CSD Working Paper Series: Towards a New Indian Model of Information and Communications Technology-Led Growth and Development

The Role of Information and Communications Technologies

in Rural Entrepreneurship in India

ICT India Working Paper #63

Abhishek Beriya

January 2022

Center for Sustainable Development
EARTH INSTITUTE | COLUMBIA UNIVERSITY

Acknowledgements

I would like to thank Dr. Nirupam Bajpai, Columbia University and Dr. Binod Kumar, Former Senior Project Officer, Entrepreneurship Development Institute of India for their comments on an earlier draft of this paper. This paper has also benefitted from discussions with Prof. Vivek Kumar of IIT Delhi, Mr Habibullah Ahmed of NRLM Assam and Mr Kisholay Das of NULM Assam. However, I am solely responsible for the views expressed as well as any errors and omissions that may remain.

Abstract

The ambitious Indian economic goal of becoming a $5 trillion economy can be achieved through a thrust on rural entrepreneurship, among other things. ICTs can make significant contributions in encouraging rural entrepreneurship because they offer better process efficiencies and ease participation of people and enterprises. ICTs can also vastly expand economic networks thereby enhancing economic opportunities. The policy approach towards leveraging ICTs for rural entrepreneurship development should be to facilitate information needs, regulatory needs and financing needs of aspiring as well as existing entrepreneurs. Capacities of relevant institutions to relate to present day realities in view of digital needs also have to be built and enhanced. The public sector, private sector and the non-profit sector, all have to work in a spirit of collaboration for effective results in rural entrepreneurship. ICTs and Digital technologies offer a great opportunity to fulfil all the above needs for rural entrepreneurship facilitation and promotion in India.

1.0 Introduction:

India aspires to be $5 trillion economy by 2025 and is working towards it. It is targeting achieving 1 trillion dollar from agriculture and allied activities, 1 trillion from manufacturing and 3 trillion from services (Press Information Bureau, Government of India, 2018). Out of the total population of India, as per census 2011, the rural population formed 68.84%. Thus, to achieve the goal of a 5 trillion economy, rural areas of India should also have sustained high rates of economic growth in all three spheres of economic activities, viz., agriculture, manufacturing and services. One way of ensuring high rural economic growth is by encouraging rural entrepreneurship in all these 3 spheres.

Even though, in recent years, 'India has witnessed economic growth, however, this growth hasn't been inclusive enough to reduce the number of people living under poverty in the rural areas. Information and Communications Technology (ICTs) can make significant contributions to employment and poverty reduction. It can create employment opportunities by improving process efficiency and enabling participation of people and enterprises in expanded economic networks. ICT acts as the conduit for this purpose so that the appropriate information can be transmitted to individuals in the rural areas.' (Sharma A., 2020)

Textbook defines entrepreneurship as 'the process of setting up one's own business as distinct from pursuing any other economic activity, be it employment or practising some profession. The person who sets-up his business is called an entrepreneur. The output of the process, that is, the business unit is called an enterprise. (NCERT Class XI Business Studies Textbook). Sobel R.S. in The Library of Economics and Liberty defines an entrepreneur as 'someone who organizes, manages, and assumes the risks of a business or enterprise and one who is an agent of change.' Further Sobel describes Entrepreneurship as 'the process of discovering new ways of combining resources and making a profit from it in the market.' Thus an entrepreneur is a person who can be described as either possessing a new enterprise, or an idea and is responsible for the risks and the outcomes associated with the enterprise.

We view ICTs as a key enabler and facilitator of rural entrepreneurship. In this paper, we shall review how ICTs can help the Indian rural youth turn to entrepreneurship. First we briefly review literature around ICTs and rural entrepreneurship and related aspects to understand the challenges and opportunities in this area. Then we list some contemporary government initiatives around the subject. Potential areas for intervention and examples are then listed and some recommendations are discussed before concluding the paper. This paper is part of the work for a TERI-Columbia University collaboration project 'Towards a New Indian Model of ICT led Growth and Development' where we have been studying the potential of ICTs in achieving the Sustainable Development Goals.

