

# Be-Ma'luum - Intelligent Integrated Public Transport System

**Abdul Rahman Ahmad Dahlan, Abdul 'Azim Abd Halim, Sharifudin Mohd Hir, Mohamad Iskandar  
Mohd Hashim, Mohd Hamzi Niyaz Yusop**

**Abstract**-The purpose of this paper is to propose a new information system to Malaysia's public transportation company, which is RapidKL Sdn. Bhd. The new information system is being proposed to the company to solve the main customers' pain, which is buses not arriving on time due to traffic jam. Besides, customers does not have information on the movement of the buses is also another customers' pain that ought to be solved by implementation of this system. Main function of this system is to collect data systematically, organize the data and provide relevant information later on to the users that are consist of customers and people inside the organization. By leveraging this relevant information, the company can use it to solve the main customers' pain by providing alternative routes for the buses that are stuck in traffic congestion. Besides, customers can know precise location of the buses. In addition, customers can directly report or raise any issue regarding on buses directly to the administrative of the company. Bus drivers can also directly report any problems such as breakdown of bus or an accident happened directly to the admins for further action. The methodology of this paper is literature review on integrated public transport in developed countries utilizing ICT, Internet of Things, and observation. This paper also involves analyzing the current company business model developed by using business model canvas (BMC) tool. The current BMC is then being challenged by using the 4-Lenses of Innovation tool with the intention of enhancing or transforming the business model, leveraging and harnessing on information systems. After analysing this company, a conceptual solution, which is an Intelligent Integrated Public Transport System, is proposed by improving the management and passenger information system. Because of this proposed system, it is expected to help the company to solve their customers' pain.

**Keywords**-Big Data, Business Model Canvas, Four Lenses of Innovation, Geo-Location, GPS, Internet of Things, Tracking system,

**Abdul Rahman Ahmad Dahlan**, Senior Academic Fellow, Kulliyah of Information and Communication Technology, International Islamic University Malaysia, Gombak, Malaysia

**Abdul 'Azim Abd Halim**, Department of Accounting, Kulliyah of Economics and Management Sciences, International Islamic University Malaysia, Gombak, Malaysia, 019-630294, (azimhalim1618@gmail.com).

**Sharifudin Mohd Hir**, Department of Business Administration, Kulliyah of Economics and Management Sciences, International Islamic University Malaysia, Gombak, Malaysia

**Mohamad Iskandar Mohd Hashim**, Department of Business Administration, Kulliyah of Economics and Management Sciences, International Islamic University Malaysia, Gombak, Malaysia

**Mohd Hamzi Niyaz Yusop**, Department of Information and Communication Technology, Kulliyah of Information and Communication technology, International Islamic University Malaysia, Gombak, Malaysia

## I. INTRODUCTION

Transportation can be characterized as the system of moving merchandise and people by any kind of vehicles starting with one point then onto the next (Oxforddictionariescom, 2016) Public transportation consist of few components and one of it is information system. This paper focus on solving customers' pain regarding buses arriving late and they know nothing about it together with the integration of other public transportation under RapidKL. Improving public information system can increase customer satisfaction (Hazril, S M Sabri & Noor Aqilah, 2013). Community of crowded spot with high population like Kuala Lumpur made public transportation as their most important instrument to help the residents moving around inside the city more efficient and effectiveness. This is due to the increasing in fuel price and limited parking spaces inside the city. Moreover, maximizing customer satisfaction can increase the profitability of the company.

## II. PROJECT BACKGROUND

Based on observations and experiences in using RapidKL, there are few customer's pain that are being discovered. The pain includes long waiting time for the bus in peak hour, lack of information, lack of standard connectivity and limited accessibility. Based on these findings, an information system that consist of two components will be proposed.

### A. Tracking System

Tracking System is a system that involves the use of Global Positioning System (GPS) to locate the bus location in the map. This system is also known as bus geo-locating system. The tracking system provides critical positioning of every bus that operating on that particular day. Using this satellites technology, the company can leverage the technological advances of the modern world. In this Tracking System, data on bus location will be given through GPS technology and will be handled by bus administrative operators. Bus operators will be able to know the location and the movement of each bus. With this system, the company will be able to collect information about the buses complete data, statistically.

