Rejuvenating Rural Economy through Digital India Programme

Dr. Fulwinder Pal Singh
SBJS Khalsa College, Satlani Sahib, Hoshiarnagar, Amritsar-143107

The vision of Digital India Programme is to transform India into a digitally empowered society and Knowledge Economy. Prime Minister Narendra Modi launched Digital India on July 1, 2015 to create digital infrastructure for empowering rural communities, enabling digital delivery of services and promoting digital literacy. Given that 68 per cent of India's population is rural and agriculture is the main source of livelihood for 58 per cent of the population, one must consider the role of Digital Agriculture within Digital India. Digital Agriculture can be defined as ICT(Information and communication technology- also known as e-agriculture) and data ecosystems to support the development and delivery of timely, targeted (localized) information and services to make farming profitable and sustainable (socially, economically and environmentally) while delivering safe, nutritious and affordable food for all. Rural connectivity will be key to providing low cost data and access to information. It would empower rural youth to realize their full potential, farmers to increase their profitability by accessing equitable markets and rural businesses to offer value added services.

The key components to support the implementation of Digital Agriculture is Spatial (and Temporal) Data Infrastructure (SDI) and low-cost smart phones and tablets to support the bi-directional flow of data and information to rural consumers. SDI has been the key driver to support modern farming in the US, Australia and Europe as well as emerging economies of China and Brazil. Agriculture is a data-intense enterprise when one considers soil variability, moisture and nutrient levels, rainfall variability, timing of key operations like planting and harvesting, and market price volatility. Advanced agriculture industries help farmers manage these production and market risks through the application of spatial/temporal data bases that are cloud enabled and integrated through Application Programming Interfaces (APIs). This creates a rich and dynamic data ecosystem that enables advanced analytics to inform farmers of the best economic options to maximize profitability and minimize risk - the two critical variables farmers in India would also like to manage.

Agriculture and Rural Economy

Digital India is a campaign launched by the Government of India to ensure the Government's services are made available to citizens electronically by improved online infrastructure and by increasing Internet connectivity or by making the country digitally empowered in the field of technology. The initiative includes plans to connect rural areas with high-speed internet networks. Digital India consists of three core components, (a) development of secure and stable digital infrastructure, (b) delivering government services digitally, and (c) universal digital literacy. Launched on 1 July 2015 by Prime Minister Narendra Modi, it is both enabler and beneficiary of other key Government of India schemes, such as BharatNet, Make in India, Startup India and Standup India, industrial corridors, Bharatmala, Sagarmala, dedicated freight corridors and UDAN-RCS. Digital India was launched by the Prime

Minister of India Narendra Modi on 1 July 2015 with an objective of connecting rural areas with high-speed Internet networks and improving digital literacy. The vision of Digital India programme is inclusive growth in areas of electronic services, products, manufacturing and job opportunities etc. and it is centred on three key areas – Digital Infrastructure as a Utility to Every Citizen, Governance & Services on Demand and Digital Empowerment of Citizens. The Government of India entity Bharat Broadband Network Limited (BBNL) which executes the BharatNet project is the custodian of Digital India (DI) project. BharatNet will connect all the 625,000 villages of India by December 2018.

Indian's economy is still agrarian where about 49 percent of all the people are directly engaged in agriculture. India lives in rural areas, Successive governments in the past have made attempts to focus on agriculture and rural development; yet masses engaged in agriculture and also living in rural India continue to be suffer abject poverty, face lack of facilities and deserve attention in terms of developing rural and social infrastructure with appropriate health and educational facilities. The Finance Minister has rightly focused on strengthening agriculture and rural economy. In tune with the Prime Minister's desire to double the income of the farmers by 2022-a very ambitious target- the Finance Minister has emphasized on generating higher income for farmers by extending necessary help to produce more at lesser cost and also earn more on their produce. For this, it is necessary that farmers get a fair price for their produce. There is also a need to strengthen the market connectivity.

In view of this, the Finance Minister has proposed a Minimum Selling Price (MSP) for Kharif crops to be set up at 1.5 times the produce cost of all the 23 produce. He has allocated an amount of Rs.2000 crores for agricultural market and infra fund in addition to allocation of Rs.500 crores for Operation Green to be launched to promote agriculture products. Agricultural credit facilitates farmers in operation and rising the productivity as most of farmers are small and marginalized. Increasing the target of agriculture credit from 8.5 lakh crores to 11 lakh crores would greatly facilitate farmer's particularly small and marginalized farmers. However attempts need to be made so that the credit is extended to farmers as targeted. In addition to above proposals, Finance Minister has extended Kisan credit facilities to allied areas such as fisheries and animal husbandry. It is thoughtful to measure up Rs.10000 crores for fisheries and Aquaculture Development Fund and Rs.10000 crores for Animal Husbandry Fund. Setting up of these funds will help people engaged in these sectors and facilitate in increasing their incomes.

