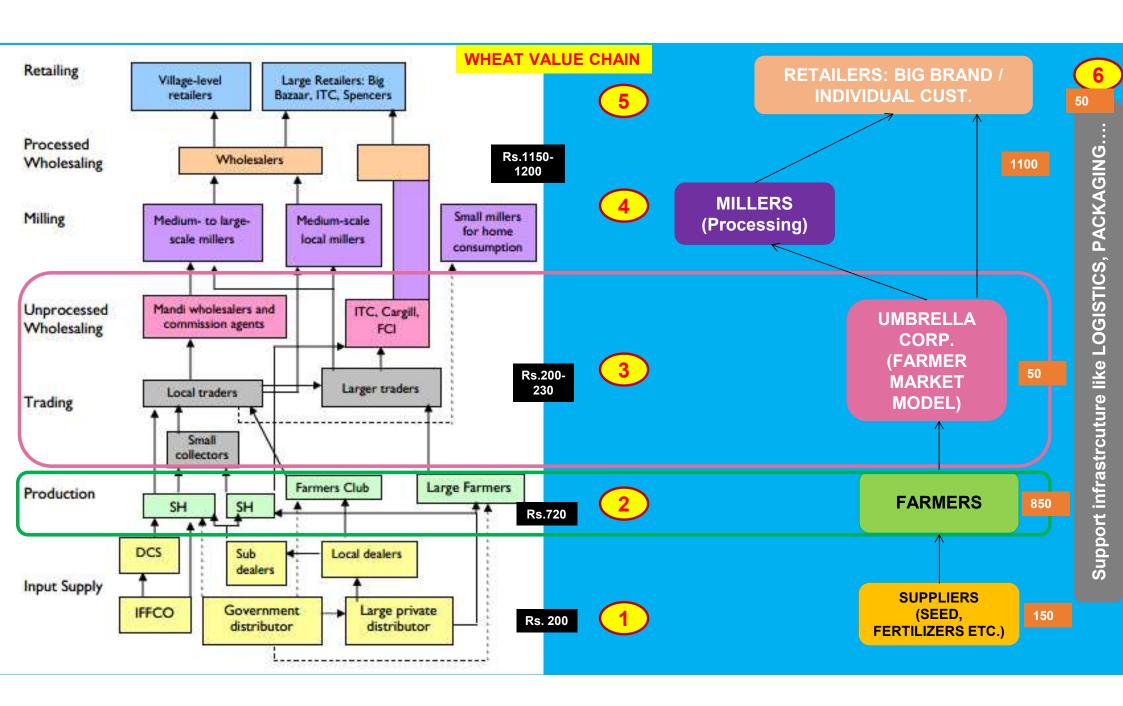
Developing Ecosystem System of System (Aggregrator)



Market Segmentation

	in Rs.		700 to		
Seeds + DAP+UREA+PESTICIDES	1915 perbigah 21% 192	Farmer Cost	922 Rs.	per 100Kg	produced in 0.1 bigah
Plowing+Harvesting+Threshing	3800 perbigah			-22	
Irrigation +Wedding	3500 perbigah	Village Collector	900		
Farmers' Cost	9215 perbigah			50	
1 Bigah can produce 10 Quintals (=10	000Kg)	Small Trader	950		
100Kg (=1Quintal) production need 0.10	Bigah			50	
1 Bigah is isually 0.75 to 0.8acre		Mandi Commission Agent	1000		
				77	Mandi tax, Labour cost etc.
For 1 Quintal we need	0.1 bigah	Corporation/Wholesale Agent	1077		
Cost of 1 Quintal wheat	922 Rs.			25	
		Sale Price	1102		

SUPPLY CHAIN:

Constraints:

- Lack of supply of fertilizer / poor quality fertilizer on the market
- · Lack of access to credit
- Difficulty in transferring knowledge of how to use inputs to farmers
- Lack of knowledge of pesticide handling throughout the pesticide supply chain
- · Lack of improved agricultural techniques and knowledge among farmers
- · Lack of knowledge for advising on-farm storage solutions for smallholder farmers
- IFFCO prohibition on selling other brands while selling IFFCO fertilizer

Opportunities

- Input suppliers have good relationships with farmers and can act as conduits for information
- · Demand for varieties and higher quality seed
- Establish linkages with chemical company reps. for technical outreach
- Potential for promotional events to disseminate knowledge and increase sales
- Potential for prepaid purchase schemes to increase sales and ensure supply to farmers
- Inputs packaging oriented toward smallholders

Supply -Demand Fertilizers

Farming Techniques

Credit Digital Banks Productivity Improv.

