

A Conceptual KiraBot Business Model: WhatsApp-Based Micro-SaaS for B40 Financial Inclusion

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DOI: <https://doi.org/10.5281/zenodo.20411987>

Published Date: 27-May-2026

Abstract: The paper puts forward a hypothetical multi-sided digital platform, KiraBot, a WhatsApp-based micro-SaaS application that will help to solve financial management issues among B40 micro-entrepreneurs in Malaysia. The platform is focused on both seeking micro-finance (e.g., MSMEs and informal vendors), and providing micro-finance (e.g., financial institutions and government agencies including Bank Simpanan Nasional, TEKUN, Amanah Ikhtiar Malaysia). Manual bookkeeping practices have led to poor financial tracking, minimal visibility of profits, and access to formal financing by many micro-entrepreneurs. Such problems lead to cash blindness which makes it difficult to sustain and grow the business. The current research is based on the Design Thinking (DT) approach, which includes literature review, study of existing solutions (e.g., POS systems, accounting software, and messaging platforms) benchmarking, and complementation by national projects including Budget 2026 and MyDigital. Results suggest that existing solutions are usually expensive, complicated, and inappropriate with informal micro-vendors. To overcome this gap, KiraBot uses WhatsApp and AI-based chatbots to allow users to record transactions, track their financial performance, and automatically create reports using natural language communication. The business model proposed is created based on Business Model Canvas (BMC) and Value Proposition Canvas (VPC) and tested on user level. KiraBot fits the Fourth Industrial Revolution (4IR) and digital economy agenda of Malaysia and the Sustainable Development Goal 8 (SDG 8: Decent Work and Economic Growth). The platform has a great potential of increasing financial inclusion and empowering B40 micro-entrepreneurs in a digital form.

Keywords: KiraBot, B40 micro-entrepreneurs (MSMEs), micro-finance seekers, micro-finance providers, WhatsApp chatbot, artificial intelligence, financial tracking, financial inclusion, digital economy, 4IR.

I. INTRODUCTION

In Malaysia, the informal economy comprising B40 micro-entrepreneurs such as night market vendors, roadside food stalls, and home-based businesses constitutes a crucial pillar of grassroots economic survival [1]. In this ecosystem, there are two primary Customer Segments (CS): the Micro-Entrepreneurs and the Micro-finance Providers (e.g., financial institutions like SME Bank, BSN, Bank Rakyat, and government agencies like MARA, AIM, YUM, and TEKUN), and the Wholesale Ingredient Providers (e.g., FMCG wholesalers). For the Micro-Entrepreneurs, their important job-to-do involves managing daily inventory, tracking cash inflows and outflows, and sustaining their livelihoods. However, they face extreme pains in business management. The majority rely on traditional, manual recording methods, colloquially known as the “Buku 555,” which are highly susceptible to loss, damage, and human error. Consequently, these vendors suffer from “cash blindness” which is an inability to determine their actual daily profit margins. Furthermore, without formal digital financial records, these B40 entrepreneurs remain “unbankable,” facing high rejection rates when applying for micro-loans from financial institutions [2]. Their essential gains include acquiring a frictionless, low-cost method to track daily profits and the ability to generate formal financial reports to secure business expansion capital.

Conversely, the Micro-finance Providers also face significant hurdles. Their primary job-to-do is to identify creditworthy B40 entrepreneurs, evaluate loan applicants accurately, and reduce financial risk. However, they experience extreme pains due to the lack of verified real-time financial data from applicants, making manual auditing of tiny roadside businesses costly, time-consuming, and prone to fraudulent income claims. Their essential gains include access to a larger pool of “pre-verified” applicants, higher loan repayment rates, and increased loan approval efficiency.

The third segment, Wholesale Ingredient Providers, seeks to increase sales volume and reach fragmented micro-vendors who typically purchase from local supermarkets. Their primary pains include the lack of direct communication channels to notify buyers about bulk discounts and a lack of data regarding which ingredients are in high demand in specific areas. Their essential gains are achieved through direct access to target customers, localized market insights, and the ability to drive bulk order volume and brand loyalty effectively.

Currently, the market offers several solutions to digitalize business transactions, primarily through modern Point-of-Sale (POS) systems (e.g., StoreHub, Slurp!) or standard accounting software. While these solutions provide excellent pain relievers (automated calculations, cloud backups) and gain creators (detailed analytics, inventory management), their business models target established SMEs [3]. The key gap is that these current solutions are no longer relevant or accessible to B40 micro-vendors. They require expensive hardware (tablets, receipt printers), mandate a steep learning curve, and charge high monthly subscription fees. They completely fail to address the extreme pains of a roadside vendor who operates in a fast-paced, hardware-limited environment.

Hence, new, innovative, and highly relevant solutions are needed to bridge this digital divide. To fulfill the national mandate of the Malaysia Digital Economy Blueprint (MyDigital) and achieve SDG 8: Decent Work and Economic Growth [4], this paper proposes KiraBot, a conceptual WhatsApp-based micro-SaaS business model designed to empower B40 micro-entrepreneurs through accessible digital financial tracking.

II. PROBLEM STATEMENT/OBJECTIVES

The primary problem faced by B40 micro-entrepreneurs is the lack of accessible, low-barrier digital tools to track their daily cash flow, which leaves them trapped in the informal economy without the financial data required to secure micro-loans and expand their businesses [5]. In addressing the above key problems, the main objective of this paper is to develop a conceptual business model, including a digital platform and application, that offers products and services as pain relievers and gain creators. The specific objectives include:

- a. To create a WhatsApp-based chatbot platform (KiraBot) that allows micro-vendors to log daily sales and expenses seamlessly using natural language text, eliminating the need for complex hardware or new app downloads.
- b. To provide users with automated, monthly Profit & Loss (P&L) PDF reports that can be utilized as valid documentation for micro-financing applications.
- c. To offer a freemium financial tracking model to B40 entrepreneurs to improve their digital financial literacy and protect their wealth, aligning with the principles of Hifz al-Mal [6].
- d. To understand the market viability of KiraBot in solving the problem of “cash blindness” among informal vendors, resulting in sustainable revenue streams.
- e. To develop a Business Model Canvas (BMC) and Value Proposition Canvas (VPC) that help the business emerge in the market through a Blue Ocean Strategy [7].
- f. To develop a High-Fidelity/Low-Fidelity prototype of the conversational interface that allows vendors to access financial analytics effortlessly.

III. METHODOLOGY

According to Brown [8], Design Thinking is a human-centered methodology that aims to tackle highly complex problems by integrating the needs of people, the possibilities of technology, and the requirements for business success. This paper will adapt the Design Thinking methodology by focusing on five distinct stages of processes that are crucial for providing a framework for running our organization: Empathise, Define, Ideation, Prototyping, and Testing.

Initially, Literature Review and benchmarking of similar tech companies were conducted to understand the market gaps. Following the Design Thinking process, we engaged in the empathize stage to understand our target audience's extreme pains, jobs-to-do, and essential gains. An Environment Map (EM) that includes market forces, significant trends, competitive assessments, and macroeconomic pressures was constructed to assess the external landscape.

Subsequently, an initial Business Model (BM) was developed utilizing strategic management tools, specifically the Business Model Canvas (BMC) and Value Proposition Canvas (VPC) established by Osterwalder and Pigneur [9]. The next step was the ideate stage, in which multiple ideas were generated to answer the accumulated problems. This led to the prototype development phase, where the solution was transformed into a conceptual conversational application model leveraging chatbot frameworks [10].

To validate the initial BM, surveys were planned to be conducted among B40 vendors to gather feedback on the prototype. The findings will be discussed to refine and establish the validated conceptual BM. Finally, a Strategy Canvas [7] was developed to compare the relevancy and sustainability of KiraBot's unique offerings against traditional accounting methods and modern POS competitors, highlighting our Blue Ocean strategy.

IV. LITERATURE REVIEW

A. Financial Challenges Among B40 Micro-Entrepreneurs

The informal sector has remained an important part of the Malaysian economy, especially to B40 micro-enterprises like vendors in the night market, roadside food peddlers, and home-based marketers. These people are very reliant on cash transactions as a source of livelihood. Nevertheless, the majority of them use traditional bookkeeping, including handwritten notes or so-called Buku 555, which is subject to human error, loss of information, and inconsistencies [11].

Such a state of affairs adds a significant problem to the so-called cash blindness, with the business owners not being able to effectively trace their daily revenues and costs. Lack of appropriate financial visibility causes micro-entrepreneurs to make ineffective decisions, thus causing inefficiencies and inadequate business development. More so, the lack of disaggregated financial records deprives them of formal financial services, like loans, where the financial institutions would be interested in having documented income and transaction history to determine their creditworthiness [2].

