JTERA (Jurnal Teknologi Rekayasa), Vol. 10, No. 1, Juni 2025, Hal. 165-172 p-ISSN 2548-737X
Terakreditasi "**Peringkat 3**" oleh Kemdiktisaintek, Nomor : 10/C/C3/DT.05.00/2025 e-ISSN 2548-8678
DOI: 10.31544/jtera.v10.i1.2025.165-172

# Utilization of the e-Polvot System to Increase Student Participation in Higher Education

**M. Khairul Anam[1], Fransiskus Zoromi[2], Hamdani[3], Yoyon Efendi[4], Parlindungan Kudadiri[5]**
[1]Universitas Samudra
Jl. Prof. Dr. Syarif Thayeb, Langsa, Indonesia
[2]Universitas Sains dan Teknologi Indonesia
Jl. Purwodadi Indah Km. 10 Panam, Pekanbaru
khairulanam@unsam.ac.id

## Abstrak

STMIK Amik Riau saat ini memiliki organisasi kemahasiswaan, salah satunya adalah Badan Eksekutif Mahasiswa (BEM). Setiap tahunnya, BEM dipilih sebagai perwakilan mahasiswa untuk menyuarakan aspirasi baik di dalam maupun di luar kampus. Proses pemilihan perwakilan BEM masih dilakukan secara tradisional di lingkungan kampus. Namun, tidak semua mahasiswa dapat mengikuti proses pemilihan secara rutin, sehingga ada sebagian mahasiswa yang tidak dapat memberikan suara untuk calon ketua dan wakil ketua BEM. Untuk mengatasi permasalahan tersebut, dibutuhkan sebuah sistem yang dapat memfasilitasi proses pemilihan. Salah satu solusinya adalah dengan menyelenggarakan pemilihan secara elektronik, sehingga seluruh mahasiswa dapat memberikan suara dari mana saja melalui internet. Dalam penelitian ini, sistem yang dikembangkan disebut e-Polvot (Electronic Polling and Voting). Sistem ini dapat digunakan oleh siapa saja untuk menyelenggarakan pemilihan dengan membuat kampanye pemilihannya sendiri. Sebelum merancang sistem, dilakukan terlebih dahulu pengukuran terhadap calon pengguna menggunakan model TRI (Technology Readiness Index). Hasil dari pengukuran TRI tersebut digunakan untuk menentukan apakah sistem perlu dikembangkan atau tidak. Setelah itu, sistem e-Polvot dibangun dan diimplementasikan di STMIK Amik Riau. Setelah implementasi, sistem diuji menggunakan metode pengujian black box untuk memastikan fungsionalitasnya. Hasil pengujian menunjukkan bahwa fitur utama dari sistem e-Polvot dapat berfungsi dengan baik.

**Kata kunci:** BEM, e-Polvot, STMIK-Amik Riau, TRI Model, Voting

## *Abstract*

*STMIK Amik Riau currently has a student organization, one of which is the Student Executive Board (BEM). Every year, BEM is chosen as the representative of the students to voice their aspirations both within and outside the campus. The election process for BEM representatives is still conducted traditionally on campus. However, not all students can participate in the election process regularly, resulting in some students being unable to vote for the candidates for the student president and vice-president. To address this issue, a system is needed to facilitate the election process. One solution is to conduct electronic elections, allowing all students to vote from anywhere using the internet. In this research, the developed system is called e-Polvot (Electronic Polling and Voting). This system can be used by anyone to conduct elections by creating their own election campaigns. Before designing the system, the research conducted a measurement of the potential users using the TRI model. The results from the TRI measurement were then used to determine whether the system should be developed or not. Subsequently, the e-Polvot system was built and implemented at STMIK Amik Riau. After the implementation, the system underwent black box testing to ensure its functionality. The testing results showed that the main features of the e-Polvot system were able to perform well.*

***Keywords:*** *BEM, e-Polvot, STMIK-Amik Riau, TRI Model, Voting*

## I. INTRODUCTION

Student participation refers to the involvement and contribution of students in academic, social and community activities within and beyond the campus [1]. This participation is crucial for the personal development of students, active learning, and valuable experiences outside the classroom


© 2025 JTERA (Jurnal Teknologi Rekayasa), Politeknik Sukabumi

[2]. Students' involvement in various forms of activities helps them develop interpersonal skills, leadership abilities, problem-solving skills, critical thinking, and adaptability [3]. It can also provide valuable experiences that support career development and prepare students for active roles in society after graduation [4].

