

Agri-tech Startup in India Opportunity & Challenges

Ankit Kumar Maurya^{1*}, Dr. Rahul Kumar Rai², Satyendra Verma³

Agri-tech

Agri-tech is the idea of applying modern technologies to the agricultural sector with a view to enhance produce, efficiency and revenue. The concept extends to any applications, practices, products and services that enhance any aspect of the agricultural process, be it an input function or the output received.

Startup

According to oxford dictionary, startup is defines as “a newly established business” while according to Merriam-Webster, startup means “the act or an instance of setting in operation or motion” or “a fledging business enterprises”.

According to Lean startup Methodology, “A startup is a human institution designed to create a new product or service under conditions of extreme uncertainty”.

Agri-tech startup

Agri-tech startup or agricultural technology involves environmentally sound and sustainable farming methods, implemented

widely in agriculture industry in order to attain profitability and efficiency, both. Agri tech is a value innovation as agriculture and India has a unique bond.

Types of small agritech startup / businesses

1. Production: it includes all types of production including agricultural production of crops and livestock, as well as forestry.
2. Distribution: it refers to those businesses, which do not produce anything but bring the goods and services to consumer or user. It includes many activities such as packaging, labeling, transporting, refrigerating, freezing, processing, storing and performing any services necessary to prepare the goods or to provide the service to the consumer.
3. Retailing: it is that stage of distribution, which deals with the consumers.
4. Personal services: the service business is those, which do not primarily supply goods to the public, but instead

Ankit Kumar Maurya^{1}, Dr. Rahul Kumar Rai², Satyendra Verma³*

^{1}PG Research Scholar, Department of Agricultural Economics, CoA,*

²Assistant Professor, Department of Agricultural Economics, CoA,

³PG Research Scholar, Department of Fruit Science, CoH,

Banda University of Agriculture and Technology, Banda, U. P. – 210001

- perform a service. Examples of personal services are hotels, restaurants, agro service centers.
5. Professional services: this type of services, in order to protect the public, required considerable on the part of those offering the service. Examples of investment broker, insurance agent, etc.
 6. Financial: these are usually service oriented but since they deal primarily with the loaning or investing of money or the equivalents of money (stocks, bonds, property right, etc) a separate category describes them best. Examples. Commercial banks, insurance companies, thrift and loan societies, etc.
 7. Franchising: it is system for selectively distributing goods and services through outlets owned by the franchisee.
 2. They broaden the distribution of economy and political power and does not result in concentration of power.
 3. They are sources of innovation and creativity.
 4. They offer career opportunities to those, who are happiest and most productive in the unstructured environment of a small company.
 5. Provide the dynamism, innovation and effectiveness that lead to the productive economic system.
 6. There exists vast Agri business opportunities in developing economy of India.
 7. Generative employment with minimum investment.
 8. Promoting export.
 9. Control over production widely distributed.

Objective of small agritech startup / businesses

1. Service
2. Profit
3. Community participation
4. Growth
5. Subsidiaries

Reasons, why smaller firms are importance to our economy

1. They are the important sources of competition and challenge the economic power of larger firms.

10. Develop risk takers.

Advantages of small startup / business

1. Less capital outlay but more employment generation.
2. Does not require sophisticated technology.
3. Facilitates decentralization and dispersal of business units.
4. Can serve specialized needs.
5. Utilizes the resources in full without wastages.

6. They offer a wide ranges of choices to consumers.

Agri-tech startup in India

For doubling the farmer’s income in upcoming years, Government of India is continuously searching for the ways to boost agricultural production, food processing and marketing avenues through the integration of latest technologies and innovations; thus creating a huge scope for food and agritech startup in country. In the global startups community, India creates a strong name for itself. India placed itself among top five countries in terms of number of startups founded. India creates around 7200-7700 startups and gives more than 85000 employment opportunities. It is assumed that India will increase the number of startups in future.

In the context of startup growth, India is an emerging country. The environment of India has tremendous growth potential in terms of creating innovative startup. India is the third fastest growing Centre for technological startup. India’s government gives priority to the agriculture sector to double farmer’s income and get profitable GDP growth. It also helps to encourage youth interest in agriculture and its allied sectors and tremendous employment opportunities. GOI has taken step forward with “Innovation and Agri-Entrepreneurship Development Programme” in the mentorship of “Rastriya Krishi Vikas Yojana” to promote and support agripreneurship in India. RKVY-RAFTAAR program was introduced to support innovation and entrepreneurship in Agri sector. It supports Agri startups in scaling up their business and commercializing their product.

