RAKYAT PRODUKTIF 4

MYHACKATHON 2020 KOTA KINABALU

SPRINTING CATEGORY

1. TONG RUI YANG
2. TEOH MEI YEN
3. TEE TAT JIN
4. KONG MUN JUN
5. WONG YEW LEE

PROBLEM STATEMENT

DIGITAL SOLUTION TO USE BIG DATA TO FORECAST SUPPLY AND DEMAND FOR AGRICULTURE SECTOR FOR PRODUCTION AGGREGATION AND MARKETING NEEDS

SCENARIO

CURRENT METHOD OF GOVERNMENT TRACKING SUPPLY AND DEMAND OF AGRICULTURE IS INEFFECTIVE TO GATHER CENTALISED REAL TIME DATA. IN OUR SOLUTION, WE ARE FOCUSING ON SOLVING THIS PROBLEM STATEMENT TOWARDS CHILLI PLANTATION INDUSTRY.

🔍 INSIGHTS?

= LACK OF CENTRALISED DATA
= LACK OF DATA SOURCE IN REAL TIME
= DATA ISSUE IMPACTS QUALITY OF ANALYSIS TO FORECAST THE SUPPLY AND DEMAND
= DIFFICULT TO MONITOR THE WHOLE SUPPLY CHAIN

= 33% of wastage come from storage, which could be due to excessive supply and lack of demand. This addresses the effects of four pain points aforementioned.

= agriculture contributes 10.4% of employability in Malaysia but only contributed to 7.1% of GDP in 2019. There are so many people working in agriculture industry, yet GDP contribution percentage is lower than contribution of employability, is probably due to the lack of centralised data to distribute supply according to the need, causing supply to be wasted and demand could not be fulfilled.

reference: https://www.digitalnewsasia.com/insights/digital-solution-towards-data-driven-agriculture-malaysia

reference: https://www.theglobaleconomy.com/Malaysia/Employment_in_agriculture/

WHAT ARE THE SOLUTIONS OUT THERE?
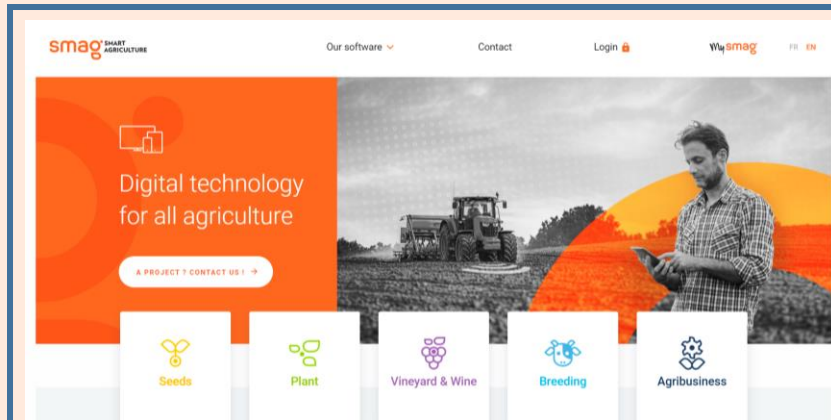
SMAG from France
Mobile software to track agriculture operations, crop management process and give consultations.
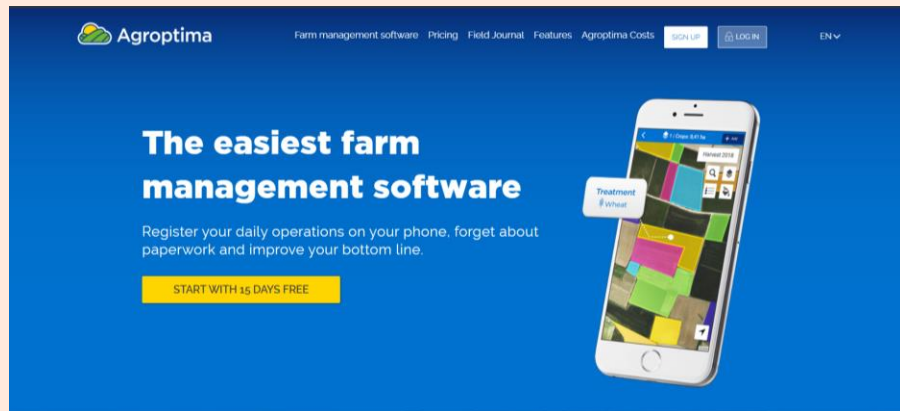
DIFFERENCES FROM OUR SOLUTIONS?

