Dvara E-Registry – Leveraging Technology to Enhance Credit and Insurance Delivery to Small and Marginal Farmers in Odisha.

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Dvara E-Registry – Leveraging Technology to Revitalize Farmer Livelihoods

Dvara E-Registry, a start-up and new initiative promoted by the Chennai-headquartered financial conglomerate Dvara Trust, aims to help channel financial products to rural India using an intelligent blend of macro and micro alternative and traditional data to bridge the information asymmetries between clients and providers. By harnessing a variety of technologies like mobile and GIS and the power of Machine Learning, Dvara E-Registry aspires to enable the rural under-banked to participate seamlessly in the mainstream financial marketplaces and facilitates customisation of banking and insurance products.

Dvara Trust (formerly known as IFMR Trust) was set up in 2008. Dvara Trust's mission is to ensure that every individual and enterprise has complete access to financial services. The Trust invests in and supports commercial efforts that advance this mission and works towards bringing about systemic change that impacts millions of low-income households in rural and urban India.

Dvara Trust's portfolio companies include

- Northern Arc Capital (Formerly known as IFMR Capital), a Non-Banking Finance Company that provides access to debt for under-banked individuals and businesses in India. Through a combination of capital, products and partnerships, it has created a platform that connects over a hundred non-bank financial institutions to mainstream debt investors. It's pan-India debt portfolio is diversified across 29 states and 540 districts of the country. Northern Arc Capital was originally promoted by Dvara Trust and is now a Board-managed entity with professional management.

- Dvara KGFS is building and supporting local, geographically focused community financial services institutions called Kshetriya Gramin Financial Services (KGFS). Each branch serves the local population focusing on a limited geography, offering a suite of financial products to remote rural households. Through its 'wealth management'[1] approach, the KGFS model endeavours to maximize the financial wellbeing of customers by offering solutions based on the Plan, Grow, Protect and Diversify (PGPD) framework. Dvara KGFS has successfully completed 10 years of successful operations in India with extensive work done in Ganjam and Khurda Districts of Orissa, states such as Tamil Nadu and Uttarakhand.

- Dvara Solutions designs and offers technology solutions for financial institutions and enables them to deliver high-quality financial services in a convenient, flexible, reliable and continuous manner.

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[1] www.dvarakgfs.com

Through its flagship product Perdix, it helps automate end-to-end process of a financial institution through modules such as the customer management system, loan management system, audit management system, business intelligence system and learning management system.

- Dvara Money is a digital platform that facilitates the distribution of financial products by leveraging technology and deep customer insights to deliver focused and suitable solutions to its customers. Dvara Money's first product, 'Spark', is a mobile-based application that provides its users with easy, flexible and tailored solutions to help them realise their goals. It empowers users to take financial decisions quickly with minimal effort.

Dvara E-Registry, aiming to improve access to agricultural credit and crop insurance and offering timely advice to farmers, has embarked on a programme in Odisha to use technology as an enabler to address the challenges farmers face. Dvara E-Registry's flagship initiative, launched in June 2019, is its mobile application 'Doordrishti' (loosely translated as far-sighted) in the Keonjhar and Jajpur districts of Odisha. The case-model under study is being implemented in a pilot in partnership with the Government of Odisha, Dvara KGFS, Dvara E-Registry, IFPRI and Precision Agriculture for Development (PAD) in two districts of Orissa in 2019 Kharif season. Dvara E-Registry's partners contribute significantly to the building of the data platform in the areas of research and development, data collection, data analysis, and the provision of real-time tech-enabled advisory and financial products including credit and insurance to farmers.

The choice of Odisha to launch the Dvara E-Registry pilot was underpinned by

- The challenges faced by the state's agricultural sector that are more acute than the rest of India,

- The state government's initiatives to bolster the farm sector through a slew of policies including creditting direct benefit transfers to the farmers' bank accounts, thereby promoting financial inclusion, and

- The expertise Dvara E-Registry's management possesses in the state's agrarian sector.

What Ails Agriculture in Odisha?

