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A CONCEPTUAL ECOTHRIFT SECONDHAND BUSINESS MODEL: PROMOTES CIRCULAR ECONOMY AND WEALTH CREATION, AND NURTURING B40 THRIFT-PRENEURS

HAFSA BINTE MAHBUB¹, LAZEENA TARNIM RANAK², MUNTAHA ISLAM³,
ABDUL RAHMAN AHMAD DAHLAN⁴

¹²Department of Computer Science, ³⁴Department of Information System, Kulliyah of Information and Communication Technology, International Islamic University Malaysia, Gombak, Malaysia

*Corresponding author: hafsamahbub1234@gmail.com

ABSTRACT: In this paper, a conceptual thrift haven named EcoThrift is introduced, which is a secondhand business model designed to promote a circular economy and nurturing the B40 Thriftpreneurs. A centralized digital platform, as part of the conceptual business model is introduced where individuals and organizations can list, donate and sell items virtually. The platform will contain a wide variety of products such as kitchenware, electronics, clothing, etc. On top of that, with large donations, EcoThrift also aims to open pop up non-profit storefronts and employ B40 students as employees. This paper will adapt a Design Thinking (DT) approach, including a rigorous literature review (LR) and a survey to gain a profound understanding of the secondhand market's intricacies. This business model includes the creation of an initial business model (BM) employing business modelling tools i.e. the Business Model Canvas (BMC), and Value Proposition Canvas (VPC), which is then rigorously validated through further interviews and surveys. It also aims to follow the principles of the SDG 12 (Responsible consumption and production) as well as SDG 13 (Climate Control). This innovative approach seeks to tackle crucial challenges, mitigate pains, deliver essential gains, and fulfill the unique jobs-to-be-done of various customer segments. The paper's notable contribution lies in its potential to not only promote thrift and sustainability but also offer up- and re-skilling and income opportunities for the B40 Thriftpreneurs, ultimately fostering a more inclusive and circular economy. Its practical applicability and capacity to meet the evolving needs of the secondhand market and marginalised populations make it a valuable resource for researchers and practitioners alike.

KEY WORDS: Thrift business model, Digital entrepreneurship, Job opportunities, Upskilling, B40 Thriftpreneurs

1. INTRODUCTION

According to Boston Consulting Group, the second-hand clothes market is a growing sector which currently weighs around thirty and forty billion dollars

(Deslandes, 2020). The effects of the pandemic and social media trends have sped up the second-hand market's growth over the past two years. Such unprecedented growth along with newfound interest among the youth has made the secondhand market far more profitable.

One distinctive feature exclusive to thrift platforms (in contrast to conventional retailers) is the community-centric aspect. The vitality of stores like Goodwill and other second-hand businesses is driven by their strong ties to the community (RCS, 2023). Individuals donating unused items have confidence that their contributions will be repurposed and revitalized by their neighbors. Likewise, shoppers are aware that, by bringing these items home, they are contributing to a sustainable, second life for local pieces, actively participating in the reimagining and repurposing of goods within their community. For that reason, this business model complies perfectly with the SDG 12 (responsible consumption and production) as well as SDG 13 (climate control).

This business's offerings are designed to address the specific needs, pains, and gains of their respective customer profiles. Among these segments, we find Buyers, comprising both the general population and the B40 demographic, who seek affordable variety and quality assurance in the products and services they engage with. The value map for Buyers revolves around cost savings, quality assurance, and the sense of community often associated with thrift shopping. Another customer segment is the B40 Students, who seek part-time employment opportunities as quality control staff in thrift shops. Lastly, Donors, originating from the local communities and Institutions of Higher Education (IHE), require an easily accessible donation platform with transparent tracking, as well as convenient pick-up and drop-off options for their contributions. They are motivated by the job-to-do of decluttering, reducing waste, and supporting charitable causes. The gains for Donors include decluttering their homes and receiving acknowledgement discounts from other stores within the marketplace, yet they face uncertainties about the donation process and privacy concerns.

While the existing solutions cater to various customer segments, there remain key gaps and challenges that call for new, innovative, and more relevant solutions. These current solutions may no longer fully address the jobs-to-be-done, extreme pains, and important gains of these diverse customer segments. Consequently, this paper seeks to propose an integrated conceptual business model, leveraging digital platforms and mobile applications, to bridge these gaps and provide tailored solutions for each customer segment.

2. OBJECTIVES

The main objective of this paper is to develop a conceptual business model including digital platform and apps that offers and provides products/services as pain relievers and gain creators, including:

- a. To promote sustainability and a circular economy by encouraging the reuse and recycling of secondhand items.

- b. To provide income opportunities for the B40 population, particularly the B40 students and families, by creating part-time job opportunities and nurturing them as potential Thriftpreneurs and a supportive platform for entrepreneurs to sell their products.
- c. To offer affordable shopping options for Buyers, especially those with limited budgets, while ensuring quality assurance and a diverse product selection.
- d. To foster a sense of community through thrift shop events, workshops, and engagement activities, catering to the social needs of the target customer segments.

3. METHODOLOGY

This paper employs Design Thinking (DT) as a methodology for the development of the business plan based on the conjunction of user needs (Sandino, Matey, & Vélez, 2013). This approach entails a series of crucial steps, including understanding user needs, gathering insights, brainstorming ideas, creating prototypes, and testing solutions. The methodology unfolds on comprehending the user's perspective and requirements through data collection. Subsequently, problems are defined based on the insights garnered, ideas are generated to address these issues, and low-fidelity prototypes are developed. In addition to this, the paper incorporates several literature reviews of analogous products, serving as benchmarks for reference to validate the initial Business Model (BM). The research methodology also includes an online survey grounded in business modeling tools such as Business Model Canvas (BMC), Value Proposition Canvas (VPC), Environmental Map (EM), and Strategy Canvas (SC). The final goal of this paper is to highlight key findings, discussion, refine and establish the validated conceptual BM based on key findings.

- a. Business Model Canvas: The BMC is a strategic management tool to quickly and easily define and communicate a business idea or concept (Medium, 2022). It is a general, holistic and complete overview of the company's workings, customers, revenue streams and more.
- b. Literature Review: A literature review is a piece of academic writing demonstrating knowledge and understanding of the academic literature on a specific topic placed in context (Literature Review, 2023). The research begins with a comprehensive literature review to gain insights into the existing issues and solutions within the secondhand marketplace. This step is crucial for understanding the broader context and identifying gaps in current offerings.
- c. Environmental Map: The Business Model EM is a tool that helps you scan your external environment and identify the key trends, uncertainties, and forces that shape your business context (How Can You Use the Business Model Environment Map to Scan Your External Environment?, 2023). This analysis helps businesses understand the opportunities and threats in their external environment.

- d. **Strategy Canvas:** The SC is a central diagnostic tool and an action framework for building a compelling blue ocean strategy (Strategy Canvas | Blue Ocean Strategy Tools and Frameworks, 2022). To benchmark the relevance and competitiveness of the proposed solution, an SC is developed.

The methodology outlined here ensures a rigorous and user-centered approach to the development of the conceptual business model. This research aims to create a solution that not only addresses the identified challenges but also surpasses existing offerings in terms of relevance and effectiveness from the customers' standpoint.

4. LITERATURE REVIEW

4.1. Impact of 4IR on South African Manufacturing Small and Medium Enterprises (SMEs)

The Fourth Industrial Revolution (4IR) has far-reaching implications for South African Manufacturing Small and Medium Enterprises (SMEs), as highlighted in the study by Serumaga-Zake and van der Poll (2021). The 4IR technologies are set to revolutionize the way these SMEs operate, impacting their design, manufacturing, operations, products, services, and interactions within the industry. While the 4IR promises numerous benefits, SMEs face significant challenges in harnessing its potential. However, this transformation opens doors to improving efficiency, competitiveness, and sustainable business performance. The article highlights the need for a conceptual framework tailored to a developing economy like South Africa (Serumaga-Zake, 2021). The impact of 4IR on SMEs in manufacturing extends beyond the technological sphere, as it touches on economic growth, social change, and skill development. Thrifting businesses can draw valuable insights from the research, understanding how 4IR can enhance operational efficiency, innovation, and sustainability. By embracing the 4IR technologies, thrifting businesses can optimize their operations, and ensure their relevance in a rapidly evolving business landscape.

4.2. Tiffany: Ukay-Ukay Online Shop

Tiffany: Ukay-Ukay Online Shop is a promising e-commerce platform dedicated to the buying and selling of pre-owned fashion items, embracing the rich tradition of ukay-ukay in the Philippines. This study provides a comprehensive look at Tiffany, its role in the broader ukay-ukay market, and the factors influencing customer behavior when shopping for the secondhand clothing online. Drawing on primary and secondary data, it evaluates Tiffany's current state and performance, examining product offerings, pricing strategies, and online presence. It contributes valuable insights into the digital transformation of the ukay-ukay industry and its potential to promote sustainable fashion practices while reducing textile waste (Aran, 2023).

Incorporating the findings from the article and considering the growth of the online ukay-ukay market (Aran, 2023), Tiffany: Ukay-Ukay Online Shop demonstrates how such platforms offer an avenue for the thriving thrifting business. By successfully addressing challenges like customer trust, quality control, logistics, and competition, it presents a valuable case study for anyone considering an online thrift store (Aran, 2023). The study's insights and the platform's approach to sustainable fashion align with the broader goals of supporting socio-economic development in the B40 community. This is particularly relevant in the context of the research, as it explores the positive response from younger generations, emphasizing affordability and ethical consumption, which aligns with the potential target audience of the B40 community.

4.3. Sustainable production and practices in Organic Fashion Industry

The organic fashion industry, with its focus on sustainable production and practices, serves as a compelling model for the thrifting business. As described in Radhakrishnan's research (2019), the fashion industry is notorious for its excessive consumption patterns, contributing to environmental and social issues. However, the shift toward sustainable design and slow fashion in the organic fashion sector offers an alternative. The emphasis on long-lasting, eco-friendly designs in organic fashion aligns with the goals of responsible consumption and production as outlined in the UN Sustainable Development Goals. Thrifting businesses can draw inspiration from these sustainable practices, promoting the reuse and extension of the lifecycle of clothing. By adopting principles from the organic fashion industry, such as eco-friendly materials and ethical production (Radhakrishnan, S., 2019), thrift shops can not only reduce waste but also contribute to responsible consumption and production, making them integral to achieving the 12th UN Sustainable Development Goal.

4.4. Effectively assist B40 Community in social economic development

To assist the B40 community in their socio-economic development through a thrifting business, we can draw insights from the research mentioned in the article. The study underscores the challenges faced by the B40 community in Malaysia, such as low income, unemployment, limited skills, and education disparities, while highlighting the potential of government programs, microcredit, and skill development initiatives like AIM (Youssoof, Munusamy, & Jayaraman, 2018).

Incorporating these insights, we can empower the B40 individuals interested in thrift retail by offering training programs in inventory management, customer service, and marketing. Collaborating with microcredit providers like AIM will enable the B40 entrepreneurs to set up their thrift shops with financial support. Developing online marketplaces and mobile apps will expand their reach and help overcome pandemic-related challenges. Organizing events, workshops, and networking opportunities will foster a supportive community among the B40 entrepreneurs, encouraging collaboration and peer support. Finally, maintaining high quality in thrifted items will enhance the thrift shop reputation within the B40 community.

By implementing these strategies, we can effectively promote the socio-economic development of the B40 community through the thrifting business, aligning with the research findings (Yousoof, Munusamy, & Jayaraman, 2018).

4.5. Benchmark of Thrifty-Related Business Models

4.5.1. thredUP

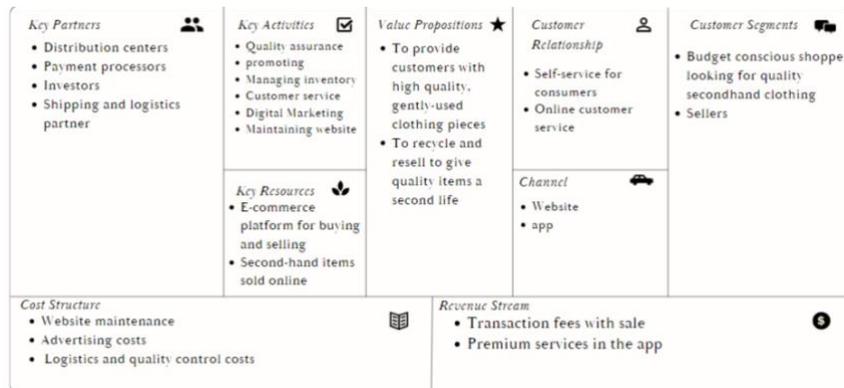


Fig. 1. Business Model for thredUP

ThredUp Inc., together with its subsidiaries, operates an online resale platform in the United States and internationally. Its platform enables consumers to buy and sell primarily secondhand women's and kids' apparel, shoes, and accessories, allowing them to refresh their wardrobes whilst avoiding clothing waste (see Fig. 1). ThredUp Inc. was incorporated in 2009 and is headquartered in Oakland, California. It has become popular for its focus on sustainable fashion and the circular economy (Fortson, 2023).

4.5.2. Swap

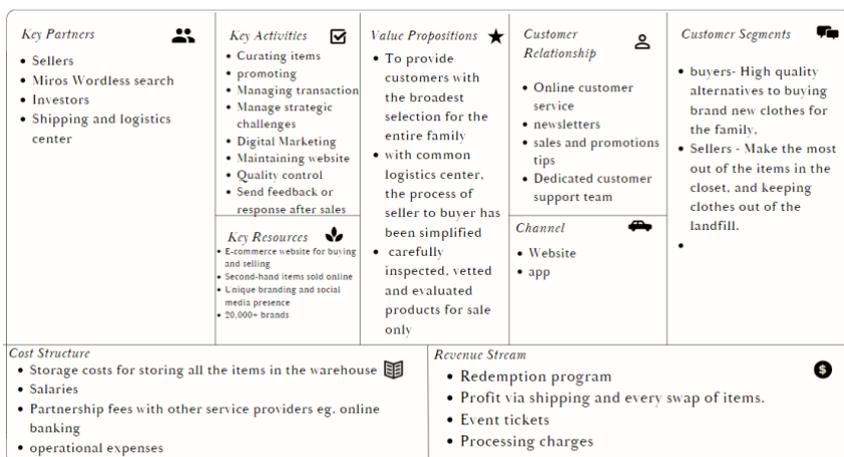


Fig. 2. Business Model for Swap

Swap.com, a social style platform, has always aimed to reduce the environmental impact of apparel. This online thrift and consignment store makes high-quality, secondhand clothing available for all members of a family, including

baby, maternity and accessories. On Swap.com, the sellers provide the items after they have priced them, and from there Swap.com handles the delivery, storage and returns process for the items sold (see Fig. 2). Despite entering a highly competitive and saturated market, Swap has shown significant revenue and consumer growth in the years.

4.5.3. Carousell

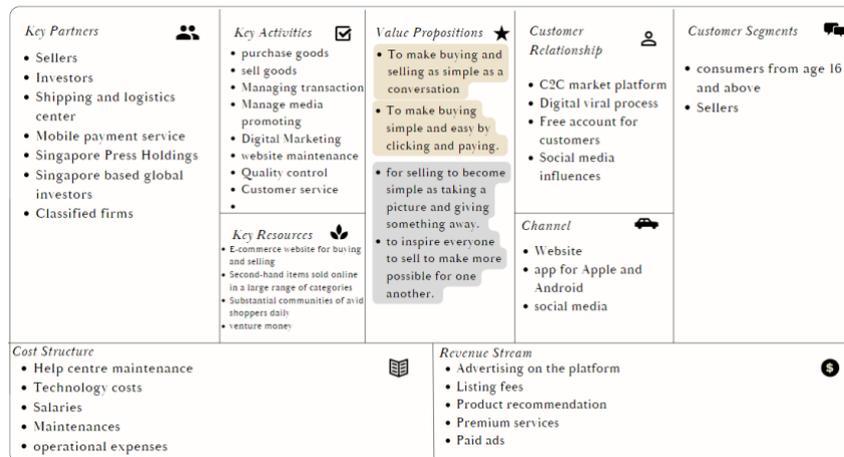


Fig. 3. Business Model for Carousell

Carousell is a web-based consumer to consumer and business to consumer platform for buying and selling new and secondhand goods, headquartered in Singapore. It connects sellers and buyers through a marketplace business model (see Fig. 3). The product delivery and payment are then handled by the intermediary. The buyer and seller can decide on the most preferred form of payment, where paying through Carousell is also a secure option.

5. INITIAL BUSINESS MODEL – USING BMC FRAMEWORK

5.1. Initial Business Model Canvas (BMC)

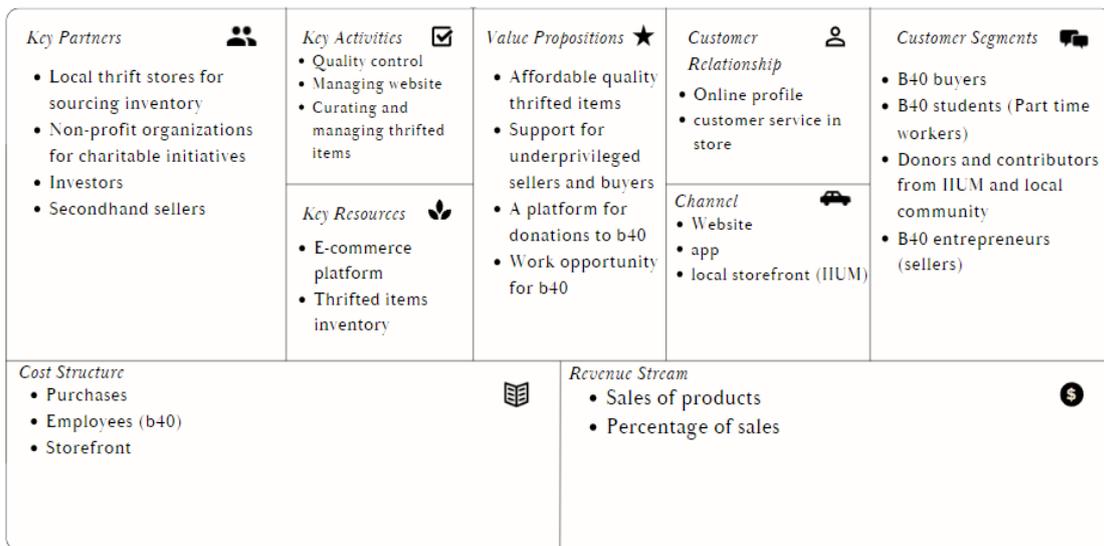


Fig. 4. Initial BMC

5.2. Initial Value Proposition Canvas (VPC)

Dr. Alexander Osterwalder introduced the VPC, a strategic framework designed to establish a harmonious alignment between a product and its target market. This framework places a strong emphasis on understanding the challenges faced by customers and subsequently crafting products or services that effectively address these challenges. It plays a pivotal role helping enterprises in making informed decisions and strategically positioning their offerings. The VPC comprises two integral components: the Customer Profile and the Value Proposition.

Consequently, the VPC is instrumental in articulating the unique value that EcoThrift offers to the B40 buyers, donors, and sellers, ensuring a clear understanding of how it caters to their specific needs and aspirations as summarized in Table 1.

Table 1: Initial Value Proposition Canvas for EcoThrift

Customer Segments	Value Map	Customer Profile
Buyers (Normal & B40)	Products and Services <ul style="list-style-type: none"> Affordable Variety Quality Assurance Community Hub where thrift shop community events, workshops, and special discounts offered Gain Creators <ul style="list-style-type: none"> Regular Discounts Customer Reviews Community Events Pain Relievers	Job-to-do <ul style="list-style-type: none"> Affordable Shopping for B40 community Quality Selection Community <p>Engagement: Many B40 individuals appreciate the sense of community that thrift shops can offer</p> Gains <ul style="list-style-type: none"> Cost Savings Quality Assurance Community Connection

	<ul style="list-style-type: none"> ● Affordability of products ● Quality Control ● Wider Selection by upgrade of our inventory, offering items to meet your diverse needs 	<p>Pains</p> <ul style="list-style-type: none"> ● Limited Budget ● Quality Concerns ● Limited Choices
<p>B40 Students (part-time workers / quality control)</p>	<p>Products and Services</p> <ul style="list-style-type: none"> ● Thrift Shop Merchandise ● Part-time job opportunities for B40 students as quality control staff, ensuring items meet specific standards. ● Extended Hours ● Transparent Product Descriptions <p>Gain Creators</p> <ul style="list-style-type: none"> ● Quality Assurance ● Flexible Hours part-time employment opportunities that can accommodate their class schedules. <p>Pain Relievers</p> <ul style="list-style-type: none"> ● Affordable Pricing ● Providing flexible operating hours, including evenings and weekends, to accommodate students' schedules. ● Detailed information about the condition of items to address quality concerns. 	<p>Job-to-do</p> <ul style="list-style-type: none"> ● Affordable Shopping options for B40 students ● Support Education/Family ● Trustworthy and cost-effective source for items that meet their quality and budgetary requirements <p>Gains</p> <ul style="list-style-type: none"> ● Affordable Products ● Convenient Shopping ● Environmental Responsibility <p>Pains</p> <ul style="list-style-type: none"> ● B40 students may struggle with financial constraints, making it challenging to afford essential items. ● Balance work, classes, and other responsibilities. ● Uncertainty about Quality.
<p>Sellers (entrepreneurs)</p>	<p>Products and Services</p> <ul style="list-style-type: none"> ● free listings ● seller tools ● supportive local community <p>Gain Creators</p> <ul style="list-style-type: none"> ● Access to shared selling platform ● Wider customer base <p>Pain Relievers</p> <ul style="list-style-type: none"> ● Low-cost marketing ● fraud protection ● support services 	<p>Job-to-do</p> <ul style="list-style-type: none"> ● Selling custom or niche supplies ● finding supplies to create the products ● growing their business via shared selling platform <p>Gains</p> <ul style="list-style-type: none"> ● Increased sales ● cost savings ● business growth <p>Pains</p> <ul style="list-style-type: none"> ● Competition for selling space ● trust issues with the business platform provider as there might not be solid time-bound contract for stall listings ● limited resources

<p>Donors (Local)</p>	<p>Products and Services</p> <ul style="list-style-type: none"> • Easily accessible donation platform • Well organized and transparent tracking of donated items • Convenient pick up and drop off options for donation <p>Gain Creators</p> <ul style="list-style-type: none"> • Accessible platform to donate things they don't need • Discounts offered in the marketplace for donors <p>Pain Relievers</p> <ul style="list-style-type: none"> • Clear and simple donation guidelines • Privacy protection for donors 	<p>Job-to-do</p> <ul style="list-style-type: none"> • Decluttering • Reducing waste and recycling • Supporting a charitable cause <p>Gains</p> <ul style="list-style-type: none"> • Decluttering their homes and spaces • Donor's receive acknowledgement discounts from other stores in the marketplace <p>Pains</p> <ul style="list-style-type: none"> • Uncertain about to the process for donating items • Privacy concerns
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6. CONDUCT VALIDATION OF INITIAL BM & KEY FINDINGS

A crucial step to building a successful business is to ensure that your business model is one that is validated. The method in which we decided to validate our business model is to use the Google Forms survey method and distribute it around the Institution of Higher Level Education (IHLE) group chats and channels in order to collect input from students and their secondhand-shopping habits. We had a total of 12 questions, with 38 respondents.

6.1. Demographic Information

1. What is your age?
2. Are you a student or working?

Results: The survey results for the question on working status indicate a dominant presence of undergraduates, comprising 89.5% of respondents being undergraduates. This suggests a significant opportunity to tailor features to meet the specific needs of students, such as budget-friendly options.

6.2. Usage Patterns

3. How frequently do you engage in buying or selling secondhand items online?
4. What types of secondhand items do you typically purchase or sell (e.g., kitchenware, electronics, furniture, etc.)?

Results: The majority of respondents fall within the middle range, with 28.9% choosing option 3, indicating a moderate level of engagement in buying or selling secondhand items online (see Fig. 5). These results suggest a diverse user base with varying levels of engagement, emphasizing the importance of designing the platform to accommodate both occasional and more frequent users.

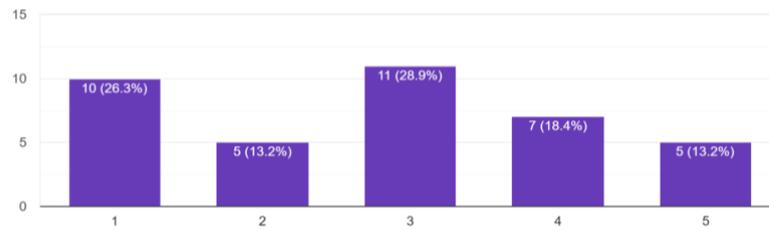


Fig. 5. How frequently do you buy secondhand items?

In reference to the types of secondhand items that is purchase or sell, clothing and electronics seem to be the most common categories (see Fig. 6).

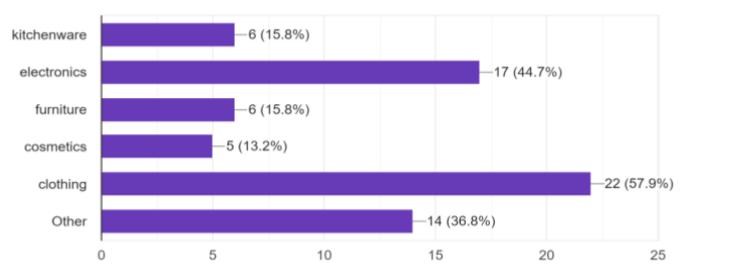


Fig. 6. What type of secondhand items do you purchase?

6.3. Platform Satisfaction

5. How confident are you in the security of transactions, especially when dealing with a variety of secondhand items?

Results: Most respondents seem to be in the middle group of the satisfaction scale with current online platforms which is indicative that there is a space for improvement in this marketplace (see Fig. 7).

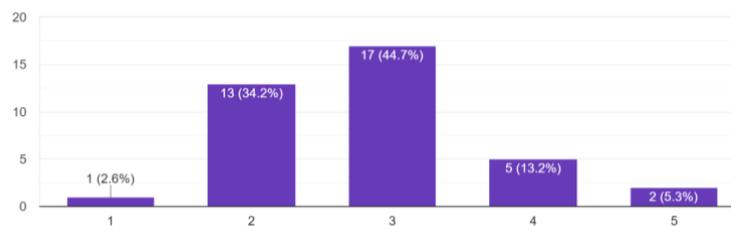


Fig. 7. How confident are you in the security of the transactions

6.4. Income Opportunities and Affordability

6. Would you consider selling a variety of pre-owned items on the thrift haven platform for additional income?
7. How does the affordability of items influence your decision to buy secondhand rather than new products?

8. Do you find secondhand platforms like ours to be a more budget-friendly option for your shopping needs?

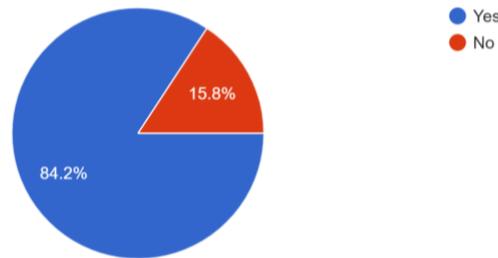


Fig. 8. Would you consider selling secondhand items?

Results: The overwhelming response of 84.2% indicates a willingness to consider selling pre-owned items on the platform (see Fig. 8). This suggests a strong interest in leveraging the platform for financial benefits, highlighting its role not only as a marketplace but also as a means of economic empowerment.

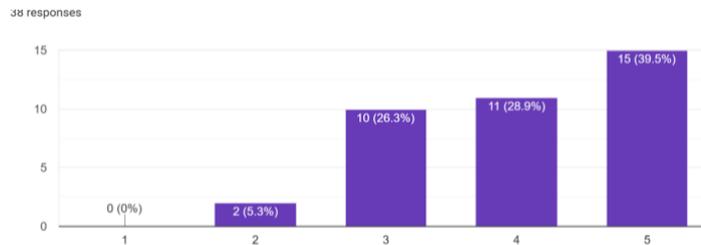


Fig. 9. How important is affordability to you?

A significant 39.5% of respondents assigned a rating of 5, indicating that affordability is highly important in their decision-making process when choosing secondhand over new products (see Fig. 9). Additionally, 28.9% rated affordability at a level of 4, underlining its significant impact on their purchasing decisions. Meanwhile, 26.3% selected option 3, suggesting a moderate importance, and 5.3% chose option 2. Notably, no respondents rated affordability as not important (option 1). These results emphasize the critical role that affordability plays in motivating users to opt for secondhand items, suggesting that maintaining competitive pricing and highlighting cost advantages could be the key factors in the platform's success.

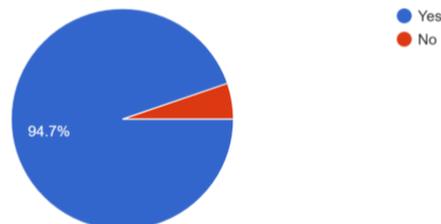


Fig. 10. Do you find secondhand clothes more affordable?

Following the trend from earlier, majority of respondents still believe that the secondhand platforms have more budget friendly options (see Fig. 10).

6.5. Community Support

9. To what extent do you believe that a secondhand platform can support and uplift the community, especially for individuals in the B40 category?

Result: This was a short answer question and after some scanning through the results, it seems that the majority of individuals agree that secondhand platforms can uplift the B40 community. Some of the notable sentiments are:

“I believe that it gives the B40 community to not only give them options for more affordable shopping but also the opportunity to sell their own items and make an income”

“It reduces their financial burden and gives positive impacts in terms of their mental health as they will be happy, being able to afford good quality clothes.”

“I don’t believe that it will make a significant impact, because not everyone in the B40 has pre-loved items that meet the market demands.”

As can be seen, there are a variety of opinions on this particular issue with only two respondents answering negatively toward a secondhand platform uplifting the B40 community.

6.6. Environmental Awareness

10. To what extent does the environmental impact of your purchasing decisions influence your choice to engage with a secondhand platform?

11. Are you aware of the potential environmental benefits associated with buying and selling secondhand items?

Result: The majority of respondents demonstrate a commendable level of awareness regarding the environmental benefits associated with the secondhand items. However, while awareness is high, there is a notable range in the perceived impact of environmental considerations on purchasing decisions (see Fig. 11 & Fig. 12). Emphasizing the platform's commitment to sustainability and environmental benefits may further resonate with users, contributing to an eco-conscious user base.

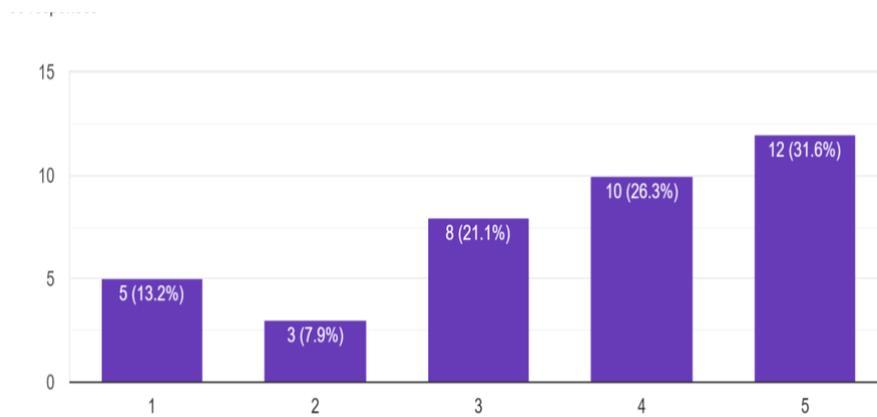


Fig. 11. Are you aware of the potential environmental benefits with thrifted items?

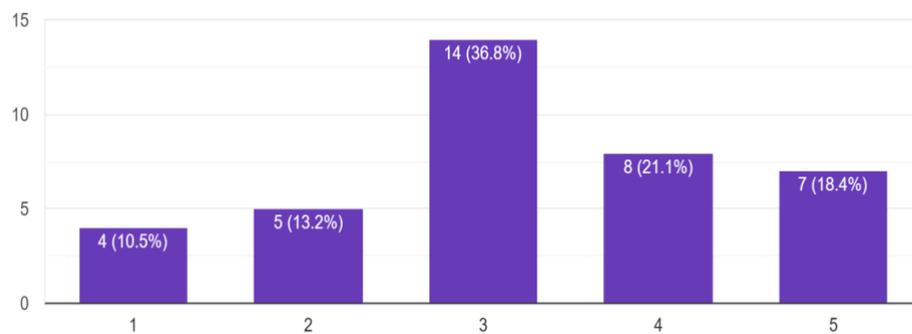


Fig 12. To what extent does the environment impact affect your purchases?

The sentiment is positive, emphasizing the potential for such platforms to provide affordable options and income opportunities. The survey delved into environmental awareness, revealing a commendable level of awareness among respondents regarding the environmental benefits of the secondhand items. This survey validated the current business model with a greater understanding on the customer wants.

7. VALIDATED BUSINESS MODEL – BMC FRAMEWORK

7.1. Validated Business Model Canvas

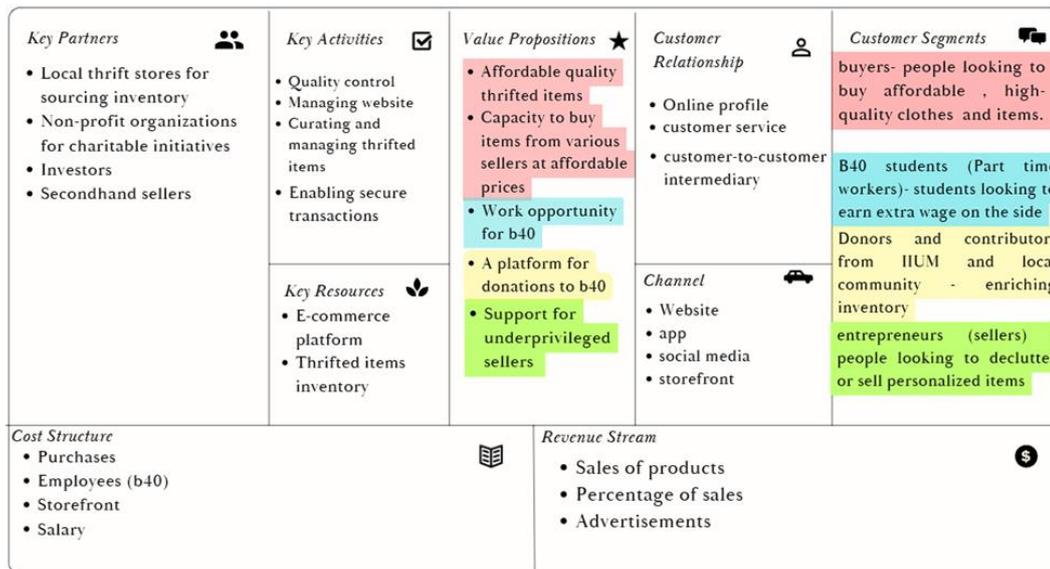


Fig. 13. Validated Business Model

7.1.1. Customer Segments

The customer segment is the group of people, individuals and organizations that the business aims to reach and serve. Understanding the customer segment allows the business to carefully tailor the products to the customer needs and requirements. The customer segment of EcoThrift consists of:

- A) B40 buyers:** People who are looking to buy secondhand clothes and other items that are affordable and of good quality.
- B) B40 students:** EcoThrift will provide part-time jobs for students, such as in the storefront for keeping inventory, cashier jobs, managing kiosks etc.
- C) Donors:** Local community contributes to the collection of items sold at EcoThrift, mostly students who are at the end of their study period but are unable to bring back most of their quality clothes back home.
- D) B40 entrepreneurs/sellers:** Sellers are those who want to declutter their closet at home, so they sell their gently worn clothes at a much lower cost on the EcoThrift platform. People with low income can also open other small shops or businesses on EcoThrift to sell other products at an affordable, yet profitable cost.

7.1.2. Value Proposition

The value proposition in the business model consists of the key value that the business provides to the customers. With EcoThrift, the customer segments get access to a dependable platform to buy, sell or donate, with timely fulfillment of these needs. The sellers get to make connections with other entrepreneurs and reach a larger audience through the platform that is accessible globally. The local donors get to declutter their closets and homes, without contributing to landfill waste. The B40 individuals, particularly students, can ease their livelihood through

means of extra wages by working part-time in the EcoThrift storefronts and use this opportunity to upskill and as a way, nurture the community of B40 Thriftpreneurs.

7.1.3. Channels

EcoThrift operates via digital platform/apps, website and social media, promoting its values to customers through different means. Customers may go on the website or the mobile application to look at the latest product available for sale, and even subscribe to the newsletter that keeps them updated of the ongoing activities of EcoThrift. By following and subscribing to the business's social media pages on Instagram, Facebook and Twitter, customers may keep up with the trends on EcoThrift. For donation, there will be various collection points set up around masjids (Hamid et al., 2013; Ahmad Dahlan et al., 2014), IHLE and community centers, and other locale spots where the public congregates. EcoThrift also sets up local storefronts for large sales.

7.1.4. Customer Relationships

EcoThrift is dedicated to offer a responsive customer service. It prioritizes the nurturing of the B40 individuals through coaching and mentoring programs. Further commitment extends to a review and rating system, for a trustworthy platform. Furthermore, EcoThrift maintains an online profile for every customer who engages with the site, providing personalized and seamless experiences.

7.1.5. Revenue Stream

The company's revenue streams are those that generate money for the company by selling their products or services to customers. The primary revenue streams for EcoThrift are the sales of products, of which a percentage goes to the company. In the future for EcoThrift, the business model of freemium could inspire the revenue stream and increase profit, by offering basic or limited features to users at no cost and then charging a premium for supplemental or advanced features (Segal, 2022).

7.1.6. Key Resources

Businesses require certain resources without which it would be able to operate successfully, and some of these key resources for EcoThrift are its e-commerce platform, which is the primary platform for the business operations, and the items that are to be collected, sold and/or bought.

7.1.7. Key Activities

The key values of a company need to be acted upon through activities which ensure the success of a business. Eco Thrift looks to manage the quality of products with extreme detail, making sure items that are sold are durable and worth selling. Other activities include overseeing the buying and selling of thrifted items on the platform, managing and maintaining the online website, curating incoming products and inventory, and enabling secure transactions between the customers and sellers.

7.1.8. Key Partners

The relationships that a business has with other organizations or individuals are known as the key partners. The major partners in the EcoThrift business are donors and thrift stores that contribute to sourcing inventory, Jabatan Kebajikan Masyarakat (JKM) and Zakat Centers that want to set up shop to provide jobs to the B40 individuals.

7.1.9. Cost Structure

The cost structure section of the BMC outlines the major costs of the business operation, which for EcoThrift includes purchases of items from the secondhand sellers, and the salary for the Co-Founders.

7.2. Business Environmental Map

7.2.1. Key Trends

A) Sustainability and ethical practices in the fashion industry

In current days, consumers are very aware of the state of the world and are more inclined to practice ethical and sustainable fashion trends, which includes thrifting and aversion to fast fashion. Hence a thrifting business provides a well-placed solution to their practices (IGD, 2007).

B) Transformation of the digital platforms

It has simply become more accessible and efficient to take part in online shopping and e-commerce, which especially spiked after the pandemic, and seems to show no signs of stopping. Digital businesses are transforming across industries by breaking down barriers between people, businesses and things, inciting the development of more efficient ways to do business, creating better products and services (Schwertner, 2017). This has made it very necessary for there to be a smoothly operating online platform for the thrifting business for consumers to take part in it without hesitation.

C) Circular economy

Thrifting leads to waste reduction and landfill space, curbing the overconsumption that threatens to take over the economy due to more accessible platforms to purchase items. According to Kirchherr et al., 2017, "The main aim of the circular economy is considered to be economic prosperity, followed by environmental quality". A sustainable business model that promotes recycling and waste reduction is well aligned to contribute to creating a circular economy.

7.2.2. Market Forces

A) High competition in the thrift market

With rise in recyclable fashion trends, and low capital required to set up a thrifting business, the thrift market has gotten increasingly crowded (Yusof et al.

B) Shift in consumer behavior

The consumption of secondhand items by the upper and middle class of the population has led to the gentrification of thrift stores (Terry Nyugen, 2021). Even though some are looking to purchase quality secondhand items as a practice for sustainable consumption, to some, even thrifting has become a fast fashion trend. It is easier to tempt oneself into overconsumption when the cost for it is reduced at a 50% off sale.

7.2.3. Macro-economic forces

A) Inflation rates

The rate at which general prices of items are increasing, even at a secondhand store, the purchases are falling.

B) Growth of GDP

The GDP indicates the measurement of how a country's economy changes over time. The importance of GDP growth for policy makers has become increasingly clear as it can have a significant impact on the economy (Aziz et al., 2017). The effects of inflation, interest rates and general stability of the economic state can change how the consumers purchase items and the demand for products overall.

7.2.4. Industry forces

A) New competitors in the market

With increase in purchasing, there is an increasing need to declutter. The mentality to start a giveaway or secondhand thrift store has become common, which can greatly affect the demand for a business like EcoThrift.

B) Technological advances

Digital advances have allowed buyers and sellers to design, personalize, and build profiles which adds to the relevance of the thrift market. Drawing on theoretical frameworks based on the idea that capitalism increasingly seeks to attract the whole intellect, Thrift (2006) argues that the new view of innovation emerges in three ways; "as the mobilization of forethought, as the deepening of the lure of the commodity through the co-creation of commodities with consumers, and as the construction of different kinds of apparently more innovative space suffused with information technology".

7.3. Strategy Canvas

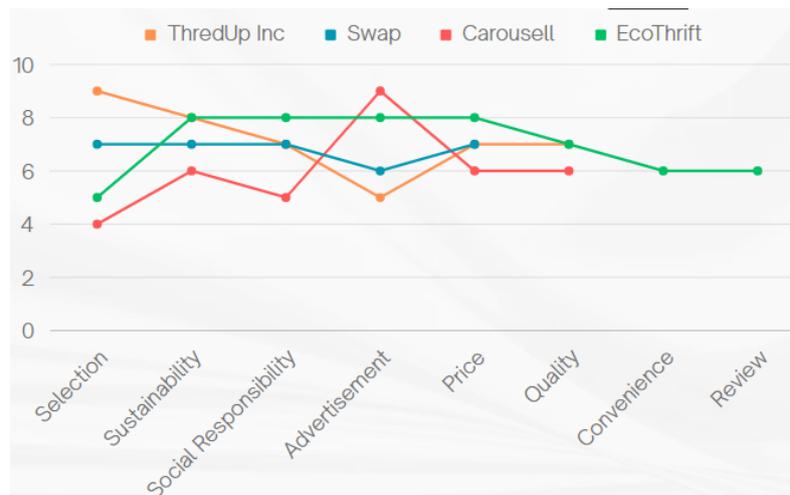


Fig. 14. Strategy Canvas

EcoThrift, a visionary business model centered on sustainable consumption, strategically positions itself in the dynamic secondhand clothes market, competing with established players like thredUP Inc, Swap and Carousell (see Fig. 14). Each platform has a commitment to sustainable fashion and the circular economy.

