

---

## E-GOVERNMENT BASED DEVELOPMENT COMMUNICATION: REVITALIZATION OF PUBLIC SERVICES IN RURAL AREAS

M. Najib Husain<sup>1</sup>, M. Aswan Zanynu<sup>2</sup>, & Dewi Anggraini<sup>3</sup>

<sup>1</sup>Halu Oleo University, Kendari, Indonesia

E-mail korespondensi:muh.najib.husain@gmail.com

### ABSTRACT

This article examines the use of e-government to improve community development communication services in rural areas. Using a mix method approach, data were collected through questionnaires, document studies, and focus group discussions (FGD). Interviews were conducted with a number of informants determined with certain considerations consisting of leaders and staff at regional agencies in West Muna Regency, especially in Kasimpa Jaya Village, South Tiworo District. The results of the study indicate that information technology-based government services provide convenience and satisfaction to the community. E-government provides efficiency and effectiveness in public services, realizes transparency of services, encourages openness in financial matters, openness between leaders and employees, thus providing a sense of comfort to the community. This contribution confirms that the use of information technology in all aspects of community services, both now and in the future, is increasingly needed.

**Keywords:** e-government, communication innovation, development communication, information technology

### INTRODUCTION

Governments in the current digital era are increasingly dependent on electronic administrative service structures. Every government needs an electronic information technology (e-government)-based administrative service system. Information technology-based service systems have the opportunity to provide many high-quality services, provide satisfaction, increase customer trust and loyalty (Zyberi & Luzo, 2022). The use of information technology shows higher performance, improves service quality and improves dynamic workflows (Baillieu et al., 2020). The use of information technology applications in administrative services has increased the acceptance and success of utilization by consumers (Lim et al., 2020). Information technology-based government administrative services. Facilitate data governance, so that reports, analysis and conclusions are clean, reliable, trustworthy, avoiding bad and inaccurate decisions (Smallwood, 2019). The ability of information technology is to secure economic growth and national competitiveness, solve complex problems and determine the success of strategic policies (Nam et al., 2022).

The use of electronic information in administrative services has referred to the use of information and communication technology itself. Information and communication technology can help reduce costs, and can help sustainable cost management, because it can minimize costs and material consumption (Mandičák et al., 2021). Information and communication technology can reduce isolation by helping to facilitate social relationships (Q. Guo et al., 2016). Information and communication technology in administrative services, has led to the advancement of knowledge competence, and enabled the advancement of an institution (Hernández-Dionis et al., 2022). And that the application of information and communication technology has a positive impact on learning opportunities, where service targets are encouraged to explore their motor

---

skills to integrate themselves with technological applications (Komar et al., 2022). Information and communication technology determines the success of project management (Mésároš et al., 2021).

Government administration services based on information technology can realize clean and effective governance. That digital technology is used in urban planning practices, and governance procedures because it offers new and effective methods for professional planners (Devlin & Coaffee, 2023). Digital technology as an important point of collaboration, as an efficient and effective governance mechanism for an organization (Lumineau et al., 2021). Modern information technology integrated with social organizations and local knowledge can realize collective action (Shu & Wang, 2021). The use of information and communication technology has fostered social awareness and social participation in the development of modern smart cities and e-society building blocks, bridging the digital divide and e-participation that drives the growth of smart cities (Szarek-Iwaniuk & Senetra, 2020). Information systems or information technology are organizational needs, can integrate information generated for administrative needs and public services (Anwar Aini & Suryani, 2019).

Public service system based on information technology is trusted, quality and accountable. Information systems can confirm trust and produce information integration, and improve compliance and competitive position (Volonino & Gessner, 2004). Electronic information technology systems are integrated into government administration services, providing the basis for good governance, accountability, and the rule of law (Iwhiwhu, 2010). Digital technology penetration is an important component in the production process, producing reliable and accurate data, which can be used for decision making (Upadhyaya, 2019). Information technology significantly increases the efficacy of coordination, and provides a variety of reliable and efficient information. Information technology governance can produce clean, reliable and trustworthy data, improve data quality and to avoid negative downstream effects of bad data, and the biggest negative consequence of bad data is bad decisions (Smallwood, 2019).

The application of information technology is faced with the digital divide among people, another problem is the under-delivery of services. Poor individual perception is determined by environmental experience, bad impressions by individuals based on the experience of visible service displays (Huang & Kobayashi, 2019). The rapid development of information technology, there has been an explosion of information growth as a challenge and opportunity, where there are warnings and bad information (Jiang et al., 2020). Digitalization is increasingly needed in industrial practice, project management relies on traditional management is automatically destroyed, and is forced to adapt to digitalization (Elshafey et al., 2020). The process of modernization of society forces the transformation of culture and intercultural relations, following modern civilization as a means of building trust and strengthening urban society (Afanasieva et al., 2020). The legitimacy of an innovation provides an overview of the adoption of new ideas by civil society (Egholm et al., 2020).

Government services based on information technology will require new habits, so that it requires an adaptation process in its implementation. The presence of information technology as a communication medium can cause helplessness, easily trapped in its operations in processing large amounts of data, requiring new habits and adaptations (Xun et al., 2022). The progress and growth of media technology affects living habits, puts great social pressure, and can have negative physical and mental effects, detrimental to the development of a harmonious society, but provides convenience and benefits to society (Chen & He, 2022). Communication and information technology creates new opportunities, new adjustments and adaptations

(Sozoniuk et al., 2022). Information technology as a means of changing the way of life, changing human habits about information accessibility, inhibiting direct interaction (Trung & Van Thanh, 2022). The development of information technology causes changes in habits, and determines the point of innovation in the publishing industry (W. Yang, 2021).

