



UI/UX Design of the Sigmawave Website Using the Design Thinking and Design Sprint Methods (Case Study of PT. Blue Silo Pte. Ltd)

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Abstract: Marketing is a crucial aspect of any business in the modern era that can make or break a company. Good User Interface (UI) design is essential to present information to users in an engaging yet meaningful manner. PT Blue Silo Pte. Tempo Communications Pte. A modern UI update was required for Sigmawave to support new features and enhance the experience. Designing the Sigmawave interface with Design Thinking and Design Sprint methodologies This study proposes. This process allows designs to emerge quickly that truly align with user requirements. Data was collected through open-ended interviews and surveys, where usability was assessed using the System Usability Scale. The research process consisted of user research, problem definition, ideation and prototyping, and solution validation. These designs have enhanced the user experience and also provided more assistance to the company's marketing strategy with a simpler yet appealing front-end.

Keywords: User Interface; Design Thinking; Design Sprint; Sigmawave.

1. Introduction

In the rapidly developing digital era, technology has become a major force in driving industrial progress in various sectors. One of the increasingly important areas is marketing, which not only focuses on product promotion, but also how the product can be accepted and used well by users. In this, the user interface (UI) plays a very crucial role, because it is the meeting point between technology and users. An effective UI can not only convey information clearly and easily understood, but can also improve the user experience (UX) which ultimately supports the company's business and marketing goals. Therefore, the development of an effective UI is one aspect that is highly considered by companies in the technology world, including PT Blue Silo Pte. Ltd., which is based in Singapore and focuses on artificial intelligence (AI) innovation. PT Blue Silo Pte. Ltd. realizes that in an era of increasingly fierce competition, effective delivery of products and information to users is the key to winning the market. One of the products being developed by this company is Sigmawave, an artificial intelligence-based platform that offers data visualization capabilities and image and video analysis using synthetic visual data. Sigmawave aims to provide AI solutions that can be used for various purposes, such as data analysis and visualization of results that are easier to understand. In the development process, PT Blue Silo Pte. Ltd. realized that the interface used in this platform needed to be updated to match the latest features and provide a better user experience. One important aspect that needs to be considered in developing a UI for a platform like Sigmawave is a design that can facilitate marketing goals while meeting user needs. In this case, design methods such as Design Thinking and Design Sprint can provide significant benefits in designing a UI that can bridge business needs and user expectations. Design Thinking, as an approach that focuses on understanding users, can help in formulating problems and creating solutions that suit their needs. Meanwhile, Design Sprint, which is a more structured and efficient method, can speed up the process of developing and testing UI prototypes in a shorter time [1][10].

By implementing these two methods, PT Blue Silo Pte. Ltd. hopes to design an interface that is not only effective in conveying information, but also provides a pleasant experience for users. Design Thinking, which consists of five main stages, namely Empathize, Define, Ideate, Prototype, and Test, allows the development team to better understand user needs and produce the right solution [10]. Meanwhile, Design Sprint, which combines elements from various design approaches, provides a faster framework for validating ideas and finding solutions that can be implemented efficiently in a short time [2][3]. The combination of these two approaches is expected to produce a UI that is not only efficient, but also innovative and relevant to the latest technological developments [4]. This study aims to design the Sigmawave website UI using a combination of Design Thinking and Design Sprint, which will focus on two main aspects: clarity of information and aesthetics of appearance. The users who will be the main target are professionals who work with visual data, such as data analysts and researchers, so the interface must be able to provide information clearly and easily understood without confusing or burdening its users. In addition, a clean and modern appearance will support the professional and innovative impression that Sigmawave wants to display [5][9]. This approach is expected to produce a UI that is not only attractive but also efficient in helping users achieve their goals. In the early stages of the research, interviews were conducted with various stakeholders involved in the development of the Sigmawave platform, including the CEO of PT Blue Silo Pte. Ltd., the UI/UX designer team, and developers. This interview aims to find out user needs, challenges faced by similar platforms, and user expectations for desired features [5][13]. The results of this interview are the basis for formulating problems that need to be solved through UI design and become a guide in the development process. Data collected using a qualitative approach from interviews will be supplemented with quantitative data from a survey that will be conducted to measure the extent to which the developed UI prototype meets user needs [6][7][13]. The testing methods used to assess the effectiveness of this UI include usability testing and calculations using the System Usability Scale (SUS). Usability testing aims to identify problems or difficulties that users may face when interacting with the interface. In addition, the use of SUS can help evaluate the level of user satisfaction with the interface design being tested [6][8][13]. Through these two methods, it is hoped that constructive feedback can be obtained for further design improvements.

The UI development process of Sigmawave using the Design Thinking and Design Sprint approaches involves several important stages. The first stage is Empathize, which focuses on understanding user needs and problems. In this stage, the development team will conduct observations and interviews with users to understand the use and challenges faced. The next stage is Define, where the team will formulate the main problems that need to be solved. After that, in the Ideate stage, various creative ideas will be generated to solve the problem, before finally the prototype is developed and tested at the Prototype and Test stages [10]. With the UI updates resulting from this research, it is hoped that Sigmawave can provide a better and more effective user experience in supporting user needs in performing data visualization and image/video analysis.

