



m- Marketing for Agriculture

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In 2003 crops
were sold in
7,360
regulated
markets
and
27,294
unregulated
markets

“Farmers in **India** earn as little **30%** of the value of the price of their raw produces versus **50%** in the **United States**”
(World Bank 2008)



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Even a slight **improvement** in efficiency will have a **drastic effect** on welfare, given the scale of the **agriculture sector**



System



Consumer



Schemes and
subsidies



With or without
middleman
involvement



Vendor

Buying seeds
Pesticides
Fertilizers
Information



Farmer

Sharing
Help
Equipments
Other needs

Information

Marketing
Farming
Best Practices



Farmer

Transport

For selling of
crop produce

Trader



Auction + Quality sorting



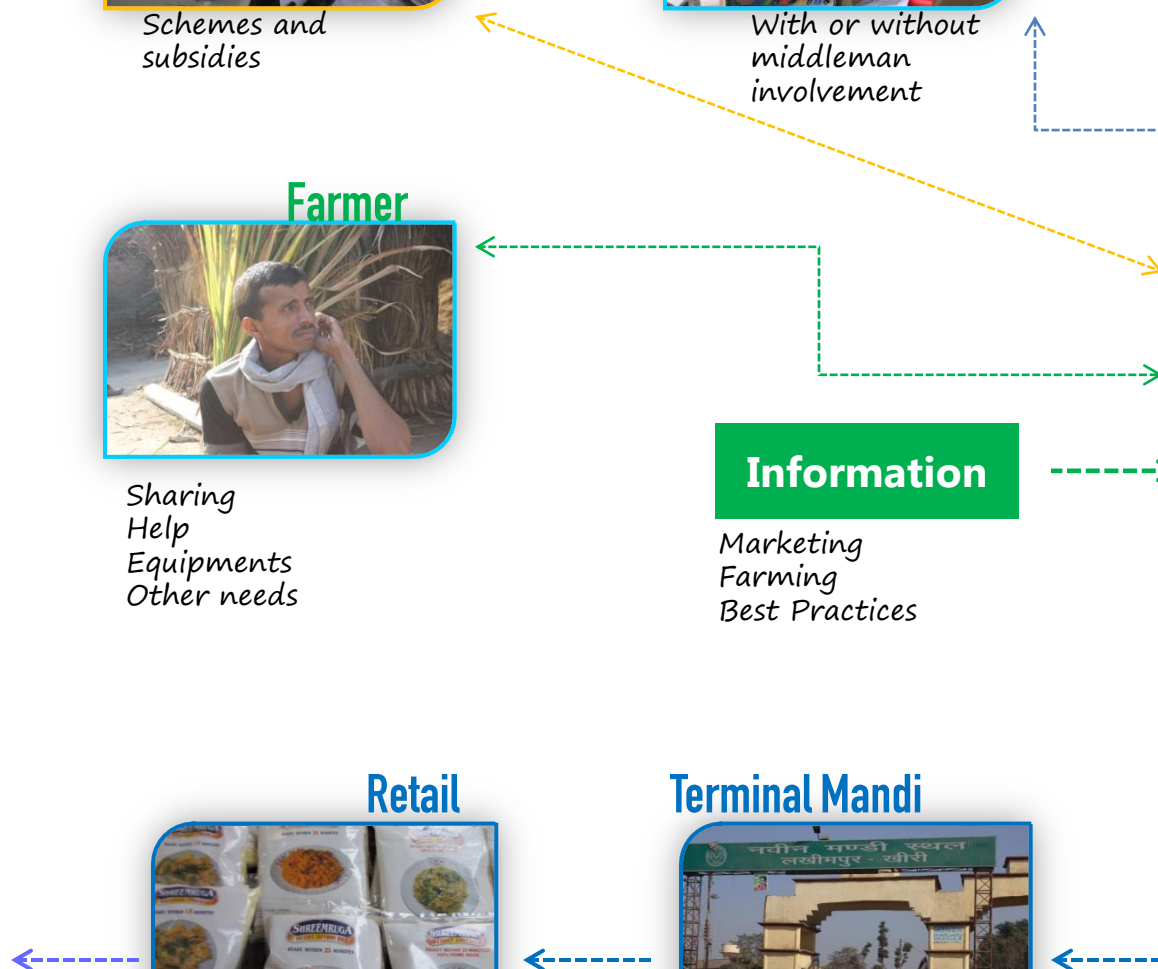
Retail

Transport

Terminal Mandi



Marketing structure : bartering





System



WHO

Farmers
Traders
Vendors
Middleman
Consumer
Government

WHAT

Information
Problems
Requirements
Marketing
Sharing
Profit/Loss

HOW

From Market
Contact Vendors/ Traders
Direct to consumers
From fellow farmers
Seeing each other
Through mobile
Word to mouth
Traditional ways

WHEN

Market day
Right time ?
When needed
Crop cycle
Social gathering



System



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WHEN

Market day
Right time ?
When needed
Crop cycle
Social gathering

NEED

To remove the Gap between farmers
Connect every role players
Utilization of local resources/ Information
Information at the door steps
Maximum benefit
Power to Bargain
Right information at the right time

Project Brief



- Design, develop, and deploy a cost efficient mobile based marketing system for farmers
- System will help them in several marketing / farming related issues throughout a crop cycle
- Collective trading system that taps into the strengths of user-generated collaborative efforts and location-based services
- System aims to increase the productivity and earning by decreasing the high operating costs and low selling prices.

Existing Systems



RML

PURA Project Launched in Karaikal

Express News Service

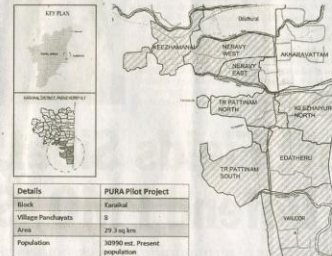
Karaikal Cluster Details

Karaikal: The Centrally-sponsored PURA Scheme (Provision of Urban Amenities in Rural Areas), brainchild of former President Dr APJ Abdul Kalam, has been launched for the first time in the UT here on Monday.

The Union Ministry of Rural Development (MoRD) is implementing the scheme with the support from Department of Economic Affairs and the technical assistance of Asian Development Bank under a public-private partnership (PPP).

MARG Karaikal Port has been selected for the first time to implement the scheme through a competitive bidding.

GRK Reddy, Chairman and Managing Director, MARG Group, said under the pilot project, MARG had been mandated to develop multi-dimensional projects and social inclusion programmes which will generate livelihood opportunities and provide basic amenities



across eight village panchayats in Karaikal district at a total cost of ₹ 93 crores. "This is a unique initiative where PPP is integrated

with corporate social business. Capacity building and efficiency of the private sector is complemented by strategic and visionary support by the Government," he said.

per capita income and a higher quality of life to all households in the targeted villages.

Further MARG would be focusing on the amenities suggested by MoRD like sanitation facilities, street lighting, water supply system, rainwater harvesting, local community empowerment, capacity building, watershed projects, agricultural focused activities and non-conventional energy solutions, said Reddy.

To implement the pilot project, MARG has partnered with National Agro Foundation (NAF), a public charitable trust, founded by C Subramaniam. Other NGOs like Wockhardt Foundation and Enxora are also likely to assist MARG in this initiative.

The CMD said, Family income in targeted areas is expected to go up from the present ₹ 1.20,000 each per annum to ₹ 4.50,000 per annum over the next decade," he said.



PURA



m- Krishi



e- Chaupal



Ikisan



Gyandoot

User Study

No of Users : 35 + 04

Education :

•Literate

•Non- literate

Semi - literate

Illiterate

•Functionally
Literate

Rapid Counting
Memory
Vocational Knowledge

Occupation: Farmer, Secondary support (Women, Children),government employee
small business, shop- keeper, Political Leader, labor ,semi-employed ,
unemployed.

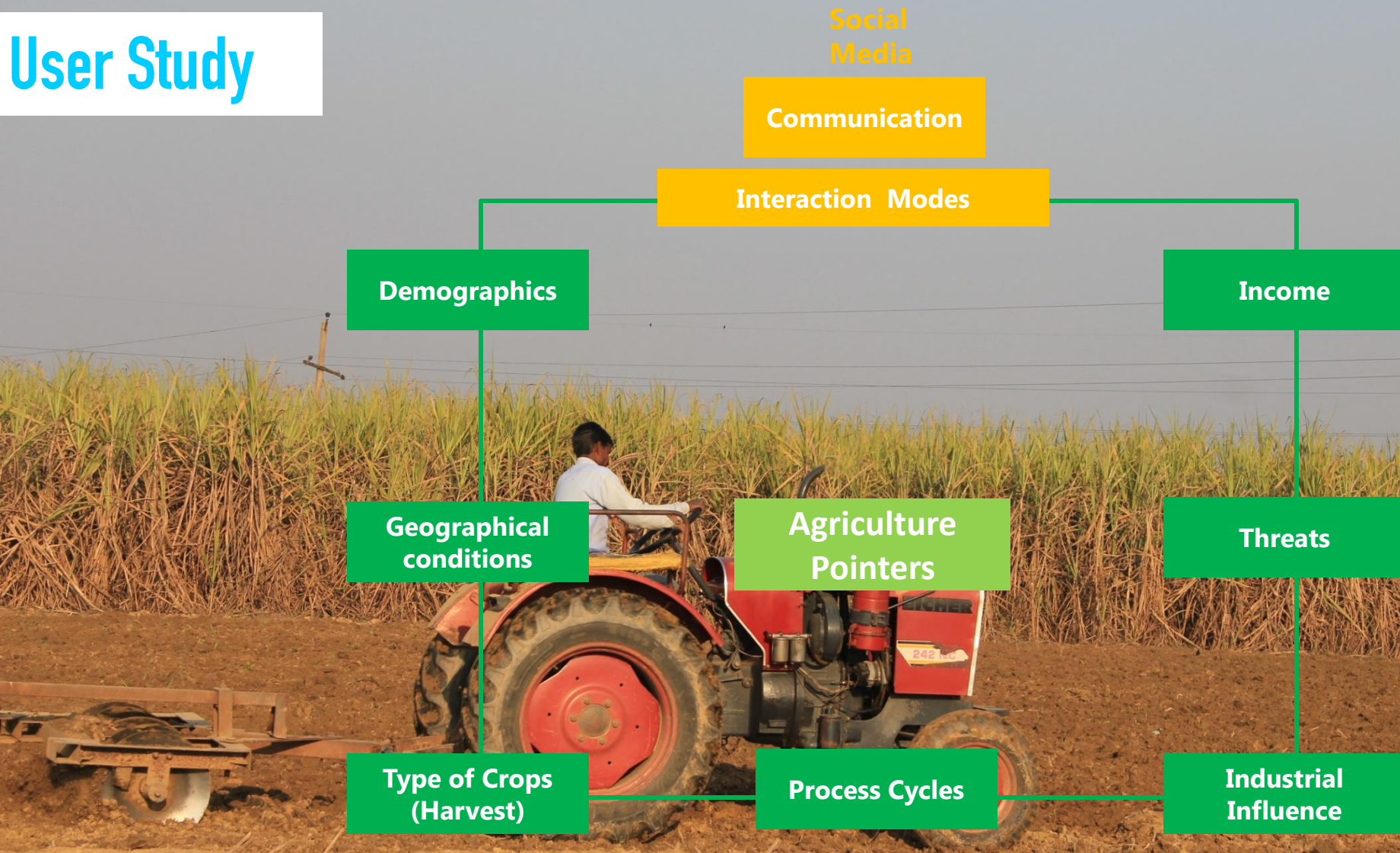
Methods:

Unstructured Interview
Contextual Inquiry
Questionnaires (wherever applicable)