One of the universities in Pekanbaru, STMIK Amik Riau, has been encouraging its students to participate in various activities, including the election of the Student Executive Board (BEM). However, there are currently weaknesses in the BEM election process on campus. Students are divided into three categories: evening regular, daytime regular and non-regular students. Regular and non-regular students often do not participate in the election due to limitations imposed by the committee, such as holding the election only during daytime and on weekdays (Monday to Friday) [5], [6]. As a result of this issue, many students are unable to exercise their voting rights in the BEM election.

There is a need for a system to address this issue so that all students can participate in the election. One solution is to implement e-Voting or electronic voting, which is an electronic voting system that utilizes digital technology to conduct online elections [7]. However, this research not only focuses on voting but also includes polling within the system that will be developed. The system that will be built is called e-Polvot (electronic Polling and Voting).

Previous researchers have conducted studies on using technology to facilitate voting processes. Research [8] developed an e-Voting system to streamline the process of electing the Student Council Chairperson at SMPN 10 Pekanbaru. Additionally, e-Voting simplifies the vote counting process as the online nature of the system allows for immediate access to the voting results without the need to manually count physical ballots [9]. However, both of these studies focused solely on the voting aspect. This current research expands upon their work by incorporating candidate registration. If there are numerous applicants, a polling process will be conducted to determine the candidates who will be included in the e-Polvot system for voting.

Before implementation, user testing is conducted to ensure readiness in using the new technology. Readiness testing is performed using the Technology Readiness Index (TRI) model [10]. TRI is an index used to measure the level of readiness or adoption of a technology by the public or consumers [11]. The purpose of TRI is to evaluate and understand individuals' perceptions, attitudes, and readiness to accept and use new technology [12], [13].

After measuring the user readiness level, the next step is to proceed with the system implementation process. During this implementation process, black box testing is utilized for testing purposes. Black box testing is a software testing method where testing is conducted without knowledge of the internal workings or implementation of the system. Testing is done from an external user perspective, focusing on the system's input and output [14]. By conducting acceptance measurement and black box testing, it is expected that the e-Polvot system can function properly.

## II. METHOD

Figure 1 depicts the methodology flow used for building the e-Polvot system. This flow is expected to assist in the development of the e-Polvot system [15].

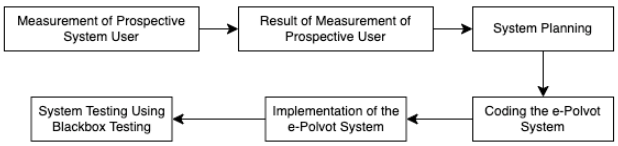



**Figure 1. Research Methodology Flow**

The explanation of Figure 1 is as follows:

### *A. User Measurment*

This stage is conducted to assess the readiness of potential users before implementing the system. It is done to minimize the risk of potential users not adopting the new technology implemented at STMIK Amik Riau. The demographic sampling used in this research consists of three departments at STMIK Amik Riau: Informatics Engineering with 158 students, Information Systems with 59 students, and Information Technology with 30 students, resulting in a total sampling size of 247 students. The measurement of user readiness utilizes the Technology Readiness Index (TRI) model with four variables: Optimism, Innovation, Discomfort, and Insecurity [16], [17].

### *B. Measurment Result*

The measurement results obtained will be used as a consideration for the implementation of the new system. Before the system development, the research conducted a literature review as a guide

for the system development. Table 1 represents the literature used in this study.

**Tabel 1. Summary of Literature Review with concept centric**

| Researcher | E-Polling | E-Voting | Education | User Readiness Analysis | System Testing |
|---|---|---|---|---|---|
| [18] | V | | | | |
| [19] | V | | V | | |
| [20] | | V | | | V |
| [21] | | V | | V | |
| [22] | | V | V | V | V |
| [23] | | V | | | V |
| [24] | | V | | | V |
| This Study | V | V | V | V | V |

Table 1 presents a concept-centric summary of literature relevant to the development of a new polling and voting system in the field of education. The table includes various aspects: E-Polling, E-Voting, Education, User Readiness Analysis, and System Testing, mapped against the works of previous researchers ([18]–[24]) and the current study.