SMAG

- OFFERS SERVICES TO BUSINESSES
- FOCUS ON IMPROVING PRODUCTIVITY OF AN ENTITY BUSINESS ONLY
- PROFIT ORIENTED TO ENTITY BUSINESSES THAT PURCHASE THE SERVICE.

OUR SOLUTION

- OFFERS SERVICES FOR FREE TO WHOLE NATION INVOLVING IN THE SECTOR
- PROVIDING CONSULTATIONS TOWARDS FARMERS AS WELL
- GOAL ORIENTED IN INCREASING CONTRIBUTION OF GDP IN COUNTRY
- FOCUS ON TRACKING SUPPLY AND DEMAND, AS WELL TO PROVIDE FEEDBACKS ON FARMERS PRODUCTION

reference: https://www.talend.com/resources/big-data-agriculture/

SECOND SOLUTIONS

AGROPTIMA from Spain
mobile app as an electronic notebook to record field activities, products applied, workers implied, working time or machinery usage.

DIFFERENCES FROM OUR SOLUTIONS?

AGROPTIMA

- TARGET USERS ARE WEALTHY AGRICULTURE COMPANIES
- FOCUS TOWARDS TECHNICAL SITUATION OF AGRICULTURE OPERATION
- FOCUS TOWARDS ANGLE OF ENTITY BUSINESS BUT NOT WHOLE NATION

OUR SOLUTION

- TARGET USERS ARE ANY FARMERS WITHOUT DISCRIMINATION OF WEALTH
- BESIDES OF TRACKING DATA, WE IMPART KNOWLEDGE TO END USERS ON IMPROVING THEIR HEALTH AWARENESS
- ACT AS CATALYST TO BOOST BUYING AND SELLING. THUS INCREASE IN GDP.

SO WHAT EXACTLY IS OUR SOLUTION?

CILIS

WHAT CILIS IS COVERING:

- FOCUS ON TRACKING SUPPLY AND DEMAND

- WITH INTENTIONS OF REACHING TOWARDS COLLECTING REAL TIME DATA

- EXECUTION OF SOLUTION WITH METHODS TO PREVENT FALSE DATA

- INCREASING INCOME OF CHILLI FARMERS

- MOTIVATE SUPPLY AND DEMAND SOURCE TO CONSISTENTLY SUPPLY ACCURATE DATA

- ABLE TO TRACK END TO END SUPPLY CHAIN

- ORIENTED IN BOOSTING GDP

TARGET AUDIENCE

1) MPC (MALAYSIA PRODUCTIVITY CORPORATION)

- SOLE PURPOSE IS TO INCREASE PRODUCTIVITY
- THEY ARE LOOKING FOR AGRICULTURE PARTNERSHIP
- PARENT ORGANISATION IS MITI (MINISTRY OF INDUSTRIAL AND INTERNATIONAL TRADE) WHICH IS MAIN MINISTRY OF THE GOVERNMENT. HIGHER AUTHORITY TO EXECUTE SOLUTIONS, EVEN FOR MPC.

