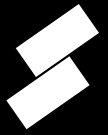


# The SatSure Newsletter

November - December 2019



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A Legal and Ethical Perspective

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## A Note from the Founders

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A few years from now when we will look back at 2019, we will definitely call it one of the most important years in our journey. Let's just begin by stating the obvious that SatSure is an unconventional company. We do not fit in any bucket, be it AgTech, FinTech, PropTech, or ClimateTech to name a few. And 2019 was the year when we decided that we do not want to fit in any of these startup verticals, because our vision is to develop and deploy technology products and services that enable sustainability initiatives on food, water, energy security and climate action globally, and eventually help in improving the lives of as many people as possible.

As the founders, we are focused on the long term and to do things that matter. It is with this attitude that we started SatSure in 2016 and we want our young team to enter the new decade with this mindset because we believe that is the best foundation to innovate and retain our most distinctive characteristics - problem solving, adaptability, risk taking and commitment to client's success.

We founded SatSure because we believed that satellite applications could provide a great service to the world, when good products are built embedding their information and simplifying it for non-traditional users. The power of satellites in the hands of people, instantly delivering relevant information on agriculture, water, weather, infrastructure, forests and other natural resources to any part of the world, utilizing the power of cloud computing and Artificial Intelligence is no more a dream as in the last 3 years at SatSure. Our insights has touched the lives of more than a million people, without raising a single dollar of equity capital. Behind such extraordinary achievement stands a bunch of ordinary people, who have given their blood, sweat, and efforts that have together contributed to the success of SatSure. Most of them continue this journey with us, while a few of them have moved on.

The year 2019 will stand out in our journey - as we rapidly expanded the team and business to Africa, Russia, and APAC regions, while continuing to keep our focus on serving our customers in India which has driven our product development since the beginning. There were several key organizational changes made, with long term growth and building an innovation mindset being the key drivers. Our business environment is changing rapidly with customers getting educated every day about the possibilities of using decision intelligence for improving their business. Hence, we see innovation and organization culture as a competitive advantage for making a serious impact in this expanding world of technology. One of the key initiatives in this direction at SatSure is encouraging the team members to spend at least 20% of their time on working on innovative solutions that they want to work on and which they think can benefit the organisation, irrespective of their position and job role. This has helped us build an inclusive working environment, which has currently 30% women, leading to product and process innovations that are delivering decision intelligence to our clients across the globe.

With this new year, we are committed more than ever to work closely with our clients and grow together to solve critical problems. We truly believe that value needs to be co-created with customers, to solve a set of small problems that eventually leads to solving a larger problem whose impact is exponentially higher and touches everyone in the value-chains where we operate. Hence we believe that SatSure needs long term investment not only by the founders and future investors, but also its employees, partners, and customers to build a company that will stamp a unique global legacy of its own by the end of this decade.

Best Wishes and a Happy New Year,

Abhishek Raju and Prateep Basu

# Cracking the NBFC Code:

## From the Lens of Samunnati



Mr. Anil Kumar S.G., Founder and CEO at Samunnati

**Can you please tell our readers about the vision of Samunnati Financial and its uniqueness in the Indian agriculture financing scenario?**

**A:** Samunnati exists to pursue two objectives: (i) Making the value chains that we are operating in, operate at a higher equilibrium, thereby (ii) making markets work for small-holder farmers. Samunnati's understanding is that a player in the agri value chain finance, cannot be a mere lender because finance is more a means not an end. In addition to finance we also have to bring in market linkages, institution building as well as advisory services together. In other words, a participant in a value chain finance which is what Samunnati is, can be more effective and meaningful if we become an internal player in value chain than just being a lender, which is what has been our learning.

It is this understanding of being an internal player in the value chain that makes Samunnati, to customize solutions keeping in mind the dynamics of each of the agri value chains. Hence, we are a solution provider and not a product provider. Our solutions range from 1 day to 5 years, quantum ranges from INR 5000 to INR 15 Cr

**How has your experience been of working with Indian farmers and what are the key take away for the evolving Ag-Tech ecosystem?**

**A:** As we are aware, disaggregated landholdings and the vulnerability of small holder farmers is a reality. We cannot ignore that fact. The only way to make a positive impact, given the reality of Indian smallholder farmers is looking at other ways of aggregation, not just land aggregation. Can we aggregate the landholders? And that is the promise FPO brings in. Hence, as an entity, with a deep understanding of the



rural and agri space, Samunnati believes in the power of aggregation through these FPOs and FPOs provide a promise to take care of both the realities of Indian small holder farmers. We also feel that technology is poised to play a larger role, on the same premise that the communication has made the world smaller. We also see a lot of smartphone users and the penetration of internet in the rural hinterlands having an ability to ride on this highway; that is already existing in terms of the ability to send information, which would make agtech interventions have a much better chance than what they were having earlier to make a meaningful impact to small holder farmers

**There is a general conception in the industry that agricultural lending is very risky with key banks facing high NPAs, while Samunnati's track record has been extremely good. What are they key innovations you feel have led to such results, and how are you planning to scale these up in the coming years?**

**A:** We may have to caveat that the journey of Samunnati has been short and we are learning ourselves, whereas, banks have done a phenomenal work over the decades in lending to agriculture.

Having said that, as we mentioned earlier, Samunnati is taking more of an integrated view of being an internal player in the value chain which gives Samunnati a better understanding of how to customise products and solutions specific to the value chains in agriculture. As an entity Samunnati focuses only on agriculture and nothing else, that enables Samunnati to focus on two things (i) build the processing capability to embrace the seasonality and cyclicity that are integral to agriculture (ii) it also enables Samunnati to hire specific domain experts to focus on



customizing products and solutions which are suited to agriculture.

**Samunnati has been very progressively pushing the ecosystem building in agriculture sector, especially with startups. Can you elaborate a bit on some of the upcoming initiatives from Samunnati in this regard?**

**A:** Samunnati believes in being an ecosystem player, given the enormity of the task ahead in terms of 'making markets work for smallholder farmers'. Given the advent of technology as well as many startups and youngsters looking at making a meaningful contribution to this common mission of 'making markets work for smallholder farmers', Samunnati believes in collaborating rather than duplicating the efforts.

As a working capital provider and being an internal player to the value chain, Samunnati believes that in order to underwrite a lending proposition of a startup, it is not necessary to look at traditional ways of credit assessment

in terms of track record, profitability and vintage, which most of the startups don't have. And that takes away the ability of a startup to access funding from formal financial institutions. Hence, Samunnati would want to be a player which can work with the startups notwithstanding the fact that at some point in time, once there is vintage and track record Samunnati would also aspire to enable startups to access more formal funding and diversified sources as the startups grow.