A detailed look at the table reveals several important insights and research gaps. Most prior studies tend to focus on a subset of these elements rather than integrating all of them within one comprehensive approach. For example, research by [18] addresses only E-Polling, while [19] covers both E-Polling and Education but does not address System Testing or User Readiness. Some studies such as [22] present a broader approach, including E-Polling, E-Voting, Education, and User Readiness Analysis, but still do not consider System Testing as part of their scope.

Importantly, none of the previous studies integrate all five aspects (E-Polling, E-Voting, Education, User Readiness Analysis, and System Testing) in a single framework. This gap underscores a lack of holistic solutions in existing literature, especially in the context of education, where the combination of polling and voting features is essential for comprehensive system implementation and user engagement analysis.

In contrast, the current study explicitly addresses this gap by incorporating all the aforementioned elements. By doing so, this research offers a more integrated and complete approach for implementing and evaluating an educational E-Polling and E-Voting system. The inclusion of user readiness and systematic testing further ensures that the proposed system is practical, reliable, and user-oriented—addressing both technological and human factors that are critical for successful adoption in educational environments.

Therefore, this study makes a significant contribution by bridging the existing gap, providing a thorough framework that could serve as a benchmark for future developments in digital polling and voting systems in the educational sector.

### *C. System Planning*

This stage involves planning the system after assessing the readiness of users to adopt the new technology. This design utilizes use cases. Use case diagram is one type of diagram used in the analysis and design of systems to illustrate the interaction between actors (users or external entities) and the system being developed [25]. Use case diagrams provide a visual representation of the functions provided by the system and the interaction between actors and the system [26].

Use case diagrams help identify the functional requirements of the system and understand the interaction between users or actors and the system [27]. They can also serve as an effective communication tool among the development team, users, and other stakeholders in describing the main objectives of the system and the functions to be implemented. Figure 2 presents the use case diagram for this research.

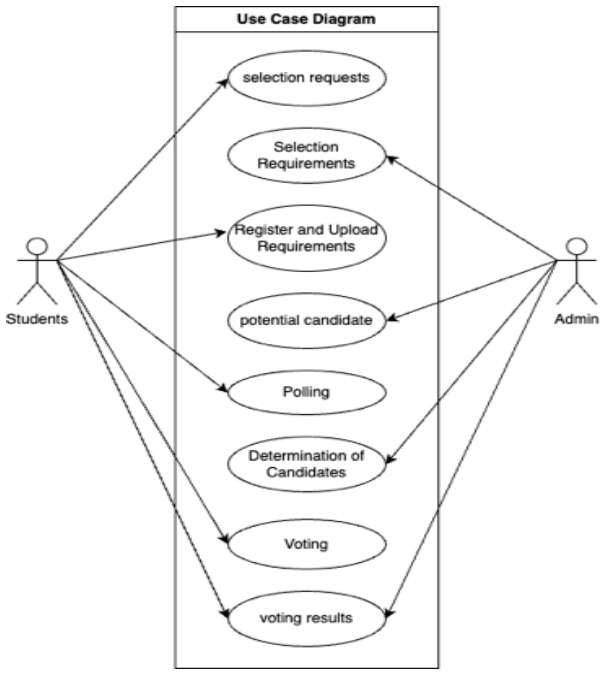



**Figure 2. Use Case Diagram**

In Figure 2, two actors are involved in this research. The users consist of all individuals at STMIK Amik Riau, including students, employees, and lecturers. The users in the diagram can request selections such as selecting the student council, department heads, university presidents, and others. They can then proceed with the registration process and upload documents according to the specified requirements. The submitted requirements will be reviewed by the relevant authorities to determine the eligible candidates, who will then go through a polling process. Users will conduct voting to select the prospective candidates based on the applicable terms and conditions.

### *D. Coding and Implentation*

The next step is to proceed with the system development and implementation process. The system being implemented is integrated with the STMIK Amik Riau's SIAKAD system. This integration eliminates the need for students to create a new account when using the e-Polvot system.

### *E. Testing*

The final stage involves testing the system using black box testing. This testing is conducted to ensure that the implemented system functions properly and operates smoothly.