Based on the above facts, the right solution to improve public administration services is the formation of regulations by the village government. The regulation is an effort to implement the industrial revolution 4.0 which is a breakthrough in the world of government, in realizing clean, effective, transparent and accountable governance and quality and reliable public services, an e-government system is needed. The development of information technology towards e-internship which is a suitable method for training and mentoring has increased the effectiveness and efficiency of its use (Yi et al., 2022). The adoption of e-government services makes it easy to use and reliable (Ahmad et al., 2021). E-government is a government service to citizens with the aim of increasing efficiency, transparency, and government participation (Aswar et al., 2022). The adoption of significant e-government technology in terms of time savings and ease of use will help increase the adoption rate of e-government services and the potential for value creation (Aranyosy, 2022). Digitalization enables comprehensive data collection, enabling governments to deliver public value, public services, practically helping policymakers to become smarter, more transparent, and responsive to citizens (Chohan & Hu, 2020).

The use of e-government applications supports the realization of administration Kasimpa Jaya Village fast, transparent and efficient electronic-based. It is also very much determined by the existence of the village head in this case. *opinion leader* on public in the village Kasimpa Jaya. Opinion leaders are individuals in a social system who exert influence on the attitudes and behaviors of others because of their expertise, credentials, or social connectivity (Elihu Katz, Lazarsfeld, and Roper 1955). In the realm of public services, especially in contexts where institutional trust is low, opinion leaders can play a critical role in interpreting and conveying government messages to the wider public (Valente and Pumpuang 2007). In the digital environment, opinion leaders increasingly manifest themselves through social media influencers, community leaders, or citizen journalists who help shape public narratives and influence perceptions of services (Park, Kee, and Valenzuela 2009). Thus, opinion leaders can act as intermediaries that enhance the efficacy of government communications and promote public acceptance of digital services.

The concept of utilizing e-government has become a central focus in bureaucratic reform efforts, especially in realizing fast, transparent, and efficient administration based on electronic information systems. Various studies have emphasized that the implementation of information technology-based systems can improve service efficiency, accountability, and public participation (Zyberi & Luzo, 2022; Kayu Kecil, 2019; Nam et al., 2022). However, there remains a gap between conceptual idealism and the reality of implementation in the field. The adoption and application of information technology have challenged the status quo, and changed some activities by disrupting previously practiced habits (Abdullah et al., 2018). Therefore, every innovation requires a process of socialization and adaptation, intended to detect absence and cognitive impairment for operators and consumers, to accommodate different conditions (Hutchings, 2015). The adaptation process requires education and training to prepare for a new life, requiring skilled and educated workers to adopt information technology innovations about the global knowledge economy, without discrimination based on race, religion, or ethnic origin. The implementation of information technology requires infrastructure support and human resource

capabilities as well as information providers, managers and users (Eiji & Gin, 2021). Therefore, this study is very important to fill this gap by conducting a comparative and in-depth analysis of the dynamics of e-government implementation in Kasimpa Jaya Village.

## METHODOLOGY

Study "Utilization of E-Government Applications" in Government Kasimpa Jaya Village adopting a mixed methodology that includes qualitative and quantitative approaches. In data collection, this study used questionnaires, semi-structured interviews, document studies, and focus group discussions. The questionnaire was designed to measure customer satisfaction. Respondent or users and frequency of application use, while interviews provide in-depth insights from stakeholders. Document studies and focus groups help understand the perceptions and experiences of users and technical staff. The study involved 30 informants consisting of application users, IT staff, and village heads, who were selected through purposive sampling based on criteria such as experience and position in the organization.

Scheduled for six months, the study allocated one month for data collection, two months for analysis, and the rest for report writing. Interviews were conducted for one hour, group discussion sessions for two hours, and questionnaire completion took approximately 30 minutes per respondent. Qualitative data analysis techniques include data reduction, data presentation, drawing conclusions and verification, while quantitative analysis uses Simple Regression with the formula  $Y = a + b_1X_1$ , where Y represents community satisfaction as the dependent variable.

## RESULT AND DISCUSSION

Kasimpa Jaya Village, which is now part of Tiworo Selatan District, West Muna Regency, Southeast Sulawesi, has a history that is closely related to the national transmigration program promoted by the Indonesian government during the New Order era. The origins of this village began on March 20, 1995, when a group of transmigrants from Java Island arrived in the area then known as the Technical Implementation Unit (UPT) Kambaara IX.A. A total of 36 heads of families from East Java and 32 heads of families from Central Java came with the spirit of building a new life in a land that was still foreign.

The transmigrants who came at that time received various facilities from the government, such as a simple house measuring 6x6 meters, a yard and two agricultural fields, and a guarantee of life for the first year. However, early life in Kasimpa Jaya was not easy. Lack of infrastructure, simple agricultural tools, and natural conditions that had not been fully touched meant that they had to work hard to survive. In the period 1995–2005, the average income of the community was still low, ranging from Rp200,000 to Rp300,000 per month.

However, the spirit and persistence of the transmigrants paid off. Over time, especially after 2005, the community began to show significant progress in various aspects of life. Fertile agricultural land and the availability of river flows have great potential in supporting the growth of the agricultural sector. Coupled with the community's ability to manage natural resources independently, and the implementation of modern agricultural technology such as the use of tractors and organic fertilizers, Kasimpa Jaya Village began to show promising economic activity.

Until now, this village is known as a productive agricultural area. The main commodities such as rice, corn, patchouli, coconut, cashew, and cocoa are the backbone of the community's economy. The harvest continues to increase, as does the selling value of agricultural products. In addition, the community has also begun to expand into other sectors such as trade, carpentry, and other independent businesses.

Demographically, Kasimpa Jaya Village is now inhabited by around 1,881 people, with ethnic diversity reflecting strong social integration. Consisting of 658 people from Java, 390 from Bali, 803 from Muna, and 30 from Bugis, the life of the village community grows in harmony, upholding the spirit of mutual cooperation, and maintaining the values of local wisdom.

