

YOJANA SUMMARY

NEW-AGE TECH

JUNE 2022

- This is the era of path-breaking innovation, invention and products showcasing the use of technology.
- AI, Quantum computing, Blockchain etc. were making a mark till recently. Now, NFTs and Metaverse are added to the list of these buzzwords.

Blockchain

- It refers to a system whereby **information about transactions is stored on countless computers** spread across the globe. It is considered as an alternative to the conventional banking system.
- Whenever someone transfers money, the role of the bank in this process is to save money and keep details of the transactions. The bank certifies how much money is in his account and to whom he has given or taken the money from.
- What if the same thing is done without the bank? This is the vision behind Blockchain. Under this, transactions of a similar kind are recorded on computers worldwide without the involvement of a bank.
- The information stored under the Blockchain is **even more secure than our banking system** because countless copies of that information are kept on computers around the world.

NFTs (Non-Fungible Tokens)

- Here, the information is stored in the blockchain system itself, especially in a system called ethereum.
- Under a NFT system, a kind of **digital certificate is issued that such an original thing is owned by this person**. This digital certificate cannot be tampered with. NFTs can be associated with physical assets and virtual or digital assets.
 - E.g., Jack Dorsey, founder of the Twitter, sold his first tweet using NFT.
 - Since anyone can copy the first tweet, available in digital form, NFT authenticates the original tweet by generating a unique code.
- Non fungible means that it is the only one in the world, i.e., unique. This digital asset has been created so that it cannot be copied, and therefore it is safe.

Metaverse

- Metaverse means a **parallel universe present in the digital world** that contains most of the things that exist in our physical world. Accessing this virtual world requires the Internet and digital devices.
- People like us will be there but in their virtual, digital avatars. Companies like Microsoft, Meta (Facebook), Decentraland, Nvidia, and Unity are engaged in making it a reality.

Internet of Things (IoT)

- IoT simply means **connecting various things of the world to the internet**. IoT forms the network of physical objects i.e., things, enclosed with sensors, software, and other technologies for the purpose of connecting and exchanging data over the internet.
- These devices range from day-to-day objects to complex industrial tools. For example, sensors can collect information about the soil moisture to tell the farmer and the irrigation system can automatically turn on as needed, based on how much moisture is in the soil.

Quantum Computing

- A quantum computer can **perform calculation millions of times faster** than a normal computer.

- Traditional computers work based on a fundamental unit of binary digits (0 and 1) called 'bit'. On the other hand, the **Quantum computer adopts Qubit (Quantum Bit)**.
- Unlike traditional computers, quantum computers are not limited to just two states. Where transistors are used in normal computers - atoms, electrons, ions, photons, etc., are used in quantum computers which can be superimposed on each other.
- The world's first, very small quantum computer was built in 1997. Today, **Rigetti's quantum computer is considered the most powerful**, with a capacity of 128 qubits.

Artificial Intelligence (AI)

- AI refers to the ability of machines (or technology) to learn, analyse, think, understand, solve problems, make decisions, etc., similar to a human being.
- Machines equipped with AI will become powerful and 'intelligent' and compete with human beings' capabilities.

Cloud Computing

- Cloud computing implies **using the resources available on the internet on your computers or devices**.
- These resources are broadly of three types—
 - the complete infrastructure of IT, i.e., hardware, when you use any such infrastructure infrastructural facilities remotely through the internet. It is called **Infrastructure as a Service (IaaS)**.
 - There are two more types of cloud- **Software as a Service (SaaS)** and **Platform as a Service (PaaS)**.
 - **SaaS is the service** you can use through the cloud for some time without buying software like Photoshop, Microsoft Word, or AutoCAD.
 - **PaaS** means technology platforms using which you can develop software and manage them, providing them to others for use. Everything is done remotely through the internet, without having to buy anything.

DIGITAL DISRUPTOR

- Digitisation, in this age, has to be the common link in all the sectors of any successful economy, as well as in all the aspects of a progressive society.
- In India, Aadhaar has played and continues to play an integral role in providing a unified national digital identity framework. The strength of this foundational infrastructure is now being increasingly felt in almost every sphere.

