

DESIGN OF TYPE A TERMINAL LAYOUT BASED ON USER EXPERIENCE TO IMPROVE CIRCULATION EFFICIENCY AND COMFORT

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ABSTRACT

Mengwi Terminal, as a Type A terminal, plays an important role in the land transportation system in Bali; however, its utilization has not been optimal due to irregular circulation, unclear spatial zoning, and low user comfort. This study aims to design a terminal layout based on user experience to improve circulation efficiency and comfort. The research employed a mixed approach through field observation, user journey mapping, and user perception surveys on ease of use, accessibility, and terminal space quality. The analysis focused on passenger movement patterns, circulation bottlenecks, and the integration of facility zoning. The results indicate major obstacles in pedestrian pathways, conflicts between passenger and vehicle movements, and the lack of intuitive wayfinding systems. Based on these findings, a user experience-based terminal layout design was developed, emphasizing the separation of arrival and departure flows, improved spatial zoning, and strengthened visual information systems. The proposed design enhances circulation flow and user comfort while supporting the development of Mengwi Terminal as a more effective and user-oriented transportation hub.

Keywords: circulation efficiency; user experience; terminal layout design; transportation terminal; user comfort

INTRODUCTION

Mengwi Terminal, as a Type A terminal in the Province of Bali, plays a strategic role as a primary land transportation hub serving intercity–interprovincial transport (AKAP), intercity–intraprovincial transport (AKDP), and Bus Rapid Transit (BRT) services and has been expected to function as a center for regional mobility integration while supporting Bali’s tourism sector since its operation began in 2017. However, in practice, the terminal has not yet operated optimally, as reflected in a paradox identified by operational data and previous empirical studies: although overall user satisfaction is categorized as “satisfied” with a Customer Satisfaction Index (CSI) of 77.24% (Mardikawati et al., 2024), the actual number of terminal users remains relatively low (Masyuni et al., 2021), accompanied by the widespread practice of passengers boarding and alighting outside the terminal area (Eka et al., 2021). Further assessment of service quality by sub-indicators (Figure 1) shows that all service aspects fall within the range of 76–78%, which is classified as good, with the highest scores observed in safety (78.28%), equity (77.28%), and security (77.07%), indicating that user protection and inclusivity are perceived as relatively adequate. Nevertheless, reliability/regularity and comfort record the lowest scores (both 76.84%), suggesting persistent issues related to circulation orderliness and spatial quality, which reinforce the need for integrated service quality improvements through layout optimization and enhancements in user experience to improve comfort and ease of terminal use.

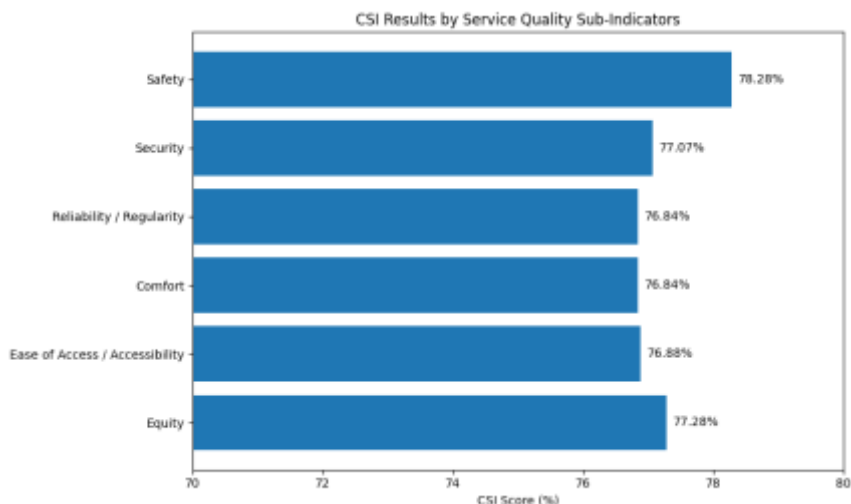


Figure 1. CSI Analysis Results per Service Quality Sub-Indicator

More detailed findings from previous studies conducted at Mengwi Terminal using Importance–Performance Analysis (IPA) reveal that several critical service attributes fall into Quadrant I (high importance–low performance), as shown in Figure 1 (Mardikawati et al., 2024). These include the availability of clear arrival and departure schedules, toilet cleanliness, lighting quality, terminal cleanliness, and the separation of arrival and departure circulation paths. Such findings suggest that the core issues of Mengwi Terminal extend beyond operational service delivery and are strongly associated with spatial layout, circulation efficiency, and information clarity, which directly shape users’ spatial experiences within the terminal.

