

Design Thinking Approach in Designing Animal Care Services Based on Applications

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Abstract

This study aims to design a digital-based pet care service application to improve accessibility and service efficiency for pet owners in the Greater Jakarta area (Jabodetabek). The design thinking approach was used as the primary framework, consisting of five stages: empathize, define, ideate, prototype, and test. This study's implementation reached the prototype stage, presenting an initial visualization of the platform based on user needs. The business model was developed using the Business Model Canvas (BMC), covering nine key elements from key partners to revenue streams. Data were collected through questionnaires distributed to 45 pet owners in Jabodetabek using a purposive sampling technique and analyzed using qualitative and quantitative methods. The results indicate that most respondents face obstacles in accessing pet care services. Consequently, they expressed the need for several key features within the application to better facilitate their needs. The digital pet care business model was designed to address these demands by integrating various services into a single digital platform. Through the design thinking approach, the proposed solution is expected to enhance user experience and expand the reach of pet care services in Indonesia.

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INTRODUCTION

Pets are animals whose lives are partially or completely dependent on humans for certain purposes (Presidential Regulation of the Republic of Indonesia Number 48 of 2013). Animals can act as figures that can provide a sense of security in certain situations, and can be a source of reducing emotional stress. In addition, pets can act as a source of support, comfort, and calm when needed. The presence of pets has been proven to help reduce stress (Juliadila and Hastuti 2018). The development of the pet care industry in Indonesia shows a positive trend. The pet care market in Indonesia is expected to grow from USD 928.2 million in 2023 to USD 1,287.1 million in 2029 with a compound annual growth rate (CAGR) of 5.6% (store.strategyh.com, 2024).

Based on the results of a 2023 survey, there were 2,441 Indonesians who had at least one type of pet at home with a percentage of 80.7%. According to type, cats are the most common type of pet owned by the population in Indonesia with a percentage of 56.5% (Lubis 2024). Indonesian people's spending on pet needs is quite significant. Based on a Rakuten survey involving 7,015 respondents, 42% of respondents in Indonesia allocated more than 100 thousand rupiah per month for their pet needs. Meanwhile, 38% spent between 100 and 300 thousand rupiah, and 14% spent 300 to 500 thousand rupiah per month. The majority of this spending was used to buy pet food and snacks (88%), followed by buying cages (43%) and care and cleaning products (41%) (goodstats.id).

One of the main responsibilities of a pet owner is to maintain the health of their pet by performing routine care. However, based on the results of Royal Canin Indonesia's research in 2022, it was recorded that only 29.5% of pets had ever been examined by a veterinarian (Anonymous 2023). This shows that although the pet care industry continues to grow, there is still a gap in access to pet care services. Thus, as many as 70.5% of pet owners have not routinely taken their pets to the veterinary clinic, either due to limited information, costs, or accessibility of pet care services that do not meet expectations.

The development of digital platforms in Indonesia has changed several industries in terms of business processes. Similar applications, such as Halodoc, a health telecommunications application that has successfully connected the public with health service providers (Permana et al. 2024) and Gojek as an online transportation application, have been able to effectively combine service providers with customers (Fakhriyah 2020). By using a similar concept, a digital platform for animal care services is an innovative solution that can connect pet owners with service providers in a more efficient way. This gap can provide an opportunity to develop digital-based applications for animal care services that can improve accessibility, convenience, and efficiency of services for pet owners in Indonesia.

Based on the previous explanation, application-based pet care services are digital solutions that allow pet owners to access various care services more easily and quickly. Through one platform, they can consult with veterinarians, order grooming services, get food or medicine delivery, and even find pet care while traveling. With this technology, pet owners no longer need to bother looking for services one by one, because everything can be accessed in the palm of their hand. In addition, features such as digital medical records and vaccination schedule reminders can also help ensure that pets' health is maintained properly

Although the animal care industry in Indonesia is developing quite well, there is no digital platform-based business model that optimally addresses the limitations of service access. This study uses a design thinking approach to develop a prototype of a digital animal care platform that can improve efficiency and accessibility.

METHOD

The study was conducted in the areas of Jakarta, Bogor, Depok, South Tangerang, and Bekasi. The research data were collected in March 2025. The respondents in the following study were 45 pet owners who lived in Jakarta, Bogor, Depok, Tangerang, and Bekasi. The sampling method used was nonprobability sampling with a purposive sampling approach. This technique was chosen because researchers needed samples that met previously determined criteria. Determining the number of respondents is based on the concept of theoretical saturation, where the number of respondents is determined when the data collection process is considered to have reached saturation. Theoretical saturation in qualitative data analysis is a condition where sampling and data analysis continue until no new data appears (Morse et al., 2004).

