IMPLEMENTATION OF THE WORK ORDER INFORMATION SYSTEM WEB-BASED AT PT XYZ

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Abstract. The aim of this research is to identify the functional requirements for the design of the work order information system at PT. Indosat Mega Media (M2) Bandung. The analysis revealed several issues, including frequent delays in work order information for technicians, a lack of work order plan summaries, and the manual generation of reports. To address these problems, a web-based work order application was developed to streamline work order information management, scheduling, and report generation. Data collection methods included interviews, observations, and literature reviews. The system development approach used is prototyping, with design tools such as Data Flow Diagrams (DFD). Implementation was carried out using PHP and MySQL. The following recommendations are provided: 1) training for system users, 2) regular system maintenance, and 3) further system development to improve its effectiveness.

Keywords: *Work Order Information System, Functional Requirements, Web-based Application*

1. Background of the problem

PT Indosat Mega Media Bandung is one of the leading network service providers with many network sectors in different locations in Bandung.

The need for systematic work order information for field technicians in the technical support area requires a good system to manage work order data that is forwarded to the technical support area. The problem that often occurs is that field technicians do not have work order summary data. There are often delays in work information

field technicians, so the technician does not know the work order plan that will be executed on that working day before the technical support manager communicates the work order information to the technician verbally or via WhatsApp.

One of the parts that will be the focus of this research is the work order information system in the technical support area of PT Indosat Mega Media (M2) Bandung. The establishment of this information system is necessary to provide quick information about work order planning from the branch technical support managers to the technicians. Based on these problems, the author is interested in conducting research to prepare a final project by designing an application titled “Designing a Work Order Information System in the Technical Support Section Using PHP and MySQL at PT Indosat Mega Media (M2) Bandung”.

2. Main Problem

According to the research focus presented, several main issues can be considered, including:

1. There is no work order software for field technicians in the technical support branch

2. There are often delays in informing field technicians about work orders

3. Research Objectives and Benefits

A. Research Purposes

1. To conduct the analysis process of the existing work order information system.

2. To overcome existing problems.

3. To create a work order application in the technical support section of PT Indosat Mega Media (M2) Bandung.

B. Benefits of the Research

1. To expand the author's insight.

2. To satisfy any of the graduation requirements for the Informatics Management Diploma III programme at Piksi Ganesha Polytechnic, Bandung.

4. Theoretical Study

1. Basic Design Concepts

George M. Scott defines system design as follows: “System design determines how a system achieves what needs to be achieved. In this phase, the software and hardware

components of a system are configured so that the system, once installed, will actually work. Truly.” conform to the design determined at the end of system analysis.

2. Basic System Concepts

Murdick and Ross (1993) define a system as a set of elements combined together for a common purpose.

3. Basic Concepts of System Analysis

System analysis can be defined as the decomposition of an information system as a whole into its parts or subcomponents with the goal of identifying and evaluating problems that are expected to suggest improvements for now and in the future.

The main goal of system analysis is to determine the details of what the proposed system will do (rather than how).

4. Basic Concepts of Data and Information

Another definition of data is that data is reality that describes events and entities. Real entity (fact and entity) is true and emergent. For management to make decisions, these factors must be further processed into information.

Definition of Information: According to McLeod (1995), data that has been processed in a processed form becomes a form of information that is more meaningful to the recipient.

5. Basic Concepts of Information Systems

The definition of an information system is a human-created system that consists of components of an organization to achieve a goal, which is to represent an information system.

6. Basic Concepts of Database

A database is a collection of data that is interconnected and stored on a medium without duplicate data so that it can be easily reused, can be used optimally by one or more application programs and the data is stored without being dependent on the program that uses it, the data is stored in such a way that when additions are made, data retrieval and modification can be done easily and in a controlled manner.

7. Flowmap

A flowmap is a graphical representation of the steps and flows of a program. Flowmaps are useful in helping analysts and programmers break problems into smaller segments and help in analyzing operational alternatives.

8. Data Flow Diagrams

A data flow diagram is a model of a system that describes the evolution of breaking down a system into smaller modules. One of the benefits of using a data flow diagram is that it makes it easier for users or those with less computer skills to understand the system to be worked on.

9. Context Diagram

A context diagram is a diagram that consists of a process and describes the scope of the system. The context diagram is the highest level of the DFD that describes all the inputs to the system or outputs of the system

10. Prototyping System Development Method

In its application by system developers, a prototype is a version of a potential system that gives developers and potential users an idea of how the system will work in its finished form. The process of making a prototype is called prototyping.

11. Basic concepts of web programming

Web programming is a way of creating a web by implementing programming language codes that can be run on a server

12. Basic concepts of MySQL and XAMPP

MySQL is a multi-threaded, multi-user SQL database management system (DBMS) software with around 6 million installations worldwide. MySQL AB makes MySQL available as free software under the GNU General Public License (GPL), but also sells it under a commercial license for cases where its use is incompatible with the use of the GPL.

XAMPP is a free software that supports many operating systems and is a compilation of several programs that act as a standalone server (local host) and consists of programming data from the Apache HTTP server, My SQL, a database and a language translator written in the PHP programming language. This program is available as a general public license and is a user-friendly web server that can provide dynamic web displays.