2) CHILI FARMERS, END USERS, PROCESSED FOOD INDUSTRIES

3) COLLABORATION COMPANIES

reference: http://www.mpc.gov.my/background/
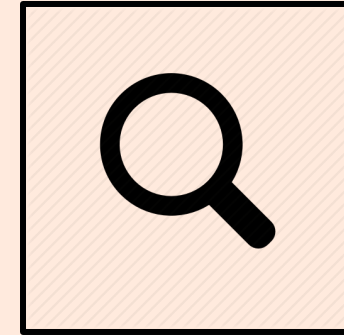
HOW TO TRACK SUPPLY?

A: CHILI FARMERS

WHAT ABOUT DEMAND?

A: PROCESSED FOOD INDUSTRIES AND END USERS

WHY?

A: END USERS LET US TRACK THE DEMAND ON RAW CHILI, PROCESSED FOOD INDUSTIRES LET US TRACK THE RAW CHILI USED IN PROCESSING THEIR FOODS. THUS, MARKET DEMAND OF CHILI IS TRACEABLE.

POSSIBLE TYPES OF ENTITY OF FARM BUSINESS

- ENTERPRISE WITH MANY FARMERS

- SINGLE OWNER

TO TRACK SUPPLY AND DEMAND…

- 2 APPS ARE INVOLVED.
- NEWLY LAUNCHED APP NAMED **CILIFRIENDS** FOR THE CILI PRODUCERS
- APP COLLABORATION WITH **MYSEJAHTERA** TO ADD IN A FEATURE NAMED **MYCILI** FOR THE END USERS AND PROCESSED FOOD INDUSTRIES (PFI)
- THEY BOTH HAVE DIFFERENT FUNCTIONS, HENCE WE SEPARATE THEM
- WITH LARGE USER BASE USING MYSEJAHTERA, PROMOTING COST TO ENCOURAGE USE OF MYCILI IS ELIMINATED.
- USER ACCOUNT IS REQUIRED, ANY OF THE CITIZENS CAN ONLY REGISTER EITHER ONE FROM CILIFRIENDS AND MYCILI BASED ON THEIR OCCUPATIONS (ONLY CHILLI FARMERS CAN REGISTER FOR CILIFRIENDS)

HOW TO REGISTER THE USER ACCOUNT?

