Inventory Data Recording Information System Multiuser Based (Case Study on Ambarawa Regional Hospital

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Abstract. *Ambarawa Regional General Hospital (RSUD) is a Public Service Agency Regional (BLUD) belonging to Semarang Regency which operates in the field of public health services. Ambarawa Regional Hospital is located at Jalan Kartini No. 101 Ambarawa. So far, inventory data processing. At the Ambarawa Regional General Hospital (RSUD) it is still processed manually, there are several problems. What often arises is not knowing the depreciation value of goods each month, not yet applying it database system and low inventory data security system. The author used 3 research methods for data collection in this research, namely observation, interviews and literature study. The observation method used by the author is by carry out direct practice on problems that occur. Interview conducted by the author with the employees concerned, while in the literature study the author looked for related literature with research and used as a theoretical basis. From the analysis and research results, it can be seen that the solution to the problem above is: create an Inventory Data Recording Information System that uses a programming language Microsoft Visual Basic 6.0 and Microsoft SQL Server 2000 database processing system. Procedures will consist of p5 main parts, namely inventory data collection, room data collection, inventory item placement transactions, inventory item mutation transactions and line method depreciation straight. This system is expected to increase the effectiveness of inventory data processing in hospitals Ambarawa Regional General Hospital (RSUD).*

Keywords: Information System, Inventory

1. INTRODUCTION

The development of information technology is growing rapidly day by day. This is supported by the existence of computers as data processing media which can help the process of providing information. Computers are one of the basic needs for an agency or company to assist in recording and processing data to produce fast, precise and accurate information. The need for computers is due to the very diverse number of transactions or important data for agencies or companies, so a database is needed that can store and process this data into information. This information is really needed to help a company or agency make the right decisions for the company's future continuity. Likewise, the Ambarawa Regional General Hospital (RSUD) uses computers as a medium for recording and processing data to produce information.

Ambarawa Regional General Hospital (RSUD) is one of the agencies belonging to Semarang Regency which operates in the field of public health services. Ambarawa Regional Hospital is located at Jalan Kartini No. 101 Ambarawa. Its initial establishment was in 1930 in the form of a private hospital belonging to the Catholic Foundation and in 1945 ownership of the hospital was handed over to the Semarang Regency Government with management still carried out by the Catholic Foundation. Then in 1956 ownership and management of the

Hospital was completely handed over to the Semarang Regency Government. Until 2012, Ambarawa Regional Hospital was established as a Regional Public Service Agency (BLUD). Inventory is a list that contains all office items used to carry out tasks. Office inventory is very important for the continuity of a company and agency. If one or more of the equipment is damaged, it will definitely hinder the running of the wheels the economy of the company or agency, which usually takes the form of irregular organization of office inventory or the lack of a system for inventorying office equipment. Therefore, a system is needed to record office inventory.

table 1.1. Ambarawa Regional Hospital Inventory List

No	Inventory Name	Amount
1	Heavy equipment	46 Units
2	Carpentry Tools	8 Units
3	Office and Household Equipment	957 Units
4	Communication tool	46 Units
5	Medical Devices	1382 Units
6	Laboratory Tools	54 Units

The inventory data processing system currently running at Ambarawa Regional Hospital is that new items will be handed over to the logistics department to be recorded first as Ambarawa Regional Hospital Inventory items, the recording process uses the Microsoft Office Excel application. The logistics admin staff will record the items and label them with an inventory number, then the inventory items will be placed in the room where they are needed.

Based on the results of the author's research, the current inventory data processing at Ambarawa Hospital is not optimal. This can be seen from the inventory data processing which still uses Microsoft Office Excel as a medium for processing inventory data so that the process of recording inventory data is less effective and efficient. In terms of recording inventory data, it is still done simply because it is only limited to recording inventory items and their placement in any room. In the old system, this system was not equipped with information regarding the depreciation value of inventory items each month.

