Debt Recovery System

Functional Requirement Document

Prepared By	Designation	University	Date
Ishara Wijesundara	Business Analyst	SLIIT	31/01/2025
Ishini Siriwardena	Business Analyst	University of Sri Jayawardenapura	
Sithumi Uttara Gunarathne	Business Analyst	SLIIT	
Amanda Gunarathna	Business Analyst	Sabaragamuwa University	

Contents

Table of figures

1. Introduction

1.1. Purpose

The purpose of developing the Debt Recovery System (DebtX) is to streamline and enhance the efficiency of arrears collection and equipment collection processes at SLT. This approach plans to reduce financial losses from unpaid arrears and unreturned equipment. DebtX improves accountability, tracking, and communication between Debt Recovery Companies (DRCs) and Recovery Officers (ROs) to ensure quick case resolution while following legal and organizational policies. Also, commission calculations for Debt Recovery Companies (DRCs) based on resolved cases are planning to be processed through the DebtX system.

1.2. Scope

The Debt Recovery System (DebtX) is designed to automate and optimize the debt recovery process, addressing inefficiencies in manual workflows while ensuring compliance with organizational and legal requirements. It will feature Collecting incident data directly from Data Lake, Individual incident registration and registration of Bulk of incidents, and automated case assignment to distribute cases effectively among Debt Recovery Companies (DRCs). A mobile portal will enable ROs to update case details, track progress, and record negotiations in real time, ensuring transparency and reducing delays.

The system will include real-time notifications and alerts to keep stakeholders informed of critical updates and deadlines. Progress tracking tools and interactive dashboards will provide SLT officers and management with insights into recovery activities, enabling improved performance evaluation. Integration with existing systems (BSS, OSS, and CRM, SMS, and Email platforms) will ensure streamlined data flow, while the system’s legal and mediation board workflows will simplify case escalations.

Additionally, the system will facilitate the creation and management of Letters of Demand (LOD), allowing users to generate, preview, and distribute LODs efficiently, based on predefined criteria. The system will also automate commission calculations, ensuring accurate and timely payments to DRCs based on successful recoveries. The system will facilitate the write-off process for unsuccessful cases and case abandoned process or withdrawal process in the middle of the recovery process for any case. Successful cases will be closed at the final stage.

1.3. Audience (Developers, Testers, Business Owners, Stakeholders)

The Debt Recovery System (DebtX) caters to various audiences with distinct roles:

Business Owner

- Role: Oversee the strategic implementation and success of the Debt Recovery System (DebtX), ensuring alignment with business objectives and financial goals..
- Responsibilities:
  - Define the vision, goals, and KPIs for DebtX.
  - Approve budget, resources, and timelines for system development.
  - Ensure compliance with regulatory and financial requirements.
  - Collaborate with stakeholders to optimize debt recovery processes.
  - Review reports and dashboards to assess system effectiveness and ROI.
  - Provide feedback to enhance system performance and user experience.

Development Team

Business Analysts (BA)

- Role: Translate business needs into technical requirements.
- Responsibilities:
  - Gather and document requirements.
  - Collaborate with developers and testers to clarify and refine features.
  - Address risks, constraints, and dependencies.

Developers

- Role: Build and implement the system.
- Responsibilities:
  - Develop features like case management, workflows, dashboards, and integrations.
  - Ensure performance, scalability, and security.
  - Address technical challenges like data synchronization and automation.

Testers

- Role: Validate system functionality and performance.
- Responsibilities:
  - Test features, integrations, and workflows against acceptance criteria.
  - Conduct UAT to confirm alignment with business requirements.
  - Ensure data synchronization, report accuracy, and security compliance.

Stakeholders

- Role: Define business goals and validate outcomes.
- Key Stakeholders:
  - SLT Recovery Officers: Assign and monitor cases, evaluate performance.
  - Debt Recovery Companies (DRCs): Manage cases and provide updates.
  - Recovery Officers (ROs): Update case details and negotiate settlements.
  - SLT Legal Team: Handle escalations and manage legal workflows.
  - SLT Finance Team: Oversee commission calculations and financial reporting.
  - SLT Management: Use dashboards to optimize strategies and provide feedback.

