JDBIM
(Journal of Digital Business and Innovation Management)

Volume 4 No.2, December 2025, 245-270
ISSN 2962-3898 (Online)
DOI: 10.26740/jdbim.v4i2.70796
https://ejournal.unesa.ac.id/index.php/jdbmi/index

Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model

Marcello Hamasias Dwi Greatajoy Purnomo[1*], Anita Safitri[2]

Department of Digital Business, Faculty of Economics, Universitas Negeri Surabaya
Jalan Ketintang, Surabaya 60231, Indonesia
marcello.21024@mhs.unesa.ac.id

Abstract

This research aims to redesign the CV Sentosa Abadi Steel website to improve the quality of appearance, ease of access to information, and user satisfaction. The approach used in the design process is the Double Diamond framework which consists of four stages: Discover, Define, Develop, and Deliver. In addition, the website development process is carried out using the Software Development Life Cycle (SDLC) Prototyping model, which is iterative and involves direct feedback from internal company parties. The Discover stage is done through observation of the old website, and interviews with the CEO and marketing staff. The Define stage is used to formulate system requirements. At the Develop stage, researchers created wireframes and mockups that were adjusted based on the validation results. The Deliver stage is the process of finalizing the design that is ready to be implemented. Implementation is done through the WordPress platform with the help of plugins such as Elementor, Blocksy, and WPForms. Evaluation was carried out using the usability testing method based on five indicators from Nielsen, namely Learnability, Efficiency, Memorability, Error, and Satisfaction, which were measured through questionnaires to five regular customers of CV SAS. The test results show an average score of 3.68 on a scale of 4, which is categorized as Very Good, so it can be concluded that the website has fulfilled the usability aspects and is ready to be used as a medium for company information and promotion.

Keywords: Redesign Website; Double Diamond; SDLC Prototyping; WordPress; Usability Testing.

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

Received: 1 June 2025; Accepted: 25 July 2025; Published: December 2025

*Corresponding author
Email: marcello.21024@mhs.unesa.ac.id

Abstrak

Penelitian ini bertujuan untuk merancang ulang (redesign) website CV Sentosa Abadi Steel guna meningkatkan kualitas tampilan, kemudahan akses informasi, dan kepuasan pengguna. Pendekatan yang digunakan dalam proses perancangan adalah kerangka berpikir Double Diamond yang terdiri dari empat tahap: Discover, Define, Develop, dan Deliver. Selain itu, proses pengembangan website dilakukan menggunakan metode Software Development Life Cycle (SDLC) model Prototyping, yang bersifat iteratif dan melibatkan umpan balik langsung dari pihak internal perusahaan. Tahap Discover dilakukan melalui observasi website lama, dan wawancara dengan CEO dan staf marketing. Tahap Define digunakan untuk merumuskan kebutuhan sistem. Pada tahap Develop, peneliti membuat wireframe dan mockup yang disesuaikan berdasarkan hasil validasi. Tahap Deliver menjadi proses finalisasi desain yang siap untuk diimplementasikan. Implementasi dilakukan melalui platform WordPress dengan bantuan plugin seperti Elementor, Blocksy, dan WPForms. Evaluasi dilakukan menggunakan metode usability testing berdasarkan lima indikator dari Nielsen, yaitu Learnability, Efficiency, Memorability, Error, dan Satisfaction, yang diukur melalui kuesioner kepada lima pelanggan tetap CV SAS. Hasil pengujian menunjukkan rata-rata skor sebesar 3,68 dari skala 4, yang dikategorikan Sangat Baik, sehingga dapat disimpulkan bahwa website telah memenuhi aspek usability dan siap digunakan sebagai media informasi dan promosi perusahaan.

***Kata kunci**:* Redesign Website; Double Diamond; SDLC Prototyping; WordPress; Usability Testing.

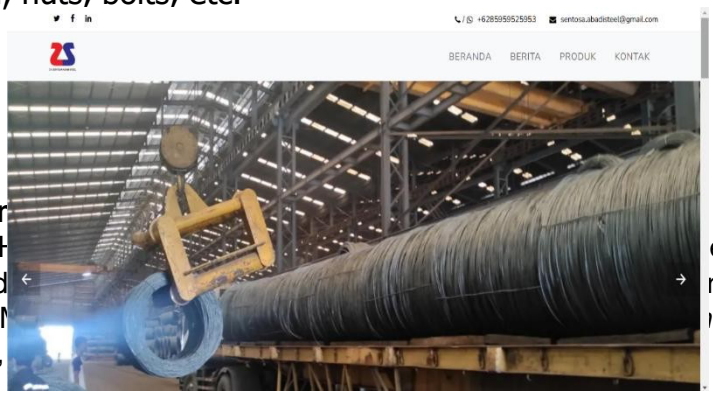
INTRODUCTION

The rapid development of information technology has an impact on various changes in aspects of life (Fauzi et al., 2022). The existence of the internet supports the development of technology by providing convenience in finding information in the current era of globalization (Lestari, 2018). Information technology has opened many new pages, especially in the community (Ahadiyah, 2024). Basically, the existence of technology will make it easier and help humans in carrying out something (Salsabila et al., 2020). Information technology is a technology used to process data, process, obtain, compile, store, manipulate data to produce quality information for personal, business, government purposes in decision making (Cholik, 2021).

Information technology activities can be utilized as a means of mutual communication, disseminating and searching data, providing services, and business transactions (Barkatullah, 2009). Information technology is needed in business development to make it easier for business people to make transactions and sales (Sulaeman, 2018).

One of the information technologies accessed via the internet is the website. According to Hakim & Murdiani (2021), websites are used to display information in a network environment. Websites have functions as educational media, communication media, promotional media, information media, and marketing media (Hasugian, 2018). Websites have many benefits, including being a means of online learning, promoting institutions, displaying institutional achievements, and as an information center that can be reached by anyone (Sangkalibu & Saputra, 2022). Websites have become one of the most useful tools in business strategies that aim to increase company competitiveness, and also to attract consumers (Aditya & Rusdianto, 2023). An informative, responsive, and user-friendly website can increase consumer confidence in a business and can expand market reach (Setiawan et al., 2024).

