EXECUTIVE SUMMARY

Indonesia, as an agricultural country, faces serious challenges in food security due to rapid urbanization and decreasing agricultural land. The urban population is projected to increase, adding pressure on food supply. Indonesia's food security is still below the global average, and the number of farmers continues to decline. Therefore, innovative solutions are needed to optimize limited urban land and meet the increasing demand for food. Urfalogy offers a solution by utilizing advanced technologies such as artificial intelligence (AI) and the Internet of Things (IoT) to increase urban agricultural productivity.

Urfalogy is an urban agricultural technology platform that provides various features, including AI-based garden layout design, plant variety recommendations, plant health detection, and planting media monitoring. The application also offers an e-commerce platform for agricultural equipment and products, as well as expert consultation via chat. With a freemium business model, the application is available in a free basic version and a paid premium version, and offers expert consultation services and commissions from e-commerce transactions.

Urfalogy is committed to creating positive impacts environmentally, socially, and economically. In terms of the environment, the application encourages sustainable agricultural practices with efficient use of water and energy, and waste reduction. Socially, Urfalogy empowers communities by improving agricultural skills and awareness of healthy lifestyles. Economically, the app creates new job opportunities and supports the local economy through urban farming.

Financially, Urfalogy shows strong growth prospects with the projected increasing urban farming market. The feasibility analysis shows that the app has significant profit potential, with a positive Net Present Value (NPV) and high Return on Investment (ROI). Effective marketing strategies and continuous innovation are expected to expand market reach and increase revenue.

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CHAPTER I: INTRODUCTION

1.1. Background

Indonesia, as an agrarian country, faces serious challenges in food security and urban agriculture. Rapid urbanization is one of the main factors influencing this condition. The urban population in Indonesia is projected to increase from 56.7% in 2022 to 66.6% by 2035 (Yulvie et al., 2023). This rapid growth creates significant pressure on urban food supply, as agricultural land continues to shrink due to its conversion into industrial and residential areas.

Moreover, Indonesia's food security remains below the global average. Indonesia's Food Security Index stands at a score of 60.2 compared to the global average of 62.2 on the Global Food Security Index (GFSI) (Alfarizi and Ngatindriatun, 2023). This indicates that Indonesia is still vulnerable to food security issues. The decline in the number of farmers by 1.92 million people also threatens the sustainability of the agricultural sector in Indonesia, especially as interest among younger generations in agriculture continues to decrease (Hadi et al., 2020).

On the other hand, there is an urgent need for innovation in the agricultural sector. Solutions that can optimize limited urban land for agriculture are essential to meet the growing demand for food. The increasing popularity of healthy lifestyles among urban communities also drives demand for fresh organic food products. The urban farming market in Indonesia is projected to reach USD 71,399 million by 2028, growing at a CAGR of 6.40% from 2021 to 2028. This highlights the significant economic potential of this sector (Cahyono, 2020; Chairuman et al., 2023).

Urfalogy emerges as an innovative solution to address these challenges. By leveraging advanced artificial intelligence (AI) technology (Trabelsi et al., 2023), Urfalogy offers features such as light intensity-based layout design, personalized plant variety recommendations, plant and soil health detection, and an e-commerce platform for agricultural supplies and produce. Urfalogy not only provides technological solutions but also empowers urban communities to actively participate in their own food production.

1.2. Vision and Mission

Vision:

To become a pioneer of innovative and sustainable urban agriculture technology, supporting food security and improving the quality of life of urban communities in Indonesia.

The grand vision is elaborated into several **noble missions** as follows:

1. Develop and provide comprehensive and environmentally friendly urban agriculture technology solutions.
2. Improve the productivity and efficiency of urban agriculture through technological innovation and data-driven approaches.
3. Empowering urban communities to actively participate in healthy and sustainable local food production.

1.3. Outcome Sustainability

Urfalogy provides sustainable impacts as shown in the **Table 1.1**.

Tabel 1.1. Outcome Sustainability

Aspect	Impact Point	Explanation
Environmental Impact	Increased environmental awareness	Educate urban communities on the importance of sustainability in agriculture and natural resource management.
	Overcome urban heat island effect	Vegetation planted in urban areas helps reduce ambient temperature by providing a cooling effect.
Social Impact	Community empowerment	Increase individual and community participation in urban agriculture, creating a sense of responsibility for local food production.
	Healthy lifestyle	Encouraging consumption of fresh and organic, contributing to a lifestyle that is more healthy in urban areas.
Economic Impact	Cost savings	Reducing costs of transport and packaging that are usually required in food production and distribution.
Keselarasan dengan SDGs	SDG 2: Zero Hunger	Contribute to improving food security and ensuring access to nutritious food through sustainable agricultural practices.
	SDG 11: Sustainable Cities and Communities	Support the development of a sustainable urban environment with local food production and green spaces.
	SDG 12: Responsible	Encouraging patterns consumption and production patterns that more

	Consumption and Production	responsible through sustainable agriculture

CHAPTER II: GENERAL DESCRIPTION

2.1. Product Description

Urfalogy is a comprehensive urban farming technology platform, offering innovative solutions to support urban farming practices. Our main product is a mobile application called "Urfalogy" which is available for Android and iOS devices. Below we include the value proposition canvas from urfalogy as seen in **Figure 2.1**.

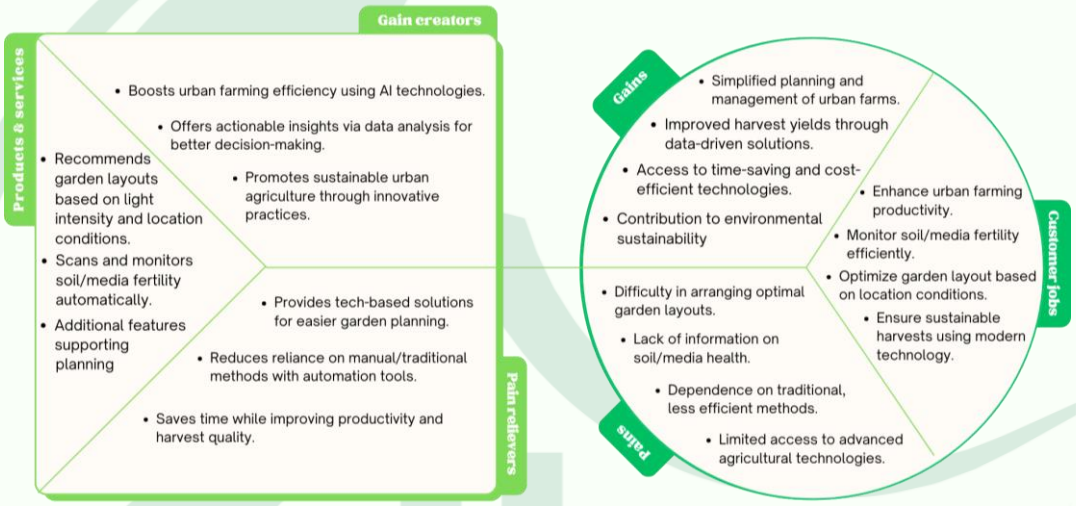


Figure 2.1. Value proposition canvas

2.2. Urfalogy Features

Below we list the features of urfalogy as seen in **Table 2.1**.

Table 2.1. Features

Num.	Feature Name	Description
1	AI Layout Designer	Using AI to optimise garden design based on light intensity.
		Layout recommendations according to site conditions.
2	Plant Variety Recommender	Personalised advice on suitable plants to grow.
		Considering microclimate, space, and user preferences.
3	Plant Health Detection	Image recognition for identification of plant health problems.
		Quick analysis of photos uploaded by users.
4	Soil and Media Health Monitoring	Scanning to monitor the moisture, pH, and nutrients of the growing medium.
		Provide alerts for customisation.

5	Urban Farming E-commerce	Platform to purchase planting equipment and seeds.
		Features for selling crops and connecting farmers with consumers.
6	Real-time Chat Consultation	Access to agricultural experts for real-time consultation via chat.
		Community support through discussion forums.
7	Appointment Scheduling System	Schedule a consultation with an expert in person or virtually.
		Integration with calendar for automatic reminders.

2.3. Prototype Product

We have designed a prototype of urfalogy as shown in the following link bit.ly/prototypeUrfalogy and attached in **Appendix 1**.

2.4. Product Price

We have designed the product price as shown in **Table 2.2.**

Table 2.2. Price

Version	Price	Description
Basic	Free	Limited features
Premium	IDR 50.000/bulan	Full access to all features
	IDR 500.000/tahun	
Expert Consultation	IDR 100.000/sesi	30 minutes per session
E-commerce fee	7.5% dari transaksi	Launch at second year operations

2.5. Business Model Canvas (BMC)

In order to design, describe, and develop the business model, we have designed the BMC as attached in **Appendix X**.

2.6. Company Structure

Urfalogy is a business with a multidisciplinary structure that combines informatics and agricultural sciences to maximize product benefits. The team consists of Nathan Daud, an Informatics Engineering student specializing in Artificial Intelligence (AI); Alexander Imanuel Widjanarko, an Information Technology student focusing on software development; and Mochamad Rizal Saputra, an Agribusiness student dedicated to enhancing green productivity through technology. For more details can be seen in **Appendix 2**.

2.7. SWOT Analysis & *Porter Five Forces*

We have designed a SWOT analysis and Porter Five Forces as shown in **Figure 2.2** and in full can be seen in **Appendix X**.

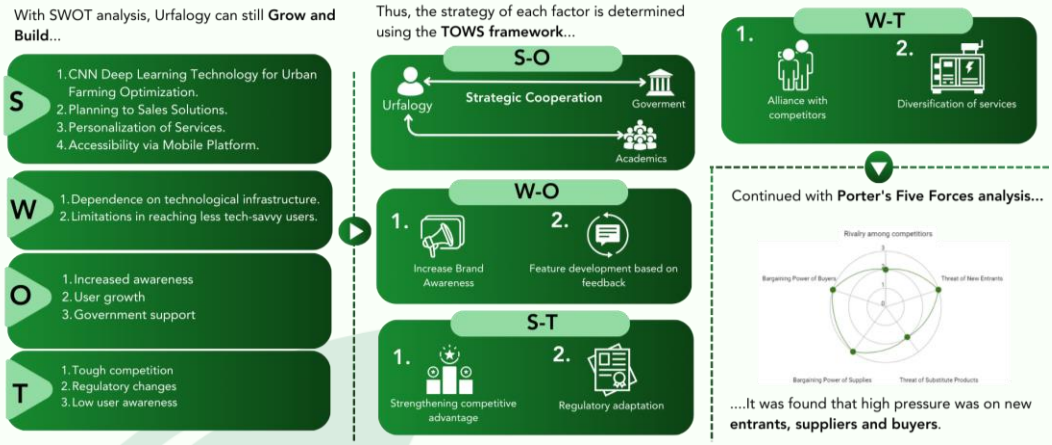


Figure 2.2. SWOT & Porter Five Forces

CHAPTER III: IMPLEMENTATION METHOD

3.1. Market Opportunity

Urfalogy has opportunities in the market as shown in **Table 3.1**.

