# Wannaqueue – An Effective Queue Management Application

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*Abstract:* **The purpose of this paper is to help people to overcome the long queue problem by providing them an effective waitlist application through mobile and web based platform "WannaQueue". "WannaQueue" is a business model which provides a waitlist platform for people to get their services without waiting too long through current queue management system. "WannaQueue" also provides the opportunity for business owners by providing them a platform to publish their business to the customers. Literature Reviews, benchmarking, Business Model Canvas (BMC), 4 Lenses of Innovation, and Value Proposition Design (VPD) have been used as the methodologies for this paper.**

*Keywords:* **queue, QMS, 4 Lenses of Innovation, BMC, VPD, EM.**

## I.   INTRODUCTION

People nowadays are going to have an effective and efficient way of doing every single thing. With the current concept of smart city which is now become a popular topic in Malaysia, there are a lot of technologies that have been implemented to solve human problems- one of them is time saving. However, a long queue for people to get several services seemed to be unresolved totally. The introduction of Urban Transformation Centre (UTC) as an initiative under National Blue Ocean Strategy (NBOS) is good in improving the procedures of handling the services, but people still need to wait for a long time to queue for a certain services. In healthcare service as example, people need to wait for hours at the hospital and clinic to wait for their treatment. A survey conducted by local newspaper, Malay Mail Online discovered that 26% of respondents cited prolonged waits as the main reason they abandoned medical treatment at public clinics or hospitals. It was revealed that 40% of respondents said they waited about four hours to meet a doctor at public clinics or hospitals in year 2016. WannaQueue has a great potential to overcome this problem in the upcoming years by providing easiness of queue management services of in Malaysia.

## II.   BACKGROUND

Improving customer experience is one of the important issues in business. Among customer experience that can be improved is about time. A report released by RightNow.com on customer experience revealed that 55% of respondent said customers abandon a brand because of slow or untimely services. Besides, Solink also added that the pre-process in service has the biggest influence on how customers perceive waiting times and service quality where a customer who has to wait 10 minutes in line before ordering will feel more dissatisfied than a customer who waits 10 minutes for their order to be prepared, even if the total service time for both customers was the same. In health service, with more than 90 thousands total number of persons engaged in health services (private sector only) in 2014 as reported in Department of Statistical Malaysia, there is a need to improve the queue management especially the number may increase year by year. It becomes more important when the service is dealing with the aged people. By 2025, 1 out of every 12 people will be above the age of 65. with fertility rate projected to decline and life expectancy projected to increase, the population over

65 years old will continue to grow and will emerge as a future economic and social challenge [3]. Based on the observation and current scenario, it seems like an efficient queue management application may be a good alternative solution to the problem.

## III. PROBLEM STATEMENT

A long queue in waiting for the service is the main concern of this paper. Pre-process waiting that sometimes take around one hour just to have about five minutes service is definitely burdened the customer. Besides, the increase of aged people population increases the need of proper healthcare. According to Frost and Sullivan (2015), "With fertility rates projected to decline and life expectancy projected to increase, the population over 65 years old will continue to grow and will emerge as a future economic and social challenge". Meanwhile, the hospitals and clinics which usually crowded make it uncomfortable for aged people to visit and people need to queue even for unserious health problem. For our methodology, we conducted literature review by listing three available products in market. Next, we build our own Business Model Canvas (BMC), Value Proposition Canvas (VPC) and Environment Map (EM) and make the Mega Trends in Malaysia as our reference. Plus, we will also conduct the interview to validate our initial BMC/VPC.

## IV. LITERATURE REVIEW

**- Nowait.com:**

A technology company that put hospitality business as it core. They are dedicated to ensuring that every user, restaurant or consumer, achieves success with their products and are determined to improve the way businesses run and people live their lives. Nowait began as a simple solution to a major pain point. While waiting 45 minutes for brunch one morning, their founder Robb Myer had an "ah-ha" moment. He realized that if you gave guests more control over how and where they waited for service, you would also help restaurants run more efficiently. In 2016, we partnered with Yelp to connect tens of millions of consumers to our restaurant partners. In 2017, they are thrilled to announce that Yelp has acquired Nowait. Together, they will make even bigger strides in the restaurant industry by allowing guests to go more quickly from search and discovery, to dining at our partner restaurants. What began as a text message waitlist system is now a complete restaurant management solution driving incremental sales for thousands of restaurants and a powerful consumer tool saving millions of users the most precious asset of their life, their time. A mutually beneficial network connecting guests and restaurants and disrupting the way the world dines out. Figure 1 below shows the Nowait application on google playstore.



**Figure 1: Nowait Application**

**- State Bank NoQueue:**

STATE BANK NO Queue is a unique App to enable customers to book a Virtual Queue Ticket (e-Token) for select services at select SBI branches. Customers can generate e-Token before reaching the branch, thus avoiding waiting in the queue at the branch and saving valuable time. The App also conveys the estimated waiting time, number of customers ahead and a map showing the direction to reach the branch. Customers will be updated about their position in the queue through instant alerts.

In order to use STATE BANK NO Queue, customer needs to download the State Bank NO Queue App from Google Play Store. One time Sign-Up with basic information viz. Name and Mobile Number. Next, choose from the list of select services that wish to avail at SBI branches. Next, locate get the list of branches close to your current location with detailed information about the expected waiting time and number of customers ahead of you. Next, book the virtual Queue Ticket. Conveniently join the queue even before you visit the branch and save your valuable time. However, this service is available for all SBI and Non SBI Customers. Customers can book a virtual ticket only during the branch business hours.

In addition, customer must make sure they have a non-rooted Android Phone and access to Internet data services either through wireless facility or 4G/3G/GPRS/Edge. Location setting on phone has also need to be "ON" in order to get the list of nearest branches. Application functioning is subject to the reception quality of your data plan. Figure 2 below is the State Bank NoQueue application on Google Playstore.
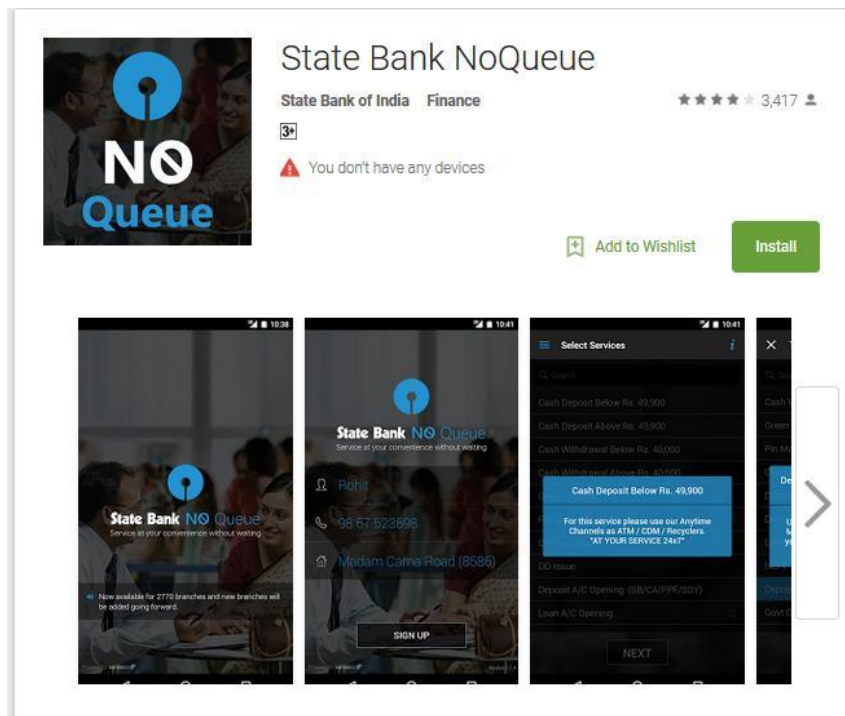