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                          ┌──────────┐
                          │   MPC    │
                          └──────────┘
               ↙                            ↘
    ┌──────────────┐                  ┌──────────────┐
    │ CILIFRIENDS  │                  │   MYCILI     │
    └──────────────┘                  └──────────────┘
      ↙          ↘                      ↙          ↘
┌──────────┐  ┌──────────────┐   ┌──────────┐  ┌──────────────┐
│ENTERPRISE│  │ SINGLE OWNER │   │   PFI    │  │  END USERS   │
└──────────┘  └──────────────┘   └──────────┘  └──────────────┘
     ↓              ↓                 ↓              ↓
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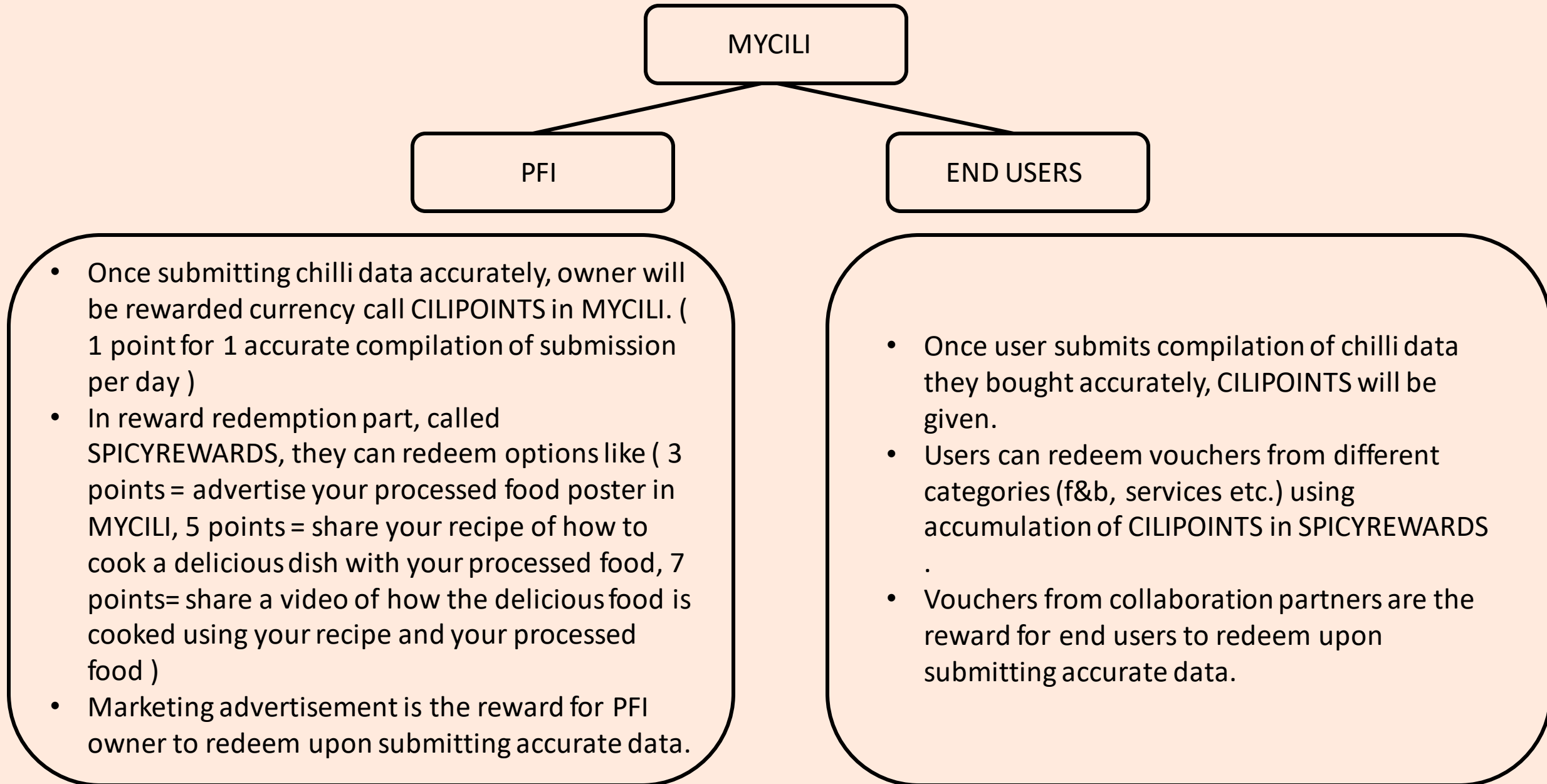| ENTERPRISE	SINGLE OWNER	PFI	END USERS
who = owner of company details = business registration number =owner's ic and name = farmers' ic and name	who =owner details = business registration number = owner's ic and name	who = owner of company details = business registration number = owner's name and ic	who = end user details = users' name and ic = occupation

CILIFRIENDS

ENTERPRISE & SINGLE OWNER

- Collaboration with **AGROBANK** to create a built-in online banking saving account in CILIFRIENDS for all the chilli farmers
- A suggestion of government subsidizing a base salary to chilli farmers (RM 1250 per month [divided with number of days existing on the current month]) is proposed, as to maximize their income and motivate them to work harder.

- when a single owner supplies data for a day in CILIFRIENDS, he will be getting RM40.32 base salary (December). He will not be getting RM40.32 on the day he does not submit data, or submitting false data.
- Accumulation of base salary earned by submitting data throughout a week will finally be reflected in the online banking account.
- Farmers have the options to

either save in the online banking account at a higher interest rate (similar to EPF concept) or they can withdraw the money out for personal use.
- By doing so, this will effectively motivate farmers to supply data accurately and work harder, especially to help chilli farmers with low class income and middle class income.
- One compilation of submission is allowed a day.