The long journey of Kasimpa Jaya Village from a deserted forest area to an independent and productive village is a success story of transmigration-based development. Its history not only reflects socio-economic transformation, but also serves as real evidence of the spirit of unity and hard work in building a shared future.

#### Utilization of E-Government in Government Services

The use of e-government based public services has been applied to administrative services inone in Kasimpa Jaya with the website <https://desakasimpajaya.id/>, the service has been optimal and satisfactory for the community, such as fast service, the number of queues that are not piling up, and good officer responses. The use of e-government emphasizes the quality of technology-based public services in accordance with the main tasks and functions, namely population administration services. Technology-based governance. has used an online system based on information technology through the population administration system application, electronic identity cards, child identity cards have been printed on white paper, and are based on electronic signatures (QR codes), systematically connected to integrated population administration system data. The use of information and communication technology can improve service functions, electronic services according to the expectations and needs of the community (Toleikienė et al., 2022). The application of information technology is significant to public administration, easily accessible and transparent (Androniceanu et al., 2020). E-government innovation through the development of guard applications, namely applications where the public can check the number of queues online at any time, the application is used for consultation. The use of e-government is the starting point for adapting Smart City, and through the optimization of information communication technology, it can also be used to identify, analyze, and control various types of data effectively and efficiently.

**Table 1. E-Government Application Utilization Matrix in Government Administration inKasimpa Jaya Village**

No	Activity	E-Gov Application	Governance area
1	Village Fund Management	Village Fund Information System	<i>E-Planning</i>
2	Village Asset Manager	Local Government Information System	<i>E-Budgeting</i>
3	Land Certificate Administration	Single Online Submission, Smart Application for Integrated Licensing Services for the Public	Licensing and Non-Licensing Services
4	Population Data Village	Population Administration Information System	Population administration services

Source: Primary Data (2024).

#### Improving Government Service Standards Based on Electronic Information

The public service system based on electronic information, in the planning system, population and civil registration, health services, licensing, personnel and regional finance, has made it easier for employees to carry out their duties, namely the lack of paper use, streamlining the planning and budgeting process, and all stages must go through the process and recording in the application, facilitating data documentation and in managing work programs from each regional apparatus, more efficient in saving time and energy in the planning process, more transparent. The use of technology through E-government contributes to managing the sustainable development of developed countries, facilitating integrated policies, encouraging change, and increasing transparency, accountability, and efficiency (Castro & Lopes, 2022). The use of information and communication technology provides additional opportunities to make energy systems smarter, more efficient, transparent, and safer in the long term (Khatoon et al., 2019). The success of Information Systems can increase organizational effectiveness, strengthen organizational learning, increase opportunities for success, and maximize overall returns for an organization (JX Guo, 2019). Technology becomes a tool to change human habits regarding information accessibility, improve experiences and meet consumer needs (Trung & Van Thanh, 2022).

The strategy of electronic information-based public service has improved the quality of service optimally, improved task-oriented human resources through education and training, improved facilities and infrastructure according to needs, improved cross-sector and private sector cooperation through mutually responsible and beneficial cooperation. This is in accordance with the statement of the public service officer (Asrul), that the implementation of communication technology-based governance has been utilized such as the use of management information system applications, integrated service delivery information systems, tool infrastructure applications, recording and reporting systems, e-budgeting, e-claims, and information disclosure applications, has improved the quality and satisfaction of public service. Innovation of the service system follows the principles of good governance, such as the principle of participation, providing a forum for the public to submit suggestions and complaints, and also considering the principle of legal capacity where services are carried out according to the Tatanan Standard Operating Procedures, fairly without distinguishing the status of the community, and in accordance with the principle of transparency in providing access to the community, in accordance with the applicable terms and conditions. The adoption of e-government is easy to use, reliable, moderate transparency, and accountability (Nofal et al., 2021). Producing consensus to improve the resilience and sustainability of a country's life (Kennedy et al., 2020).

The use of electronic applications in serving urban communities, based on the results of the research conducted, that there is efficiency both in service efficiency and efficiency in the use of applications. Likewise, effectiveness both in service effectiveness and effectiveness in the use of applications, all run optimally seen from the speed and achievement of application goals. There is transparency in service, transparency in financial matters, transparency between leaders and employees, so as to provide a sense of comfort for the community. The results of the study based on statistical analysis are as in the following table.

**Table 2. Simple Analysis Results**

Variable	Regression Coefficient (b)	count (db=30)	tsig
Government Service System (X)	0.619	6,751	0.000
Constanta (a)	88,139		
Regression Coefficient (R)	0.639		
R Square	0.408		
Fsig	0.000		

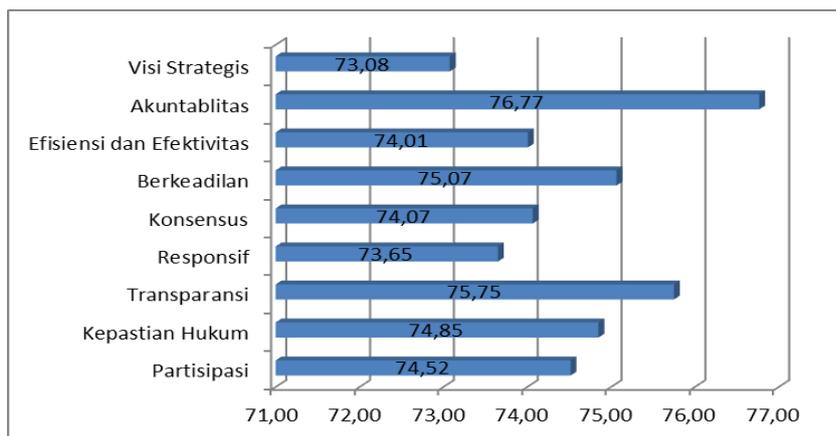
Source: Primary Data Processing (2024).