Infrastructue Warehouse Develop. SEED

Contract Farming Forecast Demand of Crop

FARMER:

Credit Digital Banks Know-how of advanced Farming

Constraints:

- · Lack of irrigation equipment, available and low-saline water (clean water at depths of 200 feet and below), and land leveling
- Fertilizer shortages and lack of understanding of proper use and application of inputs to maximize returns
- Input application rates are calculated in acres; farmers work in bighas
- Farmer inability to take maximum advantage of market fluctuations over time
- · Lack of credit
- Poor land and soil fertility management and over-reliance on cereal mono-cropping (rice-wheat-rice-wheat rotation)
- Lack of independent standard technical extension service and confusing, overlapping private sector-based extension messages
- High storage losses (estimated at 20-30%) due to pests and moisture damage
- · Difficulty in obtaining accounts in government cooperative society
- Lack of economies of scale and market bargaining power due to nascent farmer clubs and associations
- Infrastructure constraints (farm-to-market access)

Agile Farmers

Forecast Demand of Crop

Opportunities

- Large local and regional demand for rice and wheat, the staple crops of India
- Many farmers are open to new ideas and willing to change their agronomic practices to increase productivity
- Collective acquisition and use of land management and irrigation equipment
- Increased knowledge of soil fertility and crop rotation leading to greater productivity (e.g, improved linkages with input suppliers, soil testing, etc.)
- Increased knowledge of post-harvest storage techniques to reduce loss
- Strengthen farmers' clubs to increase benefits, for example coordinated input purchase, crop aggregating and direct delivery and establishing collective savings
- Application of Farming as a Business training

Low Capacity Utiliz. messages

Infrastructue

Warehouse

Productivity

Improv.

TRADERS / MANDI WHOLESALERS:

Online Payment

Constraints:

- Lack of available operating capital
- Transportation and infrastructure (capacity, rented tractors/trucks, procurement platform, proper storage to reduce quality loss)
- Small quantities and high transaction costs
- Inconsistent quality
- Differences in scales result in lack of trust and transparent method of verifying weights
- Overly bureaucratic, inefficient and corrupt shipment registration process and delays in payment
- · Seasonal business and high concentration and competition during a short period
- Lack of communication, transparency and trust among traders and producers
- Large numbers of small traders supplying mandi traders (excessive market fragmentation)
- Government-set prices limit market efficiency
- Lack of insurance facility for produce
- Bureaucratic procedures, payment delays and corruption
- Large number of suppliers (e.g, 400-500 in Unnao alone)
- Large number of mandi traders (commission agents) (e.g. 650 in Unnao)
- Limited grades and standards

Opportunities

- Establishment of consistent grades and standards to improve efficiency
- Potential to act as conduits of market information to farmers
- Potential to encourage farmer club bulking for price incentives and reduced transaction costs
- Potential to increase efficiency with better technology
- With better supply and storage, mills could run at full capacity all year (for medium-scale only)
- Potential for improved business management and service diversification

Digital Model

Insurance facility 5 RETAILERS

Constraints:

- · Limited operating capital
- Direct buying from farmers and mandi traders requires license (which is remove as part of ordance in May 2020)
- Price structure overly regulated by set support price
- No incentives for quality differentiation

Opportunities

- High demand for rice, wheat and flour
- Potential for alternative marketing channels to allow direct procurement

6 SUPPORT MARKET / EXISTING INFRASTRUCTURE OF THE BUSINESS

Constraints:

- Lack of finance outreach to rural areas
- Low organizational capacity of farmer clubs
- Low utilization of support services (soil testing, storage capacity)

Opportunities

- · High demand for wheat and rice
- Increase number of banking branches with use of branchless (mobile) banking
- Appropriate technology solutions to storage capacity and chemical use
- Smallholder-appropriate input packaging and associated technical advice to increase sales