Aadhaar: World's Largest Digital Identity Platform

- In India, Aadhaar continues to play an integral role in providing a unified national digital identity framework. Aadhaar has become one of the **most important pieces of public digital infrastructure** ever to be built in the country.
- Aadhar is **world's largest Digital Identity Platform**, which was planned and rolled out with a clear set of developmental objectives.
- Around 99.9% of the adult population of India is already enrolled with it. Approximately **1.33 billion Aadhaar cards have been generated** till date and over 600 million updates have been done by the residents.

Aadhaar As A Digital Disruptor

- Aadhar was conceived as an online identity platform that uses technology to deliver on its promises:

- **Uniqueness**- ensuring one person one ID.
- **Online verification and KYC** to enable digital transaction
- **Not requiring expensive credentials**- such as smartcards, etc.
- This **technology is for the 'Digital Inclusion'**. It has promoted plethora of useful application towards digital inclusion and social empowerment. These are:
 - **Unified my-Aadhaar portal** for a one-stop experience for users for all Aadhaar services in regional languages.
 - Use of secure QR code and offline e-KYC for offline verification of Aadhaar.
 - Introduction of Virtual ID, Aadhaar Lock.
 - Integration with Digilocker for consent-based fetching of resident documents as well as for address update on other identity documents based on address on Aadhaar.

Technology Innovation in Authentication

- The core strength of Aadhaar is its ability to be authenticated anytime and from anywhere. This completely digital and portable nature of Aadhaar makes it a ready candidate for an enormous number of applications and use-cases.
- E.g., Aadhaar-authentication based digital payments such as those in the Direct Benefit Transfer (DBT) and last-mile branchless banking, social welfare service delivery such as PDS, etc.
- Some of the innovations that Aadhaar has been able to bring to its authentication landscape are as follows:
 - **Face Authentication**: This is a recently-launched indigenous smartphone-based solution for Aadhaar Authentication using the 'Face' modality.
 - **Iris-based Authentication**: it is contactless and more secure, and also more reliable than a fingerprint-based authentication, especially for people with worn-out fingerprints.
 - **Fingerprint Image Record (based) authentication**: Fingerprint Image Record is being launched for ensuring the 'liveness' of the fingerprints captured and to check cases of possible frauds via fingerprint cloning, etc.
- UIDAI plans to keep breaking newer grounds in its digital journey by making the right partnerships.

Capacity Building Commission

- A transformational change in Civil Service Capacity is proposed to be affected by organically linking the transformation of work culture, strengthening public institutions, and **adopting modern technology to build civil service capacity** with the overall aim of ensuring efficient delivery of services to citizens.
- **Mission Karmayogi** aims to prepare the Indian Civil Servants for the future by making them more creative, constructive enabling, transparent, and technology-enabled.
- Empowered with specific role competencies, the civil servant will be able to ensure efficient service delivery of the highest quality standards.
- Under the Mission, the **Capacity Building Commission was constituted on 1 April 2021**. As the custodian of the civil services capacity building ecosystem, the commission is mandated to perform the following functions:
 - Facilitate preparation of Annual Capacity Building Plans of departments, ministries, and agencies.
 - Make Policy recommendations to DOPT.
 - Evolve a harmonious de-siloed approach to improve civil service capacity.
 - Analyse learning/competency-related data from iGOT-Karmayogi, an online training platform.

What is a Deep-Tech Startup?

- Deep-tech startups arise from research-based, disruptive innovations from STEM labs of academic/research institutions and solve hard problems and challenges.
- Some examples are:
 - recycling sewage to get clean water at an affordable cost,
 - a low-cost solution at scale for curing blindness,
 - affordable solutions for treating diseases such as diabetes, dementia, cancer, etc.,
 - creating an alternative to Lithium-ion batteries, and
 - low-cost satellite launching systems.

Startups: Statistics

- The Economic Survey of India 2021-22 says that there are 61,400 registered startups in India, making it the third-largest startup ecosystem in the world behind China and US.
- Over the past decade, Indian startups have created 6.6 lakh direct jobs and 34 lakh indirect jobs. There has been a significant localisation and diversification in the investor pool for startups in India over the past decade.
- Despite such a robust performance, India lacks deep-tech startups. **Deep-tech startups constitute less than one per cent** of the number of startups, far below what a fast-growing, large economy like India should have.