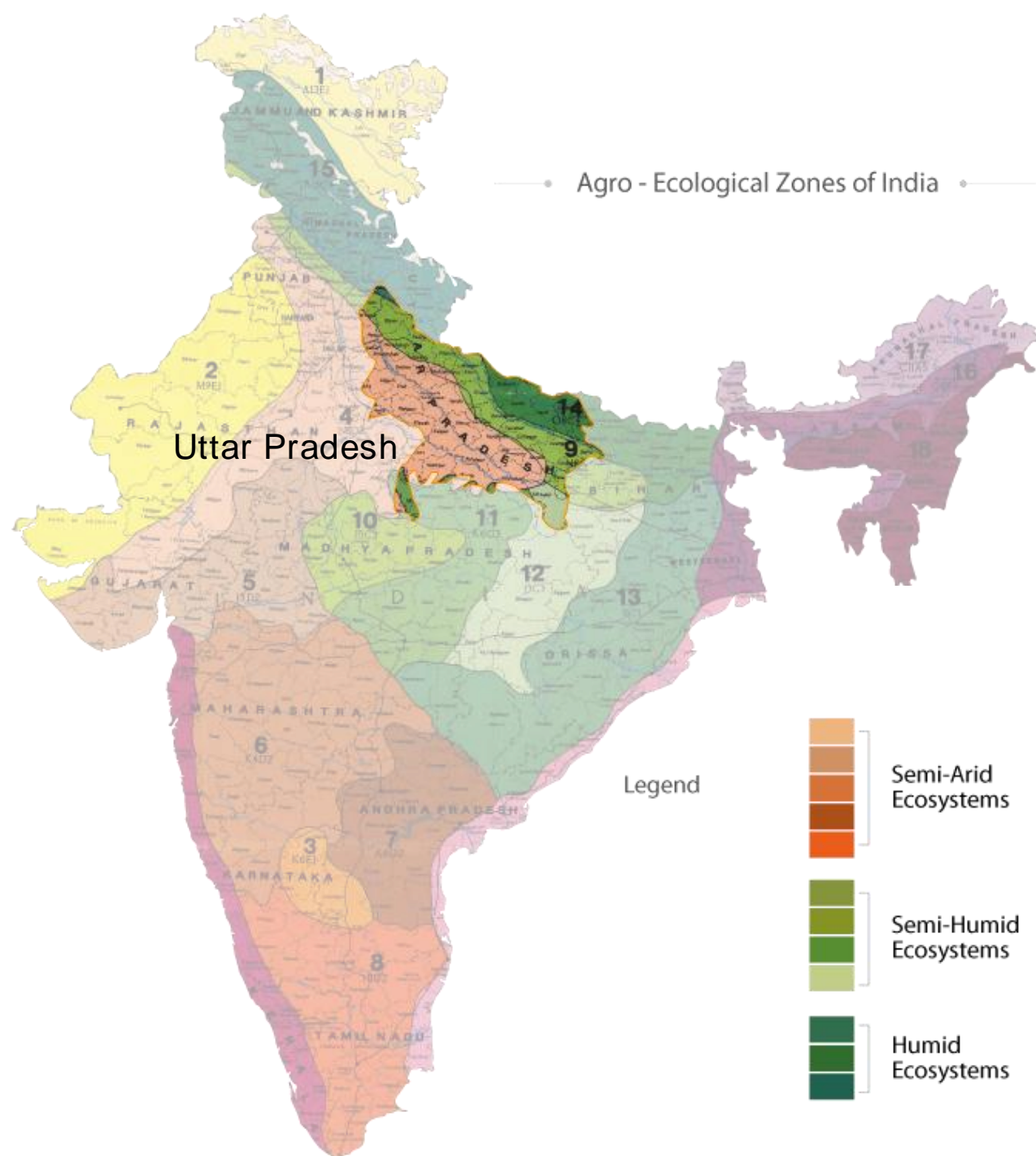
State : Uttar Pradesh , Maharashtra

Place : Lakhimpur Kheri District (09 Village), Shagunabaugh

User Study

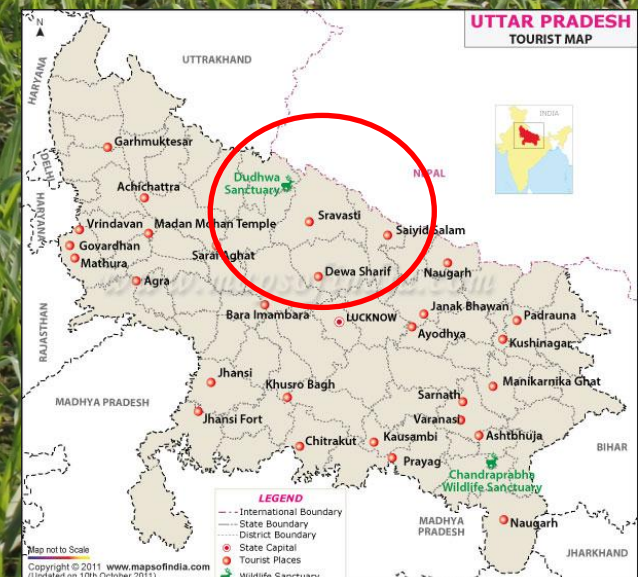
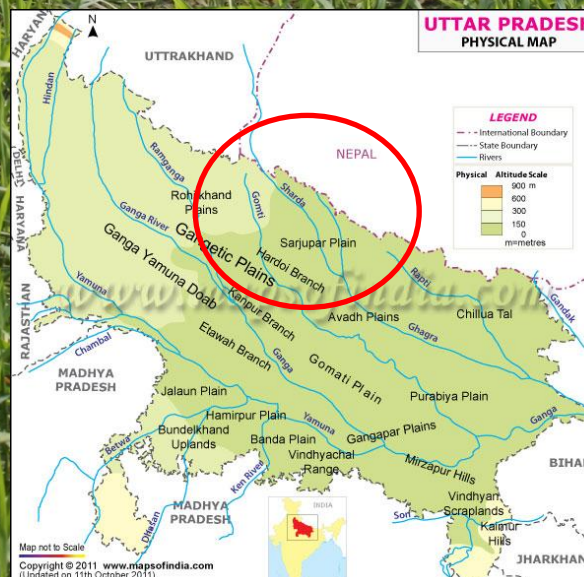
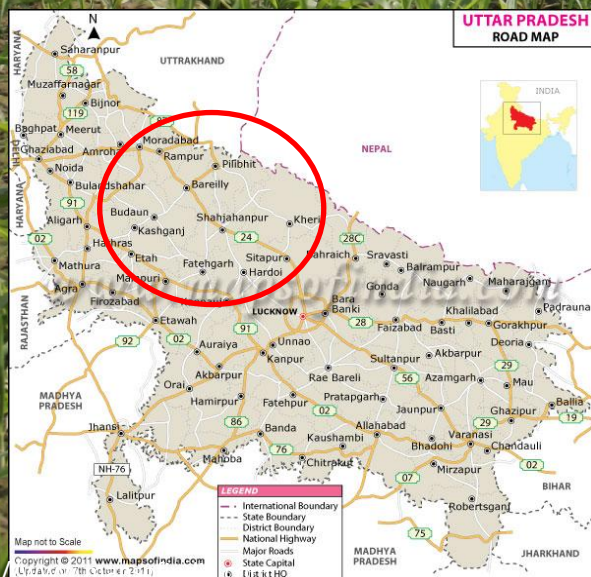
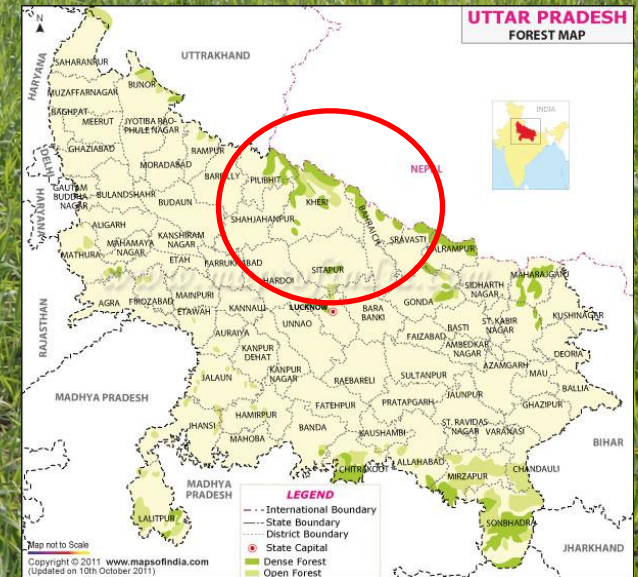
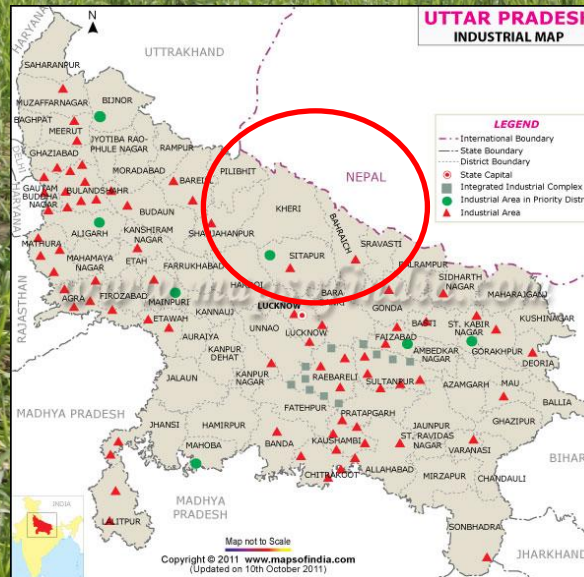
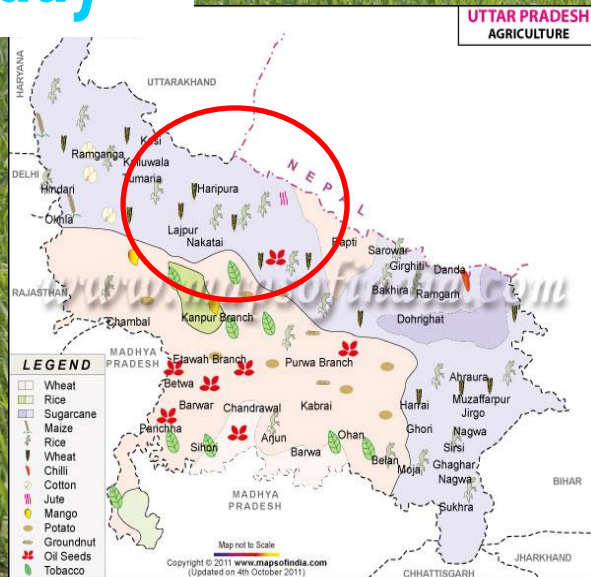


User Study



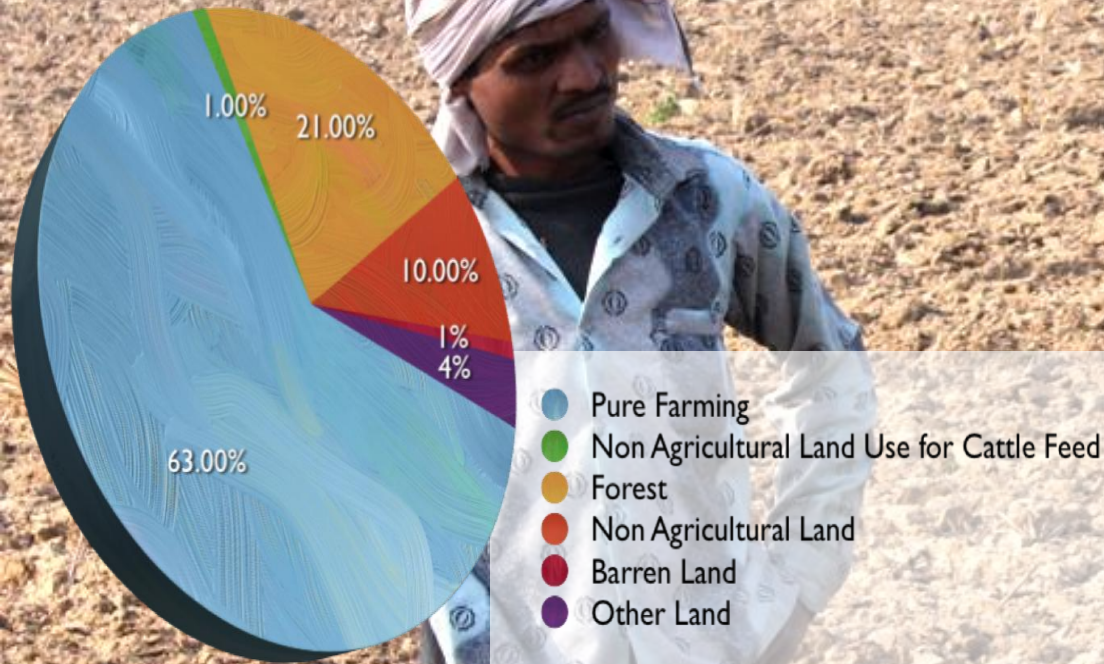
User Study

Uttar Pradesh – Lakhimpur District

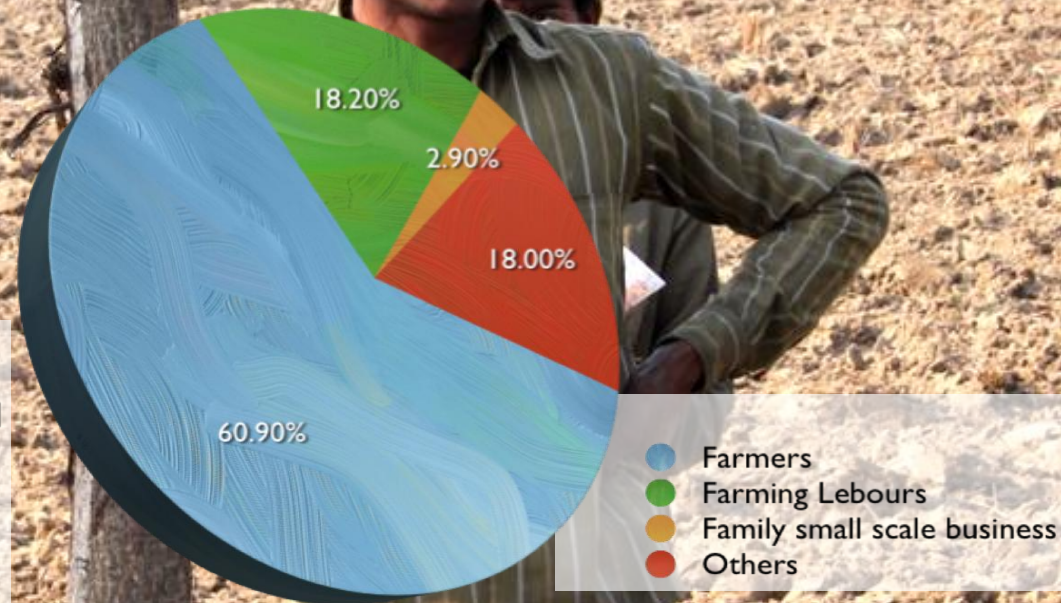


User Study

Land Utilization

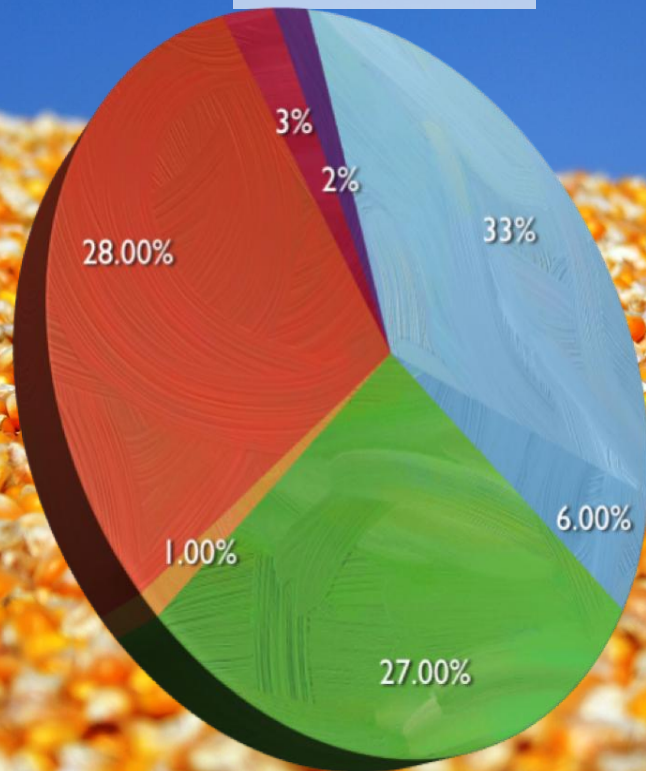


Agriculture Workforce

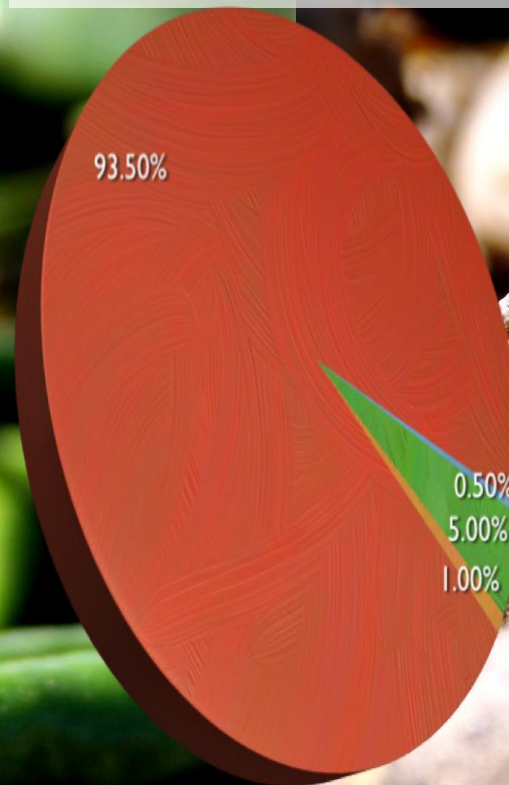


User Study

Major Crops



Irrigation from Different Media



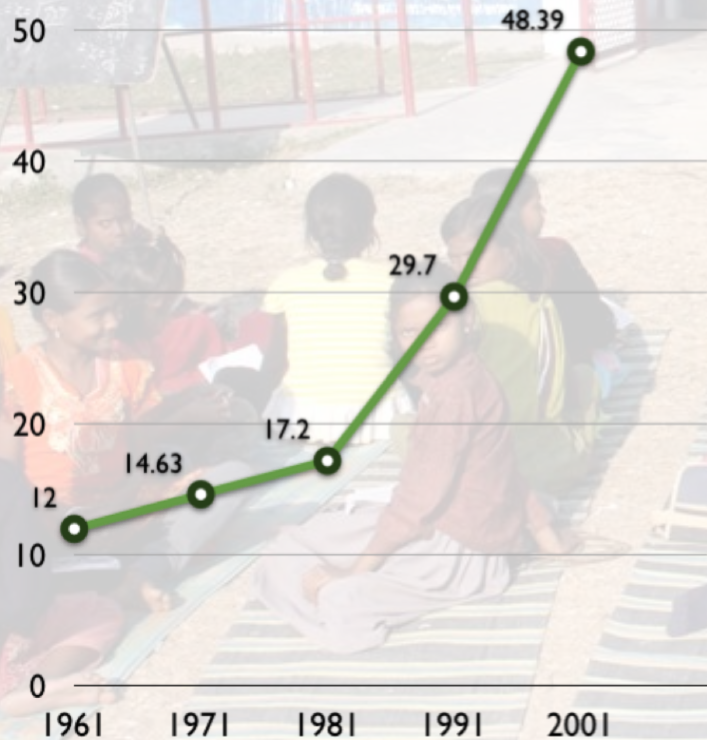
- Oil Yielding Crops
- Rice
- Vegetables
- Wheat
- Pulses
- Cereals & Others
- Sugarcane

