

Arsitektur Platform E-Business Berbasis Karakteristik Organisasi: Studi Kasus Usaha Mikro Kecil dan Menengah di Indonesia = E-Business Platform Architecture Based on Organizational Characteristics: Case Study Micro Small and Medium Enterprises in Indonesia

Ni Made Satvika Iswari, author

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Abstrak

Penggunaan e-business untuk Usaha Mikro, Kecil, dan Menengah (UMKM) merupakan investasi Teknologi Informasi yang penting untuk menentukan pengembangan fungsional dan profitabilitas organisasi. E-business dapat dipandang sebagai enabler untuk pertumbuhan bisnis, persaingan yang efektif, dan inovasi dalam UMKM. Namun, UMKM sering kali enggan untuk mengadopsi e-business karena kurangnya kemampuan manajerial TI. Padahal, UMKM memainkan peran yang vital dalam perekonomian suatu negara karena kontribusinya yang signifikan dalam hal output, export, dan tenaga kerja. Adopsi e-business pada UMKM seyogyanya mudah digunakan, minimum customization, dan tidak dibebankan pengadaan infrastruktur. Namun, masing-masing UMKM memiliki karakteristik yang sangat beragam, sehingga one-size-fits-all system bukanlah solusi yang tepat. Untuk mengatasi permasalahan tersebut, penelitian ini menghasilkan sebuah arsitektur platform e-business yang bersifat fleksibel dan dapat digunakan secara optimal oleh seluruh organisasi, khususnya UMKM di Indonesia, berdasarkan karakteristik organisasinya. Arsitektur platform e-business dibangun dengan menggunakan Framework Software Product Line Engineering (SPLE). Aplikasi e-business yang dihasilkan melalui arsitektur platform e-business dapat digunakan secara optimal oleh seluruh UMKM yang memiliki karakteristik yang sangat beragam. Untuk memfasilitasi karakteristik organisasi yang sangat beragam, digunakan pendekatan machine learning, yaitu clustering, dan recommendation system untuk menentukan kebutuhan UMKM terhadap aplikasi e-business. Penelitian ini menggunakan pendekatan kuantitatif untuk pengumpulan data, analisis, dan evaluasi. Pengumpulan data dilakukan melalui survei terhadap 115 UMKM yang tersebar di beberapa provinsi di Indonesia. Berdasarkan evaluasi, arsitektur platform e-business yang dihasilkan bersifat loosely coupling, high cohesion, dan low complexity. Sementara akurasi dari rekomendasi aplikasi e-business adalah sebesar 0,8 dari nilai maksimum 1, yang dinilai cukup baik. Dengan demikian, diharapkan UMKM dapat menggunakan aplikasi e-business yang sesuai dengan karakteristik organisasinya. Hasil penelitian ini diharapkan dapat meningkatkan adopsi e-business pada organisasi, khususnya UMKM di Indonesia.

.....The use of e-business for Micro, Small, and Medium Enterprises (MSMEs) is an important Information Technology investment to determine the functional development and profitability of the organization. E-business can be seen as an enabler for business growth, effective competition, and innovation in MSMEs. However, MSMEs are often reluctant to adopt e-business due to a lack of IT managerial skills. In fact, MSMEs play a vital role in a country's economy because of their significant contribution in terms of output, exports, and labor. The adoption of e-business in MSMEs should be easy to use, minimum customization, and not be charged with infrastructure procurement. However, each MSME has very diverse characteristics, so a one-size-fits-all system is not the right solution. To overcome these problems, this research produces an e-business platform architecture that is flexible and can be used optimally by all organizations, especially MSMEs in Indonesia, based on the organization characteristics. The e-business platform architecture is built

using the Software Product Line Engineering (SPL) Framework. E-business applications generated through the e-business platform architecture can be used optimally by all MSMEs that have very diverse characteristics. To facilitate the very diverse characteristics of the organization, machine learning approaches, namely clustering, and recommendation systems are used to determine the requirements of MSMEs for e-business applications. This study uses a quantitative approach for data collection, analysis, and evaluation. Data was collected through a survey of 115 MSMEs spread across several provinces in Indonesia. Based on the evaluation, the resulting e-business platform architecture is loosely coupling, high cohesion, and low complexity. Meanwhile, the accuracy of the recommendation for e-business applications is 0.8 from the maximum value of 1, which is considered quite good. Thus, it is hoped that MSMEs can use e-business applications that are in accordance with the characteristics of their organizations. The results of this study are expected to increase the adoption of e-business in organizations, especially MSMEs in Indonesia.