Service Design for wild vegetables

as a source of livelihood generation

Guide: Prof Pramod Khambete
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Initial Area

Service Design in Agriculture

Narrowed Focus

Livelihood generation

Final Area

Wild vegetables as a source of livelihood generation

Initial Area

Service Design in Agriculture

PRIMARY RESEARCH

+

SECONDARY RESEARCH

Narrowed Focus

Livelihood generation

Final Area

Wild vegetables as a source of livelihood generation

Primary Research (Rural)

WHERE?

- Jawhar taluka, Palghar district
- Nearby villages around it.
- BAIF (Bharatiya Agro Industries Foundation) Development Research Foundation

Primary Research (Rural)

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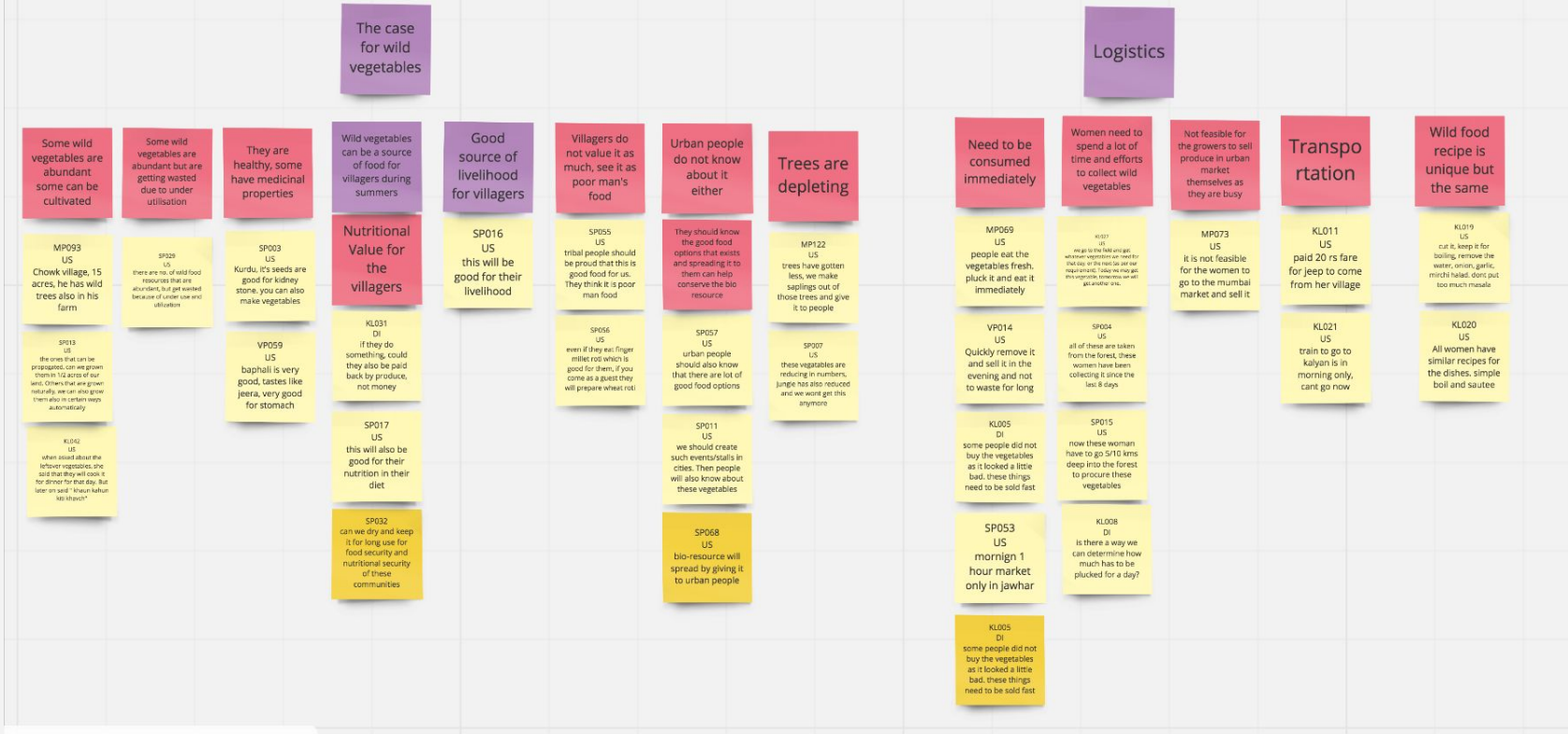
- Jawhar taluka, Palghar district
- Nearby villages around it.
- BAIF (Bharatiya Agro Industries Foundation) Development Research Foundation

HOW?

- In depth interviews with 10 tribal farmers
- 4 expert staff members at BIAF
- Attending a session on policy at BIAF and a wild food festival at Karegaon.

Research Synthesis (Rural)



Cumulative Key Findings

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Need for a sustainable and desirable source of livelihood

Difficult to manage their own food

The case of wild foods

Revival of wild foods

Source of livelihood and nutrition

Current Efforts

Looking at urban markets

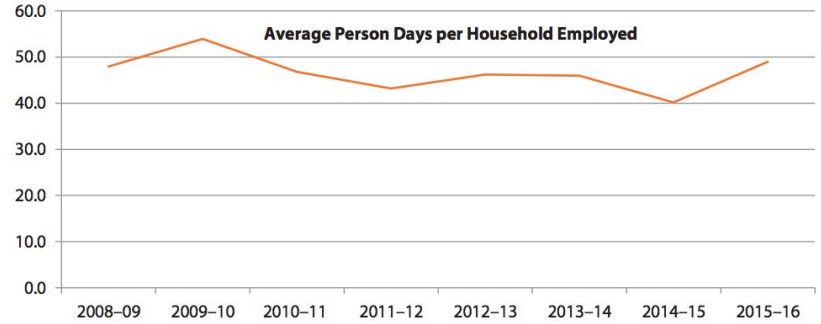

Figure 4.2: Average Employment Days per Participating Household

Source: MIS Data from the website of Ministry of Rural Development.

- More than **one–third of the farming households in India suffer from the vulnerability of livelihoods.**
- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)
- 57% of MGNREGA job card holders in Maharashtra sought work but were unable to get it, unable to deliver on it's promise of 100 days of employment.

Cumulative Key Findings

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“People in the villages often migrate to nearby areas like Palghar, Vasai, Virar in search of employment, where they would take up road making and other construction work. ”

User Studies

Cumulative Key Findings

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Looking at urban markets

- **Farmers having small land holdings are do not have enough produce to consume themselves**
- In that case, they get rice, wheat, dal, sugar, kerosene through **BPL cards from ration shops**
- For **vegetables, don't have enough water to grow** them so they **pluck wild vegetables in monsoon season**
- During summer they pluck and sell these wild vegetables to buy tomatoes, onions etc.

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100% pure, naturally occurring species

High nutritional content

To be cooked with unique indigenous recipes

+Medicinal Properties

Cumulative Key Findings

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Looking at urban markets

- **Knowledge and use of these wild species has also been on steady decline in rural areas**.*.
- Treat it as poor man's food
- Revival of these locally available wild foods is important to **preserve knowledge**
- And also as it **satisfies the nutritional needs of the tribal people** and can help subside cases of malnutrition and other health issues among them*

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Wild vegetables has a potential to serve as a means of livelihood for them since;

- They are **freely available**
- Because of their **rare and unique qualities**
- The tribal farmers **already possessing the knowledge** to identify them, as well as having indigenous recipes of processing and cooking them

Cumulative Key Findings

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Looking at urban markets

- **Wild food festivals** being conducted at village and city levels.
- Not be sufficient for generating livelihood and promoting wild foods, as it happens **only a few times in the monsoon** season. , produce **sold at low price**

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Looking at urban markets

- **Wild food festivals** being conducted at village and city levels.
- Not be sufficient for generating livelihood and promoting wild foods, as it happens **only a few times in the monsoon** season. , produce **sold at low price**
- **Possible wastage** as everything is plucked on the same day

Cumulative Key Findings

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Current Efforts

Looking at urban markets

- Also sold in **nearby markets and towns**:
- However these do not fetch the villagers a good sum as they are **not a rare commodity** to the people living around.

Cumulative Key Findings

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Difficult to manage their own food

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Current Efforts

Looking at urban markets

- Given the **rising market for organic produce** in urban areas*, and the urban footfall that wild food festivals (those conducted by BIAF) have attracted, there seems to be a potential in getting higher returns on selling them in urban markets.
- There are also other advantages in promulgating these wild foods to urban people. These foods can serve as a **healthier eating option for urban palettes**.

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Wild vegetables as a source of livelihood generation

Problem Statement

Promulgation of wild vegetables as a means to generate livelihood for the rural population using Service Design

Concept map

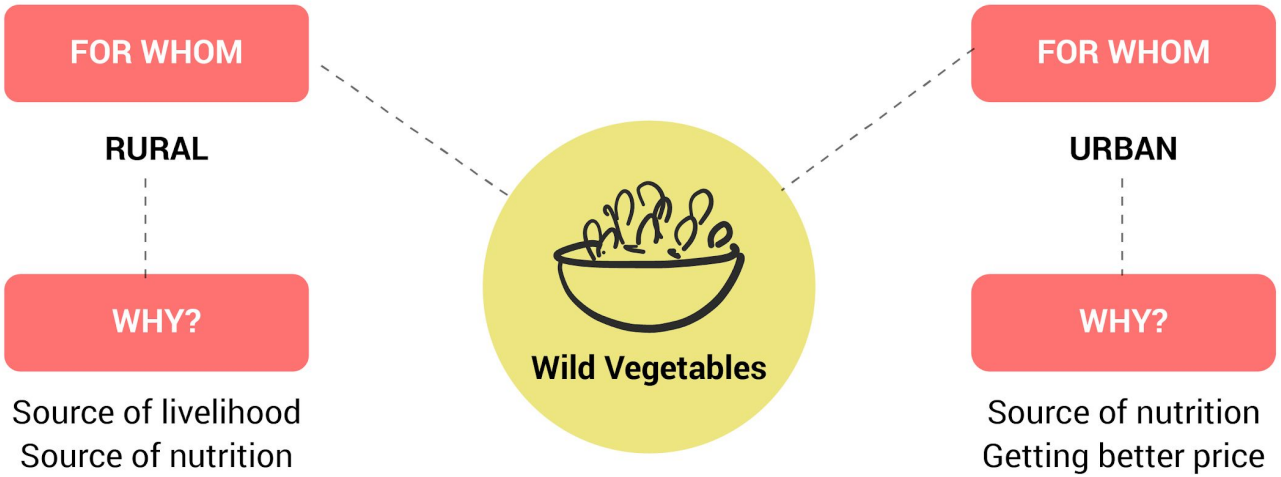
FOR WHOM

RURAL

WHY?

