

SOFTWARE ENGINEERING

Farmer Subsidy System

System Software Requirements

GROUP 3.8

TEAM DETAILS

NAME	ID
Unnathi Machiraju	201501140
Riya Talwar	201501154

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1 Requirement Collection (Fact Finding Techniques)

1.1. Background Readings

Agriculture subsidies play a vital role in growth of agriculture sector in India. Without help of subsidies development of agriculture sector is very difficult. Due to corruption & ineffective management of subsidies in India, many times it does not reach the end users i.e. farmers. Many of them aren't even aware of the various kinds of agricultural subsidies government can provide to the farmers. Hence, the farmers are eventually deprived of these benefits and more often than not we find a lot of farmers facing financial crisis.

Since the farmers weren't able to get the subsidies, the growth of agricultural sector doesn't occur at the desired rate. Hence, the government also has to face losses.

We need to make a platform for the subsidy system which eliminates these problems and indeed proves to be beneficial for the users (farmers) as well as the clients (government).

Few Requirements for the system:

- **Customer Base Identification and Selective Targeting**
- **Effective channelization of subsidies**
- **Database for the farmer**
- **Tracking the request**
- **Locational Services**
- **Land details**
- **Logistics Support**
- **Updating the farmer about new schemes introduced**

1.2. Interviews

1.2.1 Prof. Alka Parikh

Participant : Prof. Alka Parikh

Date : 24 January '18 **Time :** 2pm

Duration : 40 mins **Place :** 4210, Faculty Block 4

Contact Details : alka_parikh@daiict.ac.in, (079) 3051-0653

Purpose of the interview :

Preliminary meeting to get an insight of the agricultural economics in India.

Agenda :

- Problems with the current procedure of providing subsidies to farmers.
- Rate at which the current subsidies are being utilized by the farmers.
- Improvisations to the current subsidy system. (new subsidies that should be introduced for the betterment of the Indian economy and farmer)
- Loss/Profit on government side when they provide subsidies.

Summary of interview :

- As far as the electricity and water supply is considered, they are already being provided to the farmers at a subsidized rate. So, they do not have to apply for subsidy on electricity or water supply.
- Seeds and fertilizers are again being provided at subsidized rates. The farmers get them from the public distribution system.
- But mostly the seeds which are being given as subsidy are not what the farmers are looking for to grow in their farms. And, instead the seeds which they wish to grow do not have any subsidized rate.
- Most of the government expenditure for subsidies goes into fertilizer subsidy. And, what happens is that the fertilizer subsidy was provided after receipt-at-district or despatch-from-plant. Since, the transactions aren't recorded, there are lot of people who are buying fertilizers and not using for agricultural purposes. This poses a huge burden on the government.
- When it comes to subsidy on irrigation machinery and other equipments, the government has introduced various schemes for this. But, many farmers aren't aware about these schemes, forget about the procedure for applying for them.

1.2.2 Mr. Ketan Patel

Participant : Mr. Ketan Patel (Village Computer Entrepreneur- VCE)

Date : 20 January '18 **Time :** 11 am

Duration : 20 mins **Place :** Uvarsad Village

Purpose of the interview :

Preliminary meeting to get an insight of the procedure followed for providing online farmer cooperation services to farmers.

Agenda :

- Current procedure to help the farmers.
- Awareness about the schemes.
- Your role.

Summary of interview :

- The VCE(Village Computer Entrepreneur) helps the farmer in registration and applying for a subsidy online on websites like iKisan, iKhedut etc.
- He also scans and uploads any document necessary.
- Farmers fill the form with all their details and then approach the egram centre where the VCE helps them by uploading the documents online.
- Farmers in this particular village were aware about many schemes because the village had a VCE responsible for making the villagers aware about the government schemes. Also, even if the farmers were semi or illiterates, due to his presence, it was convenient for the farmers to apply for subsidies.
- For villages which do not have e-gram centres farmers still face the problems and are unaware about the benefits they deserve.