**Figure 1: State Bank NoQueue**

**- Waitlist:**

Waitlist is a mobile application that provides waiting list for restaurants. It manages the waiting of customers when the house is full by your smartphone or tablet, in a simple and practical way. It control everything in the same screen. The process is by selecting the number of places and fill the customer's name. Next, press "Add Customer" bottom and the customer is added at the end of the list. A counter shows the waiting time for each customer. When it reaches 60 min it restarts, but the numbers change their colour to red in order to call attention. If wish to add the customer mobile number, the app sends a text message when the table is available.

The button at right of each customer deletes him from the list. It shows if the mobile number is recorded and, in this case, also sends a message to him. When pressed, all data related to the customer is deleted. The list remains active even if you use other mobile functions. The whole list can also be deleted by a specific function in the menu. Shown below in figure 3 is the WaitList application.
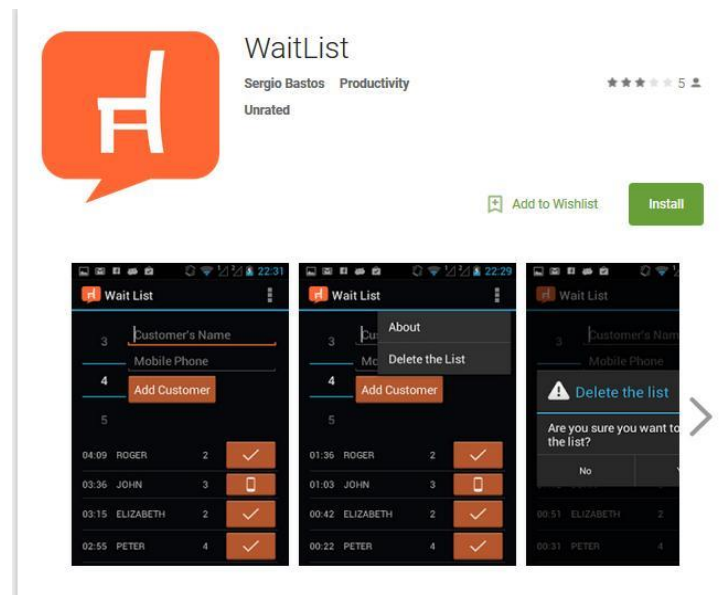
**Figure 2: Waitlist Application**

# V.    4 LENSES OF INNOVATION

4 Lenses Of Innovation was introduced by Rowan Gibson as a power tool for creative thinking. With this framework, we could learn the formula for infusing creativity into our organization. It outlines four aspects which are Challenging Orthodoxies, Harnessing Trends, Leveraging Resources, understanding Needs.

From the perspective of challenging orthodoxies, WannaQueue tries to challenge the conventional practice where people usually waste their time waiting for their turn during pre-processing time to get any services. People tend to wait at waiting area because they afraid they will miss their turn. As a result, they will waste their time at waiting area, in fact there are a lot of things they do while waiting for their turn.

Besides, WannaQueue is also trying to harness the trends. As a newcomer, WannaQueue aims to disrupt the current trend by bringing a new system that can manage people lifestyles. With the help of Internet of Things (IoT), people will easily manage their waiting time by choosing what type of activities they can do according to waiting time that they have. The activities that appears through the system will come out as as result from proper analysis of user's interests and preference.

WannaQueue is also Leveraging Resources as the available resources such as bankers, clinics owners, restaurants and other service providers are among our main targets to supply their resources. WannaQueue will act as the third party by proposing the solution to their problem in handling a long queue at their space.

WannaQueue is also understand needs of people that value their precious time so much. People usually spend their weekdays for working during the days and the will face trouble if they need to waste their time for a long queue to get any services at the same period of time. Besides, WannaQueue also understands the need of service provides such as bankers, clinics owners and restaurants to reduce the long queue at their space and optimizing their space for other important things. Thus, WannaQueue provides the solution to overcome this issue.

# VI.    ENVIRONMENT MAP

- **Key trends:**

According to Frost and Sullivan (2015), "Malaysia to have 125 million connected devices in 2025 with over 58 million mobile subscribers. Ninety-five percent of all netizens, or internet users, will be active social network users, presenting a huge potential for digital marketing and ecommerce". In addition, based on Frost and Sullivan (2015), "Healthcare spending in Malaysia will be valued around US$27.7 billion in 2020 with the healthcare expenditure per capita rising from US$520, currently, to about US$800 in 2020. The medical tourism and senior-living industry to witness a surge, and focus will shift from therapeutic to preventive care." From this statistic, it can be concluded that people will spend more on their

healthcare and they are expecting this service will be handier and reliable, since the service that is available on the internet and mobile application is what they are looking for.

