

Smart City Priority Innovation Assessment In West Bandung Regency

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ABSTRAK

Penelitian ini bertujuan untuk menilai implementasi inovasi smart city di Kabupaten Bandung Barat pada tahun 2024, dengan fokus pada evaluasi kepuasan pengguna terhadap aplikasi-aplikasi prioritas yang telah diluncurkan. Metode penelitian menggunakan model Unified Theory of Acceptance and Use of Technology (UTAUT) untuk mengukur variabel Performance Expectancy, Effort Expectancy, Social Influence, dan Facilitating Conditions, serta pengaruhnya terhadap kepuasan pelanggan. Data dikumpulkan melalui kuesioner dari pelayan publik yang terkait dengan 37 inovasi smart city. Hasil penelitian menunjukkan bahwa Smart Branding: Visit KBB memiliki nilai Performance Expectancy dan Facilitating Conditions tertinggi, sementara aplikasi BA QRIS dan Smart Branding: Visit KBB memiliki nilai Effort Expectancy tertinggi. Implikasi dari penelitian ini adalah memberikan rekomendasi untuk meningkatkan efektivitas dan penerimaan aplikasi smart city di Kabupaten Bandung Barat, serta memberikan wawasan bagi pengembangan program smart city di masa depan.

Kata Kunci: Smart City, UTAUT, Kepuasan Pengguna, Inovasi, Kabupaten Bandung Barat

ABSTRACT

This study aims to assess the implementation of smart city innovations in West Bandung Regency in 2024, focusing on evaluating user satisfaction with the priority applications that have been launched. The research method uses the Unified Theory of Acceptance and Use of Technology (UTAUT) model to measure Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions variables, as well as their impact on customer satisfaction. Data were collected through questionnaires from public servants associated with 37 smart city innovations. The results showed that Smart Branding: Visit KBB had the highest Performance Expectancy and Facilitating Conditions scores, while BA QRIS and Smart Branding: Visit KBB applications had the highest Effort Expectancy scores. The implications of this research are to provide recommendations for improving the effectiveness and acceptance of smart city applications in West Bandung Regency, as well as providing insights for the development of future smart city programs.

Keywords: Smart City, UTAUT, User Satisfaction, Innovation, West Bandung Regency

INTRODUCTION

The implementation of smart city innovations in West Bandung Regency in 2024 is one of the main focuses in efforts to improve the quality of life for the community and the efficiency of public services. This policy aims to leverage information and communication technology (ICT) in urban management, thereby creating a smarter, integrated, and more responsive environment to the needs of the community. In this context, a study on the impact of smart city innovation implementation is crucial to evaluate the effectiveness of the policies applied and their effects on various aspects of life in the region.

This study, on the Impact of Smart City Implementation in 2024 in West Bandung Regency, is conducted by the Communication, Informatics, and Statistics Office of West

Bandung Regency and coordinated by the Government Informatics Applications Division in collaboration with third-party partners.

The purpose of this study is to assess the use of Smart City Applications using the UTAUT model. The research object is the 6 smart city pillars, which consist of 37 smart city innovation applications in West Bandung Regency. The subjects to be studied are the users of the 37 smart city innovation applications in West Bandung Regency.

West Bandung Regency develops six main pillars in its smart city program. Each pillar has specific innovations designed to meet the needs of the community and improve the efficiency of public services, covering:

Table 1. Smart City Pillars in West Bandung Regency.

<i>Pilar Smart City</i>
<i>Smart Branding</i>
<i>Smart Economy</i>
<i>Smart Governance</i>
<i>Smart Living</i>
<i>Smart Society</i>
<i>Smart Environment</i>

Source : Research Data, 2024

Here are some key innovations that have been successfully implemented from the priority innovations (Quick Wins):

Table 2. Priority Smart City Innovations in West Bandung Regency

<i>Pilar Smart City</i>	<i>Inovasi Smart City</i>
<i>Smart Branding</i>	<i>Visit KBB</i>
<i>Smart Economy</i>	<i>BA QRIS</i>
<i>Smart Governance</i>	<i>IKD Goes to Campus</i>
<i>Smart Living</i>	<i>GOBANG (Go Obat Lembang)</i>
<i>Smart Society</i>	<i>SIMPOLPRAJA-KBB</i>
<i>Smart Environment</i>	<i>Gowes for Trees</i>

Source : Research Data, 2024

The results of the study can provide the necessary data and analysis to support better decision-making in the planning and development of future Smart City programs.

