ABSTRAK

Wirautama, I Gusti Agung Made (2020), *Perancangan Data Warehouse Akademik Politeknik Pariwisata Bali*. Tesis, Ilmu Komputer, Program Pasca Sarjana, Universitas Pendidikan Ganesha.

Tesis ini sudah disetujui dan diperiksa oleh Pembimbing I: Prof. Dr. I Made Candiasa, M.I.Kom dan Pembimbing II: Dr. Gede Rasben Dantes, S.T., M.T.I.

Kata-kata kunci: *data warehouse*, *database, data*

Politeknik Pariwisata Bali (PPB) memiliki 3 buah sistem informasi yang berkaitan dengan data akademik, yaitu Sistem Informasi Akademik (SIAMIK), Sistem Informasi Penerimaan Mahasiswa Baru (PENSISBA), Sistem Informasi Penelitian (E-RESEARCH). Akan tetapi 3 sistem informasi tersebut belum terintegrasi serta data yang ada pada setiap *database* belum diolah dan dianalisis secara maksimal untuk keperluan pengambilan keputusan di tingkat manajemen. Data akademik merupakan aset penting bagi perguruan tinggi. Untuk itu diperlukan integrasi data dalam bentuk *data warehouse*. Dengan adanya *data warehouse* diharapkan penyimpanan, pengolahan dan analisis data dapat dilakukan dengan lebih baik untuk berbagai keperluan seperti pelaporan serta *data mining*. Penelitian ini bertujuan untuk membuat rancangan *data warehouse* akademik PPB. Penelitian ini menggunakan metodologi *Design Science Research Method* (DSRM). Metode perancangan *data warehouse* menggunakan *Kimball nine-step methodology* atau metode 9 langkah dari Kimball, yaitu *Choose the Process, Choose the Grain, Identify and Conform the Dimensions, Choose the Facts, Store Precalculations in the Fact Table, Round Out the Dimension Tables, Choose the Duration of the Database, Determine the Need to Track Slowly Changing Dimensions, Decide the Physical Design*. Implementasi *data warehouse* akademik dilakukan sampai pembuatan prototipe *data warehouse* menggunakan perangkat lunak *open source,* yaitu Linux, Java, Pentaho Data Integration, MySQL. Rancangan *data warehouse* dalam bentuk prototipe dilakukan pengujian melalui *Focus Group Discussion* dan hasilnya telah sesuai dengan kebutuhan di Politeknik Pariwisata Bali serta direkomendasikan untuk diimplementasikan. Pengujian juga dilakukan pada *output* dari *data warehouse* dengan data pada sumber data berdasarkan 19 poin pada analisa sumber data, hasilnya seluruh *output* dari *data warehouse* sudah sama dengan pada pada sumber data.

ABSTRACT

Wirautama, I Gusti Agung Made (2020), *Design of Academic Data Warehouse For Bali Tourism Polythecnic*. Thesis, Ilmu Komputer, Program Pasca Sarjana, Universitas Pendidikan Ganesha.

This thesis has been supervised and approved by Supervisor I: Prof. Dr. I Made Candiasa, M.I.Kom and Supervisor II: Dr. Gede Rasben Dantes, S.T., M.T.I.

Keywords: *data warehouse*, *database, data*

Politeknik Pariwisata Bali (PPB) has 3 information systems related to academic data, namely the Academic Information System (SIAMIK), Admissions Information System (PENSISBA), and Research Information System (E-RESEARCH). However, the 3 information systems have not been integrated and the data in each database has not been processed and analyzed optimally for decision-making purposes at the management level. Academic data is an important asset for universities. For that we need data integration in the form of a data warehouse. With the existence of a data warehouse, it is hoped that data storage, processing and analysis can be done better for various purposes such as reporting and data mining. This study aims to design a PPB academic data warehouse. This study uses the Design Science Research Method (DSRM) methodology. The data warehouse design method used in this study is the Kimball nine-step methodology, namely Choose the Process, Choose the Grain, Identify and Conform the Dimensions, Choose the Facts, Store Precalculations in the Fact Table, Round Out the Dimension Tables, Choose the Duration of the Database, Determine the Need to Track Slowly Changing Dimensions, Decide the Physical Design. Implementation of academic data warehouse is carried out until the prototype of data warehouse using open source software, namely Linux, Java, Pentaho Data Integration, MySQL. The design of the data warehouse in the form of a prototype was tested through a Focus Group Discussion and the results were in accordance with the needs at the Bali Tourism Polytechnic and were recommended to be implemented. Testing is also carried out on the output of the data warehouse with data on data sources based on 19 points in data source analysis, the result is that all output from the data warehouse is the same as that of the data source.