### B. Intelligent Integrated Public Transport System

Intelligent Integrated Public Transport System is a system that will improve the current company's database system and the passenger information system in RapidKL. This system involves stabilization of the public transportation information and the detail of every staffs that are on duty during that particular day. Implementation of the system

## Be-Ma'luum - Intelligent Integrated Public Transport System

will help the administration to gather relevant information regarding the details of the bus including the bus drivers' details. This is to ensure the efficiency in handling the information with minimum confusion.

By harnessing on this system, RapidKL can provide alternative routes to their customers using their bus service. The company will integrate with other public transports such as railway operators and taxi. As example, when bus arrived at stop A, the company will notify customers when there is traffic congestion before bus arriving at the next stop through apps. The company will make the alternative public transport routes. Alternative public transport routes consist of other bus that use different route to arrive at the same destination or by providing nearest other public transports that arrive at the same destination. Thus, customers can aware and estimate time taken to arrive at their destination. This will solve the main customers' pain of the company.

Other than that, Intelligent Integrated Public Transport System also enhances the passenger information system that involves three key activities. The first activity is about installing billboard displaying vehicle arrival information on a bus station. This involves high cost for installation and maintenance. This information system enables bus passenger waiting at the bus stop as well as at the station know when the bus will arrived. The installation only involves the bus stations that have high level of passengers. If the bus arriving late at the stop, the billboard will state the specific reason, such as traffic jam or bus breakdown on the road. The second key activity is developing passenger information mobile application. This particular application involves bus-tracking system. The application is for smart phone that works on any operating system. With this application, it enables passengers to know the specific location of every bus that on duty for that day. Passenger also will be informed if there is any disruption on incoming bus, focus on the customers' convenience that is to know about bus movement. Third key activity is monitoring the performance of the bus drivers. In some cases, there were complaints on the bus drivers who like to stop longer than it should be and taking rest at the time where they supposed to doing their job. By implementing the system, top management will able identify which bus drivers go against their work ethics and this can make sure all of their worker doing the job properly.

### III. PROBLEM STATEMENT

Improvement in information system is a must for a company that involve in the modern business industry (Lardbucketorg, 2016). RapidKL Sdn. Bhd. is company that operates in the most crowded city in Malaysia. The needs of excellent operating public transportation is compulsory for a city such as Kuala Lumpur. The expansion in absolute populace of Malaysia bringing on increment in private vehicle customers, particularly in high-thickness urban areas, for example, Kuala Lumpur, Shah Alam and Petaling Jaya (Hazril, S m sabri & Noor aqilah , 2013).

### IV. PROJECT OBJECTIVES

The objectives of the project are as below:

- a) To solve the pains suffered by the customers.
- b) To improve management information system of public transportation company.
- c) To improve passenger information system of public transportation company.
- d) To help the company to achieve its goal that is to increase public transportation usage through reliable, proficient, integrated and dynamic services on a sustainable basis.
- e) To make customers ponder and grateful of the miracle of Allah's creation.

### V. METHODOLOGY

Qualitative approach is used in order to find solution for the existing problems through literature analysis and capitalizing the area of specialization to build a system in Be-Ma'luum in order to improve established system in RapidKL. The main methodology is based on literature review while the area of specialization are in the fields of Information Technology (IT), Business, Accounting and Finance. Although the area of specialization is absence with staffs of RapidKL, literature analysis is utilized to get information and current situation in services offered by RapidKL.

Besides, observation also is one of the methods used in this project. Since researchers are part of customers of RapidKL, thus doing observation do helps to detect issues and problems on the current system in RapidKL. In order to remove biases in the observation, literature analysis is also used. This will helps to remove deficiencies in the observations and increases credibility of the results. Later on, all these are used to derive on the solution of the existed problems. Specific theoretical perspectives is being used in doing analysis on the results.

Desired situation is being compared with the real life situation using observation. From that, existed discrepancies can be traced before doing the alternative. Assumptions also being made on the result after implementation of the proposed system in RapidKL using Business Model Canvas (BMC). Besides BMC, Four Lenses of Innovation also being used to challenge the current BMC of RapidKL.

