

DEDICATION

All praise is to Allah the almighty for the blessing, the power, and all good fortune that have given to me so that this thesis can be completed. Special thanks for everyone that support me until now, for all suggestion, contribution, and guidance :

1. My loving parents, who always support and pray endlessly for author and for my brothers and my sister. May Allah SWT always bless you all with happiness.
2. Dr. Ida Wahidah, as a first supervisor who always patiently guiding author in completing this thesis, thanks for the patience in guiding author, the knowledge, and the prayer.
3. Dr. Doan Perdana as a second supervisor who patiently guiding in completing this thesis, thank you so much Sir.
4. Dr-Ing Fiky Yosef Suratman as Kaprodi Graduate School, thanks for his guidance.
5. Pravita Dwi Nugraheni as admin Graduate School, thanks for helping author through this past two years.
6. Thanks to all my supervisor, team leader, and best friend in Infomedia Solusi Humanika (ISH) Company Bandung, thanks for the support, attention in completing this thesis. I look forward to more contributions to the company.
7. All my friends in Pasca Sarjana Telkom University, thanks for everything.
8. And other people who can not be mentioned by author one by one.