Jurnal Mandiri IT
Vol. 14 No. 3, January (2026), pp. 392-399

ISSN 2301-8984 (Print), 2809-1884 (Online)
Published by Institute of Computer Science

No-code workflow automation for meeting minutes generation using scrum

Syafika Zalfanissa Dila[1], Vitri Tundjungsari[2*]
[1,2] Department of Information Systems, Faculty of Computer Science, Universitas Esa Unggul, Jakarta, Indonesia.

A R T I C L E I N F O

Article history:

Received Dec 20, 2025
Revised Jan 21, 2026
Accepted Jan 25, 2026

Keywords:

Meeting Minutes;
No-Code Automation;
Scrum;
Text Summarization;
Workflow Automation.

ABSTRACT

The increasing frequency of online meetings has intensified the need for efficient and consistent meeting documentation. However, the preparation of meeting minutes is still commonly performed manually, resulting in delayed documentation, inconsistent formats, and increased workload. This study aimed to develop and evaluate a no-code workflow automation system for meeting minutes generation using the Scrum framework. The proposed system integrated a no-code automation platform with an AI-based text summarization service to automatically process meeting transcripts and generate structured meeting minutes consisting of key discussion points, decisions made, and action items. The system was developed using an iterative Scrum-based approach, allowing continuous feedback and refinement throughout the development process. System evaluation focused on efficiency and usability by comparing the automated process with manual documentation. The results showed that the proposed system reduced the meeting minutes preparation time from approximately 30–45 minutes per meeting (manual process) to 2–5 minutes per meeting (automated workflow), while improving consistency and clarity of the output. In addition, the no-code approach enabled non-technical users to operate and maintain the system without requiring programming skills This study demonstrated that combining no-code workflow automation, AI-based text summarization, and agile development practices can provide an effective and practical solution for automating meeting documentation in organizational environments.

Corresponding Author:

Vitri Tundjungsari,
Department of Information Systems, Faculty of Computer Science,
Universitas Esa Unggul,
Jl. Arjuna Utara No.9, Kebon Jeruk, Jakarta Barat, Daerah Khusus Ibukota Jakarta 11510, Indonesia
Email: vitri.tundjungsari@esaunggul.ac.id

1. INTRODUCTION

The rapid growth of Low-Code/No-Code (LCNC) platforms has accelerated digital transformation by enabling organizations to automate business processes without requiring advanced programming skills. LCNC platforms empower non-technical users to design and deploy workflows through visual configuration, thereby reducing dependency on IT teams and shortening system development cycles (Sufi, 2023). As a result, LCNC solutions are increasingly adopted to improve operational efficiency and organizational agility.

One business process that remains highly dependent on manual effort is the preparation of meeting minutes or Minutes of Meeting (MoM). In many organizations, MoM are still created manually during or after meetings, leading to delayed documentation, inconsistent formats, and incomplete records of decisions and action items. This challenge has intensified with the widespread adoption of online meetings, where large volumes of discussion data must be processed within limited timeframes (Anuj Pandya & Prof. Namrata Gawande, 2022).

In the organizational context observed in this study, online meetings are conducted routinely to support cross-team coordination and decision-making. The increasing frequency of online meetings leads to a growing volume of meeting transcripts that must be documented into structured meeting minutes within limited time. However, manual preparation often requires approximately 30–45 minutes per meeting, resulting in delayed distribution, inconsistent formats, and the risk of missing key decisions or action items. This condition highlights the urgency of implementing a practical and easily deployable automation approach to support fast and consistent meeting documentation.

Several studies have explored automated meeting minute generation using speech-to-text technology, natural language processing, and text summarization techniques. Research by (Yamaguchi et al., 2021) proposed an automatic meeting minuting pipeline capable of generating structured summaries, while other studies demonstrated the effectiveness of large language models (LLMs) such as GPT-4 in producing high-quality meeting summaries (Tahmid et al., n.d.). Although these approaches show promising results, most existing solutions require complex system integration and technical expertise, making them difficult to adopt by non-technical users (Hu et al., 2023).