### VI. LITERATURE REVIEW

Today, there has been variety of researches about important of changes in information technology of RapidKL systems especially in the developed countries. However, the few studies that have examined are almost oriented development that has indicated that the changes in information system of RapidKL can have multiplicity of positive impact in developed countries. According to Zaherawati et al. (2010), she mentioned that, the issues of public transports in Malaysia, in general, are becoming more widespread, and services are below required levels, which could not satisfy the consumer needs and expectations. Therefore, the Be-Ma'luum System is a management system that can helps and manage a better arrangement for RapidKL company, where the bus is referring to a transport or a vehicle that used by public fare.

Nowadays, transportation services are one of the sectors that contribute to the diversity of economic development in our country and often occur in developed countries. Based on the idea of Behwal (2010), public transport services, must follow regular schedules; be safe and rapid, guarantee high service quality, utilize resources efficiently and meet customers' need in order to be competitive sectors in developed countries. Therefore, research and development on public transport, especially on bus RapidKL should be given priority and consideration. According to Rozmi et al., (2012) he said that, with sample respondents from Selangor and Kuala Lumpur who were public bus service shown to rate their satisfaction level as lower than preference levels. Thus, these indicate that the quality of public transportation network is under the passenger's expectation on the services. In addition, Ibtishamiah et al., (2013), stated that, public transport passenger's perception and demand satisfaction showed that bus passengers are generally unhappy about the effectiveness and efficiency of the bus services.

Furthermore, another precious resource is from Almselati, et al., (2011), stated that the main reason behind the poor public transportation such as bus usage is that most passenger's prefers private transportation that are more cost and time-effective than an unplanned bus transport system. This mentioned that the RapidKL system would be able to increase concentration around transportation nodes and serve both existing and future development markets. By reviewing the Be-Ma'luum system, it also includes the strategy for cities that interested in supporting bus transportation.

The consistency of public transport systems also has been considered seriously important by most public fare because passengers are adversely affected by the consequences associated with irregularity such as additional of waiting time, sometimes may be late or early arrival at destinations and missed connections. Study conducted by Kamaruddin et al., (2012) revealed that the main important elements that influence customer satisfaction with public transportation are safety, followed by accessibility, reliability, fares, communication, and experience. As a result, it may be stated that untrustworthiness in public transportation on which drives away the existing and potential customers.

## VII. PROPOSED CONCEPTUAL SOLUTION

### *A. Tool: Four Lenses of Innovation*

In answering the first question of the four lenses, the first is about challenging orthodoxies and question of what if the dominant conventions in your field, market, or industry are outdated, unnecessary, or just plain wrong. This proposal of innovation in this information system is hoping to catch the attention and help the customers. As result, the first entrant in terms of this information system will gain the business a competitive advantage. With this advantage (Investopedia, 2016), RapidKL can be rewarded with higher profit margins and a monopoly-like status regardless the status of semi-government. Even that is not exactly the case of gaining profit etc., this information system will hopefully be helping and pioneering this kind of information system for public transportation.

Before the system is launched, the business are using a classic black and white kind of recording and details regarding the number of routes and target need to be achieved and it is know that those kind of record can easily be deceived and changed by mankind. After the commencement of this system, the performance and discipline of the driver are certain and cannot be deceived anymore.

There might be chances of discontinuities in this innovation but all of them are minimal. First is because RapidKL simply does not have competitors but does not make us forget that RapidKL have responsibility to the people. RapidKL will always upgrading our systems so that there will be no discontinuities in this game. Also, by having the Be-Ma'luum mobile application for all operating systems of mobile phone, RapidKL simply hope on getting the preference of customers since everything nowadays are mobile (Lockhart, 2015) and since mobility and on-the-go are always going together, RapidKL are also adapting our system to that characteristic.

RapidKL are serving what the customers does not know what they need to know via the system of tracking buses and via the mobile apps mentioned above. In addition, this Be-Ma'luum system is like a portal or medium between administrator and registered customers when they can provide their inquiries and feedbacks, anything regarding the bus services.

Hence, RapidKL are always trying their utmost effort to answer every innovation question that might come then, now or in the future. As for now, these are the answers for the question of innovation from the four lenses that seem relevant for us to answer.

### *B. Current Business Model Canvas*

#### Customer Segments

Previously, middle low-income and low-income are customer segments of the company. This is because they are looking for the cheapest fares for them to go to their destination. However, middle income and above classes of income are tend for not having Rapid Bus as their transportation services to go from one place to another place perhaps because of waiting time that they have to face and also they also are not comfortable by taking bus mainly at the peak hours. Because of that, as time passed, the person who have a stable income are tend of having private transports to go to other places rather than choosing bus.

