

Analysis and Design Management Information System Pension Benefit Feature of Core System Dana Pensiun Lembaga Keuangan

Fahmi Rifli Pradana¹, Atit Pertiwi²

 ¹Faculty of Information Systems Management, Universitas Gunadarma
 ²Faculty of Computer Science and Information Technology, Universitas Gunadarma Jl. Salemba Raya No.53, Jakarta Pusat, 10440
 Email address: ¹fahmipradana7(at)gmail.com, ²atit(at)staff.gunadarma.ac.id

Abstract— Dana Pensiun Lembaga Keuangan (DPLK) is a Pension Fund established by a bank or life insurance company to organize a Defined Contribution Pension Program for individuals, both employees and independent workers, which is separate from the employer's Pension Fund for employees of the bank or life insurance company concerned. Currently, there are still DPLK operating companies that manage Pension Funds manually or have not been integrated with the system in accordance with the recommendations of the OJK. In phase 1, the features for participant registration, payment of contributions, investment management and reporting have been developed. In the second phase, the pension benefit payment feature was developed. The method used is the System Development Life Cycle (SDLC) with the Waterfall model. This research produces a feature of payment of pension benefits in the DPLK Core System. The results of the tests carried out are the system can run the process of paying pension benefits according to the needs of the user.

Keywords— DPLK, SDLC, Waterfall, MIS, Pension Benefit.

I. INTRODUCTION

Dana Pensiun Lembaga Keuangan (DPLK) is a Pension Fund established by a bank or life insurance company to organize a Defined Contribution Pension Program for individuals, both employees and independent workers, which is separate from the employer's Pension Fund for employees of the bank or life insurance company concerned. DPLK is also a means for the community to have investments for old age. The current DPLK business development must also be supported by a good system to be able to compete in order to provide the best service to DPLK participants.

In the implementation of DPLK, there are two parties who will contribute, namely participants and the DPLK organizing company (Banking Company or Insurance Company). In DPLK there are stages of participation such as participant registration, payment of contributions, investment of participant contributions and claims or payments of participant pension benefits. In carrying out the implementation of DPLK, a good management information system is needed to be able to manage participant and company data as well as investments from both. This is also supported by OJK (Financial Services Authority) regulations, namely POJK 15/2019 Governance of Pension Funds which stipulates that "Pension Funds must have a reliable financial reporting system for the purposes of supervision and other stakeholders." In one of the insurance companies that are the organizers of the DPLK already has a good system. The company has implemented phase 1, namely the system can cover the membership registration process, payment of participant contributions and investment of participant contributions. However, this system is still not perfect because it still requires features that are capable of carrying out the claim process or payment of participant pension benefits which will be implemented in phase 2.

The DPLK implementation process requires a system that can support operational performance in managing membership data, investments, withdrawals and good data recording and reporting. Currently, there are still several DPLK companies that have not used the appropriate system to support DPLK business processes. This system that is not in accordance with this is such as the existence of manual recording of participant data, manual calculation of funds and investments and manually calculated portfolio reporting.

The importance of a management information system in the implementation of DPLK that can support operational performance, there are journals that discuss management information systems for the administration of Pension Funds. In research with the title Analisa Dan Perancangan Sistem E-Claim Pada Pt Asuransi Jiwa Syariah Bumiputera Cabang Medan. The research conducted research on the development of the PT. Bumiputera Sharia Life Insurance Medan branch. System development is carried out to facilitate the process of submitting claims made by customers. Previous claims were submitted by filling out paper forms or manually. With the development of the system, the claim submission process will go through the application so that it will make it easier for customers to submit claims and will facilitate data storage and make it easier for admin staff to verify participants data that submitting claims. The system design that will be developed by the author already uses a web-based application. This will make it easier for users to access applications to submit claims (Alda Penira, Afsha Zahara, Mardiah Ramadhani and M Luthfil Amin, 2020).