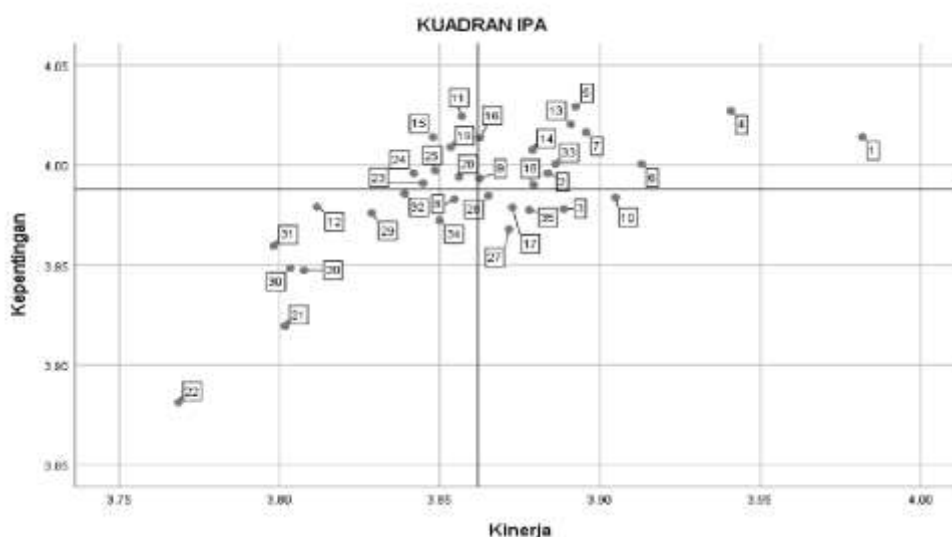


Figure 1. IPA Quadrant Results from Mengwi Terminal Service Quality Analysis

There are seven service improvement measures, as follows:

1. Written information on vehicle arrival and departure schedules, including the official fares of public motorized transport, has been provided, along with the written realization of actual schedules.
2. Toilet facilities are available for both men (4 urinals, 3 toilets, 1 toilet for persons with disabilities, and 2 washbasins) and women (6 toilets, 1 toilet for persons with disabilities, and 2 washbasins).

- disabilities, and 2 washbasins), with 100% cleanliness coverage and no unpleasant odors originating from within the terminal area.
3. Cleaning facilities and dedicated cleaning staff are available to maintain terminal hygiene.
 4. The departure lanes for vehicles are fixed and well-organized, clearly separated from passenger drop-off lanes, and free from any crossing or intersection with other vehicle routes.
 5. The arrival lanes for vehicles are fixed and well-organized, clearly separated from passenger drop-off lanes, and free from any crossing or intersection with other vehicle routes.
 6. Adequate lighting facilities are provided, with a lighting intensity of 300 lux per 100 square meters.
 7. Information on connecting or onward transportation is placed in locations that are highly visible and clearly readable.

Further analysis using Structural Equation Modeling (SEM) demonstrates that user experience variables exert the strongest influence on users' intention to use terminal services in the future, with a total effect of 57.3% (Mardikawati et al., 2024), surpassing the effects of safety, security, and service reliability variables. These empirical results position user experience as the most critical determinant of sustainable terminal usage. However, despite the robustness of these findings, previous studies have primarily focused on evaluating service performance and behavioral relationships, without translating these insights into concrete spatial layout designs. The main issues faced by Mengwi Terminal are therefore closely related to inefficient internal circulation, unclear information delivery, weak wayfinding systems, and spatial zoning arrangements that are not yet intuitive. Users frequently experience confusion in determining movement directions, locating facilities, and accessing connecting transport services. International studies consistently emphasize that unclear layouts and ineffective information systems increase orientation time, elevate user stress, and ultimately reduce willingness to use public transportation facilities (Hu & Xu, 2022; Jin et al., 2022). Consequently, improvement strategies based solely on operational or technical interventions are no longer sufficient.