The development of websites in Indonesia can be seen through the use of domains (.id). Table 1.1 shows that the number of websites with (.id) domain has increased significantly from 2012 to 2024. In 2024, the use of this domain increased to more than one million domains. Overall, the use of websites with the (.id) domain is increasing continuously. This reflects the increasing needs of the community and business actors for the use of websites that are growing. One of the companies that uses a website in running a business is CV Sentosa Abadi Steel, hereinafter referred to as CV SAS. This company is an Iron and Steel supplier located in Sidoarjo Regency. The company began operating in 2018 by selling various steel and iron products, such as mild steel, CNP, H-beam, steel plate, steel pipe, concrete iron, nuts, bolts, etc.



JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

Figure 1. CV Sentosa Abadi Steel Website Display Before Redesigning (https://sentosaabadisteel.com/)

In Figure 1.1 above is the appearance of the website owned by CV Sentosa Abadi Steel. It can be seen that the website only has four main Navigation Menus, namely 'Home', 'News', 'Products', and 'Contact'. There is no search feature or other additional menus that can help users find information more quickly and efficiently. Through open and in-depth interviews with the CEO and marketing staff of CV Sentosa Abadi Steel, it was conveyed that the navigation structure on the current website is still inadequate in presenting information related to products and companies optimally. They consider that the current design has not met the needs of users in terms of ease of access, clarity of information, and overall user experience. Therefore, the company submitted a request to redesign the website.

During the requirements gathering process, the CEO and Marketing Staff specifically requested that the website be equipped with Frequently Asked Questions (FAQ) and Search features placed in the Header section, to facilitate visitors or users in finding relevant information about the company and its products. This redesign is expected to produce a website that is not only visually appealing, but also superior in terms of functionality, accessibility, and navigation. The Double Diamond framework developed by the British Design Council UK in 2005 was used in the redesign of the CV SAS website. According to Norman (2013), Double Diamond was chosen because it gives designers freedom from restrictions and evaluates a design that aims to determine the weaknesses and strengths of the design so that it can be improved and suitable for use. Double Diamond is a model that is often used in the process of designing products and services, which consists of four stages: Discover, Define, Develop, and Deliver (British Design, 2005). This framework allows researchers to explore the problem more deeply, define the problem more precisely, develop a more relevant solution, and deliver the solution. Therefore, the use of the Double Diamond framework will be applied using the Software Development Life Cycle (SDLC).

Planning, developing, testing, and releasing software can be done with the help of a structured Software Development Life Cycle or SDLC approach. One of the SDLC methods used in this research is prototyping. The iterative process of prototyping can enable developers and users to deeply understand system requirements through the creation of initial prototypes that are improved based on feedback (Debnath et al., 2021).

This approach is particularly relevant in the development of information technology that is increasingly complex and dynamic according to user needs that can change over time. This is especially important in the context of a company like CV SAS, which needs a website with specific features such as FAQs, and search features, to increase customer loyalty and competitiveness in the market. In the context of this CV SAS website redevelopment, the use of SDLC Prototyping is in line with the need to create a solution that is user-friendly, informative, and functional. User involvement during the development process through prototyping, companies can ensure that the resulting website is able to meet business needs and attract consumers more effectively (Tih et al., 2016).

The purpose of this research is to redesign the CV SAS website to make it more informative and in accordance with the needs of the CEO and marketing staff of CV SAS as the requirement giver, obtained through interviews. This redesign was carried out using the Double Diamond framework approach and using the SDLC Prototyping method. In addition to interviews, usability testing was also conducted in the form of a questionnaire addressed to regular customers of CV SAS. This test aims to support and strengthen the findings from the interview results, by providing numerical evidence that the redesigned website has met the usability aspects objectively.

METHODS

This study uses Research and Development (R&D) with Technology Readiness Level (TKT) 6. According to Sugiyono (2015), research and development (R&D) is research that aims to produce or develop a product. This study employs a descriptive qualitative method. Qualitative methods

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

are used to describe research data obtained regarding social phenomena and the context of the research subject (Waruwu, 2023). Descriptive qualitative research is a technique for describing or interpreting collected data with consideration and sensitivity to various potential aspects being studied at present, thereby obtaining a general picture that encompasses every aspect of the actual situation (Akhmad, 2015). The data collection techniques used in this study fall under the category of primary data, as the data was obtained directly from the main sources through observation of the research object, namely the old website, interviews with internal company personnel, and the distribution of questionnaires to regular customers of CV Sentosa Abadi Steel.

The instruments used in this study included interview guides, wireframe prototypes and mockups created using Figma, and a Likert scale-based usability testing questionnaire that referred to Nielsen's five indicators, namely: Learnability, Efficiency, Memorability, Error, and Satisfaction. The research was conducted at the CV Sentosa Abadi Steel office in Sidoarjo. The research subjects consisted of the CEO and marketing staff as system requirement providers, as well as five regular customers as end users involved in the usability testing. The development process began with needs analysis, initial design creation, prototype development, design validation, and system implementation using the WordPress platform. The final website was tested using usability testing methods to ensure that the system met the aspects of ease of use and user satisfaction.

RESULT AND DISCUSSION

1. Application of the Double Diamond Method in the Website Redesign Process of CV Sentosa Abadi Steel

Discover

The Discover stage is the initial stage in the redesign process of the CV Sentosa Abadi Steel website, which focuses on identifying problems and user needs. This stage is important as it determines the problems in a system that is running based on user opinions (Gustafsson, 2019). The researcher used a combination of direct observation of the old website and in-depth interviews with the CEO and marketing staff of CV. Sentosa Abadi Steel. The CV. Sentosa Abadi Steel website previously only had four main navigation menus, namely "Home," "News," "Products," and "Contact," without a search feature or Frequently Asked Questions (FAQ) section to

help users find information about the company or its products. In addition, several major issues were identified: (1) Navigation on the website is suboptimal, making it difficult for users to find product information efficiently; (2) The website's appearance is unattractive and unresponsive, reducing user comfort when using the website; (3) Product information is incomplete; and (4) There are no FAQ and Search features, which are essential for users seeking specific information.