To overcome the existing problems, the author tries to provide a solution by designing a computerized system with several supporting facilities, namely computer hardware, software in the form of application programs using the Microsoft Visual Basic 6.0 programming language and Microsoft SQL Server 2000 as database processing media. This information

system is expected to help in processing inventory data for logistics staff because it is easy to create reports that are created automatically and quickly submitted to superiors. This system can also provide information regarding the depreciation value of inventory items each month. In connection with the above background, the author proposes the title "MULTIUSER BASED INVENTORY DATA RECORDING INFORMATION SYSTEM (CASE STUDY AT AMBARAWA HOSPITAL)"

2. THE ORETICAL FOUNDATION

A. System

1. Understanding Systems

   System comes from Latin (systema) and Greek (sustema), meaning a unit of components or elements that are connected together to facilitate the flow of information, material or energy. A system is a unit that has a common goal and has parts that are integrated with each other. A system must have two activities; first, there is input which is a source of energy to be able to operate a system; second, there are operational activities (processes) that change inputs into outputs in the form of operational results (goals/aims/targets for the operation of a system). (Mardi, 2011, p: 3)

2. System Characteristics

   The system has several characteristics or certain properties, including:

   a. System Components (Components)

      A system consists of a number of components that interact with each other, which work together to form a system component or parts of the system.

   b. System Limitations (Boundaries)

      It is an area that limits a system to other systems or its work environment.

   c. Subsystem

      The parts of the system are active and interact with each other to achieve their respective goals.

   d. Environment Outside the System (Environtment)

      A system that exists outside the system boundaries that is influenced by system operations.

   e. System Connector (Interface)

The connecting medium between a subsystem and another subsystem. The existence of this link allows various resources to flow from one subsystem to another.

f. System Input (Input)

The energy that enters the system is in the form of maintenance and signals. Maintenance input is the energy entered so that the system can interact.

g. System Output (Output)

The resulting energy is processed and classified into useful output and residual waste.

h. System Processing (Process)

A system can have a processing part that will convert input into output.

i. System Goals (Object)

The goal that the system wants to achieve will be said to be successful if it hits the target or objective. (Kusrini and Andri Koniyo, 2007, pp: 6-7)

3. Information

Information is data that has been processed into a form that is meaningful for users, which is useful in making current decisions or supports information sources. (Kusrini and Andri Koniyo, 2007, p: 7)

Quality information has three criteria, namely:

a. Accurate (accurate)

Information must be free from error, not biased or misleading. Accurate also means that the information must clearly reflect its intent.

b. Just in time (timelines)

Information that arrives at the recipient must not be late. In decision making, outdated information is no longer valuable. If information arrives too late so that decisions are made late, this can have fatal consequences for the company.

c. Relevance

The information submitted must be related to the problem that will be discussed with the information. Information must be useful for the user. (Kusrini and Andri Koniyo, 2007, p: 8)

4. Information Systems

Information systems are a series of formal procedures in which data is collected, processed into information and distributed to users. (James A. Hall, 2009, p: 9) Information recording systems are defined by Robert A. Laitch and K. Roscoe Bavis as a system

within an organization that meets the needs of daily transaction processing, supports operations, is managerial and the strategic activities of an organization and providing certain outside parties with required reports. (Kusrini and Andri Koniyo, 2007, p: 8)

In an information system there are the following components:

a) Hardware (hardware), includes various physical devices such as computers and printers.

b) Software or program, which is a set of instructions that allows hardware to process data.

c) Procedure, namely a set of rules used to realize data processing and generate the desired output.

d) People, namely all parties responsible for developing information systems, processing and using information system output.

e) Database (databse), namely a collection of tables, relationships and other things related to data storage. (Kusrini and Andri Koniyo, 2007, p: 9)

Three basic objectives are common to all systems. These objectives are:

a. Supporting the management function (stewardship).

Administration refers to management's responsibility to properly manage company resources. Information systems provide information about resource use to external users through traditional financial reports as well as from various other required reports. Internally, management receives service information from various accountability reports.

b. Support management decision making

Information systems provide management with the information needed to carry out their decision-making responsibilities.

c. Support the company's daily operations

Information systems provide information for operational personnel to help carry out daily work in an efficient and effective manner. (James A. Hall, 2009, p: 21)

5. Accounting information system

An accounting information system is an information system that converts business transaction data into financial information that is useful for its users. (Kusrini and Andri Koniyo, 2007, p: 10)

The objectives of the accounting information system are:

A. Supports daily operations

B. Support management decision making.

C. Fulfill obligations related to responsibility.

3. METHODOLOGY

The data collection method used by the author in this research is:

1. Method of collecting data

During the Practical Lecture at Ambarawa Regional Hospital to obtain data, the author used the following data collection method:

A. Field Research

This research aims to obtain primary data, namely data obtained directly from the data source or object under study, in this case the object is the inventory recording system currently running at Ambarawa Regional Hospital. Research at this stage is carried out by:

1. An interview is a data collection technique by asking someone as a data source or someone who is an expert in the field in question. In this case, the author conducted a direct interview with the Logistics Section as the party who directly handles inventory recording at Ambarawa Regional Hospital.

