



Applications in Providing Information and Increasing Blood Donor Volunteers in Indonesian Red Cross (PMI)

Ramdani Sampurna¹⁾; Hendra Efendi²⁾; and Sri Retnaning Sampurnaningsih³⁾

Pamulang University, Indonesia

E-mail: ^{a)}ramdanisampoerna@gmail.com

Abstract: Based on Government Regulation Number 7 of 2011, the Indonesian Red Cross (PMI) has carried out blood donation services in Indonesia. Blood Donor Information Technology (IT) owned by the PMI Blood Donor Unit (UDD) has not yet reached all parts of Indonesia, both for use as internal information and for public access due to several factors such as the low capacity of PMI personnel in several regions and not yet optimal and integrated system . at PMI with other stakeholders. Based on the SWOT analysis that has been prepared, this paper provides suggestions on how to use PMI's Blood Donor Service Management Information Technology System strategy to provide information and increase blood donor volunteers . Involvement of government and business at all levels through work The need for blood bags is the same and the common goal is the main strategy for realizing this goal, including how to get support from partners from the Red Cross movement from other countries, such as the American Red Cross and the Australian Red Cross. These strategies must be developed into a grand design roadmap for PMI's blood donor service management information system to achieve the target of 5.2 million blood bags per year, and of course this target will continue to increase every year according to the population. growth in Indonesia

Keywords: IT, PMI, blood donors

INTRODUCTION

IT, PMI, blood donors commercial purposes because it is a health service activity that utilizes human blood for humanitarian purposes. In accordance with Government Regulations which state that the organization of blood donation and its processing is carried out by the Blood Donor *Unit* (UDD) which is under a social organization with the main tasks and functions in the field of the Red Cross Movement or in this case PMI [1]. PMI is responsible for ensuring that blood donated from donors is safe. It should be noted that blood can also be a medium for transmitting diseases, such as HIV, Hepatitis B, Hepatitis C and Syphilis [2].

Since the past, PMI has continued to carry out blood donation campaigns as a trend in people's lifestyles. Referring to the standardization of the World Health Organization (WHO) where two percent of the population in a country will need blood and PMI has set a target of up to 5.2 million bags per year for national blood needs [2]. Requests for blood at any time from the public must be the concern of everyone, especially the government because it has an impact on the health and survival of citizens. Often blood stocks are not sufficient to meet demand, and this condition occurs in several PMI districts/cities in Indonesia, some of which



do not even have Blood Donor Units available in certain cities, and people have to look for other cities that are closest. According to the Director General of Health Services of the Ministry of Health Abdul Kadir, data taken from the Director General of Health in 2021, as many as 421 districts/cities in Indonesia already have a Blood Transfusion *Unit or Blood Transfusion Unit* (UTD).), but there are still around 93 districts/cities that do not yet have UTD [3]. This condition can certainly be fatal because the process is long, and it takes quite a long time to get the blood needed from one city to another. Even if you can go to the UTD in the nearest city, it is not certain that the patient will definitely get blood because of problems with blood stock. This situation can be minimized if there is a good information system available and well understood by the public. The ease of obtaining blood donor information will be very beneficial to avoid things that are detrimental to society.

However, in the implementation of blood donation services there are still some problems such as the unavailability of an information system that can provide complete and integrated information, so that it is useful and easily accessible to the public, for example, information related to donors. criteria, donor recipients, schedule, location, availability of blood stock, and most importantly the cost of services. The information provided to the public also often varies and the system is not yet centralized, not even all of it can be accessed. Simple initiatives have been developed by several PMIs in each city, such as providing information to the public about daily updates on the availability of blood types and the mechanism for blood donation services on several digital platforms on social media (Facebook, Instagram, WhatsApp and Twitter) and some have posted this information on the official website of the organization by several district/city PMIs such as PMI Bekasi, Semarang, Surakarta and others, some are even more advanced by developing web-based information systems such as PMI DKI Jakarta, PMI Surabaya City, and using an Android-based system such as implemented by PMI Semarang City.

Digital information systems have developed rapidly, and currently play an important role in the dissemination of various information, both official and rumours. The benefits of this digital information system can be obtained and easily accessed by people who need it, especially since the era of social media platforms such as Facebook, Instagram and Twitter. The advancement of digital information is certainly a challenge not only for PMI but for all users of blood donation services because if this information is not managed wisely it will provide incorrect information and can endanger all parties.

