

Digitalization of Education System in Malaysia

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Abstract: This paper discussing about the future of education system which how people, processes, and information technology are involve to transform current education system and what benefits can be acquired from it. We researched the cost and benefits acquire from this project, the system's architecture and design as well as the suggestion for system implementation. We are using BMC and VPC as our tools to transform into schools of the future. This paper finales with a suggestion for the system that compatible to be implemented. This paper explore on how implementation of IT can give benefits to current educational system.

Keywords: Technology, Education system, Madrasah, Collaboration, Content sharing, BMC.

I. INTRODUCTION

Education evolved every day. Each of time passes, the way people find knowledge also become easier. Knowledge can be acquired only from finger tips with the correct ways. This is why technology becomes an important role in moving forward. The classic way of using chalk and board is not enough to support current education system. With technology, information needed can be received in just a few seconds. Here we provide the reasons why Information Technology should be practiced in Malaysia's education system especially for Madrasah. We also suggested useful system and the reasonable cost of implementing it.

II. BACKGROUND OF THE CHOSEN ORGANIZATION

The organization we chose to become part of our project is Sekolah Rendah Agama Islam Al-Huda which. The main objective of this organization is to create knowledgeable and pious students as well as balancing between *dunia* and *akhirah*. The vision is to create unique and excellent institute. The mission is to provide great syllabus, balancing between *dunia* and *akhirah*, create pious generation which *tawhid* to Allah, relevant, and committed.

III. PROBLEM STATEMENT

Giving access to quality education and extending learning open doors for the understudies of the underserved groups in both rustic and urban areas keeps on being a major challenge. Probably the most unmistakable components that complement this test are identified. Classroom condition which plays an urgent figure rousing the kids to learn is lost in many schools. Students confront many difficulties to learn and the most threatening of them all is not having a part to take part all the while. They should be urged to speak, to discuss, to express their opinions and to solve problems together. It has turned out to be exceptionally hard to show students lessons in many subjects particularly Science, Social studies and Technology because of the absence of learning devices (aside from the regular classroom teaching). Supported by Prensky, a powerful teaching method, he suggests, would be to use computer games to teach the digital natives. Supporters of this view see a gap or 'digital disconnect' between students and teachers (Underwood, 2007) that is difficult to bridge. This prompts understudy separation and discontent which results in frequent absenteeism in schools. Before, students needed to adapt to the showing styles of their instructors however now there is a requirement for the training framework to change its conveyance procedure to suit the learning styles of the students. Many schools don't have sufficient assets to put resources into educating and learning helps. There is a reasonable proof to recommend that accomplishment levels tend to decrease as the children move along the instructive chain of importance. As the OECD study concludes:

“More micro-studies are needed within countries to explore the extent to which for individual pupils, certain kinds of computer usage raise performance, and which kinds are most effective. At the same time, in countries where basic computer access is approaching universal, policy needs to turn its attention from providing the technology to ensuring that its usage is effective.”

(OECD, 2006, p 69)

This demonstrates schools are not ready to adapt to the showing learning load as the understudies' advance through different evaluations. There is a requirement for transformation in the way individuals find, learn and expend instructive substance.

IV. METHODOLOGY

The methodology we use to plan the schools of the future are Business Model Canvas and Value Proposition Canvas.

The "Business Model Canvas" has 9 components (or building blocks). Each block defines a very specific part of your business. You can use the canvas to define how each component of your business functions. This way, you can easily spot potential weaknesses and strengths of your business, then use that information to anticipate and act on them. Business Model Canvas is a simple tool for designing Innovative Business Models. Business Model Canvas is a simple graphical template describing the nine essential components: Customer segments, value propositions, channels, customer relationships, revenue streams, resources, activities, partnerships, and costs. The following are the proposed nine blocks of BMC for the use of IT in Islamic schools. Osterwalder, Alexander, Yves Pigneur (2013). Business Model Generation. New York.

V. LITERATURE REVIEW

Education is a valuable sustenance that provide knowledge to people. Since the beginning of mankind, the method of education had been changed from time to time. Scientists and experts have an insight where in the future, the method of education will be improvise compared to this age. This can be achieved by implementing educational technology to the current education system.