This study uses primary and secondary data types. Primary data was obtained through questionnaires to respondents while secondary data was obtained through various sources such as industry reports, academic journals, and other related references. The approach used in this study is the design thinking approach and Business Model Canvas (BMC). Design thinking is a customer-based approach that aims to generate and develop creative business ideas or overall business models (Roterberg, 2018) and is used as a research framework. Meanwhile, Business Model Canvas (BMC) is used to design the right business model for the animal care service application being developed. The data collected in this study were analyzed using qualitative and quantitative analysis methods.

Data analysis techniques used in this study include categorization and data reduction for qualitative analysis. According to Kountur (2009), categorization techniques are the process of rearranging notes from observations or interviews into a more systematic form. Meanwhile, data reduction techniques are used to summarize, select the main points, focus on important information, and identify emerging themes and patterns (Sugiyono, 2009).

Quantitative data were then analyzed by calculating the average of each statement in the

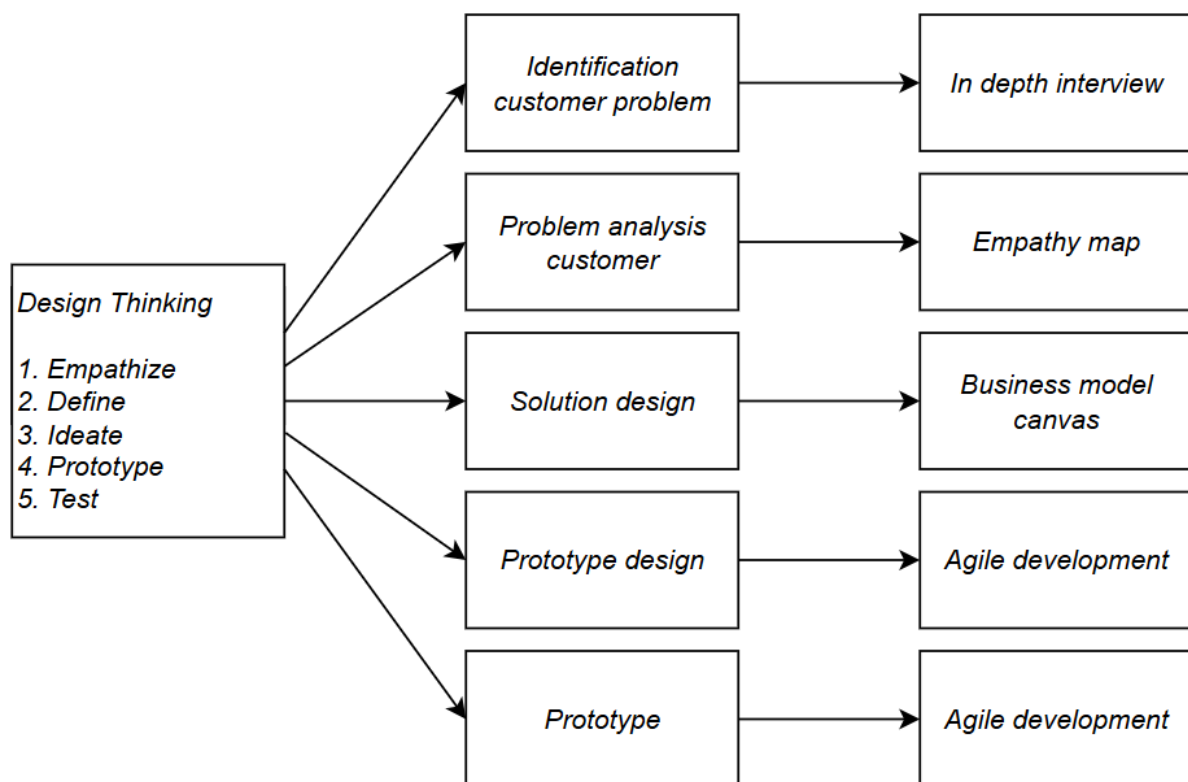


Figure 1 Research Design

questionnaire that had been filled out by the respondents. The types of data, data collection methods, and data sources used in this study are summarized in Table 1. This study uses the design thinking method, which includes five main stages described in Figure 1. The design thinking approach allows research to produce innovative solutions that focus on user experience and needs in improving the accessibility of animal care services in Indonesia.

