

PATHWAY TO QUANTUM EXCELLENCE

The National Quantum Mission (NQM) is an ambitious initiative aimed at establishing India as a global leader in quantum technology and applications. Launched in 2023, this mission seeks to harness the potential of quantum mechanics to drive advancements in various fields, including computing, communication, and sensing. By fostering research, innovation, and collaboration, the NQM aims to position India at the forefront of the quantum revolution, ultimately benefiting society and the economy.

Quantum technology exploits the principles of quantum mechanics, which govern the behavior of matter and energy at microscopic scales. Unlike classical systems, quantum systems can exist in multiple states simultaneously, allowing for unprecedented computational capabilities. Quantum computers, for instance, can solve complex problems exponentially faster than classical computers by processing vast amounts of data through quantum bits (qubits). This capability holds promise for revolutionizing sectors such as cryptography, materials science, and pharmaceuticals. In addition to quantum computing, the NQM focuses on quantum communication and sensing. Quantum communication utilizes the principles of quantum entanglement and superposition to create secure communication channels that are theoretically immune to eavesdropping. Quantum sensors can achieve unparalleled precision in measurements, which can be transformative in fields such as navigation, medical imaging, and environmental monitoring. The primary objectives of the National Quantum Mission are to promote research and development in quantum technologies, facilitate the transition of quantum innovations from laboratory to market, and build a robust ecosystem for quantum education and workforce development. By fostering a collaborative environment among academia, industry, and government, the NQM aims to accelerate the pace of quantum research and its applications. One of the mission's key goals is to develop indigenous quantum technologies, reducing dependence on foreign technologies and positioning India as a global player in this cutting-edge field. The NQM emphasizes the importance of building a strong research infrastructure, including quantum research laboratories and innovation centers, to support scientists and engineers in their pursuits. To achieve its objectives, the NQM allocates significant funding for research and development activities in quantum technologies. This funding supports various initiatives, including grants for research projects, fellowships for students and researchers, and the establishment of centers of excellence dedicated to quantum research. The mission also promotes interdisciplinary collaboration, encouraging experts from physics, computer science, engineering, and mathematics to work together on quantum challenges. By supporting innovation, the NQM aims to foster startups and small enterprises focused on quantum technologies. The mission encourages the development of practical applications for quantum computing, communication, and sensing, thus driving economic growth and creating job opportunities in the quantum sector. Collaboration with industry partners will be pivotal in ensuring that research outcomes translate into commercial products and services. A critical component of the National Quantum Mission is the emphasis on education and workforce development. To sustain the growth of the quantum ecosystem, India needs a skilled workforce capable of advancing quantum research and applications. The NQM aims to integrate quantum science and technology into educational curricula at various levels, from schools to universities. This initiative will ensure that future generations are equipped with the knowledge and skills necessary to thrive in the quantum era.

The mission also focuses on training programs and workshops for educators, researchers, and industry professionals, enhancing their understanding of quantum principles and technologies. By nurturing a new generation of quantum scientists and engineers, the NQM aims to build a robust talent pool that will drive innovation and growth in the quantum domain. Recognizing the global nature of quantum research, the National Quantum Mission actively promotes international collaboration. Partnerships with leading quantum research institutions and organizations around the world will enable India to share knowledge, expertise, and resources. Such collaborations can lead to joint research projects, exchange programs, and participation in global quantum initiatives. By engaging with international partners, India can leverage best practices and accelerate its quantum research efforts.

Collaborative research can also facilitate access to advanced technologies and methodologies, ensuring that India remains competitive in the global quantum landscape. The implications of the National Quantum Mission extend beyond technological advancements. Quantum technologies have the potential to address pressing societal challenges, from enhancing cybersecurity to improving healthcare outcomes.