WHAT WILL THEY GET IN RETURN OF SUBMITTING DATA? PART 2

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MYCILI
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PFI

- Once submitting chilli data accurately, owner will be rewarded currency call CILIPOINTS in MYCILI. (1 point for 1 accurate compilation of submission per day)
- In reward redemption part, called SPICYREWARDS, they can redeem options like (3 points = advertise your processed food poster in MYCILI, 5 points = share your recipe of how to cook a delicious dish with your processed food, 7 points= share a video of how the delicious food is cooked using your recipe and your processed food)
- Marketing advertisement is the reward for PFI owner to redeem upon submitting accurate data.

END USERS

- Once user submits compilation of chilli data they bought accurately, CILIPOINTS will be given.
- Users can redeem vouchers from different categories (f&b, services etc.) using accumulation of CILIPOINTS in SPICYREWARDS .
- Vouchers from collaboration partners are the reward for end users to redeem upon submitting accurate data.

🔍 WHAT DATA TO RECORD AND HOW?

CILIFRIENDS

ENTERPRISE *

in charge by
- accounting dept.

what to record
- company's name
- weight of chili supplied (kg/tonnes)
- picture with weighing machine, name of the product
- to where it has supplied to

SINGLE OWNER

in charge by
- the owner

what to record
- Weight of chili supplied (kg/tonnes)
- picture with weighing machine, name of product
- to where it has supplied

MYCILI

PFI

in charge by
- accounting dept.

what to record
- company's name
- weight of chili bought (kg/tonnes)
- picture with weighing machine, name of the product
- from where they have bought the chili from
- receipt

END USERS

in charge by
- the end user

what to record
- Weight of chili bought (g/kg)
- picture, name of product
- from where user bought the chili
- receipt

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* accounting department submit data alone, and the salary will reflect on all the farmers and owner. Instead of all farmers in enterprise submit data individually, submitting data alone by accounting department eliminate data redundancy.

🔍 BESIDES OF SUBMISSION OF DATA, WHAT EXPERIENCE CAN OUR APPS PROVIDE?

CILIFRIENDS

- Farmers are able to access to know insights about possible increase and decrease of demand of types of chilli and suggestions of increase amount that they are encourage to plant in upcoming weeks

MYCILI

- End users are able to access to all kind of information, such as advice of dietitian experts regarding certain chilis' nutrients and recommended intake, delicious recipes (from PFI) and videos of cooking (from PFI) with links directed to the processed food company that is being advertised, and random surprising facts (do you know? chilies are natural painkiller. do you know? consumption of chili aids in prevention of getting cancers.

FUNCTIONS OF THE APPLICATIONS

CILIFRIENDS

- Record supply data accurately
- Offer and track online banking account (provided by AGROBANK) and base salary
- Gain insights of upcoming forecast demand to adjust farmers production supply
- Interface of history will be provided to track past records and to submit feedback upon any errors happen

MYCILI

- Record demand data accurately
- Educate users on knowledge regarding health, nutrients, random facts, sharing recipes or even videos that cook delicious foods (promoting PFI foods)
- Interface of history will be provided to track past records and to submit feedback upon any errors happen

WHO WILL BE INVOLVED IN COLLABORATION?

MYSEJAHTERA
- app that is designed as a corporate social responsibility towards the country
- We are able to utilise their huge data user base to engage with MYCILI
- in return, MYCILI data is shared to MYSEJAHTERA for further data analysis.

AGROBANK
- Bank that is famous for agriculture sector.
- In collaboration, bank will create online saving account for chili farmers
- In return, we are promoting and using their service.

PFI
- Companies that obtain chilies for processing their foods
- In collaboration, PFI will supply chili data for us .
- In return, free marketing advertisement will be shared in MYCILI using redemption of CILIPOINTS in SPICYREWARDS.

COLLABORATION PARTNERS
- Coorperations that sell products and services. eg, FamilyMart
- In collaboration, offering vouchers in SPICYREWARDS for end users
- In return, we are promoting them and expanding their market.

