OGD Platform and Aadhaar's Project which has been used to reduce the cost of maintenance for e-health records.
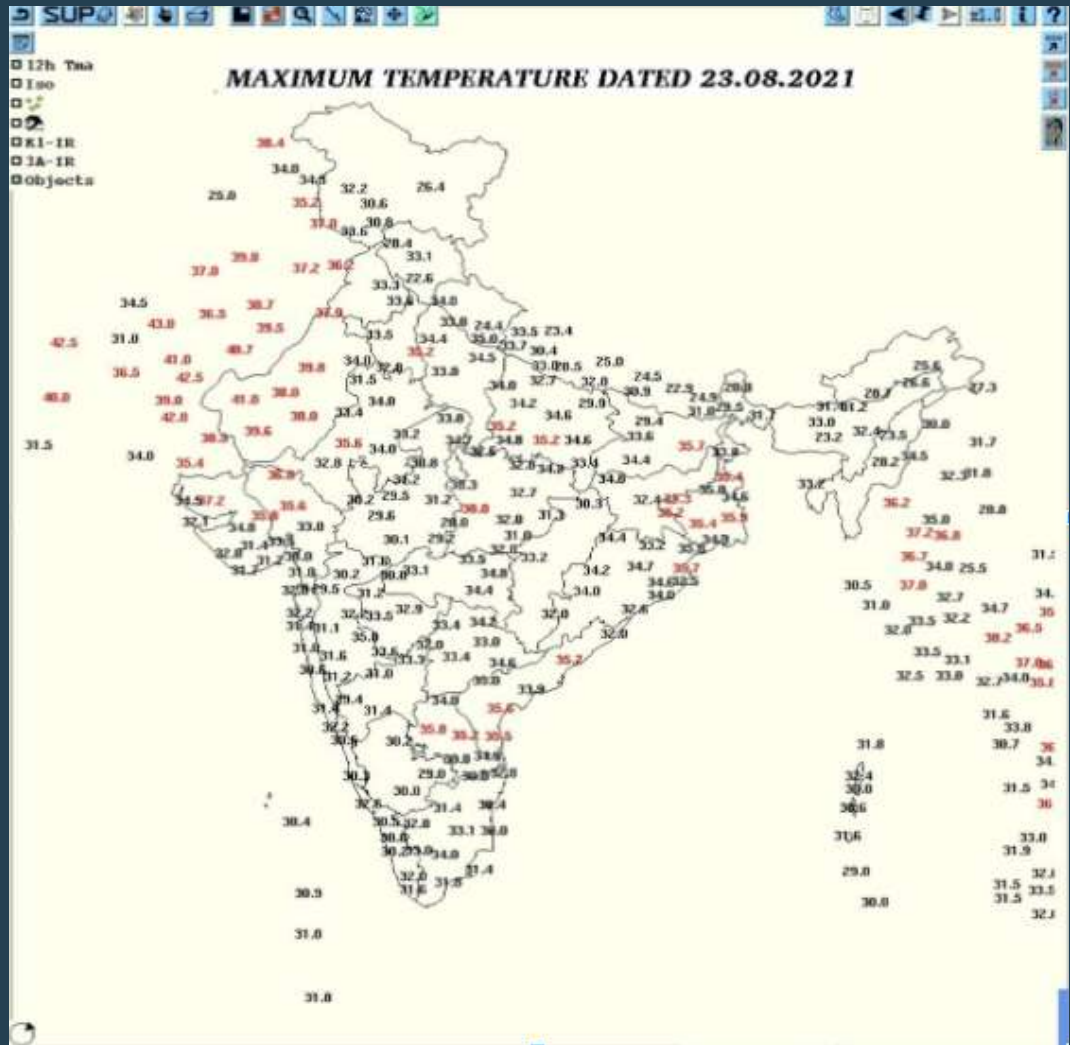
Fig 5 : Maximum Temperature, 23/08/2021

Source: Indian Meteorological department

Crime detection and prevention:-This can be used to analyze the bank transactions, and also be used by the transport department for tracking the payment of challans easily, this will help them solve money laundering and financial theft. The implementation of data analytics by The U.S Department of justice and UK's Crime and Justice department is exemplary.