Why Deep-Tech Startup Is Needed?

- The absence of deep-tech startups harms India considerably by weakening her capability to meaningfully address complex socio-economic challenges.
- In India's population of 130 crores, only the top 25% (affluent and middle-class) benefit from the fruits of technological progress. This is because most of the hi-tech goods and services are designed in the developed world for rich people.
- So, how do 100 crore Indians move towards development? The answer lies in ***becoming Atmanirbhar in commercialising domestic science and technology*** to solve our challenging problems.

Challenges for Deep-Tech Startup

- Deep-tech startups need a **longer gestation** for development than other startups.
- Deep-tech startups **require different types of inputs** - they require more patient capital, specialised talent, and expert knowledge in more than one domain, to develop and validate a science-based innovation to the point where it is acceptable to commercial investors.
- A deep-tech startup **follows a different development path** than other startups. A deep-tech startup **derives its IP from the underlying science.** The startup has to work backwards and find a real-life problem that is worth solving using its technology.
 - Therefore, deep-tech startups take more time, talent, and capital to develop, upto when commercial investors find them acceptable. **The risk of failure is high.**

Creating Ecosystem: Need To Focus On Following Aspects

- While India has a **problem of inadequate R&D expenditure** for an economy of her size, there is a sufficient amount of high-quality research in India's top STEM colleges to fuel a deep-tech startup revolution.

- There is a big difference between making a successful technological breakthrough in the lab and building a successful enterprise around it.
 - Generally, the researchers **do not have the mental make-up** (the entrepreneur's mindset) or the knowledge of how to organise what they have and collaborate with others to get what they do not have/know.
- With their limited budgets, incubators face a tough challenge to nurture startups to scale their revenues and become attractive investment propositions.
 - Indian corporates and industries that are engaged with deep-tech startups do so only with those where technology is substantially developed or where revenues are visible.

Way forward

- It is being proposed that policymakers should introduce **Customer Discovery and Customer Development programmes** to develop deep-tech startups from academic/ research institutions in India.
- In 2013, the US Government through the National Science Foundation introduced **the I-Corps programmes** with great success to commercialise academic research in US universities. I-Corps enables the transformation of invention to impact.
- The I-Corps programme is mandatory in the US for startups to obtain federal funding for research/commercialisation.
- Analogous to the I-Corps programme, the Government of India should consider making it mandatory for every translational research proposal or a deep-tech startup seeking admission to a government incubator to undergo a rigorous Customer Discovery exercise.
 - IIT Madras has successfully run its **I-NCUBATE programme** which is inspired by the I-corps programme.

AI AND MACHINE LEARNING

AI in India

- India was ranked 8th in the top 10 countries by AI patent families', ahead of Russia and France, with **AI-related patent applications growing tenfold from 2012 to 2018**.
- AI could generate over 9,00,000 white-collar jobs and 3.6 million indirect jobs by 2030.
- India is one of the handful of countries that have **developed a conceptual national framework for the use of AI** and its allied field, machine learning.
- The Government expenditure on AI and Machine Learning has increased to reach USD 11,781.9 million in 2025.
- As per the NITI Aayog, by 2035, AI has the potential to add USD 1 trillion to the Indian economy.

Role of NITI Aayog in Promoting AI

- NITI Aayog released a **National Strategy for Artificial Intelligence #AlforAll in June 2018**.
- The paper lays out the roadmap for India to leverage the coming-of age technologies to ensure inclusive growth and social development.
- It identifies five priority sectors -
 - healthcare increasing access to quality and affordable healthcare,
 - agriculture enhancing crop yield, ensuring food security, and increasing farmers' incomes,

- education- enhancing the quality of education and human resource productivity,
- smart cities and infrastructure- ensuring efficient connectivity and promoting intelligent urban planning, and
- smart mobility and transportation-enabling efficient and safe transportation.
- Since the release of this report, NITI Aayog has launched **several initiatives** such as the Atal Innovation Mission, Empowered Group-6, RAISE 2020 summit, etc.
- The flagship AI initiative of NITI Aayog has been the **Responsible AI Approach Documents** published in collaboration with the World Economic Forum Centre for the next AI Industrial Revolution.
- The Documents seek to establish broad ethics and principles for the design, development, and deployment of AI in India.