Spanning an area of 1.55 lakh sq. kms, Odisha lies in the tropical zone along the eastern seaboard of India. It is the 9th largest state in India by area and the 11th largest state by population. Notably, the state also has the third largest population of Scheduled tribes in India.[2]

Odisha's diverse topography encompasses plateaus, rolling uplands, deep-broad valleys, and coastal plains. The coastal plains extend from the Subarnarekha River in the north to the Rushikulya river in the south and are rich in fertile silt deposited by the six major rivers flowing into the Bay of Bengal - Subarnarekha, Budhabalanga, Baitarani, Brahmani, Mahanadi and Rushikulya. The Simulia and Meghasana mountain ranges cover three-quarters of the state. The Baitarani, Brahamani, Mohanadi,

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[2] "ST & SC Development, Minorities & Backward Classes Welfare Department:: Government of Odisha" - *www.stscodisha.gov.in*.

Rusikulya, Bansadhara and Nagavali rivers have carved deep and broad valleys in Odisha's mountains. The coastal plains are fertile, well irrigated, densely populated and constitute the State's agricultural hubs – Cuttack, Sambalpur, Balasore, Koraput, Dhenkanal, Ganjam, Kalahandi and Keonjhar. [3,4]

Odisha's climate is tropical, characterized by high temperature and humidity, medium to high rainfall and short and mild winters. The normal rainfall of the State is 1451.2 mm.[5] Even though the quantum of rainfall is quite high, its distribution during the monsoon period is highly uneven and erratic, making the state vulnerable to floods, cyclones and other vagaries of nature.

Odisha's economy is primarily agrarian in nature with 61.8 percent of the working population, the highest among Indian states, engaged in agriculture activities.[6] Though the share of agriculture in GSDP has declined to 20 percent from a peak of 60 percent in the 1960s, the share of the population dependent on the sector continues to be high.[7]

Climate and topography underpin rice cultivation, which covers around 70 percent of the total cultivated land, in Odisha. The state contributes to almost one-tenth of India's total rice output. Leguminous crops are the second most widely cultivated, accounting for 20 percent of the state's arable area. Odisha's agricultural output also comprises wheat, oilseeds, jute and sugar-cane.

Notwithstanding Odisha's favourable agroclimatic conditions, its 11 river basins and an extensive coastline contributing to abundant water resources, the agricultural sector faces several challenges that stymies the state's economic development. Highly fragmented land holdings and informal land tenancy in conjunction with scarce availability of formal and cost-effective credit, insurance and advisory services have led to

1. Odisha's agricultural productivity lagging India's none too stellar productivity. The state's per hectare production of rice at 1.4 MTs is 22.0 percent lower than the all-India average of 1.8 MTs.[8]

2. The state's large farming population languishing in poverty. The percentage of rural poor in the total State's population at 48.01 percent is the highest in India.[9] The proportion of people living below the poverty line in 2004–2005 was 57.15 per cent in Odisha, which was more than twice the all India average of 26.10 per cent. Supportive government policies contributed to the significant reduction of population below the poverty line by 2,455 basis points to 32.6 per cent. These policies include natural disaster management initiatives, the KALIA scheme to boost farmer incomes, improvement of the public healthcare system, Mission Shakti to empower women and high and improving rural connectivity.

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[3] Odisha Economic Survey 2017-18
[4] (Geography of Odisha, n.d.)
[5] https://agriodisha.nic.in/content/pdf/STATUS_AGRICULTURE_IN_ODISHA_inf_30032015.pdf
[6] (List of states with Population, Sex Ratio and Literacy Census 2011, n.d.)
[7] Odisha Economic Survey 2017-18
[8] https://archive.india.gov.in/knowindia
[9] Tripathy, K. K., and Sudhir K. Jain. "A study of microfinance as an innovative credit delivery mechanism in rural India." *IUP Journal of Agricultural Economics* 8.3 (2011): 38.

The disaster management initiatives the Government of Odisha has undertaken since 2003 against cyclone and floods have helped reduce the adverse impacts of natural disasters and the volatility in GSDP growth.

To boost the farmers' and rural incomes, the state government launched a progressive farmers welfare scheme named KALIA (Krushak Assistance for Livelihood and Income Augmentation). The government, under this scheme, makes two semi-annual transfers of INR5,000 each, aggregating to INR10,000 per annum, ahead of the kharif and rabi seasons directly to the farmers' bank accounts. Small and marginal farmers, sharecroppers, and landless labourers are the beneficiaries of this scheme. This scheme provides majority of the farming community essential capital ahead of the sowing season and serves to improve banking penetration and reduce leakages due to the government creditting benefit transfers directly to the beneficiaries' bank accounts.