The availability of Big Data, low-cost commodity, information and analytic software have constructed a unique moment in the history of data analysis. The meeting of these trends means that we have the ability to analyze complex data sets quickly and effectively. They represent a clear opportunity to realize enormous gains in terms of efficiency, productivity, and revenue.
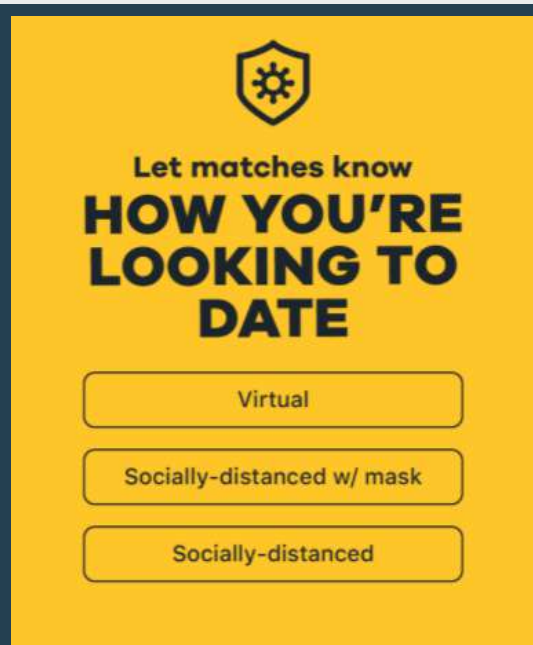
Marketing in focus :
'*It's a Match!*'
Dating Amidst the
Pandemic

~ Manish Kumar Singh
GBO IInd Year

As the world grappled with coronavirus not only did, we go down in lockdown physically but also emotionally. Everyone feared that loneliness would be their companion and this may turn out to be horrible for the youth who already are very liberated and want to be on the go every time. As Plato once said, "Necessity is the mother of all inventions", the lockdown saw the re-emergence of left and right swipes. Social dating apps took it upon themselves to see people through this phase and the results have been positive. People responded to this and accepted the new normal that was Virtual Dating. The idea did away with the pressure of meeting someone physically after short conversations cause the norm was made such by the users of these apps. Sapiosexuality was on the rise as compared to physical and intimate interactions.

Dating apps such as tinder, bumble, and truly madly saw a surge in their activity in India, with some clocking as much as 140% rise in subscribers. Dating apps reach 2.2% of India's total population and are on track to reach 3.6% by 2024, market researcher Statista has estimated. Both chats and video calls have increased by some 40%, and the time spent on reading profiles has also gone up. In India, conversations have been up an average of 39%, and the average length of conversations jumped 28%.

People from all age groups and especially millennials have bought into the system of virtual dating. While it's difficult to maintain a healthy relationship on the virtual platform, the Pandemic has laid down a path for it. This has also made sure that these relationships are built on the way one communicates and has made people explore their creativity to keep each other's partners engaged and entertained. The pandemic made sure to keep those negative vibes afar. Tier-2 and tier-3 cities have come into the picture and have been growing at a rapid pace as compared to pre-COVID-19 times, which is speculated to reverse the migration of people from metro cities.

Let matches know
HOW YOU'RE LOOKING TO DATE

Virtual

Socially-distanced w/ mask

Socially-distanced

Amit Gupta, co-founder, and chief technology officer of Truly Madly, said that both engagement and revenue from tier-two and tier-three towns have tripled in the last 10 months, possibly because of reverse migration. Overall, peak usage time for the app has also been extended by an hour late into the night. **Ravi Mittal, the founder of Quack Quack, a home-grown dating app, said 70% of its user base now comes from tier-two cities versus 60% earlier with topics like 'lockdown', 'coronavirus', or 'How are you coping with this situation becoming the new ice breakers.** Extramarital dating app Gleeden has also reported a 166% increase in subscriptions during March and April.

The way apps are being marketed to the people have a lot to do with this surge. Innovative changes in interface and virtually interactive activities have been the focus for them to attract new users. Bumble came up with a virtual badge that helped people know the profiles of users who are open to date via video chat, allowing users to find and filter prospective matches based on who is looking to date virtually. They also relaxed their distance setting to the entire country to help users connect with people nationwide. Further, Bumble tied up with American online marketplace company Airbnb to allow users to not just connect and date virtually but also enjoy online experiences together, from Turkish Fortune Coffee Reading in New York to a Tango concert in Argentina, among others.

