

Optimization of Access Data Center (ADC) in the Management of the Administration of Procurement of Goods/Services at the Cilacap State Polytechnic

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Keywords: Information Systems, Optimization of Access Data Center, ADC, Administration of Procurement of Goods/Services, SIABAS.

Abstract: The management of goods/services procurement documents at the Cilacap State Polytechnic with a tender package value of more than 50 million is still not well organized. Data and information on the procurement of goods/services is highly dependent on the procurement committee. Procurement documentation starting from the preparation stage to the work report is only in hardcopy form, which is not complete and is still scattered in several places. Taking into account the current conditions, it is felt that there are many obstacles that occur, including: Frequent discrepancies in Procurement data and information, Track record of Procurement documents can be lost, Difficulty in obtaining Procurement information quickly and accurately, There is no control tool for the status of procurement implementation. Based on the mapping of existing problems, it is necessary to have an administrative information system for the Procurement of Goods/Services with a centralized database (data center) that can be accessed by the Procurement Committee and stakeholders in the field of Procurement of Goods/Services such as Internal Auditors, Finance Section, PPK, and leaders of Polytechnics Cilacap Country. In addition, the information system with centralized data developed will greatly support the optimization of data access for the Procurement of Goods/Services.

1 INTRODUCTION

Government Procurement of Goods/Services is an activity of Procurement of Goods/Services by Ministries/Institutions/Regional Apparatuses financed by government whose process is from the identification of needs until the handover of the work (Indonesia, 2018). The management system for the procurement of government goods and services is one system that must be carried out to fulfill services to the community (Eka Jumarni Fithri, Susi Ardiani, Endah Widyastuti, 2018).

Cilacap State Polytechnic is an Institutional Work Unit of the Ministry of Education and Culture that uses the State Revenue and Expenditure Budget government for goods/services procurement activities.

The Procurement of Goods/Services

implementation mechanism at the Cilacap State Polytechnic is distributed to 2 (two) work units, namely, the Logistics Work Unit in charge of managing Procurement of Goods/Services with a maximum value of 50 million and the Procurement Unit in charge of managing PBJ with a value above 50 million. Currently, PBJ administration in the Logistics Work Unit has been managed using the Logistics Information System (SILOG), but for the management of PBJ administration in the Procurement Unit, there is no application that specifically handles PBJ administration with a tender package value of over 50 million.

The administration of PBJ documents with a tender package value of more than 50 million is still not well organized. PBJ data and information is highly dependent on procurement officials/committees. PBJ documentation such as PBJ preparation documents, PBJ tender documents, PBJ contract documents, reports on the results of PBJ implementation are only in hardcopy which is not intact (separately) and is still scattered in several

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places, including in the finance department, in the archive room mixed with documents. other management, there are even Procurement of Goods/Services documents that are still held by the procurement official/committee.

Based on this conditions, it is felt that there are many problems and obstacles that occur, including: There are often differences in Procurement of Goods/Services data and information because the documents are still scattered, The track record of Procurement of Goods/Services documents can be lost (lost), It is difficult to obtain data and information Procurement of Goods/Services is fast, precise, and up to date, The presentation of Procurement of Goods/Services data and information is slow (slow response time) at the time of the audit, There is no Procurement of Goods/Services status control tool, either completed or still in the implementation process.

Based on the mapping of existing problems, it is necessary to have an Information System for the Administration of Procurement of Goods/Services, abbreviated as SIABAS, with a centralized database (data center) that can be accessed by Procurement Officers/Committees as well as stakeholders in the Procurement of Goods/Services sector (stakeholders) such as internal auditor, the Finance Division, PPK, and the Head of the Cilacap State Polytechnic. Data Center is a virtual central storage for media storage, management, and provision of data and information (Triwahyuni, 2014).

According to information from the planning and budget section of the Cilacap State Polytechnic, the number of Procurement of Goods/Services tender packages in the last 4 (four) years is as follows: in 2017 there were 16 tender packages, in 2018 there were 30 tender packages, in 2019 there were 32 tender packages, and in 2018 there were 32 tender packages. 2020 as many as 35 tender packages. The number of tender packages will continue to increase every year. This shows that electronic management of Procurement of Goods/Services administration is very necessary as a backup medium for Procurement of Goods/Services administrative documents at the Cilacap State Polytechnic. In addition, the information system with a centralized data (data center) developed will greatly support the optimization of Procurement of Goods/Services data access. Optimization of Access Data Center (ADC) in the Procurement of Goods/Services administrative information system is expected to provide benefits in the electronic management of Cilacap State Polytechnic Procurement of Goods/Services administrative documents.

