Accelerating Digital Transformation in the Healthcare Sector Through Health Worker Empowerment

(Percepatan Transformasi Digital di Sektor Kesehatan Melalui Pemberdayaan Tenaga Kesehatan)

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Abstract: *The advancement of digital technology drives transformation across sectors, including healthcare. However, implementation at the primary care level still faces challenges, as seen at Nusukan Health Center in Surakarta City. This community service activity aims to evaluate the success of digital health transformation through health worker empowerment, particularly in utilizing the Healthy Family Application under the PIS-PK program. Methods used include field observations, interviews, and technical training. Results show that despite prior training and data collection, barriers persist such as miscommunication among staff, task delegation, and delays in updating the Healthy Family Index (IKS). Organizational structure and workload also influence the effectiveness of application use. Empowering health workers through training and role-appropriate task distribution is key to supporting digital transformation.*

Keywords: *digital transformation; health workers; PIS-PK; healthy family application; healthy family index.*

Abstrak: *Kemajuan teknologi digital mendorong transformasi di berbagai sektor, termasuk kesehatan. Namun, implementasi digitalisasi masih menghadapi tantangan di tingkat layanan primer, seperti yang terjadi di Puskesmas Nusukan, Kota Surakarta. Kegiatan pengabdian masyarakat ini bertujuan untuk mengevaluasi keberhasilan percepatan digitalisasi sektor kesehatan melalui pemberdayaan tenaga kesehatan, khususnya dalam penggunaan Aplikasi Keluarga Sehat pada program PIS-PK. Metode yang digunakan adalah observasi lapangan, wawancara, dan pelatihan teknis. Hasil menunjukkan bahwa meskipun telah dilakukan pelatihan dan pengumpulan data, masih terjadi hambatan seperti miskomunikasi antar petugas, alih tugas penginputan data, dan keterlambatan pembaruan data IKS. Struktur organisasi dan beban kerja turut memengaruhi efektivitas implementasi aplikasi. Pemberdayaan tenaga kesehatan melalui pelatihan dan pembagian tugas yang sesuai profesi menjadi kunci dalam mendukung transformasi digital.*

Kata kunci: *transformasi digital; tenaga kesehatan; PIS-PK; aplikasi keluarga sehat; indeks keluarga sehat.*

Introduction

The rapid development of information technology (IT) has caused many changes in daily life, the impact of information technology has covered almost all aspects of life, especially in the world of health. The application of information technology in the world of health is very important. With the development of information technology in health, the image of the health sector, which used to be traditional-based, has become modern (Atika & Sayekti, 2023).

The application of digitalization will help health care and make work easier to optimize

the achievement of health and environment. Digitalization will improve health care and facilitate the achievement of a health environment (Astianingrum et al., 2025). Strategic planning can help clinics develop better strategies through a more systematic approach. Several things that need to be considered are that managing a health service organization requires technical skills and careful design. Digitalization is a process of switching analog information media to digital media (Dienillah & Dewi, 2018).

Policy is a translation of the word "policy" meaning kebijakan (Abdullah & Susanti, 2022). This policy cannot simply be drawn up, but is the result of an official decision that has been weighed and decided together. The policy for digitizing scientific work collections can be in the form of theses, dissertations, and research reports. Managing this collection will usually also give rise to various problems. Apart from requiring a large space due to its rapid increase, maintaining this collection also requires relatively large amounts of energy and costs (Nurhayati et al., 2021).

Digitalization is the process of transferring form from printed to digital form (Nurhayati et al., 2021). Therefore, digitalization is a solution to minimize problems in its management. "Digital" is a term that refers to the use of the system; digitalization is a process of change from analog form to digital form (Permana et al., 2024).

Digitization of services is implemented through the use of information technology facilities which do not necessarily require face-to-face meetings between applicants and counter officers at various regional apparatus organizations (OPD) (Rosyadi et al., 2021).

