

## Implementing Waterfall Methodology in Eidos Website Development for Animal Welfare Enhancement

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### ABSTRACT

Indonesia is ranked third in animal ownership in Asia, or almost 50% of the Indonesian population has pets, but with the high level of animal ownership there are still pet owners who do not know how to care for animals, have obstacles in giving up or adopting pets, and have empathy for animals. Abandoned pets, but unable to provide direct assistance due to certain conditions and time. The aim of this research is to develop a website-based platform called Eidos so that people, especially animal lovers, can adopt, donate, discuss, find the nearest animal service location, read information about pets, and buy pet needs. This website development was carried out using the waterfall method. After product development is complete, implementation will be carried out through direct outreach to animal lovers. The results of socialization show a positive response, able to meet their needs, and in accordance with Eidos' expectations, animal lovers can help other pets and care for their pets easily, quickly and safely.

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### ARTICLE INFO

**Article History:**

*Submitted/Received 23 Dec 2023*

*First Revised - 31 Dec 2023*

*Accepted 1 Jan 2024*

*First Available online 30 Jan 2024*

*Publication Date 31 Jan 2024*

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**Keyword:**

*Animal Lovers*

*Waterfall Methodology Website Development*

## INTRODUCTION

Indonesia is a developing country. Several cultures are also starting to develop in the community, one of which is the culture of keeping pets. It is proven that Indonesia is one of the countries in Asia with the largest population of animals. In the Lokadata article, the results of a survey conducted by Rakuten Insight in January 2021 were recorded, they showed that the survey results for respondents from Indonesia who kept cats obtained a percentage of 47%, while the percentage obtained for those who kept dogs was only 10%. Data from the Ayoyogya.com page shows that currently, cat ownership in Indonesia has increased significantly to 37% in 2021. This is quite a large percentage figure.

It could be said that almost half of Indonesia's population keeps pets, such as cats and dogs. The reason people keep pets is as a way to reduce stress and fatigue and as entertainment for themselves. Apart from that, Darmanto & Sukardi (2015) also stated that keeping a pet can increase self-confidence and empathy. However, on the other hand, there are animal owners who want to release their pets to other people because they have several obstacles, such as animal owners who no longer want to keep animals and are constrained by financial problems. This information can be conveyed to people who wish to adopt an animal as a consideration in carrying out the adoption.

Chendra et al. (2019) in their article wrote that in Indonesia, the activity or process of dog adoption is still carried out manually. People who want to adopt must find out all information from various sources regarding existing animals first before adopting. Not infrequently, the information that people usually get about adoption comes from word of mouth, going to pet shops, or looking for community members who want to give up their pets. This is done so that animal adoption activities are in accordance with the adopter's wishes. Of course, adopting this animal is also one of the ways humans can have a pet.

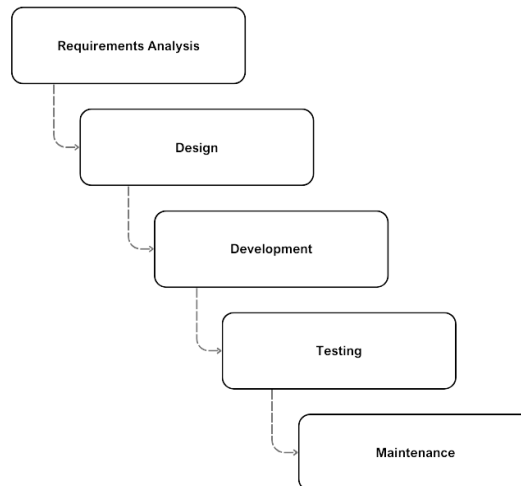
When people decide to keep a pet, there is a responsibility that requires them to spend time caring for and paying attention to the health of their pet. Starting from food needs to health, these are very important things that must be met by pet owners. This is one of the human rights possessed by animals and is an effort to improve animal welfare. However, most animal owners do not know how to care for animals properly (Ramadhan et al., 2021). This is also reinforced by Wahyuningsih & Jauhari, (2020), who explain that many animal owners do not know how to care for their beloved pets properly, animal owners feel the need to pay attention to their pets' behavior. To overcome this problem, pet owners can ask the doctor about their pet's condition, but not all doctors can provide their telephone number as a place to ask questions at any time.

Based on the description of the problem above, regarding information on adoption and meeting food and health needs, we want to make an innovation by creating a website called Eidos to be able to help animal owners and animal lovers in meeting all the needs and care of their pets, as well as helping to facilitate the process. animal adoption on one platform, especially website- based.

