Implementation of the Home Care Platform as an Innovation in Health Services to the Community

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ABSTRACT:
Introduction: Technological developments in the 4.0 era have brought various conveniences to society, including in the health sector. Application-based services that utilize internet connections via devices such as smartphones are an innovative solution to meet society's increasingly complex needs. This study aims to develop a web and mobile-based home care clinic application prototype, which is designed to make it easier for patients to obtain health services at home. With this application, users can order services, carry out consultations, communicate with doctors or paramedics, and make payments online. The culture of Indonesian society, which is still influenced by "*priyayi*" attitude, is one of the factors driving the success of this application, because of its nature of providing comfort in service.
Objectives: The aim of this research is to improve various features and services for the community and give partners the freedom to use them according to their needs.
Methods: The home care application was developed using agile methods, which allows flexibility and adaptation according to user needs. Development procedures include problem identification, system design, implementation, testing, and application in the field. The testing method uses a standardized System Usability Scale (SUS) to test the UI/UX of the platform.

1. Introduction

The development of information technology makes it easier to order services via online systems. Various systems were developed to facilitate services such as transportation, food, services, products and health, home care. Home care is care at home, which has long been known and is very necessary now and during the pandemic.

This service includes several services for toddlers, children, adults, and also elderly patients(Abdullah, Arafat and Syahrul, 2020)(Permana *et al.*, 2023). Suitable for children who are traumatized in hospitals or health centers, patients who need treatment after undergoing hospitalization, blood pressure checks, diabetes checks, blood sugar checks, post-operative care, care for burns, diabetes wounds, and post-stroke or health centers for serve patients.

However, the access used so far is still based on home care and not an electronic system. Health today is very important because it is a basic human need, just like eating, it is explained that basic human needs involve fulfilling physical needs. One way to improve and maintain family health is home care(Fahrepi, Rate and Hadi, 2019).

Based on the existing reality, a system for implementing home care is really needed by the community because the intensive care process must be continued at home because it cannot be done in hospitals or clinics during the pandemic(Nugroho *et al.*, 2020)(Permana, Sindu and Pageh, 2021)(Keeling, 2014; Permana and Sindu, 2022). Indonesia has a large area so not all people can enjoy services such as clinics and hospitals. So, we need an alternative path in the medical world. This is the basis for the development of this application to continue to be carried out by improving the services needed by users to provide easy access to using this application.

Home care health services are implemented to provide health services to families, so that based on this, patient satisfaction is always prioritized by providing quality health services without violating ethics and quality standards. Professional services have home care competence and patients who receive care also provide an assessment of the services provided. provided by the home care team(Vaartio-Rajalin, Nyholm and Fagerström, 2020)(Supriyana and Prasetyawati, 2020). Communication occurs between service recipients and service providers and minimizes complications due to disease and meets the basic needs of patients and families.

With the home care platform, it is very easy for patients to access health services 24 hours a day. Based on this analysis, Emergency Room (ER)24 makes it very easy to serve and provide this home care service. The Puskesmas in Badung Regency, Bali-Indonesia Province, namely Puskesmas Petang 1, has been providing 24-hour ER services since 2013 until today.

Based on the existing conditions, the head of the community health center, namely Doctor Dwi, has communicated with Undiksha regarding the development of this platform and is ready to use it in the community health center environment to improve services in supporting the 24-hour emergency room service which has been running for quite a long time with a variety of experiences and patients who have handled. Through this downstream research, Undiksha research products will be tested at the Petang 1 Community Health Center during the research period and will continue to evaluate developments that occur.

2. Objectives

The main objective of this research is to implement a home care platform as an innovation to improve the quality of health services to the community at Puskesmas 1 Petang, Badung Regency. The Badung Regency Government is committed to providing excellent service to the community, especially in the health sector, through the use of modern technology that is able to reach a wider community efficiently.

With this platform, it is hoped that preventive, promotive, curative and rehabilitative health services can be provided more quickly, effectively and according to the needs of the community, including those living in remote areas.

Apart from that, this research aims to support Undiksha's role as a higher education institution that not only focuses on developing science, but also makes a real contribution in creating innovative products that are ready for use by the community.

Through the product downstream process, Undiksha is expected to become a strategic partner for local governments in producing technology-based solutions that are applicable and relevant to community needs. In this context, the Home Care platform developed is a concrete manifestation of Undiksha's contribution in supporting improving the quality of public services.

Through the implementation of this platform, it also aims to encourage the transformation of digital technology-based health services at the local level. It is hoped that this platform will become an innovation model that can be replicated in other areas, as well as being a sustainable solution in facing the challenges of conventional health services.

With full support from the Badung Regency government and synergy with various parties, this research not only aims to improve health services at the Petang 1 Community Health Center, but also to create a wider impact on the development of the health sector in the future.