Source of livelihood
Source of nutrition

Concept map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Source of nutrition
Getting better price

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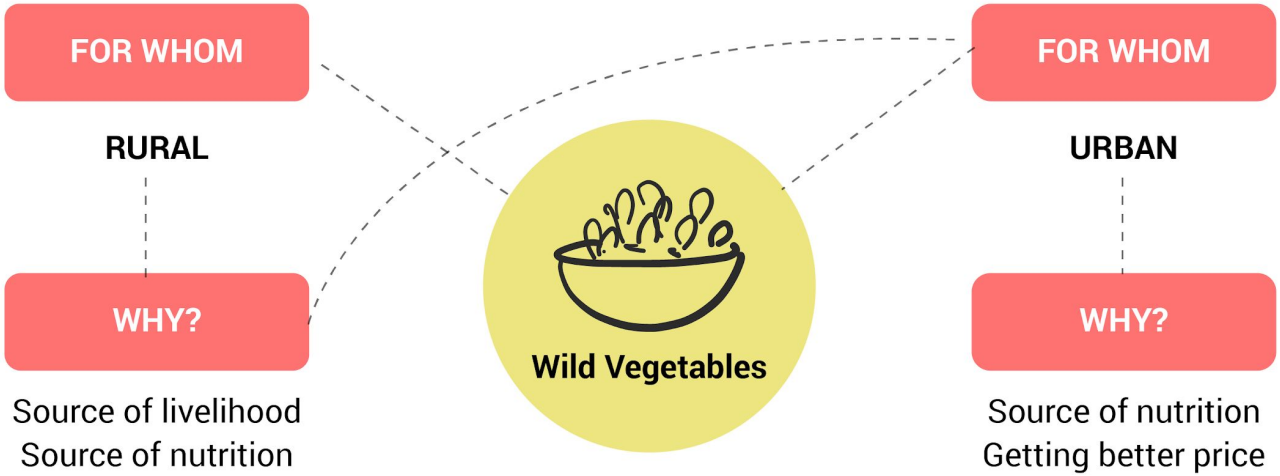
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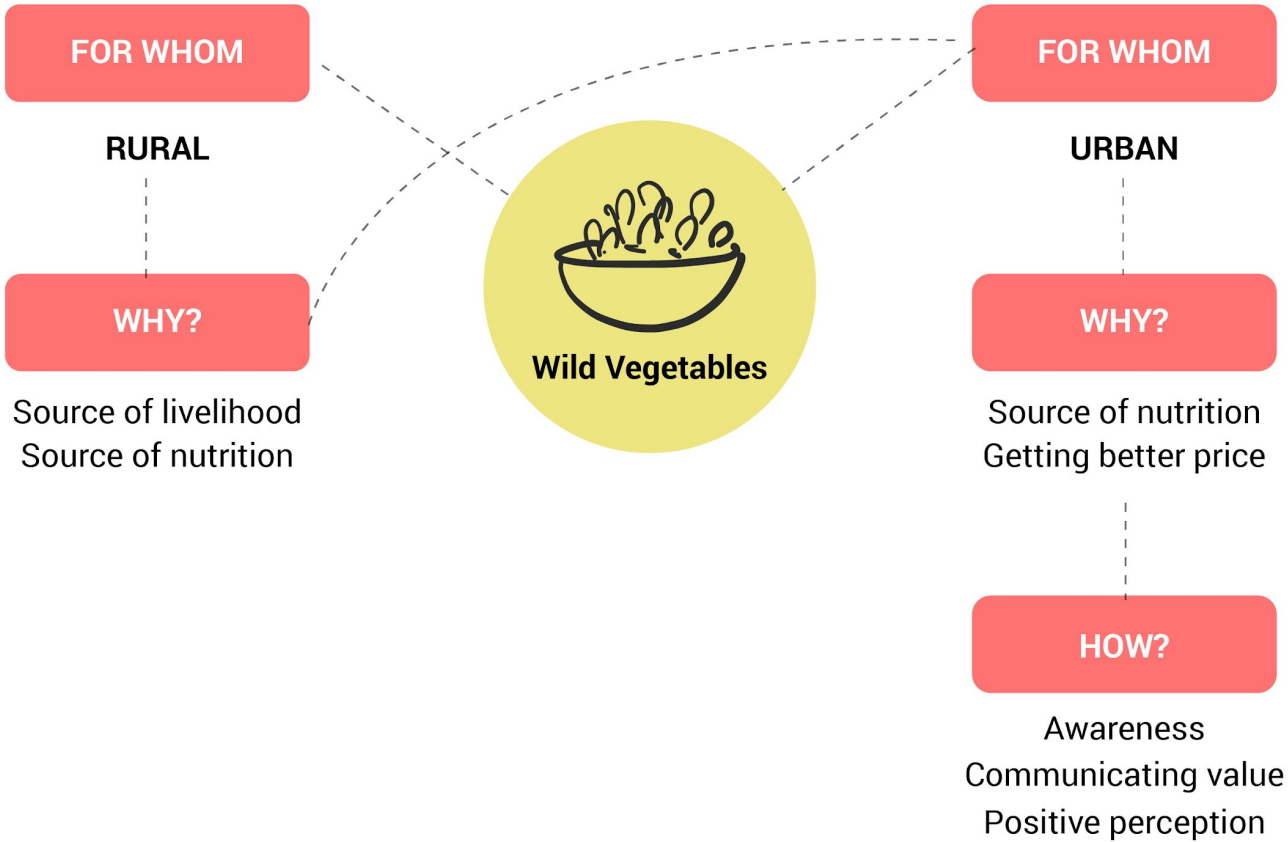
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HOW?
Awareness
Communicating value
Positive perception

Concept map

FOR WHOM

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WHY?

Source of livelihood
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Wild Vegetables

FOR WHOM

URBAN

WHY?

Source of nutrition
Getting better price

HOW?

Awareness
Communicating value
Positive perception

LOGISTICS

Transportation
Time of plucking
Minimize wastage

Farmer Persona

Vanita Pawar is a 30 year old farmer, who lives in Vaganpada village, which is surrounded by forest area. She has a small farm in the forest, less than an acre, given to her by the forest department.

Family members	-Family of 7 members, with most of them working as farm labourers, or in nearby towns.
Occupation	-Agriculture -Daily wage by forest dept -Also does some SHG work -In the summer season, she migrates to the city with her family to do some road making or construction work.
Area of land	~1 acre
Crops grown	Rice, Nagli (millets), Udit
Animals	some hens
Expenses	Rs 10,000 for 1 acre of land

Farmer Persona

Personal

Education	9th standard
Mobile	-Uses basic phone no data connection. -Only makes calls, no sms either -Likes to read Pune Nagrinewspaper -Watches Kisan TV
Daily Life	Busy schedule Works all day from 5 to 7. Does household chores and farm activities

Primary Research (Urban)

PURPOSE

- Understand their consumption patterns, to know what role can wild foods play in their dietary habits.
- Understand their general awareness and perception about wild foods to base efforts towards creating or changing it.

METHOD

- Semi structured interviews were conducted with 6 individuals; 3 people(2 male and 1 female) aged 20- 25, and 3 people (2 females and 1 male) above 50 years of age.
- From Mumbai and Vasai

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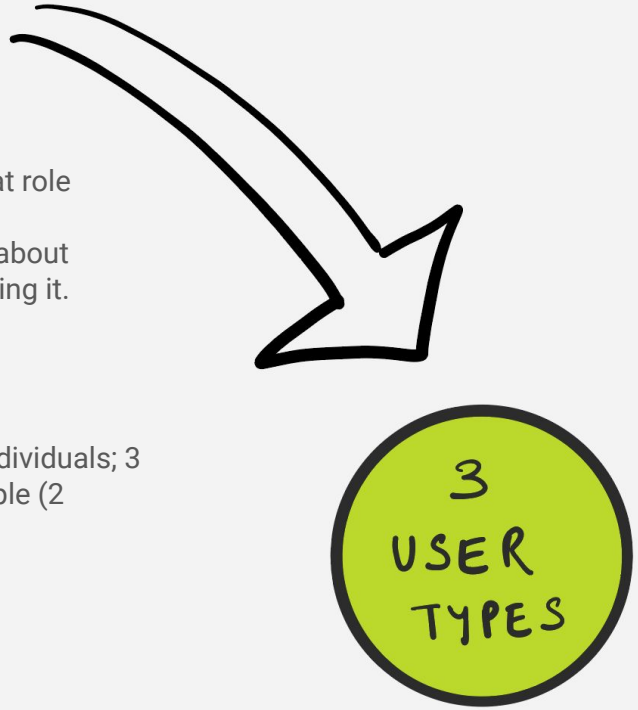

The Nostalgic

Radha is a 50 year old woman, living in Mumbai city. She moved to Mumbai from West Bengal, after her marriage 26 years ago. She is familiar with wild foods as she has had them in the past, when she was young.

Motivation	Re-connect with foods she has had in her childhood
Needs	-Finding vegetables -Inconvenient to travel far away
Opportunities	-Help her find that food -Provide convenience -Can try other vegetables

Health Conscious

Swati is a 32 year old working professional. She is always on the look for the most natural organic food for her diet.

Motivation	Staying healthy
Needs	-Find fresh, organic food -Finding the right food
Opportunities	-Wild vegetables are naturally grown and high in nutrition content

The Hobby Cook

Rahul is a 32 year old working professional. He is a hobby cook loves to try cooking different meals on weekends.

Motivation	To Find and try different recipes
Needs	-Sourcing ingredient -Finding recipes
Opportunities	-Cooks during holidays -Connect with influencers