METHODS

(Sugiono, 2018) states that research variables are anything determined by the researcher to be studied and analyzed so that they can draw conclusions about them. Two types of variables are used in this study: the dependent variable and the independent variables.

1. Independent Variables (X)

According to (Sugiono, 2018), independent variables or predictor variables are those that influence or cause changes in the dependent variable. The independent variables in this study are:

- *Performance expectancy (X1)*
- *Effort expectancy (X2)*
- *Social influence (X3)*
- *Facilitating conditions (X4).*

2. Dependent Variable (Y)

The dependent variable in this study is customer satisfaction (Y), which is considered the variable influenced by or as a consequence of the independent variables, according to (Sugiono, 2018).

In this study, the four UTAUT variables Performance Expectancy (X1), Effort Expectancy (X2), Social Influence (X3), and Facilitating Conditions (X4) are used as independent variables. The output is the dependent variable, Customer Satisfaction (Y).

In the operationalization of variables, there are indicators, measurements, and scales used to define and measure the variables. The operationalization of the variables used to measure, test, and analyze this research is illustrated in **Table 3**.

Table 3. Operational Table of Smart City Variables in West Bandung Regency

No	Variabel	Konsep Variabel	Indikator	Ukuran	Skala	No. Item
1	Performance Expectancy (X1)	Tingkat sejauh mana individu percaya bahwa dengan menggunakan sistem informasi dapat membantu untuk mencapai keuntungan dalam meningkatkan kinerja (Venkatesh et al., 2003)	Penggunaan Aplikasi inovasi Smart City memberikan keuntungan bagi pengguna	Tingkat Keuntungan Pengguna	Interval	PE1
			Aplikasi Smart City memenuhi kebutuhan transaksi keuangan/pelayanan	Tingkat Capaian Tujuan	Interval	PE2
			Aplikasi Smart City berfungsi dengan baik	Tingkat Kesuksesan Transaksi	Interval	PE3
			Aplikasi Smart City berguna untuk melakukan transaksi keuangan/pelayanan	Tingkat Kegunaan	Interval	PE4
			Aplikasi Smart City sesuai untuk digunakan dalam transaksi	Tingkat Kesuaian Pengguna	Interval	PE5

			keuangan/pelayanan			
			Aplikasi Smart City memberikan solusi dalam transaksi keuangan/pelayanan	Tingkat Penyelesaian	Interval	PE6
			Penggunaan Aplikasi Smart City menunjang aktifitas	Tingkat Produktivitas	Interval	PE7
			Aplikasi Smart City memberikan manfaat positif	Tingkat Kebermanfaatan	Interval	PE8
			Menggunakan Aplikasi Smart City merupakan cara yang efektif	Tingkat Efektivitas	Interval	PE9
			Penggunaan Aplikasi Smart City menghasilkan kualitas hasil transaksi keuangan yang baik	Tingkat Kualitas	Interval	PE10
			Penggunaan Smart City berhasil memenuhi harapan pengguna	Tingkat Keberhasilan	Interval	PE11
2	Effort Expectancy (X2)	Variabel yang mengukur tingkat kemudahan dalam menggunakan sistem (Venkatesh et al., 2003)	Penggunaan Smart City memberikan kemudahan dalam melakukan transaksi keuangan/pelayanan	Tingkat Kemudahan	Interval	EE12
			Aplikasi Smart City membantu transaksi keuangan menjadi lebih cepat	Tingkat Kecepatan Penyelesaian	Interval	EE13
			Penggunaan aplikasi Smart City menyelesaikan banyak masalah	Tingkat Kuantitas	Interval	EE14

			transaksi keuangan			
			Menggunakan aplikasi Smart City merupakan cara yang efisien	Tingkat Efisiensi	Interval	EE15
			Pengguna aplikasi Smart City cepat memahami system	Tingkat Kecepatan Pemahaman	Interval	EE16
			Aplikasi Smart City mudah Digunakan	Tingkat Kesulitan	Interval	EE17
			Interaksi selama menggunakan Smart City membuat pengguna nyaman	Tingkat Kenyamanan Interaksi	Interval	EE18
3	Social Influence (X3)	Sejauh mana seorang individu memandang bahwa pentingnya keberadaan orang lain dalam menggunakan sebuah sistem (Venkatesh et al., 2003)	Penggunaan aplikasi Smart City dipengaruhi oleh rekomendasi keluarga	Tingkat Pengaruh Keluarga	Interval	SI19
			Penggunaan aplikasi Smart City dipengaruhi oleh rekomendasi rekan kerja	Tingkat Pengaruh Organisasi	Interval	SI20
			Aplikasi Smart City banyak digunakan di lingkungan pengguna	Tingkat Pengaruh Jumlah Pengguna	Interval	SI21
			Penggunaan Aplikasi Smart City karena faktor paksaan lingkungan sekitar	Tingkat Pengaruh Eksternal	Interval	SI22
			Penggunaan	Tingkat Pengaruh	Interval	SI23