In addition, this research is also expected to be a reference for future UI/UX development, as well as encouraging the application of Design Thinking and Design Sprint methods in other digital product development projects. The role of UI in user experience and digital product marketing, as well as how the use of the right design methods can help produce a more effective and efficient UI, which will ultimately strengthen Sigmawave's position in the highly competitive artificial intelligence technology market [12][13]. This research is expected to provide concrete solutions in improving user experience through designing a more effective Sigmawave interface, as well as being a reference for UI/UX development in various future technology projects.

2. Research Method

2.1 Research Phases

The research was carried out through a series of stages aimed at achieving the main objective: redesigning the Sigmawave website interface to be more intuitive, efficient, and aligned with user needs. To support this process, the approach integrates Design Thinking and Design Sprint methodologies, both of which have proven effective in solving interactive design problems. The research process is divided into five key stages: Empathize, Define, Ideate, Prototype, and Test.

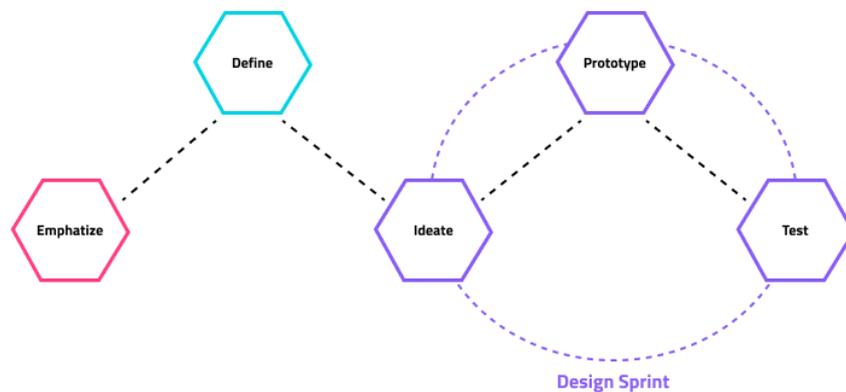


Figure 1. Design Thinking and Design Sprint Methods

1) Empathize

The first stage involved gathering information about user experiences and needs through interviews with various stakeholders. These stakeholders included the CEO of PT Blue Silo Pte. Ltd, the UI/UX design team, and developers directly involved in the development of the Sigmawave platform. The interviews were conducted remotely using Google Meet to gather representative data on user experiences with similar platforms in the market. During the interviews, various questions were asked to identify the challenges faced and the unmet needs. The table below shows the list of interview questions.

Table 1. Interview Questions

No	Question
1	Can you introduce yourself briefly?
2	What is your current role?
3	Have you used any applications or websites in the technology sector or similar apps? If yes, what was the purpose of those applications?
4	Can you name the apps you have used?
5	How was your experience interacting with the app?
6	Were you comfortable using the app? How about the UI? Was it easy to understand?
7	Are there any features or aspects of other apps you liked and would like to implement?

The results from this stage helped identify the issues users face, forming the basis for the next steps.

2) Define

In this stage, the problems identified in the Empathize phase were analyzed and further defined. The main focus was to identify the most pressing user needs and desired features. In addition, weaknesses

and limitations of the current interface were carefully examined. The outcome of this stage was identifying areas in the interface that need improvement and the prioritization of features to be included in the prototype.

3) Ideate

Once the problems and user needs were clearly defined, the next stage was to generate creative ideas for improving the interface. In this phase, the research team held brainstorming sessions to come up with design ideas that could address the identified issues. Collaboration between designers, developers, and other stakeholders was crucial to generate ideas that were not only innovative but also practical and applicable. Various potential solutions were considered and refined into design concepts ready for further testing.

4) Prototype

In this phase, selected ideas were developed into interface design prototypes. These prototypes serve to represent the proposed changes and provide a tangible view of the new interface. The prototypes created should reflect the significant changes desired by users and allow for further testing through usability assessments. The prototypes were designed using design software such as Figma, facilitating the iteration process and enabling faster feedback.

5) Test

After the prototypes were prepared, the next step was usability testing. In this phase, the prototypes were tested by selected end-users who fit the target demographic of Sigmawave. The goal of the testing was to identify any issues or challenges that might arise when users interact with the new interface. Through this testing, the design team gathered direct feedback from users regarding the comfort, efficiency, and suitability of the design. The data obtained from this phase was then used for further refinements to the interface design.