Role Of Other Departments

- India's AI **standardization Committee of the Department of Telecommunication (DoT)** released a **draft framework on the India Artificial Intelligence Stack** to enable an environment to exploit AI productively across all sectors and bring interoperability, among other things.
- The Report highlights numerous benefits of the **AI Stack** such as secure data storage and data privacy, easy interface, protection of digital rights, open API integration etc.
- One of the major advantages of this proposed AI Stack is that it will facilitate open API integration and build AI architecture from square one.
- Through this, the Govt aims to provide a balanced 'playground' for institution to accelerate R&D in AI and speedy adaptation of AI across the value chain.
 - In Telangana, AI is helping authenticate pensioners and ensuring that payments go to pensioners who are alive.
 - The Ministry of Corporate Affairs is using AI to simplify corporate filings, while the Centre for Artificial Intelligence and Robotics (CAIR) has been built as a special hub for AI-related work of the DRDO.

Conclusion

- AI and machine learning are particularly suited for India because the country is the world's largest **generator of democratic data**.
- The real value of this vast mine of data can only be extracted using effective AI and machine learning.
- Therefore, the use of such technologies on Indian data would be priceless not just for decision making in India but around the world.
 - As India has a great diversity of people and cultures, therefore its data can help determine many patterns that might be difficult in many parts of the world.

AI IN EDUCATION

- Artificial intelligence uses the ability of the computer or computer-enabled system to process the information and produce outcomes similar to the human rational behaviour for solving the problem and for decision making.
- **Machine learning is a subset of AI**, which allows a machine to automatically learn from past data without programming explicitly.

- The goal of AI is to make smart computer system to solve complex problems. It is used to enhance the quality and speed of the work with a minimum requirement of human efforts.
- Nowadays, many queries relating to the academic field are answered by virtual assistance with AI capabilities like Google Assistant, Alexa, and Siri.

Application of AI In Education

1. Robot Teachers

AI can be used in education with the help of humanoid robot teachers. Robot teachers can make teaching more interesting for students using their AI capabilities.

2. Personalised Education

- AI can help in personalising the teaching pattern for an individual student as per his/her potential in the learning.
- Various AI software-based programmes can analyse the knowledge gaps, preference, and learning ability of each student.

3. Tutoring

- AI can play a great role in tutoring students and talking the doubts of students outside the classrooms.
- In addition, AI has also solved the issue of timely response. It can answer repetitive and commonly asked questions in seconds and overcome long delays.

4. Automated Grading System

- AI-powered grading software uses machine learning techniques by replicating human teachers' grading patterns with the help of past data to evaluate the answer papers of students.
- It helps in removing biased evaluating patterns of human teachers in subjective papers.

5. Natural Language Processing (NLP)

In the educational context, NLP can assist students in making necessary corrections and providing meaningful comments in relation to their documents or reports.

E.g., Software like **Grammarly** which make writings clear and error-free, **QuillBot** which helps people enhance their original content and paraphrase the sentences etc.

6. Administrative Tasks

- AI can help teachers in performing their repetitive mundane administrative tasks, such as scheduling, rescheduling classes etc.
- This will allow teachers to concentrate on enhancing educational quality.

7. Creation of Smart Content

AI-based software tools help in the creation of smart content that can range from digital textbooks, study guides, videos, etc., that create customised environments for the students.

JAN SURAKSHA

- To ensure that the people from the unorganised section of the country are financially secure, the Govt launched two insurance schemes - **Pradhan Mantri Jeevan Jyoti Bima Yojana** and **Pradhan Mantri Suraksha Bima Yojana**; and introduced **Atal Pension Yojana** to cover the exigencies in the old age.
- While the PMJJBY and PMSBY provide access to low-cost life/accidental insurance cover to the people, the APY provides an opportunity for saving in the present for getting a regular pension in old age.