**-Market forces:**

According to Frost and Sullivan (2015), "By 2025, 1 out of every people will be above the age of 65. Private investment will account for the major share in healthcare infrastructure by 2025." Figure 4 shows the report.
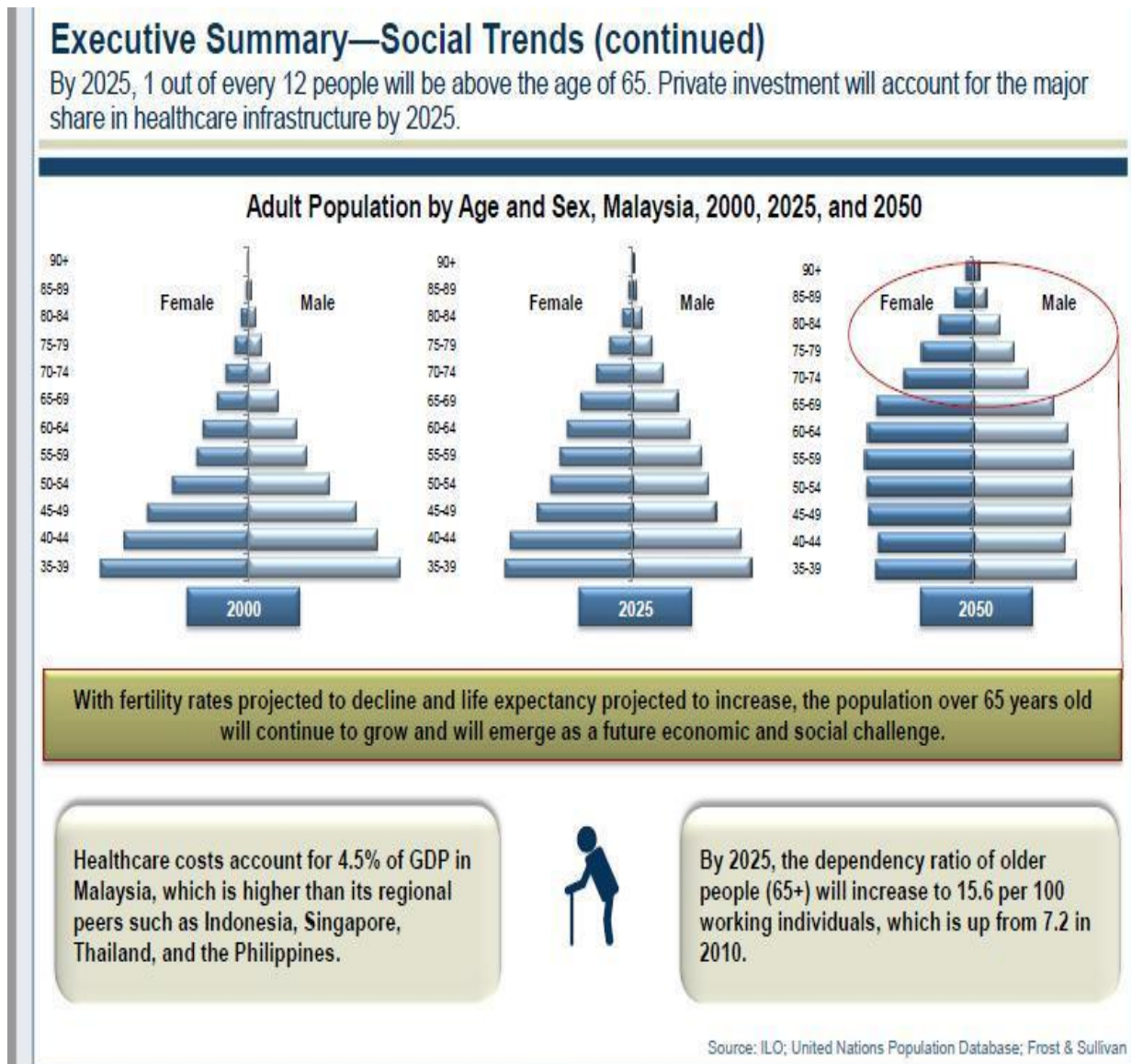


**Figure 3: Frost & Sullivan report on Social Trends**

**-Macro-economic forces:**

According to Frost and Sullivan (2015), "The internet economy (iGDP) market is expected to contribute 16% (US $90 billion) to the GDP by 2025, up from 4.3% in 2010 as the importance of internet and digitally-connected solutions grows in the economic".

Besides, Malaysian government also provides strong financial support the quality of healthcare in this country. As stated in the MalayMail Online, Budget 2017 allocated RM25 billion to boost the health of the people and the quality of healthcare in the country.

11th Malaysia plan (RMK-11) in addition also gives financial assistance to the aged people (above 60) by excluding them from paying the fee at public clinic and hospital. Figure 5 shows the report by Frost & Sullivan.
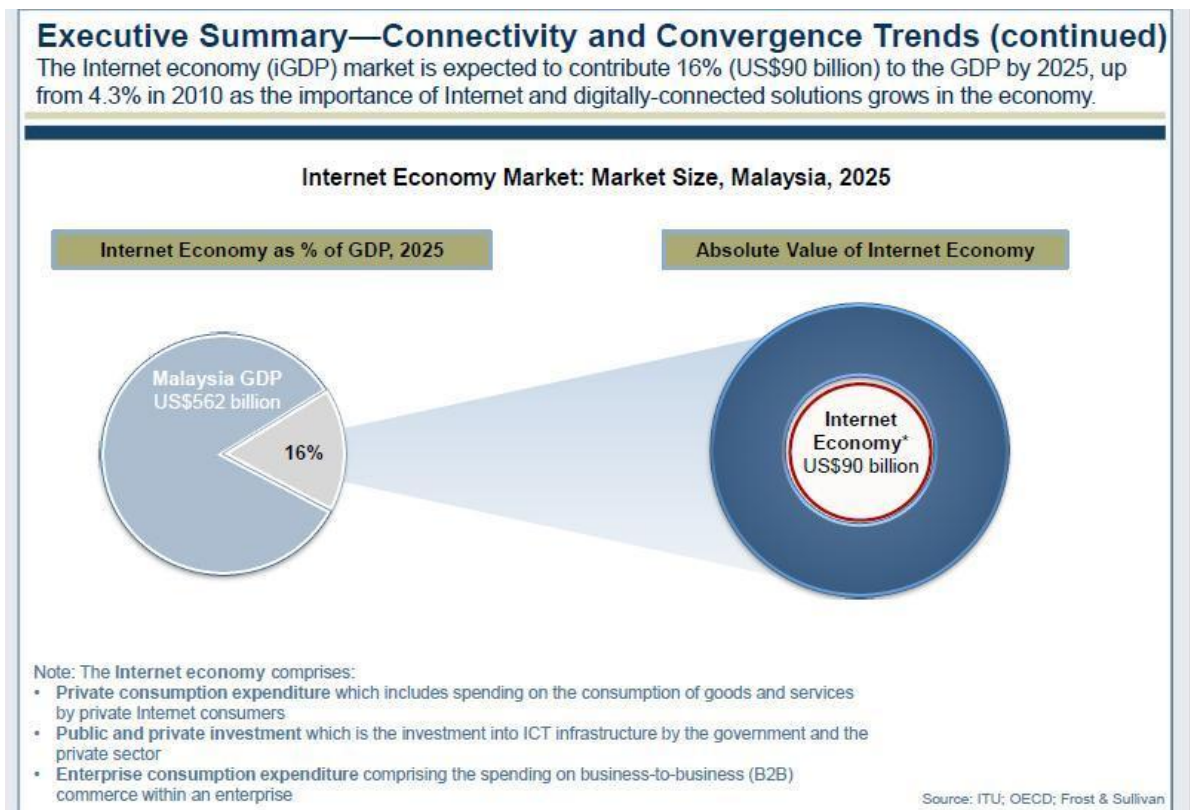
**Figure 4: Frost & Sullivan report on Connectivity and Convergence Trends**

**-Industry forces:**

According to Frost and Sullivan (2015), "The healthcare industry in Malaysia will witness heavy private investment and expenditure on healthcare is expected to cross US$27 billion in 2020".



**Figure 5: Frost & Sullivan report on Health, Wellness and Well-being**

# VII.  STRATEGY CANVAS

For WannaQueue to be able to compete with current similar product, we need to think and apply a new and improved methodology and approach to ace the competition. Digital trends and industrial revolution technologies must be applied on.