In research with the title *Perancangan Sistem Informasi Klaim Asuransi Jiwa Menggunakan Ms.Visual Basic 6.0. Pada Pt. Asuransi Jiwasraya Kota Bandar Lampung.* The study conducted research on a system within an organization that



brought together the daily transaction management needs, operations support, managerial, and strategic activities of an organization and provided certain external parties with the necessary reports. This research is to conduct research on the system development of PT. Jiwasraya Life Insurance. This system can process customer data input, employee data input, customer claim data input and customer claim payment data input. This system can make it easier for officers to report and reconcile data. This system can provide convenience for customers in processing claims. This system can also make it easier for officers to serve patients or customers who will register (Ahmad Cucus, 2013). Based on the two previous studies above, the authors conducted research that was similar and in accordance with the needs of a management information system to support DPLK operations.

II. RESEARCH METHODS

The research method used in this study uses the SDLC (Software Development Life Cycle) method with the Waterfall model. The system development uses the Waterfall model because it supports efficiency in planning user needs and requirements for development. In the Waterfall research model, there are 4 stages carried out, namely, needs analysis, design, implementation and testing as shown in Figure 1.

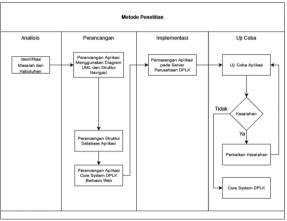
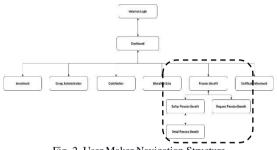


Fig. 1. Research methods

In the needs analysis stage, what is needed for the development of the DPLK System for the claim or payment of pension benefit features is to define the fields and information required by users of the DPLK Core System. At the design stage, it is a description of the navigation structure for User Maker and User Approver and the UML diagram of the DPLK System, the claim feature or the payment of pension benefits. After that go to application design. The design made is in the form of an interface of the DPLK System. At the implementation stage of the DPLK system, the claim or payment of pension benefit features was built using Sublime software, the database used was MySQL, the framework used was Angular and the language used was JAVA. At this stage, the application deployment process is also carried out to the server of the DPLK service provider company. This deployment process is carried out to install applications and services from the DPLK Core System. At the trial stage, which means the DPLK system for claiming or paying pension benefits has been completed and will be tested first. At this stage the columns that are the user's needs will be displayed and tested according to the needs and existing test scenarios. The test is carried out to find out the shortcomings in the application, whether there are still errors or not. At this trial stage, several stages were carried out, namely System Integration Test (SIT), User Acceptance Test (UAT).



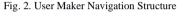
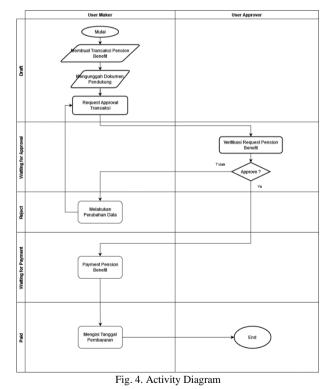




Figure 3. User Approver Navigation Structure



In the two stages of the trial, two testing methods were carried out, namely positive and negative tests. At the SIT stage, testing is carried out by a tester/quality assurance (QA) from the



internal team that performs system development or the vendor. At the UAT stage, testing is carried out by users who will use the application after the application has been developed. In the positive testing method, the tester conducts trials with positive cases. These positive cases are carried out according to the estimated normal data that will be entered into the system. In the negative testing method, the tester conducts trials with negative cases. Negative cases are carried out by entering inappropriate data into the system.

