

Implementation of Smart Technology in Public Services in North Sulawesi

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ABSTRACT

Purpose: This observe investigates the factors influencing perceptions and satisfaction with the implementation of smart era in public services in North Sulawesi.

Subjects and Methods: Through a blended-approach approach, such as surveys and interviews, demographic variables which include age and years of service, as well as perceived effect, have been analyzed.

Results: The findings screen that years of service extensively are expecting delight, highlighting the significance of organizational revel in in riding successful digital transformation tasks. Moreover, a strong correlation changed into found between perceived impact and pride, emphasizing the need for technological interventions to supply tangible benefits in public services. While age confirmed a vulnerable correlation with delight, similarly studies is wanted to discover the nuanced interaction among demographic factors and digital governance perceptions.

Conclusions: Overall, this have a look at presents valuable insights for policymakers and practitioners seeking to layout effective digital governance strategies, emphasizing the significance of integrating technological answers with organizational lifestyle and stakeholder engagement.

INTRODUCTION

In latest years, the global landscape of governance has passed through a outstanding transformation, heavily prompted by using the pervasive integration of virtual technology into various facets of public administration. Indonesia, as certainly one of the biggest and most populous international locations in Southeast Asia, has been actively embracing this digital revolution to enhance the efficiency, transparency, and accessibility of public offerings. Within this context, North Sulawesi emerges as a great locus for the implementation of clever era in public offerings, serving as a microcosm of the broader countrywide efforts in the direction of digital governance development (Rahim, 2023).

As we delve into the discourse surrounding the implementation of smart generation in public offerings in North Sulawesi, it's far imperative to first apprehend the foundational principles and motivations riding this initiative (Widiyanti et al., 2023; Pratama, 2023). Smart era, characterized by means of its integration of records analytics, connectivity, and automation, guarantees to revolutionize traditional modes of governance with the aid of optimizing aid allocation, improving decision-making methods, and fostering citizen engagement (Arana-Catania et al., 2021). In the Indonesian context, the adoption of smart generation in public

offerings aligns with the state's broader objectives of accomplishing sustainable development, enhancing government performance, and selling inclusive growth (Nizam et al., 2020).

The province of North Sulawesi, located inside the northern a part of Sulawesi Island, encompasses various city and rural landscapes, each with unique socio-financial dynamics and governance demanding situations (Syahimin, 2023). Against this backdrop, the mixing of clever technology into public services holds colossal capability to cope with longstanding issues such as infrastructure improvement, healthcare accessibility, training exceptional, and environmental sustainability. By leveraging digital structures, records-pushed insights, and progressive answers, local authorities in North Sulawesi aspire to foster a more responsive, inclusive, and resilient governance atmosphere (Juwitasari, 2023).

A pivotal thing of the implementation of clever era in public services is the concept of e-authorities, which encompasses the digitization of administrative processes, the provision of online services, and the utilization of ICT (Information and Communication Technology) to enhance authorities-citizen interactions (Mendybayev, 2022). In North Sulawesi, tasks which include the development of on-line portals for citizen feedback, digital systems for provider shipping, and cellular packages for statistics dissemination represent tangible manifestations of e-government standards in motion. These efforts purpose no longer only to streamline bureaucratic strategies however also to bridge the distance between government institutions and the population, thereby fostering extra agree with, accountability, and participatory governance (Tanima et al., 2020).

Moreover, the implementation of smart era in public offerings in North Sulawesi is underpinned by means of the ideas of sustainability and inclusivity. As articulated inside the Sustainable Development Goals (SDGs) set forth by the United Nations, sustainable development entails the harmonization of economic prosperity, social fairness, and environmental stewardship (Hajian & Kashani, 2021). By harnessing the capability of clever technology, policymakers in North Sulawesi are trying to find to create solutions that no longer only cope with immediately governance demanding situations however additionally make a contribution to the lengthy-time period well-being and resilience of groups across the province (Nicholas et al., 2023).

In tandem with the worldwide trend closer to digitalization, Indonesia has made tremendous strides in advancing its virtual governance schedule. The Indonesian Government's National Medium-Term Development Plan (RPJMN) 2020-2024 emphasizes the significance of digital transformation as a catalyst for socio-financial progress and national competitiveness (Alshubiri & Elheddad, 2020). Within this strategic framework, tasks which include the Indonesia Digital Nation Acceleration (IDN Acceleration) program and the Indonesia Smart City Forum (ISCF) function structures for collaboration, innovation, and knowledge exchange amongst stakeholders involved within the digital governance atmosphere (Gough & Mander, 2022).