Keeping all this in view, Samunnati is also looking at hosting a Pitch fest for startups and also has set up a dedicated team called Samunnati 'Capital Markets Group', that is working on innovative ways of alternate sources of funding for startups and other players of the ecosystem in addition to Samunnati being one of the sources.



**Samunnati has also started certain CSR initiatives recently. What is the vision around it and how do you see it assisting your core work?**

**A:** Samunnati's intervention around advisory services and other institution building is not considered to be CSR for us. It is integral to our business strategy. The philosophy of risk management that Samunnati believes in, is to manage the risk of our farmers and FPOs, this is where the interests of Samunnati are protected. Given the number of FPOs that require institution building and other support structures, it is imperative for Samunnati to play the role of building the institution's capability, if the word 'Samunnati' is to be achieved, which means collective growth and prosperity. Hence, Samunnati is now paying attention to setting up dedicated people and resources to take the intervention to the next level.

**Do you have any programs designed to address the gender gap issue in the agriculture sector, as part of your CSR activities in 2020?**

**A:** We have started focusing on the gender dimension. The fact that both horticulture as well as dairy has a large proportion of women employed in agriculture. These two represent important value chains that Samunnati is focusing on, and hence the number of women who participate in these economic activities form a part of this focus. Samunnati also pays attention to strengthening the governance of the FPOs that it works with, where there is a healthy participation of women in the decision making of the FPOs. Being an entity that is looking at ecosystem, gender is an important dimension that Samunnati pays attention to. Samunnati also is focusing on onboarding a gender consultant/expert to guide Samunnati in this direction, this year.



## How do you see the role of technology in the transformation of lending services in agriculture sector?

**A:** One of the biggest risks that lenders often have is monitoring the end use as well as state of the activity on the field for which they are lending. Technology is now enabling lenders to monitor all of this like yield estimation, pest incidence, tranche based disbursements and so on, using satellite imagery and other types of spatial data, so that there is a significant risk mitigation to moral hazard as well as the external factors that often have kept the lenders away from agricultural lending. We see a lot of promise in technology bringing about some of the risk mitigation. Many of the insurance companies also have either priced insurance products higher or have stayed away from being aggressive in providing insurance for agriculture because of their inability to monitor as well as prevent moral hazard. Technology can play a major role in addressing these risks that crop product providers often have, thereby making better product development in terms of both

the lending products as well as insurance products. Eventually mitigating the risks of agriculture as an activity.

## What are some of the key learnings that you have had in this journey at Samunnati?

**A:** The journey of Samunnati has been insightful till now. (i) As is the approach of Samunnati, finance being an enabler and AMLA (Aggregation, Market Linkage and Advisory Services) being key for a sustainable impact is one of the biggest learnings. (ii) One needs to be more collaborative and an ecosystem player for a sustainable impact in a sector like agriculture and hence, building valuable long term partnerships is critical for everybody's success. (iii) Having customized solutions and processes that suit relevant value chains, tying up the demand side to create market linkages for the supply side is also an important dimension. Building the capacities of some of the nascent and weaker players in the ecosystem becomes a responsibility of entities that are aspiring for scale in agriculture.





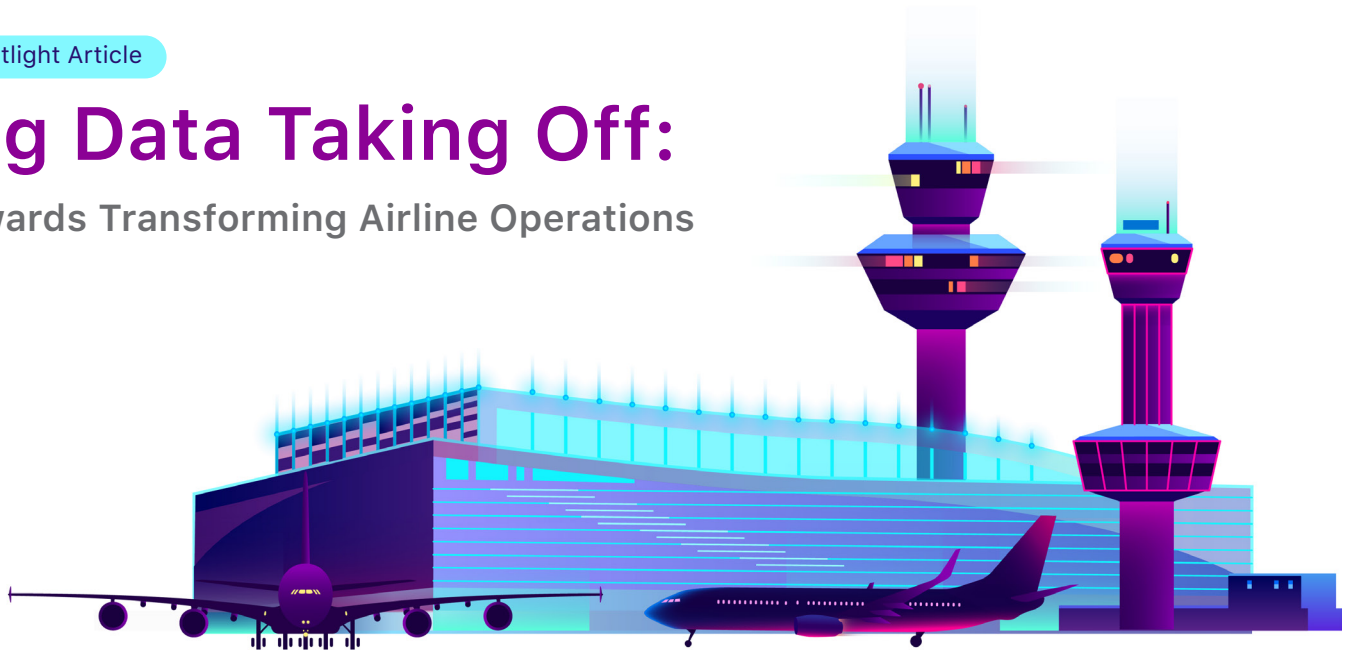


**Mr. Satish S V**  
Executive Director ATM  
(Retired) at the Airports  
Authority of India

Spotlight Article

# Big Data Taking Off:

## Towards Transforming Airline Operations



Aviation is on the verge of a new revolution. Operations of long haul flights, short take-off landing aircraft, increased number of low-cost airports, use of green fuel for aircraft operations, solar operated aircraft, advent of satellite technology for seamless navigation, communication and surveillance and enhanced Air Traffic Management as well as digital interventions for effective airport operations are some of the many areas that the world of aviation is witnessing in the current decade to meet the ever-increasing demands for air traffic across the world. To add to the challenges for aviation, millions of drones are waiting to take a flight to capture low to very low airspace traditionally operated by helicopters and small aircraft. Regulators in India have brought out the drone policy that allows commercial drones to operate below 400 feet under the Digital Sky program. Airports Authority of India (AAI) is the largest airport operator managing about 110 operational airports in addition to managing the entire Air Navigation Services of the country. India is set to become the 3rd largest aviation

