Implementation of the Forum Lapor Feature in the Manado Post Application to Enhance User Interaction

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Abstract *- The Manado Post application is a digital platform that delivers real-time news to the people of North Sulawesi. Despite its broad user base, the level of user interaction within the application remains low. To address this issue, this study implements a "Forum Lapor" feature to enhance user engagement. This feature enables users to report local incidents directly through the app, facilitating active participation. The development of the feature utilized the Scrum methodology, promoting iterative progress and flexibility, while Firebase Realtime Database was employed to manage real-time data storage and synchronization. After implementation, the conversion rate of passive to active users increased significantly, especially among users who previously only consumed news content. The introduction of this participatory feature has proven effective in boosting user interaction and expanding the application's role as an interactive communication platform. The study highlights the importance of integrating user-generated content to foster community engagement and improve application retention rates..*

Keywords: User Engagement, User Conversion, Forum Lapor.

I. INTRODUCTION

The rapid development of mobile applications has led to increased user expectations for interactive and dynamic digital platforms (Utami et al., 2021). In Indonesia, the number of internet users has exceeded 200 million, with a significant portion accessing news through mobile devices (*APJII Jumlah Pengguna Internet Indonesia Tembus 221 Juta Orang*, 2024). This trend highlights the importance of user engagement in news applications to maintain user retention and satisfaction.

One of the prominent digital news platforms in North Sulawesi is the Manado Post application, which provides real-time news and information to the public. Despite having a considerable user base, the level of user interaction within the application remains relatively low. Users tend to passively consume news content without actively participating in discussions or contributing information. As a result, the conversion rate from passive to active users remains suboptimal.

Research indicates that interactive features in mobile applications can significantly improve user engagement and retention (Hadi Putra et al., 2022). Social media platforms like Facebook and Twitter have demonstrated the effectiveness of participatory features, such as reporting incidents or sharing opinions, in fostering active user involvement (*Social Media and News Fact Sheet*, 2024). However, news applications like Manado Post often lack structured features that facilitate user participation.

To address this challenge, this research proposes the implementation of a participatory feature called 'Forum Lapor' within the Manado Post application. The feature allows users to report local incidents directly through the app, including uploading images and providing brief descriptions. This participatory approach aims to transform the user experience from passive consumption to active contribution, thereby increasing engagement and conversion rates.

The novelty of this research lies in integrating a structured user-generated content (UGC) feature into a regional news application, which is rarely implemented in previous studies that mostly focus on global social platforms or standalone citizen journalism apps. Unlike participatory features in platforms such as Reddit or Facebook, the Forum Lapor feature is embedded directly into an official news application (Manado Post), allowing local users to report and discuss issues within a trusted journalistic environment. This positioning highlights its uniqueness, as it bridges professional news delivery with community-driven reporting.

Utilizing the Scrum methodology and Firebase Realtime Database, the implementation ensures real-time participation, moderation, and scalability. Therefore, this study not only improves user interaction but also broadens the application's role as a two-way communication platform for both news consumption and civic engagement.

II. LITERATURE REVIEW

To support this approach, it is essential to examine existing theories on user engagement, participatory features, and mobile application design. Additionally, a review of related studies will provide valuable insights into the effectiveness of similar features in enhancing interactivity within digital platforms.

Conversion Rate

Conversion rate is a key performance metric used to evaluate the effectiveness of a website or mobile application in turning visitors into users who complete a desired action, such as registering, making a purchase, or downloading content (M. Beasley, 2013). It is typically calculated by dividing the number of conversions by the total number of visitors within a specific period. For example, if a website receives 10,000 visitors in a month and 150 of them perform the targeted action, the resulting conversion rate would be 1.5%.

Firebase

Firebase is a comprehensive application development platform supported by Google (Setyawan, 2024), designed to enable developers to build high-quality applications for iOS,

Android, and the web. It offers a suite of integrated tools and services, including analytics, authentication, cloud storage, and a real-time database. These features are aimed at helping developers monitor user behavior, fix bugs, and manage application data efficiently.

One of the core components of Firebase is the Firebase Realtime Database, a cloud-hosted NoSQL database that allows data to be stored and synchronized across all clients in real-time. This capability is particularly beneficial for applications that require instant updates and live data sharing, such as social platforms, chat applications, or participatory reporting features. By leveraging Firebase, developers can build responsive, scalable, and interactive applications without the need for managing complex server infrastructure (Gaikwad, 2022).

