Analysis of Digital Population Services for the Poor in Palembang City Using the Information Technology Infrastructure Library (ITIL) Framework

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***Abstract*— As it is known that the city government of Palembang has implemented e-government, but how much e-government can help the Palembang city government to interact between the government and all levels of society including the poor in Palembang city. In its application, the condition of e-government services is still insufficient for the infrastructure to support e-government services for the poor in Palembang city. To design e-government services such as good digital population services, it is necessary to design IS / IT services for people in Palembang City with the Service Design stage in the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework so that they can be accepted by all levels of society including the poor in Palembang city. This study uses a qualitative approach. The results of this research are in the form of a digital population service information system design such as administrative and population services, Family Hope Program (PKH) services and digital archive storage services based on the Service Design stages in ITIL Version 2011 that have been carried out, namely the Service Catalog Management process and Service Level Management in the form of documents. Service Level Requirements, Service Level Agreement and Operational Level Agreement.**

Keywords*—*Population digital services, ITIL version 2011, service catalog management, service level management, service level requirements, service level agreements, operational level agreements

I. INTRODUCTION

Information technology can be used optimally as a form of technology-based public service called e-government. E-government is defined as a medium for delivering information from the government and for providing services to the public through the internet or other digital means [1]. E-Government is a process of interacting between the government and the community and other groups who have an interest, using information technology such as the internet which aims to improve service quality. So, the existence of e-government can help the government to improve the quality of services in the delivery of information that can improve communication and 2 (two)-way interaction between the community and the government.[2].

One of the cities that has implemented e-government in Indonesia is Palembang City such as the construction of the Hallo Palembang application, which is a public service application that can be accessed by all people for information. As it is known that the city government of Palembang has implemented e-government, but how much e-government can help the Palembang city government to interact between the government and all parts of society including the poor in Palembang city. One of the obstacles faced by, among other factors, the Human Resources (HR) in particular are experts in their field, infrastructure and internet access that can not be utilized by all levels of society including the poor in the city of Palembang.

According to data from the Central Statistics Agency (BPS) of South Sumatra Province, the number of poor people in Palembang city in 2019 amounted to 180.67 thousand [3]. Various efforts to overcome poverty, the government has many poverty alleviation programs. One of the existing programs is the Family Hope Program (PKH)starting in 2007 the Government of Indonesia has organized PKH. PKH is a program for providing conditional social assistance aimed at poor families (KM) who are designated as PKH beneficiary families[4].

There are several theories that can be used to measurethe role of e-government to improve communication between the government and the poor in Palembang City. In the implementation of the e-government system, there are 3 (three) aspects of the problem that are quite large, including: (1) Aspects of Culture, such as lack of acceptance from society and service providers like the government on system *electronic government*; (2) Leadership Aspects, at the central government level and regional government levels there are

often conflicts of interest, and (3) Infrastructure Aspects, provision of *information and communication technology* still centralized, only a few big cities and still very minimal even no expert staff is needed, especially in remote and inland areas [5].

There are various obstacles that become factors for the implementation of e-government, namely the weak leadership factor, limited human resources, digital gaps, lack of coordination and weak regulatory arrangements. Solutions that can overcome various problems to implement e-government, namely increasing the ability of Human Resources (HR) to participate in e-government development by participating in training (training), the existence of government policies/regulations to prepare divisions that focus on managing information technology in city government Palembang and is obliged to establish cooperation between the government and the private sector so that it can deal with existing problems[6].

II. LITERATURE REVIEW

A. E-Government

Two definitions of e-government first, from The World Bank, which explains that e-government is: "E-Government refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. E-Government is concerned with the use of information technology (such as wide area networks, internet and mobile computing) by government organizations that have the ability to manage relationships with citizens, businesses and other organizations in government "[7].

E-government is a form of application consisting of various components of information technology infrastructure used by the government in interacting and communicating with the public [8].

B. Population Digital Services

Public services have an important role in giving public trust to the government and the government as executors of public services in order to continue to improve services and innovate in accordance with the times by taking advantage of advances in information technology. This utilization can be realized in the form of digital population services so that it can make it easier for the community to take care of population administration.[9]

One form of public service is population administration services in order to meet the needs of the community, especially in the field of administration. With the development of technology and communication, service providers must provide effective and efficient services by utilizing ICT through application*e-government* such as digital population services [10].