- Stagnant Waterbodies
- Canal
- Government Borewells
- Personal Borewells

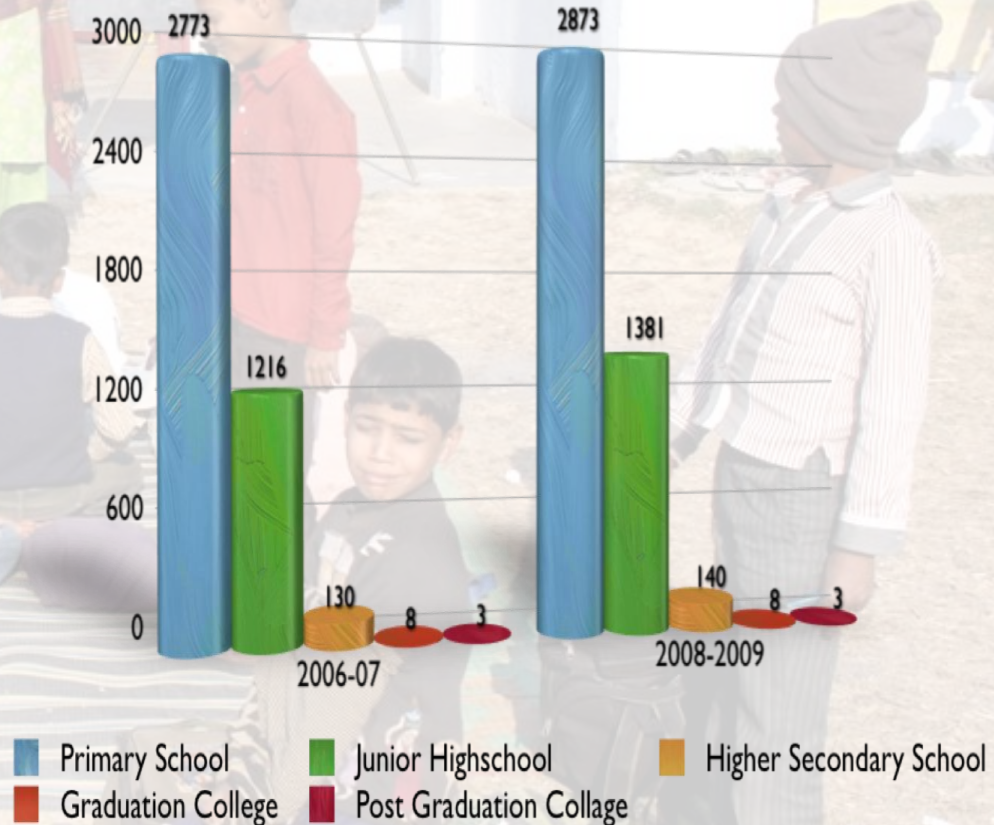
Uttar Pradesh – Lakhimpur District

User Study

Literacy as per Census for Past Five Decades



Total Educational Institutions



User Study



User Study



Vendors

Middle Men

Government

Traders

Industry

NGO / Initiatives

Schools

Politics

Market day

Women role

Threats



Need gaps



Vendor

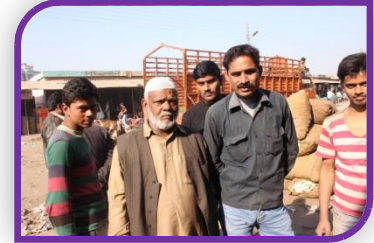


Farmer



**Renting options
Co-operation
Previous Problems
Sharing**

Trader



**Best Practices
Credit
Crop Planning
Soil/ Weather
Diagnose/Analysis/ Advice
New Varieties
Warning
Risk
Quantity**

**Transport
Supply vs Demand
Auction
Money
Commission
Hierarchy
Regulation
Uncertainties
Profit
Decisions**

**Market knowledge
Incentives
Information
Quantity and Quality
Price
Bargaining and Negotiation
Reliable source
Market reach
Communication
Trends
Proximity**

Findings / Observations

- Farmers **trade in small quantity**, and here there is **no facility to buy** in small quantity

- Some **product are required to be sold within a day**, Sometimes farmers **end up without selling anything**.

- **Comparison of products** is most common thing among farmers.

- Farmers have to **travel large distances for trading**.

- Cash crops creates the problem in supply / demand process

- **Farmers having lots of useful information** but they do not how to contact others

- **Technology** should reach the educated/ dedicated people first than they can **spread awareness to others as well**.

- **Timely crop planning is missing**, farmers wants a **single window system**.

- **Information exchange in person** is the most viable medium

- It's a very common tendency that **one can mislead them**.

- Lots of agriculture related **information are available on web**. Problem is how to access them

Findings / Observations

- Several **Government led initiative have failed** because **farmer's input was missing** and having **limited reach** to the farmers.

- **Curiosity** amongst the farmers is much higher in what rest of the people are doing as well **as what is happening in other part of village/area.**

- Farmers are very much **familiar with Mobile phones; IVRs used for listening songs, ring tones** etc.

- **BOP/MOP farmer buys second hand equipments like tractors etc from the TOP farmers.**

- Farmers have **lot of spare time** throughout the day.

- Nobody wants to help other for free, until unless there is some **personal motivation** involves in it.

- **Sharing within the community is limited.** There is **no proper medium** or reason where they can interact with each other.

- They **have to remember everything** for agricultural practices

- Use of **touch based phones** is growing in rural areas.

Insights

- Farmers trade in small quantity, if **they share and order it in bulk than they can get quality product**

- Farmers are willing to know information only if it is useful to them

- **IVR is one of the most commonly used feature (22 farmers out 35 have used it)**

- Farmers are **good in remembering patterns ,colors and interpretation (Visual icons)**

- **Calendar is one of the most useful thing amongst farmer for remembering**
(November to April period of crop cycle)

- **Relatives and friends are the major source for getting market information.**

- They have lot of spare time to explore

- They are much interested, **if somebody else demonstrate them to new technology**

- **Farmers are able to remember : Symbols (0-9), simple Hindi, English words etc**

- BOP/ MOP farmers having a **tendency to buy second hand products within a community/ village**

- **Aware of collective marketing but hesitate enough to contact in person**

- **Wants only those Information which is relevant to them**

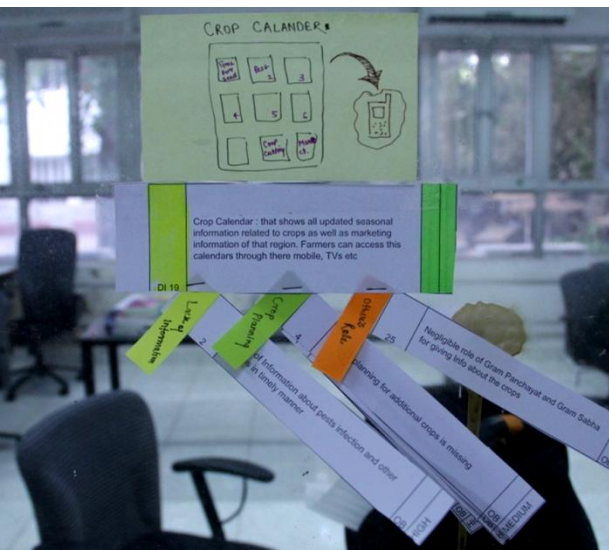
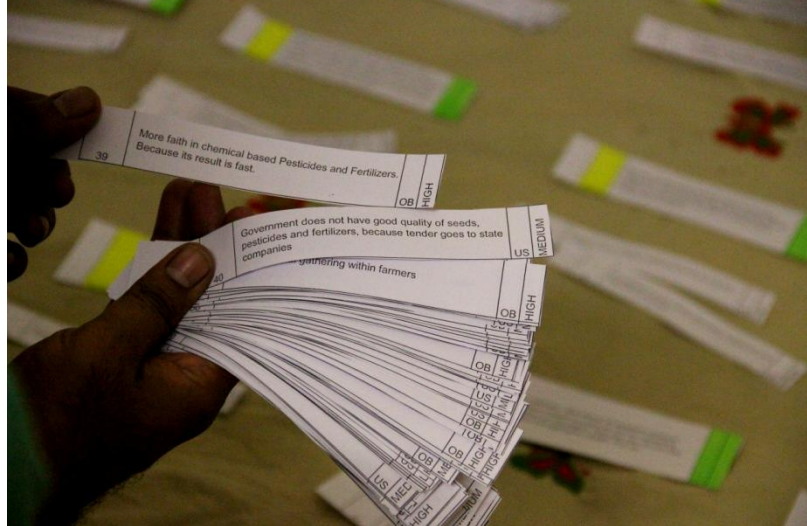
Design Considerations

- **Tradition ways of sending Information**
- **Color code for remembering the pattern**
- **Use of simple visual icons** for better understanding and visualization
- **Exploration on touch based device** (Increasing popularity , Low cost, access and availability)
- **Voice based feedback**
- **Use of local language**
- **Utilization of localized information**
- **Provide only those information which is relevant to them**

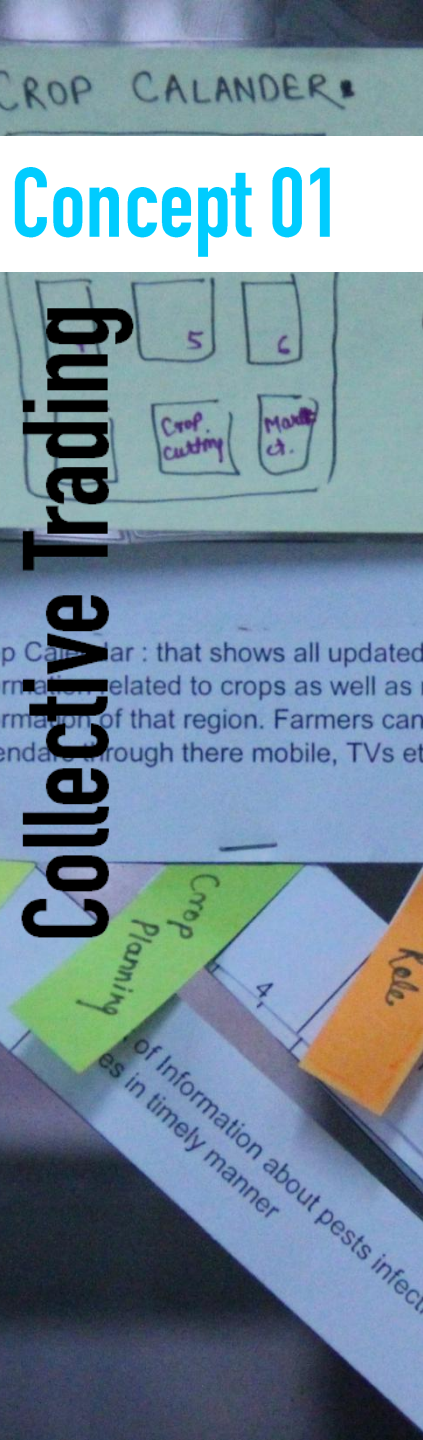
- User should feel that they are **interacting with humans for emotional attachment and socially connected**
- **Simple steps for accessing information**
- **Use of simple local language with some known English words** (eg. Option, Back etc) or symbols 0-9 , +, - , *, / etc
- **System should reflect the Agricultureness and Indianness in it**
- **System should fit in their existing life style**

