

# ENGINEERING LEADERSHIP PROFESSIONAL PROGRAMS

Title:

MeSu

Abstract

An Eco System to help a user stay informed about what food they have on hand and make informed decisions. This is providing an economical advantage to the User, has a positive ecological benefit, and provides revenue generating data analytics

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## Section I: Introduction

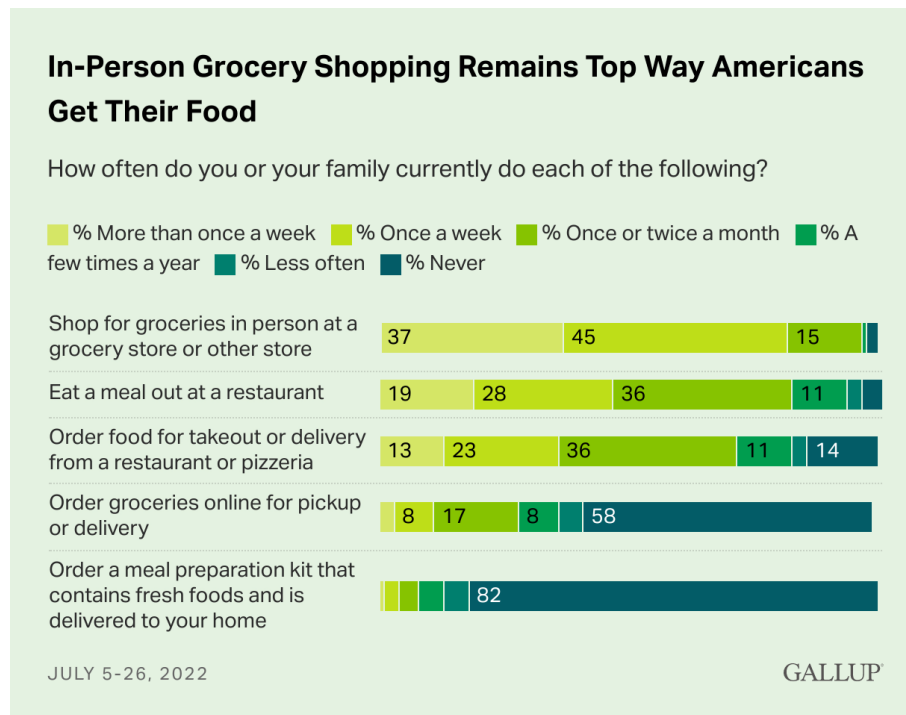
There is a real and pressing need to attend to future potential food scarcity and American's tendencies to toss expired items has not helped with this concern. Both the economic and ecological effects of the seemingly minor choice to let groceries go to waste has far-reaching impacts on the globe. Feeding America, the United States' largest food rescue organization, outlines the primary sources of food waste as food that is thrown out in individual homes and restaurants, crops that are not harvested due to low market value or an abundance of that particular crop in that moment in time, problems during manufacturing of the food, or concerns about the color or shape of the food that might make it unmarketable (Feeding America, 2022). While this food organization is easily able to rescue food from restaurants or manufacturers, it is the individual consumer who is wasting food that continues to be illusive. Meet your Personal Sous Chef Platform, MeSu. It is a free platform that will assist individual consumers in prioritizing ingredients based upon expiration date but will help find new and fun recipes to use these items in a timely manner.

## Section II: Problem

With the increase in inflation, the effects on the supply chain of the recent global pandemic, and the increasing costs of labor and wages in all job markets, food has become much more expensive for consumers. In the past year alone, average food prices rose 11.4% (Smith, 2022). While some individuals might hope that costs will return to a more palatable pre-pandemic price, continued international turmoil with the war in Ukraine and sanctions on Russia are continuing to spike pricing (Smith, 2022). Furthermore, unusual weather incidents also are greatly impacting grocery pricing as the world markets are affected by droughts and other disasters (Smith, 2022). World Bank acknowledges these concerns in their analysis of the current rise of food insecurity and its plan to address this through projects that increase food production as well as alleviate the effects of these international concerns (The World Bank, 2022).