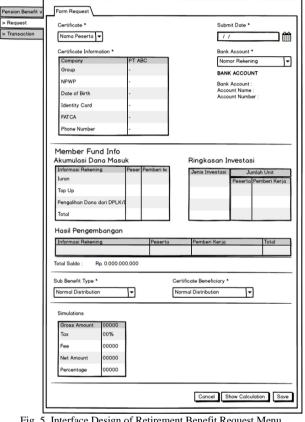


Fig. 5. Interface Design of Retirement Benefit Request Menu

Finance v	F	ensior	Ben	efit Pay	ment				
> Pension Benefit Payment		Y Stotue	All Wort	ting for Approval	Pending	Rejected	Released		Print
> Partial Withdrawal Payment		Number	Amount	Description	Poyment Bonk	Status	Target Account Name	Target Account Number	Target Bank
		DPPV2019010005	2.000.000.00	Pension Benefit to A	DPLK BANK BCA	Pending	Mr.A	4327123	Bonk Mondini
		DPPV2078010004	3 000 000 00	Pension Benefit to B	DPLK BANK BCA	Pending	Mr.B	12312312	Bank Mandiri
		DFPV2019010003	5,000 000 00	Pension Benefit to C	DPLK BANK BCA	Pending	Mr. C	4343612	Bonk Mondini
		DPPV2078010002	1000 000 00	Pension Benefit to D	DPLK BANK BNI	Pending	Mr.D	1234325	Bank Mandiri
		DPPV2019010001	8 000 000 00	Pension Benefit to E	DPLK BANK BNI	Pending	Mr E	3424123	Bonk Mondri

Fig. 6. Interface Design of Retirement Benefit Payment Request List

III. **RESULTS AND DISCUSSION**

In this chapter, we will discuss the results of planning and developing a pension benefit payment menu in the DPLK Core System application using the SDLC Waterfall method. At this stage, the captured images from the system display that have been implemented are also attached. This stage also explains the results of the trials conducted at the SIT and UAT stages.

System Screenshot Results

analan Banafa Barn C			
ension Benefit PPIP Reques	z		
Participant Information			
Certificate *			Submit Date *
Choose Member			 DD MM YYYY
			Date Format: DD-MM-YYYY
Certificate Information			Bank Account *
Company			
Group			Bank Account
NPWP			Bank Name :
Date of Birth		(Age:)	Account Name :
Identity Card			Account Number :
Phone Number			
Email			
FATCA			
Notes			
Member Fund Info Flease Select Member First to S			
Hease Select Member Hist to S	now Fund Into		
ub Benefit Type *			Member Beneficiary *
			 Choose Member Beneficiary
insurance *			
Choose Member			
Simulations			
Gross Amount	Haven't calculat	ed	
Так	Haven't calculat	od	
Net Amount	Haven't calculat	cd	
	Haven't calculat	ed	
Percentage			

Fig. 7. Screenshot System of the Retirement Benefit Request Page

Pension Benefit PPIP

Member	1	Sub Benefit Type	1	Submit Date	1	Created At	1	*
PPIP 4		EARLY RETIRE		Nov 22, 2019		Nov 22, 2019 10:54:04 AM		Detail
INDIVIDU 4		NORMAL RETIRE		Nov 27, 2019		Nov 27, 2019 1:01:26 PM		Detail

Fig. 8 Screenshot System of List of Participant's Pension Benefit Payment Transactions

ension Benefit PPIP Detail #WF	00002		Presente
Member Information		Transaction	
Certificate Number	20190012798	Benefit Type	Pension Benefit PPIP
Marriber Narros	INDIVIDU 1	Sub Benefit Type	NORMAL BETHE
Member Effective Date	Sep.25, 2019	Submit Date	0(121,2019
Member Birth Date	CN1 7, 1971 (Apr. 46)	Transaction Code	WR-00002
Member NPWP	19213452205	Transaction Date	
Member Nationality	ww	Insurance	Asuransi B
Member Email	putri/seme@tokomerne-life.co.id	Transaction Status	Paid
Member Phone Cell Number	0016-225-964	Han Sirvitized	YES
		Transaction Type	UNIT .
		Created at	Oct 21, 2010
Company and Group Inform	ation	Member Bank	
Company Code	20190005	Member Bank	PT Bank Central Asla Tok
Company Name	INDIVIDU	Account Name	Individu satu
	2014/2014/1	Account Number	12466/271
Group Code			
	MERVICE		
Group Code			
Group Code Group Name			
Group Code . Group Name Actual Transaction	MERVERS		