#### Value Propositions

Before implementing Be-Ma'luum, customers would have affordable price for the services that they get from using Rapid KL services either bus, train monorail or others. It is because the company offering public transport to their customers. Thus, charging high price is not reasonable. Besides, it is affordable as compares to other public transport such as cab and Keretapi Tanah Melayu (KTM)'s train. Besides, easy access to other public transports is also the value proposition that the company has. If they are using bus, the routes are linked with train, monorail, and it goes the same if customers are using train or monorail.

## Be-Ma'luum - Intelligent Integrated Public Transport System

### Channels

There are some frequently example in the channels of RapidKL before coming a new technology system. The channels are all the way through the mobile applications and by using the marketing through media such e-mail, headlines, web, and news that is important. RapidKL today suffers daily from congestion, unreliable services and limited accessibility. Busses especially do not adhere to schedules which making it more difficult for the planning of the passengers. Thus, the customers must sign up the application by using devices in order to use the applications system. In addition, there was a strong enough market to make it work efficiently. RapidKL has their huge amount in term of earning media, which in turn has driven the passengers and driver growth. Therefore, the quality of the services will have the ability to generate Malaysian cities to global standards.

### Customer Relationship

Customer relationship is defined as the degree to which there is a match between the customer's needs of the system and the actual performance of the system. Relationship are formed based on the information that passengers receive from friends, family, as well as from their experience. This is the one of major factors to shows the ability of a company to successfully meet the needs of its customers. Before implementing the new technology system, the significance of the relationship rating is that customer's satisfaction measures are an indicator of future profit. As an example, customers who are satisfied with the services will have good experience, generate more income to the company and recommended it to others.

### Revenue Streams

The significance of developed countries is highly productive centres of increasingly service-oriented economic growth. Transportation network of RapidKL such bus, monorail, LRT and others public transport must be able to support the economic growth. Nowadays, Malaysia has come under tremendous pressure from continued economic growth especially affected on public transportation. Thus, RapidKL is one of the major regret of urban people with a direct impact on the revenues. An improvement of this pain involves the establishing an efficient, affordable network of transit that becomes the mode of choices for everyone and not just for the less fortunate. On the other hand, it also includes the charges for the passengers based on the miles travelled and whatsoever course multiplier is in effect.

### Key Activities

Maintenance on buses would be the key activities for Rapid KL since they are operating on buses to generate revenues. This will be daily routines make by mechanics to ensure that all buses operating well after it. Buses' captains will report any uncommon behaviour such as engine broke down to the mechanics.

### Key Resources

Buses and drivers are the key resources for the company. Without it, Rapid KL would not have their main revenue.

### Key Partnership

Since Rapid KL is based on public transportation, thus their key partner is government. Government will provide them with sufficient fund to operate and expand the business. Besides, government will also promote the company through encouraging publics to use public transport.

### Cost Structure

The operation of RapidKL system would have the potential to affect several journey modes. This can be predict due to persons who travelling by an automobile and bus on which it could experience changes in costs and benefits due to the implementation of a system Be-Ma'luum into RapidKL company. Moreover, because of the limitation data available to the people, it will generate an assumption that people travelling by modes other than bus or car would experience insignificant changes in net benefits. Therefore, the Be-Ma'luum system will be able to help the administrator of the company RapidKL in order to generate more income in the future compared to the old system on which it does not help much for the staff and the administrator of the company RapidKL especially on generating their income.

### C. Suggested Business Model Canvas

#### Customer Segments

After implementing Be-Ma'luum on Rapid KL, the company would have many customers with two main categories, direct user and indirect user. Direct user are the group of customers that use buses while indirect user does not. However, indirect user generate income for the company through Be-Ma'luum.

Direct customers consists of schools and universities students, workers, tourists and public. They will generate incomes for the company by using bus services. Indirect user of the company will be the organizers of events or exhibitions. They will advertise their events or exhibitions through apps and negotiate with the company to make the route available for their customers to reach them by using Rapid KL.