2.0 Literature Review

Barnett et al. (2019) empirically assess whether the utilization of information and communication technologies promote entrepreneurship in rural China. They used cell phone ownership and Internet use as proxies for ICT use and found that cell phone ownership and Internet use have positive impacts on entrepreneurship. Their analysis suggests ICT users are 2.1% more likely to engage in entrepreneurship than the others in the sample. Given that average entrepreneurship rate in their sample is only 9.2%, the influence of ICT on entrepreneurship is large. They also find that social networking and information acquisition play important roles in the impact of ICT utilization on entrepreneurship. Hence they argue for policies and reforms intended to promote entrepreneurship by investment in ICT infrastructure, such as broadband construction in rural regions.

Zhang F. and Li D. (2018) examined the role of Regional ICT access for entrepreneurs and entrepreneurship in China. Their study finds that regional ICT access in terms of access to the Internet, fixed and mobile phones had a significant impact on performance and hence they suggest that entrepreneurs should invest their entrepreneurial efforts in the areas with advanced ICT infrastructure. They also studied the nature of association of ICT and social capital on entrepreneurship and found that regional ICT access had a positive interaction effect with social capital. Hence they advise entrepreneurs to complement the two factors, namely applying ICT to leverage social capital. They conclude by suggesting that governments should play active roles in building and developing ICT infrastructure to attract entrepreneurs.

Eryılmaz M. (2019), in a paper, discusses the relationship between information and communication technologies (ICTs) and Entrepreneurship. This paper elucidates different and specific terms used in relation to ICTs and entrepreneurship like infopreneur, digital entrepreneurship and netpreneur. According to this study, infopreneurship is mostly based on services such as information brokering and consulting or collecting and selling information. Some authors prefer the term digital entrepreneurs for infopreneur. Netpreneur is another type of entrepreneurship related to ICT; here a business is run exclusively over the internet. According to the study findings, ICT can be an input, an output or a part of the entrepreneurial process. Overall the study finds positive association between ICT and entrepreneurship.

Lekhanya L.M. (2018) studied the Digitalisation of Rural Entrepreneurship through a primary study in South Africa. This study recommends that governments and private sector should be encouraged to work together to improve ICT co-ordination and related policy development for the rural areas. Governments should champion rural entrepreneurial digitalisation and modern technologies networking systems for rural communities. The study suggests that since the use and awareness of social media and social network has gained significant growth in many countries, thus, it can be good promotional tool for rural enterprises. The study also recommends the use of digitalisation to rural businesses to reach out to global markets.

Further, advantages and disadvantages and drivers and barriers of rural entrepreneurship digitalisation as enumerated in the study are listed below:

- Acceleration of manufacturing initiatives
- Empowerment of indigenous entrepreneurs
- Access to global markets;
- Marketing connections;
- Wider distribution of customer service improvements;
- Improved business transactions;
- Time-saving; and
- Minimisation of business costs

Disadvantages

- Advanced skills are required;
- High installation costs;
- Absence of privacy and data protection laws; and
- Lack of safe cybersecurity intelligence

Drivers of rural entrepreneurship digitalisation

- Technological development
- Socio-economic factors
- Societal levels of education
- Political willingness

Barriers to rural entrepreneurship digitalisation

- Infrastructure developments as determinants of success for rural SMEs
- Rural entrepreneurial resources
- Rural enterprise networks
- Human capital within the rural SME sector
- Institutional challenges to rural entrepreneurship

As per the FAO's report on rural e-commerce development experience from China (2021), the structural prerequisites for the development of rural e-commerce fall into the following categories:

(a) infrastructure and logistics, such as access to the Internet and mobile networks, access to roads and a logistics network;
(b) human capital, specifically the ability to use digital and mobile applications, the presence of entrepreneurs and incubation services capable of innovating in rural electronic commerce models;

(c) financing capacity and access to credit; and
(d) a conducive business environment, with adequate incentives and clear regulations that facilitate business development.