For instance, quantum computing can revolutionize drug discovery by simulating molecular interactions at unprecedented speeds, leading to the development of new therapies. Moreover, secure quantum communication can safeguard sensitive information, benefiting sectors such as finance, defense, and critical infrastructure. As quantum sensors improve environmental monitoring, they can contribute to better resource management and disaster response. Looking ahead, the success of the National Quantum Mission will depend on the commitment of all stakeholders, including government agencies, academic institutions, and industry players. By fostering a culture of collaboration and innovation, India can realize its vision of becoming a global leader in quantum technology.

The NQM represents a transformative initiative aimed at positioning India as a key player in the burgeoning field of quantum technology. By focusing on research, innovation, education, and international collaboration, the NQM seeks to harness the power of quantum mechanics to drive economic growth, enhance national security, and address societal challenges. As the world increasingly embraces the quantum revolution, India's commitment to this mission will be crucial in shaping a future where quantum technologies play a central role in enhancing the quality of life and advancing human knowledge.

The journey toward quantum excellence is just beginning, and the National Quantum Mission stands as a beacon of hope for a brighter, more innovative future.



MOHAMMAD HANIEF

The preferred choice for many ambitious business owners is to understand the impact of e-commerce on business. Most people think it is a secure, adaptable sector with several success stories. Starting an online store and earning a comfortable income several years ago was simple. However, the e-commerce sector has seen a significant transformation over time. Considering the prevalence of mobile phones and the internet at all societal levels throughout the globe, e-commerce is expanding rapidly. No matter what specialty you select, the rivalry is more intense. Additionally, the dynamics of the sector are now harsh. The opportunities and challenges that new e-commerce enterprises encounter have increased as a result of this. Electronic commerce, or e-commerce, is the interchange of products and services and the sending of money and data through a digital network, most commonly the Internet. E-commerce is crucial to the nation's financial growth and progress. It is an intentional action that involves organiz-

ing, handling, promoting, and dispensing different products and services. E-commerce refers to the practice of transacting business online. Despite being a relatively new idea, it has the power to change how economic transactions are often conducted. It impacts essential industries, including interactions, services, financial markets, and retail commerce. In addition, it has potential for the future in sectors like health, transportation, and education. Less obvious but more significant effects on normal company operations may have a greater impact than many of the consequences that garner the most attention. E-commerce offers the potential for commercial organizations to speed up corporate operations, cut expenses, reach out to new clients, and create novel markets and business models. With the help of technology, it's simpler to advance and carry out your company's thoughts. Expenses are lower, and you can highlight the goods you want to sell. Addressing the consumer is made feasible by changing the information. Marketing is readily accessible, as are many strategies for generating leads. A cru-

cial aspect to keep in mind through this procedure is openness. To boost revenue, you must always be truthful with customers. Thus, the impact of e-commerce on business is relevant through business growth. The customer experience must also be monitored in online companies, which also allows a chance to customize offers, newsletters, and other materials to appeal to various clients. Accordingly, a common e-commerce trend is the development of mobile applications for virtual and augmented reality for businesses to give their customers an improved and more personalized service. E-commerce is available 24 hours a day. Customers may use e-commerce at any moment of the day to make any purchases and acquire all the data they need. This openness enhances the ability to produce leads and revenue and strengthens the interaction between customers and retailers. Check out how you can streamline company operations with AI chatbots like ChatGPT as one of the options for 24/7 accessibility! One of the main difficulties in eCommerce is privacy violations. Engaging with

eCommerce involves a lot of facts and figures, and a data-related technological problem might seriously harm the retailer's current company activities and reputation. Cybersecurity is among the most outstanding and frequent issues consumers and organizations involved in e-commerce face. Additionally, managing and protecting various consumer data, such as name, address, contact details, email address, and age, is crucial. Without a doubt, the business model that is evolving and transforming the most quickly is e-commerce. The impact of e-commerce on business is well-illustrated with the changing customer trends and market conditions. Staying up is challenging, and failing to do so can be expensive. Numerous lists discussing the newest e-commerce trends can be found online, which continually pressures firms. However, only some ideas will apply to you or your company. Discover strategies to shut out distractions and focus on the improvements that matter significantly to your clients. Investing time with people who share what you value is a great strategy. Join social-