C. Poor Society in Palembang City

The Central Statistics Agency of South Sumatra Province uses a concept of ability in fulfilling basic needs, an approach to measuring the level of poverty. Economic inability to fulfill basic needs, both food and non-food, measured by expenditure, is known as poverty. Poor people are people who have an average expenditure per capita per month below the poverty line.

D. Family Hope Program (PKH)

Based on the Book PKH Implementation Guidelines for 2019, The Family Hope Program is a conditional social program for poor families as PKH recipients. With the PKH, receiving communities can use various types of services such as health services, education and assistance.

There are 3 criteria for PKH recipients, including:

1. The health sector is aimed at pregnant women and children aged 0 - 6 years.
2. The education sector is aimed at elementary school children; pesantren aged> 6 to 12 years, junior high school children / equivalent; pesantren aged> 12 to 15 years, and high school children / equivalent; pesantren aged> 15 to 21 years.
3. The field of social welfare includes: elderly people who are 70 years old and those with special needs.[4]

E. Information Technology Service Management (ITSM)

Information Technology Service Management is the ability of a specific organization to deliver value to users regarding services by providing and ensuring the quality of Information Technology services[11]. Some of the benefits of implementing Information Technology service management include increasing the effectiveness of information technology, increasing user response and increasing the quality of service availability[12].

F. IT Infrastructure Library (ITIL)

IT *Infrastructure Library* (ITIL) was implemented for the first time by the Office of Government Commerce, which is an agency under the British government, in partnership with the IT Service Management Forum, an independent organization on IT service management and the British Standard Institute, which is a British government standards-setting agency. ITIL is a framework in the management of IT services that has been used as a standard in the software development industry in the world and was developed for the first time in the late 1980s.[13].

*Framework*ITIL is based on 5 (five) service life cycles. ITIL's service lifecycle has 5 (five) phases, including Service Strategy, Service Design, Service Transition, Service Operation and Continuous Service Improvement.[14].

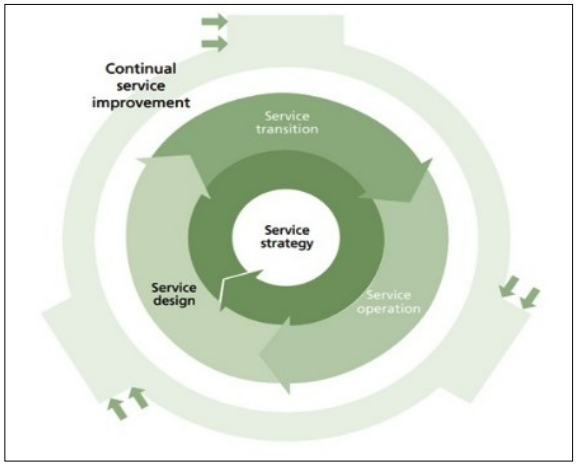

Fig. 1. ITIL service lifecycle (TSO, 2011)

1) *Service Strategy*

Service Strategy as a guideline for ITSM implementation which not only provides, manages and operates IT services in an organization but as a company strategic tool. The processes in the Service Strategy include Service Portfolio Management, Financial Management and Demand Management.

2) *Service Design*

Service Design as a guide for IT organizations to design, develop IT services, and implement ITSM systematically and Best Practices. The scope of service design is not only for designing new IT services, but includes changes and improvements to the quality, continuity and performance of a service. The processes involved in service design are: Service Catalog Management, Service Level Management, Capacity Management, Availability Management, IT Service Continuity Management and Information Security Management and Supplier Management. [15].

3) *Service Transition*

Service Transition (Service Transition) as a guide in developing the design results of IT services, both new services and old IT services and the specifications will be changed into the operational environment.

4) *Service Operation*

Service Operation one of the stages covering all IT service management activities. There are various IT service management guidelines, such as guidelines for maintaining the stability of IT service operations, managing design changes, scope and performance targets for IT services.

5) *Continual Service Improvement*

Continual Service Improvement as a guide in the preparation and maintenance of service quality starting from the design, transition and operation processes.