PMI has developed a SIM for Blood Donation service called SIMDONDAR or Blood Donor Management Information System in every UDD. Through this system, data, documentation and records can be shared and obtained for blood needs and services and has been integrated with the database at PMI Headquarters because it works online (real-time) [4]. However, SIMDONDAR is also not perfect, there are still some deficiencies in overcoming problems that arise, such as being partial and internal for PMI. However, from this initiated system, PMI then developed a website-based information system, namely **Ayodonor** which can be accessed by the public but has not yet functioned optimally.

Several studies related to blood donor service information systems have been conducted at PMI UDD in several cities such as Bandung [5], Pekanbaru [6], Samarinda [7], and Mojokerto [8] with the aim of improving PMI blood donation services. The studies above have also been collected and reviewed by the author for literature study. Based on Government Regulation Number 7 of 2011 concerning Blood Services, the Government is responsible for the implementation of blood services that are safe, useful, easy to reach, and in accordance with the needs of the community [1]. The successful management of blood services is highly dependent on the availability of blood donors, facilities, infrastructure, personnel, funds, and methods. Therefore, management must be carried out in a standardized, integrated and sustainable manner and carried out in a coordinated manner between the Government, regional governments, as well as the active role of the private sector and the community. To achieve all of the above, of course, we need an information system that can provide complete information, is easily accessible and can educate the public about the importance of blood donation.

By 2025, PMI is expected to have a roadmap for a blood donor service information system that is centralized, integrated, and capable of providing comprehensive information that is easily understood by the public. The detailed roadmap can be seen in the results and discussion section.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

An information system is a system that has the ability to collect information from various sources and use various media to display that information (McLeod, 2001). However, in general what is meant by an Information System is a system that utilizes technology and human activities that interact with each other to support the performance of management and operational activities in this case humans, data, information, technology, and algorithms [9]. Every company manages information systems from various data to save resources and time needed. In addition to shortening the process, this data source can also be used anytime and anywhere.

PMI Blood Donor Service

Based on Indonesian Law no. 1 of 2018, one of PMI's duties is to provide blood donor services by utilizing blood for humanitarian purposes and not for business purposes. Referring to the Health Law and PP 7 of 2011 which states that blood donation activities are part of blood services. This blood donation activity is a blood transfusion service which includes planning, mobilizing and maintaining blood donors, procuring blood, distributing blood, and giving blood to patients for the purpose of healing disease and restoring health.

The Blood Donor Unit (UDD) is PMI's main facility that organizes **blood donors** including providing blood, processing and distributing it to those in need. UDD PMI operates 1 (one) UDD Main Center in Jakarta and 216 UDD in 215 Regencies/Cities throughout Indonesia which continues to campaign for blood donation as part of a lifestyle because the national blood need per year is 5.2 million according to World Health Organization standards (WHO) or 2% of the total population of Indonesia [11]. To make it easier for the community to provide blood donation services, the next effort is to provide blood donor outlets in several public facilities and community centers in cities, such as malls and traditional markets served by PMI DKI Jakarta, PMI Bekasi City, PMI Surabaya City and PMI Makassar City. Blood donor outlets were also held at several campuses in Jakarta and Makassar.

PMI UDD in Indonesia has also started operating 100 mobile blood donor units since July 2011 in collaboration with partners to support PMI blood donor services by providing blood donor fleets for PMI UDD operations in 33 provinces in Indonesia. Through this blood donor fleet, PMI in several areas can maintain regular blood stocks to meet blood needs for at least four days, according to the 4 x 4 motto, meaning that four million blood bags are available for 4 days nationally [12]. PMI also built a blood bag factory to reduce operational costs per unit of blood to make it cheaper [12]. According to data, around 92% of these needs are met only by the Indonesian Red Cross (PMI)[2].

This target is certainly a challenge for PMI, so an integrated and effective strategy is needed going forward. The role of a good information system is certainly important and needs to be the concern of all parties, including the government and the private sector, to support this noble goal. The community must understand that blood donation services certainly require large operational costs starting from the initial administrative process and equipment such as prospective donor forms, tools to check donor hemoglobin (Hb), needles, hoses, cotton buds and bags. to store blood [11]. The above costs do not include the components needed by the laboratory to check and ensure the safety of blood, storage of stock in special containers and special treatment such as stable temperature and required conditions [11]. Another cost is the process of ensuring the availability of appropriate and appropriate blood until the transfusion process is complete. In addition, for improper blood processing, an extermination process is required which also requires operational costs.