To begin with, educational technology can be defined as "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Robinson et al, 2016). It does not only limit on accessing the internet, but also on mobile, portal, cloud and etc. Recently, in Malaysia, most of the schools are still using the same classic educational system which inefficient and costly. Thus, it is believed that, incorporate educational technology is the key to bolster the current education system.

Statistic shows that educators who have experience in utilizing educational technology have a potential to become more proficient in their respective area. Furthermore, country like Afghanistan is an excellent example of how investment in educational technology can improve education system. Therefore, it is believed that IT should be integrated in Malaysian school system due to three reasons; Time, cost effective and mobility.

Firstly, technology will help in reducing time consumption. However, before integrating technology into school system, educators and students need to be given a proper training or manual on how to use the system. The training is vital especially for those who did not familiar with technology. For instance, the people who live in rural or below poverty line as they have less access to the technology due to their financial condition. This step may consume a lot of time in order to get the people to be familiar with the new system. Unfortunately, the problem does not stop there, it spreads to veteran educator who comfortable teaching in a classic way. This type of people is actually the hardest group to train and persuade to use the new system and not to mention, time required. This can be supported by Marcinek (2014) who stated that “There is no doubt that finding the time to integrate technology is an overwhelming task for anyone”. Time becomes too cheap when it comes to integrate technology into education system.

Even so, classic style of teaching is believed to consume more time than training the people on the new system; whereby the time can actually be used for other benefits. Finding information while teaching may also consumed quite some time, where the educator needs to find a device and use websites for references. But then, by integrating technology into education system, it can save lots of time in terms of searching for more information. According to Wainwright, classroom that equipped with technology can help students to search latest information quicker and easier than before. Furthermore, without readily technology, sometimes educator need to bring their own devices to be used in the class. For example, when the educator wants to use presenter, the time to set up the presenter itself consume a lot of time. It is undeniable that technology can save time.

Secondly, integrating technology into education system is cost effective. To practice cost effective, investment towards hardware and software is another story. It is because, in order cost effective to be practiced in school system, hardware and software are actually act as the backbone of the IT infrastructure. This is not an easy task as many companies and schools are having hard time to consider about this. It may require a huge amount of money to invest for hardware and software but the return is indeed worthy. As in saying "High risk, high return". According to Kim (2016) the quality of education can be improved provided that investment for technology and educator are made". This indicates that, investment for both technology and educator are important to transform the current state into better state. It is true that the investment should not been taken lightly, it needs to have a thorough insight, careful consideration, feasibility analysis and accurate calculation in order to ensure that it is a liable investment.

Nevertheless, technology can save a lot of cost. By integrating technology into school system it can help the school to control the cost incurred. On the other hand, classic education style such as using textbook is found to be very costly in terms of inventory and money. Therefore, by integrating technology into education system, a lot of money can be saved. This is in line with Wainwright who stated that "Student can have access to digital textbooks that are constantly updated and often more vivid, helpful, creative, and a lot cheaper than those old heavy books." This gives a view that integrating technology is needed to save cost. Furthermore, integrating technology can also facilitates business process such as educator's payroll, student fees, online purchasing and etc. This is supported by Fisher (2014, para 4), who stated that:

Some schools are hiring business process specialists to look for ways to make procedures more efficient. "The savings realized through the work of an analyst can more than pay for themselves," reports eSchool News, especially when combined with a switch to electronic processes. Examples of processes that could be streamlined include purchase orders, payroll, and maintenance requests.

This shows that, adapting technology in Malaysian education system is not only gives benefits to the student and educator but it also has the ability to transform school's business processes.

Next, IT should be integrated to the school system because of mobility. To stay connected between schools across country is not easy. Lots of paperwork and research are required to convince other parties to share resources. Furthermore, integrating technology for the reason of mobility might cause the students to plagiarize due to the accessibility to other's work. Ronan (2017) stated that "Plagiarism has been plaguing teachers forever. Students today can easily access essays, reports, class notes, test, etc. online, making it that much more difficult for teachers to know if the work their students hand in is original". Evidently, technology mobility do have bad side.