1.2.3 Kishan

Participant : Kishan

Date : 10 February '18 **Time :** 3 pm

Duration : 15 mins **Place :** Lilapur Village

Purpose of the interview :

Preliminary meeting to get an insight of the procedure followed for providing subsidies to farmers.

Agenda :

- Awareness about the current subsidies present among the farmers.
- The procedure followed to apply for subsidies .
- Problems with the current system.

Summary of the interview :

- He mostly avails subsidies for seeds and fertilisers which he gets at a subsidized rate from the ration shop .

- He availed the credit and insurance subsidy in case of any crop failure and the only issue he had was that sometimes the money would be credited lately.
- According to him none of the farmers in his village are aware about the subsidies provided to them on machinery like tractor, irrigation pump sets etc.
- There was a person named Bhupat Bhai who knew operating a computer and would help them with uploading documents to apply for subsidy online .

1.3. Questionnaire

Location : Lilapur

Interacted with 6 farmers

Input

Farmer Subsidy System

(Designing a platform for the benefit of farmers)

1. Are you availing any subsidy given by the government?

- Yes
- No

2. If you are receiving a subsidy ,then what subsidy is it?

- Cash Subsidy
- Non Cash Subsidy
- Both

3. Are the cash subsidies given to you on time?

- Yes
- No

4. Do you have a bank account?

- Yes
- No

5. Do you have an aadhaar card?

- Yes
- No

6. Do you use a smart mobile phone?

- Yes
- No

7. Is there a computer in the village which you can use?

- Yes
- No

8. Would you be willing to operate all this from your home via a computer or phone instead of going through the current procedure?

- Yes
- No
- Not sure

9. Is there an internet connection in your village?

- Yes
- No

10. Which subsidy do you use the most?(Fertiliser,Seeds,Power,Irrigation,Other)

(open ended question)

11. Which kind of subsidy do you want the government to introduce?

(open ended question)

12. How do you apply for a subsidy?

(open ended question)

13. What problems you face with the current system?

(open ended question)

Output (Analysis of the questionnaire)

1. **Are you availing any subsidy given by the government?**

Yes, everyone was availing a subsidy given by the government.

2. **If you are receiving a subsidy ,then what subsidy is it?**

Most of the farmers we interacted with received seeds and fertilizers at subsidized rates.

3. **Are the cash subsidies given to you on time?**

None of the farmers we interacted with seemed to receive cash subsidy.

4. **Do you have a bank account?**

Yes everyone had a bank account.

5. **Do you have an aadhaar card?**

Yes everyone had an aadhaar card.

6. **Do you use a smart mobile phone?**

All the farmers had mobile phones. But none of them were smart phones. But a few of them mentioned about a smart mobile phone at their house with the elder son of the house.

7. **Is there a computer in the village which you can use?**

Not every farmer had a phone or computer but there was a person named Bhupat Bhai who knew operating a computer and would help the farmers to apply for subsidies.

8. **Would you be willing to operate all this from your home via a computer or phone instead of going through the current procedure?**

Most of them were not sure. It seems it would definitely be difficult for them to adapt to this change.

9. **Is there an internet connection in your village?**

The younger generation had access to internet in their mobile phone whereas the rest did not have any access . Also there was a computer in the village which had internet access.

10. Which subsidy do you use the most?

Majority of the farmers used subsidies to purchase chemical fertilisers and seeds or would apply for credit and insurance subsidy in case of crop failure . Anyone was hardly aware of the subsidies the government provides on machinery .

11. Which kind of subsidy do you want the government to introduce?

Some said they wanted subsidy on machinery and the others said they just want to get the money on time.

12. How do you apply for a subsidy?

They used to get seeds and fertilizers at subsidized rates from the local pds. (public distribution system). One of them had applied for a subsidy on sprinkler. For that, he filled a form with his details ,then a person named Bhupat Bhai helped him to apply for the subsidy online.