Even with these measures, consumers can also take individual steps to maintain food

security. Unfortunately, it can be a challenge to effectively use the groceries once bought prior to them spoiling. The US alone wastes roughly 161 billion dollars of food each year (Johnston, 2022). The problem is clear – with 82% of Americans grocery shopping roughly at least once a week, they must plan their week in advance and be mindful of their purchases when cooking (Brenan, 2022).



The Gallup Poll information above shows important trends in American food shopping. Americans are primarily making their meals from groceries that they buy in person or eating meals from restaurants (Brenan, 2022). The food waste clearly comes from spoiled groceries. Feeding America, the largest food rescuer in America, identifies that individual Americans throwing away food from the fridge accounts of 40% of America's food waste (2022).

### Section III: Solution

We can all play a part in reaching the national food waste reduction goal from FDA—to reduce food waste by 50% by the year 2030 (U.S. Food & Drug, 2022). MeSu is an ecosystem that will allow the user to track their current pantry stores and make informed decisions. The user will leverage a free application to scan their receipt barcode with the option to manually input as needed. This will setup a base of what is known to be in the kitchen area. From there MeSu will track the expiration date and suggest recipes the user can use for consuming those products before they become expired.

The MeSu solution will continue to integrate new innovative technologies to automate more of the process to input the groceries. The application will integrate the ability to leverage the camera to automate to input of the expiration date (given it is on the package). The user will be able to not only use an intuitive GUI but will also be able to use their voice to automate certain functions such as updating the quantity of certain products, tell the MeSu ecosystem what integrates are being used (to ensure your pantry inventory is up to date), and many other tedious tasks.

A trending approach is that manufacturers are starting to remove expirations dates from products. In fact, it is common for multiple versions of an expiration date to be preset on a product such as “best to sell”, “sell by date”, “use by date”, etc. MeSu can work directly with the FDA to come up with responsible standardization to these terms so a user will know when it is time to throw an item away.

Beyond just knowing an estimated date, MeSu will continue to work closer with the FDA to help the user determine if the food is no longer edible. Keeping in line with the innovative nature of MeSu, the application will provide the ability for the user to take a picture of some foods and use innovative algorithms to help the user make the decision. If the decision can't be made by the MeSu App, MeSu will work with the FDA to include common guidelines and best practices for determining if the food in question truly has passed the recommended time.

With an intelligent ecosystem, the options are endless. Based upon the user's eating

habits and/or requests, MeSu can act as a “smart shopper” and help to show what groceries are already present and act as a shopping planner to help buy needed groceries to ensure the user doesn’t come up short when cooking. MeSu will attempt to leverage online shopping Application Programming Interfaces (API) to find not only where you can buy certain items but may suggest at which locations you can find a coupon or the lowest price. In fact, using geolocation the MeSu app will be able to tell you what and where you may be able to find the item in needed based upon the store you are currently in.

Health is a continually growing concern in the world. MeSu contains all needed features and information for a user to make informed decisions. If a user has food allergies, MeSu can keep them informed and safe. MeSu can be an important tool in fighting obesity. It will help the user find ingredients and complimenting recipes to ensure meals are supporting a healthy lifestyle. With its data, it will help the user keep within healthy daily calories, sodium, etc. intake.