- **Selection:** EcoThrift leads by offering a diverse and extensive selection of secondhand items, surpassing both thredUP and Swap. ThredUP boasts a comparable selection, while Swap lags with a more limited offering. Carousell trails further with a relatively modest selection.
- **Sustainability:** EcoThrift shines with a profound emphasis on sustainability, aligning with its core objective. ThredUP places significant focus on sustainable fashion similar to EcoThrift, while Swap demonstrates a moderate commitment to sustainability. Carousell falls slightly behind in terms of sustainability efforts.
- **Social Responsibility:** EcoThrift stands out in social responsibility, integrating ethical and socially responsible practices into its core values. ThredUP exhibits a moderate focus on social responsibility, and Swap demonstrates a limited commitment in this aspect. Carousell, like Swap, displays a limited commitment to social responsibility. EcoThrift also has the unique goal to help and nurture the B40 Thriftpreneurs as a mission.
- **Convenience:** EcoThrift ensures a convenient shopping experience for consumers. ThredUP is a close competitor, offering a similarly convenient platform, while Swap provides a moderate level of convenience. Carousell, unfortunately, does not emphasize convenience significantly. EcoThrift also focuses on using masjid and community centers as a channel for the business.
- **Review:** EcoThrift maintains a positive review rating, reflecting customer satisfaction with its offerings. ThredUP and Swap do not have specific review considerations. Carousell's review status is not applicable.

- **Advertisement:** EcoThrift invested significantly in advertising efforts, ensuring visibility in the online thrift market. ThredUP and Carousell also prioritize advertisement but to a slightly lesser extent. Swap demonstrates a lower commitment to advertisement.
- **Price:** EcoThrift strikes a balance with competitive pricing, offering affordability without compromising quality. ThredUP competes closely in terms of pricing, while Swap falls behind, and Carousell is slightly more expensive.
- **Quality:** EcoThrift maintains a high standard of quality for its secondhand items. ThredUP similarly emphasizes quality, while Swap does not have specific quality considerations. Carousell maintains a moderate quality standard.

EcoThrift strategically differentiates itself by presenting a comprehensive value proposition offering a broader selection, strong commitment to sustainability, social responsibility, convenient shopping, positive reviews, effective advertising, competitive pricing, and high-quality standards. EcoThrift establishes a unique advantage. While thredUP competes closely, Swap lags in selection, social responsibility, and advertising. Carousell, with a modest selection and limited commitments, faces challenges in matching EcoThrift's distinct features, positioning the latter for a unique competitive edge in fostering sustainability and community engagement.

7.4. Low Fidelity EcoThrift Prototype

Donation Centers Page (Fig. 15): This page enables users to find nearby centers for item donation or pick-up. It displays locations on a map, provides distance and estimated travel time, and offers a 'Direction' option for guidance.

Check-out Page (Fig. 16): The check-out page is where users make payments. It lists items in the cart, gives options to pick up at a center or have items delivered, and displays the total price for payment.

Browse Page (Fig. 17): This page allows users to search for and explore secondhand items. Users can search by keywords, view search results, click on items for details, and choose to add items to their wish list or purchase them.

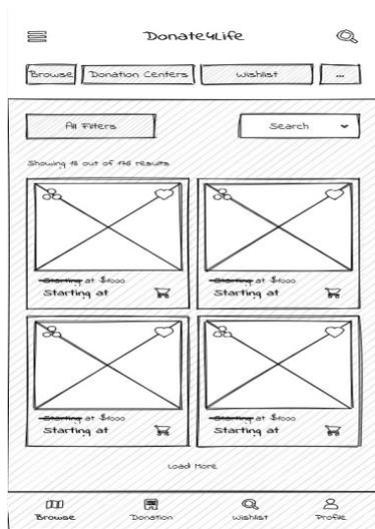


Fig. 15. Donation Centers Pag

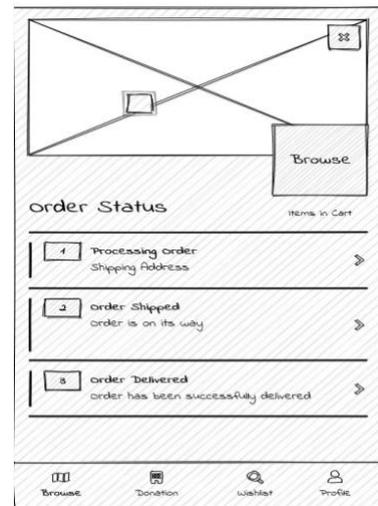


Fig. 16. Checkout Page

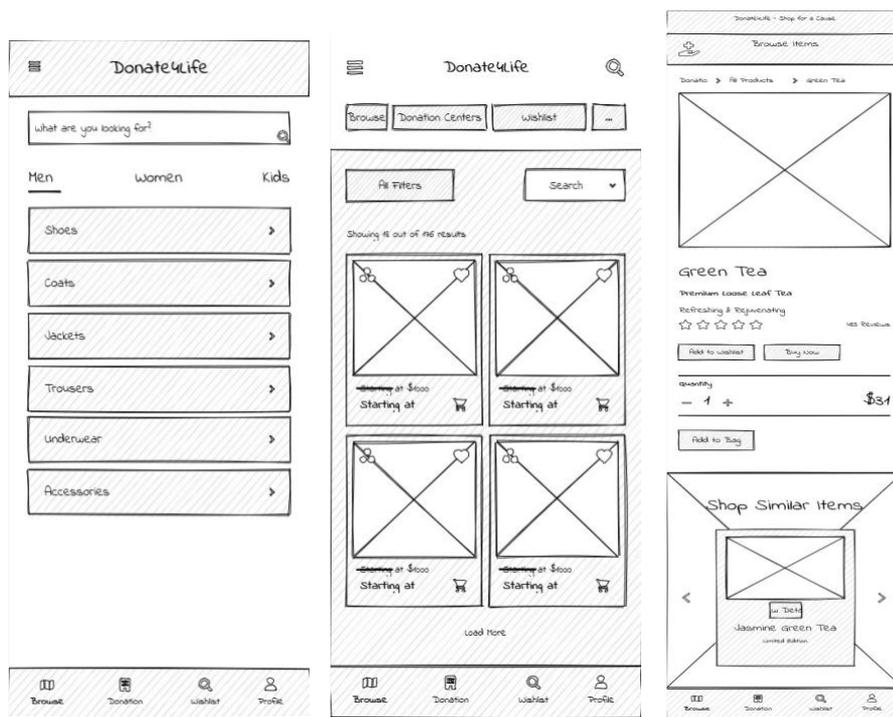


Fig. 17. Browse Page

8. CONCLUSION AND FUTURE WORKS

In conclusion, EcoThrift is committed to establishing a robust conceptual business model centered on sustainable consumption, transparency, and positive social impact. Our core objective is to create a clothing donation ecosystem that benefits the environment and serves the needs of the B40 community by fostering a circular economy, reducing clothing waste, and providing employment and entrepreneurship opportunities. With a focus on sustainability, affordability, and community engagement, our model emphasizes convenience, reliability and trustworthiness in the donation process, encouraging contributions to those in need. Throughout the development of EcoThrift's business model, various tools were utilized to align with our objectives and cater to diverse customer segments. We are dedicated to addressing social and environmental challenges while creating value for the customers and the key partners.

Moving forward, the next step is to develop a detailed business plan to refine our value propositions, target market, revenue streams, and cost structure. This will ensure a strong and sustainable foundation for the EcoThrift platform, supporting our vision for a more inclusive and sustainable marketplace.

REFERENCES

- Ahmad Dahlan, A. R., Osman, R. A. H., Ibrahim, J., & Othman, M. Z. (2014). Holistic development of human talent – leveraging on e-maarah tuition program through the Network of Mosque (NoM). *International Organisation of Scientific Research (IOSR)*.
- Aran, R. (2023). Tiffany: Ukay-Ukay Online Shop. *International Journal of Advanced Research in Science, Communication and Technology*, 722–728. <https://doi.org/10.48175/ijarsct-12301>
- Aziz, R. N. A. R., & Azmi, A. (2017). Factors affecting gross domestic product (GDP) growth in Malaysia. *International Journal of Real Estate Studies*, 11(4), 61-67.
- Deslandes, M. (2020). La seconde-main, un marché qui séduit toujours plus de clients. *Fashionnetwork.com*. <https://fr.fashionnetwork.com/news/La-seconde-main-un-marche-qui-seduittoujours-plus-de-clients,1252621.html>
- Ethical consumerism. *IGD.com*. (n.d.). <https://www.igd.com/articles/article-viewer/t/ethical-consumerism/i/15521#:~:text=and%20beverage%20market-,Defining%20ethical%20consumerism,on%20society%20or%20the%20environment>
- Hamid, H., Khairuddin, N. D., Al-amodi, Y., Ahmad Dahlan, A. R., & Osman, R. A. H. (2013). MyMosqueNet2Cloud Collaborative System: A network of mosques towards eradicating poverty in Malaysia. *American Academic & Scholarly Research Journal* July 2013, Volume 5, Number 5.
- How can you use the Business Model Environment Map to scan your external environment? (2023, November 18). *LinkedIn*. https://www.linkedin.com/advice/1/how-can-you-use-business-model-environment-map-c1syf?trk=public_post_main-feed-card-feed-article-content#:~:text=The%20Business%20Model%20Environment%20Map%20is%20a%20tool%20that%20helps,that%20shape%20your%20business%20context

- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- Oakland-based online consignment store thredUP puts up fight against Fast Fashion. (2023, October 3). ABC7 San Francisco. <https://abc7news.com/thredup-online-consignment-clothing-store-fast-fashion-environment/13856351/>
- Parks, R. (2023, March 17). Meeting the Growing Demand of Thrifting and the Circular Economy. *Retail Control Systems*. <https://www.retailcontrolsystems.com/meeting-the-growing-demand-of-thrifting-and-the-circular-economy/>
- Radhakrishnan, S. (2019). Sustainable Consumption and Production Patterns in Fashion. In *The UN Sustainable Development Goals for the Textile and Fashion Industry*. https://doi.org/10.1007/978-981-13-8787-6_4
- S. (2022, October 28). How To: Business Model Canvas Explained - Sheda - Medium. <https://medium.com/seed-digital/how-to-business-model-canvas-explained-ad3676b6fe4a>
- Sandino, D., Matey, L.M., Vélez, G. (2013). Design Thinking Methodology for the Design of Interactive Real-Time Applications. In: Marcus, A. (eds) *Design, User Experience, and Usability. Design Philosophy, Methods, and Tools. DUXU 2013*. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-39229-0_62
- Schwertner, K. (2017). Digital Transformation of Business. *Trakia Journal of Science*, 15(Suppl.1), 388–393. <https://doi.org/10.15547/tjs.2017.s.01.065>
- Serumaga-Zake, J. M., & van der Poll, J. A. (2021). Addressing the Impact of Fourth Industrial Revolution on South African Manufacturing Small and Medium Enterprises (SMEs). *Sustainability*. <https://www.semanticscholar.org/reader/37056292d863e5cfd-b3f27b504035a630877c599>
- Strategy Canvas | Blue Ocean Strategy Tools and Frameworks. (2022, December 9). Blue Ocean Strategy. <https://www.blueoceanstrategy.com/tools/strategy-canvas/>
- Thredup | an online consignment & thrift store. (n.d.). <https://www.thredup.com/>
- Thift, N. (2006). Re-inventing invention: New tendencies in capitalist commodification. *Economy and Society*, 35(2), 279–306. <https://doi.org/10.1080/03085140600635755>
- Utilize. (2012). *Oxford dictionary*. Oxford University Press. Retrieved from http://oxforddictionaries.com/definition/american_english/utilize
- Yousoof, F. B. B. M., Munusamy, K., & Jayaraman, K. (2018). Effectiveness of the transformation program to assist B40 community in social economic development in Malaysia. <https://web.archive.org/web/20200819153125/https://zenodo.org/record/3972005/files/1445-Article%20Text-5256-1-10-20180317.pdf>

CRYPTOCURRENCY AS A SOLUTION FOR CROSS-BORDER FUND TRANSFER ISSUES IN AFGHANISTAN: A STUDY OF PUBLIC AWARENESS, ATTITUDES AND ADOPTION

QANDAGHA SAFI, RIZAL BIN MOHD NOR

The Kulliyah of Information and Communication Technology, International Islamic University Malaysia, Gombak, Malaysia

Corresponding author: qandagha.safi17@gmail.com

ABSTRACT: Cryptocurrency is a digital exchange system that uses cryptography to create and distribute tokens in a peer-to-peer network. Cryptocurrency is a form of digital currency based on blockchain technology, making it fully decentralized. This decentralization feature enables easy money transfers, leading many researchers to study the success factors of cryptocurrency-based fund transfer services in different countries and regions. On the other hand, Afghanistan has faced constant problems with cross-border money transfers, which have been exacerbated by the Taliban takeover and subsequent international sanctions. Therefore, an alternative solution to the country's international remittance problems must be found. This study examines the willingness of the Afghan public to adopt cryptocurrency-based remittance services. It focuses on important factors that may have a significant impact on the success of this new transfer method. The study uses a quantitative research methodology and an online questionnaire survey to collect data from 200 Afghans in Afghanistan and abroad. The findings reveal significant problems with current remittance methods, particularly with banks and hawala. The study found great concerns among Afghans regarding hawala and banking transfer rates as well as their availability in different regions. In addition, awareness of cryptocurrencies among the Afghan public is basic as there are only a few people who have traded or owned cryptocurrency coins. However, the attitudes toward cryptocurrencies are considered good and positive as the majority of the participants are happy with the cryptocurrency security, privacy, and transfer fee mechanisms. The results of the regression analysis show that the difficulties associated with current remittance methods and the attitude towards cryptocurrencies significantly influence the adoption of cryptocurrency-based money transfer services in Afghanistan. However, the impact of cryptocurrency awareness on adoption is relatively low. This will benefit government policymakers to look into the matter and as well as attract investors to invest in cryptocurrency-based transfer services and exchanges. Overall, this study sheds light on the potential of cryptocurrency-based money transfer services in Afghanistan and provides insights into the factors that influence their adoption.

KEY WORDS: *Blockchain, Cryptocurrency, Remittance, Afghanistan*

1. INTRODUCTION

Cryptocurrency represents a subset of digital currencies that challenges conventional fiat systems governed by centralized authority. Cryptocurrencies operate on a decentralized model, where no single entity can exert control or manipulate the market. Each transaction's ownership is cryptographically approved by other nodes in the network, constituting the Distributed Ledger Technology (DLT) known as Blockchain (Appelbaum & Stein Smith, 2018). Notably, cryptocurrencies like Bitcoin have garnered attention in the realms of international trade law and economics, offering transfers without intermediaries and free from the oversight of specific authorities or geographic constraints. Prominent examples of Blockchain cryptocurrencies include Bitcoin and Ethereum, with Bitcoin holding a higher market value than Ethereum (Rahimi & Sharifian, 2020). Cryptocurrencies find utility both as a medium of exchange and for facilitating fund transfers (Sood & Simon, 2019).

Traditionally, money transfers have occurred through formal channels such as banks and informal avenues like Hawala, as well as transfers facilitated by friends and relatives (Theingi, Theingi, & Purchase, 2017). In Afghanistan, individuals have employed a mix of formal and informal methods for fund transfers over the past two decades. Formal banking channels faced limited popularity due to issues like high transfer rates and a scarcity of bank branches (Mansoori & Ibrahim, 2021).

The banking system in Afghanistan has experienced numerous challenges and successes. Originated in 1933 with the establishment of Bank-e-Millie Afghan (National Bank of Afghanistan), the Afghan banking system faced severe setbacks during the war against the Soviets and internal conflicts among the Mujahideen (Katzman & Thomas, 2017; Pernia et al., 2005). Significant progress was achieved with the re-establishment and revitalization of the banking system in December 2002, supported by international assistance (Naseri & Sharofiddin, 2020).

The Taliban's initial government faced sanctions from the U.S. and U.N for political reasons (E.O. 13129). The events of August 15, 2021, marked the Taliban's entry into Kabul, triggering economic sanctions imposed by the United States on various departments. These sanctions disrupted essential services and humanitarian aid to those in dire need. The freezing of substantial portions of the country's international reserves, including banking sector deposits and central bank resources, paralyzed Afghanistan's financial and bank payment systems. This upheaval led to runs on banks, withdrawal restrictions, liquidity shortages, and forecasts of a potential collapse of the entire banking sector. International correspondent banking relationships were suspended, compounding the challenge by limiting the ability to cash out wire transfers that did manage to reach Afghanistan (IRRC, 2021).

2. PROBLEM STATEMENT

A deficiency in quality service can detrimentally impact banking services in Afghanistan, where access to basic banking and electronic transaction services is severely limited, particularly in rural areas where the majority of the population resides (Perl et al., 2019). The challenging political landscape of Afghanistan, marked by constant changes over the past four decades (CRS, 2010), underwent a significant upheaval in August 2021 with the Taliban's return to power. This event, characterized not only as a transfer of power from the previous regime supported

by the US and NATO for two decades but also as a military victory for a group lacking a positive global reputation, ushered the country into a new phase of formidable challenges, with the public bearing the brunt of the consequences.

The second takeover by the Taliban led to a reduction in funds and previously pledged assistance from donors. Additionally, the initiation of US sanctions on the central bank and other departments unfolded, with the freezing of \$9 billion USD in assets belonging to the central bank of Afghanistan. The immediate fallout of these developments pushed Afghanistan's financial and banking payment systems into a state of instability. Beyond the profound socioeconomic repercussions, humanitarian actors faced significant delays in both making and receiving payments (CRS, 2021).

Moreover, the existing global ecosystem for cross-border payments relies on intermediaries, often in the form of correspondent banks (Neyer, 2017). The efficacy of this process hinges on well-defined procedures and responsibilities for all parties involved in the transaction, a feat achieved by the SWIFT system through its standardized messaging structure (Bayram, 2020). However, the SWIFT system, largely controlled by the US, operates as a highly centralized and time-consuming mechanism with exorbitant transfer rates. Additionally, it may not be universally accessible, particularly for countries facing sanctions. Criticisms of the SWIFT network have spurred exploration into alternative methods for cross-border payments, with blockchain technology emerging as a promising option. Despite being a relatively recent development and still undergoing evolution, blockchain technology has found applications in cross-border payments (Morabito, 2017; Parker, 2015).

Given the instability and limited availability of Afghanistan's banking system, exacerbated by recent US sanctions, the country is in dire need of a new approach to address its money transfer issues. This is particularly crucial for funds designated for humanitarian assistance or sent by Afghans working overseas. The resultant increase in cryptocurrency usage in the country, albeit slight, prompts the need for research to ascertain whether cryptocurrency can serve as a viable solution and to delineate the regulatory framework for crypto investments. This study aims to delve into this critical matter and offer potential insights and solutions.

3. RESEARCH QUESTIONS

- 1) What issues are there in cross-border fund transactions from and to Afghanistan and do they have an impact on the success of cryptocurrency-based cross-border fund transfer services?
- 2) What is the level of awareness among Afghans about blockchain and cryptocurrency and does it affect the usage of cryptocurrency-based cross-border fund transfer services?
- 3) What are the Attitudes Towards Cryptocurrency in Afghanistan and do they have an impact on the success of cryptocurrency-based cross-border fund transfer services?
- 4) What is the opinion of Afghans on the role of cryptocurrency in solving cross-border fund transfer issues in Afghanistan?

4. RESEARCH OBJECTIVES

- 1) To find out current issues with cross-border fund transfer in Afghanistan and its impact on cryptocurrency-based fund transfer services implementation.
- 2) To explore the level of awareness among Afghans regarding cryptocurrency and its impact on cryptocurrency-based cross-border fund transfer services.
- 3) To investigate the Attitudes Towards Cryptocurrency in Afghanistan.
- 4) To examine the public's opinion on the role of cryptocurrency in solving cross-border fund transfer issues in Afghanistan.

5. RESEARCH HYPOTHESES

- 1) Current fund transfer methods difficulties significantly impact the adoption of cryptocurrency-based fund transfer services.
- 2) Cryptocurrency Awareness has significant impact on the adoption of cryptocurrency-based fund transfer services.
- 3) Attitudes Towards Cryptocurrency significantly impact the adoption of cryptocurrency-based fund transfer services.

2. LITERATURE REVIEW

This segment delves into historical research and seminal contributions concerning cross-border transactions, existing transfer methodologies, and the associated challenges. It also explores the role of blockchain and cryptocurrency in overseas fund transactions, with a primary emphasis on Afghanistan and nations facing analogous circumstances. The findings underscore the imperative need for a novel alternative for international transfers in Afghanistan, underscoring the scarcity of research in this domain, particularly with respect to the exploration of blockchain and cryptocurrency as viable alternatives.

2.1. Cross-Border Fund Transfer Channels

People have employed various methods for cross-border fund transfers, and in today's interconnected world, the demand for international money transfers has become more significant than ever (Theingi, Theingi, 2017). Such remittances occur through both informal and formal channels. Formal channels include banks, registered money transfer offices (MTOs), credit unions, traveler's checks, postal orders, and payment cards, which necessitate a level of infrastructure such as ATMs, bank branches, and regulatory controls. Informal channels, on the other hand, involve unregistered MTOs, often referred to as "Hundi" or "Hawala," acting as local agents, utilizing low-cost technologies such as telephones in the transfer process (Kosse, Vermeulen, 2014).

Consumer-to-consumer cross-border payments pose unique challenges compared to domestic payments. Unlike domestic payments, where all banks in a country have accounts in the central bank and share the same currency, cross-border payments may involve different fiat currencies. Even if the currencies are common for both the payer and payee, there is no global central bank overseeing ledgers for all banks worldwide. In this scenario, the transaction order must traverse through the accounts of a bank holding its account in the payee's country, acting as

an intermediary known as a correspondent bank. These institutions play a role in facilitating the transfer process until the payment order reaches the payee's country's fiat currency system (Qiu, Zhang, Gao, 2019: 430).

To enable cross-border transfers, well-defined procedures and responsibilities are essential for all parties involved in the transaction. The SWIFT system (Society for Worldwide Interbank Financial Telecommunications) has achieved this by implementing a standardized messaging structure. SWIFT is a bank-to-bank electronic messaging system and the primary means for communicating international wire transfers, processing billions of such transactions annually (Hill, 2018).

Many banking systems and fund transfer services are predominantly based in the US, and their operations are highly influenced by the US's diplomatic relations with specific countries. Some nations, such as Iran, Russia, and Venezuela, have faced restrictions and sanctions from the US, hindering their ability to send and receive money through these formal channels. Afghanistan, too, experienced the impact of sanctions imposed by the United States, European Union, and the United Nations, particularly during the first term of the Taliban government and the subsequent takeover in August 2021. The recent sanctions and freezing of assets by the US have disrupted formal fund transfer channels for Afghanistan (UNDP, 2021).

Hawala is an ancient system of remittance that originated from South Asia. Far from being an anachronism, it continues to play an important role in many developing countries. Hawala provides a user-friendly and inexpensive but also an opaque way to move funds within a dense network of Hawaladars across disparate locals. Hawala was historically used to facilitate long-distance trade; however, more recently, migrant workers, criminals, and terrorists also use Hawala to move funds outside the formal financial system. Hawala is still a critical to many developing countries, especially in its birthplace of South Asia (Rahimi, 2021). However, there are issues and concerns with Hawala transfer fee and the availability of the services in different countries and zones as in many countries, Hawala is not a legal business.

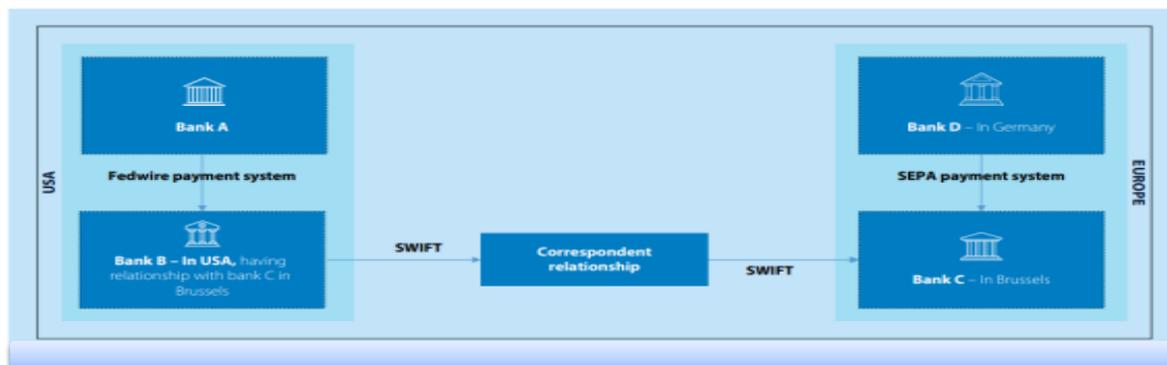


Fig. 1. Payment flow chart bank A sending money to bank D, (Achanta, 2018).

2.2. Current Fund Transfer Channels in Afghanistan

Similarly, to other Southern Asian and underdeveloped countries, Afghanistan maintains both formal and informal channels for fund transfers. As mentioned earlier, formal channels predominantly involve banking. However, due to factors

such as war and conflicts, the country has faced challenges in fully transitioning from informal to formal channels. Nonetheless, there are emerging avenues for fund transfers, especially for domestic purposes and government usage, such as mobile money. Several companies in Afghanistan offer mobile-based money transfer services (Blumenstock et al., 2014). In August 2021, a week before the collapse of the government, the presidential palace and central bank announced mobile payments for all army and military staff. However, following the political changes in August 2021, the status of this transformation process remains unclear, with no updates from officials.

In addition to banks, Afghanistan's financial system includes two types of non-bank actors. The first group is Sarrafs, which translates to money exchangers. According to formal rules, they are limited to engaging in the exchange of different currencies. The second group comprises Money Service Providers (MSPs), which, under formal regulations, can conduct currency exchange and participate in domestic and international money transfers, commonly known as Hawala. MSPs also have the capability to buy, sell, and discount checks (Rahimi, 2021). Hawala imposes significant charges for cross-border transfers, posing challenges, particularly for immigrants and overseas workers. Furthermore, post-Taliban takeover, new challenges have emerged for Afghans. According to NRC 2022, transferring funds into and within Afghanistan has become a major obstacle for non-governmental organizations (NGOs) since the Taliban's return to power on August 15, 2021. The NRC report's summary is presented in the figure below.

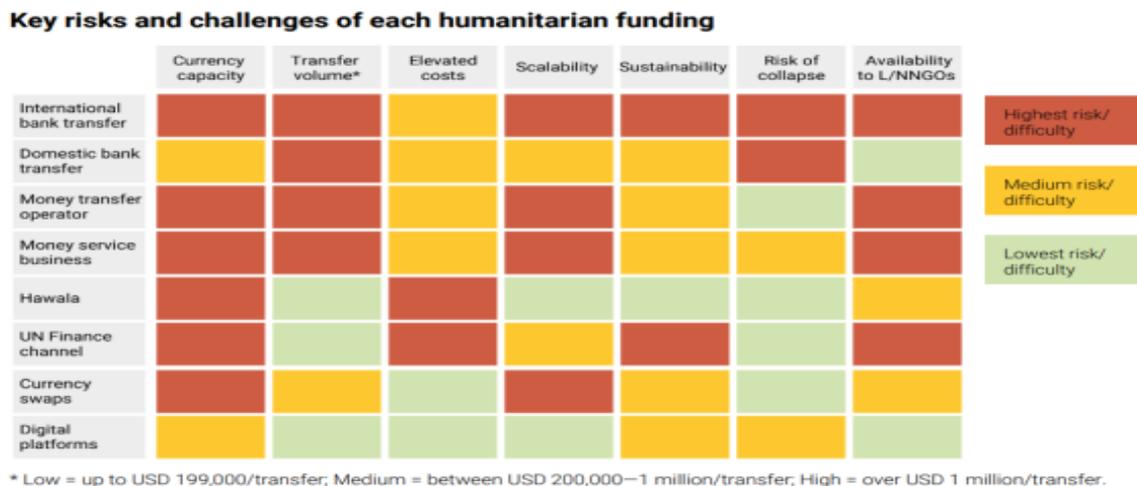


Fig. 2. US sanctions impact on financial channels in Afghanistan (NRC, 2022)

2.3. Cryptocurrency

A cryptocurrency serves as a digital asset designed to function as a medium of exchange, employing robust cryptographic techniques to secure financial transactions and validate asset transfers (Corbet, Lucey, Urquhart, & Yarovaya, 2018). Bitcoin, the pioneer in the application of Blockchain technology, marked the initiation of cryptocurrencies (Lewis, 2015). Various cryptocurrencies, including Ethereum, Ripple, Bitcoin Cash, Litecoin, EOS, and Cardano, have become integral parts of the ecosystem alongside Bitcoin. As of September 27, 2019, the cryptocurrency landscape comprised 2,899 cryptocurrencies with a cumulative market capitalization of US\$214 billion (Coinmarketcap, 2019).

The Bitcoin system is specifically crafted to facilitate transactions between users without reliance on any financial institution (Hong & Kim, 2019). Bitcoin transactions operate without the necessity for identification and are accessible 24 hours a day. To acquire Bitcoins, users initially establish an electronic wallet to store their Bitcoin by creating an account on any of the website exchanges.

A study conducted in the field of small to medium-sized enterprises (SMEs) in tourism and hospitality found that factors such as strategic focus, personal characteristics of the owner/manager (self-efficacy and innovativeness), and social power significantly influence the intention to adopt cryptocurrency payments (Nuryyev et al., 2020).

2.4. Transaction in Blockchain

Blockchain, functioning as a universal ledger within a distributed network accessible to all participants, ensures transparency and security. Each node in the network possesses a complete copy of the entire database or ledger, and any alterations to the ledger must undergo verification by other nodes or parties to validate the changes. This structure facilitates instantaneous and tamper-resistant direct transfers, even for cross-border payments, as it eliminates the need for intermediaries or correspondent banks (Achanta, 2018).

Most current blockchain initiatives for cross-border payments primarily involve banks and financial institutions as network members, benefiting from an established level of trust within this sector. However, achieving the same level of trust among consumer-type members in a blockchain network may pose challenges, particularly due to the potential anonymity of individual accounts, especially in public blockchains like Bitcoin (Buitenhek, 2016).

The inaugural cross-border payment executed through blockchain was initiated by Standard Chartered and executed by the Ripple blockchain network within a mere 10 seconds. Similarly, another early cross-border payment, commissioned by the National Australia Bank to transfer funds from Australia to Canada, was also completed within 10 seconds (Guo and Liang, 2016). Figure 3 provides a comparative illustration of blockchain and SWIFT transactions.

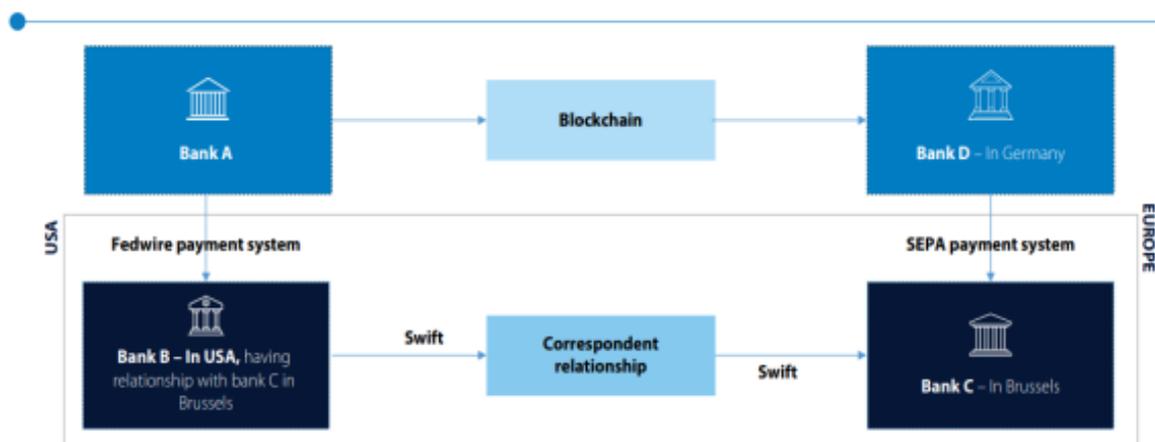


Fig. 3. Money transfer from bank A to Bank D via blockchain, (Achanta, 2018).

2.5. Blockchain Usage and Awareness in Afghanistan

Afghanistan entered the realm of Blockchain technology through the implementation of the GoLand Registry, a Blockchain-based project for land registration, which commenced in 2019. This initiative, driven by UN organizations (UNOICT and UN-Habitat) and the LTO Network, aimed to modernize land registration processes for the Government of Afghanistan (Konashevych, 2021).

In the wake of Kabul's fall in August 2021, numerous reports from leading media sources indicated a surge in Afghans turning to cryptocurrency, particularly Bitcoin, as a means of seeking refuge outside the country. Cryptocurrencies, notable digital assets like Bitcoin, played a crucial role as lifelines for many individuals in Afghanistan. With the drastic depreciation of Afghanistan's currency following the Taliban's capture of Kabul on August 15, cryptocurrencies provided essential assistance for relocation, evacuation of families, and the establishment of new lives in other countries. In the 2021 Crypto Adoption Index by Chainalysis, Afghanistan secured the 20th position among 154 countries during the crypto boom in 2021 (cointelegraph, 2022).

2.6. Blockchain Adoption and Challenges

People have employed various methods for cross-border fund transfers. The successful implementation of Blockchain in Afghanistan faces challenges stemming from cultural and social barriers. Key concerns within the social context include issues related to ease of use, privacy, and uncertainty. In Afghanistan, individuals, particularly those born in the 20th century, have had limited exposure to new technologies. However, there is an expectation that the younger generation may exhibit a more favorable adoption rate.

An additional challenge is the low literacy rate in the country. According to knoema.com, the literacy percentage in Afghanistan was approximately 37.3% in 2021, encompassing individuals with basic education such as reading and writing. Trust in cryptocurrency emerges as a significant concern, with a perceived lack of awareness among the Afghan population. The intricacies of the technology contribute to the challenges, requiring people to invest more time in understanding its fundamental principles.

The absence of well-defined legal and Islamic perspectives on blockchain and cryptocurrency poses another major hurdle, particularly within the current governance structure guided by strict Islamic law, according to public beliefs. Moreover, inadequate internet services in the country present a significant factor. Factors such as high connectivity costs, limited literacy levels, insufficient access to computers and networks, and a scarcity of local content production collectively impede internet accessibility for a considerable portion of the Afghan population (Abdullah, Hamdard, 2012).

2.7. Blockchain Adoption and Opportunities

The opportunities presented by cryptocurrency, as a relatively new commodity, hold great promise. Despite experiencing significant price and value escalations, the full extent of its benefits and future opportunities is still being explored. One major advantage of blockchain, the underlying technology of cryptocurrency, is its robust security. In a case study by Ying et al. (2018), it was observed that blockchain not only facilitates the use of cryptocurrency but also ensures the

protection of confidential information, eliminating the need for intermediaries from institutional processes.

Additionally, cryptocurrency offers the advantage of lower transaction costs. Presently, transaction costs in cryptocurrency, including Bitcoin transaction charges, are lower when compared to traditional currencies (Kim, 2017). Another notable feature contributing to its advantages is the global accessibility of the currency. Cryptocurrency transactions can be conducted across different locations, and they are not confined by time limitations, operating 24/7 (Sharma, Pant, Sharma, Brahmachari, 2020).

In the context of Afghanistan, as discussed earlier, challenges such as the lack of robust banking systems, limited banking branches, banking institutions struggling with cash availability, high costs associated with informal money transfer systems like Hawala, and the unavailability of the Hawala system in many countries create substantial opportunities for the implementation of cryptocurrency in the country. Furthermore, the uncertainty surrounding Afghanistan's current situation and its diplomatic relationships with the U.S. and other influential countries make it crucial to explore alternative financial solutions (Note: The sentence appears to be cut off and requires completion).

3. METHODOLOGY

This research employed the quantitative research method which is emphasizing on numerical, statistical, and mathematical analysis of data through the distribution of surveys, questionnaires, and the organization of interviews and polls (Research Guides, 2016). The adoption of primary data collection aimed to achieve the research objectives, with questionnaires being a dominant method for collecting a wide range of information, as emphasized by Burns and Grove (1999). The study focused on various fund transfer methods in Afghanistan, addressing relevant issues, as well as exploring the awareness level of cryptocurrency and attitudes towards cryptocurrency among Afghans.

To collect primary data, the questionnaire was distributed to Afghans residing in different parts of the world and those within Afghanistan. A Google form was chosen for questionnaire design due to its ease of data entry into computers. The distribution took place through various social media platforms, such as WhatsApp, Facebook, Telegram, etc., with participants advised to fill out the questionnaire based on their best knowledge.

The questionnaire comprises two main sections: Part A and Part B. Part A encompasses the demographic profile of respondents, covering gender, age, educational background, monthly income, and work experience. Part B is subdivided into four sections to categorize data. The subsections of Part B were structured with different closed-ended questions, utilizing the common 5-POINT LIKERT SCALE. This method allows respondents to express degrees of opinions rather than simple YES/NO answers.

A random sampling technique was employed to collect and design the sample, targeting 200 respondents within the constraints of time and resources. The SPSS tool will be utilized for the analysis and evaluation of study findings. Validation of data validity will involve conducting normality, reliability, and consistency tests.

Additionally, descriptive, regression, and correlation analysis methods will be applied to analyze the collected data.

4. DATA ANALYSIS AND RESULTS

As previously mentioned, a survey questionnaire was administered to gather data from 200 respondents. Given the quantitative nature of this study, the Statistical Package for Social Science (SPSS) was employed for the analysis of the collected data. Various statistical analyses were utilized to derive the relevant findings and accomplish the objectives of this study.

4.1. Data Screening

Data screening is important for analyzing questionnaire surveys. A total of three different data screening methods were conducted right before applying advanced analysis. The first one was the treatment of outliers. In the field of statistics, outliers are scores that differ significantly from other observation points (Pallant, 2002). All independent and dependent variables were tested for outliers, and as a result, almost all variables had some outlier values. After checking the data, a total of 10 respondents were removed from the analysis process due to incorrect data entry.

The second test was the assessment of normality. Normality can be tested through different formal methods. For this research, skewness and kurtosis analyses were used to measure the normality of the data. The values of skewness and kurtosis should be within the range of (-1 and +1) for a sample size of 50-300. If it exceeds that range, it is considered unacceptable (Hair et al., 2017; Lowry and Gaskin, 2014). The result showed that the data is normally distributed.

The third and final test for data screening was the assessment of reliability. Reliability is a type of measurement that produces consistent results with equal values (Mohajan, 2017). The main aim of reliability is to measure the consistency, repeatability, precision, and trustworthiness of the study (Mohajan, 2017). This test was conducted using the Cronbach Alpha technique. To ensure data reliability, the coefficient of Cronbach Alpha should be above 0.7. Our result showed that the Cronbach's Alpha value is well above 0.7, indicating that the data is reliable.

Table 1: Assessment of the Reliability

Variables	Number of Questions	Cronbach's Alpha
Current System Difficulties	6	0.756
Cryptocurrency Awareness	8	0.877
Attitudes Towards Cryptocurrency	4	0.885
Cryptocurrency Adoption	4	0.876
Overall	22	0.902

4.2. Descriptive Analysis

The main purpose of descriptive analysis is to discuss the background of the participants as well as their awareness level, adoption and attitude towards

cryptocurrency-based transfer services and their opinion about current transfer methods difficulties.

4.2.1. Background of The Respondents

A total of 200 respondents participated in this study, out of which 190 were selected for the analysis purpose. Among the total participants, 94% were male, and 6% were female. In terms of age distribution, 63% of the respondents were between 20-30 years old, followed by 32% in the age group of 31-40 years old. Regarding education, 48% of the participants studied bachelor's degrees, and 34% held master's degrees. In terms of occupation, 36% were students, 40% were employees, while the rest either had their own business or were unemployed.

The distribution of respondents living inside Afghanistan was almost similar to those living outside, with values of 53% and 47%, respectively. Moreover, 32% of the respondents had experience with at least one and less than three overseas transfers, while 27% had more than three overseas transfers, and 21% were regular participants who send or receive funds overseas almost every month.

In terms of the preferred method for fund transfer, hawala was the favorite choice for the majority of the participants, with a percentage of 35%, followed by 15% using banking services, and 27% using both banking and hawala transfer services.

4.2.2. Current Method Difficulties

In this section, six questions were asked regarding the current fund transfer method issues or difficulties, and the respondents were asked about their experience of transferring funds through formal banking systems and informal methods like hawala. Table 2 shows a descriptive analysis of the level of satisfaction with the current method of fund transfer, based on the mean value and percentage of each question asked. The mean value for this independent variable ranges from 3.93 to 3.13, with an average mean value of 3.60.

The highest mean value is for the fifth question, "I believe sending funds from/to Afghanistan using hawala is not always and everywhere available." This indicates a clear and significant issue about hawala availability across different countries and at different times. Questions 1, 3, and 4 also have mean values above 3.7, which indicates serious issues with the current transfer method when it comes to ease of use and transfer fees. On the other hand, trust and instability were the least significant issues for the participants, with mean values of 3.29 and 3.13, respectively.

Overall, the average mean value of 3.60 suggests great concerns among participants and their dissatisfaction with the current overseas transfer services.

Table 2: Participants responses for Current Methods Difficulties

No	Current Methods Difficulties factors	Current Method Satisfaction level (%)					N	Mean
		1	2	3	4	5		
1	Sending money from/to Afghanistan is troublesome.	0.0	16.8	15.8	44.2	23.2	190	3.74
2	Fund transfer from/to Afghanistan using banking is unstable.	12.6	18.4	28.4	24.2	16.3	190	3.13

3	Fund transfer from/to Afghanistan using banking is costing high transfer fee.	4.7	8.9	17.4	36.8	32.1	190	3.83
4	Fund transfer from/to Afghanistan using hawala is costing a high transfer fee.	1.6	13.7	21.1	37.9	25.8	190	3.73
5	Fund transfer from/to Afghanistan using hawala is not always and everywhere available.	3.2	8.9	13.7	40.5	33.7	190	3.93
6	Fund transfer from/to Afghanistan using hawala is not trustable.	10.0	16.8	27.4	25.8	20.0	190	3.29
Average Value of Mean								3.60

4.2.3. Cryptocurrency Awareness Level

The second section consists of 8 statements defining people's knowledge regarding cryptocurrency. Table 3 shows the results for this category. As it can be seen, statements 1, 2, 3, 4, and 5 have mean values around 3.5, which shows great support for these statements, especially the second and third statements with mean values of 3.73 and 3.74, respectively. This suggests that respondents have a good understanding and support for these basic aspects of cryptocurrency.

However, statements 6, 7, and 8, which explore deeper knowledge regarding cryptocurrency, have less support from the respondents. Hence, the level of awareness among Afghans is at a basic level, and only a small percentage of the respondents have owned, traded, and transferred cryptocurrency coins. The table also shows that the majority of the respondents are neutral, which indicates a lack of confidence among participants regarding this topic. Overall, the findings suggest that there is a need for more education and awareness-building efforts regarding cryptocurrency among the Afghan population.