In this context, the User Experience (UX) approach becomes particularly relevant, as it places users' perceptions, comfort, and ease of interaction at the core of the design process. In public transportation facilities, UX-oriented design has been empirically proven to significantly influence user satisfaction, loyalty, and reuse intention (Fadzana & Diartono, 2024; Sonianto & Novianto, 2024). International research also indicates that terminal designs integrating UX principles and human-centered design approaches can substantially improve circulation efficiency and overall travel experience quality (Callista & Sumadyo, 2022). Based on these considerations, a clear research gap emerges: although previous studies at Mengwi Terminal have successfully identified key service weaknesses and confirmed the dominant role of user experience through IPA, CSI, and SEM analyses, they have not yet comprehensively integrated these findings into a UX-based terminal layout design framework. Addressing this gap, the present study aims to transform empirical user experience evaluations into a spatial layout design that enhances circulation efficiency and user comfort. Accordingly, the research problem is formulated as follows: how can a User Experience (UX)-based layout design for Mengwi Terminal be developed to improve circulation efficiency and user comfort? This study is built upon the hypothesis that terminal spatial arrangements applying the principles of usability, accessibility, and desirability will enhance movement efficiency, improve users' perceptions, and encourage sustainable terminal usage. This hypothesis aligns with previous studies emphasizing the importance of integrating effective wayfinding systems, clear zoning,

and intuitive circulation within passenger terminals (Almaas & Dianingrum, 2025; Rustiandi et al., 2021). The objectives of this article are to (1) analyze user experiences related to the existing layout of Mengwi Terminal using a User Experience (UX) approach, (2) develop a UX-based terminal layout design oriented toward circulation efficiency and user comfort, and (3) identify spatial design elements that significantly contribute to the enhancement of user experience. This article is expected not only to enrich academic discourse on UX-based terminal design in Indonesia, but also to provide practical recommendations for terminal operators and stakeholders in realizing modern, user-friendly, efficient, and attractive transportation terminals.

METHOD

This study employs a descriptive qualitative approach supported by quantitative data (mixed-methods) to understand user experiences related to the existing layout of Mengwi Terminal while simultaneously formulating a User Experience (UX)-based terminal layout design. This approach is selected because it integrates in-depth insights into user behavior and perceptions with quantitative measurements of comfort, ease of use, and circulation efficiency. The mixed-methods approach has been proven effective in user-oriented public transportation studies, as it is capable of capturing the complexity of interactions between spatial design and user experience (Callista & Sumadyo, 2022; Creswell, 2014).

This study was conducted at Mengwi Terminal during normal operational periods, allowing the findings to represent typical daily usage conditions. The research population included all terminal users, namely passengers, escorts or pick-up companions, and drivers or bus crew members. As the population size could not be precisely determined, particularly for the escort and pick-up groups, the sample size was calculated using the Cochran formula for an infinite population with a 95% confidence level. Based on this calculation, a minimum sample size of 385 respondents was obtained and subsequently proportionally allocated among passengers, escorts/pick-up companions, and drivers to ensure representativeness of terminal user characteristics. This approach is consistent with transport research practices that emphasize the representativeness of user perceptions (Jin et al., 2022). The primary research materials consisted of primary and secondary data. Primary data were collected through field observations, semi-structured interviews, and UX-based questionnaires. The questionnaire instrument was designed using a five-point Likert scale and adapted from the Minimum Service Standards for Passenger Terminals, as well as findings from previous studies, and subsequently contextualized within the UX framework. Supporting tools included observation sheets, visual documentation equipment, online and offline questionnaire forms, and statistical data processing software. Secondary data were obtained from terminal planning documents, transportation regulations, and relevant national and international scholarly articles.