market by 2026. By 2020, passenger traffic at Indian airports is expected to increase to 421 Million from 264.99 Million in 2016-17. RCS or the Regional Connectivity Scheme UDAN has been launched. An indicative list of 398 unserved airports across India has been identified. The current capability and capacity together with the underlying technology infrastructure and platforms will not be adequate to meet the growth and expansion aspiration. Leading Indian and global counterparts are moving towards IT trends and on enhancing customer experience and streamline airport business and operations, while maintaining safety and security. One of the major challenges that any airport operator faces across the world is to maintain a controlled environment 20 km around the airport free from the growth of obstacles to aircraft operations. While airports are initially selected outside the city limits soon the city starts expanding in and around the airport due to innumerable commercial opportunities. The growth of buildings and other obstructions then

imposes operational limitations on the airport stunting its future development process. Airports Authority of India through its aerodrome safeguarding division has established processes and procedures to maintain and monitor them through timely conducted aeronautical surveys as per the DGCA's Civil Aviation Requirements and International Standard ICAO Annex 14 guidelines.

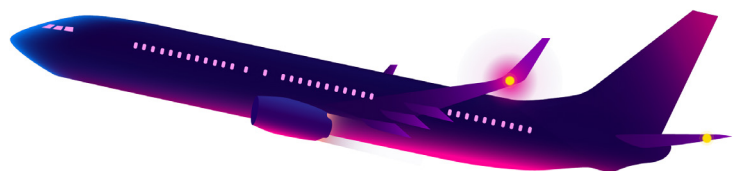
February 2019 saw AAI launch a unique start-up initiative to identify such companies who could increase safety, operational efficiency, enhance commercial revenue through digital initiatives. Eight companies were shortlisted to work with AAI out of 300 odd startups that participated. SatSure, one of the eight companies selected, came up with the idea of using satellite imagery and integrating with AAI's NOCAS data to monitor the growth of obstacles.

Aeronautical data is the backbone of air navigation. All stakeholders from pilots to air traffic controllers and airport operators must use the same data. Data is collected through surveys in the World Geodetic System (WGS 1984) standards. Very strict data processes from collection to publishing in aeronautical information publications must follow a process of data integrity as defined by ICAO Annex 15. The problem with data management is to manage change uniformly with timely notification to all the stakeholders and data warehouses that will then provide them to the aircraft's Flight Management System (FMS). Once the data is embedded into FMS, then the aircraft is bound to follow them.

The project named iNetra is being launched as a part of the SatSure assignment with AAI to ensure a digital process that will ensure data obtained through field surveys are verified for its accuracy and variance through appropriate

ESRI GIS platforms. The iNetra also proposes to develop templates for aeronautical charting. Every airport operations need to publish 12 to 14 charts for use of aviators. Automatic charting expedites the current process of developing them manually which will allow airports to publish information in a faster manner. iNetra also provides a platform to transfer data into eAIP (Integrated Aeronautical Information Package) which is currently entered manually. While iNetra creates an interface for data transfer to multiple user groups, it has the potential to develop an Aerodrome Mapping Data Base (AMDB). This activity involves the encoding of aerodrome mapping data using the Aeronautical Information Exchange Model (AIXM), and the encoding of the AMDB using the Aerodrome Mapping Exchange Model. More specifically, the AMDB standardization is a collaborative EUROCAE and RTCA activity, from a SWIM perspective. Increasingly, cockpit displays show AMDB content to improve the pilot's situational awareness on the aerodrome surface during the taxi-phase.

iNetra has also the potential to enhance electronic Terrain Obstacle Data (eTOD) using satellite imagery which has become mandatory for states to publish terrain data around 45 km centered around an aerodrome reference point. The application follows standard Aeronautical Information Exchange formats (AIXM) and will be a key driver for a smooth transition of aeronautical information service to Aeronautical Information Management in India.





**Ashok G. V.**  
Partner & Founder at  
Factum Law & Legal  
Adviser at SatSure



**Prateep Basu**  
Co-founder & CEO  
at SatSure

# The Value of Data Economy: A Legal and Ethical Perspective

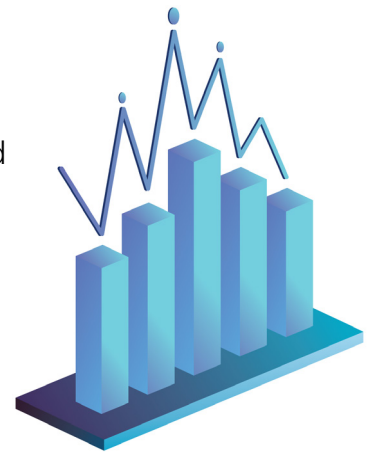
## The Privacy Context

Before a currency-based economy defined economic relationships, data governed the formation of enterprises in our earliest days. After all, human beings-built relationships on trust and trust in turn was premised on the degrees of access to one's personal data. The extent of data sharing defines the degrees of intimacy with the members of our social circle. Today businesses seek to bridge the intimacy gap with us, enticing us to waive off our privacy by offering subsidized products and services, hoping to offset traditional economic losses for a better understanding of the customer, his/her desires and patterns of behaviour. However, economic perspectives around a resource, also carries with it, the risk of exploitation and abuse, requiring an ethical data management culture and process, the issues and challenges associated with which along with some solutions, are explored in this article.

**T**he Case for Open Agriculture Data  
Making agriculture data open can offer a multitude of benefits for a nation and its farmers, such as<sup>[1]</sup> enabling better decision making, promoting innovation and optimizing transparency in food production chains. The social and economic case for data sharing

is complimented by a legal framework that favours non-arbitrary, non-discriminatory and reasonable restrictions on the right of privacy, for the sole objective of advancing "compelling state interests"<sup>[2]</sup> such as distribution of public welfare benefits and advancing public health programs.

The socio-economic-legal case for open and freely available agricultural data sets is thus undisputed and its advantages to agriculture and spill over impact on other industries, well precedented<sup>[3]</sup>. However, agriculture relevant data though available in numerous sources, remain fragmented & disorganised. Coupled with the absence of nuanced checks and balances to prevent privacy breaches, lack of clarity in the licensing terms for the use of such data, the case for creating and maintaining open data sets relevant to agriculture remains complex if not weak, requiring the Agri-Tech industry to develop an evolving ethical consciousness to leverage and manage data.



<sup>3</sup> An example of open data from another industry is the European Space Agency's (ESA) Copernicus constellation of satellites, which boosted the geospatial software application development and its impact is being felt in many industry sectors today, especially agriculture.

