

Union Budget 2022-23 – Paving the way for a Digital India

The budget 2022-23 is a pro-technology budget. Digital economy and fintech have been mentioned as the vision of the budget. It has embraced digitalisation and the adoption of technology at various levels. This paper elucidates the important digital initiatives like the introduction of CBDC digital currency, digital banking units, taxing the digital assets and most importantly, bringing in of 5 G. 5 G shall enable smart manufacturing which is expected to be game changer for India's manufacturing industry. These measures are expected to pay way for a new developed digital India and propel the Indian economy towards economic progress. Read on...



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Introduction

The Finance Minister, Dr Nirmala Sitaraman set the stage for delivering on the promise of strong digital architecture that supports digital governance, e-health and building digital trust. She started a new trend of a paperless budget in 2021 and this continued with the budget of 22-23 being presented digitally. Soft copies of the budget and the Economic Survey were distributed to all the members of Parliament. Digitisation ran as one of the principal themes across many of the planned public spending initiatives.¹ The budget has

given a fresh digital push and reliance on green energy. Rs 19,500 crore of Production Linked Incentive (PLI) for solar manufacturing of high efficiency modules has been announced in the Union Budget for FY 23.

Introduction of the digital currency:

The government remained committed to digitalisation, albeit in a more secure manner. The announcement was made by the FM that the RBI will roll out the Central Bank Digital currency (CBDC) in FY 2023, based on the block chain technology. This CBDC, which has not been given any formal name as yet,



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will be easily exchangeable with the physical currency. Users will be able to transfer purchasing power from their deposit accounts into their smart phone wallets in the form of online tokens, and it would result in the direct liability of the Reserve Bank of India, just like cash. This is expected to lessen the burden of printing paper currency and the logistics of and management of handling cash.

A currency is generally backed by some credible agency. This is not the case with the existing cryptos in the market like bitcoin or Ethereum etc. As per the RBI the private virtual currencies are at substantial odds with the historical concept of money since they have no intrinsic value. In fact, the cryptocurrencies can threaten the sovereignty of a country and make it susceptible to strategic manipulation by private corporations or governments that control them, as per the deputy governor of RBI T Rabi Sankar². A much better option, therefore is for a country to have its own digital currency.

As per IMF, Countries like the Bahamas and Nigeria have introduced CBDCs, the 'Sand dollar' and the e Naira to increase financial inclusion, facilitate remittances and reduce the informal economy.³ The Sand dollar is said to provide greater flexibility and accessibility for its residents who want to participate in financial services via a mobile phone application or using a physical payment card to access a digital wallet.⁴ It is said that

digital currencies hold a good potential for the 1.7 billion people globally that the world bank says do not have a bank account. With the cyber Yuan, the People's Republic of China became the first large economy to introduce the CBDC. Widespread use of the digital yuan may give Chinese policy makers greater visibility into how money flows around the economy.⁵

The RBI however, has been examining the usage of the CBDC and working out on the implementation strategy for the models on retail and wholesale use of introduction of the of the CBDC. A lot will have to be done before its introduction. The Crypto law will have to be passed in the parliament and amendment enacted to the RBI Act, the coinage act, the FEMA and the Information Technology Act.

Tax on virtual digital assets (VDA) Sec 115BBH

The government has cautioned time and again that the virtual digital currencies in the market do not have underlying values and the exchanges dealing with them are not regulated. The past few years witnessed heavy speculation in the cryptocurrencies. Since the cryptos had also made their place in the balance sheets of many companies, the government has taken cognisance of their existence and issued guidelines for taxing such and other Non- Fungible Tokens (NFTs) in the current budget with effect from 1st April 2023 as follows:

Income from sale of such assets shall most likely be chargeable under income from other sources (tax experts are not yet clear about whether it will be taxed under capital gain or other sources). Tax @30% will be levied on the amount of gain on the sale of such assets. No deduction in respect of any expenditure (other than cost of acquisition) or allowance or set off of any loss is allowed.

Loss from transfer of such asset shall not be allowed to be set off against income earned under any other provisions of the act and such loss shall not be allowed to be carried forward in the succeeding assessment year.⁷

Provision relating to taxation of gifts shall apply to the Virtual Digital assets. It is proposed to consider Virtual digital asset as property (explanation to section 56(2)(vii).

Further, TDS on purchase of Virtual Digital Asset as per Section 194S shall be applicable with effect from 1st of July, 2022. Person responsible for paying to resident any sum by way of consideration for transfer of such asset shall be liable to TDS@1%. The government thereby ensures that all transactions involving VDA get reported and taxed.