13. Basic concepts of work orders

Work orders are documents that support inspection processing for material deliveries and service requests. Work orders are created based on notifications from the system. The Work Orders feature helps in planning and scheduling work. A work order consists of the scope of work to be performed, the technical object on which the operation is performed, the start/finish schedule and duration, and the associated resources (labor, materials and services).

Basic Theory

1. Research Method

The author uses Qualitative Research Methodology which is a research that is designed in general, namely research conducted for unlimited study objects and does not use scientific methods as a benchmark.

2. Data Collection Techniques

Description of the techniques used in the research process, including:

a. Observation, namely conducting direct research in the field where the Author is conducting Environmental Work Practices to find out what problems can be taken and then sought to solve the problems.

b. Interviews, namely conducting a question and answer session with the Field Supervisor regarding the guest book information system process running at the Gedung Merah Putih Infomedia Bandung.

c. Literature Study, namely using library books as a reference for the Author to obtain the information needed.

d. Internet media, namely carrying out the process of searching for references by exploring sites that provide the information needed.

3. Selection of Prototyping Methods

A prototype is a version of a potential system that provides ideas for developers and prospective users, how the system will function in its finished form. The process of making this prototype is called prototyping.

Prototyping has several advantages, including:

1. Improved communication between developers and users

2. Developers can do a better job of determining user needs

3. Users play a more active role in system development

4. Implementation becomes much easier because users know what to expect.

Results and Discussion

1. Process Design

a. Flowmap

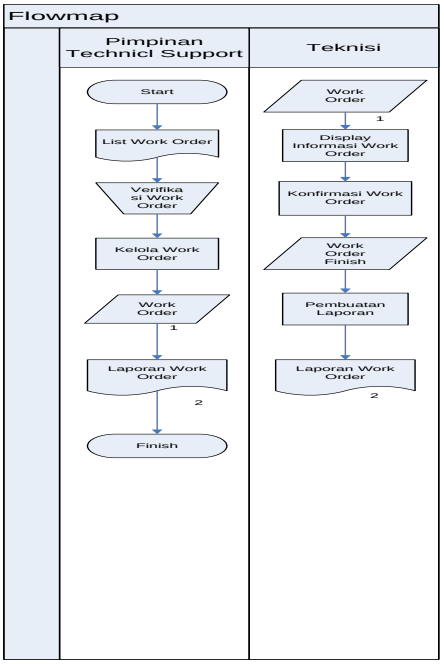


Figure 1 Flowmap of Work Order Information System

b. Context Diagram

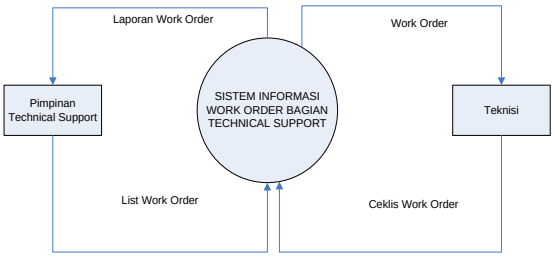


Figure 2 Context Diagram of Work Order Information System

c. Data Flow Diagram of Work Order Information System

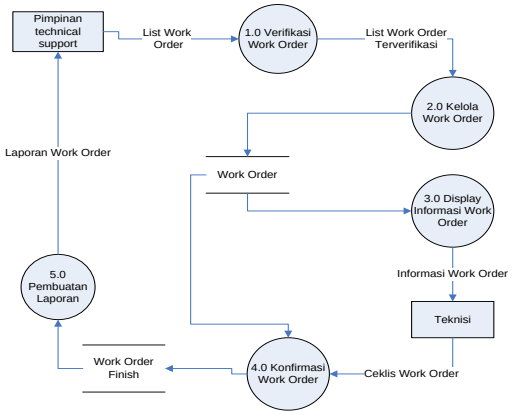


Figure 3 DFD Level 0

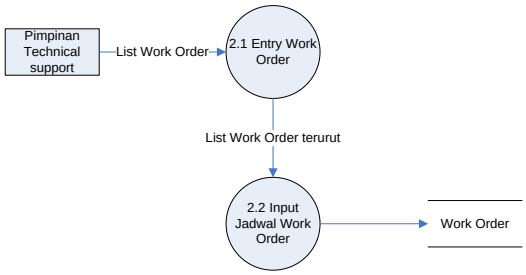


Figure 4 DFD Level 1 Process 1.0

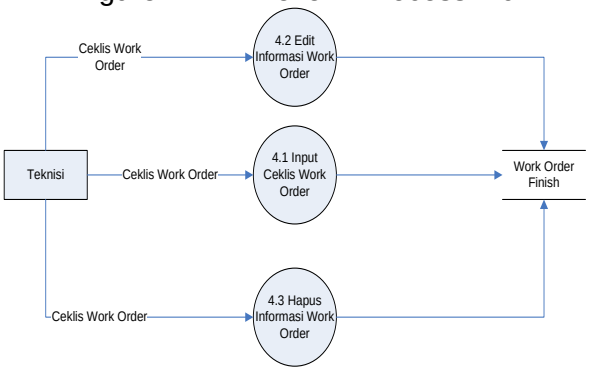


Figure 5 DFD Level 1 Process 4.0

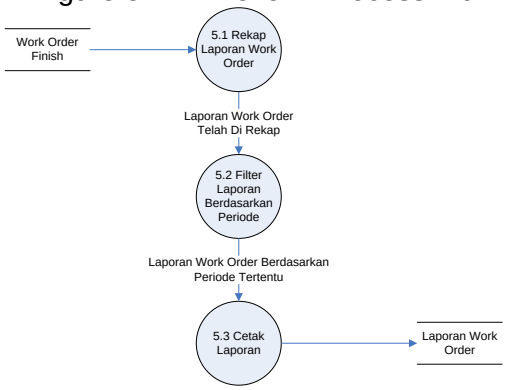


Figure 6 DFD Level 1 Process 5.0

d. Process Specification