WannaQueue realize the **Opportunity** that our solution and value proposition solve problems in society daily activities. Not only in local, but global scope. Saving and managing time efficiently is something everyone want to have across the world. To tackle this opportunity, WannaQueue provide this servies which enable users to reduce their waiting time and thus use it to do other things. As the idiom says, we may kill 2 birds with a single stone. Saving time and complete more tasks.

The next step in the strategy is to make good use of **digital marketing** which is very important to reach the customers. Marketing through social media platform may enable WannaQueue to reach millions of users across the world without boundaries to country or region. As the number of user using this services increase, WannaQueue revenues and key partners will also increase directly proportional.

Talking about user experience, WannaQueue also focus on the **Customer Insight**. This is very important for WannaQueue to understand the user in order to improve our user experience. A good user experience will retain user loyalty as well attract new user to use the product.

# VIII.  INITIAL BUSINESS MODEL CANVAS

Figure A below shows the initial business model canvas that has been produced

| **Key Partners**<br>- KPJ Healthcare<br>-Government<br>- Takaful company<br>-UBER<br>-GRAB<br>-Yelp<br>- Private clinics, hospital | **Key Activities**<br>- Register guests<br>-Store guests database<br>-Added guest to queue list<br>-Arrange time<br>-Provide transaction method<br>-Suggest activities while waiting<br><br>**Key Resources**<br>- Mobile & Website | **Value Propositions**<br>Guest:<br>- Time saving<br>- Early Booking appoinment<br>- Schedule arrangement<br>-Bureaucracy reduced<br>- Suggested activities while waiting<br>-Easy payment<br><br>Service Provider:<br>- Reduce queue in their spaces<br>- Easy transaction<br>-Customer database access<br>- Provide fast service<br>- Good hospitality<br>- Maintain good customer relationship<br><br>Business Operator<br>-Business recommendation<br>-Business review | **Customer Relationships**<br>- Discount<br>- Rewards point<br><br>**Channels**<br>- Portal Apps: Website and Mobile Application<br>- Social Media<br>- Mosque | **Customer Segments**<br>Guest:<br>- People who want to save their times<br><br>Service Provider<br>- Private & Public hospitals/clinics<br>-Bankers<br>-Government sector<br><br>Business Owner<br>- Any businesses that is near to the service provider location. |
|---|---|---|---|---|
| **Cost Structure**<br>- System development and maintenance<br>- Salaries for permanent staff<br>- Marketing cost | | **Revenue Streams**<br>- Commission for service provider<br>- Fund<br>- Business Advertisement<br>- Registration fee from service provider | | |

**Figure A: Initial Business Model Canvas WannaQueue**

## IX. INITIAL VPC

After identifying the customer's need and problems, the initial Value Proposition Canvas have been created. This Value Proposition Canvas is used to create the value for Missy's customer and nurse as well as to lowering the risk that will happen for WannaQueue. The objective of Value Proposition Design is to create the product, the services, or experience that creates desired gains and also to relieve existing pains.
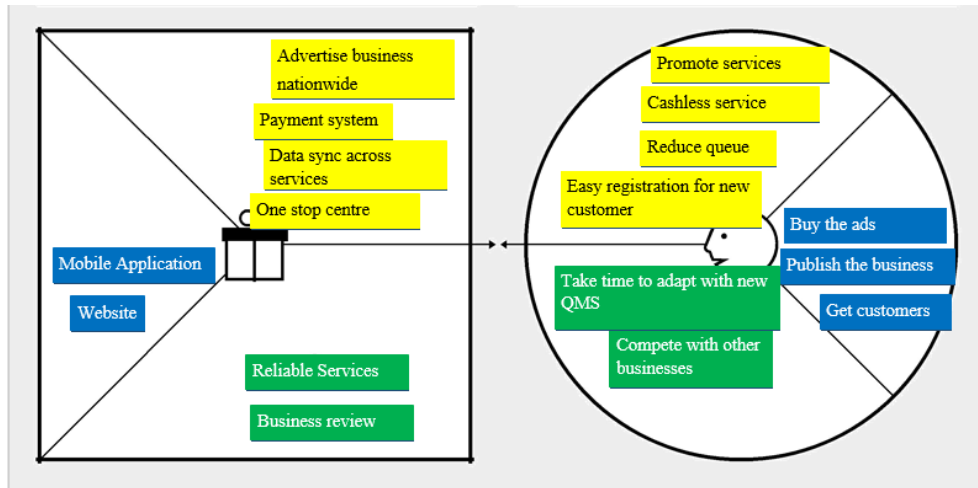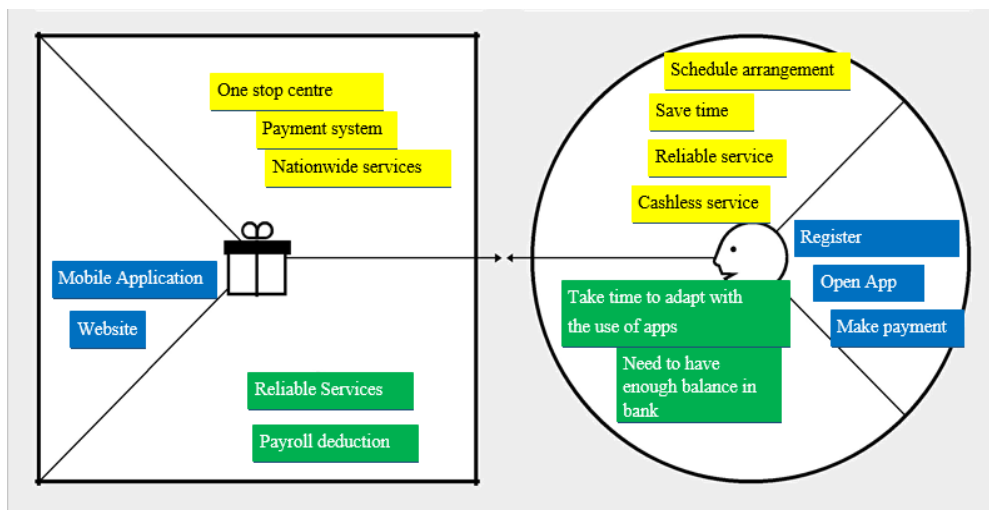