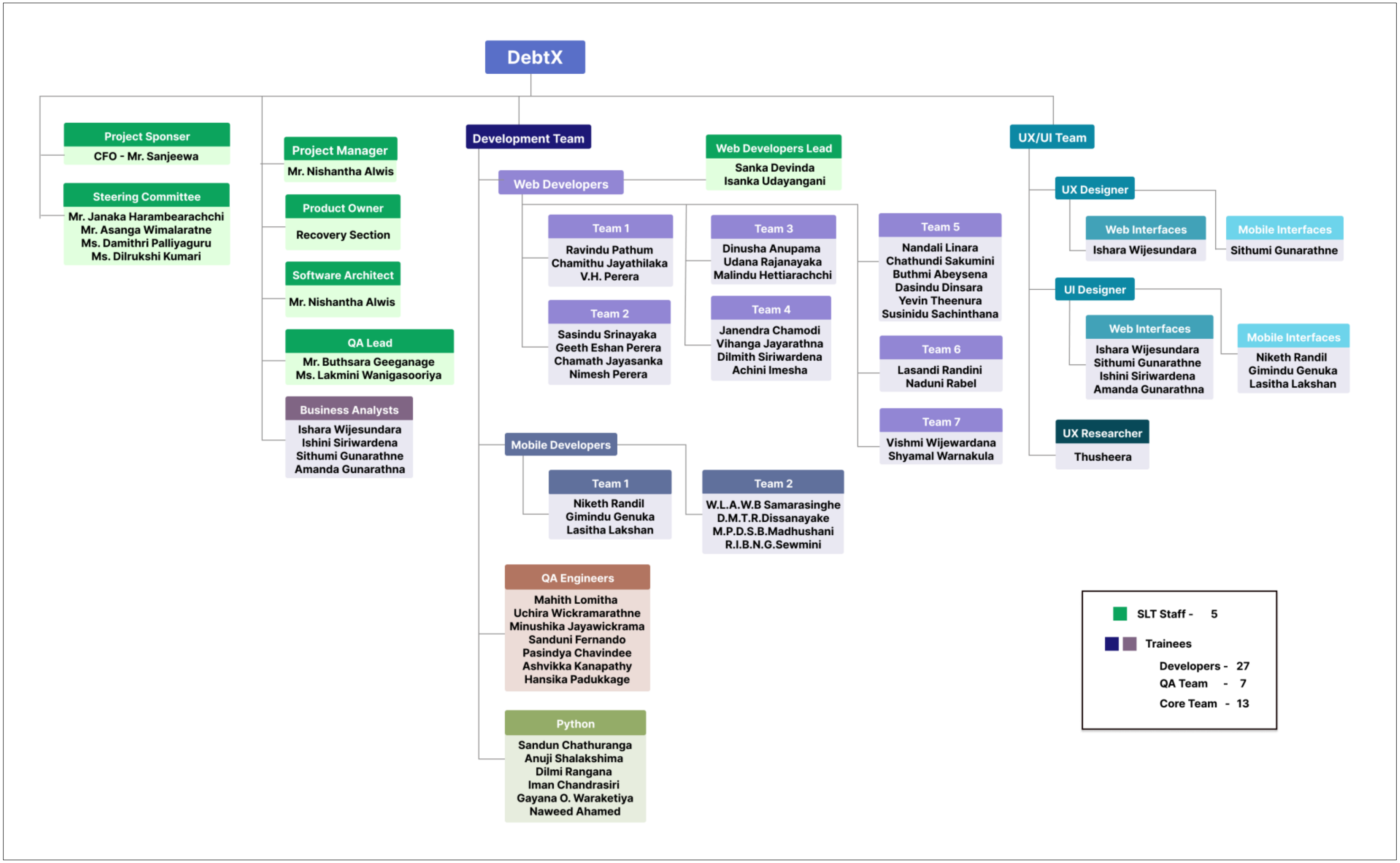

Figure 1: Team Structure

2. Project Overview

2.1. Background

The existing process for debt recovery in the Recovery Section of SLT is entirely manual. Data for collecting arrears and customer-provided equipment (CPE) is manually retrieved from internal datasets maintained in systems such as BSS, OSS, and CRM. The Recovery Section officers at SLT manage this process in collaboration with Debt Recovery Companies (DRCs) and Recovery Officers (ROs).

The process begins with the SLT officer collecting input in the form of the customer's account number and specifying the required action, which may be one of the following:

- Collect arrears
- Collect CPE only
- Collect arrears and CPE

Based on the action entered relevant details are provided from the BSS, OSS, and CRM systems. The case is then handed over to the ROs through the DRCs. Cases are categorized based on the arrears amount and processed accordingly:

- Cases meeting specific criteria are directed to the negotiation process (arrears and CPE).
- Cases qualifying for immediate legal action are sent directly to the Letters of Demand (LOD) process.
- Cases that do not meet any criteria are closed.

A negotiating procedure is started with the customer, and the relevant information is sent to the RO if the action entails picking up the CPE unit. Unless the CPE collection is unsuccessful, the case is considered successful after the unit is gathered and approved by the RCMP. The discussion phase occurs between the RO and the client if the action entails collecting arrears. After successful talks, the settlement procedure begins, during which the RO's commissions are determined by the amount of money obtained. The matter is sent to the mediation board for additional settlement if talks are unsuccessful. Depending on the customer's reaction, cases may go through the LOD procedure or a dispute resolution path. After meeting certain requirements, cases sent to the LOD procedure proceed to the litigation phase.

Significant issues with the existing manual technique include data redundancy, inefficiency, and the possibility of human mistakes. In order to handle client accounts, Recovery Section officers mostly rely on manual involvement, retrieving inputs from systems such as CRM, BSS, and OSS. This leads to a laborious process that is prone to errors and delays, underscoring the necessity of automation. The BSS will update the segment to 100 when the case is terminated after receiving the cases with the "pending write-off" status, and the updated cases will be displayed in the write-off log.

2.2. Objectives

- **Optimize Recovery Operations**
  Enable Recovery Officers (ROs) to update case negotiations through a mobile portal in real time, increasing process transparency and reducing delays. And also, improve the efficiency of arrears and equipment recovery.

- **Enhance Monitoring Capabilities**
  SLT officers can monitor DRC, and RO activities through the system and they can provide necessary information and activities such as request mediation board letters, and extended periods.

- **Facilitate Legal and Mediation Board Activities**
  Streamline the escalation of unresolved cases to the mediation board and legal team. Automate the generation of final reminders and Letters of Demand (LOD) with digital or manual signatures.

- **Automate Commission Payments**
  Ensure accurate and timely calculation of commission payments to DRC based on successful recoveries.

- **Leverage Insights for Performance Optimization**
  Provide interactive dashboards and reports for SLT management to evaluate recovery activities, enabling data-driven decisions to improve operational strategies.

- **Enable Comprehensive Report Generation**
  Generate detailed reports to support operational and strategic needs, including:

  - ❖ Daily Payment Reports
  - ❖ LOD Collection Reports
  - ❖ BULK Report - Account Number
  - ❖ BULK Report - Case ID

2.3. Assumptions and Constraints

Assumptions

1. **Stakeholder Adoption:** All stakeholders (SLT officers, DRCs, ROs) will adopt the DebtX system and use it as intended.
2. **Data Availability:** Existing data from BSS, OSS, and CRM systems is accurate, complete, and ready for integration.
3. **Infrastructure:** SLT's IT infrastructure will support smooth implementation and operation of the DebtX system.
4. **Training and Support:** All users will receive adequate training and ongoing support to effectively utilize the system.
5. **Compliance:** The system will meet all regulatory and legal requirements for debt recovery processes.
6. **Funding:** Adequate funding will be available for the development, implementation, and maintenance of the system.
7. **Security:** Robust security measures will be implemented to protect sensitive customer and financial data.

Constraints

1. **Timeline:** The project must meet the defined deadlines for design, development, testing, and deployment.
2. **Budget:** Costs must remain within the allocated project budget.
3. **Quality:** The system must meet quality benchmarks, ensuring reliability, scalability, and usability.
4. **Scope:** Feature development is limited to the agreed-upon requirements. Scope changes may delay implementation or increase costs.
5. **Team Experience:** The project team's limited technical expertise requires focused training and resource management.

3. Functional requirements

3.1. High-Level Requirements

Case Entry:

- Support bulk and individual case registration with a user-friendly interface.
- Automatically validate and link multiple products associated with a single customer account.

Data Flow and Integration:

- Automate data retrieval and synchronization from systems like BSS, OSS, CRM, and the Data Lake.
- Ensure real-time updates for case status and actions.

Legal Support:

- Generate compliant documents (e.g., LODs, Final Reminders) with digital or manual signature options.
- Escalations to mediation boards or legal teams based on predefined workflows.

Recovery Insights:

- Provide dashboards to monitor case progress and performance metrics.
- Generate detailed, filterable reports for stakeholders.

Negotiation Management:

- Allow ROs to update negotiation outcomes and track settlements in real time.
- Automate reminders for overdue cases and maintain logs for compliance.

Write-Off Management:

- Streamline workflows to manage, log, and report “pending write-off”s and terminated cases.
- Integrate with BSS, and CRM to reflect accurate write-off statuses.