Exemption- In case the payer is an individual or HUF, having turnover from business of less than or equal to Rs 1 crore or having turnover from profession less than or equal to Rs 50 lakhs or not having income from the head profits and gains of

business or profession (PGBP) and the value of consideration of the virtual digital asset is less than Rs 50,000; there is no liability to deduct TDS. In any other case the limit is proposed to be Rs 10,000 during the FY. This move is expected to bring clarity with respect to the taxation and thereby, the costs and benefits to be derived from holding of such inherently risky assets.

It is to be noted that taxing of virtual digital assets is not an easy task and no other country has regulated the Virtual Digital Assets as yet. Hence some teething problems will have to be resolved as and when they arise.

5 G and smart manufacturing

Presenting the budget, Finance Minister made an important announcement that the auction for the 5G spectrum will be held in 2022 and India will make commercial 5G services available in the country by 2023. Major telecom companies have already undertaken initial trials of 5G services in certain areas in India and upgraded their mobile towers in association with the 5G equipment makers.

The point to be noted is that 5G is not just about telecommunications. It is expected to facilitate smart manufacturing in India. Smart manufacturing⁸ (SM) is a technology driven approach that utilizes internet connected machinery to monitor the production process. Smart Manufacturing

identifies opportunities for automating operations and uses data analytics to improve manufacturing processes and enhance productivity. SM involves application of Industrial IoT (Internet of things). Sensors are embedded in the manufacturing machines that collect data on the operational status and performance of the machines. In the past such data, stored on individual devices was accessed to determine the cause of machine failures but by then, the damage was already done. The new technology is expected to alert and prevent machine failures.

With 5G, smart manufacturing is expected to get smarter

As per a report, 5G telecommunications technology is going to be game changer for manufacturers. The benefits of 5G to the global manufacturing industry could amount to \$740 billion by 2030. The 5G super-fast, super flexible wireless technology promises highly reliable, near instantaneous data connectivity. This is critical for the existence of smart factories, connected



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supply chains and IOT enabled products.⁹ Automated machines and robots equipped with a wide array of sensors, connected to high powered analytics in the cloud that assess performance, manage production schedules, maintain supplies and orchestrate all the activities on the shop floor. With the expected availability of 5G networking, a much more powerful wi-fi and near zero latency, things will see a sea change. By eliminating the need for wired connectivity, 5G will supplement high speed manufacturing environment with far greater scalability and flexibility.¹⁰

Table 1 Technology specifications of 5G in comparison to 3G and 4G

Features	3G	4G	5G
Year of Introduction	2001	2009	2018
Based on Technology of	WCDMA	LTE WiMAX	MIMO, Waves
Bandwidth	25 MHz	100 MHz	30 GHz to 300 GHz
Internet service	Broadband	Ultrabroadband	Wireless World wide web

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Throughput- Amt of data that can be moved from one place to another in a given period	7Mbps (megabits per second)	300Mbps-1 Gbps (Gigabits per second)	10Gbps
Applications	Video conferencing, mobile TV, GPS	High speed applications, mobile TV, wearable devices	High resolution video streaming, remote control of vehicles, robots, procedures etc
Latency- delay between the sender and receiver of data-lower latency leads to higher real time experience.	100-500ms	30-50 ms	1-10 ms

Table 1 elucidates the various differentiating features that 5G offers in comparison to 3G and 4G.¹¹ The big advantage of 5G across the entire manufacturing value chain is its ultra-reliability and security. The significantly high data rates of 5G (up to 10Gbps) is substantially higher than any Wi-Fi or cellular wireless mechanism. This connectivity power is very helpful in adopting critical manufacturing applications. By eliminating the need for wired connectivity, a high-speed manufacturing environment is enabled which is flexible and has low latency. It enables device density and data volume. 5G greatly enhances the IoT capacity by supporting far more sensors and devices. This enables massively connected factories.

Industry 4.0 and 5.0

Industry 4.0 is a term used in modern manufacturing world to denote the 4th Industrial revolution¹². It is characterized by automation wherein machines largely govern themselves. Industry 4.0 brings

together technology advances in the Internet of Things (IoT), artificial intelligence (AI), big data, cloud and edge computing to help manufacturers advance towards a higher degree of automation and apply digitalization to physical processes.