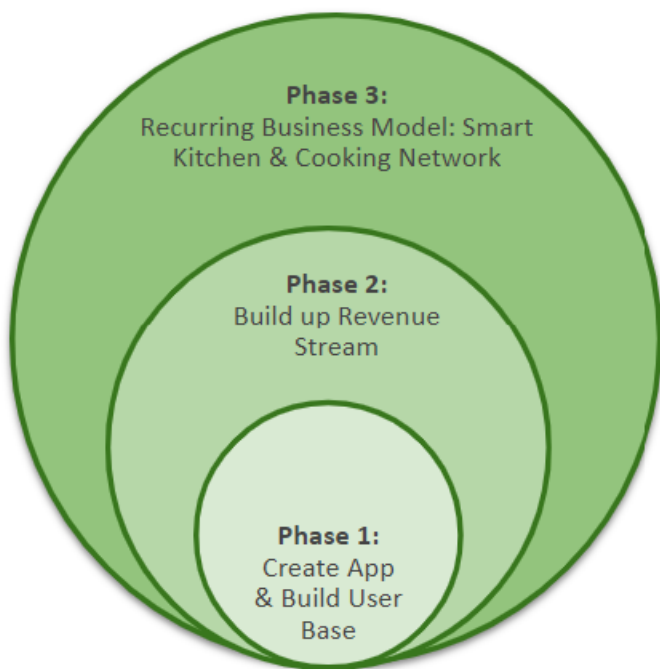


By tracking expiration dates, nutritional properties of ingredients, and keeping the user

informed about the availability of various products in their kitchen MeSu can serve an important role in the user's health and financial wellbeing as well as making an important ecological impact. As a Personal Sous Chef Platform, MeSu can become the Instagram for food lovers and the ones who support sustainability society. MeSu users can browse the app to see videos posted by other users around recipes, share tricks and tips to avoid food wastage, and even share videos how users can and have had an ecological impact.

## Section VI: Go to Market Strategy

MeSu's major customer base is perceived to be both Millennials and the parent/individual who stays home and takes care of most of the household chores including buying the groceries. MeSu will be introduced into the market in two major stages with a third to continue to venture into expanded markets.



### Phase 3: Recurring Business Model

- Kitchen Automation
- Cooking Network
- AI/ ML for n+2 appliances
- Voice Interface

### Phase 2: Build up Revenue Stream

- Shopping planning
- Pantry inventory Mgt, Search, Recommendation
- Cooking assistant
- User preferences

### Phase 1: Build User Base

- Create easy to use free App
- Target Millennials & Gen-Z
- Socialize the App
- Collect user data/behavior
- Initial feedback and improvements
- Incentivize usage

## Phase 1:

Phase 1 is focused on providing the application and the expansion of our userbase. This app will provide the user the ability to scan in items manually, scan a recipe from shopping, and then either generated or user inputted expiration dates will be applied to the input items. To spread knowledge of MeSu, Social platforms will be key in reaching individual users as well as businesses. Mesu will leverage advertising via various social media platforms to help spread the word.

A service that will be offered in phase 1 is the suggestion of recipes based upon what the app knows is in your pantry as well as the dates of expiration of these ingredients. This will include a large database of predefined recipes that you can choose from to help keep your pantry free from expired food as well as helping to explore new approaches to food.

One additional feature MeSu will use to expedite data collection is to incentivize users to input their current inventory as well as the recurring input of trips to the grocery store. "Research undertaken earlier this year among UK shoppers showed that 56% would be willing to share data in exchange for discounts or rewards relevant to their needs, highlighting an opportunity to engage and build valued relationships" (Brittlebank, 2017).

## **Phase 2:**

During Phase 2, the MeSu platform will start to mine data from the collected information submitted by its various users. During this phase, data analytics will be applied to find trends such as:

- Current and/or commonly items in a user's Kitchen/Pantry inventory.
- Expiry dates for each of the items in the inventory.
- What user is buying, how often they are buying, when they are buying
- Users that are more prone to waste food due to expiry and conscious about food wastage
- User food preferences such as if they are vegetarian, vegan, etc.
- User information such as single/married, Demographic data, etc.

There are many potential consumers of this type of data such as appliance manufacturers, cookware companies, groceries store and supermarkets. The data could help these manufacturers to build products that cater to certain customer based upon trends found in received data. An example could be looking for smart refrigerators out there and see what features they currently offer and research how our data can help improve their current products.