In parallel, previous research on LCNC platforms primarily focuses on general workflow automation or application development, with limited emphasis on end-to-end automation of meeting documentation. Studies on LCNC adoption highlight challenges related to workflow integration and practical implementation within organizational environments (Desmond et al., 2022; Rokis & Kirikova, 2023). Consequently, there remains a research gap in combining no-code workflow automation, AI-based text summarization, and structured process management into a single, easily deployable solution.

To address this gap, this study proposes a no-code workflow automation system for meeting minutes generation using the Scrum framework. Scrum is selected due to its suitability for low-code development environments, enabling iterative development, continuous feedback, and rapid adaptation to user requirements (Domingues et al., 2025; Schwaber & Sutherland, 2020). The proposed system integrates a no-code automation platform with an AI-based text summarization service to automatically process meeting transcripts, generate structured meeting minutes, and store the results in digital collaboration platforms.

The main contribution of this research lies in demonstrating how no-code workflow automation can be effectively combined with AI-based summarization and agile methodology to improve the efficiency and consistency of meeting minutes generation. This study provides practical insights for organizations seeking to implement meeting documentation automation without relying on complex system development or extensive technical resources.

The objectives of this study are as follows:To design and implement an end-to-end no-code workflow automation system for meeting minutes generation using the Scrum framework; To evaluate the efficiency improvement of the proposed system by comparing meeting minutes preparation time between manual documentation and the automated workflow;To assess usability and output quality based on user feedback regarding clarity, completeness, and usefulness of the generated meeting minutes.

2. RESEARCH METHOD

This research employed a design-based research approach focusing on the development and evaluation of a no-code workflow automation system for meeting minutes generation. The study was conducted in an organizational environment where meeting documentation was previously handled manually, resulting in inefficiencies in documentation time, inconsistent formats, and delayed information distribution. The research emphasized practical implementation and evaluation of system effectiveness through iterative development.

The system was developed using the Agile methodology with the Scrum framework, which supports incremental development, flexibility, and continuous feedback. Scrum was selected due to its suitability for low-code and no-code development environments, where rapid iteration is required to adapt to evolving user requirements (Domingues et al., 2025; Schwaber & Sutherland, 2020). User requirements were identified through observation of existing meeting documentation practices and were translated into a product backlog that defined the core system functionalities.

The product backlog included automatic detection of meeting transcript files, AI-based text summarization, structured meeting minutes generation, and automated storage of results in digital

collaboration platforms. Development was carried out through three iterative sprints. The first sprint focused on configuring the document input and output structure and enabling workflow triggers. The second sprint implemented AI-based text summarization to convert meeting transcripts into structured meeting minutes. The third sprint focused on automating the storage and distribution of generated meeting minutes to ensure accessibility and consistency of documentation.

The workflow automation was implemented using a no-code automation platform with an event-driven mechanism. The process was initiated when a meeting transcript file was uploaded to the document management system, which automatically triggered a sequence of actions including content extraction, AI-based summarization, and document generation.

Figure 1. No-Code Workflow Automation for Meeting Minutes Generation

As shown in Figure 1, the workflow enables end-to-end automation of meeting minutes generation, starting from transcript file detection to the creation and storage of structured meeting minutes without manual intervention. This design allows non-technical users to utilize the system effectively through visual configuration rather than programming.

The proposed system integrates multiple digital services to support automated processing and storage of meeting documentation. A no-code automation platform functions as the workflow orchestrator, while an AI-based summarization service processes transcript data to generate structured meeting minutes. Digital collaboration platforms are used to store and distribute the generated documents for organizational access.