The findings in the Discover stage indicate that the old website does not meet the principles of good usability, particularly in terms of learnability, efficiency, and satisfaction. In creating a website with ideal usability that meets user needs, there are five main components that must be fulfilled, namely Learnability, Efficiency, Memorability, Errors, and Satisfaction (R. Akbar & Mukhtar, 2020). These findings form the basis for defining system requirements in the Define phase, with the primary objective of enhancing user experience and the effectiveness of information delivery on the CV. Sentosa Abadi Steel website.

Define

The information collected during the discovery phase is then analyzed and narrowed down to the core issues that will form the basis for the development of subsequent design solutions (Farhantama & Mardhia, 2024). From the findings of the discover stage, it was concluded that the main problem lies in the limited features and lack of effective navigation structure, which makes it difficult for users to find product information efficiently. According to Fithri et al (2024), an unattractive and unresponsive interface design, coupled with inconsistent display, can affect the quality of the user experience. The elements contained in the website must be able to provide comfort to users when interacting with the website that has been created (Garrett, 2011). In addition, the product content displayed is incomplete and important features such as Search and FAQ are not yet available. These features can help users find specific information quickly(M. Akbar et al., 2024). Based on these findings, several tools were employed to define the system requirements more clearly, including User Persona,

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

Customer Journey Map, Priority Matrix, and Information Architecture.

Figure 2. User Persona

One of the results of this analysis process is the creation of user personas, which are fictional representations that describe the characteristics, behaviors, needs, and goals of the end users of the designed system. User personas serve as a tool for gaining a deeper understanding of users, while also providing a basis for design decisions so that the results of the design are more focused and on target. According to Rian et al (2024), user personas assist in the design development process by directing the designer's focus toward the needs of the target users, ensuring that the information and messages conveyed through the system are more relevant and efficient.

Customer Journey Map

Stage	Awareness	Exploration	Consideration	Decision	Action
Touchpoints	Google, Facebook, Rekomendasi rekan	Membuka website CV SAS, mengecek menu & kategori produk	Membandingkan spesifikasi produk, mencoba memahami perbedaan tipe-tipe baja.	Memutuskan untuk menghubungi pihak CV SAS melalui form atau WA	Menunggu balasan dari admin atau melakukan transaksi via offline
Customer Actions	Mencari supplier besi baja di Google	Menjelajahi jenis-jenis baja dan deskripsi produk	Memastikan produk sesuai kebutuhan proyek	Mengambil langkah menuju pemesanan	Menyelesaikan pembelian
Customer Experience					
Pain Points	Website CV SAS tidak muncul di halaman awal Google	Navigasi membingungkan, deskripsi produk tidak lengkap, tidak ada FAQ	Informasi produk minim, tidak ada FAQ	Form kontak tidak memberi notifikasi, CTA tidak jelas	Tidak ada sistem follow-up, info produk tidak update
Opportunities	Optimasi SEO dan iklan untuk visibilitas lebih tinggi	Tambahkan FAQ, perbaiki struktur menu dan informasi produk	Tampilkan detail spesifikasi, dan FAQ teknis	Tambahkan tombol call-to-action, notifikasi kirim form, serta form yang responsif	Tambahkan sistem auto-reply, chat admin aktif, update rutin stok/harga

Figure 3. Customer Journey Map

In this section, the customer journey mapping is based on user experience when using the old CV Sentosa Abadi Steel website. The mapping covers five main stages, namely Awareness, Exploration, Consideration, Decision, and Action. According to Wibowo et al (2025), customer journey mapping can help the design team understand the user experience comprehensively, including the emotional and functional barriers they are experiencing in each interaction process. From the results of this mapping, it can be concluded that there are still several key issues that need to be addressed in the redesign process, such as website visibility in the search feature, ease of navigation, completeness of product information, effectiveness of the contact form, and post-order communication system.

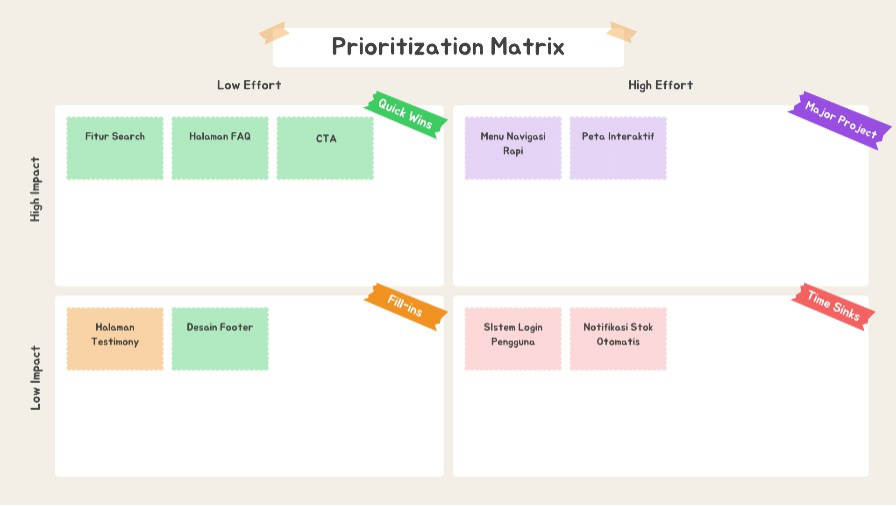


Figure 4. Priority Matrix

According to Pugh (1991), the Priority Metrix technique can help design teams prioritize features by considering their value and the available resources. Additionally, this opinion aligns with the findings of del Sagrado & del Águila (2021), which indicate that integrating the MoSCoW method into a priority framework based on analysis will result in a more structured matrix, enabling efficient filtering of primary requirements. The Quick Wins Quadrant shows that features that have a big impact and are easy to develop should be the top priority in this development.

Develop

To cite this document:

Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

The Develop stage is the stage of developing design solutions based on the requirements formulated in the Define stage.