ing and business teams so you may meet other business leaders and owners, exchange expertise, and work through problems as a team. Small retail stores or companies that are not engaged in e-commerce have decreased as a result of the consumer's reduced need to shop at various retail establishments. The bigger companies may compete in this market, such as bookstores, furniture stores, and car dealers. With a rise in internet users, B2B e-commerce has also developed in the online industry. E-commerce has emerged as a transformative force in India's digital landscape, fuelled by increasing internet penetration, rising smartphone usage, affordable data prices, increasing purchasing power, and more. This article explores the current trends, opportunities, challenges, investment potential, and prospects of e-commerce in India, highlighting its impact on businesses, consumers, and the traditional retail sector. Internet penetration in India has reached new heights, with over 918 Mn subscribers as of September 2023. Notably, the rural internet subscriber base is growing rapidly, currently standing at 375.66

Mn subscribers, indicating the democratization of online access. Close to 100% of pin codes in India have seen e-commerce adoption. The exponential growth of India's internet economy, projected to reach \$1 Trn by 2030, presents vast opportunities for businesses and consumers alike. E-commerce is at the forefront of this growth, with projections indicating a market size of \$325 Bn by 2030. For businesses, e-commerce provides a gateway to reach a broader consumer base, utilize cost-effective marketing channels, and explore opportunities for expansion in various categories and geographical regions. Each company will have difficulties, while all enterprises require thorough marketing plans, competent management, and a lot of effort. E-commerce has a lot of potential benefits for your company. The impact of e-commerce on business is quick and highly versatile. However, it also poses some particular difficulties. E-commerce has a significant influence on all business sectors and other fields. It has been a crucial component in the economic factors that have allowed India to dominate this industry.

Why not question Vote Seekers promising regularization of Underemployed & jobs for Unemployed & Costless utilities ?

DAYA SAGAR

When ever there are elections to Legislative Assemblies / Lok Sabha the politicians are often found showing concern for the economically weaker sections as well as the unemployed youth as well as those who are under employed. The numbers of such people are always large and hence the politicians start showing concern for them like regularization of the under employed ( daily wagers / consolidated wage employees / those employed on wages lower than the legitimate wage for the same job). No doubt such situations/ compulsions do emerge where there are more job seekers than the jobs as well as when the economic condition of the job seeker's family is very bad. In earlier times during elections often there used to be complaints / reports that the 'candidates' are found paying money to needy people for 'buying' a vote or pay to some local leaders for influencing their followers. No doubt now also money is spent ( fairly / unfairly) for organizing rallies and 'entertaining' the voters to increase the prospects but a new custom has started for 'indirectly' buying the support of voter citizen through exploiting the economic inadequacies of the masses like promising ,if voted to power, to pay in kind/ cash to individuals not out of the self pocket but out of the state exchequer. There is lot of scope for such exploitations in India whereas per government disclosers more than 80 Cr population is dependent on just 5 kg/ capita/ month of free ration for survival. Similarly almost all parties who can think of forming the governments are found promising to pay cash to every /BPL woman or head woman in every family/ BPL family , laptop to

students/ every students, health cover to every family through insurance upto 5 Lakh /7 Lakh/25Lakh, free gas cylinders to every family or BPL family , free 200/ 300 units electricity per month to all or designated families, some recently promising to waive off all the outstanding electric bills in full or part for all or for some and in the light of on going elections in J&K promises to remove the 'smart electric meters' as installed in J&K since it is alleged that the said meters unduly "add" extra units in the account ( which is technically nowhere correct and even government machinery has not been able to convince the consumers that over consumption cannot be due to smart meter but can be due to consumption that gets recorded when a meter is installed on the line ( may it be ordinary mechanical meter / electronic meter/ of the modern smart meter ). Anyhow questions that are being raised here are (1) Why those parties that were already in power in a state or are already in power in other states had not already extended such benefits to people there ? (2) Good , due to socio economic needs some costless support/ benefits could be a just need but why not the government in power/ party aspiring for power also simultaneously place before the people programme / schemes that would also economically make them in time sound worth not needing such costless direct support ? (3) So strangely a party in one state election promises Rs.2000/month /woman in a