Table 3.1. Market Opportunity

Factor	Description
Rapid Urbanization	Indonesia's urban population is projected to increase from 56.7% in 2022 to 66.6% in 2035.
Urban Market Growth Farming	The urban farming market is estimated to reach USD 71,399 million by 2028, growing at a CAGR of 6.40% (2021-2028).
Awareness of Healthy Lifestyles	Increasing public interest in food products organic fresh and healthy lifestyles inurban areas.
Food Security Needs	Indonesia's food security score is 60.2 on the Global FoodSecurity Index (GFSI), at below global average 62.2.
Support Government	The government's initiative to encourage urban agriculture as a solution to food security.

3.2. Market Size

In analyzing the market size for internet usage in Indonesia, we identified three main metrics: Total Addressable Market (TAM), Serviceable Available Market (SAM), and Serviceable Obtainable Market (SOM) which are detailed in **Table 3.2**.

Table 3.2. TAM SAM SOM

Metric	Description	Quantity
TAM	Pengguna internet aktif di Indonesia	221.563.479
SAM	Populasi perkotaan di Indonesia	155.523.750
SOM	0,3% dari SAM	46.657

3.3. Market Validation

We have validated the market listed in the **discovery experiments** through **three hypotheses**. To test the three hypotheses, we conducted **desk research** and ***in-depth-interviews*** with three members of the **Muda Mudi Surabaya** community who belong to SOM's customer segmentation. After the data collection process through desk research and in-depth-interviews was completed, we analysed the results and drew conclusions. The conclusions obtained can be seen in **Figure 3.1**.

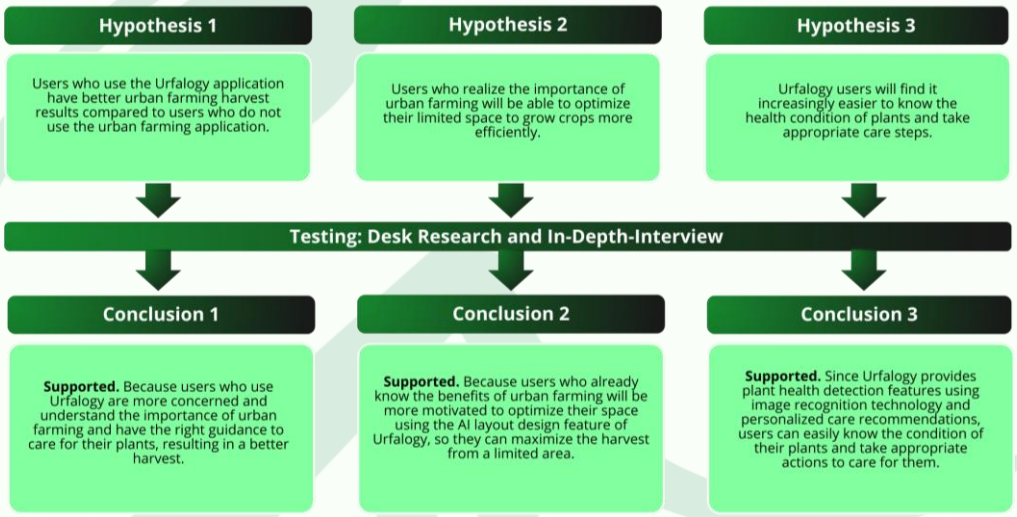


Figure 3.1. Results

3.4. STP Analysis

3.4.1. Segmenting

We have conducted a segmenting analysis as shown in **Table 3.3**.

Table 3.3. Segmenting

Category	Aspect	Description
Demography	Age	Young adults (18-35 years) to adults (35-55 years).
	Gender	Men and women.
	Education	At least a high school graduate, focusing on those with higher education.
	Revenue	Upper middle income, able to invest in agricultural technology.
Psikography	Lifestyle	Individuals who are environmentally conscious, health-conscious, and interested in gardening or agriculture.
	Values and Attitudes	Values sustainability, innovation and technology. Tend to look for eco-friendly and efficient solutions.
	Activities	Active in the urban farming community, often attending workshops or seminars on urban agriculture.
Geography	Location	Focus on major cities in Indonesia such as Jakarta, Surabaya, Bandung, and Medan.

	Population Density	Areas with high population density that have limited land for gardening.
Behaviour	Purchasing Habits	Frequently buy organic and fresh produce, subscribe to app-based services.
	Use of Technology	Tech-savvy, often using mobile apps for various daily needs.
	Brand Loyalty	Tend to be loyal to brands that offer innovative and eco-friendly solutions.

3.4.2. Targeting

As a basis for determining the strategy components for selecting target markets, we designed targeting in the form of **user persona** in **Figure 3.2** and the specifics are attached in **Appendix 4**.



Figure 3.2. User persona

3.4.3. Positioning

Urfalogy positions itself as a company as shown in **Figure 3.3**.

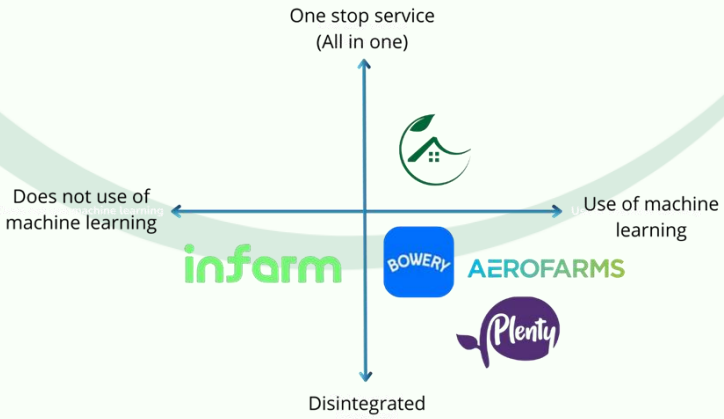


Figure 3.3. Positioning

3.5. Marketing Mix 7P

We designed the 7P marketing mix as shown in **Figure 3.4**.



Figure 3.4. Marketing Mix 7P

3.6. STV Triangle

In identifying business management strategies, we use the STV-triangle framework which is an abbreviation of strategy (mind-share), tactic (market-share), and value (heart-share) as shown in **Figure 3.5**.

Customer Touchpoint	Strategy	Main Contents	Touchpoint	Key Metrics
	Mind Share			
Awareness	Integrated Marketing Communication	Implementing SEO to reach more potential customers looking for solutions increases product marketing	Social Media, Website Landing Page Promotion	# impressions, new app buyers
Enlighten	Sales Management	Providing education about the benefits of Urfalogy in carrying out urban farming and urban farming management in users' homes.	Social media	engagement rate, new buyers, impressions, reach
Guidance	Brand Management	Provides a complete and easy-to-understand product usage guide.	Guide Book, Application	# impresi, engagement rate, **ulasan baik baru**
	Market Share			
	Strategy	Main Contents	Touchpoint	Key Metrics
Action	Product Management	Provides a step-by-step guide to using the Urfalogy application to optimize urban farming design at home and urban farming management.	social media, direct sales	# buyer, engagement rate, impression
Experience	Product Management	Optimizing user experience through intuitive features and providing responsive technical support to ensure customer satisfaction.	**Direct sales,** social media, apps	# impresision, **engagement rate**
	Heart Share			
Advocacy	Integrated Marketing Communication	• Using email marketing to send attractive offers. • Reviews in the app and quick replies on google play	Social media, email, apps	# participants, engagement rate

Figure 3.5. STV Triangle

3.7. Competitor Analysis

The following is a competitor analysis as shown in **Figure 3.6**.



Figure 3.6. Competitor Analysis

3.8. Production Process

The production process is the most important form of activity in the implementation of production in a company. We present the production process as shown in **Appendix 5**.

3.9. Development Process

The development of the Urfalogy application uses Agile methodology, a framework that supports team collaboration in creating products. This methodology was chosen because of its flexibility in adjusting to user needs and efficiency in completing development within limited time and manpower. Details of the agile methodology undertaken can be seen in **Appendix 6**.

3.10. Key Activities

We have designed the activity as shown in **Figure 3.7**.

Key Activities	Operations & Services			
	Types	Behaviors	Touchpoint	Key Metrics
	Agile Methodology and Operational Development	• Sprint planning • Daily stand-up meetings • Continuous feedback loops	Collaboration tools like Slack, JIRA, Trello	#Sprint completion rate, Defect density
	Recruitment Health Professionals	• Prepare clear job descriptions • Perform layered selection	Online career portals, recruitment events, LinkedIn	#Time to fill positions, Cost per hire
	Marketing and Promotion	• Ads Marketing, • Awareness Campaign • Implement SEO	Google Ads, Tiktok Ads, Instagram Ads, Facebook Ads	# participants, engagement rate
	Customer service and support	• AI-based customer service • 24 hour customer support	Website, WhatsApp based AI bot	# engagement rate, impression

Figure 3.7. Key Activities

3.11. Risk and Mitigation Matrix

As an innovative urban farming platform, Urfalogy needs to face risks to compete in national and international markets. These risks must be anticipated and addressed with effective mitigation strategies. Details of risks and mitigation can be seen in **Figure 3.8**.

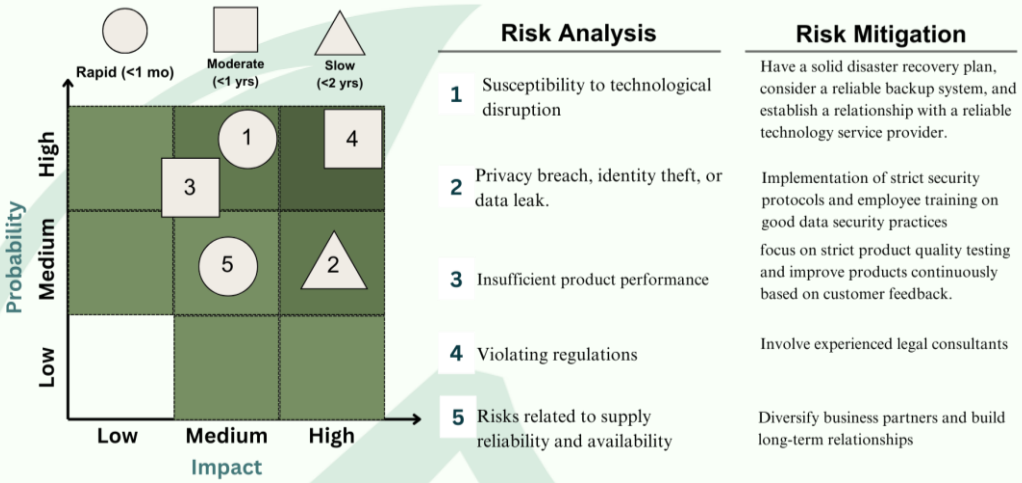


Figure 3.8. Risk & Mitigation Matrix

3.12. Production Factors

Production factors are important elements that can affect the quality of Urfalogy applications. We have designed the production factors as shown in **Table 3.4**.