Table 1 Process Specification 1.0 Verification

No. Process	1.0
Name Process	Verification
Input	*List work order*
Output	*List work order verification*
Description	Checking data *list work order*.

Table 2 Process Specification 2.0 Manage Work Order

No. Process	2.0
Name Process	Manage work orders

Input	*List work order verification*
Output	*Work order*
Description	The process of managing the creation of work orders for technicians

Table 3 Process Specification 3.0 Display Work Order Information

No. Proses	3.0
Name Process	*Display* information *work order*
Input	*Work order*
Output	*Information work order*
Description	The process of displaying work order information for technicians

Table 4 Process Specifications 4.0 Work order confirmation

No. Process	4.0
Name Process	*Confirmation Process work order*
Input	*Work order, Informasi work order*
Output	*Work order finish*
Description	The process by which technicians confirm work orders that have been completed by matching the work order data.

Table 5 Process Specifications 5.0 Report generation

No. Proses	5.0
Name Process	Report creation
Input	*Work order finish*
Output	*Report Work Order*
Description	The process of creating a work order report carried out by a technician

e. Data Dictionary

Based on the data flow diagram and the process specifications explained, the data dictionary of the above DFD includes the following:

1.List work order = Wo, cid, customer, rfs, time, statusc, provisioning, cluster, floor, unit, phone, internet, google, indosat, team, status

2.Work order = Wo, cid, customer, rfs, time, statusc, provisioning, cluster, floor, unit, phone, internet, google, indosat, team, status

3.work order finish **=** *Wo, cid, customer, rfs, time, statusc, provisioning, cluster, floor, unit, phone, internet, google, indosat, team, prosesrfs, timestart, timefinish, note.*

2. Database design

a. Entity Relationship Diagrams

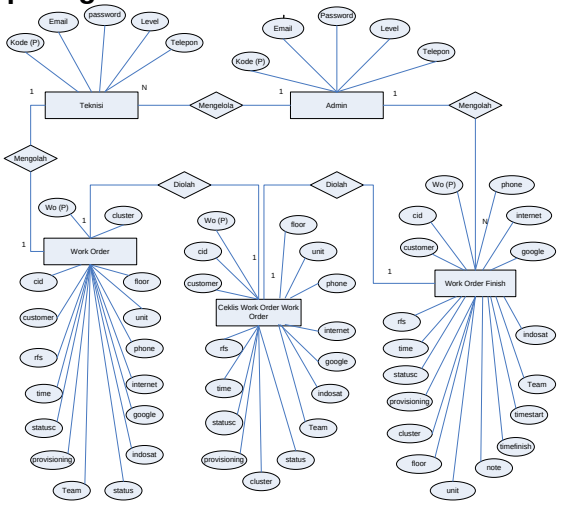


Figure 7 *ERD*

b. Relation Scheme

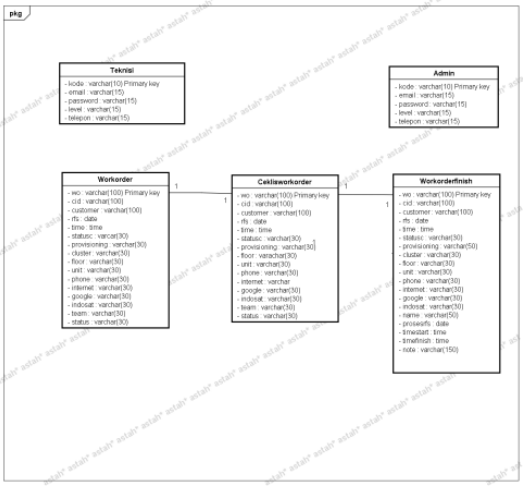


Figure 8 Relation Scheme

c. Database Specification

1. File Name : manager
   Media : Hard disk
   Primary Key : code

Table 6 Manager table

No.	Nama *Field*	*Type (Width*)	Keterangan
1.	Kode	Varchar (10)	*Primary Key*
2.	Email	Varchar (15)	Atribut
3.	Password	Varchar (15)	Atribut
4.	Level	Varchar (15)	Atribut
5.	Telepon	Varchar (15)	Atribut

2. File Name : Listworkorder
   Media : Hardisk
   Primary Key : Wo

Table 7 Listworkorder Table

No.	Nama *Field*	*Type (Width)*	Keterangan
1.	Wo	Varchar (100)	*Primary Key*
2.	cid	Varchar (100)	Atribut
3.	Customer	Varchar (100)	Atribut
4.	Rfs	Date	Atribut
5.	Time	Varchar (30)	Atribut