Atal Pension Yojana (APY)

- APY was launched to create a **universal social security system** for all Indians, especially the poor, the underprivileged and the in the unorganised sector.
- **APY is administered by Pension Fund Regulatory and Development Authority (PFRDA)** under the overall administrative and institutional architecture of the National Pension System (NPS).
- **Eligibility:** APY is open to all bank account holders in the age group of 18 to 40 years.
- **Benefits** – Depending on the contribution and entry age, subscribers would receive a guaranteed monthly income ranging from 3000 to 5000 at the age of 60 yrs.

Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)

- PMJJBY is a **one-year life insurance Scheme** renewable from year to year, offering coverage for death due to any reason.
- Individuals in the age group of 18-50 years are entitled to enrol under the Scheme.
- **Benefits:** Life cover of Rs 2 Lakh in case of death due to any reason against a premium of Rs 330 per annum.

Pradhan Mantri Suraksha Bima Yojana (PMSBY)

- PMSBY is a one-year accidental insurance Scheme renewable from year to year, offering coverage for death or disability due to accident.
- Accidental death and disability cover of Rs 2 lakh (Rs 1 lakh in case of partial disability) for death or disability due to an accident.

NFT EXPLAINED

- Artists need a platform to showcase their piece of art and to monetise it in order to earn a living, and to ensure the protection of the source, the ownership, the copyright, and its future value.
- With the invention of **Non-Fungible Token (NFT)**, a technology that allows creators and artists to bypass the intermediary altogether, decentralisation allows artists and creators to gain control- not just over the financial value of their artworks but also over the ownership and copyright of the same.
- It all started with a set of 10,000 randomly generated pixelated images that proved the demand for digital ownership of non-physical objects and collectibles in 2017, and the market has been evolving rapidly ever since.

What Is NFT?

- The NFT stands for Non-Fungible Token.
- **Token:**
 - Here, Token can be anything a piece of art, a musical melody, a video, a game, or even a physical object.
 - An image, available on the internet, becomes an NFT when it is stored on an online network of computers called Blockchain, and a unique serial number is assigned each time a Token is placed on the Blockchain Network.
 - Each NFT has its **unique serial number** and that also makes the Token Non-Fungible.
- **Fungible**
 - If an object can be replaced by another object, it is called Fungible. E.g., one Rs 500 note can be replaced by another Rs 500 note. Its value is not going to change even after the replacement.

- On the other hand, something having a value of personalised or unique nature that cannot be replaced by another object makes it a non-Fungible object.
- One NFT cannot be replaced by another NFT, because even if it is the same image, each copy of this image has its unique serial number and therefore, has its own value, making it unique.
- Combining these words, a ***Non-Fungible Token can therefore be described as an object having a unique serial number, stored on the Blockchain Network.***

Why Choose NFTs?

- Artists can sell their work directly as an NFT to a consumer and make a profit, this leads to **less dependence on traditional art galleries** and auctions.
- Royalties can be included, which means that each time their NFT is sold, the artist can receive a certain percentage of the price at which the consumer decides to resell it.
 - If their art were sold in the traditional way, the revenue from secondary sales would not occur, making NFTs particularly beneficial to creators.
- NFTs **ensure ownership of a digital object**, thanks to the Blockchain. each NFT is unique, the only one of its kind. Everything is verified by the blockchain and can be seen by everyone because they are unique and cannot be copied, they are scarce.
- No one can change the metadata of the token, no one can delete the image or the name of the token. This means that it will never change, it will never be deleted, it cannot be removed from the blockchain, hence making it immutable.

NFTs are not cryptocurrencies

- These NFTs are bought and sold using cryptocurrencies like Bitcoin, Ethereum, etc. However, it should be remembered that **NFT is not a kind of cryptocurrency.**
- **Cryptocurrencies are fungible.** One Bitcoin can be replaced by another Bitcoin and the value will be the same. On the other hand, each NFT is different from another NFT because it is unique.