Table 3.4. Production Factors

Labour	One programmer and web administrator with expertise in MySQL Database, PHP and API.
	One specialised android programmer who is an expert in Fluter and Kotlin/Java and uses android studio.
	One person specialised in deep learning to create urban farming layouts.
Tools and Materials	1. *Hardware* • *Processor intel core* i7 • RAM 8 GB • *Harddisk* 500 GB • *Mouse* (standard)

	• *Keyboard (*standard)
	2. *Software* • Window 11 operating system • Android Studio (development tool) • MySql version 5 (DBMS) • Sublime Text 3 (web editor) • Xampp versi 3.2.2 (web server) • XD (UI/UX)

3.13. Device Compatibility Requirements

To ensure that the Urfalogy application can operate optimally and can be accessed by as many users as possible, there are several hardware compatibility requirements that must be met. Here are the details of the hardware compatibility requirements for the Urfalogy application in **Appendix X**.

CHAPTER IV: BUDGET PLAN

4.1. Initial Capital

In the production of the Urfalogy application, there are costs that certainly cannot be avoided. The following is a report on the cost of production detailed as follows.

Tabel 4.1. Urfalogy Business First Year Cost of Goods Produced Plan

Num.	Cost Category	Cost Details (IDR)	Volume	Total Cost (IDR)
1	License			
1.1	Envato License	200,000	5	1,000,000
1.2	ChatGPT Plus	300,000	12	3,600,000
2	Work Services			
2.1	UI/UX Services	3,000,000	1	3,000,000
2.2	Development services	5,000,000	1	5,000,000
2.3	Jasa hosting	1,000,000	1	1,000,000
2.4	Hosting services	2,000,000	1	2,000,000
2.5	Database management services	3,000,000	1	3,000,000
2.6	Machine learning services	5,000,000	1	5,000,000
3	Overhead			
3.1	Internet	250,000	12	3,000,000
3.2	Building Rental	20,000,000	1	20,000,000
3.3	Awareness campaign	50,000,000	1	50,000,000

3.4	Promotion	25,000,000	1	25,000,000
3.6	Core i9 Computer	25,000,000	1	25,000,000
3.7	Unexpected costs	6,900,000	1	6,900,000
3.8	Agronomist Honorarium	1,000,000	12	12,000,000
		TOTAL		**200,000,000**

4.2. Break Even Point Calculation

The following is the Break Even Point (BEP) calculation from Urfalogy.

$$BEP = \frac{Total\ Cost}{1 - VC} = \frac{5{,}872{,}775{,}000}{1 - 0} = 5{,}872{,}775{,}000$$

4.3. Cash Outflow (5 year projection)

Urfalogy's business outflows are outlined in the CapEx and OpEx analyses below.

Tabel 4.2. CAPEX and OPEX Analysis

	2025	2026	2027	2028	2029
CAPEX (IDR)					
Applications + Machine Learning	57,600,000	-	-	-	-
Building Rental	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000
AC	5,000,000	-	-	-	-
Core i9 Computer	25,000,000	-	-	-	-
HAKI	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Sub-Total	109,600,000	22,000,000	22,000,000	22,000,000	22,000,000
OPEX (IDR)					
Internet	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
Electricity	3,600,000	3,600,000	3,600,000	3,600,000	3,600,000
Water	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Chat GPT Plus	3,600,000	3,600,000	3,600,000	3,600,000	3,600,000
Promo (public figure)	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000
Promotion (Ads)	25,000,000	25,000,000	25,000,000	25,000,000	25,000,000
Maintenance	10,000,000	10,000,000	15,000,000	15,000,000	15,000,000
Awareness campaign	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000
Founder Salary	216,000,000	306,000,000	486,000,000	576,000,000	756,000,000
Internship Salary	100,000,000	100,000,000	150,000,000	150,000,000	200,000,000
Agronomist Honorarium	12,000,000	24,000,000	36,000,000	36,000,000	36,000,000
Unexpected costs	7,400,000	8,100,000	10,350,000	10,225,000	10,100,000
Sub Total	441,800,000	544,500,000	793,750,000	883,625,000	1,113,500,000
Total	**551,400,000**	**566,500,000**	**815,750,000**	**905,625,000**	**1,135,500,000**

4.4. Cash Inflow (5 year projection)

Based on the previous presentation of sales projections, the following cash inflows from the Urfalogy application for five years of operation as shown in **Table 4.3**.

Table 4.3. First Five Years Cash Inflow

Year	Premium	Consultation	E-commerce

	Customer	Revenue	Transaction	Revenue	Transaction	Revenue
1	470	235,000,000	368	29,440,000	-	-
2	1,058	529,000,000	460	66,240,000	3,805	28,537,500
3	2,380	1,190,000,000	575	82,800,000	7,609	57,067,500
4	5,354	2,677,000,000	719	103,520,000	15,218	129,353,000
5	12,046	6,023,000,000	899	129,440,000	30,436	258,706,000
TOTAL	**21,308**	**10,654,000,000**	**3,021**	**411,440,000**	**30,436**	**473,664,000**

4.5. Business Feasibility Analysis

A business can be said to be good if the business can bring in finances at a decent standard. The Urfalogy business has been equipped with a feasibility analysis consisting of **Table 4.4**. Net Present Value (NPV) calculation and **Table 4.5**.

Tabel 4.4. Net Present Value (NPV) Calculation

Year	Description	*Cashflow* (IDR)	*Discount Factor* (r = 6,75%)	*Discount Factor* (r = 23%)	*Present Value* (r = 6,75%) (IDR)	*Present Value* (r = 30%) (IDR)
-	Capital and operating costs over five years	-5,872,775,000	1	1	-5,872,775,000	-5,872,775,000
1	Revenue	700,236,000	0.93676815	0.81300813	655,958,782	569,297,561
2	Revenue	1,439,466,000	0.877534567	0.66098222	1,263,181,172	951,461,432
3	Revenue	2,043,900,000	0.822046432	0.537383918	1,680,180,703	1,098,358,991
4	Revenue	3,157,866,000	0.770066916	0.436897495	2,431,768,131	1,379,663,744
5	Revenue	5,225,850,000	0.72137416	0.355201215	3,769,793,153	1,856,228,270
				NPV	**3,928,106,942**	**-17,765,003**

Tabel 4.5. Feasibility Analysis

Parameter	Details
Net Present Value (NPV)	NPV with r = 6.75% results in a value of IDR 4,779,175,107. Then the business can be said to be feasible because NPV> 0.
Internal Rate of Return (IRR)	$IRR = i_{pos} + \frac{NVP_{pos}(i_{neg} - i_{pos})}{NPV_{pos} + NPV_{neg}}$ $= 6.75\% + \frac{4,779,175,107}{4,779,175,107 + (-51,414,412)}(30\% - 6.75\%)$ $= 26.01$ (Layak)
Return On Investment (ROI)	$ROI = \frac{Total\ sales - Investment}{Investment} \times 100\%$ $= \frac{11,539,104,000 - 3,974,775,000}{3,974,775,000} \times 100$ $= 190.3\%$ (Worthy)
Payback Period (PP)	$PP = t + \frac{b - c}{d - c}$

	$= 3 + \frac{3{,}974{,}775{,}000 - 2{,}218{,}085{,}000}{5{,}127{,}958{,}000 - 2{,}218{,}085{,}000}$ $= 3.604\ tahun$ (Worthy)

4.6. Income Statement

The following is the income statement as shown in **Table 4.6**.

Tabel 4.6. Profit and Loss Calculation

Urfalogy Income statement Cumulative 5 Years		
Income		
First year income	IDR	264,440,000
Second year revenue	IDR	623,777,500
Third year revenue	IDR	1,329,867,500
Fourth year revenue	IDR	2,909,873,000
Fifth year revenue	IDR	6,411,146,000
Total operating income	IDR	11,539,104,000
Operating Expenses		
First year expenses	IDR	551,400,000
Second year expenses	IDR	566,500,000
Third year expenses	IDR	815,750,000
Fourth year expenses	IDR	905,625,000
Fifth year expenses	IDR	1,135,500,000
Total Operating Expenses	IDR	3,974,775,000
Net Profit	IDR	**6,694,543,000**

4.7. Balance Sheet

The balance sheet is the part of the financial statements in accounting that records information. The following is the balance sheet in **Table 4.7**.

Table 4.7. Balance Sheet Report

Urfalogy Balance Sheet First Year					
Code	**Name**	**Debit**		**Credit**	
101	Bank Cash	IDR	29,836,000		
102	Apps + Machine Learning	IDR	57,600,000		
103	Computer	IDR	45,000,000		
104	Handphone	IDR	7,500,000		
105	AC	IDR	5,000,000		
111	Accumulated computer depreciation			IDR	9,000,000
112	Accumulated depreciation of air conditioning			IDR	1,000,000
301	Business Capital			IDR	50,000,000
401	Consultancy Income			IDR	114,816,000
402	Premium Income			IDR	354,500,000
501	IPR Expense	IDR	2,000,000		
502	Building rent expense	IDR	20,000,000		
503	Ads Promotion Expense	IDR	25,000,000		
504	Public figure promotion expenses	IDR	32,000,000		

505	Maintenance costs	IDR	10,000,000		
506	Awareness campaign	IDR	50,000,000		
507	Agronomist honour expenses	IDR	12,000,000		
508	Founder's salary expenses	IDR	216,000,000		
509	Intern salary expenses	IDR	100,000,000		
510	ChatGPT Plus Load	IDR	3,600,000		
511	Electrical load	IDR	3,600,000		
512	Water load	IDR	1,200,000		
513	Unexpected expenses	IDR	5,900,000		
514	Computer depreciation expense	IDR	9,000,000		
515	Air conditioning depreciation expense	IDR	1,000,000		
516	Mobile phone depreciation expense	IDR	1,500,000		
		IDR	**505,316,000**	**IDR**	**505,316,000**

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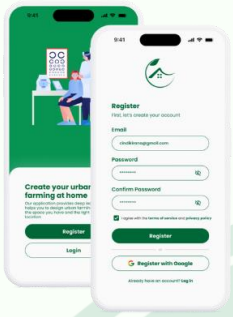
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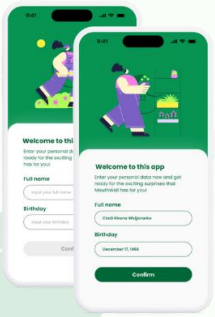
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APPENDIX