Ideation Process

Systems Mapping Tools

- Value Flow Models
- Cluster Maps
- Connected Circle

Early Ideations

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- Cluster Maps
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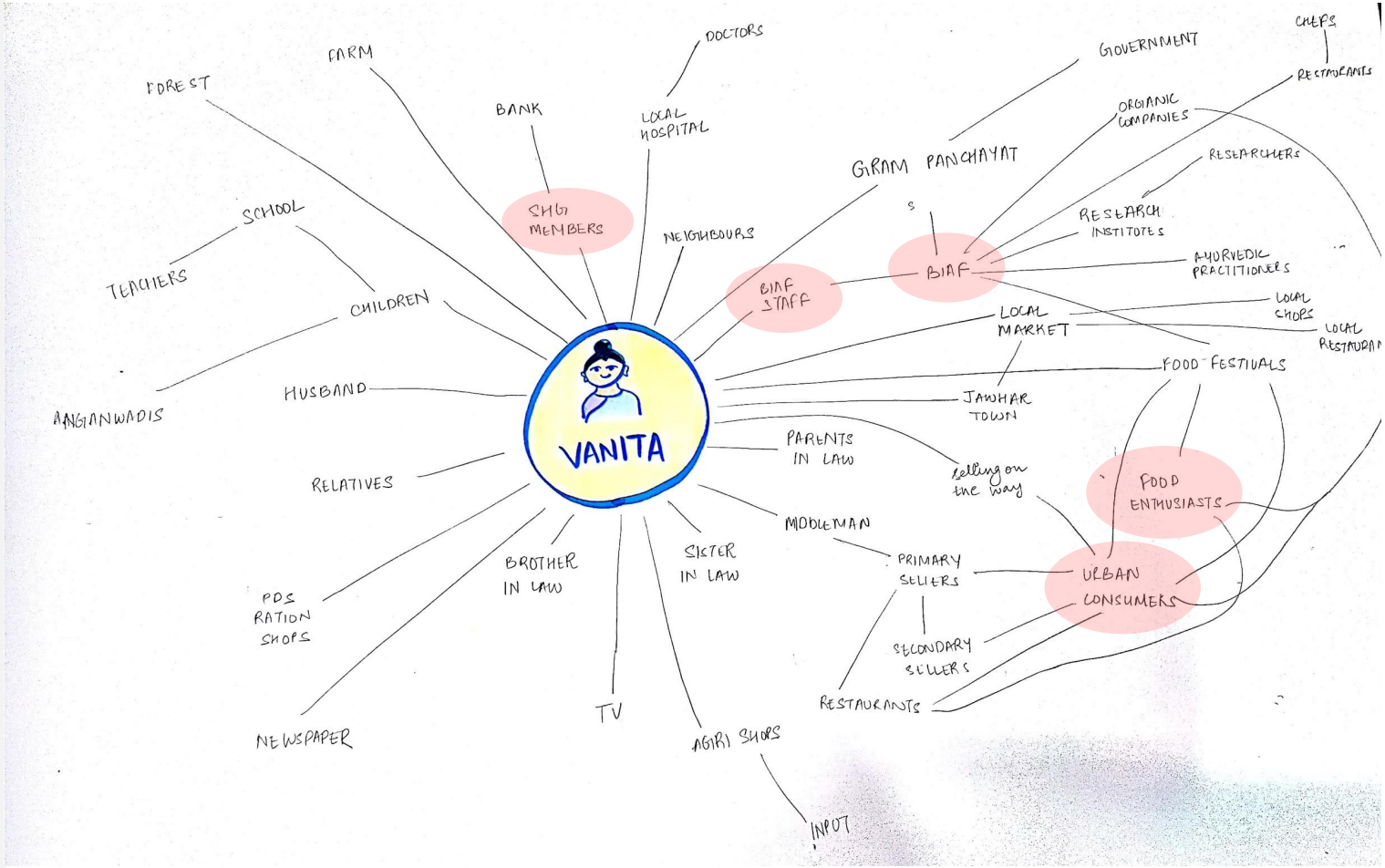
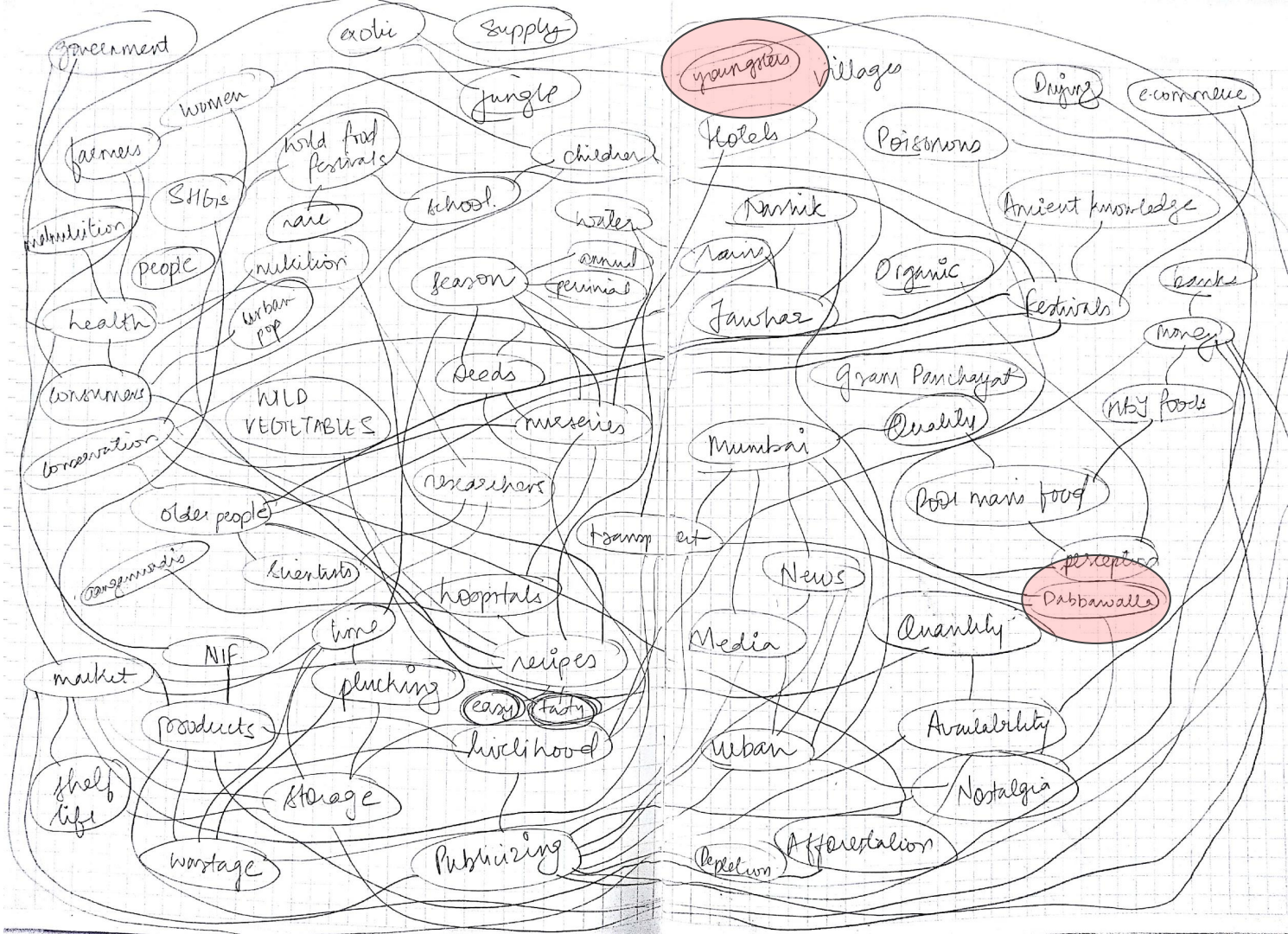
- Early Ideations



Systems Mapping Tools

- Value Flow Models
- **Cluster Maps**
- Connected Circle
- Early Ideations



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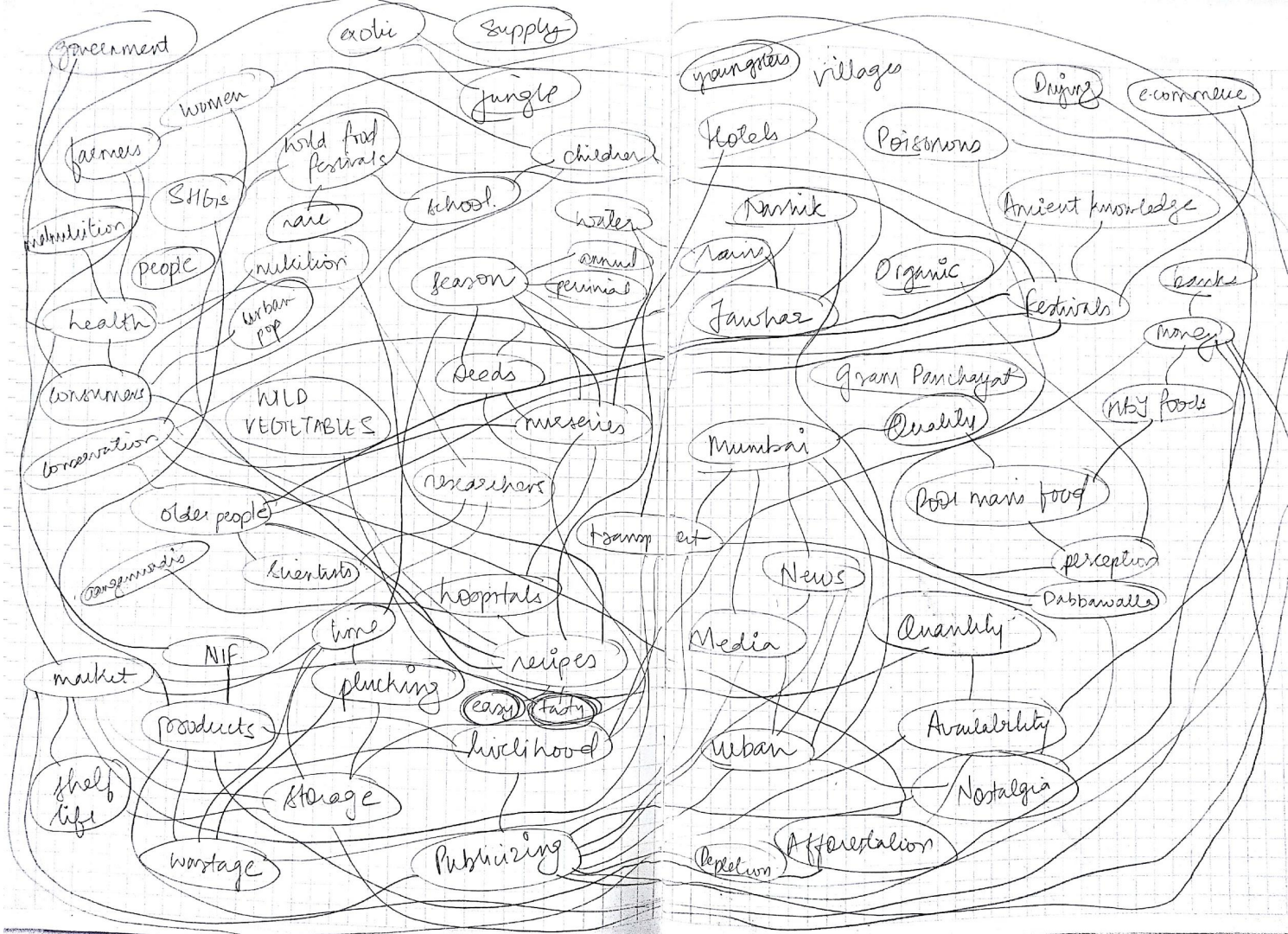

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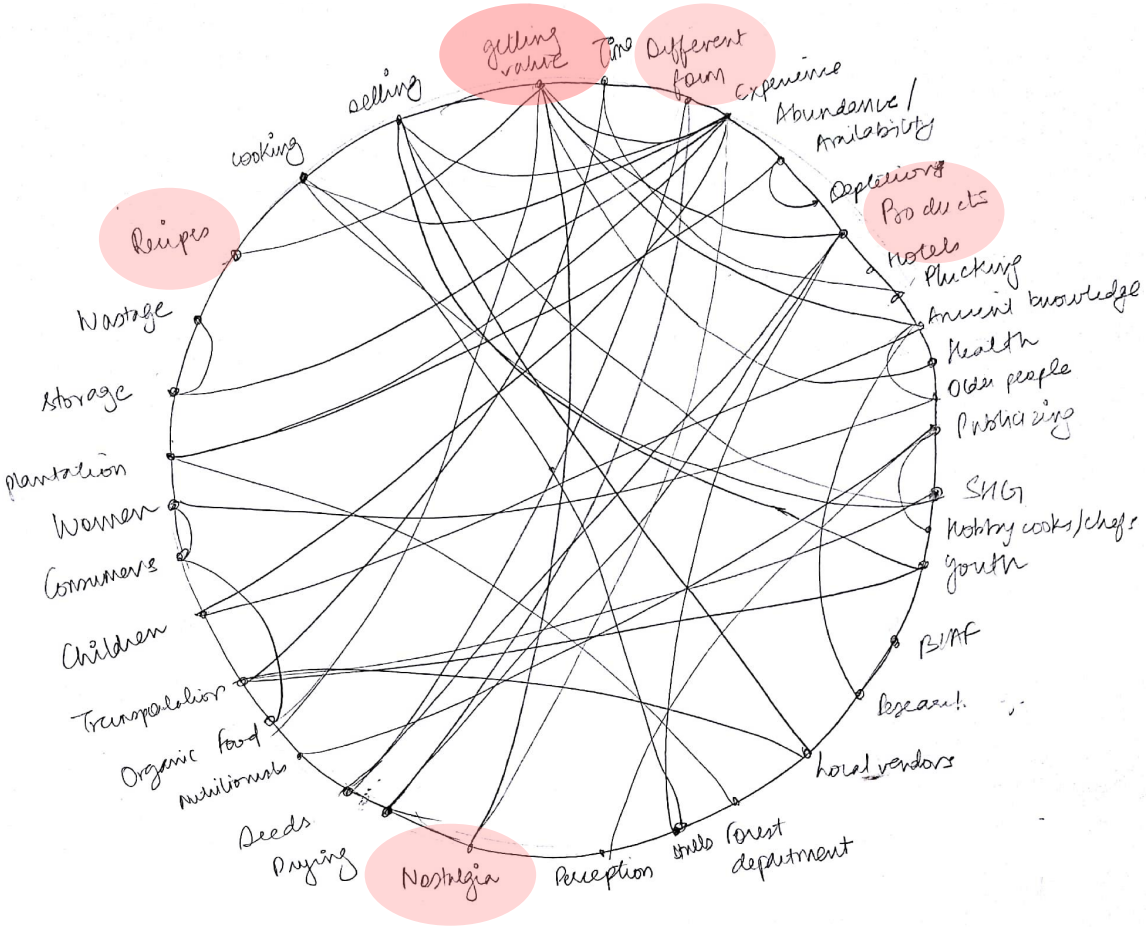