family and in another state may be found promising Rs.3000/woman/ month/family ? AAP has promised Rs.1000 for every woman in a family in the age group of 18-60 yr age , one would ask , why not beyond 60 Yrs ? (4) Why do not the political parties at the same time promise that no any additional direct/ indirect taxes will be imposed ? (5) Governments are spending thousands of crores of INR in the health and education sector where the employed staff is paid much more salary as compared to generally being paid in the private schools / clinics but still even a low wage earner person visits a private clinic even for ordinary ailment or a street vendor prefers to send child to a private academy even in a city like Jammu or Srinagar what to talk of remote areas .No doubt it is welcome to promise health insurance cover from INR 5 to 7 Lakh or 25 Lakh per family but political parties must at the same time come with proposals assuring that the government hospitals/ schools would be made to deliver worth the salaries being paid ( lowest primary school teacher in regular grade gets around Rs.50000/pm where as one in private academies may be getting in general around INR10 000 to INR 15 000 only ), should not they ? (6) and like So the common voter citizen must take serious note of such politics and must legitimately question the promising politicians for their proposals and make them to make public in clear understandable terms (i) what is the level of BPL ( below poverty line) or the beneficiary who would be offered cost less benefits ? (ii) Will laptops be

given to all students or of some classes or of some merit or of some economic levels must be clearly disclosed (iii) when the Ayushman health card is to benefit all residents in one state then why is the same card benefiting only BPL families in some states ? Why not also appoint an audit agency dedicated only for checking the validity of those holding status cards like BPL ( below poverty line ) since in India even a beggar is paying taxes ( indirect taxes on what he consumes / uses) and it is often quoted in private that on check one would surely get some BPL card holder in the Qs on the wine shops. Cancellation of wrong cards would surely compensate for salary paid to audit staff. And not only that political parties promote new jobs for the unemployed in government but they do not tell whether the already employment on daily wage or consolidated salary that may be not even half the due wages will be given legitimate salary / grade dedicated to a post like has been the case with the Anganwari Workers who almost do the job atleast no less than a junior grade clerk and like SPOs ( special police officers ) in police who are made to start with Rs.6000/ pm with promise to pay Rs.9000/pm after 3 years to pay Rs.12000 after 5 years to pay Rs18000 /pm after 15 yrs or so ( may be exact figures different but surely not much different). Hope the political parties promising regularization of already employed daily wagers/ consolidated salary workers / new employments promise to pay the SPOs/Anganwari Workers atleast regular salary in Pay Level-2 of VII pay commission. (The writer is a Sr Journalist & a known analyst of J&K affairs)