## III. RESULT AND DISCUSSION

In this section, it is explained the results of the research and at the same time is given a comprehensive discussion. Results can be presented in figures, graphs, tables, and others that make the reader understand easily. The discussion can be made in several sub-chapters.

### A. Results

Based on the results of the questionnaire distribution that has used valid data, the next step involves data processing by grouping the data according to the predefined variables. Reverse coding is performed on variables with negative values. The calculation of the Technology Readiness Index (TRI) is derived from the mean values of each questionnaire multiplied by the weight of each statement. The weight of each statement is obtained by dividing the total weight of the variable by the number of statements within each variable.

After obtaining the weights for each statement, the mean value of those statements is multiplied by their respective weights to obtain the total score for each statement. The variable score is obtained from the total score of statements within that variable. The total TRI score is obtained by summing the values of all variables. The calculation process for the TRI value of each variable can be seen from the following equation [28].

$$Statement\ Weight = \frac{25\%}{\sum Statement\ Variable} \quad (1)$$

$$Statement\ Value = \frac{\sum number\ of\ answer \times answer\ score}{number\ of\ respondent} \quad (2)$$

$$Variable\ Value = \sum statement\ Value \quad (3)$$

$$TRI\ Value = \sum Variable\ Score \quad (4)$$

The categories of readiness levels in the implementation of the Technology Readiness Index, as developed by [29], are as follows:

1. Low Technology Readiness: if TRI =< 2.89.
2. Medium Technology Readiness: if TRI 2.90 =< TRI =< 3.51.
3. High Technology Readiness: if TRI > 3.51.

The method for calculating the TRI (Technology Readiness Index) score is computed by taking the mean value of each questionnaire item associated with its respective weight. Each variable contributes a weight of 25% to the total. This weight is then divided by the number of statements within each variable. After obtaining the weight for each statement, the mean value of those statements is multiplied by their respective weights to obtain the total score for each statement. The variable score is obtained by summing the total scores of statements within that variable [30].

For the variables "optimism" and "innovation," all questions used are positive in nature. Therefore, the Likert scale employed for these variables is as follows: 5. Strongly Agree, 4. Agree, 3. Neutral, 2. Disagree, 1. Strongly Disagree. Meanwhile, for the variable's "discomfort" and "security," negative questions are used. Thus, the Likert scale used for these variables is as follows: 5. Strongly Disagree, 4. Disagree, 3. Neutral, 2. Agree, 1. Strongly Agree. Table 4.3 represents the results of the TRI model testing for each variable.

The measurement results of the potential users indicate that all of them fall into the "high" category, meaning that they are highly prepared to use the e-Polvot system. The overall scores for the measured variables are as follows: optimism 0.99, innovativeness 1, discomfort 0.97, and insecurity 0.97. The average score for these variables is 3.93, which can be categorized as "high" in terms of accepting new technology. With this testing, it is expected that the implementation of the e-Polvot system will enhance student participation in university elections. The next step is to proceed with the implementation of the e-Polvot system. The following are the user interface screens of the e-Polvot system:

1. Login

In this research, login is performed by entering the same username and password used in other systems such as the Course Registration System (KRS) and Academic Transcript (KHS) for students. Faculty members and staff also log into the e-Polvot system using their attendance account. Figure 3 illustrates the login page of the e-Polvot system.




**Figure 3. e-Polvot Login Page**

2. Request for Election

Next is the request for an election, which is initiated by the user appointed as the election committee. The admin then validates the request and proceeds with the input of requirements. Figure 4 shows an example of inputting the required information by prospective candidates.

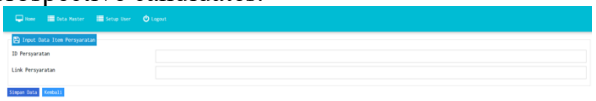


**Figure 4. Requirement Input**

3. Upload Requirement Documents

In this stage, all registered prospective candidates proceed with uploading the required documents. Figure 5 provides an example of uploading requirement documents.



**Figure 5. Upload Requirement Documents**

4. Polling Results in Graphical Form

On this page, polling is conducted for each candidate, and the page appears after the selection and data validation of the requirements have been completed.