Agri startup are growing in an environment without scarcity in India and their area to interest with funding and operations are the following

Area	Operation	Startups	Funding (approximate)
Market linkage	Improve supply chain	Ninjacart, Crofarm, Farmtaaza, Ecozen, Agricx, Ourfood, Gobasco, Farmlink, Waycool, Agrowave	\$168 mn
Digital agriculture	Driving transparency, Trace ability and real time access to information	Cropin, Agnext, Credible, Fasa, Krishi hub, Sat sure, Kisan raja, Aibono, Kisan hub, My crop, Intello labs	\$11 mn
Better access to input	Quality inputs door step delivery	Agrostar, Gramophone, Dehaat, Bighaat	\$30 mn
Farming as a service	Making service affordable to small and marginal farmers	Gold farm, EMB, Oxen, Khetinext, Agrobolo, Trringo,	\$13 mn
Financing	Quick loan facility	Jai kisan Farm art, Samunnati, Gramcover	\$2.5 mn

Government initiate the startup in India, it had been launched by the Prime Minister of India, Shri Narendra Modi. The objective is to empower the startup of different people to boost entrepreneurship and economic growth and give rise to employment,

The action map of startup India is focusing mainly on three areas:

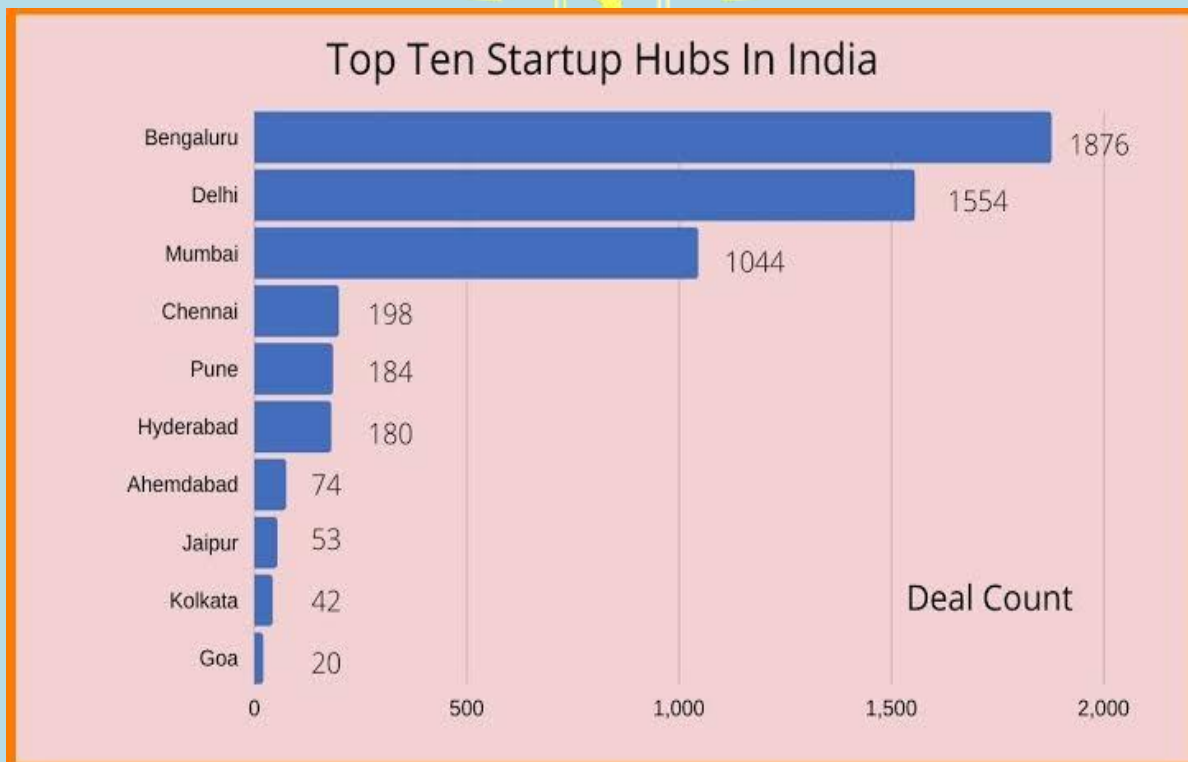
1. Simplification and hand holding
2. Funding support and incentive
3. Industry academic partnership and incubation

Top 10 Agri-tech startup to innovating and helps to increase productivity and yield of Indian farmers

3. CropIn
4. Fasal
5. IntelloLabs
6. Jai Kisan
7. FarMart
8. AgriGator
9. Ninjacart
10. WayCool

Challenges / problems of agritech startup

1. **Insufficient supply chain:** The availability of resources like seed, chemicals, distribution depends on the efficient supply chain. So insufficient supply chain is a big challenge for startups.



1. Agro Star
2. DeHaat

2. **Middleman and agents:** The farmer needs are guarded by a middleman who

owns the fragmented supply. Organized retailers are estimated to get 20% of their produce directly from farmers and produce get from mandis. However, mandis are not an ideal market for farmers; traders require a license to operate in mandi.