CILIFRIENDS

- TRACK REAL TIME SUPPLY
- INCREASE IN INCOME OF FARMERS AND GIVING THEM BETTER BENEFITS
- FARMERS WITH LOW CLASS INCOME (AND MIDDLE CLASS WITHOUT INTERNET COVERAGE) WILL BE SUPPLIED WITH 30MBPS INTERNET COVERAGE FOR A YEAR TIME, SUBSIDIZED BY GOVERNMENT ORGANISATION.

MYCILI

- TRACK REAL TIME DEMAND
- GIVE FREE VOUCHERS TO END USERS BY REDEMPTION OF CILIPOINTS
- EDUCATE THEM WITH KNOWLEDGE RANDOM FACTS, AND SHARE WITH THEM RECIPES OF DELICIOUS FOOD OR EVEN TUTORIAL VIDEO OF HOW TO COOK

COLLABORATION BODIES

- INCREASE IN SALES
- IMPROVE RELATIONSHIP WITH GOVERNMENT

MAIN BENEFITS

BUDGETING ASSUMPTIONS

- 100 employees are involved in this solution

- Building of 3 floors, each of 12888 sqft is rented as office

- Solution involves employees in 5 major departments: Finance, Operation management, IT, Marketing, Human Resources

- Number of chili farmers is estimated based on amount of workers needed to manage 1 hectare of oil palm (due to existence of statistics record), and the total hectare area of chili plantation, which is 338 chili farmers. reference: (abstrack) http://palmoilis.mpob.gov.my/publications/OPIEJ/opiejv11n2-ramli.pdf

EST. RM1,122,606

- BASE SALARY **11.1%**
- INTERNET COVERAGE **0.5%**
- BUILDING RENTAL FEE **6.2%**
- BUILDING MAINTENANCE (BUILDING & ASSETS) **1.2%**
- MAINTENANCE FEE FOR ALL DEPARTMENTS (SALARY) **21.8%**
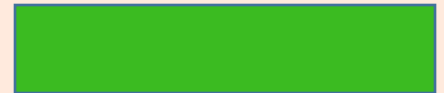- MAINTENANCE FEE OF APP **4.0%**