React Native

React Native is an open-source framework developed by Facebook, designed to facilitate mobile application development on both Android and iOS platforms using JavaScript and the React library. The framework allows developers to write a single codebase that can be reused across different platforms, thereby reducing development time and costs (Souha et al., 2024).

In the journal "Impact of Mobile Cross-Platform Development on CPU, Memory and Battery of Mobile Devices When Using Common Mobile App Features", React Native is identified as a prominent cross-platform development approach that offers several significant advantages. One of the key benefits of React Native is its ability to leverage existing web development skills, making the transition from web to mobile development more seamless. Furthermore, React Native supports the reuse of code from web platforms, which not only contributes to faster and more cost-effective development but also simplifies the maintenance process for mobile applications (Dorfer et al., 2020).

Feed

In digital applications—particularly in news platforms such as the Manado Post app—the feed refers to the main interface that displays user-generated content and facilitates interactions within the platform. It functions as the central hub where users can access, engage with, and contribute to a continuous stream of content. This includes posts, comments, and other forms of interaction that reflect real-time activity within the application.

The feed is instrumental in fostering user participation, as it not only presents information but also invites users to take part in discussions or provide feedback. By centralizing content and making it easily accessible, the feed plays a key role in enhancing user experience and sustaining engagement within the application environment (Sitoresmi, 2025).

Post

A post can be defined as a piece of content uploaded by users within an application, serving as a medium for sharing information, personal experiences, or opinions. In user-centric digital platforms, posts represent a core element of interaction, enabling users to actively contribute content to the community (Saliin, 2023).

In the context of a news application such as Manado Post, user posts may include various types of content such as incident reports, images, and descriptive texts. These contributions form the backbone of user interaction within the app, fostering an environment where users not only consume information but also participate in the creation and distribution of relevant local content. This participatory function transforms the application into a dynamic informationsharing platform and enhances its role in community engagement.

Upvote and Downvote

Upvote and downvote are interactive features commonly found on community-driven platforms such as Reddit (Corsi et al., 2024), where users can express their opinions on a particular post or comment. An upvote typically signifies agreement, support, or a positive evaluation of the content, while a downvote reflects disagreement, disapproval, or a negative assessment.

These mechanisms allow users to participate in evaluating the quality and relevance of shared information, effectively helping the community surface valuable content while minimizing less useful or inappropriate material. Beyond content moderation, upvotes and downvotes facilitate a form of indirect social interaction, enabling users to collectively signal their preferences and engage in communal content curation without the need for direct communication (Corsi et al., 2024).

News Consumption Behavior Among Young People on Instagram and TikTok

A study conducted by Jonathan Hendrickx explored how young people (aged 18–24) in Belgium access and experience news through Instagram and TikTok. By adopting a visual-first content strategy—such as emphasizing user-generated reports that include compelling images—the feature can better capture the attention of younger users. Moreover, the emphasis on local relevance aligns with findings that young audiences are particularly responsive to news content that reflects their immediate environment and personal experiences (Hendrickx, 2024). Therefore, Forum Lapor has the potential to effectively engage this demographic by enabling visual, locally relevant community reporting.

User-Generated Content & Participatory Journalism

User-generated content (UGC) has become an essential element in the transformation of digital journalism practices, bringing both opportunities and challenges. While professional media platforms often seek to maintain editorial control, there is a growing trend of adopting UGC in news reporting processes to enhance credibility and strengthen audience proximity (Saridou et al., 2020).

Recent systematic studies also highlight that audience participation in news media frequently faces barriers, such as low user interest and professional resistance to sharing editorial authority. This indicates that although UGC holds significant potential, its realization in the form of community reporting remains limited and requires contextualized and structured design (Peña-Fernández et al., 2024).

In addition, research on the *Strategic Use of User Generated Content for Consumer Engagement in Online Retail*, although situated in an e-commerce context, found that UGC—particularly in the form of user reviews and photos—can significantly improve engagement metrics such as visit duration and conversion rates. These findings imply that UGC can also enhance user interaction in news applications, provided that content management systems are robust and ethically designed (Kahfi & Suyuthi, 2024).

