

1. Request for System Services

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Company Logo
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<Dark Forest >

Phone:

Fax:

REQUEST FOR INFORMATION SYSTEM SERVICES

DATE OF REQUEST	SERVICE REQUESTED FOR DEPARTMENT(S)
11/20/2023	IT Department

SUBMITTED BY (key user contact)	EXECUTIVE SPONSOR (funding authority)
Name QIANLI ZHAO Title PROGRAMMER Office SYSTEM CONSULT Phone	Name PETER CHARLES Title PRESIDENT Office PRESIDENT OFFICE Phone

TYPE OF SERVICE REQUESTED:

- Information Strategy Planning
 Business Process Analysis and Redesign
 New Application Development
 Other (please specify) New System Application

- Existing Application Enhancement
 Existing Application Maintenance (problem fix)
 Not Sure

BRIEF STATEMENT OF PROBLEM, OPPORTUNITY, OR DIRECTIVE (attach additional documentation as necessary)

Problem: The configuration, replacement status, warranty period, and other information on customer software and hardware cannot be tracked in a timely manner; technicians cannot access device configuration information and passwords anytime and anywhere while protecting them from unauthorized user access. Data needs to be organized in a way that is easier for technicians to access.

Opportunity: Develop a system that responds to customer and technician needs, allowing customers to enter service requests directly and technicians to log solutions and view history; build a company-wide database to store configuration information for all devices; use barcode scanning for tracking Installation of hardware components; generation of statistics and reports for continuous improvement.

Directive: The president supports the establishment of a new system and company-wide database, emphasizing design over construction; considers tracking of hardware components, including each computer's configuration and purchase date; technicians secure access to data; and suggests that two systems could be studied first, drafting a formal "System Service Request" and "Problem Statement Matrix" to obtain sufficient information and approval before officially starting.

BRIEF STATEMENT OF EXPECTED SOLUTION

Solution: 1. Develop a new company-wide system and database to store the configuration information of each customer's equipment, software and hardware and track changes to the configuration information. 2. Careful design is required before development; two existing systems must be investigated first. 3. The system allows users to submit service requests, and consultants can view the requests and record work content. 4. Allow technicians to log in to the system anytime and place to access information. 5. Add the employee number at the bottom of each page and on any created charts to identify the ownership of the work.

ACTION (ISS Office Use Only)

Feasibility assessment approved

Assigned to <Qianli Zhao>

Feasibility assessment waived

Approved Budget \$ 20000

Start Date 11 20 Deadline 5 20

Request delayed

Backlogged until date: 5.30

Request rejected

Reason: improve efficiency and customer satisfaction

Authorized Signatures:

Peter Charles

Project Executive Sponsor

2. Problem Statement Matrix

PROBLEM STATEMENT MATRIX

PROJECT: DFAMS	PROJECT MANAGER: Qianli Zhao
CREATED BY: Qianli Zhao	LAST UPDATED BY: Qianli Zhao
DATE CREATED: 11/20/2023	DATE LAST UPDATED: 11/20/2023

Brief Statements of Problem, Opportunity, or Directive	Urgency	Visibility	Annual Benefits	Priority or Rank	Proposed Solution
1. System complexity exceeds expectations and system design is more important than construction	2 months	High	In the thousands.	1	New system design, and consider all key demands
2. The configuration, replacement status, warranty period and other information of customer hardware and software cannot be tracked promptly	3 months	High	Enhance the Efficiency;In the thousands.	2	New System Development
3. Users can not enter service requests directly, and their requests and problem-solving efforts need to be organized and documented	4 months	High	Improve service quality;In the thousands.	3	New System Development
4. Unauthorized users cannot access and do not place configuration and component information on the Internet	5 months	Moderate to High	Improve security;In the thousands.	4	New System Development
5. Technicians cannot access device configuration information and passwords anytime and anywhere	6 months	Moderate	Enhance the Efficiency;In the thousands.	5	New System Development
6. Device configuration can't track by using barcode scanning	6 months	low	Enhance the Efficiency;In the thousands.	6	New System Development
7. System is not able to generate statistics and reports	6 months	low	Enhance the Efficiency;In the thousands.	7	New System Development