Finance Minister's announcement to develop and upgrade existing 22,000 rural haats into Gramin Agricultural Markets (GrAMs) to take care of the interests of more than 86 per cent small and marginal farmers and setting 42 mega food parks with an investment of Rs. 1290 crores will greatly help in increasing the productivity of agriculture. Post harvest tax incentive and 100 per cent rebate for farming producing companies will also help increase production for agriculture produce and chasing a target of of possible potential of 100 billion dollar export of agriculture produce which will help increase incomes of the farmers in due course. The budget provision for facilitating farmers for installing solar water pumps to irrigate their fields is appreciable. The budget proposal to extend the facility of Kisan Credit Cards to fisheries and animal husbandry farmers will help them meet their working capital needs and increase I n their incomes.

Rural Economy

The Finance Minister has made a serious attempt to alleviate poverty in rural economy through allocations to various schemes. This is the human face of the budget. The Finance Minister has taken care of welfare of poor and lower middle class families by providing for 8 crores free LPG connections under Ujjwala Scheme to poor women and 4 crore poor households are being provided with free electricity connection under Saubahagya Yojana allocating Rs. 16000 crores under this scheme. This will greatly facilitate reduction in burning of fuel and causing deforestation and the sufferings of women. To fulfill the target of Housing For All by 2022, more than one crore houses will be built by 2019 in rural areas, besides constructing about 2 crore toilets in addition to already 6 crore toilets under Swachh Bharat Mission are also welcome steps. Similarly, allocation of Rs. 5750 crores to national livelihood and Rs. 9975 crores for social security schemes for 2018-19 are laudable. These schemes will help in adding to the dignity of Indian women. However, there may be apprehension whether such a laudable target can be achieved as at times there is lack of effective implementation. Prevailing corruption at the grass root level also adversely affects the benefit of government's schemes reaching targeted people.

Large amount of allocations have been made in Railways, Aviation, and digitalization of the economy. Railway capes has been pegged at Rs. 1.48 crore to eliminate unmanned railway crossing, to build escalators, to provide WiFi and CCTV camera, to eliminate unmanned rail crossings. An allocation of Rs. 11000 crore for Mumbai rail network and Rs. 17000 crores for the Bengaluru metro have been provided to take care of the needs of these metro cities. To further increase Broadband access in villages, the government proposal to set up five lakh Wi-Fi hotspots to provide net connectivity to five crore rural citizens and allocations of Rs. 10000 crore in 2018-19 for creation and augmentation of Telecom infrastructure would help in Digital India programme of the government.

Smartphone's are the other key intervention as they are equipped with GPS to track where photos of field infestations or hail damage have taken place for technical support or insurance claims. Mobile phones also enable farmers to integrate into structured markets based on approved grades and standards that can be verified using calibrated photos and settlements made through mobile money. While India has over 960 million mobile phones, only 17 per cent of the population has a smartphone but this is changing quickly with over 204 million smart phone users projected for 2016. This percentage is much lower for rural consumers but this too is changing as the price point for smartphones manufactured in India is dropping as are phablets (phones and tablets that support rural education and extension).

Digital technology will be key to increasing agriculture productivity by delivering tailored recommendations to farmers based on crop, planting date, variety sown, real time localised observed weather and projected market prices. These recommendations will be based on advanced big data analytics related to down-scaled daily observed weather that is now 9 km x 9 km but will soon be under 1 km x 1 km and effectively field level that feed into crop growth models to estimate yields, harvest date and potential pest and disease outbreaks to optimise pest control measures. Remote sensing is another big data resource to support the development of derived weather products (radar), improved hydrology and watershed management, soil health, crop coverage and crop health estimates among other application.

This is now complimented by Unmanned Aerial Vehicles (UAVs) that can capture multispectral images to assess crop health, damage and yield far more accurately than satellites.