The adoption of UGC in local or regional news contexts is even more challenging. For example, a study on the integration of UGC in print media in Tanzania emphasized the importance of adapting to local news cultures in order to make citizen reporting features effective and sustainable (Mbulumi, 2024). Therefore, the implementation of the Forum Lapor feature in the Manado Post application is particularly relevant as a structured citizen participation model that bridges professional journalism with community-driven reporting.

III. MATERIALS AND METHODS

1. **Research Design**: This study adopts a design-based research (DBR) approach combined with the Scrum framework for software development. The research is exploratory and developmental in nature, aiming to design, implement, and evaluate the Forum Lapor feature within the Manado Post application. The DBR method is appropriate because the research focuses not only on system development but also on iterative testing and evaluation in real-world contexts. Scrum was applied to ensure iterative development, team collaboration, and adaptability throughout the process.

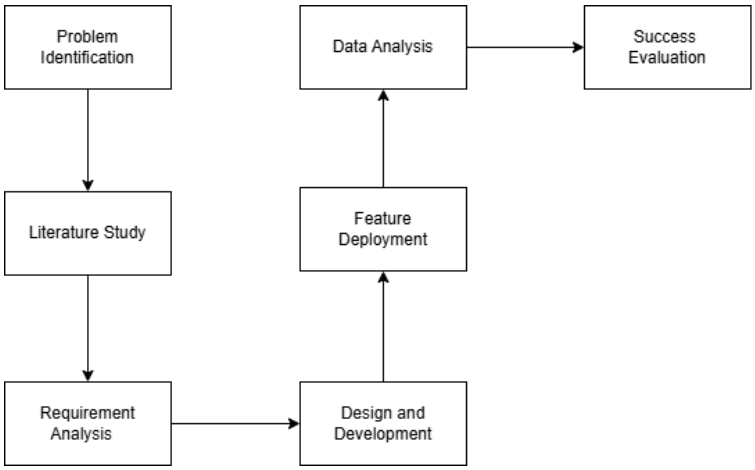

Figure 1 Research Design

2. **Participants/Data Sources**: This study did not involve direct human participants as test subjects but relied on application usage data collected through Firebase Analytics. The dataset consisted of metrics recorded over two distinct periods: three months before and three months after the deployment of the Forum Lapor feature. These datasets served as the basis for analyzing user interaction and conversion rates within the application. Ethical considerations were maintained since no personally identifiable information (PII) was

collected, only aggregated user interaction metrics. However, a limitation of this approach is that it relied exclusively on system-generated quantitative data and did not capture user perceptions, motivations, or qualitative feedback. While this ensured efficiency and strict privacy protection, it restricted the depth of understanding of how users experienced the feature. Future research could complement analytics with user-centered methods such as surveys, interviews, or A/B testing to provide richer insights into engagement patterns and satisfaction.

3. **Tools and Instruments**: The primary tools and instruments used in this study include Firebase Analytics, which was employed to collect user interaction and engagement data such as event counts, session starts, user engagement, screen views, and first opens. The Scrum framework served as the development methodology, guiding the process through product backlog creation, sprint planning, daily scrums, sprint reviews, and sprint retrospectives (Kadenic, de Jesus Pacheco, et al., 2023; Kadenic, Koumaditis, et al., 2023; Klaus-Rosińska & Gasiorowska, 2025). During the design stage, prototyping and UI design tools were utilized to create and refine the Forum Lapor feature interface, including wireframes and mockups to ensure usability and alignment with user needs. Finally, the Manado Post application itself functioned as the implementation environment, where the Forum Lapor feature was deployed and tested directly to assess its performance and impact.

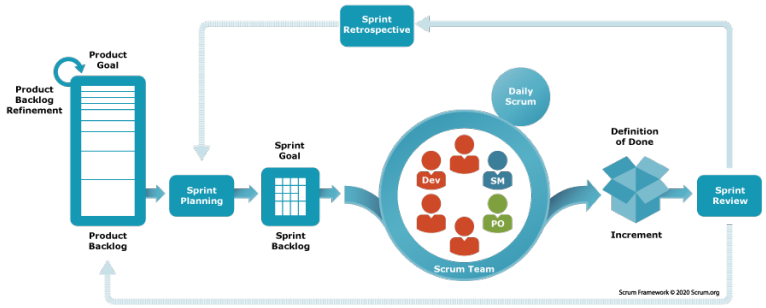

Figure 2 Scrum Framework (*What Is Scrum?*, 2020)

In addition to analytics, the Forum Lapor feature was supported by a Firebase Realtime Database. The database was organized into several collections to manage user-generated content effectively.

