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## Designing The UI/UX Of The RRQ Arena Manado Website Using Design Thinking To Enhance User And Admin Experience

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### Abstract

Cloudio Chrestinatalean Sahwat. *UI/UX Design of RRQ Arena Manado Website Based on Design Thinking to Enhance User Experience for Users and Admins. Undergraduate Thesis. Information Systems Study Program, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Sam Ratulangi University, Manado. Advisors: (I) Mner Charles E. Mongi, S.Si., M.Si., (II) Mner Stephano C.W. Ngangi, S.T., M.T. RRQ Arena Manado currently lacks an integrated official website, causing tournament registration and management to rely on Instagram, Google Forms, Google Sheets, and Excel. This study aims to design the UI/UX of the RRQ Arena Manado website using the Design Thinking method, consisting of Empathize, Define, Ideate, Prototype, and Test. The research produced a High-Fidelity Prototype in Figma and was evaluated using Usability Testing and the User Experience Questionnaire Short (UEQ-S). The results showed improvements in user and admin performance, with user Success Rate increasing from 61% to 78% and Time on Task decreasing from 175 to 84 seconds. Admin Success Rate increased from 50% to 72%, while Time on Task decreased from 210 to 74 seconds. The UEQ-S results showed good pragmatic and hedonic quality.*

**Keywords:** *UI/UX, Design Thinking, Website, Usability Testing, UEQ-S*

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## INTRODUCTION

The development of digital technology and the internet has significantly transformed human activities, including communication, work, and entertainment. One rapidly growing phenomenon is electronic sports (E-sports), which has evolved from entertainment into a global industry involving game developers, tournament organizers, sponsors, media, and viewers (Akbar, 2025). In Indonesia, E-sports has developed significantly, particularly through accessible mobile games such as Mobile Legends and PUBG Mobile. The Indonesian government has also recognized E-sports as a competitive sport in official events such as the National Sports Week (PON) and SEA Games. This is consistent with (Hidayat & Sabillah, 2022), who state that E-sports meets the criteria of a sport through structured competition, fairness, and benefits.

The growth of E-sports has encouraged supporting facilities such as RRQ Arena, which serves community activities, training, and tournaments. Its presence in Manado supports the development of the local E-sports ecosystem (Games, 2025). However, RRQ Arena Manado does not yet have an official website to provide information, tournament registration, and community interaction. A website is an important digital medium for delivering information and services that can be accessed anytime and anywhere (Akbar et al., 2024). In this context, User Interface (UI) and User Experience (UX) are important factors in developing an effective digital product. UI focuses on visual and interactive elements, while UX concerns the overall user experience. A well-designed UI facilitates users in understanding and accessing information effectively (Fatah & Mufarroha, 2022).

Design Thinking can be applied to UI/UX design because it is a user-centered approach that emphasizes creative problem solving and iterative design. This method enables designers to identify user needs and develop appropriate solutions. Research by (Wangsa et al., 2022) shows that Design Thinking is more effective than traditional approaches because it emphasizes user needs and design iteration. Therefore, this research focuses on designing the UI/UX of the RRQ Arena Manado website

using Design Thinking to provide effective information, simplify tournament registration, and support structured community interaction for users and admins.

The research is limited to the UI/UX design concept and prototype and does not include full system implementation, technical performance, or security testing. It focuses on web-based user experience and does not cover E-sports team management or other non-technical aspects of RRQ Arena Manado. The objectives are to design the UI/UX of the RRQ Arena Manado website using Design Thinking and apply its stages to produce a user-centered prototype. The research is expected to provide practical UI/UX design experience for the researcher, contribute to knowledge and future research at Sam Ratulangi University, and provide RRQ Arena Manado with a structured and interactive website design that supports the needs of users, admins, and the local E-sports community.