3. Problems, Opportunities, Objectives, and Constraints Matrix

PROBLEMS, OPPORTUNITIES, OBJECTIVES AND CONSTRAINTS MATRIX

Project: DFAMS	Project Manager: Qianli Zhao		
Created by: Qianli Zhao	Last Updated by: Qianli Zhao		
Date Created: 11/20/2023	Date Last Updated: 11/20/2023		
CAUSE AND EFFECT ANALYSIS			
Problem or Opportunity	Causes and Effects		
<p>1. The configuration, replacement status, warranty period and other information of customer hardware and software cannot be tracked promptly and the data is incomplete and inaccurate</p> <p>2. Users can not enter service requests directly, and their requests and problem-solving efforts need to be organized and documented</p> <p>3. Technicians cannot access device configuration information and passwords anytime and anywhere; Unauthorized users cannot access and do not place configuration and component information on the Internet</p> <p>4. Device configuration can't track by using barcode scanning</p> <p>5. The system needs to be integrated with the financial system to avoid spending unnecessary time on users who owe money</p>	<p>1. Complete requirements were not initially considered or new requirements increased due to the increase in business complexity, resulting in problems and reduced efficiency.</p> <p>2. There is a lack of suitable equipment management tools and company-wide databases. Data is recorded manually, which is prone to incomplete data and errors. It is also difficult to update information in a timely manner, reducing query or tracking efficiency.</p> <p>3. When the number of users increases and there is a lack of direct service request path, information flow is not smooth, which may lead to duplication of work and delays.</p> <p>4. Failure to consider the need to track data when out of the office. The inability to remotely access and lack of security features may make it difficult to obtain important information in a timely manner and lead to data leakage problems.</p> <p>5. Perhaps due to technical or cost constraints, ICT was not used to collect and track device information, resulting in low efficiency and difficulty in locating each device.</p> <p>6. Time is often spent on users who owe money instead of key users.</p>	<p>1. A searchable database and system is needed to track equipment warranty and configuration information that can be updated in real time to solve the problem of chaotic information organization.</p> <p>2. Use barcode scanning for component tracking.</p> <p>3. Both users and technicians can submit requests in the system, and the system can allocate requests in time and record the resolution process. Staff can also enter data and mark whether the request is resolved.</p> <p>Mark a request as resolved when no user feedback is received.</p> <p>4. Unauthorized users cannot access, and users should also have different permissions and usage records to prevent information from being tampered with or leaked.</p> <p>5. Integrate with the financial system to search for payment information such as whether the user owes money.</p>	<p>1. Developing systems and databases, barcode scanning, user request functions, and integration with financial systems may involve multiple departments and systems, requiring meticulous and effective project management and system design.</p> <p>2. The use of the new system requires training of existing employees. Some employees and technical staff may be resistant to the new system.</p> <p>3. Because the system contains sensitive information, such as device configurations, user requests, and financial information, it is important to ensure that the system has strong security and privacy controls. Preventing unauthorized access and data leakage is key.</p> <p>4. In order to maintain the efficient operation of the system, regular maintenance and updates are required, which requires additional resources or costs.</p> <p>5. After the new system is introduced, it may be necessary to provide sufficient technical support to solve problems encountered by users during use.</p>

4. A list of requirements for the proposed system

a list of requirements for the proposed system

Nonfunctional Requirements

1. Operational requirements

1.1 The system can run on any web browser including mobile phones and computers

1.2 The system will be integrated with the financial system

1.3 The system automatically backs up every day

1.4 The system can use tablets or mobile phones for data entry

2. Performance requirements

2.1 The system must be available 24 hours a day (365 days a year)

2.2 The response time of the system's interaction with users or staff will be less than 3 seconds

2.3 The system stores and retrieves information every two seconds

3. Safety requirements

3.1 Only technicians can access and track device configuration warranty information

3.2 The system records and tracks each user's usage history

4. Cultural and political requirements

4.1 The system will comply with all technical, business and other regulatory requirements.

4.2 All aspects of Irish law will be strictly observed at all times

Functional Requirements

1. Enter, submit and query requirements

1.1 Users and technicians can log in to the system on the Internet and enter and submit requirements through computers or mobile phones.

1.2 Databases and systems can store and record the needs of users and technicians

1.3 The system can assign requirements to technical personnel for next step processing, and technical personnel have the right to enter demand resolution records

1.4 The system allows related staff to log in to the system and view the needs of technical personnel. Managers and technical personnel have relatively higher permissions.

1.5 The progress of demand processing can be queried in the system to users and technicians

1.6 The system can list the estimated completion time of demand processing

1.7 Technical staff can mark the importance and urgency of the demand. If the user does not reply for a long time, the demand can be marked as resolved.

1.8 Technical staff can query the user's arrears information (not all payment information)

1.9 Technicians and managers can manage service history, and customers can check their request history and processing results

2. Equipment information

2.1 The system allows technicians to query and update equipment configuration and warranty information

2.2 After scanning the barcode, the system can automatically enter the device information into the database without manual operation.

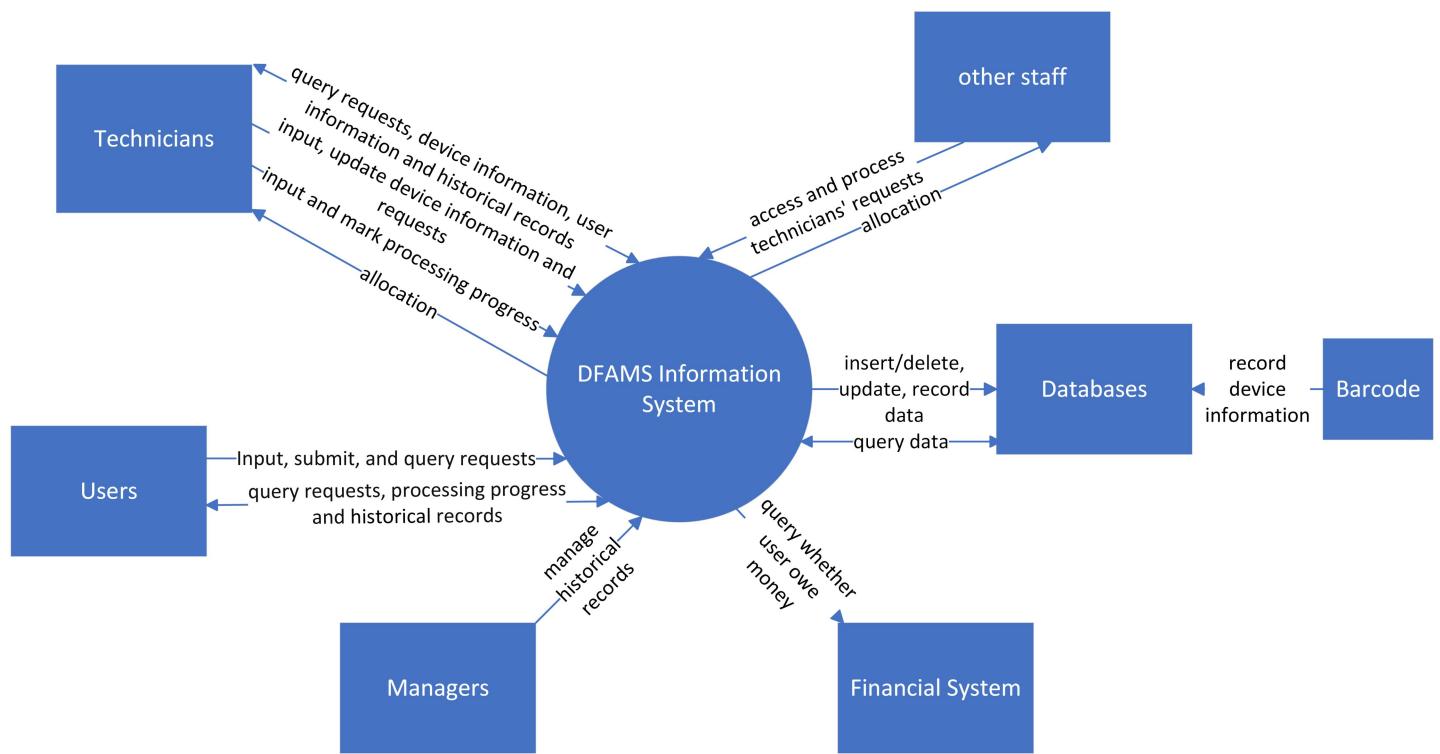
2.3 Technicians can enter new equipment information

