

Development of The LAKIP Information System Using The Waterfall Method

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ABSTRACT — LAKIP becomes an important tool for evaluation and feedback for all government stakeholders. In fact, the preparation of lakip is still done manually and has not been integrated with the SKPD. The research is aimed at building a system of information preparation LAKIP in the government of the district of Polewali Mandar. The methods used are waterfall with Unified Modeling Language, Macromedia Dreamweaver CS 6 for interface design, and postgresql for database design. After a black box test, the resulting system can work in detail with precision and accuracy.

Keyword — e-government, lakip, information system, waterfall.

ABSTRAK — LAKIP menjadi instrumen penting dalam evaluasi dan *feedback* bagi seluruh pemangku kepentingan pemerintah. Faktanya, penyusunan LAKIP masih dilakukan secara manual dan belum terintegrasi antar SKPD. Penelitian ini bertujuan untuk membangun sebuah sistem informasi penyusunan LAKIP pada pemerintah Kabupaten Polewali Mandar. Metode yang diterapkan adalah waterfall dengan Unified Modeling Language, Macromedia Dreamweaver CS 6 untuk desain antarmuka dan postgresql untuk desain database. Setelah dilakukan pengujian black box maka dihasilkan dengan metode waterfall sistem dapat bekerja secara terperinci, presisi dan akurat.

kata kunci — e-government, lakip, sistem informasi, waterfall.

I. INTRODUCTION

In today's era of globalization, advances in communication and computer technology have changed the governance of the Indonesian government. The government is encouraging the implementation of technology to improve government services. Better public services will be created when there is good governance[1]. Therefore, the government must improve the existing bureaucratic system to achieve that goal. ICT in government is one of the most important phenomena of the 21st century. It has the ability to change the "face" of government service to society. Therefore, the idea of e-government is growing rapidly [2].

As a pilot of the Bureaucratic Reform Project, the government of the district of Polewali Mandar has formulated a policy on e-government governance as an effort to realize effective and efficient governance. The said policy should be supported by the provision of applications

for the implementation of administrative governance based on management information systems. One of the priorities of the administration is the development of the Information System of Accountability Report Performance of Government Institutions (LAKIP).

LAKIP is an overview of the performance achieved by a government agency. LAKIP becomes an important tool for evaluation and feedback for all government stakeholders [3]. As an overview of performance, LAKIP shows the performance achieved by government agencies in fulfilling government tasks and objectives. In some ways, the importance of LAKIP can be understood as one of the conditions in the evaluation and feedback for government stakeholders, thus ensuring that the government agency responds to government duties with transparency and accuracy [4]. The government as a public servant continues to provide the best possible service. In this era of industrial revolution 4.0, the entire sector is compelled to switch to digital organizations, including the government sector [5][6].

The LAKIP drafting process in the Polewali Mandar district used the Microsoft Excel application previously. Initially, the Regional Device Organization that handled this did not find any obstacles when entering the required data. But as data and user needs become increasingly complex, we need a system that can meet those needs effectively and efficiently. The system is expected to be software in the form of a website-based client-server database where all client requests are served by the server through Internet network access. The objective of the development of this system is to facilitate the state civil apparatus in the implementation of a service script management system based on management information systems and to provide an information system that can support the effectiveness and efficiency of the performance of the state civil apparatus in the surrounding government district of Polewali Mandar.

II. REVIEW OF THE LITERATURE

LAKIP enables government agencies to smooth the delivery of performance information, thus enabling government stakeholders to be more accurate and transparent in evaluating government performance. LAKIB enables better integration between the various stakeholders involved in performance development and management, such as the

government, research and development agencies, and government institutions. It serves as a tool for monitoring and measuring the performance of activities and plays a role in the implementation of evaluations that provide effectiveness, enhanced human resources, accountability, and public service [7].

Overall, LAKIP is an important tool in the evaluation and feedback of all government stakeholders and plays a key role in improving transparency, smoothness, integration, efficiency, and capacity in assessment and decision-making in government performance development and management.