Large companies in India have already joined the smart manufacturing club, and having reached the industry 4.0 stage, are experiencing its many benefits. Technology giant Siemens has reported success with production of more variants of its product (circuit breakers) with its production time reduced by half. Mahindra and Mahindra's automotive division has been able to reduce its repair and spare costs in a significant double digit percentage range by investing in IoT (Internet of things) capabilities and connecting majority of its critical machines with sensors. Lloyd has set up a fully robotized and automated unit in Ghiloth, Rajasthan. The plant has its machines and production processes integrated with AI and IoT. Thus if this is



Connectivity has been the main enabler of Industry 4.0. Cost sensitivity and pressure to improve productive efficiency motivate manufacturers to adopt digital tools to meet these challenges.

Industry 4.0, Indian companies are now gearing up for the 5.0 story. Co-bots (collaborative robots) will be used to boost process efficiency and effectiveness.¹³

Industry 5.0

It is rightly said that while Industry 4.0 uses technology with machinery through the internet; Industry 5.0 is where people and robots will work together. 5G is going to be the main enabler of this transition.

Connectivity has been the main enabler of Industry 4.0. Cost sensitivity and pressure to improve productive efficiency motivate manufacturers to adopt digital tools to meet these challenges. Though a few options are available but **5G is emerging as a key connectivity solution**, particularly as many of its technical capabilities have been designed with Industry 4.0 applications in mind like i) Ultra-reliable low latency communication- for real-time communications between machines. ii) Greater bandwidth and support for higher device

density. This helps to generate more data traffic and host a greater number of devices / sensors. Network slicing allows virtual separation of networks, enhancing security and reliability. Mobile edge computing allows critical network functionality to be retained at the edge, further enhancing resilience and operational continuity.

The expected productivity gains are owing to the following advantages that 5 G brings:

Optimization of production:

5G will enable real time data capture on the machines. A more efficient sequencing of the factory activities will be possible because of the better analysis of production patterns which shall result in reduction of waste.

Enable modular factories: The speed, density, low latency and wide bandwidth will enable better use of bots and enable mass customization and also manufacturing on demand.

Better connectivity: better integration of factory infrastructure, with resources and operational technology and the company's ERP systems will result in greater optimization and also enable remote control of the factory processes.

Supply chain integration:

5G networking integrated into factory tools will enable fast, automatic replenishment of parts and supplies, minimize delays and also boost efficiency.

Augment Human machine interface:

The 5G technology is expected to free staff from computer terminals, provide better visualization solutions, offer augmented reality gear.

Better maintenance : The status of equipment can be assessed far more closely. This in turn will enable them to conduct scheduled maintenance when needed, predict the need for unscheduled maintenance before problems arise and enhance remote diagnostics performed by suppliers of complex equipment.

Improved safety:

5 G enables a near instantaneous response time, enables a safer manufacturing environment with reduced requirement of people on the shop floor and a more responsive emergency shut off signals.

The manufacturing industry of India is therefore ready and in anticipation of the introduction of the 5G as envisaged in the current budget.

Other digital initiatives in the budget

The budget has many other digital initiatives, like the announcement of the following-

Digital Banking Units:

75 digital banking Units are to be set up in 75 districts of India by the Schedule Commercial Banks. (This is to commemorate 75th year of India's independence). It has been the endeavor of the government to



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enlarge the customer base for banking. The digital banking push is expected to boost this objective. Studies have revealed that digital lending has resulted in good financial inclusion; however, it was found that the penetration of financial products was restricted to urban areas¹⁴. This digital banking initiative is expected to bring many new rural customers into the banking fold. The Trinity of Jan Dhan, Aadhaar and Mobile has allowed the quick deployment of digital products with ease of access owing to a secure API. Digital lending UPI payments BNPL payments (Buy now pay later) and Aadhar enabled payment systems are all expected to further increase in the coming times. The challenges to financial inclusion of accessibility from all areas, rural or urban, creation of financial products catering to the needs of even the underprivileged and establishment of institutions regulated by the RBI, shall all be addressed with the establishment of such digitized banking units.

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E-pass ports with chips-

Indian travellers will henceforth be issued e- passports instead of the current printed passports. An e-passport serves the same purpose as a traditional passport; it contains the same information like the name, date of birth and other details. Ministry of External affairs has informed that the e-passports shall comply with the standards of the International Civil Aviation Organisation (ICAO).¹⁵ These would contain secure biometric data of the passengers ensuring their smooth passage through immigration posts globally. These will be manufactured domestically at the India Security Press, Nashik.