The same report identifies the following as challenges to rural e-commerce:

- Inadequate infrastructures and inefficient logistics
- Loose connections and scarce coordination
- Poor produce standardization
- Lack of rural e-commerce capacities
- High investment threshold
- Farmers in poor areas can be left behind
- Pressure on transport
- Reconciling the digital and the physical economy
- Rural e-commerce does not automatically reduce poverty

The report concludes that public-private actors should collaborate to provide the right support towards rural e-commerce development because this business model can provide a new tool for farmers and other agri-based enterprises, helping them to improve production efficiency, expand their customer base and increase revenues, while overall driving rural entrepreneurship.

Mathur H.(2021) has captured in comprehensive detail the potential of new age innovations in agriculture, often called agritech that present great potential in catalyzing many unexplored models of rural entrepreneurship. He lists fifteen such models – which can come alive on the growing agritech prowess. The fifteen models listed are the following:

1. Farm-gate value-creators: This includes sorting, grading, packing, milling, extraction, pulverization, dehydration, cooling, freezing etc. for enhanced value capture nearer to the farm and farmer.
2. Micro-warehousing: Decentralized, affordable and accessible warehousing for farmers.
3. Digital Soil Doctors: rapid soil testing solutions
4. Drone preneurs: Drone applications in agriculture
5. Quality Assaying as a service: Digital quality assessment and grading solutions
6. Silage Stations: Decentralised production and availability of Silage (fermented fodder with moisture)
7. Mobile Picking Stations: Optimised solutions for farm produce aggregation and pick up
8. Water management Specialists: Smart irrigation solutions that improve water use efficiency
9. Cooling as a service: Affordable and distributed cold stores at the point of production/ collection

10. Pollination as a service (PAAS): It can be promoted both for making honey as well as building bee boxes for renting. Scientifically designed bee-boxes with sensors, optical cameras, IoT devices and GPS enablement to monitor and track bee colonies can make the maintenance and monitoring of beeboxes easy and profitable for PASS providers.
11. First and Last mile hustlers: Service providers for all digital needs that may need a human interface at any stage, but more typically in the first/last mile; eg., delivery of agri-inputs, Farmer onboarding, KYC checks and Ground truthing of data etc.
12. Insurance Agents: To provide insurance services to the agriculture sector
13. Vet services at farmer doorsteps: Veterinary doctors and para-vet personnel can be facilitated using digital platforms and technologies to increase access to much needed veterinary services
14. Farm equipment management services: digital mediums can be harnessed by agtech entrepreneurs for demand generation as well as efficient delivery of farm mechanization services
15. Management services for Farmer Producer Companies (FPOs): With increased adoption of digital education models during covid times, it is now easier train people from the local ecosystem through short term courses. The trained manpower can provide professional services to FPOs and other rural enterprises and is also the only viable option for sustainability of ventures.
Further, the author estimates that each of 1000 odd existing new age innovative companies (existing agtech startups in India) can create on an average 100 micro-entrepreneurs within 3-5 years of their scale up journey and each micro entrepreneur can create about 10 direct / indirect jobs in the villages. This adds up to creation of about one million livelihood opportunities in rural areas. Further, considering that the number of agtech innovators multiply and go from 1000 to 10,000 in next decade or so; the number of new livelihood opportunities will be around 10 million.

Kamra A. (2021) notes that e-commerce levels the playing field for different categories of businesses to access global markets and in the process dispels the notion that exports are only meant for large businesses with massive investment capabilities. This is because e-commerce helps businesses transcend boundaries and get access to a much larger pool of customers and enables businesses to sell directly to them sitting anywhere in the globe. Thus, entry barriers to the export market like market access, large initial investments, complexities of cross border payments/logistics and uncertain demand are significantly eased by e-commerce.

Mathew J. (2020) suggests that balanced development is the call of the hour. According to author, major problems limiting aspirations of rural Indians are

- limited physical connectivity (access to all weather roads, electricity etc.)
- lack of digital connectivity (access to the internet)
- nil or limited financial inclusion

As per author, the solution to these problems could be in "production by masses" rather than "mass production" or stated in a different way, through the development of rural entrepreneurship. Rural entrepreneurship could help in uplifting the standard of living and literacy rate of rural people. Rural entrepreneurship can also help overcome a large number of social challenges through the formation of capital, balanced regional development, employment growth, reduction of population migration etc. The biggest challenges that rural entrepreneurs face is their inability to market their products and services. Other major challenges are lack of training for required skills and non-awareness (versus non-availability) of facilities for entrepreneurs. This also makes choice of rural entrepreneurship more of a compulsion rather than a passion.