Early Ideations





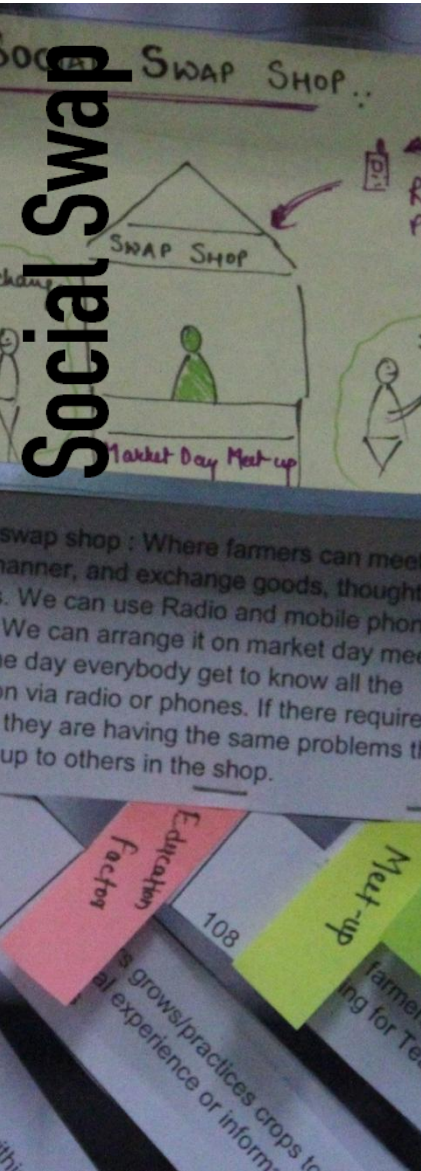
Collective Trading



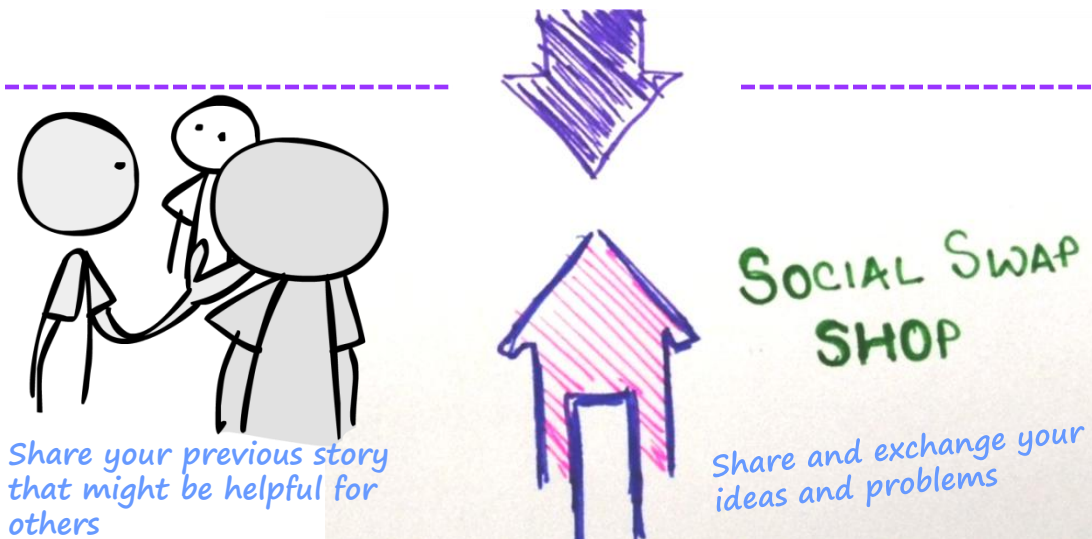
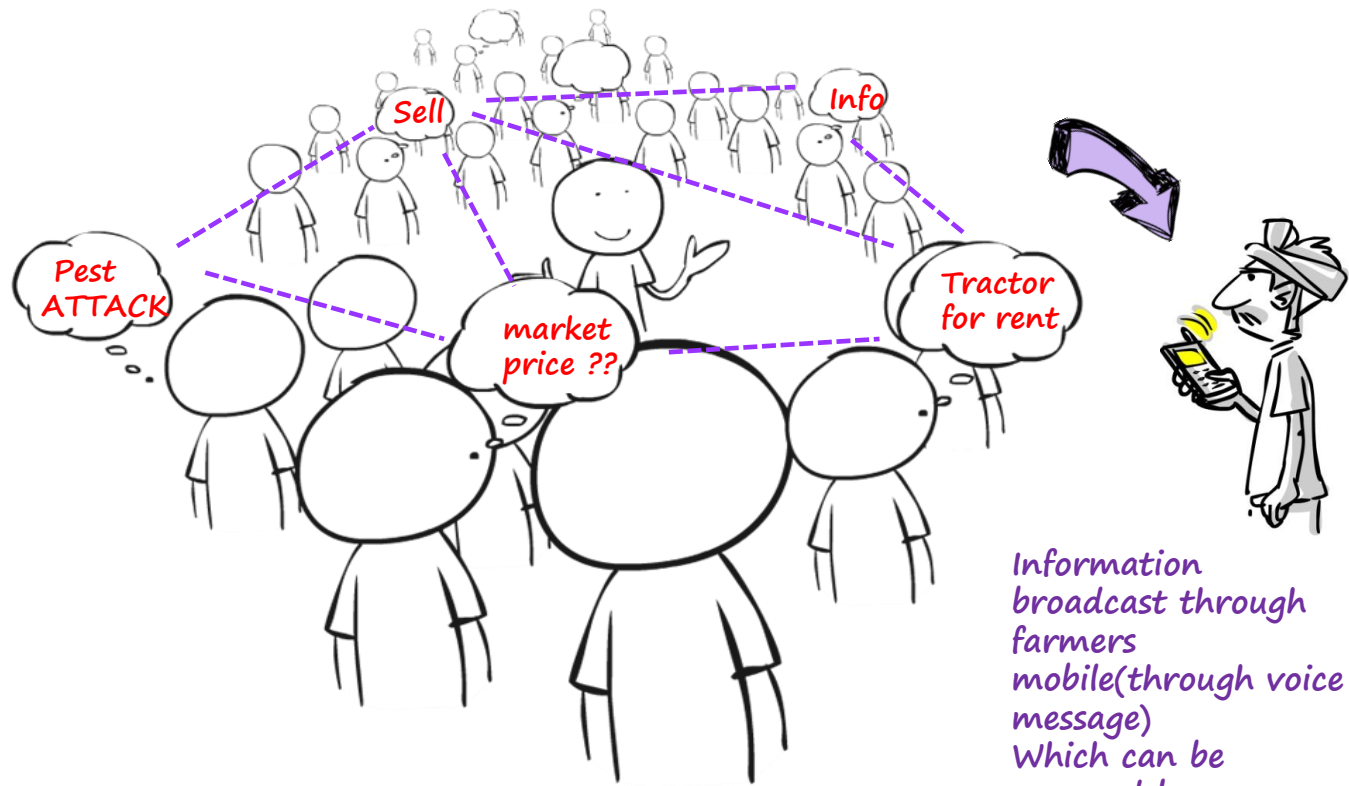
All activities automatically updated in calendar (Temporal)
It can be updated by anyone(Farmer, Trader, Vendors, Government etc)

Concept 02

Social Swap



swap shop : Where farmers can meet in a friendly manner, and exchange goods, thoughts and ideas. We can use Radio and mobile phones to share information. We can arrange it on market day meet-up or on a day everybody get to know all the things going on via radio or phones. If there are any problems they are having the same problems they can share them up to others in the shop.



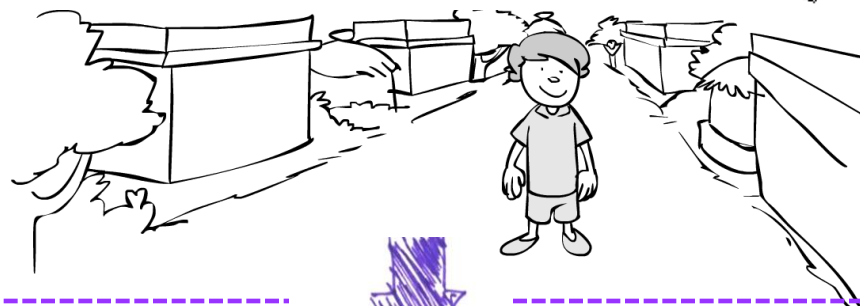
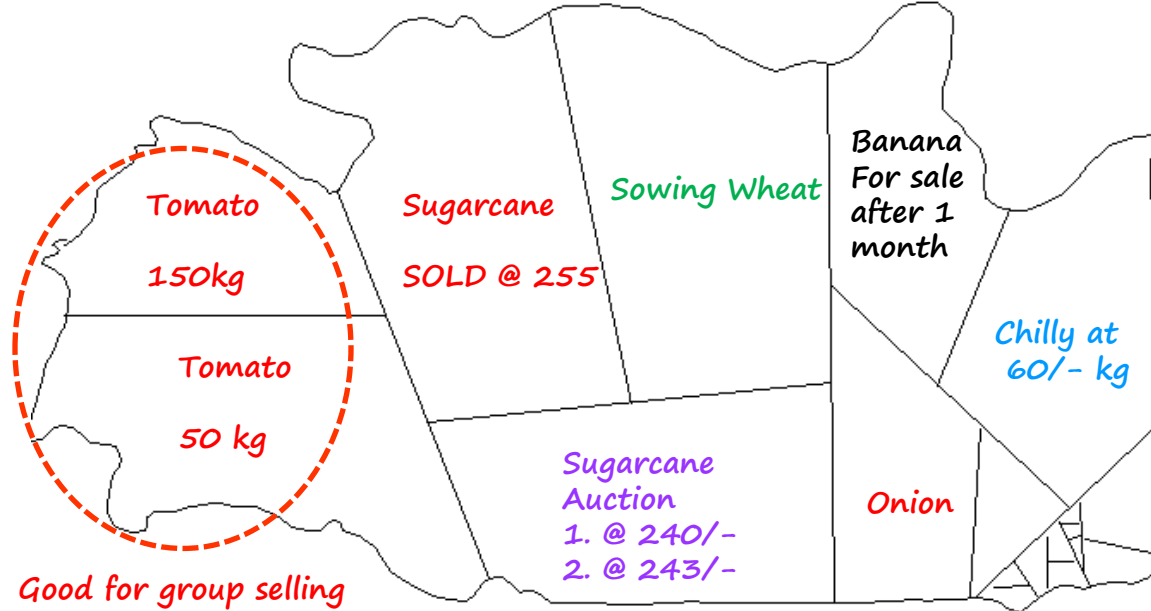
VILLAGE WITHIN CITY.
city2

Concept 03

Village as Supermarket

g. Insight
Cash is there immediate
requirements also there
is a need of connectivity
among the farmers,
consumers, sellers
& retailers

Industry especially small scale
OB HIGH
OB HIGH

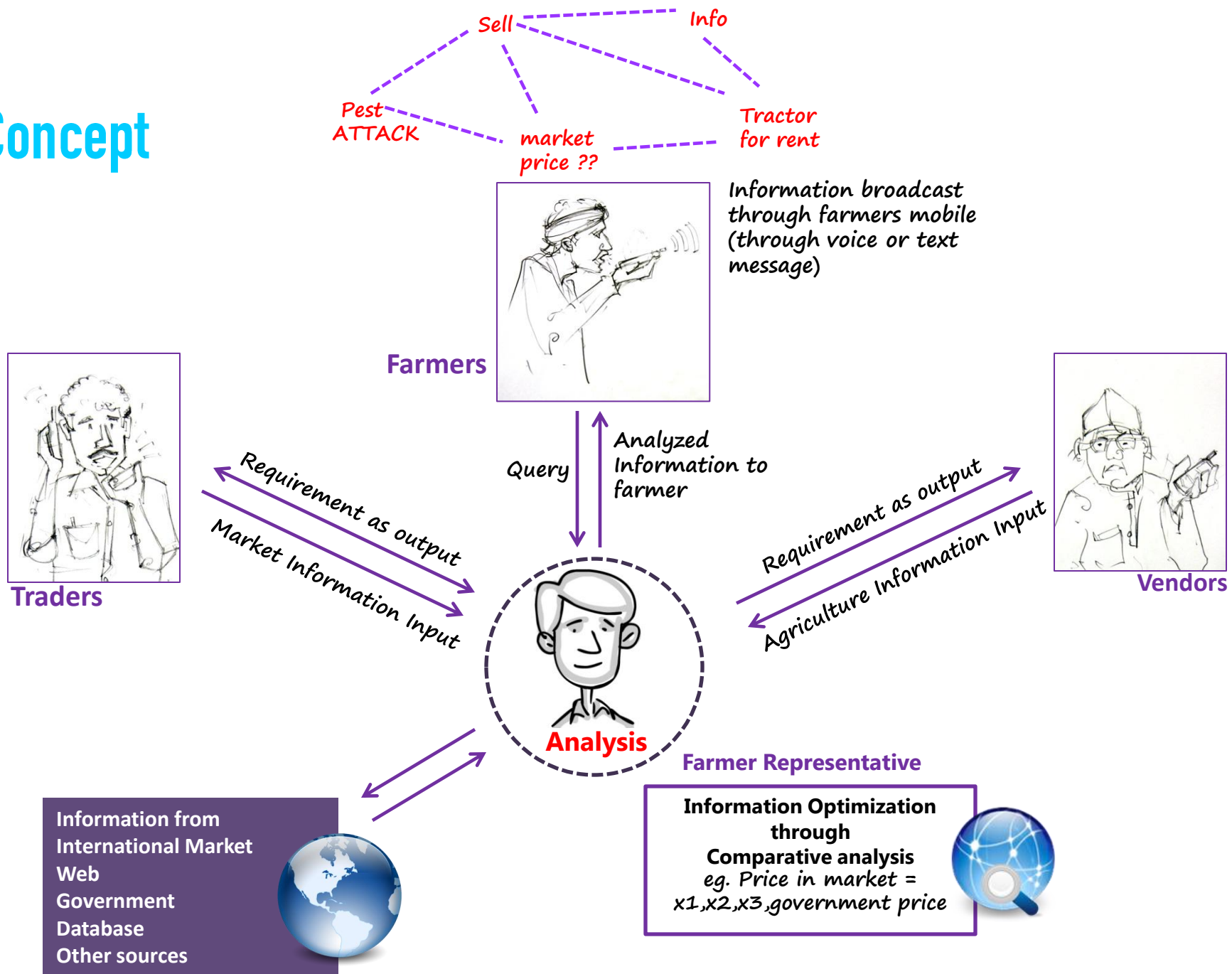


Kind of supermarket :
Where you can visualize
whole village's crop on
the Map through mobile

Trading can be done
through Mobile Phone



Final Concept



Scenario



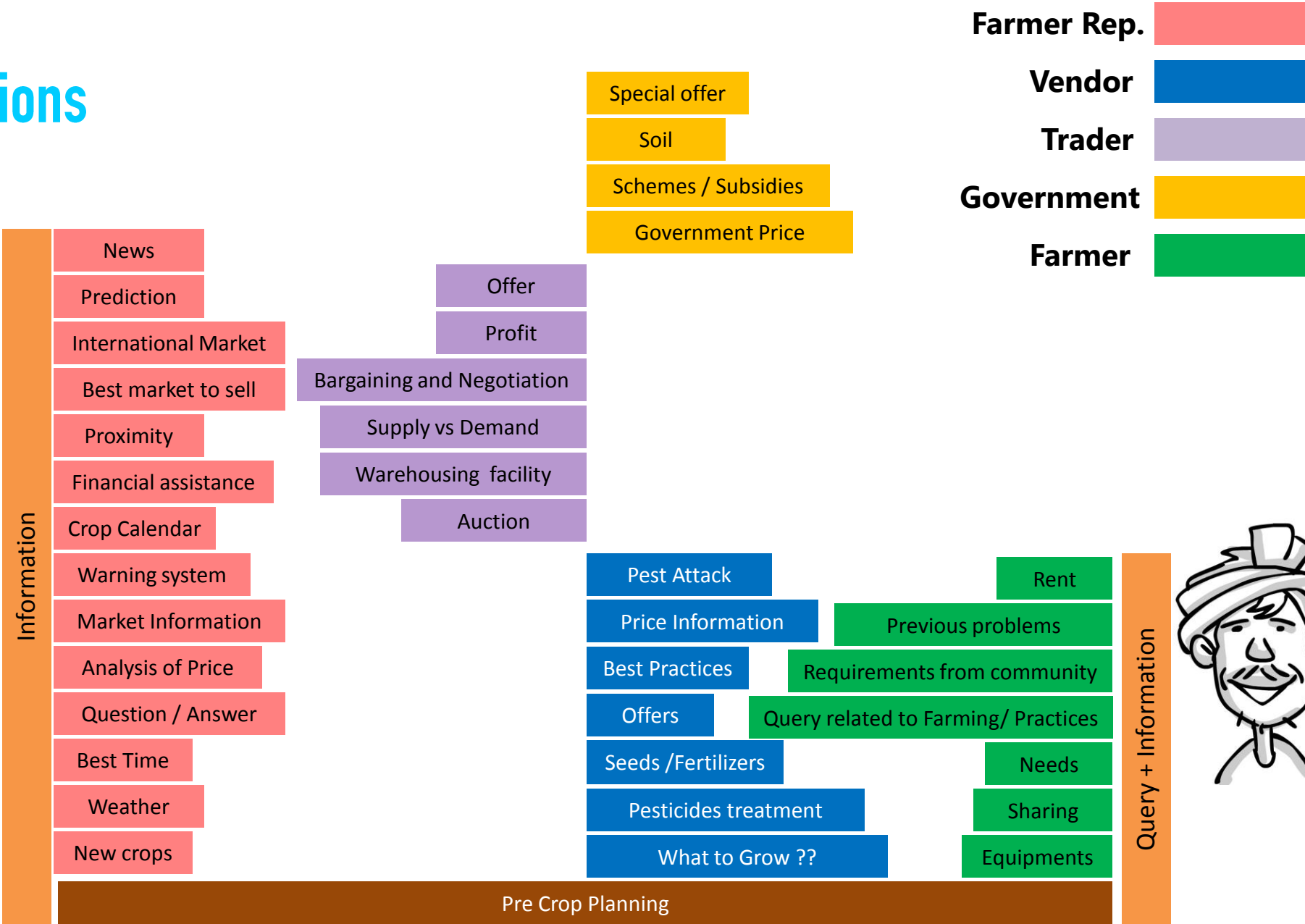
Watch Scenario Video :