Appendix 1. Prototype



Register page



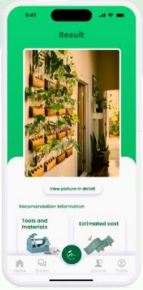
Login page



Home page



Scanning ruangan



Recommendation page



Recommendation plan page



Scanning plan page



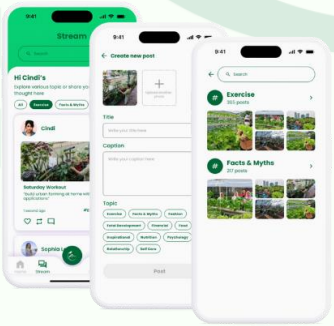
Scanning soil page



Consultation page



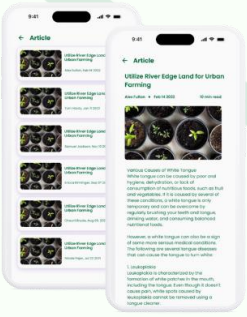
Payment page



Post Article Page



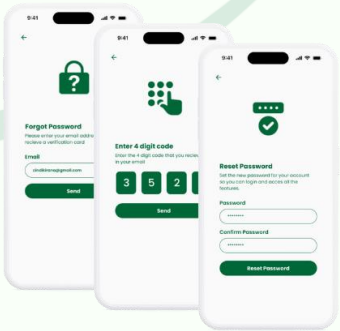
E-commerce (future plan)



Article Page



Profile Page



Reset Password Page

QR Demo



Appendix 2. Company Structure and Jobdesk



Position	Job Descriptions
CEO (Chief Executive Officer)	1. Designing and shaping the company's vision and mission 2. Responsible for the overall running of the company 3. Manage the overall operations and resources of the company 4. Determine the company's business strategy 5. Establish business relationships with various partners
COO (Chief Operating Officer)	1. Make administrative and operational decisions 2. Report directly to the CEO regarding company administration and operations 3. Being a communicator between superiors and subordinates in a corporate organisation

CTO (Chief Technology Officer)	1. Work closely with the CMO to understand customer needs 2. Control feature changes or improvements and ensure that they work for all available platforms 3. Create UI/UX design plans, product management, and quality assurance
CFO (Chief Financial Officer)	1. Create a good and controlled financial system 2. Approve and oversee cost budgets for other divisions 3. Manage inventory and anticipate future funding requirements
CMO (Chief Marketing Officer)	1. Become a channel of a customer 2. Improve the company's image 3. Seeking to gain customers

Num.	Team members	Jobdesk
1	Software developer	1. Design and build applications. 2. Collaborate with UI/UX designers and Machine learning engineers. 3. Test and fix bugs or problems in the application.
2	Machine learning Engineer	1. Develop and apply machine learning models. 2. Analyse datasets to improve model accuracy. 3. Integrate machine learning algorithms into applications.
3	UI/UX Designer	1. Designing user interfaces and experiences. 2. Creating wireframes, storyboards and prototypes. 3. Conducted user research and usability testing.
4	Marketing Specialist	1. Conduct market research and analysis. 2. Manage social media and advertising campaigns.
5	Business Analyst	1. Analyse market trends and business performance. 2. Develop business plans and strategies. 3. Monitor product metrics and create reports.
6	Agricultural expert	1. Collect valid datasets related to parameters in measuring plant health, growing media. 1. Test and evaluate accuracy in plant conditions and diseases.
7	Product Manager	1. Design URFALOGY products, conduct development and maintenance 2. Coordinate with software developer, machine learning engineer and UI/UX designer.
8	Customer Support Specialist	1. Provide assistance and answers to user queries. 2. Collect user feedback for product improvement for feature development by product manager.

Appendix 3. SWOT Analysis & Porter Five Forces

SWOT Urfalogy	***STRENGTH – S*** 1. Advanced AI and Deep Learning CNN technology for urban agriculture optimisation 2. Comprehensive solutions from planning to harvest sales 3. Personalisation of services based on user-specific conditions 4. Experienced urban agriculture expert team 5. Friendly and easy-to-use user interface	***WEAKNESS – W*** 1. Dependence on technology infrastructure and internet connectivity 2. High technology development and maintenance costs 3. Limitations in reaching users who are less tech-savvy 4. No experience in e-commerce management yet (for the second year)
OPPORTUNITY – O 1. Rapid growth of the urban farming market (CAGR 7.82% to 2032) 2. Increased public awareness of healthy lifestyles and organic food 3. Government support for urban agriculture initiatives 4. Potential for collaboration with educational institutions and urban farming communities. 5. Opportunities for expansion into international markets	***STRATEGY S-O*** 1. Utilise AI and CNN technology to develop more efficient and productive urban farming solutions, capitalising on the rapid market growth. 2. Develop partnership programmes with government and educational institutions to promote Urfalogy as a key solution in urban agriculture initiatives. 3. Expand market reach by targeting health- and environment-conscious consumers, offering high-quality organic products.	***STRATEGY W-O*** 1. Invest in the development of offline technologies that can function with limited internet connectivity, extending coverage to areas with limited infrastructure. 2. Utilise cooperation with educational institutions to conduct research and development, reducing internal costs. 3. Develop e-commerce features by capitalising on market growth and increasing demand for local food products.
THREAT – T 1. Competition from new entrants in the urban agricultural technology industry 2. Regulatory changes that may restrict urban farming practices	***STRATEGY S-T*** 1. Enhance data security and user privacy through the implementation of blockchain technology and advanced encryption. 2. Develop education and training programmes to help traditional farmers and less tech-	***STRATEGY W-T*** 1. Develop a more affordable business model for a wider market segment, reducing the risk from economic instability. 2. Form strategic alliances with other industry players to share resources and reduce competitive risks.

3. Data security and user privacy risks 4. Economic instability that may affect consumer purchasing power 5. Potential resistance from traditional farmers or less technologically literate communities	savvy communities adopt Urfalogy solutions. 3. Diversification of services to reduce dependence on one market segment, making it more resilient to economic fluctuations.	3. Actively engage in the development of urban agriculture regulations, ensuring Urfalogy remains relevant and compliant with applicable regulations.

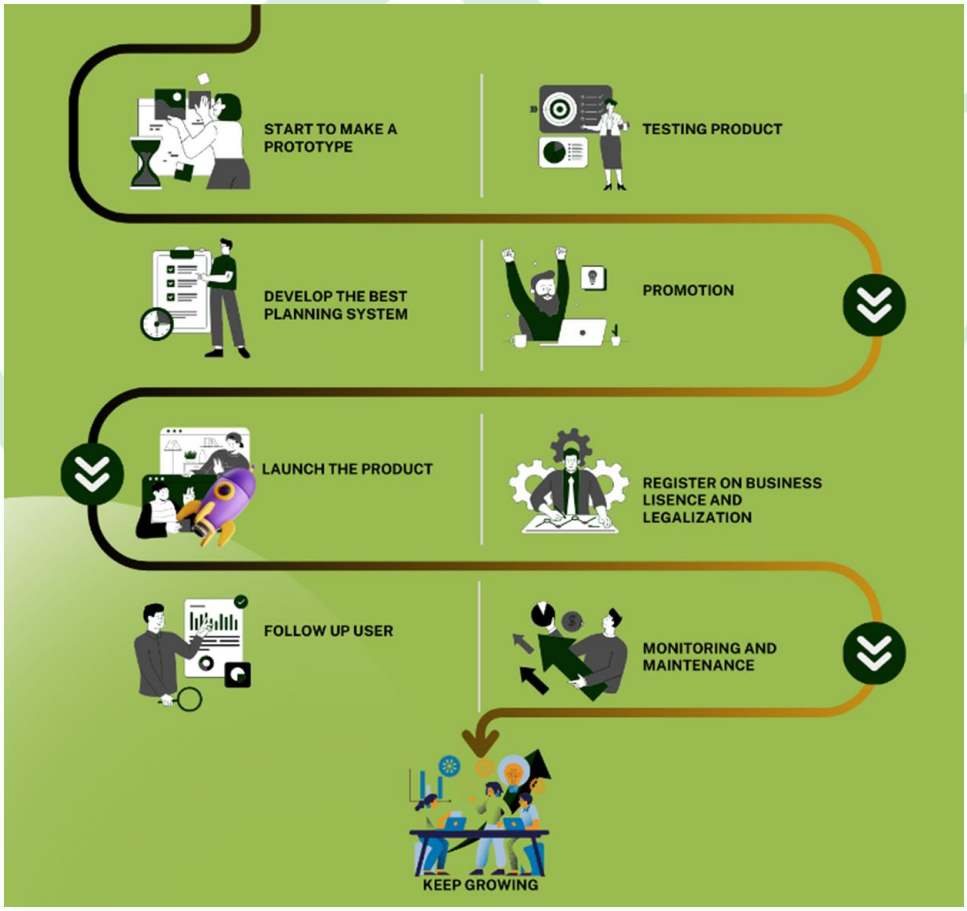
Five Forces	Key	Explanation	Risk
Competitive Rivalry	High	The urban farming app market is highly competitive with many existing players.	Persaingan ketat dapat mengurangi pangsa pasar dan menekan harga.
Threat of New Entrants	Medium	Developing urban agriculture applications requires a large investment in technology and partnerships.	Pendatang baru dapat mengganggu pasar dengan inovasi atau model bisnis yang lebih baik.
Supplier Power	Low	Urfalogy relies on AI technology and widely available hardware.	Kekuatan pemasok rendah karena banyaknya penyedia teknologi.
Buyer Power	High	Users have many options and can easily switch to another app.	Kekuatan pembeli tinggi karena banyaknya alternatif dan rendahnya biaya peralihan.
Threat of New Substitutes	Medium	Alternatives such as traditional farming advice and direct consultation with experts are still attractive to some users.	The threat of substitution is moderate as some users may prefer traditional methods.