In spite of that, having technology in school system allows the students and educator to stay connected everywhere. It also allows educator to access with other sources anywhere and anytime. This is in line with Wainwright who mentioned that "Integrating technology in education everyday helps students stay engaged. Today's students love technology so they are sure to be interested in learning if they can use the tools they love". Furthermore, the key for mobility is that, schools can use technology to pool resources among themselves. This will open a path between schools to share resources. For example, if the educator wants to find references for certain topics by which the information is keep by another school, the educator can simply search on the school's portals or their online library. According to Fisher (2014) cloud technology enable shared services and pooling resources with single source which at the same time reduce the cost. It is clearly seen that integrating technology help information travel anywhere and anytime.

To conclude, IT should be integrate into Malaysian education systems due to three reasons; time consumption, cost effective and mobility. It is highly hope that the educator will have awareness that technology does plays an important role in today's generation and it should be integrate to the school system as it will benefits not only the students but also the whole school community.

VI. SCHOOL OF THE FUTURE

The ubiquitous and cost-effective technologies used to access information and connect learners have significantly shifted thinking in higher education. At the core of this shift in thinking is the idea that students should be actively engaged in sustainable communities of inquiry. It has been shown that active engagement in a learning community is associated with reflective discourse and deep learning outcomes (Akyol & Garrison, in press a; Brown, 2001; Chapman, Ramondt, & Smiley, 2005; Rovai, 2002). E-learning offers the ability to share material in all kinds of formats such as videos, slideshows, word documents and PDFs. Conducting webinars (live online classes) and communicating with professors via chat and message forums is also an option available to users.

Some of the most important developments in education have happened since the launch of the internet. These days learners are well versed in the use of smartphones, text messaging and using the internet so participating in and running an online course has become a simple affair. Message boards, social media and various other means of online communication allow learners to keep in touch and discuss course related matters, whilst providing for a sense of community.

E-learning website also helps students to not rely too much on the educator. Be accountable of themselves. This is good for them to prepare them for the later phase of life. E-learning website is one of the tool that can be used by capable educator to enhance learning and teaching situations. These tools make learning more interesting, interactive, meaningful and stimulating for the students. These tools are powerful as they are capable of bringing a change and reform traditional forms of learning.

Not only students but educator also benefited from e-learning website. It helps educator-student relationship to be more connected. Sometimes curriculum and job constraint restrain educator from delivering all intended messages to the students, with e-learning website educator can deliver all the message that they want and maybe teach other topic that is not in the curriculum. With this educator could lead student to success inside and outside of school hours.