3. Data sorting

3.1 The system can summarize and generate data charts for analysis

5. Context Diagram for the entire system

Context Diagram for the Entire System



student number:123101418 Qianli Zhao

6. a list of business use cases

a list of business use cases

Main actors: technicians

Stakeholders and interests:

- Technical staff: need to track equipment configuration warranty information and update the information; need to solve user needs, input and mark processing; be able to submit requirements to improve work efficiency and user satisfaction, and avoid user dissatisfaction, which will reduce the number of users and affect wages.
- Managers: Understand the handling of user needs and existing problems, and strive for better work performance.
- User: Wants to purchase high-quality and efficient services with minimal effort.
- Other staff: able to promptly resolve external needs of technical staff, provide external resources, and help the company achieve higher profits or customer satisfaction.
- Company: Want to focus on non-debt users, automatically and quickly update device information, allocate user needs to relevant technical personnel, improve internal work efficiency and user satisfaction within the company, and satisfy customer interests. Some fault tolerance is required to allow information capture and entry even if the server component is unavailable, allowing human entry and changes.
- Government tax agencies: want to collect tax revenue from the company's legal sales.

Prerequisites: Technicians, other staff and authorized users have been identified and authenticated; new device information has been recorded in the database through barcode scanning.

Success guarantee (post-condition): The needs of users and technicians have been solved and historical records have been generated; changed equipment information and operators have been recorded in the database.

Main basic processes:

1. User and technical personnel needs

1.1 Users and technicians input and submit demands through the Internet, and can check the demand resolution progress and estimated processing completion time; the system will automatically check whether the user is a debtor, and if so, the user will be reminded to pay off the previous debt first.

1.2 The system will automatically assign the demand to technicians or other staff during working hours, and remind the staff to handle it; if the user is in debt, the system will remind the user to pay off the previous debt first.

1.3 Technical personnel or staff can handle the issues in order according to the degree of urgency and importance, and input and submit the progress and results. The progress and results of the processing can be fed back in the system and database in real time.

1.4 Users or technical personnel can choose to submit new requirements or reply to the results. Users do not need to reply.

1.5 If users and technical staff have new needs and have questions about the solution, technical staff and relevant staff will continue to follow up and solve the problem; if the user does not respond within 1 month, the need will be marked as resolved and the need will be closed.

1.6 Solved needs are automatically stored in historical demand records and can be queried and managed in the database through the system at any time.

2. Generation, recording and updating of equipment information

2.1 After scanning the device barcode, the new device information will be automatically entered into the database (including warranty information), and technicians can query the system through the unique identification code at any time and place.

2.2 When the equipment is approaching warranty information, it will automatically remind technicians to carry out warranty, and technicians can check the warranty status in the system.

2.3 After the device components are updated, update the device configuration information by scanning the component barcode and delete the old information.

3. Summary data and system maintenance

3.1 Managers, technicians and related staff can check demand resolution history records and data charts at any time, summarize unresolved problems and risks, and discuss solutions.

3.2 Maintain and update the system according to the solution.

Alternative process:

1. User and technical personnel needs

1.1 If users and technicians are unable to input and submit requirements, users can contact customer service personnel for feedback by phone or email to customer service personnel. Technicians can manually enter requirements and follow up to resolve them; technicians can contact relevant departments. The person in charge discusses requirements issues; the system maintenance team fixes system bugs.

1.2 If the system does not identify or fails to identify whether the user owes money, the system will prompt the query failed, and technical personnel will further verify the user's arrears.

1.3 If technicians or other staff cannot operate the system, they can immediately contact the person in charge of system maintenance.

1.4 If the user does not respond to the solution, the user can be reminded to check it by phone or email to prevent the system from being able to view the relevant content.

1.5 Daily data changes are checked by database managers and system maintenance personnel.

2. Equipment information

2.1 Barcodes cannot be scanned and the information can be manually entered by technicians or identifiers entered into the system.