2. Observation is a data collection technique by making direct observations and systematic recording of research objects. In this case the author made direct observations of the inventory data processing process at Ambarawa Regional Hospital.

3. Written data collection documentation is by viewing and collecting document notes and files that provide supporting data for writing. The written data documentation includes existing Ambarawa Regional Hospital documents such as the history of Ambarawa Regional Hospital, organizational structure, inventory data.

B. Library Research

The author conducted library research with the aim of obtaining secondary data, namely other supporting data in writing the proposal that came

from outside the research object. The author carried out library research by studying several books related to the object of research.

4. RESULTS AND DISCUSSION

A. Analysis and Weaknesses of the Old System

1. Recording inventory data is still done simply because it is only limited to recording inventory and placing it in any room. In the old system, this old system was not equipped with information regarding the depreciation value of inventory items each month.

2. There is no computerized information system that is structured in a database, inventory data processing still uses Microsoft Office Excel as a medium for processing inventory data so that the process of recording inventory data is less effective and efficient.

3. There is no security in the old system, so any unauthorized party can change the data without permission from the authorized party.

Given the weaknesses above, the author plans a new multiuser-based system to maximize inventory data recording and utilize existing technological developments so that it becomes more useful and minimizes the shortcomings of the old system.

B. System Requirements Analysis

After knowing the old system for recording inventory data at Ambarawa Regional Hospital, the author tried to analyze the system and design a new system as input. Preparations made in designing a new system include:

1. Identifying Data and Information

System analysis and design is preceded by system development which includes data identification systems, information identification, data source identification, goal identification, input design, process and output design. This system development model is used to describe the state of the system being designed in terms of its actual state. These system development models include the following:

a. System Identification

The system identified is a case study Multiuser Based Inventory Data Recording Information System at Ambarawa Regional Hospital.

b. Data and Information Identification

Based on the results of data identification in the Multiuser Based Inventory Data Recording Information System, the following data and data sources can be identified:

(1) Inventory Item Data

(2) User Data

(3) Room Data

(4) Inventory Item Placement Data

(5) Inventory Item Movement Data

This data becomes system input which is then processed to produce the required information.

c. Identification of Information and Purpose of Information

After inputting system input and processing the data source, the system output results are obtained as follows:

(1) Inventory Item Data Report

(2) Room Data Report

(3) Inventory Item Placement Report

(4) Inventory Item Movement Report

The resulting information is intended to:

(1) Logistics Section

(2) Leader

2. Identify Hardware and Software Needs

a. Hardware Requirements

To further support building an information system, the following hardware is needed:

(1) A set of computers

(2) The minimum requirement for a PC (Personal Computer) is one computer unit as a server with the following specifications:

(3) Intel Dual Core E5200 Processor

(4) RAM 1 GB

(5) 80 GB Hard Drive

(3) Printer, as an output device for printing reports.

If the research object already has the required hardware facilities, then the existing facilities can be used first so that the use of the hardware can be maximized.

b. Software Requirements

The software needed to create this information system is:

    (1) Minimum operating system Microsoft Windows XP

    (2) Microsoft Visual Basic 6.0 Application Program

    (3) Microsoft SQL Server 2000

C. New System Narrative

1. Inventory Item Data Recording Procedure

   The inventory items arrive and are handed over to the logistics department, then the logistics department staff inputs the item data into the computer, the inventory item data is stored in the database. The logistics section then provides inventory number labels and prints inventory data for each room (DIR), apart from that, the logistics section also prints inventory item data reports. Inventory items that have been labeled with an inventory number and DIR are submitted to the head of the room concerned, while the inventory item data report is submitted to the leadership for approval.