LAKIP is an overview of the performance achieved by a government agency and plays an important role in the evaluation and feedback of all government stakeholders. In this context, electronic LAKIP inputs have become important because they enable more efficient, accurate, and real-time performance development and management processes. Here are some important points about electronically-based LAKIP: Firstly, electronically-based LAKIP inputs enable government agencies to access and manage performance in real time, thus enabling government stakeholders to take decisions more quickly and effectively and to move the necessary access. Secondly, transparency: electronic lakyip inputs enable governments to communicate performance information in a transparent and accurate manner to the public, thereby creating better offerings and supporting decision-making. Thirdly, integration: electronic-based LAKIP input enables better integration between the various parties involved in development and performance management, such as governments, research and development bodies, and government institutions.

Fourth, smooth. Electronic LAKIP inputs enable government agencies to smooth the delivery of performance information, thus enabling government stakeholders to be more accurate and transparent in evaluating government performance. Fifth, evaluation and decision-making. Electronic LAKIP inputs enable government agencies to monitor, measure performance, and play a role in carrying out evaluations that provide effectiveness, enhanced human resources, accountability, and public service.

In order to build this information system, a system design needs to be built. One of the tools and models for designing object-based software development is UML. UML also provides a blueprint system writing standard, which includes business process concepts, database schemes, classes written in specific program languages, and components required for software systems[8], [9].

The final stage in ensuring that the system is working properly or not is when it needs to be tested. Black box testing is a software testing method that focuses on existing software functionality features. It typically finds errors such as inaccurate or nonexistent functionality, data structure errors, database access errors, interface errors, performance errors, and initialization and termination errors. The black box testing method has several advantages: (1) the tester does not need to know a specific programming

language; (2) the testing is carried out from the user's point of view, which helps to find ambiguities or inconsistencies in the requirements specification; and (3) the programmer and the tester depend on each other [10] [11].

Therefore, it is necessary to build and implement an information system for data collection and accountability assessment of the performance of the Regional Device Working Unit (SKPD). This information system has a user-friendly appearance, thus making it easy for the government to use it [12][13].

III. RESEARCH METHODS

To create a LAKIP information system, this research uses the Waterfall method, which is a systematic and sequential information system development model [5], [14]. The order can be seen in Figure 1.

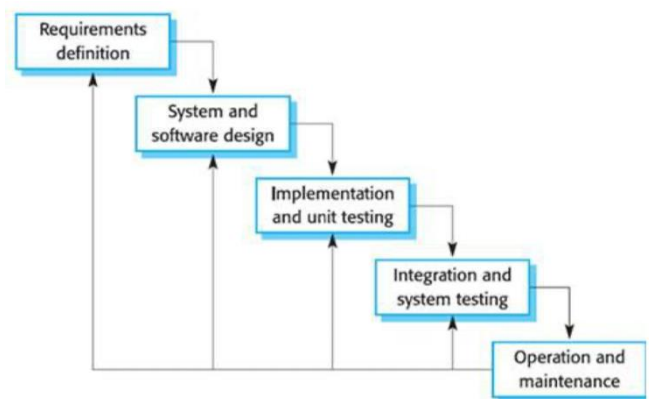


Figure 1. Waterfall Method Flow

- 1) At the stage, identify the problem found and plan how the system will be built. The data collection process from the Mandar Polewali Regional Secretariat Office was carried out through direct interviews with five sources, namely the Regional Secretary, Head of Organizational and Executive Division, Chief of Regional Development Planning, Research and Development Agency, and two staff.
- 2) The second step involves designing the system using the Unified Modeling Language (UML), PostgreSQL for database design, and Macromedia Dreamweaver CS 6 for interface design.
- 3) The third step involves putting the system into practice using the design decisions established in the second phase, and it involves confirming that every program unit complies with the requirements and design.

- 4) Black box testing is the test method employed in the fourth step, which is system testing. This test is run to ensure that all of the system's components are operating as intended and to check for any issues with the system.
- 5) If the system has been operated, this is the step that will be taken.

IV. DISCUSSION

This study discusses system requirements, hardware and software requirements, UML, wage information system display, and system testing.