Table 3: Participants responses Cryptocurrency Awareness

No	Cryptocurrency Awareness factors	Level of awareness (%)					N	Mean
		1	2	3	4	5		
1	I have heard about Blockchain technology before.	0.0	20.0	35.3	23.7	21.1	190	3.46
2	I have heard about Cryptocurrency technology before.	0.0	13.7	23.7	38.4	24.2	190	3.73
3	I have heard about a popular cryptocurrency coin called Bitcoin before.	7.4	6.3	23.7	30.0	32.6	190	3.74
4	I have heard about many cryptocurrency popular coins such as Bitcoin, Ethereum and Binance before.	0.0	21.1	32.1	23.2	23.7	190	3.49
5	I have knowledge about cryptocurrency application	0.0	21.1	29.5	32.1	17.4	190	3.46
6	I have already traded cryptocurrency before	20.5	21.6	30.5	17.9	9.5	190	2.74
7	I have been checking the cryptocurrency market regularly on daily/weekly basis.	23.2	22.6	26.8	18.9	8.4	190	2.67
8	I have used cryptocurrency for fund transfer purposes before.	31.6	21.6	26.3	13.2	7.4	190	2.43
Average Value of Mean								3.21

4.2.4. Attitudes Towards Cryptocurrency

To gain good insight into public trust, satisfaction, and their readiness to trust and adopt cryptocurrency, a total of 4 questions were asked in this section. As shown in Table 4, the mean value for all statements is mostly over 3.5, with the lowest being 3.45 for statement 2 and the highest being 3.56 for question 3. The average mean value is 3.51, indicating that the attitudes towards cryptocurrency are generally positive.

Most of the participants agreed that cryptocurrency provides benefits such as availability, security, privacy, and lower transfer fees. However, the table also shows that there are many responses with neutral responses for almost all questions, which indicates their lack of deep knowledge and confidence in this area.

Overall, the findings suggest that while there is a positive attitude towards cryptocurrency among the respondents, there is also a need for further education and awareness-building efforts to enhance their understanding and confidence in adopting cryptocurrency.

Table 4: Participants Attitudes Towards Cryptocurrency

No	Attitudes Towards Cryptocurrency Factors	Attitudes Towards Cryptocurrency (%)					N	Mean
		1	2	3	4	5		
1	I believe that cryptocurrency can be accessible anywhere and anytime.	0.0	11.6	40.0	33.7	14.7	190	3.52
2	I believe that cryptocurrency provides high security for trading and transfers.	0.0	13.2	42.6	30.5	13.7	190	3.45
3	I believe that cryptocurrency provides an excellent privacy mechanism for users by storing minimal information and disclosing only user public ID.	0.0	10.5	41.1	30.0	18.4	190	3.56
4	I believe that cryptocurrency charges a very low transfer fee.	0.0	9.5	46.3	25.8	18.4	190	3.53
	Average Value of Mean							3.51

4.2.5. Cryptocurrency Adoption

To better understand public opinion regarding cryptocurrency-based fund transfer services and their preparedness to use this service, four questions were asked. The section was designed to explore respondents' opinions from a general level to more specific aspects, such as their belief in cryptocurrency as an alternative to current fund transfer methods, their willingness to invest in cryptocurrency, and their interest in using cryptocurrency-based fund transfer services.

As shown in Table 5, the mean value for all statements is around 3.5, with the lowest being 3.41 for statement 2 and the highest being 3.52 for questions 3 and 4. The average mean value is 3.47, suggesting that the overall feeling toward cryptocurrency-based fund transfer services is positive among the respondents.

While the adoption level is considered good, there are also many neutral responses, indicating a lack of knowledge and confidence among participants.

Despite this, the category achieved good support from the respondents, as the majority agreed that cryptocurrency can be a good alternative to current transfer methods and can solve current issues. They also expressed interest in investing in and using cryptocurrency-based fund transfer services.

Overall, the findings suggest that there is positive sentiment and interest among the respondents toward cryptocurrency-based fund transfer services, but there is a need for further education and awareness-building efforts to increase their knowledge and confidence in this area.

Table 5: Participants responses for Cryptocurrency Adoption

No	Cryptocurrency Adoption Factors	Cryptocurrency Adoption (%)					N	Mean
		1	2	3	4	5		
1	I believe that cryptocurrency can be a good alternative for current cross-border fund transfer methods in Afghanistan.	0.0	15.8	39.5	30.0	14.7	190	3.44
2	I believe that cryptocurrency can fix current fund transfer issues in Afghanistan.	0.0	17.4	36.8	33.7	12.1	190	3.41
3	I am interested in investing in cryptocurrency-based fund transfer services in Afghanistan.	0.0 0	15.3	35.3	32.1	17.4	190	3.52
4	I am interested in using cryptocurrency-based fund transfer services in Afghanistan.	0.0 0	17.4	32.1	32.1	18.4	190	3.52
Average Value of Mean								3.47

5.1. Regression Analysis

This type of analysis is the most vital and important statistical analysis method to obtain a better result for the research. It is a type of predictive method for data analysis. Regression analysis can be used to predict and investigate the relationship between target (dependent) variables and predictor (independent) variables. or this research the linear regression analysis was conducted for the identification of factors that have a significant effect on the adoption of cryptocurrency-based fund transfer in Afghanistan. Regression analysis contains 3 main tables to be considered for the result of the data including model summary, ANOVA, and coefficient.

4.3.1. Linear Regression Equation

The equation is ($Y = a + bX$), while Y stands for the dependent variable, X for the independent variable and b is the slope of the line (Dhakal, 2019).

4.3.2. Materials and Methods (defining data)

For 190 respondents, hypothetical data (Table 1): dependent variable (y) = Cryptocurrency Adoption, and 3 independent variables, x_1 = Current Method Difficulties, x_2 = Cryptocurrency Awareness, and x_3 = Attitudes Towards Cryptocurrency are considered for this study.

4.3.3. Model Summary of Regression Analysis

The R-square or correlation coefficient is a statistical measure that shows the percentage of variance or change in the dependent variable that can be explained by the independent variable. It helps identify how much of the total change in the dependent variable can be attributed to changes in the independent variable. The R-square value can range from -1 to +1, with positive values indicating a positive correlation and negative values indicating a negative correlation.

In this research, the R-value of 0.722 indicates a good level of prediction and suggests that there is a strong positive relationship between the dependent and independent variables. The key information from Table 6 is the R-square (coefficient of determination) value of 0.52. This means that 52% of the variance or variability of the dependent variable has been explained by the independent variable.

In other words, the results indicate that the independent variable (such as cryptocurrency adoption or awareness) can explain 52% of the changes observed in the dependent variable (such as attitudes towards cryptocurrency or willingness to use cryptocurrency-based fund transfer services). The remaining 48% of the variance may be influenced by other factors not included in this study or may be due to random variation.

Table 6: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.722 ^a	.522	.514	.10271
A. Predictors: (Constant), Attitudes Towards Cryptocurrency, Cryptocurrency Awareness, Current Method Difficulties				

4.3.4. Statistical Significance / Anova Test

The second dimension for regression analysis is the ANOVA test. The ANOVA test is used to determine the significance of the variance explained by the regression model. It helps to assess whether the independent variable(s) have a significant impact on the dependent variable.

By using the Ratio factor of ANOVA, researchers can predict the accuracy of the outcomes for the regression model. In this research, the result of the ANOVA test shows that the model is statistically significant at the level of $p < .0005$. This indicates that the independent variable(s) have significantly predicted the dependent variable.

In simpler terms, the ANOVA test confirms that the relationship between the independent variable(s) (e.g., cryptocurrency adoption or awareness) and the dependent variable(s) (e.g., attitudes towards cryptocurrency or willingness to use cryptocurrency-based fund transfer services) is statistically significant and not due to chance. The low p-value indicates that the relationship is strong and reliable.

Table 7: ANOVA Test

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.255	3	.752	71.254	.000 ^b
	Residual	2.068	186	.011		
	Total	4.323	189			
a. Dependent Variable: Cryptocurrency Adoption						
b. Predictors: (Constant), Attitudes Towards Cryptocurrency, Cryptocurrency Awareness, Current Method Difficulties						

4.3.5. Coefficient Table

In regression analysis, this table of Coefficients is playing vital role for the significant value and correlation of the variables. Coefficient can identify relationship between variables and p-value can describe their significance (Marshall, n.d.).

Table 8: Coefficients Test

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.037	.009		3.950	.000
Current Method Difficulties	.176	.061	.148	2.891	.004
Cryptocurrency Awareness	.059	.036	.082	1.640	.103
Attitudes towards cryptocurrency	.548	.043	.656	12.744	.000
a. Dependent Variable: Cryptocurrency Adoption					

4.3.6. Regression Analysis Result

Table 8 is showing regression analysis results for this research dataset. This regression analysis was performed to find the influencing factors for the use and success of cryptocurrency based fund transfer services in Afghanistan. Moreover, to test and identify the hypotheses of our research.

H1: Current fund transfer methods difficulties have significant impact on the adoption cryptocurrency-based fund transfer services.

H2: Cryptocurrency Awareness has a significant impact on the adoption cryptocurrency-based fund transfer services

H3: Attitudes Towards Cryptocurrency has a significant impact on the adoption cryptocurrency-based fund transfer services.

Based on the linear regression equation obtained from the analysis, the relationship between the independent variables (Current Method Difficulties, Cryptocurrency Awareness, and Attitudes Towards Cryptocurrency) and the dependent variable (Cryptocurrency Adoption) can be interpreted as follows:

- a) Current Method Difficulties: An increase in Current Method Difficulties by one point will lead to an increase in Cryptocurrency Adoption value by 0.176 or 17.6%. This suggests that higher difficulties with the current fund transfer methods are associated with a higher likelihood of adopting cryptocurrency-based fund transfer services. The relationship between Current Method Difficulties and Cryptocurrency Adoption is statistically significant.
- b) Cryptocurrency Awareness: Improving Cryptocurrency Awareness level by one unit will result in an improvement in Cryptocurrency Adoption value by 0.059 or 5.9%. This indicates that higher awareness about cryptocurrency is associated with a higher likelihood of adopting cryptocurrency-based fund transfer services. However, the impact of Cryptocurrency Awareness on Cryptocurrency Adoption is relatively weaker compared to other factors, and its correlation is weaker with the dependent variable.
- c) Attitudes Towards Cryptocurrency: Increasing Attitudes Towards Cryptocurrency by one point will enhance Cryptocurrency Adoption value by 0.548 or 54.8%. This suggests that more positive attitudes towards cryptocurrency are strongly associated with a higher likelihood of adopting cryptocurrency-based fund transfer services. Attitudes Towards Cryptocurrency has the most significant impact on Cryptocurrency Adoption among the independent variables.
- d) Intercept: If all the independent variables equal zero, cryptocurrency adoption will decrease by 0.037 or 3.7%. This represents the starting point for Cryptocurrency Adoption in the absence of any influence from the independent variables.

In summary, the linear regression analysis indicates that Current Method Difficulties and Attitudes Towards Cryptocurrency are the most influential factors in determining Cryptocurrency Adoption for cryptocurrency-based fund transfer in Afghanistan. Cryptocurrency Awareness has a lesser impact on the adoption rate, but it is still statistically significant. Overall, the model provides valuable insights into the relationship between the variables and helps understand the factors that can drive the adoption of cryptocurrency-based fund transfer services in the country.

5. DISCUSSION

This section examines the results derived from our conducted studies, aligning them with the initially outlined objectives through the earlier analysis. All four

objectives were successfully met by employing diverse analytical techniques. In summary, significant apprehensions arise in relation to prevailing transfer methodologies, given their potential influence on the adoption of cryptocurrency in international transfers. Public sentiment toward cryptocurrency emerges as notably favorable, exerting a substantial impact on its adoption. However, it is noteworthy that public awareness regarding cryptocurrency is relatively low, thereby minimizing its impact on adoption.

5.1. Objectives

Based on the findings of the study, it can be concluded that the first objective, which aimed to identify the main issues with the current fund transfer methods and their impact on Cryptocurrency Adoption, has been achieved. The descriptive analysis revealed that the major concerns with the current fund transfer methods in Afghanistan are related to services' availability at different times and places, high transfer fees, and overall performance. The regression analysis further supported these findings by showing a significant relationship between Current Method Difficulties and Cryptocurrency Adoption. This indicates that the challenges with the current methods are driving people to consider adopting cryptocurrency-based fund transfer services as an alternative thus H1 is supported.

The second objective, which aimed to assess the level of awareness regarding cryptocurrency and its impact on Cryptocurrency Adoption, has also been achieved. The descriptive analysis showed that the majority of people in Afghanistan have only basic knowledge about cryptocurrency, with a smaller percentage having mid-level awareness and an even smaller percentage having deep-level knowledge. The linear regression analysis indicated that Cryptocurrency Awareness has a less significant impact on Cryptocurrency Adoption, suggesting that people's level of awareness may not be the primary driving factor for adopting cryptocurrency-based fund transfer services therefore H2 is not supported.

The third objective, which aimed to explore people's attitudes towards cryptocurrency and its impact on Cryptocurrency Adoption, has been achieved as well. The descriptive analysis showed that attitudes towards cryptocurrency were not highly positive among Afghans, with a significant percentage of neutral responses. However, the linear regression analysis revealed that Attitudes Towards Cryptocurrency have a strong positive impact on Cryptocurrency Adoption, indicating that positive attitudes are a key factor driving the adoption of cryptocurrency-based fund transfer services hence H3 is strongly supported.

The fourth and final objective, which aimed to assess people's interest in using cryptocurrency for cross-border fund transfer services, has been achieved through descriptive analysis. The results showed that a majority of participants expressed interest in using cryptocurrency-based fund transfer services, while a smaller percentage were neutral and a minority expressed disinterest. This indicates that there is a significant level of interest among Afghans in using cryptocurrency to address the current issues in cross-border fund transfer.

5.2. Recommendations

To enable the successful implementation of cross-border cryptocurrency in Afghanistan, several critical steps must be taken. To begin with, addressing the issue of low cryptocurrency awareness is essential. This can be achieved through

educational campaigns to increase the understanding of cryptocurrency and blockchain technology among the Afghan population. Enhancing digital literacy will help build trust and familiarity with these technologies, encouraging broader adoption.

Furthermore, conducting further studies to evaluate the legal and infrastructural aspects of cryptocurrency implementation is crucial. While the current research did not focus on these areas, understanding the legal implications and infrastructural needs is necessary for creating a supportive environment for cryptocurrency-based remittances. This includes analyzing how existing laws and regulations can be adapted to accommodate cryptocurrency transactions and assessing the technological infrastructure required to support widespread use.

6. CONCLUSION

The study successfully achieved its main purpose, which was to assess and understand the issues related to cross-border fund transfer to and from Afghanistan and to explore the Cryptocurrency Awareness, Attitudes Towards Cryptocurrency, and Cryptocurrency Adoption for adopting decentralized oversea money transfer using cryptocurrency in Afghanistan. The quantitative research method with a descriptive research design proved to be effective in accomplishing the objectives.

The study revealed that the current fund transfers methods in Afghanistan, mainly banking and hawala, have significant drawbacks, including high transfer fees and limited availability. On the other hand, the level of Cryptocurrency Awareness among Afghans is relatively basic, with participants having a general understanding of terms and names related to cryptocurrency. However, only a small number of respondents actually owned and used cryptocurrencies for fund transfer purposes.

Attitudes Towards Cryptocurrency were not highly positive among the respondents, with many expressing neutral opinions. However, the study demonstrated that positive attitudes play a significant role in driving the adoption of cryptocurrency-based fund transfer services in Afghanistan.

The regression analysis provided valuable insights into the impact of the independent variables (Current Method Difficulties, Cryptocurrency Awareness, and Attitudes Towards Cryptocurrency) on the dependent variable (Cryptocurrency Adoption). The findings showed that the difficulties with the current transfer methods have a small impact on the adoption of cryptocurrency-based services thus it's considered as a weak factor. Additionally, positive attitudes towards cryptocurrency have a strong influence on its adoption, while Cryptocurrency Awareness has a less significant impact and is considered a weak factor as well.

The study also highlighted the interest among respondents in using cryptocurrency for cross-border fund transfer services, with many expressing willingness to invest in and utilize this technology.

Overall, the research successfully addressed all the objectives and answered the related questions. The hypothesis was tested, and the results were presented clearly throughout the study. The findings provide valuable insights into the potential for cryptocurrency adoption in Afghanistan and the factors that influence its acceptance as a cross-border fund transfer solution.

REFERENCES

- American Psychological Association. (2010). Concise rules of APA style (6th ed). Washington, DC: Author.
- Cheney, T. A. R. (1983). Getting the words right: How to rewrite, edit, and revise. Cincinnati, Ohio: Writer's Digest Books.
- Fowler, H. R., & Aaron, J. E. (2012). The Little, Brown handbook (12th ed). Boston: Pearson.
- Fowler, H. W., & Fowler, F. (1908). The King's English (Oxford language classics series). Retrieved July 26, 2012, from <http://www.bartleby.com/116/>
- Jewer, J., & McKay, K. N. (2012). Antecedents and consequences of board IT governance: Institutional and strategic choice perspectives. *Journal of the Association for Information Systems*, 13(7), 581-617.
- Oxford University Press. (2012). Utilize. In *Oxford English Dictionary* (3rd ed.).
- Appelbaum, D., & Stein Smith, S. (2018). Blockchain Basics and Hands-on Guidance: Taking the Next Step toward Implementation and Adoption. *CPA Journal*, 88(6), 28-37.
- Rahimi, F., Sharifian, S. Cryptocurrency in the National and International System. *Arch Pharma Pract* 2020;11(S1):87-93.
- Sood, A., & Simon, R. (2019, November). Implementation of blockchain in cross border money transfer. In 2019 4th international conference on information systems and computer networks (ISCON) (pp. 104-107). IEEE.
- Theingi, T., Theingi, H., & Purchase, S. (2017). Cross-border remittance between emerging economies: an institutional perspective. *Journal of Business & Industrial Marketing*, 32(6), 913-926.
- MANSSOORI, J. ., IBRAHIM SALEH , A. H. A. ., & ABUBAKAR IBRAHIM, A. . (2021). Examining the Factors Influencing The Success of Mobile Money In Afghanistan. *Journal of Information Systems and Digital Technologies*, 3(1), 40–64. Retrieved from <https://journals.iium.edu.my/kict/index.php/jisdt/article/view/198>
- Katzman, K., & Thomas, L. (2017). AFGHANISTAN: POST-TALIBAN GOVERNANCE, SECURITY, AND US POLICY (UPDATED). *Current Politics and Economics of the Middle East*, 8(4), 531-643
- Naseri, K., & Sharofiddin, A. (2020). Exploring the Challenges of the Historical Development of Islamic Banking System in Afghanistan Using Document Analysis. *Journal of Islamic Finance*, 9(2), 13-25
- CRS, Thomas C. (2021). U.S. Military Withdrawal and Taliban Takeover in Afghanistan: Frequently Asked Questions. Congressional Research Service. Retrieved from: <https://crsreports.congress.gov/product/pdf/R/R46879>
- IRRC, International Review of the Red Cross (2021), 103 (916-917), 705–716. Counterterrorism, sanctions and war doi:10.1017/S181638312100093X. retrieved from: <https://international-review.icrc.org/sites/default/files/reviews-pdf/2022-02/the-public-policy-of-sanctions-compliance-need-for-collective-action-916.pdf>
- Perl, V. J. U., Johnson, C., Kelley, S., Woods, P., Martin, K., & Zonies, D. (2019). Missed injuries in combat casualties: Lessons from Iraq and Afghanistan. *Injury*, 50(5), 1138-1142.

- Neyer, G. (2017). Next generation payments: Alternative models or converging paths? *Journal of Payments Strategy & Systems*, 11(1), 34-41.
- Bayram, O. (2020). Importance of Blockchain use in cross-border payments and evaluation of the progress in this area. *Doğuş Üniversitesi Dergisi*, 21(1), 171-189.
- Morabito, V. (2017). *Business Innovation Through Blockchain*. Cham: Springer International Publishing.
- University of Southern California Libraries. (n.d.). Organizing Your Social Sciences Research. Retrieved from <https://libguides.usc.edu/writingguide/quantitative>.
- Burns N, Grove S (1999) *Understanding Nursing Research*. 2nd edn. WB Saunders Company, Philadelphia.
- Kosse, A., & Vermeulen, R. (2014). Migrants' choice of remittance channel: Do general payment habits play a role?. *Journal of Banking & Finance*, 45, 1-13.
- Isaksen, M. (2018). *Blockchain: The Future of Cross Border Payments* (Master's thesis, University of Stavanger, Norway). URL: https://uis.brage.unit.no/uisxmlui/bitstream/handle/11250/2587148/Isaksen_Marcus.pdf?sequence=4.
- Qiu, T., Zhang, R., & Gao, Y. (2019). Ripple vs. SWIFT: Transforming Cross Border Remittance Using Blockchain Technology. *Procedia computer science*, 147, 428-434.
- Hill, Julie Andersen, SWIFT Bank Heists and Article 4A (September 24, 2018). *Journal of Consumer and Commercial Law*, Vol. 22, No. 1, at 25 (2018), U of Alabama Legal Studies Research Paper No. 3254505, Available at SSRN: <https://ssrn.com/abstract=3254505>.
- Hill, Julie Andersen, SWIFT Bank Heists and Article 4A (September 24, 2018). *Journal of Consumer and Commercial Law*, Vol. 22, No. 1, at 25 (2018), U of Alabama Legal Studies Research Paper No. 3254505, Available at SSRN: <https://ssrn.com/abstract=3254505>.
- Mahdavi, R. (2019). *Governments' Adoption of Native Cryptocurrency: A Case Study of Iran, Russia, and Venezuela*.
- UNDP (2021). *The Afghan Banking and Financial System Situation Report*. <https://www.undp.org/afghanistan/publications/policy-brief-afghan-banking-and-financial-system-situation-report>.
- Rahimi, H. How to create better Hawala regulations: a case study of Hawala regulations in Afghanistan. *Crime Law Soc Change* 76, 131–148 (2021). <https://doi.org/10.1007/s10611-021-09959-w>.
- Blumenstock, J. E., Callen, M., & Koepke, L. (2014). Promises and Pitfalls of Mobile Money in Afghanistan : Evidence from a Randomized Control Trial, (September).
- NRC, Norwegian Refugee Council. *Life and Death (2022): Executive Summary* , NGO access to financial services in Afghanistan. <https://www.nrc.no/resources/reports/life-and-death-ngo-access-to-financial-services-in-afghanistan>.
- Corbet, S., Lucey, B., Urquhart, A., & Yarovaya, L. (2018). Cryptocurrencies as a Financial Asset: A systematic analysis. *International Review of Financial Analysis*, 62, 182-199. <https://doi.org/10.1016/j.irfa.2018.09.003>.
- Coinmarketcap. (2019). *Cryptocurrency Market Capitalizations* | CoinMarketCap. Retrieved September 16, 2019, from <https://coinmarketcap.com/>.

- Nuryyev, G., Wang, Y. P., Achyldurdyeva, J., Jaw, B. S., Yeh, Y. S., Lin, H. T., & Wu, L. F. (2020). Blockchain technology adoption behavior and sustainability of the business in tourism and hospitality SMEs: An empirical study. *Sustainability (Switzerland)*, 12(3). <https://doi.org/10.3390/su12031256>.
- Kethineni, S., & Cao, Y. (2019). The Rise in Popularity of Cryptocurrency and 278 Associated Criminal Activity. *International Criminal Justice Review*, 1–20. <https://doi.org/10.1177/1057567719827051>.
- Achanta, R. (2018). Cross-border money transfer using blockchain-enabled by big data. White Paper, External Document.
- Buitenhok, M. (2016). Understanding and applying Blockchain technology in banking: Evolution or revolution? *Journal of Digital Banking*, 1(2), 111-119.
- Konashevych, O. (2021, June). 'GoLand Registry' Case Study: Blockchain/DLT Adoption in Land Administration in Afghanistan. In DG. O2021: The 22nd Annual International Conference on Digital Government Research (pp. 489-494).
- Cointelegraph. (2022). How are Afghans using crypto under the Taliban government. <https://cointelegraph.com/news/how-are-afghans-using-crypto-under-the-taliban-government>.
- Abdullah, B., & Hamdard, J. (2012). A comparative study of cosmetic regulations in different countries of the world with focus on India. *Int J Curr Res Rev*, 4, 130-43.
- Kim, C., Oh, E., Shin, N., & Chae, M. (2009). International Journal of Information Management An empirical investigation of factors affecting ubiquitous computing use and U-business value, 29, 436–448. <https://doi.org/10.1016/j.ijinfomgt.2009.06.003>.
- Sharma, D. K., Pant, S., Sharma, M., & Brahmachari, S. (2020). Cryptocurrency mechanisms for blockchains: models, characteristics, challenges, and applications. *Handbook of research on blockchain technology*, 323-348.
- . Pallant, J. F., & Lae, L. (2002). Sense of coherence, well-being, coping and personality factors: Further evaluation of the sense of coherence scale. *Personality and individual differences*, 33(1), 39-48.
- Mohajan, H. K. (2017). Two Criteria for Good Measurements in Research: Validity and Reliability. *Annals of Spuru Haret University. Economic Series*, 17(4), 59– 82. <https://doi.org/10.26458/1746>.
- Dhakal, C. P. (2019). Interpreting the Basic Outputs (SPSS) of Multiple Linear Regression, (June), 6–11. <https://doi.org/10.21275/4061901>.

PROPOSED MODEL OF HEALTH INFORMATION SYSTEMS IN PAKISTAN

IMRAN ANWAR UJAN¹, ASADULLAH SHAH², MOHD. ADAM BIN SUHAIMI³

¹Faculty of Engineering & Technology, University of Sindh, Jamshoro, Pakistan

^{2,3}Kulliyah of Information & Communication Technology, International Islamic University Malaysia, Kuala Lumpur, Malaysia

*Corresponding author: ujaniium@gmail.com

ABSTRACT: This research is conducted for acceptance of Health Information Systems by healthcare Professionals of Pakistan. For the last few decades, the introduction of Information Technology (IT) has been a source of excitement. TAM (Technology Acceptance Model) is a type of technology acceptance model that is used to predict user behaviour. Few research has been performed on the capability to predict community's acceptance of health information systems (HIS). The initial step is to assess the level of adoption, followed by stakeholders' commitment to upgrading the HIS for the improvement of healthcare facilities in Pakistan. As a result, this study employed a model to imply that five main dimensions influence HIS acceptance: behavioural intention, attitude, perceived utility, perceived ease of use, and technology self-efficacy.

KEY WORDS: Health Information Systems, Information Technology, Technology Acceptance Model, Pakistan

1. INTRODUCTION

Information Technology (IT) is defined as “the group of technologies that is revolutionizing the handling of information and embodying a convergence of interest between electronics, computing, and communication” (Abdekhoda M et.al,2014). IT has evolved steadily since the early twenty-first century, impacting information systems and their respective areas dramatically, and health information organization is no exception. The use of information technology in healthcare systems has improved healthcare excellence and access, resulting in a significant reduction in medical errors and expenditures. When deploying any Health Information System, however, careful consideration must be given to IT adoption (HIS). The Medical Records Institute says (2003), Most healthcare organisations' ultimate goals include online health applications such as electronic health records, electronic prescription, and mobile health. Many papers have suggested the use of the Internet to increase healthcare sector productivity and eliminate errors in care delivery operations. Despite these efforts, health care organisations are lagging in the deployment of health information systems (Abdekhoda; Ahmadi, Dehnad; Hosseini, 2014).

The HIS aims to enhance the existing healthcare system by streamlining workflow and reporting. The procedures are intended to make the healthcare situation under the HIS more manageable. However, some reports have shown that such roadblocks to the acceptance and performance of health information systems

and technology remain. Shefter and Black identified some of the application's strengths and limitations (Shefter, 2006, Black et al., 2011). The central emphasis of Information Technology applications in healthcare systems in 1970s was to organize a better management of services, specifically those activities that included the computation of the patients incurred charges subject to reimbursement. In the following decade, the 1980s, the central emphasis was on the progress of clinical systems for patients' healthcare such as the diagnosis and cure of diseases. This carried on until the late 1990s, and one notable aspect of this was that the IT applications were tailored for use; there were standalone software applications for certain situations. Such discrepancy proved to be one of the major challenges in healthcare IT applications nowadays (A. Dwivedi, Bali, James, Naguib, 2002).

In the late 90s there were major changes and modifications in system designs that purportedly supported the IT functions. Organizations and institutions had shifted to a more dispersed computing architecture, rather than focusing on one central system. The upsurge of client or server and object-oriented (OO) technologies was coupled with the aforementioned shift in the main focus of system architectures. Such a period for the combination of these two technologies paved way for the rise of the distributed computing architecture in the 90s (A. Dwivedi et.al, 2002).

The biomedicine field was greatly improved with the help of IT applications for healthcare systems. Consequently, the present-day healthcare industry can now see "the emergence and proliferation of entire new scientific disciplines - molecular biology, economics, bioinformatics and proteomics - which are revealing the secrets of genes, proteins and their functions", and this proved to have notable effects on the processes and procedures involving healthcare (Dwivedi et.al, 2002).

The Institute of Medicine (IOM) USA, discovered a noticeable difference with regards to the quality of health between the past health care system and the present health care system. In the past, numerous proposals were made to reduce the frequency of medical errors and enhance the methods of providing health care.

1. proper utilization of IS in evidence-based medicine by health and medical professional was one of the identified solutions that may address the gap between the two health care systems investigated.
2. Health Care Professionals use of information technology and online information systems can be complicated as it involves the changing behavioral pattern along with the familiarity of the information technology.
3. The combined effect of the Health Care Professionals behaviors to use the information systems in their routine clinical practices is difficult to foresee and therefore the research area involving the health care professionals use of the IS need to explore in detail.
4. Some researchers reported that health care professionals are reluctant to introduce the systems into their practices because of time constraints
5. Some important factors are knowledge and cognitive barriers as their level of information technology literacy is low to use applications of the IT. This low level of IT literacy and information literacy and skills are the reasons argued by the health professionals. Due to these reasons understanding the

concepts and importance of health information systems and information technology are justified by medical professionals.

2. SIGNIFICANCE OF THE RESEARCH

Without health information systems and new information and communication technology, improvement and rehabilitation of the health-care system would be difficult. As a result, this research would be beneficial to Pakistani healthcare professionals. It will help hospital administration to know the importance of Health Information System in their organization. With the introduction of the HIS in developing countries' hospitals, patients will get timely and best healthcare treatments.

In terms of the analysis methods used, this thesis makes a contribution. It's also worth noting that the questionnaire acts as the framework's foundation. Similar procedures used in this study can be utilized by future studies to obtain results for their research. The questionnaire used in this study was developed based on previous study entitled "An investigation on Physicians' acceptance of hospital information systems: A case study" (Rai-Fu Chen and Ju-Ling Hsia, 2012).

This study provides a concise framework for addressing the determinants of health technology, acceptance, and a user's intention toward digital clinical and medical information resources, making a theoretical contribution to the field of health informatics in general.

Overall, this study demonstrates the importance of various factors that influence physician acceptance and use of HIS. Although technology acceptance and intentional behaviour were also included in the research design. While it is important to consider the user's adoption and intention to use technology, it is also important to investigate the acceptance and intention to use a health information system in the research design.

In the field of medicine, information is of utmost importance. Physicians are constantly processing information. Their practice involves the recording, collating, testing, and modifying information. The exact position of medical informatics is at the intersection of information technology, cognitive science, artificial intelligence, and medicine. So, this is not a simple field involving only one aspect such as medical computing, telecommunications, or information engineering, but rather it is a dialogue between physicians, patients, and medical informaticians in medical information systems and online information resources. It explores and develops new knowledge, builds new theories, and organizes principles and solutions. Health information technologies and information systems are to positively increase the outcome of clinical care. Computers, information systems and evidence based decision makings are vital pillars of health informatics. To take full advantage of all ICT applications in health, physicians have to learn the skills for framing, analyzing and integrating the healthcare information into clinical practices. Today's challenge is not to have access to hardware rather it is the ability to use the information system and other available information resources to improve the quality of health care delivery (Stahl, S.G.P.a.J.E, 1997).

To build a prosperous, stable economy, and society, healthcare sector is very important. Unfortunately, health sector in Pakistan is suffering from neglects. It is an underperforming sector. Due to the 46% reduction in the allocation of funds for

health in 2010-2011, Pakistan has the lowest budget for the health sector in the region and the population of Pakistan, was observed to be rapidly increasing. In 2000, it was reported that the population of Pakistan was at 142 million. However, in 2011, Pakistan's population was already 187 million with the ratio of one physician to 1,326 people. In addition to the lack of funding and growing population, other limitations prevalent in the health care of Pakistan are (a) tradition modes of practice, (b) rising frequency of medical errors, (c) delay in knowledge diffusion process, and (d) the interests of private individuals and institutions (Faisal Sultana, Muhammad Tahir Azizb, Idrees Khokharc, Hussain Qadrid, ManzarAbbasc, Amir Mukhtarc, Waqar Manzoorc, Muhammed Aasim Yusufaa, 2014). The use of ICT application in conjunction with evidence-based medical practice is the best way to address the significant challenges that Pakistan is experiencing in health care, namely, (a) compounding cost for health care, (b) rising rate of medical errors, and (c) delay in the knowledge diffusion process (Wears, and Ber, 2005).

Both public and private health care is provided in Pakistan. 80% of outpatient visits are entertained by the private sector. Welfare and community hospitals are also playing a great role in providing the health services at low cost. Current scenario can be improved by introducing information technology in the healthcare sector, and by training physicians to get the best benefits from these resources for evidence-based medicine (Babar T. Shaikh and Juanita Hatcher, 2004). In 2007, 133933 doctors were registered with Pakistan Medical and Dental Council (PMDC) and by 2010; the country had only 54 qualified health informatician. In an independent research report it was stated that "Pakistan does not have an institutional mechanism for healthcare service quality control, hospital accreditation or provider credentialing except for the PMDC, which plays the role of registration only" (Dr Haroon Khan, eHAP Pakistan).

3. PROPOSED RESEARCH FRAMEWORK

Adoption of technological innovation is a fundamental concept of economic growth and plays a significant role in achieving long-term competitiveness among emerging organisations (Barrett and Sexton,2006). The adoption of technology in organisations is increasing noticeably. In 1999, annual IT spending exceeded US\$1 trillion, with annual compounded growth of about 10% expected (Seddon et al, 1999). Furthermore, since the 1980s, literature has shown that organisations' respective investments in IT account for roughly half of their total capital investments (Venkatesh et al, 2003). However, the impact of such investments cannot be determined or guaranteed until the systems are used by the intended operators (Venkatesh and Davis, 1996).

Literature of information system analysis, researchers continue to struggle with selecting an acceptable model from a myriad of models and determining whether or not to incorporate new technologies into operation (Karahanna, and Straub,1999, Rogers,2010, Moore, and Benbasat,1991). A variety of theoretical models from diverse fields of social psychology, information systems, sociology, and business management were combined, updated, and applied to forecast the valid determinants and provide a deeper understanding of technology adoption (Rogers,2010, Karahanna, and Straub,1999).

TAM is the most influential model in information system research for studying Acceptance or adoption of emerging technology or information systems by

individuals. TAM's success derives from the fact that it is frugal and capable of forecasting and illustrating the adoption of a large number of different types of information management and information technology at various levels of experience, as well as cultural diversity.

The advancement of novel technology and the adoption of technological innovations. The Technology Acceptance Model (TAM) was originally developed by Davis to investigate the connections between factors such as "perceived usefulness" (PU), "perceived ease of use" (PEOU), Attitude (ATT), Behavioral Intention (BI), and actual use (AU). The utilization of this paradigm has been extensively employed across several industries to address diverse challenges related to the adoption of technology. However, the utilization of Health Information services, has been insufficient. Therefore, it is imperative to do an empirical investigation within the Indian setting. Various scholars have conducted investigations into the effectiveness of mobile health (mHealth) in different countries worldwide. However, the degree of acceptance and implementation of mHealth has been observed to differ across nations (Manindra Rajak *, Krishnendu Shaw, 2021)

3.1. Behavioral Intention

"The extent to which an individual intends to adopt or purchase the technology, system, or product in the future" (Venkatesh et al., 2003). The Health Information System viewpoint is meant to measure or predict the activities of a potential healthcare practitioner. As a result, in this study, behavioral intention of use is used as an outcome variable in the proposed research model to understand how other independent variables such as attitude towards using, perceived usefulness, perceived ease of use, and technology self-efficacy affect the acceptance of Health Information Systems both directly and indirectly.

3.2. Technology Self-efficacy

The literature on the impact of self-efficacy on using information technology emphasizes its significance in elucidating a person's behavior toward IT as well as his or her capabilities in doing so (Compeau and Higgins, 1995a; 1995b; Gist et al., 1989). However, Marakas et al. (1998) highlighted the differences in behavior between a person's self-efficacy with regard to computers in general and self-efficacy with regard to a particular task on a computer.

3.3. Perceived Usefulness

Davis (1989) says that perceived usefulness (PU) is how much a person thinks that using a certain tool or service will improve his or her performance. The PU is one of the most important parts of Davis's (1989) Technology Acceptance Model (TAM). The PU is an important part of the health information system and has a good effect on the working environment of healthcare professionals.

3.4. Perceived Ease of Use

According to Davis (1989), "the degree to which a person believes that using a particular system would be free from effort" is the definition of social perceived ease-of-use. A causal precursor to perceived usefulness is perceived ease of use. Numerous empirical studies have confirmed the association between perceived usefulness and perceived ease of use (Gefen et al., 2003; Gefen and Straub, 2003; Teh and Ahmed, 2012). Additionally, multiple studies (Venkatesh, 2000; Teh and

Ahmed, 2012) have supported the positive correlation between perceived usefulness and behavioral intention to use technology. For a better HIS to participate in the health information system in our setting, a good association between technological antecedents (i.e., perceived usefulness and perceived ease of use) and behavioral intention is necessary.

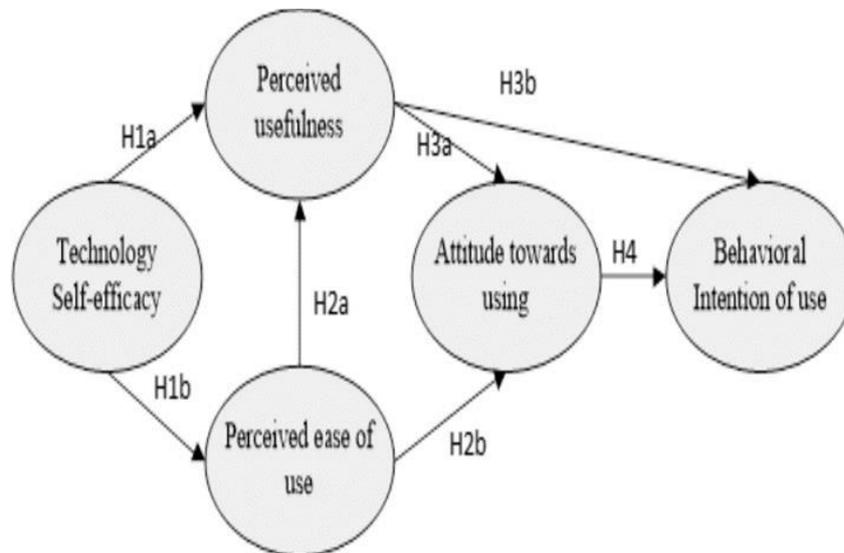


Fig. 1. Proposed model for Health Information Systems acceptance in Pakistan

The theoretical composition and hypothesis interactions among several constructs used in this study are depicted in Figure 1. TAM was used for three purposes. (1) TAM is a well-studied model with a solid theoretical foundation that has been supported by a set of psychometric measurement scales. (2) TAM is a basic IS parsimonious model that was created to provide adequate acceptance

of various IS and technologies in a variety of contexts. (3) TAM's core constructs, PEOU and PU, have good empirical support for predicting consumer adoption of technology. (Abbasi, 2011, Fida Chandio, 2011, Davis, 1989, Gefen, 2004).

According to the research's conceptual structure, perceived usefulness (PU), perceived ease of use (PEOU), attitude toward using (ATU), and technology self-efficacy (TSE) all influence behavioural intention to embrace HIS. TSE External variables were used as antecedents of PEOU and PU in the proposed model based on previous study. (Abbasi, 2011, Fida Chandio, 2011, Davis, 1989, Gefen, 2004). TSE is useful for describing people's attitudes about technology and evaluating how much they use it.

4. CONCLUSION

In the proposed model for Health Information Systems acceptance in Pakistan is discussed. There are 4 constructs Technology Self Efficacy (TSE), Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude towards using and all are independent variables. Whereas Behavioural Intention (BI) is dependent variable. A cross sectional survey approach will be used to gather data for this

research study since it is quick, inexpensive, and may be used to obtain a high sample size.

REFERENCES

- Abdekhoda M, Ahmadi M, Dehnad A, Hosseini AF. Information technology acceptance in health information management. *Methods of information in medicine*. 2014 Jan 1;53(1):14-20.
- A. Dwivedi, R.K.Bali, A.E.James, R.N.G. Naguib, The efficacy of using object oriented technologies to build collaborative applications in healthcare and medical information systems, *Proceedings of the 2002 IEEE Canadian Conference on Electrical & Computer Engineering*.
- Black, A. D., Car, J., Pagliari, C., Anandan, C., Cresswell, K., Bokun, T., McKinstry, B., Procter, R., Majeed, A., Sheikh, A. (2011) The Impact of eHealth on the Quality and Safety of Health Care: A Systematic Overview. *PLoS Med*, 18.
- Compeau, D., Higgins, C.A. & Huff, S. (1999) "Social cognitive theory and individual reactions to computing technology: A longitudinal study", *MIS Quarterly*, vol. 23, no. 2, pp. 145-158.
- Davis, F.D., Bagozzi, R.P., and Warshaw, P.R.: 'User acceptance of computer technology: a comparison of two theoretical models', *Management science*, 1989, 35, (8), pp. 982-1003.
- Fida Chandio, STUDYING ACCEPTANCE OF ONLINE BANKING INFORMATION SYSTEM: A STRUCTURAL EQUATION MODEL, Brunel Business School, Brunel University London, June 2011.
- Faisal Sultana, *, Muhammad Tahir Azizb, Idrees Khokharc, Hussain Qadrid, ManzarAbbasc, Amir Mukhtarc, Waqar Manzoorc, Muhammed Aasim Yusufaa, Development of an in-house hospital information system ina hospital in Pakistan, *International Journal of medical informatics* 8 3 (2 0 1 4) 180–188.
- Gefen, D., & Straub, D. W. (2004). Consumer trust in B2C e-commerce and the importance of social presence: experiments in e-products and e-services. *Omega*, 32(6), 407e424.
- Gefen, D., Karahanna, E., and Straub, D.W.: 'Trust and TAM in online shopping: an integrated model', *MIS quarterly*, 2003, 27, (1), pp. 51-90.
- Gist, M.E., Schwoerer, C. & Rosen, B. (1989), "Effects of alternative training methods on self-efficacy and performance in computer software training", *Journal of Applied Psychology*, vol. 74, no. 6, pp. 884-891.
- Karahanna, E., and Straub, D.W.: 'The psychological origins of perceived usefulness and ease-of-use', *Information & Management*, 1999, 35, (4), pp. 237-250.
- Manindra Rajak *, Krishnendu Shaw, An extension of technology acceptance model for mHealth user adoption, *Technology in Society* 67 (2021) 101800
- Moore, G.C., and Benbasat, I.: 'Development of an instrument to measure the perceptions of adopting an information technology innovation', *Information systems research*, 1991, 2, (3), pp. 192-222
- Rai-Fu Chen, Ju-Ling Hsiab, An Investigation on Physicians' acceptance of hospital information Systems: A case study, *International Journal of Medical Informaticd* 81 (2012) 810-820.
- Rogers, E.M.: 'Diffusion of innovations' (Simon and Schuster, 2010.)