**Figure 6: Value Proposition for Owner**



**Figure 7: Value Proposition for Guest**
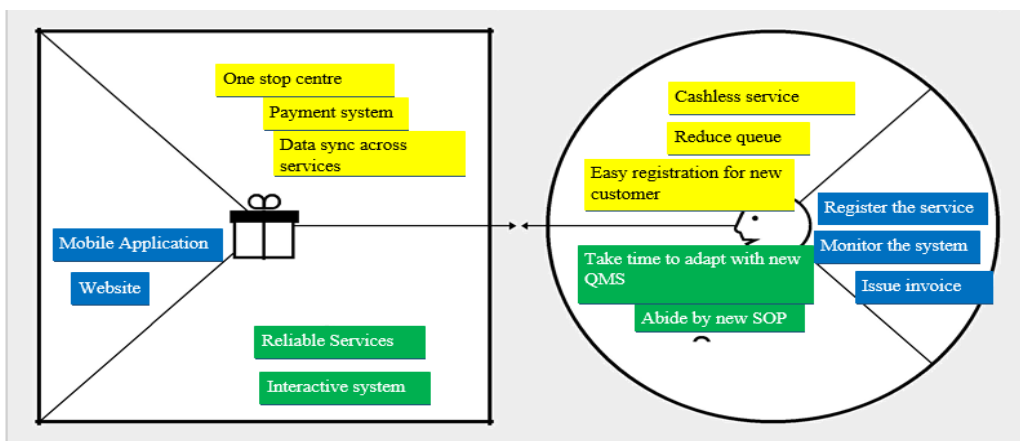


**Figure 8: Value Proposition for Service Providers**

# X.   VALIDATION OF INITIAL BUSINESS MODEL

**QUESTIONNAIRE RESULT AND FINDING:**

Primary research has been conducted through questionnaire to gather more information from specifically target desired groups which are the customer segment of WannaQueue.The interaction with diverse of people and customer segments helps WannaQueue in getting new ideas. The questionnaire was done through online platform using Google Forms which made it easier and faster to fill in for the respondents. The survey was done in 2 week time and have manage to collect enough data for analysis.

From the survey conducted, results shows that 88% of respondents does not like to wait in a long queue to get services. This big majority proved that waiting in a long queue is not preferable and likeable by the respondents. Most of the time, the respondent complaint about having to queue in long time at the bank, clinic and government office. Basically places where people go routinely for personal matter and live treatment.

In average, people usually wait around 30 minutes to 1 hours in queue for services. This also indirectly shows the quality and services time in our society. The fastest waiting time respondents spent for queuing is less than 30 minutes. The following question then ask respondents about their feeling when they had to wait in long time to get services, majority of them responded as being bored and even angry because they felt as if their time were wasted doing nothing during queuing.

The questionnaire also ask respondents feedback on what if they can pay certain amount of money to avoid waiting in a queue for a long time. The question ask the respondents willingness to pay RM1.00 to avoid waiting time of 30 minutes, 1 hour, 2 hour, and more than 3 hour queue. Less than half respondents does not willing to pay RM1.00 to avoid 30 minutes queue. However, an average of 60% respondents are willing to pay RM1.00 in order to avoid 1 hour, 2 hour, and 3 hour or more waiting time when queuing for services. Figures 10-18 are the visual representation for the questionnaire results.
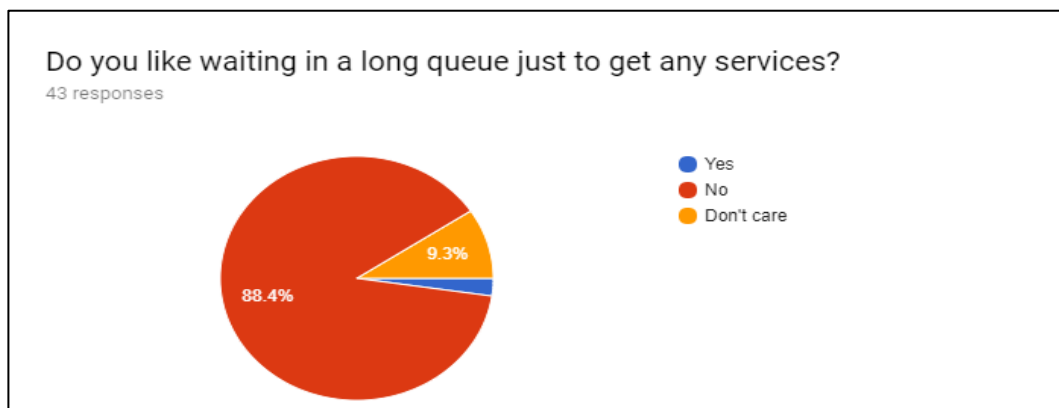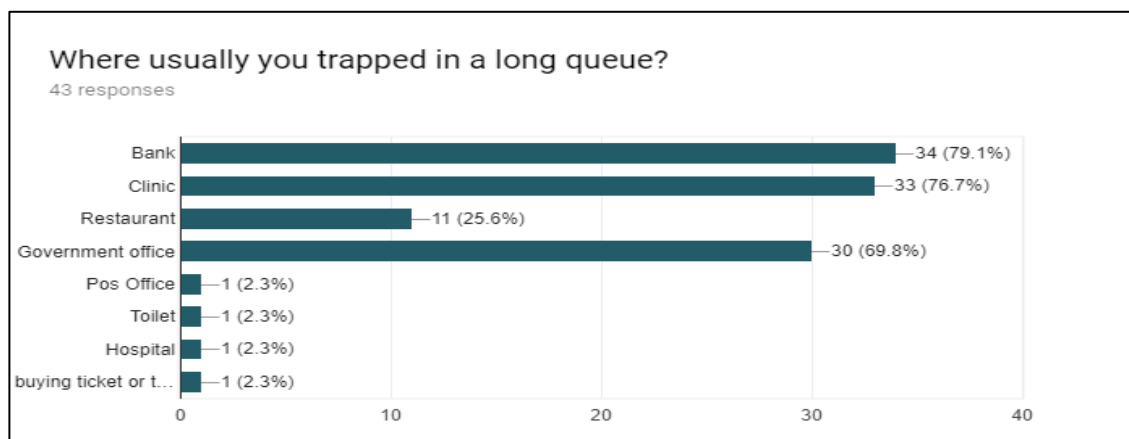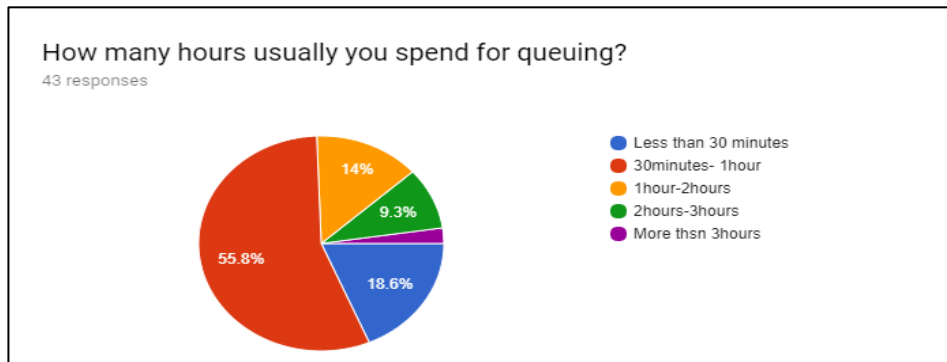