Fig. 9. Screenshot System of Details of Pension Benefit Transactions

241



International Research Journal of Advanced Engineering and Science

Pension Benefit Payment List

Number	1	Amount 1	Description 1	Payment Bank	1	Status I	1 Target Account Name	I Target Account Number	I Target Bank	*
0PPV2019120002		1,982,551.53	Pension Benefit: INDIVIDU 4	Standard Chartered Bank		PAID	Individu empat	1234567891	PT Bank Central Asia Tbk	Detail
0PPV2019060001		278,584,719.00	Pension Benefit: IDA ZOLEHA	Standard Chartered Bank		PAID	IDA ZOLEHA	1232013428	PT Bank Maybank Indonesia Tbk	Detail
0PPV2019050002		335,859,943.00	Pension Benefit: SETO JAYA MAULANA	Standard Chartered Bank		PAID	SETO JAYA MAULANA	1232009021	PT Bank Maybank Indonesia Tbk	Occall
OPPV2019050001		270.553.517.00	Pension Benefit: SUHNARYANA	Standard Chartered Bank		PAID	SUHNARYANA	1232008630	PT Bank Maybank Indonesia Tbk	Detail
2PPV2019010001		1,092,055,135.00	Pension Benefit: MASJUDI	Standard Chartered Bank		PAID	MASJUDI	1232472772	PT Bank Maybank Indonesia Tbk	Detail

Fig. 10. Screenshot System of List of Pension Benefit Transaction Payments
Pension Benefit Payment Detail
West Proves Proves Read Reads

			🛓 Genera	de Payment Recei
lumber	DPPV2019100003	Created Date	Oct 25. 2019 9:00:00 AM	
Description	Pension Benefit: INDIVIDU 1	Payment Date	28-10-2019	
Payment Bank	Standard Chartwred Bank		Date Format: DD-MM-YYYY	
		Status	PAID	
Transaction Details				
Item Description				Amount
Pension Benefit: IN	DWDU 1			108 955,350.09
PPh 21 Final				(108.0.00)
		Subtotal		IDR 955.350.09
		Net Amount		IDR 955,350.09
Target Bank Participant Amoun	et	PT Bank Central Asia	thic	
Payment to Annuity				
Payment to Annuity Account Name		Asuransi B		
		Asuransi B 4564568		
Account Name Account Number Account Bank		4564564568 PT Bank Central Asia	Tāk	
Account Name Account Number		4564564568	Tak	
Account Name Account Number Account Bank Annuity Amount		4564564568 PT Bank Central Asia	ты	
Account Name Account Number Account Bank Annuity Amount		4564564568 PT Bank Central Asia	Tak	
Account Number Account Bank Annuity Amount Rejection	BA	4564564568 PT Bank Central Asia	na	

Fig. 11. Screenshot System of Details of Pension Benefit Payment Transactions

User Acceptance Test Results

User Acceptance Test (UAT) is carried out after the program development process is complete. UAT is carried out by users of the system who will use the system. UAT is done by checking the system that has been developed. If the system is in accordance with the needs of the user and has successfully run the process without errors, the UAT documentation will be marked with the status "Passed". If it doesn't work and there are still errors, the UAT documentation will be marked with the status "Failed". The following are Table 1 and Table 2 documentation of the UAT results from the development of the pension benefit payment feature:

No.	Sesi & Menu	Activity	Expected Result	Result
1	Login	The user logs in with the existing username and password	User has successfully logged into the system	Passed
2	Dashbo ard	The user selects the Pension Benefit menu	The system successfully redirects the display to the Pension Benefit menu	Passed
3	Pension Benefit	User fills in the existing fields to request Pension Benefit	The user has successfully filled in the available fields	Passed
4	Pension Benefit	User presses save button Request Pension Benefit	The system has successfully saved Request Pension Benefit data	Passed
5	Pension Benefit	The user presses the request for approval button	The system has successfully processed and requested approval from the approver	Passed

TABLE 1. UAT Result User Maker

TABLE 2. UAT Result User Approver

N o	Sesi & Menu	Activity	Expected Result	Result
1	Login	The user logs in with the existing username and password	User has successfully logged into the system	Passed
2	Dashboa rd	The user selects the Task Management menu	The system successfully redirects the display to the Task Management menu	Passed
3	Task Manage ment	User checks Request Pension Benefit data	The system has successfully displayed the data of participants who made a Request Pension Benefit	Passed
4	Task Manage ment	The user presses the approve / reject transaction button	The system has successfully saved the Approval Request Pension Benefit data	Passed

IV. CONCLUSION

Based on the objectives described in chapter 1, the conclusion of the research conducted on the analysis and design of a management information system for the payment menu for pension benefits in the DPLK Core System is the development of a system to support DPLK business and operations in accordance with OJK policies related to the payment of participant benefits. successfully carried out and meet the needs of system users in the company.