Appendix 4. Targeting

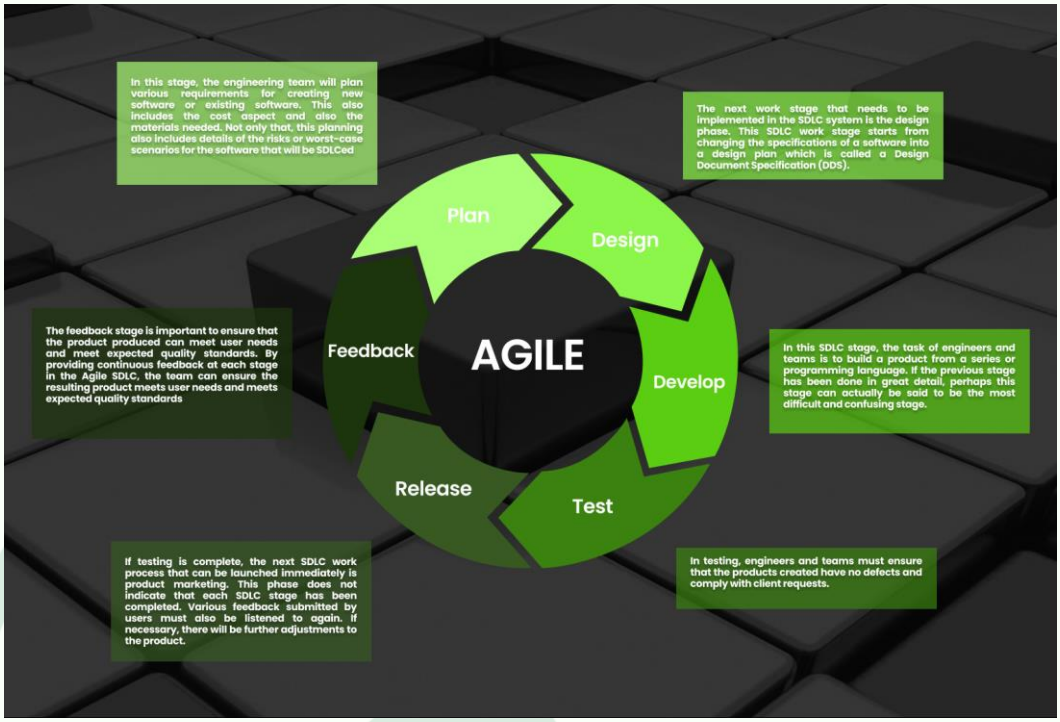
Target Market	Description

Urban Residents Interested in Home Gardening	Individuals who have an interest in gardening but are limited by space.
Apartment Dwellers and Limited Space	Those who live in apartments or houses with limited space, but want to grow their own plants.
Environmentally Conscious Consumers	Individuals who care about the environment and seek sustainable agricultural solutions.
Health-Focused Individuals	Those who are looking for fresh and organic food products to support a healthy lifestyle.
Hobby Farmer	People who take up gardening as a hobby and want to increase the yield of their garden.
Small-scale Urban Farmers	Farmers operating in urban environments and looking for technologies to increase productivity.

Appendix 5. Production Process



Appendix 6. Agile Development

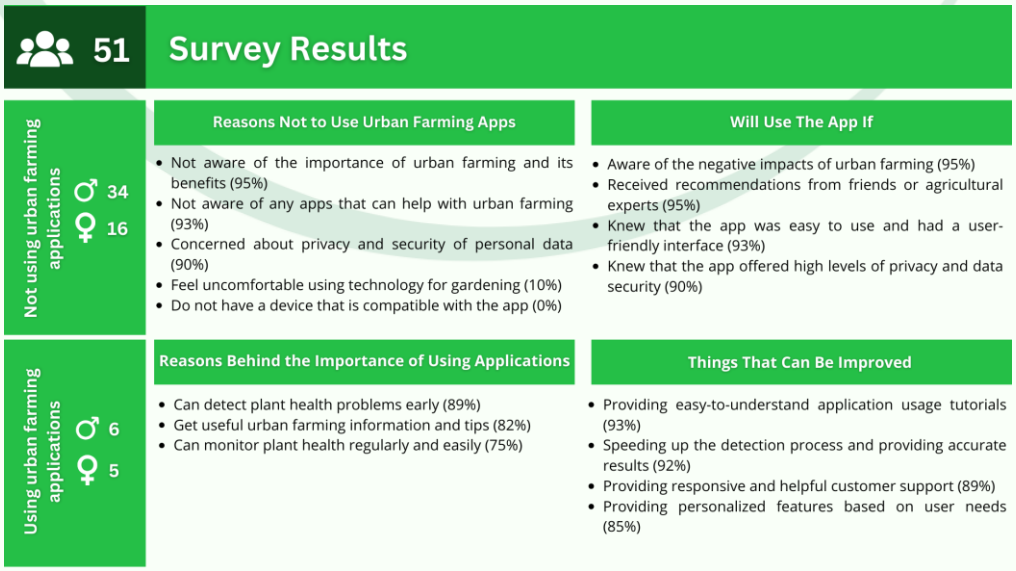


Appendix 7. Compatibility

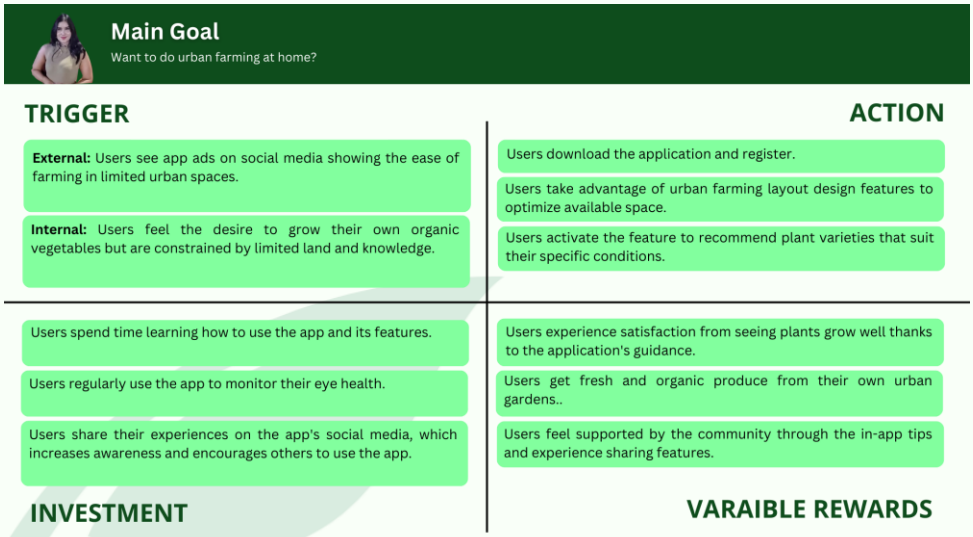
Device	Compatibility Requirements
Operating System	• Android Minimum Android 6.0 (Marshmallow) or higher. Android 8.0 (Oreo) or later is recommended for a smoother experience and support for the latest features. • iOS Minimum iOS 12.0 or higher. It is recommended to use iOS 14 or later to take advantage of the latest technology and security improvements.
Prossesor	Minimum Quad-core processor of 1.4 GHz or higher. Octa-core 2.0 GHz or higher processor is recommended for optimal performance, especially for *deep learning* algorithm processing.

Memory	Minimum 2 GB RAM. 4 GB RAM or more is recommended to ensure seamless multitasking and smooth application operation.
Storage	At least 100 MB of free storage space for installation. 500 MB or more free space for application data storage, cache, and regular updates is recommended.
Camera	Front camera with a minimum resolution of 5 MP. It is recommended to use a front camera of 8 MP or higher for more accurate detection.
Internet Connection	An internet connection is required to access features such as nearby locations, article downloads and app updates. An internet connection with a minimum speed of 3G is recommended, with 4G or Wi-Fi preferred for a more responsive experience and faster data downloads.
Battery	Battery capacity of at least 2000 mAh to support intensive app usage without requiring frequent charging. It is recommended to use a device with a battery of 3000 mAh or more for longer endurance.