The details of the operational costs mentioned above are in lieu of blood donation surgery costs or service costs that must be borne by the patient or party who needs blood processing to be managed safely for the patient but the price for the blood itself is free.

TIS Blood Donation Services at PMI

To manage blood stocks that must be available at PMI's UDD, PMI conducted several campaigns through print and electronic media as well as working with several mass organizations that have the same concern about the importance of blood donors with the aim of finding blood donors. With the rapidly developing digital world, to achieve this goal MIS plays an important role in establishing communication and providing useful and appropriate information for UDD PMI regarding better and easier blood services.

PMI Headquarters currently has two Blood Donor Service Management Information Systems, namely the Blood Donor Information System (SIMDONDAR) which is specifically used and utilized by UDD internals throughout Indonesia and the web-based Information System, namely <http://ayodonor.pmi.or.id/> which accessible to the public. The Ayodonor website is a simple information system for the public that contains information regarding the amount of blood stock, area, search for blood availability, PMI blood donor activities, and other information regarding blood donation.

SIMDONDAR is a program that includes documentation, recording in a digital system related to information on blood service activities carried out by each UTD PMI which is integrated and centralized in the National database system where the data needed is timely and online [4]. The data in question can be shared by UTD PMI personnel only to maintain the security and interests of the blood service

UTD Center at PMI has formed a National TIS Team in 2016 with the aim of accelerating the use of the SIMDONDAR application in the Indonesian region and to facilitate system service, maintenance and troubleshooting of the program [4]. UTDP PMI acts as coordinator on the national TIM team, continuously reviewing and improving the SIMDONDAR software system. The renewal of the system will later be adjusted to the national and international monitoring and assessment systems so that the needs and targets for blood stock between UTD PMI can be facilitated by UTD in each class, namely the primary class, middle class and main class which have adequate capacity and donations. 4].

PMI UTD throughout Indonesia who wish to install the SIMDONDAR application must prepare the facilities and infrastructure needed by the SIMDONDAR software program [4]. Central PMI is currently developing a method to combine the data needed from each PMI UTD so that later PMI UTDs can be connected to each other through this application. Currently there are 78 PMI UDD using the SIMDONDAR application. They can be integrated with fellow UTDs and centralized at UTDP PMI. It is hoped that the SIMDONDAR program will increase to 2-3 PMI UTD each month and continue to increase to all PMI UTD in Indonesia [4]. If all UTD PMI already have SIMDONDAR, this will also complete the complete information on The Ayodonor website.

METHODS

This paper seeks to provide recommendations based on the results of literature studies, observations and discussions with several relevant sources regarding the PMI Blood Donor Service Information System strategy, so that the methodology is applied. **First**, analyze the strengths, opportunities, weaknesses and threats to realize a centralized information system that is understood by the public in 2025. Through this SWOT analysis, it will be seen the strengths and opportunities that contribute to supporting and accelerating each component, while weaknesses and threats can be identified which will affect and slow down the implementation process. Then, the authors issue recommendations to support the new strategy and address potential weaknesses and threats along the way. **Second**, the attention and support from the Indonesian government and the private sector is the key to how this new strategy can be achieved where at least 5.2 million blood bags per year are needed by the public and the government and the private sector must pay attention. to PMI in having a competent blood service information system strategy. It is believed that with the support of all parties in improving the strategy of community acceptance through information and education on blood donation to all levels of society and the involvement of all stakeholders, the need for blood will definitely increase in 2025 and thus become the government's commitment. government and the private sector so that the information system strategy for PMI blood services in 2025 can be realized. **Third**, the development of a



Road Map that is able to provide an overview in the next few years regarding the information system strategy for PMI's blood donor services which includes long-term targets and current conditions to obtain gap analysis in making development plans, then making program activities that must be implemented and finally formulating success indicator. **Fourth**, coordinate and build cooperation with international movement partners who have blood donor service information systems that are already running well, where as members of the International Red Cross and Crescent Movement, PMI has the opportunity to open coordination and build cooperation in improving information systems for donor services. blood lessons and drawings from the model shared by other member countries such as the American Red Cross (<https://www.redcrossblood.org/>) and Australian Red Cross (<https://www.lifeblood.com.au/about>), including efforts improvement of the Blood Service Information System into Mobile Apps on the Android and IOS systems to make it more accessible to the public. In the experiment section, all materials and methods that have been used in the research should be stated clearly.