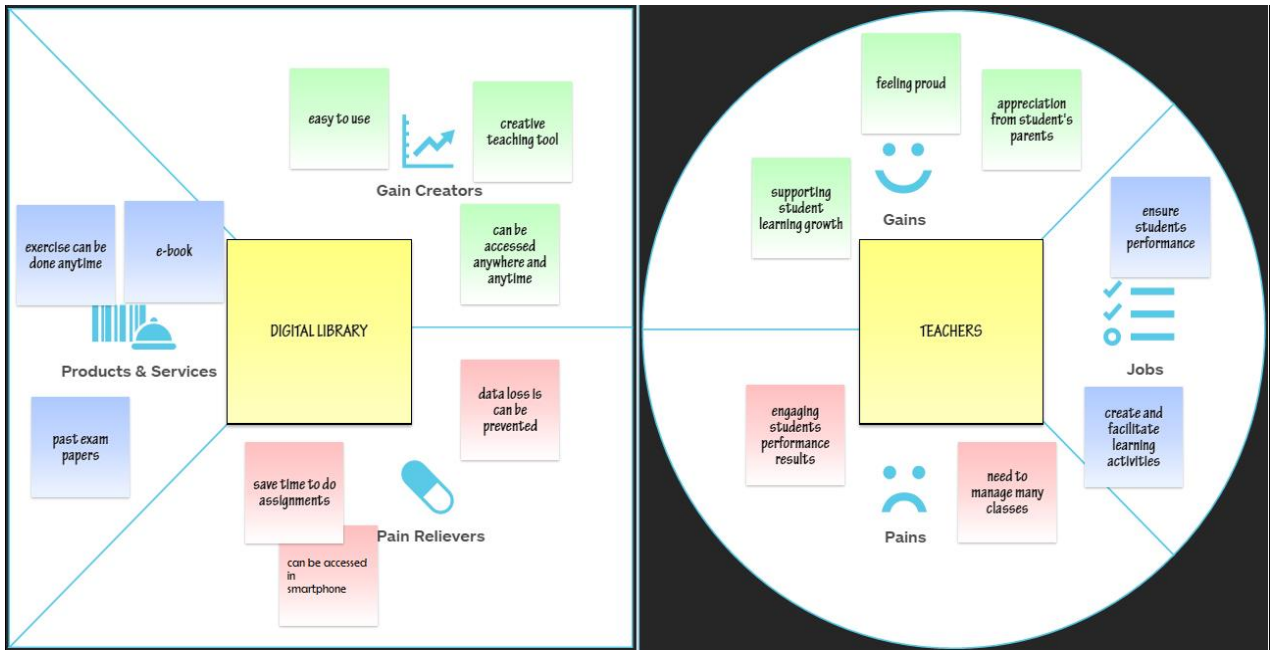
Most Library is not open 24/7 but online library does and this surely will help the student immensely because some student prefer do their study and assignment late in the night. Another advantage of online library is online searching. Online searching has for some years been replacing printed abstract journals, and we now see in such publications as the Chadwyck-Healey English Poetry Database the use of electronics for full-text humanities material. Although older material is often available only in image format, since essentially all modern material is now printed via computers, it can generally be provided in Ascii form and be searched. For those documents which are searched rather than read \- many reference books, compilations, etc. \- electronics can be expected to take over shortly. Printed encyclopaedias in the United States, for example, are giving way to CD-ROMs which are smaller, cheaper, and far more effective to use.

Ubiquity is one clear edge: a single electronic copy can be accessed from a great many locations, and to many simultaneous users (assuming copyright permission is available). Copies can be delivered with electronic speed, and it may be possible to reformat the material to the convenience of the reader (e.g. in larger type size for those with limited sight, or in order to fit a smaller screen). Since readers get a screen display of the object, rather than carrying away the physical object, loss rates by theft may be much reduced (some CD-ROM systems, however, are vulnerable to theft of this sort). Unfortunately, although the library may be immune from losing access to its own copy via theft, in the digital world there is a different kind of theft in which the copyright holder loses control, rather than the losing library's copy.