Upon perusal of the above sections and the literature reviewed, there are certain common challenges that can be identified in the use of ICTs for enhancing rural entrepreneurship. Some of these are:

- The biggest challenges that rural entrepreneurs face is their inability to market their products and services
- Scale is a big challenge as far as rural areas are concerned
- Legacy attitudinal aspects related to entrepreneurship are a big barrier in most areas particularly in rural India. Secure employment with the government and government bodies are still the most sought after career choices. Entrepreneurship is only recently and slowly gaining respectability as a career choice.
- Documentation requirements like GST registration, PAN card etc. of community collectives like SHG/Village Organisation etc. make the progress slow as these processes take their own time.
- Due to different languages and to facilitate learnings, trainings and general ease of access to the vast rural population speaking different languages, applications and portals should cater to maximum possible regional languages for better reach.
- Lack of digital literacy as well as properly trained human resources to navigate the digital arena effectively and reliable digital infrastructure.
- Scarce rural entrepreneurial resources and high investment threshold in certain cases.

3.0 Contemporary government Initiatives towards Rural Entrepreneurship in India:

Ministry of Skill Development & Entrepreneurship (MSDE): The Department of Skill Development was notified on 31st July 2014 under Ministry of Sports & Youth Affairs which later got notified as Ministry of Skill Development & Entrepreneurship in November 2014. MSDE is implementing Pradhan Mantri YUVA (Yuva Udyamita Vikas Abhiyan) Yojana, a pilot scheme, for creating an enabling ecosystem for entrepreneurship development through entrepreneurship education, training, advocacy and easy access to the entrepreneurship

network in skill training institutes. The pilot is being implemented in ten States and two UTs. NIESBUD (National Institute for Entrepreneurship & Small Business Development), IIE (Indian Institute of Entrepreneurship), are the key institutions in this regard. (Annual Report, MSDE, 2020-21)

Start-up Village Entrepreneurship Program (SVEP): The objective of SVEP is to support the rural poor come out of poverty, supporting them setup enterprises and provide support till the enterprises stabilize through integrated ICT techniques and tools for training and capacity building, enterprise advisory services and to provide loans from financial institutions. SVEP focusses on providing self-employment opportunities with financial assistance and training in business management and soft skills while creating local community cadres for promotion of enterprises as well as a locally situated resource centre called the Block resource centre (BRC). SVEP promotes both individual and group enterprises. All the above is done with an Information technology based work-flow management system, which is made of a Web-based system as well as a Mobile-based system. This system makes managing and offering day-to-day support easy and efficient.(vikaspedia.in; Press Information Bureau, Government of India, 2020)

One District One Product Scheme: One District One Product (ODOP) is an initiative of the Ministry of Commerce & Industry, Government of India which is seen as a transformational step forward towards realizing the true potential of a district, fuel economic growth and generate employment and rural entrepreneurship. The objective of ODOP is to convert each District of the country into an Export Hub by identifying products with export potential in the District, addressing bottlenecks for exporting these products, supporting local exporters/manufacturers to scale up manufacturing, and find potential buyers outside India with the aim of promoting exports, promoting manufacturing & services industry in the District and generate employment in the District. The idea is to select, brand, and promote One Product from each District of the country

- For enabling holistic socioeconomic growth across all regions
- To attract investment in the District to boost manufacturing and exports
- To generate employment in the District
- To provide ecosystem for Innovation/ use of Technology at District level to make them competitive with domestic as well as International market

The ODOP scheme helps in product development through diversification, technology, upskilling and quality standardization; in sales improvement in domestic and international markets and e-commerce onboarding assistance. Awareness generation is effected through facilitation centres, schemes and social media presence. (Press Information Bureau, February, 2021; investindia.gov.in)