Also, in the eyes of the micro-finance providers, there are no formal and verifiable financial records among informal micro-entrepreneurs, so loans are more likely to default and creditworthiness is a difficult issue to determine. Government bodies and financial institutions like TEKUN, MARA, and Bank Rakyat need to have the quality financial information in order to make the lending decisions [2]. This brings about a structural imbalance between supply and demand of micro-finance.

These issues prove that a simple, affordable and accessible financial tracking system should be developed with specific references to informal micro-entrepreneurs.

B. The Role of 4IR Technologies and Chatbot Automation

The fourth industrial revolution (4IR) has revolutionized the way businesses are done by adopting new technologies like artificial intelligence (AI), cloud computing, and big data analytics. These technologies make it possible to automate, become efficient, and make better decisions in contemporary businesses [12].

Nevertheless, with the development of the digital economy, a high number of micro-entrepreneurs are left out because of the lack of digital literacy and access to complex systems. Lately, communication tools like WhatsApp have become a popular business tool for communication among casual vendors. This provides the chance to incorporate digital solutions into solutions that the users are already conversant with.

A chatbot is an application that enables people to communicate with systems through conversation, and the technology is based on Natural Language Processing (NLP), as it does not require technical knowledge [10]. With the integration of chatbots into WhatsApp, the micro-entrepreneurs will be able to carry out activities like documentation of transactions and monitoring of costs in a very easy and user-friendly way. This is in line with the 4IR principles that ensure that digital transformation is more inclusive and accessible.

C. Government Policy and Budget 2026 Initiatives

The policy environment in Malaysia has a high focus on inclusive digital transformation and financial empowerment. The Malaysia Digital Economy Blueprint (MyDigital), National 4IR Policy, as well as the Twelfth Malaysia Plan (12MP) which is now transitioning into the Thirteenth Malaysia Plan (13MP) 2026–2030, also emphasize the need to use digital technologies to empower B40 communities and micro-enterprises [13], [14], [15]. Moreover, the long-term plans, including the New Economic Policy (NEP) 2030 [16] and new plans, like AI Roadmap 2026–2030 (AIAP) [17], confirm the importance of digital innovation in alleviating income inequality and enhancing productivity.

This agenda is followed in Belanjawan 2026 (Budget 2026) which focuses on the rakyat-centric development, digital connectivity under the MSMEs, and access to micro-financing [18]. All these initiatives are signs of a robust institutional backing of solutions to improve financial inclusion and digital engagement of underserved groups.

These policies show great interest in closing the digital divide and establishing better financial inclusion. By matching the national digital approaches and Budget 2026, solutions like KiraBot can be used to empower B40 entrepreneurs with the help of financial tools and to enhance their economic opportunities.

D. Digital Inclusion, Reskilling and Financial Empowerment

National development frameworks focus on the government's efforts in terms of digital inclusion, reskilling, and economic empowerment of the lower-income groups. The digital economy is identified as a major driver of national development with policies that focus on enhancing digital use and better income prospects [12].

Micro-entrepreneurs, through the availability of easy-to-use digital tools, can become more financially literate, optimize their operations and move toward formal economic activity. This change enhances their eligibility to financial support, grants and financing opportunities. The strategies of digital inclusion are thus critical in lowering inequality and advancing sustainable economic growth.

E. Benchmarking of Existing Platforms and Solutions

1. StoreHub POS System

StoreHub is a Malaysian based Point-of-Sale (POS) system that is mainly targeted at the small and medium enterprises (SMEs). In terms of Business Model Canvas (BMC), its customer segments are retail shops, cafes and restaurants whereas its value proposition lies in the integrated sales tracking, inventory management, and business analytics [19]. The site earns a profit via subscription pricing and hardware sales and is a Software-as-a-Service (SaaS) framework [3].

But tablet computers and receipt printers are hard hardware that StoreHub needs, and some degree of digital skills are required. These conditions pose challenges to informal micro-entrepreneurs whose businesses are in low-resource settings. Also, the subscription price can be an obstacle to B40 vendors, making it unavailable [3].

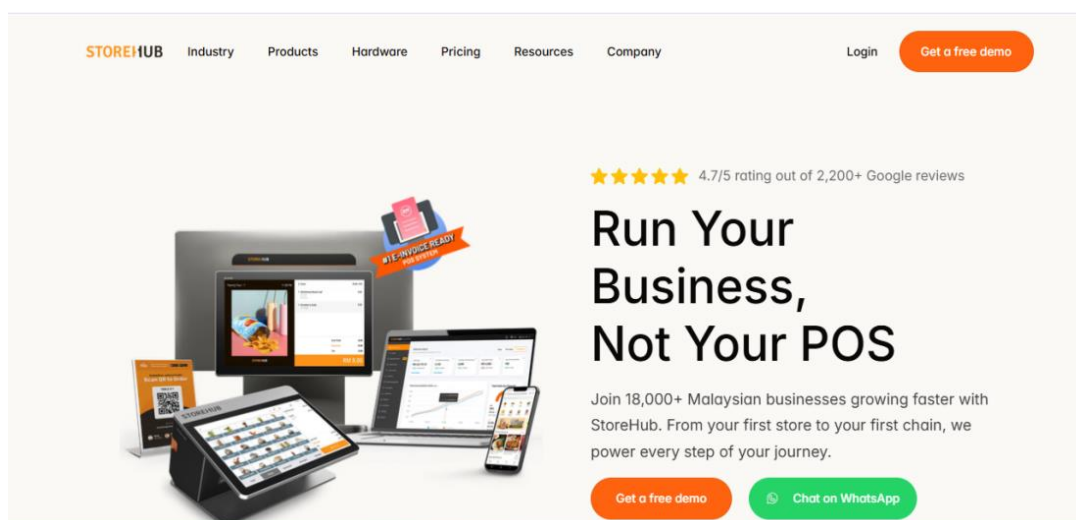


Fig. 1. StoreHub Web

StoreHub POS – Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> • POS hardware makers (tablets, printers, scanners) • Payment gateways (e-wallets, banks) • Cloud providers (e.g., AWS) • Local resellers and channel partners • Accounting integrations (e.g., Xero) 	<ul style="list-style-type: none"> • POS software development & maintenance • Hardware sales & after-sales support • On-boarding, training & customer support • Sales, marketing & merchant acquisition 	<ul style="list-style-type: none"> • Integrated POS, inventory & CRM in one cloud platform • Real-time sales tracking & reporting • Easy menu, table & stock management • Multi-outlet management for SMEs • E-invoice ready and locally compliant 	<ul style="list-style-type: none"> • Self-service onboarding plus dedicated support • Personal account managers (premium plans) • In-app help, training videos, webinars 	<ul style="list-style-type: none"> • Small & medium retail shops • Cafes, restaurants & food courts (F&B SMEs) • Multi-outlet retail chains • Service-based SMEs
	Key Resources		Channels	
	<ul style="list-style-type: none"> • Proprietary StoreHub POS platform & cloud • POS hardware inventory • Engineering & customer success teams • Merchant transactional data & analytics 		<ul style="list-style-type: none"> • Direct sales website (storehub.com) • Sales reps and demos • Resellers & channel partners • Digital marketing & social media 	
Cost Structure		Revenue Streams		
<ul style="list-style-type: none"> • Software development and cloud hosting • Hardware procurement and logistics • Sales, marketing and customer acquisition • Salaries (engineering, sales, support) 		<ul style="list-style-type: none"> • Monthly/annual SaaS subscription fees • POS hardware sales • Payment processing fees • Add-on modules (loyalty, e-commerce, delivery) 		

Fig. 1.1 BMC of StoreHub POS using BMC Framework

2. Wave Accounting System

Wave Accounting is a financial management tool that is a cloud-based platform and provides services, including invoicing, expense tracking, and financial reporting. Its customer base predominantly comprises freelancers and small businesses, and its value-proposition is to offer free basic accounting tools and optional financial services to its customers [20]. The service is built in a freemium system, making a profit by offering premium features and financial services.

Although Wave is user-friendly, it can only be used by people who are familiar with structured dashboards and have some rudimentary accounting skills. This poses a usability problem to less tech-savvy and financially literate informal micro-entrepreneur who might not feel the platform is as appropriate to them [3].

