

Integrating User-Centered Design and SDLC Prototyping for Housing Digital Catalog Development at PT Wanro Sukses Persada

Diva Mezhallunna Putri Suncoko¹

¹Digital Business, Universitas Negeri Surabaya, Indonesia

*) Corresponding Author (Email: diva.22109@mhs.unesa.ac.id)

ABSTRACT

Advances in digital technology have encouraged housing developers to utilize websites as a promotional tool; however, PT Wanro Sukses Persada still relies on conventional media, which limits the dissemination of information. This study aims to design a user-centered housing catalog website and evaluate the system's functional quality and usability. The methodology applied integrates User-Centered Design (UCD) with the SDLC Prototyping model to ensure that features align with prospective buyers' needs. The website was developed using the WordPress platform, with evaluation conducted through Blackbox Testing for functional validation and the System Usability Scale (SUS) questionnaire to measure usability. The Blackbox testing results showed a 100% success rate, confirming that all features functioned as designed. Meanwhile, the usability evaluation yielded an average score of 83.5, placing the website in the Acceptable category with an Excellent rating (Grade B). These findings demonstrate that the developed catalog website meets technical feasibility and user experience standards, making it ready for implementation as a digital marketing tool to support the marketing activities of PT Wanro Sukses Persada.

Keywords: *Housing Catalog Website, User-Centered Design, SDLC Prototyping, Blackbox Testing, System Usability Scale.*

I. INTRODUCTION

Digital transformation has become a major driving force reshaping the economic and social landscape in Indonesia, particularly in re-engineering consumer behavior (Ardani, 2022). According to data from the Indonesian Internet Service Providers Association, the number of internet users in Indonesia in 2025 reached 229.4 million people, or 80.66% of the total population (APJII, 2025). In line with this, various online property portals in Indonesia, such as Rumah123, Lamudi.co.id, and 99.co, report



high search and visit volumes every month, indicating that digital platforms have become a primary channel in the housing search and selection process (Semrush, 2025). This fact signifies that digital platforms have become the main channel for housing searches in Indonesia. These conditions change consumer behavior, as they now begin their purchasing journey at the Zero Moment of Truth (ZMOT), proactively conducting in-depth online research to compare projects, read reviews, and seek reliable information long before interacting directly with sales personnel (Musyarrofah & Susyanti, 2024; Supiandi & Priatna, 2024).

Despite the rapid adoption of digital technology in the housing industry, a phenomenon gap remains where not all companies can adapt optimally to change. PT Wanro Sukses Persada serves as evidence of this gap. As a property developer established since 2019, the company is currently marketing two residential projects, Cluster Graha Aurora and Cluster Istana Biru. Unfortunately, the marketing strategy for these two clusters still relies heavily on conventional methods. The conventional marketing carried out by the company includes distributing and placing brochures in various offices and supermarkets, installing banners, and renting billboards for certain periods. Additionally, the company has started utilizing the TikTok social media platform under the account @graha_aurora as a means of digital promotion. However, the use of this medium is not yet fully optimal due to the short-lived nature of social media content, which is easily buried by new posts, making it difficult for consumers to find structured information regarding house specifications. This is reflected in the limited level of reach and content interaction despite the account having over 5,000 followers. This means that a high number of followers does not correlate linearly with the optimal delivery of product information. Conventional marketing also creates a sharp contrast with ideal industry conditions, exhibiting critical weaknesses such as narrow market reach, high operational costs, and the inability to measure campaign effectiveness accurately (Pangestu & Dora, 2025; Usman, Purwanegara, & Widyasthana, 2025).

In response to similar challenges, many housing industry players have adopted various digital solutions as operational standards. In other housing companies, the development of catalog websites has become part of modern digital marketing strategies. A catalog website allows consumers to independently access complete information regarding units, floor plans, facilities, and locations. Some companies have even gone a step further by implementing immersive technologies such as 360-degree virtual tours to provide an in-depth property experience to potential buyers from anywhere (Sulaiman, Aziz, Bakar, Halili, & Azuddin, 2020). The existence of these solutions indicates that transitioning to digital platforms is an essential step for property companies to survive and grow.