   Inventory items that have been labeled with an inventory number and DIR are received by the head of the room, then the DIR is validated and then archived. The inventory item data report that has been approved by the leadership is then submitted to the admin for further archiving. The admin then inputs the room data and inventory item placement data, this data is stored in the database. Based on these data the admin will print a room data report and an inventory item placement report. These reports are submitted to the leadership for approval. Room data reports and inventory item placement reports that have been approved by the leadership are then archived by the logistics department.

2. Inventory Item Mutation Procedure

   The logistics department will check and research the items to be transferred, then a letter of proposal for the transfer of inventory items will be written to the management. If the proposal letter for mutation of inventory items is approved by the leadership, the letter is submitted to the admin for archiving. Based on the proposal letter, the admin will input mutation data on inventory items. This data will be stored in the database. The admin will print a report on inventory item mutation data and then submit the report to the management for approval. Inventory item mutation data reports that have been approved by the leadership are then archived by the logistics department.

D. Advantages of the New System

   The advantages of this Inventory Data Recording Information System are:

1. This inventory recording is not only a recorder of inventory transactions, but can also produce information regarding the depreciation value of inventory items each month.

2. Use of a database system as a data storage medium so that information collection regarding inventory is more organized.

3. Make it easier for leaders to control and access inventory data at Ambarawa Regional Hospital.

4. Improving employee quality and performance, especially in the process of recording inventory data at Ambarawa Regional Hospital.

5. All inventory data processing activities are more controlled because each party involved has their own access rights and data security is more guaranteed.

E. DFD

DFD (Data Flow Diagram) is a system design tool that is oriented towards data flow with a decomposition concept that can be used to depict analysis and system design. A DFD graphically explains the flow of data in an organization. This technique is used to document the system that will be used and to plan and design a new system.

Data Flow Diagrams (DFD) are depicted starting from the entire system with one process and clearly depict the data sources. After that, the existing processes are detailed to produce the information in the form of the required report. Context Diagram is the first step of structured analysis and is a description of a system. The general aim of system design is to provide a general idea to Ambarawa Regional Hospital about the new system that will be designed. Interface design is a display design for an information system for recording inventory data based on normalization and analysis of the Entity Relationship Diagram (ERD). Some of these interface designs are:

1. Login

Figure 4.24 Login Form

Information :

This Login Form contains a display for logging in so you can access the main menu of the Inventory Data Recording Information System. The Login Form is executed by

filling in the NIP and Password then clicking the Log in button. If the password is correct then the Main Menu Form will appear, but if it is wrong the message "NIP/Password does not match!" will appear.

2. Main course

Figure 4.25 Main Menu Form

Information :

The Main Menu Form contains five menus, namely File, View, Master, Transaction and Tool.

1. The File menu contains: Exit.

2. The Master Menu contains: Item Data Form and Room Data Form.

3. The Transaction Menu contains: Placement Form, Mutation Form.

4. The View menu contains: Search for Item List, Search for Room List, Search for Placement List and Search for Mutation List.

5. Tool Menu: Password Setting Form, Straight Line Method Depreciation Calculation Form and calculator.

3. Inventory Item Data

Figure 4.26 Inventory Item Form

Information :

1. The Inventory Item Data Form consists of several text boxes which function as input media.

2. The commands used in the form of command buttons consist of:

(1) Add function to input data.

(2) Save function to save the data that has been input.

(3) Cancel functions to cancel input.

(4) Change functions to correct incorrect data, Update functions to save edited data.

(5) Delete functions to delete data.

(6) Exit functions to close the inventory item data form.

(7) Search functions to search for data based on field groupings.

(8) The inventory item data form is equipped with a grid that is used to display the data.
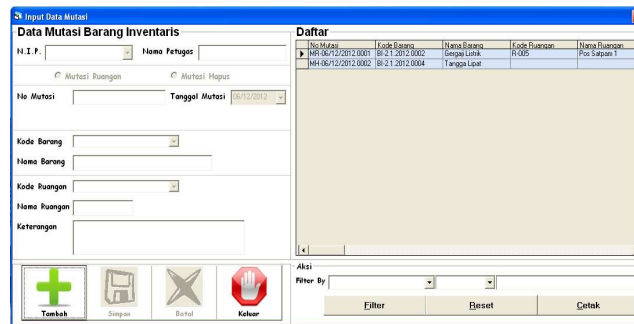
4. Room Data

Figure 4.27 Room Form

Information :

(1) The Inventory Room Data Form consists of several text boxes which function as input media.