OkCupid came up with a more creative idea wherein users had an option to choose what they would prefer to do when they met online which included activities like binge-watching, cooking, singing, etc. they partner with the YouTube channel the screen Patti to promote their app. Tinder introduced a passport feature for free for all its users which earlier was under the tinder gold subscription. With this feature, users can pin the destination on the map to start liking and chatting.

Though when things are returning to normal once again it may seem like that these industries are likely to take a hit and people will be more drawn towards physical interaction than a virtual one.

But that will depend upon the users again as few may want to be more careful while initial relaxation is done by the government. It will be a nervous time for these apps but it will also be interesting to see how they will respond to this situation and will they be able to keep pace with the already existing user base.

Semiconductor Shortage: Automakers' Nightmare

~ Parth Sarathi
GBO Ist Year

India's largest car seller Maruti Suzuki is about to cut production by about 30-40% in August month and this three-fourth of the company forecasted earlier this year. Tata Motors too has announced a production cut by reducing 2-shift to 1-shift. Mahindra & Mahindra, Ford India, and MG motors have already announced production cuts. Mahindra & Mahindra is the biggest victim of the chip famine as waiting for its star performer THAR continues to stretch over 10months in many parts of the country and some parts even have more than 1 year. Last year when most of the world along with India were having travel restrictions and "stay at home" orders, the automobile industry took one of the major hits. It's not that those automakers were in a very congenial situation before the global pandemic hit. China, the world's largest automobile market, was already feeling the heat in 2019 when sales of automobiles dropped 8.2% as compared to 2018. For India, they had even more challenges like liquidity crunch in the economy, Non-Banking Finance Companies (NBFC) crisis, increase in road tax and insurance cost, transition to BS-VI engines, and the possibility of a cut in GST at time. All these factors led to a decline in sales of 12.75% in 2019 as compared to 2018. After enduring all these factors in 2019 automakers moved to 2020 with a hope that things will be better but then COVID hit and they hit hard. There were almost no sales for months as a result demand for raw materials associated with automobiles also vanished.

Semiconductor Chipsets and Reasons for the shortage

The reason behind all this mayhem in the automobile sector is attributed to a worldwide shortage of crucial raw material semiconductors chipsets. The problem with semiconductors is that it is a high capital-intensive industry where halting production will have hard repercussions on any firm's financials. India imports almost all of its semiconductor chips amounting to $12billion. Another thing is that that semiconductor chip industry customer group includes gaming, computing, and telecom equipment. Along with crashing demand in the automobile sector, sales of smartphones, laptops and tablets were reaching a new high as kids had to do online classes, adults were buying for their "Work from Home '' setup.

Strong demand for SONY PlayStation 5 and iPhone 12 too soaked up a part of these chips as multiplier factors of these chipsets are much more than that of used in automobiles. Chip-making facilities, which itself was facing supply chain management issues due to lockdowns across the globe, chose to move their automobile sector supplies to electronic companies. To understand this shortage, we have to look at the working of semiconductor chipsets industries where different production and

development entities are having a separate specialization respectively. Taiwan Semiconductor Manufacturing Company (TSMC), Global Foundries, United Microelectronics Corporation (UMC), Semiconductor Manufacturing International Corporation (SMIC), and Samsung amount to almost 70% of world chipset manufacturing. These chips are then designed at firms like NXP Semiconductors, STMicroelectronics, and Renesas Electronics. Taiwan Semiconductor Manufacturing Company (TSMC) , which is the largest manufacturer among all, faced regulation from the government to use less water in its production unit as Taiwan faced drought bringing water reserves capacity to as low as 10%. Another reason for the shortage of critical chipsets is the ongoing trade war between the US and China. USA sanctions on firms like Huawei and SMIC (Semiconductor Manufacturing Company International) led to major panic buying of key materials.