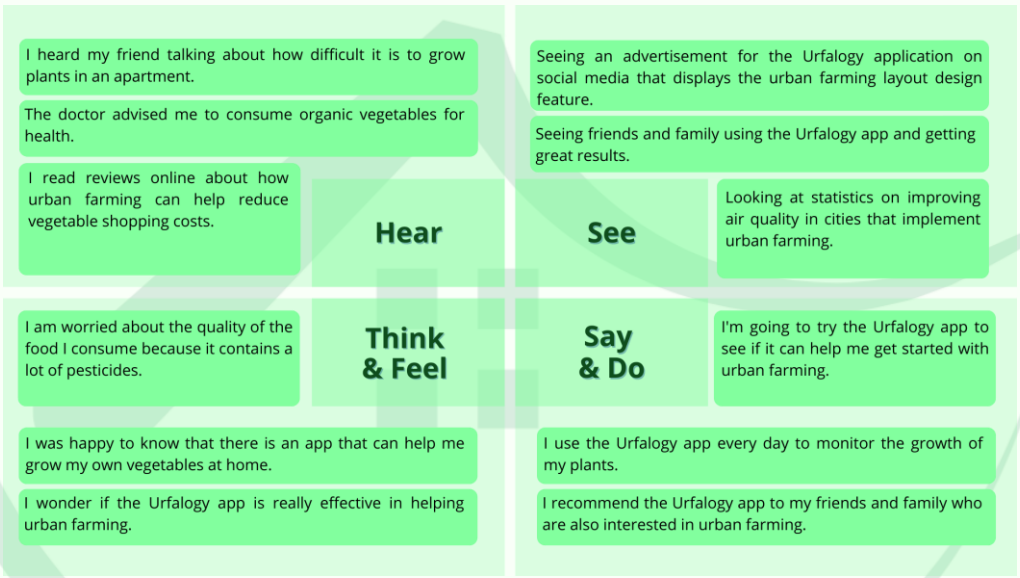
Appendix 8. Hasil Survey



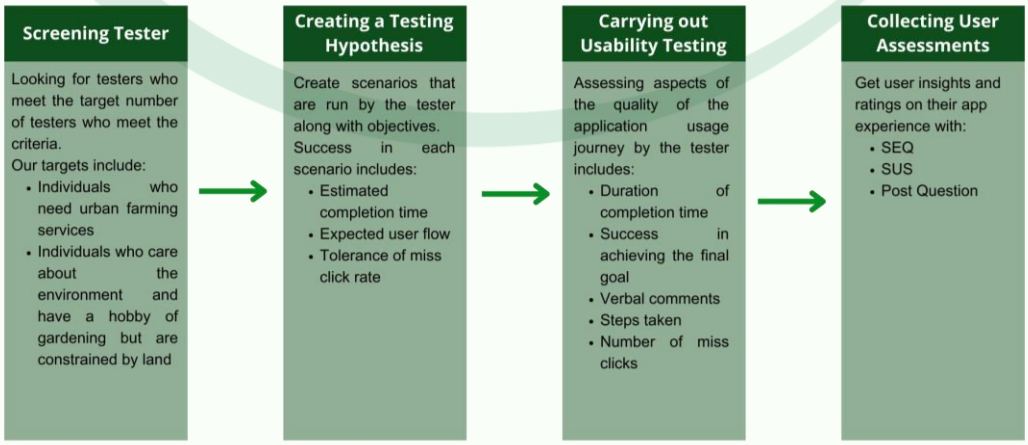
Appendix 9. *Hook Model Canvas*



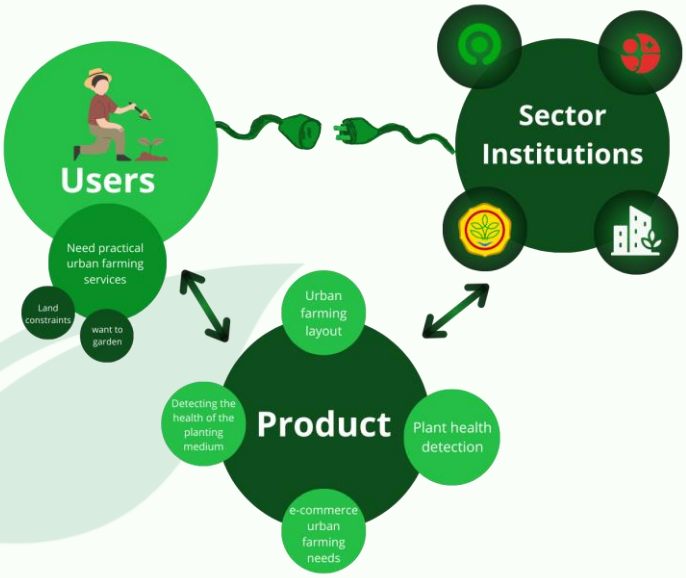
Appendix 10. *Empathy Map*



Appendix 11. *Usability Testing*



Appendix 12. Skenario Penggunaan Produk



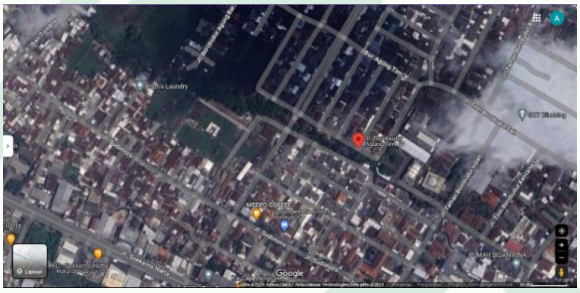
Appendix 13. MVP Issues and Improvements

Num.	Scenario	*Findings & Pain Points*	*Improvements*	Prioritization
1	New users register for an account	• Most users have successfully registered for an account • Most users said that the process was very easy • Some users found it difficult to get through the onboarding page • There were 3 users who had difficulty changing the language • Few users do not know that there is a button to toggle onboarding	Provided a video tutorial on how to sign up for an account	**Mid Priority**
			Change the form of changing the language to drop down	**Low Priority**
			Added skip button on each onboarding page	**Low Priority**
			Enlarge button to toggle onboarding	**Low Priority**

2	View posts by trending, nearby, community, and new categories	• Most users have successfully completed the scenario • All users said that the community features were very interesting and helpful • Some users found it difficult to find out the closest distance • Some users find it difficult to search for specific communities • A few users have difficulty when they want to view one of the posts that have been displayed	Provide a feature for users to filter by a certain distance	**Low Priority**
			Provide a feature for users to filter by community	**Low Priority**
			Provide guidance features regarding explanation per category	**Low Priority**
			Added click post button on every post	**Low Priority**
3	Creating a story post	• Some users have difficulty when they want to create a post • Some users feel confused whether the story written has been submitted or not	Provided a video tutorial on how to create a post	**Mid Priority**
			Create a pop-up notification that the story has been submitted	**High Priority**
4	Enter the plant health check page	• All users have successfully completed the scenario • All users have successfully accessed the chat feature • Some users find it difficult to	Provides an image input feature of more than 1 image	**Mid Priority**
			Provide image insertion feature	**Low Priority**
			Provide internal storage *connect* API	**High Priority**

		customise the chat interface		
5	View crop recommendations	• All users have successfully completed the scenario • All users have successfully accessed the recommendation feature	Provide features for recommendations	**Mid Priority**

Appendix 14. Business Location Map



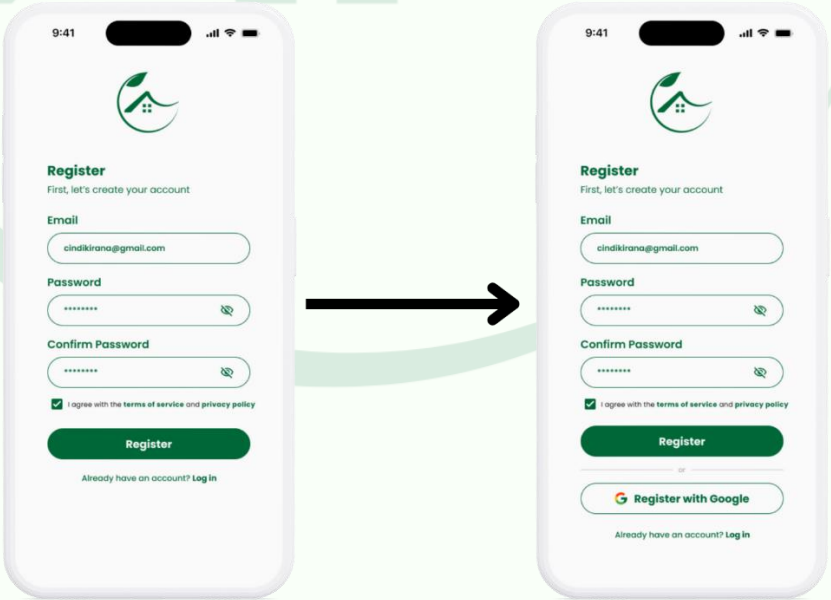
Borobudur Agung Timur IV, Mojolangu, Kec. Lowokwaru, Kota Malang, Jawa Timur 65142

(https://maps.app.goo.gl/b7NvQanpZVzfELKV8)

Appendix 15. Iteration Process

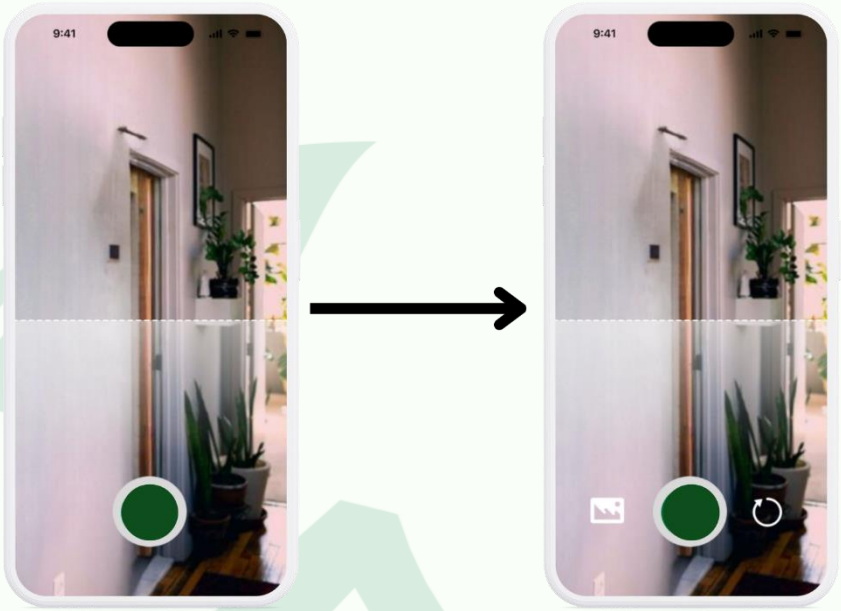
Feature Iteration "Register Page"

On the register page, users cannot register using the Google application. Therefore, we added a register with google button on the register page.



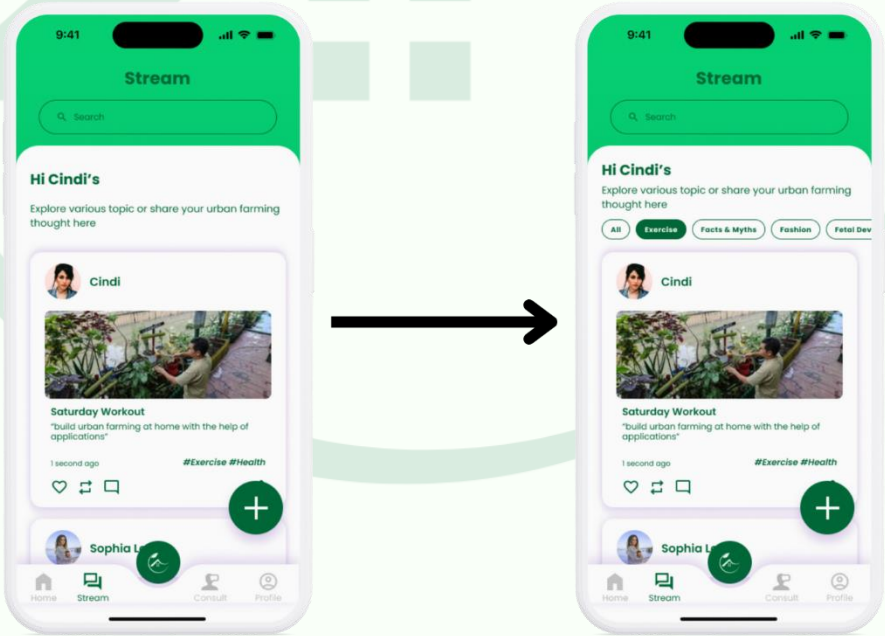
Feature Iteration "Urban Farming Layout Design"

In the "Urban Farming Layout Design" feature, users cannot add photos from internal storage or retake photos/videos. Therefore, we added buttons to add photos via internal storage and retake photos/videos.



Feature Iteration “News”

In the "News" feature, users cannot filter information by topic. Therefore, we added the feature of filtering information by topic.

