Disruptive business models are stimulating inclusive growth in agriculture and rural finance

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At a Glance

- Sectors that comprise India's rural economy contribute to nearly half of the nation's GDP and is growing steadily, supported by government and private sector improvements to the physical and digital infrastructure.

- The agricultural economy is on the cusp of massive disruption. Companies that address inefficiencies across the value chain will have explosive growth potential. As new generations of farmers take the reins, technology will play a greater role in the agriculture value chain.

- The sector also needs faster and better access to financing. Innovative business model and technology adoption is driving access to microfinance, agri, and consumer loans.

- New challenges will develop as the sector matures. Farmer groups need to build capacity, consistency, and efficiency, especially for post-harvest services. Transparent and reliable data, financing, and building trust with farmers for adoption of new practices will also influence the future of India's rural economy.

Executive summary

India’s rural ecosystem is large and growing steadily. The rural economy contributed nearly half the nation's overall GDP in 2019–2020 and employs 350 million people (68% of the total workforce). Over the last five years, the rural ecosystem has grown ~10% per annum (p.a.)—and still has strong headroom for growth.

Over the past decade, the rural ecosystem has evolved significantly, driven by multiple government and private sector initiatives. There have been continued improvements in physical infrastructure and connectivity, plus significant advancements in digital infrastructure. Rural smartphone and internet penetration increased 30% p.a. over the last five years. A significant reduction in data prices drove the rise in smartphone usage; the cost per gigabyte dropped about 65% between 2018 and 2021. Covid-19 also accelerated smartphone exposure and proficiency because many schools transitioned to online classes during the pandemic. The number of children with access to smartphones increased 42% between 2018 and 2020.

As of March 2021, about 1.3 billion Indian residents have been issued an Aadhaar identity number. Aadhaar accelerates digital payments and innovations in banking, which improves citizens’ access to cash and credit.

Government policies, such as the Model Contract Farming Act, 2018, and initiatives led by private and nonprofit entities have also boosted the formation and development of farmer producer organisations (FPOs). FPOs are becoming critical access points to farmers, and can generate awareness and support new initiatives.
These trends have created a ripe environment for innovation, allowing start-ups and traditional players to introduce disruptive business models that address inefficiencies in the sector. Emerging business models can stimulate inclusive growth in the rural economy, particularly in the agriculture and finance sectors.

Agriculture is the largest sub-sector in the rural economy, contributing approximately 37% of total rural GDP in 2019–20. Between 2017 and 2020, agri-tech start-ups have attracted ~INR 6.6K Cr in private equity investments.

As newer generations of farmers and FPOs become digitally savvy, new business models are emerging across the agriculture value chain, from inputs and harvesting to processing and distribution. Information and transparency initiatives are addressing existing inefficiencies and formalising a traditionally informal sector. For example, Ninjacart, a supply-chain platform, built an online marketplace to connect farmers to retailers without any intermediaries. It provides pricing, demand visibility, and payment assurance to drive engagement and support farmers. Indigo Ag is another example; its platform delivers services across the agriculture value chain, including agronomy advisory, quality testing to increase yields, and a marketplace to connect buyers and sellers.

As traditional agriculture transitions to agri-business, the need for faster and better access to cash and credit is increasing. While cash is still the dominant method of payment in rural India, Unified Payments Interface (UPI) transactions doubled in the past year. Multiple factors fuelled the swift uptick, including Aadhaar building a digital identity that enabled services like Know Your Customer (KYC) and e-sign. Access to banking facilities also increased. Pradhan Mantri Jan Dhan Yojana (PMJDY), part of the National Mission on Financial Inclusion, opened more than 40 Cr bank accounts by 2021. The Indian government is also pushing for digital and UPI payments post-demonetisation, and digital payment players like Paytm and PhonePe have expanded rapidly in the market.