Table 1. Data types and sources

Data Type	Method of collecting data	Data source
Primary Data		
Respondent Characteristics and Development <i>Prototype</i>	Questionnaire	Respondents
Problems faced by respondents	Questionnaire	Respondents
Secondary Data		
<i>Business Model Canvas</i>	Literature review	Journals and Theses

RESULTS AND DISCUSSION

Empatize

Empathize is the initial stage in the design thinking approach. In **this** stage, researchers need to understand user needs and challenges related to the application through in-depth research. This research can be done by **distributing** questionnaires to pet owners domiciled in Jabodetabek or literature studies in order to understand user needs. Further observations can be done by conducting direct interviews with pet owners, veterinarians, and pet care service owners.

Empathy Map

Feeling

As pet owners, customers often feel anxious when their pets are sick or showing signs of being unwell, but find it difficult to get fast and reliable medical services. They also experience disappointment when grooming or pet hotel services do not meet expectations, causing stress to their pets. In addition, they face difficulties in arranging time to take their pets to the clinic, grooming, or daycare due to their busy daily lives.

Hear

Whenever I talk to fellow pet owners, there are often questions that reflect their concerns and hopes. "Is this service trustworthy?" They want to be sure that they are leaving their beloved pets in good hands. There is also another worry that haunts them, "Will my pet be safe during the treatment?" They know how stressful it can be for animals in a new environment, and they only want the best for their pets. So, they are looking not only for pet care services, but also for trust, transparency, and assurance that their pets are well cared for.

See

When observing the current pet care environment, customers see several problems such as many pet pick-up and drop-off services that do not have clear operational standards and are not equipped with

a real-time tracking system. There are several clinics or grooming centers that provide manual updates via WhatsApp, and this is considered inefficient and often causes delays in information. There are also many pet care services that do not provide a flexible digital payment system, making it difficult for customers to make transactions.

Say & Do

Customers want to have more transparent and practical access to caring for their pets. They want to be able to see the status of grooming or animal consultation directly through the application without having to wait for manual updates. Customers **would** benefit from a reliable, safe, and stress-free pet-pickup service. By using a more modern and integrated system, customers are assured of a comfortable and efficient pet care experience.

Pain

There are several major obstacles faced by customers in pet care services today, namely the lack of transparency in the progress of grooming or treatment at the clinic, so that owners often have to wait for manual updates. Not all pick-up and drop-off services have a real-time tracking system, so owners do not know the location of their animals when they are picked up or dropped off.

Gains

To overcome these obstacles, customers want a solution in the form of a pick-up service with real-time GPS tracking, so that owners can see the location of their animals at any time. An automatic update system for grooming or treatment progress in the application, so they don't have to wait for manual updates from the clinic. In addition, automatic notifications to remind treatment and payment schedules, so that customers don't miss important times for their pet's health.

Define

The Define stage in this study aims to formulate the main findings from the previous mapping stage into four main maps. Based on the Empathy Map that has been created, the majority of respondents who are animal owners or lovers want to obtain more easily accessible animal care services through the application. However, they face several obstacles, such as limited information about the nearest animal care services, varying treatment costs without transparency, and limited time in taking pets to clinics or care facilities. With these limitations, they hope for a business model solution that can facilitate access to animal care services more practically and efficiently.

Ideate

This stage is the stage of developing ideas as a solution to problems experienced by consumers. Based on the problems that have been mapped in the Empathy Map in the previous stage, this study offers a solution in the form of an intermediary platform between pet owners and pet care service owners called SmartPaws. The business model is explained through the Business Model Canvas.

Key Partner

In developing this application-based pet care service, collaboration with various parties is very important to ensure comprehensive and quality services. Independent pet care clinics are the main partners in providing health services for pets. In addition, pet grooming and boarding service providers play a role in providing additional care needed by pet owners. Pet shops and pet food distributors are also involved to ensure the availability of food and medicine products for animals. Partnerships with digital payment platforms facilitate user transactions, while logistics partners support pet food, medicine, and pick-up and drop-off services.

