Immunization Information System Terintegrasi di Indonesia: Tantangan, Arsitektur, dan High-Fidelity Prototype = Integrated Immunization Information System in Indonesia: Challenges, Architecture and High-Fidelity Prototype

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Abstrak

Imunisasi diketahui mampu mencegah 4-5 juta kematian di seluruh dunia setiap tahunnya. Seiring meningkatnya pencatatan imunisasi, muncul permasalahan terhadap catatan imunisasi yang terfragmentasi, terlebih karena pencatatan imunisasi di mayoritas negara berkembang, termasuk Indonesia, masih menggunakan media kertas. Implementasi immunization information system (IIS) dapat menjadi solusi untuk mengatasi permasalahan tersebut. Pada negara-negara maju, implementasi IIS telah dilaksanakan secara luas, tetapi sistem ini belum diimplementasikan di negara-negara berkembang, termasuk Indonesia. Penelitian ini bertujuan untuk mengeksplorasi tantangan yang dihadapi oleh negara yang telah mengimplementasikan IIS dan menggunakan solusi dari tantangan tersebut untuk merancang arsitektur IIS terintegrasi dan prototipe aplikasi IIS di Indonesia menggunakan metodologi design science research (DSR). Tantangan implementasi dan kebutuhan fungsionalitas IIS diperoleh melalui kegiatan Systematic Literature Review (SLR) yang kemudian divalidasi melalui wawancara terhadap 6 tenaga kesehatan dan 9 masyarakat umum serta dianalisis menggunakan teknik content analysis. Hasil analisis menghasilkan 10 tantangan yang kemudian dikelompokkan menjadi 3 tema besar, yaitu people, process, dan technology. Arsitektur yang dirancang merupakan arsitektur sistem informasi yang mengacu pada The Open Group Architecture Framework (TOGAF) 10 yang terdiri dari visi arsitektur, arsitektur bisnis, arsitektur data, arsitektur aplikasi, dan arsitektur teknologi. Hasil rancangan arsitektur selanjutnya menjadi masukan untuk merancang prototipe IIS terintegrasi. Prototipe yang dihasilkan berbentuk high fidelity prototype yang mengacu pada eight golden rules. Evaluasi prototipe dilakukan melalui wawancara dan penyebaran kuesioner yang disusun menurut pendekatan SUS dan PSSUQ. Hasil evaluasi nilai SUS yang diperoleh adalah 72,5 atau “Good (Acceptable)”, sedangkan nilai system usefulness, information quality, interface quality dan overall dari PSSUQ adalah 2,65, 2,94, 2,48, dan 2,71, yang menandakan bahwa rancangan telah dibuat dengan baik. Penelitian ini diharapkan memberikan kontribusi teoritis mengenai implementasi IIS di negara berkembang dan menjadi panduan pada fasilitas kesehatan, regulator kesehatan, dan pengembang aplikasi kesehatan untuk mewujudkan IIS yang terintegrasi di Indonesia.

.....Immunization is known to be able to prevent 4-5 million deaths worldwide each year. As immunization records increase, problems with fragmented immunization records arise, especially since immunization records in the majority of developing countries, including Indonesia, are still based on paper. The implementation of the immunization information system (IIS) can be a solution to overcome these problems. In developed countries, the implementation of IIS has been widely implemented, but this system has not been implemented in developing countries, including Indonesia. This study aims to explore the challenges faced by countries that have implemented IIS and use the solutions from these challenges to design integrated IIS architectures and prototype applications in Indonesia using the design science research (DSR) methodology. The implementation challenges and functional requirements were obtained through

Systematic Literature Review (SLR) activities which were then validated through interviews with 6 health workers and 9 general public and analyzed using content analysis techniques. The results of the analysis produce 10 challenges which are then grouped into 3 big themes, namely people, process, and technology. The designed architecture is an information system architecture that refers to The Open Group Architecture Framework (TOGAF) 10, which consists of architecture vision, business architecture, data architecture, application architecture, and technology architecture. The results of the architecture design then become input for designing an integrated IIS prototype. The resulting prototype is in the form of a high-fidelity prototype that follows the eight golden rules. Evaluation of the prototype was carried out through interviews and the distribution of questionnaires designed according to the SUS and PSSUQ techniques. The results of the evaluation of the SUS value obtained were 72.5 or "Good (Acceptable)", while the system usefulness, information quality, interface quality, and overall values from PSSUQ were 2.65, 2.94, 2.48, and 2.71, which indicates that the design has been made properly. This research is expected to provide a theoretical contribution regarding the implementation of IIS in developing countries and become a guide for health facilities, health regulators, and health application developers to realize an integrated IIS in Indonesia.