**Figure 6. Polling Results in Graphical Form**

5. Candidate Determination

The candidate determination page displays the candidates based on the polling results, with the highest number of votes appearing at the top.

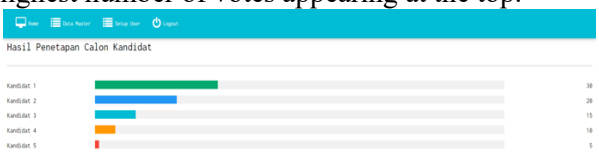



**Figure 7. Candidate Determination**

6. Voting Process

The voting process on this page is carried out by registered voters who have been authorized by the relevant Electoral Commission for each election. Voting is as simple as clicking the vote button, and the selected vote count is automatically accumulated.

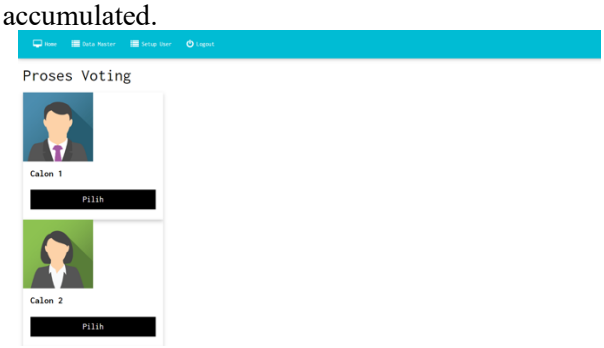



**Figure 8. Voting Process**

7. Voting Results

The voting results represent the final outcome of the previous processes. Figure 9 shows the candidates chosen based on the votes cast by students for the positions of president and vice-president.

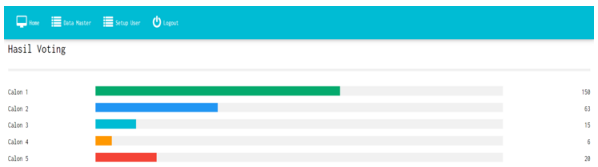



**Figure 9. Voting Results**

## B. Blackbox Testing

Table 2 represents the blackbox testing conducted to ensure the proper functioning of the application.

**Table 2. Black Box Testing**

| System Process | Information |
|---|---|
| Login | Successful |
| Request For Election | Successful |
| Upload Requirement Document | Successful |
| Polling Results in Graphical Form | Successful |
| Candidate Determination | Successful |
| Voting Process | Successful |
| Voting Results | Successful |

The table 2 provides a summary of testing results for different system processes in an election-related application. Blackbox Testing is a method where the software's functionality is evaluated without considering the internal code structure, focusing instead on inputs and expected outputs.

The first entry in the table, "Login: Successful," indicates that the login process was tested and found to be functioning correctly, allowing users to authenticate and access the system. The "Request for Election: Successful" entry confirms that users can successfully request election-related information, such as schedules, candidate details, and voting requirements, with the system returning the correct information.

The "Upload Requirement Document: Successful" entry demonstrates that users can successfully upload necessary documents, possibly required for candidates or voters during the election process, and the system effectively processes and stores these uploads. Furthermore, "Polling Results in Graphical Form: Successful" signifies that the system can present polling results visually, enhancing user understanding of election outcomes.

The "Candidate Determination: Successful" entry indicates that the system can correctly identify or display election candidates, listing those who are confirmed or participating. Meanwhile, the "Voting Process: Successful" confirms that users can cast their votes without issues, ensuring the accuracy and security of vote recording. Lastly, "Voting Results: Successful" demonstrates that the system can accurately tally and display voting results after the election.

Overall, the table indicates that all tested functionalities of the election system were successful, meaning that each component functioned as expected during the testing phase. This outcome demonstrates a high level of reliability and correctness in the application's features related to handling election processes, from user login to the final display of voting results. It provides confidence in the system's readiness for real-world deployment, as all critical functionalities are working without issues.