There has been a significant increase in access to credit in the rural ecosystem, too. Agri credit has grown ~10% in the last five years, from ~INR 8 lakh Cr in FY15 to ~INR 14 lakh Cr in FY20. Rural microfinance gross loan portfolios also grew, rising from ~INR 132.9K Cr in March 2020 to ~INR 146.7K Cr in March 2021.

Demand for credit has risen, especially among consumption-driven loan products like those for two-wheelers and consumer durables. Technology disruption played a key role in this growth by lowering loan servicing costs, which enabled lenders to service lower-value loans. Awareness and access to credit options are increasing as more rural- and agriculture-focused players, like Jai Kisan and Samunnati, connect farmers to financing partners. Additionally, government schemes like the Agriculture Infrastructure Fund and Pradhan Mantri MUDRA Yojana (PMMY) are offering low-interest loans to farmers and FPOs as well as to non-corporate, non-farm, small and micro enterprises to drive financial inclusion.
As new business models evolve, a new set of challenges will enter the ecosystem and create opportunities for innovation and growth. This report explains how the rural ecosystem is developing, the challenges ahead, and how new business models can create inclusive growth.

**Overview of India’s rural landscape**

**Industry and the economy**

Two-thirds of India’s population participated in the rural economy in 2019–20, with about 60% concentrated in six states. Uttar Pradesh has the highest rural population (~18 crore), followed by Bihar (~11 crore). Maharashtra, West Bengal, Madhya Pradesh and Rajasthan also comprise a large share of the rural economy. Since 2017, the rural workforce has been increasing at a rate of 8% to 12% p.a. in states like Rajasthan, Uttar Pradesh, and Bihar.

Within the rural economy, agriculture holds the highest share of output (37%). Trade, hotels, transport, and communication are the next-highest contributors (16%), followed by manufacturing at 14% (see Figure 1). Agriculture is among the fastest growing sectors in the rural economy, with a compound annual growth rate (CAGR) of 11% over the last five years.

**Figure 1:** The rural ecosystem contributes nearly half of India’s overall GDP, with a large share coming from agriculture

![Graph showing the share of GDP in India by sector.](image)
Recent developments

Multiple enablers are priming the rural economy for future growth:

- **Rural digitisation and technology affordability.** Rural India is becoming digitally savvy, with smartphone and internet usage increasing 30%+ CAGR in the last four to five years. In 2020, there were ~300 million internet users in rural India. The Prime Minister Wi-Fi Access Network Interface scheme is delivering broadband services to rural areas, with a goal to create 2 million public Wi-Fi access points by the end of 2021—up from 550,000 existing access points. Online classes during the pandemic were a major catalyst for digital adoption amongst rural populations because they forced many new users to explore advanced functionalities.

  There has been a significant decline in the cost of technology access as well. Data costs decreased 64% over the last three years, from INR 18.5/GB in 2018 to ~INR 6.7 in 2021. Lower-cost smartphone devices are improving access as well. A Jio-Google partnership introduced a smartphone priced at ~INR 6.5K, for example.

- **Financial inclusion initiatives.** Aadhaar and Aadhaar-enabled banking and payments systems boosted rural financial inclusion. The system eased documentation requirements for processes like opening bank accounts and availing the benefits of government schemes and subsidies. Access to formal banking also increased significantly with the introduction of PMJDY. Roughly 43.76 Cr bank accounts have been opened as of October 2021. The Reserve Bank of India set up an INR 345 Cr Payment Infrastructure Development Fund to create 30 lakh digital-payment touchpoints every year. According to Bain-CII estimates, about 30% of the rural ecosystem is adopting digital payment and digital commerce solutions through UPI apps like PhonePe and Google Pay.

- **Community empowerment.** Traditionally, FPOs and farmer producer companies (FPCs) have been developed to increase bargaining power and provide economies of scale. These organisations often serve as important and trusted connection points between farmers and the public and private sectors. The government introduced the Model Contract Farming Act in 2018 to empower communities to enter into contract farming agreements with bulk purchasers (e.g., exporters, agro-industries) on behalf of farmers. To facilitate online trading, the government also allowed FPOs and FPCs to act as aggregators on the National Agriculture Market (eNAM) platform so they can trade from their collection centres.