2.2 Technicians regularly summarize the warranty information of the equipment. Even if the system does not automatically remind you, the equipment and components can be updated according to the warranty period.

2.3 Update, addition, and deletion records of equipment shall be verified by database managers.

special requirements:

- Technicians can access device information anytime and anywhere.
- Unauthorized users cannot access and modify information, and users who owe money cannot submit demands.

7. A Use-Case Glossary

Actor:

Definition: An individual or entity that interacts with a system.

Examples: Users, technicians, managers, receptionists, other staff

Use Case:

Definition: A scenario that describes a set of interactions performed by a system with external actors to achieve a specific goal.

Examples: Customers or technicians submit service requests; technicians and other department personnel record work records; track hardware components and software configurations installed on customer devices, and warranty information; front desk receptionists Set user information; report generation

submits a service request

Definition: A use case where a customer or technician submits a service request.

Associated participants: users, technicians

Prerequisites: Customers and technicians are system users who have been authorized and verified to use the Internet.

Basic process: 1) Customer or technician logs in successfully, 2) Enters requirements, 3) Submits requirements.

Alternative process: 1) Login fails and unauthorized users or staff cannot log in. 2) If the login fails and there are system problems, you can contact the company via text message or phone call.

Post-condition: The demand has been submitted to the system, and the system will automatically assign technicians to follow up based on personnel workload, holidays and weather conditions.

Record work progress

Definition: A use case for technicians and other department personnel to record work progress.

Related participants: technical personnel, other department personnel, management personnel

Prerequisite: The user or technician's needs have been submitted and they are authorized users with no outstanding debts.

Basic process: 1) The system allocates requirements to technicians or other department personnel 2) Views the needs of users or technicians 3) Records the progress of solving requirements

Alternative process: 1) If external support is needed, technical staff can submit requirements

Post-conditions: 1) The requirement has been marked for resolution 2) The requirement has not been resolved. Managers can view requirements that have not been resolved for more than 72 hours.

Track device information

Definition: Use case for technicians to track device configuration and warranty information.

Associated participants: Technical staff

Prerequisite: Device exists

Basic process: 1) Technician scans barcode 2) Automatically enters database 3) Views the list of installed components 4) Equipment configuration warranty information update

Alternative process: 1) If the software device cannot automatically enter, it can be entered manually by technicians 2) Manually entered information can be recorded in the database

Post-conditions: 1) Equipment information is updated in the database in a timely manner 2) Equipment configuration and warranty information are consistent with the procurement and inventory system

Set user information

Definition: Use case where the receptionist sets user information.

Associated actors: receptionist, user

Prerequisite: The front desk receptionist collects the information of authorized users

Basic process: 1) Receptionist logs into the system 2) Enters user information 3) Saves user information

Alternative process: 1) If the software device cannot automatically enter, it can be entered manually by technicians

Postcondition: Equipment information is updated in the database in a timely manner

Generate report

Definition: A use case for generating reports.

Associated participants: Users, technicians

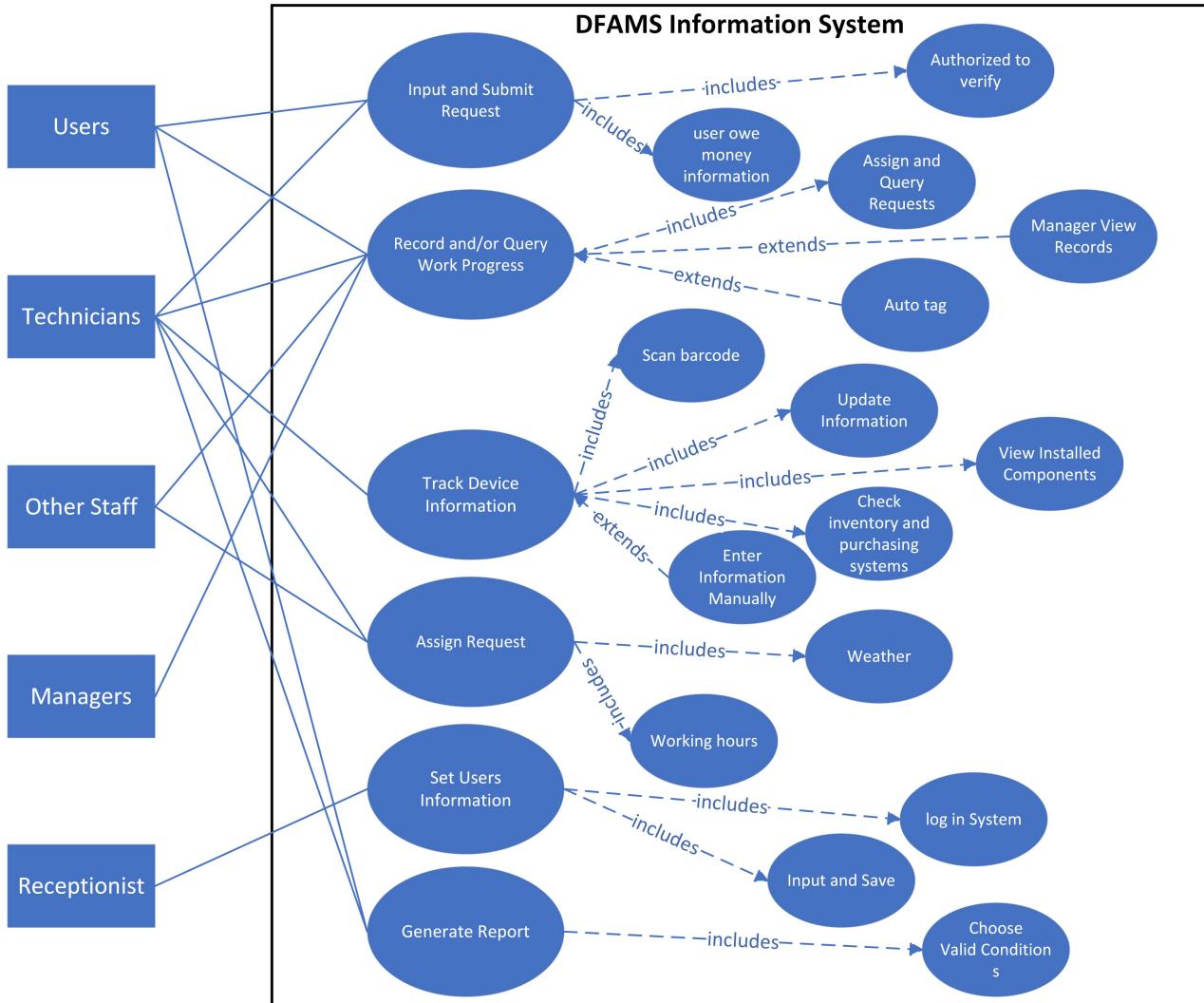
Prerequisite: Users and technicians have successfully logged into the system and been authorized for verification