Gravity of the situation

So, one question arises: how exactly does the automobile sector depend this much on semiconductor chips for their production, and what functions do these chipsets play in the production of our cars? Well, gone were those days when car parts making and assembling process was pure labor intrinsic, nowadays most the works are done by robotic arms and sophisticated machines. From maintaining temperature in a foundry to assembling different parts all are done with automated tools, functioning of which is done through the semiconductor chipsets. Next thing is, we all can agree that automobiles have come a long way from just a mode of transportation to various luxuries embedded in them.
Semiconductors have helped in replacing manual systems of automobiles with electrical systems. Electrification of existing systems provides benefits such as increased vehicle efficiency, reductions in carbon emissions, and minimizing oil dependency. The addition of better safety and driver assistance systems in cars has provided a major space for semiconductors. Smart functions such as rear cameras, blind-spot detection, lane change assist, safety airbag deployment, and emergency braking systems are made possible because of onboarding semiconductor chipsets. Cars are increasingly adopting technology which results in enhancing their connectivity. New vehicles on the market

include ever-more sophisticated telematics (long-distance data transmission) and information gathering capabilities which feed drivers information on factors such as road closures, collision avoidance at their screen. On-board computers which handle this information have to process millions of lines of code every second. With every new addition of automation in cars, the need for semiconductor chipsets rose accordingly.

What lies ahead

Rising invocation by climate activists in recent years resulted in cars switching to clean form to get power. An electric vehicle is seen as an alternative that onboards even more advanced chipsets. With autonomous driving car molding in reality the semiconductor chipsets will play a bigger and pivotal role in automobiles. An estimate says that electronics cost in the car which was almost 18% of the total cost of a car is expected to rise as much as 45% in 2030 and this will even more prone to shocks like these in the future. The question looming around is for how long will stretch this crisis? Industry watchers are unanimous on one thing that this crisis will slow down the recovery in industry after the pandemic. This chip shortage is not going to end by the end of the year. So, automakers are cutting the high-end features to minimize the usage of chipsets. Automakers are said to be focusing on lower models to sail this storm. Long-term strategies must be worked upon to refrain from facing a similar crisis in the future. The supply side of these crucial chipsets should be diversified at an urgent level and a more robust supply chain should be developed.

CAMPUS HIGHLIGHTS

"*An Hour with Young Entrepreneur*" was organized by Internacia, the International Business society and Udyamita, the Entrepreneurial society. The esteemed speaker of the event, **Mr. Aamir Qutub, CEO and Founder of Enterprise Monkey and Mentor Monkey** imparted knowledge on "How to create a scalable startup from scratch". From the event, students garnered the concepts of ideation, minimum viable product, funding for startups and many more.