- Shefter, S. M. (2006). Workflow Technology: The new frontier. How to overcome the barriers and join the future. *Lippincott's Case Management*, 11, 25–34.
- Stahl, S.G.P.a.J.E.: 'Medical informatics: where the action is.', *West J Med*, 1997, 166, (2), p 82-88
- Teh, P.-L., and Ahmed, P. K. 2012. "Understanding Social Commerce Adoption: An Extension of the Technology Acceptance Model," *Proceedings of the International Conference on Management of Innovation and Technology (ICMIT): IEEE*, pp. 359-364.
- Viswanath Venkatesh and Fred D. Davis, A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies, *Management Science* Vol. 46, No. 2 (Feb., 2000), pp. 186-204
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.
- Wears, R.L., and Berg, M.: 'Computer technology and clinical work', *JAMA: the journal of the American Medical Association*, 2005, 293, (10), pp. 1261-1263.

'SADAQAHNOW' PROJECT BUSINESS MODEL: TRUSTED FUNDRAISING MOBILE APPLICATION FOR ENHANCING THE WELL-BEING OF LOCAL & GLOBAL COMMUNITIES

SURAYA NABILAH BINTI MOHD AINI¹, SITI NUR IDAH BINTI ROSLAN², NUR
NADIAH BINTI NAZUKI³, NUR FATHNIN ILHAMI BINTI MOHAMAD HELMI⁴, ABDUL
RAHMAN BIN AHMAD DAHLAN⁵

^{1,2,4,5}Department of Information Systems, ³ Kulliyah of Economics and Management
Sciences,
International Islamic University Malaysia (IIUM), Gombak, Malaysia

*Corresponding author: surayaa0103@gmail.com

ABSTRACT: This paper is to offer a conceptual business model (BM) for an IT project titled, 'SadaqahNow.' The project business model is developed to help addressing the challenges, extreme pains, essential gains, and important job-to-do of various customer segments, namely fundraisers and donors, when garnered enough club donation funds. Adopting the design thinking (DT) methodology including conducting literature review (LR) and interviews to understand the key challenges, extreme pains, essential gains, and important job-to-do of the fundraisers and donors. Business modelling tools namely Business Environmental Map (EM), Business Model Canvas (BMC), and Value Proposition Canvas (VPC) are used to formulate, design, test, and establish the project business model. This is to ideate the initial project BM embedded with digital platform/apps, designed, and tested, The initial project business model, using the Business Model Canvas (BMC) framework, was validated by the customer segments via surveys – to validate the relevancy of the job-to-do, gain creators and pain relievers offering of the SadaqahNow project. Finally, the validated conceptual SadaqahNow project business model was established – offering potential solution in addressing the important job-to-do, as well as gain creators and pain relievers for fundraisers and donors. Future works include developing a detailed Project Implementation Plan for the development of SadaqahNow project.

KEY WORDS: Fundraising, Trusted Crowdfunding Digital Platform, Donation, Business Model, Community Engagement

1. INTRODUCTION

Universities serve as breeding grounds for social innovation as highlighted by Milley (2020) and Rizk (2020), mentioning the increasing emphasis on social innovation initiatives in universities. This fosters a vibrant environment for nonprofit and voluntary clubs to address social issues and promote community development. These student-led organizations play a vital role in enriching campus life and fostering social responsibility among students as further underscored by Coelho (2021) regarding the importance of student-led organizations and service learning in promoting community development. At universities and higher education

institutions (HEIs), financial constraints often hinder the ability of these organizations or clubs to achieve their goals (Mostafa, 2020) including Islamic university of Malaysia (IIUM). Other than that, traditional fundraising methods, such as bake sales, car washes, and donation boxes are time-consuming, require a significant investment of human capital, and have limited reach. Research on student donors' preferences and motivations for donation reveals a range of factors influencing their decisions. Shu (2022) emphasizes the need to recognize non-altruistic motivations, such as specific preferences, and suggests building an incentive mechanism to stimulate personalized donation willingness. For example, some donors find a certain way of donating seems to have its disadvantages such that the method cannot fulfill their preference. They might want to donate a certain amount of money of their choice and to give donations easily, faster and comfortably. Overall, as discussed above, due to these reasons of financial constraints, traditional fundraising methods as well as specific donors' preferences to donate, most nonprofit and voluntary clubs might often fail to penetrate as well as help beyond the immediate university community.

This paper aim is to address this challenge by providing solutions for IIUM nonprofit and voluntary clubs who are facing financial constraints to achieve their goals of helping the society as well as to ease the burden of IIUM community donors to fulfill the islamic practice of voluntary charity also known as Sadaqah (Singer, 2013). The values of charitable giving and compassion are embodied in Islamic teaching through the teachings of the Qur'an and the traditions of the Prophet Muhammad (Khan, 2012) and the redistribution of wealth in the form of charity is the responsibility of any Muslim (Baqtayan, 2018). The approach suggested to solve these issues is to develop a conceptual Platform Business Model for SadaqahNow project, using the Business Model Canvas (BMC) framework that includes developing a centralized, university-specific, digital donation platform with a mobile application. The project envisions a platform to support the collectors of donation, the IIUM nonprofit and voluntary clubs. This platform would enable these clubs to create and manage campaigns for their respective causes in a cost-effective way, share information about their initiatives and goals and receive as well as acknowledge donations transparently. Additionally, it will also provide a convenient platform for IIUM community donors to connect with various non-profit and voluntary clubs of IIUM, explore the information about ongoing donations needed, make a transaction or donation as well as monitor their own donations that have been made on the app.

This digital platform could be beneficial to both parties, the IIUM non-profit and voluntary clubs and the IIUM Community donors. As for the IIUM Clubs, this digital application could make them be able to reach a broader audience in a cost-effective way, to have efficient financial tracking with less error compared to tracking manually as well as be able to instantly show the donors the impact of their donation. As for the donors, it provides a centralized, trustworthy platform with transparent information about charitable causes. Trust is the most crucial element for a successful donation system. For the proposed platform to be effective, a reliable process for checking and validating donations by an authorized organization or body will be conducted. This would prevent abuse and corruption, ensuring that transparency and record updates are backed by rigorous oversight.

By implementing these measures, the platform can comprehensively address the trust issue and build confidence among donors.

While several IT solutions for centralized donation applications exist in Malaysia and globally, such as KitaFund, MyCare, Kickstarter, and GoFundMe, this project aims to integrate best practices from these platforms. The integration of these best practices is crucial because, as stated previously, the project aims to provide a single, dominant, university-specific platform, an idea and level of focus which may not yet been developed for universities or other institutions widely. Additionally, to enhance the project, the project also takes into account research on donation and crowdfunding applications and websites, which identifies key factors that influence donor behavior and the success of fundraising campaigns. Zhao (2020) highlights the role of impure altruism and intrinsic motivations in driving donation behavior, while Sirisawat (2022) emphasizes the importance of transparency, accountability, and user protection in digital donation crowdfunding. Kamarudin (2023) emphasizes the role of trust, service and system quality, information value, and emotional support in donation purposes. Lastly, Liu (2017) identifies empathy, perceived credibility, website and project quality, initiator reputation, and project popularity as key determinants of donation behavior in online micro charities. These findings collectively underscore the importance of trust, transparency, and user experience in the success of donation and crowdfunding applications and websites.

This project is in line with the Sustainable Development Goals (SDG4) i.e. Quality Education, by empowering student-led organizations to fund educational programs and initiatives, and SDG16 - Peace, Justice and Strong Institutions, by ensuring a trustworthy and transparent donation system which promotes justice and strong institutions by preventing abuse and corruption and fostering a culture of integrity and accountability in charitable activities.

2. OBJECTIVES

The main objective of this paper is to offer a conceptual SadaqahNow project business model that offers a conceptual solution for its targeted customer segments - fundraisers and donors. More specifically, how SadaqahNow could offer product and services as the pain relievers and gains creators for fundraisers & donors:

- a. Decrease time taken for universities and higher learning institutions (HLIs) clubs to achieve their financial goals and target.
- b. Provide increased promotions and advertisement of HLIs clubs' activities.
- c. Create an alternative method and pathway, locally and globally, for HLIs clubs to garner donation funds.
- d. Acting as a pain reliever related to the limited resources for programme/donation collection awareness amongst the HLIs and public community.
- e. Improving transparency and tracking of donation funds for donors and fundraisers.

3. METHODOLOGY

This paper adapts the Design Thinking (DT) methodology to develop a conceptual business model (BM) for the 'SadaqahNow' project. The methodology includes conducting literature review (LR), interviews, ideation, design and test/validate initial business model, and finally establishing the validated business model

as highlighted by Lewrick et al. (2018). Firstly, a literature review was conducted to understand the existing challenges and problems faced by various customer segments (CS) in the context of donation processes within HLIs clubs, particularly at the International Islamic University of Malaysia (IIUM). The LR aimed to gather insights about the challenges of traditional fundraising methods, donor preferences, and the business model of similar applications that have been developed. Following the (LR), interviews were conducted to gain firsthand insights from stakeholders, including IIUM nonprofit and voluntary clubs, donors, and potentially other relevant community members. The interviews aimed to understand the specific pain points, needs, and aspirations of these CS on donation processes and community engagement. Based on the insights gathered from the interviews, ideation sessions for creative solutions in addressing the key challenges and opportunities identified. Business modelling such as Business Model Canvas (BMC) and Value Proposition Canvas (VPC) were utilized to develop an initial 'SadaqahNow' project BM (Osterwalder & Pigneur, 2010; Osterwalder et al., 2014).

4. LITERATURE REVIEW

4.1. Benchmarking

- a. KickStarter (<https://businessmodelanalyst.com/kickstarter-business-model/>)

Kickstarter (see Fig. 1) serves as a crowdfunding platform designed to facilitate funding for a variety of creative endeavors. Its purpose is to connect individuals such as artists, designers, filmmakers, and musicians with potential backers globally, empowering them to realize their projects with financial support from interested parties.

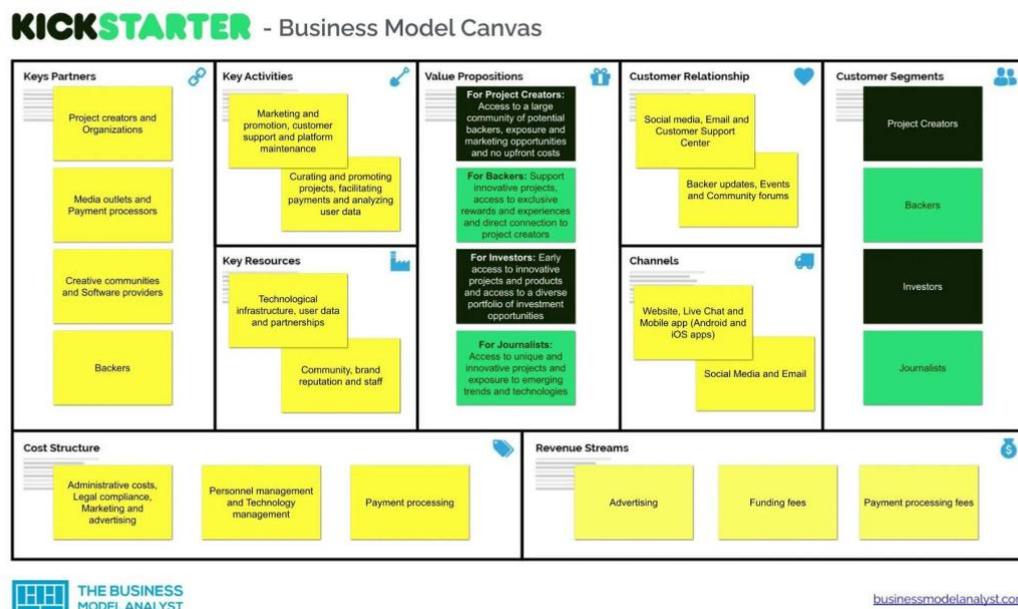


Fig. 1. Business Model Canvas (BMC) of KickStarter

- b. Case study of two Malaysian crowdfunding platform (https://www.researchgate.net/publication/341795509_A_business_model_canvas_for_crowdfunding_platform_case_study_of_crowdfunding_platforms_in_Malaysia)

Research by Nadir et al. (2019) proposed business model canvas which can be applied by the crowdfunding platform organizations to manage their business and operation more efficiently (see Fig. 2). Case study method has been employed with two techniques of data collection: interview and document review. Two crowdfunding platforms based in Malaysia indicated as Organization A and Organization B participated in the case study.

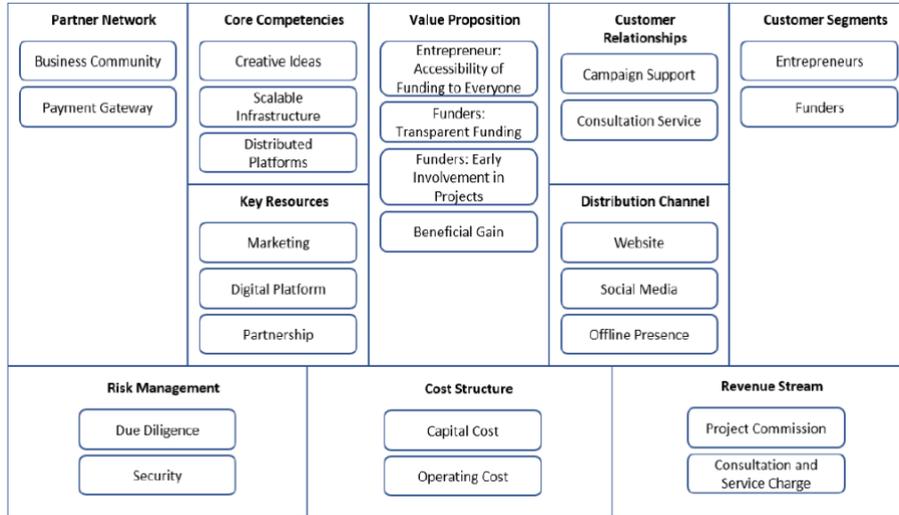


Fig. 2. Business Model Canvas (BMC) of crowdfunding platform

c. GoFundMe (<https://businessmodelanalyst.com/gofundme-business-model/>)

GoFundMe is a crowdfunding platform founded in 2010. It was initially intended to be a way for people to raise money for personal causes, such as medical or educational expenses. The platform quickly gained popularity and has since evolved into one of the world’s largest crowdfunding sites. In addition to personal causes, people can also use GoFundMe to raise money for charitable organizations, small businesses, and other reasons (see Fig. 3).

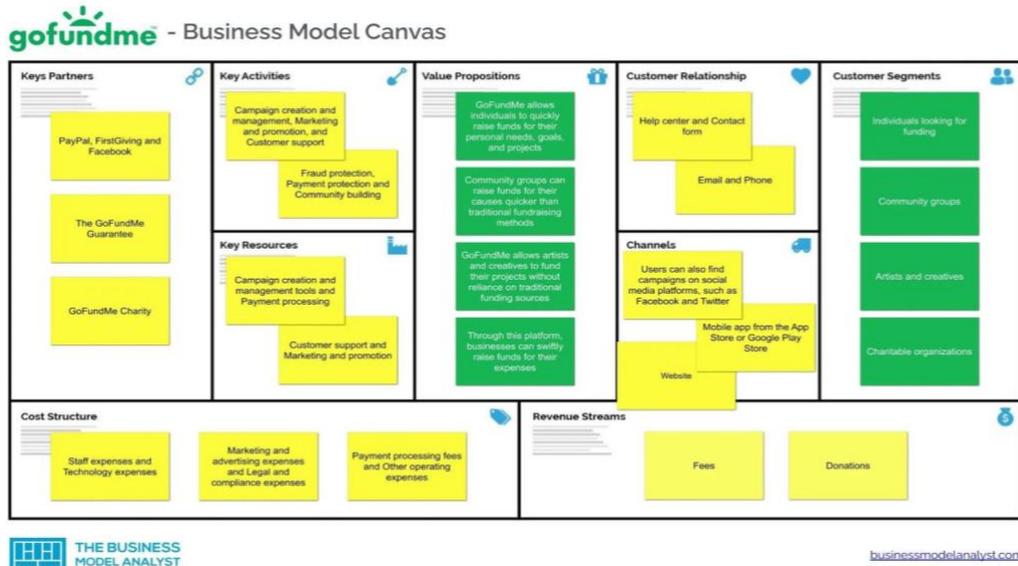


Fig. 3. Business Model Canvas (BMC) of GoFundMe

4.2. The Emergence of 4IR in Malaysia

The emergence of Malaysia's National Fourth Industrial Revolution (4IR) Policy has become palpable towards the country's aim to develop their digital manufacturing scene further. 4IR is devoted to improving the digital economy scene in Malaysia, fostering change towards digitisation and green technology. In fact, technology has become a key element in the world's operations, functions and activities. Around 65% of Malaysians are connected through mobile technologies (Allo Technology, 2021), influencing the ways in which they interact with their daily activities more than two-thirds of Malaysians are connected through mobile technologies. In fact, Malaysia is posed as one of the countries with the highest use of technology within the Southeast Asia region (Tech For Good Institute, 2023). Thus, utilising such technologies towards the digital economy can help foster the country's competitiveness, efficiency and growth. Allocating resources towards the empowerment and spread of such technological capabilities, specifically in the business area, can implicate an array of benefits towards different stakeholders. Now, more than ever, society's reliance and constant use of technology urges relevant parties to digitise their own services in order to meet the growing demands of a digital economy.

4.3. Sadaqah based crowdfunding and donation platform

Crowdsourcing and crowdfunding are not entirely new practices solely made possible by digital technology; they have historical roots in earlier methods. (Rouzé, 2019). Crowdfunding refers to raising funds for a project or cause through a large group of people online. (Iuliia Gernego et al., 2022). Sadaqah-based crowdfunding is similar to regular donation crowdfunding and is easier to understand than investment crowdfunding. However, there are not many donation platforms that specifically focus on Islamic values and supporting Muslim communities. (Mohd Anim et al., 2020) Donors are not just motivated by rewards, they also want to make a positive social impact (Prendergast, 2023). This highlights the need for a crowdfunding platform designed specifically to address the needs of Muslim communities (Mohd Anim et al., 2020). Moreover, Sadaqah-based crowdfunding platforms could not only encourage the principles of Islamic law (Maqasid Shariah) but also strike a healthy balance between using technology for charitable giving (Saad & Mohammed Fisol, 2019). The emergence of financial technology (Fintech) has smoothen the daily activities for the general public, particularly by facilitating efficient online money transactions. (Mohd Anim et al., 2020). A study by Mohd Anim et al. (2023) identified several key strategies for ensuring the success of Sadaqah-based crowdfunding platforms. These include incorporating gamification elements like rewards and challenges, creating a user-friendly experience with easy navigation and personalization, and tailoring features based on the Stimulus-Organism-Response (SOR) theory to encourage desired donation behavior. Additionally, continuous research on donor behavior and collaboration with Islamic scholars are crucial to ensure the platform remains aligned with Islamic principles and values.

4.4. Instrument Development to Measure The Non-profit Organisation Website User Satisfaction and Willingness to Donate

Validation of the instrument is a must before measuring the website ease of use, usefulness, and trustworthiness towards the website user satisfaction of using the NPO website and influence the user action. Therefore, this paper is to validate the proposed items for website easiness, usefulness, and trustworthiness through the CFA. The variables of website ease of use, usefulness, the satisfaction of using NPO website and user willingness to donate adopted from the Technology Acceptance Model (TAM). While Trust included due to it is significant to the application of many IS mediums such as the website. The result from CFA indicated several items were discarded to meet the model fit criteria. Consequently, website usefulness was discarded, one item deleted for website trust, one item also was deleted for user satisfaction of using NPO website, and out of nine items, seven items remained for the user's willingness to donate. Whereas, the convergence validity analysis for the items of website ease of use, trust, the satisfaction of using NPO website and user willingness to donate indicated the items are independent but converged to measure as an individual construct.

4.5. CharitAble: A Software Application for Charity Donation

This study aims to develop an online application that will help charitable organizations in Metro Manila become easier to reach for donors to go along with the innovation of technology continuously. The main focus of CharitAble's business model is to provide a digital platform that connects charitable organizations in Metro Manila with donors, making it easier for them to receive donations and support their causes. CharitAble aims to leverage technology and innovation to streamline the donation process and enhance donor engagement. The application focuses on creating a user-friendly interface and features that improve the donor experience, resulting in increased confidence levels and donor participation. CharitAble's business model revolves around generating revenue through transaction fees on donations, partnerships with corporate sponsors, and advertising opportunities for businesses interested in supporting charitable causes. By offering a functional and efficient platform, CharitAble aims to attract more charitable organizations and donors.

5. INITIAL BUSINESS MODEL

Based on the Literature Review conducted above, below is the initial Business Model Canvas (see Fig. 4) and Value Propositions Customer (VPC) for SadaqahNow project (see Fig. 5 & 6):

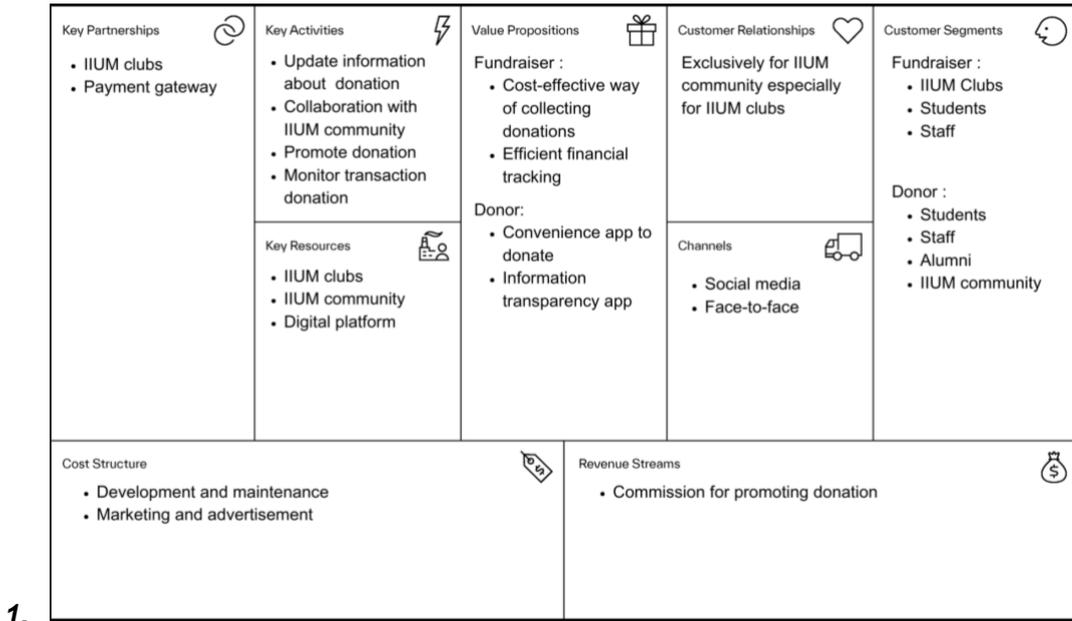


Fig.4. SadaqahNow Business Model Canvas

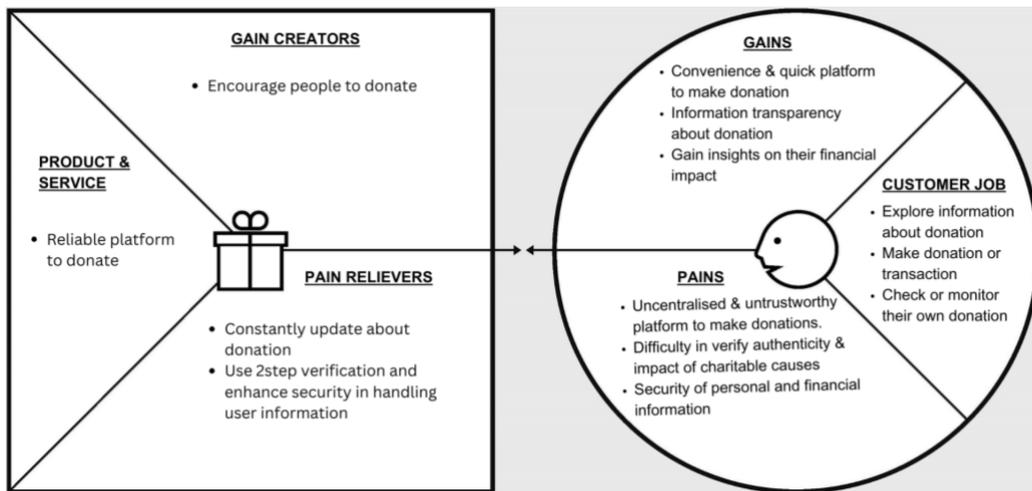


Fig. 5. Donor Value Proposition Canvas

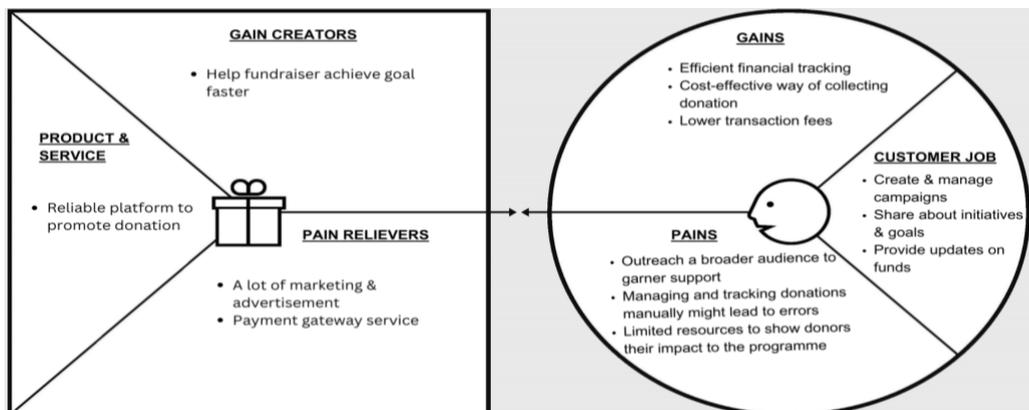


Fig. 6. Fundraiser Value Proposition Canvas

6. CONDUCT VALIDATION OF INITIAL BM & KEY FINDINGS

To validate our initial business model, we opted to employ survey questions to collect data and gauge the opinions and preferences of the IIUM community regarding donations and donation apps. We distributed a series of questionnaires through the Whatsapp platform, targeting individuals within the IIUM community. In total, we received responses from 42 participants. The majority of our respondents, comprising 39 individuals, are IIUM students followed by 2 staff and 1 lecturer. This approach allowed us to gather valuable insights into the attitudes and inclinations of our target demographic towards donation practices and applications.

As for customer segments, our survey included inquiries about donation frequency and preferred methods. Notably, when presented with a scale of 0 to 5 for donation frequency, the majority of respondents (15 individuals) indicated a level 3, suggesting that they donate occasionally rather than frequently. When asked about their preferred donation method, a significant portion of respondents (22 individuals) expressed a preference for online transfer or QR code donations. Additionally, we investigated respondents' familiarity with other donation apps, finding that a considerable number (27 individuals) were not acquainted with any other donation platforms. These findings shed light on the donation habits and preferences of our target audience, providing valuable insights for our business model validation. See Fig. 7.

As for customer relationships (see Fig. 8), we delved into respondents' preferences for staying informed about new charities and donation opportunities, as well as their perceptions regarding feedback from the charities they support. Notably, a vast majority (40 individuals) indicated social media as one of their preferred channels for receiving such updates. Moreover, our findings underscore the significance of feedback, with a substantial number of respondents (17 individuals selecting level 4 and 15 individuals choosing level 5 on a scale of 1 to 5) emphasizing the importance of receiving feedback from charities they donate to. Additionally, we investigated the type of user support respondents would likely utilize when encountering issues or queries while using a donation app. A significant majority (25 individuals) expressed a preference for accessing the frequently asked questions (FAQ) section for assistance. These insights provide valuable guidance for establishing and nurturing effective customer relationships within our business model.

Moreover, as for channels, among the inquiries posed to respondents was their preferred channel for accessing information about donation apps. Notably, a majority of participants (32 individuals) indicated social media as their primary source for such information. Additionally, participants were asked about their donation preferences, specifically whether they preferred one-time donations or recurring donations. The findings revealed that a significant majority (38 individuals) favored one-time donations over recurring ones. These insights illuminate the communication channels and donation preferences of our target audience, providing valuable considerations for refining our business model.

Furthermore, as for revenue streams, respondents were queried about their willingness to pay a nominal fee for utilizing a donation app. The findings revealed a split response, with an equal proportion of respondents, constituting 50%, expressing both willingness and reluctance to pay such a fee. Additionally,

participants were asked if they would be inclined to use a donation app that charged a fee, provided that the fee directly benefited charities. A substantial majority (36 individuals) concurred with this proposition, indicating a favorable disposition towards supporting donation apps that contribute directly to charitable causes. These insights highlight the complexities surrounding revenue generation within the context of donation apps and offer valuable considerations for devising sustainable revenue models within our business framework.

Additionally, as for key resources, respondents were asked about their comfort level with using online payment methods. The findings revealed that a majority of participants (28 individuals) expressed comfort with utilizing online payment methods for donations. Furthermore, participants were questioned about their concerns regarding the security of their personal information when donating through an app. An overwhelming majority (41 individuals) indicated a significant level of concern regarding the security of their personal data during the donation process. These insights underscore the importance of ensuring robust security measures within donation apps to instill trust and confidence among users, thereby enhancing the effectiveness of our key resources.

Lastly, as for value propositions and key activities, respondents were questioned about various aspects crucial to their donation experience. Firstly, participants were asked about the importance of having a convenient way to donate to charities, with a majority (28 individuals) highlighting its significance. Similarly, the importance of knowing that their donations support reputable charities was emphasized by a substantial number of respondents (33 individuals). Moreover, when queried about the importance of tracking their donations, a considerable majority (10 individuals selecting level 4 and 22 individuals choosing level 5 on a scale of 1-5) deemed it highly significant. Additionally, respondents were asked to identify the most important features for donors and charity clubs within a donation app. Nearly all participants (39 individuals) prioritized the easy donation feature for donors, while charity clubs predominantly favored the donor management feature, as indicated by 30 respondents. These insights underscore the importance of user-centric functionalities and transparency in fostering positive experiences and trust within donation platforms. See Fig. 9 – Fig. 11.

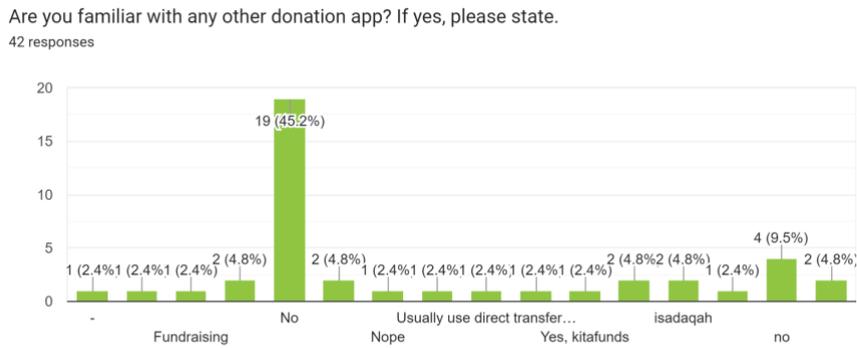


Fig.7. Customer Segment: 27 respondents have given answers related to unfamiliarity to other donation apps

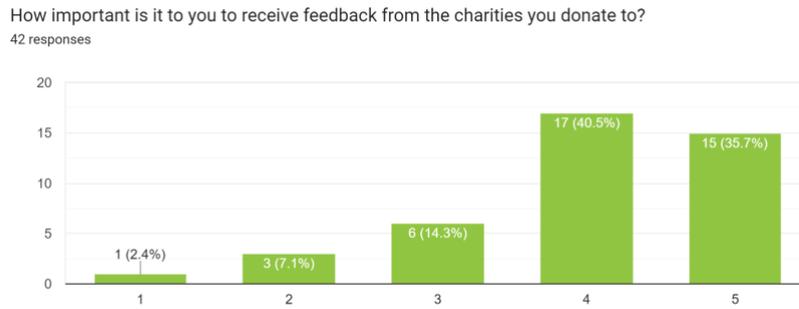


Fig.8. Customer relationships: 17 individuals selecting level 4 and 15 individuals choosing level 5 emphasizing the importance of receiving feedback from charities they donate to

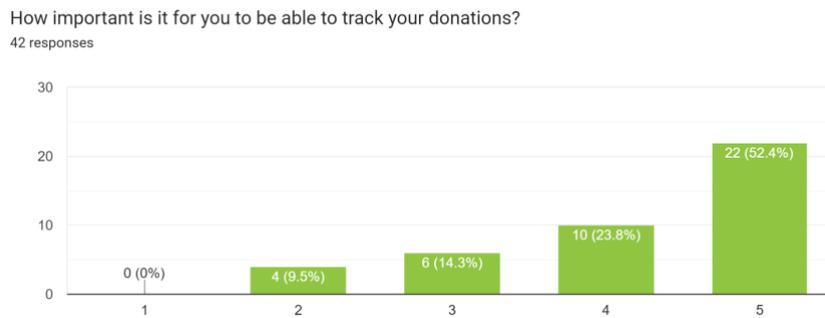


Fig. 9. Value proposition: 10 individuals selecting level 4 and 22 individuals choosing level 5 proving that being able to track donations in a donation app is highly significant.

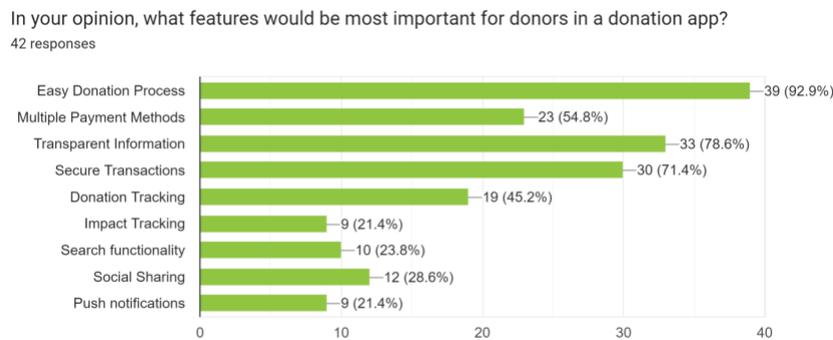


Fig.10. Value proposition: 39 individuals prioritized the easy donation feature for donors

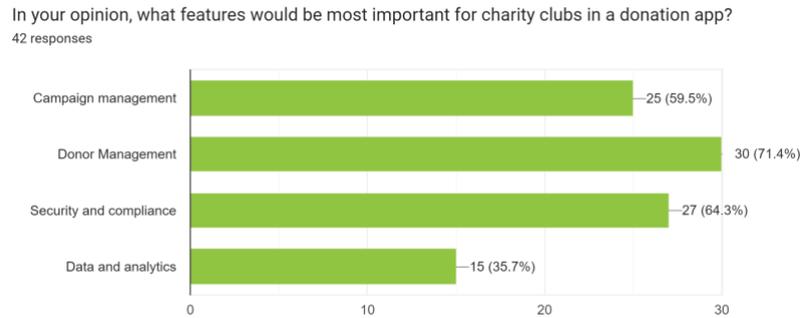


Fig.11. Value proposition: As indicated by 30 respondents, charity clubs predominantly favored the donor management feature

7. VALIDATED BUSINESS MODEL (BM) – BMC FRAMEWORK

7.1. Validated SadaqahNow Project BM

In this section, we'll provide a concise overview of the Business Model Canvas (BMC) for the validated IT/digital project, SadaqahNow. The BMC serves as a strategic tool to outline key aspects of the project's business model, including its value proposition, target customers, revenue streams, and more (Maria et al., 2023). By exploring each of the nine blocks of the BMC, we gain insight into how SadaqahNow operates and delivers value within the context of its digital platform for facilitating charitable donations within the IIUM community.

Firstly, key partnerships. SadaqahNow relies on strategic partnerships with IIUM clubs and a reliable payment gateway. Collaborating with IIUM clubs ensures a steady stream of fundraising campaigns, while partnering with a trusted payment gateway facilitates secure transactions, enhancing user trust and confidence in the platform. Then, key activities. The core activities of SadaqahNow encompass updating donation information, fostering collaboration with the IIUM community, promoting fundraising campaigns, and meticulously monitoring donation transactions. These activities ensure the smooth operation of the platform, effective communication with stakeholders, and transparent handling of funds. Next, key resources. SadaqahNow leverages key resources such as IIUM clubs, the IIUM community, and the digital platform itself. IIUM clubs provide the content and campaigns, while the IIUM community contributes donations and engagement. The digital platform serves as the backbone, facilitating interactions, transactions, and information dissemination.

For value propositions, SadaqahNow offers a compelling value proposition to both fundraisers and donors. For fundraisers, it provides a cost-effective means of collecting donations, efficient financial tracking, and instant visibility into the impact of donations. For donors, it offers convenience, transparency, and trustworthiness, making the donation process seamless and rewarding. Other blocks of (BMC) which are Customer Relationships, SadaqahNow fosters exclusive relationships with the IIUM community, particularly IIUM clubs and donors. Through personalized support, timely communication, and reliable assistance, SadaqahNow builds lasting relationships based on trust, integrity, and mutual benefit. Next, channels. SadaqahNow utilizes various channels to reach its target audience, including social

media platforms, face-to-face interactions on campus and via Network-of Mosques (Salleh et al., 2013; Dahlan et al. 2017), and possibly email newsletters. These channels enable effective communication, engagement, and promotion of fundraising campaigns, maximizing outreach and impact.

Then, customer segments. SadaqahNow serves two primary customer segments: fundraisers (IIUM clubs, students, staff, community centres) and donors (students, staff, alumni, IIUM and the public community). By catering to the unique needs and preferences of each segment, SadaqahNow ensures relevance, satisfaction, and sustained engagement. Furthermore, cost structure. SadaqahNow incurs costs associated with development and maintenance of the digital platform, marketing and advertising efforts, and operational expenses. However, these costs are offset by the potential for revenue generation through commissions for promoting donations, ensuring sustainability and scalability. Lastly, revenue streams. SadaqahNow generates revenue primarily through commissions earned from promoting donations. Additionally, alternative revenue streams such as subscription fees or transaction fees may be explored in the future to diversify income sources and enhance financial stability.

7.2. Business Environmental Map (EM)

Business environmental map (EM) provides an overview of the external factors that influence SadaqahNow business model's development and operation. It examines various aspects of the business environment, including social, technological, economic, legal, regulatory and environmental factors (Mahesh et al., 2020). See Table 1.

Table 1: Business Environmental Map for SadaqahNow

<p>Social Factors SadaqahNow aligns with Islamic teachings on charity (Sadaqah), promoting compassion and community development. It also addresses financial constraints faced by IIUM clubs and facilitates charitable giving among the IIUM community, contributing to social cohesion and responsibility.</p>	<p>Technological Factors SadaqahNow leverages technology to create a centralized donation application, streamlining the process of fundraising and making it more accessible and transparent for both IIUM clubs and donors.</p>
<p>Economic Factors SadaqahNow offers a cost-effective solution for IIUM clubs to reach their financial targets and provides donors with a convenient and trustworthy platform to contribute to charitable causes.</p>	<p>Legal and Regulatory Factors Compliance with financial regulations and data protection laws is crucial for the operation of SadaqahNow. Ensuring transparency, accountability, and security of transactions are key considerations to maintain trust and integrity within the IIUM community.</p>
<p>Environmental Factors While not directly related to environmental sustainability, SadaqahNow indirectly promotes environmental consciousness by supporting social initiatives that contribute to sustainable development goals, such as poverty alleviation, and education.</p>	

7.3. Strategy Canvas

(a) Before and After SadqahNow Implementation

Factor/ Problem	Before implementation	After implementation	Explanation
Time consuming of fundraising	Long	Short	People can donate easily whenever and wherever they want
Who can donate /make fundraising	Club and student who have information	Everyone in IIUM and the general public	Application can be use by IIUM community and there will be ads and promotion about all ongoing fundraising
Awareness level of fundraising	Medium	High	As we collaborate with IIUM club and management. it can make more people aware about the easier way to donate and attract more people to try

(b) Comparison between SadaqahNow vs. KitaFunds

- Our solution : SadaqahNow
- Others solution : KitaFunds

Factor/ Problem	Our Solution	Others Solution	Explanation
Transaction fee	Free of charge	5% of each transaction	To make sure all the donations go only to fundraising.
Exposure of application	- Collaborate with IIUM club - Promote on social media	Social media	Our app aims for the IIUM community only, hence it only focuses on IIUM.
Fundraising progress tracker	Make system that can update efficiently about ongoing fundraising	Need to check personally to see update	Easy for donor to know update about fundraising
Level of trustworthy on application	Do a lot of collab with IIUM clubs and management	Everyone can access to website to know about fundraising	With this we can gain IIUM community trust as we collaborate with important people in IIUM.
Security level of user's data	Use data encryption to store user information	Make privacy data policy	User will be more confident to fill in their bank information

7.4. Low Fidelity prototype apps

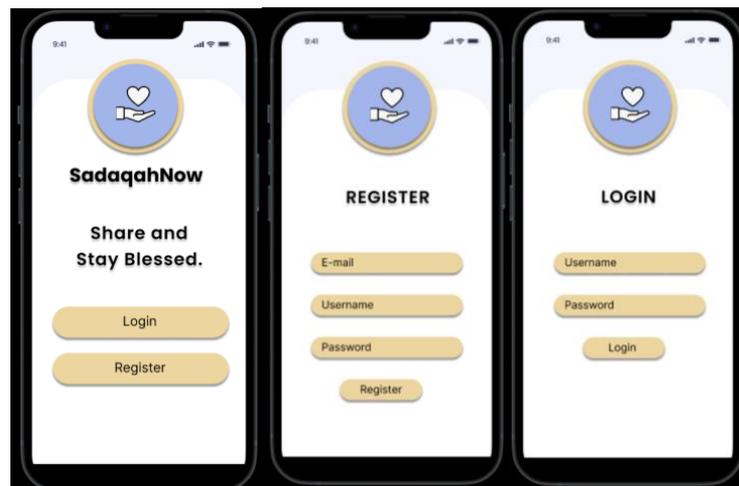


Fig.12. Interface for login and register new account

For registration of customer segments (CS) – donors and fundraisers, SadaqahNow will leverage on BDA capabilities, storing their profiles and tracked their preferences/ experiences. See Fig. 12.