- **Improved infrastructure and access.** Physical connectivity to rural areas continues to improve through road and railway infrastructure projects. In 2000, the Pradhan Mantri Gram Sadak Yojana was introduced to provide all-weather road connectivity to rural villages. About 225,000 kilometres of new roads have been built in the last five years, bringing the total of new roads to 681,000 kilometres. Railway infrastructure has also been expanding, with around 800 new trains launched in the last five years.
• **Investor focus.** Investments in the agri-tech space have skyrocketed in the last four years, growing at more than 50% p.a. to aggregate ~INR 6.6K Cr till 2020. Investors have focused on opportunities that address systemic issues, building sustainable systems, and ensuring inclusive growth. Similarly, finance technology has recently attracted investors. Significant domestic and international investments are being pumped into the sector to improve efficiency and access to credit.

• **Surge of start-ups.** These ecosystem developments have drawn multiple new players into the market to offer technology-based solutions like offtake marketplaces, storage and transportation services, and agronomy advisory services. Large traditional players are adopting technology to reduce operational costs and scale, either by developing in-house solutions or by partnering with emerging players. Several global tech giants (e.g., IBM, Microsoft) see this space as a new growth opportunity and are investing in innovative solutions for crop health monitoring and yield estimation.

**Sector deep dive**

**Agriculture**

Agriculture is the largest sector in India’s rural economy, contributing INR ~35 lakh Cr to the national GDP in 2019–2020. Proteins, fats, fruits, and vegetables make up 60% of agriculture’s production value (see Figure 2). Rice and wheat cover approximately 40% of India’s land under cultivation and account for a quarter of the total agriculture production value.

**Figure 2:** Proteins, fats, fruits, and vegetables contribute 60% of India’s agriculture production value

**Estimated 2019 India agriculture production value (INR lakh Cr)**

Note: Based on farm gate value of agricultural produce
Sources: FAO data; Bain analysis
Innovation in India’s Rural Economy

The agriculture sector has been growing steadily since 2015 at a pace of 11% CAGR. It has also witnessed the highest disruption in terms of smartphone and internet penetration.

In the next few years, India’s food and agriculture ecosystem will be on the cusp of massive disruption. Multiple players are disrupting the value chain now, and will evolve and replace traditional agriculture with new farming models, advanced agri-tech services, and new food products. In the last six years, several start-ups have emerged to reduce systemic inefficiencies among inputs and marketplaces, precision farming, processing and storage. For example, new players like Ninjacart and WayCool are improving distribution efficiencies, which can cause 17% to 22% leakage when perishable commodities are moved from farm to mandi.

**New business models are emerging across the agriculture value chain**

<table>
<thead>
<tr>
<th>Value chain stage</th>
<th>Start-up examples</th>
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<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td><strong>Crop- and weather-related information services</strong>: KrishiHub built an advisory platform to provide farmers with crop advisories, news and information about government schemes, tutorials, and articles on modern farming practices.</td>
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<td></td>
<td><strong>Marketplace for farm inputs</strong>: BigHaat built an online inputs marketplace to improve access to agricultural machinery, seeds, and fertilisers.</td>
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<td></td>
<td><strong>Equipment-sharing and pay-for-use services</strong>: EM3 created a platform to facilitate farm equipment rentals (e.g., tractors) and outsourced services (e.g., fertiliser application).</td>
</tr>
<tr>
<td><strong>Harvesting</strong></td>
<td><strong>Smart/tech-enabled sowing</strong>: BharatAgri enables smart farming practices through personalised, algorithm-based advisories on soil, water, and other conditions.</td>
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<tr>
<td></td>
<td><strong>Smart crop inputs and harvesting</strong>: Plenty is developing indoor vertical farming to reduce farmers’ dependency on external environmental variations and pesticides.</td>
</tr>
<tr>
<td></td>
<td><strong>Automation of farming activities</strong>: FlyBird Farm Innovations reduces water and electricity consumption by using smart equipment like sensor-based irrigation controllers and digital motor starters.</td>
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</tbody>
</table>
Processing and distribution

**Smart-processing business models:** Our Food provides low-cost processing equipment, financial support, and guidance on shed construction to decentralise the processing industry.