			aplikasi Smart City untuk meningkatkan citra pengguna	Citra Diri		
			Aplikasi Smart City dapat menunjukkan status social pengguna	Tingkat Pengaruh Status Sosial	Interval	SI24
4	Facilitating Condition (X4)	Infrastruktur dalam organisasi dapat meningkatkan kepercayaan individu untuk menggunakan sebuah sistem (Venkatesh et al., 2003)	Aplikasi Smart City menyediakan panduan dan arahan penggunaan system	Tingkat Kesiapan Sistem	Interval	FC25
			Aplikasi Smart City menyediakan layanan komunikasi langsung kepada operator	Tingkat Kesiapan Operator	Interval	FC26
			Aplikasi Smart City merupakan sistem yang adaptif bagi pengguna	Tingkat Adaptif Sistem	Interval	FC27
			Aplikasi Smart City memiliki konsistensi yang tinggi	Tingkat Konsistensi	Interval	FC28
5	customer satisfaction (Y)		Hasil jumlah total penilaian dari variabel x1,x2,x3,x4	Tingkat Kepuasan	interval	CS

Source : Research Data, 2024

The population targeted in this study includes all public service employees in departments related to the 37 smart city innovations in West Bandung Regency. To complete the data, the sample taken is specific namely, from the government and public service divisions within the departments associated with the 37 smart city innovations. The sampling process is based on the principle of purposive sampling, which means that the sample is selected with a specific purpose. This specific purpose is to reveal the readiness of government departments related to the 37 smart city innovations from the user perspective.

Primary data refers to data collected directly from the source. The techniques used for collecting primary data include:

- **Questionnaires:** Using online questionnaires to gather public perceptions about smart city innovations. The questionnaires may consist of open-ended, closed-ended, or structured questions, and can be distributed via interactive platforms such as Google Forms.
- **Interviews:** Conducting in-depth interviews with relevant stakeholders, such as local government officials, service users, and information technology experts. These interviews aim to obtain deeper insights into the implementation and impact of the innovations.
- **Observation:** Conducting direct field observations to see how smart city innovations are applied in daily community life. Participatory observation allows researchers to engage directly in the observed activities, providing sharper insights into the effectiveness of the innovations.

The data scale used in this research is the Likert scale. The Likert scale consists of five alternative responses, where each alternative is assigned a score based on the response category in the research questionnaire. The score weights for the questionnaire are presented in Table 4. The questionnaire statements, which measure customer satisfaction using the Likert scale, include: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD).

Table 4. Likert Scale Scoring for Questionnaire Responses

No	Jawaban Pengguna Aplikasi Smart City	Bobot Skor
1	Sangat Setuju (SS)	5
2	Setuju (S)	4
3	Ragu-Ragu (RR)	3
4	Tidak Setuju (TS)	2
5	Sangat Tidak Setuju (STS)	1

Source : Research Data, 2024

The research model is a depiction of the researcher's flow or way of thinking in formulating steps related to the predetermined variables, based on fundamental theories and integrated with previous studies relevant to the chosen case study. Through this process, the author can discover a concept or idea regarding a problem to be further examined and analyzed. The research model in this study is illustrated in Figure 1, which outlines the formulation of the dependent and independent variables.