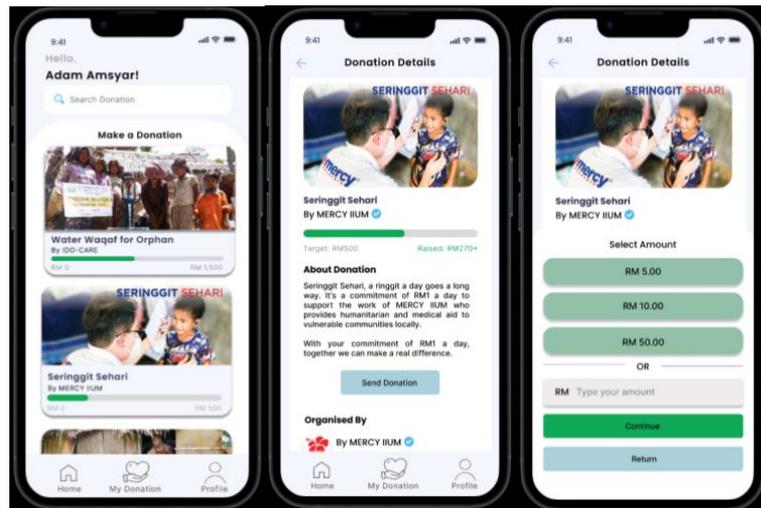


Fig.13. Interface for donation details and give donation

For donations, SadaqahNow will use AI in the search bar as it will make it easy for our user to search their desired club or fundraising to donate to (see Fig. 13).

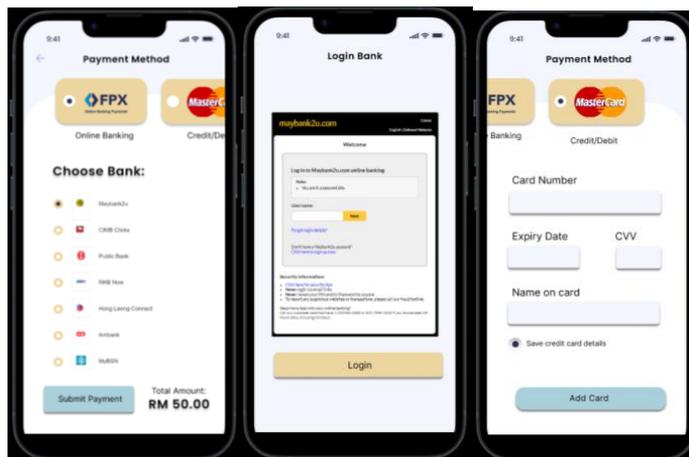


Fig.14. Interface for giving donation via bank card and FPX

For giving donations, SadaqahNow will use BDA to store user card information (see Fig. 14). Other than that, we also will use IOT in this part as it involves connecting our app with the bank cloud to make the transaction. In IOT we also can avoid fraud transactions as it can detect all of the data transactions being made.

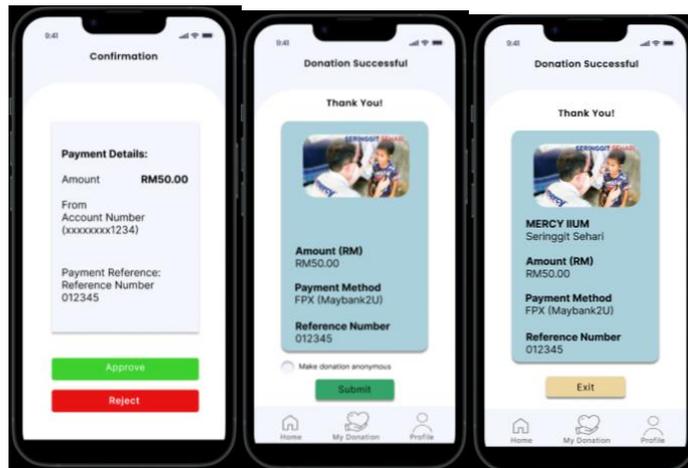


Fig.15. Interface for confirmation transaction and receipt of donation

For transaction and receipt of donation, SadaqahNow will use BDA capabilities to keep track of all receipt of transactions for each fundraising project (see Fig. 15).

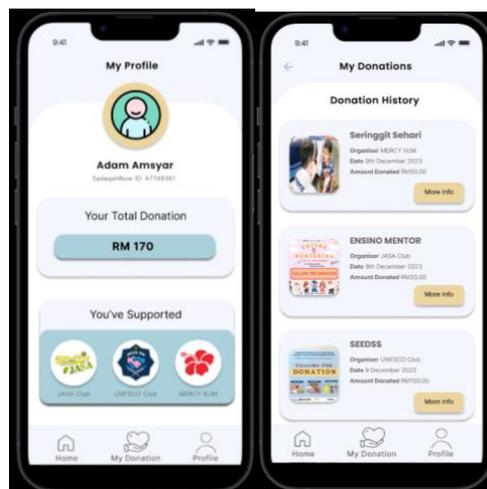


Fig. 16. Interface for profile and donation history

For donation history, SadaqahNow will use BDA capabilities to track and reflect transactions of donors history and total donation (see Fig. 16).

8. CONCLUSION AND FUTURE WORKS

In conclusion, the key challenges presented in this paper highlighted the lack of a holistic approach towards supporting IUM club crowdfunding and fundraising activities. This poses obstacles for both the donor and the organisers/fundraisers, including the tireless man-hours spent for donation collection, lack of tracking and fund progress. Thus, conceptually SadaqahNow helps to address these pains and instigates a culture of contributing, support and caring community. The surveys conducted in validating SadaqahNow project business model has provided further insight towards the relevancy of SadaqahNow as pain relievers and gain creators for both donors and fundraisers. Future works include developing a detailed IT Project Management (PMC) plan to develop SadaqahNow.

REFERENCES

- Allo Technology. (2021, December 15). Here is how Malaysian internet use changed in 2021. Allo Technology - The Smarter Connection. <https://www.allo.my/blog-here-is-how-malaysia-internet-use/#:~:text=Today%2C%20more%20than%20two%2Dthirds,speeds%2C%20among%20other%20superior%20features>.
- CharitAble (2022): A Software Application for Charity Donation. doi: 10.1109/hnicem57413.2022.10109400
- Coelho, M., & Menezes, I. (2021). University Social Responsibility, Service Learning, and Students' Personal, Professional, and Civic Education. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.617300>
- Dahlan, A. R. A, Osman, R. A. H., Ibrahim, J., Othman, M. Z. (2017). eHalal4all program - promoting halal rural products and services globally by harnessing the Network-of-Mosques (NoM) capabilities. *Contemporary Issues and Development in the Global Halal Industry: Selected Papers from the International Halal Conference 2014*
- Ibrahim, M. S. (2018). Instrument development to measure the non-profit organisation website user satisfaction and user willingness to donate. . *Asian Journal of Social Science Research*, 1(1).
- Iuliia Gernego, Petrenko, L., Dyba, M., & Svitlana Urvantseva. (2022). *Crowdfunding in the Context of Intelligent Information Technologies Development in Finance. 2022 12th International Conference on Advanced Computer Information Technologies (ACIT)*. <https://doi.org/10.1109/acit54803.2022.9913194>
- Kamarudin, M.K. et al. (2023) 'Why do donors donate? A study on donation-based crowdfunding in Malaysia', *Sustainability*, 15(5), p. 4301. doi:10.3390/su15054301.
- Khan, A. A. (2012). Religious Obligation or Altruistic Giving? Muslims and Charitable Donations. *Sacred Aid*, 90–114. <https://doi.org/10.1093/acprof:oso/9780199916023.003.0004>
- Lewrick, M., Link, P., and Leifer., L (2018). *The Design Thinking Playbook: Mindful digital transformation of teams, products, services, businesses, and ecosystems*. Wiley.
- Liu, L., Suh, A. and Wagner, C. (2017) 'Donation behavior in online micro charities: An investigation of charitable crowdfunding projects', *Proceedings of the 50th Hawaii International Conference on System Sciences (2017)* [Preprint]. doi:10.24251/hicss.2017.100.
- Mahesh, Ravindra, Bendre., Prem, Bhagwan, Acharya. (2020). Analysis of Interrelation Between Business and Environment. 68(25):423-431.
- María, del, Mar, Contreras., Francisco, Espínola., I., Romero-Pulido., Eulogio, Castro. (2023). Using the business model canvas as a methodological approach promoting innovative and entrepreneurial spirit among the students of the chemistry degree. *INTED proceedings*, doi: 10.21125/inted.2023.0068
- Milley, P., & Szijarto, B. (2020). The Landscape of Social Innovation in Canadian Universities: An Empirical Analysis. *Canadian Journal of Nonprofit and Social Economy Research*, 11(1), 21. <https://doi.org/10.29173/cjnsr.2020v11n1a325>
- Mohd Anim, N.A.H. and Omar, N.A. (2020) 'Sadaqah-based crowdfunding:drivers of Muslim donor contribution behavior', *Global Journal Al-Thaqafah*, SI.

doi:10.7187/gjatsi2020-1.

- Mohd Anim, N. A., Suffarruddin, S. H., Mohd Najib, N., & Sabarudin, N. A. (2023). Ensuring the sustainability of Sadaqah based crowdfunding platforms: The role of gamification and User Experience. *The Journal of Muamalat and Islamic Finance Research*, 35–48. <https://doi.org/10.33102/jmifr.475>
- Mostafa, S. A., Mustapha, A., Shamala, P., Obaid, O. I., & Khalaf, B. A. (2020). Social networking mobile apps framework for organizing and facilitating charitable and voluntary activities in Malaysia. *Bulletin of Electrical Engineering and Informatics*, 9(2), 827–833. <https://doi.org/10.11591/eei.v9i2.2075>
- Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A. (2014). *Value Proposition Design: How to Create Products and Services Customers Want*. John Wiley & Sons.
- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley.
- Pereira, D. (2023, April 14). GoFundMe business model - how does gofundme work and make money?. *Business Model Analyst*. <https://businessmodelanalyst.com/gofundme-business-model/>
- Prendergast, C. (2023). Organizational design for making a difference. *Journal of Public Economics*, 218, 104817. <https://doi.org/10.1016/j.jpubeco.2022.104817>
- Rizk, R. (2020). ARAB UNIVERSITIES AND SOCIAL RESPONSIBILITY. *The Journal of Economic Research & Business Administration*, 131(1), 98–111. <https://doi.org/10.26577/be.2020.v131.i1.09>
- Rouzé, V. (2019). Crowdsourcing and Crowdfunding: The Origins of a New System? *Cultural Crowdfunding: Platform Capitalism, Labour and Globalization*, 15–33. <https://doi.org/10.16997/book38.b>
- S Baqutayan, S. M., A Mohsin, M. I., Mahdzir, A. M., & Ariffin, A. S. (2018). The psychology of giving behavior in islam. *Sociology International Journal*, 2(2). <https://doi.org/10.15406/sij.2018.02.00037>
- Saad, M. A., & Fisol, M. (2019). Financial Technology (FinTech) Services: Analysis from The Perspective of Maqasid Al-Shariah. *Journal of Social Science and Humanities*, 2(6). <https://doi.org/10.26666/rmp.jssh.2019.6.2>
- Saleh, B., Ma-Key, N., Dahlan, A. R. A., Osman, R. A. H. (2013). MyMukim2Cloud Collaborative System: A Mosque Collaborative Network for Serving the Societal Needs in Malaysia. *IEEE, 5th International Conference on Information and Communication Technology for the Muslim World 2013*.
- Sheda. (10 October, 2022). *How to: Business model canvas explained*. Retrieved from Medium: <https://medium.com/seed-digital/how-to-business-model-canvas-explained-ad3676b6fe4a>
- Shu, Y. (2022). Legislative Response to College Students' Non-altruistic Charitable Donations. *Asian Journal of Social Science Studies*, 7(4), 120. <https://doi.org/10.20849/ajsss.v7i4.1106>
- Singer, A. (2013). Giving Practices in Islamic Societies. *Social Research: An International Quarterly*, 80(2), 341–358. <https://doi.org/10.1353/sor.2013.0002>
- Sirisawat, S. et al. (2022) 'The Future of Digital Donation Crowdfunding', *PLOS ONE*, 17(11). doi:10.1371/journal.pone.0275898.
- Tech For Good Institute. (2023, November 16). National-level priorities to grow the Digital

Economy: Spotlight on Malaysia.
<https://techforgoodinstitute.org/blog/articles/advancing-digital-economy-through-national-level-priorities-spotlight-on-malaysia/>

Varga, D. (10 August, 2020). *How to use value Proposition Canvas: The definitive guide*. Retrieved from Digital Natives.: <https://www.digitalnatives.hu/blog/value-proposition-canvas/#:~:text=Value%20Proposition%20Canvas%20can%20help,increase%20your%20chances%20of%20success.>

Zhao, L. and Shneor, R. (2020) 'Donation crowdfunding: Principles and donor behaviour', *Advances in Crowdfunding*, pp. 145–160. doi:10.1007/978-3-030-46309-0_7.

THE IMPORTANCE OF ETHICS IN VIDEO GAME DEVELOPMENT

MOHD KHAIRI MOHAMAD YUSRI¹, MOHD. AMIRULLAH AKMAL BIN MOSIDI²

The Kulliyah of Information and Communication Technology, International Islamic University Malaysia, Gombak, Malaysia

**Corresponding author: khairiyusri07@gmail.com*

ABSTRACT: Video game developers are among those who directly contribute to this through their direct involvement in video game development. Therefore, there are conflicts of interest in the game development, and the developers can avoid the breach of ethics. This can be done if the video game developer understands the importance of ethics as it plays a significant role in shaping human development. This paper discussed ethics and its relationship with human development, the consequences of avoiding ethics in game development, and some Islamic principles that can be applied in game development. In connecting ethics in game development with human development, the code of ethics for game developers gave insights into the relevant values to be added to the guidelines of game development and human development. The consequences of ignoring ethics are dire, including shirk, and involvement in gambling and pornography. Maqasid Syariah is the Islamic principle that should be implemented and compiled to ensure the obedience of game developers toward the ethics in game development.

KEY WORDS: *Ethic, Values, Game Development, Islamic Ethic*

1. INTRODUCTION

Video games have undeniably become an imperative part of most of our life, either as a form of entertainment and even as a hobby. Not only kids, adults and young adults are also likely to involve themselves with video games. This is because playing video games will increase the users' dopamine (thoughtfulparent, 2024) Dopamine is a chemical released in the brain that makes an individual feel good (Healthdirect, 2021) and becomes active when individuals participate in something fun and pleasurable, such as video games.

Because of this, the content of the game needs to be content appropriate for all of the ages of its players, especially for the young player or the children. As they can be easily influenced by what they see and hear.

Video game developers are among those who directly contribute to this through their direct involvement in video game development. Because of their role in developing the games, they have many opportunities to influence others to do good or bad, to maximize their efforts, good or bad. In order to get the most out of their efforts, they must be committed to making the video game developer a useful and respected profession.

This can be done if the video games developer understands the importance of ethics as it plays a significant role in shaping human development. This is because ethics and values make people understand that their decisions affect themselves and others. Thus, ethics and values increase confidence, leadership capacity, improve decision making and provide long-term benefits (Sharma, 2021). In Islam, ethics can be defined as good values and principles based on Islamic sources (Mohammed, 2011). Rosidi, Mokhtar, and Majid (2022) also suggest that maqasid shariah could be a model that developers can use in developing software, including video game development.

This paper is compiled through content analysis using literature review on the existing articles that are available on the internet. In this paper, the objective that we are going to discuss here are as follow:

- Video games, ethics and human development
- The effect of ignoring ethic in video game development
- Islamic principle as a guide for ethical game development

2. Video Games, Ethics and Human Development

The code of ethics for game developers is proposed by International Game Developers Association (IGDA), a non-profit organisation that aimed to, according to their homepage, “advance the careers and enhance the lives of game developers by connecting members with their peers, promoting professional development, and advocating for the interests of game developers worldwide”. According to their Code of Ethics on their “Policies” page, their objectives of code of ethics are as follow:

1. To promote the growth of our industry and the growth of creative endeavours;
2. To ensure a professional standard of workplace environment for all development.
3. To publicly establish and communicate our standards as media professionals.

Their code of ethics is divided into three parts: principles, workplace, and leadership. Principles refers to the ideals that every member should follow, workplace refers to their rights to have better facilitations to ensure professional delivery and creativity. Last but not least, leadership, which refers to the standards for the management and leadership of development studios. The general idea of this code of ethics is to uphold the game developers on their accountability towards the game development in various areas that the code of ethics already mentioned.

The principles section in this code of ethics focused on the idea of how game developers should behave and what principles they should adhere to. Respecting human rights, protecting intellectual properties, knowledge sharing, accountability, and striving for the recognition of the professions are the main ideas of this section of this code of ethics. Workplace element in code of ethics aimed at the environments of the workplace that are considered as ideals, such as no discrimination towards races, religions and origins, no harassment in terms of verbal and sexual, and to prioritise safety for all developers. Last but not least, the element of leadership in the code of ethics is focused on the role of leaders in the

game development team, including but not limited to, welfare of the workers, obeying contracts and allowing knowledge transfer among developers for better products and experience.

The values of the code of ethics in game development such as accountability, trustworthy, respect, good leadership and competence are crucial as those values reflect the quality of work which is affected by how those values are connected to each other. For instance, good leadership in the workplace seeded respect from the developers, thus increasing their competency in developing a quality game.

Human development will be better if the guideline of the development follows those values in code of ethics of game developers. In fact, the common theme of all codes of ethics are about the value of trust towards each other. The value of Islam in terms of sahsiah or personality among Muslims are found in this code of ethics. To summarise, the values embodied in this code of ethics related to the ideal guideline of human development according to Islam which are included, but not limited to, uplifting human rights, protecting people from harassment, developing good leadership, and taking care of workers' welfare.

3. THE EFFECT OF IGNORING ETHIC IN VIDEO GAME DEVELOPMENT

In Islam, video game and other form of entertainment is considered permissible unless it has forbidden thing was included in the game or entertainment , such as the hadith narrated by Hanzalah RA, the words of the Prophet SAW:

يَا حَنْظَلَةُ سَاعَةٌ وَسَاعَةٌ وَلَوْ كَانَتْ تَكُونُ قُلُوبُكُمْ كَمَا تَكُونُ عِنْدَ الذِّكْرِ لَصَافَحْتَكُمْ الْمَلَائِكَةُ حَتَّى تُسَلِّمَ عَلَيْكُمْ فِي الطَّرِيقِ

The meaning: "O Hanzalah! There is a time for worldly affairs, there is a time for worship. And if your heart is always the same as when you are remembering Allah SWT, the angels will greet you and greet you in the middle of the road." Sahih Muslim (2750)

يَا حَنْظَلَةُ سَاعَةٌ وَسَاعَةٌ وَلَوْ كَانَتْ تَكُونُ قُلُوبُكُمْ كَمَا تَكُونُ عِنْدَ الذِّكْرِ لَصَافَحْتَكُمْ الْمَلَائِكَةُ حَتَّى تُسَلِّمَ عَلَيْكُمْ فِي الطَّرِيقِ

Imam Nawawi when interpreted this hadith also transmitted in Sahih Muslim with a different wording, he made it clear that it is not necessary for us to perform ibadah all the time. That is why when Hanzalah felt worried that he is a hypocrite because he was 'careless' from remembering Allah SWT, the Prophet SAW explained that there is a time set aside for worship, there is also a time that needs to be set aside for worldly life and having fun with the family (Pejabat Mufti Wilayah Persekutuan, 2020).

There are many effects when ethics and values are being ignored while developing a video game. One of them is that it could lead its players to be involved in gambling activities. There are many examples of video games that are making the gambling element a vital part of the game. Two of the most popular mobile games in Malaysia, PUBG Mobile and Mobile Legends: Bang Bang, sell their players boxes that contain items that are rare or unavailable in the game store.



Fig. 1. The example of lootbox that are popular in current video game industry

This type of idea (loot box) is forbidden in Islam because it contains the elements of gambling. If luck is on the player's side, then the player will get the item with just one attempt to open the chest. Otherwise, It is possible that players will not get items after dozens of tries, even with thousands of money invested in the game.

Next, pornography also is an issue if the ethics and values are abandoned while making a video game. Since many years ago, many video game developers have been synthesising sexy women in their games. Many of the games can be seen portraying an image of a woman character with “the lesser of the cloth, the stronger the character is”.



Fig. 2. Portrayal of woman character in video games with too revealing clothes

All of this are an element of soft pornography and could indirectly be a promotion to the real pornography itself. Allah tell us in Surah Al-'A'raf, verse 33;

قُلْ إِنَّمَا حَرَّمَ رَبِّيَ الْفَوَاحِشَ مَا ظَهَرَ مِنْهَا وَمَا بَطَّنَ ... ﴿٣٣﴾

Meaning: "Tell them (O Muhammad): My Lord has forbidden indecent acts, whether overt or hidden?...."

Based on this verse, watching pornography or other indecent acts in privacy at home, through video games or through the internet is forbidden. Apart from that, the pornography is also highly linked to violent ideas and behaviour (Hald, Malamuth and Yuen, 2009). So the developer of video games should think about this and remove the contents that are promoting pornography in their games, as it is not only forbidden but also brings negative effects to the human interaction with others.

Other than that, video games that abandon ethics and islamic value can also cause a person to be involved in things of shirk. There are many examples of video games that have this problem. One of them is PUBG, where the game in 2020 introduced a mod where it allows the player to receive weapons and others by worshipping idols, this feature was criticised by the Muslims and later removed by the game developers (kumparanTech, 2020).

4. ISLAMIC PRINCIPLE AS A GUIDE FOR ETHICAL GAME DEVELOPMENT

Islam is a universal religion, namely a religion whose application is not limited by a particular place and time. It is suitable for all classes of people. The universality of Islam is first seen in the concept of monotheism which forms the cornerstone of its teachings. Thus, it can be used as guidelines in creating a video game which is ethical and could promote the betterment of the ummah. Allah s.w.t said in Surah al-Ma'idah, verse 90:

يَا أَيُّهَا الَّذِينَ ءَامَنُوا إِنَّمَا الْخَمْرُ وَالْمَيْسِرُ وَالْأَنْصَابُ وَالْأَزْلَامُ رِجْسٌ مِّنْ عَمَلِ الشَّيْطَانِ فَاجْتَنِبُوهُ لَعَلَّكُمْ تُفْلِحُونَ ﴿٩٠﴾

Meaning: "O Believers! Intoxicants, games of chance, idolatrous sacrifices at altars, and divining arrows are all abominations, the handiwork of Satan. So turn wholly away from it so that you may attain true success."

Hence, as a video game developer, especially for Muslims. They should always avoid including the things that are clearly prohibited by religion as part of a game. There are many ways to make sure the games that are being developed are in line with the interest of religion. Rosidi, Mokhtar & Majid (2022) suggest that maqasid shariah could be a model for the video games developers. Below are the five principle of the maqasid shariah:

1. Protection of the religion (al-din)
2. Protection of the life (al-'nafs)
3. Protection of the intellect (al-'aql)
4. Protection of the lineage (an-nasl)
5. Protection of the property (al-mal/wealth).

Through the maqasid syariah, the video game developer should think about the effects of their video game based on the principle that has been outlined in the maqasid syariah. If the principle of maqasid syariah is being complied by the developer, surely the game that they are developing will promote a better gaming environment to the gaming community.

5. CONCLUSION

Ethics enables us to tell the truth, keep our word, or help those in need. It is an ethical framework that supports our daily lives and helps us make decisions that positively impact us and distract us from unfair consequences. The ignorance of ethics in video games could bring many bad impacts to yourself, your family, and the ummah.

As Muslims, we already have an ethical framework based on the Qur'an and the practices of the prophet, Muhammad S.A.W. It can be applied to everything in our daily lives including in the development of video games, such as in this paper where it can be seen that the principle of maqasid syariah could be used in order to make ethical video games in accordance with Islamic values. Thus, the Muslim developer should follow and maximize this principle in order to make better video games for the ummah.

REFERENCES

- Al-Aidaros, H., Shamsudin, F. & Idris, K. (2013). Ethics and Ethical Theories from an Islamic Perspective. *International Journal of Islamic Thought*. Retrieved from https://www.ukm.my/ijit/wp-content/uploads/2016/01/IJIT-Vol-4-Dec-2013_1_1-13.pdf
- Code of ethics - International Game Developers Association. (n.d.). Retrieved from <https://members.igda.org/page/codeofethics>
- Ebrahimi, M. & Yusoff, K. (2017). Islamic Identity, Ethical Principles and Human Values. *European Journal of Multidisciplinary Studies*. Retrieved from https://revistia.com/files/articles/ejms_v2_i6_17/Mansoureh.pdf
- Hald, G.M., Malamuth, N.M. and Yuen, C. (2010), Pornography and attitudes supporting violence against women: revisiting the relationship in nonexperimental studies. *Aggr. Behav.*, 36: 14-20. <https://doi.org/10.1002/ab.20328>
- Harviainen, J.T., Paavilainen, J. & Koskinen, E. Ayn Rand (2020). Objectivist Ethics Applied to Video Game Business. *J Bus Ethics* 167, Retrieved from <https://doi.org/10.1007/s10551-019-04159-y>
- Healthdirect. (2023). Dopamine. Retrieved from <https://www.healthdirect.gov.au/dopamine>
- Kumparan(2020). Diprotes Umat Islam, Game PUBG Hapus Fitur 'Sembah Berhala'. Kumparan. Retrieved from <https://kumparan.com/kumparantech/diprotes-umat-islam-game-pubg-hapus-fitur-semabah-berhala-1tYS6R8yN6M/1>
- Pejabat Mufti Wilayah Persekutuan. (2020, January 15). Bayan Linnas Siri Ke-220: PUBG: Pandangan dari Sudut Syarak. Retrieved from <https://muftiwp.gov.my/artikel/bayan-linnas/3992-bayan-linnas-siri-220-pubg-pandangan-dari-sudut-syarak-syarak>
- Rosidi, M. H., Mokhtar, A. W & Majid, M. N. A. (2022). The Role of Maqasid Al-Shari'ah as a Fundamental Ethics in Social Media Use. *International Journal of Academic Research in Business and Social Sciences*, 12(4), 1285–1301. DOI:10.6007/IJARBS/v12-i4/13044

- Sharma, M. (2021). Role of ethics & values in enhancing human capital, soft power and social harmony. The Times of india. Retrieved from <https://timesofindia.indiatimes.com/readersblog/upsc-content/role-of-ethics-values-in-enhancing-human-capital-soft-power-and-social-harmony-33922/>
- Sukhov, A. (2019). Ethical issues of simulation video games. In L. Elbaek, G. Majgaard, A. Valente, & S. Khalid (Eds.), Proceedings of the 13th International Conference on Game Based Learning, ECGBL 2019 (pp. 705-712). (Proceedings of the European Conference on Games-based Learning; Vol. 2019-October). Dechema e.V.. <https://doi.org/10.34190/GBL.19.060>
- Thoughtfulparent. (2024). The revealing reason why kids love video games. Retrieved from <https://thoughtfulparent.com/why-are-video-games-addicting.html#:~:text=Dopamine%20is%20a%20neurotransmitter%20in,this%20%20hit%20of%20dopamine>

A CONCEPTUAL BUSINESS MODEL FOR HOUSECLEANING MASTER DEBU: ECO-FRIENDLY ENHANCEMENT, *SERTU* SERVICES, B40 CLEAN-PRENUER NURTURING AND COMMUNITY PLACES CARE

NURFADZLINA BINTI SAFUAN¹, RAFA ELEAN SUGAFTA²,
NADIRAH BINTI ROS LIZA³, ABDUL RAHMAN AHMAD DAHLAN⁴

^{1,2}Department of Computer Science, ^{3,4}Department of Information System, Kulliyah of Information and Communication Technology, International Islamic University Malaysia

*Corresponding author: fadz.saf@gmail.com

ABSTRACT: This paper aims to showcase an eco-friendly housecleaning service conceptual model with an innovative digital platform, closely tied to the Sustainable Development Goals which are specifically aligns with SDG 1 (No Poverty), SDG 3 (Good Health and Wellbeing), SDG 4 (Quality Education) and SDG 8 (Decent Work and Economic Growth). The primary challenge is addressing the pressing need for individuals who lack the time to clean their homes due to their demanding work schedules in the pursuit of a paycheck. In addition to the commitment in lessening the struggle, eco-friendly housekeeping services extend a specialized offering known as the *sertu* service to our Muslim customers. This unique service ensures a meticulous cleansing of areas and items that may come into contact with *najis mughallazah*, providing Muslim clientele with a heightened sense of cleanliness and confidence for their daily activities, especially prayers. Within this business, the customer base comprises two distinct categories: the service seekers and the service providers. Service seekers encompass residents, B40 individuals, offices, donors, and mosque beneficiaries. On the other hand, the service providers include individuals from the B40 group undergoing skill empowerment and collaborators from the cleaning supply sector. This paper also delves into a comprehensive understanding of customers' extreme pain points and how the business can alleviate them, ultimately strengthening the business model. The methodology adopted is Design Thinking (DT), which involves extensive literature review, interviews to understand customers' pain, benchmarking, ideation and testing using business modelling tools such as the Business Model Canvas (BMC) and Value Proposition Canvas (VPC), and thus, allowing identification and addressing the unique needs and challenges within the house cleaning services ecosystem. This conceptual housecleaning multi-sided business model, paired with a digital platform and apps, provides numerous paths to alleviate customer pain and overcome challenges especially for the gain creators such as enhancing health, eco-friendly, and *sertu* services while nurturing B40 clean-preneurs.

KEY WORDS: *Eco-friendly, environment conservation, pristine home, B40 clean-preneurs, sertu, business model*

1. INTRODUCTION

In a world grappling with the pressing challenges of pollution, environmental degradation, and the pursuit of sustainable living, the importance of effective housekeeping services cannot be overstated. In fact, the demand for efficient housekeeping services has grown exponentially across various customer segments. The housecleaning industry is constantly evolving to meet the changing needs of homeowners and businesses, as our world becomes more technologically advanced, the ways in which we clean our homes and offices are also changing (Elhadi, 2022). This proposal delves into the challenges faced by distinct customer groups, recognizing their unique needs and aspirations. Among the service seekers, they can explore the realms of residential houses, the B40 community, offices, donors, and mosque beneficiaries. Simultaneously, they can also delve into the service providers' landscape, including clean-preneurs and cleaning suppliers. Each customer segment encounters specific job-to-do, pains, and gains that must be comprehensively addressed for a sustainable and impactful housekeeping solution. As we embark on this journey, it is imperative to align the efforts with the Sustainable Development Goals (SDGs) of Good Health and Well-being (SDG 3) by providing cleaning service, No Poverty (SDG 1) and Work and Economic Growth (SDG 8) by giving an opportunity to the B40 to upskill themselves and may become a clean-prenuer in the future, and Quality Education (SDG 4) by providing training to the B40.

The residential homeowners seek not only cleanliness but also an environment conducive to well-being. The job-to-do involves maintaining a harmonious living space, while the pains include time constraints and the desire for eco-friendly solutions. Gains encompass a healthier lifestyle and peace of mind. Current solutions often lack personalized services and fail to align with sustainable practices (Brenan, 2020).

The B40 community, often facing economic challenges, requires affordable yet effective housecleaning solutions. The job-to-do is to maintain a clean and healthy living space within budget constraints. Pains include financial limitations, while gains encompass an improved quality of life. Existing solutions may overlook the specific needs of this demographic, hindering inclusivity and social progress (Ismail, 2023).

Offices demand immaculate environments for productivity and employee well-being. The job-to-do involves creating a professional and tidy workspace. Pains include disruptions during office hours, and gains involve enhanced employee satisfaction and performance. Current solutions often lack flexibility and may not align with the evolving nature of modern workspaces (Ekaterina, 2014).

Donors, driven by the desire to contribute to societal well-being, seek efficient channels to allocate resources for cleaning services. The job-to-do is to support community cleanliness initiatives. Pains include a lack of transparency, while gains involve positive social impact. Existing solutions may lack scalability and fail to integrate seamlessly with philanthropic goals (Elhadi, 2022).

Mosques, as communal spaces, require meticulous cleaning to facilitate spiritual activities. The job-to-do involves maintaining a sacred and hygienic environment. Pains include time constraints during religious events, while gains

encompass spiritual tranquillity. Current solutions may lack cultural sensitivity and fail to cater to the unique needs of religious spaces (Yusuf & Mohd Subri, 2022).

Entrepreneurs in the housecleaning sector seek sustainable business models that align with societal needs. The job-to-do is to provide effective and innovative housekeeping services. Pains include market competition and resource management, while gains involve business growth and positive social impact. Existing solutions may lack adaptability and innovation, hindering the growth of clean-preneur ventures.

Suppliers in the cleaning industry face challenges related to market demand and sustainable sourcing. The job-to-do involves supplying high-quality and eco-friendly cleaning products. Pains include market fluctuations, while gains encompass long-term partnerships and a positive environmental impact. Current solutions may lack traceability and fail to meet the increasing demand for sustainable practices.

In exploring the current landscape, the aim is to bridge the gaps and present a forward-thinking, inclusive, and impactful housekeeping solution that not only addresses the job-to-do, pains, and gains but also aligns with the broader goals of sustainable development.

2. OBJECTIVE

Amid rapid global development, maintaining clean and safe surroundings is crucial, especially for families with vulnerable children, to prevent the spread of diseases and germs. Therefore, the main objective of this paper is to give everyone access to a clean home to those clients who are busy working and do not have enough time by utilizing good quality, safe cleaning equipment, and cost-effective as well as environmentally friendly cleaning services that fulfill customer needs. Following SDG 3, housekeeping services strive to promote environmentally friendly and sustainable domestic cleaning approaches that conserve natural resources while minimizing further degradation of the environment. Moreover, through the company's value proposition, this paper's objective is to identify additional cleaning offerings that can create an opportunity for Master Debu to be relevant in the market niche. Furthermore, Master Debu aims to support jobless individuals like the B40 group and those seeking professional advancement by providing job opportunities and nurturing B40-preneurs by integrating environmentally conscious ideas into housekeeping services.

3. METHODOLOGY

This paper adapts the DT methodology which encompasses five key stages: empathize, define, ideate, prototype, and test (Chasanidou et al., 2015). According to the same authors, the empathize stage involves actively listen to the customer segment, conduct in-depth interviews and survey to gain a deep understanding of their cleaning preferences, concerns, and pain points. This knowledge forms the foundation for the subsequent stages.

In the define stage, the plan is to analyze the information gathered during the empathize stage to define the core problem areas and identify specific objectives for housecleaning service. This stage helps to establish clear goals and align efforts with the needs.

During the ideate stage, brainstorming sessions and creative thinking exercises were conducted to generate innovative solutions and ideas in the form of an initial business model.

Next is the prototype stage, which is the need to transform our ideas into tangible solutions. We create business models and low fidelity digital app prototypes of our cleaning processes, incorporating the elements of pollution control, eco-friendliness, aromatherapy, Islamic perspectives, free services, and funding. These prototypes are then tested and refined based on feedback in the form of validated business models and low fidelity digital apps.

Through the iterative testing process, we ensure that the housekeeping service business model meets and exceeds expectations by offering house cleaning solutions i.e. relevant, unique, and innovative addresses pollution, eco-friendliness, SDG 1,3,4,8 align and incorporates an Islamic perspective on cleanliness.

4. LITERATURE REVIEW

According to Bhatnagar and Nim (2019), effectively managing the cleanliness, maintenance, and adornment of workplaces and homes poses inherent difficulties. This complexity has heightened with the economic shift towards a digital society, resulting in a proliferation of multi-sided platform businesses providing housekeeping services, as their focus is to provide cost-effective, well-maintained, and welcoming environments (Bhatnagar & Nim, 2019). Therefore, this literature review intends to highlight the impact of multi-sided digital platforms on the cleaning service industry.

4.1. Malaysia Digital Economy Blueprint (MyDigital)

Malaysia is committed to achieving the goals outlined in MyDigital in its mission to become a better nation. These strategies are intended to achieve positive outcomes for the public, businesses, and the government over a three-phase period ending in 2030 according to the Malaysia Digital Economy Blueprint (2023). The Malaysia Digital Economic Blueprint highlights the country's aim to introduce technology and the digital economy into all relevant sectors by incorporating technology into Malaysian businesses and public sectors, such as education and commerce. This initiative can drive digital transformation, ultimately leading to inclusive, responsible, and sustainable socio-economic development (Cushman & Wakefield, 2019). To this business model, implementing technology in housekeeping can increase work efficiency, and at the same time reduce the time taken to clean certain places. Leveraging a digital platform to manage the Master Debu cleaning business aligns with MyDigital's aim to incorporate technology into business. This is considered highly effective as the industry nowadays emphasizes the use of technology development to ease daily life.

4.2. National 4IR Policy

The National 4IR Policy (2023) is designed to facilitate the equitable, responsible, and sustainable growth of the nation. Its core objective is to harness technology for the betterment of society, the enhancement of the economy, and the preservation of the environment. The overarching vision is to position the country as a dynamic hub for socioeconomic development, characterized by innovation and adaptability to the evolving needs of its populace. Moreover, this policy's human-

centered approach is a notable feature. It places people at the forefront of technology innovation, stressing productivity maximization and the delivery of high-quality products and services. In essence, it envisions a future in which technology is a powerful tool to better citizens' lives, elevating their living standards, and improving the overall human experience (Malaysia Economy Planning Unit, 2021).

Furthermore, with the Fourth Industrial Revolution (4IR) driving a fast transformation of the work environment, it is critical to prepare the workforce to manage these changes efficiently. Through technology advancement in Master Debu, such as the use of automated cleaning equipment, smart scheduling software, and digital payment systems, cleaning businesses can operate more efficiently and provide higher quality services to their customers. Additionally, creating a supportive regulatory framework for technology adoption can encourage innovation within the cleaning industry, leading to the development of new cleaning methods, eco-friendly products, and improved customer experiences.

4.3. Sertu Cleaning

Sertu is a term in Islam referring to purification or cleansing performed after specific impure acts or conditions. This term is commonly utilized in the context of managing impurities or conducting ablutions (*wudu*) within Islamic practices. *Sertu* gains particular relevance when addressing impurities that impact an individual's state of ritual purity, such as contact with substances like urine, feces, or blood, which are deemed *najis*. Additionally, it involves the cleansing of any body part that has come into contact with such dirtiness, adhering to Islamic guidelines (Salleh et al., 2020). *Sertu* means to wash the limbs, clothes, places, utensils, and equipment that come into contact with the *najis mughallazah* seven times, one of which is with soil-mixed water (Yusof & Subri, n.d.).

It is worth noting that awareness of *sertu* cleaning operations among industry players in Malaysia is reported to be relatively low (Yaacob & Rahman, 2023; Amer Shariffudin, 2023). Cleaning services can address this gap by providing specialized *sertu* cleaning tailored to meet the specific needs of Muslims encountering challenges in this area.

4.4. Multi-Sided Platform Business

A multi-sided platform business model for eco-friendly housekeeping services serves as a dynamic link between environmentally concerned customers and sustainable housekeeping suppliers. This strategy not only solves the urgent need for pollution reduction in the housekeeping industry but also promotes a network in which both service seekers and suppliers' profit. As mentioned by IGI Global (2021), a digital platform acts as an intermediary to connect two or more mutually dependent groups of users (e.g., sellers and buyers) with shared economic objectives.

Master Debu offers a range of services and benefits catering to various businesses, including the provision of cleaning supplies, servicing residential properties, and maintaining mosques. One of the biggest benefits of the multi-sided business model is that it allows companies to capture and serve a larger customer base (Sheykin, 2023). Simultaneously, service providers ranging from independent

cleaners to certified green cleaning firms may present their knowledge and offers to a larger audience, extending their customer base and increasing their awareness in the sustainable living industry. The platform's collaborative ecosystem encourages the usage of eco-friendly practices while also supporting economic growth in the green services industry.

4.4. Benchmarking of Housecleaning Business Model

Benchmarking is a process that involves measuring the performance of your business against a competitor in the same market (Business Victoria, 2022). The objective is to learn from the best and figure out how to improve. It may encompass factors such as quality, efficiency, cost, and customer satisfaction.

4.4.1. Kleanhouz

Kleanhouz, as shown in Fig. 1, is a premium house cleaning located in Klang Valley that specializes in post-renovation cleaning services for different kinds of houses as well as building renovation projects, which is very convenient for people who just move into a new home. They provide a professional service with ready workmanship and complete equipment that will be less burden to the client. Moreover, Kleanhouz strives to clean every area of the house effectively according to client preference. The BMC for Kleanhouz is shown in Fig. 2.



Fig.1. Web interface of Kleanhouz (<https://mykleanhouz.business.site/>)

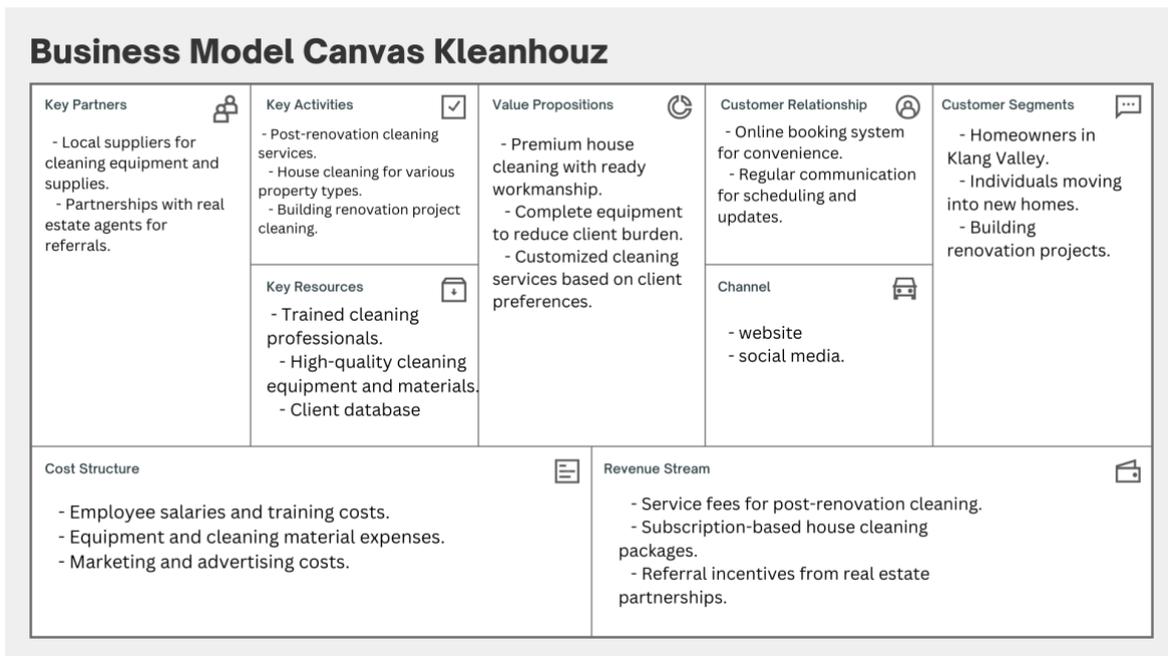


Fig.2. Business Model Canvas (BMC) for Kleanhouz

4.4.2 DeHouze

At DeHouze, they offer a flexible hourly home cleaning service that seamlessly fits your schedule as shown in Fig. 3. The mission is to provide a customized cleaning, whether for a quick touch-up or a thorough deep clean. The services cover basic tasks for homes and offices starting from just one hour, including tidying up, sweeping, mopping, surface wiping, bathroom cleaning, rubbish disposal, and bed sheet changing. In addition, deep cleaning encompasses additional tasks like wiping fixtures, ceiling fans, removing cobwebs, scrubbing the bathroom, and cleaning appliances and furniture. They also specialize in the move-in, move-out, or post-renovation cleaning including all deep cleaning tasks, plus residue removal, outdoor area cleaning, and trash disposal. The DeHouze's BMC is summarized in Fig. 4.