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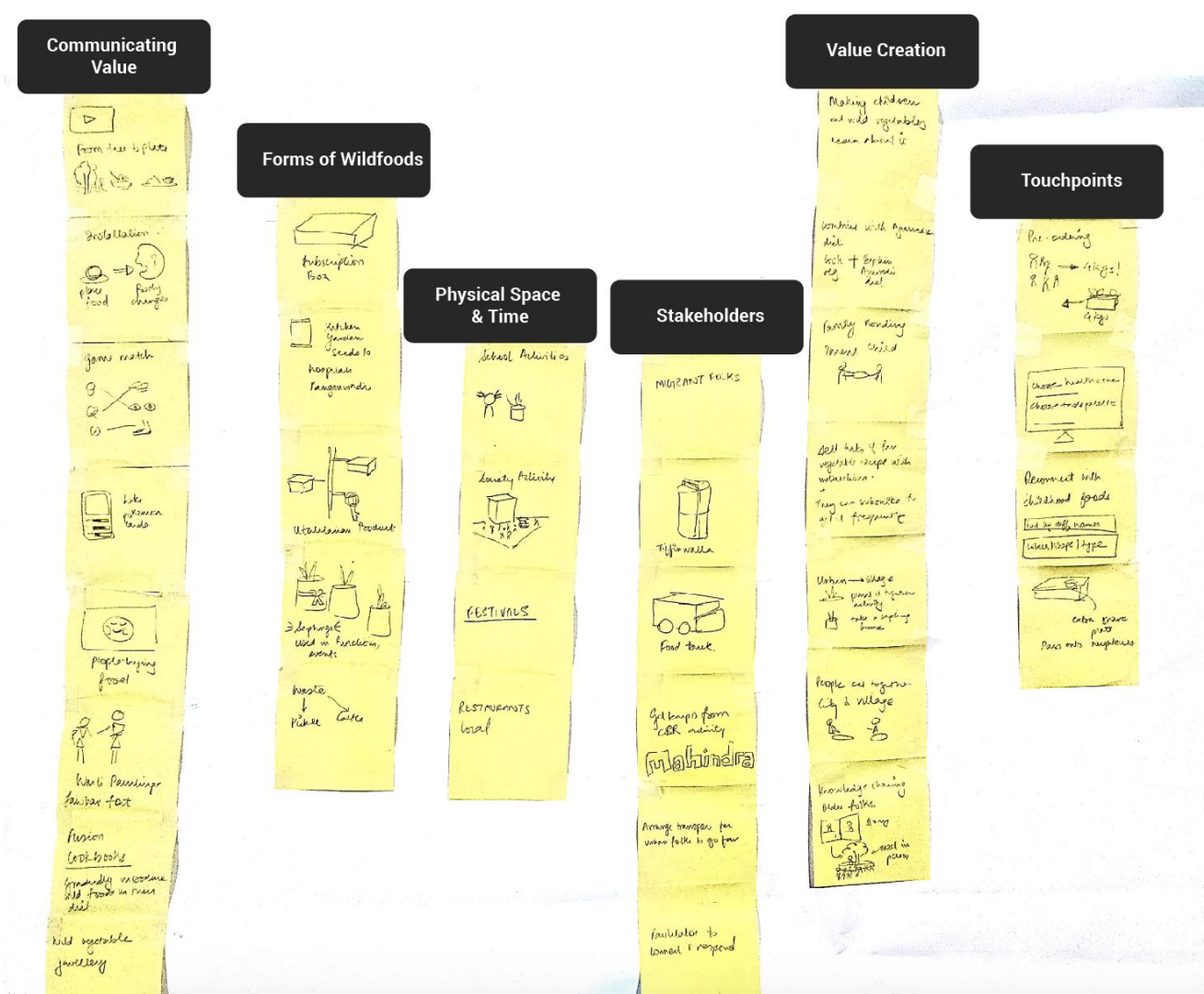


Systems Mapping Tools

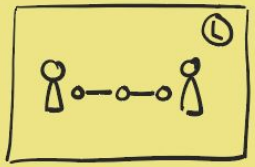
- Value Flow Models
- Cluster Maps
- Connected Circle
- **Early Ideations**

1. Stakeholders

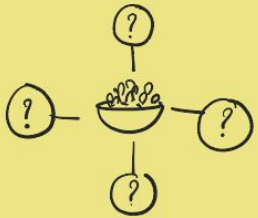
2. Value Creation

3. Touchpoints

4. Physical Space and time



5. Forms of Wildfoods



6. Communicating value

Systems Mapping Tools

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Final Service Concept

Wildfresh

VEGETABLES

The proposed service let's urban consumers experience wild vegetables through a pre order delivery service that provides them with assorted boxes containing them. The consumers can choose different ways, as they find fitting, to enjoy these wild foods.

Stakeholders

Primary Stakeholders	Consumers	Producers	Co-ordinator	Delivery Personnel
Who?	Hobby cooks, Health concious, already familiar	SHGs, Individual farmers	Staff members at local organization. Ex: BIAF	Youth, local vendors, drive tempo/jeeps within the village

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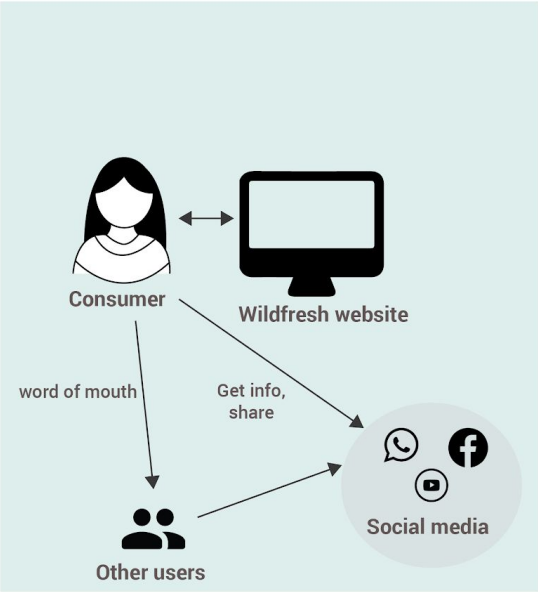
Secondary Stakeholders	Tiffin makers	Influencers	Cooking supplies company
Who?	Dabba makers in urban areas who prepare paid home cooked tiffin meals on an order basis	Nutritionists, Dieticians, chefs, food bloggers, youtubers	Companies selling ingredients, utensils, other cooking apparatus

Service Ecosystem

Service consumers



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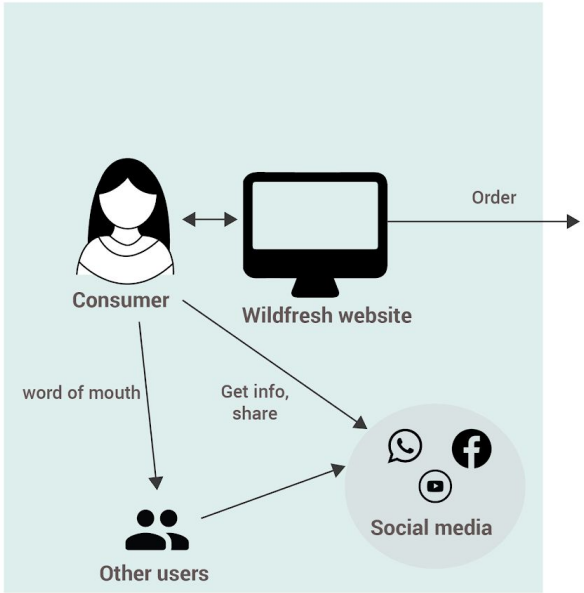
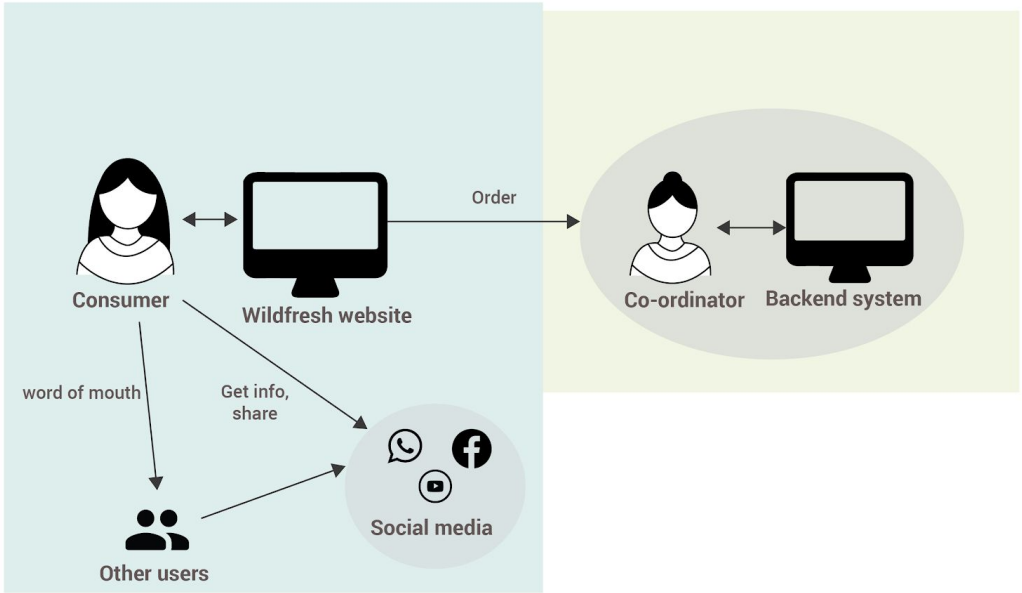