## C. Testing using TRI Model

This research conducted several stages in the implementation of the e-Polvot system. The first stage involves measuring the readiness of the system users. The users were assessed using the TRI model with four variables: Optimism, Innovation, Discomfort, and Insecurity. The research consisted of 14 questions, with 3 questions for Optimism, 3 questions for Innovation, 5 questions for Discomfort, and 3 questions for Insecurity. These questions were distributed to 247 students using Google Forms. The validity and reliability of the questions were tested before further processing. All the questions in this research were found to be valid, and the reliability score was 0.732, indicating that all the questions were reliable. Overall, the TRI score obtained was 3.93, which is categorized as high [29], [31], indicating that all the students are ready for the implementation of the e-Polvot system.

In the second stage, the system implementation process was carried out, which included seven main features in this research: login, request for election, upload requirement document, polling result in graphical form, candidate determination, voting process, and voting result. All these processes were subjected to blackbox testing, and the results showed that all the main features functioned well.

# IV. CONCLUSION

Based on the discussions conducted in this research, it can be concluded that almost all of the samples used in the study are ready to adopt the new technology, namely the e-Polvot system, with an average TRI score of 0.93. This score is categorized as "High" in terms of technology acceptance. Furthermore, the implementation process of the e-Polvot system demonstrated that all the features can function properly, as evidenced by the successful blackbox testing. However, this research still has limitations, such as the unknown acceptance during the system development phase. Therefore, there is a need for evaluation of the system, including the use

of the Technology Acceptance Model [32], [33] to measure the acceptance of the e-Polvot system. Additionally, future research could consider adopting the system in other campuses if e-Polvot is further developed.

## ACKNOWLEDMENT

We would like to express our deepest gratitude to the University of Science and Technology Indonesia for their invaluable support and contribution to this research. Without the support of the university, the achievements and success of our research would not have been possible. The University of Science and Technology Indonesia provided essential facilities and resources and created an academic environment that was conducive to the development of this research. We are truly grateful for all the assistance and support given, and we look forward to continuing this fruitful collaboration in the future.

## REFERENSI

[1] D. Ginting, "Student Engagement and Factors Affecting Active Learning in English Language Teaching," *VELES Voices of English Language Education Society*, vol. 5, no. 2, pp. 215–228, Oct. 2021, doi: 10.29408/veles.v5i2.3968.

[2] Mohd. Y. Abdullah, N. R. A. Bakar, and M. H. Mahbob, "Student's Participation in Classroom:What Motivates them to Speak up?," *Procedia Soc Behav Sci*, vol. 51, pp. 516–522, 2012, doi: 10.1016/j.sbspro.2012.08.199.

[3] S. M. Stehle and E. E. Peters-Burton, "Developing student 21st Century skills in selected exemplary inclusive STEM high schools," *Int J STEM Educ*, vol. 6, no. 1, Dec. 2019, doi: 10.1186/s40594-019-0192-1.

[4] S. Anjum, "Impact of internship programs on professional and personal development of business students: a case study from Pakistan," *Future Business Journal*, vol. 6, no. 1, Dec. 2020, doi: 10.1186/s43093-019-0007-3.

[5] M. K. Anam, T. Nasution, S. Erlinda, L. Efrizoni, and Susanti, "The Analysis and Optimization of Business Processes for Students in Higher Education Based on Togaf 9 . 2," *Scientific Journal of Informatics*, vol. 8, no. 2, pp. 230–243, 2021, doi: 10.15294/sji.v8i1.29952.

[6] H. S. Surya, B. G. Millenio, J. Junadhi, and S. D. Putri, "Evaluation of User Experience Information Systems Using Heuristic Evaluation (Case Study of STMIK Amik Riau Student Portal)," *JURNAL TEKNOLOGI DAN OPEN SOURCE*, vol. 4, no. 2, pp. 180–188, Dec. 2021, doi: 10.36378/jtos.v4i2.1790.

[7] K. Karolan, "Electronic-Voting (E-Voting) Policy In Consistent General Elections Towards A Democracy System In Indonesia," *Dialogue Can Philos Assoc*, vol. 2, no. 2, pp. 176–195, 2020, doi: 10.14710/dialogue.v2i2.9805.

[8] Y. Darmayunata and F. Alfarasy Syam, "Implementation And Development Of E-Voting System For Election Of Student Council Chairperson Of SMP Negeri 10 Pekanbaru," *Journal of Applied Engineering and Technological Science*, vol. 1, no. 2, pp. 150–161, 2020, doi: 10.37385/jaets.v1i2.105.