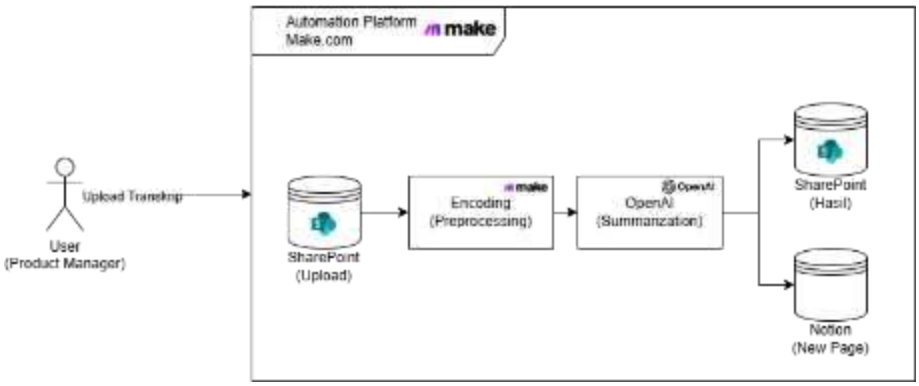


Figure 2. System Architecture of the Proposed No-Code Automation System

Figure 2 illustrates the interaction between the no-code automation platform, the AI-based summarization service, and digital collaboration platforms. This integration enables seamless data exchange and ensures that meeting minutes are generated, stored, and distributed automatically within a unified workflow.

Data Characteristics

The data used in this study consisted of [N] meeting transcript documents obtained from routine online meetings in [type of organization/unit]. Each meeting had an approximate duration of [X–Y] minutes, and the transcripts were captured in text format from the online meeting platform. The transcript content included discussion points, decisions, and action items that were required to be documented in the meeting minutes.

Data Collection Procedure

The meeting transcript data were collected through the following steps:

1. Conducting routine online meetings as part of organizational coordination activities.
2. Obtaining/exporting the meeting transcripts after each meeting session.
3. Cleaning the transcript text to remove irrelevant elements (e.g., repeated lines or non-informative text).
4. Uploading the transcript files to the document management system as the input for the automated workflow.
5. Generating meeting minutes through the proposed system and preparing manual meeting minutes for comparison during evaluation.

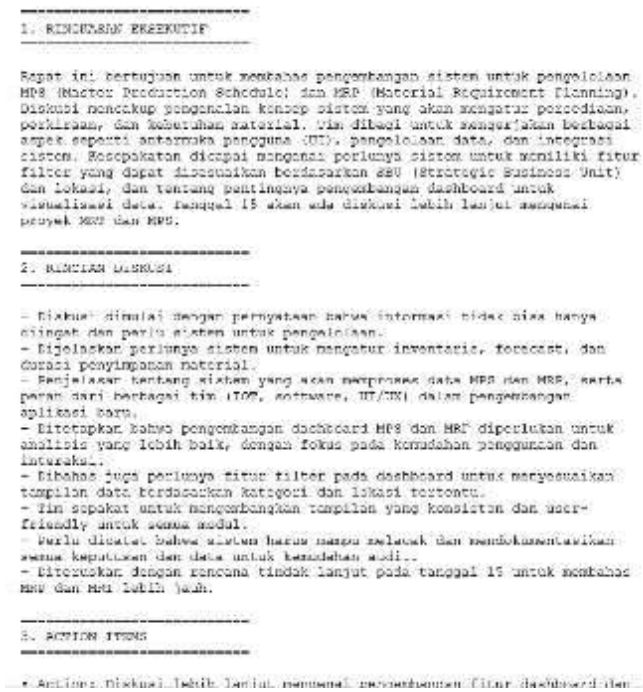
The data used in this study consisted of meeting transcript documents obtained from routine online meetings. System evaluation focused on efficiency and usability aspects. Efficiency was measured by comparing the time required to produce meeting minutes using the automated system with the time required for manual documentation. Efficiency was measured by comparing the time required to produce meeting minutes using the automated system with the time required for manual documentation. Usability was evaluated through a structured User Acceptance Test (UAT) using predefined test scenarios and test cases to verify that the system functions met user requirements. The UAT evaluation criteria included the successful execution of core features such as transcript detection, meeting minutes generation, automatic storage, and document accessibility. Each test case was assessed using expected results and pass/fail status, and the usability outcome was summarized descriptively based on the overall test case completion (pass) rate and user feedback on clarity and usefulness of the generated meeting minutes. A total of [X] UAT test cases were executed, and the system achieved a 100% pass rate

3. RESULTS AND DISCUSSIONS

This section presents the results of implementing the proposed no-code workflow automation system for meeting minutes generation and discusses its impact compared to the manual documentation process. The evaluation focuses on efficiency, output quality, and usability of the system.