<sup>1</sup> Designing Data Sharing Agreements – A Checklist (2019), CABI



## The importance of Informed Consent

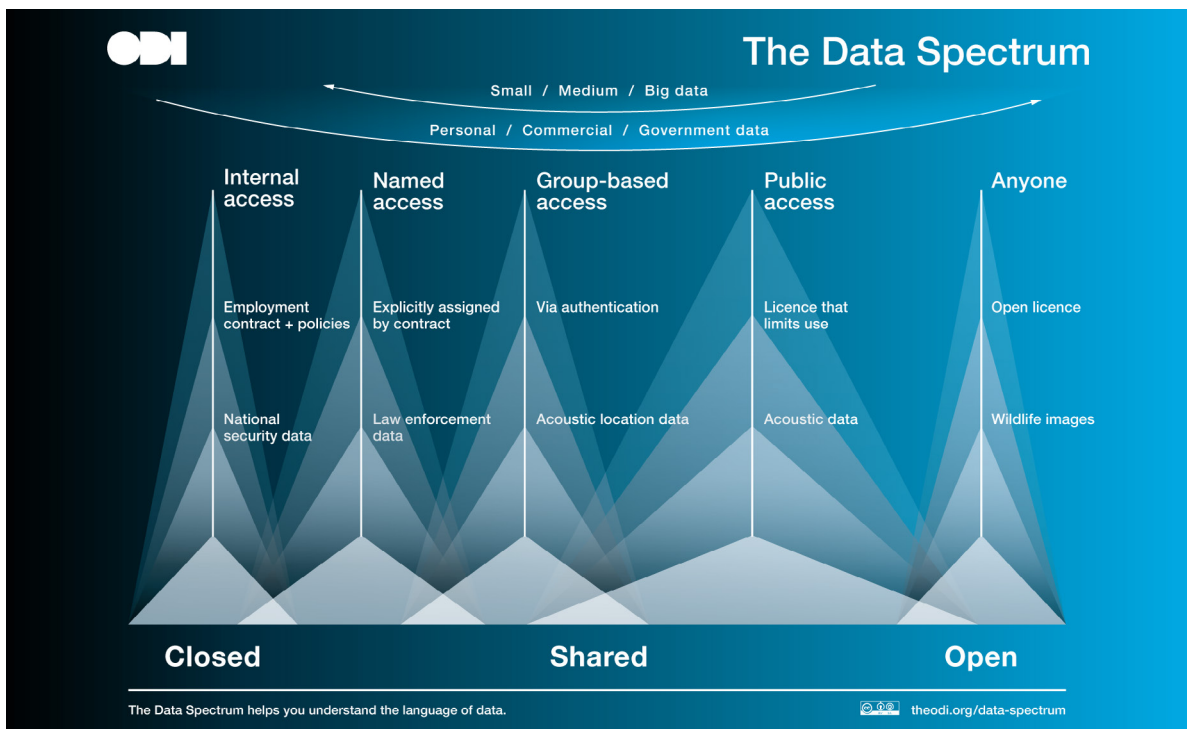
**Going by the General Data Protection Regulation of the European Union, Agri-Tech companies seeking to leverage data must secure not only consent, but must strive to achieve “informed consent”**

The Agricultural demographic context in India is inherently contradictory- being the largest source of employment in India and yet ailing from public health, literacy, gender equality challenges some of which it holds in common with general demographic patterns in the country. Going by the General Data Protection Regulation of the European Union, Agri-Tech companies seeking to leverage data must secure not only consent, but must strive to achieve “informed consent”, addressing at the very least the following,

- Consent for collection
- Details of storage and retention period
- Limitations and rights around sharing with third parties

- Points of liability for data breaches

Considering the demographic challenges associated the Indian rural economy, this will be challenging. Privacy policies therefore must be easy to understand and decipher, consciously striving to avoid complex legalese. With 23 official languages and varying degrees of literacy, privacy policies for India must be the product of a joint authorship involving domestic linguists, social workers and state agencies. It must also dwell beyond mere words and should ideally leverage interactive media, involving audio visual tools to build meaningful awareness about the privacy policy. A nuanced yet simple and a dynamic privacy policy, remains central to legally



The Data Spectrum, developed by the ODI, has built excellent templates for large-scale agriculture data management, providing intelligent insights as to the stake holders who have access to different and the considerations for maximising value from such available data.

acceptable informed consent.

Technologically, despite excellent research by organisations such as ODI and GODAN, in promoting ethical data management, best practices in the industry is still nascent and dynamic due to the convergence of multiple technology domains ranging from aerospace/space to IoT/AI and Fintech.

Yet there are some lessons that can be practiced and considered for ethical data management, including but not limited to,

- A digital data inventory that can be easily queried

- Verification of data for accuracy and quality
- Frequent Auditing data management behaviour for compliance of informed consent terms
- Incorporating user feedback into data management
- Informing the data users/recipients about any planned changes to the scope, provision or availability of the data in future
- Strong indemnities to penalise authors of privacy breaches which are built into the terms of informed consent.

## Beyond Informed Consent- Self Regulation

The Agri-Tech industry, in this connection, could benefit from the lessons of the Health Care industry. As clinical trial protocols remain subject to ethical oversight and regulations through independent ethics committees, the Agri-Tech industry could proactively self-regulate by forming similar independent ethics committees to monitor their data security and privacy processes & dependent business streams for privacy compliance.

The Agri-Tech Industry functioning in India must remain conscious of the level of privacy consciousness among the data subjects and remain cognizant of the increased responsibilities & not opportunities, that come with a population that does not have strong privacy awareness. That also means the industry cannot exploit the lack of enforcement of privacy regulations as the opportunity for unmitigated data collection & processing, as it will be reasonable to expect, in the foreseeable future, independent and statutorily defined data privacy regulators who will proactively enforce privacy regulations.

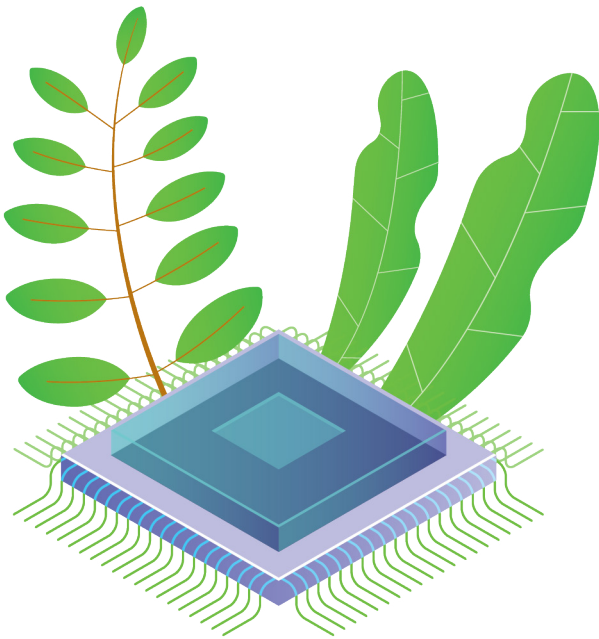
## Conclusion

By building data sharing and publication processes into routine workflows and in employee KPIs, enterprises can leapfrog the gap that currently exists to extract and maximize the value of data in the agricultural context. Yet, this effort to propel growth will necessarily have to be ethical & compliant with evolving data privacy regulations. Agri-Tech industry must remain committed to & compliant with

the three mantras for dealing with data consent, transparency and control. Ensuring an ethics-based data management culture, independent of regulatory intervention, would play a key role in advancing a sustainable data economy that is free of over regulation & suited to advance compelling state interests while also facilitating economic growth.



