



Innovation-Driven Transformation of Indian Agriculture through Agritech Startups

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India holds the record for the second-largest agricultural land in the world, with around 60.00% rural Indian households making their living from agriculture. Transformation of agriculture to agri-business is one of the important strategies where enterprising farmers practice profitable agriculture. Over the last decade, the sector is being streamlined with the stream of educated youth, fired by the ideas, passion and innovations to launch newer kinds of technology and business models to lift the face of agriculture from primitive to hi-tech one. Agritech startups are providing relevant and innovative solutions to a number of challenges faced all across the agricultural value chain. A new wave of budding entrepreneurs and emerging startups in the country are leading the way in disrupting the age-old agriculture system with innovative ideas and affordable solutions. These startups are providing missing links in the Agri value chain and delivering efficient products, technologies and services to the farmers on one hand and the consumers on the other hand, From ICT apps to farm automation and from weather forecasting to drone use and from inputs retailing and equipment renting to online vegetable marketing and from smart poultry and dairy ventures to smart agriculture and from protected cultivation to innovative food processing and packaging, its proliferation of all innovations and technology driven powerful startups set to revolutionize the food and agriculture sector.

Definition of Agritech Startup

Agri tech startups and innovation have the potential of changing the dynamics of Indian agriculture and paving the way for a futuristic model.

Startup in the field of Agriculture and its allied sector is called as Agri Startup.

Agritech

Agri tech is defined as an individual or segment of companies using technology in the field of agriculture leading to increase in productivity, efficiency and output. Agri tech can be applied across the agricultural value chain and can be in the form of a product, a service or an application.

Startup

The Oxford Dictionary defines startup as “a newly established business”

Startup means “the act or an instance of setting in operation or motion” or “a fledging business enterprise”.

A startup is a young company that is just Beginning to develop. Startups are usually small and initially financed and operated by a handful of founders or one individual.

Startup Development Phases



Stages	Name	Key Features of Development
Stage I	Ideation	- Entrepreneurial ambition of the founder(s). - Potential development of the product or service idea for a big enough target market. - Some initial business models and ideas on how the idea would create value or make money. - Presence of single person or a vague team. - No confirmed roles or commitment in the team structure yet.
Stage II	Concept development	- Defining of mission and vision of the startup with initial strategy. - Setting up of key milestones and goals for next few years. - Formation of core team consisting of co-founders with complementary skills and ownership plan and rights. - Inclusion of some additional members for the requirement specific skill sets along with ownership.
Stage III	Commitment	- Committed skills balanced founding team sharing same vision, values and attitudes. - Building the MVP or Minimum Viable Product for the users to test their business idea. - Signing of SHA: Shareholder Agreement among the co-founders ✓ It includes milestones that need to be achieved ✓ Commitment of time and money shared by each shareholder ✓ SHA signed for next three years with vesting terms
Stage IV	Validation	- Most important stage from the point of view of the founder(s), employees, initial customers and angel investors through initial user growth. - Initial Key Performance Indicators (KPIs) identified. - Founders are struggling to find the right product strategy & brand positioning that would allow them to attract potential Series A/B venture investment. - Most of the startups lose their plot during this stage of business.

Stage V	Scaling up	- Focus on KPI based growth in terms of users, customers and revenues or market share in the target market. - Potential to grow fast. - Received series A funding for the startup. - Maximum time involved in hiring resources, improvement and distribution of product to target population and implementing new or established process.
Stage VI	Establishment of startup	- Have achieved great growth that can be expected to continue. - Easy to attract funding and customers now. - Depending on vision, mission and goals will continue to function “like a startup”. - Founder(s) or Investors may decide to exit or continue with the company.

Indian Agritech Startup

S.No.	Indian Agritech Startup	Information
1.	NINJACART 	✓ Founded in 2015. ✓ Headquarters – Bengaluru, Karnataka. ✓ Provide more income to farmers and less price to retailers by creating an efficient supply chain. ✓ Product Name – Ninja cart Mobile app.
2.	BIGHAAT 	✓ Founded in - 2015. ✓ Headquarters - Bengaluru, Karnataka. ✓ BigHaat is bringing accessibility of quality agricultural products a personalized advisory by leveraging its technology offering for farmer empowerment.
3.	KHETIGADI 	✓ Founded in - 2016. ✓ Headquarters- Pune, India. ✓ KhetiGaadi is India's first online platform for comparing and purchasing farm equipment. Less time will be devoted to inspecting farm machinery, and more time will be devoted to increasing productivity.
4.	INTELLO LABS 	✓ Founded in - 2016. ✓ Headquarters - Gurugram. ✓ Intello labs uses for image matching and machine learning to measure the quality of crops.
5.	APNA GODAM 	✓ Founded in - 2016. ✓ Headquarters - Jaipur. ✓ Apna Godam is providing an online listing platform for connecting agricultural producers and traders with the warehouse owners for storages of agricultural produce.
6.	FASAL	✓ Founded in – 2018. ✓ Headquarter- Bengaluru, Karnataka.