Table 2. Respondent Profile

Category	Description	Total	Percentage
Gender	Man	21	46.7%
	Woman	24	53.3%
Domicile	Jakarta	13	28.9%
	Bogor	10	22.2%
	Depok	11	24.4%
	Tangerang	3	6.7%
	Bekasi	8	17.8%
Types of pets owned	Dog	3	6.7%
	Cat	41	91.1%
	Bird	3	6.7%
	Rabbit	0	0%
	Hamster	0	0%
	Turtle	1	2.2%
	Other	3	6.6%
Source of animal care information	Social media	22	48.9%
	Live survey	4	8.9%
	Animal lovers community	0	0%
	Friend/relative recommendation	18	40%
	Other	1	2.2%
Frequency of visits to animal care	More than 4 times a month	2	4.4%
	3-4 times a month	2	4.4%
	1-2 times a month	39	86.7%
	Never	2	4.4%
Average expenditure on animal care services	< Rp. 250,000	12	26.7%

per visit	Rp. 250,000 - Rp. 499,000	24	53.3%
	Rp. 499,000 - Rp. 749,000	7	15.6%
	Rp. 750,000 - Rp. 999,999	2	4.4%
	> Rp. 1,000,000	0	0%

Key Activities

The main activities in developing this service include developing and maintaining an application, which allows users to access the service digitally. Marketing and customer education are carried out to raise awareness of the importance of animal care. In addition, partnerships with service providers are established to ensure that the services provided are in accordance with user needs. Customer service management is a priority so that users feel comfortable and get the best service. User data collection and analysis are also carried out to improve customer experience through more appropriate service recommendations.

Key Resources

The main resources in this service include a team of application developers, who are responsible for designing, developing, and maintaining the digital platform. A database of veterinarians and service providers is an important asset so that users can access the service easily. A payment system and pick-up and drop-off service are built to ensure smooth transaction and delivery processes. In addition, data analytics are used to provide service recommendations that suit customer needs.

Value Proposition

This service offers various advantages to users, including easy access to various animal care services in one digital platform. The online booking feature allows users to access services such as veterinary consultations, grooming, boarding, and food and medicine delivery more practically. Digital medical records and vaccination reminders are also provided to help pet owners maintain their pets' health. In addition, service transparency is enhanced by ratings and reviews, which provide quality assurance for users.

Customer Relationships

Customer relationships are built through various methods, including chat support and call centers, which allow users to get help directly. Loyalty programs and discounts are given to loyal customers to increase their engagement with the platform. Service review and rating features are provided to ensure transparency and increase user trust. In addition, the application has service schedule reminder notifications, so that pet owners do not miss important care for their pets.

Channels

The service is provided through various digital channels, including mobile applications (Android/iOS) which are the main platform for users. In addition, the official website is used as a source of information and access to additional services. Social media and digital marketing are utilized to increase awareness and reach more customers. Partnerships with pet shops and veterinary clinics are also carried out to expand the scope of services and provide a more integrated experience for users.

Customer Segment

The target customer segment of this service includes urban pet owners, who often face limitations in finding the right grooming services. In addition, pet owners who travel frequently and require boarding services are also the main target. Pet owners who require regular health and grooming services can take advantage of the consultation and service booking features. Lastly, clinics and veterinarians who want to expand their service reach are also part of the customer segment that will benefit from this application.

Cost Structure

In its operations, SmartPaws requires various costs to ensure the quality and sustainability of the system. One of the main cost components is the development and maintenance of the application, which includes feature updates and improvements to the security and performance of the platform. In addition, investment in marketing and promotion is needed to increase brand awareness and reach more customers. Commissions and incentives for service partners such as veterinarians, grooming providers, and pet shops are also part of the cost structure to ensure quality partner engagement. Equally important, operational and customer service costs are allocated to maintain user convenience and provide responsive support to their needs.

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Revenue Streams

The service's revenue comes from several main sources. Commissions from each service transaction booked through the app are one of the main revenue streams. In addition, there is a premium

subscription model that provides additional features for users who want exclusive services. Advertisements and sponsorships from pet shops and pet food brands are also additional sources of revenue, given that the platform has an audience that matches their target market. Finally, priority service fees such as veterinary consultations and grooming services contribute to creating additional monetization options, especially for customers who require faster and more exclusive services.