VII. CONCEPTUAL FRAMEWORK

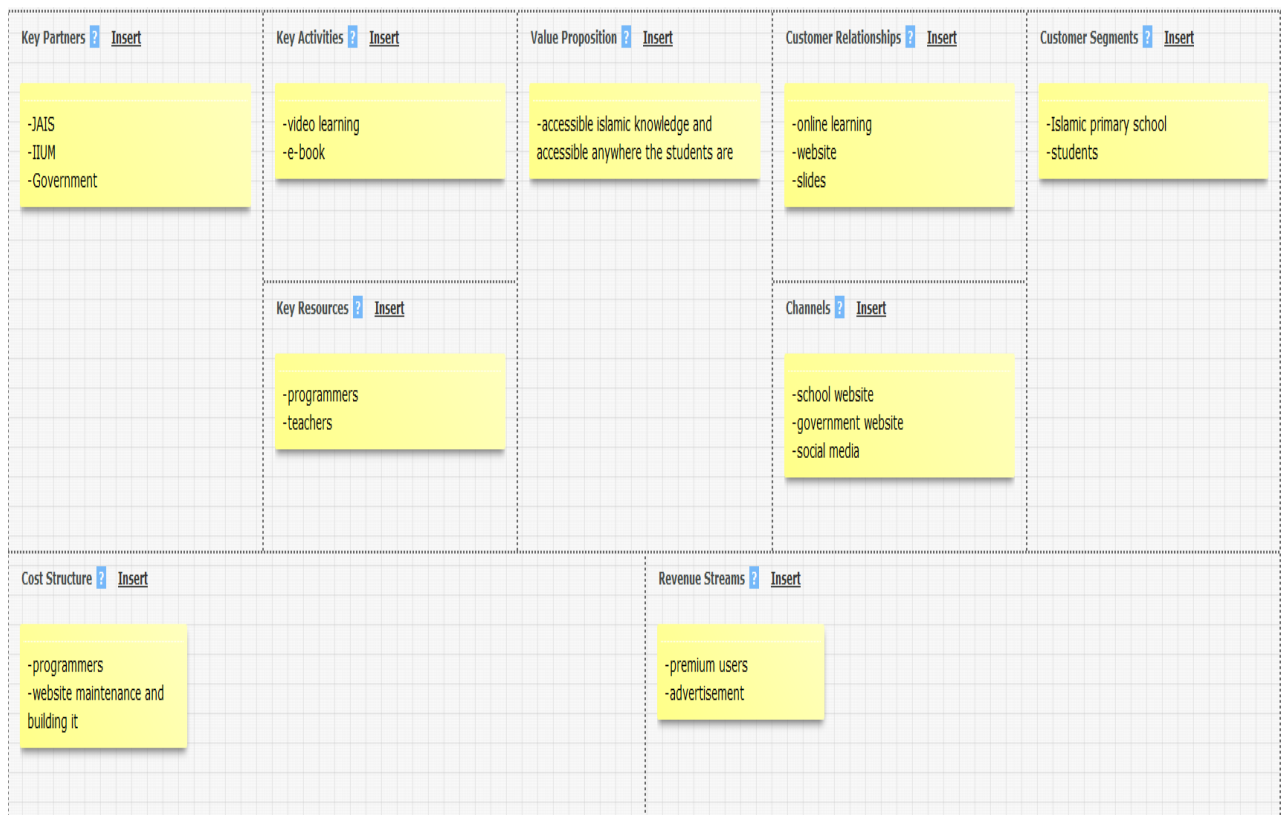
Below is a Value Proposition Model for two different suggestion.





Technology is undeniable become a fundamental in today's life. In teaching and learning it also become a fundamental needs to help achieve a significant improvement productivity. Technology can combine classrooms with digital learning tools such as computers and hand held devices; expand courses offerings, experiences and learning materials. Notable megatrend that is happening around the world are KaizenEDU, big data and mobile.

Two proposed product here is e-learning website and online library. Figure 1 show the nine blocks of Business Model Canvas (BMC) based on the business proposed which is e-learning websites.



Customer Segments:

The business proposed focus on how technology will help Islamic Schools around Malaysia to utilize all the resources that the schools have to help educator reach more students and help the student to be deeply learned. Not all student can

grasp what the educator teach so educator need other platform to send their messages to students. According to UNESCO the pupil-educator ratio is 15.4 students per educator. From 15.4 here it is safe to assume that not all students can grasp the message from the educator. So, E-learning website can be one of the solutions to it.

Customer Relationship:

For customer Relationship in e-learning website, this business needs to sustain the services that are provided. the e-learning website should be maintained and minimize any problem to prevent student accessing it. Keep the sources updated and do a scheduled maintenance.

Channels:

The main method here is online learning. Anything that related to students can access materials without going to library, studying without meeting their educator (virtual learning), full time online schools.

Value Proposition:

The core value delivered to students is to help them understand better about the subjects and to do better in schools. In addition they will not only be learning about the common knowledge but also learn about Islam.

Key Activities:

The main reason on doing this project is to give advice to Islamic Schools to make use of technology and use it fully so the Islamic School benefited even more. Hopefully this will become an alternative learning center for students outside of classroom. It will become comfortable because students can access it from everywhere.

Key Resources:

Programmers to help build e-learning website that integrated with virtual learning. Also help maintaining them. Digitalized resources and Islamic digitalized resources.

Key Partners:

To ensure the success of e-learning website, key partners and collaborators are needed that include the following:

- JAIS (Jabatan Agama Islam Selangor)

JAIS is can be the provider of any resources needed for the technology implemented in schools.

- International Islamic University Of Malaysia

IIUM is one of the institution that can contribute.