(2) The commands used in the form of command buttons consist of:

a) Add function to input data.

b) Save function to save the data that has been input.

c) Cancel functions to cancel input.

d) Change functions to correct incorrect data, Update functions to save edited data.

e) Delete functions to delete data.

f) Exit functions to close the room data form.

g) Search functions to search for data based on field groupings.

h) The room data form is equipped with a grid that is used to display the data.

5. User Data

Figure 4.28 User Form

Information :

a) The User Data Form consists of several textboxes that function as input media.

b) The commands used in the form of command buttons consist of:

    a. Add function to input data.

    b. Save function to save the data that has been input.

    c. Cancel functions to cancel input.

    d. Change functions to correct incorrect data, Update functions to save edited data.

    e. Delete functions to delete data.

    f. Exit functions to close the user data form.

    g. Search functions to search for data based on field groupings.

    h. The user data form is equipped with a grid that is used to display the data.

6. Placement Data

Figure 4.29 Placement Data Form

Information :

A. The Placement Data Form consists of several text boxes which function as input media.

B. The commands used in the form of command buttons consist of:

1. Add function to input data.

2. Save function to save the data that has been input.

3. Cancel functions to cancel input.

4. Change functions to correct incorrect data, Update functions to save edited data.

5. Delete functions to delete data.

6. Exit functions to close the placement data form.

7. Search functions to search for data based on field groupings.

8. The placement data form is equipped with a grid that is used to display the data

7. Mutation Data

Figure 4.30 Mutation Data Form

Information :

A. The Mutation Data Form consists of several textboxes which function as input media.

B. The commands used in the form of command buttons consist of:

(1) Add function to input data.

(2) Save function to save the data that has been input.

(3) Cancel functions to cancel input.

(4) Change functions to correct incorrect data, Update functions to save edited data.

(5) Delete functions to delete data.

(6) Exit functions to close the mutation data form.

(7) Search functions to search for data based on field groupings.

(8) The mutation data form is equipped with a grid that is used to display the data.
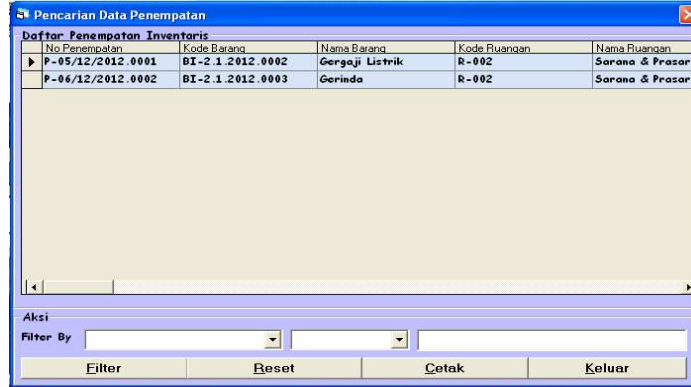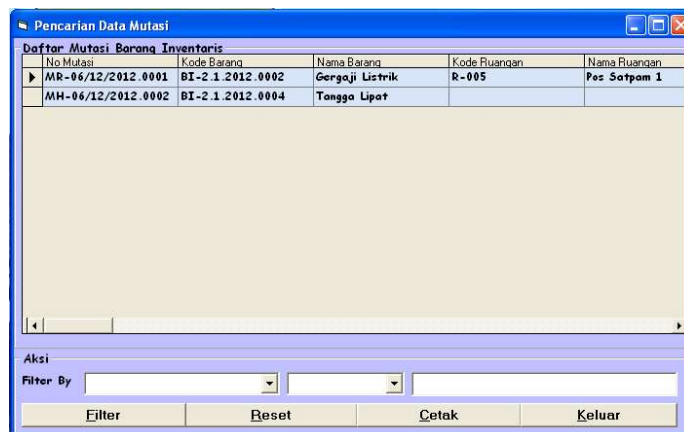
8. Search for Item Data

Figure 4.31 Inventory Item Data Search Form

Information :

A. The Inventory Item Data Search Form consists of several comboboxes and textboxes which function as input media.

B. The commands used in the form of command buttons consist of:

    a. Filters function to display views according to the criteria in question.

    b. Reset functions to restore the appearance to normal.

    c. Print functions to print reports.

    d. Exit functions to close the item data form.

    e. The item data search form is equipped with a grid that is used to display the data.