Basic process: 1) Click on the report 2) Users can choose by date and request status; technicians can choose users, start date, completion date and status 3) Click the generate button

Alternative process: 1) If there is an error in report generation or web page, it can be sent to the user via email or the user can contact technical support. 2) If an invalid date or invalid user is selected, the system can prompt that the selection is invalid and needs to be made again.

Postcondition: The report is successfully generated and the report generation record is entered into the database.

8. A Use-Case Model Diagram



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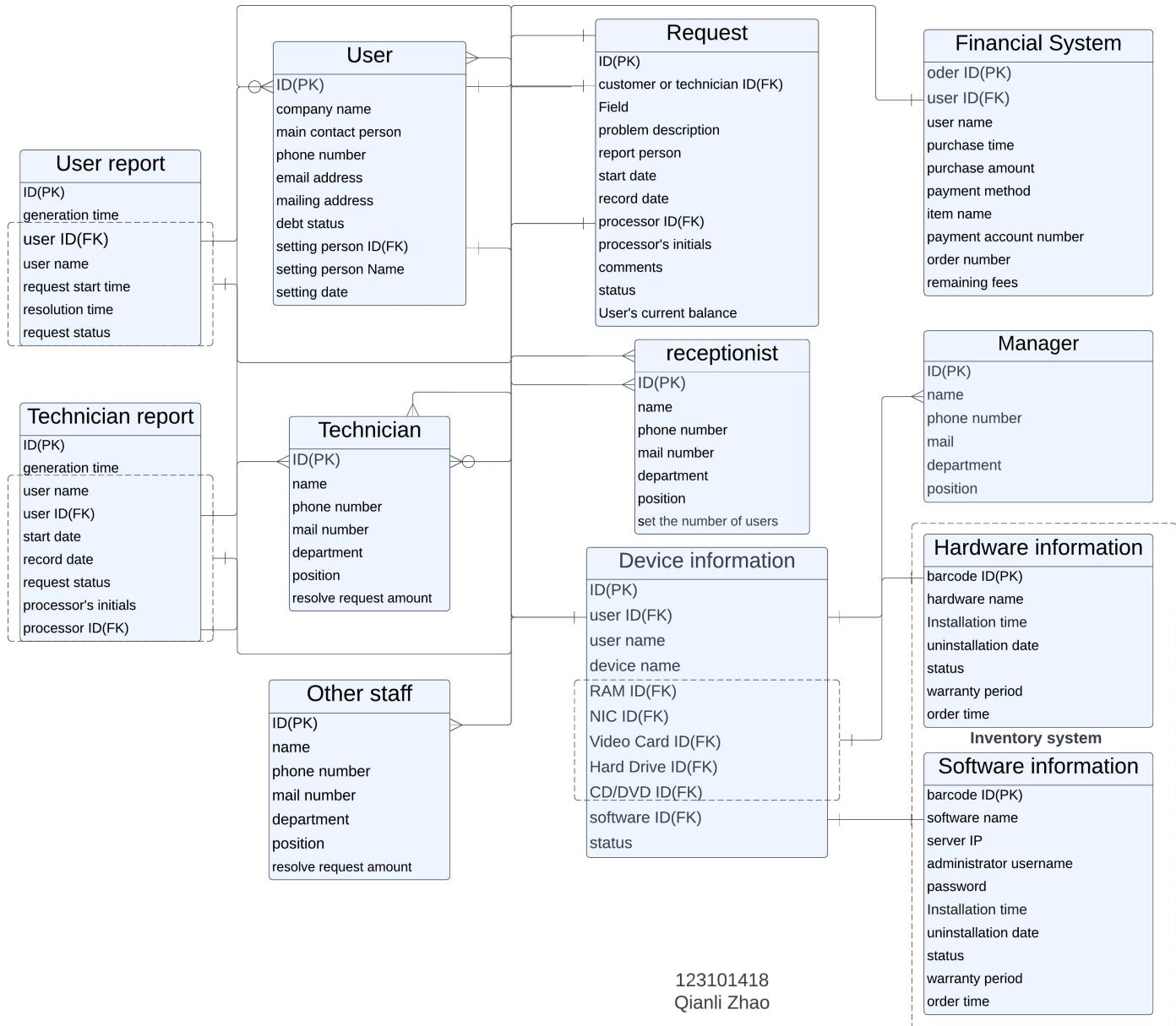
9. Entity/Definition Matrix

