

Cultivating Innovation: The Rise of Agri startups in Modern Agriculture

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Abstract

Startup India is a flagship initiative launched by the Government of India to build a strong ecosystem for nurturing innovation and startups in the country which will drive economic growth and generate large scale employment opportunities. Agri startup concentrates only on agri produce. They provide solutions to farmers through different business models like: Supply chain-E-distributor, Marketplace, Logistics, and Warehousing. Sources of funding for start-ups Personal investment, Angel investors, Accelerators, Crowd funding, Micro venture capital firms, corporate venture capital (CVC), Venture debt funds, Government grants and Banks. By continuous support, monitoring and evaluation Indian start-ups can help define the future of Indian agriculture.

Keywords: Agri startups, Business models, Source of funds, Challenges

Introduction

A startup is a company, a partnership or temporary organization designed to search for a repeatable and scalable business mode (*Blank, 2013*). Startup India is a flagship initiative launched by the Government of India on 16th January, 2016 to build a strong eco-system for nurturing innovation and startups in the country which will drive economic growth and generate large scale employment opportunities. In that way, agri startup concentrates only on agri produce. These agri-startups are further classified based on agri-tech, animal husbandry, dairy farming, fisheries, food processing, organic agriculture, etc. These are also categorized according to their growth stage: Ideation, Validation, Early traction, and Scaling. As of 10th April 2023, there are around 374 DPIIT recognized startups in the agriculture industry spread across 490 districts, providing employment to around 38,000 people (*Startup India, 2023*)

Startups in India

Startups are classified into seven broad categories: a) providing output market linkages b) facilitating input supply c) enabling mechanization and irrigation c) offering a financial solution (credit and insurance) d) helping quality maintenance through monitoring and traceability e) post-harvest management f) logistic services (warehousing & cold chains), and g) supporting animal husbandry activities (*Chandra et al. 2020*). They provide solutions to farmers



through different business models like: Supply chain-E-distributor, Marketplace, Logistics, and Warehousing; Growing system and components- Aquaponics, Hydroponics, Vertical farming, Drip irrigation; Financial solution- Payments, Revenue sharing, Lending, Insurance; Farm data and analytics- Integrated Platform, Remote sensing software platforms, Farm mapping, Farm management solution; Advisory Field operations- Farm mechanization and Bulk handling.

Ninja Cart is an example of a hyper-local market linkage platform that intermediates transactions between farmers and small and mid-tier green-grocers in cities and is expanding its in-house data science capabilities (*Anita and Deepthi, 2019*). Advancements in technology, such as the Internet of Things (IoT), artificial intelligence (AI), and blockchain, have enabled unprecedented levels of data collection, analysis, and management in agriculture. This influx of data provides farmers with actionable insights to optimize resource usage, improve crop yields, and mitigate risks associated with weather variability and pests.

Source of funds

Sources of funding for start-ups Personal investment, Angel investors, Accelerators, Crowd funding, Micro venture capital firms, corporate venture capital (CVC), Venture debt funds, Government grants and Banks. Technology Business Incubators are located at IARI, New Delhi, NDRI, Karnal, NAARM, Hyderabad, IHR, Bangalore; TNAU, Coimbatore and ICRISAT, Patancheru, ASPIRE, National Bank for Agriculture and Rural Development (NABARD), Department of Science and Technology (DST).

National Innovation Foundation (NIF), Biotechnology Industry Research Assistance Council (BIRAC), Startup India New Gen IEDC (New Generation Innovation and Entrepreneurship Development Centre), Atal Innovation Mission, NIDHI (National Initiative for Developing and Harnessing Innovations), RKVY-RAFTAA (Rashtriya Krishi Vikas Yojana – Remunerative Approaches for Agriculture and Allied Sectors). These institutions, along with state governments, agricultural universities, research institutes, and international organizations, play a crucial role in providing grants, funding, and support to agri startups in India, enabling them to innovate, scale, and contribute to the growth and sustainability of the agricultural sector.

Challenges of Agri startups

- Rate of return on technology investment has not proven very profitable.
- High-priced technology solutions are unaffordable.
- Difficult to retain technical talent working.
- Facilitating the adoption of proven technologies through subsidy is yet to gain momentum.
- Making farmers adaptive to the required skills for working on advanced technologies requires significant effort.



- Technology adoption and penetration is a very slow process which certainly diminishes investors' interest.

Conclusion

Agricultural startups hold significant promise for revolutionizing the food and farming industries, offering innovative solutions to address challenges such as sustainability, efficiency, and food security. These startups are leveraging technologies like AI, IoT, and biotechnology to enhance crop yields, optimize resource utilization, and improve supply chain management. However, their success depends on factors such as access to capital, supportive regulatory environments, and effective collaboration with traditional agricultural stakeholders. Overall, agricultural startups have the potential to drive positive change in the way we produce, distribute, and consume food, ultimately shaping the future of agriculture for the better.

References

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