In transforming in the digital field, the health sector cannot be separated from and must continue to adapt to technological advances. The health industry needs to prepare itself to welcome the disruption era of industry 4.0 and society 5.0. Various challenges and problems, especially in terms of big data, artificial intelligence (AI), data security, regulations and human resources must not become obstacles in realizing a quality digital transformation system. Needs of Health Service Facilities for various parties or stakeholders related issues, it is hoped that this can be an effective solution to fix the various existing challenges so that in the end all Health Service Facilities can be ready to participate in providing complete health services in this era society 5.0 (Latifah & Ngalimun, 2023).

Digital transformation has played a role in revolutionizing various industries, especially in the health sector (Latifah & Ngalimun, 2023). Technology in the health sector allows an individual to live a healthier life, a longer life expectancy, and a more productive life.

Literature review shows that digitalization of scheduling and reporting activities has been implemented in various institutions to improve administrative efficiency and reduce problems arising from manual systems (Maida & Julianto, 2024). According to Dewi et al. (2022), manual recording and reporting takes a long time. On the other hand, by utilizing computers, reports can be documented more regularly, while the reporting process becomes more efficient and accurate.

The Surakarta city government continues to be in the process of modernizing its public services. Digitization of services is implemented through the use of information technology facilities, which do not necessarily require face-to-face meetings between applicants and counter officers at various regional apparatus organizations (OPD) (Rosyadi et al., 2021). The Surakarta City Health Service oversees 17 Community Health Centers spread across the City of Surakarta. Community Health Centers provide health services to patients. The use of digitalization in health care is optimal, and the direction of digitalization development has been implemented. The development of digitalization is still well planned, but there is no strategic plan for the development of digitalization (Shabrina et al., 2024).

The target value of the IKS of Surakarta City in 2022 is 0.475. Several targets for achieving the IKS value of the 12 KS indicators must be 100%, because since 2019, the SPM (Minimum Service Standards) in the health sector have been implemented. According to the Regulation of the Minister of Health of the Republic of Indonesia No. 39 of 2016 concerning

Guidelines for the Implementation of the Healthy Indonesia Program with a Family Approach (PIS-PK), the Healthy Indonesia Program upholds three (3) pillars in it, namely the Healthy Paradigm, strengthening Yankes (Health Services) and implementing National Health Insurance (JKN).

Table 1. Target Coverage and Achievement of Healthy Families for each Indicator in the Work Area of Health Centers throughout Surakarta City in 2022

N0	Community Health Center	Year 2022	
		Target	Coverage
1.	Pajang	0,52	0,474
2.	Penumping	0,69	0,681
3.	Purwosari	0,80	0,723
4.	Jayengan	0,52	0,555
5.	Kratonan	0,6	0,612
6.	Gajahan	0,54	0,544
7.	Sangkrah	0,52	0,468
8.	Purwodiningratan	0,81	0,625
9.	Ngoresan	0,52	0,535
10.	Pucangsawit	0,60	0,625
11.	Nusukan	0,53	0,475
12.	Manahan	0,61	0,687
13.	Gilingan	0,520	0,645
14.	Banyuanyar	0,53	0,55
15.	Setabelan	0,6	0,672
16.	Gambirsari	0,52	0,667

According to the data roadmap, target and achievement of the Healthy Family Index (IKS) from the Surakarta Health Office, in 2022, it was recorded that those who had not reached the Healthy Family Index (IKS) target were the Purwosari, Penumping, Purwodiningratan, Nusukan, Pajang, Sangkrah, and Ngoresan Health Centers. The results of the IKS calculation can determine the family health category by referring to the provisions of the Minister of Health Regulation Number 39 of 2016 concerning Guidelines for the Implementation of the Healthy Indonesia Program with a Family Approach (PIS-PK), as follows:

Table 2. Categorize the Index Value of Each Family According to the Minister of Health Regulation Number 39 of 2016

1.	Index Value > 0,800	: Healthy Family
2.	Index Value 0,500-0,800	: Pre-Healthy Family
3.	Index Value < 0,500	: Unhealthy Family

Source: Kemenkes 2016

Seen from the table of how to categorize the index value, then the Pajang, Nusukan, and Ngoresan Health Centers are included in the unhealthy family category, which is below 0.500. However, the lowest achievement data is at the Nusukan Health Center with an IKS value of 0.429. Nusukan Health Center started implementing the Healthy Indonesia program with a family approach (PIS-PK) in 2017.