## RESEARCH METHODS

This study used a mixed-methods case study combining qualitative and quantitative approaches. Qualitative data were obtained through Usability Testing (UT) to identify user behavior, difficulties, and needs, while quantitative data were collected using the User Experience Questionnaire Short (UEQ-S) to measure user experience. The study focused on the UI/UX design of the RRQ Arena Manado website and involved two main subject groups: users, who access information and tournament registration services, and admins, who manage information, activities, and website administration. Primary data were collected through interviews with local gamers and the RRQ Arena Manado Branch Manager, direct observation, and UEQ-S questionnaires, while secondary data were obtained from scientific journals, research articles, official RRQ websites and social media, online media, and relevant references on UI/UX and digital technology.

Design Thinking was selected as a user-centered approach for identifying problems and developing solutions based on user needs. According to (Darmawan et al., 2022), the method consists of five stages: Empathize, Define, Ideate, Prototype, and Test. Empathize identifies user needs through interviews and observations; Define formulates the main problems and user personas; Ideate generates solution ideas through brainstorming; Prototype develops low-fidelity wireframes and an interactive high-fidelity prototype using Figma; and Test evaluates the prototype through task-based Usability Testing involving users and admins. The evaluation combines UT and UEQ-S to assess task performance and user experience.

The research used a computer, Figma, and Google Chrome, with interview, observation, questionnaire, and literature data as research materials. UEQ-S uses a seven-point Semantic Differential scale to measure Pragmatic Quality and Hedonic Quality. Responses are transformed from 1–7 into -3 to +3 using the official UEQ-S Data Analysis Tool, followed by individual scale means and the overall Grand Mean. Scores above 0.8 indicate a positive user impression. The results are interpreted using the global UEQ benchmark categories: Excellent, Good, Above Average, Below Average, and Bad, providing an overall evaluation of the prototype based on user performance and perceived experience.

## RESULTS AND DISCUSSION

### Design Thinking Implementation

#### Empathize

The Empathize stage identified the needs and problems of RRQ Arena Manado users and admins through semi-structured interviews and direct observation involving five respondents, consisting of three users and two admins. The findings showed that tournament information was mainly distributed through Instagram, while registration used external Google Forms. Users experienced difficulties due to switching platforms, manually entering registration links, repeatedly submitting team data, uploading payment proofs, and waiting for manual confirmation. Admins faced inefficient manual

processes in creating forms, recapitulating participant data, verifying payments, and managing tournament information. These findings indicated the need for a centralized website integrating information, registration, and tournament management.

**Define**

The Define stage synthesized the findings into the main problem: the absence of a centralized platform for tournament information, registration, and participant management. Users needed fast access to information, schedules, simple registration, and an easy-to-use interface, while admins needed centralized information management, structured participant data, and reduced manual work. User personas and User Journey Maps were developed to identify the main pain points and opportunities for improvement, including centralized information, integrated registration, payment verification, registration status, and an admin dashboard.

**Ideate**

The Ideate stage generated solutions through collaborative brainstorming with RRQ Arena Manado management. The proposed features included a Homepage, Tournament, Leaderboard, Detail Tournament, Registration, Gallery, Profile, and Admin Dashboard. These features were designed to centralize information, simplify registration, manage participant data, and improve tournament administration. The proposed user flow consists of login, Homepage, tournament selection, detail viewing, and registration, while the admin flow consists of login, dashboard access, information management, and participant management.

**Prototype**

The Prototype stage translated the proposed solutions into low-fidelity and high-fidelity designs. The low-fidelity prototype established the structure, navigation, information hierarchy, and interaction flow, while the high-fidelity prototype was developed interactively using Figma. The prototype covered the main user pages and admin dashboard for tournament information, registration, participant data, and payment verification. The resulting prototype was then prepared for usability evaluation in the Test stage.

**Low-Fidelity Prototype**

The low-fidelity prototype was developed based on the findings from the Empathize and Define stages, focusing on simplifying information access and tournament registration for users and centralizing information and activity management for admins. The wireframe established the basic page structure, navigation, information hierarchy, and interaction flow before developing the high-fidelity prototype.