References

- [1] Abdullah, D. (2017). Merancang Aplikasi Perpustakaan menggunakan SDLC: System Development Life Cycle. Sefa Bumi Persada.
- [2] Andi (2014). Wahana Komputer/Sistem Informasi Penjualan Online. Yogyakarta.
- [3] Aleryani, Arwa Y. (2016). Comparative Study between Data Flow Diagram and Use Case Diagram. Academia.

Fahmi Rifli Pradana and Atit Pertiwi, "Analysis and Design Management Information System Pension Benefit Feature of Core System Dana Pensiun Lembaga Keuangan," *International Research Journal of Advanced Engineering and Science*, Volume 7, Issue 1, pp. 239-243, 2022.

International Research Journal of Advanced Engineering and Science



- [4] Angular (2021). What is Angular?. [Online]. Available at: https://angular.io/guide/what-is-angular [Accessed 21 Oktober 2021]
 [5] Angular (2021). Introduction to Angular generates [Online]. Available
- [5] Angular (2021). Introduction to Angular concepts. [Online]. Available at: https://angular.io/guide/architecture [Accessed 21 Oktober 2021]
 [6] Geeksforgeeks (2018). Unified Modeling Language (UML) | Activity
- [6] Geeksforgeeks (2018). Unified Modeling Language (UML) | Activity Diagrams. [Online]. Available at: https://www.geeksforgeeks.org/unified-modeling-language-umlactivity-diagrams/ [Accessed 23 Oktober 2021]
- [7] Geeksforgeeks (2021). Introduction to Java. [Online]. Available at: https://www.geeksforgeeks.org/introduction-to-java/?ref=lbp [Accessed 9 Oktober 2021]
- [8] Haryanti, Sri, Tri Irianto. 2011. Rancang Bangun Sistem Informasi E-Commerce Untuk Usaha Fashion Studi Kasus Omah Mode Kudus. Jurnal Speed – Sentra Penelitian Engineering dan Edukasi, Vol. 3 No. 1.
- [9] IBM (2021). Use-case diagrams. [Online]. Available at: https://www.ibm.com/docs/en/rational-soft-
- arch/9.6.1?topic=diagrams-use- [Accessed 23 Oktober 2021]
- [10] IBM (2021). Activity diagrams. [Online]. Available at: https://www.ibm.com/docs/en/rsm/7.5.0?topic=diagrams-activity [Accessed Oktober 2021]

- [11] Ibnu (2022). Dana Pensiun Lembaga Keuangan Adalah: Ini Pengertian dan Manfaatnya Bagi Karyawan dan Perusahaan. [Online]. Available at: https://accurate.id/ekonomi-keuangan/dana-pensiun-lembagakeuangan-adalah/ [Accessed 9 Oktober 2021]
- [12] Novendri, Saed M., Ade Saputra, dan Chandra Eri F. (2019). Aplikasi Inventaris Barang Pada Mts Nurul Islam Dumai Menggunakan Php Dan Mysql. Google Scholar.
- [13] OJK (2013). Dana Pensiun. [Online]. Available at: https://www.ojk.go.id/id/kanal/iknb/Pages/Dana-Pensiun.aspx [Accessed 9 Oktober 2021]
- [14] Singh, Monika, A.K., Sharma, dan Ruhi Saxena. (2016). Formal Transformation UML Diagram: Use Case, Class, Sequence Diagram with Z Notation for Representing the Static and Dynamic Perspectives of System. ResearchGate.
- [15] Syifa, N. (2021). Sudah Paham Apa Itu Dana Pensiun Lembaga Keuangan (DPLK)? Ini Penjelasannya. [Online]. Available at: https://www.idxchannel.com/economics/sudah-paham-apa-itu-danapensiun-lembaga-keuangan-dplk-ini-penjelasannya [Accessed 9 Oktober 2021]
- [16] Tim Madcoms. (2016). Pemprograman PHP dan MySQL Untuk Pemula. Edisi Pertama. Yogyakarta : Andi Offset.