In an example of ODOP partnership with e-commerce, more than 20 million ODOP products of Uttar Pradesh worth Rs 10 billion have been sold in 2020-2021 on Flipkart[1] portal which has helped artisans of Uttar Pradesh in a big way. Leather products from Agra, sports goods from Meerut and locks from Aligarh have been the top trending ODOP products on the flipkart platform, as per the government of Uttar Pradesh and Flipkart. (News Report, The Free Press Journal, November 02, 2021)

4.0 Potential areas for intervention and some examples:

Financial inclusion and Microfinance through ICT: Various models around the application of digital technologies in the financial ecosystem, popularly called 'fintech', have revolutionized financial services for the middle classes. Fintech and digitisation have eased access to the financial markets and financial products, insurance, credit etc. to the digitally savvy consumer. There is no reason why fintech won't be as successful in the rural areas. Enhanced financial inclusion, more and more transparency through digitisation of microfinance initiatives as well as rationalization of transaction costs can boost the rural economy.

ICT for market access to rural entrepreneurs: Easing and enhancing market access emerges as the area where a substantial and major impact can be contributed towards encouraging rural entrepreneurship. Digitalising can lead to a well-connected and coordinated value chains for rural products and it facilitates networking also thereby opening scope for curtailment of intermediaries and creating win-win for both producer and consumer. Thus, the access and visibility issues with respect to the market and demand are solved. As an example of digital avenues for market access the collaboration of NRLM and NULM and the 'Tribes India' examples described below are very good examples to demonstrate the potential of such initiatives.

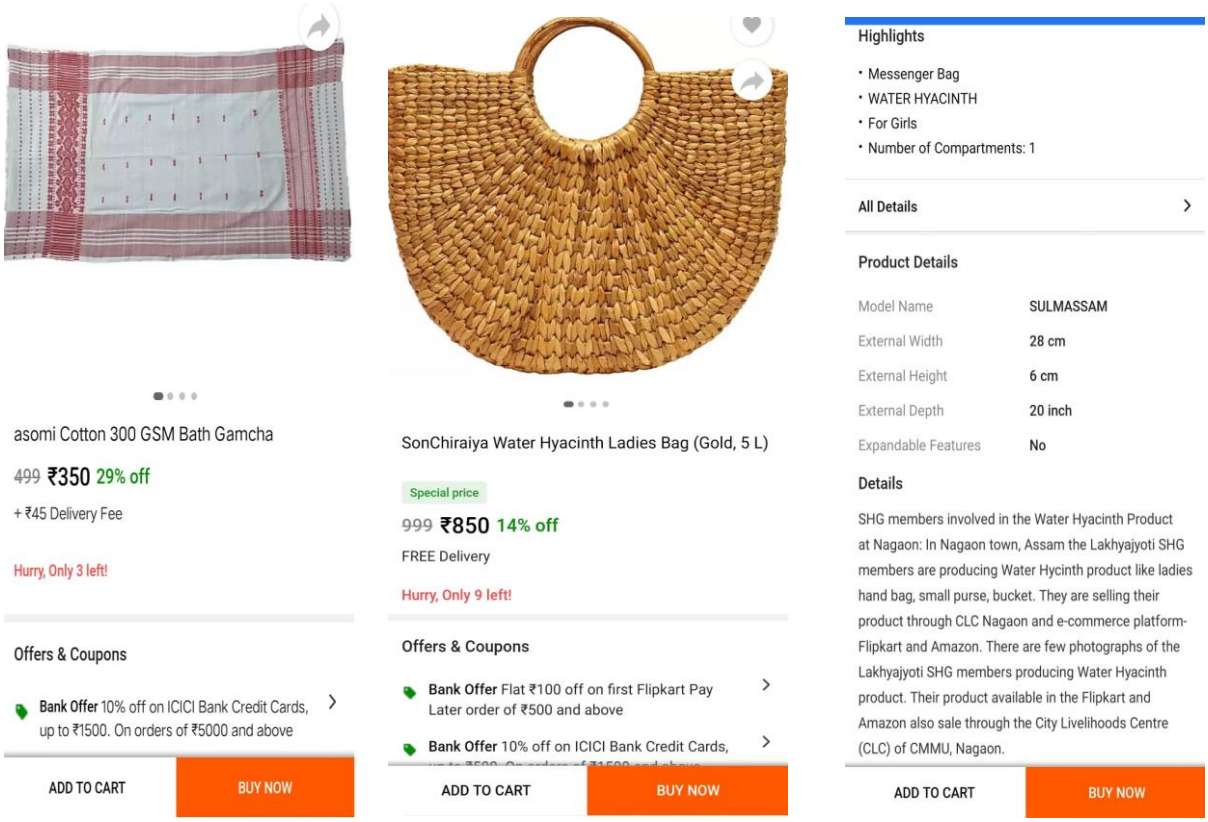
Collaboration of NRLM and NULM with Amazon/Flipkart: The National Rural Livelihoods Mission (NRLM) and National Urban Livelihoods Mission (NULM) are key schemes of the federal government for promoting women's livelihoods through Self Help Groups (SHGs). They have collaborated and entered into MoUs with leading market platform aggregators like Amazon and Flipkart to support marketing efforts of products of respective scheme beneficiaries.