Based on the results of the regression analysis, the multiple linear regression equation can be found as follows:  $Y = 88.139a + 0.619x$ . The regression equation has the following meaning:

- a. The constant (a) is 88.139, indicating that public satisfaction before being influenced by the government service system is positive 88.139 when measured on a Likert measurement scale.
- b. The regression coefficient for the government service system variable (X) is 0.619, indicating that there is a positive influence from changes in the system.servicegovernment towards public satisfaction.

According to the research results, the correlation coefficient between the government service system and public satisfaction inKasimpa Jaya Villageis 0.639, which means that there is a very strong and positive relationship. This means that the information technology-based service system will increase public satisfaction. Based on the calculation results, the R Square value is 0.408. This means that the contribution of the government service system variable to public satisfaction is 40.80%. Based on the F test, it shows that the government service system (X) simultaneously has a significant influence on public services (Y). This is indicated by the results of the F test at a 95% confidence level or a real level of  $\alpha = 0.05$  degrees of freedom 30, where  $F_{sig} = 0.000 < 0.05$ . This means that the government service system has a significant influence on public services inKasimpa Jaya Village. And based on the t-test shows that according to the results of computer analysis (SPSS version 16.0) it can be seen that the government service system (X) has a significant effect on public services. This is indicated by the results of the t-test at a confidence level of 0.95% or a real level of  $\alpha = 0.05$  degrees of freedom 31, where  $tsig 0.000 < 0.05$ . This means that good governance has a significant effect on public services inKasimpa Jaya Village.

**Figure 1. Improvement of Information Technology-Based Government Service Standards**



Source: Primary Data (2024).

From the results of the government service system assessment Kasimpa Jaya Village, it is known that all aspects get a score in the high category (67.66-100) or good, where the strategic vision gets a score of 73.08. Accountability gets the highest score with a score of 76.77, efficiency and effectiveness with a score of 74.01, fairness with a score of 75.07, consensus with a score of 74.07, responsiveness with a score of 73.65, transparency with a score of 75.75, legal certainty with a score of 74.85, and participation with a score of 74.52. From the results of the average assessment of the Government service system, it is known that the accountability indicator is the highest indicator with a score of 76.77 percent.

This statistical test illustrates that the implementation of e-government has positive implications for the transformation of governance in the village. The efficiency of public services contributes to improving the administrative process, which allows the public to access various services without being bound by time and location constraints. Another thing that is also built is a culture of transparency. The implementation of village governance is strengthened by the availability of real-time public information through a digital platform. Compared to manual services, the e-government approach is believed to be able to reduce the costs that must be incurred by the community to complete their affairs because they have been facilitated digitally and practically without cost. This also has an impact on the accountability of village financial management, if in certain services, there are levies that must be paid by the community with an integrated electronic reporting system. Community participation in public decision-making has also increased through digital forums and electronic feedback mechanisms that facilitate two-way communication between the village government and residents.

However, it cannot be denied that the electronic service system of Kasimpa Jaya Village still leaves some notes. First, related to the penetration and stability of the internet network. An interview with Turijo (Head of Village Service Affairs) stated that there are still several hamlets that have not been reached by the WiFi network prepared by government done. Assolution, currently being attempted to expand the cable span that allows several hamlets located in blank spot areas. Second, according to Turijo, the obstacle is hardware damage such as servers. Fluctuating electrical voltage has disrupted the ability or storage capacity of their servers. The Village Government is trying to use external servers. They are exploring cooperation with third parties for colocation servers and cloud servers. This is needed to ensure that services continue

to run well and data is maintained every time an update occurs. This can be a note for further research related to the implementation of e-government.

Research findings show that structural challenges in implementing e-government still require serious attention from various stakeholders. The availability, quality, and maintenance of village internet network infrastructure are the main issues that hinder public access to digital services. Limited server capacity also has implications for a suboptimal data security system that also has the potential to cause operational disruptions and the risk of sensitive data leakage.

As a final note, this research has limitations in three ways. First, it has not revealed the possibility of disparities in digital skills between the younger and older generations that can create access gaps that need to be addressed through a comprehensive digital literacy program. This research assumes that all citizens have the same level of literacy. Second, integration between government systems that may still be partial results in data duplication and inefficiency in coordination between agencies. Third, the complexity of regulations and technical standardization that are not yet uniform also slows down the process of harmonizing e-government systems at the village, sub-district, district/city, provincial, and national levels. The second and third points are not the focus of the research because the research focuses on four types of e-government services in the VillageKasimpa Jaya.

## CONCLUSIONS

The description leads to the conclusion that the standardization of services related to strategic vision, accountability, efficiency and effectiveness, fairness, consensus, responsiveness, transparency, legal certainty, and participation has become a path to improving the city government service system through the use of information technology. The public now enjoys convenience and satisfaction as a result of higher service standards. According to the research findings, there is efficiency in service delivery and application usage in terms of the use of electronic applications in the metropolitan population. Similar to this, efficiency in terms of both service delivery and application usage runs smoothly based on the speed of achieving application goals. There is transparency in service, transparency in financial matters, transparency between leaders and employees, so as to provide a sense of comfort for the community. This contribution confirms that the use of information technology in all aspects of public service, now and in the future, is increasingly needed.