In contrast to these ideal practices, PT Wanro Sukses Persada currently lacks a catalog website as its primary marketing medium, leaving the company dependent on conventional promotional media like printed or digital brochures. These are characteristically static, limited by display space, and do not support building a strong

visual brand image in the minds of potential buyers. In the context of property marketing, strategically designed visual elements are proven to positively influence attraction and purchase interest; specific color choices, neat layouts, and high-quality images can increase the perception of professionalism and trust in the offered housing (Isdaryani, Darmawan, & Nugraha, 2025). Conversely, a catalog website allows for a richer and more dynamic visual strategy through high-resolution photo galleries, neatly organized technical specifications, and the integration of multimedia content like video tours or virtual tours that provide a more immersive and realistic exploration experience for potential buyers (Anderson, Freybote, & Manis, 2024; Leimontaitė & Naimavičienė, 2023).

Furthermore, a website can be equipped with Call to Action (CTA) features connected directly to a WhatsApp Business account, allowing potential buyers to immediately start conversations, ask questions, or schedule visits instantly. The housing catalog website proposed in this study is designed to be openly accessible without requiring users to undergo a login process. The decision to provide open access without login features (Guest Mode) for general users is based on a strategy to mitigate interaction barriers within the principles of User-Centered Design. Referring to findings by (V.V.N. et al. 2024), mandatory account creation requirements are identified as critical barriers causing task completion failure, where users often cancel transactions due to technical constraints when forced to create an account first. To avoid this risk, the system is designed by prioritizing simplicity and ease of use as suggested by (Alao et al. 2022; Mohammed, Wahab, and Ibrahim 2025), who emphasize that the success of system adoption depends heavily on design alignment with user preferences for fast information access. Based on this research, the design of a housing catalog website that is openly accessible without mandatory initial login can be viewed as an application of UCD principles to reduce entry barriers and facilitate potential buyers in immediately searching and comparing unit information before entering further interaction stages by contacting marketing.

While the adoption of digital solutions like websites is common, merely having a digital presence is insufficient to bridge the gap maximally. Many existing property websites fail to provide a satisfying experience because they are built with a focus on designer preferences or business stakeholder interests rather than the end-user (Ravalji & Goel, 2024). Therefore, this study proposes a more profound solution: the development of a housing catalog website for PT Wanro Sukses Persada using a User-Centered Design (UCD) approach. The novelty of the solution proposed in this research lies not only in providing a housing catalog website as a new digital asset for PT Wanro Sukses Persada but also in its development methodology, which systematically places potential buyers at the center of every design decision through the UCD approach.

To ensure a structured and iterative development process, the UCD approach was integrated into the SDLC Prototyping model in this study. This integration is based on

current practices showing that UCD can be effectively implemented within system development frameworks like the SDLC. For example, research on web-based public service administration systems combined UCD with the SDLC stages of analysis, design, and evaluation to produce systems that are more responsive to user needs (Widhiantara & Saktyawan, 2022). Furthermore, a systematic review by Shania et al. (2023) identified that combining UCD with iterative development methodologies can address functional requirement challenges while increasing user satisfaction. Accordingly, this study follows these principles by applying UCD within the SDLC Prototyping cycle from requirements analysis and design to prototype creation, evaluation, and maintenance. Thus, this combined approach was chosen to produce a housing catalog that is responsive, intuitive, and aligned with user expectations.

This research aims to design and develop a housing catalog website for PT Wanro Sukses Persada that aligns with user needs and characteristics through the integration of UCD and SDLC Prototyping methodologies. Additionally, this study aims to evaluate the functional quality and ease-of-use of the developed website using Blackbox Testing and the System Usability Scale (SUS) to ensure the system is fit to support the company's marketing activities (Abdillah, Kurniastuti, & Susanto, 2023; Subih et al., 2019). In the design phase, the solution is manifested as an interactive prototype designed using the Figma tool (Anisa, Sumantri, & Anggoro, 2023).

II. LITERATURE REVIEW

2.1 House Catalog Website

According to (Wijayanto, Rianto, & Sudalyo, 2025), a house catalog website is a technology-based solution that can streamline the promotion, marketing, and sales of housing by providing prospective buyers with real-time access to information. Furthermore, (Rahmawan, Ramdhani, and Ramadhan 2023) explain that a web-based housing catalog website allows consumers to obtain information about housing without any time or location constraints, as the internet enables access to information anytime, right at their fingertips. Additionally, (Azizah et al. 2025) found that digital catalogs can build a professional brand image and increase customer trust in housing developments, resulting in a sales increase of up to 30% during the initial implementation period. The use of this digital platform is further supported by the findings (Maulidia, Hambalah, and Prihatiningtyas 2023), who state that marketing communication becomes easier when all company and product information is available on a single platform.