The state government has ensured the provision of high quality yet affordable drugs, diagnostics and health services and human resource management to the government run healthcare centres and hospitals, resulting in an appreciable improvement in critical health indicators such as infant and under-5 mortality rates, institutional delivery, immunization coverage and utilisation of public health facilities for pre-natal and post-natal care.

With a view to improve the lives of women, the Government of Odisha launched Mission Shakti through 6,00,000 women-centric self-help groups (SHG) covering 70,00,000 women in 2007. The goals of Mission Shakti include securing social emancipation and financial independence for women.

There has been consistent improvement in Odisha's road infrastructure with the government aiming to achieve to achieve full connectivity. All-weather road networks connect 82.97 percent of villages in Odisha; this compares favourably with the national average of 60.0 percent.

Yet Odisha lags the rest of the country in human development; the state is ranked 25th of 29 Indian states in the Human Development Sub-national Index.[10] As per the National Crime Records Bureau (NCRB), farmers' suicides in Odisha in 2018 were sadly 142 percent higher than in 2015,[11] with almost 87 percent of the farmers who committed suicide being small farmers.[12,13]

[10] (Subnational Human Development Index (SD-201) (Russian Federation), 2017)
[11] https://odishatv.in/odisha/body-slider/farmer-suicides-rose142-percent-in-odisha-283384
[12] NCRB- ADSI 2015: 285
[13] https://www.epw.in/journal/2019/22/special-articles/small-farmers%E2%80%99-suicide-odisha.html

The Twin Banes of Odisha's Agriculture

Highly Fragmented Land Holdings

The onset and proliferation of mechanisation in agriculture reduced the per unit costs of large farm holdings and endowed large farmers with competitive advantages. Large farmers access and leverage irrigation, machinery, technology intensive farming methods, credit and insurance more easily than most small farmers. The later continue to rely on monsoons and ground water, labour intensive agricultural practices, informal, scarce and expensive credit and at best, minimal insurance. Small and marginal farmers are thus more vulnerable to health, labour market, pests, productivity and weather-related risks.

The average size of a farm holding in Odisha at 1.6 hectares is much smaller than the average size of farms in other Indian states.[14] By 2010-11, the State had 46.47 lakh operational holdings of which an overwhelming 91.8 percent were marginal and small holdings while a mere 8.0 percent were semi-medium and medium, and less than 1.0 percent were large holdings.

Figure 1: Size class of Operational Holdings in Odisha

Category of Farmers	No of Holdings (lakhs nos.)		Area (lakh hectare)		Percentage to Total Nos. of Holding		Percentage to Total Area	
	2005-06	2010-11	2005-06	2010-11	2005-06	2010-11	2005-06	2010-11
Marginal(<1.0 hectare)	25.97	33.68	13.42	19.22	59.62	72.17	26.73	39.61
Small (1-2 hectare)	11.56	9.18	15.88	14.98	26.54	19.68	31.63	30.87
Semi-medium (2-4 hectare)	4.72	3.11	12.5	9.19	10.84	6.67	24.92	18.94
Medium (4-10 hectare)	1.2	0.64	6.58	3.81	2.7	1.36	13.11	7.86
Large (>10 hectare)	0.11	0.06	1.81	1.32	0.3	0.12	3.61	2.72
Total	**43.56**	**46.67**	**50.19**	**48.52**	**100**	**100**	**100**	**100**

Source: Directorate of Agriculture and Food Production, Odisha

Informal Land Tenancy

Leasing farmland is quite common in rural India and the practice of tenant farming is getting more entrenched in Odisha and the rest of India. According to the 70th round of the NSSO Report, the number of tenanted holdings in Odisha increased by 16.9 percent between 2003 to 2013; the growth rate across India was 10.4 percent.[15] Most of the tenant farming in India is completely informal. Tenant farmers have no proof of tenancy making it difficult for bankers and insurance providers to source reliable information such as land and crop records. The absence of robust information and inability to monitor the progress of a crop through a sowing season renders it difficult for tenant farmers to access farm credit, insurance and advisory services.