2.2 Subjects and Materials

This research involved two main subject groups: internal users and end-users of the Sigmawave platform. The internal users consisted of the development team, including UI/UX designers and developers from PT Blue Silo Pte. Ltd. Meanwhile, the end-users represented a broader group, including a sample of users from Sigmawave's target market, reflecting various backgrounds and levels of technology experience. The materials used in this research included the Sigmawave platform itself, design software (Figma) used for prototype creation, and usability testing tools, such as questionnaires to collect user feedback.

2.3. Experimental Design

The experimental design used was the System Usability Scale (SUS). This approach enabled an objective assessment of the user experience with the new interface design. The first step in the experimental design was recruiting participants who matched the target user demographics of Sigmawave. Participants were then asked to interact with the interface prototype and respond to a series of questions aimed at evaluating their satisfaction and perceptions of the changes. Data collection was performed using a questionnaire that included both quantitative and qualitative questions.

2.4. Data Analysis

The data collected from the testing was analyzed using both qualitative and quantitative methods:

1) Qualitative Analysis

The responses from participants were reviewed to identify common themes and specific areas of the user interface that needed improvement.

2) Quantitative Analysis

The SUS scores were calculated to evaluate the extent to which users felt satisfied and comfortable with the new interface.

3. Result and Discussion

3.1 Results

3.1.1 Empathize Phase

In the initial stage of the research, interviews were conducted with various stakeholders, including the CEO of PT Blue Silo Pte. Ltd, the UI/UX designer team, and developers. From these interviews, a deep understanding was obtained regarding the needs and challenges faced by users of similar platforms. Some of the key points identified include:

- 1) Need for More Interactive Data Visualization
Users need an interface that is able to display data in a more interactive and easy-to-understand manner.
- 2) Ease of Navigation
The existing interface is considered less intuitive, so users have difficulty navigating the platform.
- 3) Integration of New Features
With the development of technology and new features that will be proposed in the future, the interface needs to be optimized to support these features without sacrificing the user experience.

3.1.2 Define Stage

Based on the interview results, the main problems that need to be addressed were identified and defined. New features that users expect include more dynamic data visualization, easier navigation, and integration of more advanced analysis features. Complex navigation issues and less intuitive interfaces are the main focus for improvement. User personas are developed to understand user characteristics and specific needs of stakeholders. In Figure 2 below is the result of a user persona from one of the stakeholders.



Figure 2. Stakeholder User Persona

Competitor analysis was conducted to understand how other platforms address similar issues and to identify opportunities for improvement. Some of the platforms analyzed can be seen in Figure 3 below.

Analisis Kompetitor

	Synthesis AI	roboflow	Datature	KinetixPro
UI	✗	✓	✓	✗
UX	✓	✓	✓	✗
Fitur Demo	✓	✓	✓	✓
Informasi detail produk	✓	✓	✓	✗
Navigasi	✓	✓	✗	✓
Dokumentasi hasil produk	✗	✓	✓	✓

Figure 3. Competitor analysis based on the features they have

Figure 3 presents a competitor analysis based on the features offered by different platforms. Synthesis AI provides in-depth navigation and user experience, but its visual design is relatively lacking. On the other hand, Roboflow stands out by offering an attractive interface with good navigation and a variety of useful features. Datature has a well-designed feature interface and provides detailed product information, though it falls short in terms of navigation. Meanwhile, Kinetixpro displays its features and documentation effectively, but its visual design and navigation capabilities are relatively weak. This comparison highlights the varying strengths and weaknesses of each competitor in terms of user interface and experience.

3.1.3 Ideate Stage

In the ideate stage, the research team developed creative ideas to improve the user interface. The brainstorming session resulted in several design concepts that focused on improving data visualization, simplifying navigation, and better integrating analytical features. At the brainstorming stage, the team collects various ideas and solutions from each team member, which can be seen in Figure 4 below.

- Membuat di platform yang berisi dokumentasi dan detail mengenai produk yang ada dan contoh penerapan produk.
- Mengembangkan akses ke fitur demo yang memungkinkan pengguna untuk memahami kemampuan produk.
- UI yang mudah dipahami dan user-friendly, dengan navigasi yang jelas dan intuitif untuk mempermudah pengguna dalam berinteraksi dengan platform.
- Mengintegrasikan fitur media sosial yang memungkinkan pengguna mengikuti kabar terbaru dari produk yang ada.
- Fitur pusat bantuan dan dukungan yang tersedia untuk membantu pengguna dalam mengatasi masalah atau pertanyaan yang mereka miliki.
- Fitur feedback dan saran untuk memungkinkan pengguna memberikan masukan mengenai platform dan memberikan rekomendasi untuk peningkatan fitur atau layanan.
- Madaptasi fitur yang ada dari kompetitor untuk meningkatkan fungsionalitas dan daya tarik platform Anda.
- fitur subscribe / berlangganan untuk memperoleh fitur penuh dari produk.
- informasi lowongan pekerjaan atau karir yang tersedia di perusahaan untuk menarik calon karyawan atau talenta yang potensial
- Testimoni atau ulasan dari klien atau partner bisnis yang telah bekerja sama dengan perusahaan.
- Berita terbaru, artikel, atau media lainnya yang berkaitan dengan perusahaan, industri, atau teknologi yang dikembangkan

Figure 4. Brainstorming Results

Userflow is created to map how users interact with the platform, this helps in understanding how users will navigate the interface. In this case the required userflow includes the resources and product pages which can be seen in figure 5 and figure 6 below.