Service Ecosystem

Local organization

Service providers

Service consumers



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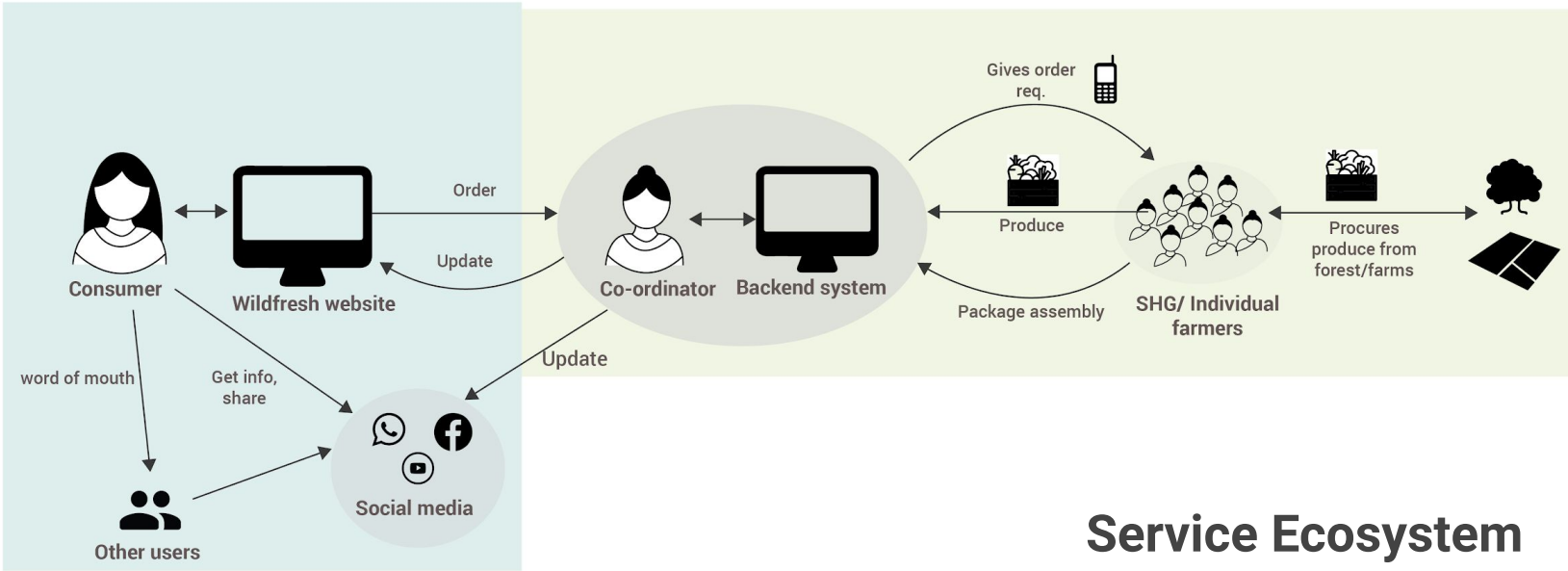

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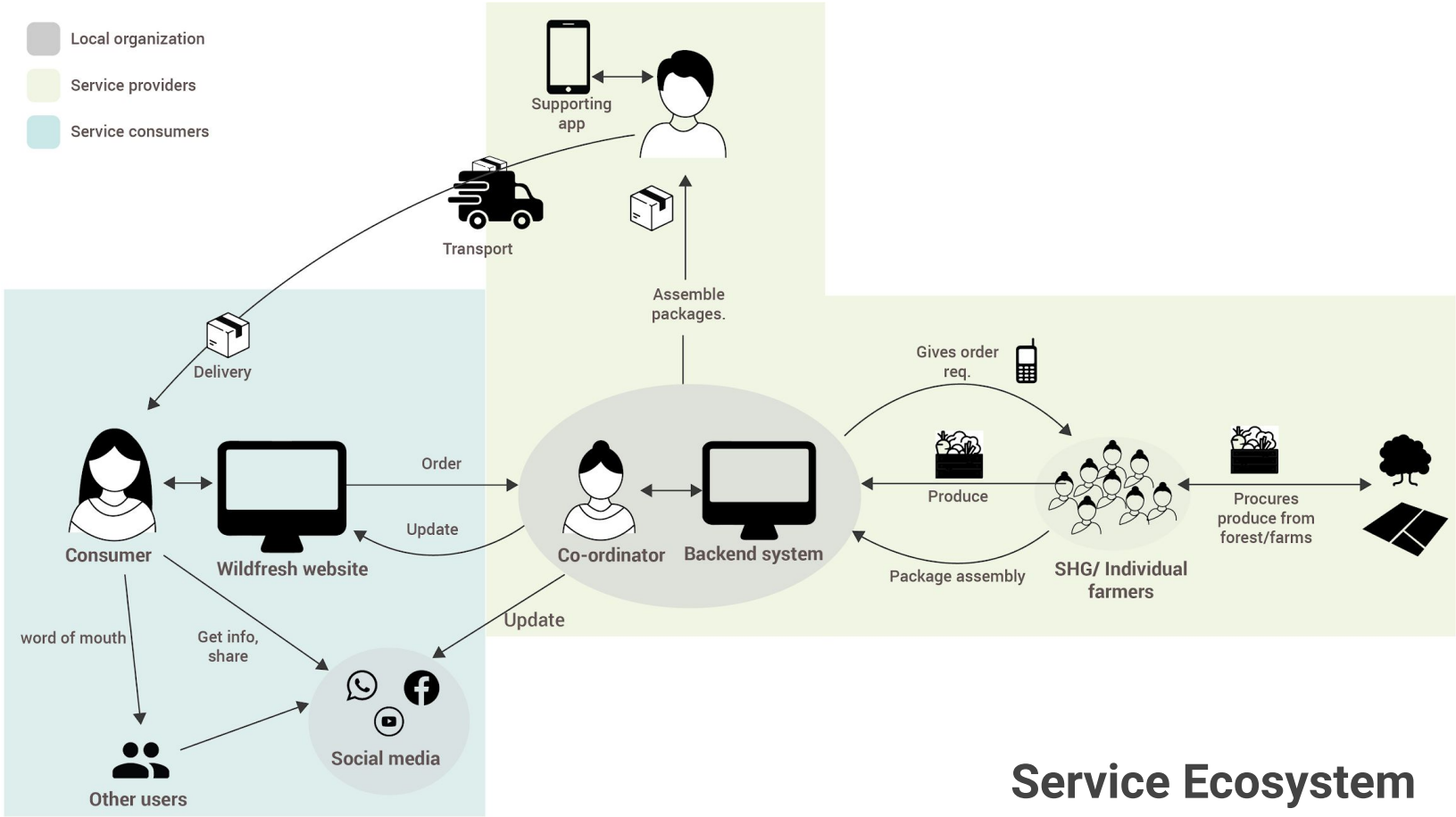

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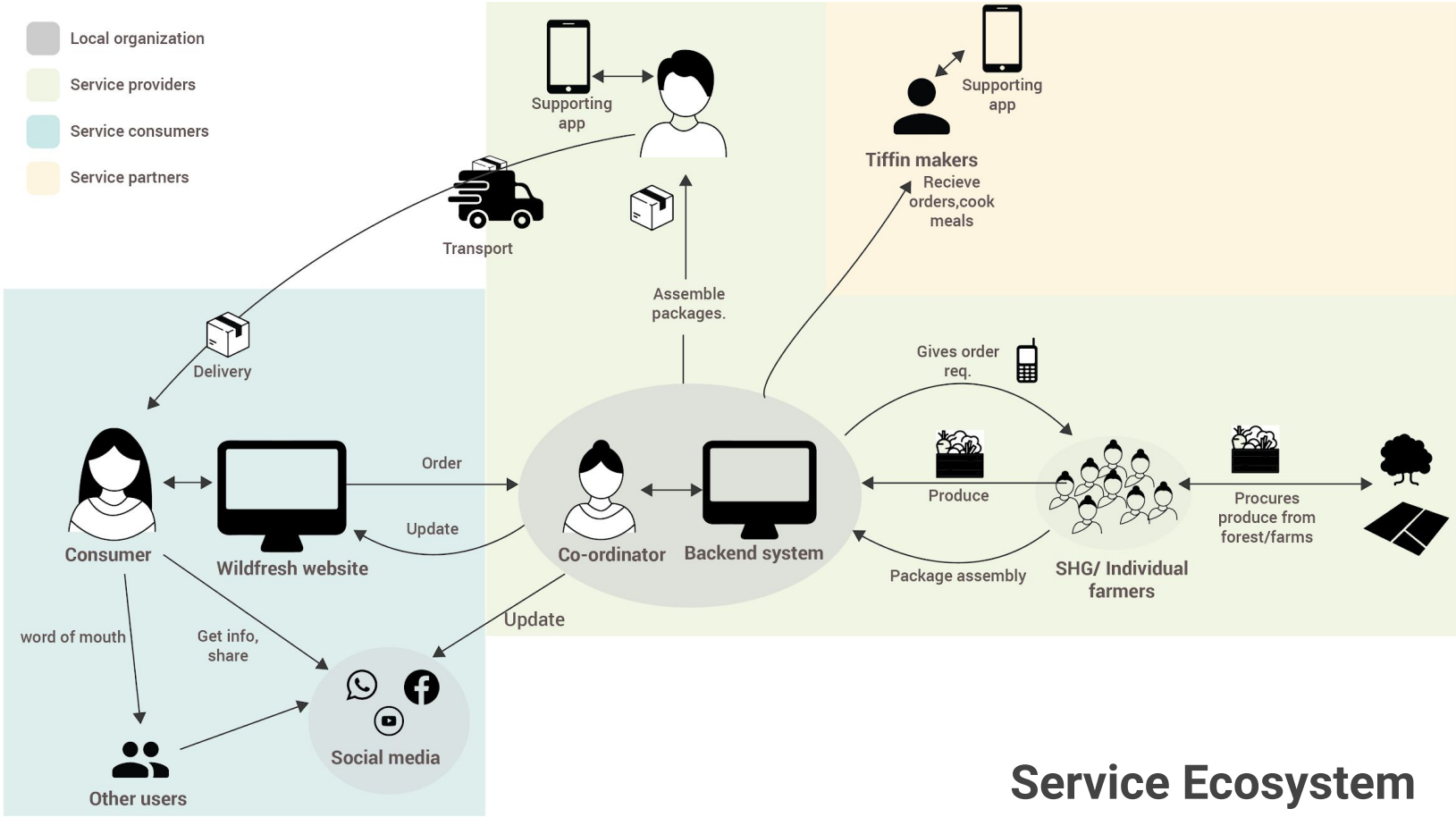