Agrata - The HR Society of SRCC GBO hsoted **Mr. Aditya Pal Singh**, Director-Head Talent Acquisition at Informatica and **Ms. Preeti Chaudhary**, Founder, LinkedIn Local India, for a guest lecture on the future skills required to sustain ourselves like Own assessment, critical thinking and Emotional intelligence.
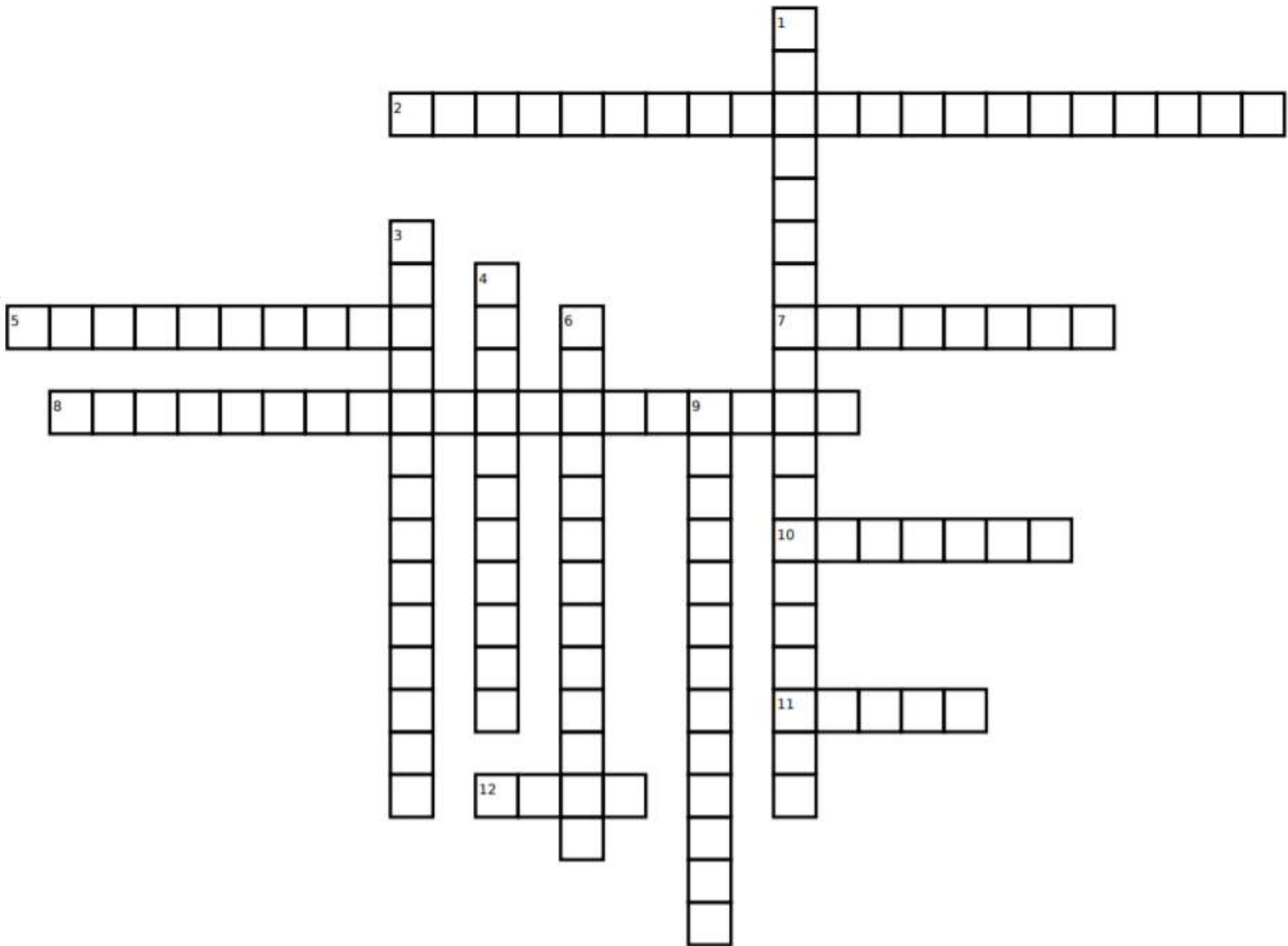
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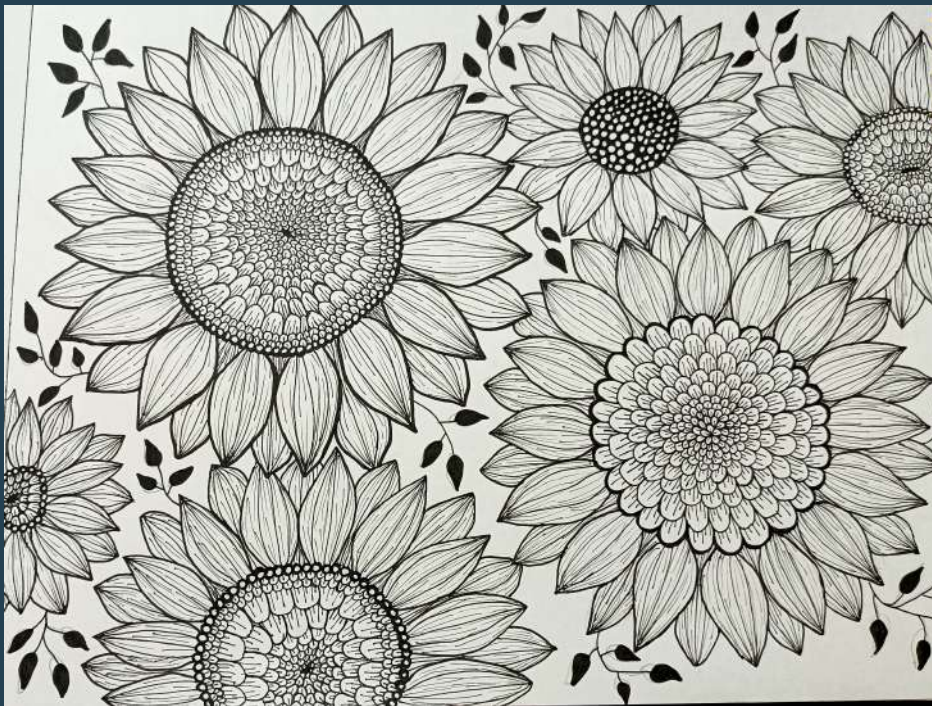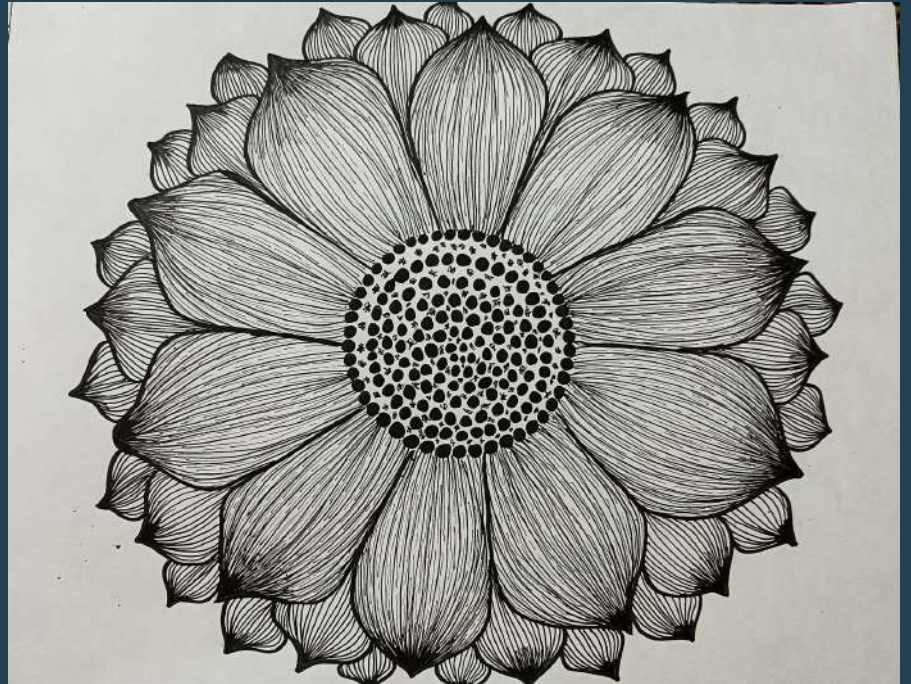
- *Shivani Kain*