<https://vimeo.com/40856266>

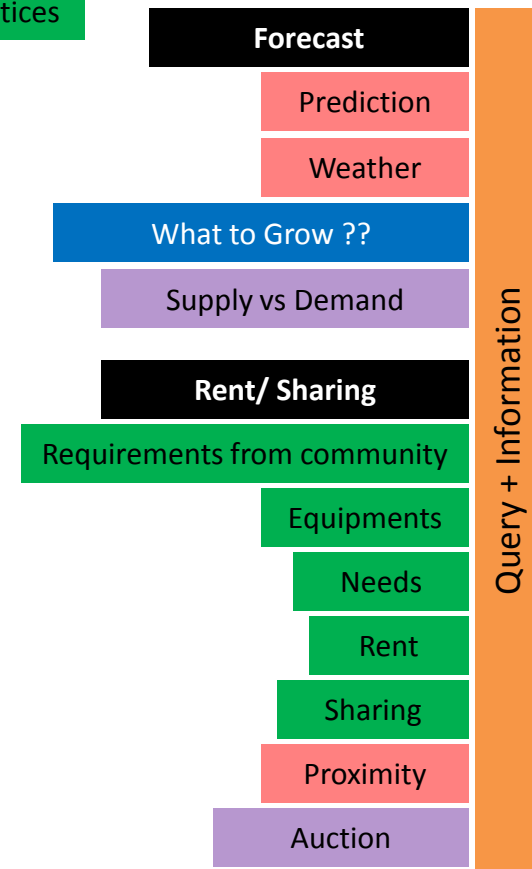
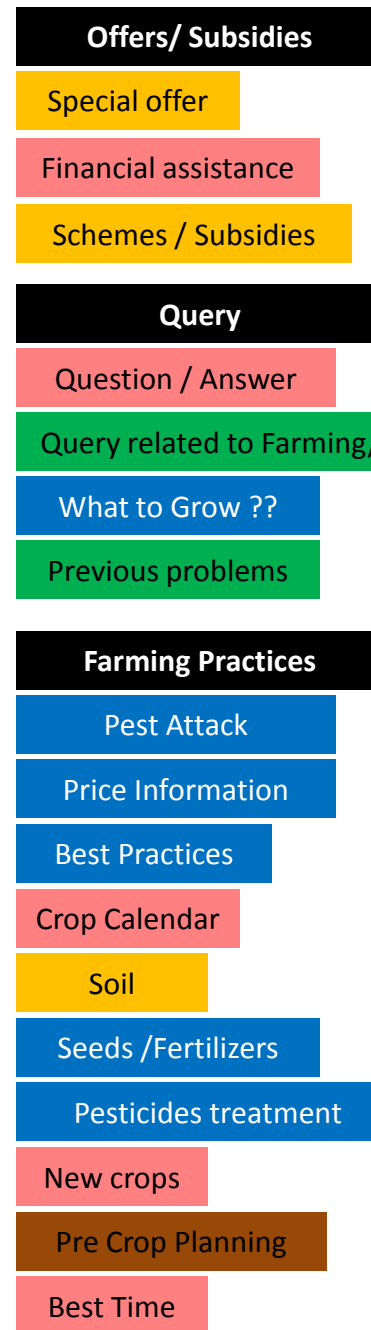
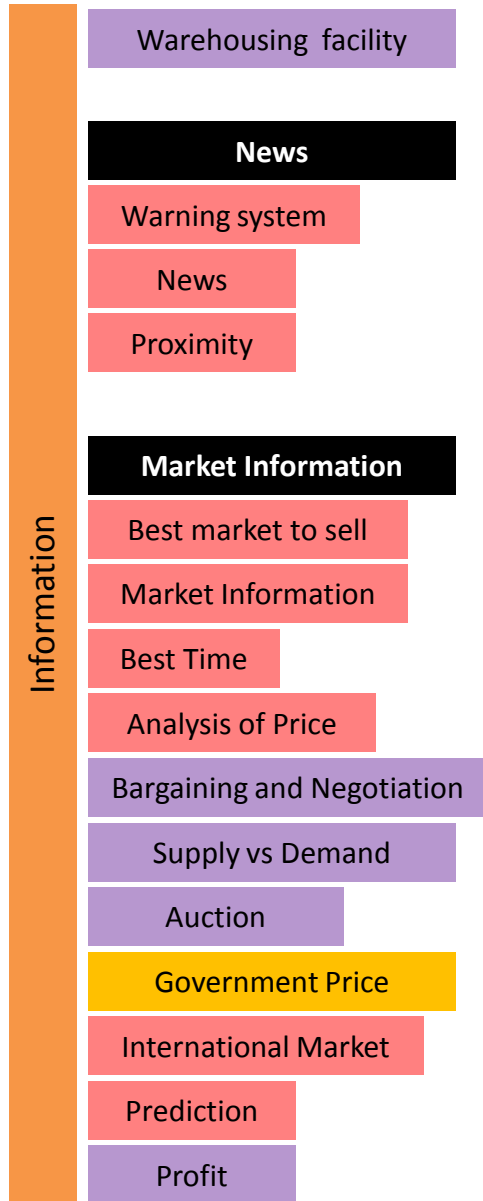
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Kheti Baadi