#### Value Propositions

Be-Ma'luum will reduce lag time of the customers for direct customers, in general. In particular, this will really give value to students and workers since they have no time to be waste just on their way to arrive to their destinations. Besides, guide routes on public transport make easy. Before, available information is hard to reach to the customers. However, with Be-Ma'luum apps, they can search for the routes easily and instant. In consequences, customers can properly plan their schedules. Besides routes, estimated time arrival also will be provided for the customers. Thus, they can planning on their trip before using public transports.

With Be-Ma'luum, event organizers can promote their events with using ad services. With Be-Ma'luum apps, contents of the ads will be more attractive to reach their customers. As result, ads services will also contribute to generate revenues for the company.

### Channels

Technologies such as the application of mobile phone systems is greatly affect modern marketing of RapidKL. The Be-Ma'luum system able to help businesses grow and prosper, creates relationships, and strengthens the effectiveness of the organization of RapidKL. By utilizing this application system, it is greatly affect the way companies communicate with potential customers. These new forms of communication are changing the landscape and strategy of the organization. Nowadays, many consumers and business professionals seek information and connect with other things through their computer and mobile phones. With access to many sources of information of the RapidKL, consumers may collect more information on their own. Once the companies have developed a new form of systematic system, they must communicate the values and benefits of the offerings to current and potential customers. Furthermore, by leveraging new form of technology system, there is enormous opportunity to make much-needed improvements to RapidKL transportation and power infrastructure that can provide more efficient power distribution in urban areas. Therefore, delivering consistent information about a tracking system or an organization's information billboard in many bus stations helps establish it in the minds of consumers and potential customers across target markets and enhance the mobility and productivity of entire region.

### Customer Relationship

The changes in the technology system of RapidKL determine the magnitude of benefits that accumulate from a Be-Ma'luum system. For example, coordinating traffic signals, electronic information signs and variable speed limits signs are all part of the growing RapidKL company. Therefore, the average time that it takes a company to make the trip would decrease compared to the old system with the implementation of a Be-Ma'luum system. These timesavings are included as a customer benefits. Young generation today are part of the millennial generation who driving the change toward new communication technologies. A young consumer might opt to get information via mobile devices. With Be-Ma'luum system, the company of RapidKL can coordinate their message to build the brand and develop potential consumer relationships while also satisfy their needs.

### Revenue Streams

By utilizing the new technology system Be-Ma'luum, some of the potential revenues can be obtain through it. First, the value of people derives from knowing that RapidKL system is present if they wish to use it. For Example, under the Be-Ma'luum alternatives, new services would primarily be in the cities surrounding of Kuala Lumpur. Secondly, the benefits were resulting from increased low-income mobility, such as increased employment opportunities resulting in less welfare dependence. This is some of the main benefits that are often included in the public transportation. These benefits are likely to occur only in areas which currently served by RapidKL company. Lastly, the economic development and

economic growth enhanced the mobility. Some analysts argue that factors such as economy would affects the sustainability of RapidKL in which results in additional economic development benefits that are not captured by travel demand. An estimation of revenues and property values of RapidKL may increase more than would have occurred otherwise.

### Key Activities

Maintenance on buses will be improve. With software of Be-Ma'luum, buses captains can reach admins almost in an instant. Any brake down happens in the routes will immediately reported to the admins or person in charge. This will increase efficiency in the company and increase customers' satisfaction later on.

With Be-Ma'luum, IT maintenance will be one the key activities of the company. It will supervise the system on both apps and software of Be-Ma'luum. There will also be responsible for the malfunction and security of the system. Besides, another key activity is development of the system. This is important to update Be-Ma'luum's system.

### Key Resources

Buses will be more efficient. Any movements of the buses will be tracked and traced by the system. Thus, this will reduce unpleasant behaviour of buses captains such as recklessly in driving or stop for a long time in particular stops.

Besides, IT infrastructure is the key resources for Rapid KL. This will be the backbone of the Be-Ma'luum. It will supervise, control and coordinate the sytem in overall.

### Key Partnership

Government will be one of the main key partners for the company. With an integrated system offered by Be-Ma'luum, there will be a new key partner of Rapid KL and it will be other type of public transports. It will consists of public transports in Rapid KL itself and companies from outside which provide public transports. Other public transports that will be the key partners for the company are LRT & MRT, ERL, monorail, KTM and taxis.

