Two core entities of the MeDIC system; information need and metric measurement were chosen to be modeled with the decorator pattern. The modeling process is divided into two phases: analysis and design phase. At analysis phase, possible variation points and its variants are determined. Furthermore, the solution pattern is applied to those entities to get the final model, that is able reflect the entity variability we aimed. After all, the prototype of each entity that we modeled is proposed as the starting point to the implementation stage.

## 6.2 Future Works

As a follow up of the evaluation and summary described on chapter five, work plan of some further researches and improvements are proposed as some points below.

### • Model the other entities of the MeDIC system

Along with the main goal to enhance the MeDIC system, all existing entities related to variability in the MeDIC system must be analyzed and modeled. The entities that have been modeled in this work are information need and metric measurement as the core entities of the MeDIC system.

## • Evaluate the implementation feasibility

Before we implement the new model proposed, an evaluation about implementation feasibility needs to be conducted. The prototype of the implementation is presented, however the actual implementation have not been realized. The result of feasibility evaluation will be use as a consideration for the implementation.

#### • Implement the new model in current system of MeDIC

The final plan is to implement the new model proposed in here. The implementation will be able to enhance the performance of the current MeDIC system. Along with implementation, testing and continue evaluation need to be performed to improve the performance.

# **Bibliography**

- [Sik08] SIKORA, MICHAEL: EJB 3 Developer Guide. Packt Publishing, 2008.
- [JJ03] JILLES VAN GURPAND JAN BOSCH: Software Variability Management. ICSE Workshop, 2003.
- [SEI10] SOFTWARE ENGINEERING INSTITUTE: Capability Maturity Model Integration (CMMI). http://www.sei.cmu.edu/cmmi, 2010.
- [JJ03] JILLES VAN GURPAND JAN BOSCH: Software Variability Management. ICSE Workshop, 2003.
- [Fra08] SAZAMA, FRANK: Goal Attribute Measure Warum wir das A gegen das Q ausgetauscht haben!. sqs-conferences, 2008.
- [AKGW08] ABDUL AZIM ABDUL GHANI, KOH TIENG WEI, GEOFFREY MUCHIRI MUKETHA and WONG PEI WEN: Complexity Metrics for Measuring the Understandability and Maintainability of Business Process Models using Goal-Question-Metric (GQM). IJCSNS, 2008.
  - [FP97] FENTON, N.E. and S.L. PFLEEGER: Software Metrics: A Rigorous and Practical Approach. International Thomson Publishing, Boston, 1997.
  - [McG01] MCGARRY, J.: Practical Software Measurement: Objective Information for Decision Makers. Addison-Wesley, 2001.
  - [KCH<sup>+</sup>90] Kang, K., Cohern, S., Hess, J., Novak, W. and Peterson, S.: Feature Oriented Domain Analysis (FODA) Feasibility Study. Technical Report, 1990.
    - [BCR94] Basili, V.R., Caldiera, G. and Rombach, H.D.: *The goal question metric approach*. Encyclopedia of software engineering 1, Germany, 1994.
    - [HRY10] HONG YAN, RONG CHEN and YA-QING LIU: A Metrics Method for Software Architecture Adaptability. Journal of Software, Vol. 5, 2010.
  - [BGP<sup>+</sup>09] Brice Morin, Gilles Perrouin, Philippe Lahire, Olivier Barais, Gilles Vanwormhoudt and Jean-Marc Jezequel: Weaving Variability into Domain Metamodels. 2009.

- [Tav11] TAVISON, RICARDO IVAN RAMOS: Systematic Tool Supported Tailoring of Metrics. Software Construction RWTH Aachen University, 2011.
- [BL01] BACHMANN, FELIX and LEN BASS: Managing Variability in Software Architecture. Carnegie Mellon University Pittsburgh. 2001.
- [BB07] KORHERR, BIRGIT and LIST, BEATE: A UML 2 Profile for Variability Models and their Dependency to Business Processes. 18th International Workshop on Database and Expert Systems Applications, 2007.
- [GW04] GOMAA, HASSAN and WEBBER, DIANA L.: Modeling Adaptive and Evolvable Software Product Lines Using the Variation Point Model. IEEE, 2004.
- [MS07] SINNEMA, M. and DEELSTRA, S.: Classifying Variability Modeling Techniques. Elsevier Journal on Information and Software Technology, Vol. 49, pp. 717-739, July 2007.
- [KM99] BARRY, KEEPENCE and MANNION, MIKE: Using Patterns to Model Variability in Product Families. Napier University, 1999.
- [SB00] SVAHNBERG M. and BOSCH J.: Issue Concerning Variability in Software Product Line. Proceedings of International Workshop IW-SAPF-3, Vol 1429 of Lecture Notes in Computer Science, Springer, March 2000, pages 146-157.
- [BLP04] BUHNE, STAN, LAUENROTH, KIM and POHL, KLAUS: Why is it not Sufficient to Model Requirements Variability with Feature Models?. ICB, 2004.