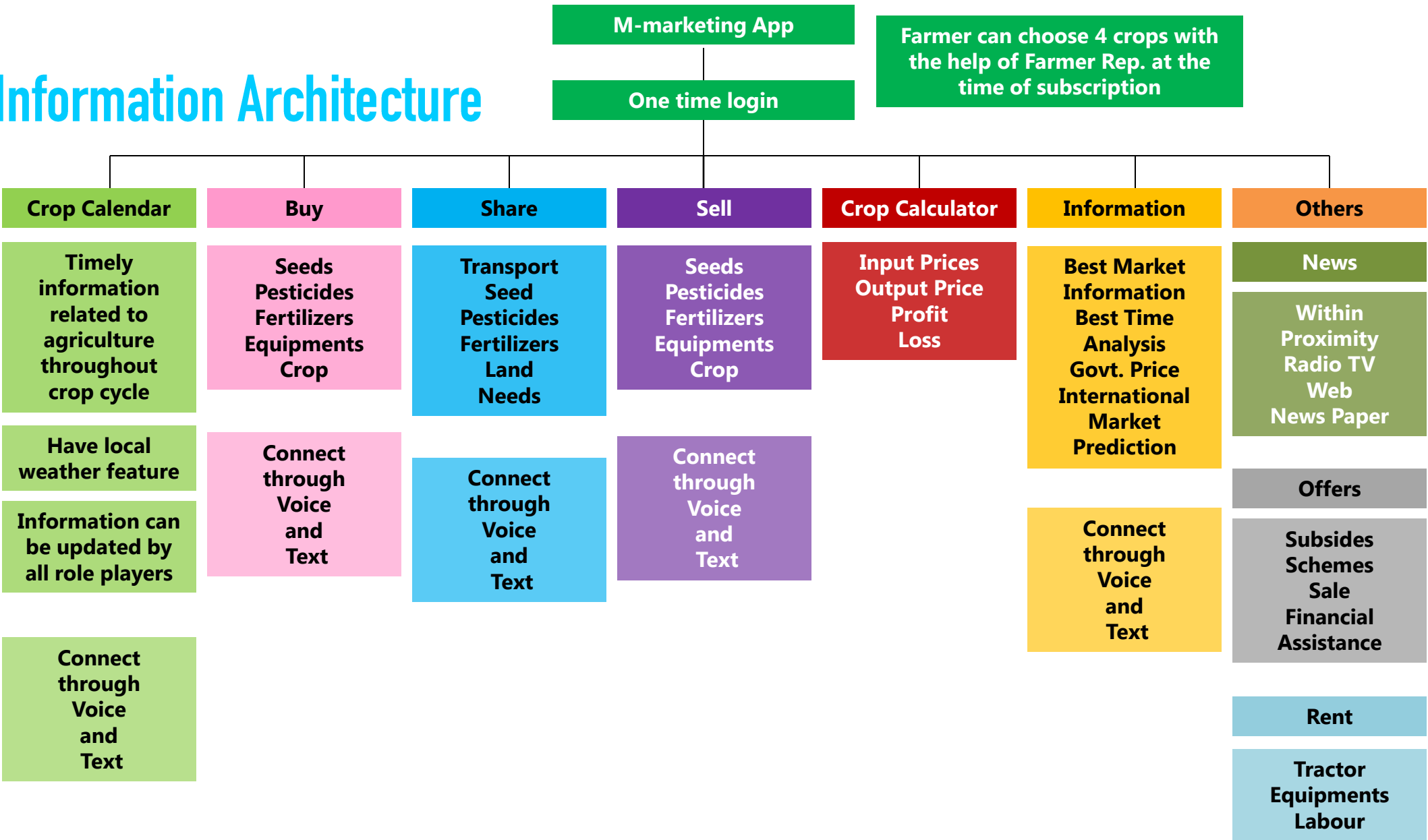
Contributions



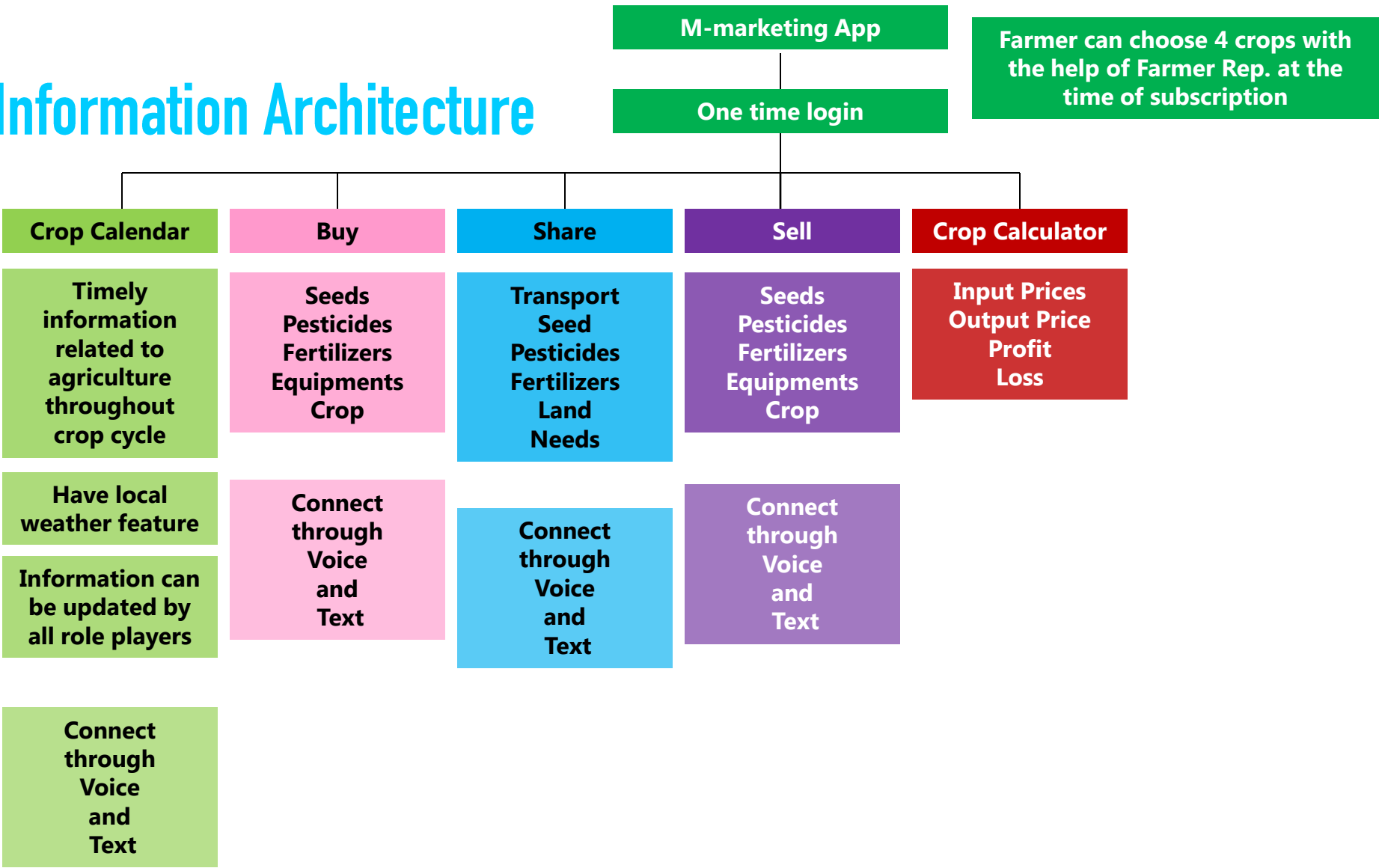
Sorting



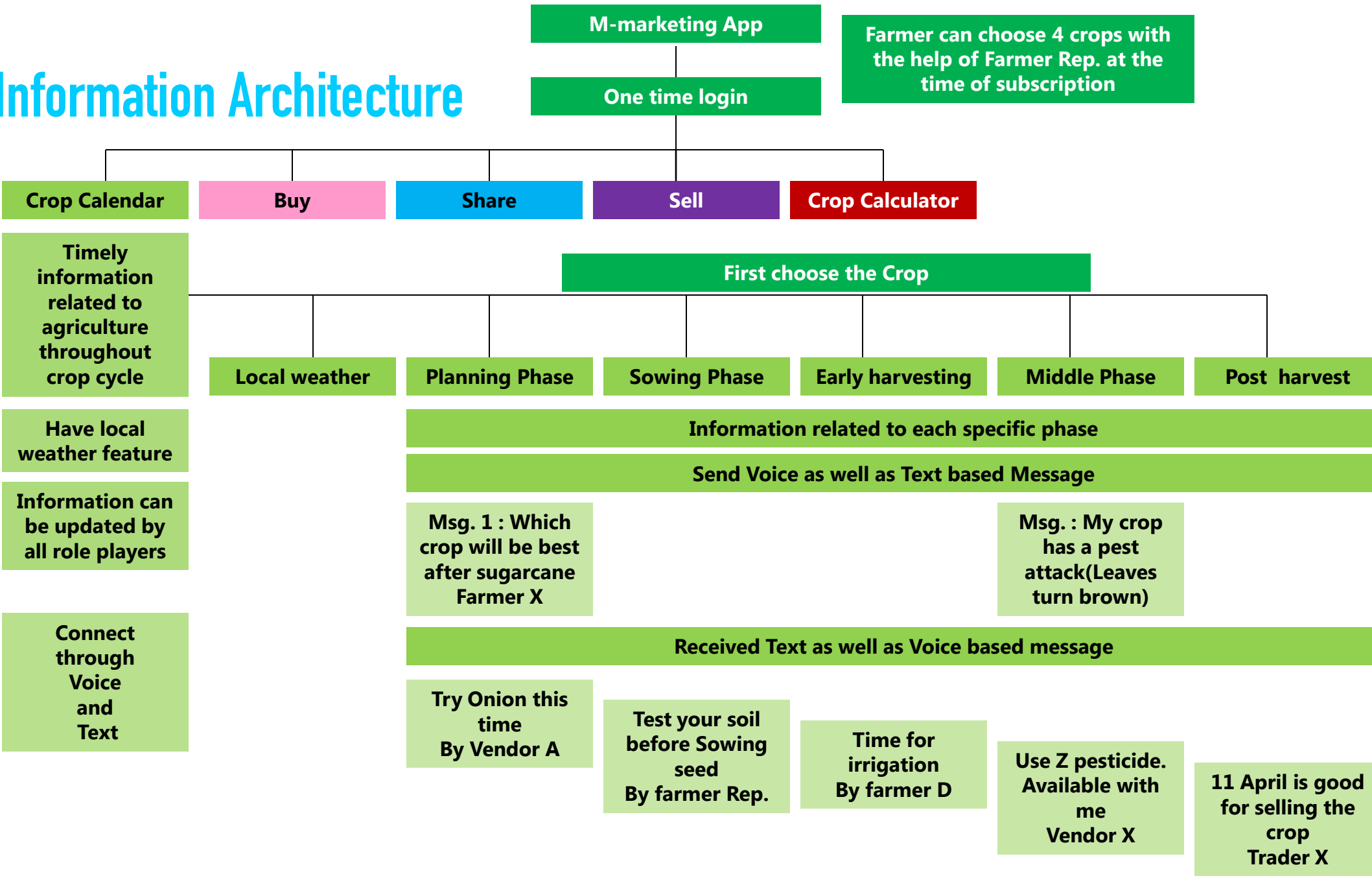
Information Architecture



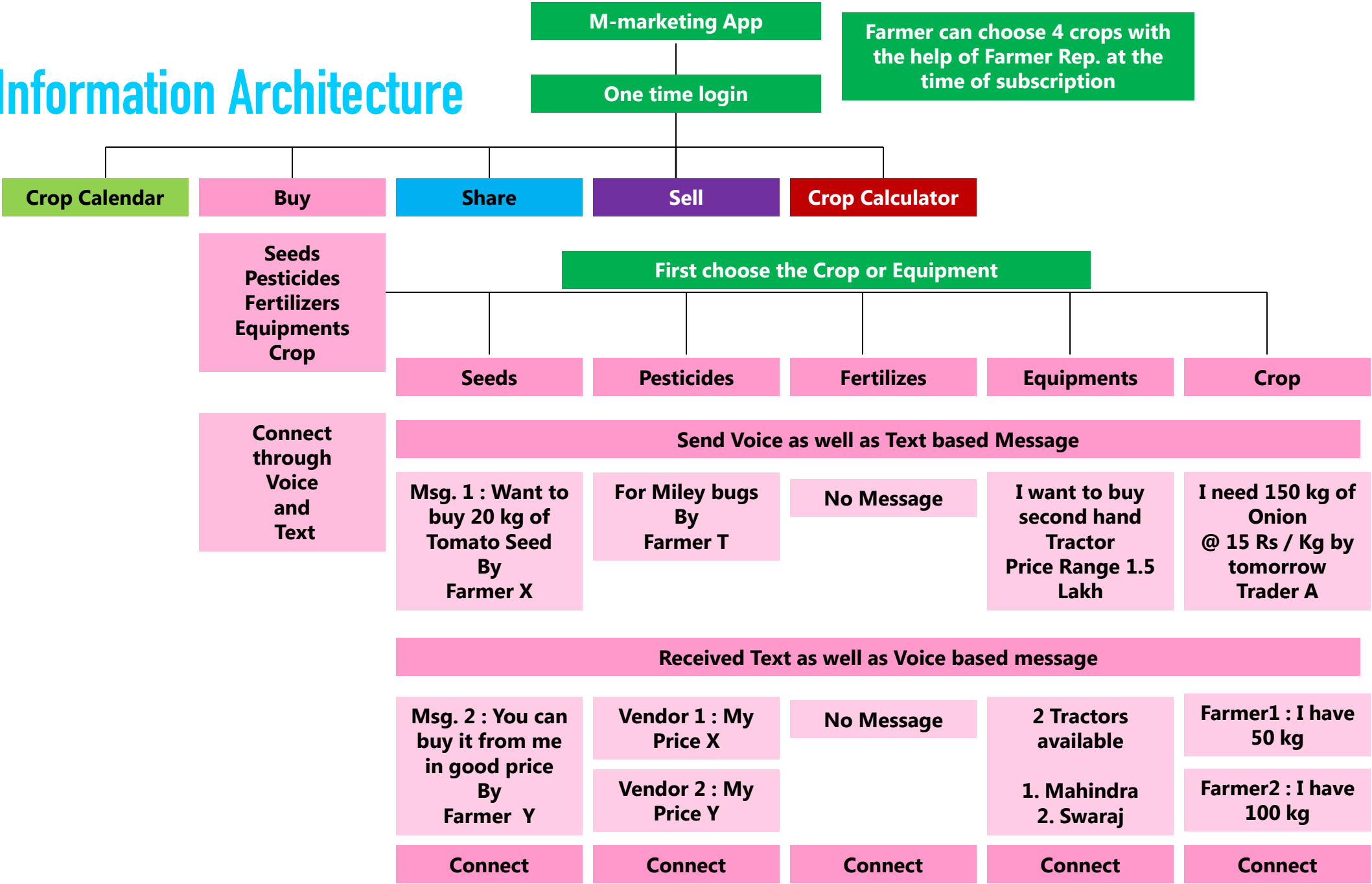
Information Architecture



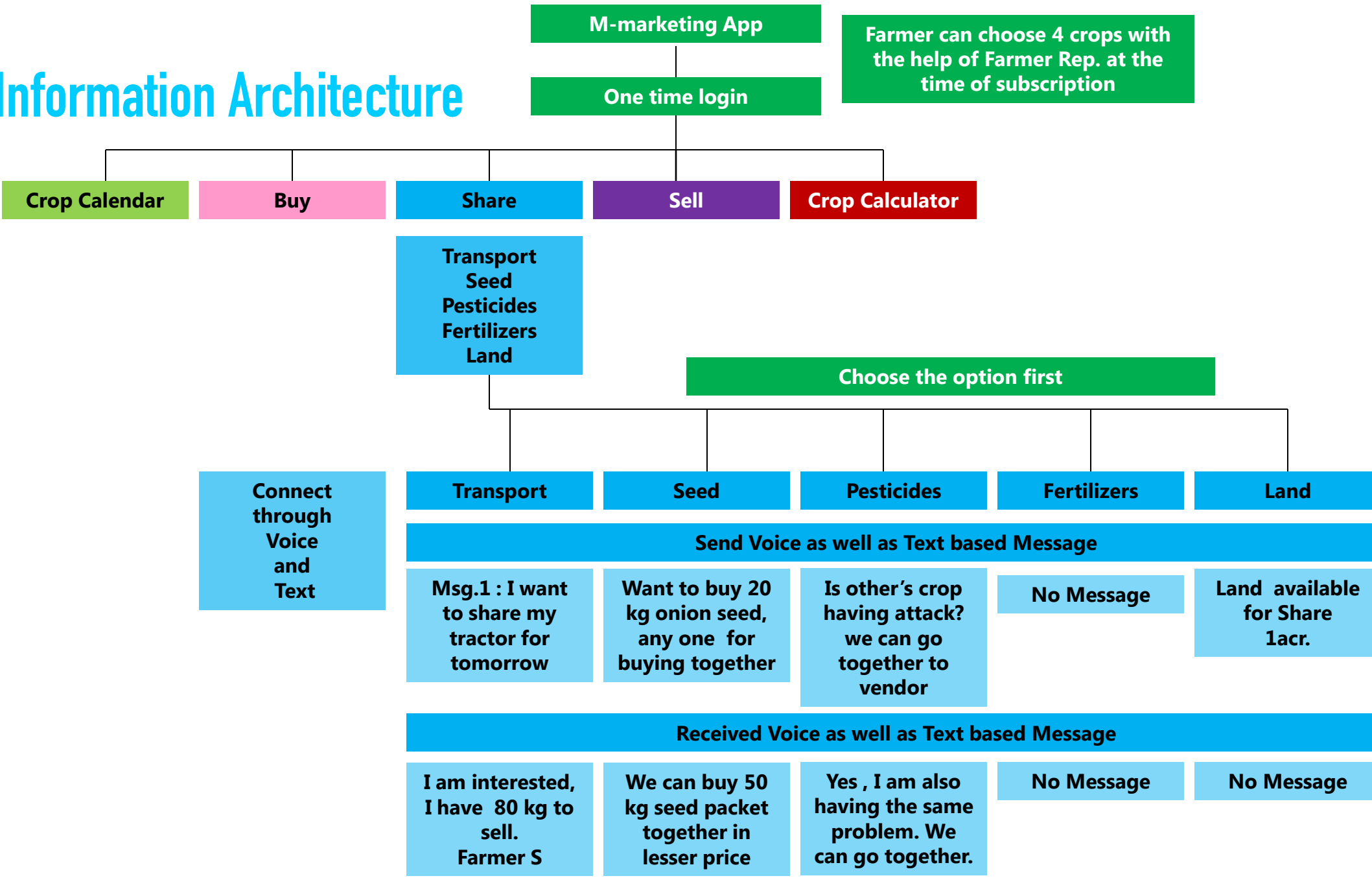
Information Architecture



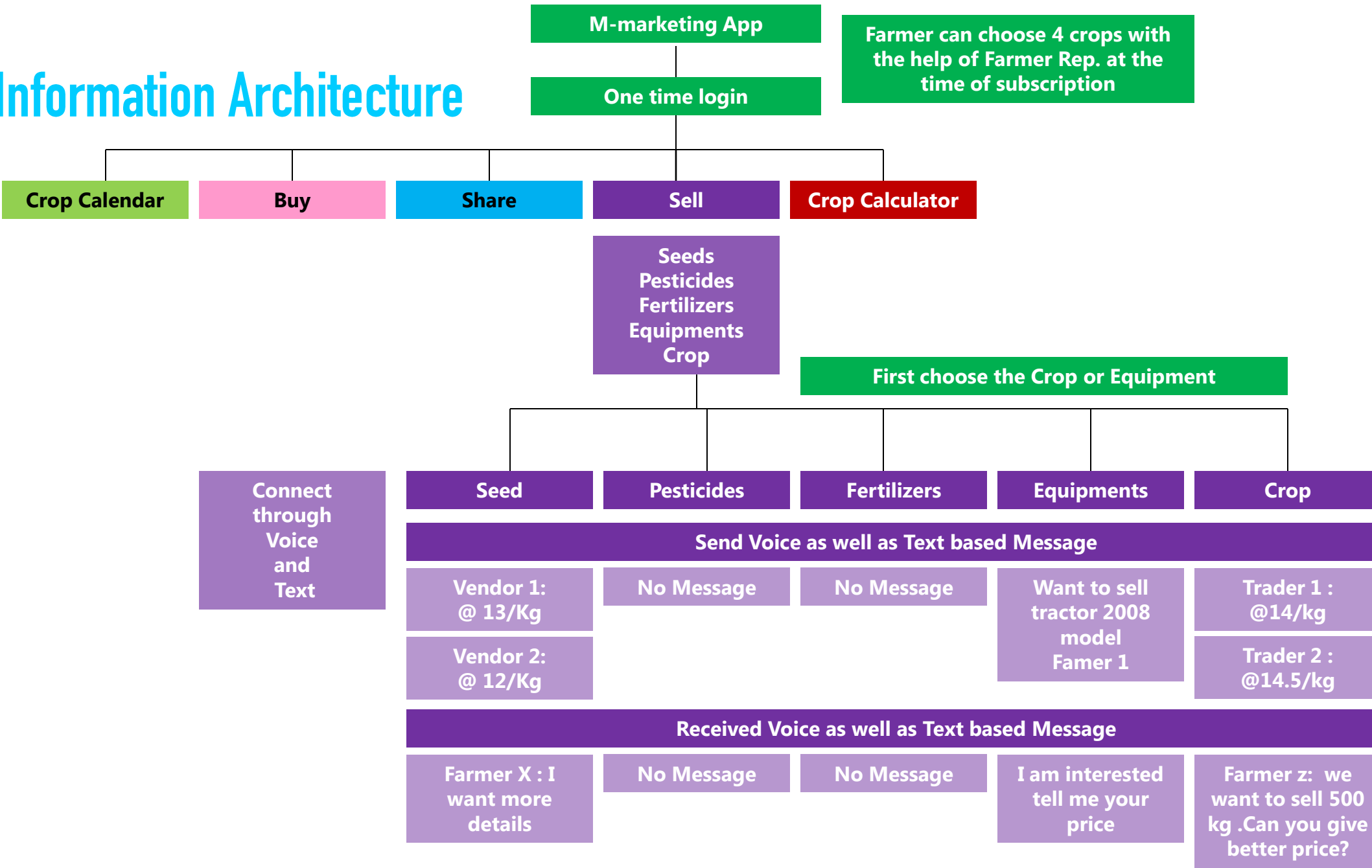
Information Architecture



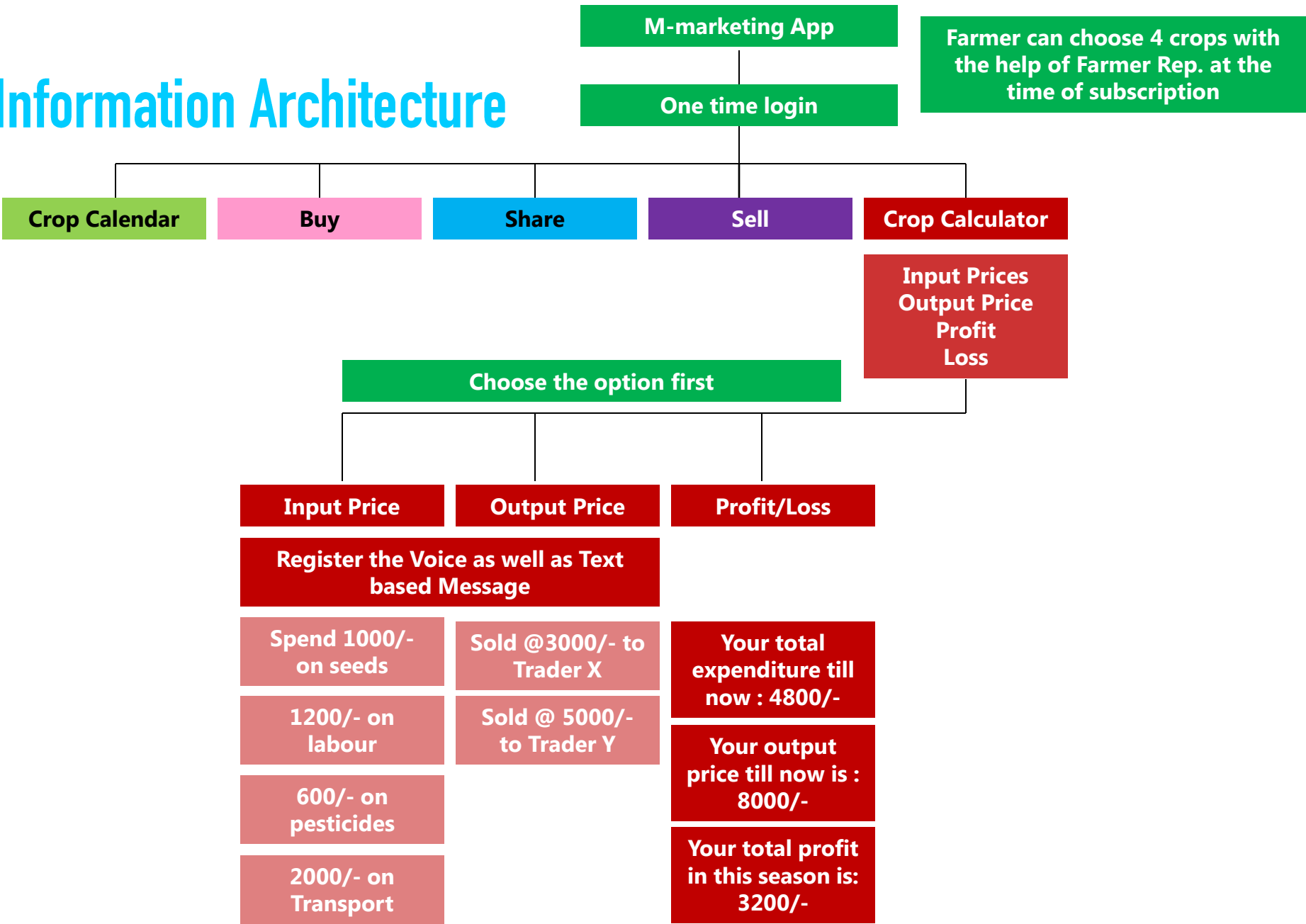
Information Architecture



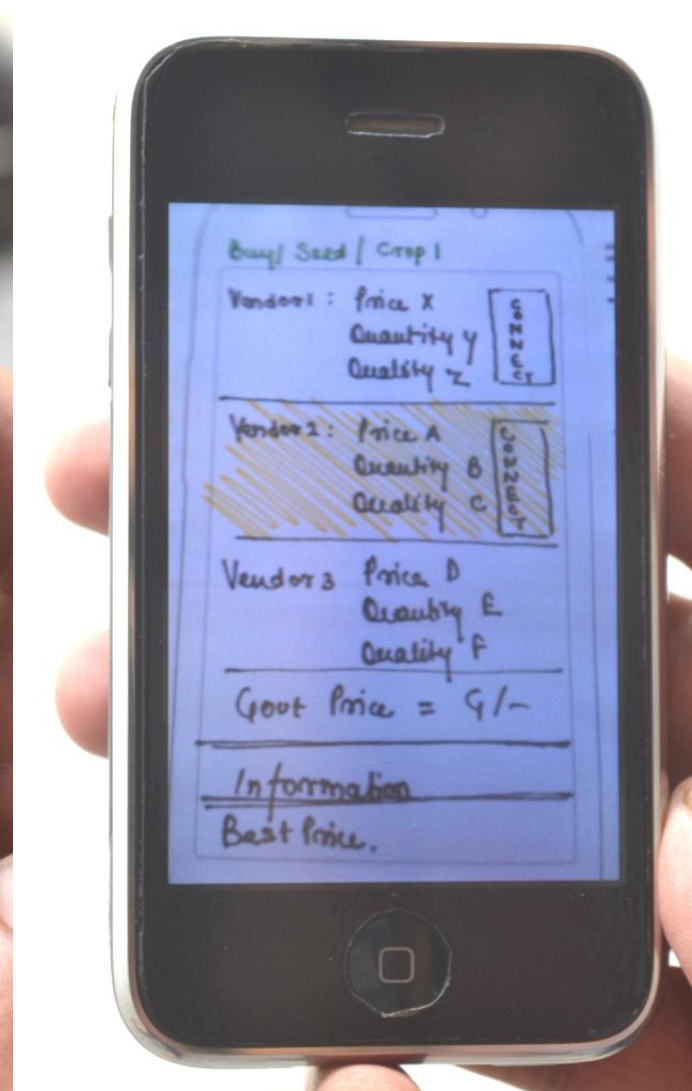
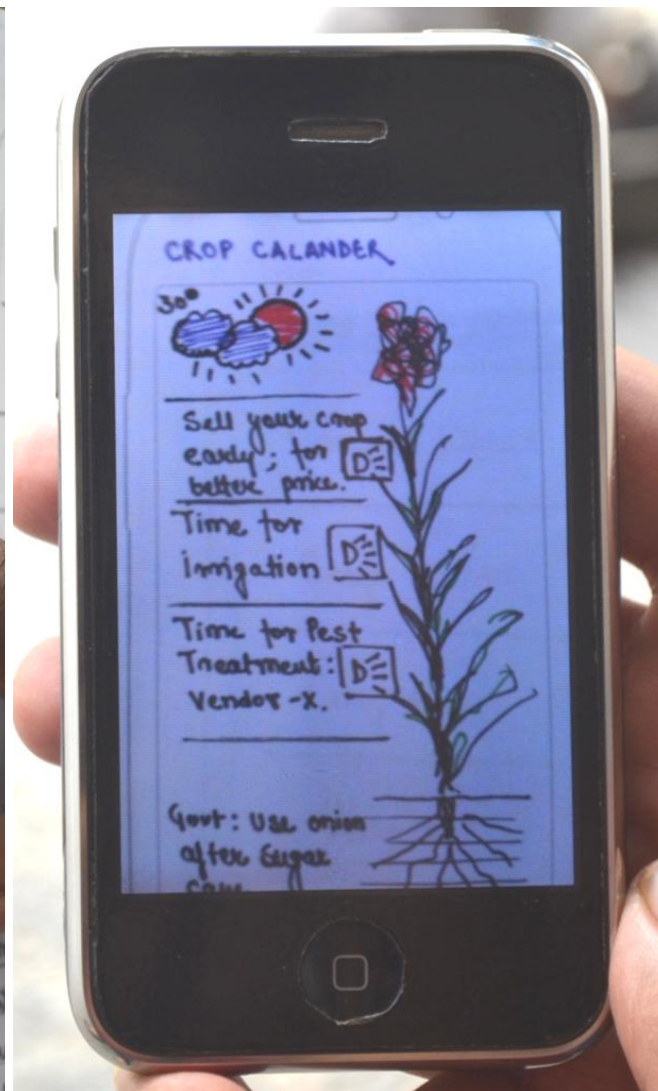
Information Architecture



Information Architecture



Initial Paper Prototype



Quick Testing





Quick Testing

User Profile :

No of Users : 06

User Profile : Construction workers from India

Place : NUS, Singapore

Literacy : Up to 12th standards

(Taking as a assumption that these workers are the closest user group to farmers)

Results :

Observations :

- 04 out of 06 users confused with Share and Rent options
- Since all the user were Tamil, understanding different language were quite difficult.
- 05 out of 06 users easily predict the next task **(Task : To buy 20 kg seeds)**
- Difficulty in finding Voice button on screen
- 4 out 6 user preferred voice based interaction in local language **(Task : To send your query through phone)**

Interpretation :

- **Share and Rent button should have different Identity** or should be merged
- **Text should be in local language with simple interpretation**
- **Visual Icons should be clear and simple**
- **Application should have both feature (Text as well as Voice)**
- Buttons should be more intuitive

Paper Prototype



Paper Prototype

रवेती बाड़ी

कृषि पंचांग	खरीदे
स्वासा	बेचें
हिसाब	अन्य

ल्याज = 7/- आल् = 9/- ओहै 700/- भक्का 90

कृषि पंचांग

संदेश मिले

विक्रेता: इस बार किसान ज्यादा अनाज

कृषि विभाग: बुजुर्ग से पहले मिट्टी की जांच

आपके संदेश

गन्ने के बाद कौनसी फसल ?

संदेश भेजें

आज एकदशी सोमवार 5 मई कृषि विभाग आज

1	5	9	13	17
2	6	10	14	
3	7	11	15	
4	8	12	16	

खरीदे

सुझाव

संदेश मिले

विक्रेता: बीज उपलब्ध हैं। बीज के बारे में किसान: भरे पाछ अधिक बीज हैं। संयोजक

आपके संदेश

मुझे: 20 किलो टमाटर के बीज चाहिए

संदेश भेजें

बीज कीटनाशक रवाइ उपकरण फसल

हिसाब

भगाई गयी रकम

प्राप्त हुई रकम

लाभ / हानि

कुल लाभ = 400/-

अन्य हिसाब

केलकुलेटर

1000/- बीज खरीदे

600/- कीटनाशक