Fig.3. Web interface of DeHouze(<https://www.dehouze.com/services>)

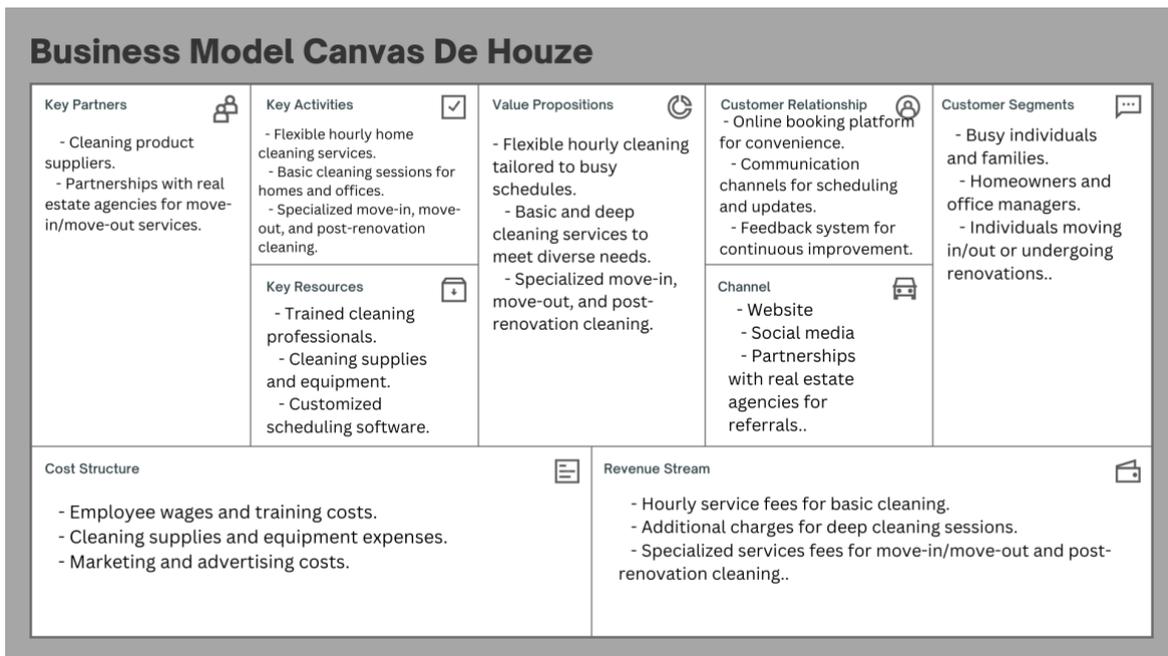


Fig.4. Business Model Canvas (BMC) for De Houze

4.4.3. Double Care Cleaning Services

Double Care Cleaning Services, which is based in Bukit Jalil, Kuala Lumpur, has a robust business model that focuses on delivering high-quality cleaning services in Kuala Lumpur and Selangor, Malaysia, as shown in Fig. 5. Their skilled team caters to both residential and commercial clients. What distinguishes them is their commitment to diverse services, including office cleaning, event cleaning, carpet cleaning, floor polishing, window cleaning, post-renovation cleaning, pre-move in/out cleaning, and post-construction cleaning. This strategic approach ensures efficient operations, effective marketing, and strong customer relations, contributing to long-term profitability and industry expansion. Fig. 6 summarizes its BMC.

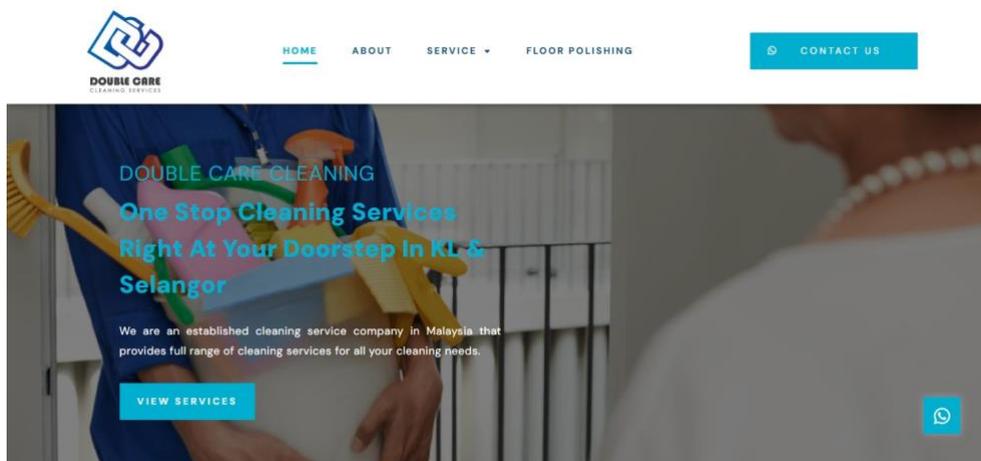


Fig.5. Web interface of Double Care Cleaning Service
 (<https://doublecarecleaning.com.my/>)

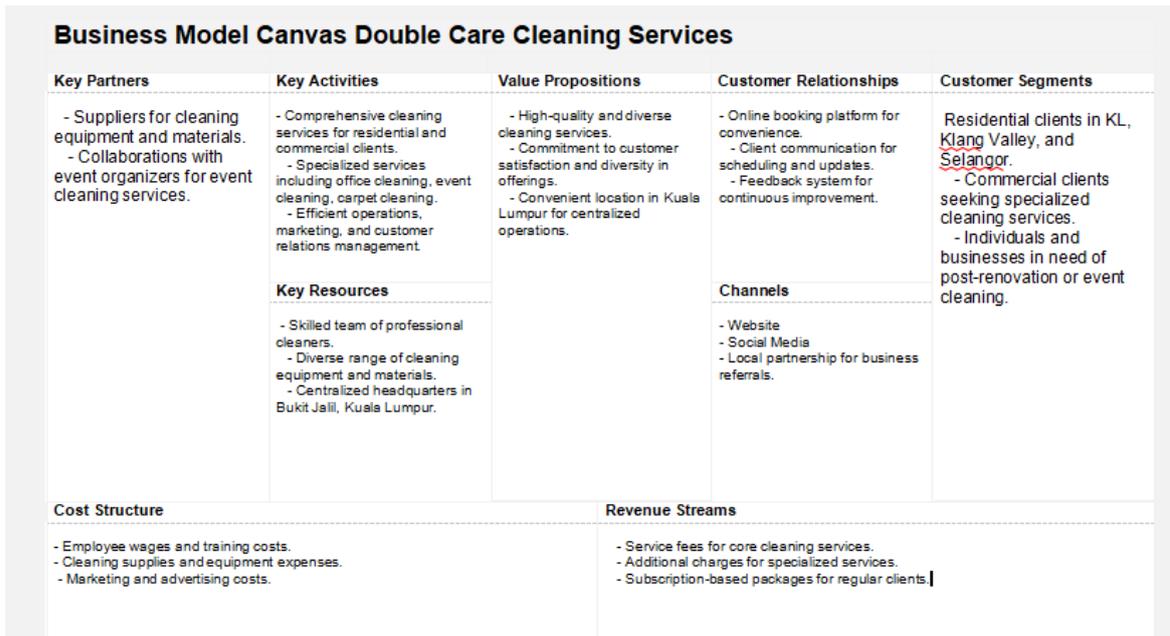


Fig. 6 Business Model Canvas (BMC) Double Care Cleaning Services

5. INITIAL CONCEPTUAL BUSINESS MODEL

5.1 Initial Business Model Canvas (BMC)

Fig. 7 depicts the initial BMC crafted for Master Debu's housecleaning business, drawing insights from the above literature review.

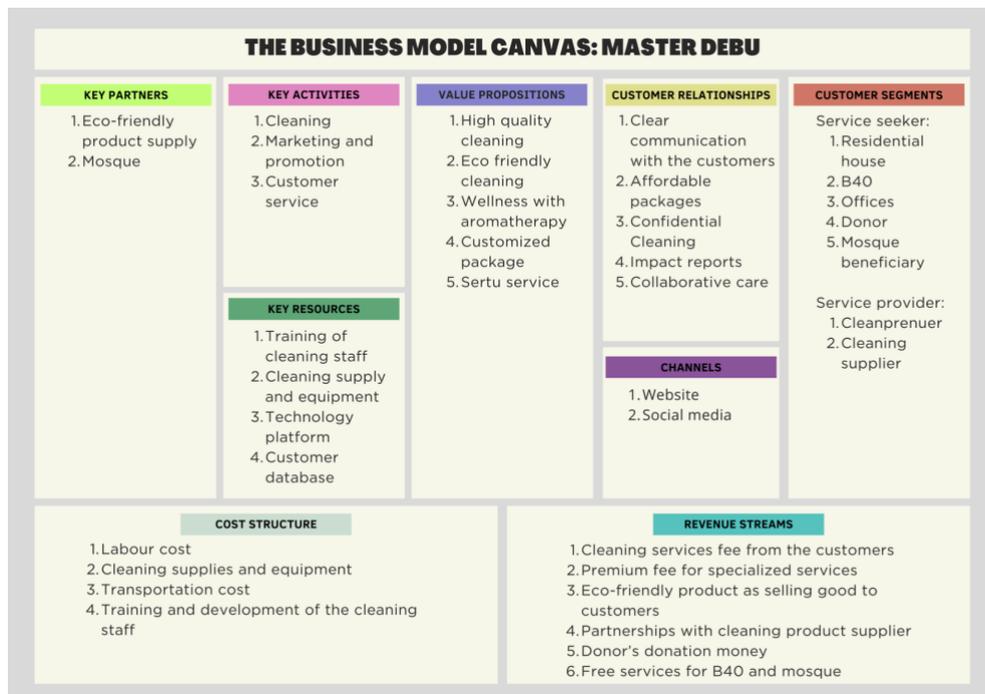


Fig.7. The initial model business canvas of Master Debu

5.2. Initial Value Proposition Canvas (VPC)

The VPC serves as a valuable tool to ensure that a product or service is strategically aligned with the needs and preferences of consumers. This canvas is structured into two key sections: Customer Segments (CS) and Value Propositions. In our case, we utilize the VPC to define the value which are the product and services, gain creators and pain relievers that Master Debu's housecleaning service brings to a diverse range of customers, including residential households, the B40 community, eco-friendly cleaning suppliers, donors, and mosque beneficiaries. Figures 8 – 14 below depict the various CS of our initial business model.

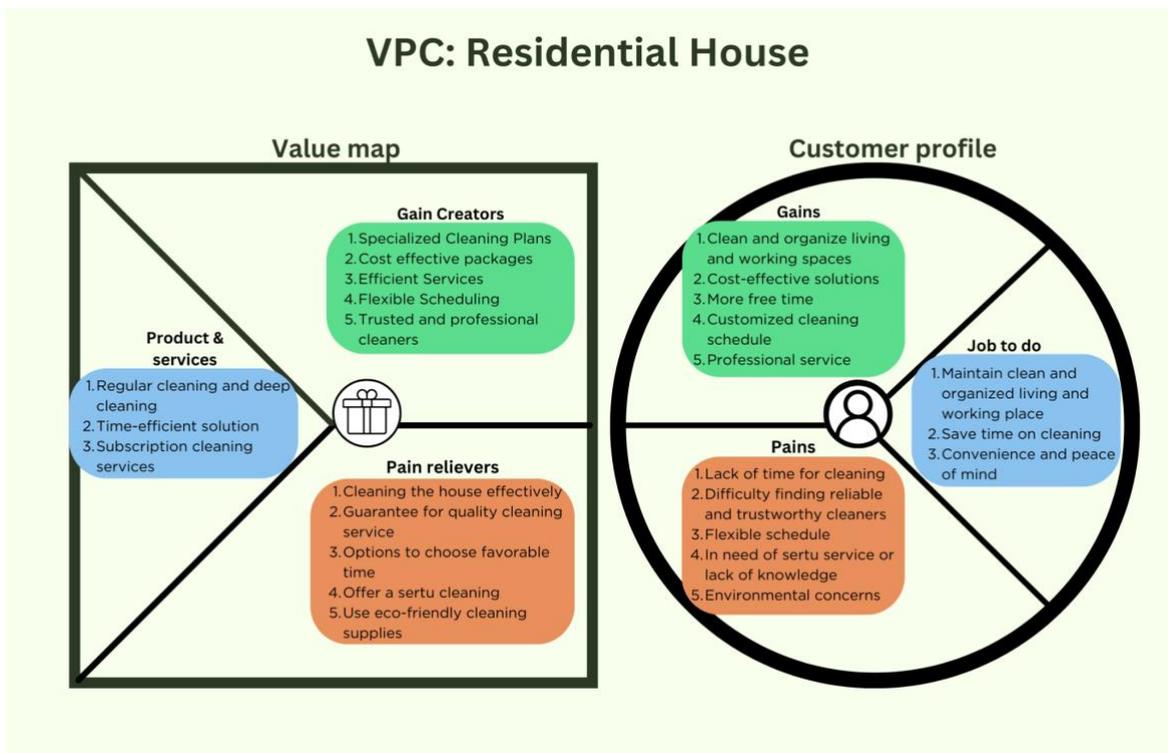


Fig.8. Value Proposition for Residential House

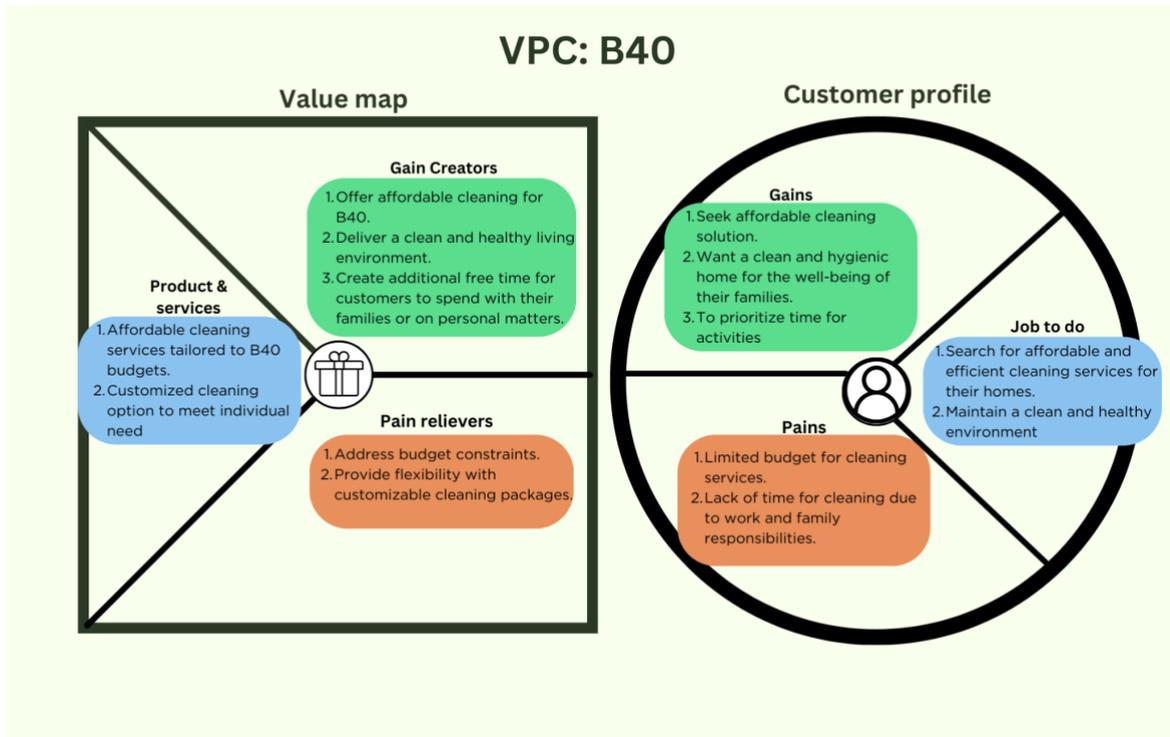


Fig.9. Value proposition for B40

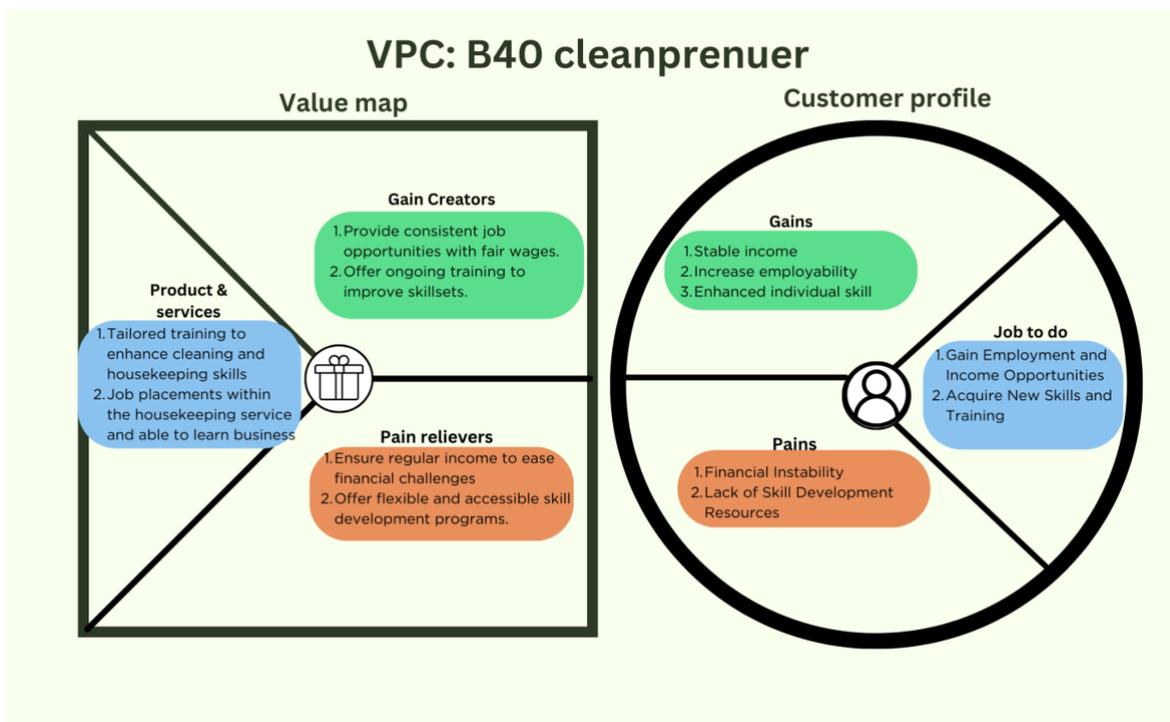


Fig.10. Value proposition for B40 cleanpreneur

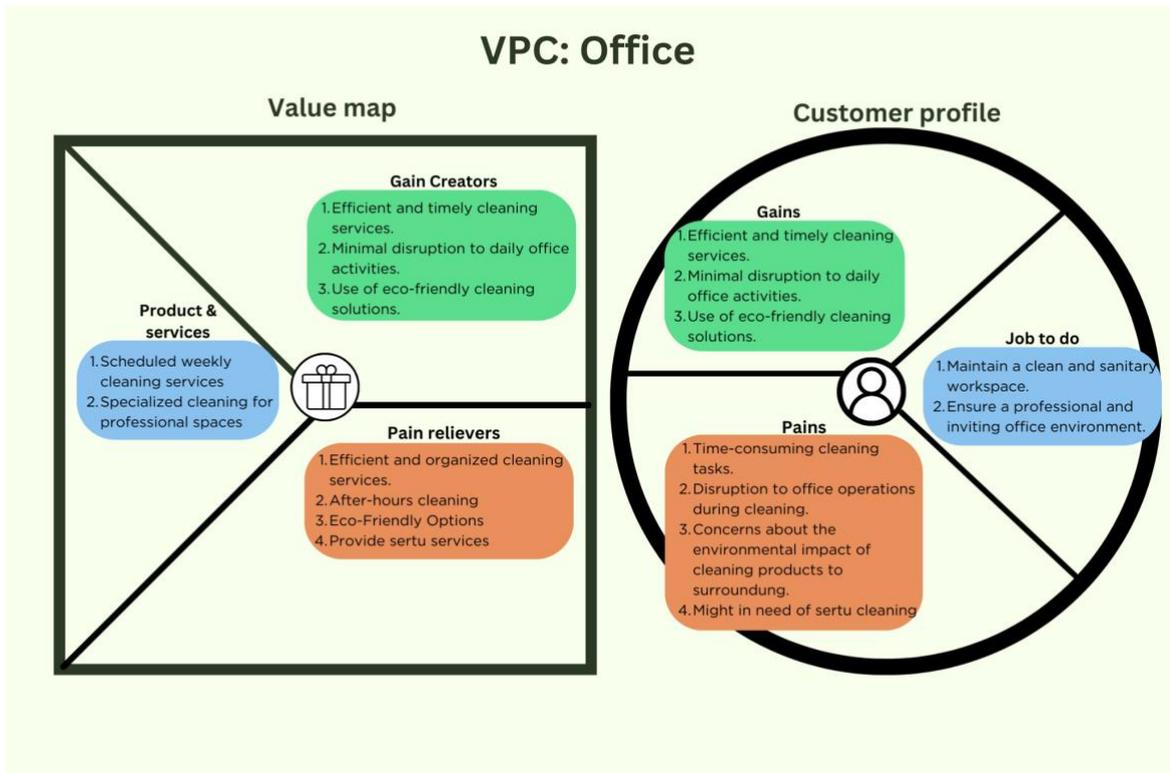


Fig.11. Value Proposition for Office

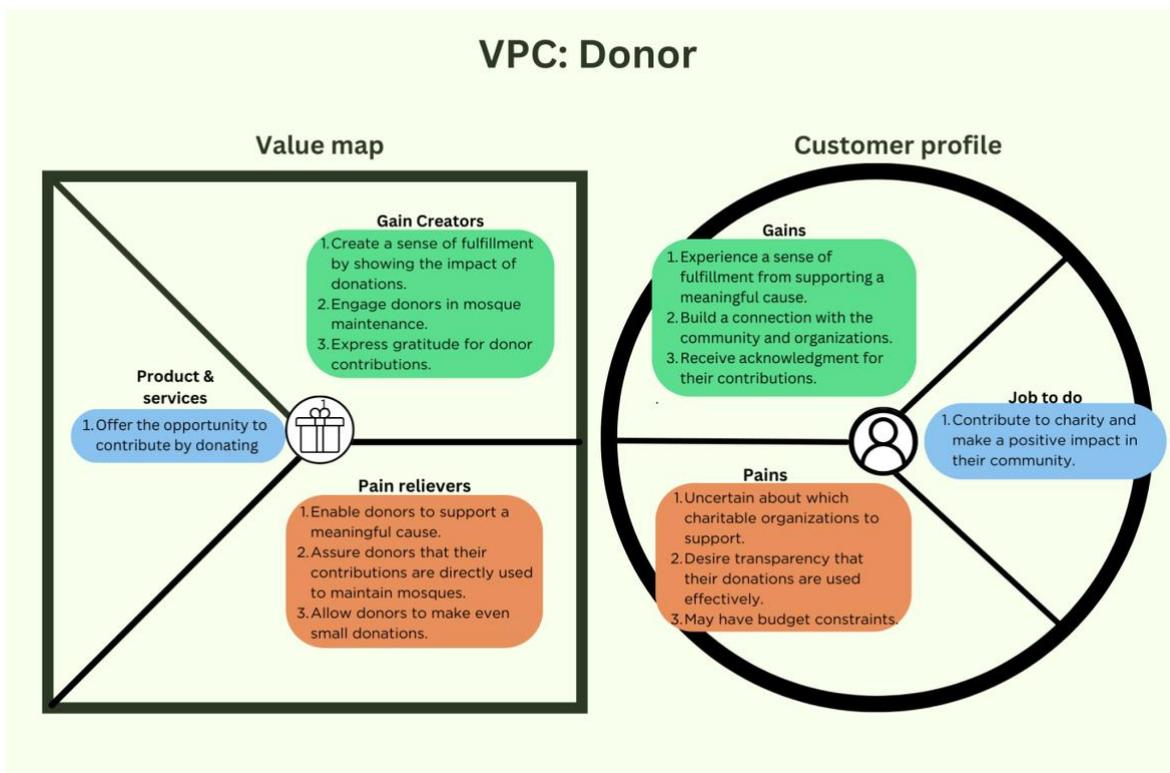


Fig.12. Value Proposition for Donor

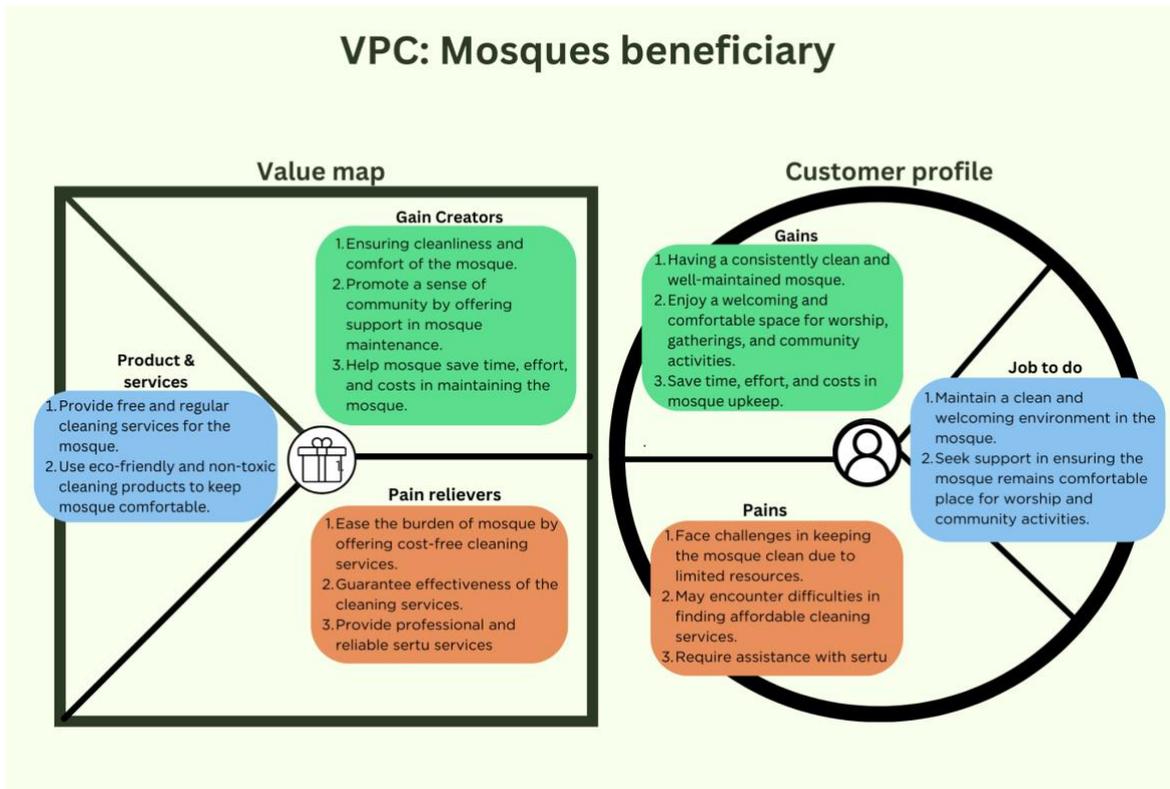


Fig.13. Value Proposition for Mosque Beneficiary

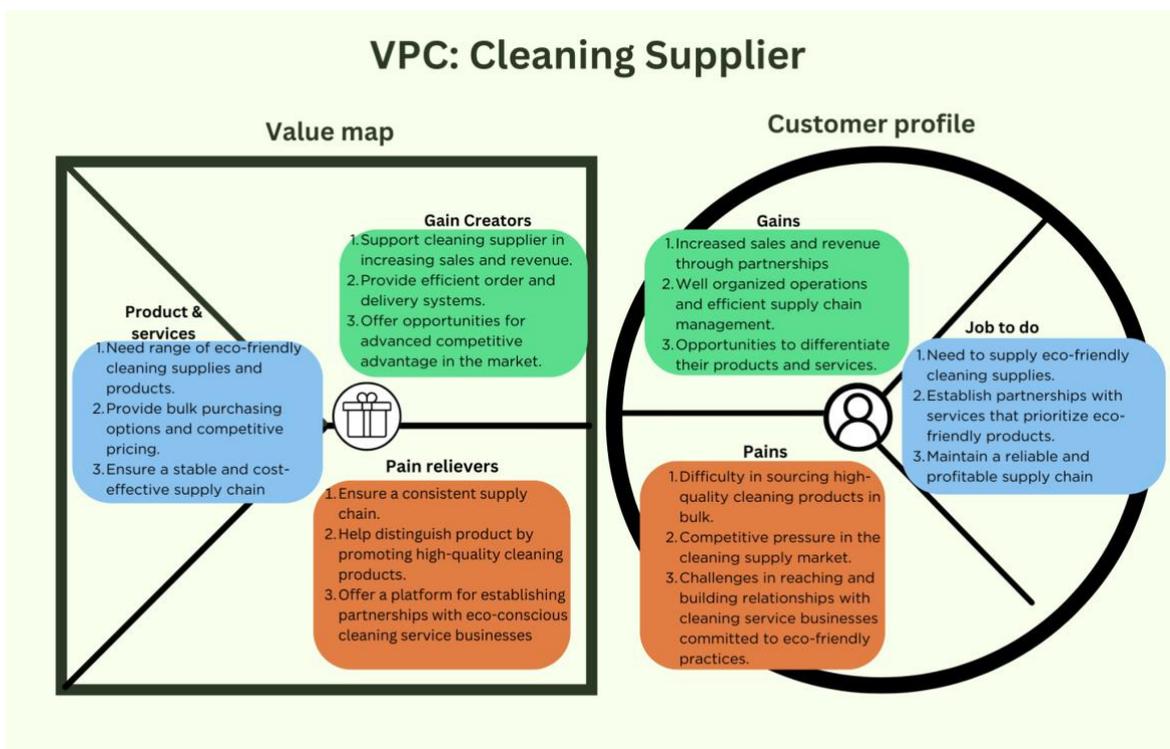


Fig.14. Value Proposition for Cleaning Supplier

6. CONDUCT VALIDATION OF INITIAL BM & KEY FINDINGS

Based on the survey conducted to validate this business model, 15 out of 25 respondents highly agreed on the importance of eco-friendly solutions in cleaning services as shown in Fig. 15. Additionally, 17 respondents acknowledged the significance of *sertu* in maintaining cleanliness in diverse settings as shown in Fig. 16.

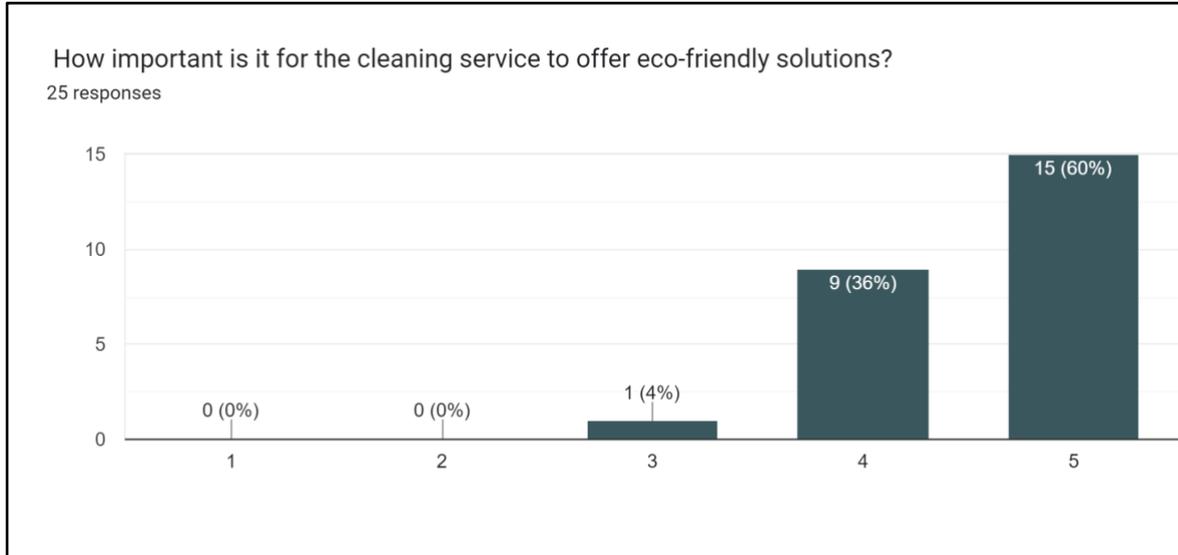


Fig. 15. Importance of eco-friendly services



Fig. 16. Importance of specialized services

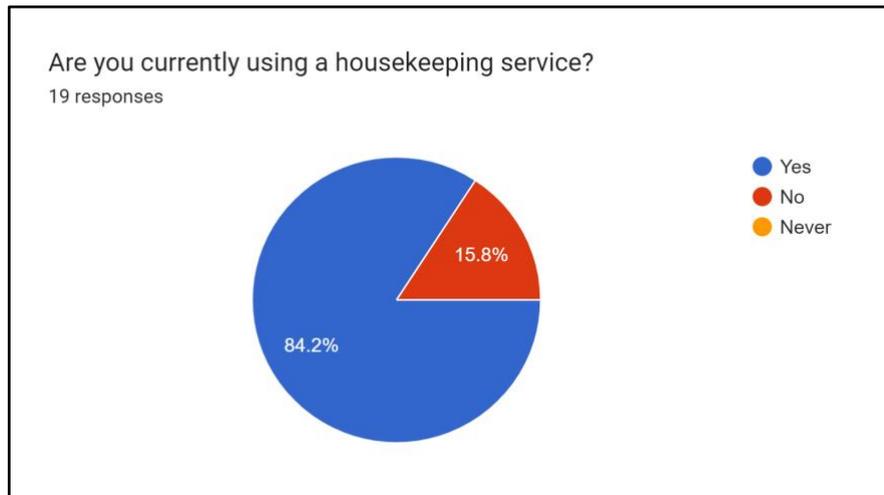


Fig. 17. Pie chart – Residential respondents use housekeeping services

Based on the pie chart shown in Fig. 17 above, 84.2% of the 19 respondents reported that they utilized a housekeeping service. This suggests a widespread acceptance of housekeeping services in today's society and a big demand for housekeeping. Moreover, from this survey, 52.9% of respondents encountered challenges or concerns related to specialized cleaning services such as *sertu* in their workspace, highlighting the need for *sertu* cleaning services.

Despite the small sample size of 25 respondents in the methodology, it's noteworthy that 100% of them agreed that low-income families face a budget constraint when subscribing to housekeeping services. As a solution, they advocated to provide free housekeeping services regularly to the B40 group. Additionally, 64% of respondents supported the idea of weekly free cleaning services for mosques. Furthermore, 84% expressed a willingness to donate to cleaning services. With these insights, Master Debu can implement initiatives to provide free cleaning services to the B40 group in need and mosques.

In addition, the results from this survey also display that the cleaning staff should follow health and safety protocols like wearing proper clothes, gloves, and masks while doing the cleaning.

7. Validated Business Model - BMC framework

7.1. Validated BM

Following our research, we discovered that our clients are moderately satisfied with the business model and that improvements are needed as required in key partners, key activities, value proposition, channels and cost structure. As a result, the business model canvas for the Master Debu housekeeping service is shown in Fig. 18. A modification has been made to further enhance the business model.

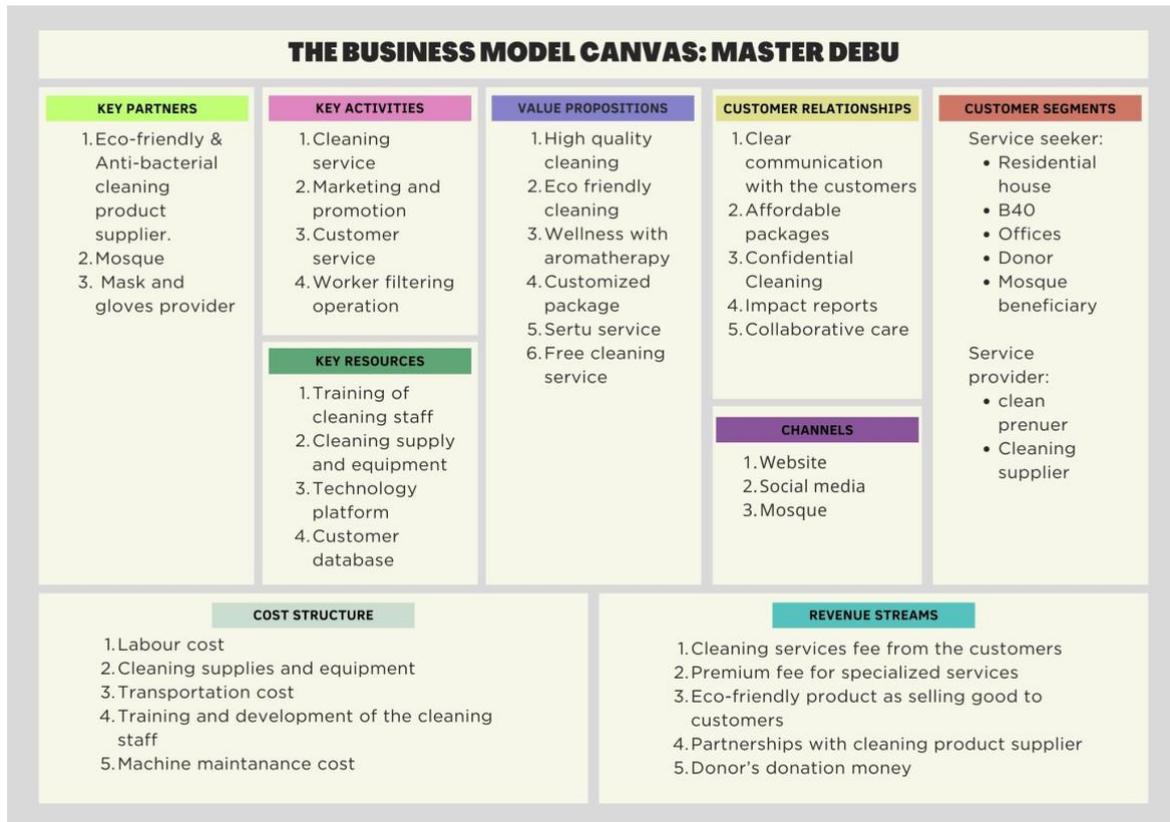


Fig. 18. Validated BMC of House cleaning service

7.1.1. Customer segment (CS)

The CS are the Service seekers – residential houses, B40 group, offices, donors, mosques; and the Service providers are the clean-prenuers and cleaning suppliers. They are the two service providers in this block. Rental properties, homeowners, and those seeking cleaning services will be able to utilize the service due to their hectic schedules. Offices can use this cleaning service as well. Although we will charge residential properties and businesses for this service, the B40 group and mosques will receive it for free. We will also teach the B40 individuals how to become a clean-preneur. Donors, on the other hand, will provide us with the financial support.

7.1.2. Value Proposition (VP)

Clients can experience unparalleled housecleaning excellence with our high-quality cleaning using eco-friendly products, creating a sparkling space that prioritizes their well-being and the planet. Our unique wellness touch that features aromatherapy will transform the environment into a haven of tranquillity. Our customized packages cater to the client's lifestyle, while our *sertu* service ensures cultural sensitivity for a thoughtful cleaning experience. Complimentary services will be provided to the mosques and B40 group, reflecting our commitment to making every space a sanctuary. Additionally, we offer anti-bacterial cleaning products upon request, providing the epitome of a personalized, sustainable, and quality housecleaning. Moreover, we offer the

B40 individuals an opportunity to get trained to become a clean-preneur in the nearest future.

7.1.3. Channels (CH)

Our housekeeping service employs a comprehensive online strategy, utilizing a user-friendly website for bookings, engaging on social media for interactive content and promotions, and fostering community ties through collaborations, such as providing free services to religious institutions like the mosques. We also use social media for advertising.

7.1.4. Customer Relationship (CR)

At our housecleaning business, we prioritize transparent communication, offering affordable and flexible packages that maintain quality. We uphold confidentiality, delivering a personalized and seamless housekeeping experience. Through impact reports, we will keep clients informed of the positive changes in their living spaces, fostering collaborative care and open the review and rating system via our housecleaning service digital platform. Mentoring the B40 clean-preneurs is our another main relation.

7.1.5. Revenue stream (RS)

The housecleaning business adopts a diversified revenue strategy for sustainability and growth. The primary income is derived from cleaning service fees, supplemented by premium charges for specialized services. The sale of eco-friendly cleaning products enhances revenue while promoting environmental sustainability. Strategic partnerships with suppliers optimize costs, and a unique revenue stream involves donor contributions from those appreciating our eco-friendly commitment, ensuring long-term financial stability.

7.1.6. Key Resources (KR)

Our housecleaning business relies on essential resources like ensuring the latest skills – top-quality cleaning supply and equipment, a robust technology platform for streamlined operations, an opportunity for B40 clean-preneurs to get trained to start their own business soon, an opportunity for cleaning service providers to share the same platform to provide their service, and a valuable customer database for personalized services, fostering loyalty and retention. These resources collectively enable us to consistently deliver high-quality services and stay at the forefront of industry standards.

7.1.7. Key Activities (KA)

In the housecleaning business, essential activities center on seamless operations. The core functions include diverse cleaning services, from routine housecleaning to specialized projects. Marketing efforts, including strategic campaigns and online presence management, are vital for client acquisition. An exceptional customer service, coupled with a rigorous worker and B40 clean-preneurs, and the filtering process for recruitment and training, ensures a skilled workforce aligned with the business's values. Developing an online app and

website is also vital. These activities collectively drive business success, fostering client satisfaction, building a strong clientele, and maintaining a positive work environment.

7.1.8. Key partners (KP)

In building a sustainable housecleaning business, vital collaborations with eco-friendly cleaning suppliers ensure environmentally conscious practices. Partnerships with local mosques and safety gear providers reflect a commitment to community engagement and health standards, emphasizing the service's dedication to sustainability and well-being.

7.1.9. Cost Structure (CS)

The housecleaning service's cost structure is multifaceted, with labor costs as the primary component, as well as cleaning supplies, equipment, transportation, and additional essential elements cost. We also allocate funds for machine maintenance to ensure the longevity and reliability of our equipment. This comprehensive approach enables us to deliver reliable and high-quality services to our clients, emphasizing sustainability and optimal performance.

7.2. Business Environmental Map

7.2.1. Market forces

According to the Global Housekeeping Platform Market, housekeeping services are anticipated to achieve a Compound Annual Growth Rate (CAGR) of 8.5% from 2020 to 2027, with an estimated valuation of USD 7.16 billion by 2027. This trend underscores a rising demand within the hospitality sector and a simultaneous increase in awareness regarding the benefits of automation in housekeeping services. It can be asserted that the housekeeping services market is highly competitive. Consequently, this data reveals a promising outlook for housekeeping services in Malaysia, indicating a notable increase in demand.