4. Non-Functional Requirements

- **Performance**
  The system should handle 100 concurrent requests with a response time of less than 2 seconds, even during peak usage with up to 95% increased traffic.
- **Scalability**
  Support future growth in users, cases, and data sources without performance degradation.
- **Availability**
  Ensure 85% uptime for continuous access to all stakeholders.
- **Security**
  Implement AES-256 encryption and multi-factor authentication (MFA) to protect data, complying with industry standards for data privacy.
- **Usability**
  Provide an intuitive interface that minimizes training needs and supports multi-language functionality if required.
- **Maintainability**
  Use modular architecture to enable updates and upgrades with minimal downtime.
- **Compliance**
  Adhere to legal and regulatory standards, ensuring generated documents meet compliance requirements.
- **Reliability**
  Prevent data loss with automated backups and recovery mechanisms while maintaining data integrity.
- **Compatibility**
  Integrate seamlessly with existing systems like BSS, OSS, CRM, and commonly used devices and browsers.
- **Auditability**
  Maintain a detailed log of all system activities for accountability and compliance.
- **Extensibility**
  Allow future enhancements, such as integrating new tools or workflows, without major reengineering.
- **Accessibility**
  Ensure compliance with accessibility standards.
- **Response Time**
  Maintain a consistent response time of under 2 seconds for standard operations.
- **System Visibility**
  Provide stakeholders with role-based access to real-time system status, activity logs, and case progress via dashboards and notifications.

5. System Requirements

5.1. Hardware Requirements (Servers, Storage)

1. **Servers**
   - **Application Server:**
     A high-performance server is required to host the application and manage user requests efficiently.
   - **Database Server:**
     A dedicated server to store and manage sensitive customer and financial data securely.
2. **Storage Devices**
   - **Centralized Storage**:
     A Network Attached Storage (NAS) or Storage Area Network (SAN) device for handling large volumes of data, logs, and archives.
3. **Network Equipment**
   - **Routers and Switches:**
     Enterprise-grade routers and Layer-3 switches for efficient data transmission and low latency.
   - **Firewalls:**
     Next-generation firewalls to ensure secure communication and protect against cyber threats.
4. **Workstations**
   - **Employee Workstations**:
     Systems for staff handling debt recovery operations, reporting, and customer interactions.
5. **Backup Systems**
   - **Data Backup Servers:**
     Dedicated backup hardware for regular data backups to prevent loss during hardware failures or cyberattacks.
6. **Power Supply and UPS**
   - **Power Backup Systems:**
     Uninterruptible Power Supply (UPS) units for critical hardware to ensure continuous operations during power outages.
7. **Additional Requirements**
   - **Cooling Systems:**
     Proper air-conditioning systems to maintain optimal operating temperatures for hardware in server rooms.
   - **Rack and Mounting Equipment**:
     Standard server racks with cable management systems for efficient organization.

5.2. Software Requirements (OS, DB, Framework)

1. Operating System (OS) Requirements

Development Environment (For Developers' Workstations):

- Windows 10/11
- macOS (for Mac users)

2. Technology Stack

Frontend:

- React.js (for a dynamic and responsive UI)
- Redux (for state management)
- Tailwind CSS (for styling and UI components)

Backend:

- Node.js with Express.js (for server-side logic and APIs)
- Python (for RabbitMQ message queue processing)

Database:

- MongoDB (NoSQL database for structured data storage)
- Firebase Firestore (for real-time data updates and cloud storage)

Message Queue

- RabbitMQ (for asynchronous communication between microservices using Python)

3. Development Tools and Frameworks

- Version Control: GitHub/Bitbucket for source code management
- Code Editor: VS Code
- Package Manager: npm
- API Testing: Swagger/Postman

4. Deployment & Hosting

Database Hosting:

- MongoDB Atlas
- Firebase Firestore

CI/CD Pipeline:

- For automated deployments

5. Security & Authentication

Authentication & Authorization:

- Firebase Authentication (for user login and access control)
- JSON Web Tokens (JWT) (for secure API authentication)
- Role-Based Access Control (RBAC) (for managing user permissions)

6. Monitoring & Logging

Error Logging & Monitoring:

- Firebase Analytics (for application usage monitoring)
- LogRocket / Sentry (for error tracking and debugging)
- Prometheus & Grafana (for performance monitoring)

6. Use Cases

Use case ID	UC001	
Use case name	DRC List	
Process ID	*10.1*	
Actors	SLT Staff	
Description	The registered DRCs in the system are displayed on the screen. Authorised users can register a new DRC. Users can view each DRC’s details: ● DRC ID ● Status ● Name ● Contact No ● Registered Service Count ● RO count ● Working RTOM count Users could edit the registered details of the DRCs and view the cases assigned to them.	
Pre-conditions	- SLT staff should log in to the system.	
Post-conditions	-	
Back-end / Front-end	Front-End	
Pre status	-	
Post status	-	
Massage of status	-	
Notification	-	
	Action	**System Response**

Success path	The user should be able to view the registered DRC list on the screen. If the user clicks the 'Add' button Else If Click on the 'Service count' Else If Click on the RO count' Else If Click on the 'RTOM count' Else If Click on the 'Info- icon' Else click on the 'List-icon'	The user will navigate to the 'Add DRC' (Register Debt Recovery Company) screen. Navigate to the DRC's Service List Navigate to the DRC's RO List Navigate to the DRC's RTOM List Navigate to the DRC's info Navigate to the DRC's assigned case list.
Alternate path		

User case ID	UC002	
Use case name	Register Debt Recovery Company	
Process ID	*10.2*	
Actors	SLT Staff	
Description	Register a new Debt Recovery Company in the system and enter the relevant inputs.	
Pre-conditions	- The authorised user should log in to the system. - The user should have navigated to the ‘Add DRC’ page by clicking the ‘Add’ button from the DRC List	
Post-conditions	- A new DRC should be added to the system.	
Back - end / front-end	Frontend	
Pre status	-	
Post status	DRC status: *Active* 	
Message of status	Success Status: “Company registered successfully with selected services!” Unsuccess Status: Warning alerts	
Notification	-	
	Action	**System Response**
Success path	SLT Staff enter the relevant inputs: ● DRC Name ● Business Registration No ● Contact Number ● Login Method ● Service Types (Select) and click ‘submit’	If Success

		Success message Else Error message
Alternate path		

User case ID	UC003
Use case name	DRC’s Info
Process ID	*10.3, 10.4, 10.5*
Actors	SLT Staff
Description	SLT staff could ● View DRC info ● Edit info ● Change status to active, inactive ● Terminate DRC
Pre-conditions	- An authorised user could log in to the system - DRC should be a registered DRC - DRC status should not be Terminated to Edit Info
Post-conditions	- DRC Info should be updated successfully - DRC status should be updated successfully
Back-end / Front-end	Front-end
Pre status	-
Post status	DRC Status:  *Active*  *Inactive*  *Terminated*
Message of status	Successful submission: success message Error submission: error message
Notification	DRC Info Updated Successfully

	Action	**System Response**
Success path	The user should be able to view the details of the particular DRC. The user clicks 'info-icon' from the DRC list If the User clicks the 'Edit' button Else If the User clicks the 'End' button Else If the User clicks the 'Log History' button	Directs to DRC's info page Directs to Edit DRC to, ● edit Email ● edit Contact Number ● Add or Disable Service Types ● Active or Inactive the DRC The system shows to add the End date and Remark The log table should appear.
Alternate path		

<table>
<tr><td>Use case ID</td><td colspan="2">UC004</td></tr>
<tr><td>Use case name</td><td colspan="2">RTOM List</td></tr>
<tr><td>Process ID</td><td colspan="2">11.1</td></tr>
<tr><td>Actors</td><td colspan="2">SLT Staff</td></tr>
<tr><td>Description</td><td colspan="2">The registered RTOM (Billing Center) in the SLT are displayed on the screen.