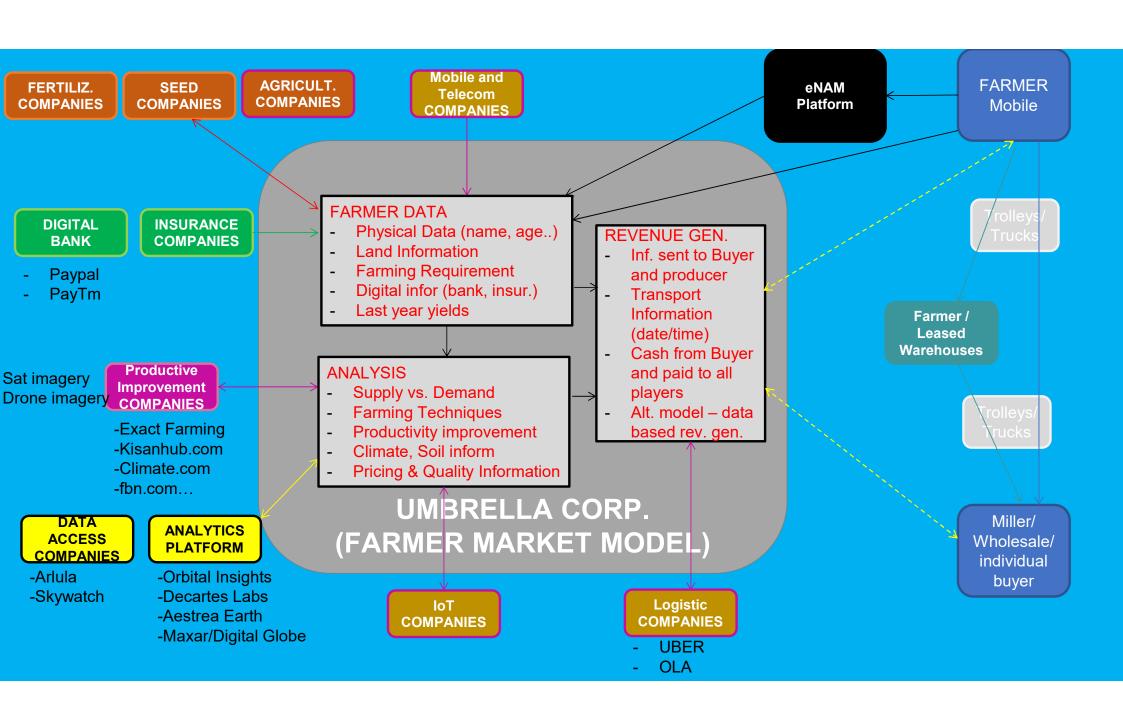
RESEARCH

FINANCIAL SERVICES

PACKAGING

TRANSPOR TATION

NEW METHODS



Farmer-Market E2E (Direct2Farmer)

Food Quality, Sustainability, Innovative, Connect producer with customer, Global approach

Slide 9

1	what does it mean? Alex Althuon, 14/06/2020
2	This term is being used throughout the presenation, however it isn't defined Alex Althuon, 14/06/2020
1	Just invented the name of the App as Direct2Farmer - can precise/change if get better name Mohit Sharma, 14/06/2020
3	Perfect, got it Alex Althuon, 14/06/2020

Market Segmentation

- Technology (Hardware, Software & Services, Integrated System)
- Support Infrastructure and identification of main suppliers/infrastructure providers
- Identification of Main Crops (Sugarcane, Malze, Rice, Wheat, Potate, Livestock, etc)
- Customer (Factories, Companies, Warehouses, Individuals)
- Farmer (Industrial, Medium size, Family owned)

• ...

Global Agriculture / Farming: 9.7Bn world population by 2050 (expected), translating into 70% required growth in global food supply from current levels

- As per marketsandmarkets.com, it is predicted that SEEDs & CHEMICAL FERTILIZERS SUPPLIERS' Market is projected to be around \$207Bn
- As per Goldman Sachs Equity Research report of 2016 (July 13), **AGRICULTURE** market is forecasted to be at \$1.2Trillion (GSR report saved in the Folder. Goldman Sachs did recently research on Precision Farming)
- As per Publication "Agropoly A handful of corporations control world food production" it is expected that "FOOD DISTRIBUTION" to be around \$7.1Trillion market (Why Amazon Business will attack Food Service Distribution Business: https://www.appliconic.com/blog/amazon-business-will-attack-food-service-distribution/)
- 3 drivers of driving Yield in the Past (I) Farm acre growth and Mechanization, (II) Green Revolution, (III) SEED Genetics and Hybrid and now (IV) Precision Farming

Future of PRECISION Farming in 2050*

Field monitoring, Data management & Others

\$35 billion (TAM) \$125 billion potential value add

Precision fertilizer

\$65 billion (TAM)

- ► \$200 billion potential value add
- ► -18% yield improvement

Precision planting

\$45 billion (TAM)

Precision irrigation

\$35 billion (TAM)

- ▶ \$115 billion potential value add
- ► -10% yield improvement

Compaction reduction

via smaller tractors

\$45 billion (TAM)

- ▶ \$145 billion potential value add
- ► -13% yield improvement

Precision spraying

*Goldman Sachs Equity Research, July 13, 2016

Slide 11

4	replace with	"factors	driving"
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Alex Althuon, 14/06/2020

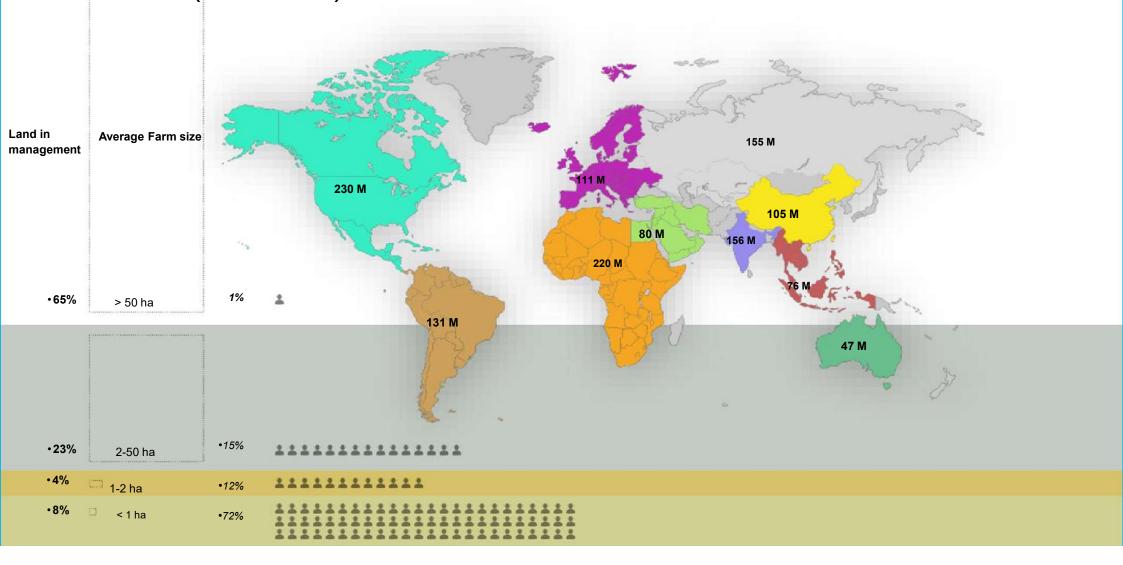
5 Why is the fertilizer market relevant?