The e-passport will ease and quicken the process of immigration checks as the e-passport can be scanned in seconds as opposed to physical verification at the immigration counter. These would also be difficult for fraudsters to imitate, since it is hard to meddle with the pre-recorded data in the microchips. India has now joined countries like the US, UK and Germany, who already have biometric e-passport systems.

Digital healthcare

The government had announced the Ayushman Bharat Digital Health System (ABDM), an open platform for the national

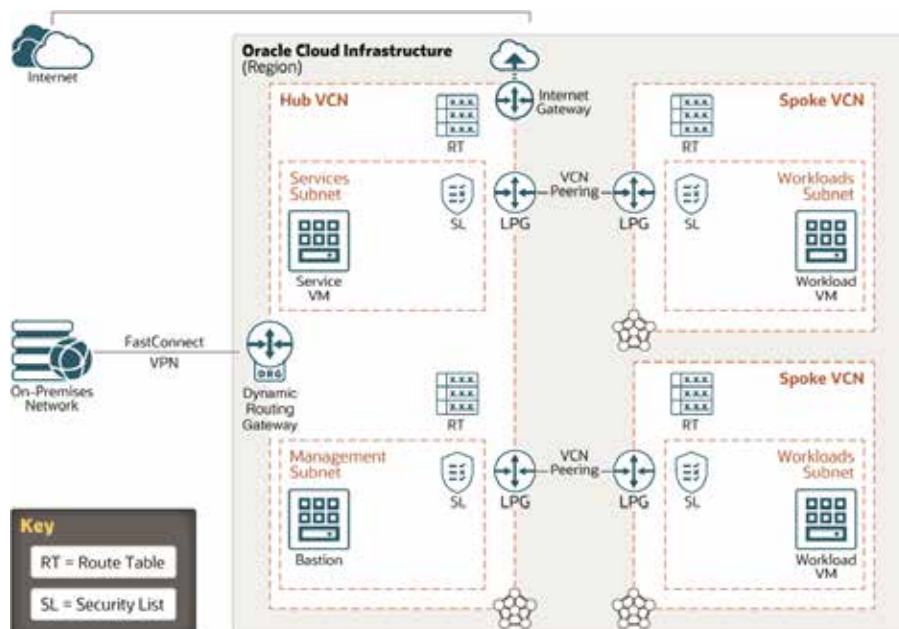
digital health ecosystem. Digital registries of health providers and health facilities will be available. The budget 22-23 increased the allocation for the digital health mission by more than 2 and half times to Rs 200 crore. The overall health budget estimates for 2022-23 stand at over Rs 86,600 crore.

Unique health ID for citizens have been started to be created which shall be linked to their mobile and Aadhar numbers. This will provide the health records of the individuals that could be shared with consent. A web portal (<http://abdm.gov.in>) has been created which shall have separate sections for the registration of professionals and facilities under different categories that the public will be able to access. The digitisation of the health records of patients is being encouraged with the development of hospital

information management system. Technology is being leveraged for the 'Ease of Living' of Indian citizens.

Digital education

The budget enhanced the financial allocation to 1.04 lakh crore. It proposed the setting up of a Digital University which shall provide access to world class quality University education at the doorstep of students with personalised learning experience. The University will be built on networked hub spoke model. Below is a diagram of such a model.¹⁶ Its components are an on-premise network that acts as one of the spokes of the topology. An oracle cloud infrastructure region is a geographical area that which contains or more data centres or availability domains. Regions could be geographically separate over long distances.



Description of the illustration hub-spoke-oci-png.png



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The FM also proposed 75 skilling e-labs for a stimulating learning environment promoting critical thinking skills and 200 TV channels to be launched under the e-vidhya

A digital environment shall be provided for skilling and livelihood through the DESH-Stack e portal which shall be launched to skill, up skill or re skill through online training. High quality e-content in most vernacular languages will be developed for delivery through mobiles, internet, TV or radio through digital teachers.

Conclusion

Through the various digital initiatives in the Union Budget 2022-23, the government's intention is clear that India is going to consistently move forward with the adoption of technology wherever it boosts transparency, improves efficiencies and increases effectiveness. The manufacturing industry of India is expected to spear ahead with the introduction of 5G and become more productive

and globally competitive. The boosting up of digital banking, introduction of CBDT currency, e health, e passports, e education initiatives etc will strengthen the digital eco system, lead to greater digital governance and a more sustainable development of the nation.

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