Authorised users can register a new RTOM after clicking the ‘Add’ button.

Users can view the following:
● RTOM Id
● Status
● Abbreviation
● Name
● Telephone

The user can view the selected RTOM’s information after clicking the ‘more info’ icon.</td></tr>
<tr><td>Pre-conditions</td><td colspan="2">- An authorised user should log in to the system</td></tr>
<tr><td>Post-conditions</td><td colspan="2">-</td></tr>
<tr><td>Back-end / Front-end</td><td colspan="2">Front-End</td></tr>
<tr><td>Pre status</td><td colspan="2">-</td></tr>
<tr><td>Post status</td><td colspan="2">-</td></tr>
<tr><td>Message of status</td><td colspan="2">-</td></tr>
<tr><td>Notification</td><td colspan="2">-</td></tr>
<tr><td></td><td>Action</td><td>System Response</td></tr>
</table>

Success path	The user should be able to view the registered RTOM list on the screen. If The user clicks the ‘Add’ button Else if Click on the ‘more info’ icon	 The user will navigate to the ‘Add RTOM’ screen. Navigate to the RTOM’s Details screen.
Alternate path		

User case ID	UC005	
Use case name	Register new RTOM	
Actors	SLT Staff	
Description	Register a new RTOM in the system and enter the relevant inputs	
Pre-conditions	-	
Post-conditions	A new RTOM should be added to the system.	
Back - end / front-end	Frontend	
Pre status	-	
Post status	RTOM Status: *Active* 	
Massage of status	Success Status: Success Message Unsuccess Status: Error Message	
Notification	-	
	Action	**System Response**
Success path	SLT staff should enter the following inputs by: ● RTOM Name ● Abbreviation ● Telephone No ● Fax No and click ‘submit’	If Success Success message Else Error message
Alternate path		

User case ID	UC006
Use case name	RTOM's Info
Process ID	*11.3, 11.4, 11.5*
Actors	SLT Staff
Description	SLT staff could ● View RTOM info ● Edit info ● Change status to active, inactive ● Terminate RTOM
Pre-conditions	- An authorised user could log in to the system - RTOM should be a pre-registered RTOM - RTOM status should not be Terminated to Edit Info
Post-conditions	- RTOM Info updated successfully - RTOM status updated successfully
Back-end / Front-end	Front-end
Pre status	-
Post status	RTOM Status:  *Active*  *Inactive*  *Terminate*
Massage of status	Successful submission: Success message Error submission: Error message
Notification	RTOM Info Updated Successfully

	Action	System Response
Success path	The user should be able to view the details of the particular RTOM. The user clicks the 'info icon' from the RTOM list. If the User clicks the 'Edit' button Else If the User clicks the 'End' button Else If the User clicks the 'Log History' button	Directs to RTOM info page Directs to Edit RTOM info to edit: ● Telephone No ● Fax No ● Active or Disable the RTOM The system shows to add an End date and Remark The log table should appear
Alternate path		

User case ID	UC007	
Use case name	List of Service Types	
Process ID	*12.1, 12.2*	
Actors	SLT Staff	
Description	- View active, inactive Service Types - Register new Service Types ● Service Type Name - Edit Status of Services Types ● Active ● Inactive	
Pre-conditions	- Service Type should not already exist when adding a new service type	
Post-conditions	- Register Service Type successfully to the system - Change Service Type status successfully	
Back - end / front-end	Frontend	
Pre status	-	
Post status	Service status: *Active*  *Inactive* 	
Massage of status	Success status: Success message Unsuccess status: Error message	
Notification	-	
	Action	**System Response**
Success path	SLT Staff views list of Service Types If SLT Staff enters new Service Type Name and click submit	

	Else If SLT Staff clicks the ‘edit’ button on one of the Service Types	Successfully Registers new Service Type and adds to the list of Service Types Shows dropdown to change status and enables save button
Alternate path		

Use case ID	UC008	
Use case name	RO list	
Process ID	*13.1*	
Actors	DRC (Debt Recovery Company)	
Description	An authorised DRC can view the RO list of those who are registered with the system. The user can view the following: ● RO ID ● Status ● NIC ● RO Name ● Contact No ● RTOM Area count The DRC can register a new RO to the system by clicking 'Add RO' and view more details of a particular RO by clicking the 'More Info' icon.	
Pre-conditions	- An authorised user should log in to the system.	
Post-conditions	-	
Back-end / Front-end	Front-End	
Pre status	-	
Post status	-	
Message of status	-	
Notification	-	
	Action	**System Response**

Success path	The user should be able to view the registered RO list on the screen. The user clicks the 'Add RO' button Click on the 'more info' icon	The user will navigate to the 'Add RO' screen. Navigate to the 'RO's Info' screen.
Alternate path		

User case ID	UC009	
Use case name	Register new Recovery Officer (RO)	
Actors	DRC (Debt Recovery Company)	
Description	Register a new RO in the system by entering the relevant inputs	
Pre-conditions	-	
Post-conditions	Registered new RO should be added to the system.	
Back - end / front-end	Frontend	
Pre status	-	
Post status	RO Status: *Active* 	
Massage of status	Success Status: Success message Unsuccess Status: Error message	
Notification	-	
	Action	**System Response**
Success path	The user should enter the following inputs: ● RO Name ● RO NIC ● Contact No ● Login Method ● RTOM Area and click ‘submit’	If Success Success message Else Error message
Alternate path		

User case ID	UC10
Use case name	RO’s Info (Recovery Officer)
Process ID	*13.3, 13.4, 13.5*
Actors	DRC (Debt Recovery Company)
Description	The user could ● View RO info ● Edit info ● Change status to active, inactive ● Terminate RO
Pre-conditions	- An authorised DRC could log in to the system - RO status should not be Terminated to Edit Info
Post-conditions	- RO Info updated successfully - RO status updated successfully
Back-end / Front-end	Front-end
Pre status	-
Post status	RO Status:  *Active*  *Inactive*  *Terminate*
Massage of status	Successful submission: Success message Error submission: Error message
Notification	-

	Action	System Response
Success path	The user should be able to view the details of the particular RO. The user clicks the 'info icon' from the RO list. If the User clicks the 'edit' button Else If the User clicks the 'End' button Else If the User clicks the 'Log History' button	Directs to RO info page Directs to Edit RO info to edit: ● Contact No ● Login Method ● Add RTOM area ● Active or Disable the RO The system shows to add an End date and Remark The log table should appear
Alternate path		

