

ABSTRAK

Junindra Maha Arta, Sang Made (2026), Pengembangan *Smart Village* di Desa Temesi untuk Membantu Kemajuan Teknologi dan Ekonomi Desa. Tesis, Ilmu Komputer, Program Pascasarjana, Universitas Pendidikan Ganesha.

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Kata Kunci: BUMDes, Desa Temesi, Sistem Informasi Desa, *Smart Village*, *System Usability Scale*

Penelitian ini bertujuan untuk mengembangkan Sistem Informasi Desa Temesi berbasis konsep *Smart Village*, mengimplementasikannya secara sistematis, mendeskripsikan tingkat keberterimaan sistem oleh masyarakat, serta mendeskripsikan keterlibatan masyarakat pada tahap pengembangan dan pengujian sistem. Penelitian ini didorong oleh kondisi pelayanan administrasi Desa Temesi yang masih dilaksanakan secara manual sehingga proses pelayanan menjadi lambat, data kependudukan tidak terpusat, serta terbatasnya media informasi dan promosi produk BUMDes secara digital. Penelitian memakai pendekatan *Software Development Life Cycle* (SDLC) dengan model *Waterfall* yang terdiri atas lima tahap, yaitu analisis kebutuhan, desain, implementasi, uji coba, dan pemeliharaan, dilaksanakan di Desa Temesi Kabupaten Gianyar dengan subjek perangkat desa dan masyarakat sebagai pemakai sistem. Sumber data terdiri atas data primer yang diperoleh melalui wawancara Kepala Desa dan *Focus Group Discussion* (FGD) bersama perangkat desa dan perwakilan masyarakat, serta data sekunder berupa data internal desa dari Prodeskel Kementerian Dalam Negeri; instrumen yang dipakai meliputi pedoman wawancara, panduan FGD, dan kuesioner *System Usability Scale* (SUS); teknik analisis data dilaksanakan secara deskriptif kuantitatif untuk skor SUS dan deskriptif kualitatif untuk hasil wawancara dan FGD. Hasil penelitian menunjukkan bahwa sistem berhasil dikembangkan dengan sepuluh modul utama, yaitu autentikasi dan pengelolaan pengguna, data penduduk, pengajuan surat, *template* surat, validasi admin, informasi desa, pengaduan warga, katalog BUMDes, pelacakan status, dan transparansi anggaran. Uji coba fungsional dengan *Black Box Testing* terhadap 77 skenario menghasilkan tingkat keberhasilan 100% valid, uji keberterimaan SUS dengan 50 responden memperoleh skor rata-rata 86,15 kategori *Excellent* (Grade A) dan berstatus *Acceptable*, serta pemetaan realisasi kebutuhan menunjukkan tingkat ketuntasan pengembangan sebesar 91% (10 dari 11 kebutuhan terealisasi). Disimpulkan bahwa sistem yang dikembangkan sesuai dengan kebutuhan desa dan diterima secara baik oleh masyarakat, dan disarankan untuk melaksanakan evaluasi kinerja pelayanan aktual pasca-implementasi dalam periode 1 sampai 2 tahun operasional guna mengukur efektivitas nyata sistem serta minat pemanfaatan oleh sumber daya manusia desa.

ABSTRACT

Junindra Maha Arta, Sang Made (2026), Development of *Smart Village* in Temesi Village to Assist Technological and Economic Advancement of the Village. Thesis, Computer Science, Postgraduate Program, Universitas Pendidikan Ganesha.

This thesis has been approved and examined by Supervisor I : Dr. I Gede Aris Gunadi, S.Si., M.Kom. and Supervisor II : Prof. Dr. Gede Rasben Dantes, S.T., M.T.I.

Keywords: BUMDes, *Smart Village*, *System Usability Scale*, Temesi Village, Village Information System

This research aims to develop the Temesi Village Information System based on the *Smart Village* concept, to implement it systematically, to describe the level of system acceptance by the community, and to describe community involvement in the system development and testing stages. The research was motivated by the condition of administrative services in Temesi Village that were still being carried out manually, resulting in slow service processes, decentralized population data, and limited digital media for information and BUMDes product promotion. This research employed the *Software Development Life Cycle* (SDLC) approach with the *Waterfall* model consisting of five stages, namely requirements analysis, design, implementation, testing, and maintenance, conducted in Temesi Village, Gianyar Regency, with village officials and the community as the research subjects and system users. The data sources consisted of primary data obtained through interviews with the Village Head and *Focus Group Discussion* (FGD) with village officials and community representatives, as well as secondary data in the form of internal village data from Prodeskel of the Ministry of Home Affairs; the instruments used included interview guidelines, FGD guidelines, and the *System Usability Scale* (SUS) questionnaire; data analysis techniques were carried out descriptively quantitative for SUS scores and descriptively qualitative for interview and FGD results. The results showed that the system was successfully developed with ten main modules, namely authentication and user management, population data, letter submission, letter *template*, admin validation, village information, citizen complaints, BUMDes catalog, status tracking, and budget transparency. Functional testing using *Black Box Testing* on 77 scenarios resulted in a 100% valid success rate, the SUS acceptance test involving 50 respondents obtained an average score of 86.15 which is categorized as *Excellent* (Grade A) with *Acceptable* status, and the mapping of requirement realization showed a development completeness rate of 91% (10 out of 11 requirements realized). It is concluded that the developed system is in accordance with the village's needs and well accepted by the community, and it is recommended to conduct an actual service performance evaluation post-implementation within a period of 1 to 2 years of operation to measure the real effectiveness of the system and the interest of village human resources in utilizing it.