Sistem Personal Health Record Terintegrasi di Indonesia: Faktor Penghambat dan Pendorong, Arsitektur, dan Prototipe High-fidelity = Integrated Personal Health Record System in Indonesia: Barriers and Facilitators, Architecture, and High-fidelity Prototype

Harahap, Nabila Clydea, author

Abstrak

Personal health record (PHR) membentuk tren dari informasi yang dikendalikan oleh sistem kesehatan ke individu. Di negara-negara maju, PHR sudah digunakan secara luas, tetapi sistem ini belum diadopsi luas di negara-negara berkembang. Penelitian ini dilakukan di Indonesia karena mencerminkan karakteristik negara berkembang dengan jumlah penduduk terbesar di kawasan Asia Tenggara. Meningkatnya jumlah penyakit kronis dan adanya pandemi COVID-19 mendorong inovasi teknologi informasi yang mendukung perawatan dan pencegahan penyakit. Penelitian ini bertujuan membahas faktor-faktor penghambat dan pendorong adopsi sistem PHR di Indonesia serta merancang arsitektur sistem PHR terintegrasi dan prototipe aplikasi mobile PHR (mPHR) dengan pendekatan design science research. Faktor-faktor penghambat dan pendorong adopsi sistem PHR di Indonesia diperoleh melalui pengambilan data kualitatif dengan wawancara kepada Kementerian kesehatan (2 responden), BPJS kesehatan (1 responden), pusat kesehatan masyarakat (puskesmas) (6 responden), klinik (4 responden), rumah sakit umum atau pemerintah (13 responden), dan rumah sakit swasta (8 responden) dengan teknik analisis data menggunakan thematic analysis. Hasil analisis menghasilkan penghambat dan pendorong adopsi sistem PHR yang terdiri dari faktor teknologi, organisasi, lingkungan, dan individu. Kemudian, untuk mengetahui kebutuhan sistem PHR terintegrasi, pengumpulan data kualitatif dengan wawancara dilakukan kepada Kementerian kesehatan (2 responden), BPJS kesehatan (1 responden), puskesmas (6 responden), klinik (4 responden), rumah sakit umum atau pemerintah (13 responden), rumah sakit swasta (8 responden), dan vendor aplikasi kesehatan (3 responden) serta secara kuantitatif dengan penyebaran kuesioner kepada warga negara Indonesia yang berusia 17 tahun ke atas. Pada tahapan ini, data kualitatif dianalisis dengan content analysis, sedangkan data kuantatif dianalisis dengan descriptive statistics. Arsitektur sistem PHR terintegrasi yang dirancang mengacu pada The Open Group Architecture Framework (TOGAF) 9.2 yang terdiri dari visi arsitektur, arsitektur bisnis, arsitektur aplikasi, arsitektur data, dan arsitektur teknologi. Selanjutnya, hasil rancangan arsitektur menjadi masukan untuk merancang prototipe high fidelity aplikasi mPHR. Fungsionalitas yang dikembangkan pada rancangan prototipe mPHR yaitu fungsi prioritas yang didefinisikan pada rancangan arsitektur. Evaluasi arsitektur dan prototipe dilakukan dengan wawancara kepada 6 responden IT atau e-health expert yang berasal dari Kementerian kesehatan, akademisi, fasilitas kesehatan, dan vendor aplikasi kesehatan. Penelitian ini diharapkan dapat memberikan kontribusi teoritis mengenai kajian adopsi PHR di negara berkembang dan menjadi panduan kepada fasilitas kesehatan, regulator kesehatan, dan vendor aplikasi kesehatan untuk mewujudkan PHR yang terintegrasi di Indonesia.

.....Personal health records (PHR) transform the trend from information controlled by the health system to information controlled by individuals. In developed countries, PHR has been widely used, but this system has not been widely adopted in developing countries. This research was conducted in Indonesia which reflects the characteristics of a developing country with the largest population in Southeast Asia. The

increasing number of chronic diseases and the COVID-19 pandemic encourage information technology innovation that supports disease treatment and prevention. This study aims to discuss the barriers and facilitators for the adoption of the PHR system in Indonesia and to design an integrated PHR system architecture and a prototype of the PHR mobile application (mPHR) with a design science research approach. The barriers and facilitators of PHR system adoption in Indonesia were explored through qualitative data collection by interviewing the Ministry of Health (2 respondents), BPJS Health (1 respondent), community health centers (puskesmas) (6 respondents), clinics (4 respondents), public or government hospitals (13 respondents), and private hospitals (8 respondents) with data analysis techniques using thematic analysis. The results of the analysis result in barriers and facilitators for the adoption of the PHR system consisting of technological, organizational, environmental, and individual factors. Then, to find requirements for an integrated PHR system, qualitative data collection with interviews was conducted with the Ministry of Health (2 respondents), BPJS Health (1 respondent), puskesmas (6 respondents), clinics (4 respondents), public or government hospitals (13 respondents), private hospitals (8 respondents), and health application vendors (3 respondents) as well as quantitatively by distributing questionnaires to Indonesian citizens aged 17 years and over. At this stage, qualitative data were analyzed by content analysis, while quantitative data were analyzed by descriptive statistics. The design of integrated PHR system architecture refers to The Open Group Architecture Framework (TOGAF) 9.2 which consists of architectural vision, business architecture, application architecture, data architecture, and technology architecture. Furthermore, the results of the architectural design become input for designing a high-fidelity prototype of mPHR. The functionalities developed in the mPHR prototype are priority functions defined in the architectural design. The evaluation of the architecture and prototype was carried out by interviewing 6 IT respondents or e-health experts from the Ministry of Health, academicians, health facilities, and health application vendors. This research is expected to provide a theoretical contribution to the study of PHR adoption in developing countries and to be a guide for health facilities, health regulators, and health application vendors to realize an integrated PHR in Indonesia.