G. Service Design

The processes involved in Service Design are:

1) *Service Catalog Management,* a process that provides a service catalog, maintains and provides information on all services, both services that have been operated and services that are still in development.
2) *Service level Management,* approve and document all IT services that produce report output to service providers in order to provide agreed services.
3) *Supplier Management,* managing the quality of IT services
4) *Capacity Management,* maintaining a balance between costs, supplies and service requirements.
5) *Availability Management,* guarantee that all services are available and accepted by the user
6) *IT Service Continuity Management,*provide support and repair on IT services.
7) *Information Security Management*, improve information security effectively[16].

H. Development of e-government communication

There are 3 types of e-government channels based on needs, namely, Website, Mobile and Kiosk. The mobile e-government channel is one of the efforts made by the government to be able to communicate with the middle to upper class society. Web-based e-government channel is a website aimed at those who have a computer infrastructure in the form of internet access and computers/laptops. The KIOSK E-government channel makes it easy for underprivileged people whose economic and educational levels are still below[17].

Important leadership aspects in the implementation of e-government services are charismatic, inspirational motivation, motivating and inspiring, intellectual stimulation and individual consideration.[18].

The ability to socialize electronic transactions and the readiness of the public to use e-government service facilities are very important in the success of e-government.[19].

Based on the literature above, a concept of service analysis is taken digital population for the poor in the city of Palembang using the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework as follows.

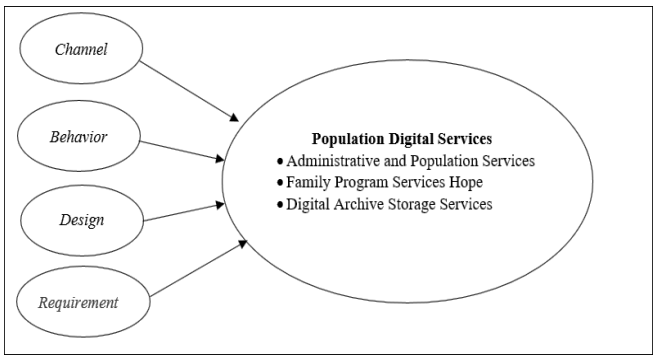

Fig. 2. Concept analysis of population digital services for the poor in the city of Palembang using the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework

III. RESEARCH METHODS

A. Data Collection Techniques

This study uses a qualitative approach and the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework in a case study of digital population services at RT.20 RW.03 Pulo Kerto Subdistrict, Gandus District, Palembang City. Some of the methods used in collecting data and information in this study include:

a. Interview

The interview is used as a data collection technique if the researcher wants to conduct a preliminary study to find problems that must be researched, but also if the researcher wants to know more in-depth things from the respondent. [20]. In this study, interviews were conducted with The Head of RT, PKH Facilitators and Communities in Plaju District, Gandus District and Sukarami District, Palembang City using interview guides.

b. Documentation

Data collection was carried out by studying and recording archives, reports and other materials related to digital population services at RT.20 RW.03 Pulo Kerto Subdistrict, Gandus District, Palembang City.

c. Observation
Data collection is obtained by observing and observing directly to see the actual situation in order to get a clear picture of population digital service through these observations or observations, so the information obtained and presented can be the same as the situation in the field.

B. Analysis of ongoing services

From the results of data and information collection, an ongoing service analysis was carried out to determine Population Digital Services for the Poor in Palembang City Using the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework.

C. Analysis of IS/IT Service Needs

The next stage is to analyze the needs of IS/IT services in the process of Digital Population Services for the Poor in Palembang City Using the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework.

D. IS/IT Service Design using Service Design in the Information Technology Infrastructure Library (ITIL) Framework Version 2011

Designing IS/IT services for the Digital Population Service process for the Poor in Palembang City Using the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework in order to obtain service designs according to the needs of these services.

E. Verification of IS/IT Service Design

After the results of the IS/IT service design are completed, a verification process will be carried out to users and service providers whether they are in accordance with existing conditions and have supported the process for the poor in Palembang City using a structured interview method that has been prepared based on the service design that has been made.