2.2 SDLC Prototyping Model

Prototyping is an approach in software engineering that directly demonstrates how software works before the actual construction phase begins, with the aim of obtaining direct feedback from users (Kurniyanti & Murdiani, 2022). The process of the Prototyping SDLC method consist of requirements

gathering, quick design, build a prototype, user evaluation, refining prototype, and implementation & maintenance (Senarath, 2021).

2.3 User-Centered Design (UCD)

User-Centered Design (UCD) is a development method that places users as the main focus by understanding their needs, limitations, and characteristics throughout the development process (Alatas & Kusumadewi, 2025). The UCD process consists of four main stages: Understand Context of Use, Specify User Requirements, Design Solutions, and Evaluate Against Requirements (Dananjaya, Prathama, & Darmaastawan, 2024). The implementation of UCD has been proven to improve usability and user satisfaction because each design iteration is continuously validated based on user needs and experiences (Hidayah, 2024; Pratama, Al Hafidz, Lazuardy, & Naristi, 2024).

2.4 Blackbox Testing

Blackbox Testing is a software testing approach that focuses on evaluating system functionality based on user requirements without requiring knowledge of the internal code or implementation of the system (Ginting & Lubis, 2024). The testing process is conducted by providing inputs to the system and examining whether the outputs match the expected results, enabling the identification of functional issues from the user's perspective. This method is effective in detecting system defects and ensuring that application features operate according to specifications (Uminingsih, Yusuf, & Suraya, 2022). In this study, the Blackbox Testing technique applied is Use Case Testing due to its ability to validate system functionality comprehensively through real usage scenarios from start to finish (Alvaro, Darunnaja, & Yaqin, 2021). According to (Sasmita et al. 2024), Use Case Testing allows systematic testing of all system aspects to ensure that each feature meets user requirements and defined specifications. This is further supported by (Kinasih, Sahputra, and Anwar 2026), who stated that Use Case Testing is an effective instrument for identifying test scenarios that cover the entire system workflow and transaction process comprehensively.

2.5 System Usability Scale (SUS)

The System Usability Scale (SUS) is a 10-item questionnaire using a 5-point Likert scale designed to measure users' subjective perceptions of a system's usability, yielding a score of 0–100 as an indicator of usability quality (Faizza Zainuddin et al., 2025). The SUS is recognized as a reliable, simple, and validated tool for various web and mobile applications, where scores are calculated using a specific formula that distinguishes between positive and negative items. Usability, as defined by ISO 9241, is defined as the extent to which a product can be used by a specific user to achieve a specific goal with effectiveness, efficiency, and satisfaction within a specific usage context (Sauro & Lewis, 2016).

III. METHOD

This study employed a qualitative research approach with a case study design, focusing on the development process of a housing catalog website at PT Wanro Sukses Persada. The system development followed the Software Development Life Cycle (SDLC) Prototyping model integrated with the User-Centered Design (UCD) methodology. This integration ensured that every design decision was based on a deep understanding of user needs, characteristics, and tasks through an iterative process. The participants of this study were selected using a snowball sampling technique, consisting of five informants. These included one internal stakeholder, the President Director of PT Wanro Sukses Persada, to validate business requirements, and four potential house buyers as external informants representing the end-users. Data collection was conducted through semi-structured interviews to gather in-depth user requirements and feedback during the evaluation phase, as well as non-participant observation to monitor user interactions with the system. Additionally, a System Usability Scale (SUS) questionnaire was utilized as a quantitative instrument to measure the subjective perception of usability. The research flow was divided into three main stages: the preliminary study, the system development stage, and the evaluation stage. The development stage followed the UCD and Prototyping cycles, starting from requirement analysis, quick design (wireframing), building the prototype using Figma, and user evaluation. The final implementation was developed using the WordPress and various supporting plugins to ensure dynamic content management.