## METHOD

In developing digital products, a framework is needed so that the entire work process is more structured and effective in terms of time and cost. According to Daqiqil (2011), a framework is a basic conceptual structure used to solve complex problems or issues.

Eidos uses a framework to develop the website which will become its main product. The framework chosen is waterfall. Waterfall is an approach to software development that is linear with a gradual and sequential workflow. This approach is called waterfall because the workflow flows forward through various stages like a waterfall which can be seen in Figure 1. After product development is carried out, the next stage is to socialize the product to the public.



**FIGURE 1.** Waterfall Methodology

The choice of waterfall as a framework was due to limited human resources to carry out iterative work so that all work was carried out in stages and together. At the Requirements Analysis stage, an analysis of the various needs needed to develop the Eidos website is carried out to suit user needs.

At the Design stage, a prototype design is created which will later become the beginning of the development of the Eidos website. The design will also be tested directly with users in several stages so that later users can use the product easily and comfortably.

At the Development stage, the prototype has passed the testing process and has begun to be realized in the form of program code. Then, in the Testing stage, testing of the completed website will be carried out at this stage in the internal and external environment of Eidos. After the testing process has run smoothly and no problems have been found, the website will immediately be launched to the wider community.

In the Maintenance stage, the maintenance process will be carried out in stages after the Eidos website is successfully launched to prevent errors that will interfere with users using the Eidos website.

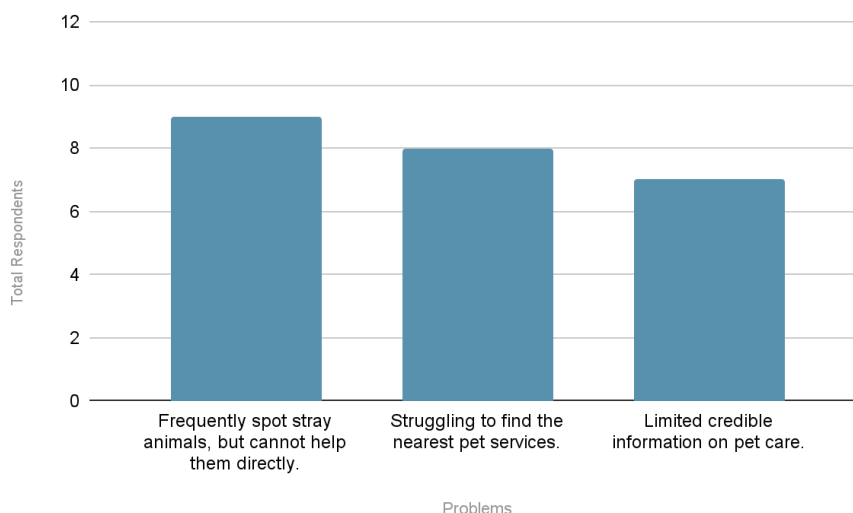
After all product development has been carried out, the final stage is to socialize the product. The socialization carried out was taking part in innovation exhibition events. Apart from providing information regarding products to help animal and pet owners, there is a donation campaign to help animal shelters in feeding homeless pets.

## RESULTS

At the product development stage, of course, it must be carefully prepared in order to be able to produce a quality product, before finally releasing it and conducting outreach to the target market community. In this case, the target market for Eidos products is animal lovers. The development of Eidos products in the form of websites was carried out in stages using the waterfall method, starting from requirements analysis, design, development, testing and maintenance. After that, direct outreach was carried out to animal lovers.

### Requirements Analysis

We conducted interviews with 12 animal lovers to understand user needs. From the results of these interviews, it was found that 3 main problems are often experienced by animal lovers, namely (1) There is limited valid information in caring for pets; (2) Having difficulty finding pet services, either releasing and looking for a pet or looking for the nearest clinic; and (3) Often see abandoned pets in person or on the internet and feel sorry for them, but cannot help directly.



**FIGURE 2.** Top 3 Problem Validation

From these three main problems, we designed an Eidos platform in the form of a website to deal with these problems. In detail, Eidos can help animals and animal lovers in adoption activities as well as being a solution to meet all pet needs and problems, as well as making it easier to find the nearest location for animal needs services, based on a website .

Eidos provides benefits in helping to bring abandoned animals together with adopters and making it easier for animal lovers to help improve animal welfare, by utilizing technology that can be accessed regardless of distance or time.