3.1 System prerequisites

The system requirements are:

- 1) Hardware specifications include a single 13-inch MacBook Pro with Retina display from early 2015. Processor: Intel Core i5 Dual-Core 2.7 GHz. 8 GB DDR3 1867 MHz RAM. 251 GB of flash storage.
- 2) MacOS Catalina version 10.15.5, Pinegrow Web Editor, PostgreSQL, Google Chrome Web Browser Version 120 (64-bit).

3.2 Unified Modelling Language (UML)

In this study, LAKIP information systems are designed using UML. Usecase diagrams and activity diagrams are included in this section.

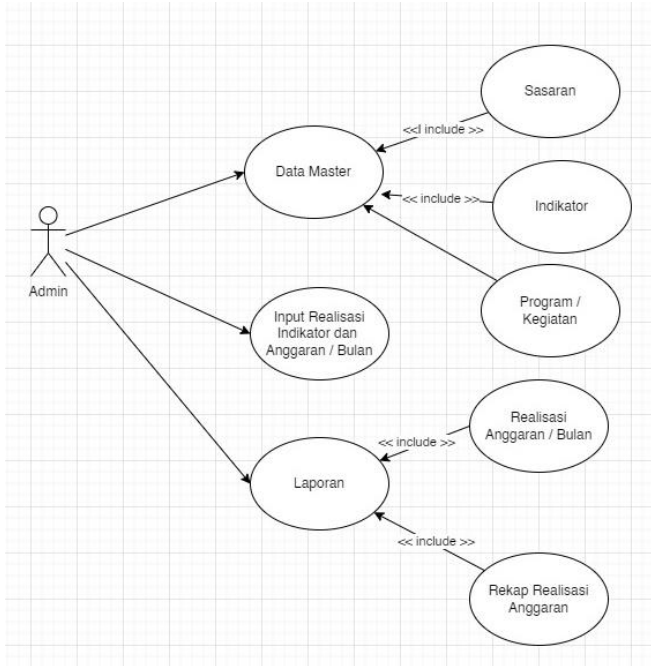


Figure 2. Usecase Diagram

Usecase diagrams with just one actor, admin, are displayed in Figure 2. First, the admin can enter master data, such as targets, indicators, and program activities. Second, the administrator can enter budget realization data. Third, the Admin can print the budget realisation report and record it.

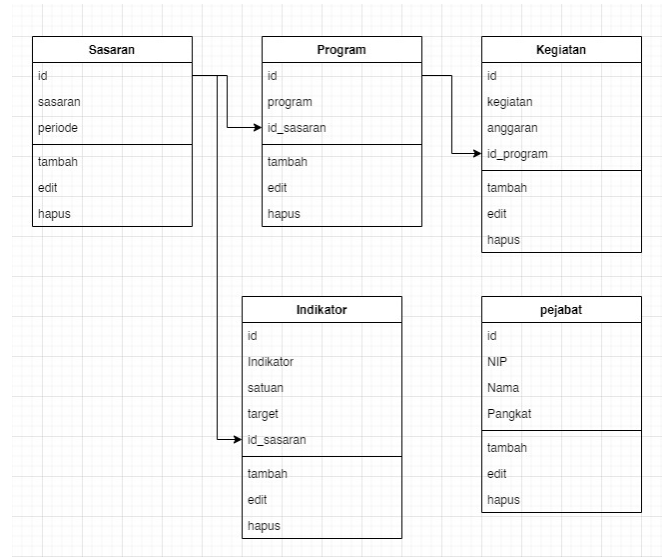


Figure 3. Activity Diagram

The activity diagram for each task completed by the administrator in the LAKIP information system is displayed in Figure 3. By entering their username and password, the administrator can access the system and print reports by going to the main page.