IV. RESULTS AND DISCUSSION

4.1 Implementation Results of SDLC Prototyping and User-Centered Design Integration

The development of the PT Wanro Sukses Persada housing catalog website was carried out by synergizing the Software Development Life Cycle (SDLC) Prototyping model with the User-Centered Design (UCD) approach. This integration aims to minimize the risk of design discrepancies by placing potential buyers as the core focus in every technical development phase. By combining these two methods, the system development process becomes more structured while remaining adaptive to user feedback through iterative visual modeling. The following stages describe the implementation of this integration in detail:

a. User Requirement

1. Understand Context Of Use

The Understand Context of Use phase is the first fundamental step in the User-Centered Design (UCD) method for identifying the characteristics of the target audience, the primary goals of the interaction, activity scenarios, and the operational limitations of the system through preliminary interviews with the CEO of PT Wanro Sukses Persada. The mapping results indicate that this system is

used by internal company staff as information managers, as well as prospective buyers or the general public who wish to access detailed housing information without having to physically visit the location first. The main activities expected to take place on the website include searching for housing information, reviewing detailed specifications of homes and locations, and contacting the marketing team for further information, with all content accessible flexibly via smartphone or laptop anytime and anywhere.

2. Results of User Requirement Interviews

Needs identification involved both internal and external stakeholders to align business objectives with user expectations. Internally, PT Wanro Sukses Persada targeted young couples (ages 21–40) for the Graha Aurora and Istana Biru Clusters, emphasizing high-quality building specifications, "no down payment" (DP) schemes, legal status transparency, and the integration of a mortgage simulation calculator. Externally, potential buyers demanded financial and technical transparency including materials, floor plans, and explicit pricing along with actual photo galleries, video tours, educational purchasing guides, and direct WhatsApp access to overcome the visualization and communication limitations found on alternative platforms. Consequently, the system's functional requirements were established to feature a property catalog with price filtering, detailed unit pages integrated with Google Maps, multimedia galleries, digital brochure downloads, an automated mortgage calculator, an FAQ section, and strategic WhatsApp CTA buttons. Non-functionally, the website specifies an intuitive interface with a harmonious color scheme for non-technical users, full responsiveness across smartphone and desktop devices, fast loading times for visual assets, and guaranteed 24-hour online accessibility to support the company's professional digital presence.

b. Quick Design

In the Quick Design phase, low-fidelity wireframes were created to define the initial layout and navigation flow based on the identified user requirements. The wireframes covered key pages, including the Homepage, Unit Catalog, Unit Details, and Mortgage (KPR) Simulation, with a focus on clear information structure and intuitive navigation. The Homepage functions as the main entry point with featured information and testimonials, the Unit Catalog supports filtering by category and price, the Unit Details page provides floor plans and location transparency, and the KPR Simulation assists users in simple financial planning. Afterward, the wireframes were validated through interviews

with internal and external informants to assess the suitability of the design before proceeding to high-fidelity mockups. The validation results showed positive feedback, as the informants considered the layout complete, easy to navigate, and aligned with user needs, allowing



Figure 1. Wireframe of Home Page (left) and Unit Catalog Page (right)
the development process to continue without significant revisions.



Figure 2. Wireframe for Unit Detail Page and KPR Simulation Calculator

c. Build Prototype

Following the wireframing stage, the development proceeded to the Build Prototype phase. In this stage, the previously created wireframes were evolved into high-fidelity designs. The construction of this high-fidelity prototype was performed using the Figma design software, which involved the meticulous application of a visual design guide.