13. What problems you face with the current system?

When they apply for a insurance or loan subsidy, it takes a lot of time for approval of their application. They don't receive the money on time because bank serves as the intermediary. Also, a few of them told that they wanted more subsidies. (This shows that they are not aware about the numerous subsidy schemes government has introduced)

1.4. Observations

INPUT

- Visit to a few villages around Gandhinagar
- Videos in which different categories of farmers are being interviewed
- Videos in which government employees in the agricultural sector are being interviewed

AIM

- What are the government subsidies the farmers are aware of
- What are the government subsidies the farmers are utilizing
- What are the other subsidies, the farmers wish they had
- What is the current process to apply for the subsidy- what kind of documents are verified
- Those who are getting the subsidies are they efficiently utilizing them (basically observe that how are they using them)
- What are the requirements that the online system should have in addition to replicate the entire process of providing subsidies in an efficient way
- If we shift to our proposed system to provide subsidies would everyone be able to get the benefit out of this system

POINTS

- Generally, the farmers are aware of the subsidies on seeds and fertilizers. They have no information about the other subsidy schemes.
- When it is required to apply for subsidies on some machineries, land ownership certificate, identity proof and passport sized photograph is required.
- Due to the reduction in the prices, people start using more of the fertilizers.
- The government has been facing a huge burden due to the fertilizer subsidy.
- The government had thought of applying Direct Benefit Transfer for fertilizer subsidy too. But in case of fertilisers, farmers may not be able to make upfront payments because some of the soil nutrients are very costly. Therefore, farmers will continue to buy fertiliser from the retailer at subsidised rate. This again doesn't help the government because the problem of diversion/smuggling of fertilizers continues to stand.

OUTPUT

- Proper verification of documents needs to be done in our proposed system.
- Providing fertilizer subsidy as DBT or at a subsidised rate and the government will pay subsidy to companies will depend upon the category the farmer belongs to. For, a marginalized farmer the latter method is preferable while for medium and large farmers the former method is convenient. This will help in minimizing the losses incurred by the government due to farmer subsidy.

2 Fact Finding Chart

Objective	Technique	Subject(s)	Time Commitment
To get an insight of the current farmer subsidy system	Background Reading	News article , press release	45 mins
Different types of agricultural subsidies	Background Reading	Articles	30 mins
Economics and Politics of Farm Subsidies	Background Reading	Journal	20 mins
To find the number of farmers availing the subsidy system	Interview/Questionnaire	Farmer community	15 mins
To establish which subsidies are used the most	Interview/Questionnaire	Farmer community	15 mins
To find out the procedure to apply for a subsidy, and understand the distribution system	Interview/Questionnaire	Farmer community/ some distributor	15 mins
To find out whether the subsidies are used efficiently	Observations	Farmer community	30 mins
To find out if the farmers are aware of the available subsidies	Interview/Questionnaire	Farmer community	15 mins
Problems with the current procedure of providing subsidies to farmers	Interview/Questionnaire	Farmer community	15 mins
Improvisions to the current subsidy system	Interview	Professor	20 mins
Loss/Profit on the government side	Interview	Professor	20 mins