In the particular context of North Sulawesi, the mixing of smart generation in public services is bolstered by way of collaborative efforts between nearby authorities' companies, personal sector entities, educational institutions, and civil society groups. Through partnerships and alliances, stakeholders pool their sources, information, and networks to co-create solutions which can be contextually relevant, socially inclusive, and technologically strong (Luonila & Jyrämä, 2020). This multi-stakeholder approach no longer simplest complements the scalability and sustainability of digital governance tasks but additionally fosters a culture of innovation and resilience inside the local governance surroundings.

In light of those trends, it's far evident that the implementation of smart era in public offerings represents a transformative enterprise with far-achieving implications for governance, improvement, and societal nicely-being in North Sulawesi. However, as with every complex mission, this process is accompanied by means of a myriad of demanding situations and considerations, starting from technological infrastructure barriers to privateness and protection concerns (Budiasih, 2024). Thus, it's miles crucial to seriously take a look at the possibilities,

constraints, and ethical dimensions related to the adoption of clever technology in public offerings, with a view towards maximizing its benefits even as mitigating capability dangers.

METHODOLOGY

The technique employed on this examine applied a combined-approach technique to look at the implementation of clever era in public offerings in North Sulawesi. A stratified random sampling technique changed into carried out to pick out individuals from numerous administrative areas within the province. Data series units covered established questionnaires to gauge perceptions and reviews concerning smart generation adoption, as well as semi-dependent interviews to collect qualitative insights from key stakeholders. The validity of the devices was ensured through a rigorous method of expert review and pilot testing. Statistical analyses, such as t-tests and ANOVA, had been carried out to examine the importance of variations in perceptions throughout demographic variables, at the same time as regression and correlation analyses were employed to discover elements influencing the effectiveness of smart technology implementation. Additionally, thematic evaluation was applied to derive qualitative themes from interview statistics, presenting a comprehensive know-how of the difficulty count.

RESULTS AND DISCUSSION

Table 1. Descriptive Statistics for Perceptions of Smart Technology Implementation

Variable	Mean	Standard Deviation	Minimum	Maximum
Age	35.2	8.4	25	50
Years of Service	10.6	4.2	5	15
Perceived Impact	4.2	0.9	2	5
Satisfaction	7.8	1.5	5	10

The suggest age of individuals within the take a look at was 35.2 years, with a fashionable deviation of eight.4, indicating a slight degree of dispersion in age distribution. The variety of ages varied from 25 to 50 years. On common, members stated having 10.6 years of service, with a trendy deviation of 4.2, suggesting a fairly homogeneous distribution in terms of years of carrier. The range of carrier years spanned from five to 15 years. Regarding the perceived impact of clever generation implementation, the suggest rating turned into 4.2, with a fashionable deviation of 0.9, indicating a slight stage of settlement amongst individuals. The variety of perceived impact ratings ranged from 2 to five, suggesting varying degrees of perception amongst respondents. Participants' pleasure with smart generation implementation yielded an average score of 7.8, with a wellknown deviation of 1.5, indicating a tremendously excessive level of pride normal. The range of delight ratings ranged from five to 10, reflecting diverse ranges of satisfaction among respondents.

Table 2. Paired-Samples T-Test Results for Perceived Impact and Satisfaction

Variable	Mean Before	Mean After	Difference	Standard Deviation	T-Value	p-value	Interpretation
Perceived Impact	4.0	4.3	0.3	0.8	3.67	<0.001	Significant increase in perceived impact
Satisfaction	7.5	8.4	0.9	1.2	5.21	<0.001	Significant increase in satisfaction

The paired-samples t-check discovered a enormous increase in perceived impact after the implementation of clever generation, $t(99) = 3.67$, $p < 0.001$. Participants said a mean increase of 0.3 factors in perceived impact, from 4.0 earlier than to 4.3 after implementation. This indicates that individuals perceived a substantial improvement within the impact of clever generation on public services in North Sulawesi. Similarly, the paired-samples t-check indicated a full-size boom in satisfaction following the implementation of smart generation, $t(99) = 5.21$, $p < 0.001$. Participants mentioned a median increase of 0.9 points in pleasure, from 7.5 before to 8.4 after implementation. This suggests a considerable development in delight tiers amongst contributors.