**Figure 9**



**Figure 10**
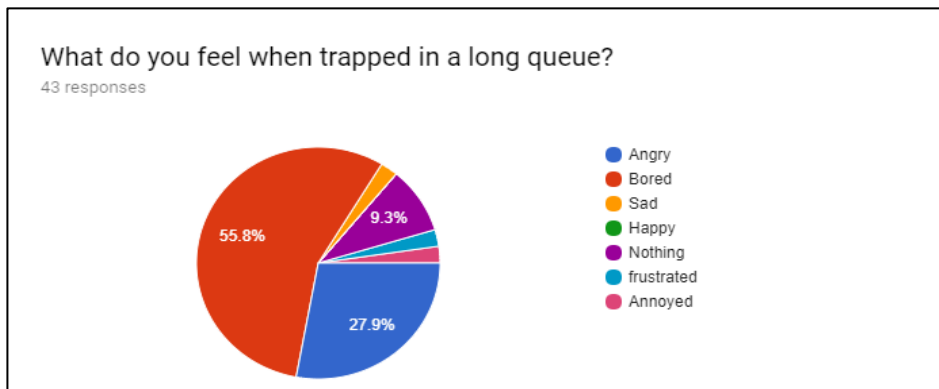
**Figure 11**



**Figure 12**
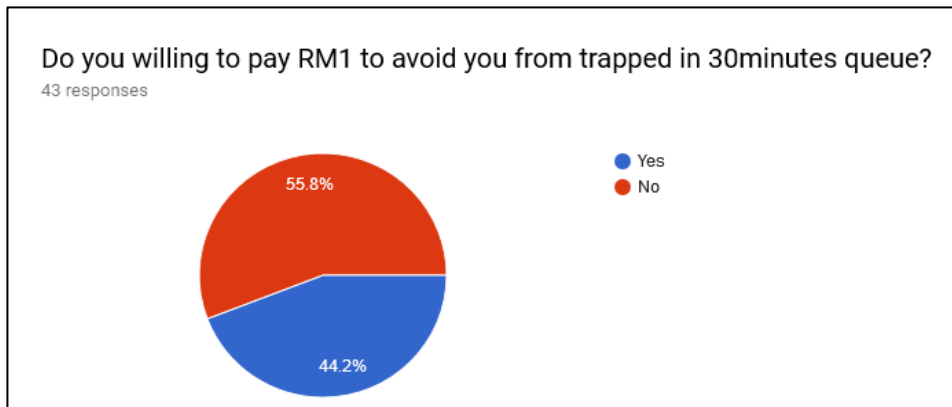


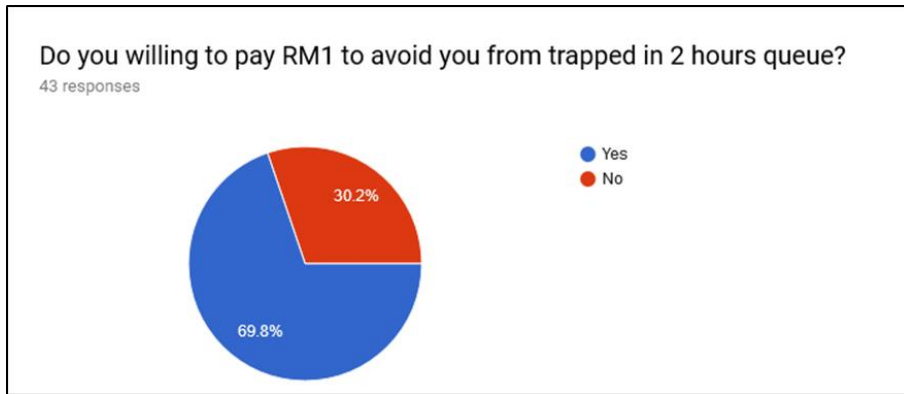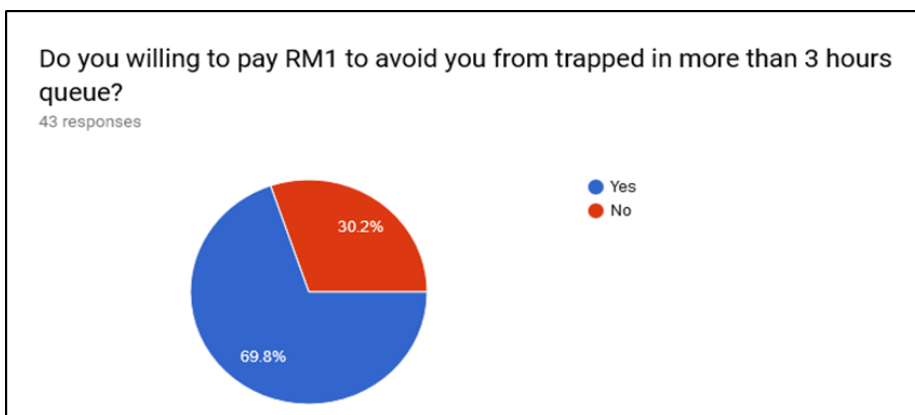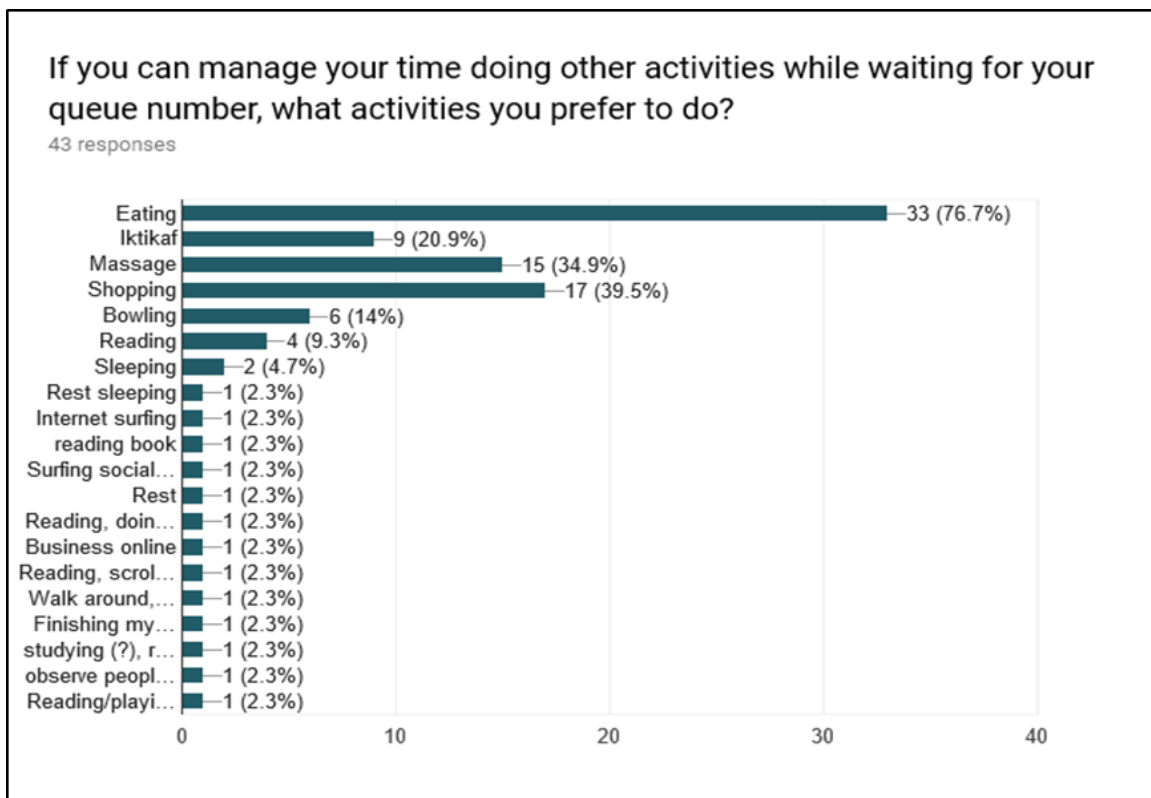**Figure 13**
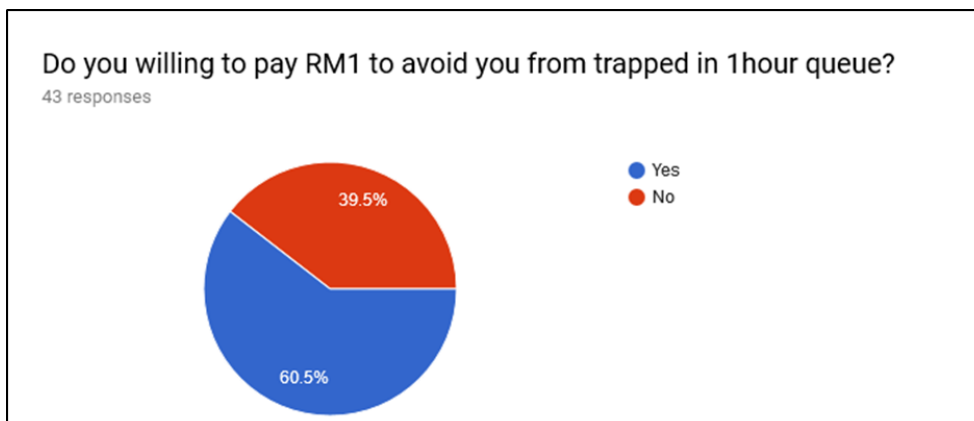