**Seamless transportation and warehousing:** StarAgri provides warehousing, collateral management, and logistics solutions to increase farmer realisations and supply-chain efficiency.

**E-trading, online marketplaces, and supply chain management:** Ninjacart built online marketplace models that connect farmers directly to businesses to disintermediate the supply chain and reduce distribution inefficiencies.

<table>
<thead>
<tr>
<th>Services</th>
<th>Data-backed risk mitigation services: GramCover provides tech-enabled insurance solutions with features like paperless onboarding and instant policy issuance as well as risk advisory for the rural ecosystem.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Other agri-financial services:</strong> Ergos enables farmers to convert their grains into tradeable digital assets and helps them get better prices by giving them the flexibility to sell their produce at any time.</td>
</tr>
</tbody>
</table>

Integrated play

**Indigo Ag** provides agronomy advisory services, quality testing, contract farming, an offtake marketplace, and storage and transportation services to farmers.

Private and government interventions can empower FPOs and boost access to farmers. They can also create more formalised engagements between farmer communities and the private sector to create input/output marketplaces and encourage lending for inputs and farm equipment. The government is also pushing FPOs to increase farmers’ bargaining power and provide more efficient market linkages.

Technology is streamlining access to FPOs and enabling real-time information sharing and greater transparency. For example, WhatsApp groups have become a common communication platform for reaching farmers. When ITC partnered with NITI Aayog on its Transformation of Aspirational Districts programme, they had built upon their e-Choupal ecosystem’s experience and leveraged ~6.1K WhatsApp groups in ~11K villages and enabled capacity building of ~5.66 lakh farmers through digital training and dissemination of farming-related information. Leveraging local languages and voice messages for two-way communication proved to be major facilitators for increasing engagement.
Access to finance

In FY20, the rural ecosystem accounted for ~43% of the total ~INR 130 lakh Cr expenditure. By volume, ~90% of rural payments to merchants were made in cash. As of March 2021, India’s gross loan portfolio was nearly INR 254K Cr, of which rural accounted for ~58%.

As the agriculture sector transitions to agri-business, the financing ecosystem must also evolve. Innovation in digital payments has enabled faster and easier access to cash, particularly in rural areas that have been cash-strapped due to a lower penetration of ATMs and banking products.

Access to credit also increased in the rural ecosystem. Lending organisations have lowered their operational costs, which increased their ability to service lower-ticket loans. Digital-first banking models also helped lending organisations scale into the sector.

Access to digital payments

Cash is still the dominant method of payment for rural financing, accounting for roughly 90% of all payments. However, digital payments penetration is increasing, driven by government interventions like the Payment Infrastructure Development Fund, which subsidises the deployment of payment acceptance infrastructure in Tier 3 to Tier 6 centres. Nearly 2.46 lakh physical payment-acceptance devices have been installed as of September 2021.

India Stack, a set of application programming interfaces (APIs) open to governments, businesses, and start-ups, also encourages digital payments adoption. It created a single interface for Indians to transact from any bank account. RuPay, the Indian card-payment network, is also boosting the cashless economy. As of October 2021, close to 32 Cr RuPay debit cards have been issued to PMJDY account holders, up from almost 20 Cr at the end of 2016.