		✓ Fasal is a smart agriculture solution which when installed, starts recording variety of microclimatic parameters like temperature, humidity, air pressure, leaf wetness, soil moisture, soil temperature, wind speed, wind direction and rainfall.
7.	BIJAK  BIJAK	✓ Founded in- 2019. ✓ Headquarter- Haryana. ✓ Bijak is a B2B trading network for agricultural products that connects buyers and sellers. Bijak offers financial assistance for the purchase of agricultural products in addition to promoting commerce between buyers and sellers.
8.	BEEGLE 	✓ Founded in – 2019. ✓ Headquarters – Bengaluru, Karnataka. ✓ We are solving the problem of excess use of fertilizer and pesticide in farming as well as poor management of other resources throughout the agricultural process, labour issues as well as non-standard method of farming activities. ✓ Technology used in NDVI sensors Drones.
9.	Farm2Fam 	✓ Founded in- 2019. ✓ Headquarters- Mumbai, Maharashtra. ✓ Farm2Fam distributes organic food directly to consumers. This guarantees that consumers receive fresh food that was farmed without the use of pesticides and herbicides.

Key Incubators Focused in Agritech Startup

1. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

ICRISAT launched Innovation Hub (iHub) to support agricultural tech entrepreneurs, scientists and technology experts can collaborate to innovate cutting edge ideas across the whole agriculture value chain.

2. Centre for Innovation Incubation and Entrepreneurship (CIIE)

CIIE is a collective of interventions in the space of innovation-driven entrepreneurship in India. CIIE continues to support the research and learning undertaken by the Centre.

3. a-IDEA (Association for Innovation Development of Entrepreneurship in Agriculture)

a-IDEA aims to help entrepreneurs ideate, incubate and accelerate their innovative early-stage startups that are scalable to become competitive food and agri-business ventures through capacity building, mentoring, networking and advisory support.

4. Other Incubators focused in Agri Startup

- ✓ PUSA krishi incubator (ICAR-IARI)
- ✓ ICAR agri- business incubators.
- ✓ CrAdLE (Centre for Advancing & Launching Enterprises).
- ✓ N S Raghavan Centre for Entrepreneurial Learning (NSRCEL) at IIM Bangalore.
- ✓ C- CAMP (Centre for Cellular and Molecular Platforms) UAS Bangalore.

Incentive Schemes to Support Startup in Agriculture

1. New Gen Innovation and Entrepreneurship Development Centre: The NSTEDB start up scheme by Indian govt. provide a limited one time, one recurring financial assistance up to maximum of INR 25 lakhs.

2. Atal Innovation Mission

AIM will provide a grant in aid of INR 10 Cr. To each Atal incubation centre for a maximum of five years to cover the capital and operational expenditure cost in running the centre.

3. ASPIRE -Scheme for promotion of Innovation Rural Industries and Entrepreneurship

A network of technology centres, incubation centre and also to promote start-ups for innovation and entrepreneurship in rural and agriculture-based industry.

4. Pradhan Mantri Mudra Yojana

Pradhan Mantri MUDRA Yojana (PMMY) is a scheme launched by the Hon^{ble} Prime Minister on April 8, 2015 for providing loans up to 10 lakhs to the non-corporate, non-farm small/micro enterprises. These loans are classified as MUDRA loans under PMMY. Shishu: covering loans up to 50,000/-, Kishor: covering loans above 50,000/- and up to 5 lakh and Tarun: covering loans above 5 lakh and upto 10 lakh.

Challenges to be looked into enrich the agricultural growth in India

- ✓ Traditional Farming and Issues.
- ✓ Low Agriculture productivity.
- ✓ Food storage and wastage.
- ✓ Price fluctuation.
- ✓ Higher youth population.
- ✓ About 40 of youth are unemployed.

Bottlenecks for Indian Agritech Startup

- ✓ Low landholding size.
- ✓ Skill Adaptability.
- ✓ Technology Affordability.
- ✓ Long Gestation period.
- ✓ Government Regulations and policies.
- ✓ Return from the investors.

Opportunity In Agritech

- ✓ Better Access to Inputs.
- ✓ Farming as a Service: Making services affordable to small and marginal farmers.
- ✓ Digital Agriculture: Driving transparency, traceability and real time access to information.
- ✓ Market Linkage: Improving Supply Chain. Financing: Innovations taking roots in farmer financing.
- ✓ Employment Rationalization.
- ✓ Stakeholder Empowerment.
- ✓ Processing and Experts.
- ✓ Resource Maximization.
- ✓ The Digital Infrastructure.

Recommendations

Increased and timely support to early-stage start-ups. Need for large companies to collaborate with start-ups. Need for Corporate and Govt. accelerators to help Agritech start-ups grow to the next level. There is a need to create mobile trainings to educate the farmers. There is a need for Govt. to help set up Agritech focused incubators and grants. Academia should encourage more entrepreneurs to focus on this growing sector and curriculum changes to made in agricultural universities.

Conclusion

Over all, the ecosystem for agritech startup in the country is promising. Government is also playing its part in boosting innovation and Entrepreneurship. Several incubators and accelerators are actively increasing their footprints. Never the less several factors remain to be addressed towards further enabling agritech ecosystem and unleashing the full power of available technological innovation towards improving India's agriculture growth.