Figure 3 Forum Lapor Database Model

This ensured that user interactions were stored efficiently and could be moderated when necessary, supporting both scalability and accountability of the system.

4. Procedures: The research was carried out through several systematic procedures. The first stage was problem identification, which focused on recognizing the main issue of low user interaction and conversion rates in the Manado Post application. After identifying the problem, a literature study was conducted to review previous research on user engagement, conversion rates, and the implementation of interactive features in similar applications. This was followed by a requirement analysis, which examined user needs for the Forum Lapor feature and analyzed existing interaction data from Firebase Analytics as a foundation for development.

   Based on the requirement analysis, the design and development phase was conducted using Scrum methodology, where the feature was designed and iteratively developed through sprint cycles. Once the design and development were completed, the feature deployment phase was carried out by launching the Forum Lapor feature in the Manado Post application. Following deployment, a data collection phase was conducted, gathering usage data from Firebase Analytics for three months before and three months after the feature launch. Finally, a success evaluation was performed by comparing pre-launch and post-launch data to determine the effectiveness of the Forum Lapor feature in improving user interaction and conversion rates

5. **Analysis Techniques**: The analysis employed a quantitative comparative approach using Firebase Analytics data. The following metrics were examined:

   User Engagement – to measure the level of user involvement with the application.

   Screen View – to determine the frequency of screen accesses.

Session Start – to count the number of initiated sessions.

First Open – to identify the number of new users.

Data comparison was conducted by calculating the percentage increase in each metric between the pre-launch and post-launch periods. Conversion rates were also calculated using the following formulas:

$$Conversion\ \ Rate\ \ of\ \ \frac{Total\ \ users\ \ in\ \ event}{Total\ \ users} = \frac{Total\ \ Users}{} \times 100\%$$

$$Conversion\ \ Rate\ \ of\ \ \frac{Total\ \ users\ \ in\ \ event}{Total\ \ event\ \ count} = \frac{Event\ \ Count}{} \times 100\%$$

The results of this analysis are used to evaluate the effectiveness of the Lapor Forum feature in increasing user interaction and engagement within the Manado Post application

IV. RESULTS AND DISCUSSION

A. Use Case Diagram

The use case diagram illustrates the interactions that users can perform within the Forum Lapor feature of the Manado Post application. As shown in Figure 3, users are able to create a new post by uploading an image and writing a caption, as well as view detailed reports from other users. Interaction is further enhanced by features such as upvotes, downvotes, sharing, and commenting.

In addition, users can apply filtering and sorting functions to organize posts based on criteria such as recency or popularity (e.g., most upvoted). The search functionality enables users to locate specific reports using keywords, while the report abuse option allows inappropriate content to be flagged for administrative review. These interaction points were designed to increase engagement and foster active participation in the application.

In the current implementation, the administrator can directly review and delete reported posts through Firebase, even though a dedicated moderation dashboard has not yet been developed. This adjustment ensures that the abuse report feature is represented consistently in both the system description and the design model.