6.	Statusc	Varchar (30)	Atribut
7.	Provisioning	Varchar (50)	Atribut
8.	Cluster	Varchar (30)	Atribut
9.	Floor	Varchar (30)	Atribut
10.	Unit	Varchar (30)	Atribut
11.	phone	Varchar (30)	Atribut
12.	internet	Varchar (30)	Atribut
13.	google	Varchar (30)	Atribut
14.	indosat	Varchar (30)	Atribut
15.	Team	Varchar (30)	Atribut
16.	status	Varchar (30)	Atribut

3. File Name : workorder
   Media : Hardisk
   Primary Key : Wo

Table 8 Work order table

No.	Nama *Field*	*Type (Width)*	Keterangan
1.	Wo	Varchar (100)	*Primary Key*
2.	cid	Varchar (100)	Atribut
3.	Customer	Varchar (100)	Atribut
4.	Rfs	Date	Atribut
5.	Time	Varchar (30)	Atribut
6.	Statusc	Varchar (30)	Atribut
7.	Provisioning	Varchar (50)	Atribut
8.	Cluster	Varchar (30)	Atribut
9.	Floor	Varchar (30)	Atribut
10.	Unit	Varchar (30)	Atribut
11.	Phone	Varchar (30)	Atribut
12.	Internet	Varchar (30)	Atribut

13.	Google	Varchar (30)	Atribut
14.	Indosat	Varchar (30)	Atribut
15.	Team	Varchar (30)	Atribut
16.	Status	Varchar (30)	Atribut

4. File Name : workorderfinish
   Media : Hardisk
   Primary Key : Wo

Table 9 Work order finish table

No.	Nama *Field*	*Type (Width)*	Keterangan
1.	Wo	Varchar (100)	*Primary Key*
2.	cid	Varchar (100)	Atribut
3.	Customer	Varchar (100)	Atribut
4.	Rfs	Date	Atribut
5.	Time	Varchar (30)	Atribut
6.	Statusc	Varchar (30)	Atribut
7.	Provisioning	Varchar (50)	Atribut
8.	Cluster	Varchar (30)	Atribut
9.	Floor	Varchar (30)	Atribut
10.	Unit	Varchar (30)	Atribut
11.	Phone	Varchar (30)	Atribut
12.	Internet	Varchar (30)	Atribut
13.	Google	Varchar (30)	Atribut
14.	Indosat	Varchar (30)	Atribut
15.	Team	Varchar (30)	Atribut
16.	Status	Varchar (30)	Atribut

d. Input Design

A. Work Orders

- Name: Work Order

- Source: Technical Support Manager

- Function: Provides detailed information about work orders to be executed by technicians.

- Model: Data

- Data Elements: Where, CID, Customer, RFS, Time, Statusc, Deployment, Cluster, Floor, Unit, Phone, Internet, Google, Indosat, Team, Status

B. Work Order Checklist

- Name: Work Order Checklist

- Source: Technician

- Function: Confirms that the work order has been received and executed.

- Model: Data

- Data Elements: Where, CID, Customer, RFS, Time, Statusc, Deployment, Cluster, Floor, Unit, Phone, Internet, Google, Indosat, Team, Status

e. Output Design

A. Work Order Reports Based on Specific Periods

- Name: Work Order Report Based on Period

- Source: Technical Support Manager

- Function: Serves as proof that the work order was completed by the technician.

- Model: Paper

- Data Elements: Where, CID, Customer, RFS, Time, Statusc, Deployment, Cluster, Floor, Unit, Phone, Internet, Google, Indosat, Team, Name, Jasarfs, TimeStart, TimeEnd, Note

B. Work Order Report Based on Deployment

- Name: Work Order Report Based on Deployment Category

- Source: Technical Support Manager

- Function: Serves as evidence that the work order was completed according to the deployment category.

- Model: Paper

- Data Elements: Where, CID, Customer, RFS, Time, Statusc, Deployment, Cluster, Floor, Unit, Phone, Internet, Google, Indosat, Team, Name, Jasarfs, TimeStart, TimeEnd, Note.

C. Work Order Report Based on Team

- Name: Work Order Report Based on Team Category

- Source: Technical Support Manager

- Function: Serves as evidence that the work order was completed by a specific team.

- Model: Paper

- Data Elements: Where, CID, Customer, RFS, Time, Statusc, Deployment, Cluster, Floor, Unit, Phone, Internet, Google, Indosat, Team, Name, Jasarfs, TimeStart, TimeEnd, Note.

D. Work Order Report Based on Status

- Name: Work Order Report Based on Status Category

- Source: Technical Support Manager

- Function: Serves as evidence that the work order was completed, categorized by its status.