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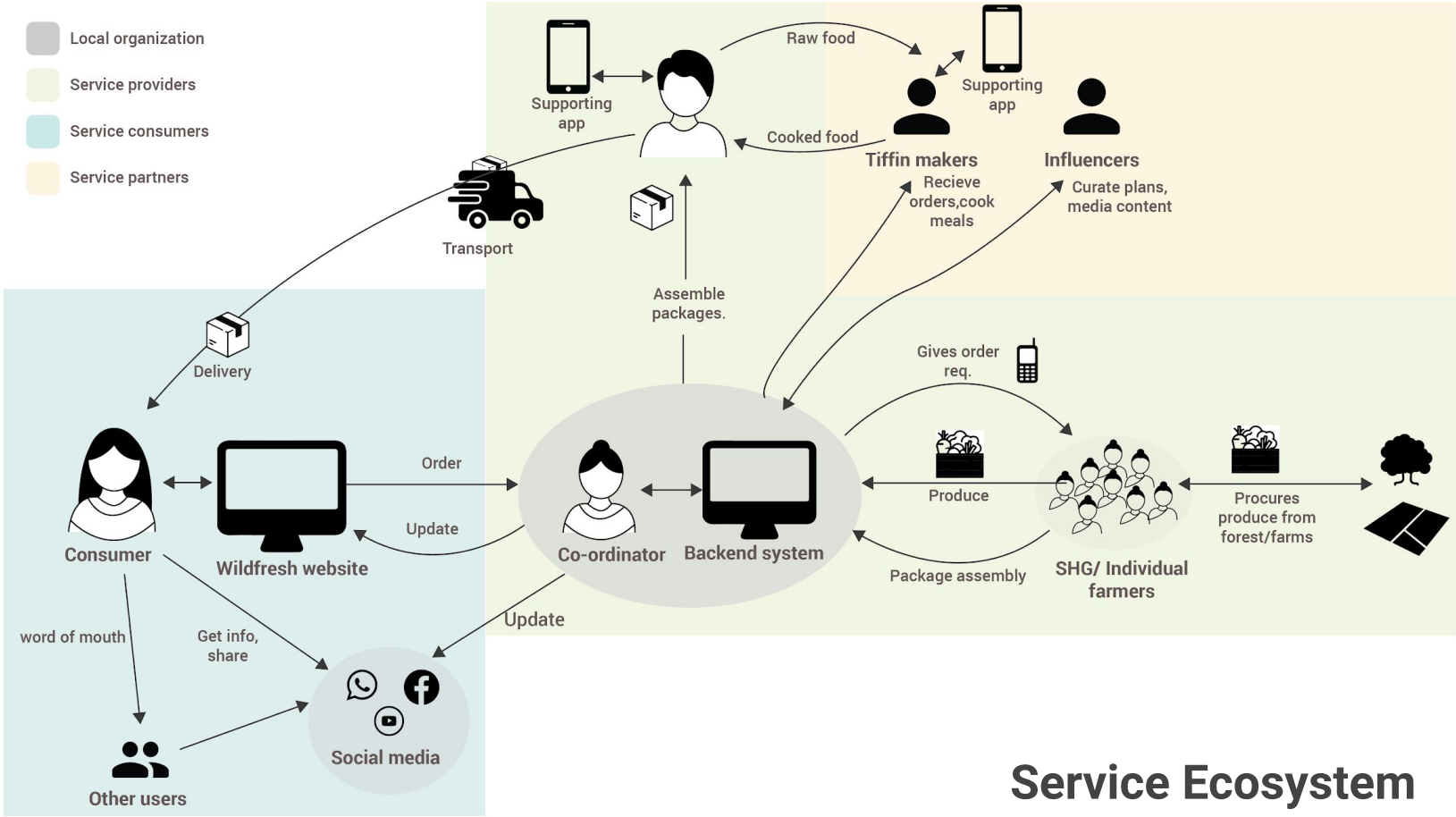

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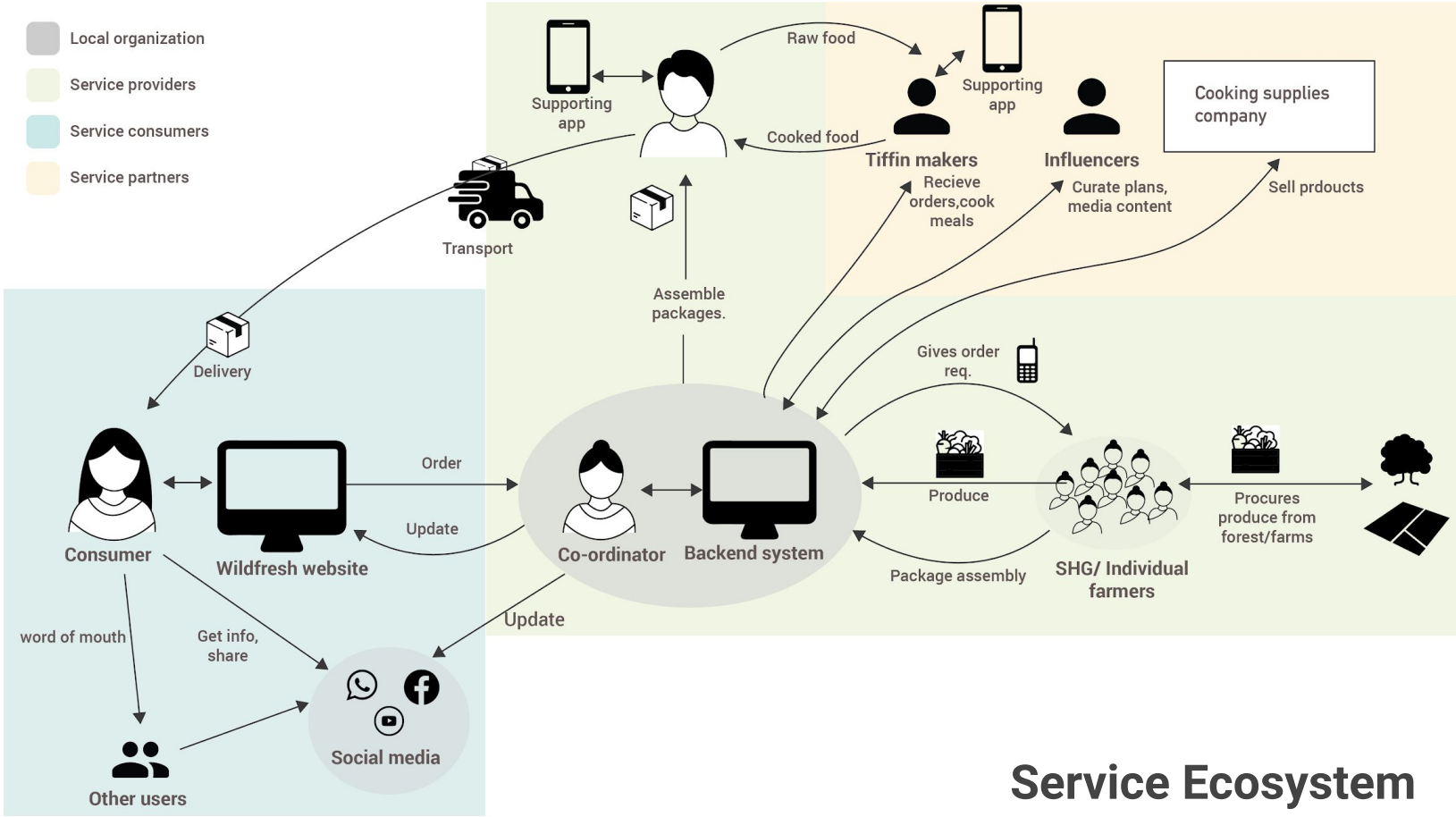


Service Ecosystem

Service Constellation

There would be different sub service offerings within the main service, designed to suit user needs and preferences.

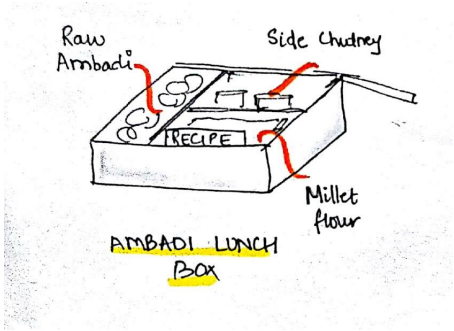
Menu Boxes

Tiffin Service

Menu Boxes

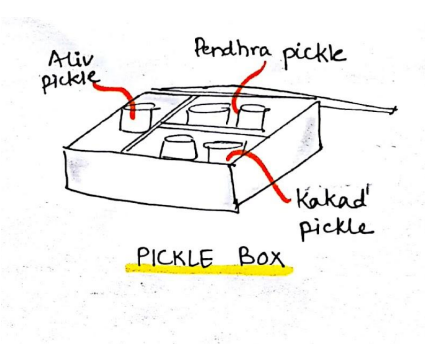
Recipe meal box

Cook your own meal from the ingredients and recipe provided



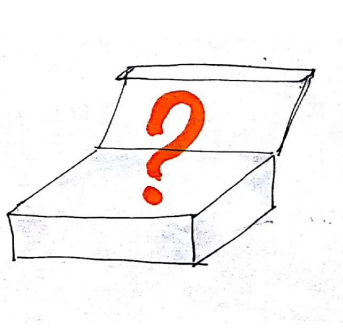
Standard

Assorted combinations of wild foods that go well together



Make Your Own

Add items of your own choice



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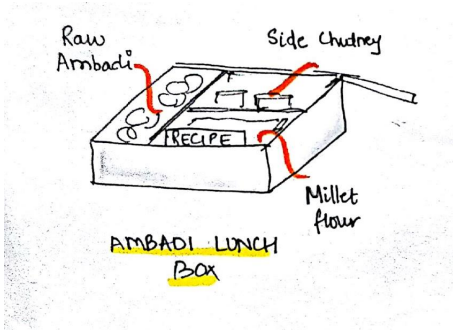

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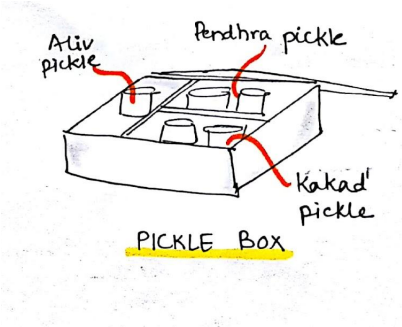

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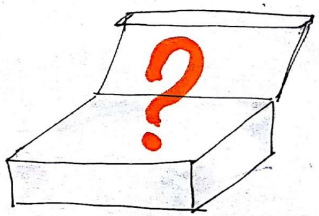
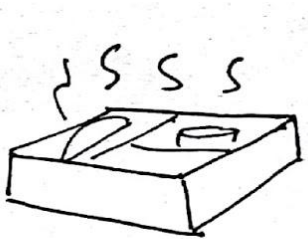


Tiffin Service

Pick wild vegetable to be cooked by local tiffin makers



Addressing Problems & Opportunities

- Logistical Issues
- Maximize livelihood
- Awareness and Perception
- Meeting user needs

Addressing Problems & Opportunities

Logistical Issues: Pre-order service

Maximize livelihood

Awareness and Perception

Meeting user needs

- The pre-order service also ensures that the **produce will get plucked only when there is a demand**, not otherwise.
- Hence **wastage or over supply** can be prevented.

Addressing Problems & Opportunities

Logistical Issues: **Pre-order service**

Maximize livelihood: **Value addition**

Awareness and Perception

Meeting user needs

- Add value by including processed items, **adding curated options by influencers**, **assortment** of items that go well together, etc.
- Assortment of items enables **people to try more vegetables and related items**
- Provide authentic **tribal experience**
- These can in turn contribute to **enhance the revenue from the service.**

Addressing Problems & Opportunities

Logistical Issues: Pre-order service

Maximize livelihood: Value addition

Awareness and Perception: Tiffin, web

Meeting user needs

- **Tiffin Service makes wild foods more accessible for people to try**
- Website can be an effective medium for different media of content (videos, pictures, recipes, user quotes, lab reports) etc. to reach people.

Addressing Problems & Opportunities

Logistical Issues: Pre-order service

Maximize livelihood: Value addition

Awareness and Perception: Tiffin, web

Meeting user needs: Doorstep delivery, order options

- Order options designed to meet user needs
- Doorstep delivery, tiffin service provides convenience, make wild foods accessible

Service Prototypes

Service Prototypes

“Prototypes are basically anything that can communicate, prove or reveal a service concept.”

-Houde & Hill

“Representations or manifestations of ideas and the assumptions behind them.”