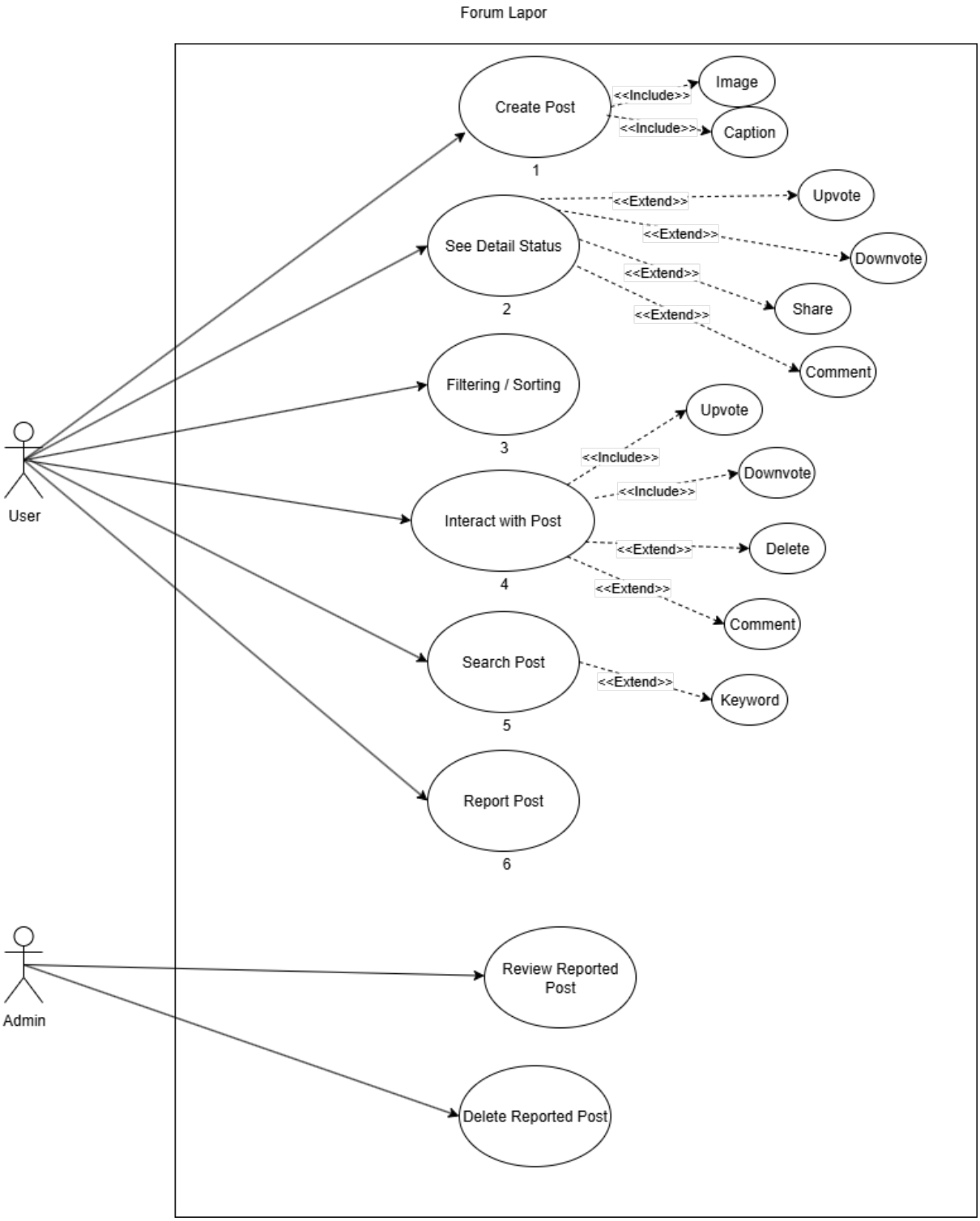

Figure 4 Use Case Diagram

B. Implementation

The implementation of the Forum Lapor feature was carried out using the Scrum framework, ensuring iterative progress and continuous feedback throughout the development process. As illustrated in Figure 4, the feature was developed using React Native for the frontend and Firebase Realtime Database for the backend, enabling real-time synchronization of user-generated content across the application.

The core functionalities implemented include post creation, detailed post viewing, user interactions (upvote, downvote, comment, share, and delete), filtering and sorting, keywordbased search, and abuse reporting. Firebase Authentication was integrated to ensure that all user actions are tied to verified accounts. These technical implementations ensured not only system reliability but also enhanced the participatory experience of users.