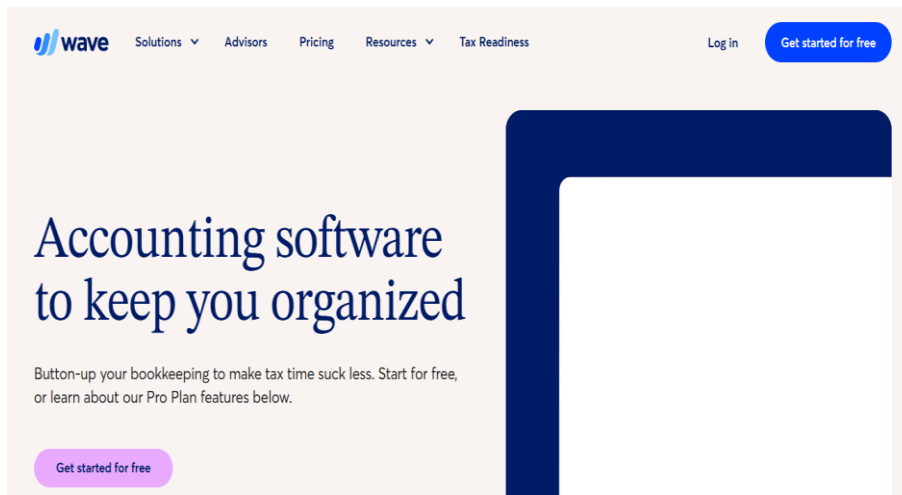


Fig. 2. Wave Platform

Wave Accounting — Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> • Cloud hosting providers • Payment processors (Stripe, etc.) • Banks and financial institutions • Tax authorities & accounting bodies • Independent bookkeepers & accountants 	<ul style="list-style-type: none"> • Develop accounting & invoicing software • Host & maintain cloud infrastructure • Payment processing & payroll services • Customer support, content & education 	<ul style="list-style-type: none"> • Free, easy-to-use online accounting & invoicing • Unlimited invoicing, receipts & expenses • Cloud-based, accessible anywhere • Add-on payments and payroll on demand • No-commitment freemium model 	<ul style="list-style-type: none"> • Self-service through web app • Help center, blog & email support • Live chat for paid services 	<ul style="list-style-type: none"> • Freelancers & solopreneurs • Self-employed individuals & consultants • Small businesses (<10 employees) • Micro-businesses needing basic accounting
	<p>Key Resources</p> <ul style="list-style-type: none"> • Wave cloud accounting platform • Software engineering & product teams • Customer financial data • Brand reputation as "free accounting" 		<p>Channels</p> <ul style="list-style-type: none"> • Wave website (waveapps.com) • Online search & content marketing • Word-of-mouth among freelancers/SMBs 	
<p>Cost Structure</p> <ul style="list-style-type: none"> • Software development & infrastructure • Customer support operations • Marketing & content creation • Compliance with multiple tax jurisdictions 			<p>Revenue Streams</p> <ul style="list-style-type: none"> • Wave Payments transaction fees • Wave Payroll subscription fees • Wave Advisors (bookkeeping/coaching) fees • Premium add-on services 	

Fig. 2.1 BMC of Wave Accounting using BMC Framework

3. WhatsApp Business Platform

The vast accessibility and familiarity of WhatsApp Business has made it very popular with micro-entrepreneurs in terms of communication and customer interaction. Regarding BMC, the segments of its customers are small businesses and individual entrepreneurs, and the value proposition is based on the real-time communication and ease of use, and low

barriers of entry [21]. The platform is on a freemium type, and it earns the revenue by providing the API-driven messaging services.

WhatsApp Business, though easy to use, does not have in-built financial tracking, formal transaction recording, and automatic reporting functionalities. Consequently, users have to use manual means of financial management, which causes inefficiencies and possible inaccuracies [10].

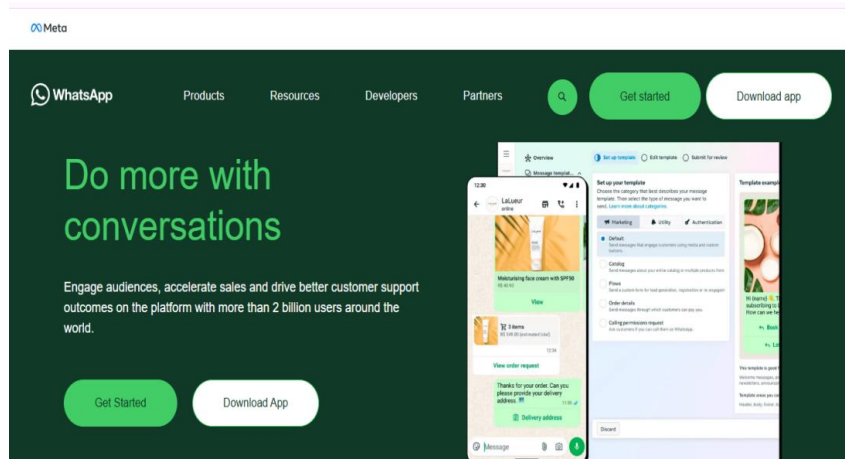


Fig. 3. WhatsApp Platform

WhatsApp Business — Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> • Meta Platforms (parent company) • WhatsApp Business Solution Providers (BSPs) • Mobile device manufacturers • Telecommunications operators • Third-party CRM & chatbot vendors 	<ul style="list-style-type: none"> • Develop & maintain WhatsApp Business app and Cloud API • Verification of business accounts • Content moderation & platform safety • Partnerships with BSPs & ecosystem builders 	<ul style="list-style-type: none"> • Free, simple business profile and catalog tools • Real-time, end-to-end encrypted messaging • Quick replies, automated greetings/away messages • Programmable Cloud API for medium/large businesses • Massive reach: customers already use WhatsApp daily 	<ul style="list-style-type: none"> • Self-service via app & Business Manager • Support via help center and BSP partners • Community of developers & resellers 	<ul style="list-style-type: none"> • Micro & small businesses (SMBs) • Medium & large enterprises using API • Service providers (clinics, agencies, retailers) • Individual entrepreneurs & freelancers
	<p style="text-align: center;">Key Resources</p> <ul style="list-style-type: none"> • WhatsApp messaging infrastructure (2B+ users) • Brand and global network effects • API platform & developer tools • User and business profile data 		<p style="text-align: center;">Channels</p> <ul style="list-style-type: none"> • WhatsApp Business app (Android, iOS) • WhatsApp Business Cloud API • Meta Business Suite & partner BSPs • App stores & online onboarding 	
Cost Structure		Revenue Streams		
<ul style="list-style-type: none"> • Infrastructure for messaging & storage • R&D for app and API features • Trust, safety and compliance operations • Marketing and BSP partner support 		<ul style="list-style-type: none"> • Conversation-based pricing on Cloud API • Click-to-WhatsApp ads (via Meta ads) • Premium business features (future tiers) • Indirect revenue via Meta advertising platform 		

Fig. 3.1 BMC of WhatsApp Business using BMC Framework

4. GrabFood Merchant Platform

GrabFood Merchant is an online service that allows food merchants to accept orders and connect with customers via a unified delivery system. It targets food vendors and restaurants as its client segments with the value proposition aimed at reaching more customers and making the process of orders easier [22]. Commission-based transaction fees are used to generate revenue.

Nevertheless, the platform is mostly focused on food delivery business and does not imply the full range of financial trackers and profit analysis systems. Also, the vendors are very reliant on the ecosystem of the platform, which can restrict their control over operations and financial transparency [3].