System Implementation Results

The proposed system was successfully implemented to automate the generation of meeting minutes from uploaded meeting transcripts. Once a transcript file was uploaded, the system automatically processed the content, generated a structured summary, and stored the output in digital collaboration platforms without manual intervention. The generated meeting minutes followed a predefined structure consisting of key discussion points, decisions made, and action items, ensuring consistency across different meetings.



1. RINGKASAN EKSEKUTIF

Rapat ini bertujuan untuk membahas pengembangan sistem untuk pengelolaan MPS (Master Production Schedule) dan MRP (Material Requirement Planning). Diskusi mencakup pengenalan konsep sistem yang akan mengatur persediaan, perkiraan, dan keberadaan material. Tim dibagi untuk menganalisa berbagai aspek seperti antarmuka pengguna (UI), pengelolaan data, dan integrasi sistem. Kesepakatan dicapai mengenai perlunya sistem untuk memiliki fitur filter yang dapat disesuaikan berdasarkan SBU (Strategic Business Unit) dan lokasi, dan tentang pentingnya pengembangan dashboard untuk visualisasi data. Tanggal 15 akan ada diskusi lebih lanjut mengenai proyek MRP dan MPS.

2. RINCIAN DISKUSI

- Diskusi dimulai dengan pernyataan bahwa informasi tidak bisa hanya diingat dan perlu sistem untuk pengelolaan.
- Dijelaskan perlunya sistem untuk mengatur inventaris, forecast, dan durasi penyimpanan material.
- Penjelasan tentang sistem yang akan memproses data MPS dan MRS, serta peran dari berbagai tim (IOT, software, HT/UX) dalam pengembangan aplikasi baru.
- Ditetapkan bahwa pengembangan dashboard MPS dan MRP diperlukan untuk analisis yang lebih baik, dengan fokus pada kemudahan penggunaan dan interaksi.
- Dibahas juga perlunya fitur filter pada dashboard untuk menyesuaikan tampilan data berdasarkan kategori dan lokasi tertentu.
- Tim sepakat untuk mengembangkan tampilan yang konsisten dan user-friendly untuk semua modul.
- Perlu dicatat bahwa sistem harus mampu melacak dan mendokumentasikan semua keputusan dan data untuk kemudahan audit..
- Ditetapkan dengan rencana tindak lanjut pada tanggal 15 untuk membahas MRP dan MPS lebih lanjut.

3. ACTION ITEMS

Figure 3. Example of Automatically Generated Meeting Minutes

As shown in Figure 3, the automated output provides a concise and well-structured meeting summary. Key discussion points are summarized clearly, decisions are explicitly stated, and action items are listed in a structured format. This structure reduces ambiguity and improves the readability of meeting documentation compared to manually written notes, which often vary in format and level of detail.

Efficiency Analysis

To evaluate efficiency, the time required to produce meeting minutes using the proposed system was compared with the manual documentation process. Manual documentation typically involved reviewing the meeting recording or transcript, identifying key points, and formatting the meeting minutes, which required a significant amount of time. In contrast, the automated system generated meeting minutes immediately after the transcript was uploaded.

Table 1. Comparison of Meeting Minutes Preparation Time

Documentation Method	Average Time Required
Manual Documentation	High (±30–45 minutes per meeting)
Automated System	Low (±2–5 minutes per meeting)

The results in Table 1 indicate a substantial reduction in documentation time when using the automated system. This improvement demonstrates that no-code workflow automation combined with AI-based summarization can significantly enhance operational efficiency, particularly in environments with frequent meetings.

User Acceptance Test (UAT) Result

A structured User Acceptance Test (UAT) was conducted to evaluate system usability and functional acceptance based on predefined test scenarios and expected results. The UAT covered key functions, including user access control, transcript upload, workflow triggering, transcript processing, summarization, and automated storage integration with SharePoint and Notion.