- 3. Lack of financing/funding:** Domestic subsidies and investment in policies hardly ever reach the farmers and end user. It remains a challenge for upstart innovation programs. Many state governments are providing grants to push innovation forward but that is still very limited. This leaves agricultural start-ups in a tough position, they will have to find profitability sooner than most.
- 4. Inadequate irrigation:** in India most of the region is still depends on rainfall for water. Secondary the ground water level is going down from 1000 feet average depth per year.
- 5. Farm size vs. productivity:** in India, farm are uneven and small as 70% of farms have less than 1 ha. Consequential in notably low farm yields. Low productivity and lack of visibility in supply chain is another factor that affects the Agri tech business.

6. Rigid old models: as the previous are too rigid, it is not easy to break and generate new business. That is big reason for the rejection of funding for Agri startups have been the business model.

7. Lack of subject matter experts or mentors: the problem is that in this space there is not many experts are available. There is the requirement of educational support for the upcoming generation in the field.

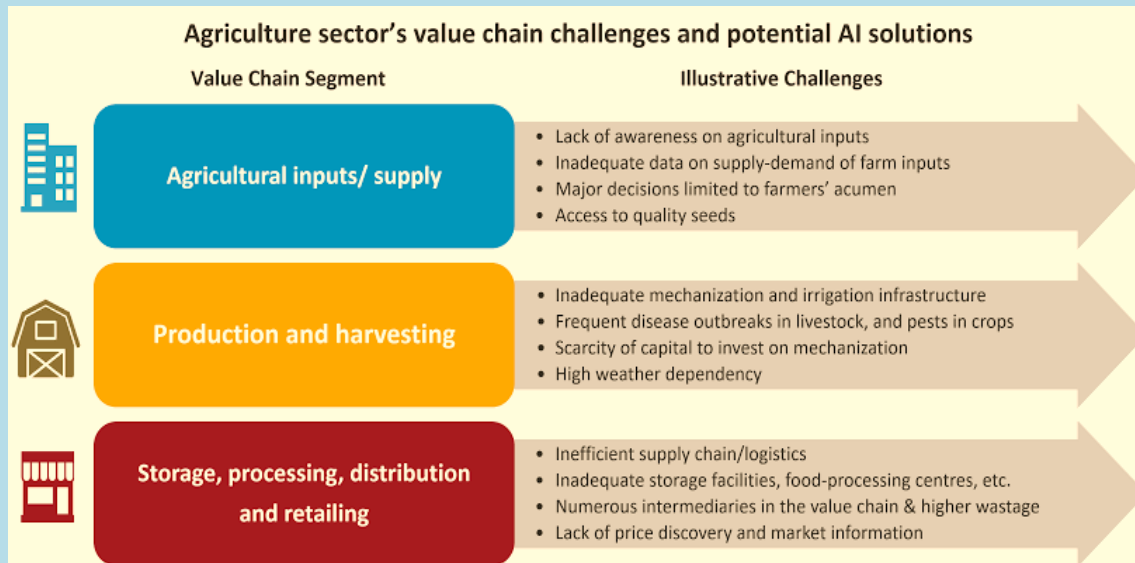
8. Climate change: in the agricultural sector, it is a important factors that affects the agriculture farming. The agricultural sector is susceptible to changing weather and climatic condition. So there should be a quick adaption of technology to bear these unavoidable changes.

9. Connectivity in rural areas: In rural areas, there is lack of connectivity which make barrier to know about new ideas and technology. In many rural locations strong, reliable internet connectivity is not available. That, in terms, preventing the attempts to apply small agriculture technique at such places.

10. Technology: with technology developing faster than ever, the skills needed to make use of this technology

is essential. It also influences research and development.

and significant supply chain can increase the farmer income.



Opportunity for agritech startups

- 1. Resource maximization:** Reduction in the usage of water, fertilizer pesticide, and other resources in agriculture is a great business opportunity as 80% of the fresh water used in agriculture. (NAASCOM- Agritech in India: Emerging trends in 2019).
- 2. Processing and export:** India food processing industry is one of the largest industry in the country. It ranks 5th in terms of production, consumption, and export. Flowing and traceability can improve farmer income and export.
- 3. Streamlining supply chain:** To decrease the losses in post-harvest per year to Indian farmers. Increasing the demand for cold chains, warehouses,

4. IOT for farmers: Information on crop yields, rainfall patterns, pest infestation, and soil nutrition, can be used to advance farming techniques over time.

5. Employment rationalization: As 50% of the people are engaged with India's agriculture sector, they still contribute only 16% to GDP. As a results, it allows farm mechanization and collection will rationalize and beneficially reallocate the workforce.