Digital penetration is rapidly increasing, driven by the growth of UPI apps like PhonePe and Google Pay. UPI has grown from almost no transaction volume in 2017 into a dominant payment source. Accelerated by the pandemic, UPI processes eight times more transaction value today than credit cards (see Figure 3). Between April 2020 and September 2021, PhonePe’s monthly transaction value rose from ~INR 0.6 lakh Cr to ~INR 3 lakh Cr. Similarly, Google Pay experienced month-over-month growth of 7% in 18 months, with monthly transaction values rising from ~INR 0.7 lakh Cr in April 2020 to ~INR 2.5 lakh Cr in September 2021.
Access to credit

The rural microfinance sector has grown significantly in the past 18 months too, rising from a gross loan portfolio of ~INR 122.5K Cr in December 2019 to ~INR 146.7K Cr in March 2021. As borrowers and lenders have both matured, rural mass lending has increased. In FY21, total originations were valued at ~INR 76K Cr, with rural two-wheeler loans accounting for roughly 50%. Small-ticket personal loans and consumer durables loans each had a rural share of ~30%.

Agri-credit has increased at ~10% CAGR in the last five years, reaching ~INR 14 lakh Cr in 2019–2020. About 35% of agri-credit business comes from three states: Tamil Nadu, Andhra Pradesh, and Uttar Pradesh (see Figure 4). As lending experience and risk baselining of borrowers mature, there has been an increasing trend of borrowers upgrading to traditional lenders and leaving higher-cost microfinance lenders.
Innovation in India’s Rural Economy

**Figure 4:** Agri-credit is growing at ~10% CAGR, with about one-third of the growth coming from three states

**Agri-credit growing at ~10% CAGR in last 5 years; share of term loans increasing**

<table>
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<tr>
<th>India agri-credit split (INR Lakh Cr)</th>
<th>CAGR 2015–2020</th>
</tr>
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<tbody>
<tr>
<td>~INR 8 Lakh Cr</td>
<td>10%</td>
</tr>
<tr>
<td>Term loans 25%</td>
<td>41%</td>
</tr>
<tr>
<td>Crop loans 75%</td>
<td>59%</td>
</tr>
<tr>
<td>2014–2015</td>
<td>0%</td>
</tr>
<tr>
<td>2019–2020</td>
<td>22%</td>
</tr>
</tbody>
</table>

**Tamil Nadu, Andhra Pradesh, and Uttar Pradesh account for ~35% of overall loans**

<table>
<thead>
<tr>
<th>State-wise agri-credit split (%), 2019–2020</th>
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<tbody>
<tr>
<td>Tamil Nadu 16%</td>
</tr>
<tr>
<td>Andhra Pradesh 10%</td>
</tr>
<tr>
<td>Uttar Pradesh 8%</td>
</tr>
<tr>
<td>Maharashtra 6%</td>
</tr>
<tr>
<td>Karnataka 6%</td>
</tr>
<tr>
<td>Rajasthan 7%</td>
</tr>
<tr>
<td>Kerala 7%</td>
</tr>
<tr>
<td>Madhya Pradesh 4%</td>
</tr>
<tr>
<td>Telangana 5%</td>
</tr>
<tr>
<td>Gujarat 5%</td>
</tr>
<tr>
<td>Punjab 6%</td>
</tr>
<tr>
<td>Others 16%</td>
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</tbody>
</table>

**Sources:** Agricultural statistics, Government of India; RBI; Bain analysis

Government schemes are attracting credit to build community farming assets and post-harvest agriculture infrastructure. The Agriculture Infrastructure Fund, for example, facilitates debt financing so farmers, FPOs, and agri-entrepreneurs can build warehouses, cold chains, and primary processing centres. To promote non-farm activities, schemes like PMMY have been launched to fund manufacturing, trading and service sectors, and activities that are allied to agriculture. As of December 2021, more than 32 Cr loans worth ~INR 17 lakh Cr have been sanctioned under PMMY.