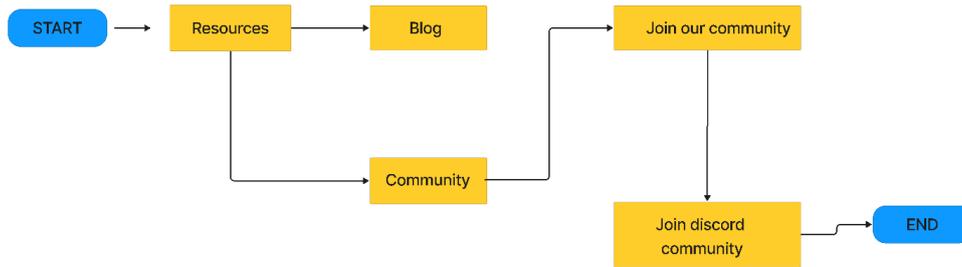


Figure 5. Userflow of The Resources Page

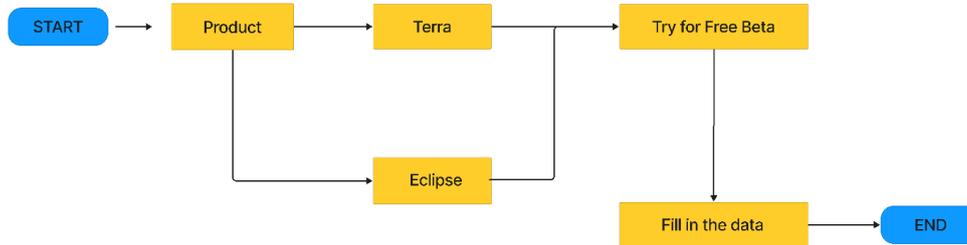


Figure 6. Product Page User flow

From this user flow, every step that the user will go through when accessing a menu will be described in full in the user flow. Information architecture is developed with the aim of ensuring that every structure in the platform can be easily understood by the user. The information architecture of the sigmawave platform can be seen in Figure 6. In the information architecture, all the features and menus contained in the sigmawave platform will be described in full.