**Figure 14**

**Figure 16**



**Figure 17**



**Figure 18**

## XI.   CONCEPTUAL SOLUTION

Figure B shows the enhancement business model canvas that has been produced.

| Key Partners | Key Activities | Value Propositions | Customer Relationships | Customer Segments |
|---|---|---|---|---|
| - KPJ Healthcare<br>-Government<br>- Takaful company<br>- F&B company<br>-UBER<br>-GRAB<br>-Yelp<br>- Private clinics, hospital<br>-Mosque<br>-Banks | - Register guests<br>-Store guests database<br>-Added guest to queue list<br>-Arrange time<br>-Provide transaction method<br>-Suggest activities while waiting<br><br>**Key Resources**<br>- Mobile & Website | Guest:<br>- Time saving<br>- Early Booking appoinment<br>- Schedule arrangement<br>-Bureaucracy reduced<br>- Suggested activities while waiting<br>-Easy payment<br><br>Service Provider:<br>- Reduce queue in their spaces<br>- Easy transaction<br>-Customer database access<br>- Provide fast service<br>- Good hospitality<br>- Maintain good customer relationship<br><br>Business Operator<br>-Business recommendation<br>-Business review | - Discount<br>- Rewards point<br><br>**Channels**<br>- Portal Apps: Website and Mobile Application<br>- Social Media<br>- Mosque | Guest:<br>- People who want to save their times<br><br>Service Provider<br>- Private & Public hospitals/clinics<br>-Bankers<br>-Government sector<br><br>Business Owner<br>- Any businesses that is near to the service provider location. |

| Cost Structure | Revenue Streams |
|---|---|
| - System development and maintenance<br>- Salaries for permanent staff<br>- Marketing cost | - Commission for service provider<br>- Fund<br>- Business Advertisement<br>- Registration fee from service provider |

**Figure B: Enhance Business Model Canvas for WannaQueue**

*A. Customer Segment:*

As in Figure, WannaQueue lists Guest as the targeted user because they need to use the application

*B  Value Proposition*

Value propositions are the products and services that create value for a specific Customer Segment which they do to solving a customer problem or customer need. WannaQueue try harder to make sure achieve the standard of customer requirement.

*C. Channels:*

Mosque is one of the best channels that can be used for Muslim to promote the WannaQueue platform application as all Muslim will gather every week at least one day per week to come to mosque.

*D. Customer Relationship:*

Customer relationship can be described as relationships between specific customer segments to ensure the survival and success of companies. WannaQueuse use discount as one of the aternatives to attract the customer to use WannaQueue

platforms as it provide many benefits to the customers. Plus, rewards point also one of the way to make sure customers will always looking for WannaQueue.

### E. Key Resources:

Basically, key resources is the important assets needed to make sure business model work because every business need them to to generate value propositions, service its customer segment and deliver the product to the customer. WannaQueue application use mobile and website platform as it is one of the best way nowadays to expand the number of customers.

### F. Key Activities:

To be successful, WannaQueue must carry out key actions needed to ensure that all activities is run according to the plan. As for WannaQueue, it help the customer to make sure all the booking registration running smoothly.

### G. Key Partners:

Key partners network between suppliers and partners to make sure the business model work. This block is use to optimize the business models, reduce risk, or to acquire resources. WannaQueue basically having the partner with the health agency to ensure that all partner can give the same treatment to customers.

### H. Cost Structure:

Cost will be always remain a major concern for all businesses because it need to use to maintain the business. WannaQueue use for system maintainances,salaries and makrketing cost

### I. Revenue Stream:

Revenue stream is a form of revenue which can be considered as revealing the earning a business makes from all method. WannaQueue create revenue through fund, business advertisement, commission for service provider.

### ENHANCEMENT VPD

WannaQueue helps the customer to manage their queue to get any services, at the same time they can do other activities that suggested in the applications. After conducted survey, the value that need to be added is multiple choices of activities while waiting to get the services. Besides, customers also want easy booking system as the current system makes majority of them feel bored.