- Model: Paper

- Data Elements: Where, CID, Customer, RFS, Time, Statusc, Deployment, Cluster, Floor, Unit, Phone, Internet, Google, Indosat, Team, Name, Jasarfs, TimeStart, TimeEnd, Note.

f. Screen Dialog Design

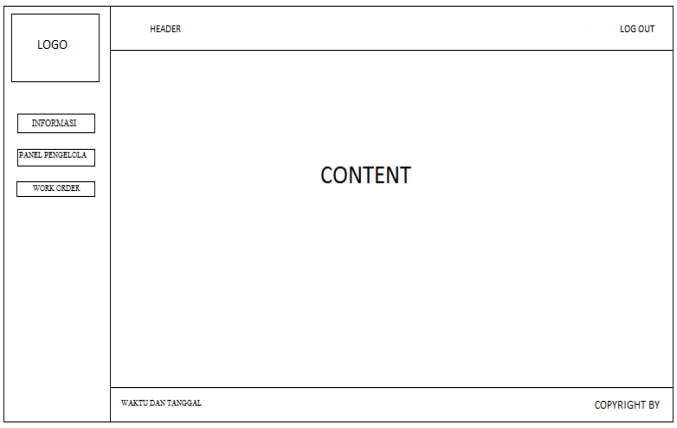


Figure 9 Main Page Display Structure

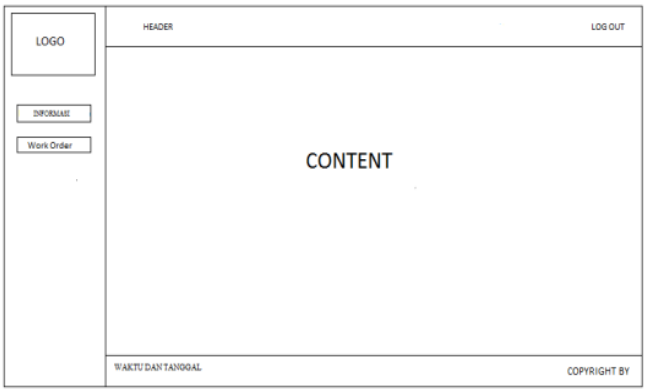


Figure 10 Technician Page View Structure

g. Hardware and Software Specifications

A. Hardware Specifications

Processor: Intel Pentium 4/Dual Core

Hard Drive: At least 250GB

RAM: 1GB

VGA: 128MB/more

Monitor: LCD/LED 17 inch/more

B. Software Specifications