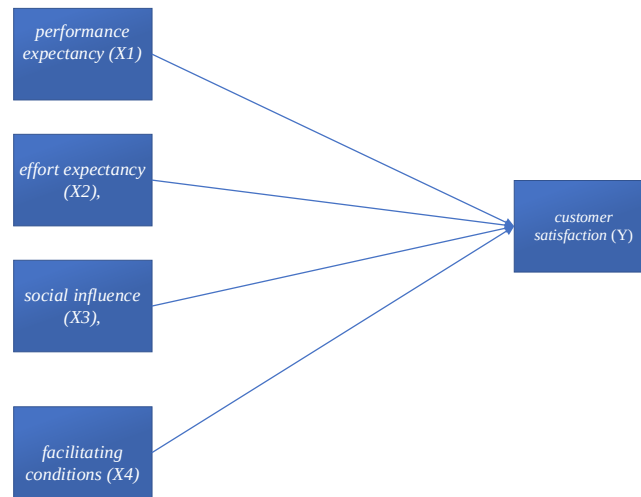


Figure 1. Structure of the Research Model

RESULT AND DISCUSSIONS

During the data collection observation, only a few innovation applications were ready to be evaluated for user satisfaction. West Bandung Regency has launched 37 innovations under the Smart City program. A sample of 10 innovations was selected for user satisfaction evaluation.

The user satisfaction evaluation was conducted on 10 innovation applications from West Bandung Regency as a sample. The details of the evaluated innovation applications are presented in Table 5.

Table 5. List of Innovation Application Evaluations in West Bandung Regency (KBB)

IKD (Identitas Kependudukan Digital) Goes To Kampus (QUICK WIN)
Open Data KBB (portal data KBB)
Sistem Informasi Pajak Daerah PBB (SIPADA PBB)
SIPADA BPHTB Sistem Informasi Pajak Daerah BPHTB
Sistem Informasi Pajak Daerah Lainnya (SIPADA PJDL)
Sistem Visit KBB (Aplikasi & Website) (QUICK WIN)
BA QRIS (Pembayaran dengan QRIS) (QUICK WIN)
GOBANG (Go Obat Lembang) (Quick Win)
SIMPOLPRAJA-KBB Sistem Manajemen Informasi Digital Polisi Pamong Praja Kabupaten Bandung Barat (Quick Win)
GOWES FOR TREES (QUICK WIN)

Source : Research Data, 2024

Table 6. Recapitulation of User Satisfaction Assessment for Smart City Innovations

NO	APLIKASI SMART CITY	VARIABEL				OUTPUT
		Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Customer Satisfaction
		X1	X2	X3	X4	Y
1	Smart Branding: Visit KBB	91.272727	92.76190476	91.4444444	94.5	92.49477
2	BA QRIS	88.545455	92.76190476	89.7777778	93	91.02128
3	GOWES for Trees	83.939394	85.23809524	86.8888889	84.5	85.14159
4	SIMPOLPRAJA- KBB	81.69697	81.23809524	86.8888889	82	82.95599
5	IKD Goes to Campus	76.787879	81.33333333	85.2222222	81.83333	81.29419
6	Open Data KBB	81.575758	81.04761905	86.8888889	73.33333	80.7114
7	SIPADA PBB (Pajak Bumi dan Bangunan)	79.212121	79.71428571	86.5555556	74.16667	79.91216
8	SIPADA BPHTB (Bea Perolehan Hak atas Tanah dan Bangunan)	79.272727	78.57142857	86.7777778	73.66667	79.57215
9	SIPADA PJDL (Pajak Jasa Daerah Lain)	78.424242	78	86.6666667	73.5	79.14773
10	GOBANG (Go Obat Lembang)	78.363636	77.04761905	86.7777778	72.83333	78.75559