**Shobitha Shetty**  
Product Manager at  
SatSure



# Transforming Big Data in Agriculture to Banking Solutions

## Agriculture: An Indian Context

**D**espite its cultural vastness, population diversity, resource capital and spiritual wealth, India is known for its Agriculture. Along with being the largest consumers, we are also the largest exporters of agricultural produce. India is also ranked highest for

information about events from the past and future could be combined with patterns of agricultural activity to improve policies and agricultural conditions, even major economies haven't been able to bring a revolution in the agricultural sector until recent years. Our agricultural industry has always been reluctant in accepting any deviation from traditional approaches, which at one time proved to be successful but not today.

## What is Big Data?

According to Gartner's definition, CIRCA 2001, Big data is data that contains greater variety arriving in increasing volumes and with ever-higher velocity. In simpler terms, Wikipedia states, Big data' as a field that treats ways to analyse, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software. So as can be seen, there is no fixed definition to big data. In general, any data, analysis of which cannot be done with the traditional methods or data processing

But, is Agriculture still holding on to its strong base in India? Is it a stable source of income to the farmers of this country? Can it still feed the ever-increasing-population of this beautiful nation? Perhaps, economists today would give a no for an answer. Climate change, unpredictable weather patterns, water scarcity and depleting groundwater tables, droughts and flash floods, and discouraging returns – everything is leaving a scar on Agriculture in India.

the net cropped areas in the world, followed by the United States and China. This shows that the contribution of agriculture to Indian economy is significant, making it the backbone of the Indian economy. Although such



applications, with complex, direct and indirect dependencies can be termed as big data.

And, analysis is the key to make sense of the

data, without which the true potential of data is lost.

## Why Big Data?

With the modern urge for innovation using the complex information from the 'Big Data' vaults, there is more willingness (with a sense of confidence) by the government, private agencies and farmers to invest in agriculture with the help of revolutionary technologies such as remote sensing, machine learning & cloud computing that will potentially contribute in improving the situation of farmlands and farmers in India.

This can be witnessed by active involvement of Ministry of Agriculture & Farmers Welfare

in space technology through various projects such as FASAL, PMFBY, Rashtriya Krishi Vikas Yojana and KISAN. These projects, along with a few more, focus mainly on improving agricultural output and investment. While there are various factors that contribute to this, agriculture credit forms an important prerequisite of any agricultural activity.

Let's understand agriculture in India by looking at the 3-dimensions of Big Data, Volume, Variety and Velocity to answer the question 'Why Big Data?'

**Volume:** As per Registrar General of India & Census report 2011 the total farmers or cultivators population of India is 118.7 million. There are 15 Agro-climatic zones in India with majorly 4 types of crops grown, 7 types classified as major grains with a total arable land area of 159.7 million hectares

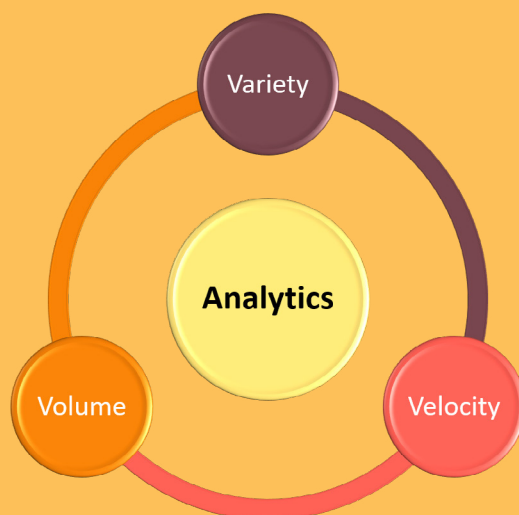
**Velocity:** India has 3 seasons, 2 seasons being major namely, kharif and rabi. The data flow for these seasons are different and depend on Agro-climatic zone, weather and location.

To add to that, the data flow also follows the crop growth stages where sowing data is to be collected at the beginning of the season, harvest and yield towards the end.

**Variety:** There are numerous languages and dialects in India. Out of these 12 and prominent regional languages with different scripts. The data gathering methods vary from forms, oral communication and 3rd

party communications through physical, digital documents and voice and video formats. As can be seen, all the above examples are datasets which are essential for credit lending and recovery decisions for Banks and NBFCs. However, they face the problem of data

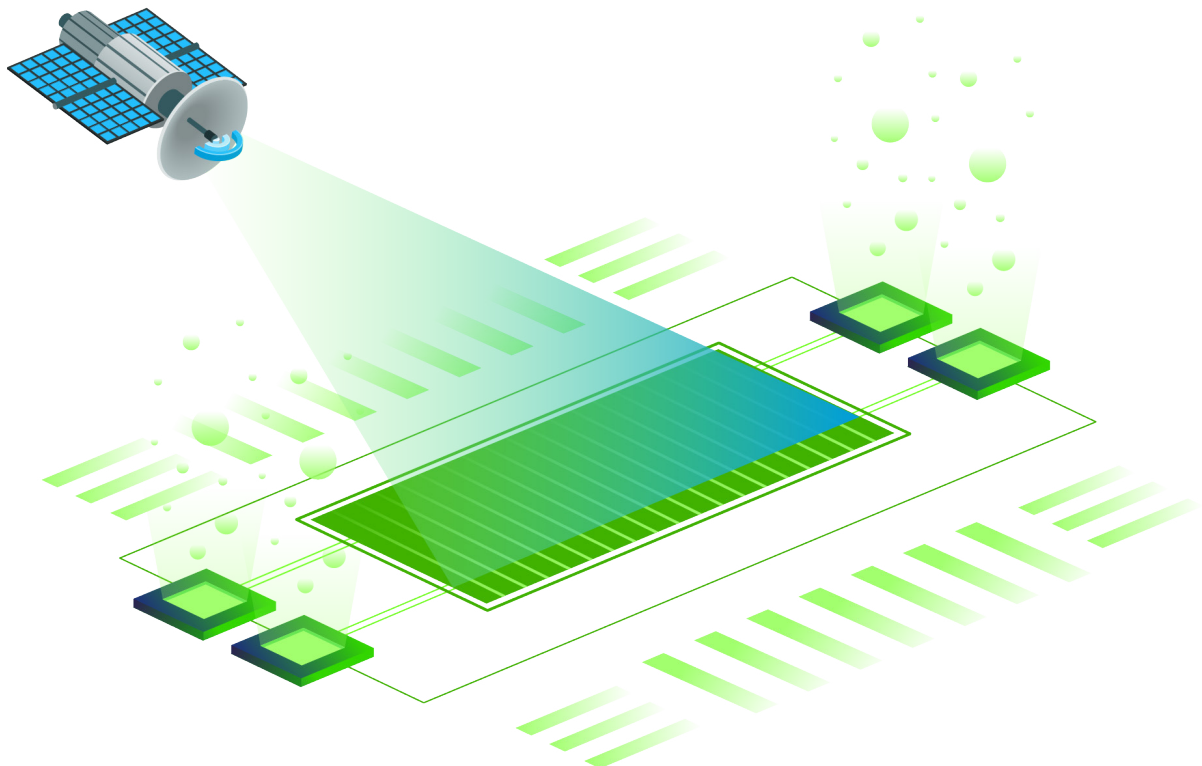
symmetry, accuracy and timeliness which is critical for lending.