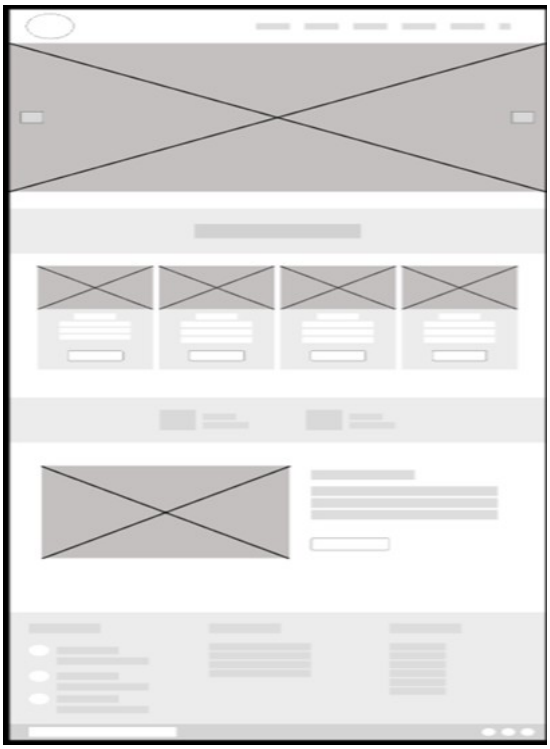


Figure 5. Low Fidelity Prototyping (Wireframe)

The wireframe design contains a preliminary design that shows the layout of the website pages. The wireframe focuses on a rough design that contains information on the screen and a clear layout of information (Chen et al., 2020). The wireframe design for this website includes a home page, product page, about us page, contact page, and FAQ page.

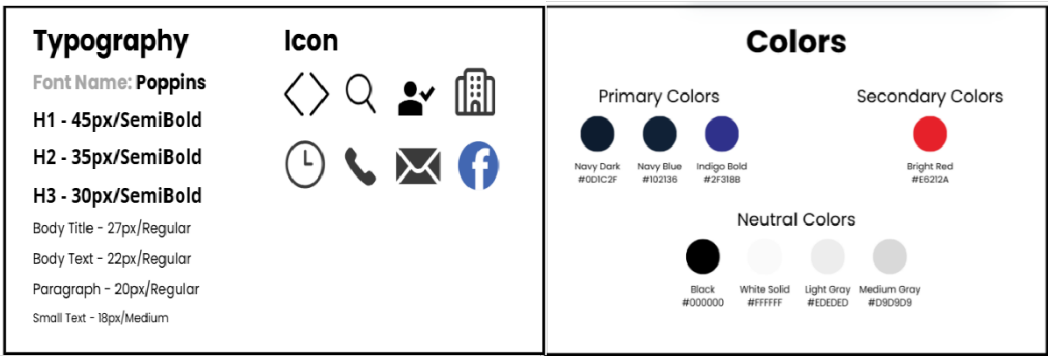


Figure 6. Design Guideline

The Poppins font is used with variations in size and thickness to suit the information structure, and icons are selected to enhance intuitive navigation. According to Nowack (1997), design guidelines are contextual

prescriptive recommendations for addressing design issues, making them an important foundation for designing consistent and efficient interfaces.

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

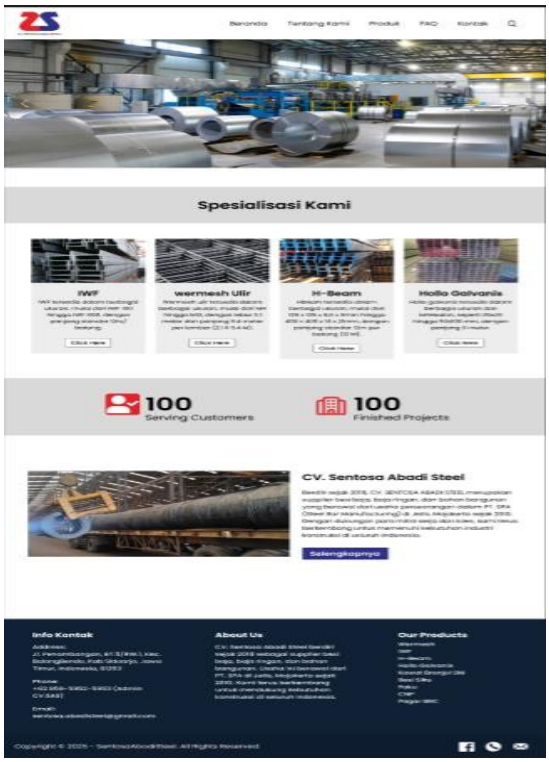


Figure 7. High Fidelity Prototyping (Mockup)

Figure 8 shows the mockup design that was approved by the client after two rounds of revisions. The homepage of a website must be designed to be attractive and appealing in order to draw customers' attention to the website (Supriyono et al., 2016).

Deliver

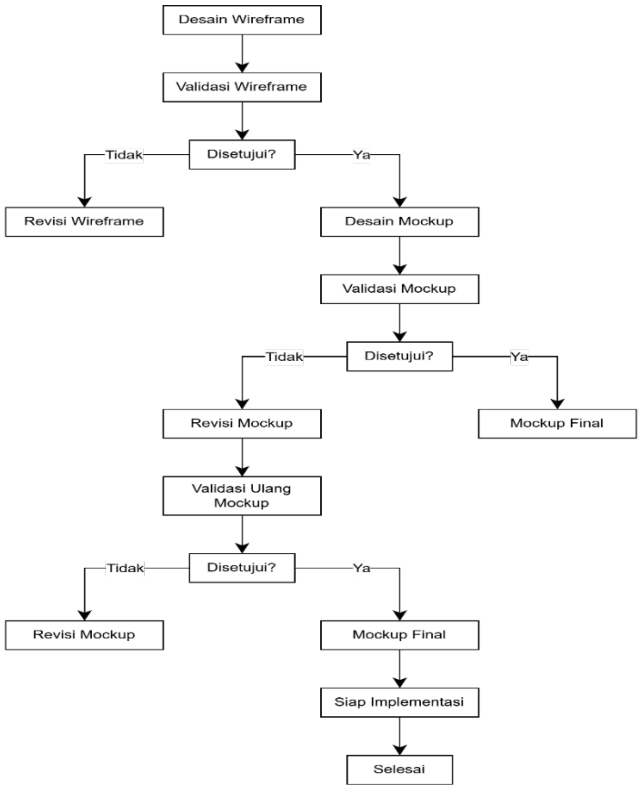


Figure 8. Design Validation Flow

In the Deliver stage, the design process has entered its final phase with the gradual development of a design validation flow to ensure that the designed interface truly meets user needs. Thus, the Deliver stage concludes with a fully validated design that is ready to be developed into a functional website.