GBO lst year

Cruciverba 101

Refer to the following hints to complete the crossword:

Across:

2. This bird flies non-stop from Japan to Australia twice a year.

5. Sweden has produced the world's first fossil fuel free steel. This has been produced by three companies: SSAB, LKAB, and ………………

7. This person is famously known as the "Godfather of Sudoku". He passed away in August at the age of 69.

8. Name the world's second largest rainforest. It has recently been announced as no longer endangered.

10. India conducted a naval exercise with this country for the first time, in late august.

11. Name the book which is an autobiography of Billie Jean King.

12. Name this fifth factor of production which recently China has identified in its policy frameworks.

Down:

1. Amway India has announced this Olympian as its Ambassador.

3. This company acquired the rights to manufacture and market appliances under the old brands BPL and Kelvinator, in India.

4. Name this newly appointed Prime Minister of Lebanon.

6. Name this British Indian novelist whose book has been shortlisted for Booker Prize, 2021.

9. The common name for this disease, which has made Cavendish Bananas vulnerable.

E-mail your answers to srijan.srccgbo@gmail.com
The top two winners will be announced on 4 September 2021, through our social media handles.

The beginning of my Kaggle Journey

~ Yatharth
GBO Ist Year

Every active Kaggle account holder once had no idea about how to get into the Kaggle community. Since I passed my Graduation, I had decided that I would be taking part in Kaggle competitions some day or other but was clueless about where I should start from. Even though Kaggle has a good community to help you start your own journey, I still was very unclear about it. I used to see people posting on LinkedIn about their Kaggle leaderboard ranks and read about their stories on becoming a Master or Grandmaster in Kaggle. Upon scrolling, I found a guy who recently got 30th rank(alone), and looking at his profile, I found him to be my junior from graduation college.