IV. RESULTS AND DISCUSSION

The discussion includes analysis of ongoing services, IS/IT Service Needs Analysis, IS/IT Service Design using Service Design in the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework and Verification of IS/IT Service Design.

A. Analysis in progress

In designing Digital Population Services for the Poor in Palembang City in Plaju District, Gandus District and Sukarami District, the main thing to do is to define existing business processes and IT services based on the results of interviews described in Table 1.

TABLE I. IT SERVICE TABLE RUNNING

No.	Business process	Activity	IT services
1	Administration and Population Services	Services related to certificates such as certificates for making/extending ID cards, making KK, transfer certificates, SKCK/SKBD cover letters, birth or death certificates and unmarried certificates.	-
2	Family Hope Program Service (PKH)	a. PKH Disbursement Information b. How to use and cash withdrawal transactions via ATM machines c. PKH complaint service d. Print Reports of community recipients of the Family Hope Program (PKH)	-
3	Digital archive storage service	a. Scanning manuscripts/letters b. Scanning documents such as National Identity Card (KTP)	-

The business processes on the system that are running are still not able to meet the needs of the community. One of the obstacles, such as in managing KTP (Id Cards) and KK (Family Cards), the community has difficulty in making RT's Cover Letters because they rarely meet with the Head of RT and are still done manually, the community must come to the house The Head of RT and PKH assistants to submit complaints, such as complaints about information on delays in disbursing PKH assistance and it is still done manually for collecting the required ID and KK documents.

B. IS/IT Service Needs Analysis

a) Needs for Information Technology Services

Information Technology Service Needs Analysis described in the following table:

TABLE II. TABLE MEETING SERVICE STANDARDS

Service Standards	IT services
Communication Network and the establishment of a government information portal	a. Provide internet access for the public b. KIOSK Based Information System for the poor
Public service transaction security	For security access to an account, a user and password are required
Participation in utilization *e-government*	The KIOSK-based information system is designed with a system that is easy to operate (user-friendly) by the user
HR preparation	Availability of human resources who have skills/expertise in implementing e-government, especially digital population services for the poor
The stages of preparation, maturation, consolidation, and utilization.	a. Preparation stage: making a KIOSK-based information system and providing outreach for the community b. Maturation: The system can be integrated with other e-government systems so that it can provide convenience in terms of exchanging data/information. c. Consolidation: making website for public service transactions d. Utilization: government and regional websites must be continuously improved
User	Users of the Digital Population Service Information System for the Poor based on KIOSK for The Head of RT, PKH Facilitators and the Poor Society.

b) System Requirements Analysis

1) Hardware (Hardware)
The specifications needed to run the system include: Intel Core i3 Mini PC, 4GB RAM, LED Monitor, 20'inch LED Touchscreen, CPU, 500GB Hard Drive, Scanner, Thermal Printer, Wifi, Box or KIOSK Case

2) Software (Software)
The specifications needed to run the system include: *Operating System* Window 10, PHP programming language, Database using MySQL Server, XAMPP,

Adobe Dreamweaver and browsers such as Mozilla Firefox or Google Chrome

C. *Service Catalog Management*

IT service needs are presented in the form of integrated data and information. Administration and Population Services, Family Hope Program Services (PKH) and digital archive storage services are formed in one website-based application in the form of a Digital Population Service information system for the Poor in Palembang City Using the 2011 Version of the Information Technology Infrastructure Library (ITIL) Framework.

D. *Service Level Requirement (SLR) document*

To be able to find out how the population digital service information system can be provided and used optimally by users and service providers, the service needs of the population digital service information system must be defined first. Service requirements are made in the form of Service Level Requirements, which lists the needs of services in the Service Catalog to be aligned with business process needs. This Service Level Requirement or SLR contains service requirements consisting of functionality and service levels.

E. *Service Level Agreement (SLA) document*

Based on the SLR that has been determined, a Service Level Agreement (SLA) is developed as the basis for service delivery. This SLA covers all digital population services based on the KIOSK website with several services in it that will be used by 3 main users, namely the Head of RT, PKH Facilitators and poor society.

F. *Operational Level Agreement (OLA)*

Digital Population Services for the Poor in Palembang City in general, in accordance with the Service Catalog, namely Administration and Population Services, Family Hope Program Services (PKH) and Digital Archive Storage Services.