2. Application of the SDLC Prototyping Method in the Website Redesign Process of CV Sentosa Abadi Steel

Requirement

The requirements stage is the first step in implementing the SDLC prototyping method, which is useful for exploring user needs and

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

formulating the direction of system development. In this study, the requirement gathering process was carried out through open and in-depth interviews with internal parties at CV Sentosa Abadi Steel, namely the CEO and marketing staff. This activity aimed to gain an understanding of the shortcomings of the previous website and expectations for the design and features to be implemented on the new website.

Table 1. System Requirements Summary

No.	System Requirements	Description
1	Professional visual appearance	The website features a modern design that fits the company's image.
2	Easy navigation	The menu structure and pages are organized for easy user access.
3	Structured product information	Each product is displayed complete with description and specifications.
4	Search feature	Users can search for products quickly through the search feature.
5	Frequently Asked Questions (FAQ) feature	A dedicated page to answer general questions from potential customers.
6	Responsive design	The website can be accessed from various devices such as PC, Laptop, & mobile.

Quick Design

At this stage, researchers begin to develop a preliminary interface design in the form of wireframes as a rough representation of the website page structure. Wireframes serve to illustrate the arrangement of elements on each page, such as main navigation, image positioning, text content, and action buttons, without applying visual elements such as colors and icons (Kearney-Volpe & Hurst, 2021).

Table 2. Page Summary

No.	Page	Main Functions
1	Homepage	Presents profile summary & Call To Action (CTA) button
2	About Us	Explaining the background of the company
3	Product	Display product list and description
4	FAQ	Answer common customer questions
5	Contact	Address information, contact form, and map

Build Prototype

Prototype Build Stages in the SDLC Method Prototyping begins after the wireframe design has been approved by the requirements team. At this stage, researchers begin building visual mockups based on the previously

agreed-upon wireframe structure. Mockups are designed using the Figma application to display a visual interface that closely resembles the final version of the website. These mockups include visual elements such as the use of primary and secondary colors, consistent typography, supporting icons, and a neat page layout. Tahoma

User Evalution

This stage is an evaluation process involving the requirements party, namely the CEO and marketing staff of CV Sentosa Abadi Steel, to assess the appearance and arrangement of elements that have been compiled in the mockup design. The purpose of this evaluation is to determine whether the mockup design meets the needs and expectations of stakeholders in terms of aesthetics, information structure, and ease of navigation. Table 3 below summarizes the questions, responses, and follow-up actions taken:

Table 3. Summary of the Results of the Initial Mockup Evaluation Interview

No.	Questions	Stakeholder Response	Follow-up
1	What do you think of the overall visual appearance of this mockup design?	Needs improvement in terms of color, buttons, navigation placement	Adjustments to the layout and selection of more appropriate colors were made
2	Do the colors, fonts, and display style reflect the company's image?	Not yet fully reflecting the company's image	Adjusted color and style to make it more professional
3	Are visual elements such as images and buttons clear and functional?	Not yet, still needs improvement	Re-positioning of images and buttons to be more informative and professional
4	Are there any parts that need to be further improved or customized?	Existing, such as homepage layout and page structure	Changes were made to the homepage layout, products, and improvements to the contact page
5	Is this design ready to be used as a reference for website development?	Yet	Need to revise the mockup to improve its visual quality and

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

Refining Prototype

The Refining Prototype stage is a continuation of the mockup design evaluation process previously described in the Develop stage of the Double Diamond approach. At that stage, the researchers designed the initial mockup, obtained feedback from CV Sentosa Abadi Steel's internal team, and then made improvements and revalidated the adjusted design. Therefore, at this stage, the researchers only confirm that the revised mockup design has been accepted and approved by the stakeholders, which includes adjustments to color, visual element layout, and the addition of features based on previous feedback. With the agreement from the requirements team on the revised design, this visual prototype can be considered final and suitable for implementation into a functional website.

Implementation and Maintain

This stage is the process of implementing the final mockup design into a website that can be accessed publicly through the WordPress platform. The design, which had previously been validated by internal company parties, namely the CEO and marketing staff of CV Sentosa Abadi Steel, was then converted into a functional website interface using plugins and page builders such as Elementor Pro and Blocksy. The following table lists the plugins used and their functions.

Table 4. Plugins used on the CV Sentosa Abadi Steel website

No.	Plugin	Function
1	Elementor	Visual page builder for designing pages with drag and drop.
2	Elementor Pro	Provides additional premium features for Elementor such as header builder, forms, etc.
3	Blocksy Companion	Elementor compatible lightweight and responsive theme
4	WPForms Lite	Create a simple and user-friendly contact form
5	Image Optimizer	Compressing and reformatting images to speed up loading