As an example[2], Assam unit of NRLM (ASRLM) has entered into MoU with Flipkart and several SHGs have onboarded their products on Flipkart. Already more than 100 items are available online on Flipkart under single brand name 'ASOMI'. Discussions are also on with

[1] Flipkart is a leading e-commerce company in India (flipkart.com)

[2] Mr Kisholay Das, State Project Manager in NULM Assam and Mr. Habibullah Ahmed, District Project Manager in NRLM Assam very kindly shared the information over personal communication

Amazon for similar initiative. Similarly, NULM also has a tie up with both Flipkart and Amazon and they sell their member SHG products under the brand name 'SonChiraiya'. In Assam, they have a dedicated seller point at Guwahati along with a warehouse. The product description providing the details of the SHG members and the role of the City Livelihoods centre (CLC) of NULM can be seen in the rightmost image below.



Mobile Phone screen captures of one these platforms in India selling SHG products of NRLM and NULM SHGs

The Tribes India Initiative under TRIFED: Tribes India is a brand under TRIFED. Trifed is an organisation working for the socio-economic development of tribal people in the country by way of marketing development of the tribal products in India. It comes under the administrative control of Ministry of Tribal Affairs, Government of India. Currently the brand markets 9 standard categories which range from hand-woven clothing to natural and organic products through a network of retail outlets and its own online portal (https://www.tribesindia.com/ en.everybodywiki.com)

The Financial and Digital Literacy Bus initiative of the Mann Deshi Foundation: With the goal of helping rural women have better control over their finances, the above programme is run out of two buses in Maharashtra state—one in Navi Mumbai and the other in Satara.

The curriculum covers diverse aspects of the financial and digital worlds. Women entrepreneurs are introduced to the benefits of cashless transactions and the larger objective is to connect them to bigger markets, create cash flow records, and generally make business payments easier for these rural women entrepreneurs. (Wheels-of-change, Mann Deshi Foundation, 2018)

The Financial Literacy Bus of the Mann Deshi Foundation.

Picture courtesy: Website of the Mann Deshi Foundation

Co-operatives and FPOs: Co-operatives and Farmer producer Organisations are also set to benefit from increased digitisation because product sales and marketing, especially on online platforms is increasingly a given. Member data management, record keeping and accounts and related aspects can be managed more efficiently through technological tools. Digital data management also allows for swifter flow of data for regulatory and credit needs of the entity. As an example, Flipkart has entered into partnerships with different Farmer Producer Organizations (FPOs) to enable market access and growth for farming communities. Flipkart is working with entities such as Aranyak Agri Producer Company Ltd. in Purnia, Bihar; Anchetty FPCL; Nisarga Farmers Producer Company Ltd. in Gulbarga; Satya Sai Farmer Federation in Anantpur etc. Flipkart is also partnering with different social sector organizations like Foundation of Development of Rural Value Chains (FDRVC), Sahaja Aharam Producer Company (SAPCO), Sammunati, Andhra Pradesh Mahila Abhivruddhi Society (APMAS), Dvara and Vrutti etc. to facilitate engagements with FPOs in these organisations' respective networks. (News article, Zee Business, October 26, 2021)