Data collection was conducted in several stages. Observations were used to map actual circulation flows and identify movement conflict points. Interviews were conducted to explore the subjective experiences of users and staff related to spatial comfort and circulation efficiency. Questionnaires were employed to quantitatively measure user perceptions of UX dimensions. Instrument validity was assessed through expert content validation, while reliability was tested using Cronbach's Alpha, with $\alpha \geq 0.7$ considered an indicator of acceptable reliability, as recommended in public service and transportation research (Hair et al., 2021). Data analysis was conducted using both qualitative and quantitative approaches. Qualitative data were analyzed using an interactive model consisting of data reduction, data display, and conclusion drawing to identify patterns in user experiences and layout-related issues. Quantitative data were analyzed using descriptive statistics to obtain the mean and standard deviation of each UX

indicator, as well as frequency analysis to determine improvement priorities. When necessary, comparative analyses using t-tests or ANOVA were performed to identify differences in perceptions among user groups. All analytical results were then integrated through data triangulation to produce valid and applicable UX-based terminal layout design recommendations. This integrated analytical approach is considered effective for designing transportation facilities that are oriented toward user experience (Almaas & Dianingrum, 2025; Fadzana & Diartono, 2024).

RESULT AND DISCUSSION

Research Data

This study involved 395 respondents, consisting of direct users of Mengwi Type A Terminal, including intercity bus passengers, accompanying and pick-up persons, as well as bus crews or drivers. This number meets and even exceeds the minimum sample size recommended for perception-based social survey research, and is therefore statistically representative of terminal user experiences. Research data were collected using several main instruments, namely a UX questionnaire, field observations, and user journey mapping. The UX questionnaire was designed to capture users' perceptions of comfort, ease of navigation, clarity of information, and circulation efficiency within the terminal. This approach is consistent with recent studies emphasizing the importance of multidimensional UX measurement in public transport facilities (Lucas et al., 2022). Validity testing results show that all indicators have significance values (Sig. 2-tailed < 0.05), indicating that each item effectively measures the intended construct. Meanwhile, reliability testing yielded Cronbach's Alpha values above 0.9, demonstrating very high internal consistency of the instrument. These findings confirm that the UX instrument used is reliable and appropriate for comprehensively analyzing terminal user experience (Hair et al., 2021).

The initial-stage analysis using the Journey Mapping method indicates that user experience at Mengwi Terminal is still predominantly affected by issues related to information systems, navigation, and spatial legibility, even though several basic facilities are perceived as comfortable. The facilities that users find most confusing include internet/Wi-Fi hotspots, bus schedule information, charging corners, ticket counters, and departure paths, indicating weaknesses in the wayfinding system and the integration of digital and physical information. In contrast, waiting areas, toilets, green open spaces, and security facilities are perceived as the most helpful and comfortable, reinforcing the notion that user comfort is strongly influenced by the quality of waiting spaces and basic facilities. This finding is consistent with studies emphasizing the role of comfort and natural visual elements in enhancing terminal user satisfaction (Boc et al., 2023; Jin et al., 2022).

Nevertheless, the facilities most in need of improvement again relate to written arrival and departure schedules, toilets, connecting transport information, lighting, and vehicle circulation routes, suggesting that the main challenges lie in the effectiveness of information delivery, cleanliness, and public space safety (Hu & Xu, 2022; Meyer-Hollatz et al., 2024). Users' perceptions of certain facilities as excessive, particularly visual/audio information and green open spaces, along with feedback regarding service efficiency, indicate that users tend to prioritize functional utility over purely symbolic or aesthetic aspects (Carteni et al., 2025). Furthermore, the strongest demand for future innovation is directed toward digital facilities (Wi-Fi and charging corners), luggage storage services, disruption and real-time travel information, and rest areas for bus crews, reflecting a shift toward terminals that are more digital, human-centered, and supportive of the well-being of all transport actors (Babić et al., 2022; Meyer-Hollatz et al., 2024). Overall, the Journey Mapping results confirm that the

development of Mengwi Terminal should focus on improving information quality, optimizing circulation and wayfinding, strengthening cleanliness and lighting, and advancing digital service transformation as the core foundation for a User Experience (UX), based terminal layout design.