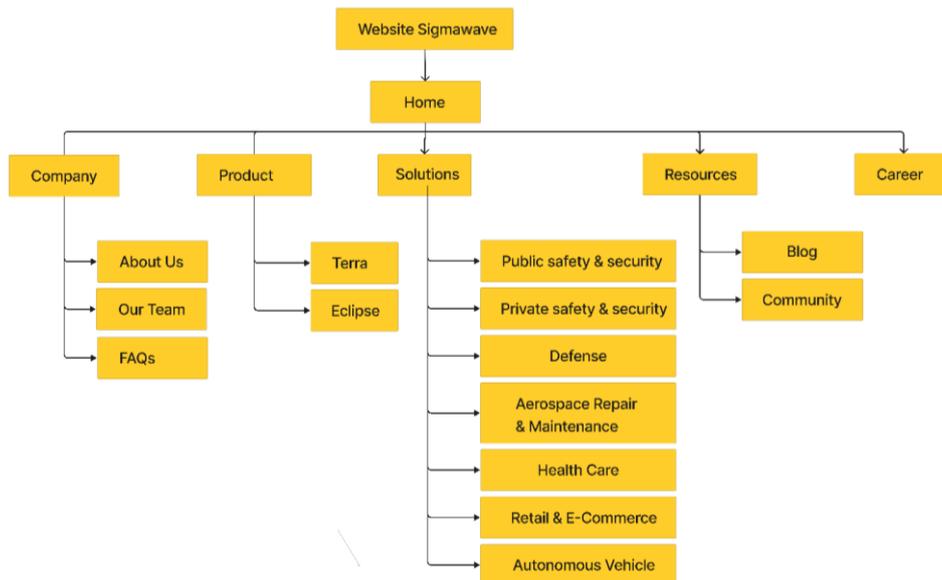
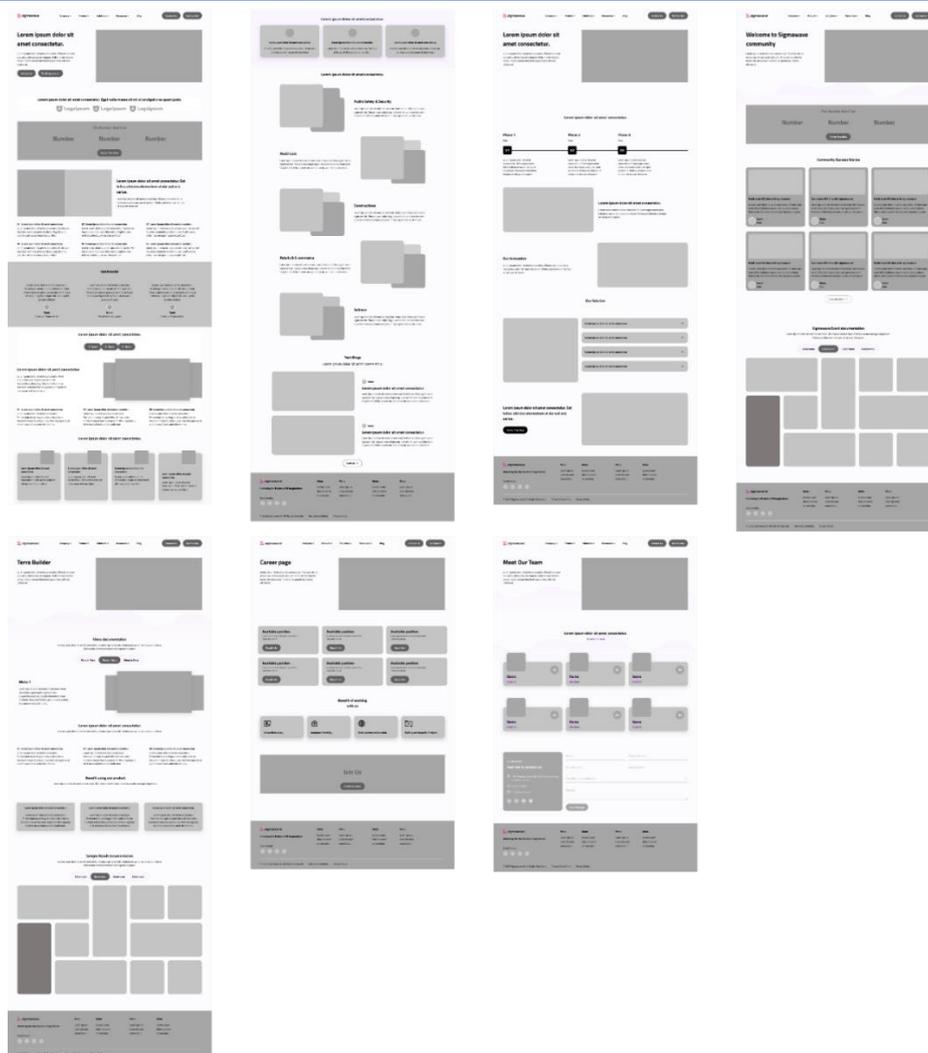


Figure 7. Sigmawave Platform Information Architecture

3.1.4 Prototype Stage

Prototype development begins with creating a low-fidelity wireframe using Figma. This wireframe aims to describe the basic structure of the interface and the layout of its main elements without detailing the aesthetic aspects. Some of the results of the low-fidelity wireframe can be seen in Figure 8 below.



Gambar 8. Low Fidelity Wireframe

In figure 8, the wireframe shows a simpler dashboard layout with a focus on easy access to information and introduction to sigmawave and the products in it. This will be the reference in designing the next stage of the prototype, namely high fidelity. After the low fidelity results are approved, further development is carried out with the high-fidelity stage. At this stage, the depiction of the existing wireframe will be further clarified from the overall interface. In Figure 8 below, there are high fidelity prototype results for the landing page, about us, our team and FaQs sections. This section has an attractive design and easy-to-understand navigation and can provide complete information about sigmawave and the team involved to users. In addition, there is also a FaQs section that can contain answers to frequently asked questions that can help users obtain information.