<table>
<tr><th>Use case ID</th><th colspan="2">UC011</th></tr>
<tr><td>Use case name</td><td colspan="2">Collect incidents from Data Lake</td></tr>
<tr><td>Process ID</td><td colspan="2">1.1 BP</td></tr>
<tr><td>Actors</td><td colspan="2">DebtX (Debt Recovery System)</td></tr>
<tr><td>Description</td><td colspan="2">Collect terminated account details from the data lake and register them as incidents.</td></tr>
<tr><td>Pre-conditions</td><td colspan="2">Details relevant to the terminated accounts should be collected from OPMC (account-related information) and BSS (last payment details).</td></tr>
<tr><td>Post-conditions</td><td colspan="2">Incidents are registered to the system successfully.</td></tr>
<tr><td>Back-end/Front-end</td><td colspan="2">Back-end (API Calling)</td></tr>
<tr><td>Pre status</td><td colspan="2">-</td></tr>
<tr><td>Post status</td><td colspan="2">Incident_Open</td></tr>
<tr><td>Message of status</td><td colspan="2">Incidents successfully created.</td></tr>
<tr><td>Notification</td><td colspan="2">SLT Staff:
created incident details (incident count, created dtm)</td></tr>
<tr><td></td><td>Action</td><td>System Response</td></tr>
<tr><td>Success path</td><td>Call API</td><td>Collect relevant data from the data lake and process.
Load them into the DebtX.
Update the incident list</td></tr>
<tr><td>Alternate path</td><td colspan="2"></td></tr>
</table>

Use case ID	UC012	
Use case name	Register Incident	
Process ID	*1.1 & 1.4 BP*	
Actors	DebtX (Debt Recovery System) SLT Staff	
Description	● Incident input collection for the system can be done in the following ways: ○ Bulk upload ○ Manually input ● Data includes ▪ Account no, and Action type as Arrears collect or Arrears + CPE collect. ▪ Telephone number/Service number (System ID) and action type as Only CPE collect. ● The source type should be mentioned as ○ Pilot - Suspended ○ Product Terminate ○ Special ● Once the data input is done, the relevant details related to the accounts will be collected from the OSS, BSS, and CRM. ● After collecting necessary details from the sources the incident list will be updated.	
Pre-conditions	- The user should be a registered user. - Authorised users should have the necessary privileges. - The system should be able to upload the cases in bulk as an Excel file.	
Post-conditions	- Details added to the incident list.	
Back-end/front-end	Front end: Bulk upload or Manual input	
Pre status	*Incident_Pending*	
Post status	*Data_Gathered*	
Message of status	Error message with error status Success message: “Incident successfully registered.”	
Notification	SLT Staff - Registered incident count	
	Action	**System Response**

Success path	If bulk upload in Excel file	Register the accounts as incidents, and set the status “Incident Pending.”. and add to the Incident list along with the case duration and the action type in the Excel sheet. Further details of the uploaded accounts should be collected from the sources: OSS, BSS, and CRM
	Else, Enter the Account manually in the “Add new incident” option ● Account No ● Action type ● Source Type ● Calendar Months (Assigning duration)	Get the other details related to the entered account from the OSS, BSS, and CRM and create an incident. Add the created incident to the ‘Incident List.’
Alternate path		

Use case ID	UC013	
Use case name	Collect only CPE	
Process ID	*1.5 BP & 1.7.3*	
Actors	DebtX (Debt Recovery System)	
Description	The system automatically forwards incidents, which is the ○ Action type = 'Collects only CPE' ○ Action type = 'Arrears + CPE Collect' where the Arrears amount < 1000 to the 'Collect only CPE Log.'	
Pre-conditions	- Action type = 'Collect only CPE' - Action type = 'Arrears + CPE Collect' and the Arrears amount < 1000	
Post-conditions	- Incidents are added to the 'Collect only CPE Log.'	
Back-end / Front-end	Back-end	
Pre status	Action type = 'Collect only CPE' - *Data_gathered* Action type = 'Arrears + CPE Collect' and the Arrears amount < 1000 - *Case_Pending*	
Post status	*Case_Open*	
Massage of status		
Notification	SLT staff - Collect only CPE count	
	Action	**System Response**
Success path	If Action type = 'Collect only CPE'	Update the status and the CPE-only Log

	Else, Action type = ‘Arrears + CPE Collect’ and the Arrears amount < 1000	Update the status and the CPE-only Log
Alternate path		

Use case ID	UC014	
Use case name	CPE Collection Process	
Process ID	*1.10 BP & 1.12 BP & 1.11 BP*	
Actors	DebtX (Debt Recovery System)	
Description	After checking the details of the equipment related to the case, the case is assigned to the DRC to collect the equipment.	
Pre-conditions	- Check whether the equipment is • SLT-owned unit • Customer-owned unit and agree to be collected • Unit status= 'TX' (Terminated)	
Post-conditions	- The case closed - The case is assigned to the DRC	
Back-end / Front-end	Back–end	
Pre status	*Incident_gathered*	
Post status	Customer-owned unit - *Case_Close* SLT-owned unit & product status != 'TX' - *Case_Close* SLT-owned unit & product status = 'TX' - *Open_No_Agent*	
Massage of status		
Notification		
	Action	**System Response**

Success path	If SLT owned unit If Product status = TX Else Else If Shall collect customer unit If Product status = TX Else	 System forwards the cases to Assign DRC Case is closed System forwards the cases to Assign DRC Case is closed
Alternate path		

Use case ID	UC015	
Use case name	Assign DRC	
Process ID	*1.A.12 & 1. C.12 & 1.A.13 & 1.A.15*	
Actors	SLT staff	
Description	Assign cases to DRC to take action on: → Arrears Collect → Arrears + CPE Collect → CPE Collect	
Pre-conditions	- Incidents should be displayed as open incidents. - SLT staff can check and modify the assigned count and proceed with the selected incidents. - The incidents will be registered as cases and displayed as groups according to the service type of the cases.	
Post-conditions	Send DRC assigned details for manager approval.	
Back-end/front-end	Front – end	
Pre status	*Open_No_Agent*	
Post status	*DRC_Pending_Approval*	
Massage of status	Process in Progress Process Success Error in processing (Invalid case count)	
Notification	SLT Staff — “Ready Cases for Distribution” SLT Staff (Manager) – “New approval pending”	
	Action	**System Response**
Success path	Proceed Incidents Open a service type	Register incidents as cases Display case count as service type

	Do the assigning Process Select Arrears brand Select DRC Enter case count Click on ‘Add’	
		Display added details in the table
	Repeat the process until Total case count (in the table) == Case count Proceed the entered details	
		If Total case count (in the table) == Case count Display the assigned summary Else Display Error Message
	If Process success Check the summary and do relevant updates Else Do the assigning Process (Again)	

	If modifying the DRC-assigned details (modify assign details: yes) Else, (modify assign details: no)	Update the assigned details Do the necessary modifications and save the changes Send to the manager for approval
Alternate path		

<table>
<tr><th>Use case ID</th><th colspan="2">UC016</th></tr>
<tr><td>Use case name</td><td colspan="2">DRC Assign - Manager Approval</td></tr>
<tr><td>Process ID</td><td colspan="2">1.15</td></tr>
<tr><td>Actors</td><td colspan="2">SLT staff</td></tr>
<tr><td>Description</td><td colspan="2">Approve the DRC-assigned cases before distributing them among DRC

If the approval is not successful, then ‘Assign DRC’ again, check for the necessary modifications, and send for the approval

After manager approval is completed, the case duration that has been entered (duration that has been entered when the case was registered as an incident) validity period will be started.</td></tr>
<tr><td>Pre-conditions</td><td colspan="2">DRC assign process has to be completed.