- Educator

Educator can upload their video of teaching to the e-learning website for the students to study.

- Government

Government of course should help the schools to fully utilize the available technology to help students to be more productive.

Cost Structure:

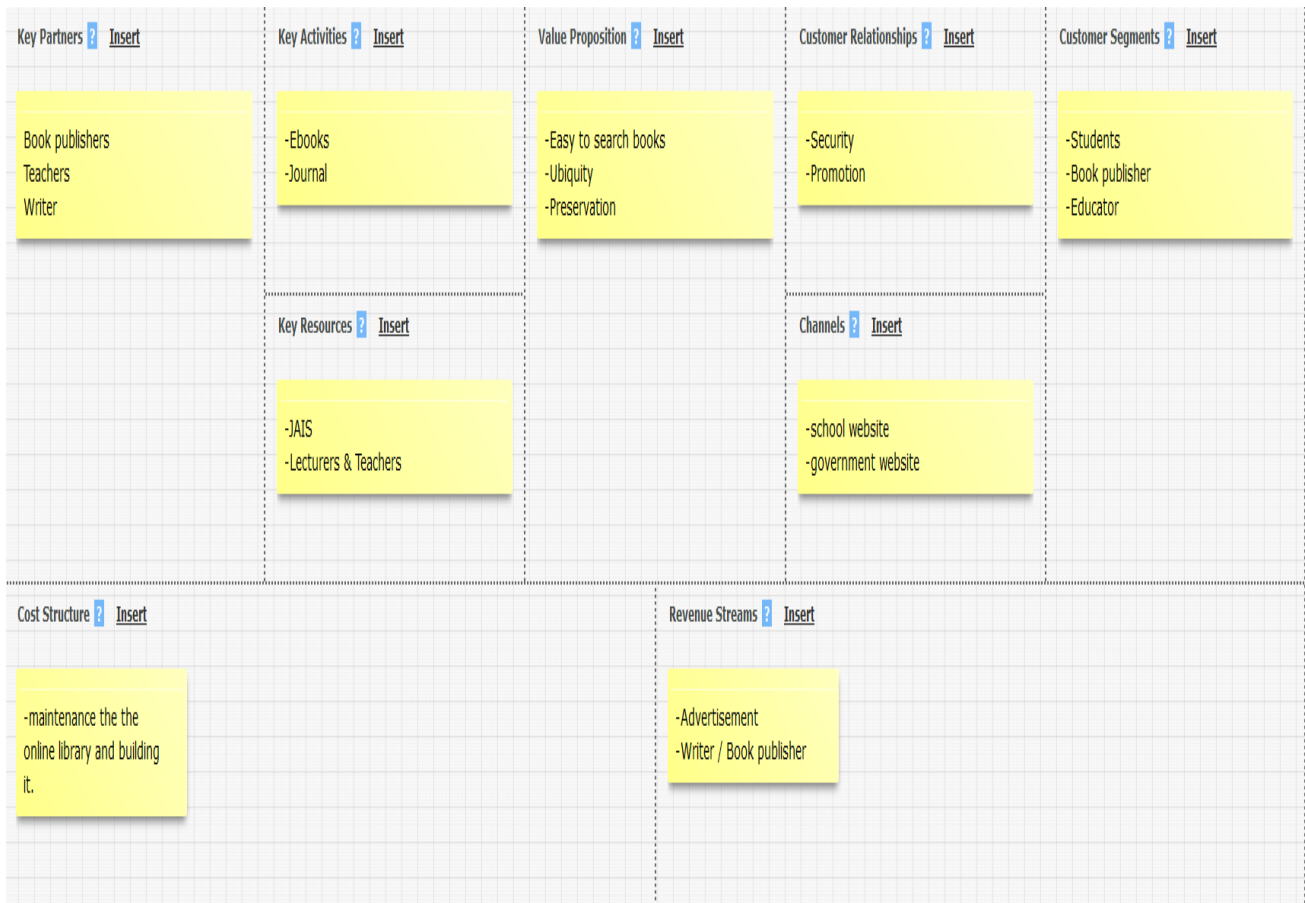
Building and maintenance of the e-learning website needed money and the money should come from the school of the government. Paying the programmers and the educator too.