### Cost Structure

The analysis of cost by using Be-Ma'luum system relies on three factors found in the transportation of RapidKL. First, the cost that influenced the value of the passengers place on their travel time. This includes whether they are travelling for work or leisure purposes, the level of personal comfort during travelling and the level of confident they are about the expected travel time. As an example, the possibility of the public transportation breaking down or the chances of a delay because of traffic jammed. Second, people tend to choose their travel mode based on the total cost of travel. An investments in new technology system of Be-Ma'luum, provides faster, more dependable and more comfortable transportation rather than keep on using the old system. Lastly, reducing some of the social costs would gain social benefits. This is due to, when people switch from driving their cars to riding the public transportation, the number of environmental costs such air pollution can be

## Be-Ma'luum - Intelligent Integrated Public Transport System

reduce. In addition, the rates and associated costs of an accident can also be decreased.

### VIII. CONCLUSION AND FUTURE WORKS

In conclusion, this paper propose Be-Ma'luum initiative aiming at providing a better comfort for the customers as well as keeping up with the velocity of the technology, fore so, demand of customers. Referring to the project objective, Rapid Bus as an entity of vicegerent of Allah, also holding responsibility will make sure to ponder and be grateful of the miracle of Allah's creation by doing everything to the best capabilities.

If this system is successful in the targeted area, which is Kuala Lumpur, thus this system can be expanded countrywide. Furthermore, continuous upgrading and learning process will always be applied throughout the process to make sure continuous advancement parallel with technology and demand. In terms of developing the mobile application for the passenger, developers can add more additional features that can ease the customers. It is known that people nowadays are very dependent on mobile phones.

### APPENDIX

<i>Key Partners</i> <ul style="list-style-type: none"> <li>● Government</li> </ul>	<i>Key Activities</i> <ul style="list-style-type: none"> <li>● Buses maintenance</li> </ul>	<i>Value Proposition</i> <ul style="list-style-type: none"> <li>● Affordable</li> <li>● Easy access to destination</li> </ul>	<i>Customer Relationships</i> <ul style="list-style-type: none"> <li>● Customer satisfaction</li> <li>● Effectuality</li> </ul>	<i>Customer Segments</i> <ul style="list-style-type: none"> <li>● Middle low-income people</li> <li>● Low-income people</li> </ul>
	<i>Key Resources</i> <ul style="list-style-type: none"> <li>● Buses</li> </ul>		<i>Channels</i> <ul style="list-style-type: none"> <li>● Mobile Apps</li> <li>● Media Marketing</li> </ul>	
<i>Cost Structure</i> <ul style="list-style-type: none"> <li>● Salaries</li> <li>● Driver payment</li> <li>● Company development</li> <li>● Limitation of data</li> </ul>			<i>Revenue Streams</i> <ul style="list-style-type: none"> <li>● Economic growth</li> <li>● Pay per ride charges</li> <li>● Improve efficiency</li> </ul>	

Current Business Model Canvas

<p><i>Key Partners</i></p> <ul style="list-style-type: none"> <li>● Government</li> <li>● IT Engineers' company</li> <li>● Other public transports <ul style="list-style-type: none"> <li>● LRT &amp; MRT</li> <li>● ERL</li> <li>● Monorail</li> <li>● KTM</li> <li>● Cab</li> </ul> </li> </ul>	<p><i>Key Activities</i></p> <ul style="list-style-type: none"> <li>● IT Maintenance</li> <li>● Development <ul style="list-style-type: none"> <li>● On apps</li> <li>● On software</li> </ul> </li> </ul>	<p><i>Value Proposition</i></p> <ul style="list-style-type: none"> <li>● Reduce lag time</li> <li>● Guide routes on public transport</li> <li>● Properly plan their schedules</li> <li>● Ads services</li> </ul>	<p><i>Customer Relationships</i></p> <ul style="list-style-type: none"> <li>● Coordinating traffic signals</li> <li>● Electronic information signs</li> <li>● Variable speed limits signs</li> <li>● Develop potential customers</li> </ul>	<p><i>Customer Segments</i></p> <ul style="list-style-type: none"> <li>● Students <ul style="list-style-type: none"> <li>● Schools</li> <li>● Universities</li> </ul> </li> <li>● Workers</li> <li>● Tourists</li> <li>● Publics</li> <li>● Organizers of events/exhibitions</li> </ul>
<p><i>Key Resources</i></p> <ul style="list-style-type: none"> <li>● IT Infrastructure <ul style="list-style-type: none"> <li>● Apps of Be-Ma'luum (<i>customers</i>)</li> <li>● Software monitor of Be-Ma'luum (<i>employees</i>)</li> </ul> </li> </ul>		<p><i>Channels</i></p> <ul style="list-style-type: none"> <li>● Application</li> <li>● Ways of communication</li> <li>● Accessibility</li> </ul>		
<p><i>Cost Structure</i></p> <ul style="list-style-type: none"> <li>● Value of the passengers</li> <li>● Travel modes</li> <li>● Reduce social cost</li> </ul>			<p><i>Revenue Streams</i></p> <ul style="list-style-type: none"> <li>● Provides precise information</li> <li>● Increased low-income mobility</li> <li>● Economic development</li> </ul>	

