

An AppSheet-Based IT Asset Inventory System to Support Efficient Incident Handling in the Infrastructure Division of the Information Technology Department at PT Petrokimia Gresik

Dewi Syarifatunnisak¹ and Vinda Ilman Nafiah²

^{1,2}Departement of Information System, Universitas Internasional Semen Indonesia, Gresik, Indonesia

*Corresponding author: dewisyarifatunnisa@gmail.com

ABSTRACT

This study aims to collect, document, and manage information technology (IT) assets within the infrastructure division of PT Petrokimia Gresik by developing a centralized digital system. The absence of a structured and accessible inventory system has led to difficulties in monitoring asset status, locating devices, and planning for maintenance or upgrades. In large-scale industrial environments, particularly petrochemical facilities, unmanaged IT infrastructure may result in operational inefficiencies and increased downtime. To overcome these challenges, a mobile- and web-based application was developed using AppSheet, enabling efficient and systematic asset management tailored to industrial needs. The data collection process was conducted by directly photographing and recording IT assets deployed across various departments within the factory. The documented assets included personal computers, routers, managed and unmanaged switches, CCTV cameras, wireless antennas, and Internet of Things (IoT) devices. Each asset was tagged with detailed information such as physical location, device type, inventory code, IP address, and network connectivity status. The application is designed to be accessible to authorized personnel and supports real-time updates and monitoring through smartphones, tablets, and desktop platforms. The implementation of this system has brought several significant benefits. It has enhanced asset visibility and lifecycle tracking, improved accuracy in hardware allocation, and strengthened preventive maintenance planning. Moreover, the system supports better coordination between IT and operational teams, reduces the likelihood of data inconsistency, and minimizes errors caused by manual recordkeeping. By transitioning from scattered spreadsheets and manual logs to an integrated digital solution, PT Petrokimia Gresik gains a reliable and scalable platform for long-term asset control. The developed application is expected to serve as a sustainable tool for managing digital infrastructure in complex and high-demand industrial settings.

Keywords: IT Asset Inventory, AppSheet, Infrastructure Division, Information System, Asset Management

1. INTRODUCTION

The advancement of information technology (IT) has become a crucial foundation for organizational progress, particularly in the management of infrastructure and digital-based services. Large-scale companies such as PT Petrokimia Gresik are required to implement well-organized, efficient, and adaptive technology asset management systems to meet the demands of modern industry. One of the primary challenges in IT management is the existence of End User Computing (EUC) devices that are distributed across various locations and have not yet been digitally documented. The use of manual data collection methods has resulted in data inconsistencies, potential errors in recordkeeping, and difficulties in tracking device locations. These issues negatively affect operational effectiveness, especially when conducting device condition analysis, network maintenance, and asset-based decision-making. This research aims to implement a digital-based approach to the inventory and mapping of EUC devices within PT Petrokimia Gresik. The specific objectives of this paper are as follows: To describe the methods used for onsite data collection of EUC devices, To explain the digitalization process using

AppSheet and spatial mapping through Google Earth, To evaluate the effectiveness of the implemented solution in supporting IT asset management.

Information technology asset management is an integral part of the Information Technology Infrastructure Library (ITIL) framework, which emphasizes the importance of documenting the entire asset lifecycle—from procurement to disposal. In large organizations such as PT Petrokimia Gresik, this approach provides better control over IT equipment and supports more accurate decision-making. During the internship implementation, EUC inventory was carried out using AppSheet as a digital solution for efficient asset documentation. AppSheet is a low-code platform that enables the creation of data input forms integrated with cloud storage and GPS features. This integration is further connected to Google Earth for visual and spatial device mapping, facilitating data validation, monitoring, and infrastructure planning.

The proposed approach in this research is the integration of AppSheet-based data recording, spreadsheet-based data management, and Google Earth for device visualization. EUC device data is collected directly from the field using mobile devices and entered through digital forms built with AppSheet. Device location coordinates are used for visual mapping in Google Earth using .KML file formats, allowing the IT team to view the geographical and technical distribution of assets. This integration enables efficiency in documentation, reporting, and decision-making through accurate and real-time visualizations. iv) This study introduces an innovative system for IT asset inventory using a low-code platform integrated with geographic mapping tools. This approach has not been widely implemented in the national fertilizer industry sector, particularly on an operational scale as large as PT Petrokimia Gresik. The novelty of this research lies in its real-time data collection method, directly linked to GPS coordinates and presented through digital visualization

This study employed a descriptive qualitative approach through a case study method aimed at evaluating the implementation of a digital-based system for recording End User Computing (EUC) devices and network mapping within the Information Technology Department, particularly in the Infrastructure and IT Security Division at PT Petrokimia Gresik. This method was selected based on the need to gain an in-depth understanding of the integration of technology in IT asset management, as well as to systematically document the process and its outcomes. The research was conducted during an internship program that took place from March to May 2025. The study site included various strategic areas within the company, such as Plant I, II, and III, the head office, and other supporting units. All data collection and processing activities were carried out directly on-site in collaboration with the internal IT department team.