RESULT AND DISCUSSION

With the same problem, people have difficulty accessing information on blood donor services when they need blood. Several PMI UTDs have independently developed an information system for managing blood donation services to facilitate access to information on blood services. However, almost all of them focus on information on blood supplies and are not comprehensive enough to target blood donor mechanisms or find blood donors. Currently, PMI Center has built an integrated national system called SIMDONDAR. This system can only be accessed internally between UTD PMI in Indonesia because it is integrated and is expected to contribute to the blood donor service system for the community, namely [Ayodonor.pmi.or .id](http://Ayodonor.pmi.or.id). For this reason, how can these two systems support and work together and what is the information technology system strategy in providing information and blood donor services at PMI. Here are the recommendations.

Utilizing SWOT analysis for the TIS strategy for blood donor services

Analysis of strengths, weaknesses, opportunities and threats (SWOT) helps predict that the PMI Blood Donor Service Information System can run successfully. The need for a good information system is of course very important not only for PMI but also for the people in Indonesia. PM MI according to its mandate has held blood donor activities for a year, at the fifth PMI congress in Bogor in 1951, the Red Cross Blood Donor Unit conducted a blood sampling demonstration which was attended by President Soekarno. Since then, PMI has also started providing blood transfusion services in a number of big cities, such as Jakarta, Semarang, Medan, Surabaya, Makassar and other big cities. This extensive experience certainly results in professional human resources and governance. However, in carrying out this service, the capacity of PMI in Indonesia also varies, some have good capacity such as PMI Central Java Province, PMI DKI Jakarta, PMI Bali and also PMI in several cities in Indonesia such as PMI Solo City, PMI Semarang City, PMI Malang City, but there are also PMIs whose capacity is minimal. These diverse conditions are of course a particular concern in developing a blood donor service information system strategy. Table 1 will present a SWOT analysis for the PMI Blood Donor Service Information System.

Table 1. SWOT analysis to realize information technology for blood donation services.

Strength	Opportunity
<ul style="list-style-type: none"> - PMI is a large organization that is widespread throughout Indonesia - Government Regulation (PP) NO. 7 of 2011 concerning Blood Services - PMI has experience and capacity in blood donor services. - Society needs blood. - There is funding from the 	<ul style="list-style-type: none"> - Requests for blood from patients in need. - Communities get fast and accurate information regarding blood donation services. - Cooperation with the private sector and partners of the World Red Cross Movement.

<p>government, private sector and world movement partners.</p> <ul style="list-style-type: none"> - Some PMI districts/cities already have adequate facilities and infrastructure. - PMI has volunteer blood donors as part of its organizational membership. 	<ul style="list-style-type: none"> - PMI Go Digital and Advances in Science and Technology
<p>Weakness</p> <ul style="list-style-type: none"> - PMI capacity in several regions is still low - Technical problems (servers, electricity, etc.) - Funding in several PMI districts/cities - Information is not well understood and accessed by the public 	<p>Threat</p> <ul style="list-style-type: none"> - Geographical conditions and areas spread throughout Indonesia - Government Policy (Ministry of Health) regarding Blood Donor Services - There are other actors who provide blood donor services - Unclear information about PMI blood donors

Source : Data Search 2022

Based on Table 1, it can be seen that PMI's strengths and opportunities outweigh the weaknesses and threats. This shows that it is very possible that the information technology system for PMI blood donation services is able to provide the information needed and is easily accessible and minimizes inaccurate information in the community.

Building synergies and strong support from the Government at every level.

Since 2016, PMI has developed a blood donor service information system (SIMDONDAR) that is operated by each PMI UTD, which is integrated and centralized in a national database system where the data needed is real time and online. It is hoped that the updating of the system will be adjusted to the national and international monitoring and assessment systems so that the needs and targets for blood stocks between UTD PMI can be facilitated by other UTDs.