Alex Althuon, 14/06/2020

2 It is relevant as part of Smart Farming as well as if an when in future decided to extend the integration. if not then it remains irrelevant

Mohit Sharma, 14/06/2020

1Bn Farmers and around 570Mn Farms globally of total farm size of 1.3Bn Ha (Hectares)



³Farmer Market [Draft] Business Model – Global Blue Print

¹C/ Digital E2E Platform 1/ Smart Farming 3/ Creation of App (to feed information Data Aggregator from 1/ and 2/ Data Analysis Direct2Farmer Work-order creation for Smart Farming to A/ Producer 'APPs' **B/ Customer** Farmer (also develop AI part of this **Farmer Factories** Farmers' Land system) Companies Farmers' Equipment (Mobile, Individual Customer 2/ Market Place 4/ Revenue Creation Tractor) Warehouses Supply / Demand Analysis Direct2Farmer 'App' Contract Owner Predictive Quality and demand forecast Creation of Work order for Revenue (AI and Machine Learning) Generation (Pic-up and Delivery) (((\(\gamma\))) IN-SITU sensors Weather data D/ Support Infrastructure

EO imagery

Technologies from

suppliers

Crop vegetation

ExactFarming

Cadastre

Machinery

telematics

Soil analysis

Agro consultants

Farm personnel

- Ensures logistics (UBER co-operation)
- Provides Insurance (ALLIANZ co-operation)
- Ensures payment (PAYPAL cooperation)
- Provides credit (FINTECH / BANKS)
- Radar/Optical or EO sensors (SNOs like OW)
- **Drone Provider companies**
- Internet Provider (MNOs)
- S/Ws companies (for AI and Machine Learning)
- Open to other farmer related offers (other applications e.g.
- Soil monitoring, weather forecast...)

Slide 13

6	Aren't number 2 and 3 on the square the same?
	Alex Althuon, 14/06/2020

No 3 is the result of 1 and 2

Mohit Sharma, 14/06/2020

1 This slide is definitely the end goal. We must create a redacted version of this for the short term

Arun P C, 19/06/2020

¹⁰-armer-Market: Vision and Mission

Vision

ONE-STOP' shop to buy kaw Farming Products

Provide end to end digital and future proof innovative solution to derive quality, productive and cash situation for the Farmers through IT solutions, connecting the standard of existing farming supply chain.

Goal / Mission

1 (PRODUCER)

Develop intelligent and smart Agriculture / Farming app to support smart **Farming to produce Quality** Product

(CUSTOMER MANAGEMENT)

Develop proprietary analytical tool to track Supply and Demand Analysis with future proof of Predictive algorithms Raising work order for the logistic support and other algorithms

Probably 'MAKE'

(i.e. to insource it)

(DIGITAL E2E PLATFORM)

- a) Contract Owner
- b) Data Aggregator, Data Analysis, **SMART** farming related work order
- c) Market Place (Supply/ Demand Analysis)
- d) Development of Apps

(SUPPORT INFRASTRUCTURE)

- **8utomisation of existing Supply chain** of the Support Infrastructure:
- Bank
- Insurances
- SNOs / MNOs
- S/W companies for AI and Machine learning



Probably 'Make' (in source it)

Different options

- Form a partnerships
- Revenue sharing agreement
- Creation of a JV
- Licensing fee
- Etc.

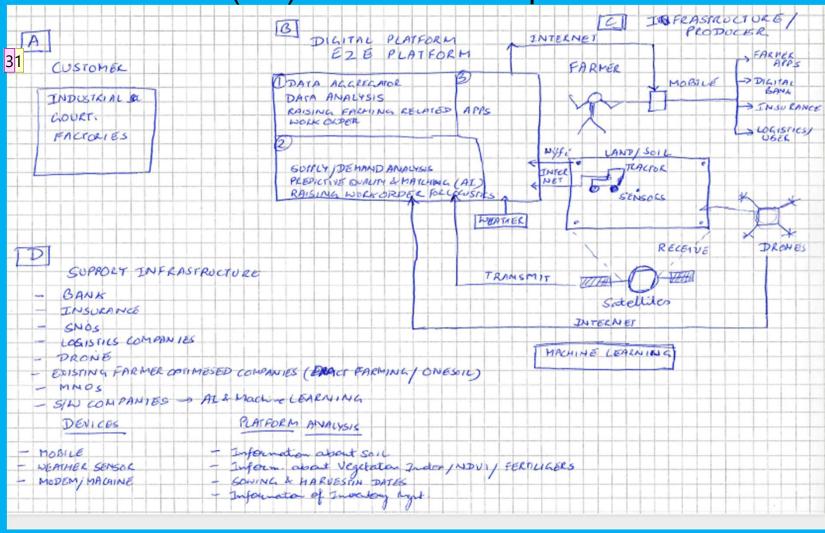
How to achieve (Make/Buy) Probably 'BUY 'Strategy could be to buy/license to use the existing infrastructure i.e. Exact Farming, OneSoil etc. Options can be:

- Partnership
- Licensing fee

Slide 14

7	meaning "bulk"? Alex Althuon, 14/06/2020
8	isn't this the part we state is "insourced" on steps 2 and 3? Alex Althuon, 14/06/2020
9	What is the difference between step 2 and 3? Alex Althuon, 14/06/2020
4	4 different pillars in the value chain and how we would like to achieve it Mohit Sharma, 14/06/2020
10	Ok, something we can discuss on the phone in some minutes, I feel both 2 and 3 are very similar Alex Althuon, 14/06/2020

Draft Business Model (1/2) – Detailed Blueprint



Slide 15

- 2 Lovely handwriting! Pretty amazing how you filled the entire canvas with a pen without having to erase or make amendments!

 Arun P C, 19/06/2020
- Hahaha, I'm sure that's Mohit's version 7 of this drawing

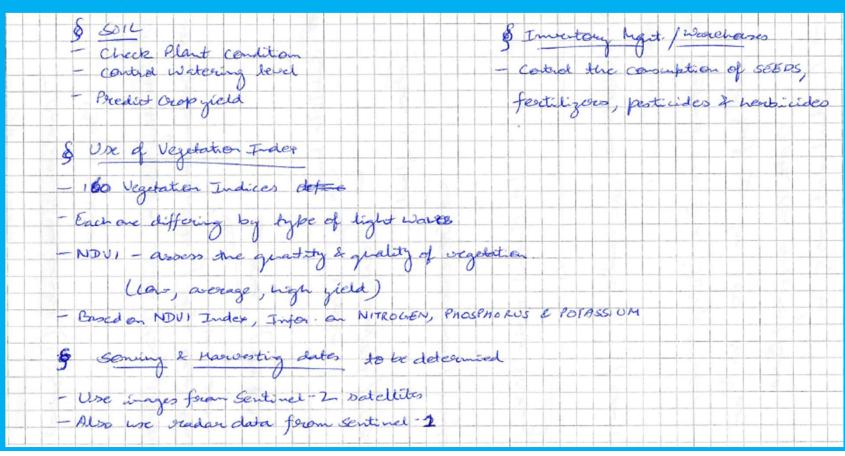
 Alex Althuon, 19/06/2020
- 3 thats more believable.

Arun P C, 19/06/2020

Draft Business Model (2/2) – SMART FARMING 'Blueprint' used by the companies like ExactFarming, OneSoil etc.

Develop intelligent and smart Agriculture for quality product need:

- Soil Examination
- Use of Vegetation Index (NDVI)
- Sowing and Harvesting Dates
- Inventory / Warehouse Mgmt. i.e. control of SEEDs, Fertilizers, Pesticides and herbicides



- These are farming operations. I think Exact and OneSoil aims to improve productivity and crop yield as their primary focus. We are a market place very different.
 - While ExactFarming is a software company...like SAP for farming and OneSoil is Data analytics company like Terradata, we are marketplace hence value is very different.

Arun P C, 19/06/2020

- As I see it, these 2 companies would play a similar role as Uber, PayPal for us (Partners in this aggregator business model)

 Alex Althuon, 19/06/2020
- Yes, they could plug into our platforms' API. This way both these companies dont need to worry about integrating to each and every player in the ecosystem. Once they integrate with our system, they pretty much are connected to others on the platform.

 Arun P C, 19/06/2020
- And maybe the way to get our hands on their data is via the Farmer itself, I would expect the Farmer to be the Data Owner for data being generated, so if we could sign a data sharing agreement with them, we could in turn offer additional data based services for the Farmer.

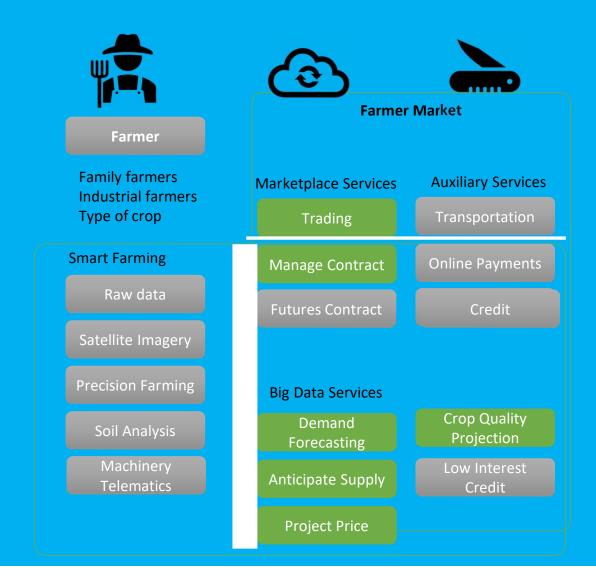
Alex Althuon, 19/06/2020

Definitely. Its almost like i am signing up for Uber. I will need to provide details relevant to the full functioning and security of the business.