Reorientation of services activities towards smaller towns: Services activities not requiring much infrastructure except basic housing and bandwidth/connectivity but good human resources like BPOs, call centres etc. can perhaps be relocated to small towns in areas with good human resources. This will create hubs of activities weaved around the mother activity and create local jobs. With rapid digitisation and good quality digital infrastructure available in India at competitive costs, this should be a win-win scenario for all concerned. Issues in metros like extreme traffic congestion, expensive and scanty housing, long commutes to workplaces from employee residences, air pollution etc., some of which have been exacerbated due to covid-19 pandemic, would incentivise employees to move to such clusters for a better quality living environment as compared to overcrowded metro cities. Such moves also offer opportunities for economic development to many such geographies in India which may presently not have any such opportunities. Local/rural communities in those areas would benefit from the multitude of opportunities such hubs would generate.

5.0 Recommendations and Conclusion:

Recommendations:

- Soft skills/business skills development trainings can be organised through video trainings in online mode etc. to enable more participation from different areas. This also facilitates customization of trainings and even a single individual from a particular area can be involved while overall a large geography can be covered in a single session.
- Skill development leading to generation of entrepreneurs should also be encouraged with the existing schemes being revamped to derive more outcome driven models.
- Improvement of quality, design and product standardization have to be focused on.

- Revision of school level curriculum and adding content of entrepreneurship in school curriculum to improve attitudinal and behavioral barriers towards entrepreneurship.
- Capacity Building for institutions as well as individuals towards digitization, digital financial literacy, product design improvement, digital marketing for forward linkages and export. Institutional capacity to relate to present day realities in view of digital needs have to be enhanced and the though process and culture attuned to respond to the altered realities of the day.

Entrepreneurship is about enterprise and risk appetite. To state it rather bluntly, enterprise and risk are both aspects which are highly individual characteristics and attitudinal and cannot perhaps be taught in a structured format. People may react and respond to situations and opportunities as they perceive them from their own perspectives and experiences. Thus, rather than focusing too much on 'teaching' entrepreneurship, the policy approach towards rural entrepreneurship development should be one of facilitation and encouragement. Initiatives in this respect should thus facilitate information needs, regulatory needs and financing needs of aspiring and existing entrepreneurs. It is also evident that the best results in the success of rural entrepreneurship can come only from the collaboration of the public, private as well as non-profit sectors. ICTs and Digital technologies offer a great opportunity to fulfil all the above needs for rural entrepreneurship facilitation and promotion.

References:

- Annual Report 2020-21, Ministry of Skill Development & Entrepreneurship, Government of India, New Delhi
- Barnett W.A., Hu M., Wang X. Does the utilization of information communication technology promote entrepreneurship: Evidence from rural China. Technological Forecasting & Social Change 141 (2019) 12–21 https://doi.org/10.1016/j.techfore.2019.01.007
- Eryılmaz M. A Discussion on the Relationship Between Information and Communication Technologies (ICT) and Entrepreneurship. January 2019. International Journal of E-Entrepreneurship and Innovation 9(1):13-22 DOI: 10.4018/IJEEI.2019010102
- FAO and ZJU. 2021. Digital agriculture report: Rural e-commerce development experience from China. Rome. https://doi.org/10.4060/cb4960en
- https://advantech.co.ke/2016/10/12/ict-as-a-tool-for-entrepreneurship/
- https://censusindia.gov.in/2011-prov-results/paper2/data_files/india/paper2_1.pdf
- https://dl.flipkart.com/dl/sonchiraiya-sulmassam-messenger-bag/p/itmc5683b32922ce?pid=BAGG75VAY4BHQF26&cmpid=product.share.pp&_refId=PP.a03ac6ec-4a2b-452e-b977-2a986b6c8aec.BAGG75VAY4BHQF26&_appId=WA
- https://dl.flipkart.com/s/Ku8zrzuuuN
- https://en.everybodywiki.com/Tribes_India#cite_ref-homepage_1-0
- https://ied.eu/blog/ict-and-entrepreneurship/
- https://www.investindia.gov.in/one-district-one-product
- https://journals.aom.org/doi/epub/10.5465/amj.2015.0849
- https://journals.co.za/doi/abs/10.1080/20421338.2018.1473064
- https://manndeshifoundation.org/2018/09/04/wheels-of-change/
- https://ncert.nic.in/textbook/pdf/kebs109.pdf
- https://pib.gov.in/PressReleasePage.aspx?PRID=1651525
- https://pib.gov.in/PressReleasePage.aspx?PRID=1694805
- https://pib.gov.in/PressReleasePage.aspx?PRID=1738147