## REFERENCES

- Abdullah, N., Yusuf, AO, Adam, UA, Abdullahi, KA, & Musa, H. (2018). Disruptive collection acquisition : awareness, readiness and adoption among Malaysian Academic libraries. IFLA WLIC 2018 – Kuala Lumpur, Malaysia – Transform Libraries, Transform Societies, pp. 1-11.
- Afanasieva, L., Bukrieieva, I., Glyns'ka, L., Orlov, A., & Hlebova, N.I. (2020). Intercultural City in the Context of a Polyethnic Community Governing. *Journal of Historical Culture and Art Research*, 9(2). <https://doi.org/10.7596/taksad.v9i2.2650>, pp. 195-206
- Ahmad, N., Waqas, M., & Zhang, X. (2021). Public Sector Employee Perspective towards Adoption of E-Government in Pakistan: A Proposed Research Agenda. *Data and Information Management*, 5(1). <https://doi.org/10.2478/dim-2020-0029>, pp. 119-124
- Akbar, P., Nurmandi, A., Irawan, B., & Loilatu, MJ (2022). Research Trends in E-Government Interoperability: Mapping Themes and Concepts Based on The Sco-pus Database. *EJournal of EDemocracy and Open Government*, 14(2). <https://doi.org/10.29379/jedem.v14i2.707>,

---

pp. 83-108

- Al-Azri, A., Al-Salti, Z., & Al-Karaghoul, W. (2010). The successful implementation of e-government transformation: A case study in Oman. *Proceedings of the European, Mediterranean and Middle Eastern Conference on Information Systems*. <https://doi.org/10.2/JQUERY.MIN.JS>, pp. 1-11
- Al-Hunaiyyan, A., Alhajri, R., & Bimba, A. (2021). Towards an Efficient Integrated Distance and Blended Learning Model: How to Minimize the Impact of COVID-19 on Education. *International Journal of Interactive Mobile Technologies*, 15(10). <https://doi.org/10.3991/ijim.v15i10.21331>, pp. 173–193.
- Aljazzaf, ZM, Al-Ali, S.A., & Sarfraz, M. (2020). E-participation model for Kuwait e-government. *International Journal of Advanced Computer Science and Applications*, 2. <https://doi.org/10.14569/ijacsa.2020.0110226>, pp. 192-199.
- Almehmadi, FM (2020). Factors Influencing the Adoption and Use of Information Technologies: EGovernment in Developing Countries. *Scientific Journal of King Faisal University*, 21(2). <https://doi.org/10.37575/b/cmp/2379>, pp. 1-9.
- Al-Zoubi, A., Aldmour, M., & Aldmour, R. (2022). Preserving Transparency and Integrity of Elections Utilizing Blockchain Technology. *Journal of Telecommunications and the Digital Economy*, 10(4). <https://doi.org/10.18080/jtde.v10n4.626>, pp. 24-40
- Androniceanu, A., Kinnunen, J., & Georgescu, I. (2020). E-government clusters in the EU based on the Gaussian mixture models. *Public Management Administration*, 2020(35). <https://doi.org/10.24818/amp/2020.35-01>, pp. 6-20.
- Anwar Aini, M., & Suryani, E. (2019). Strategic Planning of Information Systems/Information Technology (Case Study: Gresik Regency Government Environment). *Science and Technology Journal of Proceedings Series*, 0(5). <https://doi.org/10.12962/j23546026.y2019i5.6427>, pp. 536-545
- Aranyossy, M. (2022). User adoption and value of e-government services (Citizen-centric empirical study from Hungary). *Acta Oeconomica*, 72(4). <https://doi.org/10.1556/032.2022.00032>, pp. 477-497
- Aswar, K., Ermawati, E., Juliyanto, W., Andreas, A., & Wiguna, M. (2022). ADOPTION OF E-GOVERNMENT BY INDONESIAN STATE UNIVERSITIES: AN APPLICATION OF TECHNOLOGY ACCEPTANCE MODEL. *Problems and Perspectives in Management*, 20(1). [https://doi.org/10.21511/ppm.20\(1\).2022.32](https://doi.org/10.21511/ppm.20(1).2022.32), pp. 396-406
- Baillieu, R., Hoang, H., Sripipatana, A., Nair, S., & Lin, S.C. (2020). Impact of health information technology optimization on clinical quality performance in health centers: A national cross-sectional study. *PLOS ONE*, 15(7). <https://doi.org/10.1371/journal.pone.0236019>, pp. 1-11.
- Banter, B., Zaini, AK, & Boer, A. (2019). Analysis of Signalized Intersections at the Pekanbaru Governor's Office Roundabout. *SAINTIS JOURNAL*, 19(1). [https://doi.org/10.25299/saintis.2019.vol19\(1\).2811](https://doi.org/10.25299/saintis.2019.vol19(1).2811), pp. 35-40
- Basu, S. (2004). E-government and developing countries: An overview. *International Review of Law, Computers & Technology*, 18(1), pp. 109–132.
- Beni Frandian, Yudhanata, RD, Samsudin, S., & Suendri, S. (2022). Implementation of CRM (Customer Relationship Management) at UPT Public Health Center Perbaungan Web-Based. *Journal of Information Systems and Technology Research*, 1(2). <https://doi.org/10.55537/jistr.v1i2.149>, pp. 51-57
- Cabello, J.F., Novoa, F., Huff, H.V., & Colombo, M. (2021). Expanded newborn screening and genomic sequencing in Latin America and the resulting social justice and ethical
-