## Problems Faced by Credit Lending Institutes

Small and Marginal farmers with meagre savings are highly dependent on agricultural credit for their survival & livelihood. Even large farmers leverage on this system to enhance their agricultural produce and savings. Additionally, due to no or limited access, certain rural farmers are forced to take loans from non-institutional credit sources like money lenders who charge very high interest rates. Although farmer-friendly institutional credit sources such as banks have strived, in their best capacity, to ensure their to the rural corners of the country with regional rural banks, there are still gaps in terms of awareness, accessibility, ensuring transparency in the process, timely disbursement and maintenance of sufficient rural credit volume. Furthermore, the banks are also burdened with growing NPA 's due to fraudulent cases and farmer overdue. One of the major contributors to

these problems is the dependency of banks on traditional approaches for evaluating risks, verification & supervision of scattered farm-lands. While physically surveying each of the crop fields is a mammoth task, it's quality is questionable due to traditional data collection techniques with human biases. Adding to this are the problems of repeating such tasks due to the unavailability of a centralized system with updated land records and inadequate infrastructure for technology acceptance. This information is crucial as banks review their agricultural policies frequently based on the ground-surveyed farm information, with an intention to build better financing system during different stages of pre and post-disbursement processes. This altogether results in a delayed, non-transparent and skewed process of agricultural credit lending and support.



## How? Big Data for Agri Lending

A perfect substitute to tackle these issues is the usage of space technology systems that have revolutionized the earth observation: Remote Sensing. The volume and variety of information that can be derived using remotely sensed satellite images from modern platforms such as Landsat, Sentinel and MODIS, combined with parameter like weather data: rainfall, temperature and atmospheric moisture, has enabled in generation of near-real-time information of soil moisture, crop growth, crop yield and health. Furthermore, attacks by pests and other crop damages due to unpredicted weather conditions can also be identified by careful analysis. While this technology helps in faster assessment and larger coverage, it also helps derive predictive signals for crop condition which are valuable in terms of risk assessment and insurance, contributing towards intelligent

decision making during the pre and post-disbursement processes.

We at SatSure use this pool of Big Data, generated from various sources, to derive ground information, which is validated, and quality assessed, to help in providing the right insights to banking partners who could further use this valuable information to drive their operations efficiently. The solution manages the whole loan-life cycle process, starting from lead generation and sourcing by helping evaluate the financing risk for better credit policy planning and

farmer on-boarding, monitoring of portfolio for early identification of stressed assets, planning of collections based on asset status to help reach out to the farmers at the right time, decision on loan-wavering, risk diversification and better field force management.



All this information when bundled together, under the purview of 'Big Data', analysed using modern data science and data digging tools has helped banking partners and others alike in developing better financial strategies, timely and efficient planning, effectively serving the delinquent customers and building better customer relation-

ship. This mapping of Big Data into banking agricultural credit solutions will certainly be of immense help in enhancing financial services access to the farming community of India and others. And, of course, in bringing farmers and banks closer helping develop relationships beyond lending.