For service provider, the value that has been added is storage of customer database. It is important for them to get another value as they can use the data for other legal mean such as customer satisfaction survey and decision making tool.
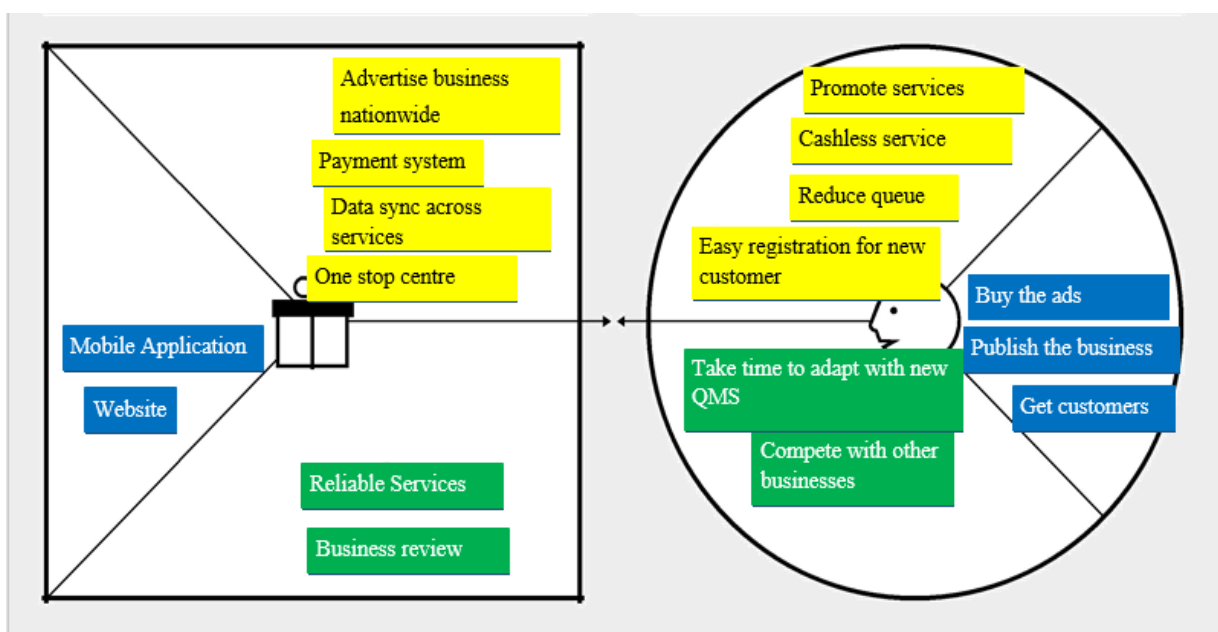


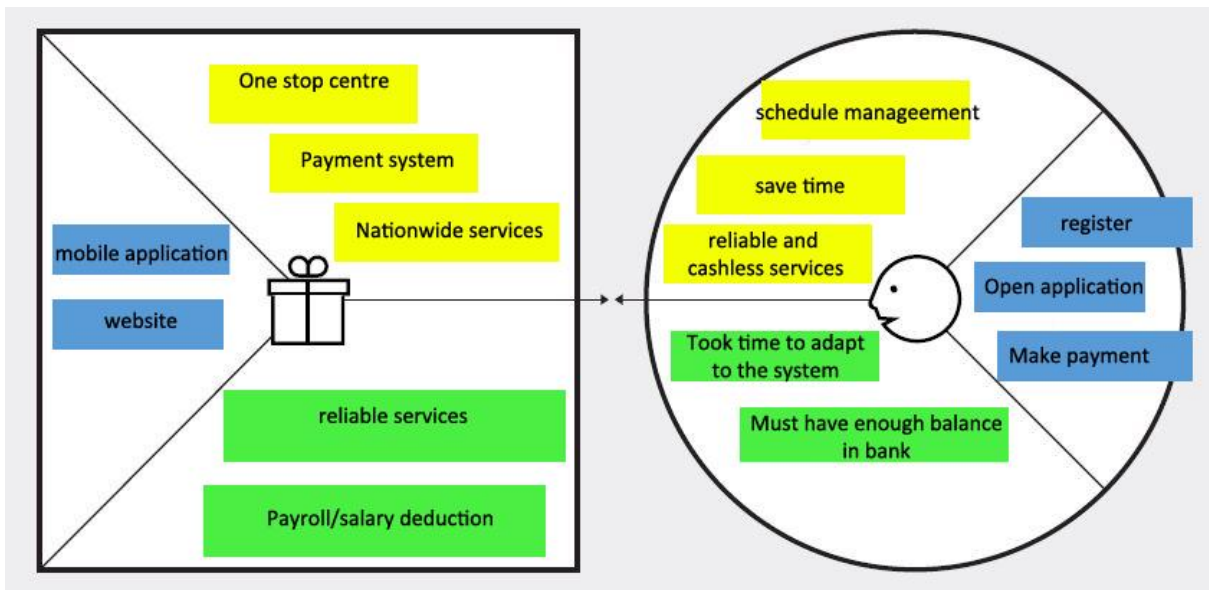**Figure 15: Value Proposition for Business Owner**

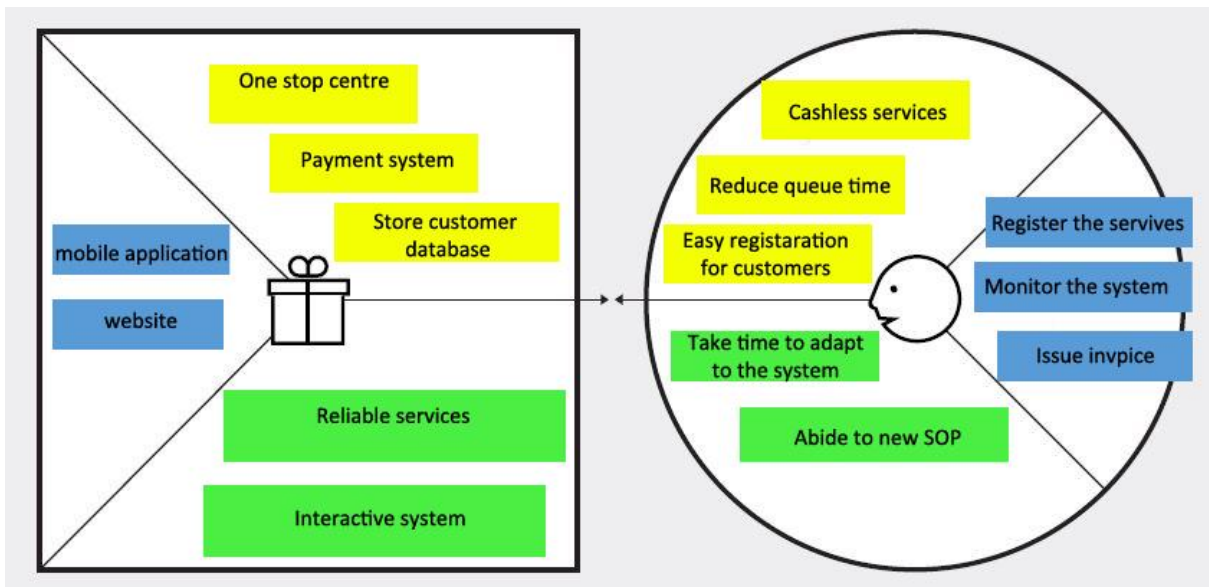**Figure 20: Value Proposition Canvas for Guest / Customers**



**Figure 21: Value Proposition Canvas for Service Providers**

## XII.   CONCLUSION AND FUTURE WORKS

In conclusion, this conceptual solution will give benefit to society especially in having a better and optimum time management. The less time spent for waiting in queue means more time for other important and priority matter can be done. As we all aware, time is something priceless and those who don't manage their time well are in loss. Referring to the translation from surah al-Asr, *"By time, Indeed, mankind is in loss, except for those who have believed and done righteous deeds and advised each other to truth and advised each other to patience.".* In future works, we are planning to develop a business plan for this application to be fully deploy and commercialize.

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