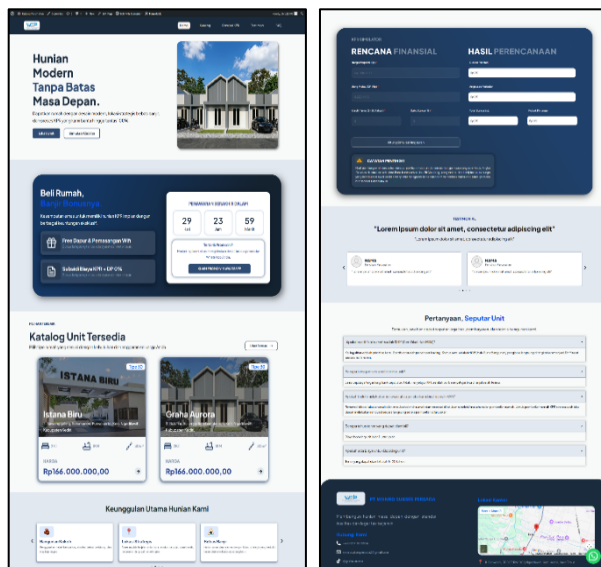


Figure 3. Home Page Design Prototype

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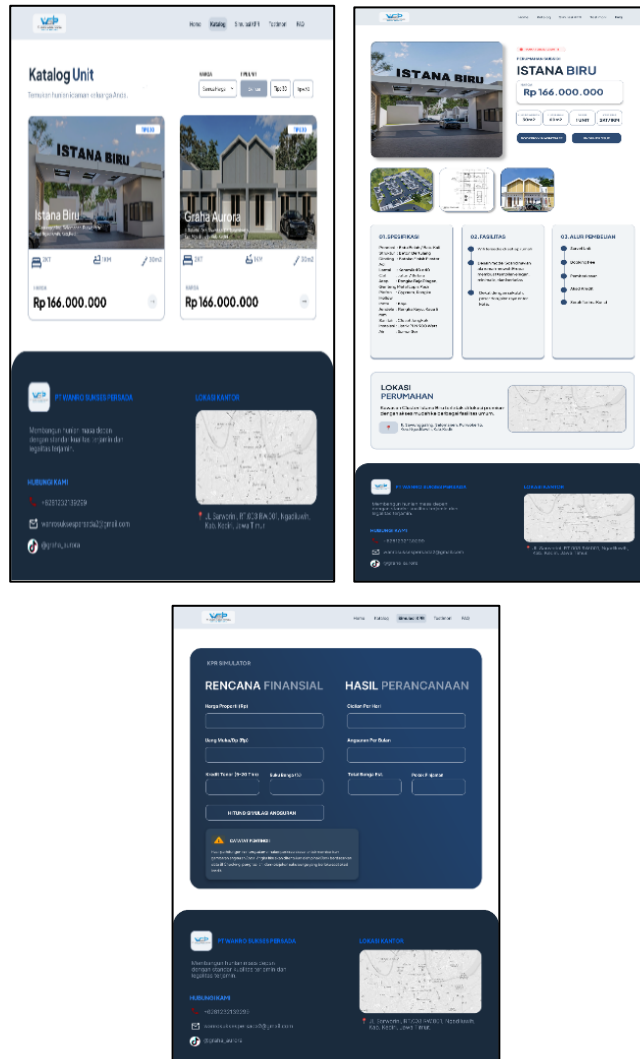


Figure 4. Prototype Design of Unit Catalog Page (left), Unit Detail Page (right), and KPR Calculator (bottom)

d. User Evaluation

The User Evaluation stage assessed the housing catalog website prototype from both internal and external perspectives. Internal evaluation by the company's director focused on ensuring alignment with the company's branding, promotional objectives, and functional completeness, while external evaluation by potential buyers examined the visual appeal, navigation, information clarity, and overall usability of the design. The evaluation results were highly positive, as users considered the layout attractive, easy to navigate, and informative.

Features such as the unit catalog, floor plans, photos, and action buttons were viewed as clear and useful. Since no significant revisions were suggested, the prototype was considered ready for implementation.

e. *Refining Prototype*

The Refining Prototype stage focused on finalizing and standardizing the design based on the positive results of the User Evaluation phase. As no major revision requests were identified, the process emphasized ensuring interface consistency across pages, verifying navigation flows, and optimizing image asset quality. After the review process was completed, the prototype was finalized and prepared as the main reference for the system development stage.

f. *Implement and Maintain*

The Implement and Maintain stage involved transforming the validated prototype into a functional website using WordPress and Elementor within a local development environment before deployment to web hosting. The website was designed to provide easy access to housing information without requiring user login, allowing visitors to explore unit details freely. After implementation, the maintenance responsibility was fully handed over to PT Wanro Sukses Persada to support sustainable marketing activities, while the researcher remained available for technical consultation if needed.

4.2 *System Evaluation Results*

a. *Black-Box Testing Evaluation*

A functional evaluation was conducted using the black-box testing method with use-case testing techniques to ensure that the features and navigation on PT Wanro Sukses Persada’s housing catalog website functioned as designed. Testing was performed by verifying the consistency of inputs and outputs for each feature without examining the system’s internal code.