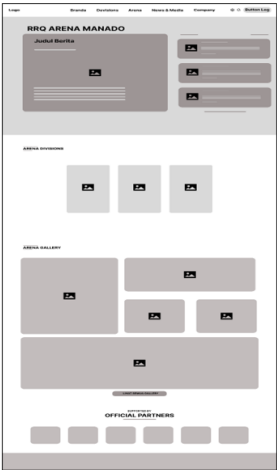


Figure 1. Low-Fidelity Homepage

The Homepage was designed as the main information center, presenting navigation, tournament information, news, and access to key features.

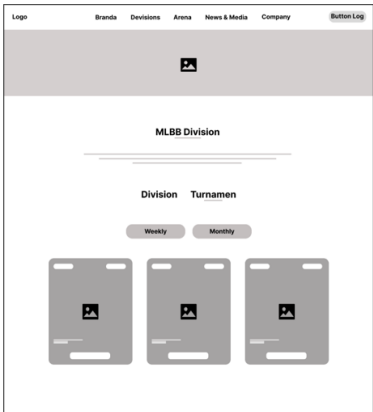


Figure 2. Low-Fidelity Tournament

The Tournament page displays ongoing and upcoming tournaments in card format, including the tournament name, game category, date, and access to details.



Figure 3. Low-Fidelity Tournament Detail

The Tournament Detail page provides essential tournament information, including schedule, description, participant requirements, prizes, and registration access.

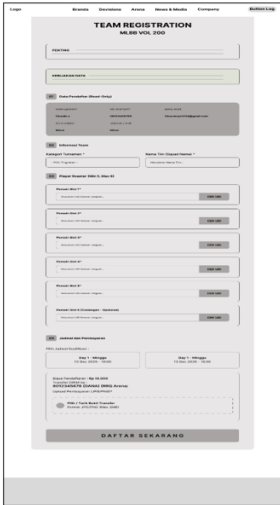


Figure 4. Low-Fidelity Registration

The Registration page provides structured fields for participant and team information to simplify the tournament registration process.

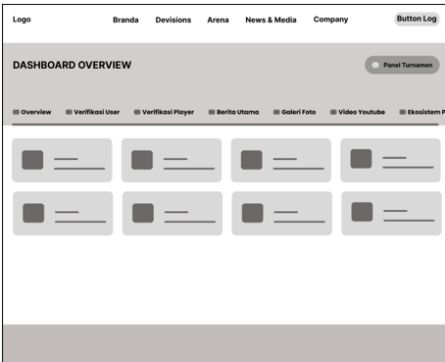


Figure 5. Low-Fidelity Admin Dashboard

The Admin Dashboard serves as the main management interface for tournaments, participants, news, galleries, videos, and other website information, enabling more centralized and efficient administration.

The prototype also included Register, Login, Leaderboard, News, Video, Gallery, About, Partner, Contact, and Profile pages to support authentication, competition information, community content, organizational information, communication, and user account management. Overall, the low-fidelity prototype established a simpler and more structured interaction flow for both users and admins as the foundation for the high-fidelity design.

High-Fidelity Prototype

The high-fidelity prototype was developed by transforming the wireframes into a more realistic website interface using Figma. The design incorporated visual elements such as color, typography, icons, illustrations, layout, and interactive components to improve consistency, information hierarchy, readability, and user experience. The prototype simulated the main user and admin interactions, including accessing tournament information, viewing details, registering for tournaments, and managing website content.

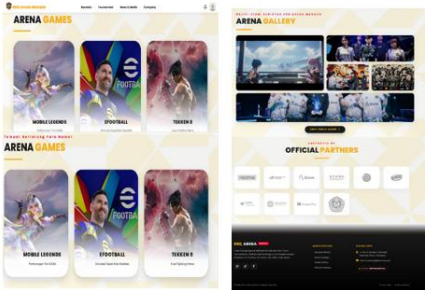


Figure 6. High-Fidelity Homepage

The Homepage functions as the main information center, presenting clear navigation, tournament banners, and structured content to facilitate access to important features and information.