The greatest impact Digital Agriculture will have is on democratisation of market pricing and compressing transaction costs so that farmers capture a higher portion of the produce's marketable value. Agricultural value chains are complex with several actors along the chain but information asymmetry between the farmer and aggregator or intermediaries results in farmers having to sell into saturated, weak markets that are not based on standards. Powerful business models have emerged from Africa, Brazil and China that use big data and mobile phones to increase value chain efficiency for upstream access to appropriate inputs and credit. It also helps in targeted recommendations for improving productivity through market integration based on agreed grades, standards and prices. It is not uncommon for farm incomes to double in the case of grain crops and to quadruple in the case of perishable produce. India is well positioned to realise the same opportunities for its farmers by providing the basic spatial data infrastructure to enable coordination along the value chain.

With the Direct Benefit Transfers system and the unique identification number, Aadhaar, to support transfer of government subsidies to citizens, India is uniquely positioned to leverage these platforms to support the earlier interventions around soil health, Prime Minister Krishi Sinchayee Yojana, national markets and weather indexed insurance. When combined with spatial/temporal data infrastructure, subsidies can be validated (for example, application of fertiliser on a specific field under a targeted fertiliser subsidy programme) and targeted (e.g. digital soil map and crop to be cultivated and rainfall anticipated) to increase farm profitability and manage production and market risks that in turn give farmers confidence to invest in their farms to further increase productivity. Digital Agriculture will also leverage social media platforms to build human capacity. One of the best examples originating from India is Digital Green. It uses participatory videos that have farmers explain best management practices to other farmers. This approach is ten times more cost effective than traditional extension services as farmers trust other farmers more given they can better relate to someone like them who are building a livelihood under similar circumstances.

Mobile money is the last key intervention that has unlocked tremendous opportunities for rural consumers in Africa and will do the same for India. Paper money is expensive and risky to rural consumers but mobile money is safer, especially for women, and costs less to transfer. Mobile money also allows rural consumers to bypass poor infrastructure to support savings and access credit. While Digital Agriculture is most advanced in the US, the concepts are scale neutral and are being successfully applied to smallholder farmers around the globe. We need to move with a sense of urgency to apply these new tools to accelerate the pace of agriculture development to not only realize the vision of the Prime Minister of a Digital India but to facilitate the achievement of Sustainable Development Goals before 2030. Digital agriculture will also help achieve the objectives of the National Food Security Act in the most efficient, effective and equitable manner to ensure all have access to safe, nutritious and affordable food.

On the negative part several academic scholars have critiqued ICTs in development. Some take issue with technological determinism, the notion that ICTs are a sure-fire antidote to the world's problems. Instead, governments must adjust solutions to the specific political and social context of their nation. Others note that technology amplifies underlying institutional forces, so technology must be accompanied by significant changes in policy and institutions in order to have meaningful impact. It is being thought that there needs to be more research on the actual worth of these multimillion-dollar government and ICT for development projects. For the most part, the technological revolution in India has benefited the already privileged sectors of Indians. It is also difficult to scale up initiatives to affect all Indians, and fundamental attitudinal and institutional change is still an issue. While much ICT research has been conducted in Kerala, Andhra Pradesh, and Gujarat, poorer states such as Bihar and Orissa are rarely mentioned.

Following are Tasks to be done on priority basis by Agribusinesses for empowerment of rural economy;

- *Consolidation* by going for alliances, joint ventures etc to withstand competition.
- *Cost cutting* without any compromise on quality.
- Optimize *vertical integration* by upstream and downstream upgradation.
- *Upstream Upgradation* includes measures to strengthen R&D and develop new products as per the consumers'taste.The design and shelf life of the product is equally important and should fit well into their life style. For example the products that are targeted to elderly should have easy to open seals as many of them may suffer from arthritis and other ailments.
- *Downstream upgradation* includes measures to digitalize Agriculture and improve infrastructure so as to supply the raw materials uninterruptedly with the required quality specifications.
- Search for *new markets* internationally and expand the reach in the present markets by increasing the efficiency of sales channels.

The Finance Minister has done a tremendously good job in presenting this Budget. On the whole the budget is a welcome shift from market driven economic system to the social welfare orientation, where the government takes care of the needs, requirements and aspirations of more than 80 per cent population of the country. The Union Budget 2018-19 is pro-people, progressive, balanced and different from the general trend and is expected to take care of the aspirations of people. It will prove to be growth oriented, with focus on agriculture, rural development, education, employment and investment. Attempts have rightly been made by the Finance Minister to promote affordable housing, give boost to real estate sectors, stimulating growth, promoting digital economy and promoting ease of doing business by removing obstacles. The government's heavy spending would reverse the sluggish growth in agriculture and industry.