3 Requirements

- **Registration of farmer :** Farmer has to register in the system for availing the services. Otherwise, he will only be able to see the schemes but not apply.
- **Login :** The farmer can log in to the system in order to access his account.
- **Customer Base Identification and Selective Targeting :** Segmenting farmers into three broad categories- small, medium and large based on their economic status, gross cropped area, to ensure that the subsidies reach the ones most in need. For this, it is necessary for them to upload scanned copy of their aadhaar card and enter the aadhaar card number. Also, a land ownership proof is required.
- **Effective channelization of subsidies :** To ensure that the farmers in need properly receive the subsidies they are eligible for, subsidies are distributed across various categories of farmers and subsidies such as seed, fertilizer, irrigation machinery, etc.
- **Database for the farmer :** Every farmer logged in the system will have its details stored in the database. The details such as the personal details for the farmer, the category of farmer, the land area, the location , the crops grown on the land, scanned documents uploaded by the farmer for verification are all stored in the database. These details when retrieved will help in providing the suggestions to the farmer for the subsidized inputs available. Also, in the farmers account , all the subsidies requested, provided are shown.
- **Information about different subsidies based on farmer category :** The user can also see the details about various subsidies and the eligibility criteria.
- **Application for subsidy :** Requests for subsidies can be seen.
- **Upload the documents :** The necessary documents can be scanned and uploaded for the verification process to continue
- **Verification of submitted documents :** The necessary documents can be scanned and uploaded for the verification process to continue. Also, the status of the documents whether verified or not can be seen in this section.
- **Tracking the request :** The farmer can track his request for subsidy and can get to know whether his request is pending for approval or approved or denied. He will also be able to know the reason for denial in case his request for subsidy hasn't been accepted by the government. And in case of approval, he will be shown the estimated time of delivery of the subsidy.
- **Locational Services :** By capturing the location of the farmer's land, the weather conditions can be predicted.
- **Bank details :** Bank account details are included in order to carry on the transactions efficiently.

- **Land details :** Field information can be collected such as crops grown, soil types, etc. and some tips can be given accordingly when the farmer is applying for the subsidy.
- **Logistics Support :** From a logistical standpoint the system needs to develop into a more transparent setup. This can be ensured by integrating the UID (Aadhar) system into the fold. This integration would ensure that leaks are prevented and a more transparent and effective system of monetary transfer is established. Cashless and quick transfer of funds could thus become possible, helping weed out the need for middlemen in the system as a whole. Also, the receipt for the transaction made is saved in the account of farmer for future reference.
- **Information about the schemes :** The users can see all the necessary information about the subsidy schemes introduced by the government. This will help him in selecting the appropriate scheme.
- **Updating the farmer about new schemes introduced:** The government from time to time introduces new schemes for the development of agricultural sector. Many of these schemes are subsidy based. So, this system will be notifying the farmers that are registered in this system about such schemes.

4 User Categories

- **Farmers**
 - **Small/Marginalized farmers**
 - **Medium farmers**
 - **Large farmers**
- **Government employees -** (Even though Government is our client, it also employs officials for the purpose of sanctioning subsidies to the farmers who have requested the subsidy using this platform)

5 Privileges

5.1 For Users (Farmers)

- The user can register in the system and add his details such as the personal details for the farmer, the category of farmer, the land related details like the gross cropped area, soil type, the location , the crops grown on the land.

- The account will also show the log of his pending, approved and denied subsidies.
- It can update the details whenever required.
- For completing the eligibility of few subsidies some document verification is necessary. The user can scan and upload the necessary documents for verification process to go forward conveniently.
- It gets to see all subsidies that are available and also suggestions for schemes related to the selected subsidy category .This helps the user to take the decision.
- It gets notified as and when new subsidy schemes are introduced by the government.
- It can track the subsidy request.
- When a subsidy is approved, in case when a transaction needs to be made, the transaction can be made directly using this platform.
- The basic privileges for small/marginalized farmers, medium farmers and large farmers are the same. The difference lies in the schemes which are applicable based on the category of the farmer.

5.2 For Clients (Government)

- It gets access to a proper database of each user registered in the system. This database consists of personal details of the user, bank account details, land related information and any necessary documents that have been scanned and uploaded for verification to get a subsidy.
- It can see all the subsidy requests listed down and can select any option such as approved or denied for the request. In case of denial, the reason for denying can be mentioned there so that user can know the reason for the same.
- It can also see the list of documents that need to be verified and can verify them. It can maintain its own records of these documents if required.
- The user is automatically alerted about the new schemes introduced thus reducing the advertising costs on the client side.

6 Assumptions

- All the entities have a access to computer or mobile phones.
- All entities have a proper internet connection , along with the locational services enabled.
- For using this platform, people should be ready to learn how to operate this. There can be people appointed in each village like a VCE (village computer entrepreneur) who can literate farmers for using this.
- Language is not a barrier.