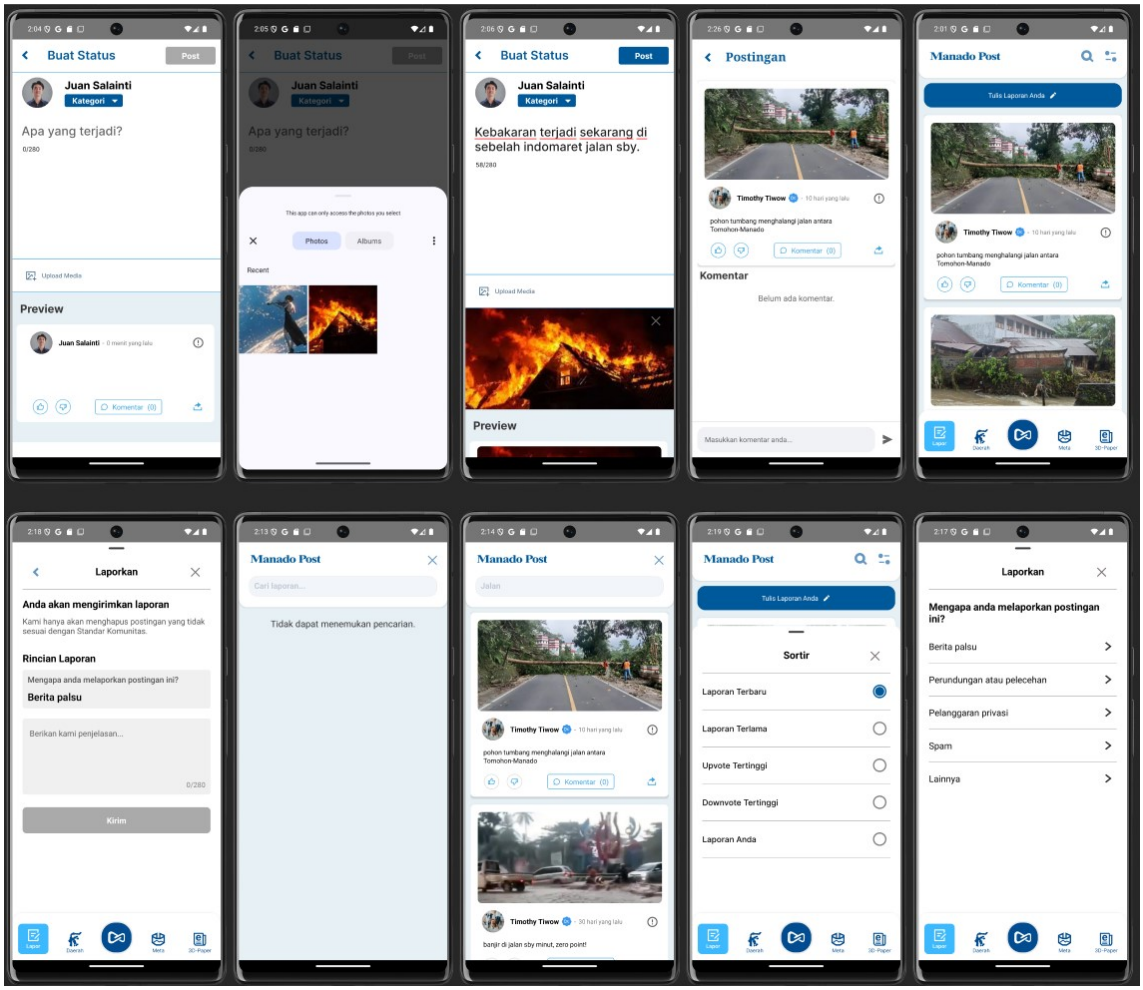

Figure 5 . Implementation of Forum Lapor

C. Conversion Rate Results

To evaluate the impact of the Forum Lapor feature, conversion rates were calculated using data from Firebase Analytics. Data were collected over two periods: three months before and three months after the feature was launched. The evaluation focused on four key engagement metrics: user engagement, screen view, session start, and first open. Conversion rates were measured based on both event counts and total users.

Table 1 summarizes the comparison of conversion rates before and after the feature launch.