Arun P C, 19/06/2020

- Proposed Solutions
 FM will be an E2E digital platform providing (a) on one hand different value added solution to Farmer and (b) on the other hand acting as a Market place for the B2B industries as well as to a limited extent for B2B2C
 - E2E digital platform (cloud based SW interface) will be an aggregator, storing and analysing of different data from different sources and connect different hardware manufacturers (connectivity, sensors, banks, mobile, etc.).
 - Cloud based SW interface to control and manage E2E PROCESS
 - Digital Platform will make the decisions, adjustments (algorithm learning of the system)
 - Image based recognition as well as the learning mechanism (AI and Machine Learning) to assess development stage of each process within the system

Solution Overview





Customer

Factories Companies Warehouses

Farmer Market

3rd Parties

The idea here was to present a consolidated view of stakeholders, services and which are internal / external and how the link to farmers with Smart Farming solutions could be linked to us.

Alex Althuon, 19/06/2020

Noted. But at this stage we have to zoom in for the minimal viable product. We will need to choose one segment of market to address. One player from the ecosystem should be chosen and see whether the "minimal" product or service is attractive to the farmer and he perceives value in the solution.

Arun P C, 19/06/2020

I'm inclined to say the MVP would focus on the activities that are comprised on the raw Marketplace, meaning matching demand with supply. No transportation, payment, insurance, funding, quality assessment, etc (still, all assumptions to be confirmed). Probably worth drawing an additional page for MVP scope

Alex Althuon, 19/06/2020

Yes, MVP is generally created to validate our hypothesis of the value we bring. The challenge with omitting transport, insurance and QA is that it doesn't reflect the value we try to bring. In my opinion, while we dont need to build exhaustive partnerships with each and every player in the ecosystem, it is important to get a taste of how to bring "one" of these people to the platform to realise value to our end customer.

Arun P C, 19/06/2020

Value Propositions

⁹⁷/larketplace Services:

- Allow wider market access to Farmers, potentially resulting in better prices
- Provide Buyers more sourcing options
- Reduce the number of middlemen in the supply chain

Auxiliary Services:

- Allow logistics providers to bid for the transport of goods
- Secure payments with digital transactions
- Facilitate the creation of future contracts
- Provide Cash on for Farmers reducing the need for waiting for months
- Customer (B2B) receive quality product OTOCOQ (on time, on cost, on quality)

Big Data Services:

- Improve crop yield and quality for FARMERS
- Anticipate market needs (crop and volumes)

Slide 19

Are B2B customer not already receiving OTOCOQ?

Alex Althuon, 16/06/2020

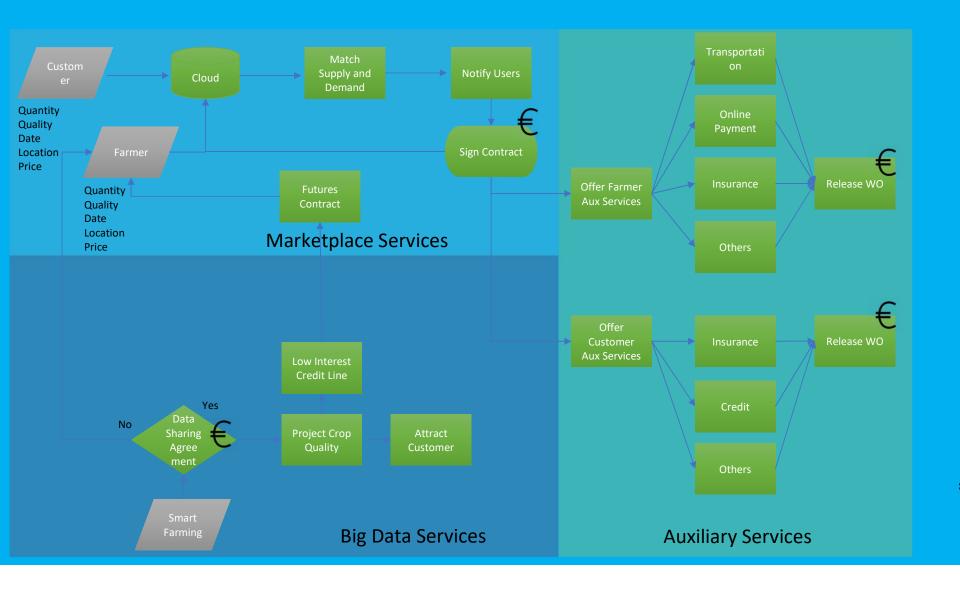
We may need to clarify what is the value coming from our direct activities and which ones are from third parties we want to link to.

Alex Althuon, 19/06/2020

Yes, definitely. That has to be clear for every single player in the ecosystem. To understand what he gets out of using the platform and what he doesnt.