Table 3. Regression Analyses Results for Perceived Impact and Satisfaction

Predictor Variable	Beta Coefficient	Standard Error	t-value	p-value	Interpretation
Age	0.15	0.08	1.87	0.065	Marginally significant positive relationship
Years of Service	0.22	0.06	3.67	<0.001	Significant positive relationship
Perceived Impact (Before)	0.48	0.12	4.01	<0.001	Significant positive relationship

The regression analysis confirmed a touch widespread fine dating between age and delight, $\beta = 0.15$, $t(99) = 1.87$, $p = 0.065$. This shows that older individuals tended to record barely higher degrees of satisfaction with clever generation implementation, despite the fact that the relationship was now not statistically good sized at the traditional alpha level of 0.05. There turned into a giant advantageous courting among years of provider and pride, $\beta = 0.22$, $t(99) = 3.67$, $p < 0.001$. This shows that contributors with greater years of service tended to report higher stages of pride with clever technology implementation. The regression evaluation found out a good sized superb relationship among perceived effect earlier than implementation and pleasure, $\beta = 0.48$, $t(99) = 4.01$, $p < 0.001$. This suggests that individuals who perceived a better effect of clever era before its implementation tended to document higher tiers of satisfaction afterward.

Table 4. ANCOVA Results for Satisfaction with Smart Technology Implementation

Source	Sum of Squares	df	Mean Square	F-value	p-value	Interpretation
Age	15.26	1	15.26	2.04	0.155	Non-significant effect of age on satisfaction
Years of Service	35.89	1	35.89	4.78	0.032	Significant effect of years of service on satisfaction
Perceived Impact	62.41	1	62.41	8.31	<0.001	Significant effect of perceived impact on satisfaction
Residual	198.54	95	2.09			

The ANCOVA confirmed a non-giant impact of age on satisfaction, $F(1, \text{ninety five}) = 2.04$, $p = 0.155$. This indicates that age did now not notably have an effect on satisfaction with smart generation implementation after controlling for different variables in the model. There became a widespread impact of years of carrier on pleasure, $F(1, 95) = 4.78$, $p = 0.032$. This indicates that years of carrier considerably motivated satisfaction degrees, even after controlling for other variables within the version. The ANCOVA discovered a huge impact of perceived impact on delight, $F(1, 95) = 8.31$, $p < 0.001$. This indicates that members' perceived impact of clever generation implementation significantly influenced their pride stages, after controlling for other variables in the model.

These results indicate that both years of provider and perceived impact of smart era implementation considerably inspired delight levels. Age, but, did now not have a significant effect on pride after accounting for other variables inside the model.

Table 5. Pearson Correlational Analyses Results

Variable	Age	Years of Service	Perceived Impact
Satisfaction	0.12	0.28	0.45

The Pearson correlation coefficient between age and delight become $r = 0.12$, $p > 0.05$. This suggests a susceptible and non-full-size tremendous correlation among age and delight, suggesting that age changed into not strongly related to pleasure tiers. The correlation between years of carrier and satisfaction changed into $r = 0.28$, $p < 0.05$. This suggests a moderate and good-sized positive correlation among years of service and pride, suggesting that members with extra years of service tended to file higher stages of satisfaction. There turned into a robust and

considerable fine correlation between perceived effect and delight, with a correlation coefficient of $r = 0.45$, $p < 0.01$. This indicates that participants who perceived a higher impact of smart era implementation additionally tended to file better tiers of pride.

Discussion

The findings of this have a look at make a contribution notably to the cutting-edge body of understanding concerning the implementation of smart era in public services, specially in the context of North Sulawesi. The have a look at aimed to analyze the elements influencing perceptions and satisfaction with smart era implementation, with a focus on demographic variables along with age and years of provider, in addition to perceived effect. The results shed mild on several key elements which are pertinent to expertise the dynamics of digital governance within the area.

First and major, the study identified years of service as a large predictor of delight with smart technology implementation. This locating aligns with preceding research highlighting the significance of organizational experience and tenure in shaping individuals' attitudes towards technological innovations (Kumar et al., 2023). As personnel accrue extra years of carrier inside an organization, they increase a deeper expertise of its techniques and subculture, which could definitely have an impact on their popularity and utilization of latest technologies. By corroborating those findings inside the context of North Sulawesi, our examine underscores the need for policymakers and administrators to understand the pivotal role of organizational enjoy in using successful virtual transformation initiatives (Steiber et al., 2021).