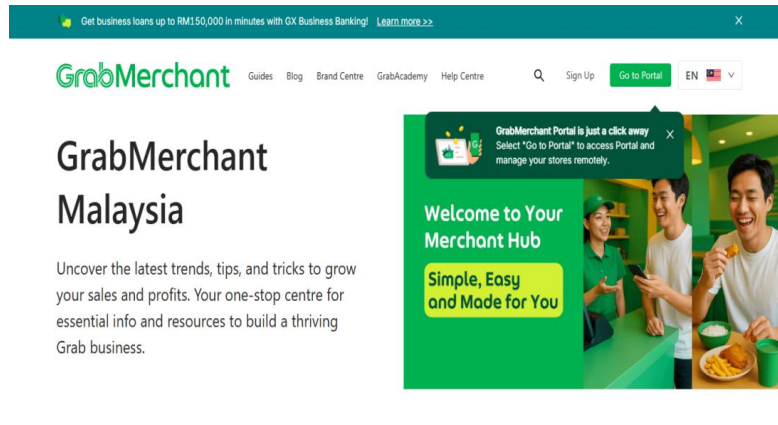


Fig. 4. GrabFood Merchant

GrabFood — Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> Grab driver-partners (delivery fleet) Restaurants & F&B merchants Payment & e-wallet providers (GrabPay) Cloud & mapping technology providers Local authorities & food regulators 	<ul style="list-style-type: none"> Operate the GrabFood marketplace and app Logistics dispatching & route optimization Driver & merchant onboarding & training Customer service, marketing & promotions 	<ul style="list-style-type: none"> Wide selection of food merchants in one app Fast, reliable delivery via Grab fleet Cashless payment via GrabPay & other methods Promotions and loyalty (GrabRewards) For merchants: large customer base & online ordering 	<ul style="list-style-type: none"> Self-service merchant portal & app Account managers for top merchants In-app chat & call customer service Driver & customer rating systems 	<ul style="list-style-type: none"> Food consumers (urban, time-poor users) F&B merchants (chains, cafes, hawkers) Driver-partners (gig workers) Brands seeking targeted promotions
	Key Resources		Channels	
	<ul style="list-style-type: none"> GrabFood platform & Grab super-app Driver-partner network Merchant network & food catalog Customer database & ordering data Strong brand in Southeast Asia 	<ul style="list-style-type: none"> Grab consumer mobile app GrabMerchant app & dashboard In-app banners, push notifications, e-mails Social media & outdoor advertising 		
Cost Structure			Revenue Streams	
<ul style="list-style-type: none"> Driver-partner incentives and payouts Technology and platform development Marketing, customer acquisition & discounts Customer support and operations 			<ul style="list-style-type: none"> Commission fees from merchants per order Delivery fees from customers In-app advertising & sponsored placements Subscription services (e.g., GrabUnlimited) 	

Fig. 4.1 BMC of GrabFood using BMC Framework

5. Shopee Seller Centre

Shopee Seller Centre offers an online seller to manage inventory, orders, and transactions in an ecosystem of e-commerce. It has online retailer and small business as its customer segments and its value proposition is that it allows people to easily access a big digital marketplace [23]. The main sources of revenue are the transaction fees and advertising services.

Although it has its advantages, the platform is primarily oriented towards online trading, and it fails to support offline micro-enterprises like street vendors. Moreover, it does not have simplified financial tracking features that could cater to small, informal businesses [3].

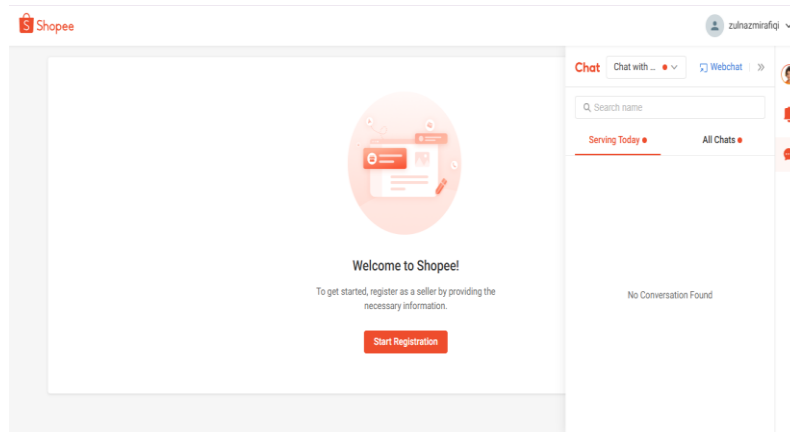


Fig. 5. Shopee Seller Centre Platform

Shopee Seller Centre — Business Model Canvas				
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> Logistics partners (J&T, Ninja Van, Pos Laju) Payment gateways and ShopeePay Brands and official stores Influencers & affiliate marketers Banks for credit/installment programs 	<ul style="list-style-type: none"> Operate marketplace & Seller Centre Demand generation via campaigns & live streams Logistics integration & shipping management Trust & safety, fraud & dispute resolution 	<ul style="list-style-type: none"> Easy-to-set-up online shop with no fixed cost Access to a large pool of online buyers Built-in marketing tools & mega campaigns (e.g., 11.11) Integrated logistics & payment Live streaming & Shopee Affiliate ecosystem 	<ul style="list-style-type: none"> Self-service through Seller Centre Seller education via Shopee University Account managers for top sellers Help center & chat support 	<ul style="list-style-type: none"> Online shoppers across Southeast Asia Individual / micro online sellers Small & medium online retailers Brands & official mall stores
	Key Resources <ul style="list-style-type: none"> Shopee app, website & Seller Centre platform Massive user base across SEA Seller and product catalog Behavioral & transactional data Sea Group ecosystem (gaming, fintech) 		Channels <ul style="list-style-type: none"> Shopee mobile app & website Seller Centre web/app dashboard Social media, search engines & influencers Offline events & seller bootcamps 	
Cost Structure <ul style="list-style-type: none"> Marketing, vouchers & free-shipping subsidies Logistics & warehouse partnerships Technology & platform infrastructure Customer service & operations 		Revenue Streams <ul style="list-style-type: none"> Commission fees on each transaction Seller advertising & Shopee Ads Featured listings & premium seller plans Payment & financing services revenue 		

Fig. 5.1 BMC of Shopee Seller Centre using BMC Framework

F. Research Gap and Opportunity

According to the literature review and benchmarking analysis, current digital solutions like POS systems, accounting software, and e-commerce solutions fail to meet the specific needs of B40 micro-entrepreneurs. Although they have advanced functionalities, these platforms are typically targeted at formal SMEs with adequate financial means, digital literacy, and access to technological infrastructure [3]. Consequently, they are inaccessible to a large extent to informal micro-entrepreneurs who work in low-resource and high-pressure settings.

It is possible to identify several gaps. To begin with, there are no easy, cheap, and available financial tracking tools specifically designed to be used by informal vendors. Second, the solutions that are available can be characterized by a need to add more hardware, organised interfaces, or technical expertise, posing great obstacles to the adoption [10]. Third, low digital literacy levels among B40 entrepreneurs also decrease the usability and effectiveness of existing systems [12].

In a wider ecosystem context, a break in the relationship between micro-finance seekers (informal micro-entrepreneurs) and micro-finance providers (financial institutions and government agencies) also exists. The lack of credible and systematic financial reporting prevents the financing institutions to evaluate creditworthiness, and at the same time, entrepreneurial access to formal financing facilities [2], [5].

Moreover, existing platforms do not integrate well with popular communication tools like WhatsApp, although the latter is highly used among micro-entrepreneurs in Malaysia [24]. This shows that there is a lost opportunity to use the familiar digital environments to facilitate financial management practices.

Hence, it is evident that a solution that focuses on simplicity, low cost and accessibility and exploits existing user behaviors and platforms is highly required. Such a solution must minimize technological obstacles, enable informal financial activities, and enable closer connectivity between micro-entrepreneurs and formal financial ecosystems, eventually increasing financial inclusion and digital inclusion.

V. INITIAL BUSINESS MODEL (BM) – USING BMC & VPC

The initial KiraBot multi-sided business model (see Fig. 6) was developed by examining the business models of small businesses/SMEs in Malaysia.