- considerations. *International Journal of Neonatal Screening*, 7(1). <https://doi.org/10.3390/ijns7010006>, pp. 1-7
- Castro, C., & Lopes, C. (2022). Digital Government and Sustainable Development. *Journal of the Knowledge Economy*, 13(2). <https://doi.org/10.1007/s13132-021-00749-2>, pp. 880-903
- Chen, L., & He, S. (2022). Research and statistical predictions on student's pressure under different environmental conditions based on new media era. *Journal of King Saud University - Science*, 34(4). <https://doi.org/10.1016/j.jksus.2022.101922>, pp. 1-7.
- Chohan, S. R., & Hu, G. (2020). Success Factors Influencing Citizens' Adoption of IoT Service Orchestration for Public Value Creation in Smart Government. *IEEE Access*, 8. <https://doi.org/10.1109/ACCESS.2020.3036054>, pp. 208427-208448
- Choi, H., Park, M.J., Rho, J.J., & Zo, H. (2016). Rethinking the assessment of e-government implementation in developing countries from the perspective of the design–reality gap: Applications in the Indonesian e-procurement system. *Telecommunications Policy*, 40(7), pp. 644–660.
- Cueva, A., & Inga, E. (2022). Information and Communication Technologies for Education Considering the Flipped Learning Model. *Education Sciences*, 12(3). <https://doi.org/10.3390/educsci12030207>, pp. 1-16.
- Devlin, C., & Coaffee, J. (2023). Planning and technological innovation: the governance challenges faced by English local authorities in adopting planning technologies. *International Journal of Urban Sciences*, 27(S1). <https://doi.org/10.1080/12265934.2021.1997632>, pp. 149-163
- Dhaoui, I. (2022). E-Government for Sustainable Development: Evidence from MENA Countries. *Journal of the Knowledge Economy*, 13(3). <https://doi.org/10.1007/s13132-021-00791-0>, pp. 2070-2099.
- Egholm, L., Heyse, L., & Mourey, D. (2020). Civil Society Organizations: the Site of Legitimizing the Common Good—a Literature Review. *Voluntas*, 31(1). <https://doi.org/10.1007/s11266-019-00171-y>, pp. 1-18.
- Eiji, A., & Gin, A. (2021). Utilization of Information Technology in the Field of Education (E-education). *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, 2(2). <https://doi.org/10.34306/itsdi.v2i2.446>, pp. 197-203
- El Ammar, C., & Profiroiu, C. M. (2020). Innovation in public administration reform: A strategic reform through NPM, ICT, and e-governance. A comparative analysis between Lebanon and Romania. *REVISTA ADMINISTRATIE SI MANAGEMENT PUBLIC*, 2020(35), pp. 75–89.
- Elshafey, A., Saar, CC, Aminudin, EB, Gheisari, M., & Usmani, A. (2020). Technology acceptance model for augmented reality and building information modeling integration in the construction industry. *Journal of Information Technology in Construction*, 25. <https://doi.org/10.36680/j.itcon.2020.010>, pp. 161-172
- Franko, J., Du, S., Kallweit, S., Duelberg, E., & Engemann, H. (2020). Design of a multi-robot system for wind turbine maintenance. *Energies*, 13(10). <https://doi.org/10.3390/en13102552>, pp. 1-18.
- Furuholt, B., & Wahid, F. (2008). E-government Challenges and the Role of Political Leadership in Indonesia: The Case of Sragen. *Proceedings of the 41st Annual Hawaii International Conference on System Sciences (HICSS 2008)*, pp. 411.
- Gallego-Bono, J.R., & Tapia-Baranda, M.R. (2019). The values of the social economy as drivers of change in clusters with a strong fragmentation of knowledge: The case of sugar cane in Veracruz (Mexico). *CIRIEC-Espana Revista de Economia Publica, Social y Cooperativa*, 97.

- <https://doi.org/10.7203/CIRIEC-E.97.14108>, pp. 75-109
- Gaulė, E., & Žilinskas, G. (2013). E-Governance Development Factors In Lithuania: The Study Of Municipal Websites. *Viešoji Politika Ir Administravimas*, 12(1), pp. 80–93.
- Guo, J. X. (2019). Measuring information system project success through a software-assisted qualitative content analysis. *Information Technology and Libraries*, 38(1). <https://doi.org/10.6017/ital.v38i1.10603>, pp. 53-70.
- Guo, J., & Ling, W. (2021). Impact of Smart City Planning and Construction on Community Governance under Dynamic Game. *Complexity*, 2021. <https://doi.org/10.1155/2021/6690648>, pp. 1-11.
- Guo, Q., Cann, B., McClement, S., Thompson, G., & Chochinov, H.M. (2016). Keep in touch (KIT): Perspectives on introducing internet-based communication and information technologies in palliative care. *BMC Palliative Care*, 15(1). <https://doi.org/10.1186/s12904-016-0140-5>, pp. 1-10.
- Gupta, A., Suri, P. K., & Singh, R. K. (2019). Analyzing the Interaction of Barriers in E-Governance Implementation for Effective Service Quality: Interpretive Structural Modeling Approach. *Business Perspectives and Research*, 7(1), 59–75. <https://doi.org/10.1177/2278533718800562>, pp. 59-75.
- Heeks, R. (2002). e-Government in Africa: Promise and practice. *Information Polity*, 7(2, 3), pp. 97–114.
- Hermana, B., & Silfianti, W. (2011). Evaluating e-government implementation by local government: Digital divide in internet based public services in Indonesia. *International Journal of Business and Social Science*, 2(3), pp. 156-163.
- Hernández-Dionis, P., Pérez-Jorge, D., Curbelo-González, O., & de la Rosa, OMA (2022). The Coordinator of Information and Communication Technologies: Its Implications for Open Innovation. *Journal of Open Innovation: Technology, Markets, and Complexity*, 8(1). <https://doi.org/10.3390/joitmc8010042>, pp. 1-22.
- Huang, Q., & Kobayashi, A. (2019). A practice of information processing by rearranging matrix of Jacques Bertin – application of diagrams in environmental color workshop. *Abstracts of the ICA*, 1. <https://doi.org/10.5194/ica-abs-1-128-2019>, pp. 1-10.
- Hutchings, E. (2015). Mitsubishi Cars Use Deep Learning to Stop Distracted Driving. *Psfk*, pp. 1-3.
- Iwhiwhu, B. E. (2010). Electronic records management in Africa: Problems and prospects. In *Handbook of Research on Information Communication Technology Policy: Trends, Issues and Advancements (Vol. 1)*. <https://doi.org/10.4018/978-1-61520-847-0.ch011>, pp. 1-26.
- Jean-Francois, B., Bailey Lash, T., Dagher, R.K., Green Parker, MC, Han, S.B., & Lewis Johnson, T. (2021). The Potential for Health Information Technology Tools to Reduce Racial Disparities in Maternal Morbidity and Mortality. *Journal of Women's Health*, 30(2). <https://doi.org/10.1089/jwh.2020.8889>, pp. 274-279.
- Jiang, W., Ye, F., Liu, W., Liu, X., Liang, G., Xu, Y., & Tan, L. (2020). Research on prediction methods of prevalence perception under information exposure. *Computers, Materials and Continua*, 65(3). <https://doi.org/10.32604/cmc.2020.010082>, pp. 2263-2275 .
- Kane, B. G. C., & Fichman, R. G. (2009). ISSUES AND OPINIONS OF THE SC HOEMAKER 'SC CHILDREN: USING WIKIS FOR INFORMATION SYSTEMS TEACHING, RESEARCH,. *MIS Quarterly*, 33(1), pp. 1-36.
- Kennedy, E., Jafari, A., Stamoulis, K. G., & Callens, K. (2020). The first program food and nutrition security, impact, resilience, sustainability and transformation: Review and future directions. *Global Food Security*, 26(July), 100422. <https://doi.org/10.1016/j.gfs.2020.100422>, pp. 1-8.