Entity/Definition Matrix	
ENTITY	BUSINESS DEFINITION
User	The objects provided by the company are authorized and verified, and can be queried and submitted in the system, including ID, company name, main contact person, phone number, email address and mailing address, whether there is any debt, setting person ID, setting person Name, which introduces a user ID as a unique identifier to replace device identification that relies on user naming.
Technician	Employees in the company's technical department can query, submit requirements, and record work progress in the system, including ID, name, phone number, mail number, department, and position
Other staff	Dedicated to reporting and resolving technical staff issues, including ID, name, phone number, mail number, department, and position
Manager	Company management and above can view the history of unresolved demands for more than 72 hours in the system, including ID, name, phone number, mail number, department, and position.
Receptionist	Company front desk staff can set user information in the system. Information includes ID, name, phone number, mail number, department, position
Request	Track the customer or technician ID, name, problem description, who reported the problem, and the date of the request. When a technician/other staff handles a request, record the date, technician's/other staff's initials, ID, and comments to fully track the life cycle of a service request.
Device information	Track what components each device consists of and who uses it, including ID, user ID, user name, hardware ID, software ID, status
Hardware information	Use a common component list to allow components to be added and removed dynamically. Information includes ID, barcode number, type, installation date, un-installation date, status, warranty period
Software information	Using a database table structure, each configuration item has specific fields, which is more adaptable to technical changes than the PC configuration table. Including server IP, administrator username and password, barcode number, status, warranty period
User report	Users can select by date and request status, including ID, username, user ID, generation time, demand start time, demand status, resolution time
Technician report	Technicians can select user name, user ID, start date, completion date and demand status, processor name, processor ID
Inventory management system	Inventory systems record all equipment or components on hand. The equipment or components associated with each barcode are recorded in the inventory system. Including barcode ID (unique identifier), device or component name, current status
Financial System	Record the user's payment information and whether they owe money. When the arrears information in the financial system changes, it will be reflected in the DFAMS system. Mainly includes user name, purchase time, purchase amount, item name, payment method, payment account number, order number, remaining fees, and whether there is any debt owed

10.ERD

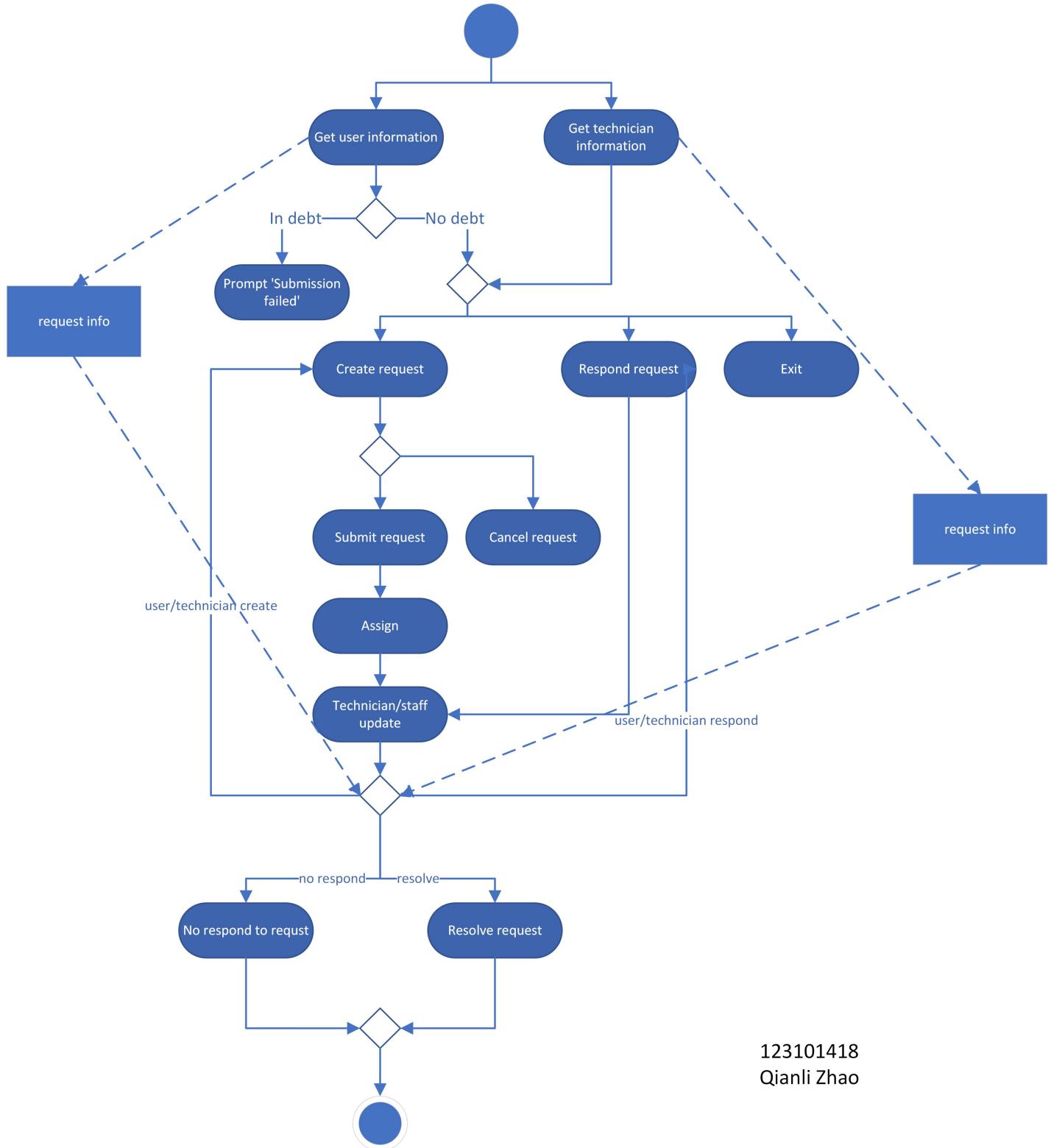
Link: https://lucid.app/lucidchart/bce65fb4-bc98-4533-abc7-d7b8be0751b7/edit?viewport_loc=-698%2C-56%2C2763%2C1147%2C0_0&invitationId=inv_469b7d13-0047-481d-92fc-d05a5c4adff6