Suggested Business Model Canvas

REFERENCES

<p>[1] Hazril Bin Md Isa, S. M. Sabri S. M. Ismail, Noor Aqilah Ahmad Tajedi (2013, December). Passenger Information Systems For Public Transport In Klang Valley, An Overview, 364-365.</p> <p>[2] R. (2015). First Mover. Retrieved November 13, 2016, from <a href="http://www.investopedia.com/terms/f/firstmover.asp">http://www.investopedia.com/terms/f/firstmover.asp</a></p> <p>[3] Lockhart, E. (2015, November 11). PRO Premium Content/Modern Mobility. Retrieved November 13, 2016, from <a href="http://searchmobilecomputing.techtarget.com/eZine/Modern-Mobility/As-the-BYOD-trend-fades-a-more-holistic-approach-emerges">http://searchmobilecomputing.techtarget.com/eZine/Modern-Mobility/As-the-BYOD-trend-fades-a-more-holistic-approach-emerges</a></p> <p>[4] Behwal R., and Behwal S. (2010). Public Transportation Services in Oman: A Study of Public Perceptions, Journal of Public Transportation, Vol. 13, No. 4: 2010.</p> <p>[5] Zaherawati Z., Zaleha H., Mohamed Fajil AB., and Zuriawati Z. (2010). Service Quality of Malaysian Public Transports: A Case Study in Malaysia, Cross-Cultural Communication, Vol. 6, No. 2: 84-92.</p> <p>[6] Almselati ASI, Rahmat RAO, Jaafar O (2011) An over of urban transport in Malaysia. Social Sciences 6(1), 24-33</p> <p>[7] Rozmi I, Mohammad Hesam H, Rahim MN, Kamarudin A (2012) Passenger's preference and satisfaction of public transport in Malaysia. Australian Journal of Basic and Applied Sciences 6(8), 410-416</p> <p>[8] Kamaruddin R, Osman I, Che Pei CA (2012) Customer expectations and its relationship towards public transport in Klang Valley, <i>Journal of Asian Behavioural Studies</i> 2(5), 29-38</p> <p>[9] Ibtishamiah NI, Adji BM, Karim MR (2013) Public Transport passenger's perception and demand satisfaction, <i>Proceedings of the Eastern Asia Society for Transportation Studies</i> 9.</p> <p>[10] Hazril, M.D.I, S M Sabri, S. M. I &amp; Noor Aqilah, A.T. (2013). Passenger Information Systems For Public Transport In Klang Valley, An Overview. Malaysian Universities Transport Research Forum Conference 2013, 364-381.</p> <p>[11] Lardbucketorg. (2016). Lardbucketorg. Retrieved 6 December, 2016, from <a href="http://2012books.lardbucket.org/books/designing-business-information-systems-apps-websites-and-more/s06-information-systems-to-enhance.html">http://2012books.lardbucket.org/books/designing-</a></p>	<p><a href="http://2012books.lardbucket.org/books/designing-business-information-systems-apps-websites-and-more/s06-information-systems-to-enhance.html">business-information-systems-apps-websites-and-more/s06-information-systems-to-enhance.html</a></p> <p>[12] Oxforddictionariescom. (2016). Oxforddictionariescom. Retrieved 16 December, 2016, from <a href="https://en.oxforddictionaries.com/definition/transportation">https://en.oxforddictionaries.com/definition/transportation</a></p>
--	--