The results of the exploration stage through usability testing indicate that all facilities at Mengwi Terminal have a relatively high level of findability, with scores ranging from 78.3% to 82.9%, suggesting that, in general, the terminal layout and information system are fairly easy for users to understand. Core facilities, particularly the departure routes (82.94%), passenger waiting areas (81.97%), and emergency assembly points (81.47%), achieved the highest scores, confirming that the terminal's key operational areas have been designed in accordance with user movement patterns and primary needs. In contrast, supporting facilities recorded relatively lower scores, especially air quality and exhaust gas monitoring facilities (78.33%) and health facilities (78.68%), indicating limited visibility, accessibility, and integration of these supporting elements within users' travel flows. These findings are consistent with studies suggesting that non-core terminal facilities often exhibit lower usability performance despite being physically available (Hu & Xu, 2022; Meyer-Hollatz et al., 2024). The high scores for departure routes and waiting areas further reinforce the notion that ease of navigation in high-activity zones is a key factor in enhancing perceived comfort and operational efficiency in terminals (Carteni et al., 2025; Jin et al., 2022). Overall, the usability test results demonstrate that Mengwi Terminal satisfies most usability principles for public facilities; however, improving access to and integration of supporting facilities—particularly health services, digital information systems, and rest areas for vehicle crews—should be prioritized to ensure a more optimal and inclusive user experience.

The results of the validation stage through the User Experience (UX) survey indicate that users' perceptions of Mengwi Terminal fall within a high category, with agreement levels ranging from 79.09% to 82.94%, reflecting an overall positive user experience in terms of navigation, comfort, safety, and spatial aesthetics. The highest scores are observed for the ease of finding directional signage and the pleasant visual appearance of the terminal, followed by waiting area comfort and the presence of CCTV (UX3.2), confirming that the terminal's main strengths lie in its spatial quality, clarity of orientation, and users' sense of security. Conversely, the lowest score for internet hotspot access indicates that digital innovation remains a key weakness in delivering a modern and seamless terminal experience. This finding is reinforced by the coding of respondents' suggestions, where most users perceive the terminal's current condition as generally good but emphasize the need for improvements in cleanliness, lighting, modernization of digital facilities (Wi-Fi, charging corners, ATMs), as well as the reorganization of pedestrian circulation and waiting areas to improve efficiency and reduce overlapping flows. These results are consistent with studies highlighting that terminal user experience is strongly influenced by the integration of wayfinding systems, physical comfort, and digital service integration (Carteni et al., 2025; Febriansyah & Cahyono, 2024; Liu et al., 2022). Accordingly, Mengwi Terminal has established a solid UX foundation in its physical and spatial aspects; however, further development should focus on digital innovation, layout optimization based on user movement flows, and consistent facility maintenance to achieve a truly user-oriented and sustainable terminal experience.

Field Observation Results

The analysis of user movement patterns at Mengwi Terminal indicates that, although the terminal generally follows the basic spatial structure of a Type A terminal, several inefficiencies remain that adversely affect circulation smoothness and overall user experience. Field

observations reveal that users frequently experience confusion along arrival routes due to limited wayfinding elements and poor legibility of schedule information. In the departure process, circulation paths are not fully linear, resulting in zig-zag movements and potential conflicts between passengers and vehicles. Furthermore, weak integration of information on connecting transport services forces arriving passengers to independently search for exit routes, while the concentration of terminal staff in the central area and uneven lighting conditions reduce effective monitoring in parking areas and side corridors. Six major bottleneck locations were identified, including the arrival access route, the area between the parking zone and the terminal building, the corridor leading to the waiting area, the non-sterilized departure zone, the indirect route to the dining area, and the uncontrolled interface between arrival flows and connecting transport services. These findings are consistent with studies emphasizing that non-linear circulation design, insufficient flow separation, and inadequate wayfinding significantly contribute to bottlenecks and the deterioration of user experience in transport terminals (Carteni et al., 2025; Liu et al., 2022). Moreover, research on pedestrian circulation strategies highlights that the provision of clear and segregated pedestrian routes, separated from vehicle movements and directly connected to boarding areas, plays a crucial role in enhancing user experience and improving the efficiency of passenger flow (Oluwatayo & Nzeh, 2025). In addition, studies on transport service integration underscore that intermodal integration, particularly the integration of intermodal information systems, is a key factor in designing efficient terminals and facilitating seamless transfers between different modes of transportation (Setiawan et al., 2024).

Mengwi Terminal Development Plan

The development plan for Mengwi Terminal is formulated based on the integration of quantitative data analysis results, field observation findings, and UX-based design principles. The primary focus of the development is directed toward improving circulation efficiency, enhancing the clarity of the information system, and increasing overall user comfort. This approach is aligned with contemporary trends in modern terminal planning that place user experience at the center of the design process (user-centered terminal design). The improvement of the information system is prioritized due to the relatively low level of user satisfaction regarding the clarity of schedules and movement directions. The planned information system includes digital timetable displays, the integration of visual and textual information, and the strategic placement of information at easily accessible points for users. Studies indicate that improving the quality of information significantly contributes to increased user satisfaction and perceived service quality, which are core components of user experience and user trust in transportation services (Bangun et al., 2023).