G. *Flowchart or Service Flow*

1) The Head of RT Flowchart

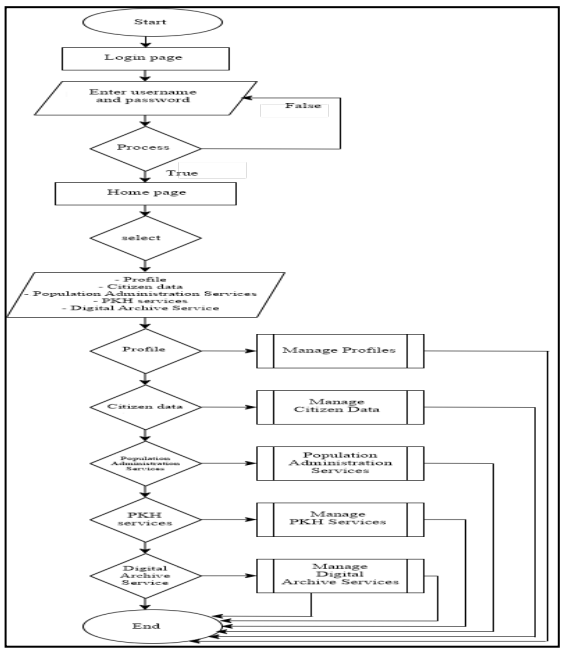

Fig. 3. The Head of RT Flowchart

2) PKH Facilitator Flowchart

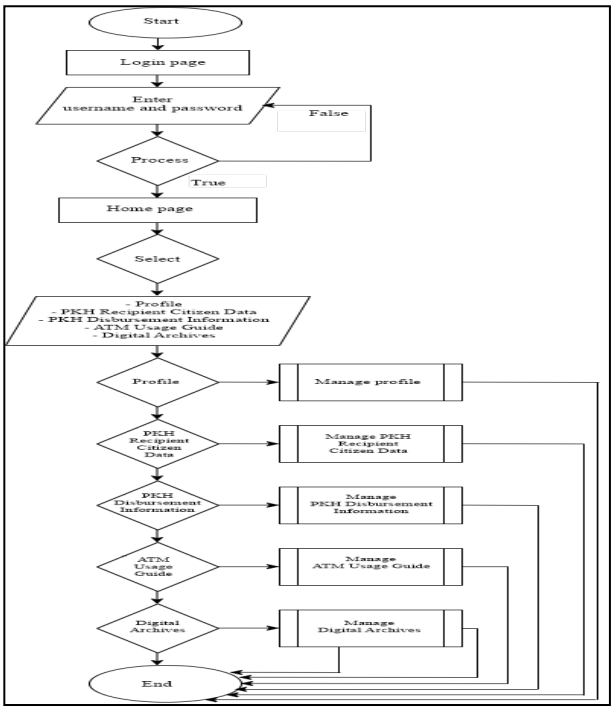

Fig. 4. PKH Facilitator Flowchart

3) Poor Society Flowchart

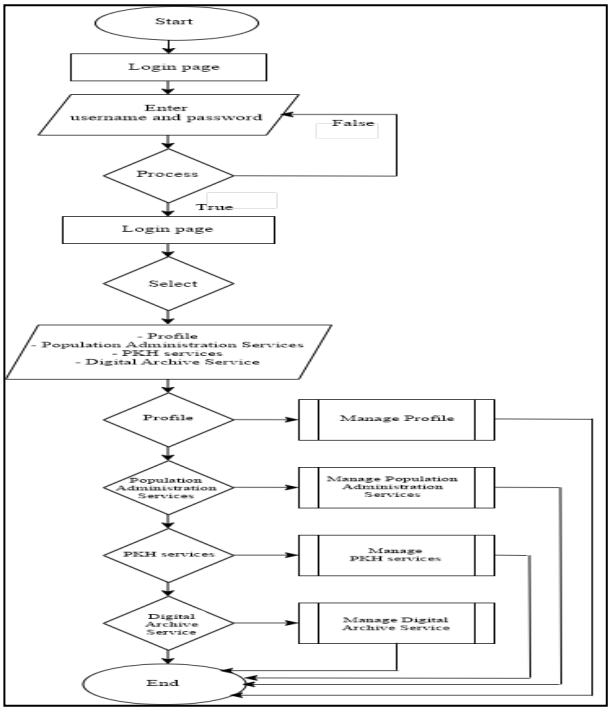

Fig. 5. Poor Society Flowchart

H. *Database Design*

Design a system database with tables such as user tables, The Head of RT tables, PKH Facilitator tables, community tables, archive data tables, PKH recipient tables, announcement tables, PKH complaints tables, and cover letters tables.