Based on the data showing 12 indicators, it is explained that there is a percentage if in one indicator the percentage is less than 50% it is categorized as low or unhealthy so that in the data above there are 3 indicators that are categorized as unhealthy with a total IKS value of Nusukan Health Center of 0.475.

Some of the applications used by community health centers are SIMPUS, SISRUTE, SPGDT, P Care BPJS, E-Medical Records, and the Healthy Family Application. However, the density of using all these applications has not been balanced with the availability of IT-based human resources, which is still very lacking in Community Health Centers. It is not uncommon

for health workers to double as Community Health Center IT officers. In this way, the transformation of the health center based on technology received support not only from the City Health Service but also the city government to facilitate work facilities and infrastructure within the Puskesmas scope.

Nusukan Community Health Center is an accredited Community Health Center. Where the main objective of Puskesmas accreditation is to encourage improvements in quality and performance through continuous improvement of management systems, quality management systems and service and program delivery systems, as well as the implementation of risk management and to promote quality improvement operations through continuous improvement of the management system (Shabrina et al., 2024). In order for the implementation of the Community Health Center to be carried out optimally and the function of the Community Health Center to continue to be improved, the Nusukan Community Health Center must carry out management well, including at the planning stage. Plans are prepared based on existing problems from the achievements of last year's activities. With steps like this, it is hoped that the plans prepared can provide solutions and improve the performance of the Community Health Center. Through the development of activities, adequate budget support and the establishment of appropriate Minimum Service Standards (SPM) provisions in the health sector, it is hoped that performance results will be in line with development targets.

The aim of this community service is how to increase the knowledge of health workers about accelerating the digitalization of the health sector of the Surakarta City Health Service, especially at the Nusukan Community Health Center.

Methods

This activity will be carried out at the Nusukan Health Center, Surakarta City in February 2024. This community service activity method is carried out in the form of a socialization (lecture) then followed by questions and answers about online-based health information system material. The tools used in this activity are: 1 LCD/Proyekto), 3 microphone,1 sound system, and 1 camera. Meanwhile, the materials for this activity are banners and posters, leaflet, material power point presentation, pen, and questionnaire.

This Community Service has undergone ethical clearance from the Health Research Ethics Committee of Universitas Kusuma Husada Surakarta: 096/UKH.L.02/EC/IX/2022.

Results

This community service activity was carried out at the Nusukan Community Health Center, Banjarsari District, Surakarta City. This activity takes the form of providing outreach to Health Workers, namely outreach on the Acceleration of Digitalization of the Health Sector. This activity will be carried out starting February 2024 in coordination with Health Workers and to help carry out the process of community service activities. The series of processes in community service can be seen in the table below

Table 3. Actifity Result

No	Day/Date/Time	Activity	Results
1	Tuesday, February 26, 2024	Submission of permission letter to carry out community service to Ka. TU Nusukan Health Center	The Head of Administration welcomed and gave permission to carry out community service activities and the permission letter was received.
2	Tuesday, February 27 2024	Coordination of preparations devotion to public	Procedures for Implementing Socialization

No	Day/Date/Time	Activity	Results
3	Wednesday, February 28, 2024	Do devotion to society in the form of outreach to the public regarding: Accelerating Digitalization of the Health Sector	There is increased knowledge about the Acceleration of Digitalization of the Health Sector
4	Tuesday, 05 May 2024	Evaluate community service activities	Community service activities were carried out well

The Nusukan Community Health Center is one of the technical implementation units of the Surakarta City Health Service which is the spearhead of basic health services for the community in its working area in realizing national development goals. To support the successful implementation of community health centers, it needs to be managed through achieving optimal community health center management. There are 2 health efforts implemented by the Nusukan Community Health Center, namely mandatory health efforts (health promotion, environmental health, maternal and child health and family planning, improving community nutrition, prevention and eradication of infectious diseases and their treatment) and development health efforts (UKS, UKK, Usila, Batra and Community Health Centers).