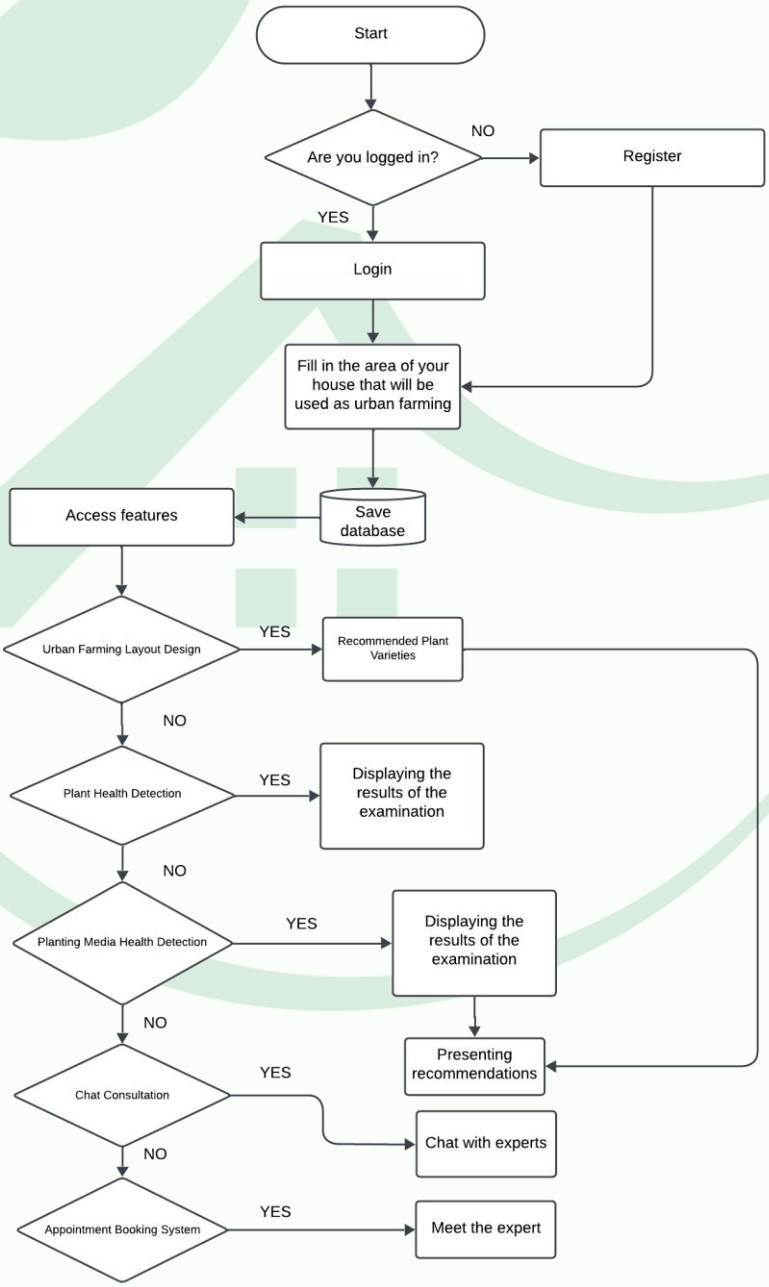


Appendix 16. Product Development Plan

Year	Product Development
2025 (Year 0)	**Maturation, Fundraising, Application *Prototype* Launch, and Collaboration Submission** Maturing the URFALOGY concept, collaborating with various partners, and raising funds through *sponsorship* and investors. This year we also launched the *prototype* applicationand its trial process and proposed collaboration with the government with the aim of facilitating the data collection process throughout Indonesia.
2026 (Year 1)	**Product (App) Publication, Evaluation, and Marketing** Officially releasing the Application in Malang and Surabaya and strengthening the marketing strategy to adjust to the appropriate new method. This year, there will also be an evaluation of the Application product. Intensify promotion with advertisements as well as public figures and conduct awareness campaigns about the Application.
2027 (Year 2)	**Application Development and Regional Expansion** Evaluating based on existing data, adding new features, strengthening security, and improving *user experience* are the main targets this year. Regional expansion is also carried out, especially in the East Java region with the government.
2028 (Year 3)	**Application Development and Regional Expansion** Adding *e-commerce* features in it that allow users to purchase goods to support baby nutrition. Regional expansion is also carried out, especially on the island of Java with the government.
2029 (Year 4)	**Application Development and Regional Expansion** Evaluating based on existing data, adding new features, strengthening security, and improving *user experience* are the

	main targets this year. Regional expansion is also carried out, especially in Sumatra, Kalimantan, and surrounding areas.
2030 (Year 5)	**National Scale** URFALOGY operates optimally in Indonesia together with health workers and government support

Appendix 17. Flow of Application Usage



Appendix 18. Analisis Risiko Usaha

Num.	Risk	Frequency	Impact	Level	Mitigation Strategy
1	Technology Failure	*Rare*	*High*	*High*	Implement redundant systems, regular backups, and have a disaster recovery plan.
2	Data Breach/Security Incident	*Unlikely*	*High*	*Medium*	Implement robust cybersecurity measures, conduct regular security audits, and train staff on best practices.
3	Regulatory Compliance Issues	*Moderate*	*Medium*	*Medium*	Stay up to date with machine learning and data protection regulations, and consult with legal experts.
4	Inaccurate Machine Learning Predictions	*Likely*	*Medium*	*Medium*	Improve algorithms, validate models with new data, and set realistic expectations.
5	Low User Adoption	*Moderate*	*High*	*Medium*	Conduct market research, develop a strong marketing strategy, and collect user feedback for improvement.
6	Reliance on Third Party Services	*Unlikely*	*Medium*	*Low*	Diversify service providers and establish service level agreements (SLAs) with key vendors.
7	Lack of Funds	*Rare*	*High*	*High*	Diversify funding sources, maintain reserve

					funds, and manage budgets conservatively.
8	Legal Challenges from Competitors	*Unlikely*	*High*	*Medium*	Secure intellectual property rights and set up a legal response team.
9	Staff turnover	*Likely*	*Medium*	*Medium*	Implement an employee retention programme and have a talent acquisition strategy.
10	Education Policy Changes	*Unlikely*	*High*	*Medium*	Engage with education policy makers and customise services to align with policy changes.

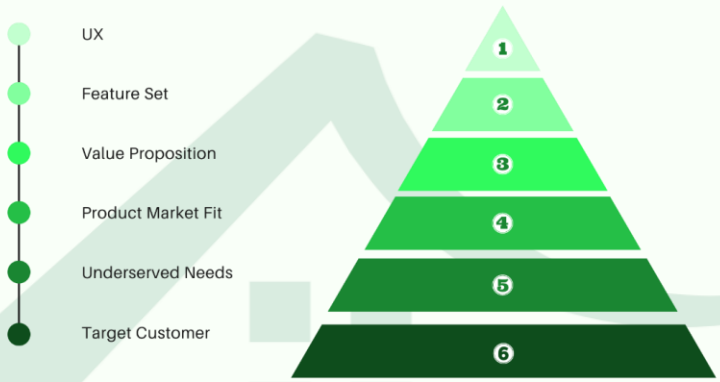
Appendix 19. Competitor Analysis

Fitur	**Urfalogy**	**Bowery Farming**	**AeroFarms**	**Plenty**	**Infarm**
AI/ML Technology	✓✓✓	✓✓	✓✓	✓✓	✓
Plant health detection	✓✓✓	✓	✓✓	✓	✓
Personalise recommendations	✓✓✓	✓	✓	✓	-
Expert consultation	✓✓✓	-	-	-	-
E-commerce terintegrasi	✓✓	✓	✓	✓	-
Focus on urban farming	✓✓✓	✓✓	✓✓	✓✓	✓✓
All-in-one solution	✓✓✓	✓	✓	✓	-

Mobile application	✓✓✓	✓	-	✓	-
User education	✓✓✓	✓	✓	✓	✓
Sustainability	✓✓✓	✓✓	✓✓	✓✓	✓✓

Description:
✓✓✓ = Excellent
✓✓ = Superior
✓ = Available
- = Not available/Insufficient information

Appendix 20. Product market fit pyramid



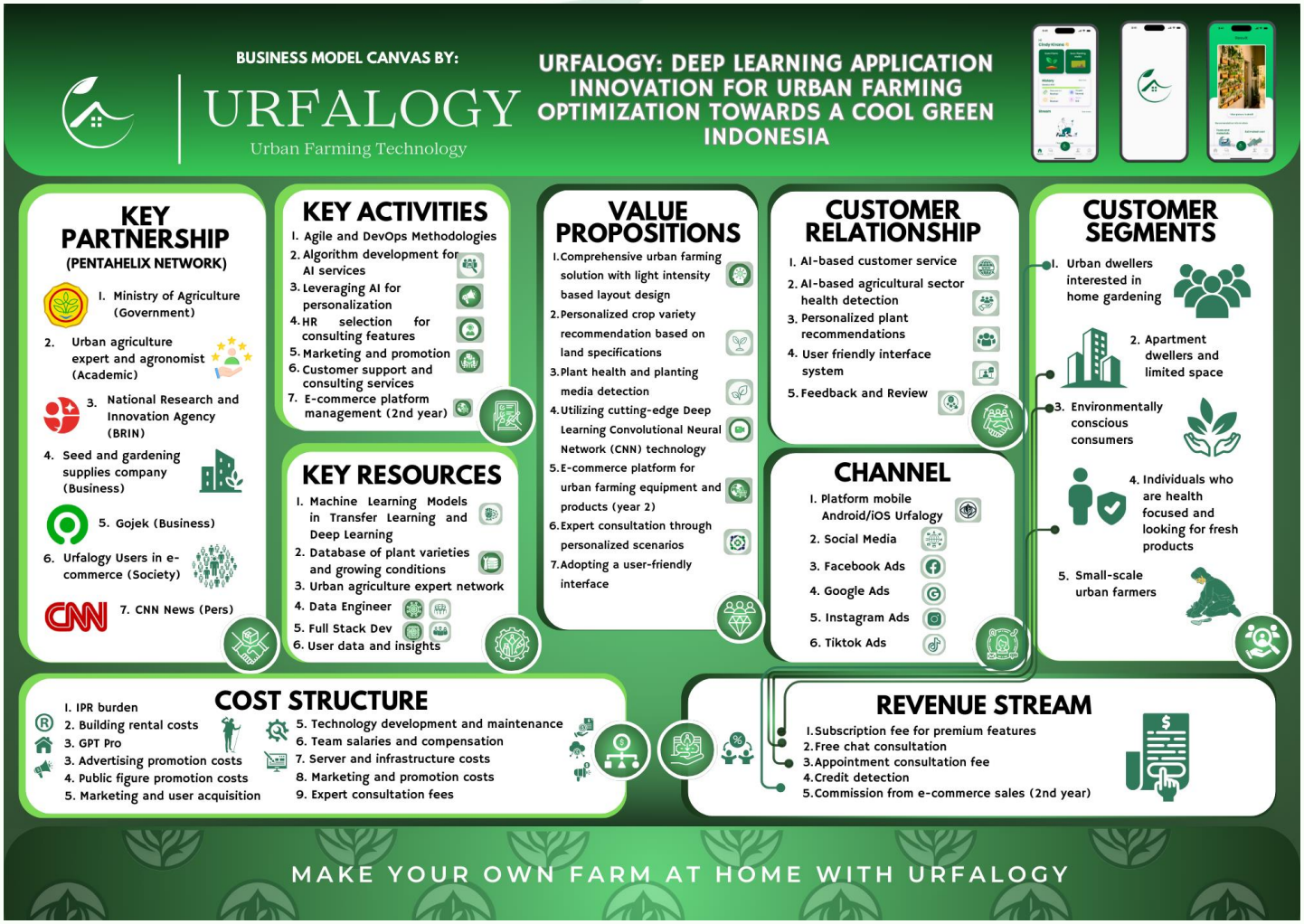
Target Customer
Indonesia's urban population, including digital device users, office workers, students, apartment dwellers.
Underserved Needs
Efficient urban garden design, crop recommendations, early detection of plant health, soil/media monitoring, easy expert consultation, e-commerce integration.
Product-Market Fit
Urfalogy provides a mobile app with AI garden design, personalised plant recommendations, plant health detection, soil/media monitoring, real-time expert consultation, and e-commerce integration.
Value Proposition

Unique all-in-one solution, AI recommendations and accurate health detection, urban farmer community, expert support, intuitive interface, localised for Indonesia, regular updates.
Feature Set
AI urban farming layout design algorithm, personalised plant recommendation, AI plant health detection, soil/media monitoring, chat consultation, appointment booking, e-commerce.
UX
Intuitive and easy to use, accessible features, clear guidance and recommendations, designed for different levels of digital literacy.