2 LITERATURE REVIEW

2.1 Related Research

Research related to the data center and the development of the PBJ administrative information system has been carried out by several previous researchers with different methods, objects, and scope of problems.

Previous research with the title Data Center Information System Development as a Data Provider for Compiling Accreditation Forms. The research was conducted with the aim of helping to reduce repetitive data recording in the preparation of forms and to accelerate the preparation of accreditation forms by providing a data center packaged in an information system (Triwahyuni, 2014).

Previous research entitled Application of E-CR in Data Center Prototype Development (Case Study: Information and Communication Technology Technical Service Unit, Ganesha University of Education). Research Objectives to design and implement a Data Center system to support data integration by implementing ETL Process, cryptopost, and rest service. The research was conducted using the Agile SCRUM Framework research model (Dermawan, Putrama and Darmawiguna, 2018).

Previous research with the title Analysis of the Satisfaction Level of Regional Apparatus Organizations (OPD) and Partners on the Performance of the Goods/Services Procurement Administration Bureau of the Provincial Government of Bali. The research was conducted with the aim of analyzing the level of satisfaction of Regional Apparatus Organizations (OPD) and partners on the performance of the Goods/Services Procurement Administration Bureau and the dominant factors that affect the satisfaction of OPDs and partners on the performance of the Bali Provincial Government's Procurement Administration Bureau (Anak Agung Diah Parami Dewi, Ngakan Made Anom Wiryasa and Atmaja, 2019).

In contrast to previous studies. In this study, researchers created a Procurement of Goods/Services administrative information system with a centralized database (data center) that can be used to optimize access to administrative data for Procurement of Goods/Services Cilacap State Polytechnic electronically. The system can later be accessed by Procurement Officers/Committee as well as Procurement of Goods/Services stakeholders (stakeholders) such as internal auditor, Finance Division, PPK, and Cilacap State Polytechnic leaders

in managing Procurement of Goods/Services administration at Cilacap State Polytechnic with a tender package value of over 50 million.

2.2 Basic Theory

2.2.1 Data Center

Data Center is a virtual central storage for media storage, management, and provision of data and information (Triwahyuni, 2014). To make it easier to access data within an agency, a data centralization strategy is needed that can be accessed simultaneously with a faster time and lower cost (Kholil and Mu'min, 2018). Access Data Center Optimization (ADC) is a way to maximize access to data stored in a centralized database.

2.2.2 Procurement Administration of Goods and Services

Administration is defined as the process of organizing resources so that work assignments in any level of organization can be carried out properly (Roy Irawan, Intan Kusuma Dewi, Darma Wijaya, Indra Prana and Cahyani, 2020). The procurement of goods and services is a long process, from the budget planning process, the budget management process, the procurement process for goods with a planned budget, and accountability (Arifin, Soegianto and Rs, 2020).

Therefore, Procurement of Goods/Services administration can be interpreted as the process of managing data on the procurement of goods and services starting from the planning stage, the tender process, the implementation of the work, to the results of the work implementation. Administration of the Procurement of Goods/Services affects the Progress of Budget Absorption (Syakhrial, 2018).

3 RESEARCH METHODS

The method used in the development of the PBJ Administrative Information System with a centralized database (data center), is grouped into three main components, namely research materials, research tools, and research paths.

3.1 Research Materials

Research materials include:

- 1) Data obtained from analytical studies at the

Cilacap State Polytechnic through interviews.

- 2) Data obtained from study literature or scientific references.
- 3) Analysis of data or documents from the object of research to find out how the system works to be built.
- 4) Information regarding the development of the Procurement of Goods/Services administrative information system that has been done before.

3.2 Research Tool

This study, research tools are needed, namely computer devices with sufficient specifications and internet access devices.

3.3 Research Path

The application development in this study uses the waterfall method which consists of several phases as shown in Figure 1 (Bassil, 2012).

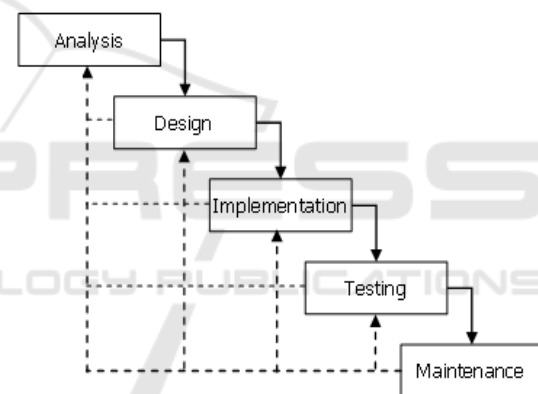


Figure 1: Waterfall method (Bassil, 2012).