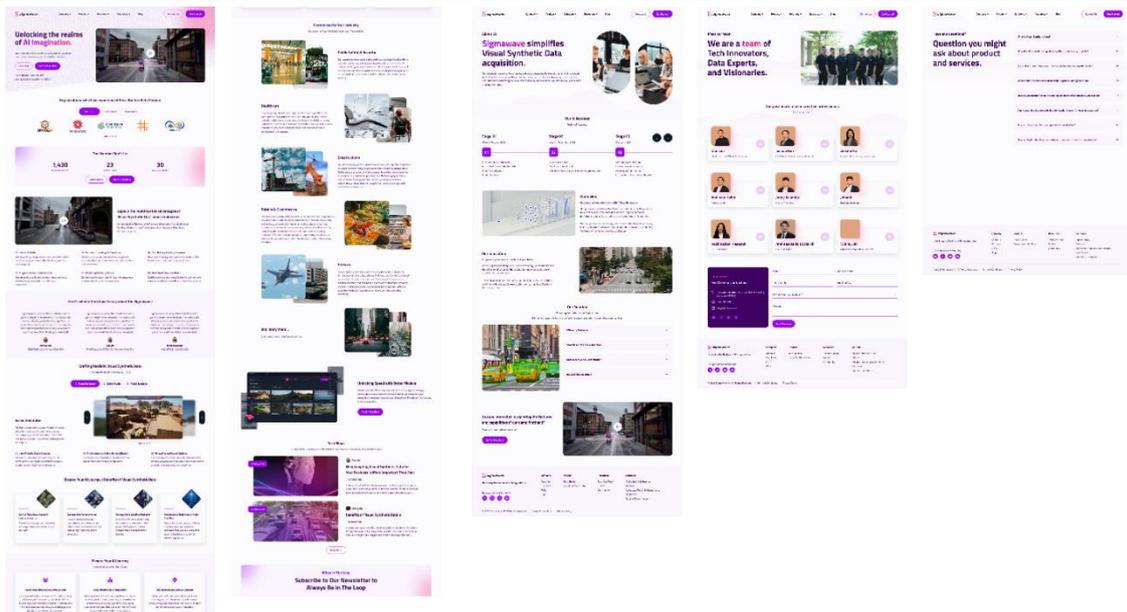


Figure 9. High fidelity wireframe Landing page, About Us, Our Team and FAQs

In Figure 10 below, the two prototype results are intended to provide information about the products and solutions offered by Sigmawave, one of which is Terra and Eclipse. This section provides complete information along with documentation on the implementation of existing products.

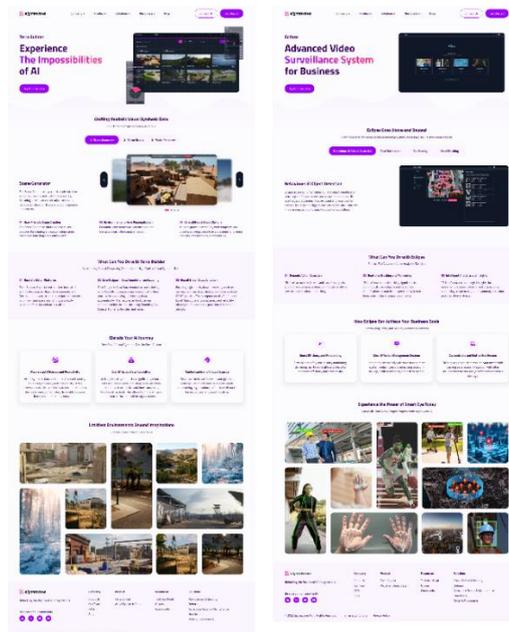


Figure 10. High Fidelity Product Terra and Eclipse

In Figure 11, the interface design is intended to provide information about the various sectors that can be reached by Sigmawave products, including by displaying documentation of product applications in each sector, as well as explaining the solutions and benefits that can be provided by Sigmawave products.

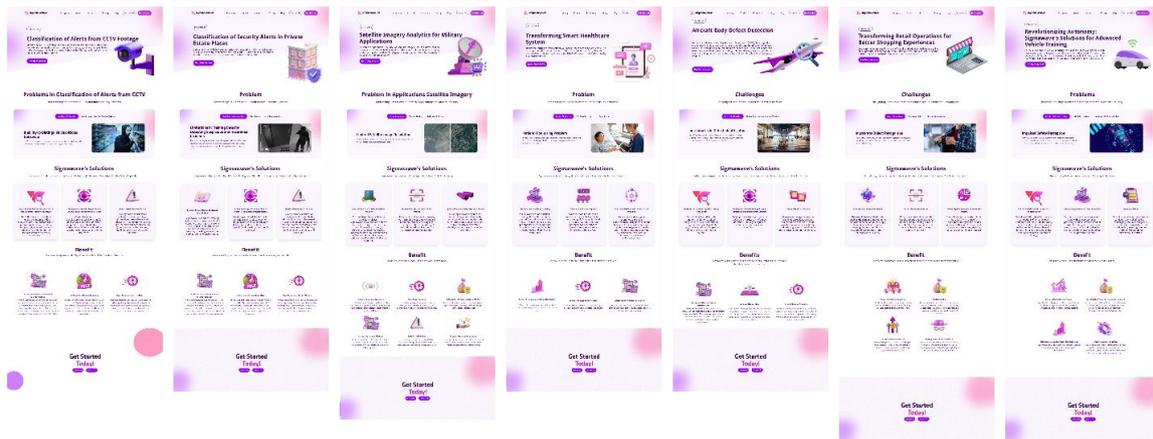


Figure 11. High Fidelity Solution

The interface design also pays attention to features that can provide information about opportunities to join the Sigmawave team, this can be seen in Figure 12. In addition, there is also a community display that helps users to join existing communities which will greatly assist users in obtaining information.