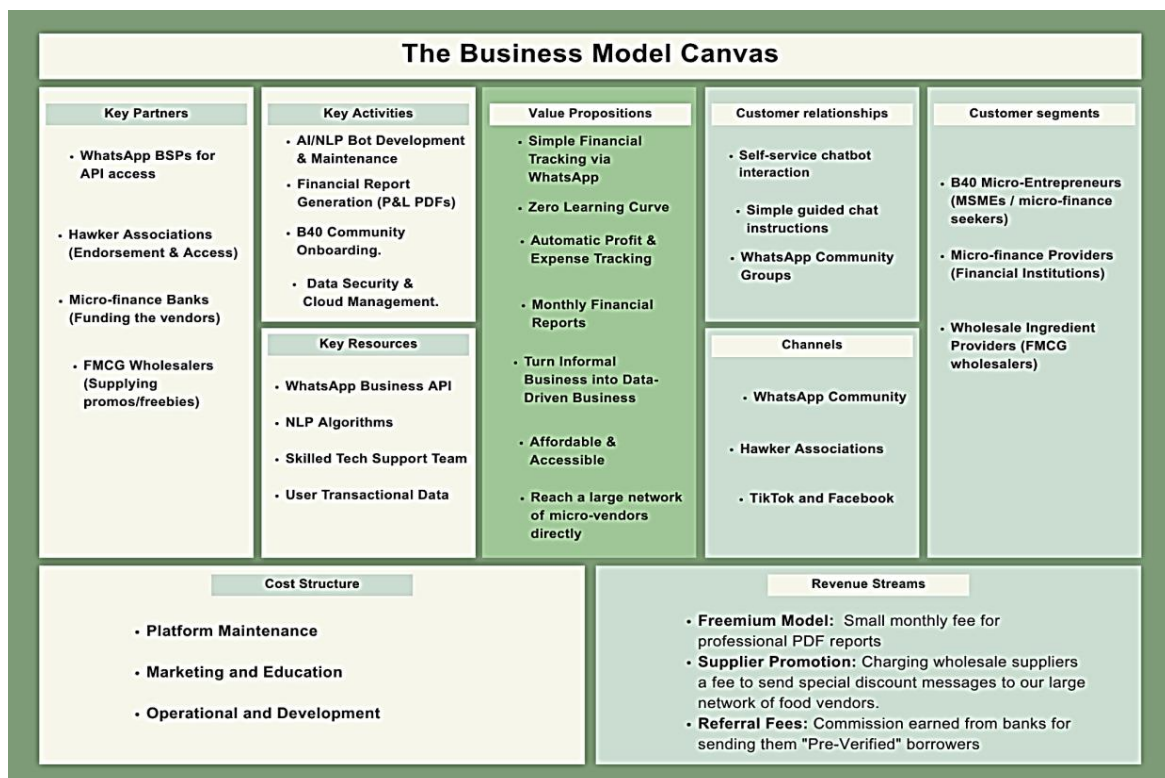


Fig. 6. Initial KiraBot Multi-sided Business Model using BMC Framework

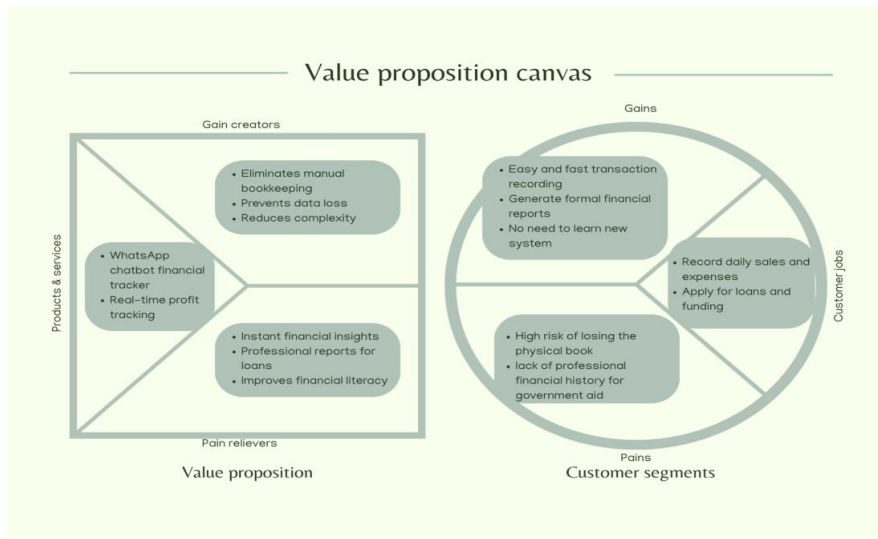


Fig. 7. VPC Diagram for B40 Micro-Entrepreneurs

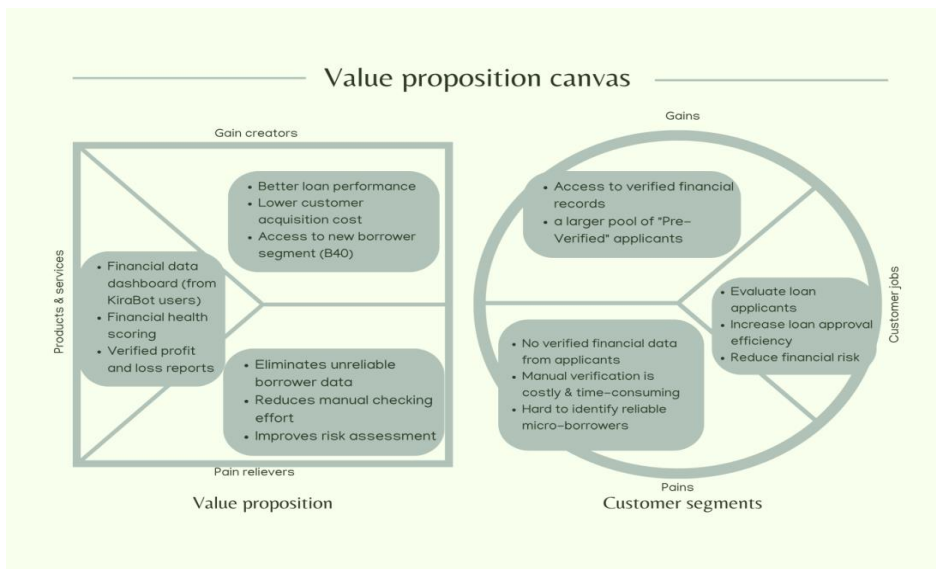


Fig. 8. VPC Diagram for Micro-Finance Provider

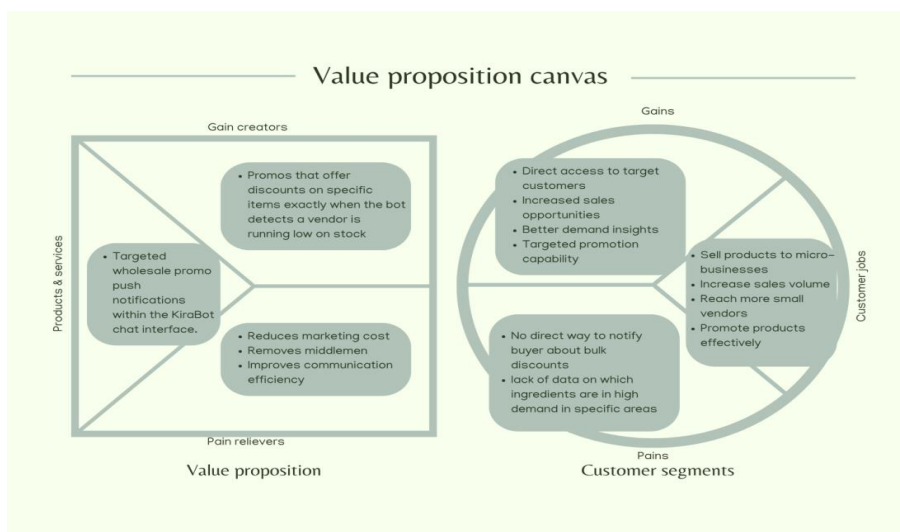


Fig. 9. VPC Diagram for Wholesale Ingredient Providers

VI. VALIDATION OF INITIAL BM – SURVEY RESULT

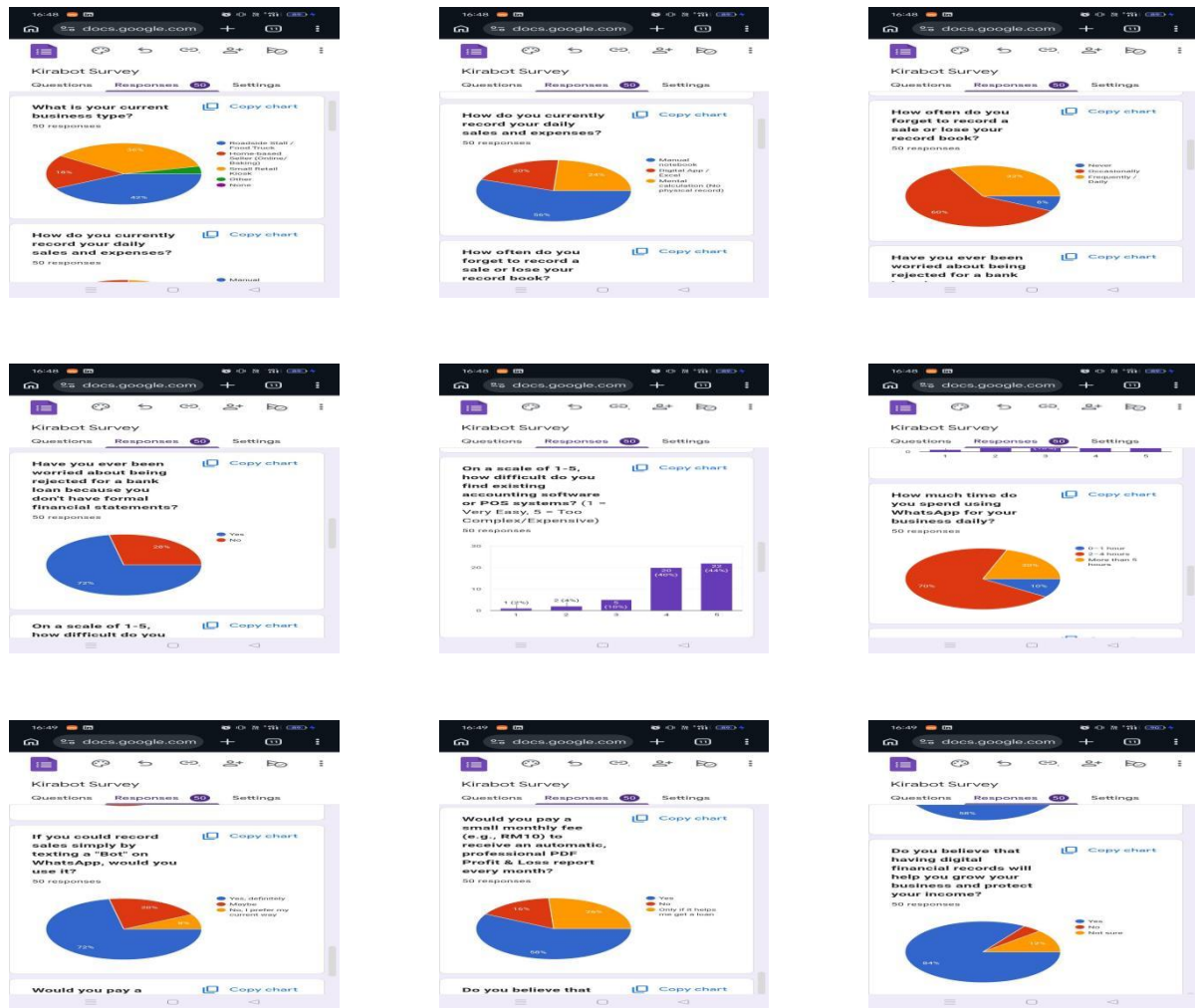


Fig. 10. Survey on KiraBot

A KiraBot survey was conducted among the target customer segments, with a total of 50 respondents. The survey included individuals from diverse small-business backgrounds, such as roadside stall and food truck operators, home-based sellers, and small retail kiosk owners. Based on the findings, 42% of respondents were roadside stall or food truck operators, 36% were small retail kiosk owners, and 18% were home-based sellers.

Based on their current habits, 56% of respondents still rely on manual notebooks, while 24% depend solely on mental calculations. This indicates a significant reliance on informal and potentially unreliable methods. As a result, data consistency emerges as a major issue, 60% of respondents reported occasionally forgetting to record sales or misplacing their record books, while 32% experience these issues frequently.

Furthermore, when asked about existing accounting software or POS systems, 84% of respondents rated them as too complex and expensive. In addition, 72% expressed concern about being rejected for bank loans due to the lack of formal financial records.

The survey also revealed high usage with social messaging platforms, particularly WhatsApp, with 70% of respondents spending between 2 to 4 hours daily using it for business purposes. When introduced to the proposed solution, 72% stated that they would definitely use a WhatsApp-based bot to record sales. Moreover, 58% indicated their willingness to pay a monthly fee for an automatically generated professional PDF profit and loss report. Furthermore, 84% of respondents believe that maintaining digital records would help grow their business and protect their income.

Overall, these findings strongly align with the Value Proposition Canvas (VPC) for micro-entrepreneurs and small business owners. Therefore, the proposed KiraBot business model is highly relevant and demonstrates strong potential for successful development and adoption.

VII. VALIDATED BM – BMC FRAMEWORK

A. Validated BM

After iterating on initial assumptions and testing our Value Proposition Canvas (VPC) with the target demographic, the KiraBot business model was refined. The final Business Model Canvas (BMC) maps out the operational and strategic logic required to execute this Micro-SaaS platform effectively.

Customer Segments: We identified a multi-sided market. The primary users are B40 micro-entrepreneurs and small informal businesses (like night market vendors, food trucks, and small kiosks) who need a simple way to track daily finances. The secondary B2B segments include micro-finance institutions looking for verified loan applicants and FMCG wholesale ingredient providers seeking direct access to fragmented micro-vendors.

Value Propositions: The value propositions refer to the offering of our business purposes to serve the demands of our customer segments. Based on the Value Proposition Canvas (VPC), we break down the specific values supplied to each of our targeted groups:

B40 Micro-Entrepreneurs: These informal vendors just want to record daily sales and figure out their actual profit after closing the stall. KiraBot steps in as a WhatsApp-integrated tracking tool equipped with NLP. It relieves the massive headache of losing physical “Buku 555” records by backing up transactions digitally and doing the math automatically right in the chat, making zero new app downloads needed. On the flip side, it creates gains by pushing weekly profit summaries and simplified health indicators directly to their phones. This gives them instant clarity on earnings and the professional financial history they desperately need for government aid or future loans.