Currently there are 78 PMI UDD using the SIMDONDAR application because PMI UTD throughout Indonesia who wish to install the SIMDONDAR application are required to prepare the facilities and infrastructure needed by the SIMDONDAR program software. Going forward, the SIMDONDAR program will increase to 2-3 PMI UTDs every month and continue to increase until all PMI UTDs in Indonesia have reached a minimum of 80%. Support from the government and the business world both at the center and in the regions for UDD PMI in regencies and cities that have low capacity is of course very much needed to achieve these expectations. The following are the solution points that the author recommends, namely, **First**, PMI in each region is expected to be able to communicate with the government and the business world to help prepare facilities and infrastructure such as installing internet connections, computer equipment, trained personnel and others. This communication can be done through dialogue or presentations related to the grand design of information systems for blood donor services and inviting key stakeholders in each region. **Second**, with the support of the government and the business world, blood stock information and activity schedules for each UTD PMI City/Regency will be automatically synchronized to the web, not only to the Ayodonor.pmi.or.id website, but also to government and private websites that have become partners. PMI cooperation such as Mitsubishi, Indomaret, Toyota, Danone, Unilever and others to reach a wider community. This synchronization will increase public understanding and increase the number of donations and distribution of blood donors. This can be seen from the increase in Table 2 below.

Table 2. Number of Donors and Blood Distribution After SIMDONDAR Installation
(Source: UDD PMI Head Office Presentation Material and direct data from UDD in 2018)

Name of blood donor	Number of blood donors			Number of distributions		
	The year	Year	2018	The year	Year 2014	2018

unit (UDD)	2010	2014	year	2010	year
UDD PMI	17.156	33,442	58,363	17,560	38,296
BJM					
UDD PMI	NA	10.123	17,803	NA	8,539
CITY SKB					
UDD PMI	9,652	20,674	14,237	9,401	25,035
KAB BGR					
UDD PMI	NA	28,632	23,958	NA	16,904
BWX					

Source : Data Search 2022

Central PMI (Central Center) is currently developing a method for combining the data needed from each UTD. This application will make them connected to each other. If all UTD PMI already have SIMDONDAR, they will also complete the complete information on the Ayodonor website and contribute information related to blood stock on government and private websites.

Development of PMI-MIS for a road map for blood donor services

PMI is expected to be able to develop an ITM strategy roadmap for blood donor services which can be seen in the following figure.

TIS Roadmap for PMI Blood Donation Services

2022	2023	2024	2025
ANALYSIS OF REQUIREMENTS FOR PMI BLOOD DONOR SERVICES MANAGEMENT INFORMATION SYSTEM (MIS)	STRATEGY DEVELOPMENT OF MIS PMI BLOOD DONOR SERVICE	IMPLEMENTATION OF MIS PMI BLOOD DONATION SERVICE	MIS PMI BLOOD DONATION SERVICE
<ul style="list-style-type: none"> Revitalization of the MIS Team for PMI blood donation services (PMI NHQ and PMI Chapters and Branches) Analysis of existing infrastructure and information systems Integrating MIS strategy with Strategic Plan, PMI Transformation Plan and PMI PoA. Identify needs Identify features Advocacy to Government and Business Sector for support and commitment Approaching and Learning Blood Donation SIM from other Red Cross Movement Partners (America, Australia) Add SIMDONDAR to UDD PMI 	<ul style="list-style-type: none"> Improvement SIMDONDAR Add SIMDONDAR to UDD PMI Capacity Building of UDD staff Review and Design Ayodonor. MIS Integration of PMI Blood Donation Service to Government and Business Sector Improvement and adding features Improvement and adding contents Connecting to government and business sector platforms or websites Obtain financial and technical support from Movement partners Database server upgrade System upgrades into Android and iOS Apps. 	<ul style="list-style-type: none"> Launching New MIS of PMI Blood Donation Service Socialization of PMI's Blood Donor Service Information System Public Campaign for Blood Donation Public Education for Blood Donation Maintaining system Add SIMDONDAR to UDD PMI Upgrading content and tools 	<ul style="list-style-type: none"> Socialization of PMI's Blood Donor Service Information System (continue) Public Campaign for Blood Donation (continue) Public Education for Blood Donation (continue) Maintaining system (continue) Add SIMDONDAR to UDD PMI Evaluation and Review Reporting

Source : Data Search 2022

Figure 1 illustrates the development of PMI's Blood Donor Service TIS

Figure 1 illustrates the development of PMI's Blood Donor Service TIS which can be implemented based on the road map through the following stages:

Stage 1 (Target achieved in 2022).