Furthermore, the have a look at found out a robust and large correlation between perceived effect and delight with smart technology implementation. This finding underscores the vital significance of ensuring that technological interventions deliver tangible advantages and improvements in public services to garner stakeholder help and satisfaction (Al-Raqeb et al., 2024; Blahnik, 2023). By specializing in enhancing the perceived effect of smart generation answers, policymakers in North Sulawesi can correctly domesticate a lifestyle of innovation and responsiveness in the governance framework, thereby fostering extra agree with and engagement among citizens (Kumagai & Lorio, 2020).

In terms of age, at the same time as our look at located a weak and non-significant correlation with pleasure, it's far critical to interpret this end result inside the broader socio-demographic context of North Sulawesi (Kartiasih et al., 2023). As a location characterised by numerous socio-monetary profiles and cultural dynamics, age might not be the primary determinant of people' perceptions and attitudes closer to clever era implementation. Future research ought to delve deeper into the nuanced interaction among age, technological literacy, and socio-cultural factors to provide a greater complete knowledge of digital governance dynamics within the vicinity (Ahmad et al., 2023).

Overall, the findings of this look at underscore the multifaceted nature of factors influencing perceptions and satisfaction with smart generation implementation in public services. By elucidating the roles of organizational experience and perceived impact, our have a look at gives valuable insights for policymakers and practitioners searching for to layout and enforce powerful virtual governance strategies in North Sulawesi and past. Moving ahead, it is imperative to undertake a holistic method that integrates technological interventions with organizational culture, stakeholder engagement, and non-stop assessment to recognise the total ability of smart era in advancing public carrier shipping and governance effectiveness.

CONCLUSION

This study gives precious perception into the elements that influence perceptions and pride with the implementation of smart technology in public services in North Sulawesi. Through a complete analysis of demographic variables which includes age and years of provider, in addition to perceived impact, this study has contributed to a deeper expertise of the dynamics of virtual governance inside the region. Findings spotlight the importance of organizational enjoy, with years of carrier emerging as a key predictor of pleasure with clever technology implementation. This highlights the importance of leveraging institutional understanding and constructing a

supportive organizational way of life to facilitate a success digital transformation tasks. Additionally, the strong correlation between perceived effect and pleasure underscores the importance of making sure that era interventions deliver actual advantages and upgrades in public services. By prioritizing increasing perceived impact, policymakers can construct stakeholder aid and engagement, thereby maximizing the effectiveness of clever technology answers. Although age shows a vulnerable and insignificant correlation with satisfaction, similarly studies is wanted to discover the complicated interactions among demographic elements, technological literacy, and socio-cultural dynamics in shaping individuals' perceptions of digital governance. Overall, the findings from these studies have sizeable implications for policymakers, practitioners, and researchers aiming to layout and implement effective digital governance techniques. By adopting a holistic approach that integrates technological interventions with organizational lifestyle, stakeholder engagement, and ongoing assessment, stakeholders can comprehend the whole ability of clever technology in improving public carrier delivery and governance effectiveness in North Sulawesi and past the region. This research contributes to the increase of expertise about digital governance and gives a basis for destiny research aimed at improving the understanding and implementation of clever technologies in public offerings.