Arun P C, 19/06/2020

Services Flowchart



Farmer Market

Partners

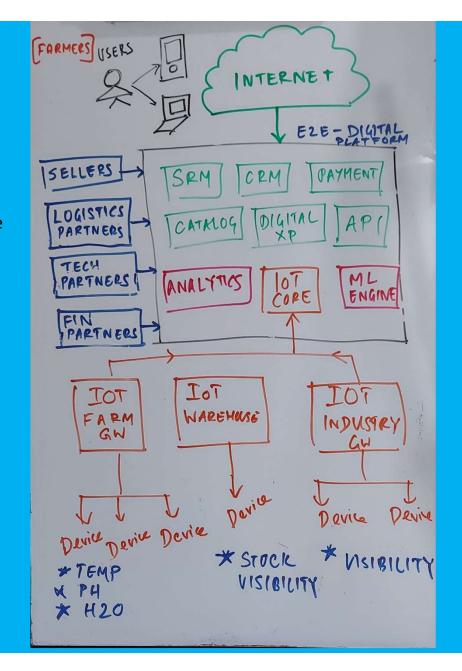
Revenue Stream

Thought about creating this slide to clarify different types of services that can be offered independently.

Alex Althuon, 14/06/2020

Modular Architecture of the End to End Digital Platform

- Two important marketplace users are:
 - o Farmers
 - Buyers
- They use mobile apps or web to access marketplace.
- The platform aggregates various players in the ecosystem. Some of the ecosystem players are:
 - Sellers selling services and goods (fertilizers, labor, machinery)
 - Buyers looking for farm produce (Consumers and Businesses)
 - Technology partners (for egs, Smart farming technology companies)
 - Financial partners
 - Logistics Partners
- Some of the modules are:
 - Customer Relationship Management,
 - Supplier Relationship Management,
 - IOT devices and sensors could ingest data
 - Analytics engine data ingestion from various sources
 - Machine Learning Engine train models for specific use cases

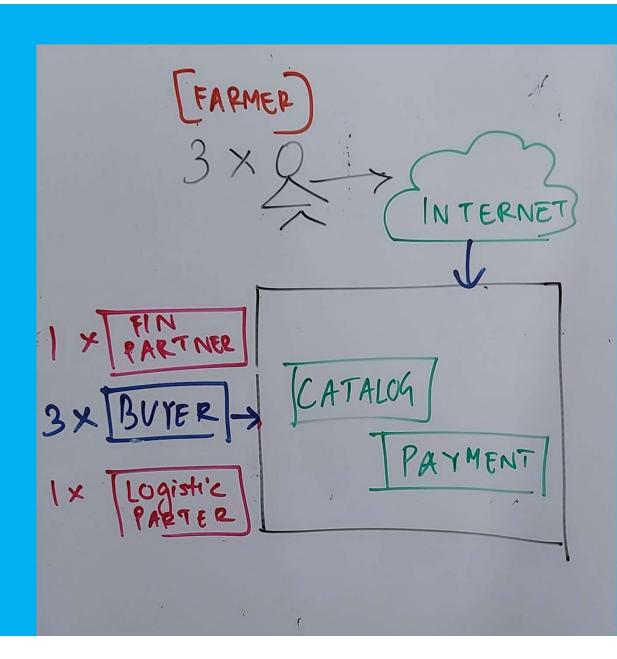


MVP

A minimum viable product (MVP) is a version of a product with just enough features to satisfy early customers and provide feedback for future product development (Source:Wikipedia)

Before MVP, do this to avoid common mistakes -

https://thoughtbot.com/blog/before-you-mvp



Revenue Model

- 20 narge a % of the increased price the Farmer will get
- Alternatively, no fee charged by Farmers initially to achieve the market penetration and once critical mass is achieved a monthly % fee based on contract amount to be charged.
- Secondary revenues through providing Auxiliary Services and Big Data Services
- Ivlain revenue source is the B2B Customers (Industry/Factories) or B2B2C Customers

Tactical

- 12 eed to portrait the savings for Farmers as well as to the Customers with the increase in productivity as well as the guarantee of the quality of product.
- Use the infrastructure providers to provide certain system for free with an exclusive rights

The next slide does provide some details. But important to provide a \$ value at every step and then see where we can help the 12 farmer. Arun P C. 19/06/2020 We need to focus here. B2C is very different from B2B. If we intend to help farmers, we need to stick to B2C and analyse every 13 step on the way to see where we can add value. Arun P C, 19/06/2020 21 That is interesting, I was under the impression B2B would be simpler. B2C would required additional steps in packaging in consumable amounts, plus it would be a natural first step in a MVP context. Alex Althuon, 19/06/2020 14 Actually, i dont have a preference. Whichever makes business sense should be fine! Arun P C. 19/06/2020 10 We could potentially charge a brokerage fees if we demonstrate value. If we can help the farmer improve his margin from Rs.30 per kilo to Rs.50 per kilo, we could potentially keep 10% of that. But at first we need to demonstrate that. All marketplaces work that way. Arun P C. 19/06/2020 when you say "work that way" do you mean the model works for all crops? If not for which one... 19 Alex Althuon, 19/06/2020 Should clarify here...i was referring to marketplaces in general...not necessarily referring to crops. Lets look at other industries 11 with matured marketplaces trading physical goods and services(not digital like playstore or appstore). Amazon Sellers, Ebay, Airbnb, Alibaba and so on... all essentially does what we are trying to do with farm goods. Arun P C, 19/06/2020 20 Understood, agree. Alex Althuon, 19/06/2020

¹2 se Case - 6 tons of rice

Work in progress

Activity

Demand for 6 tons of rice



3 tons Farmer1 in Village A 2 tons Farmer2 in Village B 1 ton Farmer3 in Village C



Transportation is organised to pick up cargo from 3 locations and deliver them at a central warehouse



6 tons of rice are shipped to the buyer

Benefit

Buyer has access to the records of crop quality from each Farmer

Farmer has access to a broader market*

Farmer can anticipate demand per crop to plan next season (farming on demand)

Future contracts between parties can be signed Buyer and Seller agree to perform the transaction with online payment

Transaction is insured for both parties*

Number of middlemen are reduced*

Buyer has a better price*

It would be very important to identify some use cases and even more important to clearly state the benefit for both user groups (Farmer and Buyer). May need some support with detailing this page.