Categories of NFTs

- The most popular category in the present day is the **category of visual art** as NFTs. **Music as a category** of NFTs is still evolving.
- NFTs are becoming increasingly popular in the **Domain Name business** also. Buyers have started purchasing Blockchain Domain names which are being sold as NFTs which typically end with '. eth' or '. crypto'.
- Another popular category of NFTs is **Metaverse**. It is a virtual world powered by the Blockchain where users can create and trade digital assets, play games, etc.
 - Popular singer Daler Mehndi bought land in the metaverse and named it 'Balle Balle Land'.
 - Sports teams and related companies have made headway into the NFT world and have started selling items to their millions of fans.
- A similar category to Sports is the Events, as with the adoption of NFTs in the Event industry like Concerts, Cinema, Theatre, museums, etc., it is only a logical step that the tickets to **access stadiums would be sold via NFTS** in the near future.
- **Collectibles** can be described as yet another category of NFTs. Recently, the PM of India gave away **Blockchain-based digital degrees at IIT, Kanpur**. They are nothing but NFTS, which are unique and hence, unforgeable.

- *Building a Community around NFTs* is yet another category. Tourism related brands like Zostel have launched their NFTs in order to have a close community of travellers and backpackers being provided exclusive benefits upon purchase of their NFTs.

TECH-INNOVATION IN BANKING

- The banking sector is rapidly adopting new emerging technologies to draw the customers to park their wealth in attractive bank products and schemes.
- Latest technologies like Artificial Intelligence, Big Data, Deep Machine Learning, and Robotics are being used to understand the customers and their needs better.

Digital Transformation: Key Milestones

- Banking System in India, established 252 years ago, has left its traditional way of functioning.
- Even though the **first business ATM in the world** began operational in 1969 in the US; HSBC, the first private sector foreign bank in India, opened the first ATM in Mumbai in 1987.
- **ICICI became the first bank to introduce internet banking** in India.
- The public sector bank, the **Central Bank of India**, was the **first to offer a credit card** facility in India.

Digital transactions in India and steps taken by the govt

- Data available from the Ministry of Electronics and IT shows that in comparison to digital transactions of Rs 5554 crore in 2020-21, banking transactions worth Rs 7422 crore were done through digital mediums during 2021-22.
- Government's ambitious **Digital India Mission and Payment System** laid the digital economy's foundation.
- While *Rupay, Kisan Credit Card* enabled farmers to engage in cashless transactions, *General Credit Card* enabled people involved in occupations other than farming.
- **Aadhar enabled Payment System (AEPS)** is crucial in the financial inclusion. A financial incentive of 0.5% of the transaction amount and a maximum of Rs 10 per transaction to promote Aadhaar enabled POS transactions upto Rs 2000 is also provided to encourage digital transactions.
- The Direct Benefit Transfer System (DBT), introduced in January 2013 to directly transfer the benefits of the social security schemes without any financial leakage, is also proving to be very effective.
- Another significant step was the **establishment of a Payments Bank** by the RBI.

ACCESSIBLE HEALTHCARE TO AI

- **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY)** is a bold and transformative resolve to change the healthcare paradigm of India.
- The Scheme promises its beneficiaries an equitable and affordable access to quality healthcare services without the need to worry about the financial implications arising out of it.
- It enshrines to accelerate India's march toward achieving Universal Health Coverage (UHC) as listed in The National Health Policy (NHP) of 2017.

Performance of AB PM-JAY

- As of April 2022, Ayushman Bharat PM-JAY in alliance with State health schemes covers a **beneficiary base of more than 14 crore families** (70 crore individuals).
- Almost 18 crore individuals have been identified under the Scheme and been provided with an Ayushman card.
- AB PM-JAY has facilitated almost 3.28 crore hospitalisations, providing treatment worth over Rs 37,600 crores. All this has been achieved in a little over 3.5 years and amidst the greatest global pandemic in recent times.

Comprehensive Healthcare Benefits

- AB PM-JAY was launched with 1,393 treatment packages covering treatment for various medical specialties upto Rs 5 Lakhs per beneficiary family.
- The benefits package under AB PM-JAY was comprehensive, covering pre and post hospitalisation expenses. Additionally, all pre-existing conditions were covered from the first day of the policy period. The **health benefits package was also made portable across the country**.

Ensuring Equality in Access to Healthcare Services

- Under AB PM-JAY, the renewed impetus has been given to extending the Scheme benefits to the marginalised sections of society covered under the Socio-Economic Caste Census database.
- Likewise, the Scheme has adopted an enlightened approach towards **ensuring gender-specific equity**. Gender parity has been achieved under AB PM-JAY as women account for approximately 50% of Ayushman cards generated and 47% of authorised hospital admissions.