Source : Research Data, 2024

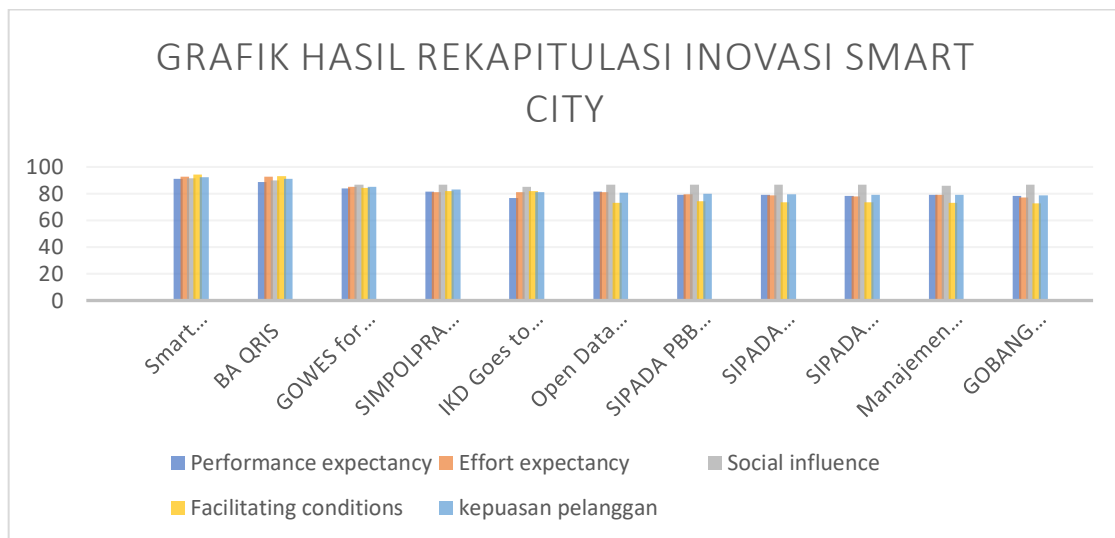


Figure 2. Graph of Recapitulation Results for SMART CITY Innovations in West Bandung Regency

In Table 6, Performance Expectancy (PE) refers to the extent to which users believe that using technology will improve their performance. From the table, the application with the highest PE score is Smart Branding: Visit KBB, with a score of 91.27, indicating that users find this application highly beneficial in enhancing their experience. On the other hand, the IKD Goes to Campus application has the lowest PE score at 76.79, suggesting that users may feel this application contributes less to improving their performance.

Effort Expectancy (EE) indicates the ease of use of technology. The BA QRIS and Smart Branding: Visit KBB applications have high EE values (92.76), suggesting that users find both applications easy to use. Conversely, the SIPADA PBB application has the lowest EE value (79.71), which may indicate difficulties or complexity in using the application.

Social Influence (SI) reflects the impact of others on the decision to use technology. In the table, all applications have relatively low SI values, with the highest value at SIPADA BPHTB (7) and the lowest at SIPADA PBB (1). This suggests that social influence may not be significant in users' decisions to adopt these applications.

Facilitating Conditions (FC) relate to the resources and support available to use technology. The Smart Branding: Visit KBB application also has the highest FC value (94.5), indicating good support for using this application. In contrast, Open Data KBB has the lowest score (73.33), which may indicate a lack of facilities or support needed to optimize the use of the application.

The recapitulation results show customer satisfaction data. The score values obtained are classified based on the Likert scale.

Table 7. User Satisfaction Results and Classification

No	Aplikasi Inovasi Smart	Skor Kepuasan Pelanggan	Klasifikasi
1	Smart Branding: Visit KBB	92.49477	Sangat Baik
2	BA QRIS	91.02128	Sangat Baik
3	GOWES for Trees	85.14159	Baik
4	SIMPOLPRAJA-KBB	82.95599	Baik

5	IKD Goes to Campus	81.29419	Baik
6	Open Data KBB	80.7114	Cukup Baik
7	SIPADA PBB (Pajak Bumi dan Bangunan)	79.91216	Cukup Baik
8	SIPADA BPHTB (Bea Perolehan Hak atas Tanah dan Bangunan)	79.57215	Cukup Baik
9	SIPADA PJDL (Pajak Jasa Daerah Lain)	79.14773	Cukup Baik
10	GOBANG (Go Obat Lembang)	78.75559	Cukup Baik

Source : Research Data, 2024

CONCLUSION

This study aims to evaluate user satisfaction with the implementation of smart city innovations in West Bandung Regency in 2024, focusing on public service perceptions of 10 priority applications. Based on the analysis of the variables Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC), several key points can be concluded. First, the Smart Branding: Visit KBB application is rated the highest in Performance Expectancy and Facilitating Conditions, indicating that this application is considered beneficial in enhancing performance and is supported by adequate facilities. Second, the BA QRIS and Smart Branding: Visit KBB applications also received high scores for Effort Expectancy, indicating ease of use. Third, Social Influence scores are relatively low across all applications, suggesting that social influence is not a significant factor in the adoption of these applications. Overall, user satisfaction levels with the smart city innovations in West Bandung Regency vary, with some applications receiving better ratings than others. These results imply the need for increased socialization, training, and technical support to maximize the benefits of smart city innovations. The study also recommends that the local government focus on enhancing Performance Expectancy and Facilitating Conditions to encourage the sustainable adoption and utilization of smart city applications. Thus, it is hoped that the implementation of the smart city can have a significant positive impact on the quality of life of the community and the efficiency of public services in West Bandung Regency.

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