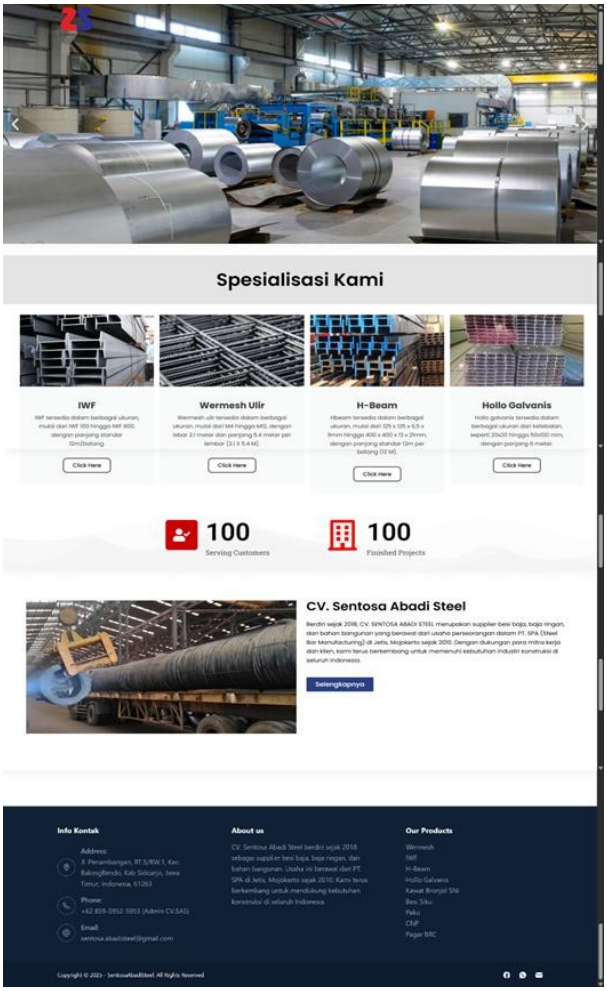


Figure 9. Designed Home Page Display

3. Measurement Results in the Use of the CV Sentosa Abadi Steel Website Using Usability Testing

At this stage, usability testing is conducted to determine the extent to which the CV Sentosa Abadi Steel website has met usability principles based on direct customer feedback. The purpose of this testing is to assess the final quality of the redesigned website and measure whether the website is usable and easy to understand. Usability testing serves to evaluate the usability level of the website that has been created (Deni & Ferida, 2023). Usability testing also serves as cross-validation of the results of internal validation that has been previously conducted with the requirements team.

The testing process was conducted by distributing a questionnaire consisting of 15 statements to five regular customers of CV Sentosa Abadi

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

Steel who had previously tried the redesigned website. The questionnaire was compiled based on the five main aspects of usability according to Nielsen (1993), namely: Learnability, Efficiency, Memorability, Error, and Satisfaction. The formula for calculating the measurement results is as follows:

$$X = \frac{\sum xi}{n} \quad (1)$$

Source: (Ghaniy & Aisyi, 2019)

Explanation:
X = *mean* (average)
∑ xi = Value x ke – 1 to x ke – n
N = Number of Respondents

Usability Testing Measurement Results

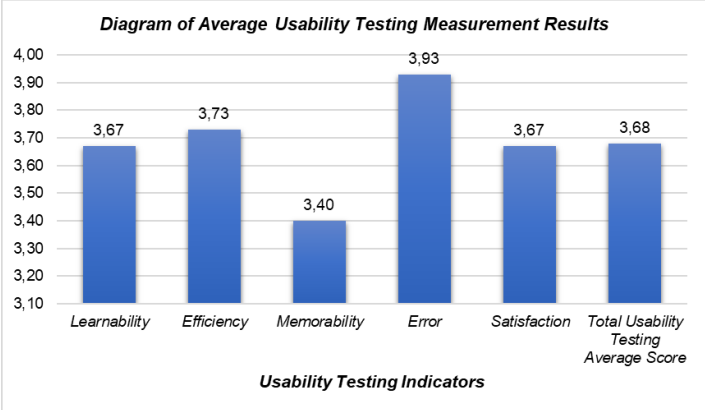


Figure 10. Average Usability Testing Indicator Value Diagram

Based on the results of the usability testing in the image above, the overall average usability testing score was 3,68, which falls into the "Very Good" category. This category indicates that the system on the website is fairly easy for users to learn, provides satisfaction in the user experience, and has very minimal usage errors (Prihati et al., 2021). The following is an explanation of the usability testing results based on each indicator.

a) *Learnability Aspect*

The Learnability aspect assesses how easy it is for users to learn how to use the website when they first access it. This indicator is very important because new users must be able to understand the navigation and content without needing additional help (Weichbroth, 2020). The learnability measurement results are shown in Table 5 below:

Table 5. Results of Usability Testing Measurements on Learnability Indicators

Assessment Aspect	Alternative Answer	Number of Answers	Weight	Results	Percentage
Learnability	Strongly Agree	10	4	40	66,67%
	Agree	5	3	15	33,33%
	Disagree	0	2	0	0
	Strongly Disagree	0	1	0	0
	Total	15		55	100%
		Average		**3,67 (Excellent)**	

The average score of 3,67 falls into the Excellent category, indicating that the majority of users can understand how the website works and navigate it easily.

b) *Efficiency Aspect*

The Efficiency aspect assesses how easy and fast it is for users to use or find information on the system. The more efficient a system is, the better the user experience (Sauro, 2016). The assessment results are presented in Table 6 below:

Table 6. Usability Testing Measurement Results on Efficiency Indicators

Assessment Aspect	Alternative Answer	Number of Answers	Weight	Results	Percentage
Efficiency	Strongly Agree	11	4	44	73,33%
	Agree	4	3	12	26,67%
	Disagree	0	2	0	0
	Strongly Disagree	0	1	0	0
	Total	15		56	100%
		Average		**3,73 (Excellent)**	

The average score was 3,73 in the Excellent category. This result

To cite this document:
Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

shows that users feel the website runs quickly and efficiently when used, both when searching for products using the search feature and when searching for company information.

c) *Memorability Aspect*

The Memorability aspect measures the extent to which users can recall the menu and features on the website after a long period of not accessing it. The memorability indicator plays an important role in assessing the sustainability of the user experience (Ntoa, 2024). The evaluation results are presented in Table 7.