Robust, Scalable, and Inter-operable Technology Platforms

- Under AB PM-JAY, a technology platform was developed to aid in beneficiary identification, transaction management, and hospital empanelment.
- This award-winning IT platform is now active across 26 States and UTS.
- NHA also leveraged technology to institute robust anti-fraud protocols. A **National Anti-Fraud Unit (NAFU)** was set up with institutional support from the multi-lateral development community.

Public and Private Partnership

- Under AB PM-JAY, both **public and private hospitals have been empanelled** for providing healthcare services to the Scheme beneficiaries.
- Under this, it was ensured that **public hospitals would be equally reimbursed** for their services and at the same rates as that of private hospitals.

Health Benefit Package 2022

- The rationalisation exercise for revision to 'HBP 2022' comprised of an extensive review of current Scheme performance.
- The new version has added 365 new procedures taking the total package count to 1949 and also has included high-end procedures like Bone marrow transplant, Cochlear implant surgery, and several Interventional Radiology procedures.
- The revised package has a new specialty of Palliative care also added in addition to rationalising the existing procedure rates.

Aapke Dwar Ayushman

- There is a positive correlation between Ayushman cards generated and the demand for healthcare services under the Scheme.
- Under **Aapke Dwar Ayushman**, grassroots networks were used to undertake door-to-door mobilisation of beneficiaries across communities.
- Special night camps were set up for daily wagers. These efforts translated into the creation of more than 4.7 crores Ayushman Cards since January 2021, an increase of 55% in the Ayushman cards generated by the NHA IT system.

Conclusion

- AB PM-JAY is a path-breaking intervention to address healthcare delivery holistically.
- It is believed that it has the potential to catapult India into the top countries of the world in terms of healthcare that's built on the **3As of Accessibility, Affordability, and Availability.**

Moorhen Yoga mats

- Handwoven Moorhen Yoga Mats is an **initiative by the Indigenous Fishing Community** using Natural Materials **from Deepor Beel Wetland.**
- The Moorhen Yoga Mat is named after Kam Sorai (*Purple moorhen, a resident bird of Deepor Beel Wildlife Sanctuary*).
- These Yoga Mats have been developed with technological support, under the **theme 'Waste to Wealth'.**

ADVANCEMENTS IN MEDICINE

- Health or medical technology is defined by the WHO as the 'application of organised knowledge and skills in the form of devices, medicines, vaccines, procedures, and systems developed to solve a health problem and improve quality of lives.'
- Medical technology can save lives, improve the health conditions of individuals and communities and contribute to sustainable healthcare.
- Medical technology has grown by galactic leaps ever since the **first invention of a wooden tube by René Laennec**, which is the primitive form of the now-familiar stethoscope.
- Augmented, Virtual and Mixed reality are all technologies which find application in not only diagnostics and therapeutics but also in imparting medical education.
- The brain implants which create a *brain computer interface* wherein a smart chip implanted in the human body can provide a nearly total functional replacement of any lost brain function.
- *Cybernetic organisms (Cyborgs)* are the leap forward in medical technology, not only in repairing and replacing the lost function but also in enhancing the existing ones.
- *3D prints* applied in medicine can be used to design anything from a tablet or a capsule in desired shape and size to implants, stents, and prosthetics.

Nuclear Medicine

- Dedicated scientists from institutions like the Bhabha Atomic Research Centre (BARC) and the Institute of Nuclear Medicine and Allied Sciences (INMAS) etc., are actively inventing novel radioactive medications that can become a game-changer in the future practice of clinical medicine.

- The human body contains about 20,000 molecules only. Diseases happen whenever there is a random discord amongst them.
- In Nuclear Medicine, experts directly visualise, measure, and modify these by administering tracer quantities of medications that emit electromagnetic or particulate radiations, long before they can get clinically manifested as physical disabilities and diseases.

Orthopedics and Physics Medicine

- 3D printing has revolutionised treatment in patients with bone loss by producing porous-coated customised implants that help in limb salvage, thereby preventing amputations in several such cases.
- AI/Machine Learning has given a deep insight into predicting success/major complications with mathematical models. Robotic surgery has induced perfection in the positioning of implants.