[9] A. Petitpas, J. M. Jaquet, and P. Sciarini, "Does E-Voting matter for turnout, and to whom?," *Elect Stud*, vol. 71, Jun. 2021, doi: 10.1016/j.electstud.2020.102245.

[10] K. Suranata, "The Cognitive Behavioral Counseling (CBT) Model Based on Tri Kaya Parisduha Philosophy," *Bisma The Journal of Counseling*, vol. 4, no. 3, pp. 232–241, 2020, doi: 10.23887/bisma.v4i1.

[11] N. R. Oktadini, J. Fernando, P. E. Sevtiyuni, M. A. Buchari, P. Putra, and A. Meiriza, "Measuring Technology Readiness Index (TRI) of Management Information System Adoption in Higher Education," *Ultima Infosys : Jurnal Ilmu Sistem Informasi*, vol. 13, no. 2, 2022.

[12] D. K. Rinjany, "Does Technology Readiness and Acceptance Induce more Adoption of E-Government? Applying the UTAUT and TRI on an Indonesian Complaint-Based Application," *Policy & Governance Review*, vol. 4, no. 1, p. 68, 2020, doi: 10.30589/pgr.v4i1.157.

[13] V. Rosalina, T. A. Munandar, A. N. Hidayanto, and H. B. Santoso, "Measuring citizen readiness to adopt electronic citizen relationship management (E-CIRM) using technology readiness index (TRI)," *J Theor Appl Inf Technol*, vol. 98, no. 21, pp. 3416–3425, 2020.

[14] S. Nidhra and J. Dondeti, "Black Box and White Box Testing Techniques - A Literature Review," *International Journal of Embedded Systems and Applications*, vol. 2, no. 2, pp. 29–50, Jun. 2012, doi: 10.5121/ijesa.2012.2204.

[15] Junadhi, Agustin, M. Rifqi, and M. K. Anam, "Sentiment Analysis of Online Lectures using K-Nearest Neighbors based on Feature Selection," *Jurnal Nasional Pendidikan Teknik Informatika (JANAPATI)*, vol. 11, no. 3, pp. 216–225, Dec. 2022, doi: 10.23887/janapati.v11i3.51531.

[16] M. K. Anam, I. Prayogo, Susandri, Y. Efendi, Erlin, and Nurjayadi, "The readiness analysis of smart school implementation using technology readiness index to support smart city implementation," *Bulletin of Social Informatics Theory and Application*, vol. 6, no. 2, pp. 132–145, 2022, doi: 10.31763/businta.v6i2.507.

[17] A. F. Ariani, D. Napitupulu, R. K. Jati, J. A. Kadar, and M. Syafrullah, "Testing of technology readiness index model based on exploratory factor analysis approach," *J Phys Conf Ser*, vol. 1007,

no. 1, 2018, doi: 10.1088/1742-6596/1007/1/012043.

[18] R. Maulana, S. Dewi, M. S. Maulana, Nurmalasari, and A. Sasongko, "Penerapan Aplikasi Polling Pemilihan Ketua RT Secara Online Pada Pemilihan Umum (Pemilu) Ketua RT.004/RW.008 Masa Bakti 2021-2026 Kelurahan Parit Mayor Kecamatan Pontianak Timur," *Jurnal Penelitian dan Pengabdian Masyarakat Jotika*, vol. 1, no. 2, pp. 49–52, 2022, doi: 10.56445/jppmj.v1i2.26.

[19] E. Travada, E. M. Husni, Y. Rosmansyah, and Kusprianto, "Teknik Polling Di Recommender System Collaborative Filtering Untuk Pembelajaran Daring," *Jurnal Teknologi dan Komunikasi Pemerintahan*, vol. 2, no. 1, pp. 43–51, 2020, doi: 10.33701/jtkp.v2i1.2299.

[20] I. Riadi, P. Ananda Raharja, and A. Dahlan Yogyakarta, "Analisis Application Programming Interface Pada Mobile E-Voting Menggunakan Metode Test-Driven Development," *Techno*, vol. 20, no. 2, pp. 87–94, 2019, doi: 10.30595/techno.v20i2.4266.