Table 7. Usability Testing Measurement Results on the Memorability Indicator

Assessment Aspect	Alternative Answer	Number of Answers	Weight	Results	Percentage
Memorability	Strongly Agree	6	4	24	40%
	Agree	9	3	27	60%
	Disagree	0	2	0	0
	Strongly Disagree	0	1	0	0
	Total	15		51	100%
		Average		**3,40 (Excellent)**	

With an average score of 3,40, this score is still in the "Very Good" category. This means that users find it easy to remember the navigation and layout of the website after not using it for some time.

d) *Error Aspect*

Aspek Error menilai seberapa sering website dalam melakukan kesalahan (eror) pada saat digunakan oleh pengguna. Jika website mengalami error, maka harus dilakukan perubahan yang disesuaikan dengan kebutuhan pengguna (Muhammad & Ariani, 2018). Berikut hasil penilaiannya pada tabel 8:

Table 8. Usability Testing Measurement Results on Error Indicators

Assessment Aspect	Alternative Answer	Number of Answers	Weight	Results	Percentage
Error	Strongly Agree	14	4	56	93,33%
	Agree	1	3	3	6,67%
	Disagree	0	2	0	0
	Strongly Disagree	0	1	0	0
		15		59	100%
		Average		**3,93 (Excellent)**	

To cite this document:

Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

JDBIM (Journal of Digital Business and Innovation Management)
Volume 4 No.2, December 2025
E-ISSN 2962-3898
Page 245-270

With an average score of 3,93, this falls into the Excellent category. This score indicates that the website has very few errors, allowing users to interact without significant obstacles.

e) *Satisfaction Aspect*

This Satisfaction aspect measures user satisfaction with the overall appearance and experience of using the website. User freedom in using the website, so that using the system feels comfortable and calm (Larasati, 2020). The following measurement results with usability testing can be seen in table 9:

Table 9. Usability Testing Measurement Results on Satisfaction Indicators

Assessment Aspect	Alternative Answer	Number of Answers	Weight	Result	Percentage
Satisfaction	Strongly Agree	10	4	40	66,67%
	Agree	5	3	15	33,33%
	Disagree	0	2	0	0
	Strongly Disagree	0	1	0	0
		15			100%
	Average		**3,67 (Excellent)**		

The measurement results show an average value of 3.67 which is included in the Very Good category. It can be seen that users are satisfied with the overall function, visual appearance, and ease of use of the website.

CONCLUSION

Based on the series of research conducted, it can be concluded that the application of the Double Diamond framework which includes the Discover, Define, Develop, and Deliver stages has successfully guided the CV Sentosa Abadi Steel website redesign process systematically and centered on user needs. The system development method using the SDLC Prototyping model supports an iterative process in designing and implementing a WordPress-based website, with direct validation from internal stakeholders. The results of usability testing based on five Nielsen indicators show that the developed website obtained an average score of
3.68 in the "Very Good" category, which means that the system has met the principles of usability and is suitable for use as a medium of information and company promotion effectively.

REFERENCES

Aditya, R., & Rusdianto, R. Y. (2023). Penerapan Digital Marketing Sebagai Strategi Pemasaran UMKM. *Jurnal Pelayanan Dan Pengabdian Masyarakat Indonesia*, *2*(2), 96–102.

Ahadiyah, F. N. (2024). Perkembangan Teknologi Infomasi Terhadap Peningkatan Bisnis Online. *INTERDISIPLIN: Journal of Qualitative and Quantitative Research*, *1*(1), 41–49.

Akbar, M., Agusnaya, N., Nirmala, P., & Ilmah, N. (2024). Development Of The Application " Kita Sarjana " To Support The Academic Process Of Final-Year Students At Universitas Negeri Makassar. *ARRUS Journal of Social Sciences and Humanities*, *4*(6), 643–656.

Akbar, R., & Mukhtar, M. (2020). Perancangan E-Tracer Study berbasis Sistem Cerdas. *Jurnal Sisfokom (Sistem Informasi Dan Komputer)*, *9*(1), 8–12.

Akhmad, K. A. (2015). Pemanfaatan media sosial bagi pengembangan pemasaran UMKM (Studi deskriptif kualitatif pada distro di Kota Surakarta). *Dutacom*, *9*(1), 43.

Barkatullah, A. H. (2009). *Perlindungan Hukum Bagi Konsumen dalam Transaksi E-Commerce Lintas Negara di Indonesia*. FH UII Press.

British Design. (2005). *Framework for Innovation: Design Council's evolved Double Diamond. Skills & Learning.* London: British Design Council. https://www.designcouncil.org.uk/our-resources/framework-for-innovation/

Chen, J., Chen, C., Xing, Z., Xia, X., Zhu, L., Grundy, J., & Wang, J. (2020). Wireframe-based UI Design Search through Image Autoencoder. *ACM Transactions on Software Engineering and Methodology*, *29*(3). https://doi.org/10.1145/3391613

Cholik, C. A. (2021). Perkembangan teknologi informasi komunikasi/ICT dalam berbagai bidang. *Jurnal Fakultas Teknik UNISA Kuningan*, *2*(2), 39–46.

Debnath, S., Spoletini, P., & Ferrari, A. (2021). From ideas to expressed needs: an empirical study on the evolution of requirements during elicitation. *2021 IEEE 29th International Requirements Engineering Conference (RE)*, 233–244.

Del Sagrado, J., & del Águila, I. M. (2021). Assisted requirements selection by clustering. *Requirements Engineering*, *26*(2), 167–184.

Deni, D. K., & Ferida, F. Y. (2023). Usability Testing Penggunaan Menu Kartu Hasil Studi Di Website Sistem Informasi Akademik Universitas Teknologi Yogyakarta. *Jurnal Teknologi Dan Manajemen Industri Terapan*, *2*(I). https://doi.org/10.55826/tmit.v2ii.57

Farhantama, A. M., & Mardhia, M. M. (2024). Double Diamond Approach for

To cite this document:

Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

Mobile-based UX: Connecting Students to Professional IT Projects. *Journal of Information Systems and Informatics*, *6*(2), 937–948.

Fauzi, E., Sinatrya, M. V., Ramdhani, N. D., Ramadhan, R., & Safari, Z. M. R. (2022). Pengaruh kemajuan teknologi informasi terhadap perkembangan akuntansi. *Jurnal Riset Pendidikan Ekonomi*, *7*(2), 189–197.

Fithri, P., Muluk, A., & Rayhanda, R. H. (2024). Perancangan User Interface (UI) dan User Experience (UX) pada Sistem Informasi PT. XYZ. *Jurnal Nasional Teknologi Dan Sistem Informasi*, *9*(3). https://doi.org/10.25077/teknosi.v9i3.2023.280-289

Garrett, J. J. (2011). The Elements of User Experiance: User Centered Design for the Web and Beyond. 2nd Edition. In *Printed and bound in the United States of America*.