Access to data has also spurred credit growth because it supports better decision making among fintech players. With digitisation, transaction history is captured, even on small-ticket borrowers, and used to create more robust lending profiles. Better visibility leads to better profiling and credit scoring of borrowers. High-quality weather data also helps lenders predict bumper crops and probable defaults.

These enablers have significantly lowered the time, human effort, and cost of onboarding new borrowers. Multiple processes can be fast-tracked, such as identity and background verification. Fast verification through government APIs has lowered the turnaround time for loan disbursement from 21 days in 2017 to just three days today for ESAF, a major microfinance player.
Microfinance digital-first platforms like Dhani have emerged to provide end-to-end financial services, such as access to personal loans, personal and medical insurance, and stock brokering solutions. Kissht is another digital credit-financing platform that uses proprietary software and a credit marketplace to issue instant consumer loans. It also has partnerships with major brands to provide equated monthly installment (EMI) options at point of sale.

Small banks and non-banking financial companies (NBFCs) are an integral part of financing in the rural ecosystem, making microfinancing accessible. They are adopting technology to expand their reach and offer credit solutions in rural areas. India’s largest rural NBFC, Mahindra Finance, has operations in ~2.4 lakh Indian villages (~38% of Indian villages) and provides financing solutions for vehicles, small and medium enterprises, housing, insurance, and mutual funds. It built a proprietary, data-driven map of India to track village-level data like consumption, lending patterns, industry non-performing assets (NPAs), healthcare facilities, and irrigated land. It uses these data points to build machine learning-based models for lending.

Additional business models are emerging to create easier access to credit. Several agri-financing players are developing innovative financing models to increase access to loans and ensure a return of the principal amount. India’s largest agri-tech enterprise, Samunnati, facilitates FPO development by offering technical and financial literacy training, provides access to customised financial solutions and facilitates new techniques, such as precision farming. Jai Kisan provides equipment, input, and invoice financing solutions through partnerships with businesses that sell to farmers (e.g., input or equipment providers) and those that buy from farmers (e.g., market linkage players, processors, FPOs).

There is sizeable growth potential for consumption financing and schemes like Buy Now, Pay Later (BNPL) because rural consumption is high (~50% of total consumption) and credit penetration is low compared to the urban sector (~22% versus ~37%). Multiple start-ups are exploring partnerships and funding options to provide new credit solutions. Meesho, a social e-commerce company, partnered with fintech start-up Klub to provide financing options to suppliers and micro, small- and medium-sized enterprises. Likewise, Honda partnered with Canara Bank to offer car financing options and with Cholamandalam Investment & Finance Company for two-wheeler financing solutions in rural and semi-urban regions.

Path forward

Indian agriculture has faced some challenges in the past; however, we are entering a new phase where technology and accurate information can systematically address those challenges to a great extent. We are potentially entering a golden age for Indian agriculture where a traditional and heuristic-based industry can be transformed into a scientific, data-driven process as we now have the capability to measure, transmit and assess vast amounts of data in real time, at low cost with great access. We believe this transformation, along with a few initiatives listed below, can help radically transform Indian agriculture over the next few years.
Expand FPOs’ participation and role in the rural value chain

Most new business models require direct access to farmers to encourage new practices, contractual engagements for input and output marketplaces, and credit lending agreements. There are more than 1 lakh Primary Agricultural Credit Societies and FPOs in India today, which are proving to be integral channels for farmer engagement. However, significant variability exists among FPOs in terms of maturity, sophistication, and management capabilities. Efficient and well-managed FPOs can help farmers adhere to contracts and build important market and credit linkages.

In addition, small farmers don’t have access to low-cost funds given limited documentation verifying cash flows, capacity to provide collateral, visibility on credit history, and capability to develop business plans. FPOs can act as a massive collective of distributed storage and primary processing (especially for high-value perishable goods). An integrated FPO effort will be quite instrumental in building the capacity of farmer groups. Government extension services, self-help groups, and nonprofit/private organisations can invest in integrated capacity building efforts in FPOs and help improve management capabilities, ensure cross-FPO best practice sharing and learning, and finally, establish best practices across all FPOs in a systematic manner.