Figure 7. High-Fidelity Tournament

The Tournament page presents available tournaments with structured information such as tournament name, schedule, and registration status, helping users select tournaments efficiently.

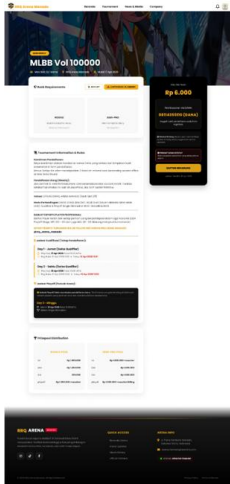


Figure 8. High-Fidelity Tournament Detail

The Tournament Detail page provides complete information regarding the tournament, including description, schedule, rules, and registration mechanism, enabling users to understand the competition before registering.

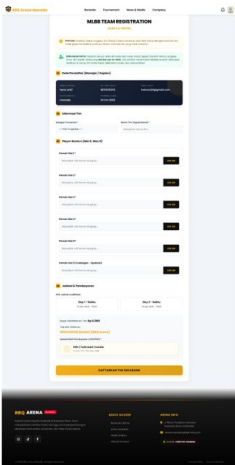


Figure 9. High-Fidelity Registration

The Registration page provides a structured and integrated form that allows users to register directly through the website while reducing input errors and simplifying the registration process.

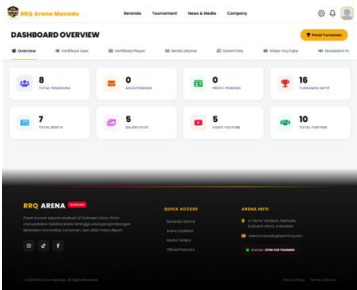


Figure 10. High-Fidelity Admin Dashboard

The Admin Dashboard serves as the central management interface for managing users, tournaments, news, galleries, and other website information. Its simple and informative layout supports more efficient administrative activities.

The high-fidelity prototype also includes Register, Login, Leaderboard, News, Video, Gallery, About, Partner, Contact, and Profile pages to support authentication, competition information, community content, organizational information, communication, and user account management.

Overall, the prototype provides a consistent and interactive interface designed to improve the experience of both users and admins.

Typography

Typography is an important visual element that supports readability and content hierarchy in the RRQ Arena Manado website. The design uses Poppins as the primary typeface because of its modern, simple, and readable character, while Bebas Neue is used for the initial brand display. Consistent typography is applied across the interface to maintain visual consistency and improve user readability.

Table 1. Typography Used in the High-Fidelity Prototype

| Interface Element   | Font         | Description                                                                   |
|---------------------|--------------|-------------------------------------------------------------------------------|
| Brand Name          | Bebas Neue   | Used for the initial brand display to create a bold and prominent appearance. |
| Main Content        | Poppins      | Used throughout the website to ensure comfortable reading.                    |
| Section Titles      | Poppins Bold | Emphasizes important sections and improves content hierarchy.                 |
| Buttons and Menus   | Poppins      | Supports clear navigation and interaction.                                    |
| Registration Button | Poppins Bold | Emphasizes the primary action and attracts user attention.                    |
| Data Forms          | Poppins      | Ensures input data is clear and readable.                                     |
| Small Information   | Poppins      | Used for supporting information such as dates and times.                      |

Color

Color is used to establish the visual identity and improve interaction clarity. The interface applies a dark visual character combined with contrasting accent colors to highlight important interactive elements, while maintaining a modern and comfortable appearance.