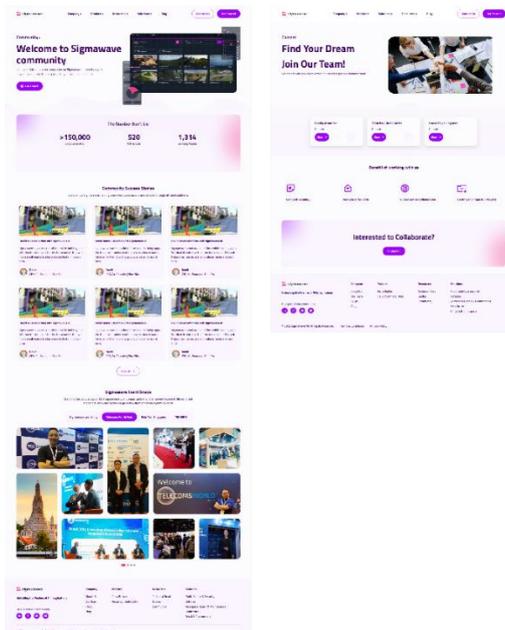


Figure 12. High fidelity Community and Carrier information

3.1.5 Testing Results

The testing phase using the System Usability Scale (SUS) method was carried out to measure the level of user satisfaction with the new interface design. This test involved 15 respondents who were asked to answer 10 questions via the Google Forms platform. The results of the points obtained for each respondent are shown in Table 2, and Table 3 shows the results of the value conversion carried out according to the following rules:

- 1) For every odd numbered question, the score obtained from the user's score will be reduced by 1.
- 2) For every even numbered question, the score obtained from the value 5 is reduced by the question score obtained from the user.

The SUS score is obtained from the sum of the scores for each question, which is then multiplied by 2.5, which can be seen in the formula below.

$$(\sum \text{Weight value}) \times 2.5 = \text{SUS value}$$

Table 2. Results of Question Scores from 15 Respondents

Respondents	Question									
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Timothy S	4	1	4	2	4	2	4	2	4	2
Mario	3	2	4	2	4	3	4	3	3	3
Tifano E	4	1	3	3	4	2	4	2	4	3
Ruth A S	3	1	4	2	5	2	5	2	5	2
Michael Y	4	2	5	3	4	3	5	2	5	2
Tessalonica	4	2	4	3	4	2	4	2	4	2
Alven	3	2	5	2	4	1	4	2	4	2
Fransiskus K	4	2	4	2	4	2	5	2	5	3
Tirta P N	5	1	5	1	4	1	4	2	3	2
Marcell	3	2	5	1	4	1	4	1	5	2
Jeffrey	4	2	5	2	3	2	4	3	3	3
Nathan	5	2	4	1	4	3	5	2	4	2
Yosef H W	4	1	5	1	5	3	5	1	5	2
Ferdinan	4	3	5	1	3	2	4	3	3	1
Anthony	5	1	4	1	4	1	5	2	5	1

Table 3. Conversion Results for Each Question Score Along with The Calculation of The SUS Score.

Respondents	Question										SUS Score
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	
Timothy S	3	4	3	3	3	3	3	3	3	3	77.5
Mario	2	3	3	3	3	2	3	2	2	2	62.5
Tifano E	3	4	2	2	3	3	3	3	3	2	70
Ruth A.S	2	4	3	3	4	3	4	3	4	3	82.5
Michael Y	3	3	4	2	3	2	4	3	4	3	77.5
Tessalonica	3	3	3	2	3	3	3	3	3	3	72.5
Alven	2	3	4	3	3	4	3	4	3	3	80
Fransiskus K	3	3	3	3	3	3	4	3	4	2	77.5
Tirta P N	4	4	4	4	3	4	3	3	2	3	85
Marcell	2	3	4	4	3	4	3	4	4	3	85
Jeffrey	3	3	4	3	2	3	3	2	2	2	67.5
Nathan	4	3	3	4	3	2	4	3	3	3	80
Yosef H.W	3	4	4	4	4	2	4	4	4	3	90
Ferdinan	3	2	4	4	2	3	3	2	2	4	72.5
Anthony	4	4	3	4	3	4	4	3	4	4	92.5
Total SUS Score											78.17

With the results of the conversion and calculation of the SUS score for each respondent along with the total average of the overall SUS score, the final point obtained was 78.17, which is included in the "Good" category according to the general guidelines for SUS scores which can be seen in Figure 13 below. Based on these results, the design results are concluded to be acceptable.

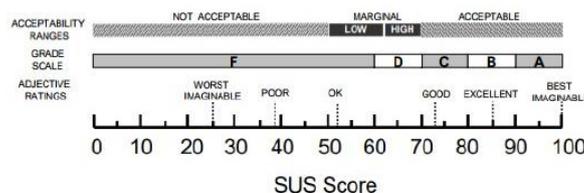


Figure 13. General guidelines for SUS score values

3.2 Discussion

The results of the study show that the Sigmawave platform interface design process using the design thinking and design sprint methods successfully created a more modern, user-friendly design, and efficient in terms of design time. The results of usability testing and the System Usability Scale (SUS) showed a level of satisfaction and ease of use of the platform, with an average score of 78.17. This score reflects that the