Impact on Odisha's Small and Marginal Farmers

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[14] Odisha Economic Survey 2017-18
[15] https://www.thehindubusinessline.com/opinion/tenant-farmers-being-left-high-and-dry/article26081913.ece

Highly fragmented land holdings and informal tenant farming practices have resulted in the low penetration of banking and insurance services and high indebtedness among the small and marginal farmers in Odisha

Low Financial Penetration: Even after the introduction of Kisan Credit Cards, tenant farmers received barely 3 percent of the total farm credit[16]. According to the Odisha Economic Survey 2017-18, crop loans disbursed by the Government of Odisha to farmers almost trebled over a seven-year period to INR15,531 crores in 2016-17 from INR5,449 crores in 2010-11.

Land owners, despite having (mostly informally) leased out their agricultural lands and not participating in the cultivation process, avail a significant quantum of crop loans. Tenant farmers, at best, have minimal access formal cost-effective credit and rely on money lenders who charge usurious interest rates.

Tenant farmers with no documentary evidence also became ineligible for receiving crop insurance.[17] Crop insurance claim settlements in Odisha face hurdles with most claims being disputed or inordinately delayed. This delay primarily stems from lack of verified information about the crop grown, the timeline of crop growth and lack of proof to establish the cause for crop failure. 'The Wire' obtained RTI data that indicates that during the 2018 kharif season in Odisha, of the aggregate claims estimate of 565 crores, the approved claims amounted only to 237 crores (an abysmal approval rate of 42 percent).[18] Of the approved claims, claims pending as a percentage of the approved claims amount to 95 percent. This is a major cause for concern as farmers are left with no capital for the subsequent crop cycles.

Only about 4.5 percent of rural households in Odisha have made any financial investment of sorts when compared to states like Punjab where at least 20 percent of households are covered.[19] Tenant farmers account for about 85 percent of farmer suicides in Odisha.[20]

High Indebtedness: An average Odisha farmer is often identified by the unfortunate tag of 'perennial debtor'. The quality of living of an average farmer in Odisha is worse than that of farmers in the rest of the country due to their low earning power, exploitative private (informal) credit mechanisms, high personal indebtedness to meet social and consumption needs, and climate-change induced calamities

Other Pertinent Issues

[16] 70th Round of NSSO Survey Report
[17] https://www.thehindubusinessline.com/opinion/tenant-farmers-being-left-high-and-dry/article26081913.ece
[18] https://thewire.in/agriculture/pmfby-crop-insurance-claims-unpaid
[19] NABARD Rural Financial Inclusion Survey 2016-17
[20] http://www.im4change.org/docs/Small-Farmers-Suicide-in-Odisha.pdf

In research work titled - 'Impact Assessment of BGREI Programme on productivity and income of rice growers in Odisha' authored by Behera and Rajiv Kumar,

Major constraints facing agriculture in Odisha were recorded as the following- 'Lack of extension and supervisory guidance', 'Lack of on-time input supply' and 'Lack of focused research and extension', 'Lack of proper marketing facilities and transportation of produce', 'Delay in payment of the produce sold by the farmers in mandis'.

Other pertinent issues are extensively covered in news and social media platforms, and in the field of agriculture research include the lack of timely interventions in the agricultural sector- in areas of credit delivery during crisis, timely guidance before and after calamities, guidance in terms of availing financial services like credit, insurance, interventions in building technologically viable irrigation methods and scaling them.

Enter Dvara E-Registry – Technological solutions to address gaps in agricultural services delivery

Dvara E-Registry is focused on the delivery of agricultural services, which comprises financial and advisory services, to small and marginal farmers in order to achieve the twin goals of improving the quality of living of small and marginal farmers and raising the state's agricultural productivity.

Pilots of Dvara E-Registry's pioneering model of agricultural service delivery are being conducted in the districts of Keonjhar and Jajpur as of September 2019. The service delivery model is based on an **'activity-based lending'** premise, using **'picture-based oversight'** and monitoring of crop phenology using a smartphone based near-surface remote sending approach as a suitable tool to enhance financial services penetration and to provide timely advice to farmers. The methodology was the outcome of extensive feasibility studies[21,22] done by the International Food Policy Research Institute, Dvara E-Registry's partner specializing in agricultural research and development.