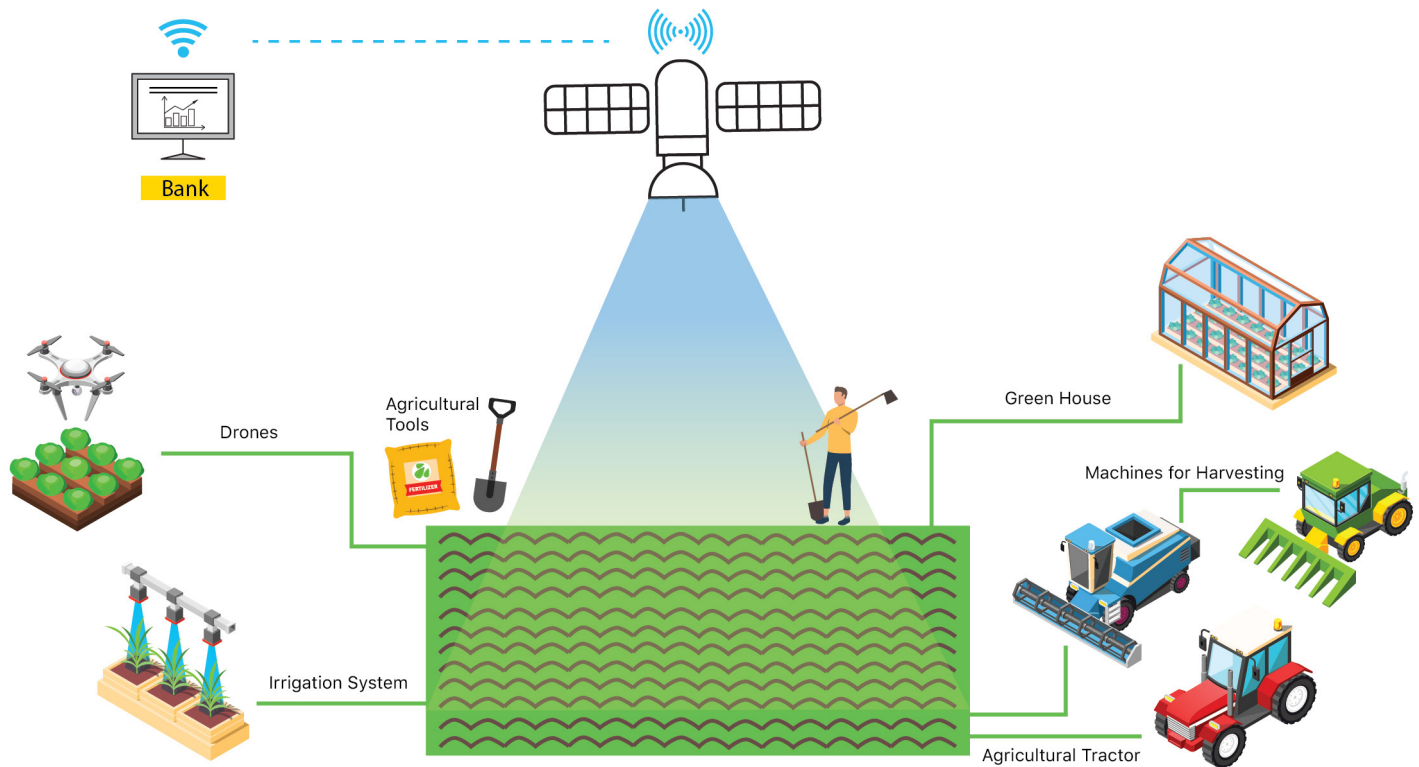




**Sarvesh Kurane**  
AVP of Value Engineering  
at SatSure

# Green is Good

## In Discussion with the Banking Fraternity for Technology Applications in Agriculture Credit Lending



**B**anking Frontiers, in collaboration with The Weather Company, an IBM Business and SatSure, organised a successful round table discussion session in Mumbai on 26th November 2019. The objective of the event was to bring decision makers from banks and NBFCs together to discuss the problems faced by the industry in agriculture lending and find potential solutions to these problems with technology partnerships. The event was a great success where all the participants unanimously agreed on creating an ecosystem of industry stakeholders and technology experts to take agriculture lend-

ing to the next level and make it a profitable industry while targeting financial inclusion. It gives me a great pleasure to present to our readers the outcomes of the discussions, which is a small contribution from Team SatSure to the agricultural ecosystem. As Confucius once said,  
*"How to play music may be known. At the commencement of the piece, all the parts should sound together. As it proceeds, they should be in harmony while severally distinct and flowing without break, and thus on to the conclusion."*

## In Search of Profitability

The immense importance agriculture holds in India is known to everyone, as it has the second most arable land globally. Adding to this large number is the dependency of more than 50% of India's population on agriculture and allied activities. Agriculture credit thus has played, and will continue to play, an important role in the development of this sector and the associated stakeholders. As they say, **credit is the building block for development in the current economic system.**

However, agriculture is considered a high-risk business which often has created a dent on the lending institutes balance sheets. Government has made agriculture credit lending a mandate in India under Priority Sector Lending (PSL) as a cushion for the small and marginal farmers in India, who have to face recurrent losses due to variation in monsoons, recent climate change effects and a general lack of capital to invest in better qual-

ity farming. For lending institutes, the issues around climate change, natural catastrophes, and farm loan waivers have become a new normal and play a very critical role in defining the NPAs, book size growth and sector profitability.

However, to make agriculture lending profitable, leaders from the banking sector at the event asked for creating a change in the industry outlook. Every industry faces similar physical problems of climate change and volatile political scenarios. Farmers need credit not just for agriculture, but have other requirements beyond agriculture. Banking industry can change their processes to look at the entire farmer requirements, both agriculture and beyond, to enable financial inclusion. This shall also help banks gain better insights in the individual farmer behaviour to create robust credit models and improve NPA performance.

## Alternate Lending Mechanisms

Agriculture lending institutes in India today ignore Farmer Producer Organisations (FPOs). FPOs however, play an important role in the rural ecosystem. They have access to large number of farmers and have market linkages throughout cropping cycle assisting farmers with pre-harvest and post-harvest activities. Considering the volatile agricultural situations, banks and NBFCs should not only provide assistance to farmers in the form of lending but also hand hold them to successfully conclude the farming activities. This is

where FPOs can play an important role, as was highlighted by a senior representative from NABARD. One of the ways is to use technology to generate timely advisories and disseminate it to the farmers through FPOs, a model NBFCs like Samunnati Finance has taken up. NBFCs are leading the way in FPO lending with innovative value-chain lending models, while also assisting farmers throughout the cropping cycle.

For banks to adopt these models, however, require changes in the regulations or outlook.

One such amazing initiative comes from the state of Maharashtra. The Government of Maharashtra has recently given access to digital land records to banks. This can solve a lot of problems which bank's face while evaluating a farmer to lend. This also allows technology and solution providers like Sat-Sure to use digital land records and deliver farm level insights using satellites to banks enabling them to have access to historical and current farm performance assisting in the lending decisions.

Banks focus on collateral-based lending, where it most often than not fails to lend to the FPOs. Also, with new farming techniques

being widely adopted in India, like hydroponics and polyhouse cultivation, changes are required in lending procedures.

For instance, in the mentioned farming techniques, collateral value of 1-2 acres of land never equates the loan requirement value which can be sometimes more than 10 times the collateral value. In such situations, lending institutions again fail which hampers the growth of the industry. Thus, there needs policy changes to protect banks and NBFCs from the risk of lending to such innovative and new solutions

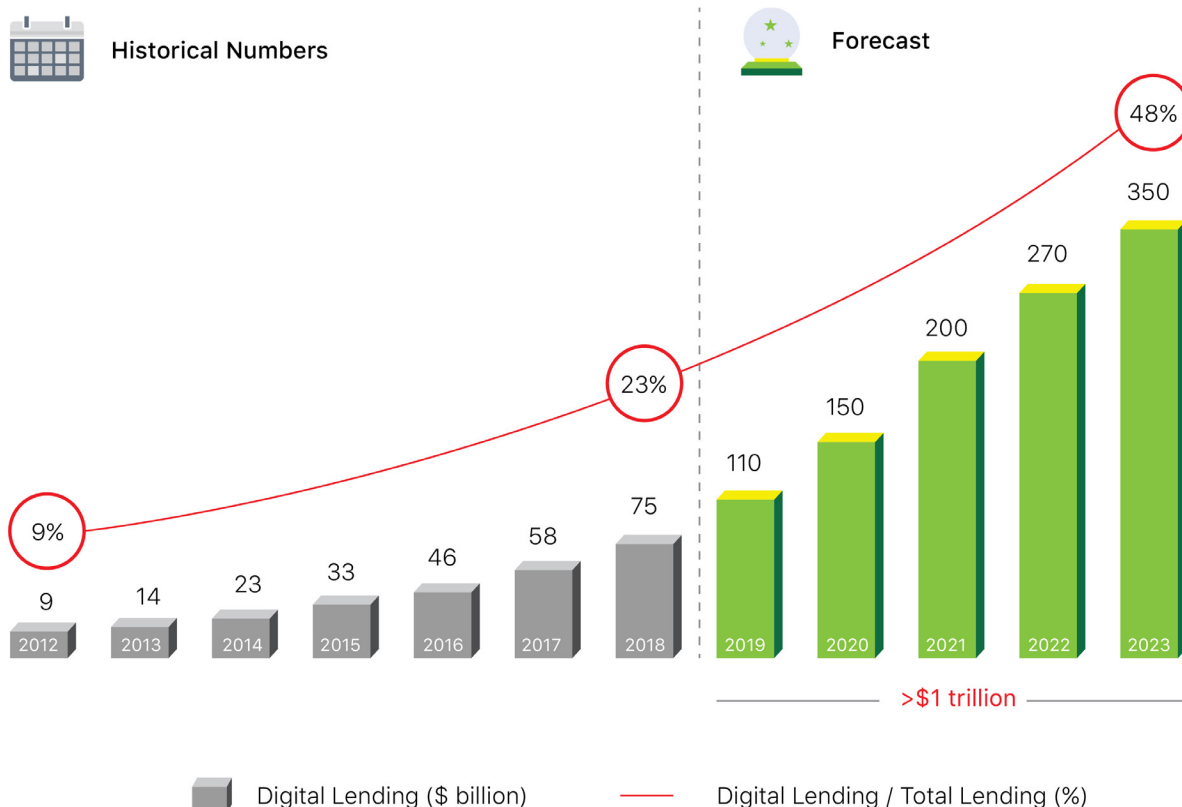
## India: Progressive Outlook in A Traditional Industry