ER Diagram for DFAMS Information System



11. Activity Diagram

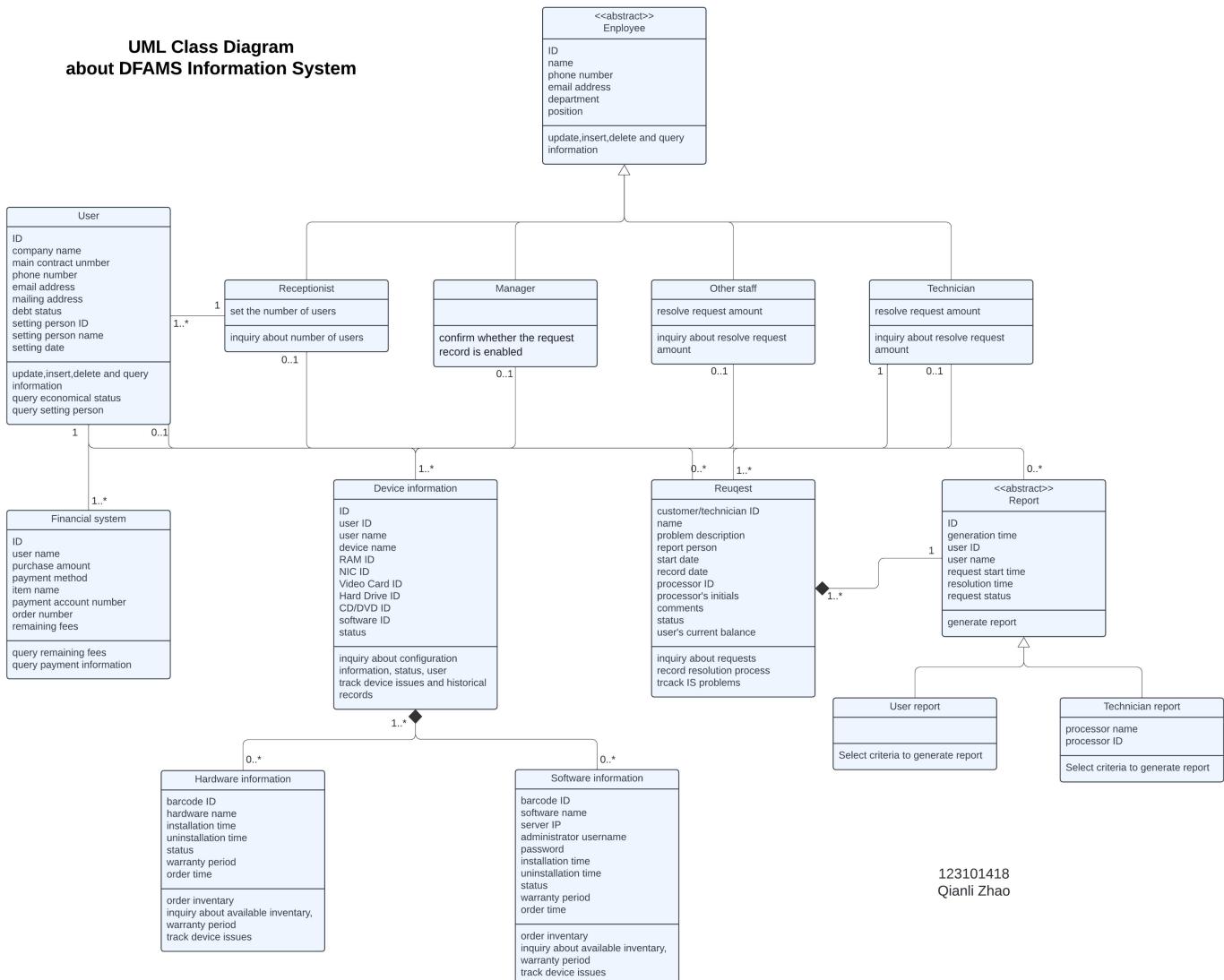
Activity Diagram about Resolving Request



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12.UML Class Diagram

Link: https://lucid.app/lucidchart/8a3b9bab-1805-44e6-bcf9-fe9fe5887ff0/edit?viewport_loc=85%2C629%2C4096%2C1700%2CHWEp-vi-RSFO&invitationId=inv_4e4e3dd9-c4eb-419d-8943-950d8f85e108



13. two Personas

Alice

Age: 27

Position: Technician

Department: IT

Goals and motivations

The young technician aims to improve his work efficiency to help the company solve problems. She harbors expectations for salary increases and career advancement within the next three years.