3. Methods

The method for downstreaming this product has several stages, such as finding out the needs of partners by conducting interviews, focus group discussions, and asking for input from partners regarding the content of the platform installed at the Community Health Center and then analyzing the problems that can be solved by the product.

The next stage is to revise the product. Because this downstream product is ready, modifications need to be made to services such as payment and product display to suit the service location, then displaying the staff involved on the main page.

The third stage is testing the effectiveness and functionality of the product. By carrying out technical testing to ensure the product works according to specifications with the output being a software feasibility document. It is necessary to conduct field trials on small groups of users (teams and partners), and use quantitative and qualitative approaches to evaluate product performance.

The fourth stage is to ensure the product meets quality standards and user needs and leads to product refinement, validation by health experts from relevant doctors and paramedics so that the product meets the quality standards desired by partners.

The fifth stage is to downstream the product to the public through website introductionhttps://ganeshahomecare.com/as well as downloading the application on Playstore, preparing

product usage documents, so that the business model scheme and collaboration for product implementation can proceed according to plan.
The sixth stage is training and monitoring. In applying the product to the community, we need skilled field personnel who can run the application well, so we need training for admins so they can use the product according to operational standards. After carrying out several training sessions, monitoring is also required several times to ensure the product can complement health services at the location.
The seventh stage is dissemination and publication by disseminating research results and products to a wide audience. Publication is also carried out in the form of posting photos on social media, making pamphlets, video documentation, and publication in international journals. All methods per stage can be seen in Figure 1.

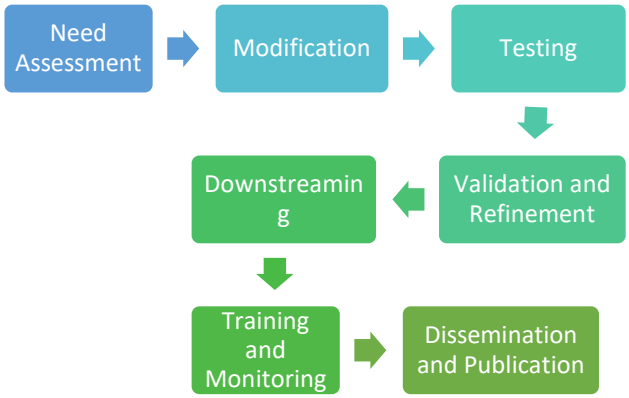

Figure 1. Research Method

Figure 2. Discussion and Focus Group Discussion

4. Results

In the process of downstreaming products to the public, based on the methods discussed previously, the results of this research are holding discussions and forums as in Figure 2.
Modifications to the platform are carried out in the template section, the front page adapts to the appearance of the health center as in Figure 3. A response to the service can be seen in Figure 4. Regarding the services provided, it appears as in Figure 5. The professional staff involved in this service can also be seen as in Figure 6.

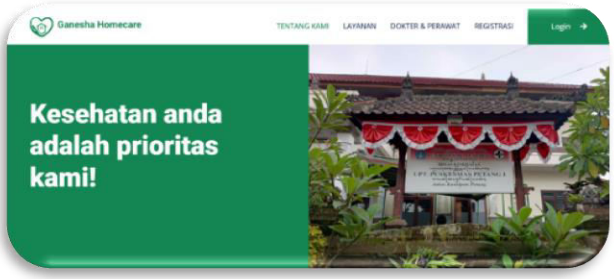

Figure 3. Website Front Page View

Figure 4. About Services

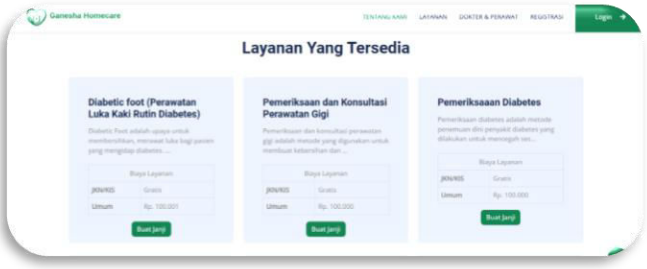

Figure 5. About Products

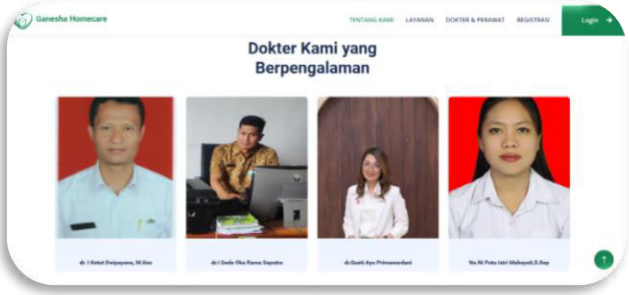

Figure 6. Professional Staff

The testing process was carried out in this research using a beta testing approach, namely asking for user input regarding the product being developed and changing the product according to user needs. After the product arrives at the location, a System Usability Scale (SUS) questionnaire is distributed to determine user perceptions regarding the implementation of the location platform, whether they can use it well or not. This questionnaire involved 20 respondents who were users of the application. The results of the questionnaire are as in Table 1.There is a rule for the 10 questions, namely for every question with an odd number, the respondent's answer is (respondent's answer score - 1). For every question with an even number, the respondent's answer is (5- Respondent's answer score). Then add up the scores per respondent (Total Respondent Scores x 2.5). After all respondents' scores are multiplied by 2.5, in calculating the final score add up all the SUS scores divided by the number of all respondents then check the scores that appear based on the SUS table(Jiwa Permana, 2019).