Data collection was carried out through several techniques, including direct field observation, document review of existing asset records, focused group discussions with field supervisors, and the utilization of a digital application for device data recording. Observation was conducted to obtain information about the types, conditions, and physical locations of EUC devices across different work units. Documentation review was used to identify registered devices and compare them with actual field conditions. Focus group discussions aimed to understand procedural insights related to asset management, while digital recording was performed using AppSheet, a low-code platform that enables mobile-based form entry.

Digital Data Collection Methodology Flowchart

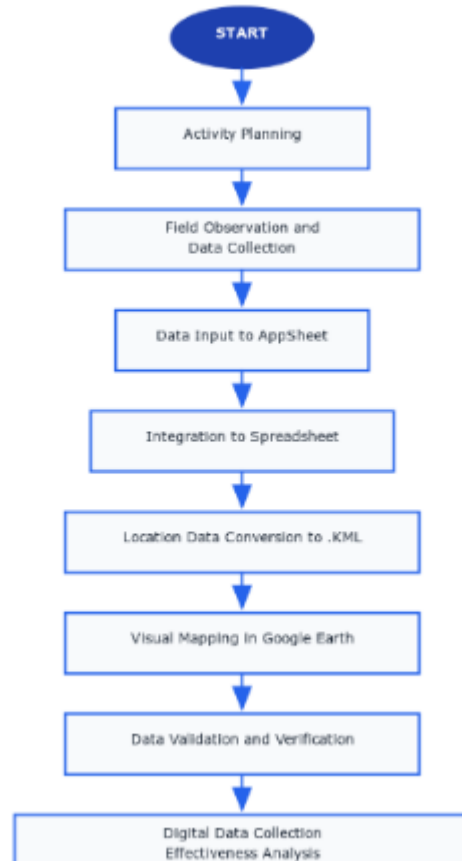


Figure 1. Digital Data Collection Methodology Flowchart

2. METHODS

2.1 Planning the Research Preparing the Internship/Research Activity Plan

Defining the scope of the mapping areas, including Plant I, II, III, the Head Office, and other relevant units. Coordinating with the field supervisor from the IT Department.

2.2 Observation and Field Data Collection

Conducting direct on-site observation to collect data on End User Computing (EUC) devices. Recording key information for each device, such as hostname, MAC address, IP address, device type, and location.

2.3 Digital Data Entry Using AppSheet

Inputting the observation data into digital forms via AppSheet using mobile devices. Data is automatically integrated into a cloud-based spreadsheet as the main data repository.

2.4 Device Location Visualization via Google Earth

Converting GPS coordinate data into .KML format. Uploading the .KML file to Google Earth to visualize device locations spatially and geographically.

2.5 Data Validation and Verification

Comparing AppSheet and spreadsheet data with actual field conditions. Revising any mismatched or inconsistent data based on field verification.

2.6 Evaluation and Effectiveness Analysis

Analyzing the benefits of using AppSheet and Google Earth in IT device documentation. Assessing the efficiency of the process, the ease of visualization, and the accuracy of the collected data.

3. RESULTS AND DISCUSSIONS

3.1 Results

3.1.1 Overview of The Data

This study collected primary data through the on-site collection of End User Computing (EUC) devices at PT Petrokimia Gresik during the period of March to May 2025. Data collection was conducted at more than 30 distinct locations across Plant 1, Plant 2, Plant 3, and other supporting facilities. Each device was documented with technical attributes including hostname, MAC address, IP address, GPS location, and WiFi connection status. A total of 2,120 EUC devices were successfully mapped. The data were classified based on the date of collection, device type, and WiFi connectivity status (connected/not connected). For instance, on October 28th, 2024, a total of 340 devices were mapped.

3.2.1 Descriptive Statistics

Table 1 presents the descriptive statistics of the number of devices mapped on the five most productive days of the data collection phase.

Table 1. Descriptive Statistics

Date	Total Devices	WiFi-Connected Devices	Non-WiFi Devices
28 Okt 2024	340	301	39
29 Nov 2024	212	198	14
17 Jan 2025	197	179	18
18 Jan 2025	180	168	12
19 Jan 2025	163	155	8

The data in Table 1 indicate that the majority of devices were already connected to an active WiFi network. However, a small proportion (averaging 9.2%) remained unconnected, highlighting the need for further network infrastructure development in certain areas.