3.3 LAKIP Information System Interface

The graphic below shows the whole LAKIP information system interface:

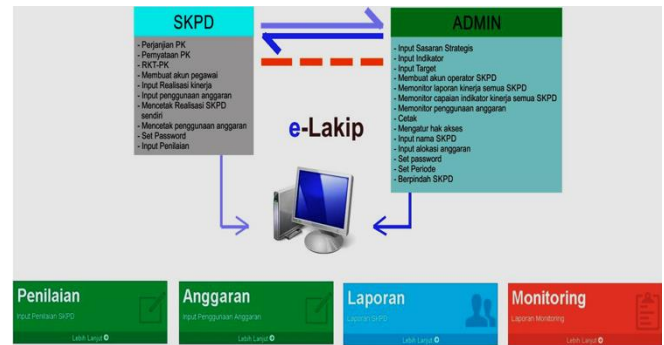


Figure 4. System Process

Figure 4 shows the system processes in e-LAKIP. SKPD prepares Performance Agreement (PK), PK Statement, RKT-PK, creates employee accounts, Performance realization inputs, Budget usage inputs, Prints SKPD realization, Prints budget usage, sets passwords and assessment IPs. The Administrator enters Strategic Targets, Indicators, and Targets. Creates an SKPD account, monitors the performance reports of all SKPDs, grants access to indicators for all SKDPs, monitors budgets, set access rights, enters the name of the SKPD, enter budget allocations, set passwords, and set periods.

Figure 5. Login Form

The admin logs in to the system using the admin login form, which is seen in Figure 5, by providing the correct username and password.



Figure 6. Dashboard

Figure 6 shows the dashboard, containing the Master menu and Settings. The Master sets access permissions, employee data and SKPD data. While the Settings allows the user to set periods.

NO.	SKPD / UNIT SKPD	JUMLAH INDIKATOR KINERJA	KONDISI CAPAIAN		
			Belum mencapai target (< 50%)	Belum mencapai Target (> 50%)	Melampaui target (> 100%)
1	SEKRETARIAT DAERAH	117	0	117	0
	Digian Adm. Kesajateraan Rakyat	13	0	13	0
	Digian Adm. Pemerintahan	20	0	20	0
	Digian Memer dan Prastasi	9	0	9	0
	Digian Adm. Pembangunan	8	0	8	0
	Digian Adm. SDA	8	0	8	0
	Digian Organisasi dan Tata Laksana	21	0	21	0
	Digian Hukum	12	0	12	0
	Digian Pengelola Keuangan	17	0	17	0
	Digian Urum dan Perlengkapan	10	0	10	0
	Digian Adm. Perencanaan	3	0	3	0
2	SEKRETARIAT DPRD	6	0	6	0
3	INSPEKTORAT KABUPATEN	4	0	4	0
4	RAPPEDA	20	0	20	0
5	BKDD	8	0	8	0

Figure 7. Indicator Access Monitoring

Figure 7 shows the indicator access of each SKPD. Each SKPD has a different number of indicators and performance access. If 50% is not reached, it is red, if more than 50% is reached it is yellow, if 100% is reached it is green, and if it exceeds 100% it is blue.

NO.	SASARAN	INDIKATOR	SATUAN	TARGET	KONDISI CAPAIAN			
					Belum mencapai target (<50%)	Belum mencapai target (>50%)	Mencapai Target (100%)	Melampaui Target (>100%)
1	Meningkatkan status pertumbuhan, perkembangan, perlindungan dan kelangsungan hidup masyarakat	Menurunkan angka kematian bayi dari 11,37 per 1000 menjadi 6,5 per 1000 kelahiran hidup	Angka per 1000 KH	10				<50%
		Menurunkan angka kematian ibu dari 132 per 100.000 menjadi 71 per 100.000 kelahiran hidup	Angka per 100.000 KH	196				<50%
		Menurunkan prevalensi gizi kurang dan stunk dan 15,52 % menjadi dibawah 7%	Persen	10,05				>50%
		Meningkatnya cakupan imunisasi dasar lengkap bayi usia 0-11 bulan dari 60% menjadi 90%	Persen	90				>50%
2	Meningkatkan status kesehatan atau menurunkan angka kesakitan agar masyarakat dapat hidup sehat, produktif secara sosial dan ekonomi	Menurunkan prevalensi Tuberculosis dari 215 menjadi 150 per 100.000 penduduk	Angka per100.000 penduduk	195	<50%			
		Menurunkan kasus malaria (Annual Parasita Index-APi) dari 2 menjadi 1 per 1.000 penduduk	Angka per 1000 penduduk	1,3	<50%			
		Pemeriksaan desa yang mencapai UCI dan 90% menjadi 90%	Persen	90	<50%			
		Meningkatnya status kesehatan atau menurunkan angka kesakitan agar masyarakat dapat hidup sehat, produktif secara sosial dan ekonomi	Angka per10.000 penduduk	8	<50%			