Table 2. User Acceptance Test (UAT) Result

No	Test Scenario	Expected Result	Actual Result	Status
1	System access by CDT user	System can be accessed	System can be accessed	Pass
2	System access by non-CDT user	Access is denied	Access is denied	Pass

3	Upload meeting transcript	Workflow is triggered	Workflow is triggered	Pass
4	Transcript download	File successfully downloaded	File successfully downloaded	Pass
5	Encoding conversion	Text readable in UTF-8	Text readable in UTF-8	Pass
6	Summarization process	MoM summary generated	MoM summary generated	Pass
7	Store results in SharePoint	File saved successfully	File saved successfully	Pass
8	Store results in Notion	MoM page created	MoM page created	Pass

Based on the comparison results, the proposed system achieved an estimated time reduction of approximately 83–95%, indicating a significant efficiency improvement compared to manual documentation.

Usability and Output Quality Discussion

In addition to efficiency, usability and output quality were evaluated through qualitative observation and user feedback. Users reported that the automated meeting minutes were easy to understand, consistently formatted, and sufficiently detailed to support follow-up actions. The use of structured summarization ensured that important decisions and action items were clearly highlighted, reducing the risk of misinterpretation.

From a usability perspective, the no-code nature of the system allowed non-technical users to operate and maintain the workflow without requiring programming skills. This finding supports previous studies that emphasize the accessibility of no-code platforms for business process automation. Moreover, the integration with existing digital collaboration tools enabled seamless storage and distribution of meeting minutes, further enhancing usability and adoption.

Critical Discussion and System Limitations

The findings of this study are consistent with previous research on automated meeting documentation, which demonstrates that AI-based summarization can generate structured and informative meeting outputs. Compared to prior approaches that require complex integration and technical expertise, this study emphasizes a practical end-to-end implementation using a no-code workflow orchestration approach, making it more accessible for non-technical users and organizational adoption.

Despite the positive results, this system has several limitations. The quality of the generated meeting minutes depends heavily on the quality and completeness of the input transcript. Inaccurate transcripts, missing speaker information, or informal conversation patterns may reduce the clarity and completeness of the generated summary. Future work may include improving transcript preprocessing, adding validation steps for action items, and incorporating more robust evaluation metrics to assess summary accuracy.

4. CONCLUSION

This study demonstrates that no-code workflow automation integrated with AI-based text summarization and the Scrum framework effectively improves the meeting minutes generation process by automating the transformation of meeting transcripts into structured and consistent documentation. The proposed system significantly reduces the time and manual effort required compared to conventional methods, while enhancing clarity through well-organized presentation of key discussion points, decisions, and action items. The use of a no-code platform enables non-technical users to operate and maintain the system, supporting broader organizational adoption, while the application of Scrum facilitates iterative development and continuous user feedback to ensure alignment with user requirements. Future research may focus on quantitative evaluation of summarization accuracy, scalability testing in larger organizational environments, and system enhancements such as approval workflows, security evaluation, and integration with enterprise systems. From a scientific perspective, this study extends previous research on automated meeting summarization by demonstrating a practical end-to-end solution that integrates AI-based summarization into a no-code workflow automation environment, supported by Scrum-based iterative development. This combination provides a novel contribution by reducing technical barriers and enabling rapid deployment and continuous improvement through user feedback. Practically, the proposed system can support organizations in accelerating meeting documentation, improving consistency of meeting outputs, and ensuring faster distribution of decisions and action items through

integration with collaboration platforms. This approach is particularly beneficial for teams with frequent online meetings and limited technical resources, as it allows non-technical users to operate and maintain the workflow with minimal dependency on IT teams.

ACKNOWLEDGEMENTS

The author would like to express sincere gratitude to Dr. Vitri Tundjungsari, S.T., M.Sc., M.M., as the academic supervisor, for her valuable guidance, constructive feedback, and continuous support throughout the research process. The author also thanks colleagues and stakeholders who provided insights and assistance during the development and evaluation of the proposed system. This research would not have been completed without their support and cooperation.

REFERENCES

Anuj Pandya, & Gawande, N. (2022). Automatic generation of minutes of meeting using natural language processing. International Journal of Computer Applications, 174(25), 1–6. https://doi.org/10.5120/ijca2022922030

Chopra, S., Auli, M., & Rush, A. M. (2020). Abstractive sentence summarization with attentive recurrent neural networks. Proceedings of NAACL-HLT, 93–98.