Cases should be moved for the manger approval process</td></tr>
<tr><td>Post-conditions</td><td colspan="2">Distribute DRC-assigned case lists to DRCs. The case completion date will be counted from the time the manager approves the assigned DRC list.</td></tr>
<tr><td>Back-end/front-end</td><td colspan="2">Front – end</td></tr>
<tr><td>Pre status</td><td colspan="2">DRC_Pending_Approval</td></tr>
<tr><td>Post status</td><td colspan="2">Open_Assign_Agent</td></tr>
<tr><td>Massage of status</td><td colspan="2">Approved

Not Approved</td></tr>
<tr><td>Notification</td><td colspan="2">SLT Staff - “Pending DRC approvals”

DRC – “Have been assigned new case list”</td></tr>
<tr><td></td><td>Action</td><td>System Response</td></tr>
</table>

Success path	Check the Approval log Filter the “Pending Approve” Case list Select the cases and Approve	 Filter and Display the “Pending Approval” Case list Send the approved case list to relevant DRCs Case completion duration is started from the date of approval. Update the status “Already Approved.”
Alternate path		

Use case ID	UC017
Use case name	Filtering process 01 and Select Criteria
Process ID	*1.6BP & 1.8 BP*
Actors	DebtX (Debt Recovery System) SLT Staff
Description	● The process of filtering the gathered data from the sources for the accounts that are terminated. ● The incidents that fall under the following criteria will be rejected. 1 - Credit class = VIP, 3, 7, 10, 43 2 - Arrears level < threshold limit 3 - Customer type name = SLT 4 - Main product status = Active 5 - Product status = TA, SU 6 - Specific customer name (manually) Banks Brandix MAS Mobitel Hutch Etisalat Airtel Lanka Bell Dialog Suntel 7 - Customer segment = 2, 4, 6, 7 ● The cases which not meet the criteria will be moved to ‘incident’. ● The cases which not meet the criteria will be divided into 3 process paths/conditions as ○ Condition 1: if the arrears amount > 5000 – the case will be moved to the Assign DRC (Debt Recovery Company) list ○ Condition 2: If the arrears amount is < 1000 – the case will be moved to the Collect CPE process.

	○ Condition 3: If the arrears amount is between 1000 & 5000 – cases will move to the Direct LOD process.	
Pre-conditions	• Data from the data lake is fetched successfully. • The respective data for the inputs should be collected. • Action type = 'only CPE' should be omit and navigate to the relevant process.	
Post-conditions	1. Cases fulfill the F1 is omitted. 2. Based on the conditions the cases should be divided for the relevant processes.	
Back-end/front-end	Back-end : Filter according to the filtering criteria add filter reason	
Pre status	*Incident Open*	
Status	*Case Pending*	
Post status	Condition 01 - *Open_No_Agent* Condition 02 - *Case_Open* Condition 03 - *Direct_LOD* *Incident_reject*	
Message of status	"Incident Filtration is Unsuccessful." "Incidents Are Filtered Successfully"	
Notification	SLT Staff: Case count for Assign DRC Cases count for Direct LOD Cases count for Collect CP Document with relevant details of the cases where marketing concerns should be sent.	
	Action	**System Response**

Success path	Cases which are fulfilling the F1 criteria	Display filtered reason
	If the arrears < 1000	‘Collect CP’
	If the arrears are between 1000 and 5000	Direct LOD
	Arrears > 5000	Assign DRC
	Account manager type : CS1_GOV CS1_VLB CS2_CM1 CS2_CM2 SME and Customer Type Name: Diplomats & Delegates Government organizations	Mail send to marketing
Alternate path		

Use case ID	UC018
Use case name	Monitor DRC and Re-Assign DRC
Process ID	*1.17 & 1.18*
Actors	SLT staff
Description	Monitor the assigned DRC. Re-assign the DRC if necessary based on the performance.
Pre-conditions	Cases have been successfully assigned and distributed to the DRC
Post-conditions	If Re-Assign DRC Change the DRC and Assigned a new DRC. Update the assign DRC log If Withdraw Add case to Withdraw case log
Back-end/front-end	Front – end
Pre status	*Open_Assign_Agent*
Status	*Open_With_Agent* *RO_Negitiation* *Negotiation_Settle* *Open_With_Agent* *FMB* *FMB_Negotiation* *FMB_Settle*
Post status	If Re-Assign DRC *DRC_Manager_Approval* If Withdraw *Pending_Withdrawal*
Massage of status	-

Notification	-	
	Action	**System Response**
Success path	Select the DRC's case from the DRC List	Navigate to the DRC's Case list
	Check the Case Progress (Check the Case progress by the status of the case with the assigned date)	
	If no progress If Re-Assign DRC	Navigate to the Re-Assign DRC page
	Select new DRC and submit	Send the case to the Manager for approval
	Else Withdraw Case	Add Case to Pending Withdrawal log
Alternate path		

Use case ID	UC019	
Use case name	Distribute among Recovery Officer (RO)	
Process ID	*2.2*	
Actors	DRC (Debt Recovery Company)	
Description	The DRC distributes assigned cases among the RO for further action. ● Customer details. ● The location of customers should be a concern.	
Pre-conditions	- ROs are available in the customer's area. - Required customer details should be accessible. - Action categories, ● Arrears collects ● CPE collects ● CPE + Arrears	
Post-conditions	DRC distributes among relevant ROs. Details of the assigned ROs should be provided to the SLT and update the RO list.	
Back-end/front-end	Front–end	
Pre status	*Open_With_Agent*	
Post status	*RO_Negotiation*	
Massage of status	"Case Assigned Successfully"	
Notification	RO – Newly assigned cases count	
	Action	**System Response**
Success path	Open "Pending" cases Select Cases and Select the relevant RO that cases should be Assigned and Submit	Displays a list of cases.