Prototype

The next stage is prototyping, which is the stage for visualizing the previously designed business model. The prototyping approach focuses on presenting the initial appearance of the system to the user, including the input format. After that, the software output will be evaluated for further improvement. Meanwhile, agile development methodology is used in the software development process. Agile development methodology offers high flexibility, allowing rapid adaptation to changing needs, improving product quality, and customer satisfaction through effective iteration and collaboration. With this approach, the prototype can be continuously refined until it reaches the final form that suits user needs.

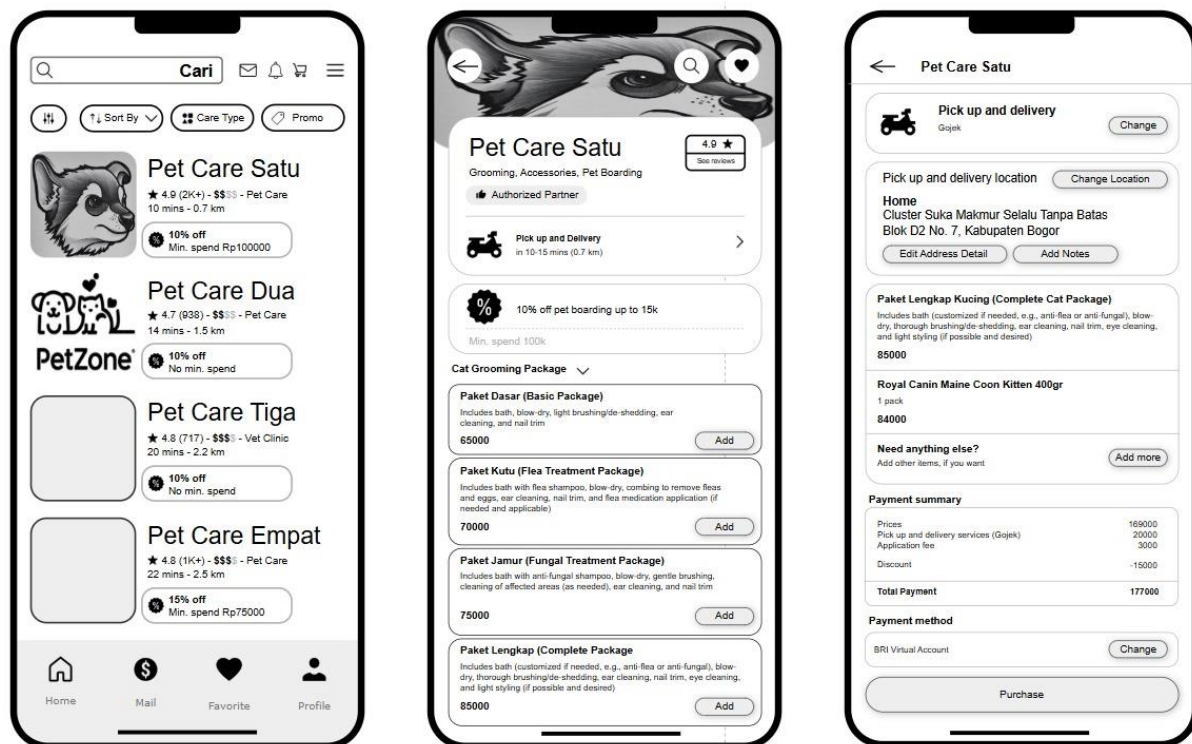


Figure 2 Prototype

Key Partner	Key Activities	Value Proposition	Customer Relationship	Customer Segment
- Vet clinics - Grooming services - Pet shop - Logistics partners - Payment platforms	- App development - Marketing & Education - Customer management - Data analysis	- One-stop pet services - Online booking - Digital records - Trusted & convenient	- Chat & call - Loyalty program - Reviews & ratings - Service reminders	- Urban pet owners - Traveling owners - Health-conscious owners - Vets & clinics
	Key Resources - App Developer Team - Vet database - Payment system - Data Analytics		Channels - App Store - Play Store - Social media - Partner networks	
Cost Structure - Application maintenance - Marketing costs - Partner incentives - Operational costs		Revenue Stream - Service commissions - Premium subscriptions - Ads & sponsorships - Priority fees		

Figure 3 Business Model Canvas

Competitor Analysis of Pet Care Services Apps

As part of the define and ideate phase of the design thinking approach, a competitor analysis was conducted to compare the features of similar apps with the user needs identified in the survey. The two digital pet care apps analyzed were Pawlyclinic and Modernvet, both available on the App Store and used by users in Indonesia.

