Chapter 8

Summary & Conclusion

8.1 Summary

Behind the success of any engineering project is project management. If the project is well-planned and estimated accurately within appropriate design organization and skilful staff, covered by well directing and controlling, then the success of the project will be almost guaranteed. Software project management as defined today and for long time as practicing, implementing and using project management principles, standards, techniques, methods, and tools for managing software projects. However, a lot of problems and difficulties have caused delays and incompleteness in software projects. Many reports and statistics attributed the failure of software projects to poor project management. This is simply because of the differences between managing software projects and other engineering projects. These differences are: software process is intangible, there are no fix standards, and different methods and techniques are used for developing software projects. Furthermore, the available software project management tools can be used in both engineering projects and personal activities, and most of them are focusing on scheduling, presenting WBS, using Gantt chart, PERT, CPM, and displaying the relationship between activities. On the other hand, software projects principles are people, problems, and processes. Therefore, the available software project management tools are inadequate to cover all of the software project's needs and problems.

It has been well known that the need for software project management tool to manage any project is very important. Though, the need for strong and complete software project management tool especially to manage software project is also very important to handle every aspect in software development. SoftProMT has been developed to help the managers to perform their responsibility and to minimize some problems and attempt to ensure project quality. The requirements of SoftProMT were formulated from the results of survey conducted in Malaysia that investigated the critical problems faced software project management and evaluated the need for development tools, and from some available tools which have been reviewed, evaluated and compared. SoftProMT has been analyzed, designed, and implemented based on object oriented methodology, tested and validated by several academicians in computer science.

8.2 Contributions

8.2.1 Research Finding

From the survey which has been conducted during this research the following are the major results:

- Not many software project management tools are being used.
- The available project management tools are incomplete in handling project management tasks efficiently.
- The available project management tools do not solve the current project management problems.
- Development tools should be integrated together with project management tools.

- The computer could be used to help the manager assign people to projects based on specific criteria.
- Keeping records on past experiences such as problems, person(s) responsible, and adopting known methodologies for accurate estimation.
- The problems in software development might be attributed to the problems in project management.
- Difficulty in understanding the project requirements due to the changes in the requirements and unknowledgeable customers were the most critical problem.

8.2.2 SoftProMT Contributions

The main objective of this thesis are to highlight the reasons for delays and incompleteness in software projects and to minimize them, attempt to reduce complexity, accurate estimation and ensure project quality throughout SoftProMT development. Therefore the following are the main research contributions, which is uncovered properly in the available software project management tools:

1- ***The need for project management tool to manage software projects:*** This tool may considers the first software project management tool specifically for software projects.

2- ***Managing human resources:*** SoftProMT helps project managers reduce delays, estimates accurately, and ensure project quality by providing the necessary information about assigning personnel based on several factors, training the unknowledgeable personnel, checking the person's availability, and monitoring those responsible for occurring problems. These features can save a lot of time spent

searching for qualified and appropriate personnel, and moderate making decision, and ensures quality.

3- ***Reduce problems and prevent the managers from making mistakes:*** The tool helps to minimize the problems that the other projects have faced. This is done by analyzing the problems in past projects, highlighting the most critical problems, addressing the problems in each phase in software development life cycle, and comparing the problems in some selected projects and addressing the problems due to change in requirements.

4- ***The need for an integrated system:*** The tool enables the manager to display the specification requirements for the project, monitor and controls the change of requirements, and reports on the latest techniques, software, and hardware.

5- ***The need for monitoring the change in project requirements:*** The tool attempts to reduce delays and incompleteness by monitoring the most critical problem which is changing project requirements.

6- ***Reduce complexity:*** SoftProMT attempts to reduce some complexity by indicating the methodology being used for developing software project in software project management tool.

7- ***Technology issue:*** Provides a report about the latest information, updated versions of the available software or hardware and this results would enormously help in saving time and effort for searching on the needed equipment and it helps to accurately estimate the project.

8.3 Further Research

1- Cost estimation is considered the most critical and difficult aspect in software project management. However, the available project management tools lack features in handling it.

2- Staffing people based on certain criteria can help reduce difficulties in human resource cost estimation. Thereby, if the cost estimation tools and project management tools integrate together, that would enormously help in estimating the projects.

3- To ensure project quality SQA tools should be integrated with software project management tools to control and ensure that every stage has been tested and revised.

4- Integrate software risk management with software project management to control and monitor the risks.

5- Implementing fuzzy logic approach for estimating the size of the project.

6- More can be done in the technology issue such as inquiry check list for the best software in specific fields or best specification components recommended that would save a lot of time.

7- More studies can be done on the complexity of the problem in one project such as the time for each problem, the cost, and how each problem affects the project directly or indirectly.

8- Study on software project management tool to support the web based project and make a full use of the internet resources.