Figure 1. shows the phases which can be explained as follows:

- 1) Analysis Stage of procurement system
There are several analytical activities, including:
 1. Analysis of problems (existing conditions)
 2. Analysis of information on the management of Procurement of Goods/Services administration at the Cilacap State Polytechnic. In the information analysis process, the necessary data is also collected for research activities either by interview or copying the data needed.
 3. User analysis is to determine user needs.
- 2) Design stage of procurement system
At this stage, the system design design will be carried out, including:

1. system flowchart procurement,
 2. Systems analyst modeling
 3. Relationship table
 4. System database design
 5. Moke up design (system view)
- 3) Implementation Stage of procurement system
The system design that has been made will be implemented in the coding program so as to create the Procurement of Goods/Services Administration Information System application.
 - 4) Testing Stage of procurement system
After the application is made, the next stage is the system testing stage.
 - 5) Maintenance Stage of procurement system
At this stage, improvements will be made if the application does not work (error).

The concept of developing Access Data Center (ADC) in the Management of the Administration of Procurement of Goods/Services at the Cilacap State Polytechnic is shown in Figure 2.

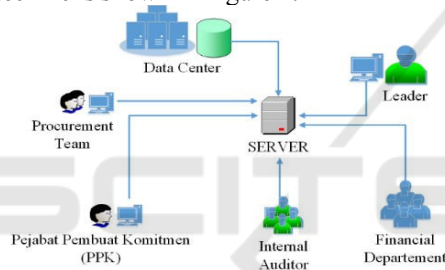


Figure 2: The concept of developing the access data center administration of procurement of goods/services.

3.4 System Design

Developed system design as shown in figure 3.

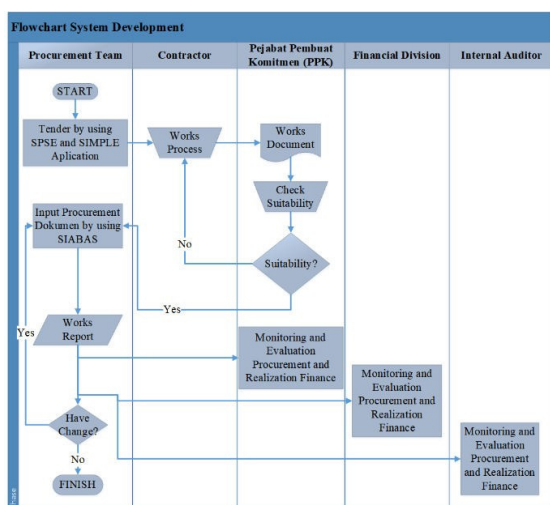


Figure 3: Alternative solution system flowchart.

Figure 3. Explaining the flow of the system as a form of innovation in this actualization. The system developed is web-based, so that it can be accessed online by the relevant team (procurement manager).

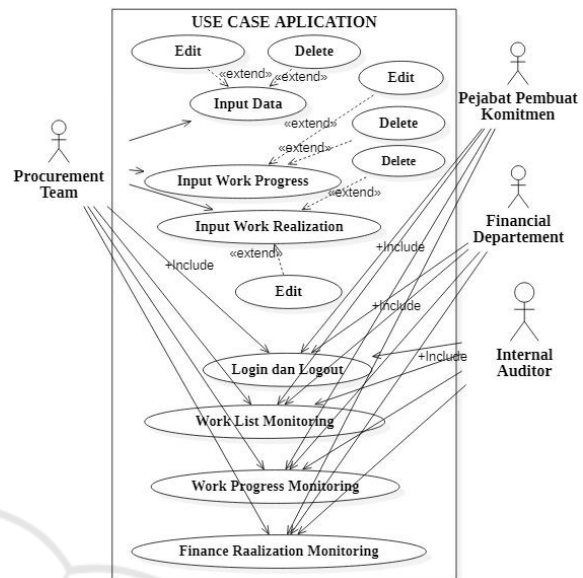


Figure 4: Use case diagram.

Figure 4: Describes the use case of the system to be developed. Use Case describes the interaction of actors with the existing system.