Fund Allocation

Maintenance Monthly Cost: 44.8%
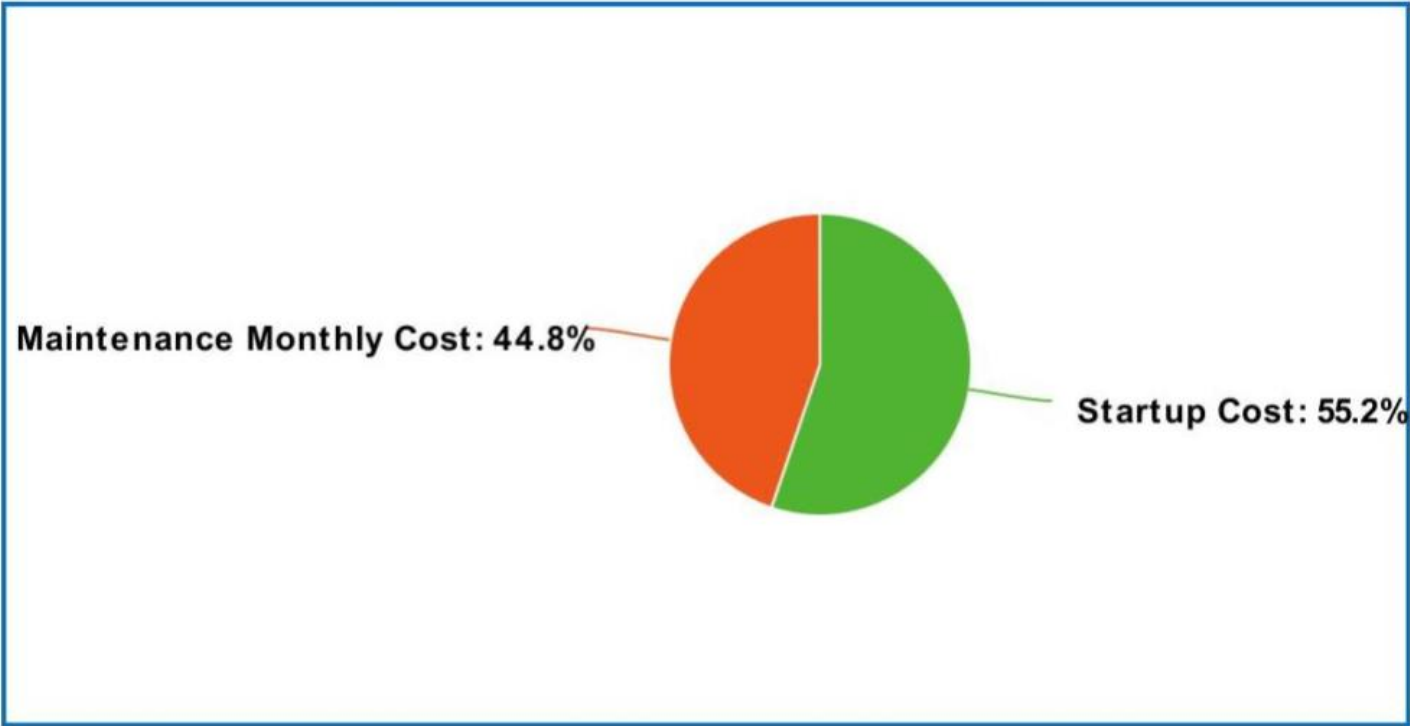
Startup Cost: 55.2%

■ Startup Cost ■ Maintenance Monthly Cost

meta-chart.com

- CREATE CILIFRIENDS **12.2%**
- CREATE MYCILI **10.4%**
- CREATE AI SYSTEM **12.7%**
- EQUIPMENT ASSETS **19.9%**

EST. RM1,387,994

BUDGET BY RATIO

COMMENTS ON BUDGETING OUTCOME

- To produce apps and services just for chili plantation industry, it may seem to be costly. But, the cost will drop comparatively when we scale up to involve more agriculture products.

- India research shows that technology (machine) revolution from 1990 to 2016 boosted their agriculture production up to 32% in GDP. reference: https://content.iospress.com/articles/statistical-journal-of-the-iaos/sji180436

- In future of analysing big data, we believe that it can definitely contribute to increase GDP, and highly possible to contribute even more percentile growth than technology revolution mentioned above.
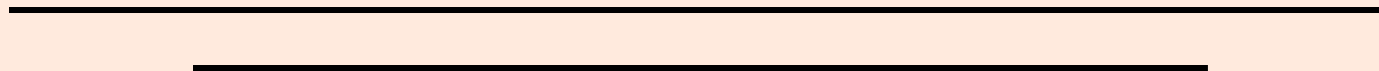
HOW TO...

1) PREVENT FRAUD

A: AI infographics, AI to track frequency of data, T&C, GPS tracking, image recognition, customer's occupation.

2) Internet coverage

A: Government subsidize 30mbps internet coverage to low income chili farmers and middle income farmers without internet coverage.

EXTRA INFORMATION

how to encourage end users to record?

A: by tracking location of GPS of end users that may passing by places that sell chilis. we would do a pop up notification or call to action to remind end users to record.

F&B businesses are end users.

FUTURE PLANS IF CILIS IS IMPLEMENTED IN REAL LIFE

= might consider to give options to farmers whether they prefer base salary as reward or fertilisers, seeds if there is demand

=create features like SMAG or Agroptima in the future to also help track operation management and looking into solving problems in the perspective of microeconomy, since CILIS plan now is solving problems in macroeconomy perspective

= have a website in order for users to record, analyse and submit data

= if budget allows, government can venture into higher and advanced technology, as well as devices such as precision agriculture, and even towards smart farming.