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SERVICE PROTOTYPES

1. Service Blueprint
2. Storyboard
3. Website (customer facing)
4. Backend system (backstage activities)
5. Delivery box and other items within it

Service Prototypes

Fidelity

Closeness to eventual design

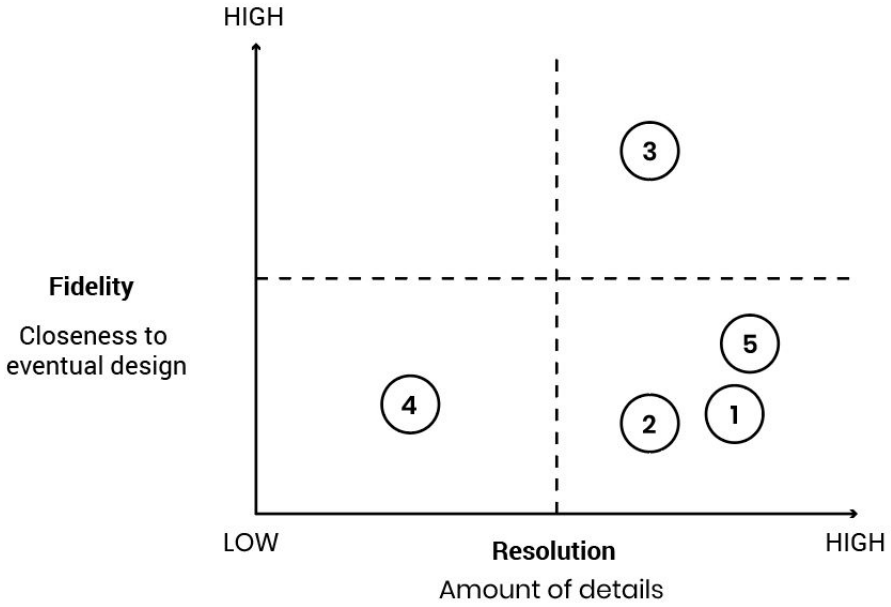
Resolution

Amount of details

SERVICE PROTOTYPES

1. Service Blueprint
2. Storyboard
3. Website (customer facing)
4. Backend system (backstage activities)
5. Delivery box and other items within it

Service Prototypes



SERVICE PROTOTYPES

1. Service Blueprint
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4. Backend system (backstage activities)
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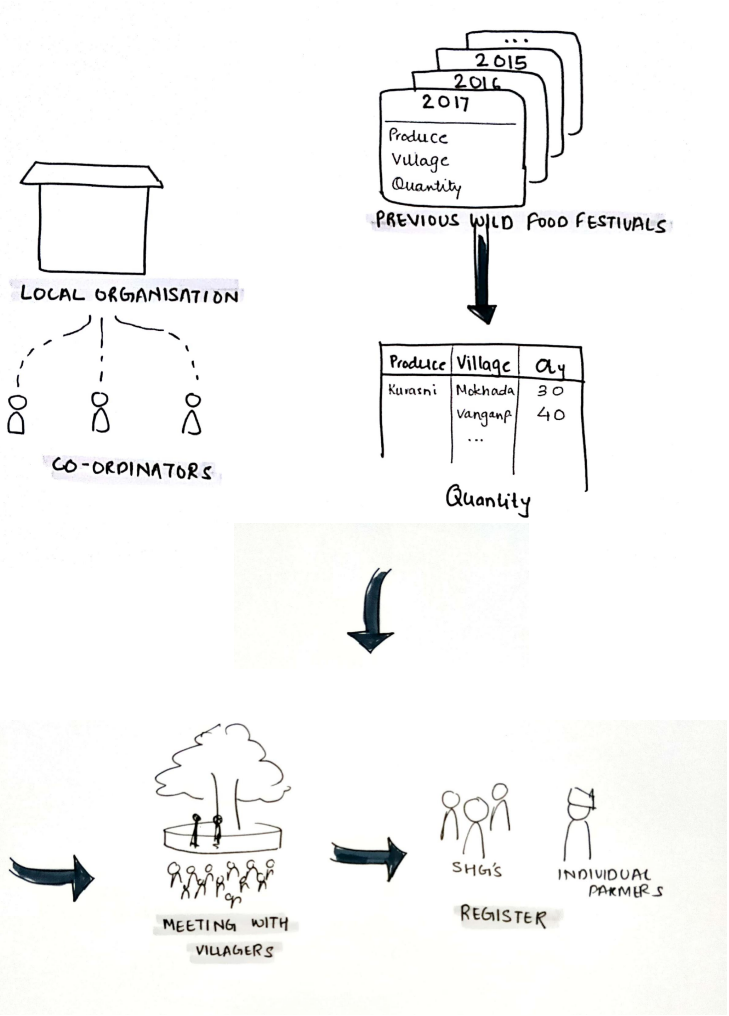
Pre-Service

Process Summary

1. Managing Supply & Demand

- This data from previous wild food festivals of the produce and it's available quantity can be considered for starting out the service.
- Based on the available produce and it's quantities, various boxes can be curated.
- During the initial period of the service, a cap can be kept on the maximum amount that can be supplied. A **demand based pricing model** can be used to garner more revenue even if the supply is relatively limited.

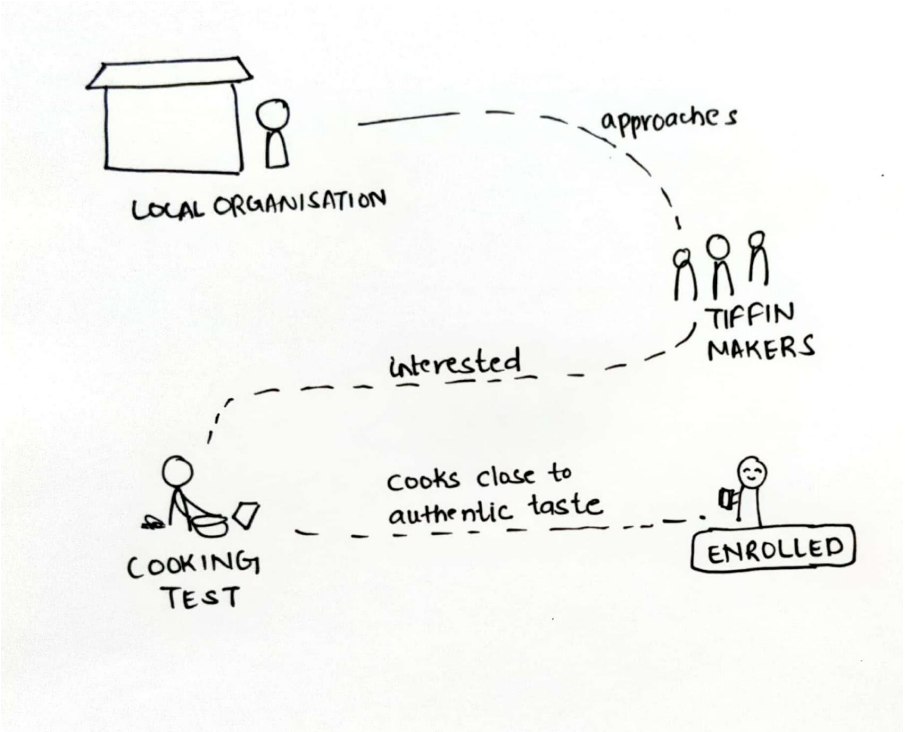


1. Managing Supply & Demand (Future aim)

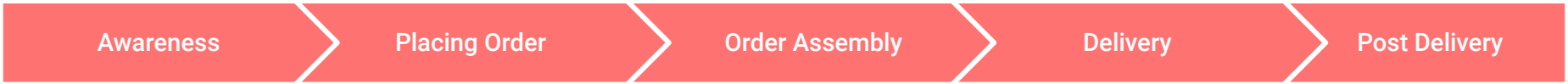
- The service will **aim to eventually increase the domestication** and plantation of these.
- This can be achieved by **encouraging partner farmers for farm plantation, kitchen gardens(for those who may not own land areas),and creating conducive conditions for these to be grown in the forest.**
- Currently BIAF is trying making saplings out of some of these wild plants. Over the years as the supply will increase, more customers can be served.

2. Recruiting Tiffin Makers

- Tiffin makers would need to be recruited based on a cooking test
- The cooks can be assessed on how authentic the taste is and the quality, hygiene of the meal

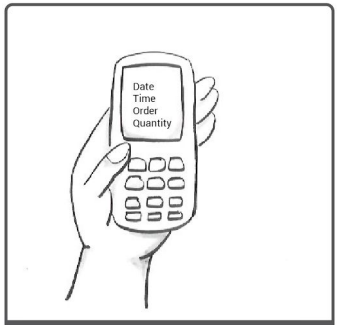


Service in Action


Awareness
Placing Order
Order Assembly
Delivery
Post Delivery

Co-ordinator at a rural organization recieves the order

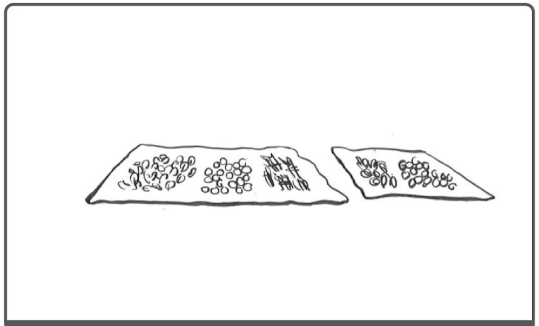
She calls and allocates the order to the farmers



Recieve SMS notification for oder

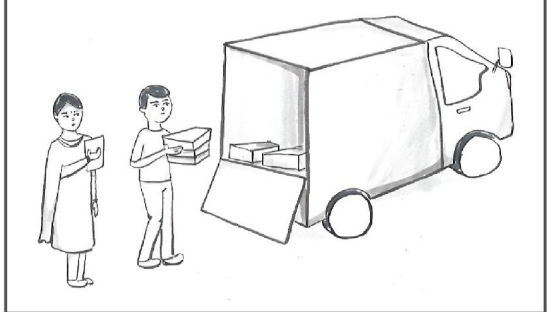
The farmers procure the produce from the forest, or their land

It is collected and brought to the local organization

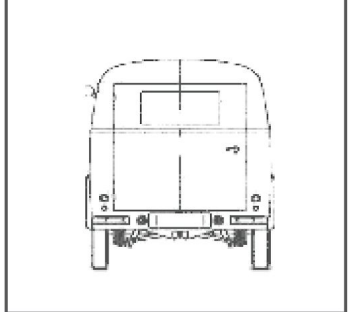


Here it is sorted, freshest produce is used for delivery, rest used for preparing products

The produce is then sorted and assembled into boxes

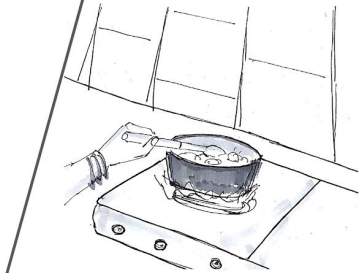


The boxes are then handled to the delivery personnels

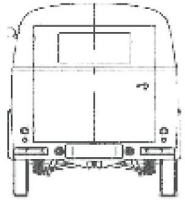


They travel to urban areas to delivery the boxes

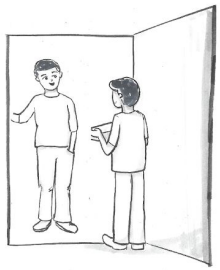
The delivery personnel delivers the box to the tiffn makers

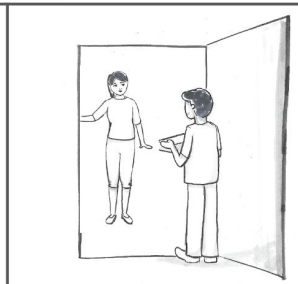


The tiffin makers then start preparing the meal



In the mean time..