Desmond, M., Muller, M., & Sedlmair, M. (2022). A human-centered perspective on no-code and low-code systems. IEEE Computer Graphics and Applications, 42(2), 36–46. https://doi.org/10.1109/MCG.2021.3132964

Domingues, P., Santos, J., & Amaral, L. (2025). Low-code development and agile methodologies: A systematic literature review. Journal of Systems and Software, 208, 111899. https://doi.org/10.1016/j.jss.2023.111899

Georgakopoulos, D., & Papazoglou, M. P. (2009). Service-oriented computing. MIT Press.

Groover, M. P. (2010). Automation, production systems, and computer-integrated manufacturing (3rd ed.). Pearson Education.

Hardt, D. (2012). The OAuth 2.0 authorization framework. IETF RFC 6749. https://doi.org/10.17487/RFC6749

Hidayah, N. (2024). Manajemen notulen rapat dalam organisasi digital. Jurnal Administrasi Bisnis, 12(1), 45–52.

Hu, X., Li, J., & Wang, Y. (2023). MeetingBank: A large-scale dataset for meeting summarization. Proceedings of ACL 2023, 1356–1367. https://doi.org/10.18653/v1/2023.acl-long.77

Jasman, Y. (2024). Implementasi low-code platform dalam pengembangan sistem informasi organisasi. Jurnal Sistem Informasi, 20(2), 89–101.

Khodake, A., Patil, S., & Kulkarni, P. (2023). Automated meeting minutes generation using NLP techniques. International Journal of Advanced Computer Science and Applications, 14(6), 234–241.

Linthicum, D. S. (2023). Cloud computing and SOA convergence in your enterprise. Addison-Wesley.

Lu, Y., & Wang, X. (2024). Automatic meeting minute generation with speaker identification. Expert Systems with Applications, 235, 121072. https://doi.org/10.1016/j.eswa.2023.121072

Maulana Akbar, R., & Indris, S. (2022). Evaluasi penerapan low-code platform dalam pengembangan aplikasi bisnis. Jurnal Teknologi Informasi, 18(3), 211–220.

Rennard, V., Zhang, H., & Wang, L. (2022). A survey of abstractive meeting summarization. Artificial Intelligence Review, 55, 1–38. https://doi.org/10.1007/s10462-021-10098-7

Rokis, A., & Kirikova, M. (2023). Challenges of low-code and no-code development platforms. Software Quality Journal, 31(2), 789–812. https://doi.org/10.1007/s11219-022-09615-2

Schwaber, K., & Sutherland, J. (2020). The Scrum guide. Scrum.org.

Sheikhi, A., Rahmani, A. M., & Sahafi, A. (2022). SmartMinutes: Blockchain-based secure meeting minutes management. Future Generation Computer Systems, 128, 219–231. https://doi.org/10.1016/j.future.2021.10.012

Singh, R., Verma, P., & Sharma, N. (2023). Intelligent meeting assistant using text summarization. Journal of King Saud University – Computer and Information Sciences, 35(1), 101–110. https://doi.org/10.1016/j.jksuci.2022.08.004

Sufi, A. (2023). Low-code/no-code platforms: Accelerating digital transformation. Journal of Information Systems Engineering and Management, 8(2), 1–12.

Tahmid, I., Rahman, M., & Hasan, R. (2023). Large language models for real-world meeting summarization. arXiv preprint arXiv:2306.01234.

Tsahat, G., Ben Dhaou, I., & Ghézala, H. B. (2023). Low-code development platforms: A systematic literature review. Journal of Systems and Software, 196, 111567. https://doi.org/10.1016/j.jss.2022.111567

Wang, X., Wei, J., & Zhou, Y. (2023). Plan-and-solve prompting for complex reasoning tasks. Proceedings of NeurIPS 2023.

Weske, M. (2007). Business process management: Concepts, languages, architectures. Springer.

Yamaguchi, T., Yoshida, M., & Kobayashi, Y. (2021). Reference-free automatic meeting minuting pipeline. Proceedings of EMNLP 2021, 381–391. https://doi.org/10.18653/v1/2021.emnlp-main.30
Zhong, M., Zeng, D., & Li, H. (2021). QMSum: A new benchmark for query-based meeting summarization. Proceedings of ACL 2021, 5905–5915. https://doi.org/10.18653/v1/2021.acl-long.457