1500/- ट्रैक्टर

कुल = 3100/-

राशी डालें

2000/- मंडी में बेचा

1500/- विक्रेता से मिले

कुल = 3500/-

राशी डालें

Paper Prototype

Open Proto Option

5 Kheti Badi 19

हिस्सा रसीद

बेचो अन्ग

आल = 7/-, आल = 9/-

option | Back



5 कृषि पंचांग 19

गन्ना सरसो

आल पाप

Option Back

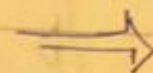
5 कृषि पंचांग 19

आल 10 मर

कृषि विज्ञान आन है पंचांग

1	5	9	13	17
2	6	10	14	18
3	7	11	15	19
4	8	12	16	20

option Back

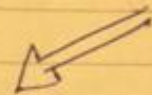


5 संदेश भेजें 19

संदेश देखें

संदेश भेजें

Option Back



5 कृषि पंचांग 19

आल 10 मर

संदेश देखें

संदेश भेजें

आपके संदेश

Option Back



5 कृषि पंचांग 19

आल 10 मर, रसीद रसीद

कृषि विज्ञान आन है 1

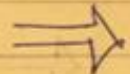
पंचांग

संदेश देखें ②

संदेश भेजें ①

प्लानर

Option Back



5 साक्षा 19

साक्षा

आतायात

बीज

कीटनाशक

खद

फसल

भुजी

Option Back

5 साक्षा / आतायात 19

संदेश देखें

संदेश भेजें

सुझाव

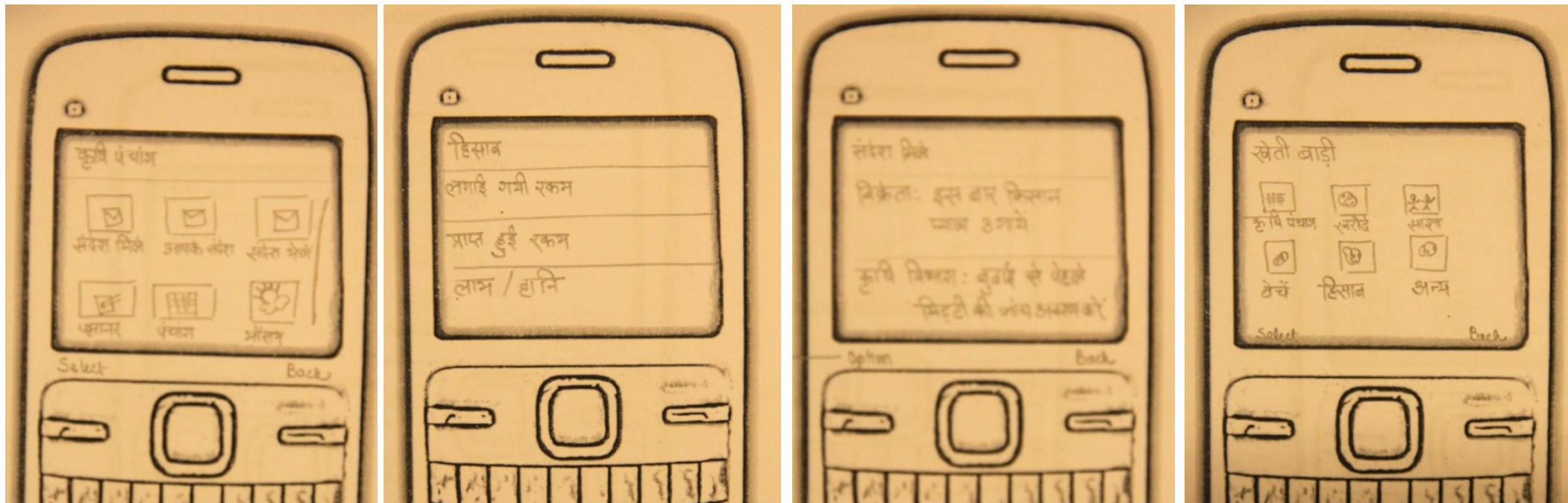
उपकरण बीज कीटनाशक

खद फसल भुजी

Option Back

पंचांग
संदेश भेजें

Final Paper Prototype

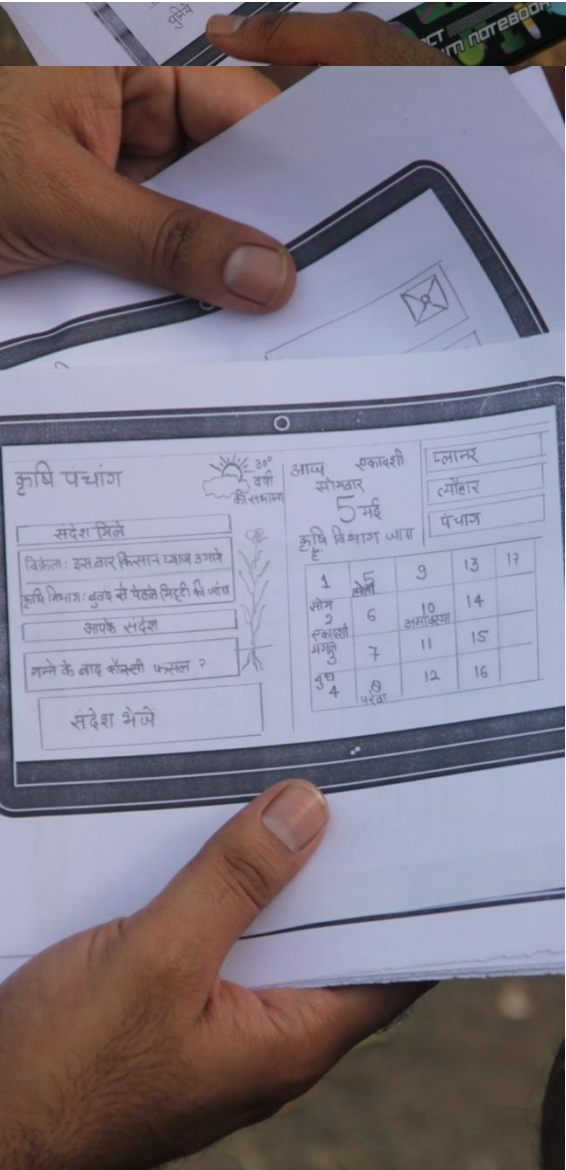


Testing





Results



User Profile :

No of Users : 10

Age group: 18 to 60 years

Location: Mumbai (belongs to Uttar Pradesh),

Occupation: Farmers and part time migrant laborer

Results :

Observations :

- 04 users finds **difficulty in adding money to their expanses**
- 07 users having difficulty **with some visual icons**
- 03 users finds **difficulty in navigation**
- Grid view is most suitable than list view among 05 users
- **“How would I know that I have received a message”**
- 03 users confused with **Calendar and Messages on the same page**
- Pattern of usage of touch based phones was amazing

Interpretation :

- Add amount and such other options should be explored more
- More focus on visual icons with their names
- Alternative options on the screen
- Alert notification for receiving messages
- Too much information on the same page, it should be step by step

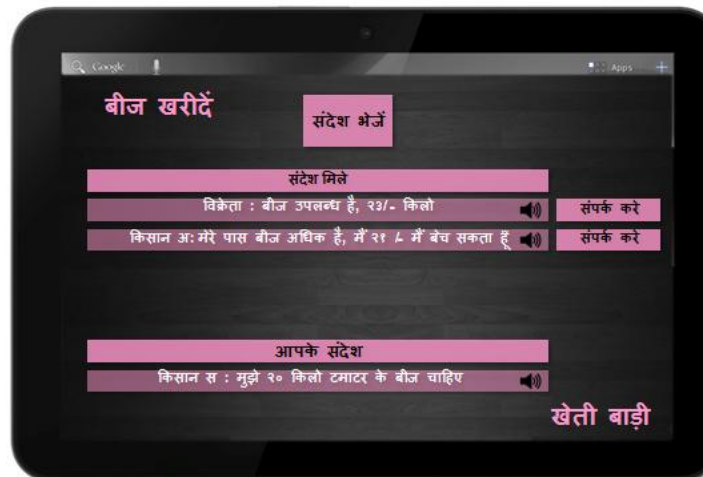
Initial Wireframes



Main Menu



Crop Calendar



Buy Seeds



Buy Seeds

Final Prototype



Final Prototype



Changes

Crop Calendar

कृषि पंचांग

संदेश मिले

विक्रेता: इस तरह किसान जाय अगले कृषि विभाग दुज से पेडले मिट्टी भी जंग

आपके संदेश

मने के बाद कौन्सी फसल ?