Ghaniy, R., & Aisyi, M. (2019). Mengukur tingkat kebergunaan website dengan menggunakan metode usability. *TeknoIS: Jurnal Ilmiah Teknologi Informasi Dan Sains*, *9*(2), 21–31.

Gustafsson, D. (2019). Analysing the Double Diamond Design Process through Research & Implementation. *Aalto University*.

Hakim, A. R., & Murdiani, D. (2021). Sistem Informasi Monitoring Air Handling Unit Dan Fan Coil Unit Berbasis Web Pada Hotel Millennium Sirih Jakarta. *Jurnal Sibernetika*, *6*(2), 18–31.

Hasugian, P. S. (2018). Perancangan Website Sebagai Media Promosi Dan Informasi. *Journal Of Informatic Pelita Nusantara*, *3*(1), 82–86.

Kearney-Volpe, C., & Hurst, A. (2021). Accessible Web Development: Opportunities to Improve the Education and Practice of web Development with a Screen Reader. *ACM Transactions on Accessible Computing*, *14*(2). https://doi.org/10.1145/3458024

Larasati, I. (2020). Evaluasi Penggunaan Website Universitas Islam Negeri Syarif Hidayatullah Jakarta Dengan Menggunakan Metode Usability Testing. *Computatio : Journal of Computer Science and Information Systems*, *4*(1), 68. https://doi.org/10.24912/computatio.v4i1.6689

Lestari, S. (2018). Peran teknologi dalam pendidikan di era globalisasi. *EDURELIGIA: Jurnal Pendidikan Agama Islam*, *2*(2), 94–100.

Muhammad, F., & Ariani, F. (2018). Rancang Bangun Sistem Informasi Akademik Berbasis Web Dengan Metode Waterfall. *Sinkron: Jurnal Dan Penelitian Teknik Informatika*, *2*(2), 119–124.

Norman, D. (2013). *The design of everyday things: Revised and expanded edition*. Basic books.

Nowack, M. L. (1997). *Design guideline support for manufacturability*. University of Cambridge.

Ntoa, S. (2024). Usability and User Experience Evaluation in Intelligent Environments: A Review and Reappraisal. *International Journal of Human-Computer Interaction*, *41*(5), 2829–2858. https://doi.org/10.1080/10447318.2024.2394724

PANDI. 2025. *Laporan Statistik Perkembangan Domain di Indonesia*. https://pandi.id/laporan-statistik., diakses Tanggal 2 Juni 2025.

Prihati, P., Nurdianto, K., & Heses, M. A. (2021). Analisis e-Learning Fresto dengan Prinsip Usability. *Jurnal Cakrawala Informasi*, *1*(2). https://doi.org/10.54066/jci.v1i2.146

Pugh, S. (1991). Total design: integrated methods for successful product engineering. *(No Title)*.

Rian, R. H., Triayudi, A., & Sholihati, I. D. (2024). Implementation of the Double Diamond Method in User Experience Design of Health Service Application (Homecare). *SaNa: Journal of Blockchain, NFTs and Metaverse Technology*, *2*(1), 80–89.

Salsabila, U. H., Seviarica, H. P., Hikmah, M. N., & others. (2020). Urgensi penggunaan media audiovisual dalam meningkatkan motivasi pembelajaran daring di sekolah dasar. *INSANIA: Jurnal Pemikiran Alternatif Kependidikan*, *25*(2), 284–304.

Sangkalibu, L. O. M. R., & Saputra, H. N. (2022). MEMBANGUN SISTEM INFORMASI WEBSITE SEKOLAH DENGAN MENGGUNAKAN GOOGLE SITES. *Jurnal Isema : Islamic Educational Management*, *7*(1). https://doi.org/10.15575/isema.v7i1.17643

Sauro, J. (2016). The challenges and opportunities of measuring the user experience. *Journal of Usability Studies*, *12*(1), 1–7.

Setiawan, Z., Nurdiansyah, N., Kushariyadi, K., & Sari, M. D. (2024). *Strategi Pemasaran: Konsep dan Inovasi Pemasaran di Era Digital*. PT. Sonpedia Publishing Indonesia.

Sugiyono. (2015). Sugiyono, Metode Penelitian dan Pengembangan Pendekatan Kualitatif, Kuantitatif, dan R&D , (Bandung: Alfabeta, 2015), 407 1. *Metode Penelitian Dan Pengembangan Pendekatan Kualitatif, Kuantitatif, Dan R&D*, *2015*.

Sulaeman, M. (2018). Pengaruh Sistem Impormasi Manajemen Terhadap Kegiatan Bisnis Online. *Jurnal IImiah Manajemen Dan Bisnisurnal IImiah Manajemen Dan Bisnis*, *19*(1).

Supriyono, H., Sutopo, A., Nursyahid, H., Kurniawan, B. A., Fahrudin, I. N., Handoko, D., Rivai, I., & Kurniawan, D. C. (2016). PENERAPAN TEKNOLOGI WEB SEKOLAH BAGI SMP DAN SMA MUHAMMADIYAH KARTASURA. *Warta LPM*, *19*(1). https://doi.org/10.23917/warta.v19i1.1983

Tih, S., Wong, K.-K., Lynn, G. S., & Reilly, R. R. (2016). Prototyping, customer involvement, and speed of information dissemination in new product success. *Journal of Business \& Industrial Marketing*, *31*(4), 437–448.

Waruwu, M. (2023). Pendekatan Penelitian Pendidikan: Metode Penelitian Kualitatif, Metode Penelitian Kuantitatif dan Metode Penelitian

To cite this document:

Purnomo, Marcello Hamasias Dwi Greatajoy., Safitri, Anita. (2025). Implementation of CV Sentosa Abadi Steel Website Redesign Based on Double Diamond and SDLC Prototyping Model. *JDBIM (Journal of Digital Business and Innovation Management)*, Vol. 4 Np. 2, pp. 245-270. DOI link

Kombinasi (Mixed Method). *Jurnal Pendidikan Tambusai* , *7*(1).

Weichbroth, P. (2020). Usability of mobile applications: A systematic literature study. *IEEE Access*, *8*. https://doi.org/10.1109/ACCESS.2020.2981892