Micro-Finance Institutions (MFIs): MFIs struggle to identify creditworthy B40 entrepreneurs because auditing tiny roadside businesses manually is too expensive, and income claims are often unverified. KiraBot offers them a B2B Data Analytics Dashboard featuring verified Financial Health Scores. This acts as a critical pain reliever by providing real-time visibility into a vendor's actual cash flow. For gain creators, KiraBot actively lowers the MFI's Customer Acquisition Cost (CAC) by directly referring high-performing, pre-verified vendors to them, ultimately leading to much higher loan repayment rates.

Wholesale Ingredient Providers: Wholesalers are always trying to reach fragmented micro-vendors who usually just restock at local supermarkets. KiraBot gives them a direct-to-customer communication channel that completely bypasses expensive traditional advertising. The real gain creator happens through targeted push notifications. The system can send specific discount promos exactly when the bot's inventory data detects a vendor is running low on a certain ingredient. This drives bulk order volume and localized market insights that wholesalers currently lack.

Customer Relationships: The relationship is highly automated yet accessible. It hinges on self-service chatbot interactions paired with simple guided chat instructions. Trust is further cultivated through community engagement within dedicated WhatsApp groups.

Channels: To reach a non-highly digitized audience, customer acquisition relies on grassroots channels. This includes tapping into existing WhatsApp Community Groups, leveraging Hawker Associations for endorsement and direct outreach, and using localized TikTok and Facebook marketing campaigns. KiraBot also leverages the Masjid (mosque) as a trusted community hub to recruit B40 Micro-Entrepreneurs, drawing on the proven Network-of-Mosque (NoM) model and mosque-based community empowerment frameworks [25], [26], [27]. The mosque-as-channel approach builds on existing congregational trust and aligns with Islamic values of community welfare and economic empowerment of B40 communities.

Key Activities: Operations center around AI/NLP bot development and continuous maintenance. This is paired with generating accurate financial reports (P&L PDFs), executing targeted B40 community onboarding campaigns, and ensuring strict data security and cloud management.

Key Resources: The technical backbone requires access to the WhatsApp Business API and proprietary NLP (Natural Language Processing) algorithms tailored to understand informal Malay/Manglish text inputs. A skilled tech support team and the accumulated user transactional data form the remaining critical assets.

Key Partners: Scaling requires strategic alliances. We depend on WhatsApp BSPs (Business Solution Providers) for API stability. Hawker Associations act as vital gatekeepers for grassroots credibility and market access. Micro-finance banks and FMCG wholesalers complete the ecosystem by providing the funding and inventory discounts that keep vendors locked into the platform.

Cost Structure: The primary cash burns are platform maintenance (server hosting and API messaging costs), marketing and educational campaigns required to onboard rural or non-digital users, and the operational salaries for the core development and support teams.

Revenue Streams: KiraBot employs a diversified revenue model. The core is a Freemium approach where basic tracking is free, but generating official PDF P&L reports for loan applications requires a small monthly subscription. B2B revenue comes from Supplier Promotion fees (charging wholesalers to blast relevant discount codes when a vendor's inventory dips) and Referral Fees (commissions from banks for sending them pre-verified, data-backed borrowers).