- https://pib.gov.in/Pressreleaseshare.aspx?PRID=1549454
- https://pib.gov.in/PressReleseDetailm.aspx?PRID=1594478
- https://svep.nrlm.gov.in/landing
- https://vikaspedia.in/social-welfare/entrepreneurship/pradhan-mantri-yuva-yojana
- https://vikaspedia.in/social-welfare/entrepreneurship/start-up-village-entrepreneurship-programme-national-rural-livelihood-mission
- https://www.econlib.org/library/Enc/Entrepreneurship.html
- https://www.emerald.com/insight/content/doi/10.1108/ITP-02-2017-0033/full/html
- https://www.sciencedirect.com/science/article/abs/pii/S0378720617304287
- https://www.zeebiz.com/companies/news-flipkart-strengthens-partnerships-with-farmer-producer-organizations-to-enable-market-access-and-growth-168904
- Kamra A. How e-commerce can play a big role in boosting exports from India. 2021. The Economic Times. Available at https://economictimes.indiatimes.com/small-biz/trade/exports/insights/how-e-commerce-can-play-a-big-role-in-boosting-exports-from-india/articleshow/87753172.cms
- Lekhanya L.M. The Digitalisation of Rural Entrepreneurship. 2018. IntechOpen http://dx.doi.org/10.5772/intechopen.75925
- Mahtur H. Agritech as driver of rural entrepreneurship. 2021. Innotera Group. https://www.innoterra.com/agritech-as-driver-of-rural-entrepreneurship/
- Mathew J. Rural entrepreneurship: How hinterland's young enterprises could solve India's social challenges. February 2020.Financial Express Available at https://www.financialexpress.com/industry/msme-other-rural-entrepreneurship-how-hinterlands-young-enterprises-could-solve-indias-social-challenges/1873844/
- News Report. Flipkart sells over 2 cr UP Govt's ODOP products worth Rs 1000 cr; sports goods, locks top trending items. November 2021. The Free Press Journal. Available at https://www.freepressjournal.in/business/flipkart-sells-over-2-cr-up-govts-odop-products-worth-rs-1000-cr-sports-goods-locks-top-trending-items
- News Report. Flipkart strengthens partnerships with Farmer Producer Organizations to enable market access and growth. October 2021. Zee Business. Available at https://www.zeebiz.com/companies/news-flipkart-strengthens-partnerships-with-farmer-producer-organizations-to-enable-market-access-and-growth-168904

- Sharma A. How can technology help eliminate the job crisis in rural India?. October 2020. People Matters. Available at https://www.peoplematters.in/article/technology/how-can-technology-help-eliminate-the-job-crisis-in-rural-india-27399

- Sinha P., Gupta R. and Hasan R.. Pursuit of happiness: How entrepreneurship is helping rural women find their own mantra of being 'happy'. March 2021. Financial Express Available at https://www.financialexpress.com/industry/sme/cafe-sme/msme-eodb-pursuit-of-happiness-how-entrepreneurship-is-helping-rural-women-find-their-own-mantra-of-being-happy/2209401/

- Zhang F. and Li D.. Regional ICT access and entrepreneurship: Evidence from China. Information & Management 55 (2018) 188–198 http://dx.doi.org/10.1016/j.im.2017.05.005