A Look through the Mist

Agriculture Infrastructure Fund increases income of farmers

SHIVRAJ SINGH CHOUHAN

Prime Minister Shri Narendra Modi's deep concern and sensitivity towards farmers is clearly visible in the decisions, policies and plans taken for the farming community. Transforming the lives of our food providers (Annadata) is the first and foremost goal of our Prime Minister. This is the reason why agriculture and farmers remained the top priorities in the first 100 days of the third term of the NDA government. Under his leadership, the government is making unprecedented efforts for the empowerment and upliftment of the agriculture sector. We are committed to increase farmers' income, which clearly reflects in schemes such as Agriculture Infrastructure Fund (AIF), PM AASHA. Post-harvest losses in India are a major challenge, which threaten the production capacity of the agricultural sector and it also adversely impacts the hard work put in by lakhs of farmers. According to latest estimates, about 16-18% of the total food production is affected every year in India due to this. These losses can be attributed to various stages of agriculture such as harvesting, threshing, storage, transportation and processing. Lack of proper storage, cold chain, inadequate processing units, and lack of efficient logistics contribute to these huge losses, as a result of which the overall food security of our country gets affected. Keeping all these factors in mind, the Modi government is working with renewed enthusiasm towards strengthening this. Under the able leadership of Prime Minister Shri Narendra Modi, the government is making efforts to take the research of scientists from lab to land, due to which the cost of production has reduced considerably and profits have increased for farmers. The Prime Minister with a visionary approach launched the Agriculture Infrastructure Fund (AIF) way back in July 2020 as a transformative initiative under the 'Atmanirbhar Bharat' initiative. Its objective is to increase the income of farmers and address post-harvest management issues through farm assets to reduce food wastage. These challenges have to be addressed by promoting new projects and new age technologies. Under AIF, banks provide interest subvention of 3% per annum with an interest cap of 9% and financial institutions will provide loans up to Rs 2 crore with credit guarantee coverage under CGTMSE (Credit Guarantee Fund Trust for Micro and Small Enterprises) for loans. Through this initiative, the government aims to not only increase the production to preserve quality and quantity, but also help farmers access markets more efficiently, and as a result, their income will also increase.

Due to the able leadership of the Prime Minister; the benefits of the scheme, till August 2024, the amount sanctioned under this scheme has crossed Rs 47,500 crore. Of this, more than Rs 30,000 crore has already been disbursed for various projects. Notably, 54% of the projects that were sanctioned are linked to farmers, cooperative societies, agricultural production organisations and self-help groups (SHGs), which is in line with the Prime Minister's vision. It reflects the strong participation of farmers to provide farm-gate level infrastructure. Prime Minister Modi is very committed towards strengthening farm gate infrastructure to solve the major problem post-harvest losses in agricultural produce. He prioritised the development of infrastructure in storage (dry and cold), transportation, etc., so that farmers can be protected from such crop loss. In terms of dry storage, in comparison to food grain production, India has an infrastructure in terms of 1,740 lakh metric tonnes storage capacity, and at present, there is a shortage of 44% in the storage capacity for the overall grain production in India, which is very concerning. Similarly, for horticulture produce, about 441.9 lakh metric tonnes of cold storage is available in India, while the cold chain capacity is only 15.72% of the production of fruits and vegetables in the country. AIF initiative has helped bridge the storage capacity gap by approximately 500 lakh metric tonnes. Contributing to saving about Rs 5,700 crore post-harvest losses for the nation. Furthermore, under the leadership of the Prime Minister; the development of proper cold storage facilities has reduced the loss of horticulture products by 10%, due to which 3.5 lakh metric tonnes of produce is being secured post harvest and about Rs 1,250 crore is being saved every year. This commitment of the Prime Minister towards the agriculture sector and farmers will not only ensure economic empowerment, but also raise their standard of living. Under the guidance of the Prime Minister; the AIF is providing new impetus to the growth and development of agricultural infrastructure. As of August 2024, as many as 74,695 agriculture infrastructure related initiatives across the country have been approved under AIF. These include 18,508 custom hiring centres, 16,238 primary processing centres, 13,702 warehouses, 3,095 sorting and grading units, 1,901 cold stores and cold chains, and 21,251 other types of infrastructure facilities. These 74,695 projects have attracted a total investment of Rs 78,702 crore in the agriculture sector since 2015, which marks a significant progress in the sector. Prime Minister Modi has not only given