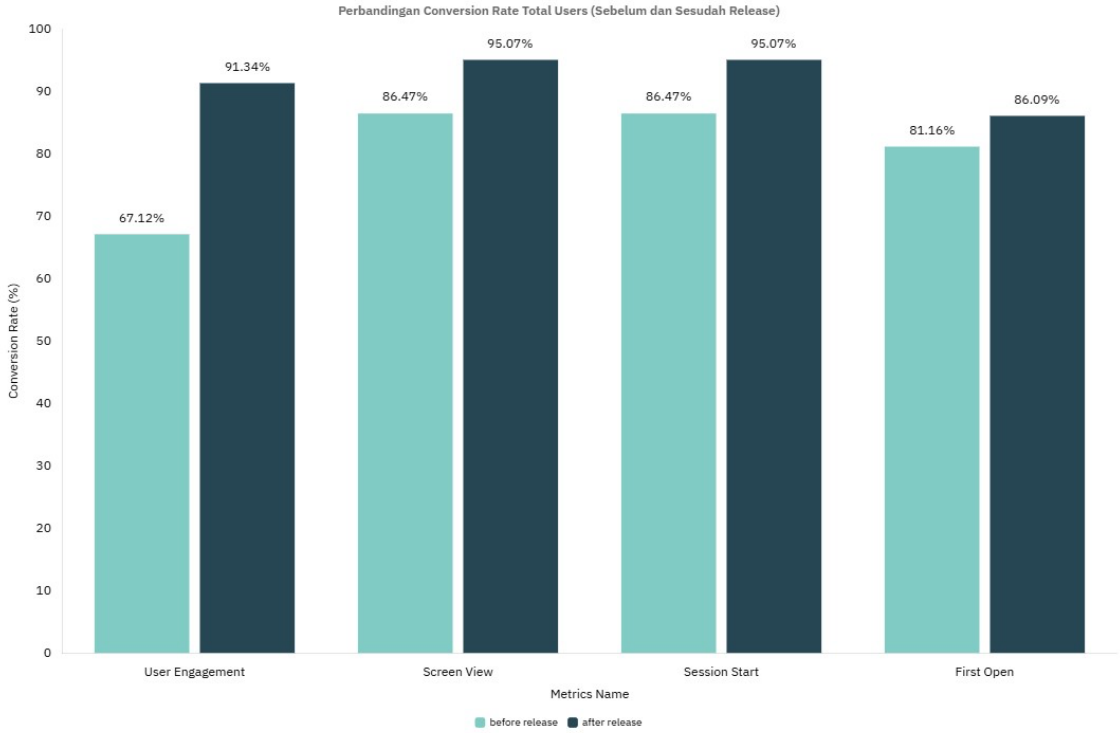

Figure 6 Conversion Rate for Total Users

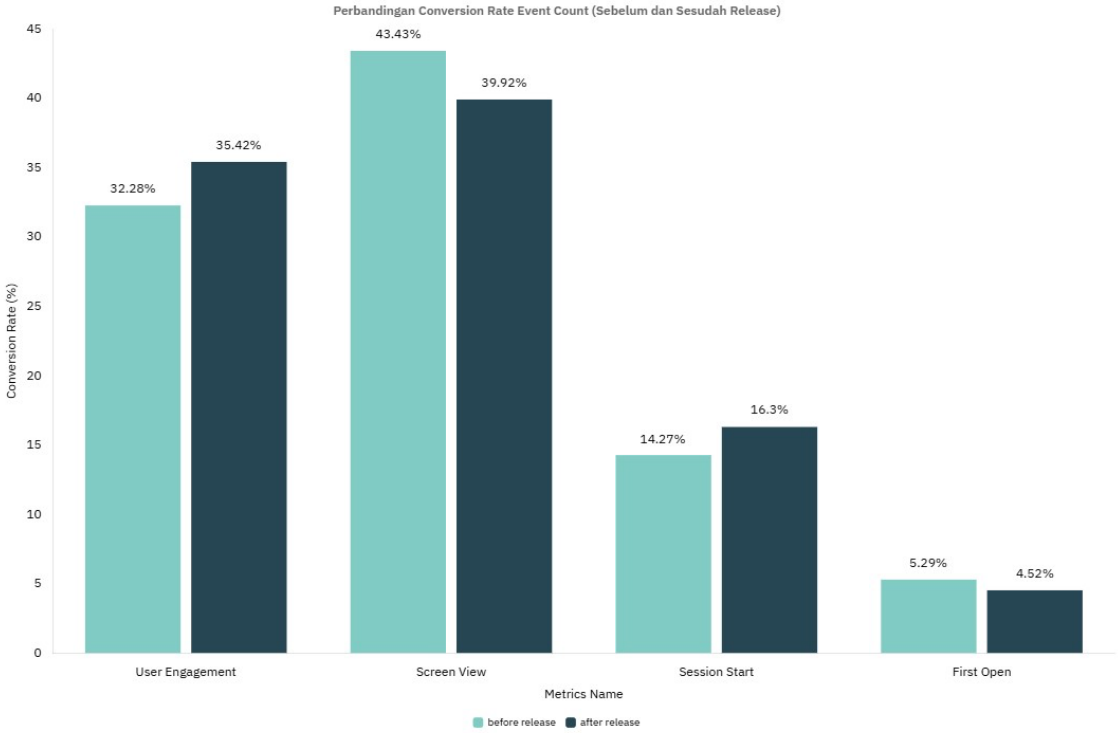

Figure 7 Conversion Rate for Event Count

Table 1 Conversion Rate Results Before and After Forum Lapor Implementation

Metric	Event Count Before	Event Count After	Total Users Before	Total Users After
User Engagement	32.28%	35.42%	67.12%	91.34%
Screen View	43.43%	39.92%	86.47%	95.07%
Session Start	14.27%	16.30%	86.47%	95.07%
First Open	5.29%	4.52%	81.16%	86.09%