Operating System: Windows 7

Programming Language: PHP

Database: MySQL

Programming Editor: Notepad++

Website Design: Notepad++

Browser: Google Chrome

h. Implementasi Sistem

Figure 11 Login

Figure 12 Main menu

Figure 13 Page About Company

Figure 14 Page Contact Person

Figure 15 Page *Site*

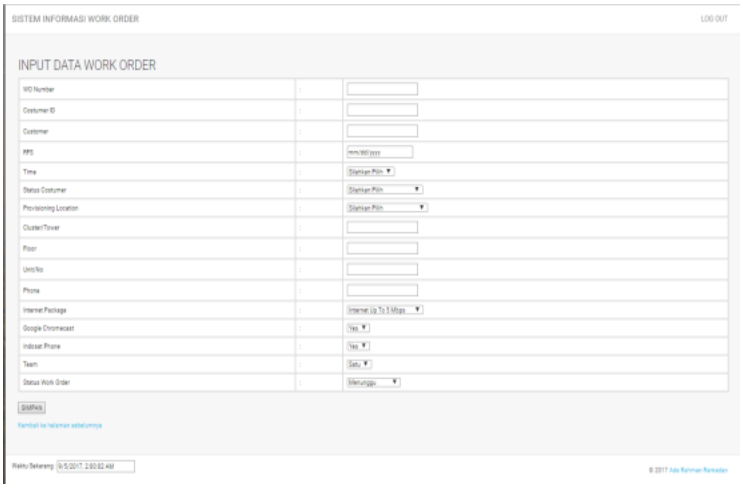


Figure 16 Page Input List Work Order

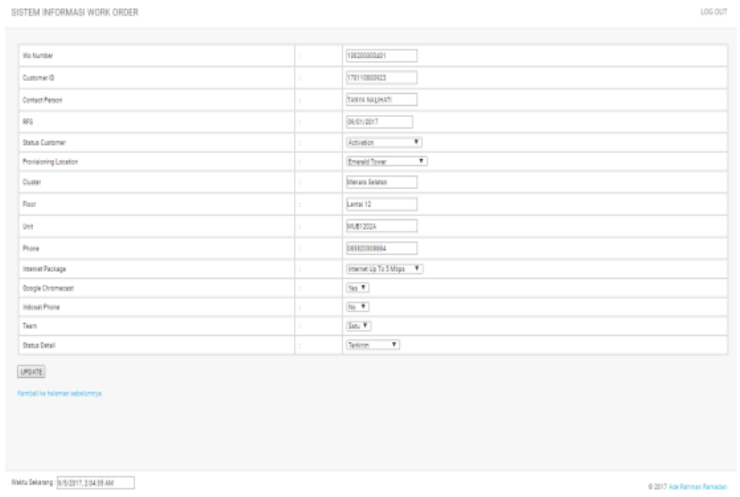


Figure 17 Page Edit List Work Order

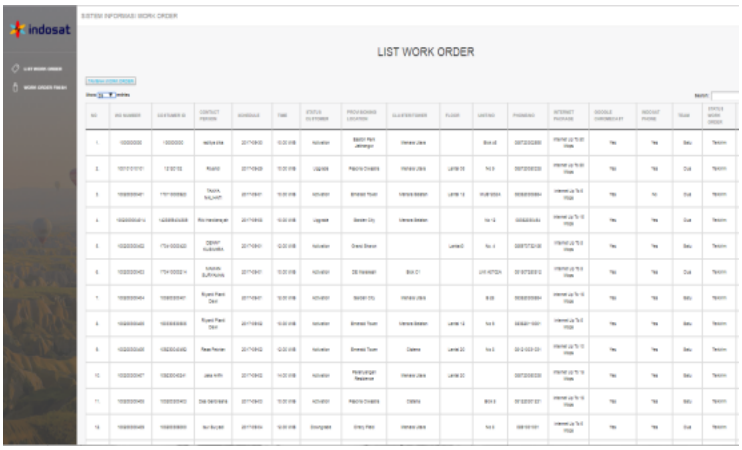


Figure 18 Page List Work Order

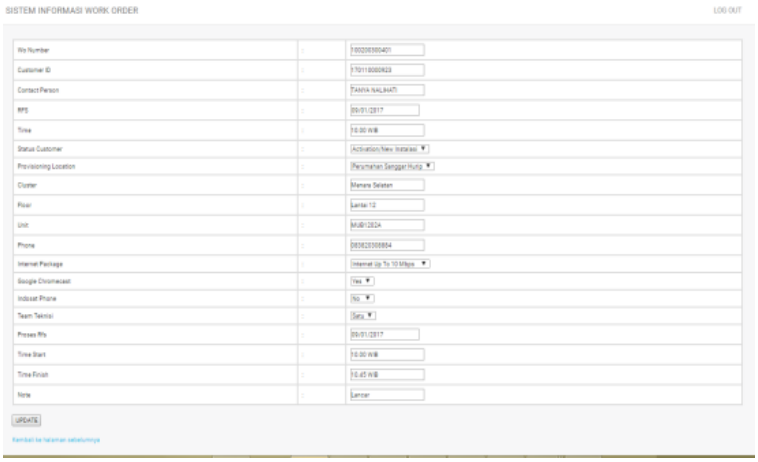
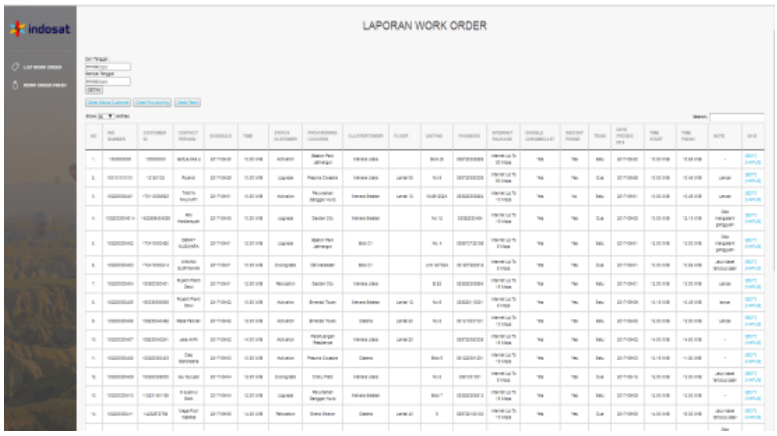