संदेश भेजे

आज रविवारी 5 मई 2012

कृषि विभाग जाय

1	2	3	13	17
4	5	6	10	14
7	8	9	11	15
12	16			

कृषि पंचांग

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कृषि विभाग जाय

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4	5	6	10	14
7	8	9	11	15
12	16			

Buy

हिसाब

भगाई गयी रकम

प्राप्त हुई रकम

लाभ / हानि

कुल लाभ = 400/-

कुल हानि = 300/-

शरीर डाले

शरीर डाले

शरीर डाले

हिसाब

भगाई गयी रकम

प्राप्त हुई रकम

लाभ / हानि

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शरीर डाले

शरीर डाले

शरीर डाले

हिसाब

भगाई गयी रकम

प्राप्त हुई रकम

लाभ / हानि

कुल लाभ = 400/-

कुल हानि = 300/-

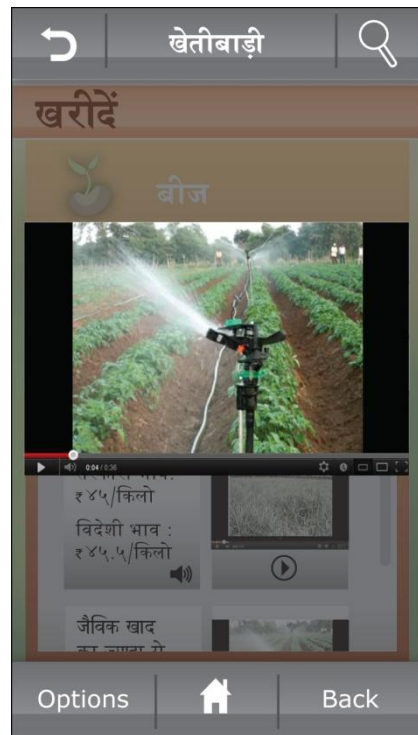
शरीर डाले

शरीर डाले

शरीर डाले

Crop Calculator

Changes



Final Testing



Final Testing



User Profile :

No of Users : 19

Age group: 18 to 60 years

Location: Lakhimpur Kheri District, Uttar Pradesh

Village: Nizampur, Musepur, Padri Mohan,
Kheri, Deuaapur

Occupation: Farmers, related to agriculture

Education: up to 12th standard

Digital literacy: Can operate basic mobile phones
(Calls, sms, camera)

Final Testing

Goals:

Learnability

Findability: options / data / information should be visible / easy to find

User should take less time to learn. Users should be able to learn on their own

Product should be consistent with other products, older methods / past habits of users

Speed of use

User must be able to do the primary task / the most frequent tasks quickly, easily

User should be able to navigate quickly and easily

Product should not load user's memory / product should not put cognitive load on a user

Ease of communication

Information architecture: Information should be well aggregated, well categorized

Communication should be clear / user should easily understand text, visuals

Ease of use

Interface should clearly communicate the conceptual model

Intuitiveness: User should be able to predict the next step / task

Product should be always on, always accessible

Error free use

Product should give good feedback / display its current status

Subjective satisfaction

User should feel emotionally engaged with product / brand / product should be fun / reflective appeal

Final Testing

S. No.	TASK	
1	START	
2	Introduction to the PROJECT	
3	Verify Demographics + Introduction of touch based phone.	
4	Will ask them to call from the touch based phone.	
5	Give them tasks and ask them to search	
6	Fill the observation chart	
7	Continue till the last task is over	
8	Ask them about the suggestion and feedback	
9	END	

Tasks 1:

- To find information related to Onion.
- Task to see message which user have been posted earlier.
- Open crop calendar
- You want to buy 20 kg of seeds.
- You need to sell your crop with other farmers in group, how you will do that.
- You want to share your tractor.
- Listen your message
- How will you send message from the device?
- Set your plan on calendar
- See the weather report
- Suggestion related to Selling of crop

Tasks 2: Visual understanding

- Icon and text understanding
- Icon and Text Matching

Final Testing

Objective Observations				
	High	Medium	Low	Remarks
Level of ease	✓			
Intuitiveness of the interface		✓		
Findability of the information	✓			
Willingness to explore / learn		✓		
Ease of navigation within the interface		✓		
Navigation of interface	✓			
Communication of interface	✓			
Pridiction of next step		✓		
Understanding of Information Architecture	✓			
Findability of the information		✓		

Subjective observations

What sort of mistakes did the user make?

How well it is communicated to the user?

Information architecture is completely understood by user?

Communicated to conceptual model?

Findability options?

Navigation problem?

At what point did the user give up?

Cognitive load on user?

Control over interface

Complition of the task in given time?

Learnig issues?

Prediction of next step

Engagement with the system

Time taken to learn and Consistency

Interface appeal

Feedback from the user

Final Testing



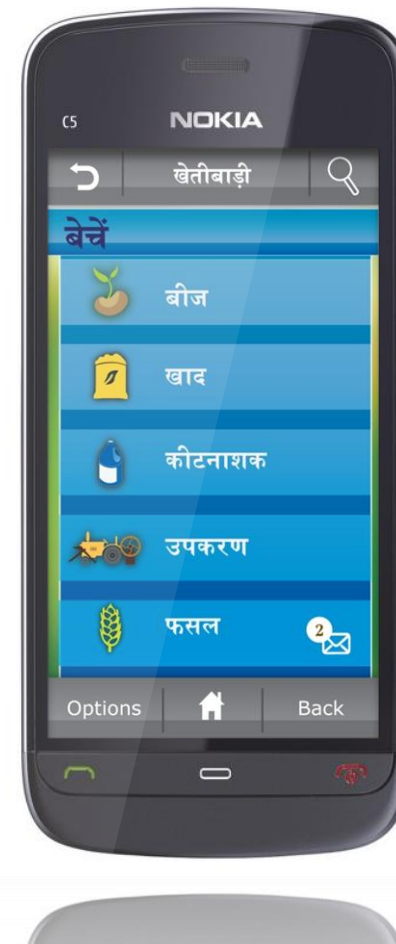
Results :

Likes :

- Crop Calendar
- Voice Feedback
- Message sending/ Receiving
- Suggestion / Advice
- Sharing
- Contact to anyone
- Reminder
- Videos
- Crop Calculator
- Look and feel of interface
- Reminder
- Fun to use
- Information related to agriculture
- Personal Management

Other Observations :

- 15 Users finds **Price information on the main screen is helpful**
- **17 Users do not finds any difficulty in using touch devices** (2 users totally gave up)
- **Audio input feature** is liked by all the users
- **Information related to calendars , plans and festivals is add on** (08 Users)
- 12 user finds **that Video and audio is much more continent than text**
- Curiosity among youth and middle aged was quite higher
- **All icons are understood by all the users but with text**



Final Testing



Control	Good
Communication	Easily understood
Information Architecture	Easily understood
Findability option	Good
Task completion time	Very good
Cognitive load	Satisfactory
Learning	High
Prediction of next step	Fair
Engagement	Very high
Second time use :	Very comfortable





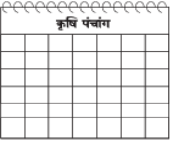









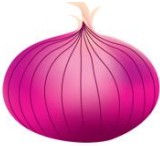








User Statements :

- "Ye bahut aasan hai, aur isses use karne mai accha laga"
- " Agar market mai aaya to sab isse use karenge"
- " Issme achchi jaankaari mil sakti hai"
- " Agar aur jyada jankaari chahiye tab kya karenge ?"
- " Ye har kisaan ke pass jaroor hona chahiye"

Changes Required

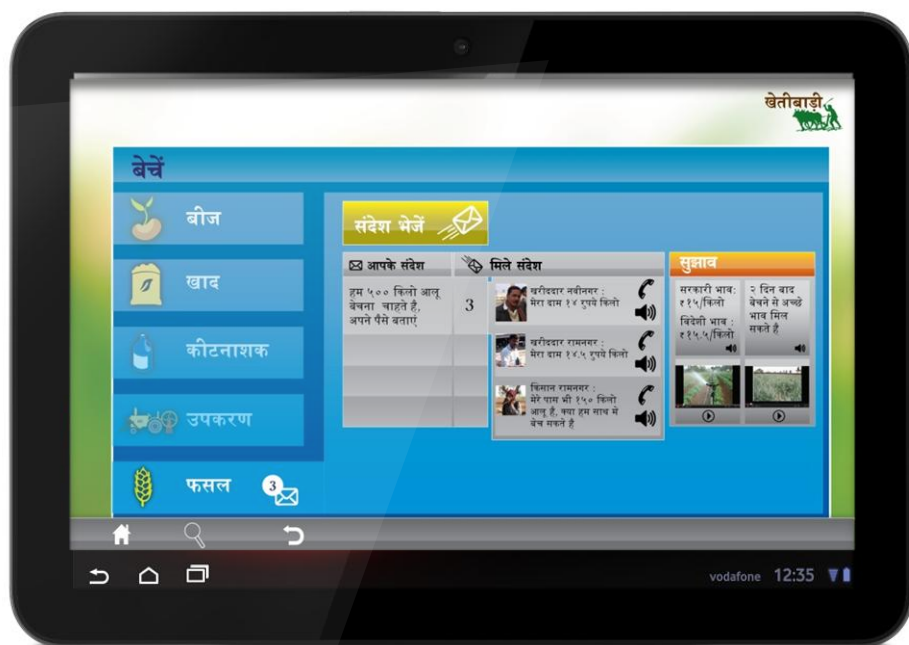
- Visual Icons :** More exploration required
- Position of Listen and contact button**
- Problem in how to add your plan in planner**
- Placing of weather information**
- Previous steps should be visible**
- Selection of Crop cycle**
- Selection of crop :** Alternative methods should be explored

Kheti Baadi : ICON Test

Kheti Baadi : ICON Test

Future Directions / Scope



- Provide more information related to agriculture :

Agriculture News

Renting options

Financial Assistance

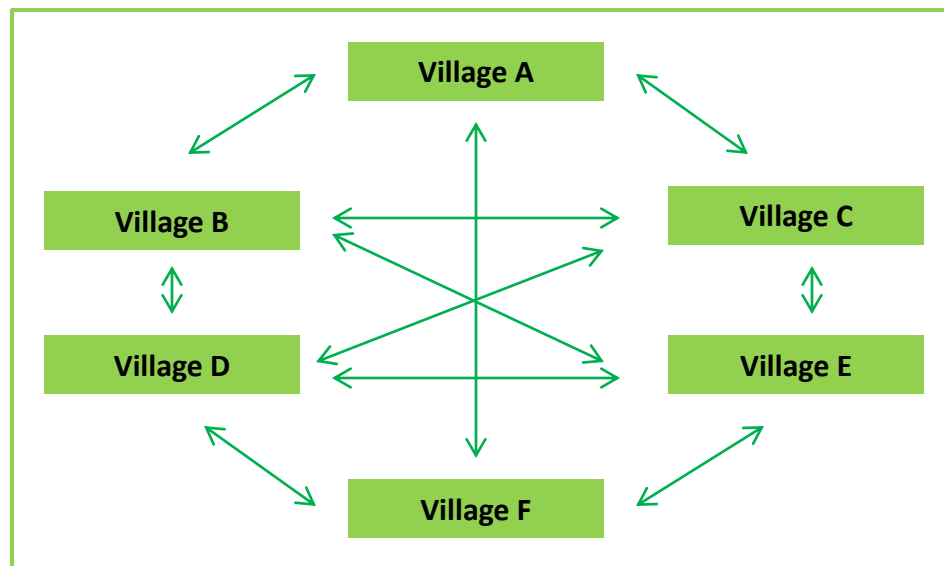
Banking facility

Offers / Schemes / Subsidies

Agriculture tips by expert

- Implementation of changes suggested by users

- Scale up the System :
Connect every farmers to other villages as well to share and exchange information and goods.





Comparison



Existing projects vs. Kheti Baadi

Factors	Kheti Baadi	RML	E-chaupal	E sagu	NOKIA life tool	Avaaj Otalo	eFarm	mAgri IKSL	M krishi	Esoko	m-kilimo
Market related Information	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y
Comparative analysis	Y									Y	
Agriculture related Information	Y	Y	Y	Y	Y	Y		Y	Y		Y
Price Information	Y	Y		Y	Y		Y			Y	Y
Bargaining/ Negotiation	Y		Y								
Source reliability	Y		Y	Y			Y				Y
Market reach	Y						Y				
Decision making	Y			Y	Y			Y			
Trends	Y										
Proximity	Y	Y		Y	Y		Y		Y	Y	
Experience	Y	Y	Y								
Sharing	Y					Y	Y		Y		
Previous problems	Y			Y	Y	Y		Y	Y		Y
Co-operations	Y		Y			Y					
Renting options	Y										
Transport Options	Y						Y			Y	
Supply vs. Demand	Y		Y				Y			Y	
Quality/ Quantity	Y		Y								
Auction	Y						Y			Y	
Financial Assistance	Y		Y								
Regulation	Y	Y	Y				Y				
Best Practices information	Y	Y	Y	Y	Y	Y		Y	Y		Y
Crop planning	Y	Y		Y	Y			Y			Y
Soil / Weather info	Y	Y		Y	Y	Y		Y	Y	Y	Y
Diagnose/ analyze / advice	Y			Y		Y					
New varieties	Y				Y						
Warning system	Y	Y				Y		Y	Y		
Market intelligence	Y									Y	
Analysis of price	Y	Y	Y				Y			Y	
Collective marketing	Y										
Direct contact to trader/ Vendor	Y					Y					
News amongst farmer	Y					Y			Y		
Subscription list	Y	Y		Y	Y						
Information sharing	Y			Y		Y		Y	Y		
Best time for trading	Y	Y	Y					Y			
International/ National News	Y										
Agriculture Content creations	Y				Y			Y			Y

[illegible]

Comparison

Technology/ Communication	Kheti Baadi	RML	E-chaupal	E sagu	NOKIA life tool	Avaaj Otalo	eFarm	mAgri IKSL	M krishi	Esoko	m-kilimo
Input	Audio or Text Through personal device	Text	Kiosk / Computer with the help of Sanchalak (Operator)	Text + Photos	No input , only farmers can call experts	Voice	No role of device	Call to experts	(MMS) TEXT/ Audio/ Video	Text	Call based
Output	Audio or Text Through personal device	Text	Kiosk / Computer with the help of Sanchalak	Text (local language)	Text	Voice	No role of device	Farmer receives text messages 5 times a day, on the different topic	MMS	Text	Call based
Analysis	Comparati ve analysis through optimization algorithm. Farmer rep. does the task for roleplayers	Compariso n of text messages done by farmer	Kiosk operator gives the information to the farmer : Source of the information Internet	Analysis can be done by the appointed expert of the region	Experts in remote areas analyze the problem and update it to farmers	Voice based social media. Once the voice based message is matched it is send to the destination	E farm experts analyze the market prices, and buy the crops from farmers, it's a kind of supply chain process	Farmer can talk to experts on phone, otherwise they agriculture information their mobile phones	Message send by the farmers get analyzed by experts and then solution delivered	Experts receives all the messages from the traders analyze it and delivered it to farmers	Help line service works 7 days a week : gives all agriculture related information to the farmers
Reach of Information	Few times in a day	In a day	2-3 days	2-3 days	1-3 days	2-6 days		2-6 days		1-2 days	1-4 days

References

जाति	पता
4	5
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नूजाति	ग्राम ककरपिटा पोस्ट फूलबेहड़
नूजाति	ग्राम दाखी पोस्ट फूलबेहड़
नूजाति	ग्राम व पोस्ट फूलबेहड़
नूजाति	ग्राम व पोस्ट फूलबेहड़
जाति*	ग्राम सैदापुर पोस्ट फूलबेहड़
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Case Study

जाति	ग्राम सैदापुर पोस्ट फूलबेहड़
न्य	ग्राम राजापुर पोस्ट फूलबेहड़
जाति	ग्राम राजापुर पोस्ट फूलबेहड़
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Acknowledgements

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ग्राम दुधवा पोस्ट फूलबेहड़
जाति ग्राम दुधवा पोस्ट फूलबेहड़
ग्राम मिदनिया पोस्ट फूलबेहड़
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- **Prof. Ravi Poovaiah**
- **Dr. Ajanta Sen**
- **Dr. Klarissa Chang**
- **Prof Anirudha Joshi**
- **Prof Pramod Khambete**
- **Prof G.G.Ray**
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- **Dharma**
- **Dhaumya**
- **Gauravi**
- **Sachin Tanwar**
- **Jyotirmaya**
- **Rajdeep**
- **Parul**
- **Farmers of India**



आभार ...

खेती बाड़ी