Revenue Stream:

Revenue can come from advertising put in the e-learning website. Premium access maybe for outsiders than want to access more resources.

Figure 2 show the nine blocks of Business Model Canvas (BMC) based on the business proposed which is online library. Business Model Canvas is a simple tool for designing Innovative Business Models. Business Model Canvas is a simple

graphical template describing the nine essential components: Customer segments, value propositions, channels, customer relationships, revenue streams, resources, activities, partnerships, and costs.



Customer Segments:

This proposed business is focusing on helping students or anyone to have an easy access to books, e-book, journal and any other material. According to UNESCO statistic on illiteracy population in Malaysia are 89.929 in 2015 alone. Insha Allah with the help of online library that implemented to Islamic school around Malaysia the Illiteracy rate in Malaysia will be pressed.

Customer Relationship:

For customer Relationship in online library, the number one goals is to keep the e-books safe from theft. This seem unlikely but this could be done if the online library can only be accessed by using the WIFI of the school like the one that implemented in IIUM. Another relationship to book publisher or writer is to help the get the exposure they needed. It will help them to become more popular.

Channels:

The method that aimed is online even mobile if possible. Online and mobile will easily keep the students hook with the books that they need from anywhere. School website can be a tool of promotion of the online library.

Value Proposition:

In the library sometimes it can be annoying trying to find books because people that are reading books in the library often does not put the books back where it belong, this could lead to missing of the book. With online library finding books would be so much easier. It can track where the books are and who currently borrowing particular book. E-books is also great because 1 book can be accessed by more than 1 person. Online library also helps preservation, Digital information can be copied without error.

Key Activities:

The key activities that the value proposition is required will be maintaining the online library is up to date and no errors. The main reason of the online library (proposed business) is to help students have all the resource needed in their hand just with one click and ready at all times.

Key Resources:

JAIS is a key resource because they will help providing any digitalized material related to to islam. Lecturers and educator is also a key partner because the online library could be a platform for them to publish their research.

Key Partners:

To ensure the success of online library, key partners and collaborators are needed that include the following:

- Book publisher

Book publisher is a key partners obviously because the more books included in the online library is better and to do that the online library need to partner with as many as book publisher as possible.

- Educator

As mentioned in the key resources, educator (also lecturers) plays an important role in the development of online library because their research or any journal by them can be published in the online library.

- Government

Government needed to help the online library can be accessed to as many students as possible. Also encourage any other school to have each of their own online library.

Cost Structure:

Creating the online library and maintaining it by programmers. Having domain etc needed money. The money can come from advertisement and book publisher.

Revenue Stream:

Revenue can come from advertising put in the online library and for book publisher that wants to publish their book in the online library should pay some amount of money annually.

VIII. ANALYSIS AND KEY FINDINGS

We interviewed with one of the educator at Sekolah Rendah Agama Islam Al-Huda. During that interview, we asked several questions about current system that being practice in school. They have their own website which shows information such as news and events, galleries, student registration, calendar, E-staff, and E- parent. The E-staff allows educator to have personal profile, key in student's mark and store student's record while E-parent allows parents to monitor their children performance. The weaknesses of this system are it less uniformity, hard to use for veteran educator, slow and weak in security.

During interview, we suggest two systems which are student portal and digital library. The interviewee really interested and from the survey for student portal, we able to analyse that the educator interested about submitting exercise or exam online, the ideas about virtual class, user friendly, safe to use because student cannot alter it and support in smartphone. For digital library, they are looking forward to provide digital books for students which also can be uploaded by educator. They also want their students able to access exercise book in digital library which can save time and cost.

IX. CONCLUSION

It recommended that instruction framework to be actualized, as a superior Information Technology with the coordinated effort of Madrasah, this program will be taken care of by the software engineers. Subsequently, this framework will be utilized for any individual who will get to Madrasah framework. To wrap up, education system with better Information Technology ought to be executed in the Islamic school and keep running at it maximum capacity so that the understudies and educators will benefits more.

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