Upon connecting with him, we both realized that we have the same goal, that is to get deep into the Data Science domain and dive into Deep Learning as it still has a lot of potential that is yet to be explored. We decided to form a team and take part in an ongoing competition on Kaggle. This was my very first step into the world of Kaggle. I did not get into the classic "Titanic- Machine Learning from Disaster" competition. It was a networking push due to which I landed into a competition directly because I had my teammate helping me cover a lot of hurdles that I had to face alone otherwise. We decided to hop onto a competition hosted by Optiver- a European based trading firm, where we are given Prices at different Time IDs (for 10 minutes of their trade) for 112 stocks and from that, we need to predict the Volatility of all those stocks for the Future 10 minutes. Since we were already late in taking part, we took the help from the Kaggle Community itself and had most of the data compiled and stacked up within a python file. So, the compilation stuff got easier for us, and we had to now concentrate on building a model for it. We got a lot of clarity from the frequent Q n A's given by the host in their discussion forums. We decided to have a lot of meetings prior to our college timings, which included a lot of 2 a.m. emergency zoom calls. I was helping my teammate with the order books of the stocks while he was helping me with new models that I had only heard about and never had an opportunity to learn. So, in all, teaming up helped both of us learn more in a very short time, and I was never shy of learning something from my junior. We first started with normal statistics implementation on our data, in that we used Mean Price of the Time IDs and the Standard Deviations of the Price of each stock. We then used the Weighted Average Price (WAP) using the order books for each stock.

Weighted Average Price (WAP) =

$$\frac{Bid\,Price * Ask\,Size + Ask\,Price * Bid\,Size}{Ask\,Size + \,Bis\,Size}$$

Since our target was to find the optimum Relative Volatility (σ) of each stock, we used the Log Return values for each stock whose formula is as follow-

Log Return (rt1,t2) = The return made by a stock from time t1 to t2 = **log**st1st2
where St= Price of Stock S at time t.
At last, we found the Relative Volatility by using the formula-

$$\sigma = \sqrt{\sum_{t} r_{t-1,t}^2}$$

This was done for 112 stocks individually for their different Time IDs and covered close to 43000 rows. Hence, it took a lot for the code to run on Jupyter and that's how I realized the power of high-end desktops.

After having a lot of meetings, we decided to use a mixture of XGBoost and Random Forest for our model building and after 20+hours of run time with the model, all our results went in vain as our leader board score was still far away. Currently, as of writing this, my team ranks 62nd on the public leader boards and we are changing our approach a bit towards the model. Also, the Kernel, which is Kaggle's software, is taking us around 20 hours of runtime to get our score. So, I realized that multiple final runs are very important before the final leaderboard run kicks in.

All this led us to realize that we need to get into the subject matter i.e., the relation of volatility with stock and have to know about how the volatility reacts on a stock call and put options. The competition gets over at the end of the month, so my team has to buck up and figure out a better model. My goal for my first competition is to achieve a silver medal and learn a lot from the competition. So, the two most important lessons in my first month of Kaggle's journey are 1. The power of networking that can boost your Data Science journey extensively and, 2. A little bit of knowledge from different sectors (trading in this case) is also a must.

Going Places - *Fabulous Fukuoka !*

~ Rohan Malhotra
GBO Ist Year

It had been a while since I had gone back to my hometown, Fukuoka, Japan. My heart pined to see the clear skies and traditional Japanese setups that I had been experiencing every year. Hence, I planned a solo trip, taking Japan Airlines (one of the best for direct flights) from Delhi to Tokyo, then to Fukuoka.

As you can probably tell, I was quite excited to go back to Japan. The main attraction being the Christmas lighting, famous Ramen Noodles of Fukuoka city and the cultural festivals taking place in the famous business Hub of Fukuoka, Hakata. Hakata is a sub-city with a rich cultural history and was once a prominent merchant town that slowly evolved into the aforementioned business hub. I'll elaborate more on what it's famous for as we go on.