[21] L. Hardjaloka and V. M. Simarmata, "E-Voting: Kebutuhan vs. Kesiapan (Menyongsong) E-Demokrasi," *Jurnal Konsitusi*, vol. 8, no. 4, pp. 579–604, 2011, doi: 10.31078/jk847.

[22] H. santoso, W. Suharso, and Hariyadi, "Pembangunan Aplikasi Mobile Hybrid Pada M-Voting Pemilu Raya Universitas Muhammadiyah Malang," *IJAI (Indonesian Journal of Applied Informatics)*, vol. 4, no. 2, pp. 127–137, 2020, doi: 10.20961/ijai.v4i2.40870.

[23] H. Saputro, "Sistem Informasi E-Voting Dengan Metode Rapid Application Development (Rad) Pada Pemilihan Kepala Desa Berbasis Website," *BINER (Jurnal Ilmiah Informatika dan Komputer)*, vol. 1, no. 1, pp. 43–51, 2022, [Online]. Available: https://ojs.unsiq.ac.id/index.php/biner

[24] N. Idenanda, R. A. Nugroho, and T. B. Santoso, "Penerimaan Masyarakat Terhadap Sistem E-Voting dalam Pelaksanaan Pilkades di Desa Butuh Kecamatan Mojosongo Kabupaten Boyolali," *Jurnal Sosial Politik*, vol. 8, no. 1, pp. 1–15, Jul. 2022, doi: 10.22219/jurnalsospol.v8i1.14159.

[25] J. L. Barros-Justo, F. B. V. Benitti, and S. Tiwari, "The impact of Use Cases in real-world software development projects: A systematic mapping study," *Comput Stand Interfaces*, vol. 66, Oct. 2019, doi: 10.1016/j.csi.2019.103362.

[26] T. A. Kurniawan, "Pemodelan Use Case (UML): Evaluasi Terhadap beberapa Kesalahan dalam Praktik," *Jurnal Teknologi Informasi dan Ilmu Komputer*, vol. 5, no. 1, p. 77, 2018, doi: 10.25126/jtiik.201851610.

[27] N. Bolloju and S. Alter, "Better use case diagrams by using work system snapshots," *International Journal of Information Technologies and Systems Approach*, vol. 9, no. 2, pp. 1–22, 2016, doi: 10.4018/IJITSA.2016070101.

[28] M. K. Anam, I. Prayogo, Susandri, Y. Efendi, and Nurjayadi, "Analysis of User Readiness Using the TRI Model for Smart School Implementation in the City of Pekanbaru," *Jurnal RESTI (Rekayasa Sistem dan Teknologi Informasi)*, vol. 7, no. 3, pp. 592–601, Jun. 2023, doi: 10.29207/resti.v7i3.4772.

[29] A. Parasuraman, "Technology Readiness Index (TRI): A Multiple-item Scale To Measure Readiness To Embrace New Technologies," *J Serv Res*, vol. 2:307, no. May, 2000, doi: 10.1177/109467050024001.

[30] M. K. Anam, F. Zoromi, Soni, T. Nasution, and K. Andesa, "Penerapan Model Technology Readiness Index Untuk Mengukur Tingkat Kesiapan Mahasiswa dalam Penerimaan Sistem E-POLVOT," *Jurnal Teknologi Informasi dan Ilmu Komputer (JTIIK)*, vol. 10, no. 6, pp. 1401–1408, 2023, doi: 10.25126/jtiik.2023107368.

[31] Z. Qasem, "The effect of positive TRI traits on centennials adoption of try-on technology in the context of E-fashion retailing," *Int J Inf Manage*, vol. 56, no. September 2020, p. 102254, 2021, doi: 10.1016/j.ijinfomgt.2020.102254.

[32] A. Dadvari and B. R. Do, "Modeling Gen Z continuance intention toward ubiquitous media system: Applying technology readiness and technology acceptance model," *International Journal of Information and Management Sciences*, vol. 30, no. 1, pp. 37–56, 2019, doi: 10.6186/IJIMS.201903_30(1).0003.

[33] N. Ullah, "Integrating TAM/TRI/TPB frameworks and expanding their characteristic constructs for DLT adoption by Service and Manufacturing Industries-Pakistan Context," in *2020 International Conference on Technology and Entrepreneurship, ICTE 2020*, 2020. doi: 10.1109/ICTE47868.2020.9215537.