CHAPTER 5

CONCLUSION

This chapter concludes the representation of the thesis. This chapter is organized as follows. Section 1 discusses research conclusion. Section 2 outlines research contributions and the future research direction in Section 3.

5.1 Research Conclusion

This research aims to explore the feasibility of using CBR techniques to complete knowledge reuse in the KMS. The research is conducted based on two broad areas: CBR and IE. We have developed a metadata extraction system based on a framework that integrates CBR and IE. The system is developed to perform the four phases of CBR cycles to allow the knowledge acquisition process to improve by allowing knowledge reuse.

In this research, we have proved that CBR techniques can be applied to help knowledge acquisition process to resolve new problems. This is achieved by retrieving past solution and reapply the solution to new problems. New knowledge has been gained through the knowledge adaptation process, and new knowledge can be applied to solve new problems.

We have applied metadata to allow a well-defined definition for domain knowledge. This was achieved by providing conceptualized knowledge representation in terms of standardized structured vocabularies. This way, metadata is function as meta- knowledge.

We have also applied the web-based platform technology to facilitate the implementation of KMS. The application of system allows the tasks of CBR to be performed independently and autonomously over the standardized web application platform.

5.2 Generalization of this Thesis

This research has been able to demonstrate that the application of CBR allows reuse of past experience in the KMS. In particular, the knowledge adaptation capability of CBR offers benefits to the development of KMS. The integration of metadata, information extraction and the web-based platform in the development of KMS provides an opportunity and emerging perspective to facilitate the process of knowledge reuse in the KMS.
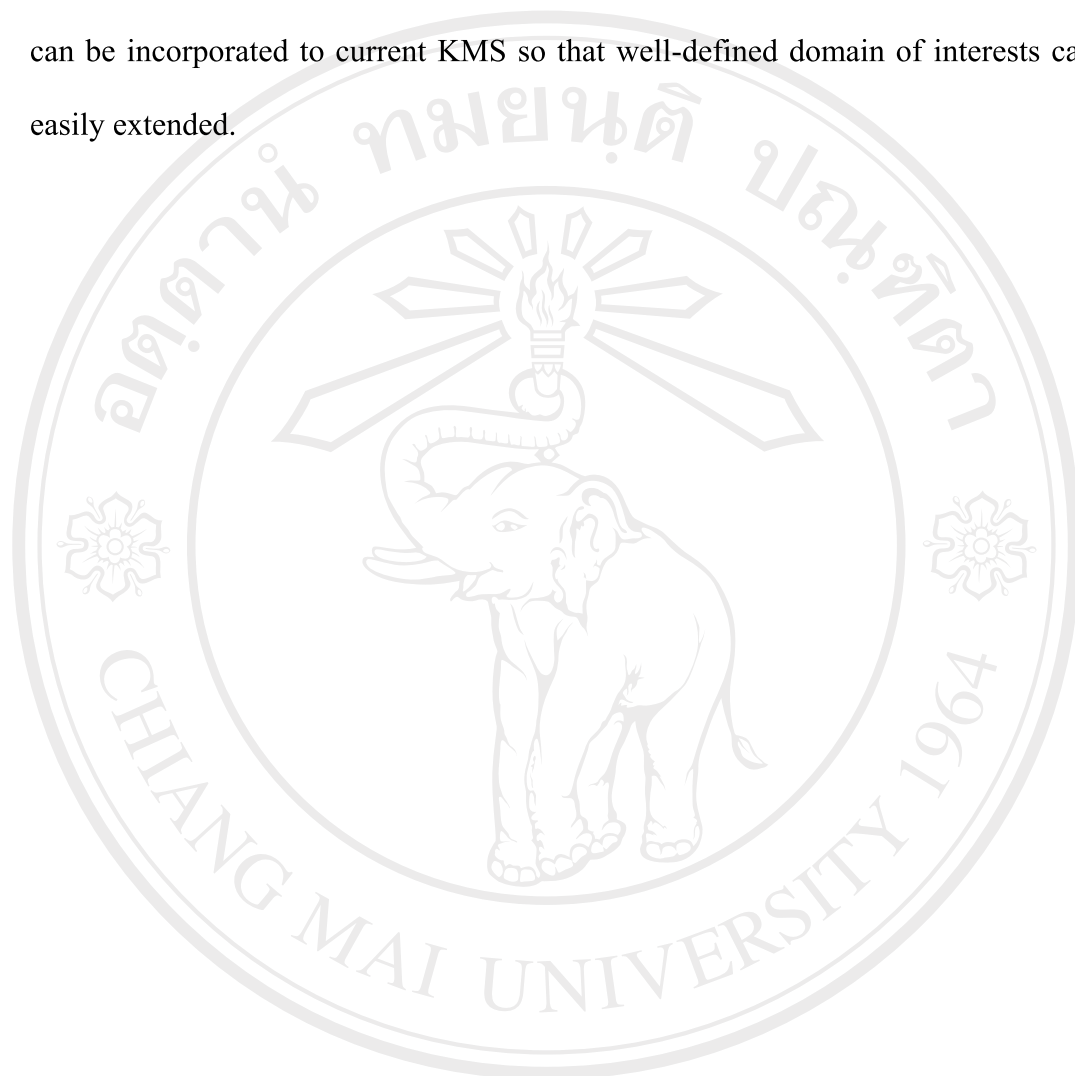
Moreover, the framework and architecture of the research can be applied with some Asian language that characteristic similar to Thai language such as Chinese Japanese and Korean. But the techniques used in algorithm design must be adjusted to be suitable for those languages.

5.3 Future Works

In terms of knowledge sharing and reuse, this research has found that metadata is increasingly important and useful. Ontology library system is an importance tool in grouping and re-organizing ontologies for further reuse, integration, maintenance, mapping and versioning. However, few ontology maintenance aspects have been considered in literature. For example, limitations of possible changes in ontologies need to be addressed. A term "Ontology Versioning" or "Ontology library" has been introduced to maintain system that allows changed and unchanged ontology to be inter-operatable. This is based on the following rationale. Change in knowledge domain, particularly shared conceptualization and specification, might occur through the course of the development cycle. When this happens, ontology needs to be evolved too; otherwise it causes incompatible inter-operation in the system. Ontology versioning can help to reduce operability problems caused by the evolution of ontology. The versioning system will allow comparability issues to be taken into consideration when new knowledge is added to the system over time.

From the development perspective, future version of the prototype development can be developed using different storage model such as OWL. It has been proposed in the literature recently that ontology development should be kept as a back-end development, and it should be separated from a front-end web-based KMS. This approach is particularity useful in terms of ontology development, particularly if ontology versioning approach is used in future development.

Another interesting research area is the use of global or enterprise ontology. Enterprise ontology is an approach of using several globally existing ontologies. It can be incorporated to current KMS so that well-defined domain of interests can be easily extended.