priority to infrastructure development, but also to the youth of this country. He has encouraged entrepreneurship among farmers, as approximately 50,000 new agricultural enterprises have been set up in the country. Due to the efforts of the government, the youth are also getting attracted towards farming. This will help in making farmers self-reliant and is an important step towards promoting innovation in the agriculture sector. These efforts have helped create more than 8,00,000 employment opportunities, and this number will only increase in the future, eventually leading to the creation of 2.5 million jobs, directly or indirectly. The Prime Minister's welfare policies have brought about positive changes in the working style of farmers. The creation of advanced infrastructure on farms has facilitated farmers to sell directly to a wider consumer base, thereby enhancing price realisation and increasing their overall income. Due to modern packaging and cold storage systems, farmers are able to time their market sales more strategically, resulting in better value realisation. On an average, this infrastructure initiative has enabled farmers to get 11-14% higher prices for their produce. Prime Minister Modi's policies will not only encourage the development of agricultural infrastructure, but also reduce credit risk. Through credit guarantee support and interest subvention, lending institutions can give loans with minimal risk, thereby helping their customers. This helps in expanding their base and portfolio diversification. Significantly, this fund is involved in the creation of agricultural infrastructure in collaboration with the refinance facility of NABARD, reducing the effective interest rate for Primary Agricultural Cooperative Societies (PACS) to 1%. This has brought significant benefits to thousands of farmers associated with such PACS. Under AIF, 9,573 PACS projects have been approved with a loan amount of Rs 2,970 crore till date by NABARD. In an important step under the leadership of Prime Minister Narendra Modi, the central government has approved the progressive expansion of the ambitious Agriculture Infrastructure Fund scheme, making it more inclusive and substantially more influential. The government is trying to make agriculture a profitable business and for this, we have come up with a six-point strategy to increase the income of farmers, such as increasing production, reducing the cost of farming, fair prices for production, providing appropriate amount of relief during natural disasters, diversification of agriculture and natural farming. At present, some promising projects for agricultural asset

development, such as hydroponic farming, mushroom cultivation, vertical farming, aeroponic farming, polyhouse and greenhouse, are reserved for only farmer groups and collectives. Through the recent expansion in its scope, individual beneficiaries now are eligible for sanctions under AIF for taking up these projects. Similarly, post-harvest management activities were limited to primary processing only. Now by expanding the scheme coverage to include integrated processing projects, farmers will get better prices for their produce through the creation of integrated processing plants, which includes both primary and secondary processing. In addition to this, component A of PM-KUSUM (Pradhan Mantri Kisan Urja Suraksha Evam Uththan Mahabhayan) Yojana provides the facility for the installation of solar power plants up to 2 MW on barren, fallow, cultivable, pasture or marshy lands, and it can be easily be converged with the AIF scheme. This strategic convergence will help individual farmers and empower farmer groups, enhancing their role from being 'Annadata' (food givers) to 'Urjadata' (energy providers), as well as promote the development of reliable clean energy infrastructure in rural areas. Apart from this, the dedicated credit guarantee cover window, which was exclusively kept for FPOs, i.e. NABSAmrakshan Trustee Company Private Limited, will remain open for AIF beneficiaries as well, where they will be eligible for guarantee fee reimbursement. These changes will increase processing capabilities, diversify food production, and increase and improve the quality of the yields. They will increase shelf life of the produce, boost transport capacity and improve rural supply by linking it to the urban demand. Additionally, these changes will help in generating rural employment opportunities, reducing input costs, increasing yields and enhancing agricultural efficiency, besides contributing to overall growth and development of the rural economy. Under the leadership of Prime Minister Narendra Modi, the Agriculture Infrastructure Fund is making significant contribution towards the development of the agriculture sector and empowerment of Indian farmers, by providing a sustainable solution. Due to the visionary leadership of Prime Minister Narendra Modi, even the minutest problems faced by farmers are being resolved, intense communication and combined efforts have brought a new dawn in the context of farmer's welfare, and this will prove to be a key milestone to fulfil the dreams of a developed agriculture sector of a 'Viksit Bharat'. (The writer is Minister of Agriculture and Farmers Welfare of India)

Opportunities & Challenges of E-commerce business