approach used successfully improved the overall user experience. High-fidelity wireframes for various pages of the Sigmawave site showed significant improvements in navigation and accessibility. The attractive and informative landing page design successfully attracted the attention of new users, while the 'About Us' and 'Our Team' pages presented in-depth and personal information about the company and the team behind Sigmawave. This helped build trust and create a stronger relationship with users. The Terra and Eclipse product page designs offered more structured and easy-to-understand information, allowing users to quickly learn the features and benefits of each product. This is important in helping users make the right decision about the product that best suits their needs. The design of the sector pages covered by Sigmawave products provides a clear picture of the practical applications of these products in various industries, which in turn helps to expand Sigmawave's market reach. The design of the community and career information pages also makes a significant contribution. The community page is designed to encourage interaction and discussion between users, while the career information page provides comprehensive information on career opportunities at Sigmawave, making it easier for potential applicants to find and apply for suitable positions.

4. Related Work

Previous research has explored various methodologies in UI/UX design to enhance user experience and satisfaction. One of the most widely adopted methodologies is Design Sprint, introduced by Google Ventures as a rapid prototyping and iteration approach for design. This method has been successfully applied in various studies, such as in the design of the EzyPay app by Ramadan *et al.* (2019), and in educational settings by Rustiaria (2021), demonstrating its flexibility in universities [7][8]. On the other hand, Design Thinking has significantly contributed to UI/UX development, emphasizing a user-centered approach. The method consists of five stages: empathize, define, ideate, prototype, and test, enabling designers to create solutions tailored to user challenges. For example, Madawara *et al.* (2023) utilized Design Thinking to design a café application, focusing on creativity and user needs [5]. This approach is like that of other studies, which emphasize understanding user needs through empathy and deep user involvement in the design process. The importance of usability in UI/UX design has been widely discussed in literature. Nielsen (2024) highlights the need for usability to ensure products are not only visually appealing but also easy to navigate [6]. Moreover, studies by Sabirin (2023) and Sani & Mog (2022) emphasize the direct testing of usability and the use of tools like the System Usability Scale (SUS) to improve user interactions [9][15]. These findings align with the broader consensus that usability testing is essential to create more intuitive and accessible user experiences.

User experience (UX) and user interface (UI) design, both Design Sprint and Design Thinking have gained considerable traction. The Design Sprint methodology, with its emphasis on rapid prototyping and testing, is particularly beneficial in fast-paced industries such as technology and digital product development, where swift iteration is essential [16][17]. The effectiveness of Design Sprint in fostering innovation, especially in regulated markets, underscores its adaptability and versatility [16]. In contrast, Design Thinking focuses on empathy and understanding user needs through a structured, five-phase process, encouraging continuous feedback and refinement to ensure alignment with user expectations [18][19]. Empathy plays a critical role in Design Thinking, enabling designers to deeply engage with users and create more meaningful solutions [21]. The iterative nature of the approach allows for continuous improvement based on user feedback, ensuring that the final product resonates with the user's needs [19][20]. Similarly, usability testing, including tools like SUS, remains a cornerstone for identifying user pain points and refining designs to enhance overall user experience [22][23].

The current study aims to integrate the strengths of both Design Sprint and Design Thinking methodologies to enhance the UI/UX design of the Sigmawave platform for PT. Blue Silo Pte. Ltd. By combining the rapid iteration capabilities of Design Sprint with the empathetic, user-focused approach of Design Thinking, the project seeks to create an interface that is not only efficient in development but also deeply aligned with user needs and expectations. This dual approach promises to deliver a more robust and user-friendly design, ultimately contributing to a superior user experience [24][25]. By combining the power of the fast and iterative Design Sprint method with the empathy-focused Design Thinking approach, the research resulted in a more robust and user-friendly UI/UX design. not only efficient in development, but also highly suited to user needs and expectations. This dual approach is expected to result in a more robust, user-friendly design, and ultimately deliver superior user experience, which is the main goal in developing the Sigmawave platform for PT. Blue Silo Pte. Ltd.

5. Conclusion and Future Research

This study successfully integrated Design Thinking and Design Sprint methodologies to improve user interface design and user experience in the development of the Sigmawave platform. By combining the two methodologies, the design aims to overcome challenges in the design process and improve overall user satisfaction. The results of the study indicate that the approach that combines the user-based problem-solving process of Design Thinking with the efficiency of prototyping and iteration of Design Sprint provides significant contributions in designing interfaces that are in accordance with user needs. In addition, direct usability testing and analysis of user responses to the platform provide valuable input that serves as the basis for refining user interactions and improving UI/UX designs to be more in line with user expectations. Future studies can explore further developments in this design, as well as expanding the scope of the study with a more diverse sample of respondents to obtain stronger validation regarding the effectiveness of these two methods on a wider group of users. This effort will not only improve the design of the Sigmawave platform but also provide important contributions to the advancement of UI/UX design methodologies in digital platforms.

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