Figure 19 Page Edit Work Order Finish



Page 20 Page Report Work Order

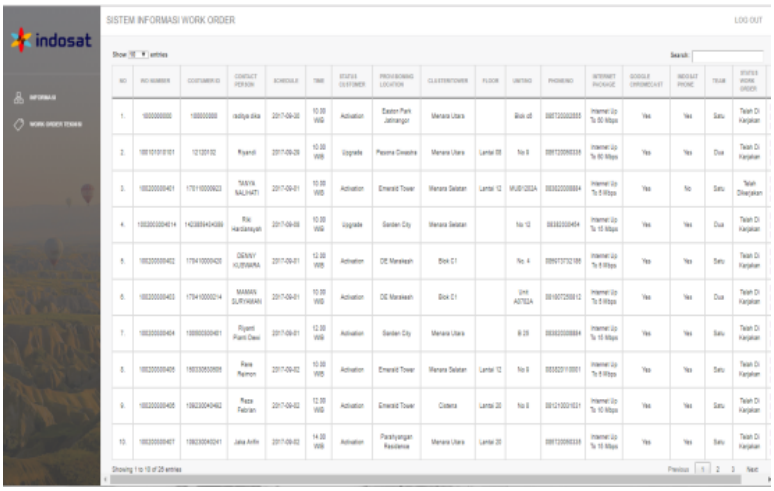


Figure 21 Main menu technician

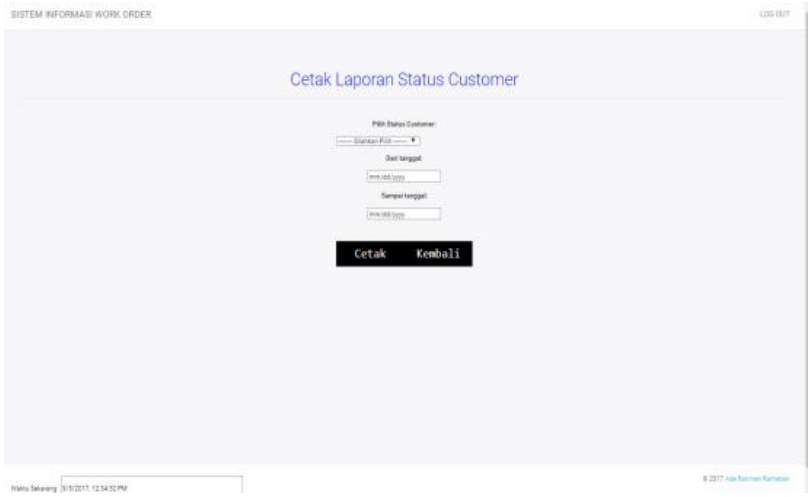


Figure 22 Customer Print Category Select Page

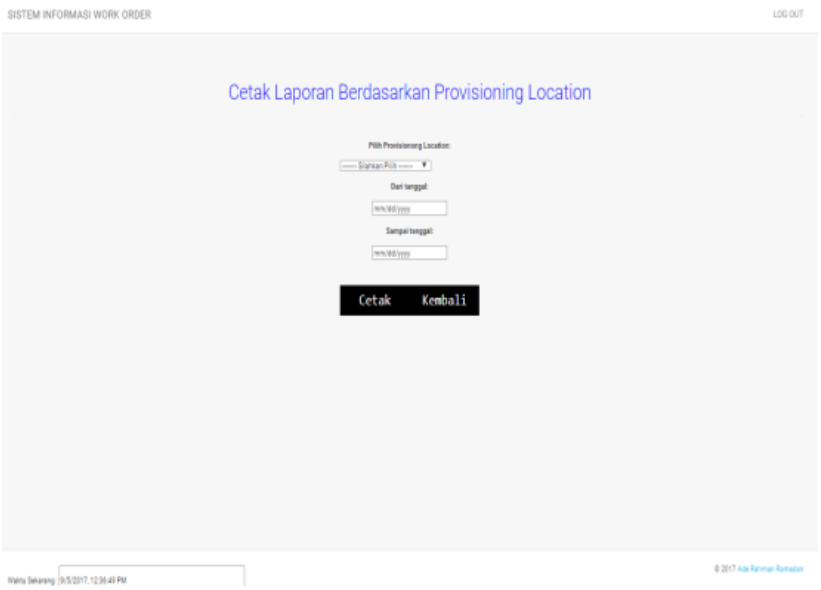


Figure 23 Page Select category Print Provisioning

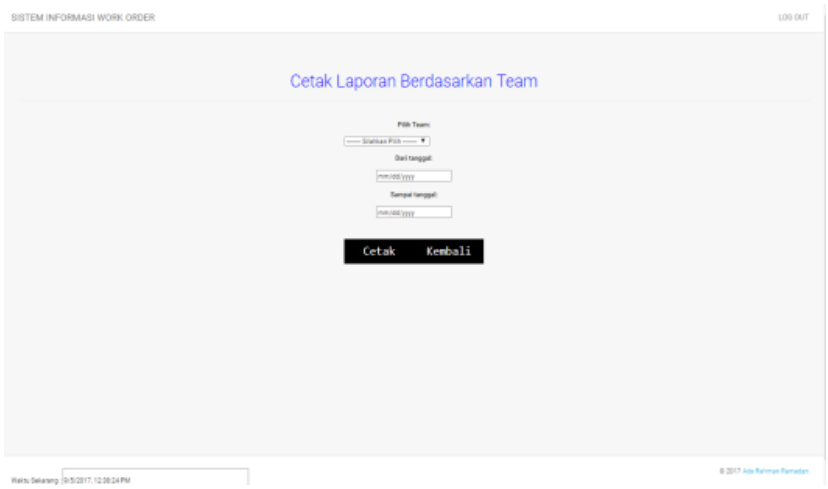
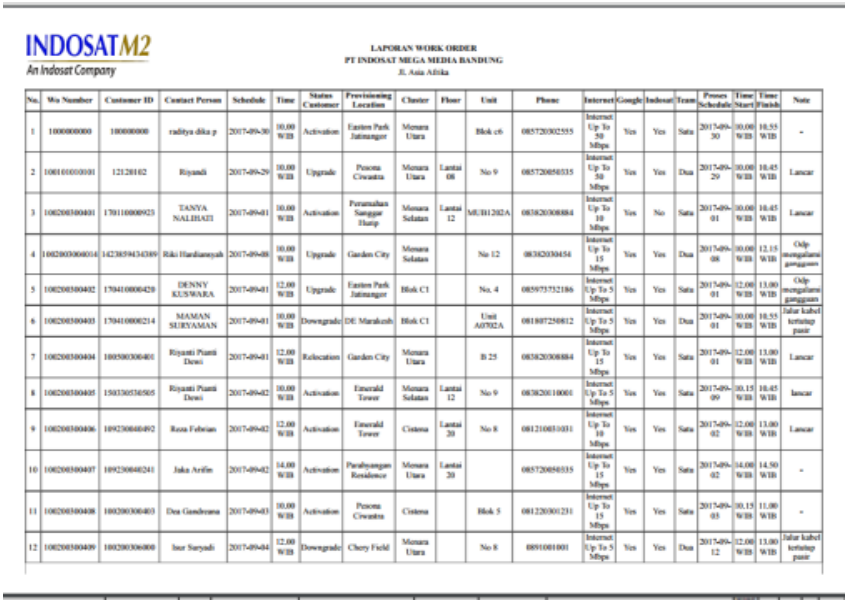