The delivery personnels deliver boxes to other buyers

Once the tiffin meal is prepared, it is collected by the delivery personnel

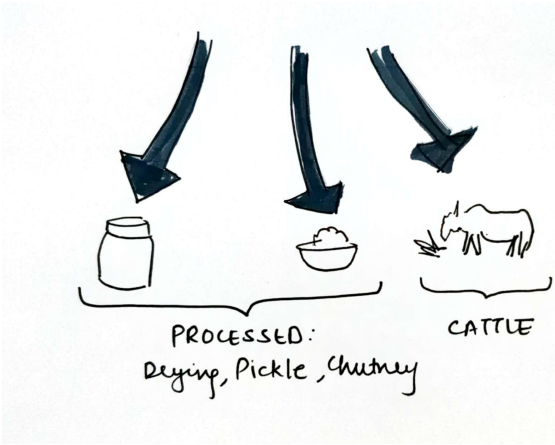
..and then delivered

Service Failure & Recovery

Service Failure & Recovery

ENSURING FRESHNESS

- Ordering for more produce than required
- During sorting of vegetables, before delivery, produce that is not fresh enough to be sold, can be kept aside for use during preparation of processed items such as chutneys, pickles etc.
- Some of this wild produce can also be used as a fodder for rural cattle.



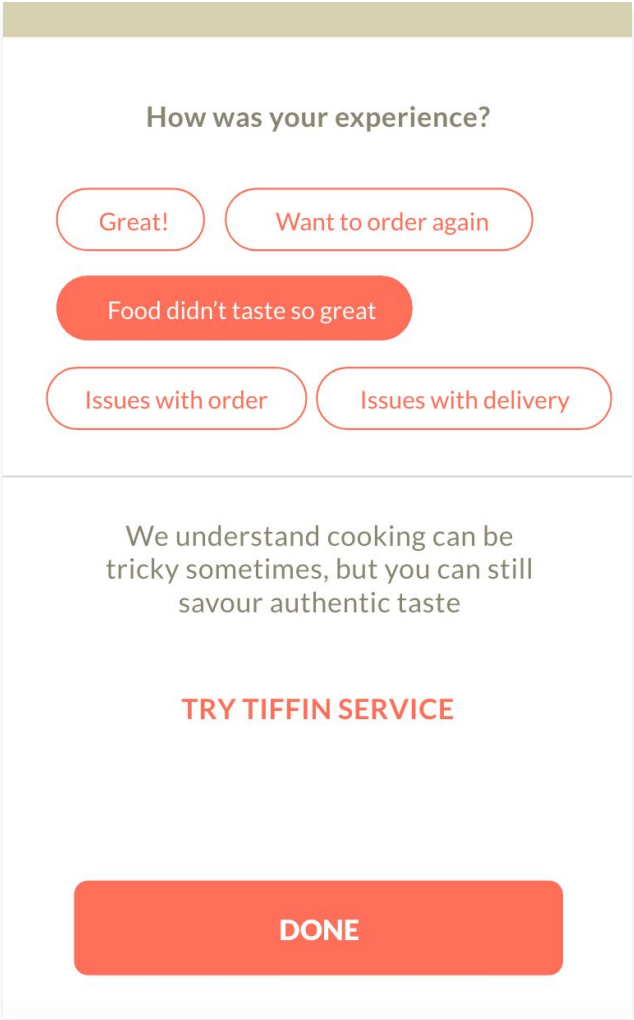
Service Failure & Recovery

NOT BEING ABLE TO COOK WELL

- Possible risk for the recipe meal buyers to be unable to cook the wild vegetable well.
- Post delivery, the customer will be asked whether they were able to satisfactorily cook the wild vegetable. Incase not, they will be recommended to try the tiffin service where they can receive meals, cooked close to the vegetable's authentic taste.

ITEM UNAVAILABLE

- Incase the items are unavailable, the user can be suggested items with similar attributes such as similar type, health qualities, tastes etc.



Testing

Testing

THEMES

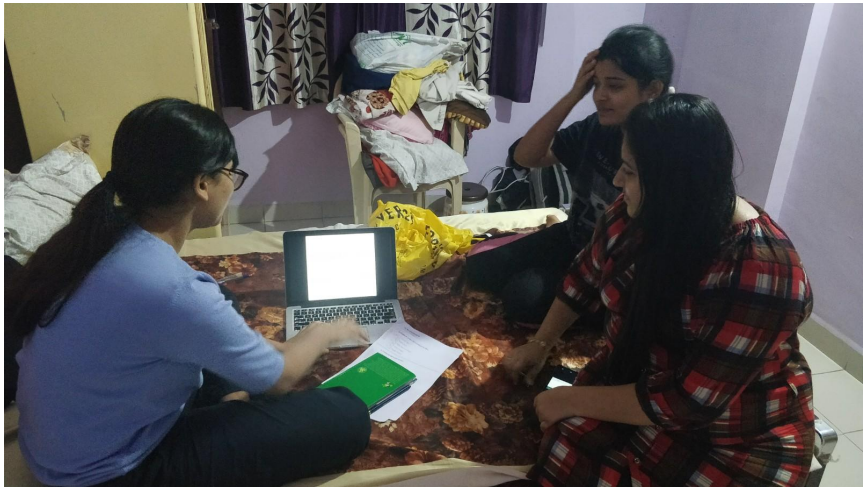
The testing aimed to answer **whether the service would interest the customers, and be able to generate a demand for it**, as this would in turn convert into livelihood for the farmers. The key themes were:

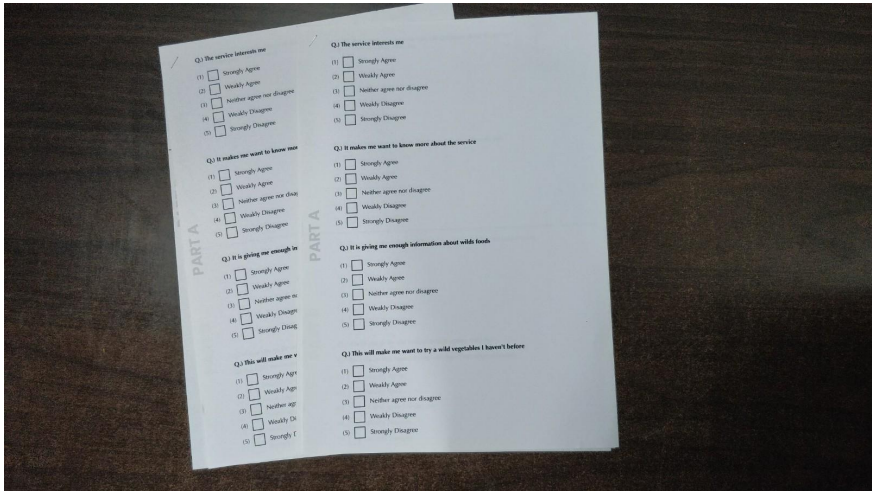
- Is the service able to interest the customers
- Is it able to communicate the value of wild foods to its buyers
- Does it address their concerns and issues
- Is it giving users a sense of making a contribution
- Is the service fulfilling any user needs/is the service useful for them
- Does it make them want to share & recommend it to others
- Do users feel that they will be receiving quality delivery and packaging
- Does it make them want to place an order

Testing

METHOD

- Shown service prototypes such as the storyboard, and customer-facing website mock ups, being the primary touchpoint
- The users were asked questions based on the testing themes, that they answered on a 5 point Likert scale.





Testing

METHOD

- Shown service prototypes such as the storyboard, and customer-facing website mock ups, being the primary touchpoint
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Partic	Meta info/ Background	Gender	Age	Location	Occupation
P1	No idea about wild foods	F	53	Mumbai	Working, accounts
P2	Agrarian background, knows some wild foods	F	55-60	Mumbai	Runs a shop
P3	No idea about wild foods	F	29	Mumbai	Working
P4	Knows about wild varieties of conventional vegetables	F	34	Mumbai	Housewife
P5	Loves cooking, knows some wild foods	F	50	Mumbai	Working, accounts
P6	Likes Cooking in the Kitchen, mostly on weekends	M	33	Vasai	Project Manager
P7	Cooking as Hobby	M	27	Vasai	Entrepreneur
P8	Cooks ocassionally	F	27	Mumbai	Working
P9	Avid cook	F	56	Mumbai	Housewife
P10	Cooks ocassionally	M	57	Mumbai	Working

Testing

METHOD

- Shown service prototypes such as the storyboard, and customer-facing website mock ups, being the primary touchpoint
- The users were asked questions based on the testing themes, that they answered on a 5 point Likert scale.

Sr No.	Themes	Question	AVERAGE SCORE
1	Awarness	The service interests me	4.85
2	Awarness	Makes me want to know more about the service	4.71
3	Communicating/addressing concerns	It is givng me enough information about wild foods	5
4	Communicating/addressing concerns	This will make me try a vegetables, I haven't before	4.14
5	Communicating/addressing concerns	What are some of your issues and concerns	Qualitative
6	Communicating/addressing concerns	Does it address your concerns	3
7	Making a contribution	Do you think you are making a contribution through this	4.57
8	Fulfilling their needs	The order options are useful to me	3.57
9	Fulfilling their needs	Would you go for any option and why	Qualitative
10	Quality dleivery	Safe and quality packaging is provided	4.14
11	Quality dleivery	The cards provided with the packaging would be helpful for me	4.42
12	Sharing/scaling	Enables me to share and recommend it to others	4.57
13	Purchase order	Makes me want to place an order	4

Results and Discussions

GENERATING INTEREST

- The users **expressed a keen interest in knowing about the service,** while most of them (**7/10) had no idea about wild foods, they expressed a curiosity** in knowing more about the same. **All users found the website sufficiently informative, elaborate and useful**, giving them a fair idea of what the vegetable would be like.

TRYING NEW VEGETABLES

- The users (**8/10) were open to trying new vegetables since recipes and ways of preparation were provided**. Some (2/10) even expressed wanting to **try out the tribal recipes on regular vegetables.**

Results and Discussions

USEFULNESS OF ORDER OPTIONS

- Most people **(8/10) responded to trying the tiffin service first,** to know what the wild vegetables would taste like.
- Some (3/10) for its convenience, being a homemade healthier alternative to ordering from hotels.
- Some users (3/10) who were **cooking enthusiasts** were also fairly **interested in the recipe meal option**.

MAKING A CONTRIBUTION

- The users responded positively to being able to contribute towards farmers livelihood, as they felt it '**bridged the gap between them' and enabled them to do something.**

Results and Discussions

ADDRESSING USER CONCERNS

- While the lab reports seemed to give them assurance about the origins of the produce
- Some **(3/10)** of the user concerns were about the f**reshness and health** of the produce, they were wary about the condition of **leafy vegetables during the monsoon season**.
- Other (**2/10)** concerns were around the **hygiene and quality of tiffin service meals.**
- Users were f**airly satisfied with the 'double packaging'**, but (3/10) **wanted to try it**

Results and Discussions

PLACING AN ORDER

- Most users **(7/10) said that they would like to place the order**, citing **'nutritious eating option'** and **'contributing for farmers'** as the primary reason. The expressed wanting to place the first order and see how the service is, then place subsequent orders.

Conclusion

- Able to generate interest, communicate value of wild foods
- Interested in tiffin service and recipes and preparations
- Focus on them, instead of other options
- Test quality and health with actual vegetables in the monsoon season

Thank You!