- Ketcham, J.D., Lutfey, K.E., Gerstenberger, E., Link, C.L., & McKinlay, J.B. (2009). Physician clinical information technology and health care disparities. *Medical Care Research and Review*, 66(6). <https://doi.org/10.1177/1077558709338485>, pp. 658–681.
- Khatoun, A., Verma, P., Southernwood, J., Massey, B., & Corcoran, P. (2019). Blockchain in energy efficiency: Potential applications and benefits. *Energies*, 12(17). <https://doi.org/10.3390/en12173317>, pp. 1-14.
- Komar, J., Chow, J.Y., Kawabata, M., & Choo, C.Z.Y. (2022). Information and Communication Technology as an enabler for implementing Nonlinear Pedagogy in Physical Education: Effects on students' exploration and motivation. *Asian Journal of Sport and Exercise Psychology*, 2(1). <https://doi.org/10.1016/j.ajsep.2022.02.001>, pp. 44-49.
- Kulkarni, V., Sahoo, SK, Thanikanti, SB, Velpula, S., & Rathod, DI (2021). Power systems automation, communication, and information technologies for smart grid: A technical aspects review. *Telkomnika (Telecommunication Computing Electronics and Control)*, 19(3). <https://doi.org/10.12928/TELKOMNIKA.v19i3.16428>, pp. 1017-1029.
- Lam, T.C., Kwan, E., Luo, H., & Yip, P.S. (2019). Emergency admissions and bad news disclosure as precipitators of suicide: A territory-wide cohort analysis of 458 oncology patients who completed suicides. *Annals of Oncology*, 30. <https://doi.org/10.1093/annonc/mdz261>, pp. v661
- Li, J., & Gong, Y. (2022). Spatial location differentiation and development decision optimization of characteristic villages and towns in China. *Geography and Sustainability*, 3(1). <https://doi.org/10.1016/j.geosus.2022.01.002>, pp. 21-31.
- Li, X., & Ding, Y. (2020). Holistic governance for sustainable public services: Reshaping government–enterprise relationships in China's digital government context. *International Journal of Environmental Research and Public Health*, 17(5). <https://doi.org/10.3390/ijerph17051778>, pp. 1-20.
- Lim, D., Norman, R., & Robinson, S. (2020). Consumer preference to utilize a mobile health app: A stated preference experiment. *PLOS ONE*, 15(2). <https://doi.org/10.1371/journal.pone.0229546>, pp. 1-12.
- Lumineau, F., Wang, W., & Schilke, O. (2021). Blockchain governance-A new way of organizing collaborations? *Organization Science*, 32(2). <https://doi.org/10.1287/orsc.2020.1379>, pp. 1-22.
- Lysenko, O. (2019). Current trends in the development of virtual addiction: impulse control disorder and escaping. *Fundamental and Applied Researches in Practice of Leading Scientific Schools*, 36(6). <https://doi.org/10.33531/farplss.2019.6.3>, pp. 28-36.
- Mandičák, T., Mésároš, P., & Spišáková, M. (2021). Impact of information and communication technology on sustainable supply chain and cost reduction of waste management in Slovak construction. *Sustainability (Switzerland)*, 13(14). <https://doi.org/10.3390/su13147966>, pp. 1-19.
- Matitah, M., Arifin, S., Sumarto, S., & Widiyanto, W. (2021). Confronting E-Government Adoption In Indonesian Local Government. *Journal of Indonesian Legal Studies*, 6(2). <https://doi.org/10.15294/jils.v6i2.47795>, pp. 279-306
- McDonagh, M. (2002). E-government in Australia: The challenge to privacy of personal information. *Int'l JL & Info. Tech.*, 10, 327, pp. 327-343.
- Mésároš, P., Mandičák, T., Spišáková, M., Behúnová, A., & Behún, M. (2021). The implementation factors of information and communication technology in the life cycle costs of buildings.