Getting to Hakata is quite easy. Once you reach Fukuoka airport and pick up your baggage, prominent signs are pointing towards the subway. All you have to is follow these and buy a ticket from one of the thousand ticket vending machines Japan has, physical proof that the country is miles ahead in terms of technology and innovation. Once you have purchased your ticket and boarded the sub, all you have to do is get off after 2 stations, go upstairs and exit the subway station. Voila! You have arrived in the beautiful city of Hakata with its high-rise buildings mixed with traditional houses and picturesque streets.

On my first day, I went to buy groceries and stock up on my supply to (Japan is in any day

famous for these). There are always 2-3 convenience stores around every locality in Japan which are about a minute away, so the problem of not having supplies does not exist. The streets and roads in Japan are clean, spacious and organized, you'll truly enjoy walking on these. Oh, there are also bike rental services present, since a majority of the population uses cycles to get around short distances, even business executives.

The temperature fluctuated between -5 to 10 degrees and even rained on some days, so I can assure you it was quite cold there. But this chilly experience is something you'll absolutely love owing to the crystal clear blue skies and the flora around you.

In the next few days, I was busy visiting my friends and relatives. Going out for traditional Japanese food and bonding with them was something I missed a lot.

Without further ado, I'd like to take you on my little-tour of Hakata.

Among the many places I visited, the Christmas setup at Hakata was the best. It was amazing to see the number of people admiring and taking selfies with their loved ones near the Christmas decorations all around Hakata. Giant trees were present all around with Santa Claus props for the children to interact and take pictures with. The Hakata Station was lit up with dazzling lights and cool blue LED lights on other trees all around the city. There was also a Christmas Carnival

and invite you over to share food and drink beer with them. A lot of the people present here can guide you through the Shrine and its surrounding structures, and leave an imprint on your mind with their deep knowledge of its history. Once the Christmas celebrations are over, it's time to let the New Year preparations set in. Government Offices and Schools close from 28th December to the 3rd of Jan. The whole population starts gearing up for the new year and this is when the restaurants and cafes are in high demand. Everyone takes a break from work to go out with their families and friends.

I visited one of the famous elite restaurants in Japan during this period, called "**Kozai no Mori**" which translates into Heritage Forest. The restaurant is set up in an old house surrounded by small trees and plants. I would highly recommend this place for anyone who would like to savor Japanese food, soak in the views around and get a feel of a traditional house. I've included an image of the platter they serve. It makes my mouth water every time I look at it.

nearby with European and Japanese delicacies and attendees from different countries. Although I can't exactly pinpoint the location where it was present, it was near the station and the food was lip-smacking.

Another prominent place to visit is the **Kushida-Jinja Shrine**. It's truly a work of art and is dedicated to Amaterasu and Susanoo, the Sun Goddess and Storm God respectively. Japan is a country which celebrates New year with full pomp and people from all over the country come and visit this Shrine during this period. The beautiful Hakata Gion Festival, full of traditional dancers and floats depicting historical and mythical Japanese events are dedicated to this shrine and takes place from 1st-15th July. There are about 2 million attendees for the same and you can expect the place to be jam-packed when the event takes place. I went in and paid my respects to the deities of this Shrine. I also interacted with the various locals and I believe you'll enjoy such interactions. Everyone is in a festive spirit

This year, I tasted quality tempura at a shop called Tenya in Kurasaki, near Kita Kyushu. This place is purely for the tempura fans. The lightness and crispiness of the various delicacies they served left me wanting more. Bookings to eat at this restaurant have to be made a week in advance owing to its high popularity. Given a chance to eat here again, I'd probably not stop eating.

These experiences are only a part of everything I did in the 3 weeks I spent there. I wish I could fit in everything but there's just so much to talk about. What this means is that there's a plethora of activities to partake in and places to visit in the city of Fukuoka. Imagine touring the entire country.
All in all, going back to Japan made my heart content and made additions to my memories I will truly cherish for the rest of my life.

In words of Oscar Wilde, 'The whole of Japan is a pure invention. There is no such country, there are no such people. The Japanese people are simply a mode of style, an exquisite fancy of art.'

This Newsletter has been a collective work of...

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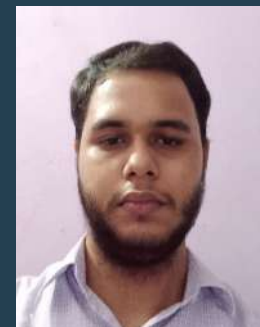Suman
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