B. Business Environment Map (EM)

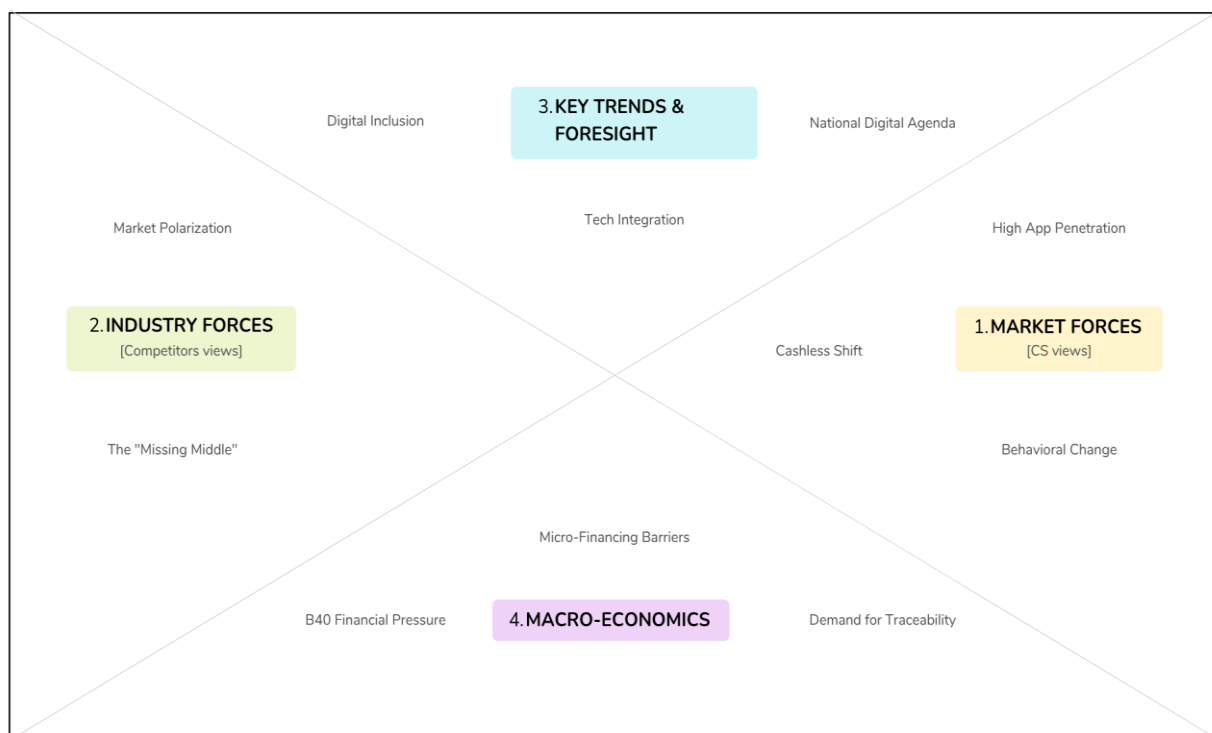


Fig. 11. Environmental Map

To ensure KiraBot is resilient and well-timed, we evaluated the external forces shaping the micro-economy in Malaysia.

Market Forces: Malaysia boasts a WhatsApp penetration rate exceeding 90%, meaning the infrastructure for our platform already exists in the pockets of our target users [24]. Furthermore, there is a strong push from both consumers and local authorities toward a cashless society [2], forcing even roadside stalls to rethink how they handle and record transactions.

Industry Forces: The current market is polarized. On one end, you have the traditional, highly fallible manual notebooks. On the other hand, high-end POS systems like StoreHub exist [19], but they are heavily over-engineered and prohibitively expensive for a micro-entrepreneur. This leaves a massive “missing middle” for a lightweight, conversational accounting tool.

Key Trends & Foresight: The national agenda heavily favors digital adoption to achieve inclusive and sustainable socio-economic development. Initiatives like MyDigital 2030 and the National 4IR Policy actively support the integration of disruptive technologies like AI and NLP into everyday business processes to improve productivity [13], [14]. Consequently, there is a visible trend of upskilling informal sectors to bridge the existing digital divide.

Macro-Economic Forces: The rising cost of living and inflation disproportionately impact the B40 demographic [1]. These vendors are under immense pressure to optimize their profit margins and often require micro-financing to survive or scale. However, institutional requirements make it nearly impossible to secure micro-loans without a verifiable digital paper trail, such as six months of bank statements or validated sales records, creating a pressing economic need for a traceability solution [2], [5].

C. Strategy Canvas

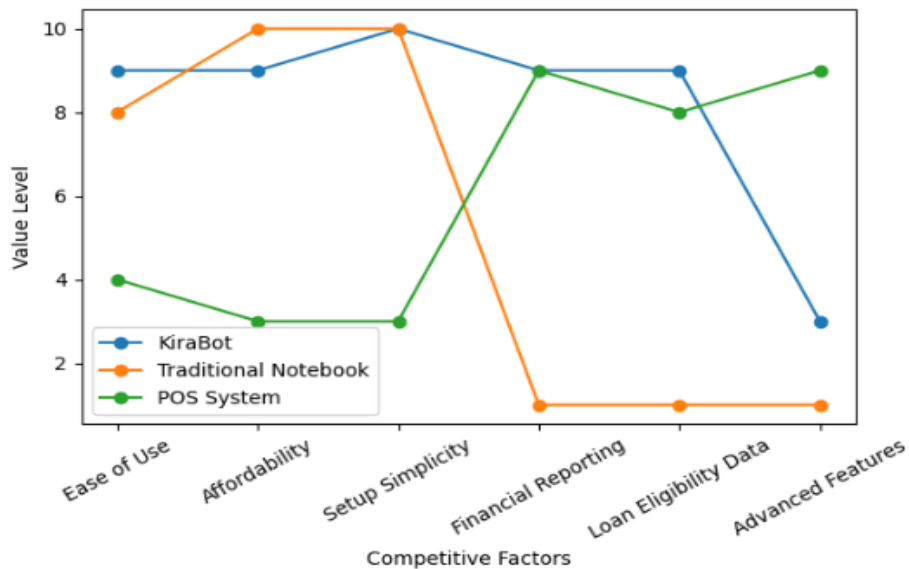


Fig. 12. Strategy Canvas

To visualize KiraBot's competitive positioning, we mapped our value curve (see Fig. 12) against the two primary alternatives currently used by our customer segment: Traditional Notebooks and Standard POS Systems.

Instead of competing on complex features, KiraBot deliberately carves out a blue ocean by maximizing accessibility. When mapped on the canvas, Standard POS Systems score exceptionally high on inventory tracking and analytics but fail dramatically in affordability and ease of setup. Traditional Notebooks win on upfront cost and familiarity but score zero on generating verifiable loan data or automated calculations.

Blue Ocean Strategy (BOS) Factors – KiraBot's Unique Edge Over Competitors

The Strategy Canvas reveals several Blue Ocean factors that KiraBot delivers but neither traditional notebooks nor standard POS systems can match. These differentiators form the core of KiraBot's defensible market position:

- **Conversational WhatsApp-Native Interface:** KiraBot operates entirely inside WhatsApp, a tool already used daily by 90%+ of Malaysians. Traditional notebooks have no digital interface, while POS systems force users to learn a separate proprietary app and dashboard. KiraBot eliminates the learning curve completely.
- **Bilingual NLP for Malay/Manglish:** KiraBot understands informal local text (e.g., “jual nasi lemak 5 RM3”). Notebooks accept any handwriting but produce no structured data. POS systems require rigid English menu inputs and SKUs that informal vendors do not maintain.
- **Auto-Generated Bank-Ready P&L PDFs:** KiraBot automatically converts daily chat entries into formal monthly Profit & Loss PDF reports accepted by micro-finance providers. Notebooks cannot produce verifiable financial statements; POS systems can, but only for vendors who can afford the full subscription and hardware stack.
- **Zero Hardware Requirement:** KiraBot needs only an existing smartphone with WhatsApp installed. POS systems require tablets, receipt printers, cash drawers and stable Wi-Fi, an entry barrier that locks out most B40 micro-entrepreneurs.
- **Multi-Sided Financial Inclusion Ecosystem:** KiraBot uniquely connects three sides: micro-entrepreneurs, micro-finance providers, and FMCG wholesalers. Notebooks serve only the vendor; POS systems serve only the merchant–customer transaction. KiraBot's data flow turns vendors into pre-verified loan applicants and targeted bulk-buyers.

• **Faith-Aligned Channel via the Masjid Network:** KiraBot uses the Masjid as a trusted onboarding and outreach channel for B40 communities, leveraging the Network-of-Mosque (NoM) model [25], [26], [27]. No competitor in the POS or accounting space operates a community-based, faith-aligned acquisition strategy.