Furthermore, the development plan also encompasses enhancements to the wayfinding system through the implementation of consistent, hierarchical, and intuitive signage. The use of standardized visual symbols, color schemes, and typography is intended to minimize users' cognitive load when navigating within the terminal. This approach has been widely recommended in UX studies of large-scale public spaces such as transport terminals and airports (Fadzana & Diartono, 2024). From a circulation perspective, the development plan emphasizes the clear separation of routes between arrival areas, waiting spaces, and departure zones. A more structured circulation design is expected to reduce movement conflicts and improve users' travel time efficiency within the terminal. This strategy is consistent with the concept of efficient circulation design in transportation hub planning (Almaas & Dianingrum, 2025). Considering that the majority of Mengwi Terminal users are non-routine users, the development plan is directed toward creating an environment that is easy to understand from the first visit. This approach is expected to enhance comfort, increase user satisfaction, and encourage greater public interest in using the terminal as a primary transportation hub.

Terminal Layout in the Form of Visual Design

The visual layout design of Mengwi Terminal is developed as a concrete representation of the UX analysis results and the formulated development plan. The layout is designed to create clear, logical, and minimally confusing movement flows for users. The fundamental design principles emphasize ease of orientation, spatial legibility, and circulation efficiency. The main terminal zones, such as arrival areas, waiting spaces, and departure zones, are arranged with clear separation while remaining visually connected. This zoning approach aims to help users understand the function of each space without relying heavily on staff assistance. Studies indicate Clear and well-defined zoning in transport and public facilities has been shown to improve users' perceived control and comfort by refining spatial configuration according to diversified demands and helping users navigate complex environments more intuitively (Zhao et al., 2025). The layout also integrates a hierarchically structured visual wayfinding system, ranging from primary signage to detailed directional indicators. Visual elements such as floor color coding, lighting, and interior landmarks are utilized to reinforce spatial orientation. This approach is consistent with UX design practices in modern terminals that emphasize navigation based on visual perception (Fadzana & Diartono, 2024). Furthermore, the placement of supporting facilities, such as toilets, charging corners, and commercial areas, is strategically located near the main waiting areas. This strategy is intended to reduce users' walking distances and enhance comfort during waiting periods. Terminal design studies suggest that the proximity of facilities to primary activity areas significantly influences user satisfaction (Almaas & Dianingrum, 2025).

The short-term phase (0–1 year) focuses on a quick-wins improvement layout aimed at eliminating major bottlenecks without requiring extensive structural changes, as illustrated in Figure 3. Enhancements include defining a linear pedestrian path from the parking area to the boarding zone, adding guiding blocks, separating potential crossing points with bollards and zebra crossings, and installing temporary wayfinding signs and LED-based schedule displays at strategic locations. Waiting area optimization, through the addition of modular seating, charging corners, and Wi-Fi access, along with improved cleanliness and lighting, are also prioritized to enhance user comfort and safety. This quick intervention strategy aligns with research emphasizing that improved signage and the provision of clear, real-time information significantly enhance wayfinding performance and user navigation efficiency in transport hubs, thereby increasing terminal usability and passenger comfort (Mufarrihana et al., 2025; Zhao et al., 2025).

