

CHAPTER 9

DISCUSSION AND CONCLUSION

9.1 Reliability of the Research Study

In any research study, it is very important to check the reliability of how the study was conducted. In order to develop the Intelligent Bank Management System for Malaysian Financial Institution, a careful plan was carried out in designing the activities that is needed for developing the IBMS. The first step was by gaining knowledge on the scope of the application, which will provide a guideline or to be able to think as the user of the application. The next step was to identify a design approach, which provides guidelines to design the software architecture. The approaches were identified from reference books, articles and journals as well as journals via Internet as been elaborated in the Literature Review. All the approaches were identified and analyzed from different aspects before it was chosen.

In order to gather possible requirements for this application, interviews were conducted with bank executives as mentioned in Chapter 4. This is to ensure that the suggested training system is applicable for Malaysian Financial Institutions. An analysis was also done on the currently available Bank Management system. Using their concepts as reference is important to improve and understand the banking system.

9.2 Evaluation on Intelligent Bank Management System (IBMS)

Evaluating the software architecture design is essential to ensure whether the architecture supports the system to meet its requirements and to make sure that there is high user participation in using the system. The main issues discussed in this research study are scalability, security, availability and performance of the Intelligent Bank Management system (IBMS). These are the important factors to be adhered by a system. The IBMS was evaluated by the participants through six important aspects and each aspect has gained good rating.

1. Scalability and Performance

The architecture designed separates the business logic from the user interface and data source. Breaking up application to separate tiers can reduce the complexity of the overall IBMS and allow enhancements to be done easily to handle growing number of users in future.

Hence, resources consumed by the object can be returned to the server and this increases the scalability of the application at any one time.

2. Availability

The software architecture design has defined that using the non-shared server will help in assuring the high availability of the system. All server resources will be exclusively dedicated to one web project which will increase

performance. In situation where system faces severe technical problem, server may be rebooted without the concern of affecting other users.

3. Security

Security of the data is essential as the Web based IBMS deals with bank records which are very confidential. Providing exact regulatory environment when requested by the users is very critical. In the architecture, the data access layer shields the inner structure of the database from the developer. Developer cannot circumvent security or procedure by changing rows in the database in an incorrect order.

4. Reliability

The Intelligent Bank Management System is said to be reliable if it provides correct information at any time and any place. This was proven in the testing and evaluation phase in Chapter 5 and was evaluated by the participants in the evaluation phase.

9.3 Problems Encountered

Throughout the research study, there were three major problems encountered. The problems are:

1. Lack of Actual Simulation System for Reference

The research lack of actual simulation system to be referred to in order to implement IBMS. The research faced numerous challenges and unknowns while trying to produce IBMS as there are no simulations system to be referred to even though there are documentations on the sample systems.

2. Lack of Local Data for Reference

There were tremendous problem in gathering information for the Intelligent Bank Management system as there are no sample projects that have been developed in Malaysia in accordance to Malaysian banking policies.

Even though there are some components from IBMS that have been developed overseas, it does not provide a guideline in developing the Intelligent Bank Management System (IBMS). Research was made on the local banking sector as well as local economy to customize the system local users.

3. Cooperation from Organization

During the project research, it was difficult to get cooperation from the related industries as they were less interested in the research. This has sometimes affected the findings on the local banking system. But anyhow the details were gathered through the staffs.

9.4 Limitations and Weaknesses

The research project will be limited due to the collection of secondary data. In the internet savvy developed world such as in the USA, Japan and Europe, businesses are already reaping profits and other returns due to the advantages of the electronic banking system and specialized training system for banking staff.

However the existence of Information Technology in transforming the financial institutions in Malaysia is just in its infancy, where bankers are still struggling to implement the preliminary stages. So, most of the articles and journals available on Malaysian businesses only covers issues on ICT on helping the banks to move forward, the technologies needed and plans but not on the progress on what had already been implemented.

The study was limited due to the fact that respondents do not answer the questionnaires in details. Discrepancies such as incomplete or inaccurately filled questionnaires returned might be caused by the banks' reluctance to disclose information that could possibly lead to legal problems caused by legal matters or legal conflicts caused by their respective corporate policies. Apart from that, many banks refuse to cooperate at all, with reasons that they have a strict schedule and do not have time to comply with such matters outside their business. Additional limitations were imposed due to the size of the sample and limited instrument return. Therefore, caution should be taken to accomplish this research.

9.5 Recommendations for Further Studies and Further Enhancements

The objective of this research is to evaluate user participation in using a simulation based training system. However, this research could not produce a complete system as there are many more areas that need to be investigated in order to enhance the system through this research. Hence, further studies and enhancements have been identified. The recommendations are:

1. The automated analysis need to be introduced to all the components in IBMS. This is very useful as user will have guidelines in analyzing the banking performance through artificial intelligence and expert system. The system needs to be logically sound and it can be done if the system is able to analyze the results without the user's interference and provide a solution.
2. As this project involves the expertise of two major fields which are economic and information technology, there should be exposure and cultivation of learning the economic subject for all the students in Malaysia. This is important as economic plays an important role for a country and it will be very useful for all of us to understand the process flow of banking sector and local economy. With greater exposure on economy, a software developer will be much more creative in developing a user friendly system.
3. The project is much more focused towards managing a bank. But further research need to be done about the central bank. As the instructor act as the

central bank, there should be more authority given to the instructor on-line in changing the regulatory environment.

4. Guidelines to design software architecture for web application must be established. These guidelines should consider the application tiers in a web application. The guidelines should allow different tier to be designed uniquely prior to the technology used by each tier for the application.
5. This product will be a full based virtual bank if it has both the consumers and the staffs operating the system. Currently IBMS is only used to manage the bank. The system should be further enhanced as a simulation based training system.

9.6 Conclusion

The progress in software development needs to be analyzed carefully in accordance to the current environment. Currently most of the product needs to be automated and intelligent to make decisions. And even though Intelligent Bank Management System (IBMS) does not have all the intelligence and automated criteria, it is a breakthrough in the local market as well as the banking sector. This has a great impact on the participation of the user in using the system. The users have participated well and they prefer to have a simulation based training system as it creates a problem environment for the users to solve rather than giving instruction on solving problems as in class room based training system. This was proven through the user feedback on using IBMS as in Chapter 6.

At the same time web applications are becoming more and more popular due to the rapid deployment of the tools and technologies for their development. This system will be beneficial and useful for all the people involved in banking and economic sector. Hence, implementing the system quickly and less expensive is a critical factor for a system's success. It is hoped that with the implementation of the enhancements and improvements, the outcomes produced at the end of the study would make effective contribution in implementing the Intelligent Bank Management System quickly and less expensively.