7.2.2. Industry forces

The housekeeping services industry is shaped by various factors that influence its dynamics and competitiveness. In this sector, numerous businesses emerge as potential competitors, making competition among existing providers crucial. Key aspects like differentiation, service quality, and geographic reach contribute to the competitive landscape. Therefore, establishing a distinctive identity is essential for gaining recognition in the market. Navigating this landscape requires adaptability to emerging trends and a commitment to excellence. Staying competitive in the housekeeping services industry involves embracing change and delivering outstanding service.

7.2.3. Key trends

The evolution and current trends provide insights into future directions in the business. In green cleaning practices, the growing awareness of environmental sustainability is shifting towards eco-friendly methods. The industry foresees a

continued emphasis on environmentally responsible products, practices, and certifications to meet the demand for sustainability. Choy, Cheng, and You (2021) found that adopting sustainable measures in housekeeping can significantly reduce waste. A study on hotels in Hong Kong showed that implementing efficient green practices in the housekeeping department could conserve up to 15% of energy and water (Deng and Burnett, 2002).

7.2.4. Macroeconomic forces

Master Debu has the potential to become well-known in this industry as housekeeping demand keeps increasing. However, due to global economic conditions like inflation, which continued to moderate to 2.8% based on Bank Negara Malaysia (2023), a good strategy needs to be measured to make Master Debu relevant in the long run. Furthermore, this industry can help in creating job opportunities, particularly benefiting the B40 group, thereby contributing to the enhancement of their income levels. This can help in catering issues with their income.

7.3. Strategy Canvas

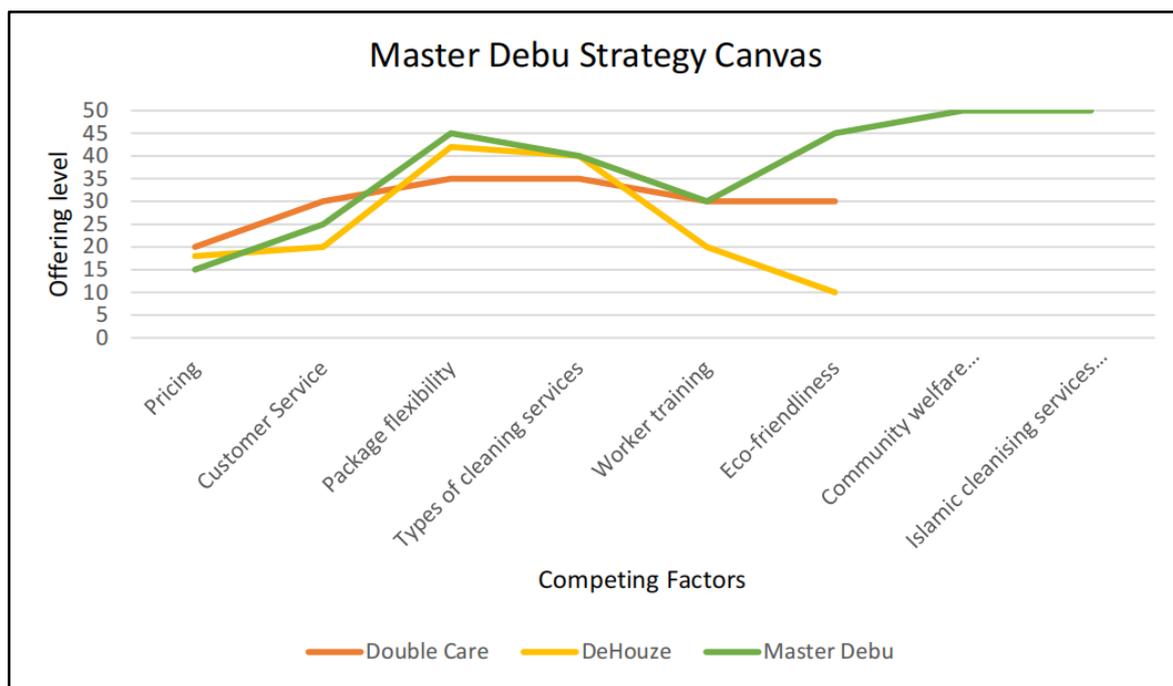


Fig.19. MasterDebu Strategy Canvas

The strategy canvas shown in Fig. 19 is a tool employed to evaluate Master Debu's standing compared to competitors in the market. Its purpose is to outline a blue ocean strategy, showcasing Master Debu's distinctive value proposition. In the visual representation, Master Debu is contrasted with two other businesses, namely Double Care Cleaning Services and DeHouze. This comparison involves critical variables such as pricing, customer service, package flexibility, types of cleaning services offered, worker training, eco-friendliness, community welfare participation, and provision of Islamic cleansing services. This in-depth analysis aids in pinpointing areas where Master Debu can

set itself apart and excel against competitors through unique and innovative strategies.

By utilizing the strategy canvas, our goal is to establish an online platform designed to cater to all customer segments within the business model. The website will feature a concise main page introducing our business, emphasizing a diverse range of packages and cleaning services. Special attention will be given to the significance of *sertu*. Additionally, there will be a dedicated page for donors to contribute toward supporting the B40 individuals and mosques. Both B40 individuals and mosques can connect with us through the website to seek assistance with the cleaning needs. Alternatively, they can reach out to us via the contact information provided. Testimonials, along with evidence showcasing the destination of donations, will be integral components of our approach to maintain strong relationships with customers.

7.4. Low Fidelity Master Debu Prototype Website

We are working on a prototype for a website that is designed to be accessible and customer-friendly for all types of users.

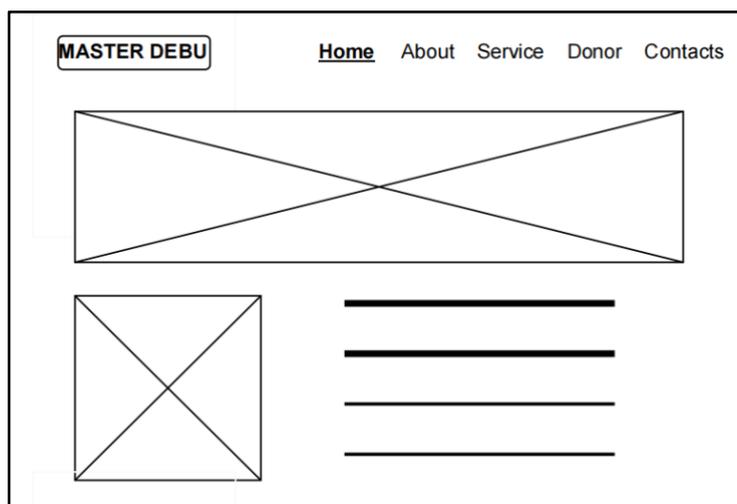


Fig.20. Master Debu Home Main Page

The initial sketch for the low-fidelity prototype shown in Fig. 20 is a representation of the Master Debu's website homepage. It conveys a clear message to the customers, explicitly indicating that it is a housekeeping service. The homepage features images showcasing our previously completed services. Customers can easily navigate to other pages, including About, Services, Donor, and Contact, from this main page.

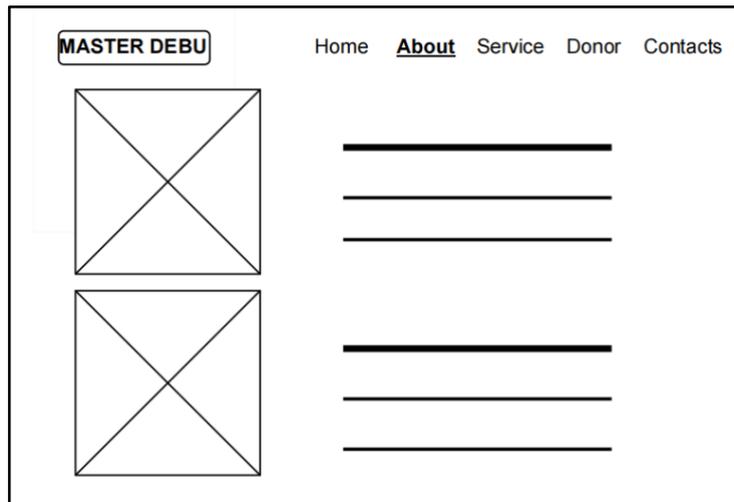


Fig.21. Master Debu About Page

In the second sketch as shown in Fig. 21, the webpage focuses on highlighting the uniqueness of our business. It prominently promotes our commitment to eco-friendly cleaning supplies aligned with sustainable development goals (SDGs), emphasizes our dedication to *sertu* practices, and underscores our active involvement in supporting the B40 group and mosques. The page delivers a clear and compelling message, aiming to attract customers who resonate with our values and distinct offerings.

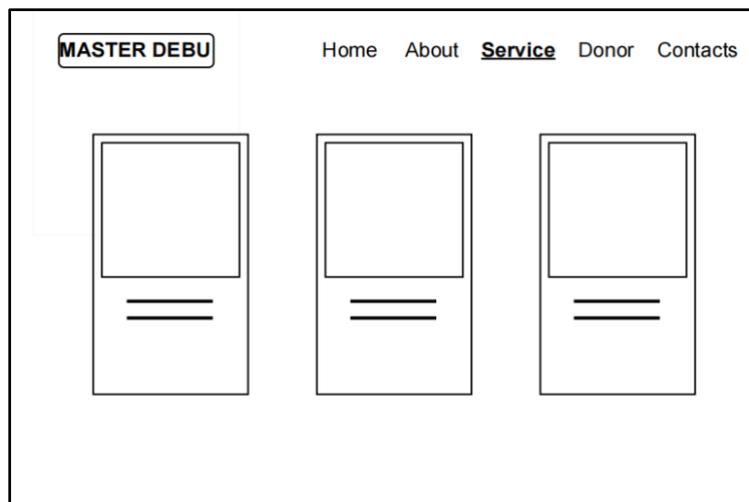


Fig.22. Master Debu Service Page

On the service webpage shown in Fig. 22, Master Debu will present a clear and detailed overview of our offered services, including the available packages. This approach is designed to facilitate ease of decision-making for customers, providing them with the necessary information to choose the service that best suits their needs.

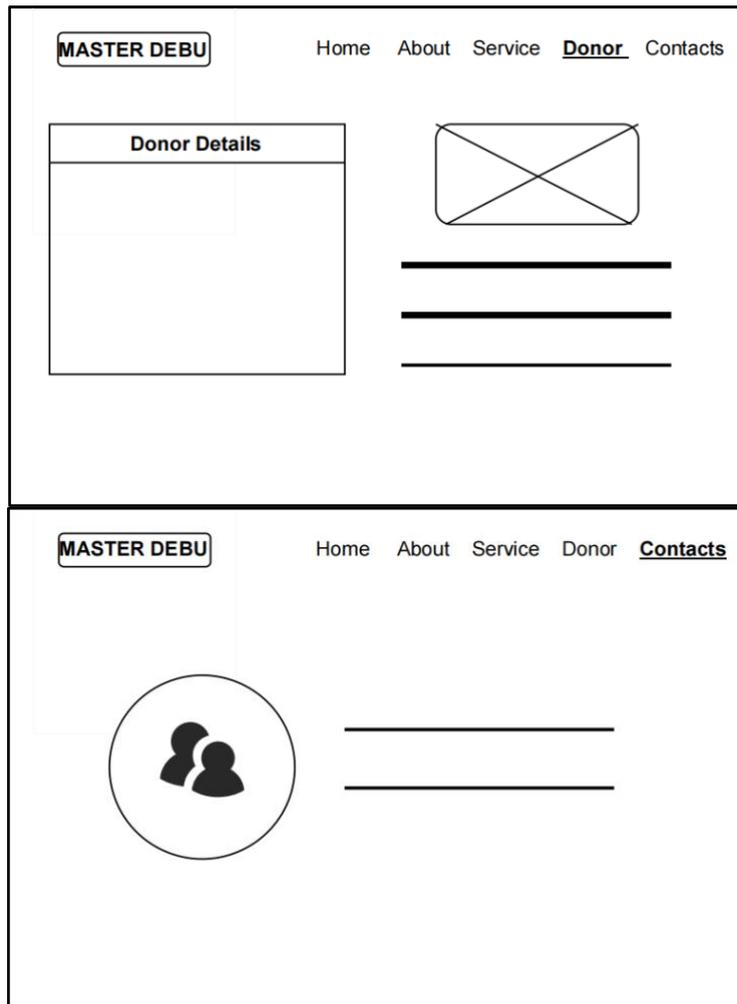


Fig.23. & Fig. 24. Master Debu Donor and Contacts Page

The sketches in Fig. 23 and Fig. 24 are for the donor page, where potential contributors can make donations through the provided platform. This dedicated page not only streamlines the donation process but also offers additional information or incentives to encourage and express gratitude toward our valued donors. The final illustration depicts our contact information, serving as a point of reference for customers seeking further communication with us.

8. CONCLUSION AND FUTURE WORK

In conclusion, our exploration of the housecleaning business landscape has illuminated the diverse challenges, job-to-do, extreme pains, and essential gains experienced by various customer segments. From residential houses to offices, the B40 group to donors and mosque beneficiaries, understanding and addressing the unique needs of each group are paramount. Our conceptual solution distinguishes itself through a comprehensive business model, innovative products/services as gain creators and pain relievers, and the key features of our digital platform or application that is relevant to customer segments.

We are looking forward with our business plan outlines as a comprehensive strategy for establishing the business. Moreover, key activities such as marketing,

customer and partner service, and worker optimization are essential for ensuring a sustainable and impactful housecleaning business venture. Future initiatives include continuous enhancement of our digital platform (website, social media), integrating advanced technologies for seamless interactions, worker management, and real-time service monitoring. We are committed to embracing sustainability, and artificial intelligence trends to elevate efficiency and eco-friendliness. Through ongoing business scanning for research and development, we aim to set new standards in the housekeeping industry, including *sertu* services, while contributing to broader sustainable development goals and the community.

REFERENCES

- Amer Shariffudin, N. S., Wan Ahmad Sayuti, W. M. A., Mhd Kamil, N. F., Babatat, Z. A. Y., & Ahmad Dahlan, A. R. (2023). A Conceptual Cleansolution Business Model: Empowering Low-Income B40 Communities As Entrepreneurs Through Housekeeping and Sertu Cleaning Services. Unpublished paper International Conference on Information & Communication Technology for the Muslim World (ICT4M) 2023 Conference, Kuala Lumpur, Malaysia.
- Benchmark your business. (2022, December 29). Business Victoria. <https://business.vic.gov.au/business-information/marketing-and-sales/increasing-sales-through-marketing/benchmark-your-business#:~:text=your%20business%20performance,What%20is%20benchmarking%3F,your%20business%20performance%20and%20potential>
- Bhatnagar, E., & Nim, D. (2019). Impact of housekeeping services and practices on customer satisfaction and repeat business. *Prabandhan: Indian Journal of Management*, 12(8), 46-57.
- Brenan, M. (2020). Women Still Handle Main Household Tasks in U.S. Gallup News. <https://news.gallup.com/poll/283979/women-handle-main-household-tasks.aspx>
- Chasanidou, D., Gasparini, A. A., & Lee, E. (2015). Design thinking methods and tools for innovation. In *Design, User Experience, and Usability: Design Discourse: 4th International Conference, DUXU 2015, Held as Part of HCI International 2015, Los Angeles, CA, USA, August 2–7, 2015, Proceedings, Part I* (pp. 12-23). Springer International Publishing.
- Choy, M., Cheng, J., & Yu, K. (2021). Evaluating the environmental sustainability strategies of the housekeeping department: the case of an international hotel chain in Hong Kong, China. *Tourism Critiques: Practice and Theory*, 2(1), 115-132.
- Elhadi, Y. (2022). The Future of the Housekeeping Industry. LinkedIn. <https://www.linkedin.com/pulse/future-housekeeping-industry-elhadi-pmp-lssgb-leedap?trk=pulse-article>
- Ekaterina S. Bjornali, Andreas Ellingsen(2014), Factors Affecting the Development of Clean-tech Start-ups: A Literature Review, *Energy Procedia*, ISSN 1876-6102,
- Global Housekeeping Platform Market By Type (Online Platform, Mobile Terminal), By Application (Maternal and Child Care, Elderly Care), By Geographic Scope And Forecast(2023). <https://www.verifiedmarketreports.com/product/housekeeping-platform-market/>
- Islamic Cleansing - Suci Sertu. (n.d.). Suci Sertu. <https://lifelifehappenstance.com/islamic-cleansing/>

- May-Ann, C., & Ismail, M. R. B. (2023). EQUITABLE LEARNING COMMUNITY: INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS (IPA) OF A MUSLIM IN THE B40 SEGMENT DURING COVID-19. *Journal of Integrated Sciences*, 3(3).
- Salleh, M. M. M., Halim, M. A. A., & Abd Aziz, S. (2020). Implementation Of Islamic Cleansing (Sertu) In The Halal Industry: Pelaksanaan Sertu Kontemporari Dalam Industri Halal. *Al-Qanatir: International Journal of Islamic Studies*, 18(1), 1-9.
- Sheykin, H. (2023, April 10). Leverage the Benefits of a Multi-Sided Business Model. [https://finmodelslab.com/blogs/blog/exploring-multi-sided-business-model#:~:text=One%20of%20the%20biggest%20benefits,locked%20to%20a%20single%](https://finmodelslab.com/blogs/blog/exploring-multi-sided-business-model#:~:text=One%20of%20the%20biggest%20benefits,locked%20to%20a%20single%20)
- Strategy Canvas. Blue Ocean Strategy. <https://www.blueoceanstrategy.com/tools/strategy-canvas/>
- Wahab, F. (2023, February 26). 100,000 households to benefit from upskilling drive. *The Star*. <https://www.thestar.com.my/news/nation/2023/02/27/100000-households-to-benefit-from-upskilling-driv>
- What is Multi-Sided Platform (MSP) | IGI Global. (n.d.). <https://www.igi-global.com/dictionary/multi-sided-platform-msp/53308#:~:text=A%20digital%20platform%20that%20acts,make%20it%20useful%20and%20valuable>
- Yaacob, M. Z., & Rahman, N. A. A. (2023). Multiple Cases of Sertu Application. Technologies and Trends in the Halal Industry.
- Yusof, U. A., & Mohd Subri, I. (2022). Method Of Islamic Cleansing (Sertu) In Halal Industry Of Malaysia: A Systematic Literature Review (SLR). *Al-Qanatir: International Journal of Islamic Studies*, 28(2), 129–140. Retrieved from <https://al-qanatir.com/aq/article/view/576>.

A CONCEPTUAL THRIFT-TEE BUSINESS MODEL: FOSTERING A SUSTAINABLE AND AFFORDABLE ONLINE BAZAAR FOR B40 COMMUNITY WHILE NURTURING B40 THRIFT-PRENEURS

SITI NUR HIDAYAH BINTI ZAINUDDIN¹, AIDA NAJIHAH BINTI MOHD MARZUKI²,
MAZIDAH AIMAN BINTI AWANG³, AINA ZAHIRA BINTI MOHD ZAKI⁴, ABDUL
RAHMAN BIN AHMAD DAHLAN⁵

^{1,3,4,5} Dept. of Information Systems, ² Dept. of Computer Science, Kulliyah of Information
and Communication Technology, International Islamic University Malaysia,
Gombak, Malaysia

*Corresponding author: aidanajihahh@gmail.com

ABSTRACT: Thrift-Tee is a conceptual business model developed specifically for the group that represents the lowest-income earners in Malaysia categorized as B40, for a safer and convenient platform to buy, sell and donate preloved and thrift items. This paper outlines a conceptual business model that utilizes digital platforms and apps to address the challenges faced by various customer segments – both buyers and sellers - in finding suitable individuals and marketplaces for exchanging unused, yet quality items. The platform caters to individuals seeking extra income from their unused belongings, as well as those seeking affordable second-hand options, sourced primarily from the local residents around Malaysia. This initiative aligns with several Sustainable Development Goals (SDGs), particularly SDG 12: Responsible Consumption and Production, by promoting waste reduction through reuse and enhancing resource efficiency; SDG 4: Quality Education by upskilling the B40s as Thriftpreneurs, providing them with necessary knowledge; and SDG 8: Decent Work and Economic Growth, for the B40s and community in general. Employing the Design Thinking (DT) methodology, this paper identifies and addresses the challenges faced by customer segments, buyers and sellers, through effective problem-solving and sustainable business model. Literature reviews and surveys within the buyer's customer segment, as well as the seller's preloved and thrift items industry players, were conducted in gathering insights and understand the key challenges, pains, gains, and jobs-to-be-done faced by buyers/sellers; and gaps and current business models of sellers/providers of the preloved items industry. Various business modeling tools such as Environment Map (EM), Business Model Canvas (BMC), Value Proposition Canvas (VPC) and Strategy Canvas were employed. Finally, a low-fidelity prototype of the Thrift-Tee app was designed and tested together with the initial business model, in assessing its relevance and sustainability for the targeted customer segments. Hence, this paper offers a conceptual validated business model for Thrift-Tee embedded with a digital platform aimed at empowering the B40 community through the exchange of preloved and thrift items.

KEY WORDS: Platform business model, B40, Thriftpreneurs, Strategy Canvas (CS), Sustainable Development Goals (SDGs).

1. INTRODUCTION

The word thrift is a popular term nowadays where it refers to the used clothing products. According to Chan (2020), the mainstream rise of “bundle” clothing consumption in Malaysia mirrors the global trend of thrift shopping which essentially means purchasing second-hand clothes. In the current era, the used product waste has been developed into a business opportunity. One of the usable waste products that are developing in the business world is the used clothing business. Rather than viewing them as waste, people recognize the potential for these items to be repurposed and given new life.

The trend of thrift fashion arises to promote sustainability to overcome consumption behavior in the fashion sector due to higher consumer demand in line with increased production rates. With low prices and decent quality, there is no difference compared to new clothes. So, with the price of these new clothes, consumers can get some used imported clothes with not much different in quality (Rorong et al., 2021). Consumers of thrift fashion can acquire branded items at economical prices which gives a platform for the B40 community to find cheaper options. This is especially helpful for people with lower incomes.

Apart from that, the platform gives them the opportunity to earn extra income from their unused belongings. This double advantage, saving money on clothes and earning from unused items, helps individuals and whole communities become more self-sufficient. They are less reliant on others for income and better equipped to handle economic challenges. This initiative also makes the world a greener and more budget-friendly place. Manufacturing new clothes requires a lot of energy and resources. When people choose preloved clothes, it helps to conserve energy used in making a new one. This contributes to a more sustainable approach to fashion.

2. OBJECTIVES

The main objective of this paper is to develop a conceptual business model with digital platform and apps that offers and provides products/services as pain relievers and gain creators including:

- a. Establish a conceptual business model integrating digital platforms and apps tailored to empower the B40s as thriftpreneurs.
- b. Offer a convenient, secure and inclusive platform within communities, facilitating the buying and selling of affordable, good quality preloved items.
- c. Champion sustainability by fostering a culture of reuse, thereby reducing waste and environmental impact.
- d. Cultivate trust and loyalty within the customer segment through robust safety features and an enriching user experience.
- e. Develop a distinctive preloved item platform that addresses the unique needs of the B40 community, ensuring a safe and dependable marketplace.

3. METHODOLOGY

This paper adopts the Design Thinking (DT) methodology to address the challenges faced by the proposed business model/solution. This problem-solving approach aims to enhance the business by delving into literature review, user insights, questioning assumptions, reframing issues, and generating innovative

solutions through a five-stage iterative process: empathize, define, ideate, prototype, and test (Foundation, Interaction Design, 2022). Various tools are utilized in this study, including the Business Model Canvas (BMC), Value Proposition Design Canvas (VPC), Environment Map (EM), and Strategy Canvas (SC). Additionally, surveys serve as a means of collecting data to gather feedback, opinions, and responses from participants – in establishing the initial business model, and later after getting the feedback, establishing the validated business model using the BMC framework.

3.1. Business Model Canvas (BMC)

The BMC is a strategic management tool used to develop and document new or existing business models. It's a visual chart outlining the core elements of a business, fostering a clear understanding of its value proposition, customers, infrastructure, and finances. This model has 9 Building Blocks such as Customer Segments, Value Propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships and Cost Structure (Osterwalder & Pigneur, 2010).

3.2. Value Proposition Design Canvas (VPC)

The VPC is a strategic management tool used to develop and refine a compelling value proposition for your target customer segments. It's a visual framework that helps businesses focus on understanding customer needs, pains, and gains, and how their offerings can address them effectively. This model consists of Customer Profile – Job-to-do, Gains, Pains; and Value Map - Products & Services, Pain Relievers and Gain Creators (Osterwalder et al., 2014).

3.3. Environmental Map (EM)

There are four main areas of the business environment that will help people map their environment's forces in a structured and tangible way. The four areas are market forces, industry forces, key trends, and macroeconomic forces (Osterwalder & Pigneur, 2010).

3.4. Strategy Canvas (SC)

A strategy canvas is a tool that compares the product factors that a sample of incumbent products compete on, based on the value that a particular customer segment receives from them, in a two-dimensional chart (W. Chan Kim and Renee Mauborgne, 2004). By using the Blue Ocean Strategy tool, the business can create uncontested market space and capture a new demand among businesses (Blue Ocean Strategy, 2022)

4. LITERATURE REVIEW

4.1. The Megatrend of 4IR technologies caused by the impact of Covid 19 in retail industry.

The application of 4IR technologies during the COVID 19 pandemic waves has an enormous benefit in the technological interventions. The boom of 4IR technologies have been globally utilized across all the sectors including education, businesses, society, manufacturing, healthcare, agriculture and mining to reduce human-to-human physical contact during the pandemic. Digitalization of an e-commerce platforms and online banking transactions have been improved tremendously while improving the business service delivery and unexpected renaissance of online retail industry because of the rapid spread of “contact-free consumption patterns” (Agbehadji, I. E., Awuzie, B., & Ngowi, A. (2021)).

Over the past few decades, the retail business has seen major changes due to the megatrends of digitalization and globalization. Within ten years, the pandemic is expected to have a significant development potential in e-commerce. It has been suggested that the retail industry embrace digital business strategies to go digital and take advantage of globalization. This megatrend of digitalization of retail industry is caused by the wave of bankruptcy within the sector. Insecurities and social distancing measurement have led to a change in customer behavior and a sharp decrease in consumer spending. Plus, as the pandemic reached a global magnitude, interconnected supply chains could not sustain the pressure and broke down the interconnectedness among the global stakeholders. Therefore, the digital transformation to online channel retail has digitally improved and innovated the customer’s journey and marketing purchase in terms of manufacturing, commercial and service business (Braun and Bergamin, 2021, pp 15-16). However, after the pandemic, the tendencies became more common place, and most retail stores now have their websites for online shopping, applications, and additionally social media sites like Facebook, Instagram, and TikTok.

4.2. E-retail, secondhand/preloved industry and thrift-preneurship.

Economic uncertainties and job losses during the pandemic may have influenced both demand and supply within the preloved market globally. Traditional brick-and-mortar thrift stores and markets faced challenges due to lockdowns and reduced foot traffic. However, some adapted by expanding their online presence and some individuals turned to selling preloved items to make ends meet, others may have shifted towards secondhand shopping to save money.

According to the Observatory for Economic Complexity which monitors international trade, the United States was the biggest exporter of used clothing in 2019 (the most recent year for which data is available), with shipments totaling \$720 million, whereas Kenya (\$165 million), Ghana (\$168 million), Pakistan (\$189 million), and Ukraine (\$203 million) were the leading importers. The value of Malaysia's imports was \$105 million (Marcus, 2022)

Thrift-preneurship refers to entrepreneurship within the thrift of secondhand market, where individuals create businesses by buying and selling preloved items. With the rise of e-commerce, many thrift-preneurs leverage online platforms to reach a wider audience. Some thrift-preneurs use social media influencers to create dedicated accounts to showcase their curated collections. These platforms provide a convenient and cost-effective way to showcase and sell preloved items.

4.3. Existing Business Model, Digital Platform and Application.

There are a few business models that have been reviewed. One of them is Carousell. Carousell is a mobile app and web-based consumer-to-consumer (C2C) and business-to-business (B2B) multinational company founded in Singapore by Quek Siu Riu, Lucas Ngoo and Marcus Tan. It provides a convenient and user-friendly platform for individuals to buy and sell items locally, with features such as ease of listing, browsing and communication. Carousell generates revenue mainly through premium features like promoted listings, advertising and transaction fees or sales commissions. Carousell make money by connecting buyers and sellers, acting as a mediator, advertiser, and payment facilitator. Advertising is the biggest source of income, with sellers bidding to occupy high visibility spots using in-app currency Carousell Coins. Other than that, Carousell charges sellers a listing fee for products in high-value categories and sells subscription plans to sellers giving them access to higher product quotas and business analytics among other perks (Cuofano, 2024). Carousell also fosters customer relationships through user feedback mechanism, messaging features for communication between buyers and sellers, and customer support services.

Next, mudah.my is another online marketplace platform, primarily serving users in Malaysia which have similar Business Model Canvas (BMC) framework as Carousell. Carousell owns and operates Mudah.my in Malaysia, Chotot in Vietnam and Onekyat in Myanmar. Mudah.my is a business-to-business (B2B) web-based platform. This platform serves individual buyers and sellers to sell products or services and possibly collectors or hobbyists seeking niche items in a wide range of new and used items, including electronics, vehicles, clothing, and services. Mudah.my generates revenue through various streams, including premium listings, advertising, promoted listings and transaction fees or commissions on sales. It includes its technology platform, user base, brand reputation, marketing channels, partnerships with payment gateways or logistics providers for shipping services and other online marketplace for cross-listing or integration purposes.

Lastly, eBay business model which also offers services to its users, such as payment processing, financing and advertising. eBay operates as both a peer-to-peer and business-to-consumer (B2C) marketplace. In addition to individual sellers, businesses and retailers can also list products for sale. eBay facilitates transactions on a global scale, with shipping options available for both domestic and international sales (Pareira, 2023). eBay has a broader appeal and attracts a wide range of users with its diverse product offerings span various categories, from electronics and fashion to collectibles and rare items. eBay charges the sellers various fees, including listing fees, final value fees based on sale price, and additional fees for optional listing upgrades and promotion tools.

4.4. Government Incentives

Based on the National Entrepreneurship Policy (NEP) 2030's strategies published by the Malaysian government to improve the standards of living and socioeconomic standing of the nation, Malaysia's goal to achieve the status of an entrepreneurial nation in 2030 requires an improvement of the entrepreneurship ecosystem in term of market, policies, funding, support, culture, skills and talent as well as technology and innovation. The government itself is prepared to support

MSMEs in this endeavor by adopting several approaches such as workshops and scaling current business to become bigger. Partnerships with other companies are essential to achieving this goal because they allow a company to grow its network and increase its capacity to provide goods and services to a larger and more varied clients.

The NEP 2030 itself emphasizes several important concepts and details that heighten the importance of our suggested business endeavor, B40 Online Bazar, the Thrift-Tee. This indicates that should it be developed. It might contribute to achieving some of the goals set forth in the NEP 2030 policy. By assisting current and upcoming companies in forming partnerships, Malaysia's financial industry can concentrate on developing and growing to further impact its surroundings or enter the international market, which is in line with the objectives of NEP 2030 and is financially motivated.

4.5. Benchmarking of Business Model Using BMC Framework

Benchmarking is a valuable tool for organizations seeking to improve their performance, drive innovation, and maintain competitiveness in an ever-changing business environment. It enables organizations to learn from others, set ambitious yet achievable goals, and continuously strive for excellence. This research can also observe the business strategies that successful companies currently employ and how they achieve success with them thanks to this research. Additionally, it enables to recognize assets and shortcomings and can make corrections and develop plans of action for upcoming difficulties. The BMC framework chosen was the eBay's BMC framework. The BMC of eBay is shown in Fig. 1 below.

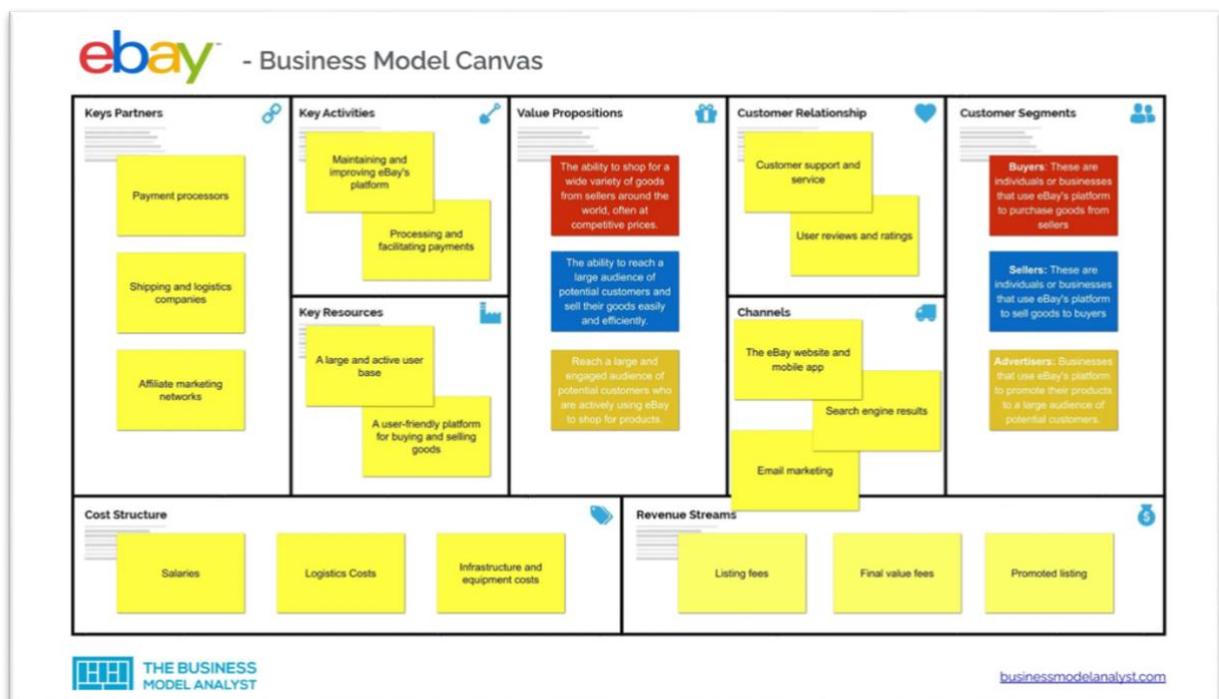


Fig. 1. The Business Model of eBay (<https://www.ebay.com.my/>)

4.5.1. Carousell's Business Model Canvas

In Carousell's business model canvas, users can purchase and sell a range of goods on a peer-to-peer marketplace. Transaction fees, seller-only premium services, and advertising are how it makes money. Through its website and mobile app, the platform focuses on user interaction, trust-building, and a frictionless buying and selling experience. The BMC of Carousell is shown in Fig. 2 below.

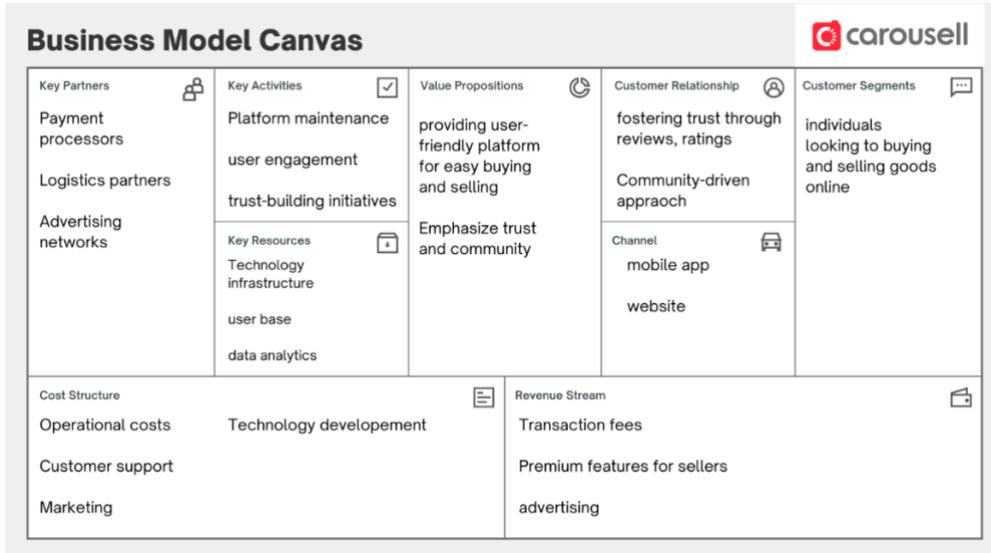


Fig. 2. The Business Model of Carousell (<https://www.carousell.com.my/>)

4.5.2. Mudah.my, Chotot and Onekyat Business Model Canvas

(<https://www.mudah.my/>) (<https://www.chotot.com/>)

Mudah.my, Chotot and Onekyat all operate as online classified platforms, and their business models may have similarities, but also key differences based on factors such as geographic focus, user behavior and market conditions. Mudah.my primarily serves the Malaysian market, Chotot focuses on Vietnam and Onekyat targets users in Myanmar. This geographic focus impacts various aspects of their business models, including language support, marketing strategies and partnership. Monetization strategy may be different based on market dynamics, user preferences in each region, cultural factors and regulatory environment. Therefore, Onekyat is only available as an application and not as a website. The BMC of Mudah.my, Chotot and Onekyat is shown in Fig. 3 below.

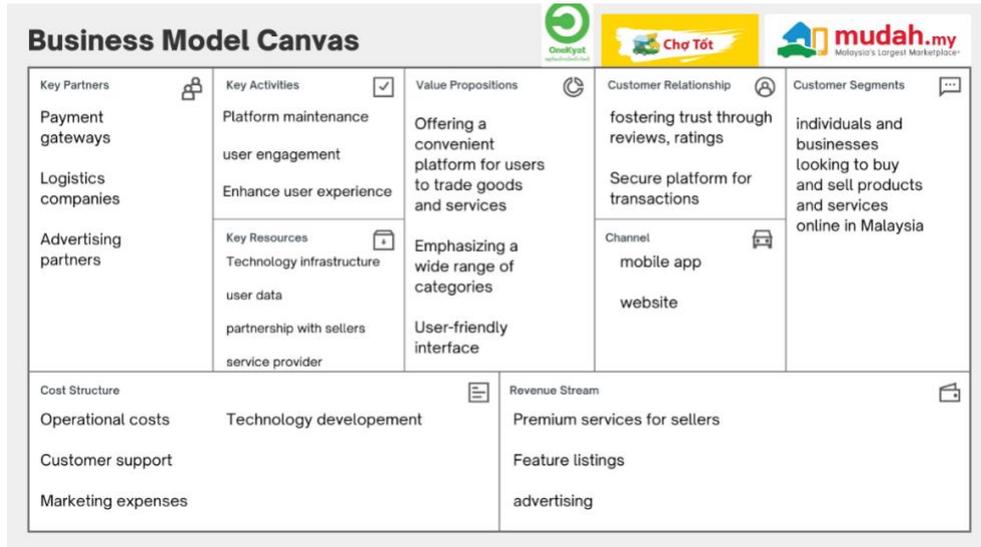


Fig. 3. The Business Model of Mudah.my, Chotot, Onekyat

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

5.1. Initial Business Model Canvas (BMC)

Fig. 4 depicts the initial Thrift-Tee business model, constructed using the BMC framework, based on the preceding literature evaluations on the business model canvas.

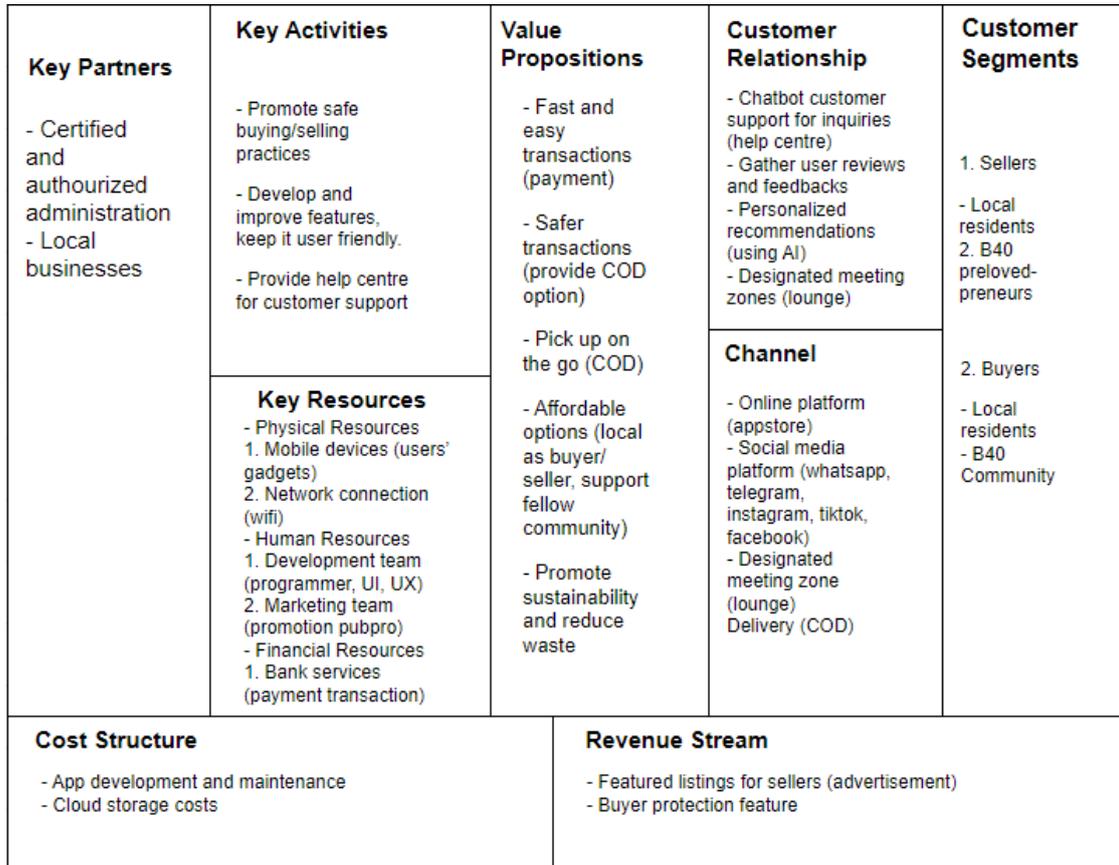


Fig. 4. The Initial Business Model Canvas of Thrift-Tee

The proposed Thrift-Tee's business model fosters a thriving second-hand marketplace among the local residents, the B40 thriftpreneurs and others B40 community. Its strengths lie in inclusivity, creating a diverse community for buying and selling. The platform prioritizes affordability and convenience, catering to individuals' budgets with easy transactions. Sustainability is also a focus, promoting a circular economy through item reuse which aligns with SDG 1 and SDG 12 (MOE, 2021). However, challenges exist. Effective marketing to drive user adoption within the community is crucial. Striking a balance between free and premium features will be essential to attract and retain users. Additionally, robust community management practices are needed to ensure a safe and trustworthy environment. Competition from existing online marketplaces or offline options is also a factor. By addressing these challenges, Thrift-Tee can become the go-to platform for affordable buying and selling within the community, fostering a vibrant and sustainable marketplace.