After the initial phase and rollout of the application (Phase 1) integration of common mobile application revenue streams will be integrated into the app. MeSu will open its platform up to showing the users targeted ads from areas such as:

- local grocery stores
- other local stores/restaurants next to grocery stores
- cooking classes
- credit cards
- appliance and home

### **Phase 3:**

Phase 3 will target more broad opportunities and keep the door open for extending into more risk-oriented spaces. MeSu could look to build an ecosystem with smart kitchenware product providing a more integrated experience. There are many opportunities to enable networking opportunities for users to share unique recipes, review, and rate other users' recipes.

### Section IV: Competition

Fridgely is an IOS based app that Tells you when your food is going to expire, sends alerts when your food is close to expiring. It will then find recipes and shows recipes based

on the food that you already have. Friggely has been around for 5-6 years, is not very intuitive and appears that development has stalled out.

Olio is a free application that allows the user to borrow as well as request food and non-food-based items. Olio has a limited feature set. For instance, it does not offer recipes which provide the user with more targeted ways to use their food supply. Additionally, reviews show complaints of food transactions not happening as expected, making the app unreliable.

BEEP is another mobile application that allows you to scan and track the expiration date of any food items you have in your pantry. BEEP does not offer recipes nor appears to be directly associated with the consumer. It also currently has a 1.7-star rating in the Google Play store

Foodless is a grocery management system. It allows the user to keep track of what and where things were purchased. It is a limited freeware and therefore lacks many of the specific features that MeSu could provide.

Ultimately, these competitors share many features individually that MeSu seeks to bring to the market, but none of the competitors combine these features in a seamless way to provide the experience that MeSu seeks to provide. Without syncing these various features, the app would fall short of providing the experiences that will ultimately reduce food waste for the environment. MeSu will also be able to provide more data analysis for companies, increasing the feasibility of this app when considering the ability to generate revenue.

## Section VII: Financial Projection

MeSu has the potential to generate significant revenue. Projections show that MeSu will be used 30 minutes a day while the user cooks while receiving about 200 impressions per day generating about 0.2-.3 by displaying advertisements. By estimating about 20 clicks per week through shopping planning, recommendations, and search, the application will

generate \$1-\$3 weekly per user.

MeSu is projected to generate between \$124 and \$260 per active user each year. This equates to between \$124 to \$260 million in yearly revenue from the 1<sup>st</sup> million daily app users (DAUs). Conservative averaging shows about \$192 million in revenue each year.

	Year 1	Year 2	Year 3	Year 4	Year 5
Daily Active Users (DAUs)	1000	100,000	500,000	1.2 M	2.5 M
Revenue (M\$)	0	20	100	230	480

## Section VIII: Conclusion

MeSu is a revolutionary ecosystem for food. It allows the user to have both an economic and ecological impact on the world. It will allow for better cooking capabilities and healthier eating. The longer-term plan will evolve the smart kitchen and cooking network ecosystem. MeSu is expected to see from \$124 million to \$260 million of revenue per year from the 1<sup>st</sup> million daily average users.

## Section IX: Meet the Team

### Datong Chen

Senior Director, Yahoo

### Jeremy DeBerg

Senior Staff Engineer, Samsung Semiconductor

Jeremy leads the project management team for the location division at Samsung

Semiconductor. He and his team are responsible for taking location targeted ICs (Integrated Circuits) of various factors and targeted markets from inception to commercialization.

### **Ray Donohoe**

Senior Director, Lam Research

Ray Donohoe leads the Process Engineering team supporting one of the largest chip manufacturers in the world where he and his team are responsible to provide best-in-class process performance for Lam Research's products.

### **Jaswanth Gummadi**

Sr Engineering Manager, VMware Inc

Jaswanth Gummadi leads the Cloud Native Storage and Data Services product team that provides storage control plane and infrastructure/cross cloud services to on-board modern stateful applications and services on vSphere platform.

### **Oleg Khoruzhiy**

Principal Engineer, Samsung Semiconductor

Oleg leads a software development team that uses AI and digital signal processing techniques to achieve stunning photo and video quality in Samsung Galaxy phones

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