Activity-based Lending

Dvara E-Registry's agricultural service delivery model establishes a **farmer-land parcel association** from the very beginning of a crop cycle right to the end, thereby sourcing details about the crops grown by farmers and their health by receiving, storing and monitoring a weekly record of the crop during the entire period of the crop cycle. The continuous availability of farmer-land parcel wise crop growth and

[21] Ceballos, Francisco; Kramer, Berber; and Robles, Miguel. 2019. The feasibility of Picture-Based Insurance (PBI): Smartphone pictures for affordable crop insurance. Development Engineering 4: 100042. https://doi.org/10.1016/j.deveng.2019.100042

[22] Hufkens, Koen; Melaas, Eli K.; Mann, Michael L.; Foster, Timothy; Ceballos, Francisco; Robles, Miguel; and Kramer, Berber. 2019. Monitoring crop phenology using a smartphone based near-surface remote sensing approach. Agricultural and Forest Meteorology 265(February 2019): 327-337. https://doi.org/10.1016/j.agrformet.2018.11.002

crop health information will enable Dvara E-Registry and its partners to provide tailor-made guidance to farmers on use of customized inputs, weather and market information, potential pest attacks and other disease outbreaks and prevention, and expected yield and harvest time.

This reliable farmer-land parcel association coupled with regular (i.e. weekly) information dissemination will help address the following challenges

- Absence of verified documentation to establish farmer-land parcel associations,
- Scarce availability of cost-effective credit from the formal sector resulting in farmers borrowing from local money lenders at exorbitant interest rates,
- Risk of agricultural loans being diverted for consumption purposes,
- The formal sector's inability to disburse loans in a timely manner,
- Low insurance penetration, and
- Inability of farmers of all categories (small, marginal, large and tenant) to access timely advice and information on weather, agricultural commodity prices, government schemes etc.

The agricultural service delivery model, underpinned by advanced algorithms and technologies like artificial intelligence, machine learning, remote sensing and satellite imagery, generates ground-level insights to address the said issues.

Farmers possessing smartphones is a prerequisite for the agricultural service delivery model, which is based on entry-level data sourcing and collection, to be successful. Dvara E-Registry conducted a research poll, which established that 25 per cent of the farmers owned smartphones and that almost all farmers had access to smartphones through their friends and family. Hence a smartphone-based data collection technique was deemed appropriate as the model required only timely sourcing of information like images of crops and ownership of a smartphone wasn't required.

Picture-based Oversight

Dvara E-Registry created a mobile application called 'Doordrishti' which is in Odia language, features an onboard voice (in Odia) and image-based guidance the use of the mobile app. It was designed to be largely asynchronous to account for poor data connectivity. The app's user interface is simple, and farmers are able to easily enter the data and upload the information as required.

Each farmer was asked to input the following two types of data/information:

- **One-time basic data required at the time of onboarding of the farmer:** The basic details of the farmer like name and address along with KYC documents are collected through the app. The farmer was also asked to provide the survey / Khata number of the land he / she was cultivating. Farmers were asked to download 'Doordrishti' on their smartphones and capture and upload 5 images of their land-parcels through the app. 'Doordrishti' has the capability to map the metadata or co-ordinates of the land parcels whose images are captured through the app. This one-time data provision enables Dvara E-Registry to validate an individual farmer's operational holding. The app

is tamper-proof and uploads farm parcel images, associated coordinates, and time stamps in a cloud storage. Additionally, every digitized land parcel is checked against the existing database of land parcels to ensure that the same land parcel cannot be claimed by many farmers. This information is captured well in advance of the crop cultivation season to help partner institutions decide on seamless ways to provide suitable financial and advisory products to Dvara E-Registry's farmer-partners.

- **Recurring Information Through the Tenure of the Loan**: Once a loan is sanctioned and the initial sowing is completed, Dvara E-Registry trains farmer-partners to capture and share 5 images of the field/crops through 'Doordrishti' on a weekly basis. These repeat data-sets collected are shared with partner institutions and are used to record and monitor
  - Real-time crop cycle stage,
  - Crop health,
  - Customized inputs to be provided to the said farmer,
  - Remedial measures in case of crop damage, and
  - Farmers' commitment as demonstrated by their punctuality in transmitting images.

This method is used to establish activity by a specific farmer on a specific land parcel, without the need for documentation. Tenant farmers, who comprise a significant proportion of farmers in Odisha and in India, may thus easily access financial and advisory services.