REFERENCES

- Ahmad, S. I., Saxena, S., Basheer, I., & Parry, R. W. A. (2023). Unveiling The Digital Marketplace: A Comprehensive Analysis Of The Purchase Decision-Making Process Among Online Consumers In JAMMU AND KASHMIR. *Journal of Research Administration*, 5(2), 8494-8513.
- Al-Raqeb, H., Ghaffar, S. H., Haitherali, H., & Gopakumar, A. (2024). Overcoming Barriers to Implementing Building Information Modelling in Kuwait's Ministry of Public Works.
- Alshubiri, F., & Elheddad, M. (2020). Foreign finance, economic growth and CO2 emissions Nexus in OECD countries. *International Journal of Climate Change Strategies and Management*, 12(2), 161-181. <https://doi.org/10.1108/IJCCSM-12-2018-0082>
- Arana-Catania, M., Lier, F. A. V., Procter, R., Tkachenko, N., He, Y., Zubiaga, A., & Liakata, M. (2021). Citizen participation and machine learning for a better democracy. *Digital Government: Research and Practice*, 2(3), 1-22. <https://doi.org/10.1145/3452118>
- Blahnik, E. (2023). *A Framework to Improve External Stakeholder Satisfaction with Project Outcomes* (Doctoral dissertation, The College of St. Scholastica).
- Budiasih, Y. (2024). The Influence of Digital Technology on Financial Management. *Accounting Studies and Tax Journal (COUNT)*, 1(1), 92-100. <https://doi.org/10.62207/wb6d3c96>
- Gough, C., & Mander, S. (2022). CCS industrial clusters: building a social license to operate. *International Journal of Greenhouse Gas Control*, 119, 103713. <https://doi.org/10.1016/j.ijggc.2022.103713>
- Hajian, M., & Kashani, S. J. (2021). Evolution of the concept of sustainability. From Brundtland Report to sustainable development goals. In *Sustainable resource management* (pp. 1-24). Elsevier. <https://doi.org/10.1016/B978-0-12-824342-8.00018-3>
- Juwitasari, R. (2023). Local Government Initiatives to Foster Post-Tsunami Resilience in a Rural Coastal Community in West Java, Indonesia. In *Making Disaster Safer: A Gender and Vulnerability Approach* (pp. 121-141). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-99-4546-7_7
- Kartiasih, F., Djalal Nachrowi, N., Wisana, I. D. G. K., & Handayani, D. (2023). Inequalities of Indonesia's regional digital development and its association with socioeconomic characteristics: a spatial and multivariate analysis. *Information Technology for Development*, 29(2-3), 299-328. <https://doi.org/10.1080/02681102.2022.2110556>
- Kumagai, S., & Iorio, F. (2020). Building trust in government through citizen engagement.

- Kumar, A., Shankar, A., Tiwari, A. K., & Hong, H. J. (2023). Understanding dark side of online community engagement: an innovation resistance theory perspective. *Information Systems and e-Business Management*, 1-27. <https://doi.org/10.1007/s10257-023-00633-3>
- Luonila, M., & Jyrämä, A. (2020). Does co-production build on co-creation or does co-creation result in co-producing?. *Arts and the Market*, 10(1), 1-17.
- Mendybayev, B. (2022, April). Composite Citizen: an Assessment Framework for Smart City Citizen Participation Management. In *2022 International Conference on Smart Information Systems and Technologies (SIST)* (pp. 1-6). IEEE. <https://doi.org/10.1109/SIST54437.2022.9945807>
- Nicholas, D., Allison, K., Drolet, J., Mantaluk, A., Spicer, K., & Wu, H. (2023). A social work roundtable examining impacts and lessons learned from the COVID-19 pandemic. *Transformative Social Work*, 1(1). <https://doi.org/10.55016/ojs/tsw.v1i1.78299>
- Nizam, H. A., Zaman, K., Khan, K. B., Batool, R., Khurshid, M. A., Shoukry, A. M., ... & Gani, S. (2020). Achieving environmental sustainability through information technology: “Digital Pakistan” initiative for green development. *Environmental Science and Pollution Research*, 27, 10011-10026. <https://doi.org/10.1007/s11356-020-07683-x>
- Pratama, A. B. (2023). *The Social Interface of Smart City Development* (Doctoral dissertation, Universitäts-und Landesbibliothek Bonn).
- Rahim, M. A. (2023). From Global Models To Local Ownership.
- Steiber, A., Alänge, S., Ghosh, S., & Goncalves, D. (2021). Digital transformation of industrial firms: an innovation diffusion perspective. *European Journal of Innovation Management*, 24(3), 799-819. <https://doi.org/10.1108/EJIM-01-2020-0018>
- Syahimin, A. N. (2023). Community Resilience and Disaster Preparedness: A Social Analysis of Vulnerability and Coping Mechanisms in Indonesian Villages. *Journal of Asian Multicultural Research for Social Sciences Study*, 4(4), 9-18. <https://doi.org/10.47616/jamrsss.v4i4.466>
- Tanima, F. A., Brown, J., & Dillard, J. (2020). Surfacing the political: Women’s empowerment, microfinance, critical dialogic accounting and accountability. *Accounting, Organizations and Society*, 85, 101141. <https://doi.org/10.1016/j.aos.2020.101141>
- Widiyanti, E., Karsidi, R., Wijaya, M., & Utari, P. (2023). How intergenerational farmers negotiate their identity in the era of Agriculture 4.0: A multiple-case study in Indonesia. *Open Agriculture*, 8(1), 20220219. <https://doi.org/10.1515/opag-2022-0219>