Alex Althuon, 19/06/2020

- 24 I'm not even sure rice is the best example, just used because it should be a simple one wrt to processing requirements.

 Alex Althuon, 16/06/2020
- Agree. Rice i think is a placeholder at this stage. There is an analysis on Wheat which has some more details. It has some figures around margin for a quintal. But yes, we need to pick the right commodity.

Amazon started with books for the simple reason that books come in the same shape, roughly the same size and is not perishable. Imagine what would have happened if they start with fruits and vegetables?

Arun P C, 19/06/2020

This is a great slide! Before diving into the solution, i think it important spend time understanding use cases and narrowing down on the problems we could solve and the problems we cant solve.

In this slide, lets focus on rice, what are the different problems that exist for farmer? Possibly the following:

- 1) Demand forecasting
- 2) Cash flow
- 3) Resourcing (fertilisers, water, tools, machinery, water and so on)
- 4) Farming operations
- 5) Quality control
- 6) Cultivation
- 7) Storage
- 8) Marketing and Sales
- 9) Transportation and Supply Chain

How is it currently done? What is the margin currently obtained. The cost of kilo of rice is Rs. 100 in the market, but farmer may make only Rs. 30. So where does the rest of Rs.70 go?

Once we dive little deeper, we could spot the gaps and fill in the details.

Arun P C, 19/06/2020

You're right, all these things are currently only assumptions and we have to bring the facts in. One thing I would add the the 9 points you listed (10) Farmer access to more buyers

Alex Althuon, 19/06/2020

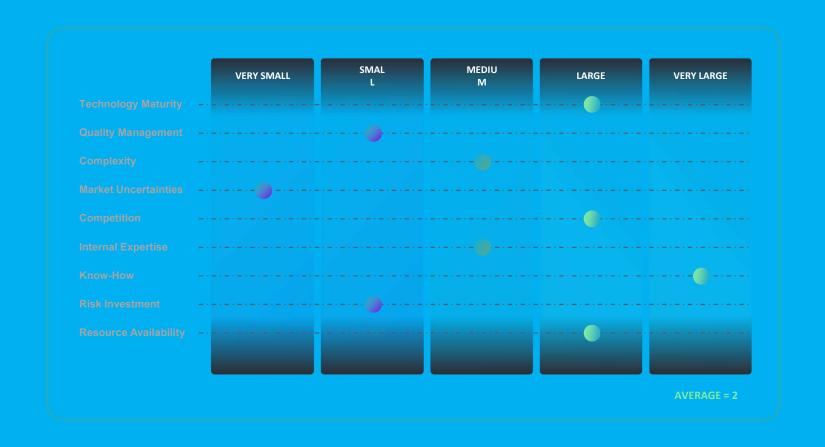
Anticipated Challenges / Challenges in the Market

- Create System of System to interact with many variables per crop and identified infrastructure provider
- Though existing ecosystem but different systems are not connected.
- No industry standard exist today / Lack of integrated technologies
- Develop prototype with cost efficient operations with precise Agriculture know-how
- Achieve data critical mass
- Access to beta testers / Prototyping
- Existing relationships in the supply chain
- Working with cooperatives

Some of the BC questions to be addressed

- Pricing: Farmer market keeps a % for each deal
- Prices must be competitive both for farmers and madi
- A fixed sum or percentage will be kept for the farmer and invested in mututal fund
 banking for farmers => credit, insurance and savings
- How is chain working: when is payment ensured, how is quality assessed?
- Logisitics: Uber to provide the transportations
- Cloud computing, smart phone app
- Cooperate with other apps e.g. from africa to allow them market access and vice versa
- Advertisment: offers for farmers provided through the app

Risk-Attractiveness of Innovation



Concept Screening

STEP ONE

potential ideas for a new product/service will be compared.

STEP TWO

Identify alternative concepts or existing products on the market fo the new idea to be compared.

STEP THREE

Rate concepts against each other and tally the results. Have a meeting around the top ones.

STEP FOUR

Select one or more of the best concepts to be further developed.

	CONCEPT A	CONCEPT B	CONCEPT C	CONCEPT D
Strategic alignment	5	2	5	4
Market size	3	1	3	3
Market growth forecast	4	3	3	1
Wow factor/ concept value	2	4	2	3
Technical feasibility	3	2	1	4
Manufacturing feasibility	1	5	5	1
Delivery feasibility	2	1	1	1
Competitive advantage	1	2	2	2
Column Total	21	20	22	19

Idea Evaluation



Other Market Places

Research other market places, not only in farming to understand what problems are they solving and how. Could serve as inspiration for this model