9. Room Data Search

Figure 4.32 Room Data Search Form

Information :

a. The Inventory Room Data Search Form consists of several comboboxes and textboxes which function as input media.

b. The commands used in the form of command buttons consist of:

    1) Filters function to display views according to the criteria in question.

    2) Reset functions to restore the appearance to normal.

3) Print functions to print reports.

4) Exit functions to close the room data form.

5) The room data search form is equipped with a grid that is used to display the data.

10. Placement Data Search

Figure 4.33 Placement Data Search Form

Information :

a. The Inventory Placement Data Search Form consists of several comboboxes and textboxes which function as input media.

b. The commands used in the form of command buttons consist of:

1) Filters function to display views according to the criteria in question.

2) Reset functions to restore the appearance to normal.

3) Print functions to print reports.

4) Exit functions to close the placement data form.

5) The placement data search form is equipped with a grid that is used to display the data.

11. Mutation Data Search

Figure 4.34 Mutation Data Search Form

Information :

a. The Mutation Data Search Form consists of several comboboxes and textboxes which function as input media.

b. The commands used in the form of command buttons consist of:

    1) Filters function to display views according to the criteria in question.

    2) Reset functions to restore the appearance to normal.

    3) Print functions to print reports.

    4) Exit functions to close the mutation data form.

    5) The mutation data search form is equipped with a grid that is used to display the data.

12. Straight Line Method Depreciation Calculator

Figure 4.35 Straight Line Method Depreciation Calculation Form

Information :

a. The Counter Form consists of several comboboxes and textboxes which function as input media.

b. The commands used in the form of command buttons consist of:

    1. Reset functions to restore the appearance to normal.

    2. To use it, select the item code then press "Tab" then enter the month in the textbox for the number of months to be depreciated, then press "Tab".

13. Item Data Report

Figure 4.36 Inventory Item Data Report

Information :

The Inventory Item Data Report contains a report display of inventory item data.

14. Room Data Report

Figure 4.37 Room Data Report

Information :

The Room Data Report contains a room data report display.

15. User Data Report
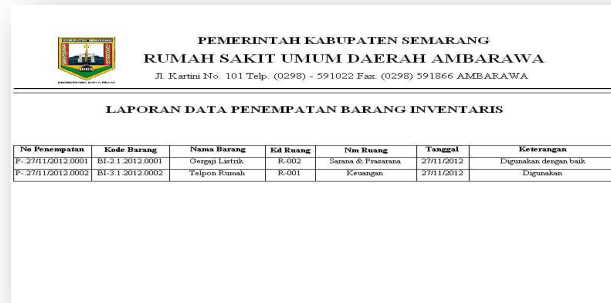
Figure 4.38 User Data Report

Information :

The User Data Report contains a user data report display.

16. Placement Data Report

Figure 4.39 Placement Data Report

Information :

The Placement Data Report contains a display of the placement data report.

17. Mutation Data Report

Figure 4.40 Mutation Data Report

Information :

The Mutation Data Report contains a mutation data report display.

5. CONCLUSION

Considering the discussions that have been carried out in the previous chapters and supported by research or internships that have been carried out by the author for two months at Ambarawa Regional Hospital, the following conclusions can be drawn:

1. The manual system currently used in the process of recording inventory data still has weaknesses, including:

A. Recording inventory data is still done simply because it is only limited to recording inventory and placing it in any room. In the old system, this old system was not equipped with information regarding the depreciation value of inventory items each month.

B. There is no computerized information system that is structured in a database, inventory data processing still uses Microsoft Office Excel as a medium for processing inventory data so that the process of recording inventory data is less effective and efficient.

C. There is no security in the old system, so any unauthorized party can change the data without permission from the authorized party.

2. The implementation of the Inventory Data Recording System is expected to overcome the weaknesses in the old system so that:

A. Designing an inventory recording information system at Ambarawa Regional Hospital on a multiuser basis. So that inventory recording is not only a recorder of inventory transactions, but can also produce information regarding the depreciation value of inventory items each month.

B. Use of a database system as a data storage medium so that data collection regarding inventory is more organized.

C. So that all inventory data processing activities are more controlled because each party involved has their own access rights and data security is more guaranteed.

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