To evaluate the impact of the Forum Lapor feature, several user engagement metrics were analyzed using Firebase Analytics over a period of three months before and after the feature was launched. The key metrics include user engagement, screen view, session start, and first open. The conversion rate was calculated based on both event count and total users for each metric.

User Engagement

User engagement measures the extent to which users actively interact with the application, including the duration and frequency of usage. Before release, the conversion rate was 32.28% (event count) and 67.12% (total users). After release, the rate increased to 35.42% (event count) and 91.34% (total users).

The significant increase in both metrics indicates that the updates introduced through the Forum Lapor feature successfully enhanced user activity. This suggests that the application became more engaging and better at retaining user attention.

Screen View

This metric reflects how frequently users view different screens within the application, indicating the level of exploration. Before release, the conversion rate was 43.43% (event count) and 86.47% (total users). After release, the event count slightly decreased to 39.92%, while total users increased to 95.07%.

The decrease in event count may reflect improved navigation efficiency—users may need fewer screen transitions to reach their goals. Simultaneously, the rise in the number of users accessing different screens shows broader user engagement with the app's interface

Session Start

Session start measures how often users initiate a new session in the app, representing usage intensity. Before release, the conversion rate was 14.27% (event count) and 86.47% (total users). After release, it increased to 16.3% (event count) and 95.07% (total users).

The upward trend suggests an increase both in how often and how many users access the app. This points to improved appeal and relevance of the application following the feature update.

First Open

This metric captures the number of users who open the app for the first time, indicating user acquisition. Before release, the conversion rate was 5.29% (event count) and 81.16% (total users). After release, the event count decreased to 4.52%, while total users rose to 86.09%.

Although the proportion of first open events to total events declined, the increase in user reach shows that more new users were attracted to the app. This suggests improved visibility and outreach, even if the depth of their initial interaction was modest compared to overall activity.

D. Generalisability of Findings

While these results demonstrate clear improvements in user interaction within the Manado Post application, they are specific to the context of a regional news platform in North Sulawesi.

The extent to which these findings can be generalized is therefore limited. However, the Forum Lapor model provides transferable insights that could be adapted by other regional or national news organizations seeking to strengthen audience participation. By embedding structured user-generated content features within professional news applications, the approach has the potential to foster civic engagement, especially in local contexts where citizens are directly affected by the issues being reported. Future implementations could further test scalability across multiple media platforms and assess comparative effectiveness in different cultural or organizational settings.

V. CONCLUSION

This study demonstrates that the integration of the Forum Lapor feature into the Manado Post application effectively transformed user interaction from passive news consumption into active participation. By employing the Scrum methodology and Firebase Realtime Database, the feature provided real-time synchronization, scalability, and reliability. The analysis of engagement metrics confirmed measurable improvements in user activity, validating the effectiveness of embedding participatory functions into a regional news platform.

The novelty of this research lies in introducing a structured user-generated content (UGC) model within an official regional news application, a context where such participatory mechanisms have been rarely implemented. Unlike social media platforms or standalone citizen journalism apps, Forum Lapor uniquely bridges professional journalism with community-driven reporting in a trusted environment. This contribution offers both theoretical and practical implications, showing that structured UGC features can enhance civic engagement and strengthen local media ecosystems. Future studies could build on this foundation by developing advanced moderation dashboards, expanding cross-platform applications, or incorporating qualitative user feedback to broaden the generalizability of findings.

AUTHORS' CONTRIBUTIONS

Juan Salainti was responsible for the conceptualization, methodology, investigation, data analysis, and the preparation of the original draft of the manuscript. Oktoverano Lengkong contributed through supervision, guidance during the research process, and critical review and editing of the manuscript. Both authors have read and approved the final version of the manuscript.

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