Discussion

Based on monthly patient visit data, both old patients, new patients, general patients and health insurance patients from SIMPUS (Puskesmas Management Information System), in March 2023 the number of patients will be 4,269 patients. However, in April there was a decrease to 3,319 patients, but in May there was an increase to 4,591 patients. The number of patients visiting in June was 3,728 people, in July there were 4,181 people, and in August there were 4,430 people (Profil Puskesmas Nusukan, Kota Surakarta, 2024).

Nusukan Community Health Center is included in the 9 best national-level community health centers in Central Java because it has the best Healthy Family Index. The Healthy Family Index (IKS) is an index that shows family health status through 12 indicators (Profil Puskesmas Nusukan, Kota Surakarta, 2024). This is a form of implementing digitalization at the Nusukan Community Health Center. The results of family data collection that have been entered into the Healthy Family Application are available on the data collection status dashboard, which displays the number of families that have been recorded and the Healthy Family Index (IKS). Detailed data from the national to the village and sub-district. Data collection results can also be downloaded so they can be processed and analyzed further. The IKS value is based on assessment: healthy, unhealthy.

In the implementation of this community service, it was found that the implementation of digitalization, especially for the PIS-PK application, was not optimal due to the lack of trained personnel and high workload, as well as the lack of community participation in filling out the PIS-PK (Nurhayati et al., 2021; Rosyadi et al., 2021).

The family-based approach is an extension of home visits conducted by the Health Center and as an effort to expand health services for community members based on database updates. The expected outputs include the level of family health monitored through the Healthy Family Index (IKS), namely data starting from each head of family, RW, sub-district, to city. The results will show that the IKS is classified as unhealthy, pre-healthy, or healthy. The large amount of IKS data certainly requires a processing or management process that is not easy, and big data is needed to help organizations improve services and make faster and smarter decisions (Aldholay et al., 2018; Gavinov & Soemantri, 2016).

The importance of data accuracy related to this IKS shows the need for an effective system to support the Healthy Indonesia Program, considering the many benefits that will be felt by family members to be able to maintain healthy family status. In addition to showing a

picture of a healthy family, the IKS value can also show the value of each indicator contained in the 12 indicators. Interventions can be based on the IKS value per indicator or based on the regional IKS. Interventions based on the IKS value per indicator are based on and adjusted to the standards of each program according to the indicator. IKS data as big data requires professional management, so qualified human resources (HR) are needed for effective work results (Aldholay et al., 2018).

Such conditions are more due to the fact that this IKS data is part of the basis for government decision-making to increase the Healthy Family Index, especially for families that are categorized as unhealthy through policies that are in accordance with existing data (Abdullah & Susanti, 2022; Rosyadi et al., 2021).

After the implementation of community service, it is hoped that the Nusukan Health Center can increase its IKS achievement. In 2022, the IKS value of the Nusukan Health Center was 0.475 and is targeted to increase in 2024.

Conclusion

This community service activity reveals that the acceleration of digitalization in the health sector at Nusukan Health Center has not yet been optimal, despite various efforts such as training and outreach. The main challenges faced include a lack of trained health personnel in operating digital applications, high workloads, and limited community participation in filling out PIS-PK data. Additionally, the management of IKS data, which is considered a form of big data, requires competent human resources to ensure effective and accurate data-driven decision-making. The results of this activity indicate an increase in health workers' knowledge of digitalization; however, a sustainable strategy is still needed. This includes the development of a digitalization strategic plan, equal access to infrastructure, and broader training. It is expected that after this activity, Nusukan Health Center can improve its IKS score, especially transitioning from the unhealthy to healthy family category through a professionally managed and integrated digital system.

Aknowledgements

Conflict of Interest Statement

This community service activity has no conflict of interest.

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