This is the initial stage by carrying out the TIS Need Analysis for PMI Blood Donor Services which will be carried out from January to December 2022 with the scope of activities including:

1. Revitalization of the MIS Team for PMI blood donor services (PMI Centers and regions)
2. Analysis of existing infrastructure and information systems
3. Integrate the MIS strategy with the Strategic Plan, PMI Transformation Plan and PMI PoA (Plan of Action).
4. Identify needs
5. Feature identification
6. Advocate to the Government and the Business World for potential support
7. Approach and learn about Blood Donation MIS from Red Cross Movement Partners in other countries (United States, Australia and other countries)

8. Added SIMDONDAR to UDD PMI.

Stage 2 (Target achieved in 2023).

Development of PMI's Blood Donor Service Management Information System which will be carried out from January to December 2023 with the scope of activities

1. SIMDONDAR Repair
2. Adding SIMDONDAR to UDD PMI
3. Human Resource Capacity Building at UDD PMI
4. Ayodonor Display Design and Review
5. MIS Integration of PMI's Blood Donor Services to the Government and the Business World
6. Improvements and Added features
7. Content Improvements and Additions
8. Connect with government and business sector platforms or websites
9. Get financial and technical support from Movement partners
10. Upgrade database server
11. Upgrading the information system to a Mobile Application via Android and iOS

Stage 3 (Target achieved by 2024).

Implementation of the TIS PMI Blood Donor Service which will be carried out from January to December 2024 with the scope of activities:

1. Launched the new PMI Blood Donor Service Information System
2. Information Dissemination of PMI Blood Donor Services
3. Blood Donation service public campaign
4. Public education about Blood Donation services
5. System repair
6. Added SIMDONDAR to PMI UDD
7. Improve content and tools

Stage 4 (Target to be achieved).

This is the final stage, namely PMI Blood Donor Service ITS which is able to provide blood donor information services more quickly and reliably as well as synergy in the process of sharing shared data resources at various administrative levels of donor service management both within PMI (between UDD) and organizing data communication connectivity with agencies. government, the business world, and the public sector with the scope of activities:

1. Continuing the Socialization of the Blood Donor Service Teknologi Information System
2. Continuing the Blood Donation service public campaign
3. Continuing community education about blood donation services
4. Maintain system
5. Addition of SIMDONDAR at UDD PMI
6. Monitoring, Evaluation, Accountability and Learning
7. Report

Another thing that is very important to implement is the strong support from the Executives and related ministries and agencies as well as from related associations and private companies. Therefore, PMI's target of reaching 5.2 million blood donors will come true.

CONCLUSION

One of the efforts of the Indonesian Red Cross (PMI) to achieve the target of 5.2 million blood bags per year is to improve the blood donor information service system strategy both for internal PMI and which can be accessed by the public. The public, of course, must obtain information that is clear, precise, and easily accessible. PMI in 2016 has developed a Blood Donor Management Information System (SIMDONDAR) for internal PMI UDD throughout Indonesia and the Ayodonor Management Information System for public access. With the development of the digital world, the MIS PMI Blood Donor Service strategy (SIMDONDAR) in 2025 is targeted to be able to reach 80% of Indonesia or around 178 of 216 PMI UDDs operating in 215 districts/cities throughout Indonesia. SIMDONDAR PMI automatically

synchronizes information on blood stock and schedule of activities for each UTD PMI City/Regency to Ayodonor.pmi.or.id which can be accessed by the public. SIMDONDAR and the Ayodonor.pmi.or.id website still need to be improved to provide information that is clear, accurate, educative, and easily accessible to the public. The PMI Blood Donor SIM Strategy for 2025 is expected to be implemented if PMI is able to maintain its current strengths and understand opportunities while overcoming some of its shortcomings and recognizing threats that have the potential to hinder these goals. Communication and cooperation with all parties is definitely a strong recommendation, especially government and private support at all levels.

The synergy and integration of information systems developed by PMI and the Government must be a priority because not all PMI UDDs in Indonesia have qualified capabilities to implement a centralized and precise Information System. An information system that runs well will certainly have an impact on increasing the number of donations and the need for blood bags. Finally, the 2025 Blood Donor Services TIS Roadmap needs to be developed to implement the strategy based on the expected targets, namely a Blood Donor Information System that is clear, accurate, fast and easily accessible to the public. The need for blood bags is increasing every year along with the growth in population in Indonesia. The need for blood is for everyone regardless of race, ethnicity, class, and religion.

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