6. Fintech for farmers: As the farm income is mostly in cash, it will be an opportunity for Fintech startups to digitize payments for farmers through payment gateways linked to their accounts.

Entrepreneurial opportunities in Modern Agriculture				
Farming (on farm)	Product marketing	Inputs marketing	Processing	Facilitative
Crop	Wholesale	Fertilizer	Milk	Research & Development
Dairy/Poultry/Goat	Retail	Agril. Chemical	Fruits	Marketing information
Fish	Commission agent	Seeds	Vegetables	Quality controls
Rabbit	Transport	Machineries	Paddy	Insurance
Vegetables	Export	Animal feed	Sugarcane	Energy
Flowers	Finance	Poultry hatchery	Cashew	
Ornamental plants	Storage	Vetmedicines	Coir	
Palmrosa	Consultancy	Landscaping	Poultry	
Fodder		Agril. Credit	Cattle	
Sericulture		Custom service	Tannery	
Agroforestry		Bio control units	Brewery	
Beekeeping		Bio-tech unit	P. Board	

Venture capital scheme for agribusiness development

Venture capital scheme provides venture capital assistance without interest on loan to meet the short requirement for implementing a project. The schedule for the fee payable to consultants under venture capital assistance scheme for agribusiness development is summarized below:

Some of the following benefits of environment scanning are as follows:

1. It creates an increased general awareness of environmental changes on the part of management.
2. It guides with greater effectiveness in matters related to governments.
3. It helps in marketing analysis.

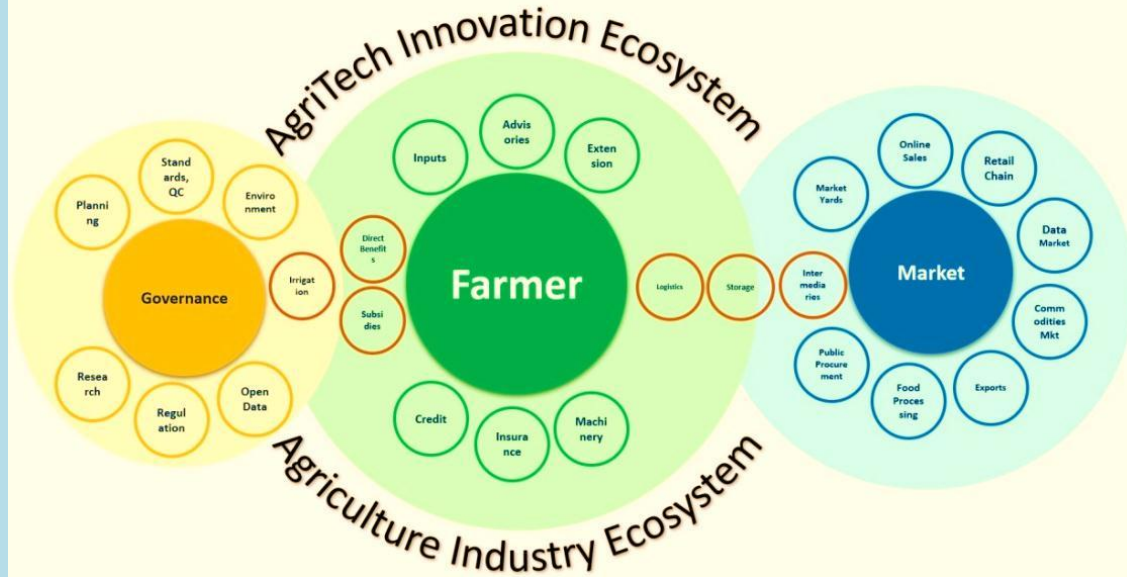
Category-1: Project size between 10 lakh to 25 lakh	Total fee : 25000
Category-2: Project size above 25 lakh and up to 1 crore	Total fee : 50000
Category-3: Project size above 1 crore and up to 3 crore	Total fee : 75000
Category-4: Project size above 3 crore and up to 5 crore	Total fee : 100000

Importance of environment analysis

The entrepreneur/ manager needs to be dynamic to effectively deal with the challenges of environment. The environment of business is not static.

4. It suggests improvement in diversification and resource allocation.
5. It helps firms to identify and capitalize upon opportunities rather than losing out to competitors.

Focus on VALUE around 5 Personas and 26 Value Nodes



Conclusion

Indian agriculture based startups are taking up challenges to transform this sector into technology driven and smart sector. And, to make this happen telecom sector has played an important role. The easy and cost effective availability of the internet to farmer has become updated and tech friendly that can access market information about every aspect of agriculture at the right time whenever it is required. Looking forward GOI plan to support agristartup to boost up agriculture revenue moreover it will help farmers to become agripreneurs and to provide valuable opportunities to existing agripreneurs to expand their business. It will help to whole economy and also every individual because through technology + startup agriculture will

explore new opportunities for growth and development.