I. *Design or Designing Services*

1) Login Page Design

It is a login data input process in the form of a username and password in the Digital Population Service

Information System for the Poor in Palembang City, which consists of 3 (three) levels, namely the Head of RT, PKH Facilitators and Poor Society. To log in, use your KTP (ID Card) number as username. Date, month, year of birth as password.

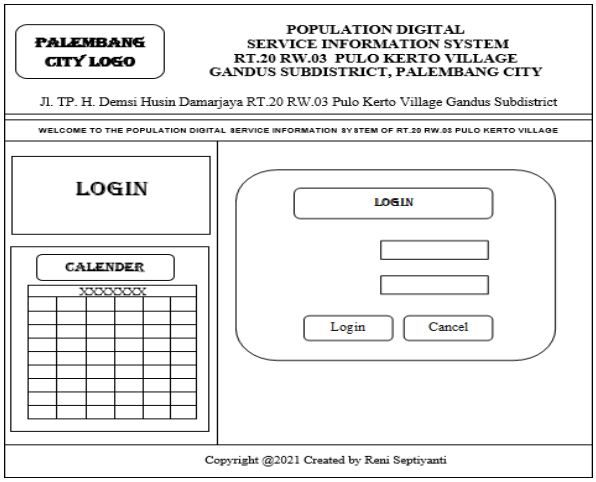

Fig. 6. Login Page Design

2) Population Administration Service Page Design
Design that displays the Population Administration Service Page on the Population Digital Service Information System for the Poor in Palembang City

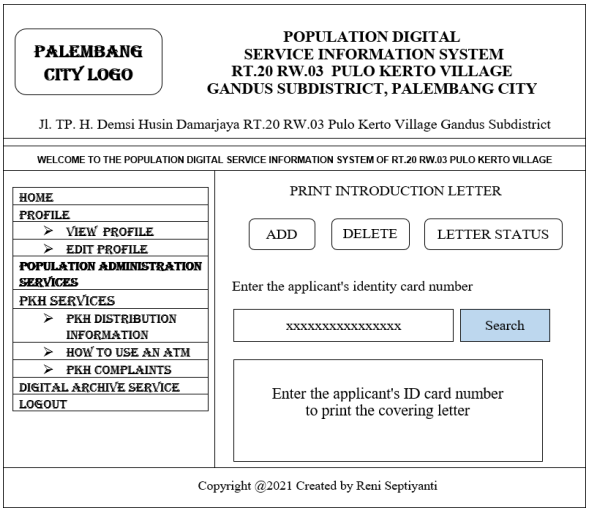

Fig. 7. Population Administration Service Page Design

V. CONCLUSION

1. For the manufacture of SLR documents, identification of the needs for services in the Service Catalog is carried out to be aligned with the needs of business processes.
2. For the manufacture of the SLA document, it is necessary to identify a list of services from service users (The Head of RT, PKH Facilitators and the Poor) which are then adjusted to the capabilities of the population digital information system service provider (Development Team). with service needs, so that an SLA document structure is formed, namely an agreement between users and service providers, descriptions of services, services offered, communication between users and service providers that explain service reporting, complaint handling procedures, service times, and providers used.
3. For the manufacture of OLA documents, the structure and content of the OLA document is almost the same as the OLA document, only there is an addition, namely the Operational Level Agremeent which contains the availability of services and capacity.

SUGGESTION

This research is only at the Service Design stage, for further research it can be developed using the next stages of ITIL Version 2011 namely Service Transition, Service Operation and Service Continual Improvement so that the service design results can run and be used by users better.

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