4 RESULT AND DISCUSSION

4.1 Research Result

The research that has been done has resulted in an application that can be accessed centrally by users in the Cilacap State Polytechnic environment, namely an administrative information system for the procurement of goods/services called SIABAS. The system developed has a main function, namely to input administrative data for the procurement of goods/services at the Cilacap State Polytechnic and present the data to users according to their access rights. In addition, the system functions as a monitoring medium for the procurement of goods/services, both those that have been completed and those that are still in the process of implementing the work.

The first step that must be taken by the procurement team as system users is to input administrative data for the procurement of goods/services. After inputting the data, a list of activities for the implementation of the procurement

of goods/services will appear as shown in Figure 5. Figure 5 shows a list of goods/services procurement activities at the Cilacap State Polytechnic. In the picture, the user can see the budget value for the procurement of goods/services used and the remaining budget, so that finances can be more closely monitored. In each procurement activity package, users can see more detailed details of the implementation of the procurement of goods/services as shown in Figure 6.

No	Unit Kerja	Nama Paket	Pagu Anggaran	Nilai HPS	Nilai Kontrak	Metode Pengadaan	Sumber Dana	Jenis Pengadaan	Status	Realisasi Anggaran	Total Sisa Anggaran	Aksi
1	BAUP	Pemeliharaan Bangunan Gedung Utama	Rp. 180.000.000	Rp. 174.000.000	Rp. 175.500.000	Pengadaan Langsung	APBN Politeknik Negeri Cilacap	Jasa Konstruksi	Selesai	Rp. 175.500.000	Rp. 4.500.000	Info
2	Stek	Pengadaan Mebelair Informetika	Rp. 190.000.000	Rp. 187.000.000	Rp. 185.000.000	Pengadaan Langsung	APBN Politeknik Negeri Cilacap	Barang	Selesai	Rp. 185.000.000	Rp. 5.000.000	Info
3	Teles Hewan	Pengadaan Peralatan Media Bubut	Rp. 125.000.000	Rp. 124.000.000	Rp. 123.700.000	Pengadaan Langsung	APBN Politeknik Negeri Cilacap	Barang	Selesai	Rp. 123.700.000	Rp. 1.300.000	Info

Figure 5: List of activities of the procurement of goods/services.

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POLITEKNIK NEGERI CILACAP**
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Detail Paket Pengadaan

Unit Kerja Pengusul : BAUP
 Nama Paket Pengadaan : Pemeliharaan Bangunan Gedung Utama
 Pagu : 180000000
 Nilai HPS : 176000000
 Nilai Kontrak : 175500000
 Metode Pengadaan : Pengadaan Langsung
 Sumber Dana : APBN Politeknik Negeri Cilacap
 Jenis Pengadaan : Jasa Konstruksi
 Realisasi Anggaran : 175500000
 Total Efisiensi Anggaran : 4500000

Nama Penyedia : CV. MELIA BANUNG JAYA
 Nomor SPK / Kontrak : 1098/PL.43/PL.02.00/2019
 Tanggal SPK / Kontrak : 2019-05-17
 Jangka Waktu Pelaksanaan : 30 Hari Kalender
 Nomor Surat Perintah Mulai Kerja (SPMK) : 1150/PL.43/PL.02.00/2019
 Tanggal SPMK : 2019-05-17
 Mulai Pekerjaan : 2019-05-17
 Selesai Pekerjaan : 2019-06-16
 Nomor Serah Terima (PHO) : 1150/PL.43/PL.02.00/2019
 Tanggal Serah Terima (PHO) : 2019-06-16

Figure 6: Details of the procurement of goods/services.

In the developed system there is a function to see the progress of work periodically, especially on construction work packages. This feature serves as a medium for monitoring the implementation of construction work so that you can see the progress of the work implementation. Besides that, this feature provides accumulated work progress data that makes it easier for the management of the Cilacap State Polytechnic to see deviations in the progress of construction work. The display of the construction

work progress monitoring function is shown in Figure 7.

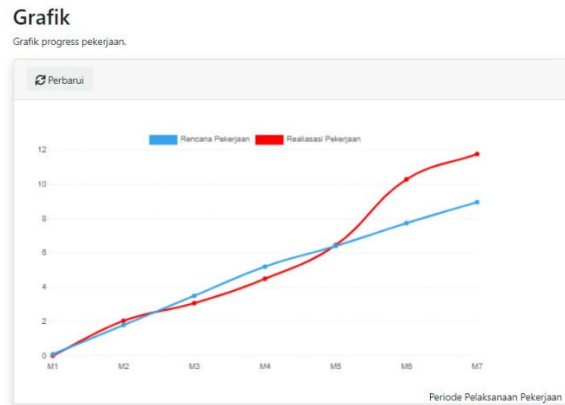


Figure 7: Progress of construction work.