- Applied Sciences (Switzerland), 11(7). <https://doi.org/10.3390/app11072934>, pp. 1-17.
- Mittal, P., & Kaur, A. (2013). E-governance: A challenge for India. *International Journal of Advanced Research in Computer Engineering & Technology*, 2(3), pp. 1196-1199.
- Nam, H., Kim, S., & Nam, T. (2022). Identifying the Directions of Technology-Driven Government Innovation. *Information (Switzerland)*, 13(5). <https://doi.org/10.3390/info13050208>, pp. 1-18.
- Nofal, MI, Al-Adwan, AS, Yaseen, H., & Alsheikh, GAA (2021). Factors for extending e-government adoption in Jordan. *Periodicals of Engineering and Natural Sciences*, 9(2). <https://doi.org/10.21533/pen.v9i2.1824>, pp. 471-490.
- Oliveira, T. A., Oliver, M., & Ramalhinho, H. (2020). Challenges for connecting citizens and smart cities: ICT, e-governance and blockchain. *Sustainability (Switzerland)*, 12(7). <https://doi.org/10.3390/su12072926>, pp. 1-21.
- Pavlichev, A. (2004). The e-government challenge for public administration. In *Digital government: Principles and best practices* (pp. 276–290). Igi Global, pp. 276-290.
- Perez, T. J. (2015). Municipal E-Government Security: What is the biggest challenge? 2015 48th Hawaii International Conference on System Sciences, 2263–2271 .
- Reffat, R. (2003). Developing a successful e-government. *Proc. Sympos. e-Government: Opportunities and Challenges*, Muscat Municipality, Oman, pp. IV1–IV13.
- Salsabila, L., & Purnomo, EP (2017). Establishing and Implementing Good Practices E-Government (A Case Study: E-Government Implementation between Korea and Indonesia). *ASEAN/Asian Academic Society International Conference Proceedings Series*, pp. 1-8.
- Sarrayrih, M. A., & Sriram, B. (2015). Major challenges in developing a successful e-government: A review on the Sultanate of Oman. *Journal of King Saud University - Computer and Information Sciences*, 27(2), 230–235. <https://doi.org/10.1016/j.jksuci.2014.04.004>, pp. 230-235.
- Schulz, K., & Feist, M. (2021). Leveraging blockchain technology for innovative climate finance under the Green Climate Fund. *Earth System Governance*, 7. <https://doi.org/10.1016/j.esg.2020.100084>, pp. 1-10.
- Shu, Q., & Wang, Y. (2021). Collaborative leadership, collective action, and community governance against public health crises under uncertainty: A case study of the Quanjingwan community in China. *International Journal of Environmental Research and Public Health*, 18(2). <https://doi.org/10.3390/ijerph18020598>, pp. 1-12.
- Sindiani, AM, Obeidat, N., Alshdaifat, E., Elsalem, L., Alwani, MM, Rawashdeh, H., Fares, AS, Alalawne, T., & Tawalbeh, LI (2020). Distance education during the COVID-19 outbreak: A cross-sectional study among medical students in North of Jordan. *Annals of Medicine and Surgery*, 59. <https://doi.org/10.1016/j.amsu.2020.09.036>, pp. 186-194.
- Smallwood, R.F. (2019). Information Governance, IT Governance, Data Governance. In *Information Governance*. <https://doi.org/10.1002/9781119491422.ch2>, pp. 19-28.
- Sozoniuk, M., Park, J., & Lumby, N. (2022). Investigating Residents' Acceptance of Mobile Apps for Household Recycling: A Case Study of New Jersey. *Sustainability (Switzerland)*, 14(17). <https://doi.org/10.3390/su141710874>, pp. 1-18.
- ȘTEFAN, G.I. (2007). THE CHALLENGES OF E-GOVERNANCE IMPLEMENTATION/PROVOCĂRILE IMPLEMENTĂRII GUVERNĂRII ELECTRONICE. *Cercetări Practice Și Teoretice În Managementul Urban*, 2(4), pp. 20–31.
- Street, C. (2001). Declaration of Principles For Sustainable and Integrated Solid Waste Management (SISWM) By Sandra Cointreau,. *Waste Management*, 1-5.

- 
- Szarek-Iwaniuk, P., & Senetra, A. (2020). Access to ICT in Poland and the co-creation of Urban space in the process of modern social participation in a smart city-a case study. *Sustainability (Switzerland)*, 12(5). <https://doi.org/10.3390/su12052136>, pp. 1-21.
- Toleikienė, R., Juknevičienė, V., & Rybnikova, I. (2022). Electronic leadership at local self-government: conceptual analysis and literature review. *Public Policy and Administration*, 21(1). <https://doi.org/10.5755/j01.ppa.21.1.29709>, pp. 173-191.
- Trung, N. Q., & Van Thanh, N. (2022). Evaluation of Digital Marketing Technologies with Fuzzy Linguistic MCDM Methods. *Axioms*, 11(5). <https://doi.org/10.3390/axioms11050230>, pp. 1-14.
- Upadhyaya, S. (2019). Big Data and Official Statistics. *Voprosy Statistics*, 26(12). <https://doi.org/10.34023/2313-6383-2019-26-12-5-14>, pp. 1-10.
- Volonino, L., & Gessner, G. H. (2004). Communications of the Association for Information Systems HOLISTIC COMPLIANCE WITH SARBANES-OXLEY. In *Communications of the Association for Information Systems (Vol. 14)*, pp. 219-233.
- Xun, H., Zou, B., & Duan, C. (2022). Design of the Student Attendance Management System Based on the Internet of Things Technology. *Mobile Information Systems*, 2022. <https://doi.org/10.1155/2022/1990530>, pp. 1-13.
- Yang, L., Su, L., Wang, Y., Jiang, H., Yang, X., Li, Y., Shen, D., & Wang, N. (2020). Metal roof fault diagnosis method based on RBF-SVM. *Complexity*, 2020. <https://doi.org/10.1155/2020/9645817>, pp. 1-12.
- Yang, W. (2021). Current Situation Research on Integrated Development and Application of China's "Publishing + VR/AR." *Publishing Research Quarterly*, 37(2). <https://doi.org/10.1007/s12109-021-09812-x>, pp. 317-325.
- Yi, Q. F., Yan, J., Hui, H., & Yang, Y. (2022). Nursing students' perceptions and experiences of e-internships during the COVID-19 pandemic: A phenomenological study. *PLoS ONE*, 17(9 September). <https://doi.org/10.1371/journal.pone.0273963>, pp. 1-14.
- Zyberi, I., & Luzo, D. (2022). The Relationship between satisfaction, Trust and loyalty in Electronic banking. *Finance: Theory and Practice*, 26(2). <https://doi.org/10.26794/2587-5671-2022-26-2->, pp. 104-117.