1. Black-Box Testing of the Home Page

Table 1. Home Page Test Scenario Results

No	Test Class	Test Steps	Expected Results	Test Result	Status
1	Catalog Page Navigation	Click the "Catalog" menu on the header navigation.	The system redirects from the Home Page to the Unit Catalog Page correctly.	The menu changes successfully without any issues.	successful

2	Simulation Page Navigation	Click the "KPR Simulation" menu on the header navigation.	The system redirects from the Home Page to the KPR Simulation Calculator Page.	The menu changes successfully without any issues.	successful
3	Hero Section CTA	Click the "View Unit" button in the Hero Section.	The system redirects users to the Catalog page according to the selected button.	The button successfully redirects to the Catalog page.	successful
4	Hero Section CTA	Click the "Installment Simulation" button in the Hero Section.	The system redirects users to the KPR Simulation Calculator page.	The button successfully opens the KPR installment calculation page.	successful
5	Promo & Urgency Feature	Observe the Countdown Timer on the promotion banner in the Home Page.	The timer decreases automatically in real-time.	The countdown timer runs actively and accurately.	successful
6	Promo Contact Integration	Click the "Claim Promo via WhatsApp" button on the promotion banner.	The browser opens WhatsApp with the correct destination number and automatic message.	The WhatsApp link works properly with an automatic message.	successful
7	Catalog Preview	Click one of the unit cards (Istana Biru/Graha	The system redirects users to the selected Unit Detail Page.	The housing detail information appears according to	successful

			Aurora) on the Home Page.			the selected unit.	
8	Detail Link	Unit	Click the arrow button (→) on the top right section.	The system redirects users to the Catalog Page.	The button successfully redirects to the Catalog Page.	successful	
9	Floating WhatsApp Button		Click the floating WhatsApp icon on the corner of the screen.	The system connects users to the admin WhatsApp service.	The floating button appears on all pages and redirects to WhatsApp with an automatic message.	successful	
10	Quick Simulator	KPR	Input house price and loan period data into the simulator widget on the Home Page.	The installment estimation result appears and updates automatically.	The calculation works correctly based on the given input.	successful	
11	Simulator Tutorial		Click the "Tutorial Usage" link on the KPR calculator widget.	The system displays a guide explaining how to use the simulation feature.	The tutorial appears clearly and is easy to understand.	successful	
12	Testimonial Anchor Navigation		Click the "Testimonial" menu on the header navigation.	The page scrolls automatically to the Customer Testimonial section.	The anchor link directs users to the testimonial section correctly.	successful	
13	FAQ Anchor Navigation		Click the "FAQ" menu	The page scrolls	The anchor link directs	successful	

		on the header navigation.	automatically to the FAQ section.	users to the FAQ section correctly.	
14	FAQ Interactivity	Click a question item in the FAQ section.	The question expands to show the answer and closes when clicked again.	The accordion feature works smoothly without overlapping text.	successful
15	Footer Information & Social Media	Click phone, TikTok, or email icons in the footer section.	The system redirects to official social media profiles, email application, or WhatsApp.	All external links are valid and connected to official company accounts.	successful
16	Google Maps Integration	Click the map in the footer section.	The map responds or redirects users to Google Maps location.	The system successfully opens Google Maps with the company office address.	successful

Source: Author's Work, 2026

2. Blackbox Testing on Catalog Page

Table 2. Unit Catalog Page Test Scenario Results

No	Test Class	Test Steps	Expected Results	Test Result	Status
1	Header Navigation	Click the "Home", "KPR Simulation", or "Testimonial" menu on the header.	The system redirects users to the Home Page or other functional pages correctly.	Navigation between pages runs smoothly.	successful
2	Price Filter	Click the "All Prices"	The unit list updates	The system	successful

		dropdown and select a specific price range.	automatically and displays units based on the selected price range.	filters units according to the selected price criteria.	
3	Unit Type Filter	Click the Type category button or "All" button in the Unit Type section.	The catalog displays units that match the selected type.	Filtering based on unit type responds correctly.	successful
4	Unit Detail Link	Click the unit image or arrow button (→) on the unit card.	The system redirects users to the unit detail page containing photos, floor plans, and complete descriptions.	The unit detail link works properly.	successful
5	Catalog Responsiveness	Resize the screen from desktop to mobile or scroll the catalog page.	The unit card layout adjusts properly and remains easy to read.	The catalog is responsive on various device sizes.	successful