Table 2. Colors Used in the High-Fidelity Prototype

| Interface Element       | Color Code |      | Description                                           |
|-------------------------|------------|------|-------------------------------------------------------|
| Primary Color (Gold)    | #f3ae1a    |      | Highlights important buttons and key elements.        |
| Accent Color (Red)      | #e60024    |      | Used for special labels and news headings.            |
| Dark Color (Black)      | #000000    |      | Supports the dark visual character of the interface.  |
| Base Color (White)      | #ffffff    |      | Provides a clean and organized background.            |
| Main Text               | #1a1a1a    | #333 | Provides readable text with reduced visual sharpness. |
| Additional Information  | #666666    | #888 | Used for secondary information.                       |
| Success Indicator       | #28a745    |      | Indicates successful processes such as registration.  |
| Error/Warning Indicator | #dc3545    |      | Indicates errors or important warnings.               |

The prototype stage translates the identified needs of Users and Admins into a concrete interface design. The resulting prototype serves as the basis for the testing stage to evaluate whether the design meets user needs and provides a better experience than the previous mechanism.

Designed System Business Process

The designed business process describes the main activities of Users and Admins on the RRQ Arena Manado website, consisting of tournament registration and administrative data management.

User Tournament Registration

The process begins when the User accesses the website and selects an available tournament. The User views the tournament details, completes the registration form, and uploads payment proof. The submitted data is then received and verified by the Admin, after which the registration status can be monitored through the system.

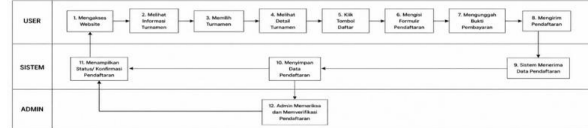


Figure 11. User Tournament Registration Business Process

Admin Data Management

The process begins when the Admin logs in and accesses the Admin Dashboard. The Admin manages tournament information, reviews participant registration data and payment proof, verifies the submission, and updates the registration status. Verified participant data is then stored in the system.



Figure 12. Admin Data Management Business Process

Test Stage

The Test stage evaluates the high-fidelity prototype using Usability Testing (UT) and User Experience Questionnaire Short (UEQ-S) involving 23 Users and 2 Admins. Before evaluating the proposed website, the existing system consisting of Instagram, Google Forms, Google Sheets, and Excel was tested as a baseline. Evaluation focused on Success Rate, Time on Task, and user difficulties.

Users were asked to find tournament information, access the registration form, complete team data, make payments, and upload payment proof. Admins were asked to prepare registration forms, publish tournament information, verify participant data and payment proof, and manage registration data. The existing system resulted in a 61% User Success Rate with an average Time on Task of 175 seconds. The main problems were difficulty finding and copying registration links, repeated data entry, switching between platforms, and payment-proof upload limitations.

Table 3. User Usability Testing Results on the Existing System

| Group | Respondents | Success Rate | Time on Task | Main Findings                                               |
|-------|-------------|--------------|--------------|-------------------------------------------------------------|
| User  | 23          | 61%          | 175 seconds  | Registration was fragmented, repetitive, and time-consuming |

The Admin group achieved a 50% Success Rate with an average Time on Task of 210 seconds. The main difficulties involved manual payment verification, repetitive data transfer, and participant data management across separate platforms, increasing workload and the risk of human error.

Table 4. Admin Usability Testing Results on the Existing System

| Respondent | Total Time (s) | UT Status | Main Difficulty                               |
|------------|----------------|-----------|-----------------------------------------------|
| Admin 1    | 195            | 1         | Long verification and manual data transfer    |
| Admin 2    | 225            | 0         | Overwhelmed and experienced data-entry errors |
| Average    | 210            | 50%       | Manual management was inefficient             |

Overall, the baseline evaluation shows that the existing system has limitations in both User and Admin experience. Users experienced fragmented registration and longer task completion times, while Admins faced inefficient manual data management and verification. These findings provide the baseline for evaluating the effectiveness of the proposed RRQ Arena Manado website design.