Figure 7 shows the progress of construction work carried out at the Cilacap State Polytechnic. Based on the data in Figure 7, a graph of the progress of construction work can be made as shown in Figure 8.

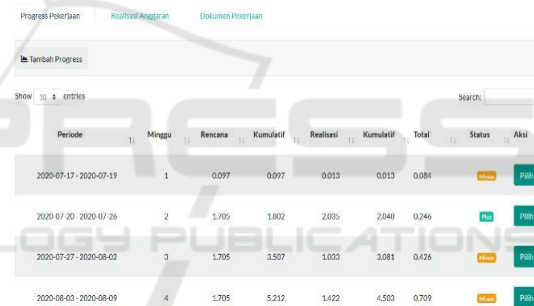


Figure 8: Graph of the progress of construction work.

Figure 8 shows a graph of the progress of construction work which can facilitate the management of the Cilacap State Polytechnic to see the progress of the work visually.

The procurement system for goods/services in Indonesia, especially the Ministry of Education and Culture uses the SPSE and SIMPLE applications which are integrated with the SIRUP application. The administration of tender documents for each agency is managed separately. Therefore, it is necessary to develop an information system.

The system functions to manage the administration of the procurement of goods/services in the Cilacap State Polytechnic environment. The system developed is independent or not integrated with the procurement service system developed by the government such as: SIRUP, SPSE, SIMPEL Kemdikbud as shown in Figure 9.

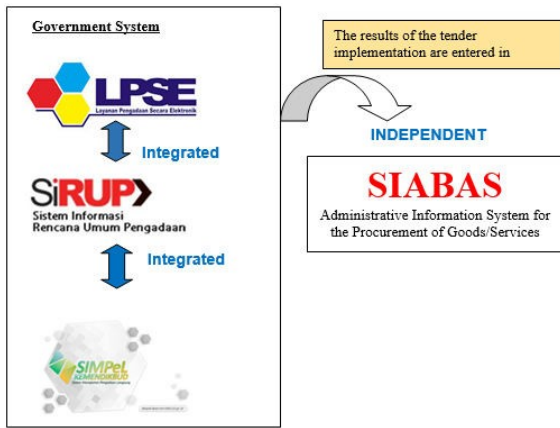


Figure 9: Illustration of government system compared developed system.

SIABAS is an information system that functions to manage the administration of goods/services including an inventory of procurement data and the presentation of procurement information. SIABAS can also be used as a medium for monitoring the implementation of the procurement of goods/services that can be accessed online within the internal scope of the Cilacap State Polytechnic.

4.2 System Testing

System testing is done by white box testing method. white box testing is software testing at flow level program, what are the inputs and outputs? as required (Pratala *et al.*, 2020). Tests carried out by 10 respondents with results as shown in Table 1.

Table 1: System testing.

Assessment	Test Result		
	NA	A	SA
Administration of procurement of goods/services is more organized	0	4	6
The presentation of data and information on the procurement of goods/services becomes faster and up to date	0	5	5
Work progress is more monitored and controlled	0	6	4
The plan and realization of the use of the	0	6	4
Facilitate management in accessing	0	3	7
Amount	0	24	26
Percentage (%)	0	48	52

Notes :

NA = Not Agree

A = Agree
SA = Strongly Agree

Table 1 shows the results of system testing carried out using the white box testing method. Based on the results of system testing conducted by 10 respondents, it can be stated that the administration system for the procurement of goods/services developed can facilitate the management of the administration of procurement of goods/services at the Cilacap State Polytechnic.

5 CONCLUSION

Based on the research that has been done by developing an Information System for the Administration of Procurement of Goods/Services at the Cilacap State Polytechnic that can be accessed centrally and the results of system testing carried out by 10 respondents, it can be concluded that the system developed is very much needed by the management of the State Polytechnic. Cilacap in managing the administration of goods/services procurement at the Cilacap State Polytechnic. The system really functions as a media for presenting data and information that can be accessed quickly and up to date. In addition, the system developed is a media and monitoring of the implementation of the procurement of goods/services at the Cilacap State Polytechnic.

Suggestions that can be submitted to further research are that it is hoped that the system can be developed again based on mobile so that it can be accessed by users via smartphone media and with the administrative needs of the procurement at the Cilacap State Polytechnic in the future.

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