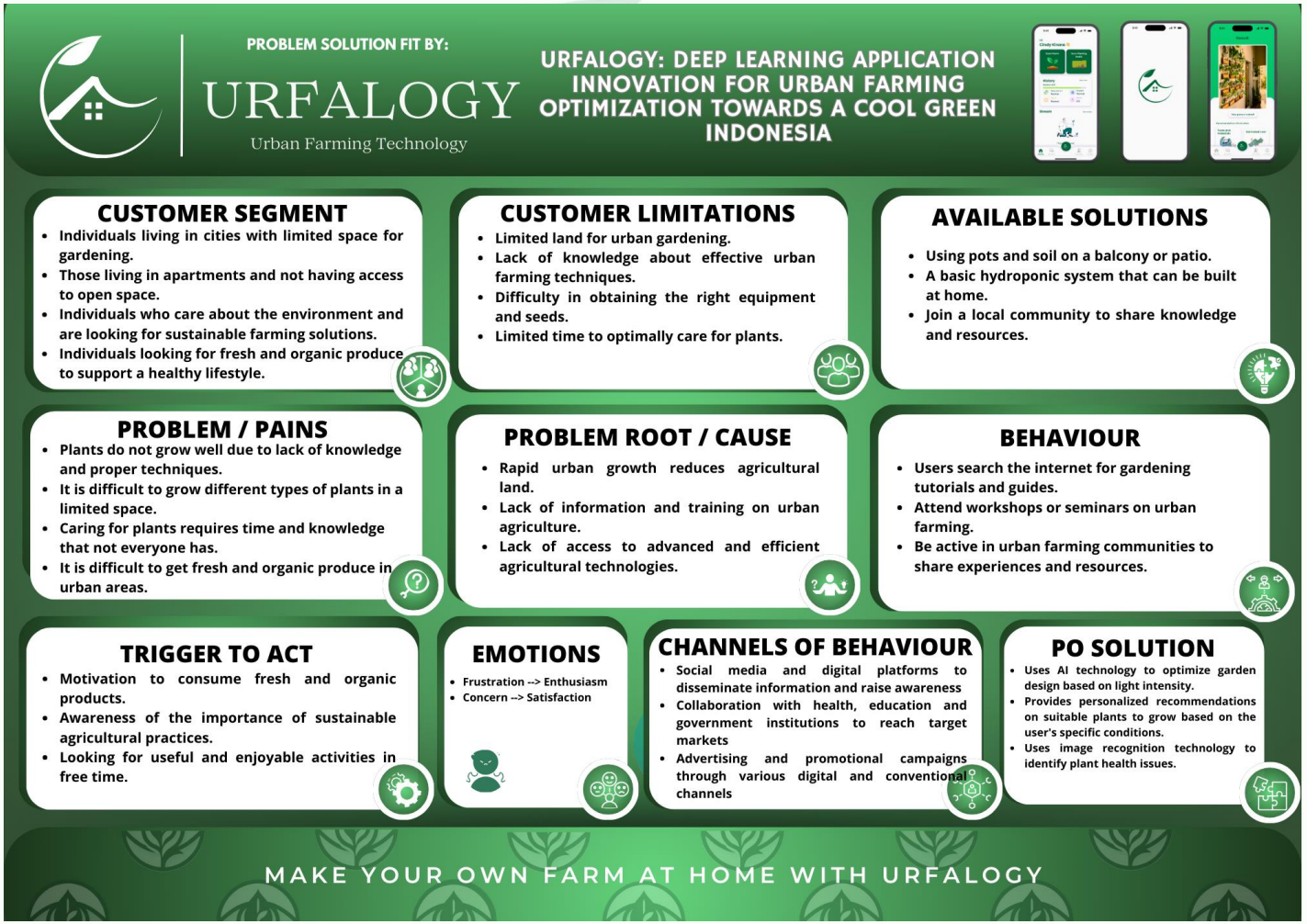
Appendix 21. *Exit Strategy*

Reasons for choosing an exit strategy	*Exit Strategy* Method with IPO Method
• Well-known Products: URFALOGY has successfully built a well-known product in the public market. Our products have gained customer recognition and trust on a national scale. We receive positive reviews from customers, indicating their satisfaction with our products and services. • Consistently High Sales: We achieved a significant increase in sales over the past few years. Our financial performance has steadily improved over time. • Maximum Profit: The business has reached peak profits in 2029. This is the right time to consider an *exit strategy*.	• Shareholder Diversification: The IPO will allow us to bring new shareholders into the company, which can help in diversifying ownership and reducing business risk. • Access to Additional Capital: The IPO will provide access to much needed additional capital to finance the growth and expansion of our business. • We have determined 2029 as the right time to execute the IPO. In this year, the business reaches its highest profit, which will be an ideal starting point for the IPO. We will continue to work closely with our financial and legal advisors to prepare for all aspects of the IPO.

Appendix 22. Business Model Canvas



Appendix 23. Problem Solution Fit Canvas



ORIGINALITY STATEMENT SHEET / TURNITIN CHECKER

STATEMENT OF ORIGINALITY

International Business and Technology Student Competition (IBTSC)

BUSINESS PLAN COMPETITIONS

The undersigned below

Team Leader Name: Alexander Imanuel Widjanarko

Member Name 1: Nathan Daud

Member Name 2: Mochamad Rizal Saputra

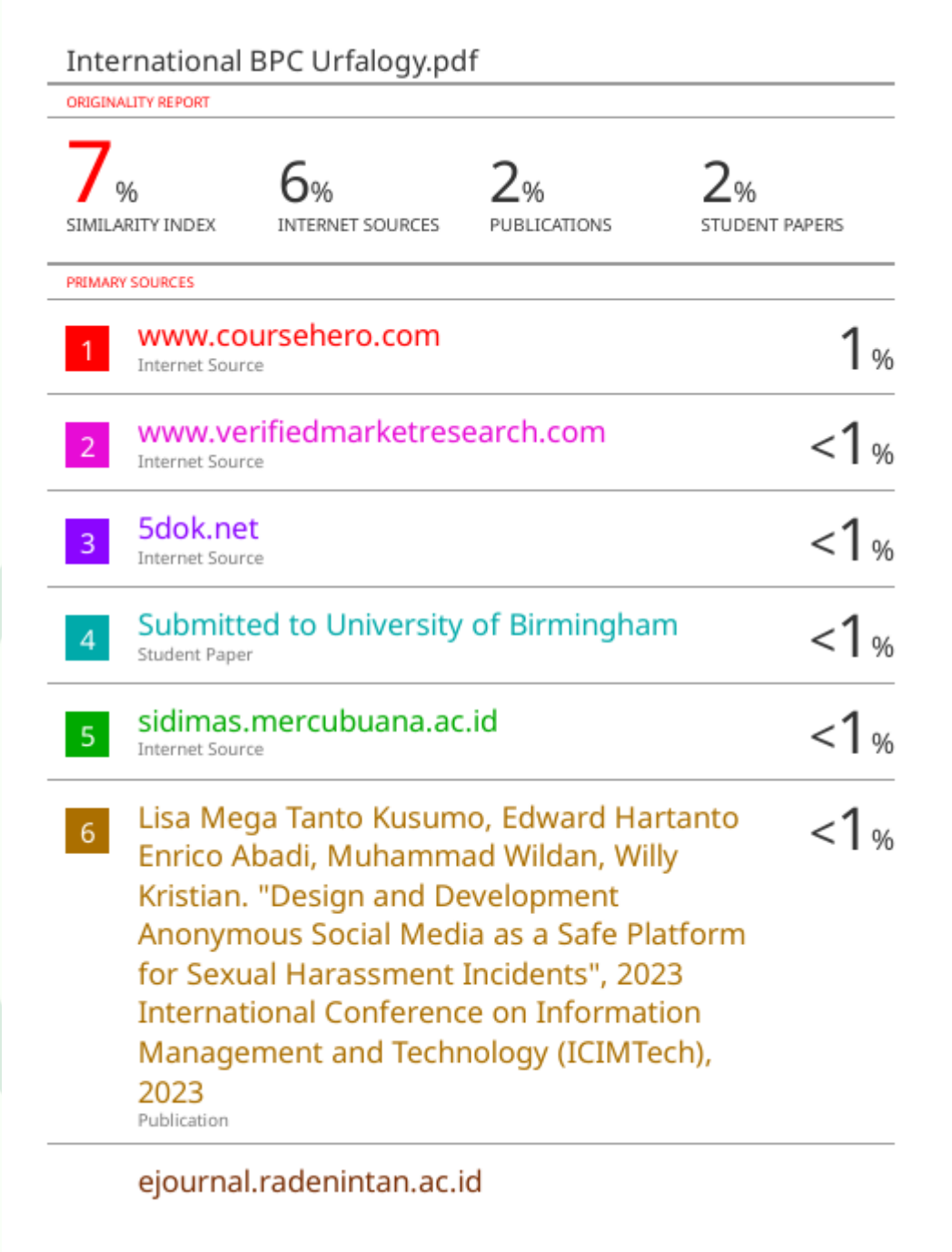
Business Plan Title: Urfalogy: Deep Learning Application Innovation for Urban Farming Optimization Towards a Cool Green Indonesia

Hereby declare that this work is truly our original work and has not been ever published in any media, either online or offline, and has never been a champion in any activity. If in the future any discrepancies or fraud are found, we are prepared to accept it. Sanctions in accordance with applicable regulations including disqualification from the competition.

Surabaya, 06/02/2025



(Alexander Imanuel Widjanarko)



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