5.2. Initial Value Proposition Design Canvas (VPC)

The Thrift-Tee VPC provides a structured approach to align products or services with the specific values and needs of customers. It distinctly delineates customer segments and value propositions. The customer profile aids in elucidating customer understanding, while a value map articulates how the business intends to deliver value to customers. The convergence of these elements results in achieving the crucial "Fit" (Osterwalder et al., 2014). This canvas is instrumental in evaluating the value of Thrift-Tee for various customer segments, including the local residents and the B40 Thriftpreneurs (Fig. 5), and the B40 community (Fig. 6).

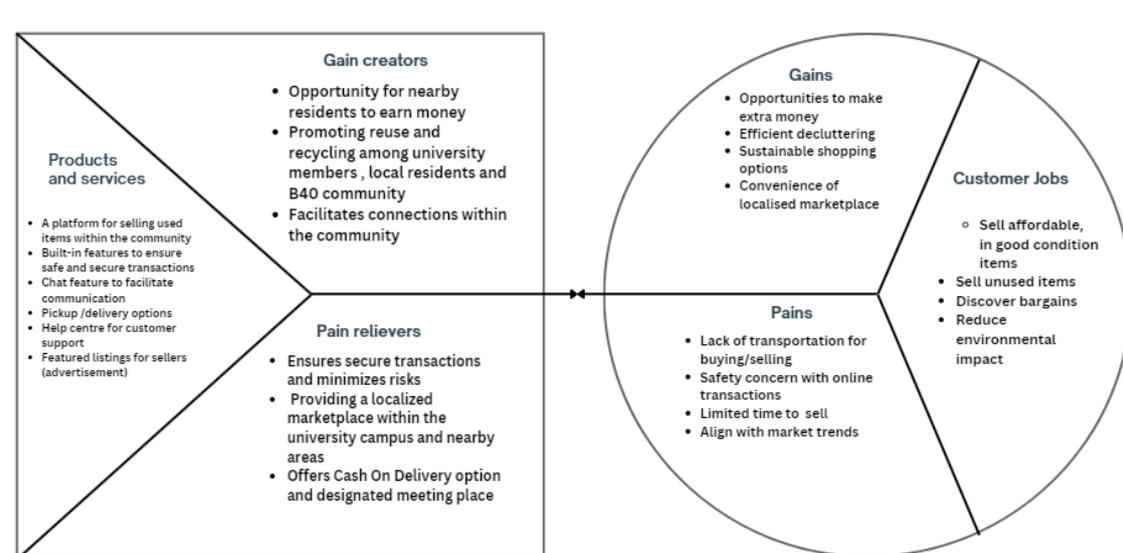


Fig. 5. The Initial VPC – Sellers (Local resident and B40 thriftpreneurs)

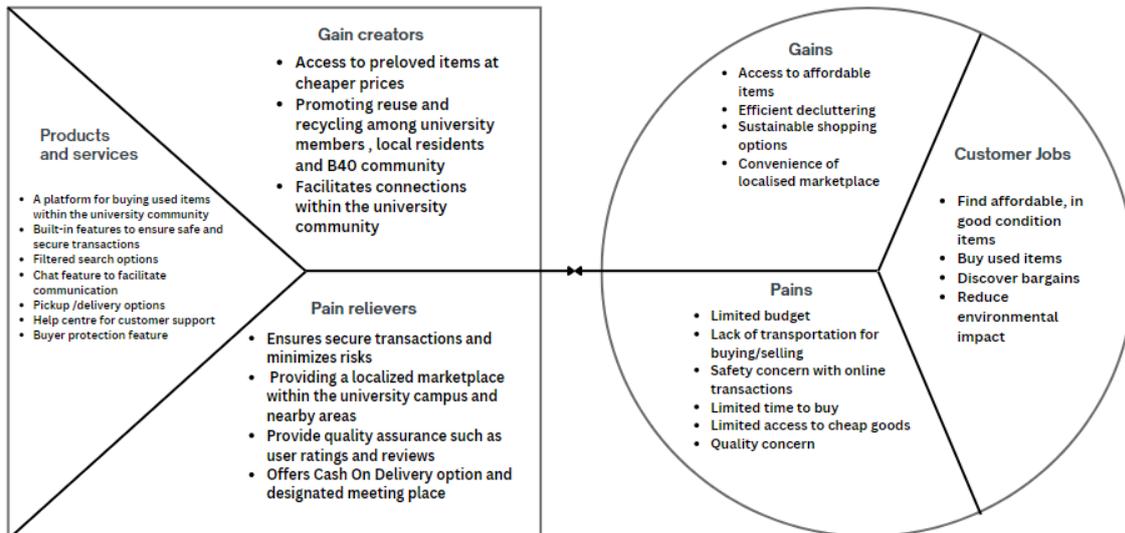


Fig. 6. The Initial VPC – Buyers (Local residents and B40 community)

The VPC models provide a clear visual representation of everyone involved in the customer segment, reflecting an understanding of their demands and motivations. They are also tailored to certain gain points and provide advantages to different consumer categories, displaying a customer-centric strategy. Gain producers and pain relievers provide alternatives to fulfil the wants of various customer segments.

While the models anticipated significant advantages, some consumer groups might benefit from a more detailed list of possible pain points. There are certain parallels between the gain creators and pain relievers' parts, which can be differentiated to provide a greater emphasis on Thrift-Tee's advantages. While the answers have been detailed, the solutions offered are distinguishable from the current approaches to better group targets.

6.CONDUCT VALIDATION OF INITIAL BM & KEY FINDINGS

To validate the Thrift-Tee business model, an online survey through *Google Form* has been conducted consisting of 16 questions. Responses were collected from 15 participants representing various income brackets (B40, M40, T20) and employment sectors, including both business and non-business fields. This survey was distributed among university students and individuals in the neighboring communities to gather different perspectives and feedback. The analysis of the data collected from the online survey presented in the following diagrams below:

Income Group
15 responses

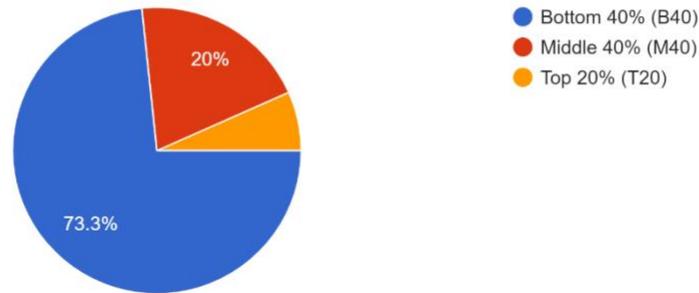


Fig. 7. Income Group.

The first question asked people about their income group. Illustrated in Fig. 7, the findings indicate that 73.3% or 11 individuals among the respondents fall under the B40 group. Meanwhile, 20% or 4 participants are classified as M40, with a minor representation of 6.7% or 1 respondent in the T20 category. Most responses came from the B40 group.

Do you face any difficulties in searching for used items at a low and affordable prices?
15 responses

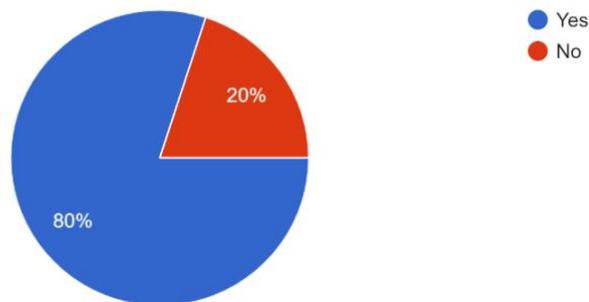


Fig. 8. Face any difficulties in searching for used items at a low and affordable prices.

The next question inquired whether respondents encounter challenges in finding inexpensive used items. As depicted in Fig. 8, 80% of the participants answered affirmatively, whereas 20% responded negatively. This indicates that most respondents are indeed having trouble finding affordable secondhand items.

Do you think that local residents and B40 preloved-preneurs are interested in buying and selling second-hand clothes?

15 responses

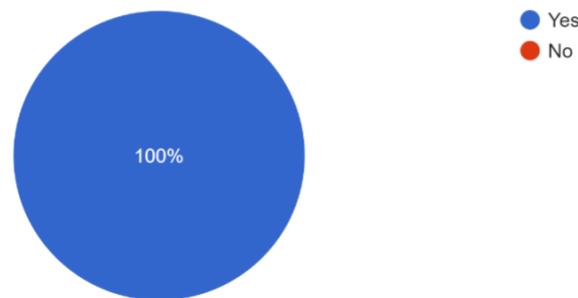


Fig. 9. Think that local residents and B40 thrift-preneurs interest in buying and selling secondhand clothes.

The third question asked if the respondents believe that the local residents and the B40 thrift-preneurs are keen on buying and selling secondhand clothes. As shown in Fig. 9, all respondents indicated that they believe the B40 individuals would indeed be interested.

If yes, why do you think they are interested ?

13 responses

- Because it is so so cheap and sometime the quality of the thrift things still helokk!!
- Easy to get
- Affordable option. If they have good financial awareness, they would prioritise cash flow over their own desire. If there's an option to get a good quality item for a lower price, definitely they would love to buy them.
- some people only seek to buy affordable clothes with acceptable condition without looking at the brand
- because the price cheaper for a not so bad quality item.
- cheaper compared to market price
- affordable & good quality
- Affordable and low price
- it's more affordable
- affordable
- Cuz its way cheaper than the original price
- For a cheaper option that is still in a good quality
- Affordable

Fig. 10. Reasons the B40s are interested in buying and selling secondhand clothes.

The following question inquired about the possible reasons behind why the B40 individuals are interested in buying and selling secondhand clothes. As illustrated in Fig. 10, the responses mainly revolved around affordability and cost-effectiveness.

Do you prefer the face-to-face negotiation during the buying-selling process?
15 responses

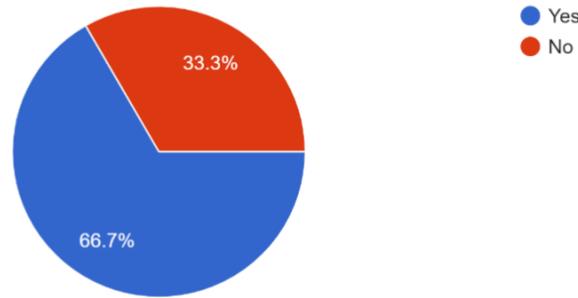


Fig. 11. Preference on face-to-face negotiation during the buying-selling process.

The fifth question queried whether respondents favor a face-to-face negotiation during the buying and selling process. Illustrated in Fig. 11, 66.7% of participants indicated a preference for a face-to-face interaction, while 33.3% expressed a preference for other methods. This indicates that the majority prefer direct interaction to ensure secure delivery and avoid frauds.

Do you think by gathering user reviews and feedback will helps to improve the platform?
15 responses

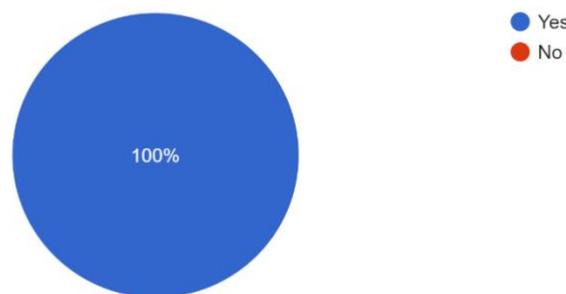


Fig. 12. Gathering user reviews and feedback helps improve the platform.

The sixth question asked if gathering user reviews and feedback contributes to enhancing the platform. As depicted in Fig. 12, all respondents agreed that incorporating these features would indeed improve the platform.

Do you think people willing to donate or pay to use the listed features of the platform?

15 responses

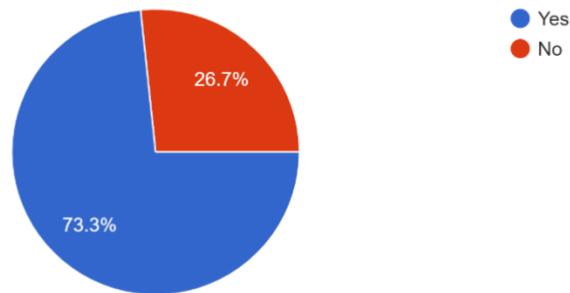


Fig. 13. People willing to donate or pay to use the listed features of the platform.

In the seventh question, it queried whether people are willing to donate or pay to use the listed features of the platform. As shown in Fig. 13, 73.3% of the participants answered affirmatively, while 26.7% responded negatively. This suggests a strong likelihood that people would utilize the listed features to endorse the product and gain visibility on the front page.

Do you think this platform will give opportunity for users to gain any income?

15 responses

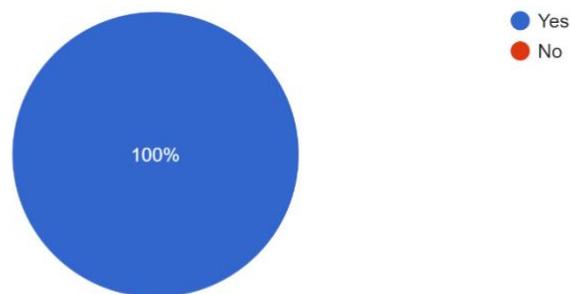


Fig. 14. Platform will give opportunity for users to gain any income.

The eighth question explored whether the platform offers users the chance to gain any income. As shown in Fig. 14, all respondents concurred that this platform provides such an opportunity by connecting potential buyers and sellers.

Rate yourself, how often you will be using this platform to buy or sell used items?

15 responses

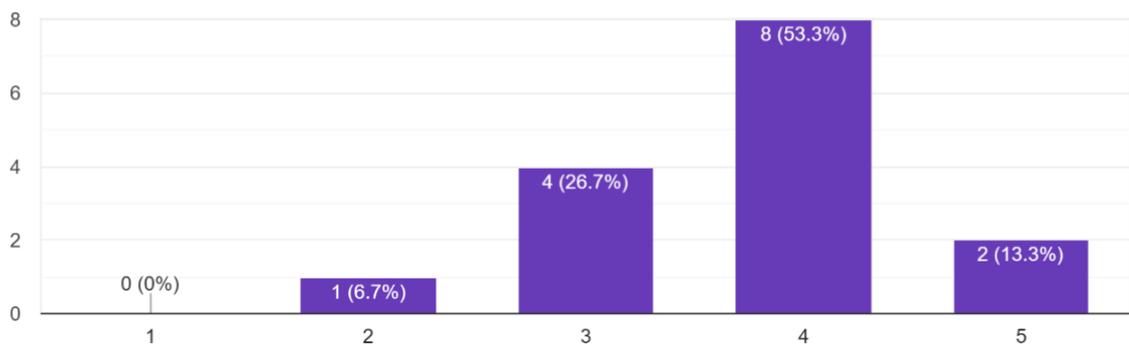


Fig. 15. Frequency using this platform to buy or sell used items.

The final question investigated the frequency with which respondents intend to use the platform for buying or selling used items. As illustrated in Fig. 15, 53.3% or 8 respondents chose option 4, 26.7% or 4 chose option 3, 13.3% or 2 chose option 5, 6.7% or 1 chose option 2, and none selected option 1. This indicates that most people plan to use the platform regularly, as it serves their needs and offers benefits.

7. VALIDATED BM – BMC FRAMEWORK

7.1. Validated Conceptual Business Model

According to the survey results, respondents from different customer segments are generally satisfied with the business model and believe that some improvements on the cost structure and value proposition are required. As a result, Fig. 16 illustrates the validated business model canvas for Thrift-Tee.

Key Partners <ul style="list-style-type: none"> - Certified and authorized administration - Local businesses - Banks 	Key Activities <ul style="list-style-type: none"> - Promote safe buying/selling practices - Develop and improve features, keep it user friendly. - Provide help centre for customer support 	Value Propositions <ul style="list-style-type: none"> - Fast and easy transactions (online or offline) - Offer face-to-face buying and selling process (negotiation) - Offer pick up on the go options (COD) - Affordable options (local and B40 as buyer or seller) - Promote sustainability and reduce waste - Help in generating income for poor people 	Customer Relationship <ul style="list-style-type: none"> - Chatbot customer support for inquiries (help centre) - Gather user reviews and feedbacks - Personalized recommendations (using AI) - Designated meeting zones (lounge) - ThriftTee digital platform and mobile applications 	Customer Segments <ul style="list-style-type: none"> 1. Sellers <ul style="list-style-type: none"> - Local residents - B40 entrepreneurs 2. Buyers <ul style="list-style-type: none"> - Local residents - B40 Community
	Key Resources <ul style="list-style-type: none"> - Physical Resources <ol style="list-style-type: none"> 1. Mobile devices (users' gadgets) 2. Network connection (wifi) - Human Resources <ol style="list-style-type: none"> 1. Development team (programmer, UI, UX) 2. Marketing team (promotion pubpro) - Financial Resources <ol style="list-style-type: none"> 1. Bank services (payment transaction) 		Channel <ul style="list-style-type: none"> - Online platform (appstore or google store) - Social media platform (whatsapp, telegram, instagram, tiktok, facebook) - Designated meeting zone (lounge) - Delivery (COD) - Thrift Tee digital platform and mobile applications 	
Cost Structure <ul style="list-style-type: none"> - App development and maintenance - Cloud storage costs - Payment gateway fee 		Revenue Stream <ul style="list-style-type: none"> - Featured listings for sellers (advertisement) - Buyer protection feature 		

Fig. 16. The Validated Business Model Canvas of Thrift-Tee

The nine blocks of the BMC for Thrift-Tee are detailed below:

7.1.1. Customer Segments

Customer segments for the business model consist of sellers and buyers. The sellers are the local residents and the B40 entrepreneurs, with the latter group representing entrepreneurs from the lower 40% income tier who specialize in secondhand or preloved items. The buyers are the local residents and the broader B40 community, with interests ranging from finding affordable items to supporting local entrepreneurship and sustainability through reused goods. This structure supports a local, community-focused business model with a sustainability and income-enhancement angle.

7.1.2. Value Propositions

The value propositions emphasize a flexible and user-friendly experience, with fast and easy transactions available both online and offline. It accommodates face-to-face buying and selling processes, allowing for negotiation, while also providing convenient pick-up options like cash-on-delivery (COD). This setup enables affordable transactions, catering to the local residents and the B40 community as buyers or sellers, fostering economic inclusion. The model promotes sustainability by encouraging the reuse and repurposing of preloved items, thereby reducing waste. Additionally, it supports income generation for lower-income individuals, contributing to a more inclusive and sustainable economy.

7.1.3. Channels

In this business model, it employs various channels to connect with and serve its customer segment. It uses an online platform, accessible through app stores like Google Play or the App Store, allowing users to interact digitally. Social media platforms such as WhatsApp, Telegram, Instagram, TikTok, and Facebook are used to engage customers, promote the business, and facilitate communication. A designated meeting zone like a lounge and Network-of-Mosque (Dahlan et al., 2017; Saleh et al., 2013) provides a physical space for the face-to-face interactions between buyers and sellers. For delivery, the business offers cash-on-delivery (COD) as a convenient payment option. Additionally, the business leverages the Thrift-Tee digital platform and mobile applications, providing a dedicated digital interface for users to browse, buy, sell, and connect with the business. These combined channels ensure a versatile and robust approach to customer engagement and service delivery.

7.1.4. Customer Relationships

This business model uses various methods to foster customer relationships. A chatbot customer support system is in place to answer customer inquiries quickly and efficiently, acting as a virtual help center. The business actively gathers user reviews and feedback to understand customer needs and improve the platform's offerings. Personalized recommendations, powered by AI, guide customers to products that match their preferences. There are also designated meeting zones like a lounge and Network-of-Mosque (Dahlan et al., 2017; Saleh et al., 2013), enabling buyers and sellers to meet face-to-face for a more personal experience. Additionally, the business operates the Thrift-Tee digital platform and mobile applications, providing customers with a convenient and effective way to interact with the business and access its services. These elements collectively create a comprehensive and customer-centric approach to building relationships.

7.1.5. Revenue Streams

The revenue stream of this business model is through featured listings for sellers, where sellers can pay to have their products or services prominently displayed, providing them with increased visibility and potentially more sales. This feature functions as a form of advertisement within the platform. Additionally, the business offers a buyer protection feature, where buyers can pay for extra security or insurance, ensuring their transactions are safe and protected. This approach creates a revenue stream by providing premium services that enhance the customer experience and confidence in the platform.

7.1.6. Key Resources

In the Thrift-Tee business model, the key resources contain physical resources that include mobile devices (the gadgets used by users) and network connections like Wi-Fi, ensuring smooth online transactions and communication. Human resources encompass a development team, including programmers, UI/UX designers, and others who create and maintain the platform, along with a marketing team responsible for promotion and public relations. Finally, financial resources are represented by bank services for handling payment transactions, which play a crucial role in facilitating secure and reliable financial operations within the business model.

7.1.7. Key Activities

The key activities include promoting safe buying/selling practices, ensuring that transactions are secure and that both buyers and sellers are protected from fraud or scams. Additionally, the business focuses on developing and improving platform features to keep them user-friendly and engaging, providing a smooth experience for users. It also involves providing a help center for customer support, where customers can get assistance, ask questions, and resolve issues, reinforcing a positive relationship with the platform.

7.1.8. Key Partners

In this business model, certified and authorized administration represents regulatory or governing bodies that ensure the business operates within legal frameworks and meets compliance requirements. Partnerships with local businesses, NGOs, and Network-of-Mosques create a network that supports community engagement and may also offer resources, referrals, or collaborative opportunities. Finally, collaboration with banks is crucial for secure financial transactions, providing services like payment processing, account management, and other financial infrastructure. These partnerships collectively help the business to function smoothly, ensure compliance, and build strong community connections.

7.1.9. Cost Structure

Thrift-Tee business model's cost structure covers significant costs, including app development and maintenance, which encompass the ongoing expenses of creating, updating, and enhancing the mobile application to ensure it remains functional and user-friendly. Cloud storage costs are another major expense, covering the storage of user data, application resources, and backups in a secure and scalable environment. Additionally, the business incurs payment gateway fees, representing the charges for processing payments and transactions through financial services. These costs are central to the operation of the business and impact its profitability and sustainability.

7.2. Environmental Map

7.2.1. Market forces

Market forces are a major factor in shaping the business environment for Thrift-Tee. By studying market forces, the company can gain insights into supply and demand dynamics, pricing trends, and competition. This involves looking at customer preferences, purchasing power, and market saturation (Kotler, Keller, Burton, & Moriarty, 2020). Analyzing market forces helps Thrift-Tee adjust its strategies to keep up with the changing market conditions, staying relevant and competitive.

7.2.2. Industry forces

Thrift-Tee operates in an industry with various influential factors. These include competition levels, the possibility of new businesses entering the market, the power buyers and suppliers hold, and the availability of alternative options for customers (Porter, 2008). Recognizing these industry forces helps Thrift-Tee pinpoints the

possible risks and chances for growth, aiding in decisions related to market position, pricing methods, and unique selling points. Hence, by staying vigilant to industry changes, the company can address challenges proactively and take advantage of new trends.

7.2.3. Key trends

It is important for Thrift-Tee to keep up with the key trends to stay ahead of market changes and meet customer preferences. This involves monitoring technology, consumer behavior, sustainability, and economic factors (Thies, 2023). Furthermore, by keeping informed about these trends, the company can predict market shifts and adapt its products and strategies accordingly. For instance, by acknowledging the rise in online shopping and the focus on sustainability, Thrift-Tee can customize its platform to align with changing customer needs and wants.

7.2.4. Macroeconomic forces

Macroeconomic forces are substantial economic factors that impact businesses on a national or global level. These include inflation, unemployment, interest rates, and economic growth. Thrift-Tee can analyze these forces to predict economic trends and how they may affect consumer behavior and purchasing power (Board of Governors of the Federal Reserve System, 2024). Thus, adjusting its strategies based on macroeconomic conditions, Thrift-Tee can minimize risks and take advantage of opportunities that arise from changes in the economy.

7.3. Strategy Canvas

Strategy Canvas is a tool that makes it possible to see how rivals attract clients, allowing businesses to compare the operations and approaches of various companies moving towards a blue ocean strategy (Kim & Mouborgne, 2005). By using this tool for the Thrift-Tee platform, it helps to compare our solution with other sectors in the market. We are focusing on preloved items sectors which makes us go deeper and examine the number of business owners who can form alliances with one another on a national or worldwide scale.

Strategy Canvas

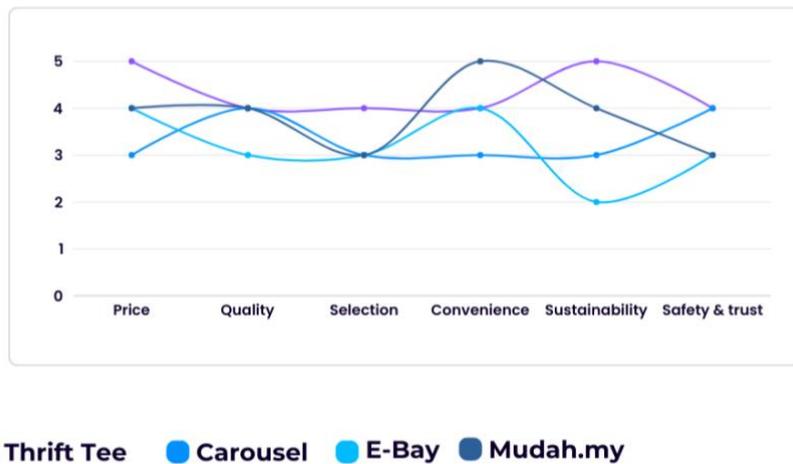


Fig. 17. Strategy Canvas

Using this strategy canvas, we compare the online platform Thrift-Tee business model with the three major players in the online thrift market, namely Carousell, eBay and Mudah.my. The canvas in Fig. 17 is based on the key factors that influence consumers' buying decision, which are the price, quality, selection, convenience, sustainability, safety and trustworthiness. Compared to the other online platforms, Thrift-Tee has the following key differentiators:

- **Price:** Thrift-Tee offers more affordable prices than Carousell, eBay and Mudah.my as it develops a distinctive preloved item platform that addresses the unique needs of the B40 community.
- **Selection:** Thrift-Tee offers a wider selection of preloved products compared to Carousell, eBay and Mudah.my.
- **Sustainability:** Thrift-Tee focuses more on sustainability than Carousell, eBay and Mudah.my with the highest score in this area. It champions sustainability by fostering a culture of reuse, thereby reducing waste and environmental impact.
- **Safety and trust:** Thrift-Tee focuses on face-to-face negotiations to see that the items they purchase are genuine and not counterfeit or a replica. Sellers with positive ratings and a good brand reputation may enhance the overall perception of the platform. Plus, Thrift-Tee ensures secure transactions and minimizes risks, making it the safest platform.

Overall, the online platform Thrift-Tee business model differentiates itself from competitors by offering more affordable products with a wider selection, a strong focus on sustainability, safe to use and trusted platform. Thrift-Tee also offers affordable options for the locals and the B40 buyers and sellers, ensuring that none of the items are overpriced in the current global market. Fitting and sizing can be done in the face-to-face negotiations, making it safer and a more trusted platform than the other platform. Thrift-Tee also provides a chatbot customer service to support any inquiries. People are ready to pay or donate to access the platform's specified features and willing to donate preloved and thrift items. Therefore, these key differentiators can be leveraged to create a unique value proposition and competitive in the online thrift marketplace.

7.4. Low Fidelity prototype

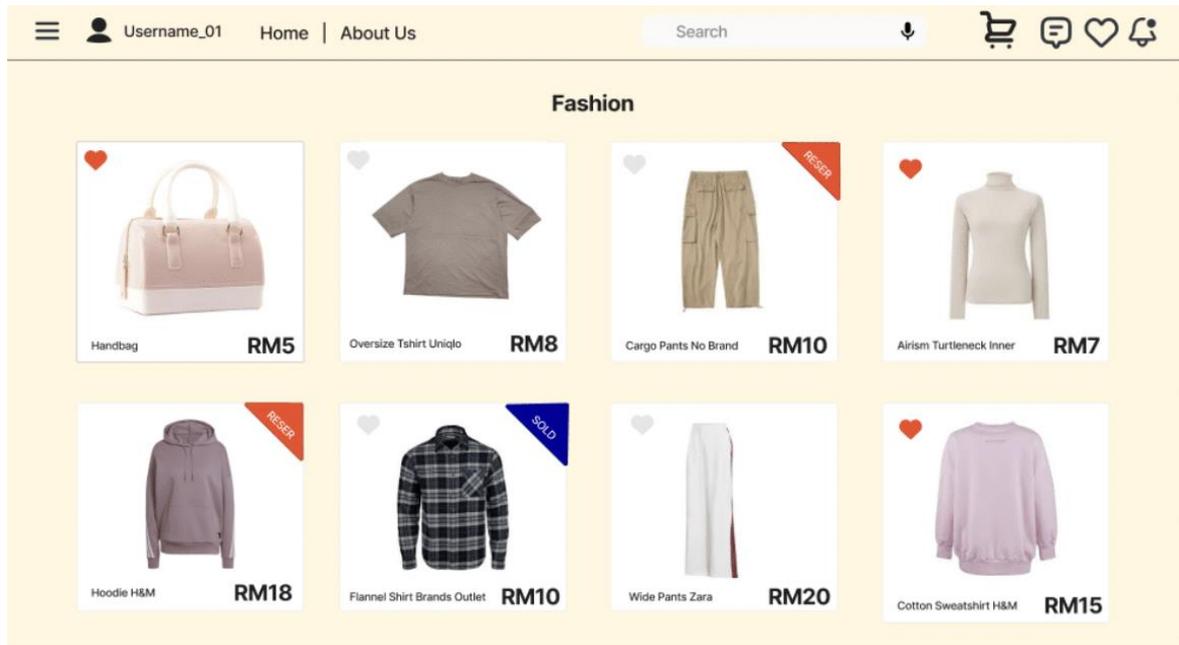


Fig. 18. List of products page

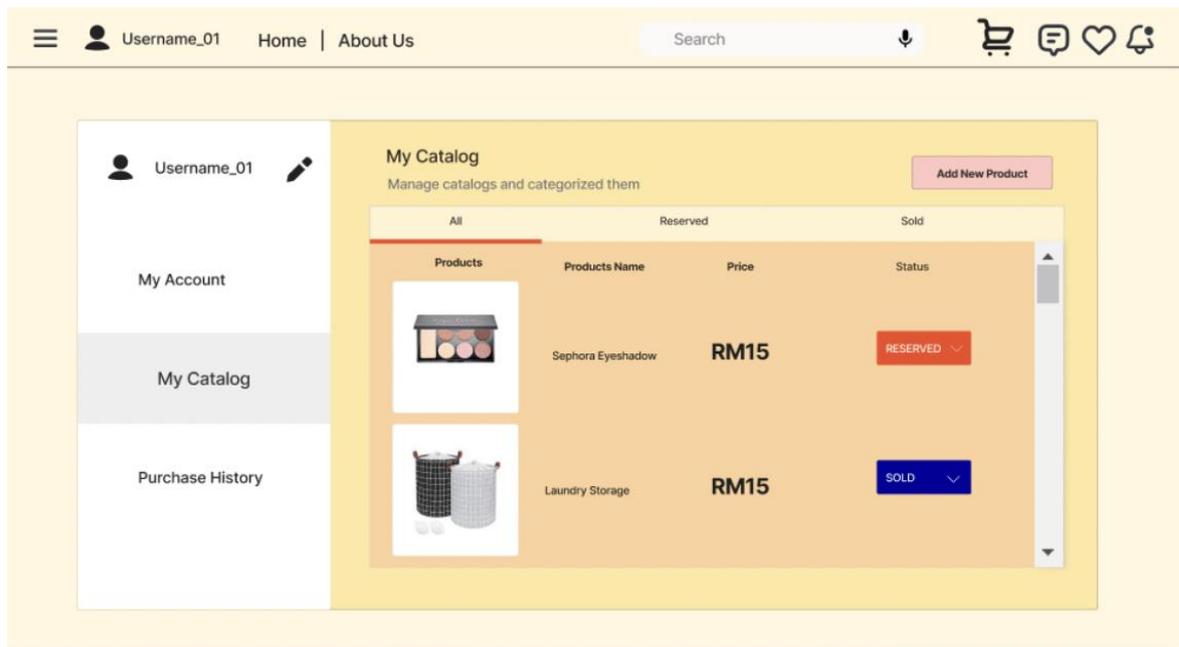


Fig. 19. User catalog page

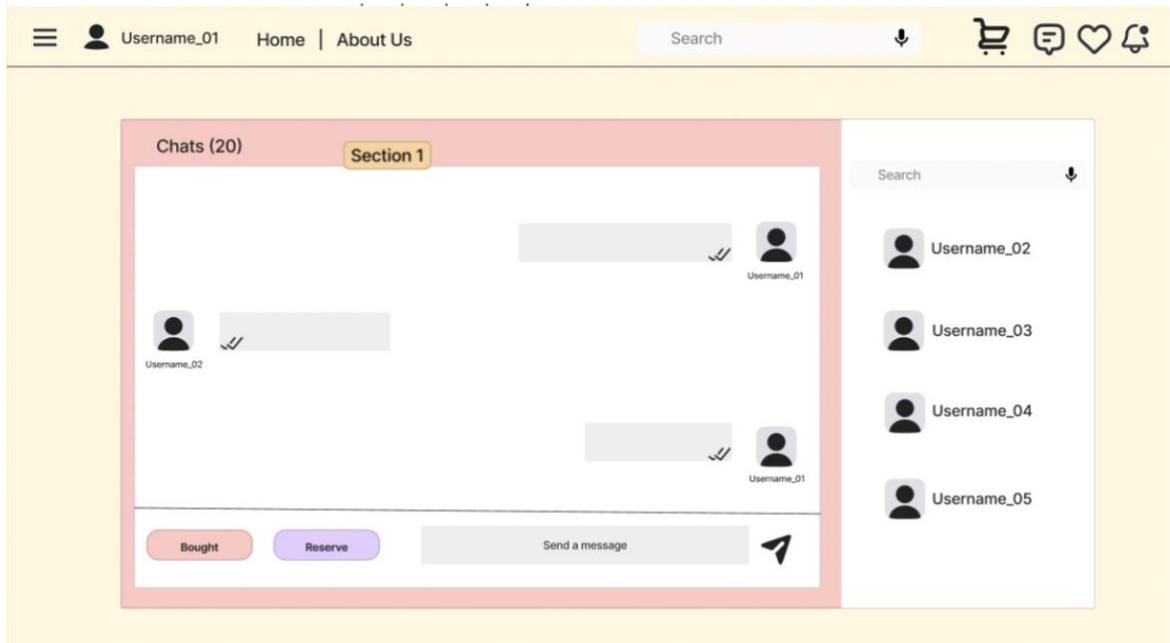


Fig. 20. Chat with seller features

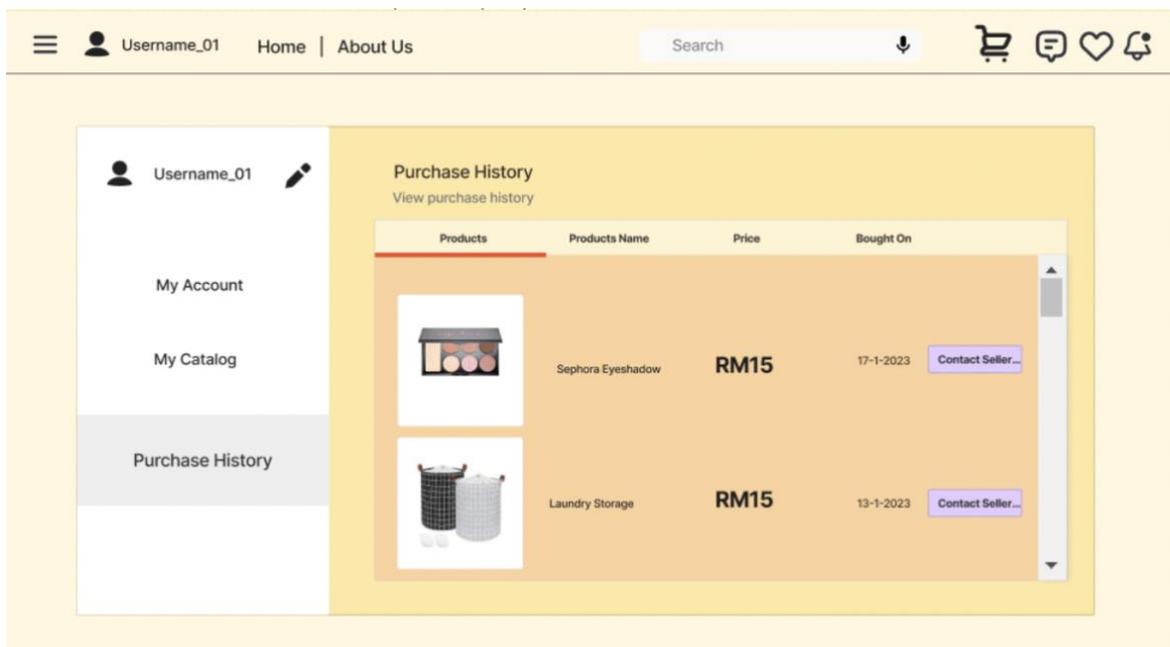


Fig. 21. User purchase history

8. CONCLUSION AND FUTURE WORKS

In conclusion, the conceptual Thrift-Tee business model addresses several key challenges and opportunities for its various customer segments. For the sellers, including the local residents and the B40 thrift-preneurs, the job-to-be-done is to efficiently sell unused items and generate income. The extreme pain points include the hassle of finding buyers and negotiating prices, while the essential gains include earning extra money and decluttering their homes. Thrift-Tee's solution differentiates itself by providing a user-friendly platform for sellers to list their items

easily, negotiating prices conveniently, and reaching a broader audience through digital channels. For the buyers, comprising the local residents and the broader B40 community, the job-to-be-done is to find affordable and good quality preloved items. The extreme pain points include limited access to affordable goods and concerns about product quality. The essential gains include saving money and accessing unique items. Thrift-Tee's solution differentiates itself by offering a wide range of affordable products, ensuring product quality through seller verification processes, and providing a secure platform for transactions. Hence, Thrift-Tee's business model, products/services, and key features of its digital platform/app are designed to meet the specific needs of sellers and buyers, offering a unique and inclusive marketplace for the B40 community.

The next stage in turning this theoretical business model into a workable business solution is to use the V2MOM (Vision, Values, Methods, Obstacles, and Measures) model for the creation of a business plan. Since it will be our guide to starting and running the company, a thorough business plan is necessary. It also serves to organize and clarify every aspect of how our company will run to maintain profitability and long-term viability, along with being the vital force behind the B40 entrepreneurs' ability to continue operating their firms until they can innovate their lives and escape poverty independently, Thrift-Tee may also be a dependable resource for business owners looking to optimize the performance of their startup or current ventures.

REFERENCES

- Agbehadji, I. E., Awuzie, B., & Ngowi, A. (2021). COVID-19 Pandemic Waves: 4IR Technology utilisation in Multi-Sector Economy. *Sustainability*, 13(18), 10168.
- Board of Governors of the Federal Reserve System. (2024, April 15). Federal Reserve Board: Monetary Policy. <https://www.federalreserve.gov/monetarypolicy.htm>
- Braun, M., & Bergamin, S. (2021). The impact of the Covid-19 pandemic on globalization and digitalization in the non-food retail industry. *ZHAW Digitalcollection*. <https://doi.org/10.21256/zhaw-24681>
- Chan, R. (2020). "Selam Bundle": Thrift Shopping As Malaysian Social Class Integration Platform. *Jebat: Malaysian Journal of History, Politics & Strategic Studies*, 47(3).
- Cheney, T. A. R. (1983). Getting the words right: How to rewrite, edit, and revise. Cincinnati, Ohio: Writer's Digest Books.
- Cuofano, W. I. G. (2024, January 25). *How does Carousell make money? The Carousell business model in a nutshell*. FourWeekMBA. <https://fourweekmba.com/how-does-carousell-make-money/>
- Dahlan, A. R. A, Osman, R. A. H., Ibrahim, J., Othman, M. Z. (2017). eHalal4all program - promoting halal rural products and services globally by harnessing the Network-of-Mosques (NoM) capabilities. Contemporary Issues and Development in the Global Halal Industry: Selected Papers from the International Halal Conference 2014
- Foundation, Interaction Design. (2022). Empathize, define, ideate, prototype, and test: A five-stage iterative process.
- Intrafocus. (2020, October 1). *What is a Strategy Canvas?* Intrafocus. <https://www.intrafocus.com/2014/06/strategy-canvas/>

- Jewer, J., & McKay, K. N. (2012). Antecedents and consequences of board IT governance: Institutional and strategic choice perspectives. *Journal of the Association for Information Systems*, 13(7), 581-617.
- Kim, W. C., & Mauborgne, R. (2004). *Blue Ocean Strategy: How to Create Uncontested Market Space and Make Competition Irrelevant*. Harvard Business Review Press.
- Kotler, P., Keller, K. L., Burton, S., & Moriarty, S. E. (2020). *Marketing management* (16th ed.). Pearson Education Limited.
- Marcus, E. (2022, February 3). *How Malaysia got in on the secondhand clothing boom*. The New York Times. Retrieved April 21, 2024, from <https://www.nytimes.com/2022/02/03/style/malaysia-secondhand-clothing-grailed-etsy-ebay.html>
- myTukar, *Genie Malaysia records strong revenue growth*. (2022, November 23). Digital News Asia. <https://www.digitalnewsasia.com/business/mytukar-genie-malaysia-records-strong-revenue-growth>
- Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A. (2014). *Value Proposition Design: How to Create Products and Services Customers Want*. John Wiley & Sons.
- Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley.
- Pereira, D. (2023, June 24). EBay business model. *Business Model Analyst*. <https://businessmodelanalyst.com/ebay-business-model/>
- Porter, M. E. (2008). *Competitive strategy: Techniques for analyzing industries and competitors* (With a new introduction). Free Press.
- Rorong, G. A., Tamengkel, L. F., & Mukuan, D. D. . (2021). Pengaruh harga dan kualitas produk terhadap keputusan pembelian pakaian bekas import di Pasar Baru Langowan. *Productivity*, 2(3), 228–233.
- Saleh, B., Ma-Key, N., Dahlan, A. R. A., Osman, R. A. H. (2013). MyMukim2Cloud Collaborative System: A Mosque Collaborative Network for Serving the Societal Needs in Malaysia. IEEE, 5th International Conference on Information and Communication Technology for the Muslim World 2013.
- Suet Kay, C. (2020). "Selam bundle": Thrift Shopping As Malaysian Social Class Integration Platform. *Journalarticle.ukm.my* <http://journalarticle.ukm.my/17107/1/44785-144113-1-SM.pdf>
- Sustainable Development Goals. Official Portal of Ministry of Economy. (2021, July 1). <https://www.ekonomi.gov.my/en/sustainable-development-goals>
- Thies, A. (2023, March 14). The 5 Biggest Retail Trends to Watch in 2023. *Forbes*. <https://www.forbes.com/sites/forbesbusinesscouncil/2023/02/14/four-retail-trends-and-predictions-to-watch-for-in-2023/>
- Utilize. (2012). *Oxford dictionary*. Oxford University Press. Retrieved from http://oxforddictionaries.com/definition/american_english/utilize
<https://doi.org/10.3390/su131810168>