References

1. https://digitizeindia.gov.in/
2. https://en.wikipedia.org/wiki/Digital_India
3. Prakash, Amit. "Digital India needs to go local". The Hindu. Retrieved 2017-02-26.
4. Mannathukkaren, Nissim. "The grand delusion of Digital India". The Hindu. Retrieved 2017-02-26.
5. DNA Webdesk (28 September 2015), Here's what you need to know about the Digital India initiative, Mumbai: Daily News and Analysis
6. "Government School in Remote Bandahalli Village Gets Inspired by make in India", The New Indian Express, 15 March 2016
7. "Digital India Week: Digital Locker, MyGov.in, and other projects that were unveiled", The Indian Express, 5 July 2015
8. "GST to take care of many of e-commerce firms' tax issues: IT minister", Live Mint, 21 November 2014
9. "About Bharat Broadband Network Limited", Bharat Broadband Network Limited
10. Subramaniam, Nikhil (22 March 2013), "India's 'fantastic' broadband project that you should know about", Tech2
11. "Government to set up botnet cleaning centers", Preview Tech, 25 May 2014
12. "Modi's website gets new, mobile friendly look", Business Standard, New Delhi, BS Reporter, 16 January 2016
13. "Government unveils Umang app for citizen services.", Economic Times, 23 Nov 2017.
14. "Attendance.gov.in: Modi government launches website to track attendance of government employees", The Economic Times, 7 October 2014
15. "Attendance.gov.in - Government offices will no longer be the same, courtesy Narendra Modi", Daily News and Analysis, 7 October 2014
16. "Budget 2016: Technology initiatives to boost Digital India drive", The Economic Times, 29 February 2016
17. "Government aims to give 'Digital India' benefits to farmers: PM Modi", The Times of India, 18 February 2016
18. "Can DigiLocker Catalyze Digital India? – Maximum Governance". maximumgovernance.com. Retrieved 2016-09-08.
19. "DigiLocker - Online document storage facility National Portal of India", india.gov.in, archived from the original on 15 May 2015
20. "Under the Digital India initiative: Software Technology Park of India", The Indian Express, 28 February 2016
21. "Vernacular Push: Govt. Wants Email Providers To Support Regional Email Addresses". Trak.in - Indian Business of Tech, Mobile & Startups. 2016-08-01. Retrieved 2016-10-28.
22. "DataMail: World's first free linguistic email service supports eight India languages - The Economic Times". The Economic Times. Retrieved 2016-10-28.
23. "Data Xgen Technologies launches email address in Indian languages". www.deccanchronicle.com. 2016-10-18. Retrieved 2016-10-28.

24. "One of world's largest digital literacy programmes in world, 'Pradhan Mantri Gramin Digital Saksharta Abhiyan' cleared by Cabinet". Financial Express. February 8, 2017.

25. "Pradhan Mantri Gramin Digital Saksharta Abhiyan". Vikaspedia. Retrieved May 22, 2017.

28. "Cabinet approves PMGDISHA under Digital India Programme". New Delhi: Business Standard. February 8, 2017.

29. "Cabinet nod for rural digital literacy programme". The Hindu. February 9, 2017.

30. "abinet approves 'Pradhan Mantri Gramin Digital Saksharta Abhiyan' for covering 6 crore rural households". Press Information Bureau. February 8, 2017.

31. "Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)". MyGov.in. Retrieved May 22, 2017.

32. "Digital literacy classes for unemployed". The Hans India. May 2, 2017.

33. Shrivastava, Shilpika (February 9, 2017). "Union Cabinet approves Pradhan Mantri Gramin Digital Saksharta Abhiyan". Jagran Josh.

35. "Times Now and ET Now announce 2nd edition of Digital India Summit & Awards; on 22 March", The Economic Times, 19 February 2016

36. "Vietnam may emulate Digital India, seeks cooperation on e-governance", Hindustan Times, 28 March 2017

37. "PM Narendra Modi invites tech enthusiasts for a 'Digital Dialogue'", The Times of India, 4 July 2015

38. Mark Zuckerberg changes his profile picture to support 'Digital India', The Times of India, TNN, 27 September 2014

39. Nagarajan, Rema (20 September 2015). "To fix social problems, invest in human beings, not tech magic: Kentaro Toyama". Times of India.

40. "India Internet Conference 2017: Minds meet on country's digital future", Financial Express, 6 April 2017

41. "Digital India campaign;Panchkula comes out on top among all districts of Haryana". The Indian Express. The Express Group. 26 December 2015. Retrieved December 27, 2017