3.1.3 Data Visualization

Figure 2. Daily Recapitulation Chart of EUC Device Mapping

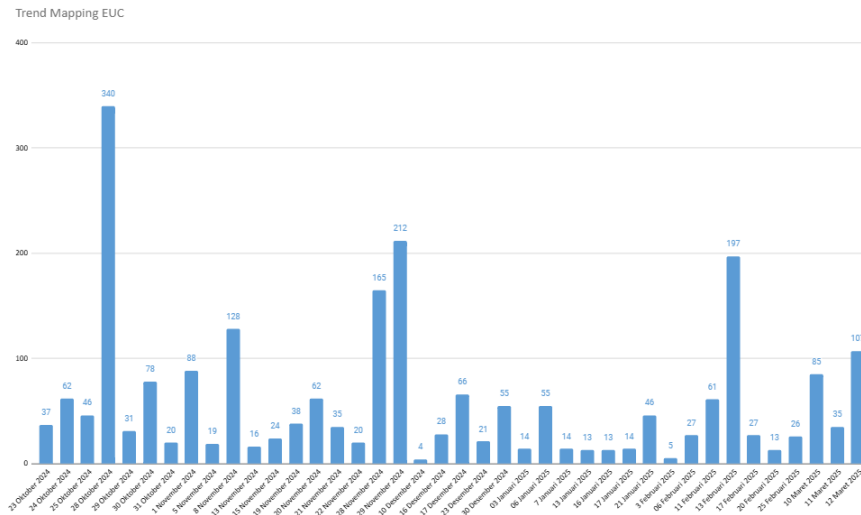


Figure 2 illustrates the fluctuation trend in device mapping activities, with the highest productivity peak recorded on October 28th, 2024.

3.2 Discussion

The findings of this study indicate that the systematic digitalization and mapping of End User Computing (EUC) devices deliver tangible benefits for the management of information technology infrastructure. Descriptive statistics show a predominance of devices connected to active WiFi networks, suggesting that the current network system at PT Petrokimia Gresik operates effectively. However, the recurring presence of Non-WiFi devices highlight infrastructure gaps, signaling the need for targeted expansion. Although no inferential statistical test was applied in this study, the observed pattern between WiFi-connected and Non-WiFi devices supports the argument for prioritizing network improvements. This is consistent with Kurniawan et al. (2022), who emphasized that equitable wireless connectivity plays a critical role in enhancing operational efficiency and reducing device downtime.

Moreover, the identification of non-WiFi zones challenges the initial assumption that all operational areas are fully covered by wireless infrastructure. These findings serve as a strategic input for future interventions in internal network development. Additionally, the integration of AppSheet and Google Earth in the documentation process enhances both data accuracy and transparency. This geospatial approach to digital asset recording is in line with Nugroho (2021), who found that using location-based digital systems can improve reporting efficiency by as much as 40%. Thus, the methodology employed in this study offers not only operational insight but also a scalable model for infrastructure monitoring and planning.

4. CONCLUSION

The results of this study indicate that the structured recording and mapping of End User Computing (EUC) devices have a positive impact in supporting the management of information

technology infrastructure. The majority of devices were already connected to WiFi networks, indicating that the existing network system at the research site is functioning effectively. Nevertheless, a number of devices were found to be offline, suggesting the need for more equitable network coverage in several areas. The use of digital tools such as AppSheet and Google Earth also proved helpful in facilitating the documentation and tracking processes.

These findings can be utilized as a basis for formulating further steps in planning network enhancement and more comprehensive device management. Future researchers are encouraged to conduct similar studies with broader coverage and more in-depth methods in order to gain a more complete understanding. Additionally, incorporating real-time network monitoring technologies could provide added value to the mapping and analysis process. Although the study has produced relevant findings, it is not without limitations. The limited scope in terms of time and location presents a challenge that may affect the completeness of the data. Furthermore, the approach employed focused primarily on direct data recording and comparison, without exploring relationships or potential influences among the observed factors. These limitations should be taken into account to avoid overly simplistic conclusions and may serve as a basis for improving analytical methods in future research

REFERENCES

AppSheet. (n.d.). What is AppSheet?

AXELOS. (2019). ITIL Foundation: ITIL 4 Edition. AXELOS. <https://www.axelos.com/>
Google. (n.d.). Google Earth user guide.

Kurniawan, A., Prasetyo, T., & Yuliana, R. (2022). Evaluasi infrastruktur jaringan Wi-Fi di lingkungan industri berbasis pendekatan kualitas layanan (QoS). *Jurnal Teknologi Dan Sistem Komputer*, 10(2), 134–141. <https://doi.org/10.14710/jtsiskom.10.2.134-141>

Li, S., & Seale, C. (2007). Learning to do qualitative data analysis: An observational study of doctoral work. *Qualitative Health Research*, 17(10), 1442–1452.

Nugroho, R. (2021). Penerapan sistem informasi berbasis lokasi dalam pengelolaan aset perangkat keras TI. *Jurnal Sistem Informasi Dan Komputer Terapan Indonesia (JSIKTI)*, 5(1), 22–29. <https://doi.org/10.32764/jsikti.v5i1.8>