Figure 24 Print Report View



INDOSAT M2
An Indosat Company

LAPORAN WORK ORDER
PT INDOSAT MEGA MEDIA BANDUNG
Jl. Asia Afrika

No.	Wo Number	Customer ID	Contact Person	Schedule	Time	Status Customer	Provisioning Location	Cluster	Floor	Unit	Phone	Internet	Google	Indosat	Team	Proses Schedule	Time Start	Time Finish	Note
1	1000000000	180000000	raditya dika p	2017-09-30	10.00 WIB	Activation	Eastern Park Jatinangor	Menara Utara		Blok c6	085720302555	Internet Up To 50 Mbps	Yes	Yes	Satu	2017-09-30	10.00 WIB	10.55 WIB	-
2	100101010101	12120102	Riyandi	2017-09-29	10.00 WIB	Upgrade	Pesona Ciwastra	Menara Utara	Lantai 08	No 9	085720050335	Internet Up To 50 Mbps	Yes	Yes	Dua	2017-09-29	10.00 WIB	10.45 WIB	Lancar
3	100200300401	170110000923	TANYA NALIHATI	2017-09-01	10.00 WIB	Activation	Perumahan Sanggar Hurip	Menara Selatan	Lantai 12	MUH1202A	083820308884	Internet Up To 10 Mbps	Yes	No	Satu	2017-09-01	10.00 WIB	10.45 WIB	Lancar
4	100200300401	1423859434389	Riki Hardiansyah	2017-09-08	10.00 WIB	Upgrade	Garden City	Menara Selatan		No 12	08382030454	Internet Up To 15 Mbps	Yes	Yes	Dua	2017-09-08	10.00 WIB	12.15 WIB	Odp mengalami gangguan
5	100200300402	170410000420	DENNY KUSWARA	2017-09-01	12.00 WIB	Upgrade	Eastern Park Jatinangor	Blok C1		No. 4	085975732186	Internet Up To 5 Mbps	Yes	Yes	Satu	2017-09-01	12.00 WIB	13.00 WIB	Odp mengalami gangguan
6	100200300403	170410000214	MAMAN SURYAMAN	2017-09-01	10.00 WIB	Downgrade	DE Marakesh	Blok C1		Unit A0702A	081807250812	Internet Up To 5 Mbps	Yes	Yes	Dua	2017-09-01	10.00 WIB	10.55 WIB	Jalur kabel tertutup pasir
7	100200300404	180500300401	Riyanti Pianti Dewi	2017-09-01	12.00 WIB	Relocation	Garden City	Menara Utara		B 25	083820308884	Internet Up To 15 Mbps	Yes	Yes	Satu	2017-09-01	12.00 WIB	13.00 WIB	Lancar
8	100200300405	150330576505	Riyanti Pianti Dewi	2017-09-02	10.00 WIB	Activation	Emerald Tower	Menara Selatan	Lantai 12	No 9	083820010001	Internet Up To 5 Mbps	Yes	Yes	Satu	2017-09-09	10.15 WIB	10.45 WIB	lancar
9	100200300406	109230040492	Reza Febrian	2017-09-02	12.00 WIB	Activation	Emerald Tower	Cistena	Lantai 20	No 8	081210031031	Internet Up To 10 Mbps	Yes	Yes	Satu	2017-09-02	12.00 WIB	13.00 WIB	Lancar
10	100200300407	109230040241	Juka Arifin	2017-09-02	14.00 WIB	Activation	Purabyangan Residence	Menara Utara	Lantai 20		085720050335	Internet Up To 15 Mbps	Yes	Yes	Satu	2017-09-02	14.00 WIB	14.50 WIB	-
11	100200300408	100200300403	Dea Gandreana	2017-09-03	10.00 WIB	Activation	Pesona Ciwastra	Cistena		Blok 5	081220301231	Internet Up To 15 Mbps	Yes	Yes	Satu	2017-09-03	10.15 WIB	11.00 WIB	-
12	100200300409	100200306000	Isur Suryadi	2017-09-04	12.00 WIB	Downgrade	Chery Field	Menara Utara		No 8	0891001001	Internet Up To 5 Mbps	Yes	Yes	Dua	2017-09-12	12.00 WIB	13.00 WIB	Jalur kabel tertutup pasir

Figure 25 Page Report *Work Order*

Conclusion

Based on the results of observation activities at PT Indosat Mega Media Bandung by conducting interviews and research on the work order information system in the technical support field, the author draws the following conclusions:

1. The currently running system is still manual, that is, the delivery of work orders is still done verbally between technical support managers and technicians

2. Field technicians do not have a summary of the work order processing plan provided by the branch technical support manager, and there are often delays in transmitting work order information to field technicians.

3. To solve the problem, design a work order software with the following functions:

A. Manage work order planning information

B. Manage work order data summaries

C. Prepare work order reports

The aim is to facilitate the communication of work order information between technical support managers and field service technicians

Suggestions

Based on the results of the research conducted, the author provides several suggestions for all parties responsible for processing work order data in the technical support area of Indosat Mega Media Bandung, which he hopes will be useful and can be considered to improve the performance of this system. The suggestions are as follows:

1. Check the data regularly so that the data is always up to date

2. Software maintenance to maintain data stability

3. Adequate software and hardware support to enable the application to run optimally

4. Maintenance of the application programs and training of the administrators responsible for running the application.

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