CONCLUSION

Cilis is a solution to aid the government to solve pain points such as lack of centralized data, lack of data source in real time, data issue impacts the quality of analysis to forecast the supply and demand and difficult to monitor the whole supply chain. Cilis is stepping ahead towards reaching our desired state, which are gathering centralized data on agriculture production and marketing, analyse and forecast supply and demand of agriculture produce, monitoring of agriculture supply chain and monitor data relevant to GFS index.

We believe that our solution is workable and feasible because as compare to investing into technology devices, creating and maintaining and app would **cost less** if it is applicable to whole nation.

Besides, instead of just tracking centralised real time end-to-end supply chain data, our solution can run further mile to even act as **catalyst to boost GDP** due to involving our solutions with PFI and collaboration partners, and giving insights to farmers to adjust their production by precise prediction with the use of analysing big data.

Lastly but most importantly, the strength of our solution is that, it is **scalable** to involve a lot more varieties of plantations, breeds and fishes.

PILOT DEPLOYMENT PLAN

	Pre Deployment Phrase			Development Phrase						Testing and Evaluation Phrase			Scaling and Production Phrase
	1st Month	2nd Month	3rd Month	4th Month	5th Month	6th Month	7th Month	8th Month	9th Month	10th Month	11th Month	12th Month	13th Month
Farmer	Stakeholders engagement with Farmers			Recruiting farmers, farming business entities and farming cooperatives						Release our App to selected farmers for beta testing			
										Training producers on how to use the App			
										Follow up monitoring on Producers			
End User (Citizens)	Identifying customers to do beta testing of our system									Release our App to selected customers for beta testing			
										Training customers on how to use the App			
										Follow up monitoring onCustomers			
Partnership	Stakeholders engagement with MPC			Partnership with Telco companies to overcome the connectivity issues.									
	Negotiation and discussion with key partners of the project (Telco, KPISoft, Agrobank)												
Developers	Identifying farmers status, farming business entities & farming cooperatives			Developing the App , AI Image Processing Model and our proprietary CiliWeight									Systems and process adjustments
	System design and planning									Improvise the system using the feedback collected from beta testers			
										Analyzing data collected through beta testing			Integrating and releasing publicly available App on store.

App User Interface

The app user interface in MyCili and CiliFriends both cover similar ranges, and they are designed to suit semi-personalised tastes as well as have ease of navigation to a certain degree.

The following 4 slides are videos of the app, split for 4 different categories of users based on the structure of their corporation as well as the number of users sharing the same account (especially for businesses).

The videos are only prototypes/mock-ups, and hence do not indicate the final potential/final version of the app.

MyCili for Processed Food Industries

1. First-time welcome
2. Light/Dark mode
3. Language settings
4. Registration
5. Setting up semi-personalised business profile
6. Landing screen
7. Submitting data
8. CiliPoints by month and week
9. History for data submitted & exporting data as Excel files
10. Claiming rewards
11. Featured advertisement
12. Side features
13. Settings
    1. Managing notifications
    2. Log out

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CiliFriends for Small to Big Farmers

1. Login
2. Light/Dark mode
3. Language settings
4. Registration
5. Setting up semi-personalised business profile
6. Landing screen
7. Submitting data
8. CiliSalary (base salary) by month and week
9. History for data submitted
10. Exporting data as Excel files
11. Side features
    1. Search
    2. Forum
    3. CiliSalary transactions
    4. Edit Profile
12. Settings
    1. Managing notifications
    2. Log out

MyCili for Processed Food Industries

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4. Registration
5. Setting up semi-personalised profile
6. Landing screen
7. Submitting data
8. CiliSalary (base salary) by month and week
9. History for data submitted & exporting data as Excel files
10. Claiming & using rewards
11. Tracking unused/used rewards
12. Side features
13. Settings