Expanding post-harvest infrastructure

There is a need for government and private players to increase their investments in post-harvest infrastructure like warehousing and primary processing centres. Our estimates suggest post-harvest losses can amount to 20% to 40% depending on crop variety, partially driven by limited storage capacity and outdated warehouse units. Further, existing government storage facilities are operating at low efficiency due to infrastructural and personnel skill gaps. The government is exploring a public-private partnership (PPP) model to build steel silos for storing 10 million tonnes of rice and wheat. PPPs, especially with participation from smaller players, could also increase reach and drive operational efficiencies. Agri-tech company Arya Collateral Warehousing Services partnered with ESAF Co-operative to provide a local and scientific storage management solution for agri-processors and FPOs in Kerala. However, for a country as large and diverse as India, we need to have a vast, comprehensive distributed and connected storage infrastructure, which can be achieved through the right collaboration between FPOs, government agencies and private partnerships.

Making funding accessible to FPOs, FPCs, and private players can encourage investment in deploying scientific practices inside warehouses (like temperature and humidity maintenance) and providing constant surveillance of storage units to reduce waste. The government launched an Rs. 100,000 crore financing facility under the Agriculture Infrastructure Fund in August 2020 to aid farmer groups and private players to invest in post-harvest management infrastructure and community farming assets.
Access to robust data sources for real-time data and decision making

Access to reliable, real-time data has become imperative for credit risk evaluation, weather forecasting, crop management, and enabling price transparency for the farmers. The fragmented ownership of data between the government and private players has made accessibility cumbersome. We need a unified framework to ensure that farmers and stakeholders get access to accurate, real-time and localised data to ensure better decision making, and increasing transparency. Technology and connectivity have significant advantages in creating information symmetry and hence reducing the proportion of decisions which are taken by virtue of habit than analysing real-time localised data.

A policy framework can help provide access to agri-tech and fintech start-ups and help develop accurate and relevant models and insights. For example, micro-level weather forecasts are required for precision farming advisories and can translate into actionable insights for farmers. Accurate weather forecasting requires investment in weather stations that can capture more granular information and deliver user-friendly data more regularly. In the US, the National Weather Service makes high-quality forecasts accessible to private players freely, which they use to create customised micro-insights for clients. In India, efforts have been made to recruit private companies like Skymet Weather and IBM Weather Company to “augment” India Meteorological Department data and share more granular and frequent insights with private entities. Another effort in greater data transparency occurred in 2021, when the Indian government signed agreements with private players to share farm statistics from more than 50 million farmers to improve trading competitiveness, control food waste, and increase rural incomes.

Finally, there is a need to build trust with farmers and make this transformation a collaborative one

Despite increased digital awareness in the rural ecosystem, many players still struggle to build trust with farmers, which is needed for rural farms to adopt new practices at scale. Farmers have been set in their ways of working and typically have resistance to change, given low risk appetite regarding their crop yields. Hence, it is imperative to ensure that farmers receive clear communication about the value and risk profile of new initiatives and have trust in the expertise and intent of new players. To address this challenge, we will need a concerted strategy to communicate, collaborate and help farmers change the way of working for the better. This will need the help of progressive farmers, government extension services, farmer groups, and traditional large and trusted players. Technology-enabled and personalised credit risk analysis will help improve the financial inclusion of millions of farmers who are still outside the organised financial ecosystem.

Fortunately, everything we need to transform the Indian agricultural landscape exists today in terms of technology, capability and solution-adaptability (e.g., voice-enabled applications on feature phones). We now need to ensure a coherent framework to ensure that we leverage the technology and collaborate with the farmers to ensure that we transform the Indian rural landscape in the coming years.
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