User Experience Measurement on the Existing System

After Usability Testing (UT), user experience was evaluated using the User Experience Questionnaire Short (UEQ-S) involving 25 respondents (23 Users and 2 Admins). The evaluation covered Pragmatic Quality and Hedonic Quality of the existing system, which combines Instagram, Google Form, Google Sheets, and Excel.

Table 5. UEQ-S Mean Scores of the Existing System

| Aspect            | Mean Score | Interpretation |
|-------------------|------------|----------------|
| Pragmatic Quality | -1.55      | Negative       |
| Hedonic Quality   | -1.57      | Negative       |

The results indicate that both aspects of the existing system were negatively perceived, confirming the need for an integrated system.

Usability Testing of the New System

The new prototype was evaluated through moderated Usability Testing using an interactive Figma prototype. The evaluation measured Success Rate, Time on Task, and interface difficulties.

For Users, the tasks involved finding information about the “MLBB Vol 100.000” tournament and completing team registration, including payment proof upload. For Admins, the tasks involved logging into the Dashboard Overview and updating active tournament information.

User Usability Testing Results

Testing involving 23 Users produced a 78% Success Rate with an average Time on Task of 84 seconds. Minor difficulties occurred when users mistakenly accessed the Leaderboard before finding the Tournament menu and when entering Account ID and In-Game Name (IGN). These issues were considered adaptation to the new workflow rather than critical design problems; therefore, no redesign was required for the User interface.

Table 6. User Usability Testing Results

| Indicator            | Result                                               |
|----------------------|------------------------------------------------------|
| Respondents          | 23 Users                                             |
| Success Rate         | 78%                                                  |
| Average Time on Task | 84 seconds                                           |
| Main Issues          | Minor navigation errors and manual ID/IGN validation |
| Design Decision      | No redesign required                                 |

Admin Usability Testing and Design Iteration

Initial testing involving 2 Admins resulted in a 50% Success Rate and an average Time on Task of 135 seconds. Both respondents experienced difficulty locating the “Panel Turnamen” button because its position and visual appearance were not sufficiently recognizable as an interactive element. Therefore, an interface redesign was conducted.

The redesign centralized and enlarged the “Panel Turnamen” button and applied the gold accent color #f3a61a to improve visual contrast and recognition.

Table 7. Admin Usability Testing Before Redesign

| Respondent | Time (s) | Status           | Main Finding                            |
|------------|----------|------------------|-----------------------------------------|
| Admin 1    | 125      | Success          | Difficulty finding the Tournament Panel |
| Admin 2    | 145      | Failed           | Unable to find the editing panel        |
| Average    | 135      | 50% Success Rate | Redesign required                       |

After redesign and re-testing with the same 2 Admins, the Success Rate increased to 72%, while the average Time on Task decreased to 74 seconds.

Table 8. Admin Usability Testing After Redesign

| Respondent | Time (s) | Status           | Main Finding                                 |
|------------|----------|------------------|----------------------------------------------|
| Admin 1    | 70       | Success          | Quickly identified the gold Tournament Panel |
| Admin 2    | 78       | Success          | Found the menu with minimal confusion        |
| Average    | 74       | 72% Success Rate | Significant improvement                      |

UEQ-S Reliability and User Experience Results

After the redesign, UEQ-S was administered to 25 respondents to evaluate Pragmatic Quality and Hedonic Quality. Cronbach’s Alpha values exceeded the minimum reliability threshold of 0.7, indicating that the instrument was reliable.

Table 9. UEQ-S Reliability

| Aspect            | Cronbach’s Alpha | Criterion         | Result   |
|-------------------|------------------|-------------------|----------|
| Pragmatic Quality | 0.78             | $\alpha \geq 0.7$ | Reliable |
| Hedonic Quality   | 0.81             | $\alpha \geq 0.7$ | Reliable |

The mean scores were 1.17 for Pragmatic Quality and 1.18 for Hedonic Quality, both exceeding the 0.8 positive-impression threshold.