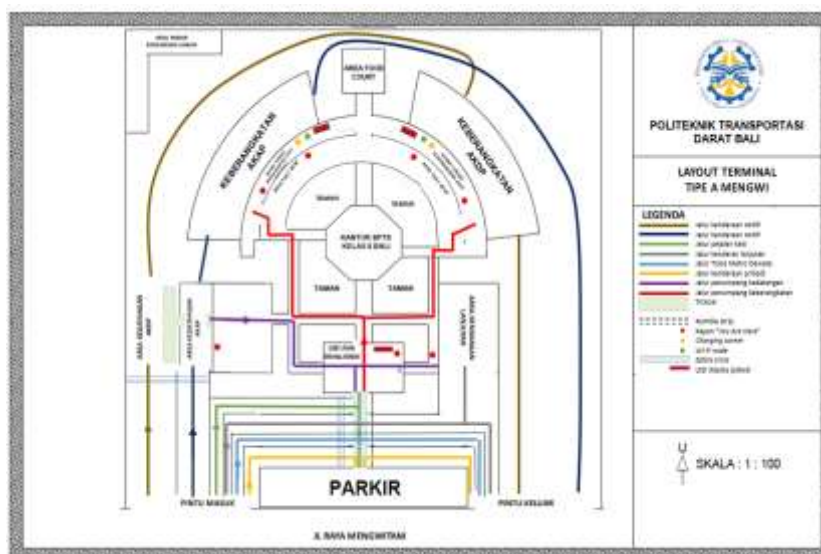


Figure 3. Terminal Redesign Phase 1: Quick-Wins Improvement Layout

The medium-term phase (1–3 years) is directed toward restructuring the terminal layout and functional zoning to enhance operational efficiency and reduce flow conflicts, as visualized in Figure 4. At this stage, the departure area is sterilized through the establishment of a linear boarding corridor and modular gates, accompanied by the complete separation of arrival and departure flows. In addition, a one-way vehicle circulation system is implemented for intercity buses (AKAP/AKDP), Trans Metro Dewata services, private vehicles, and ride-hailing services to minimize cross-traffic and operational interference. The introduction of modern supporting facilities, such as a Wi-Fi lounge, smart charging corners, luggage storage facilities, and dedicated rest areas for bus crews, further strengthens the terminal’s function as an efficient and user-oriented transit space. This approach is consistent with previous findings indicating that architectural strategies prioritizing optimized spatial organization, efficient circulation pathways, and clear wayfinding systems, such as the separation of pedestrian and vehicle flows and the definition of functional zones, significantly enhance passenger movement, reduce congestion, and contribute to a more positive and efficient user experience in terminal environments (Carteni et al., 2025; D T. et al., 2024).

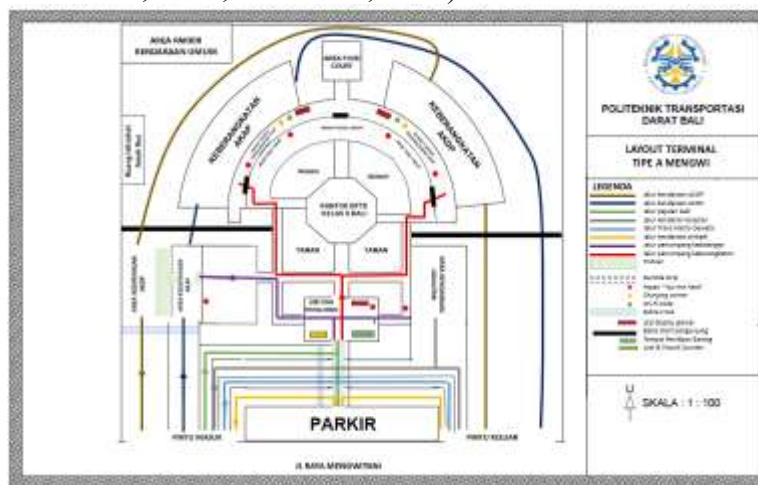


Figure 4. Terminal Redesign Phase 2: Restructuring the Terminal Layout
The long-term phase (3–10 years) positions Mengwi Terminal as an Integrated Mobility Hub designed to support the Transit-Oriented Development (TOD) concept, as illustrated in Figure 5. At this stage, the terminal design integrates intermodal transport services, the development of commercial zones and multifunctional public spaces, the application of green terminal principles through the use of solar energy and smart environmental management, as well as integrated digital mobility systems such as a smart information center, automated ticketing, and real-time bus tracking.