	Inform the assigned RO of details for the SLT.	Assign cases among ROs based on availability. Notify RO about the Assigned case information Add RO assigned case list to the Ongoing case list
Alternate path		

Use case ID	UC020	
Use case name	Monitor RO and Re-Assign RO	
Process ID	*2.4.1 & 2.4.2 & 2.5*	
Actors	DRC	
Description	Check the case progress of RO's	
Pre-conditions	Cases have been successfully assigned and distributed to the RO	
Post-conditions	If Re-Assign DRC Change the DRC and Assigned a new DRC	
Back-end/front-end	Front – end	
Pre status	*Open_with_Agent*	
Status	*RO_Negitiation* *Negotiation_Settle* *Open_With_Agent_Extended* *FMB* *FMB_Negotiation* *FMB_Settle*	
Post status	-	
Massage of status	-	
Notification	RO – Re-Assigned Case details Previous RO – About the case termination New RO – About the newly assigned case details	
	Action	**System Response**

Success path	Navigate to the Assigned RO Case log Select a case Check the Case Progress If Re-Assign RO Select new RO and submit	Display Case details <u>Arrears Collect</u> • Last Negotiation details • Settlement Details • Payment details • Additional Request history <u>CPE Collect</u> • Last Negotiation details Navigate to the RO Re-Assign page Change the RO's details of the case Notify the new assigned RO for the assigned case details
Alternate path		

Use case ID	UC021	
Use case name	Customer Negotiation	
Process ID	*2.7*	
Actors	DRC / RO	
Description	RO (Recovery Officer) should visit the customer negotiate the case and take related actions, ● Collect Arrears ● Collect CPE ● Collect both CPE and Arrears And, update the customer feedback (refer list in the Table 1 - Negotiation selection items)	
Pre-conditions	RO should receive the latest updated case details with the relevant customer details.	
Post-conditions	- RO has updated the negotiation details - If the customer agrees to settle settlement details should be updated. According to the payments done by the customer payment details should be updated	
Back-end/front-end	Front–end	
Pre status	*Open_With_Agent*	
Status	*RO_Negotiation*	
Post status	*RO_Negotiation_Settle* *FMB*	
Massage of status	-	
Notification	-	
	Action	**System Response**
Success path	Open received case list Select a case	Display Case details including customer details

	Visit and Discuss with the customer If customer details should change Select the "Edit" option in the relevant case Enter new customer contact details (Contact No/ NIC/ Email/ Address) Submit details	
		Add new customer details to the case
	Else Select the "Negotiation" option of the relevant case Update customer response If Negotiation == Success & Customer Agree to settle Create settlement plan	
		Update Settlement details of the case

	If Negotiation == Success & Customer still not Agree to settle Enter field status and Submit If Negotiation != Success Enter fail status and submit If any additional requests need to be done Select the request type on the request dropdown and Submit	Update negotiation details Update negotiation details Add requests to the request log
Alternate path		

Abbreviation	**Description**	**About Commission**
AS	Agree to settle	Success
CA	Customer available	Pending
CANAS	Customer Available Not Agree to Settle	Fail
CD	Customer Dead	Fail
CGA	Customer Gone Abroad	Fail
FP	Fully paid	Success
MSG	Message	
NIC	No Information Customer	Fail
V_APAID	Visit already paid	Success
V_AS	Visit Agree to Settle	Success
V_CA	Visit Customer Available	Success
V_CANAS	Visit Customer Available Not Agree to Settle	Fail
V_CD	Visit Customer Dead	Fail
V_CGA	Visit Customer Gone Abroad	Fail
V_NIC	Visit No Information Customer	Fail
UA	User Available	Success
UANAS	User Available Not Agree to Settle	Fail
V_UA	Visit User Available	Success
V_UANAS	Visit User Available Not Agree to Settle	Fail
CALF	Calling failed	Fail
APAID	Already Paid	Success
REN	Rental Only	

RO Status Update - Negotiation

	Visited	Calling	Field Reason	Fail Reason	Commission Entitiled	Next forward	
Agreed To Settle	V_AS	AS	X		X	FMB - CANAS	# no payment update
Customer Available Not Agreed To Settle	V_CANAS	CANAS	X	X	X	FMB - CANAS	
Customer Available	V_CA	CA	X		X	FMB - CANAS	
Customer Gone Abroad	V_CGA	CGA	X	X	X	LIT_Prescribed	
No Information Of Customer	V_NIC	NIC	X	X		FMB - NIC	
Customer Dead	V_CD	CD	X	X	X	LIT_Prescribed	
User Available	V_UA	UA	X		X	FMB - CANAS	
User Available Not Agreed To Settle	V_UANAS	UANAS	X	X	X	FMB - CANAS	
Message		MSG	X		X	FMB - CANAS	
Fully Paid		FP	X		X	Create Notification for SLT Staff	check with the CAM
Calling Failed		CALF	X			FMB - CANAS	
Already Paid	V_APAID	APAID	X		X	Create Notification for SLT Staff	check with the CAM
Debt Collector Visit	V_DC	DC	X		X	FMB - CANAS	
Rental Only		REN		X		Create Notification for SLT Staff	check with the CAM

RO Status Update - Mediation Board

	Visited	Calling	Field Reason	Fail Reason	Commission Entitiled	Next forward
Mediation Board User Not Agree To Settle		MBR_UNAS		X		
Installment Default		ID		X		

DRC/RO task with SLT - Negotiation level

Task	
Mediation board forward request letter	DRC, RO
Settlement plan	DRC, RO
Request period extend	DRC
Request customer further information	RO
Handed over Non-Settlement letter	RO
Customer request service	RO

DRC/RO task with SLT - Mediation Board level

Task	
Settlement plan	DRC, RO
Request period extend	DRC
Request customer further information	RO
Handed over Non-Settlement letter	RO
Customer request service	RO

Figure 2: RO Status Update

<table>
<tr><th>Use case ID</th><th colspan="2">UC022</th></tr>
<tr><td>Use case name</td><td colspan="2">Requests from SLT</td></tr>
<tr><td>Process ID</td><td colspan="2">2.7.2</td></tr>
<tr><td>Actors</td><td colspan="2">RO (Recovery Officer)</td></tr>
<tr><td>Description</td><td colspan="2">The Recovery Officer (RO) requests additional information, mediation forward letter and period extension from the SLT staff .</td></tr>
<tr><td>Pre-conditions</td><td colspan="2">- RO should initiate negotiation with customers.
- Previous Negotiation is unsuccessful.</td></tr>
<tr><td>Post-conditions</td><td colspan="2">According to the request,
- Provide necessary information for RO.
- Issued mediation board forward letter.
- Update the extended period.</td></tr>
<tr><td>Back - end / front - end</td><td colspan="2">Frontend: - RO requests
● Mediation board forward letter
● Period extension
● Additional information.
Backend: - Issued
● Mediation board forward letter
● Update period extension</td></tr>
<tr><td>Pre status</td><td colspan="2">RO_Negotiation</td></tr>
<tr><td>Status</td><td colspan="2">RO_Negotiation (Request MB letter)</td></tr>
<tr><td>Post status</td><td colspan="2">FMB
Open_with_agent_extended</td></tr>
<tr><td>Massage of status</td><td colspan="2"></td></tr>
<tr><td>Notification</td><td colspan="2">SLT officer: - New request count</td></tr>
<tr><td></td><td>Action</td><td>System Response</td></tr>
<tr><td>Success path</td><td>If RO requests
- Mediation board forward letter
- Period Extension
- Additional info</td><td></td></tr>
</table>

		Requests add to Request Log (SLT's)
Alternate path		

7. Acceptance Criteria

1. Case Management

- SLT Staff could create individual cases or bulk cases without system errors.
- Multiple products linked to a customer account are grouped under a single case.
- Cases should be validated (e.g., required fields, data accuracy) before submission.
- System distributes open cases to appropriate DRCs based on SLT user’s preference.