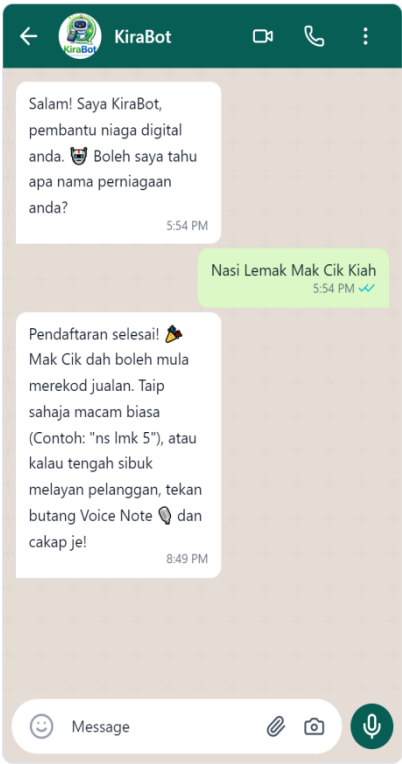

• **Hifz al-Mal Aligned Freemium Model:** KiraBot's freemium tier lets vendors track and protect their wealth at zero cost, aligning with the Maqasid al-Shariah principle of Hifz al-Mal (preservation of wealth) [6]. POS systems charge from day one; notebooks cannot protect wealth from loss or damage.

Blue Ocean Strategy & “Purple Cow” Factors

To solidify our competitive advantage, KiraBot applies the following strategic shifts based on the Four Actions Framework [7] and Godin's “Purple Cow” concept of remarkable differentiation [28]:

- **Eliminate:** The need for complex, multi-outlet inventory management features that a night market vendor does not need.
- **Reduce:** The steep hardware costs, required app downloads, and learning curves associated with digital accounting.
- **Raise:** Affordability and the ease of daily financial reporting for informal businesses.
- **Create (The “Purple Cow”):** A zero-barrier conversational interface. KiraBot's ultimate “Purple Cow” is that it spikes high on ease of use by functioning entirely via WhatsApp. Crucially, it matches the high-end POS systems in its ability to generate professional, bank-ready P&L statements. We keep the system lightweight and hyper-focused on solving the vendor's primary job-to-do: tracking daily cash flow to feed their family and secure future funding.

D. High Fidelity Wireframe/Mock-up/Prototype of Digital Platform/App

Phase 1: Seamless Onboarding & Interaction: The user initiates the bot, registers the business name (“Nasi Lemak Mak Cik Kiah”), and is introduced to the intuitive input methods (text or Voice Note).	Phase 2: Automated Transaction Logging: The user inputs daily sales and expenses using natural, conversational language. The bot instantly extracts the items, calculates totals, and updates the real-time net profit.
	

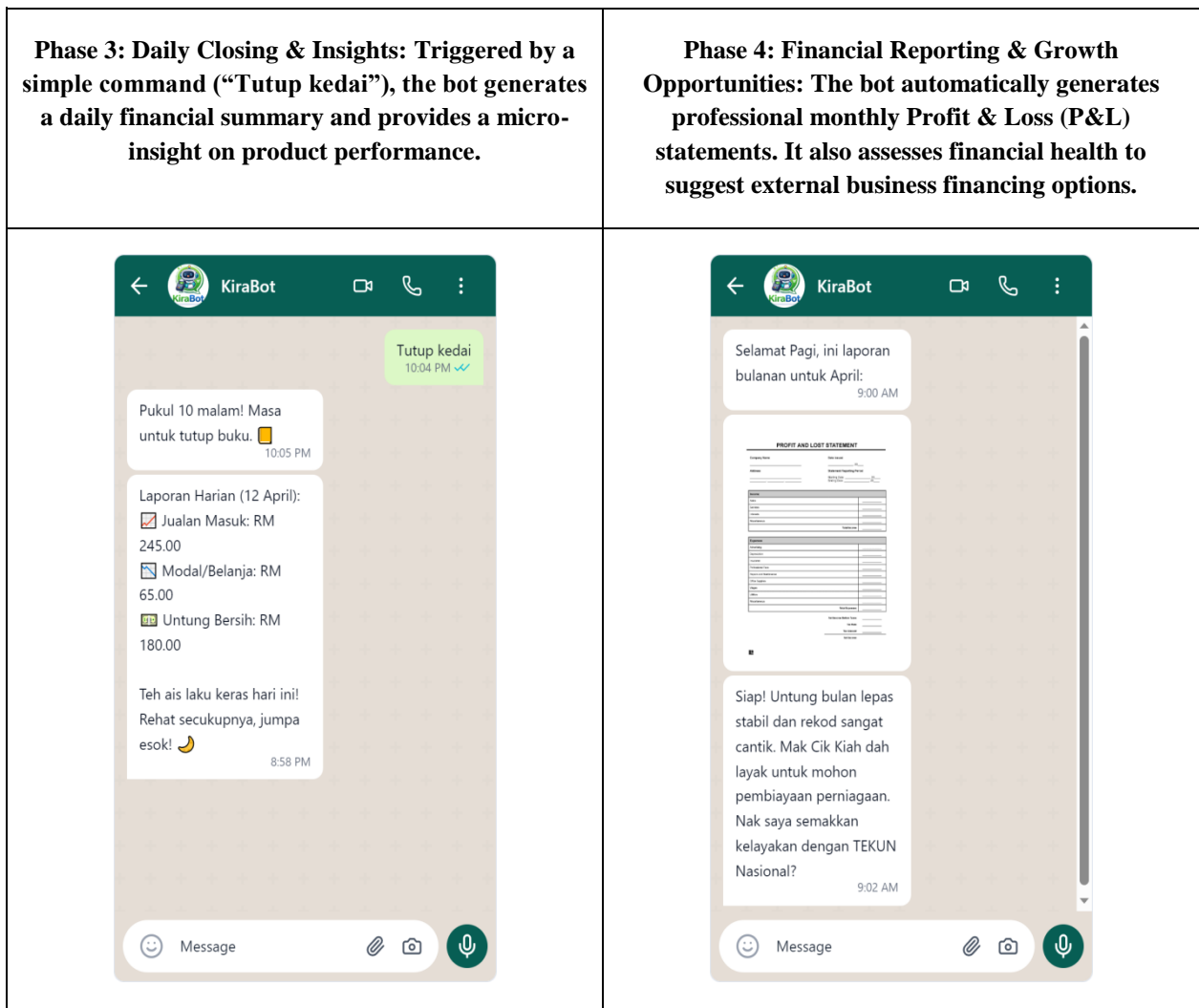


Fig. 13. Wireframe of KiraBot

VIII. CONCLUSION AND FUTURE WORKS

The paper identifies the pressing financial and operational issues of B40 micro-entrepreneurs in Malaysia and in particular, their daily deals, profitability tracking and access to formal financial services. The inefficiencies, inaccuracies, and lack of visibility of cash, which is achieved by the continued use of a manual bookkeeping method, puts a limitation on business growth and sustainability in the long run. Despite the availability of current digital solutions like POS and accounting services, they are mostly inaccessible to informal vendors because of high prices, technological complexity, and low levels of digital literacy.

The literature review also shows that, although the technologies of the Fourth Industrial Revolution (4IR) develop very fast and the digital economy grows, there are still massive gaps in providing underserved populations with inclusive and accessible financial tools. The national plans like Malaysia Digital Economy Blueprint (MyDigital), the National 4IR Policy, and the Twelfth Malaysia Plan (12MP) transitioning into the Thirteenth Malaysia Plan (13MP) 2026–2030 highlight the need to digitalize, boost financial inclusivity, and productivity among the B40 populations [13], [14], [15]. Moreover, the New Economic Policy 2030 (NEP 2030) [16] and new approaches to digital innovation, including the National Artificial Intelligence Roadmap (AIAP) 2026–2030 [17], also support the importance of digital innovation in decreasing socio-economic inequalities and enhancing inclusive growth.

As a business model, a platform and conversational approach based on the use of widely used communication tools can help greatly minimize barriers to technology adoption. A multi-sided digital platform model which links the micro-entrepreneur (micro-finance seekers) with the financial institution and government agencies (micro-finance providers) has

great potential in promoting financial transparency, more accessible credit and a sustainable economic value to the stakeholders.

In general, this research work is valuable due to the suggested relevant and scalable digital business model in line with the national digital agenda of Malaysia and the United Nations sustainable development goal 8 (SDG 8: Decent Work and Economic Growth) [4]. Future works include developing a detailed business plan based on the validated business model, creation of a fully working prototype, pilot testing in the real world, and further improvement of the model using empirical validation. Also, the incorporation of advanced analytics and artificial intelligence tools can further enrich the financial insights and assist more precise credit assessment procedures by the micro-financing institutions. The next phase of research will translate the validated BMC into a complete business plan covering go-to-market roadmap, financial projections, partnership strategy with banks and Hawker Associations, and a phased pilot deployment in selected B40 communities.

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