

TECH HARVESTS TOMORROW: I-FARM REVOLUTIONIZES URBAN FARMING WITH TECH-DRIVEN INNOVATION

Your Farm Next Door



Figure 1.1 Logo of I-Farm

On January 14, 2024, from 2:30 pm to 3:30 pm via Webex, Dr. Seah Choon Sen gave an innovative webinar to students enrolled in the Faculty of Computing's Technology and Information Systems course about the i-Farm initiative. In his speech, Dr. Seah positioned i-Farm as an innovative force in urban agriculture by highlighting the transformative potential of vertical farming, controlled environment agriculture (CEA) and Internet of Things (IoT) systems. This integrated approach addresses the problems facing modern agriculture and ensures a supply of fresh, pesticide-free vegetables. The innovative future of sustainable food production is painted by i-Farm's technology and agricultural synergy, which also provides insightful information at the nexus of agriculture and technology.

Problem Statement

The movement control order (MCO) has disrupted the seamless flow of fresh vegetables, creating multifaceted challenges for both consumers and traders. With social distancing measures complicating supermarket visits, limited selections and compromised vegetable quality persist due to the exclusion of wholesale markets under EMCO. Labor shortages among traders compound the issue, hindering the efficient management of vegetable supplies. Interstate logistics risks further compromise the distribution of fresh produce, impacting retailers and community access. The imperative now is for society to adapt to the 'new normal,' exercising self-restraint and avoiding crowding for a smooth transition to post-pandemic life. Addressing these challenges becomes crucial for initiatives like I-Farm to bridge the gap in fresh vegetable supply.

Proposed Solution

Imagine having plant workshops integrated into every residential area, cultivating fresh produce through state-of-the-art vertical farming. This visionary approach ensures residents can effortlessly access locally grown vegetables, right in their neighborhoods. The introduction of the I-farm platform simplifies the ordering process, offering not only convenience but also a unique opportunity to connect with the natural growth process of the plants.

Business Model

IoT technology monitors plant growth, offering insights into the ideal environment for different plant types. A diverse team is dedicated to solving the challenges of urban farming. Users have control through I-farm, making informed decisions on both consumption and planting, empowering them to choose plants suitable for their residential areas.



Figure 1.1 Consumers need to obey social distancing and wait in the long queue to purchase groceries at the supermarket during MCO.

Social Impact

I-FARM innovates agriculture with an eco-friendly, weather-resistant approach, minimizing transportation emissions and aligning production with market demand. Socially, it empowers residents to repurpose spaces for sustainable living. Economically, vertical farming boosts productivity, offering higher agricultural output and contributing to economic growth. I-FARM stands as a triple-impact solution, promoting environmental resilience, social empowerment, and economic prosperity in modern agriculture.

Value Proposition

I-FARM pioneers urban farming with a focus on sustainability, efficiency, and freshness. Through Controlled Environment Agriculture (CEA) and Internet of Things (IoT) systems, I-FARM delivers 100% fresh produce on demand, integrating farming into residential areas for pesticide-free vegetables and promoting sustainable urbanization.

Market Segmentation

Using data collected by the UN Food and Agriculture Organization, I-FARM strategically targets four customer segments. Their ideal clients are those who are willing to invest in high-quality products, such as single or family households with steady incomes that are 25 years of age or older, both behaviorally and demographically. Psychologically, I-FARM serves people who enjoy cooking and lead healthy lifestyles; geographically, it targets urban dwellers who want easy access to fresh produce.

Market Validation

I-Farm surveyed 290 people to gather market insights. Of the 190 residents in the surveyed area, 160 expressed interest in purchasing vegetables from a nearby micro-farm. Among the respondents, 220 prioritized a healthy lifestyle, valuing vegetable quality over price, while 70 favoured price over quality. The survey's ratios, such as (30:40) for price and (150:10) for quality, not only guided I-Farm's go-to-market strategy but showcased their commitment to meeting diverse customer needs.

Future Plan

I-FARM aspires to be the leader in food solutions in Asia. Their goals include reaching five countries, expanding to thirty million users, generating ten million dollars in sales annually and building a network of two hundred I-FARM facilities. The company's ambitious goals signal a future of innovation and sustainability in the realm of food supply.



Figure 2.2 I-FARM's Vertical Farming Revolution Brings Sustainable Agriculture to Your Doorstep

Go-to-Market Strategy

I-Farm's strategy centers on residents in residential areas and condominiums, offering same-day delivery and self-pickup options. Big data guides decisions on point choices and stocking levels, enhancing customer satisfaction. Localised marketing fosters community engagement, while partnerships with chefs and influencers endorse sustainability.

Cost Structure & Revenue Stream

I-Farm's initial investment of RM638,500 fuels its monthly income of RM122,988 by harvesting 23,328 plants monthly, each producing 0.1kg, results in a final production of 2,216kg. Sales of each 1108kg of coriander (RM72,020) and pea sprouts (RM50,968) contribute to the monthly income. With net profit at RM108,844, the Return on Investment stands at a robust 17.05%.

Business Performance

I-Farm collaborated with CREST & PASARAN KH, successfully obtained 3 farming racks from CREST sponsorship. A noteworthy development during the MCO was the "Online Pasar" initiative, which allowed I-Farm to produce and sell vegetables online and earn RM2,941 during the October CMCO. The I-Farm e-commerce platform, ONLINE PASAR (<https://i-farm.my/onlinepasar>), demonstrates the company's adaptability and success in navigating changing market landscapes.



Figure 2.1 First meeting with CREST in Penang in proposing industry collaboration

The I-Farm talk underscores the importance of seizing opportunities in challenging times. I-Farm's success, adapting to COVID-19 restrictions by establishing operations in Kulim, Kedah, highlights the value of agility and strategic decision-making. The motivation lies in recognizing that successful innovation requires adaptability and understanding market dynamics. I-Farm's on-demand vegetable supply not only reflects smart resource use for profitability but also responds to evolving societal needs. The showcased innovation, driven by controlled environment agriculture and IoT systems, addresses environmental concerns, ensures food safety, and contributes to sustainable development, showcasing technology's transformative impact on human life.