Pawlyclinic

Pawlyclinic is a digital-based animal health service application that focuses on teleconsultation with veterinarians. This application emphasizes telemedicine features, such as consultation via video call and chat, and has integration with partner clinics such as *Spring Vet*. In this application, users can make physical and online service reservations, view veterinarian profiles, and find out areas of expertise and consultation fees transparently (example: IDR 180,000 per session). Pawlyclinic's main advantages lie

in the professionalism of the service and the comprehensiveness of the clinical features. However, this application has not accommodated the pick-up and drop-off feature with GPS tracking or services at affordable prices, as expected by the majority of respondents to the prototype survey. In addition, the loyalty method and user experience management (*user experience*) has not been interactively optimized.

Modernvet

Modernvet is a pet care app that puts user experience first with a friendly visual interface and personalization features. The app allows users to add multi-pet profiles, schedule appointments, access medical records, view bills, and use mobile service features. Membership systems such as “*PET LOVER*” with loyalty points being an added value in retaining users. Although Modernvet excels in terms of interface and interaction, the app does not explicitly feature teleconsultation services, nor does it appear to reach out to extensive collaboration with partner veterinary clinics. Pet pick-up and drop-off features, real-time tracking systems, and service progress monitoring systems are also not specifically mentioned.

In overcoming the various obstacles faced by pet owners, the development of digital-based veterinary clinic applications can focus on ease of access, transparency of service, and payment flexibility. The main features that need to be prioritized are online veterinary consultations, either via chat or video call, as well as a service booking system that allows users to schedule treatment without having to come directly to the clinic. In addition, monitoring the progress of treatment in real time through the application can increase user confidence, especially in grooming and medical services. To ensure affordability, the application must offer a variety of price options and flexible payment methods, with e-wallet as the main option.

In terms of operations, collaboration with various veterinary clinics, professional groomers, and pet care providers can help expand the scope of services and provide more choices to users. Rating and review systems can play an important role in building trust and improving service quality. Inclusively, the application must have a simple and user-friendly appearance, so that it can be used by various groups, including those who are less familiar with technology. By implementing design thinking-based solutions, the SmartPaws application can be a solution for pet owners who want a more practical, reliable, and easily accessible pet care service at any time. Further research can be continued in more depth by utilizing artificial intelligence to provide more personalized service recommendations for pet owners.

This study has several limitations that can be considered in developing further studies. First, the coverage area of respondents is limited to the Jabodetabek area, so the results do not reflect all regions of Indonesia which have different conditions and access to animal care services. Second, the number of respondents is limited to only 45 people, so it does not reflect the diversity of user characteristics in general, including socio-economic background, type of pet, and digital preferences.

Third, although the design thinking approach has been implemented up to the prototype stage, the testing stage has not been carried out thoroughly. This causes the effectiveness of the prototype and the functionality of the proposed features to not be tested directly on users. In addition, the use of qualitative and quantitative methods has not been complemented by in-depth interviews with industry players or pet care service owners, which could provide additional perspectives on operational challenges. Further research is recommended to involve more respondents from various regions, including non-urban areas, and continue the design thinking stage to the testing stage. The use of more in-depth mixed methods is also expected to produce more comprehensive insights into the development of digital animal care services in Indonesia.

CONCLUSION

Conclusions should answer the objectives of the research. It also tells how your work advances the field from According to the survey results, the majority of pet owners in Jabodetabek, especially women, experience various obstacles in accessing animal care services. Cats are the most common type of pet, and the highest number of visits to clinics or grooming services is 1-2 visits per month. However, high costs, lack of service information, and remote locations are the main obstacles. Social media and friend recommendations are the main sources of information, but only a small portion have ever used online veterinary clinic services, although the majority of respondents stated that they needed a more accessible veterinary clinic application.

The most desired features in the application are online veterinary consultation, service booking, ordering medicine and food, and 24/7 emergency services. Most users are willing to pay for consultations at rates below IDR 50,000, with e-wallet as the most preferred payment method. These findings indicate that digital-based solutions can be the answer to various challenges faced by pet owners. Through a design thinking approach, solutions that can be developed include an online booking system, 24/7 vet consultations, and extensive partnerships with clinics to increase user trust. In addition, the application must have a simple and easy-to-use UI/UX in order to reach more pet owners. By understanding these needs, the development of a digital-based veterinary clinic application will not only provide convenience for users but also improve the quality of animal care services as a whole.

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