Smart phone and internet have taken the country by storm. India's internet users expected to register double digit growth to reach 627 million in 2019. Of these, almost 200 million users come from rural India. This represents a huge opportunity for the lending industry as financial inclusion and digital inclusion go hand in hand. It remains one of the key agendas of the Indian Government as well, and FinTech startups are showing the way through hyperlocal business models that are scaling rapidly because of good product-market fit. With this technology boom on one side, farming in India still faces the problem of huge wastages due to lack of rural

infrastructure and appropriate price discovery mechanisms. As pointed out by one of the members from the banking fraternity, today's problems in agriculture have their roots in the historical decisions. Areas where ground water depleted a decade ago had to take up the decision of delaying the sowing, which was also supported by the industries and organisations in the agriculture value chain. Thus, farmers should alone not be held accountable for the problems in agricultural practices highlighted previously and new problems like crop burning. Rather, the technology should be used to create a more robust solution to help the farmers tackle these problems.







Sources: CIBIL, BCG Google Digital Lending Survey, 2018, BCG Analysis.

## Technology Solutions and Constraints

The attendees unanimously agreed that technology has an important role to play in the ecosystem to help banks make better lending decisions. With field geotags and administrative boundaries, satellites can provide insights throughout the cropping cycle for farms as well as large areas. The access to historical satellite data can help banks with credit policy and resource planning.

A leader from one of the largest banks in India, who have used technology in their lending processes highlighted about finding alternatives for the technology constraints. Land record digitisation is available only with selected states in India, and very few of them have made it available for public consumption.

**Thus, instead of completely neglecting technology and business innovation, satellites can be used to deliver data insights at an administrative unit level of villages or sub-districts level instead of farm level. This shall provide banks the ability and agility to take informed and right decisions.**

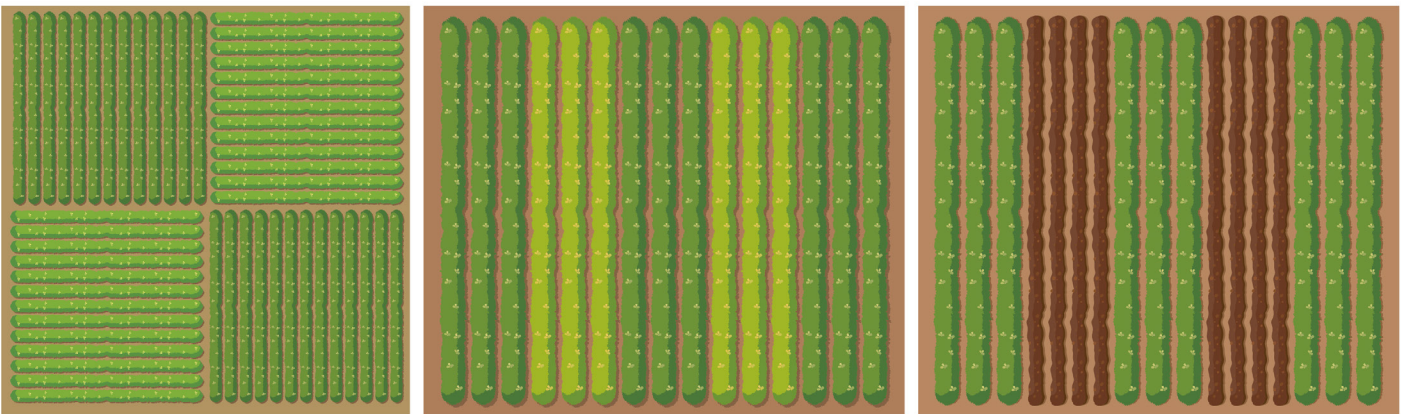
The predictive signals generated using combination of multiple datasets like satellite imagery and weather can allow banks and NBFCs have the consistent data flow from top management to field staff on the ground. This data symmetry shall allow the banks plan the last mile delivery which shall help their target

of increasing book size.

Today, data asymmetry remains one of the major problems faced by lending institutes in India which affect their lending decisions. Lack of timely, accurate agricultural and weather data and heavy dependency on field staff increases the operational and business costs of banks while reducing the operations and process efficiencies. Prateep Basu from SatSure highlighted a few key points which the banking leaders agreed to, which are crit-

ical to create a robust unified data ecosystem for the lending industry;

- Need for capacity building on both sides of the ecosystem, banks and startups
- Technology providers can assist banks and NBFCs by providing physical data insights of crop performance and weather.
- Delivery mechanisms of such data insights needs to be mapped to the client's business process for improving the value capture



## Way Forward for The Ecosystem

The discussion began with the importance of creating an ecosystem to solve the problems of agriculture credit lending in India and enabling financial inclusion in rural India. The challenges for the ecosystem are plenty, and sometimes trivial too like poor data quality with the banks and those provided by the government, such as cadastral maps. The success of technology implementation for improving the inefficiencies in agriculture banking requires a close-knit development of solutions, where banks and technology providers work together and create a successful amalgamation of business and technology

architectures for enabling better decision making across the loan lifecycle of agriculture lending.

The bottom line is that this process is not going to be an overnight story and startups should be prepared for problems all way along, while keeping the focus clearly on long-term gains because we are talking here of enterprise software integration. Innovative solutions and technologies do not become successful without building key partnerships for effective and sometimes necessary knowledge sharing.