Lifestyle

She likes to play games and occasionally go to the gym to keep herself active.

Nature of work

As a technician for a company that provides IT services, she needs to help customers solve their needs through emails or phone calls every day. Sometimes she needs to track and detect the user's equipment to troubleshoot, record the solution process and results, and make work summaries at weekly meetings. and make suggestions.

Experience and training

She has only been a technician for half a year. She has previous experience in learning hardware and software and obtained a technical qualification certificate.

Environment

She is in an office that is open, inclusive and mutually supportive. As a newcomer, she has received help from many colleagues and leaders.

IT skill level

Her IT skills are at a preliminary stage and she spends at least 8 hours on the Internet every day. I especially like to play games online, so my favorite websites are game websites, such as League of Legends and SIM4.

Attitude towards technology

- Great – it's easy to use and saves me time
- I like it but it often falls short
- I don't like it but I have to use it

IT equipment

a Dell notebook; a company Android Mobile phone with 4G; various inkjet and laser printers;
wireless networking

How does this person use the system?

Log in to the system at work or at home to solve user needs, submit your own needs, query device configuration information, warranty information, view all historical records of the device, and generate data reports to view your work performance (quantity and quality of solved needs)

Key tasks

Solve user needs; query equipment configuration information and warranty information, and provide suggestions through data analysis

David

Age: 37

Position: CIO

Company: A small healthcare company

Goals and motivations

As a CIO, he hopes that the company can maintain IT equipment well, use legal and compliant technologies to provide patients with a better service experience, improve treatment effects, reduce costs as much as possible, and protect data security.

Lifestyle

He is very busy at work and often works overtime. His time is very precious. Also exercise regularly to stay healthy.

Nature of work

As the CIO of a small healthcare organization, responsible for developing and executing strategic plans related to information technology to support the company's business goals. In this role, work collaboratively with internal teams and external partners to ensure IT systems and solutions match the company's needs.

Experience and training

Have extensive experience in the information technology field, especially in IT management in the healthcare industry

Environment

He needs a lot of energy to handle his work every day, so there is a coffee machine in the office

IT skill level

Understand and apply cloud computing and virtualization technologies, be familiar with IT security and compliance standards in the healthcare field, have excellent IT project management skills, and have the ability to effectively manage patient data and medical records

Attitude towards technology

- Great – it's easy to use and saves me time
- I like it but it often falls short
- I don't like it but I have to use it

IT equipment

An Apple desktop computer, a Dell notebook; an Apple work phone and a company Android Mobile phone with 4G; an iPad and a laser printer; wireless networking

How does this person use the system?

He can upload demands on the Internet anytime and anywhere, view demand data reports, view unresolved demands, IT solutions and resources, and cost calculations.

Key tasks

Develop and execute IT strategic plans; lead and coordinate IT projects; utilize data analysis tools and skills to provide decision support for the company

14. Scenario and user stories

Alice's scenario + user story:

Alice had just changed careers and worked as a technician for half a year. She cherished this hard-won job opportunity very much, so she wanted to make herself perform better and make users more satisfied so that she could have the chance to be promoted or have a salary increase. However, she recently discovered that some things could be improved in communicating with users. For example, users mainly communicate their needs through phone calls or emails. One phone call may only partially solve the user's needs, so some users will complain that they have to bear more phone bills. Some emails were accidentally placed in the trash, causing users or technicians to fail to view the content in time and causing some conflicts. In addition, solving needs sometimes requires troubleshooting equipment problems. However, the company's current equipment information storage method uses ordinary tables or text to store information. Looking for any equipment information is like looking for a needle in a haystack, and some equipment or components are constantly updated. However, because records rely on manual entry and are prone to errors, some tables or texts do not contain this information, and the number of equipment or components in the inventory system cannot be reconciled. The weekly work data report also manually calculates inaccurate data. Alice sometimes doubts that this potentially biased report reflects the actual situation. As a technician, Alice wants to communicate faster with users while helping users reduce costs or the risk of losing information. She also hopes to no longer enter data through manual entry, especially considering the company's current user base. It is constantly increasing that it can use ICT technology to enter automatically, supplemented by manual entry, and can choose different conditions to generate reports so that work and communication can be carried out efficiently.

David's scenario + user story:

David is an experienced CIO who is leading IT projects to implement the company's IT strategy. Although he was generally satisfied with his experience with Dark Forest IT Consulting, some concerns remained. He has a particular focus on data security issues, especially in the healthcare field when it comes to sensitive information containing biometric data. Some patients are wary of using health medical records and worry about privacy breaches. Nonetheless, David understands that the application of information systems will bring many benefits, including cost savings and a more accurate understanding of conditions and decision-making by doctors. He has been careful to deal with possible negative issues. He expects Dark Forest to provide comprehensive IT solutions, especially regarding the protection of patient data and company information. In addition, he also has some dissatisfaction with efficiency issues. When tracking device issues, the data provided by Dark Forest sometimes contains minor inaccuracies, and finding this data can take some time. He often suddenly discovers that the company has new needs when he is busy in the early morning but cannot immediately contact technicians to solve them. Writing emails is too tedious, and if the issue is not resolved in one email, contacting a different technician a day or two later may involve repeating the previous issue. This inefficient communication method bothered David.

As a CIO with precious time, David hopes to communicate and inquire about equipment problems more quickly and efficiently. He wants to keep technicians the same while ensuring data security. In this way, he can better adopt new technologies, improve patient satisfaction, and achieve cost savings for the company.