Various knowledge that can provide insight into pets can also be obtained so that animal lovers will not feel confused and will be able to understand their pets better, especially for animal lovers who are just starting to keep animals. In general, the Eidos website has several features which can be seen in Table 1.

**TABLE 1.** Feature on Eidos

No	Feature Name	Description
1	Adoption	Users can adopt pets or upload their pets for adoption.
2	Discussion	Users can interact with fellow animal lovers and animal experts by asking questions and providing feedback or answers.
3	Article	Various up-to-date information and news about animals.
4	Donation	Users can collectively raise funds to help abandoned pets.
5	Marketplace	Assist users in purchasing pet needs
6	Nearme	Makes it easier for users to find pet shops, shelters and veterinary clinics from the nearest location.

The six features on the Eidos website have also gone through analysis of several competitors who have similar products to look for gaps as market opportunities. Several competitors that differentiate the Eidos website can be seen in Table 2.

**TABLE 2.** Competitor Analysis

No	Platform	Differentiator
1	Petshop Indonesia	Only provides buying and selling for animal needs.
2	Petskita	Only provides a place for education and discussion, as well as purchasing animal needs.

No	Platform	Differentiator
3	Peto	Only provides buying and selling of animal needs, adoption places, and donation features.
4	Adopsi.org	Only provides adoption places and donation features.
5	Hellopets.id	Only provides a place for education and discussion, as well as a place for adoption.

Eidos has the advantage of being an all-in-one platform compared to its competitors because they only focus on animal services or pampering their pets, not at the same time solving basic problems for animal lovers and the animals themselves.

### Design

In realizing the creation of a website, it is necessary to create a visual appearance. Visual or user interface design must start from a framework for mapping buttons and flows on the website. An information architecture was designed in Figure 3, which aims to ensure user convenience in using this website -based Eidos product because the important aspect is not only seen from the user interface, but also the user experience for comfort in its use.

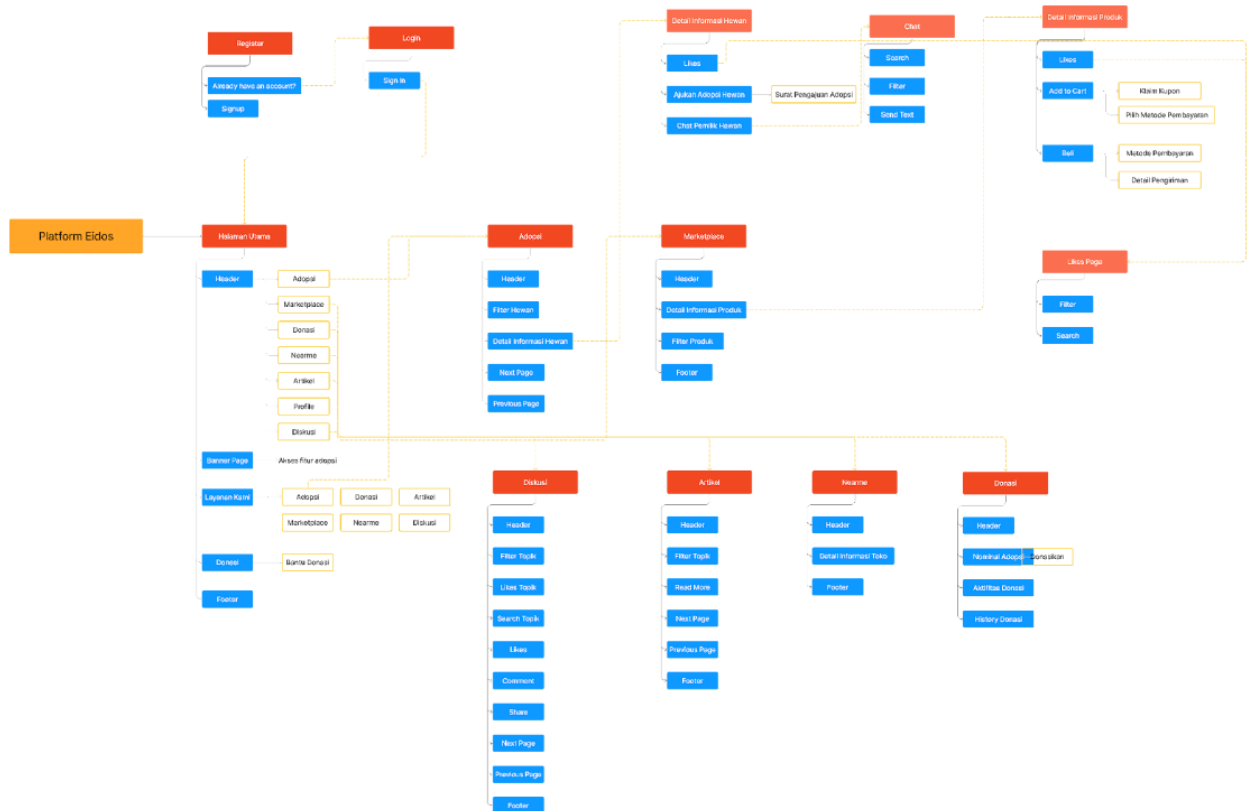
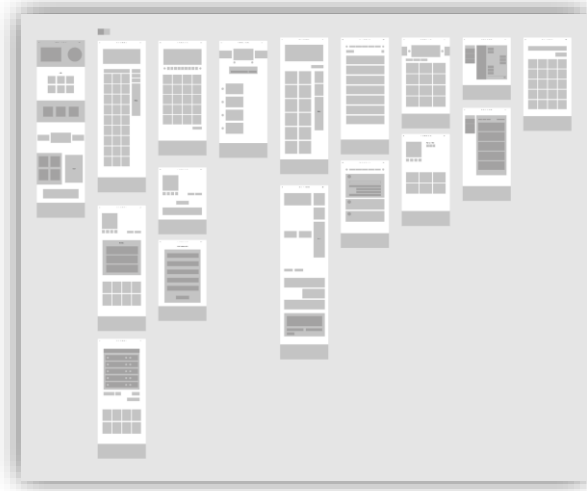