Source: Author's Work, 2026

3. Blackbox Testing on KPR Simulation Page

Table 3. Results of Calculator KPR Simulation Test Scenarios

No	Test Class	Test Steps	Expected Results	Test Result	Status
1	Header Navigation	Click the "Home", "Catalog", "Testimonial",	The system redirects users to the selected page	Navigation between pages works properly.	successful

		or "FAQ" menu on the header.	or section correctly.		
2	Property Data Input	Enter numbers in "Property Price", "Down Payment", "Loan Tenor", and "Interest Rate" fields.	Input fields accept numeric data correctly and respond properly.	Users can enter data without technical issues.	successful
3	Input Validation	Enter letters or special characters into numeric input fields.	The system rejects invalid input and provides a warning for non-numeric or empty fields.	Input validation prevents invalid data entry.	successful
4	Installment Estimation Accuracy	Check the "Daily Installment Estimation" and "Monthly Installment" results based on the input data.	The calculation result appears accurately based on the applied formula.	The calculation provides accurate results.	successful
5	Financial Plan Details	Check updates on "Total DP", "Loan Amount", and "Estimated Total Interest".	Financial variables update automatically after calculation.	Financial details are synchronized with the main estimation result.	successful

Source: Author's Work, 2026

4. Blackbox Testing on Unit Detail Page

Table 4. Unit Detail Page Test Scenario Results

No	Test Class	Test Steps	Expected Results	Test Result	Status
1	Header Navigation	Click the "Home", "Catalog", "Testimonial",	The system redirects users to the selected page correctly.	Navigation between pages works smoothly.	successful

		or "FAQ" menu on the header.			
2	Photo & Video Gallery	Click the gallery thumbnail image or video icon below the main image.	The main photo changes according to the selected thumbnail and the housing video can be played.	Multimedia gallery and video features work properly.	successful
3	WhatsApp Booking	Click the "Booking via WhatsApp" button.	The browser opens WhatsApp with an automatic message related to the selected unit.	WhatsApp link works properly with an automatic message.	successful
4	Brochure Download	Click the "Download Brochure" button.	The system starts downloading the unit brochure file in PDF format.	The brochure file downloads successfully and can be opened.	successful
5	Unit Location Map	Click the location map section.	The browser opens Google Maps with the housing location.	The map feature works correctly.	successful

Source: Author's Work, 2026

Based on the results of testing 33 test cases on the website's main pages and features, all tests were marked as successful, with no functional failures or technical errors found. These results indicate that all website features are functioning properly and have achieved a 100% functional success rate; therefore, the website is deemed suitable for supporting the company's digital marketing activities.

b. *System Usability Scale (SUS) Evaluation*

The usability evaluation was conducted using the System Usability Scale (SUS) method to determine the website's ease of use based on user experience. The test was administered to 5 respondents using the SUS questionnaire, which consisted of 10 statements on a 1–5 Likert scale.

Table 4. 5 The result of the SUS score calculation multiplied by 2.5

Informan	Statement										Total	Total after multiplied by 2.5
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10		
I-1	3	3	3	2	4	3	3	3	4	1	29	72,5
I-2	4	4	4	4	4	4	4	4	4	4	40	100
I-3	3	3	4	3	4	3	4	3	4	1	32	80
I-4	3	3	3	3	3	3	3	3	3	3	30	75
I-5	3	4	4	3	3	4	4	4	3	4	36	90
Total Score												417,5

Source: Author's Work, 2026

The average SUS score is calculated using the following formula:

$$\bar{x} = \frac{\sum x}{n}$$

With a total SUS score of 417.5 and 5 respondents, the result is:

$$\bar{x} = \frac{417,5}{5} = 83,5$$

Based on the evaluation results, the average System Usability Scale (SUS) score of 83.5 indicates that the website has a good level of usability. According to the SUS interpretation, this score falls into the "acceptable" category on the acceptability ranges, receives a grade of B on the grade scale, and falls into the "excellent" category on the adjective ratings.

4.3 Research Implications

a. *Theoretical Implications*

Theoretically, this study provides robust empirical evidence regarding the successful integration of the User-Centered Design (UCD) approach into the Software Development Life Cycle (SDLC) Prototyping framework within the local property industry context. The quantitative outcome of a 100% Black-box success rate paired with an "Excellent" SUS score of 83.5 strengthens the theoretical foundation of human-computer interaction. It demonstrates that web software quality must not solely rely on zero-defect

technical functionality but must balance seamlessly with the psychological comfort, cognitive patterns, and actual search behaviors of end-users.