Table 10. UEQ-S Mean Scores of the New Prototype

| Aspect            | Mean Score | Interpretation |
|-------------------|------------|----------------|
| Pragmatic Quality | 1.17       | Positive       |
| Hedonic Quality   | 1.18       | Positive       |

The results show that the prototype provided a positive user experience for both Users and Admins.

UEQ-S Benchmark Interpretation

Table 11. UEQ-S Benchmark Results

| Aspect            | Mean | Benchmark | Interpretation |
|-------------------|------|-----------|----------------|
| Pragmatic Quality | 1.17 | Good      | Above average  |
| Hedonic Quality   | 1.18 | Good      | Above average  |

Both aspects achieved a **Good** benchmark and were above the average of global digital products. Pragmatic Quality indicates improved navigation, menu structure, layout, and registration flow, while Hedonic Quality reflects the positive perception of the dark gaming-oriented visual theme, consistent Poppins typography, and tournament card layout.

Comparison of the Existing and New Systems

The existing system uses separate platforms, namely Instagram, Google Form, Google Sheets, and Excel, whereas the new prototype integrates information, tournament registration, and Admin management into a single website.

Table 12. Comparison of Existing and New Systems

| Evaluation Aspect                   | Existing System                                                                | New System                                                  | Improvement                                 |
|-------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------|
| Platform                            | Instagram, Google Form, Google Sheets, Excel                                   | Integrated website                                          | Centralized process                         |
| User Success Rate                   | 61%                                                                            | 78%                                                         | +17%                                        |
| Admin Success Rate                  | 50%                                                                            | 72%                                                         | +22%                                        |
| User Time on Task                   | 175 s                                                                          | 84 s                                                        | 91 s faster                                 |
| Admin Time on Task                  | 210 s                                                                          | 74 s                                                        | 136 s faster                                |
| User Experience – Pragmatic Quality | -1.55                                                                          | 1.17                                                        | Significant improvement                     |
| User Experience – Hedonic Quality   | -1.57                                                                          | 1.18                                                        | Significant improvement                     |
| Main User Issue                     | Manual link copying, application switching, repeated data entry, upload errors | Minor navigation and ID/IGN entry issues                    | More practical and fewer technical barriers |
| Main Admin Issue                    | Manual data entry and Excel recapitulation                                     | Minor initial navigation confusion, resolved after redesign | More centralized and efficient management   |

Overall, the new website prototype improved usability and user experience compared with the existing system. User Success Rate increased from 61% to 78%, while Admin Success Rate increased from 50% to 72% after redesign. Time on Task decreased from 175 to 84 seconds for Users and from 210 to 74 seconds for Admins. UEQ-S scores also shifted from negative to positive, indicating substantial improvements in usability, efficiency, navigation, and visual experience.

CONCLUSION

The development of the RRQ Arena Manado website using the Design Thinking method successfully identified and addressed the main problems experienced by Users and Admins in the existing system. The empathize and define stages revealed that Users faced difficulties due to fragmented tournament registration processes, repeated data entry, and manual link access, while Admins experienced inefficiencies in participant data management, payment verification, and activity updates. These needs were translated through the ideate and prototype stages into a high-fidelity UI/UX design using Figma, featuring an integrated information and registration flow, a centralized Admin Dashboard, and a consistent gaming-oriented visual identity through dark backgrounds, gold and red accents, and Poppins typography. Usability Testing demonstrated improved task performance, with a User Success Rate of 78% and an Admin Success Rate of 72% after interface iteration. The UEQ-S evaluation also indicated a positive user experience, with Pragmatic Quality of 1.17 and Hedonic Quality of 1.18, both achieving a Good benchmark. Therefore, the proposed UI/UX design provides a more

practical, efficient, and user-centered solution for supporting tournament information, registration, and administrative management at RRQ Arena Manado.

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