FIGURE 3. Information Architecture Eidos

On the other hand, an attractive appearance is also an important consideration when developing a website. The appearance or mockup design process starts from creating a wireframe to high fidelity design. This can visualize the layout of each website component when developing. It can be said that a mockup is a visual guide that becomes a benchmark in the next stage, namely development.



**FIGURE 4.** Mockup Eidos

### Development

This process is an implementation of the previous mockup design creation process. This process uses the Google Maps API (specifically for the Nearme feature), RajaOngkir API, Payment Gateway API, Chatbot API, Hosting, and Domain. That way, the Eidos website can be integrated directly in real time . In developing the Eidos website , several programming languages were used, including HTML, CSS, and Javascript, with the aim of building a user interface structure that is responsive and user friendly.

Then, the use of WordPress as a content management platform (CMS) was implemented to make website development easier because there are several plugins and features provided to maximize website functionality , such as user management and content management. The use of HTML, CSS and Javascript integrated with WordPress for content management can also be very helpful in developing websites quickly and efficiently. Apart from that, in terms of payment methods on the Eidos website , there is an API payment gateway via Midtrans which has been successfully integrated so that users can make payments using a variety of payment method options.

### Testing

After development is complete, we carry out testing. Ensure that the development carried out is in accordance with previously considered specifications, both in terms of user needs and appearance and functionality. In this case, apart from carrying out internal testing, usability testing was carried out using the Eidos website, using guerilla testing. By using guerilla testing, users can provide in-depth and comprehensive insights regarding their experience using this platform.

This test was carried out directly on 5 users who were animal lovers, with an age range of 18-34 years. According to Nielsen (2000), using just 5 users is considered sufficient to identify most of the design problems that may arise and if done with more than 5 users, it is considered less efficient because it is likely that the information obtained will be similar. From the test results, the results in Table 3 are obtained.

**TABLE 3.** Product Testing Results

No	Results	Total	Percentage
1	Overall, the design is attractive.	4/5	80%
2	Simple usage flow.	3/5	60%
3	Ease of access to existing features.	3/5	60%
4	It is necessary to add certain information.	2/5	40%
5	Need to add certain notifications.	2/5	40%

### Maintenance

Even though the website has been launched, the team still needs to carry out maintenance, such as monitoring website performance, fixing errors, and making improvements from feedback provided by users to improve the quality of the platform for the better. This maintenance stage is carried out periodically in order to minimize errors that occur repeatedly and/or errors that were not visible in the previous stages. That way, the user experience felt by users will be much better and can increase user satisfaction.

### Socialization

After the entire development process was completed, outreach was carried out to animal lovers by participating in exhibition activities at the KMI Expo XIII event. This socialization succeeded in reaching more than 500 visitors and as many as 50 people registered accounts on the Eidos website. Apart from product outreach, Eidos also introduced an Instagram social media account which actively uploads various types of content about animals every week. This was done so that the existence of Eidos could be known and realized by the public, especially internet users, as well as as an initial effort to reach potential Eidos users.