b. Practical Implications

The practical contributions generated from the development and implementation of this platform impact several operational segments. First, for the company (PT Wanro Sukses Persada), the implementation of this digital catalog drives a digital transformation that replaces high-cost, low-reach conventional paper media with an efficient, 24/7 interactive asset that effectively cuts down operational printing budgets while massifying market reach. Features like the automated mortgage calculator serve as a self-qualification tool for clients, filtering high-intent buyers and allowing the sales team to focus efforts on mature leads, thereby accelerating the closing rate. Second, for web developers, this study serves as a tactical workflow model demonstrating that technical compliance validated by functional testing must always be supported by robust usability benchmarks, underscoring that an application will fail to be adopted by non-technical general users if the information architecture layout is not iteratively tailored to user preferences. Third, for end-users, prospective home buyers gain unhindered, transparent access to floor plans, explicit pricing, and financial simulation utilities without encountering interaction barriers such as mandatory account registration, which significantly streamlines their online research journey during the critical Zero Moment of Truth (ZMOT) phase before committing to physical site visits.

V. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Based on the results of the research and development of the PT Wanro Sukses Persada housing catalog website, it can be concluded that the marketing process prior to the implementation of the system still had limitations due to the use of conventional, static media such as brochures. This situation meant that information about housing units could not be widely disseminated, updates on unit availability were not optimal, and users still had difficulty obtaining detailed information about home specifications without visiting the location in person. To resolve these challenges, the housing catalog website was successfully developed by integrating the SDLC Prototyping model and the User-Centered Design (UCD) approach to produce a system that meets user needs. The iterative nature of SDLC Prototyping enabled continuous design, evaluation, and refinement, which effectively validated system compliance with user requirements before full-scale deployment, supporting the empirical insights of Fahrezi and Prasetyo (2025) and Firmansyah, Maulana, Maulana, & Bobi, (2021). Concurrently, the UCD approach ensured that every design decision was rooted in the characteristics and needs of the end-users. This active user

involvement during development contributes significantly to creating a highly accessible, user-friendly system that is adaptive to actual user behaviors, aligning with the findings of Pebriansyah, Hidayat, & Utomo (2025) and Sintawati, Puspitorini, & Kumalasari, (2025). As a result, the platform successfully delivers tailored features such as unit catalogs, price search filters, mortgage (KPR) simulations, detailed unit information, and direct marketing contacts.

Furthermore, the comprehensive evaluation demonstrates that the developed website fully satisfies both functional and usability requirements. Functional testing via Black-box Use Case Testing achieved a mutlak 100% success rate across 33 distinct scenarios on four main pages, proving that all features, navigation pathways, and functionalities operate flawlessly without any technical errors. This absolute functional validity aligns with the established framework that Black-box testing serves as an effective, standard instrument to evaluate web software quality from the functional user perspective without requiring internal code comprehension, while reinforcing that structured scenario-based use case testing optimizes overall system operational precision. In terms of non-functional usability, the System Usability Scale (SUS) questionnaire yielded an average score of 83.5, placing the platform in the "Acceptable" category, with a "Grade B" and an "Excellent" adjective rating. This quantitative outcome confirms the theoretical view of Rivydhho Assidiq, Arianti, & Bahri (2022) that a SUS score above 80 indicates highly optimal usability and learnability for general users during system interaction. It also substantiates that UCD methodologies successfully yield highly efficient and user-friendly web applications within the property sector (Pebriansyah et al., 2025). Ultimately, the synergy of flawless functional execution and an Excellent user experience successfully answers the research problems and validates the readiness of the website to support the digital marketing transformation of PT Wanro Sukses Persada.

5.2 Recommendations

Based on the results of the research and development of PT Wanro Sukses Persada's housing catalog website, several recommendations can be made for the system's future development. Further development is recommended to enhance the completeness of information for each housing unit, particularly by adding real photos of the buildings, video tours, and detailed home specifications so that the information provided is clearer and helps users understand the condition of the unit before engaging in further communication with the company. Additionally, the website could be enhanced by adding more interactive features, such as a 360° Virtual Tour, to provide a more realistic experience of viewing the home's interior. Search Engine Optimization (SEO) can also be implemented to make the website easier to find and reach a wider audience. For future research, it is recommended to involve a larger number of respondents so that the usability evaluation results can provide a broader picture of the user experience. The use of evaluation methods other than the System Usability Scale (SUS) can also be considered to obtain more in-depth analysis

regarding user experience and satisfaction with the system. With these further developments, it is hoped that the website's quality can continue to improve and provide optimal benefits for both the company and users.

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