Table 1. Usability Testing Questionnaire Results

Resp. No	Respondent Questionnaire Score										SUS Calculation										SUS Total	SUS Score
	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10		
1	5	2	5	2	5	2	4	2	5	2	4	3	4	3	4	3	3	3	4	3	**34**	**85**
2	4	2	4	2	4	2	4	1	4	3	3	3	3	3	3	3	3	4	3	2	**30**	**75**
3	5	1	5	2	5	2	4	1	5	4	4	4	4	3	4	3	3	4	4	1	**34**	**85**
4	5	2	4	2	4	2	4	2	4	2	4	3	3	3	3	3	3	3	3	3	**31**	**78**
5	4	2	4	5	4	2	4	2	3	4	3	3	3	0	3	3	3	3	2	1	**24**	**60**
6	5	2	4	1	5	1	4	1	2	3	4	3	3	4	4	4	3	4	1	2	**32**	**80**
7	5	1	5	1	5	1	5	1	5	1	4	4	4	4	4	4	4	4	4	4	**40**	**100**
8	5	1	5	1	5	1	5	1	5	1	4	4	4	4	4	4	4	4	4	4	**40**	**100**
9	4	2	4	1	5	3	5	2	5	2	3	3	3	4	4	2	4	3	4	3	**33**	**83**
10	5	1	5	1	5	1	5	1	5	4	4	4	4	4	4	4	4	4	4	1	**37**	**93**
11	4	2	3	1	5	2	4	2	2	2	3	3	2	4	4	3	3	3	1	3	**29**	**73**
12	4	2	4	1	5	1	4	4	5	4	3	3	3	4	4	4	3	1	4	1	**30**	**75**
13	4	1	4	1	5	1	4	1	4	2	3	4	3	4	4	4	3	4	3	3	**35**	**88**
14	3	2	4	4	4	4	4	4	3	4	2	3	3	1	3	1	3	1	2	1	**20**	**50**
15	3	1	5	4	5	1	2	4	2	3	2	4	4	1	4	4	1	1	1	2	**24**	**60**
16	4	1	5	2	5	1	5	2	4	1	3	4	4	3	4	4	4	3	3	4	**36**	**90**
17	4	2	3	2	4	2	5	2	4	2	3	3	2	3	3	3	4	3	3	3	**30**	**75**
18	5	1	4	1	5	3	4	2	3	1	4	4	3	4	4	2	3	3	2	4	**33**	**83**
19	4	2	1	4	2	1	5	2	4	1	3	3	0	1	1	4	4	3	3	4	**26**	**65**
20	5	1	2	2	5	1	4	1	4	2	4	4	1	3	4	4	3	4	3	3	**33**	**83**
Average Score (Final Result)																						**79**
The analysis results of SUS Table (Table 2)																						**GOOD**

The downstream process is to take a participatory approach by coming directly to the location and discussing with the leadership and staff at the community health center regarding the products they want. This process continues with the validation and refinement of products and services on the platform that will be launched. The team's process to the field can be seen as in Figure 7-8.After downstreaming the product, it is continued with training for admin staff who will manage the application as in Figure 9-10.

Table 2. SUS Score

SUS Score	Grade	Adjective Rating
>80.3	A	Excellent
68-80.3	B	Good
68	C	Oke
51-68	D	Poor
< 51	F	Awful

Figure 7. Product Downstream

Figure 8. Photo with the Home Care Team at the Petang Community Health Center

Figure 9. Home Care Training

Figure 10. Home Care Platform Settings

Until this journal is written, the training process is still continuing and regular monitoring will be carried out once a month according to partner requests so that it can help partners use the system well so that services can run well. Publications on social media have been carried out both at the personal and study program levels.
Then the publication is also carried out in the form of a journal article to inform readers regarding the research we have carried out and the development of this research in the future.

5. Discussion

Health is the main thing in human life. Everyone wants to be healthy, if they are sick they can be treated easily, get service easily, get excellent service, get free service. All of this can happen in accordance with government policies and support from universities.
This product is dedicated to helping health services in villages for patients in need such as children, the elderly, post-operative, wound care which is most often needed by patients.
The advantage of this platform is that it is free, not paid because it is supported by Undiksha through downstream research products. Future developments certainly won't stop here, because we will work together with private parties such as clinics to expand access to home care services to all levels of society so as to provide benefits for human survival.

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