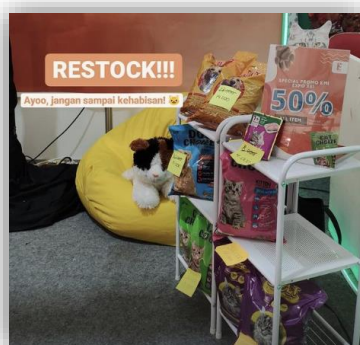


**FIGURE 5.** Introduction to Eidos Social Media



**FIGURE 6.** Product Socialization to Users

Furthermore, a donation campaign was carried out to support animal shelters which helped pay for food for abandoned pets. This donation campaign was held specifically for one of the animal shelters in the Bogor area. Apart from that, the sale of animal needs has also succeeded in selling 37 products to animal lovers. In general, visitors provide positive support for Eidos products and are interested in the features on the Eidos website.



**FIGURE 7.** Sales of Pet Food



**FIGURE 8.** Open Donation Campaign

## CONCLUSION

Various problems regarding wild animals occur in several big cities in Indonesia. Apart from that, the large number of abandoned animals is one of the reasons why animal adoption is starting to be popular with many people. The love for pets is also the reason why animal adoption is currently much needed because apart from filling free time, animal adoption can also reduce feelings of boredom and boredom. Eidos is an online platform that was created according to existing problems and has been strengthened by the results of research conducted to help animals and animal owners at the same time. The features created on the Eidos website have been developed and have gone through a testing process for users to get direct feedback, including socializing their use to Eidos' direct target, namely animal lovers. Some of the features include animal needs, discussions, articles, nearme, adoption and donations.

Through the waterfall development method which is carried out in stages, this Eidos website product is able to ensure the quality and comfort of users, which is proven by the results of positive feedback from direct outreach activities to animal lovers that they really have all the needs stated in this platform and the advantages. This platform has succeeded in answering problems for both pets and animal lovers themselves.

## ACKNOWLEDGMENTS

We would like to thank the Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi (Kemendikbud-Ristek), the Indonesia Digital Tribe (IDT), and the Universitas Pendidikan Indonesia as funders, as well as the mentors and lecturers in the Digital Business study program at the Universitas Pendidikan Indonesia Tasikmalaya Campus because they have provided a lot of support, both in the form of direction and finance, for the development of this website-based Eidos product.

## REFERENCES

- Ayoyogya.com. 2021. *Angka Kepemilikan Kucing di Indonesia Naik Signifikan*. URL: <https://yogya.ayoinonesia.com/explore/pr-39469989/Angka-Kepemilikan-Kucing-di-Indonesia-Naik-Signifikan?page=all>.
- Chendra, A, Simanjuntak, K, G, Widjaja, A, E, & Suryasari, S. (2019). Pengembangan Sistem Informasi untuk Memfasilitasi Proses Adopsi Anjing Berbasis Web. *Jurnal Ilmiah Matrik*. 21(1):1–10.
- Daqiqil, I. (2011). Framework Codeigniter (Panduan dan Best Practice). *Pekanbaru*.
- Darmanto, M. D., & Sukardi, R. (2015). Fasilitas Perdagangan dan Perawatan Hewan Peliharaan di Surabaya. *eDimensi Arsitektur Petra*, 3(2), 169-716.
- Lokadata.id. 2021. *Hampir Separuh Orang Indonesia Piara Kucing, Asia Pilih Anjing*. URL: <https://lokadata.id/artikel/hampir-separuh-orang-indonesia-piara-kucing-asia-pilih-anjing>.
- Nielsen, J. (2000). *Why You Only Need to Test with 5 Users*. URL: <https://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>.
- Ramadhan, F. Z., Aditya, G., Nainggolan, P. D. Y., & Adhinata, F. D. (2021). Sistem Pakar Diagnosa Penyakit pada Hewan Kucing Berbasis Web. *Jurnal Komtika (Komputasi dan Informatika)*, 5(2), 122-131.
- Wahyuningsih, A. S., & Jauhari, A. (2020). Penerapan Metode Deep First Search (DFS) Pada Sistem Pakar Penyakit Kucing Menggunakan Framework Codeigniter. *Jurnal Informatika SIMANTIK*, 5(2), 13-17.