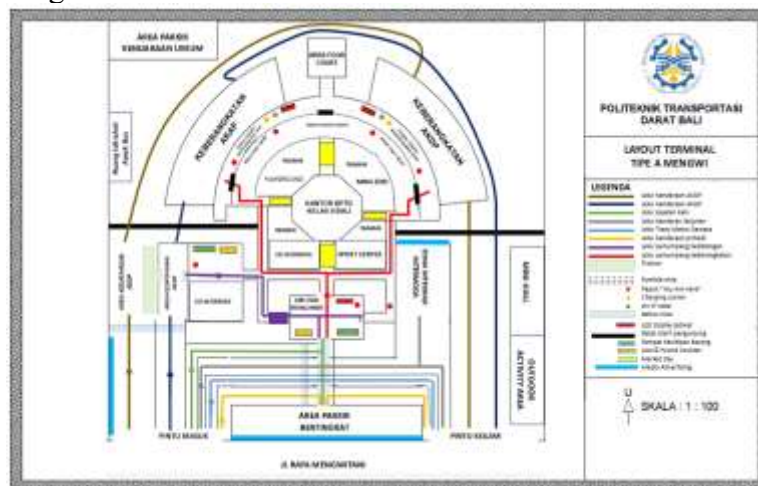


Figure 5. Terminal Redesign Phase 3: Modern Terminal and Transit Hub Design

This transformation shifts the role of the terminal from a mere passenger boarding and alighting point into a sustainable hub of mobility, economic activity, and social interaction. This concept is consistent with studies emphasizing that UX-based terminal design, digitalization, and TOD integration can significantly enhance the attractiveness of public transport and strengthen the role of terminals within modern urban transportation systems (Liu et al., 2022). Overall, the visual layout design of Mengwi Terminal functions not only as an aesthetic representation but also as a spatial communication tool that enables users to interact more effectively with the terminal environment. The layout is expected to bridge the gap between the availability of facilities and the users' actual experience.

The results of this study indicate that the quality of user experience at Mengwi Terminal is strongly influenced by the integration of physical design, information systems, and circulation patterns. The identified problems are not merely the result of insufficient facilities, but rather stem from spatial designs that are not yet fully aligned with user behavior and needs. These findings reinforce the concept that user experience (UX) is a key factor in the success of public transport facilities (Lucas et al., 2022). The predominance of user complaints related to information clarity and navigation highlights that non-physical elements play an equally important role as physical infrastructure. Without effective information systems and wayfinding, even well-equipped facilities are unable to deliver an optimal user experience. This is consistent with UX-based studies that emphasize the importance of integrating information design within transportation spaces (Fadzana & Diartono, 2024).

The data triangulation approach applied in this study enables a more comprehensive understanding of terminal-related issues. Quantitative data provide insights into user satisfaction levels and improvement priorities, while qualitative data help explain the context and underlying reasons behind user perceptions. This combination has proven effective in formulating practical, needs-based design recommendations (Hair et al., 2021). The proposed development plan and layout design demonstrate that the application of UX principles can enhance circulation efficiency while simultaneously improving user comfort. Intuitive spatial arrangements, clear information systems, and easily accessible facilities have the potential to strengthen the terminal's image and encourage greater public interest in using public transportation. Thus, this study confirms that the development of Mengwi Terminal should be directed toward a comprehensive User Experience (UX)-based design approach. This approach is not only relevant for Mengwi Terminal but can also serve as a reference for the development of other terminals and transport hubs in Indonesia, particularly in efforts to enhance the overall quality of public transportation services.

CONCLUSION

This study concludes that the development of Mengwi Type A Terminal must be guided by a comprehensive User Experience (UX)-based design approach, as user satisfaction and circulation efficiency are not determined solely by the availability of facilities but by the integration of spatial layout, circulation patterns, wayfinding, and information systems. The research findings indicate that, although overall user perceptions of comfort and safety are relatively positive, inefficiencies in pedestrian and vehicle circulation, limited clarity of information, and suboptimal spatial legibility continue to hinder operational performance and user experience. Through the application of journey mapping, usability testing, and UX surveys, this study demonstrates that UX-oriented spatial planning can effectively reduce bottlenecks, improve navigation, and enhance comfort. Therefore, it is recommended that the development of Mengwi Terminal be implemented in phased stages, starting with short-term improvements in signage, real-time information, and pedestrian safety, followed by medium-

term restructuring of zoning and circulation, and culminating in long-term transformation into an integrated mobility hub aligned with Transit-Oriented Development (TOD) principles. This approach is expected not only to enhance the quality of services at Mengwi Terminal but also to serve as a reference for the UX-based development of other transport terminals in Indonesia in order to improve public transport performance and attractiveness.

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