'Doordrishti' at Work

The captured metadata such as latitude, longitude and timestamps are juxtaposed with remote-sensing technology generated high-resolution satellite images to identify the exact land parcel and cropping area. The repeat data sets consisting of images' metadata like timestamps, longitude and latitude of the same piece of land serve to reconfirm the farmers' activities. This is the primary confirmation done every time when farmer-partners transmit images to ensure that the same farmer-land parcel association was being referenced, thereby strengthening the farmer-land parcel association.

The agricultural service delivery model combines image processing intelligence and satellite data to identify the crop, crop stage, crop health, expected yield and predict the harvesting time. Machine Learning is adopted to identify and study the above said information in a dynamic real-time format. The information allows for several specific product enhancements and serves as

- real time-data to provide much needed timely advisory for farmers, and
- as a real-time document for land and crop verification.

The product enhancements supported by the agricultural service delivery model include:

- **Milestone-based lending**: The milestones are specific stages achieved in crop growth that is identified by farmer-partner transmitted images and satellite data.

- **Insurance cover**: The fool-proof farmer-land parcel mapping Doordrishti provides and the recurring images sent by farmer-partners enable them secure appropriate insurance coverage.
- **Pricing of insurance policies**: The recurring data helps predict land parcel specific crop yield that reduces insurance basis risk substantially in insurance programs like the PMFBY.
- **Insurance claims**: The time series of images transmitted by farmer-partners and satellites serve as evidence of damage and enable insurance companies to accurately calculate damages and claims if the crop were to fail prior to harvest.

Dvara E-Registry shares customized farmer information to its partner - PAD, a Government of Odisha accredited agency, which in turn provides customized advice to farmer-partners. This advice is based on the verified images that farmer-partners send.

Outcomes of Adopting Doordrishti

With the adoption of Doordrishti, Dvara E-Registry aims to enable the actual cultivators of land i.e. tenant-farmers to avail of formal, cost-effective crop loans, the appropriate insurance cover for the lands they till and the crops they sow, and professional and customised advice based on the images farmer-partners upload.

Dvara E-Registry, as part of its pilot launched in June 2019, has surveyed 1,871 farmers and has identified credit worthy 147 farmers, of whom 7 have availed crop loans as of end-August 2019. Figure 2 delineates the process of crop loan disbursement, starting from farmer surveys and culminating with crop loan disbursements.

Figure 2: Status Update of Dvara E-Registry's Pilot as of August 31 2019

Note: Figures represent number of farmers

Branch	Districts	Farmers surveyed	Shortlisted for credit advice	Credit appraisal completed	Farmers eligible for credit	Doordrishti installed & land digitalised	Loan disbursement completed
Keonjhar	Keonjhar	584	426	49	35	24	0
Mangalpur	Jajpur	655	336	99	55	34	4
Panikoil	Jajpur	632	222	90	57	29	3
Total		**1871**	**984**	**238**	**147**	**87**	**7**

Source: Dvara E-Registry Pilot Records

With this soft launch, Dvara E-Registry targets running the pilot for three years, covering potentially six crop cycles. Paddy growing farmers are the target group in the pilot; the company proposes to extend its service to cultivators of other crops on a best-effort basis. Dvara E-Registry has shortlisted for credit advice close to 1,000 farmers in the first crop cycle and aims to expand its coverage to over 25,000 farmers by the sixth crop cycle by making its data and technology platform widely available to

participating financial institutions.

Takeaways

Agriculture, in general and especially in India, is a complex industry. A vast landscape with varying topography and climactic conditions necessitate the adoption of customised cultivation methods for different crops and in different regions in India. Inadequate investments in agriculture, predominantly monsoon dependent irrigation systems, highly fragmented land holdings, prevalence of tenant farming and low access to financial and advisory services have resulted in most tenant farmers languishing below the poverty line.

Dvara E-Registry believes that the use of cost-effective technology including mobile apps in local languages, satellite imaging, artificial intelligence, and machine learning will help improving agricultural productivity in India and the quality of living of the nation's small and marginal farmers.

Public-private partnerships in which the central, state and local governments, research institutes and think tanks, financial service providers, technology and telecom companies, farmers and intermediaries that link all stakeholders need to work in tandem to achieve the ambitious goals of revitalising Indian agriculture and boosting farmer incomes.

Dvara E-Registry's pilot in Odisha demonstrates how multiple agencies may function cohesively to improve the lives of farmer-partners and has potential to ameliorate agricultural productivity. The company aims to scale its model across other districts in Odisha and across the rest of India to achieve similar outcomes.