Figure 8. Monitoring Details

Figure 8 shows the access details of the SKPD indicator. It contains information about targets, indicators, units, targets and access conditions. The access percentage is determined by how many targets have been met.

LAPORAN KEUANGAN TINGKAT SATUAN KERJA PERANGKAT DAERAH							
NO.	PROGRAM	ALOKASI ANGGARAN	REALISASI PK 2015				SISA ANGGARAN
			TRIWULAN I	TRIWULAN II	TRIWULAN III	TRIWULAN IV	
1.	Program Pemetaan Administrasi Agraria Pemerintahan Daerah	2.422.889.816,00	0,00	0,00	0,00	0,00	2.422.889.816,00
2.	Program Pemetaan Administrasi Kependudukan	88.825.000,00	0,00	0,00	0,00	0,00	88.825.000,00
3.	Program Penyelidikan Kualifikasi Profesi Petambak	167.690.690,00	0,00	0,00	0,00	0,00	167.690.690,00
4.	Program Pembiayaan, Pengembangan dan Fasilitas Kecamatan	477.141.770,00	0,00	0,00	0,00	0,00	477.141.770,00
5.	Program Pemetaan Daerah Operasi Baru	300.400.000,00	0,00	0,00	0,00	0,00	300.400.000,00
6.	Program Kemitraan Pengembangan Wawasan Kebangsaan	71.843.500,00	0,00	0,00	0,00	0,00	71.843.500,00
7.	Program Penyelenggaraan Kegiatan Intar Pemerintahan Daerah	104.874.250,00	0,00	0,00	0,00	0,00	104.874.250,00
8.	Program Pemetaan Postum Pemondok-Undangan	63.741.000,00	0,00	0,00	0,00	0,00	63.741.000,00
9.	Program Pembiayaan dan Pengembangan Pengelolaan Keuangan Daerah	153.984.650,00	0,00	0,00	0,00	0,00	153.984.650,00

Figure 9. Financial report at the SKPD level

Figure 9 shows the state of the realization of the use of the budget. The remaining budget is determined by how much the realization of each three-month budget compared to the large allocation of the already established budget.

Testing is done before the system is deployed. The black box method is used to test every feature of the system by entering data into the form. The purpose of this inspection is to find parts of the system that are not working according to the program. The following table shows the test results.

Tabel 1
Black box Test Results

Input Data	Expected Results	Observation	Conclusion
Enter username and password	Authentication Successful	Displays the dashboard menu	Suitable
Enter a new operator form	Displays identities such as name, NIP, address, email	Displays identities such as name, NIP, address,	Suitable

	and phone number	email and phone number	
Performance assessment input	Display Strategic Target, Indicators, Targets, Values and Access Calculation Schemes	Display Strategic Target, Indicators, Targets, Values and Access Calculation Schemes	Suitable
Budget usage input	Displays the Budget menu and Budget realisation amount	Displays the Budget menu and Budget realisation amount	Suitable

V. CONCLUSION

The conclusion of this study is:

1. Since the waterfall approach involves stages of work that must be completed in order to go on to the next, it is appropriate for this case study. Because the input from one stage will be the output from the previous one, every stage is tied to the others and must be done correctly..
2. The information system that was developed can also assist in the detailed processing of all LAKIP data in each SKPD district of Polewali Mandar, resulting in an information system that is quick, accurate, and reliable. Overall, electronic LAKIP inputs help government agencies increase transparency, efficiency, real-time, integration, and smoothness in performance development and management, which will ultimately impact government performance positively.

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