2. Data Integration

- The system retrieves arrears data from BSS, OSS, CRM, and Data Lake automatically.
- Updates made in the legacy systems are reflected in DebtX in real time.
- No data duplication or no error occurs during data retrieval.

3. Notifications and Alerts

- Real-time alerts are triggered for overdue cases, escalations, and status changes.
- Users receive notifications via the system dashboard, SMS, or email, based on configured preferences.
- Notifications are logged in the system with timestamps for audit purposes.

4. Document Automation

- The system generates Final Reminders, Letters of Demand (LOD), and other legal documents using predefined templates.
- Digital signatures can be applied to the documents without errors.
- Final Reminders, LODs and other legal documents comply with legal and organizational standards.

5. Negotiation and Settlement

- Recovery Officers (ROs) can update negotiation outcomes in real-time via the mobile app.
- The system tracks settlements, updates case statuses, and confirms payments accurately.
- Automated reminders are sent to ROs for overdue cases or pending follow-ups.
- All negotiation logs and updates are maintained for future reference and compliance.

6. Write-Off Management

- Cases marked as “pending write-off” are processed and transitioned to “write-off” status based on predefined rules.
- Write-off logs contain detailed case information, including date and reasons for write-off.
- Users can generate accurate and detailed reports of write-off cases for compliance and auditing.

7. Dashboards and Reporting

- Dashboards display real-time case progress, and DRC/RO performance.
- Reports can be filtered.
- All generated reports are accurate, downloadable, and adhere to the client’s reporting requirements.

8. Glossary

- DRC- Debt Recovery Company
- RO - Recovery Officer
- CPE - Customer Product Equipment
- LOD - Letter Of Demand
- RCMP
- BSS - Billing Support System
- OSS - Operating Support System
- CRM - Customer Relationship Management
- SMS - Short Message Service
- UAT - User Acceptance Testing
- IT - Information Technology
- CSS - Cascading Style Sheets
- UI - User Interface
- NoSQL - Not Only Structured Query Language
- JWT - Json Web Token
- npm - Node Package Manager
- OS - Operating System
- DB - Database
- CI/CD pipeline - Continuous Integration and Continuous Deployment Pipeline

9. Appendices

9.1. System Architecture

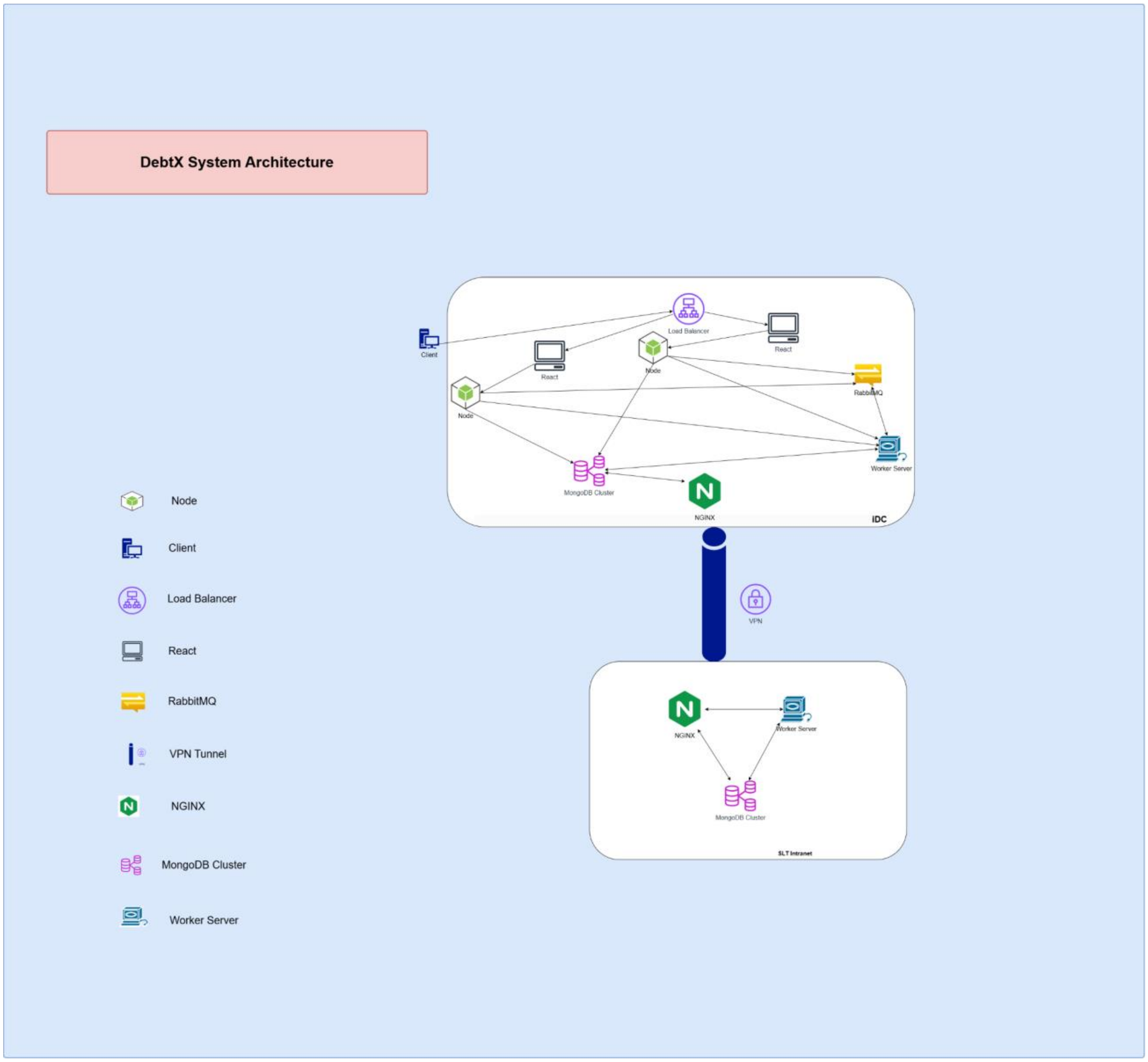

Figure 3: System Structure

9.2. Main Diagram

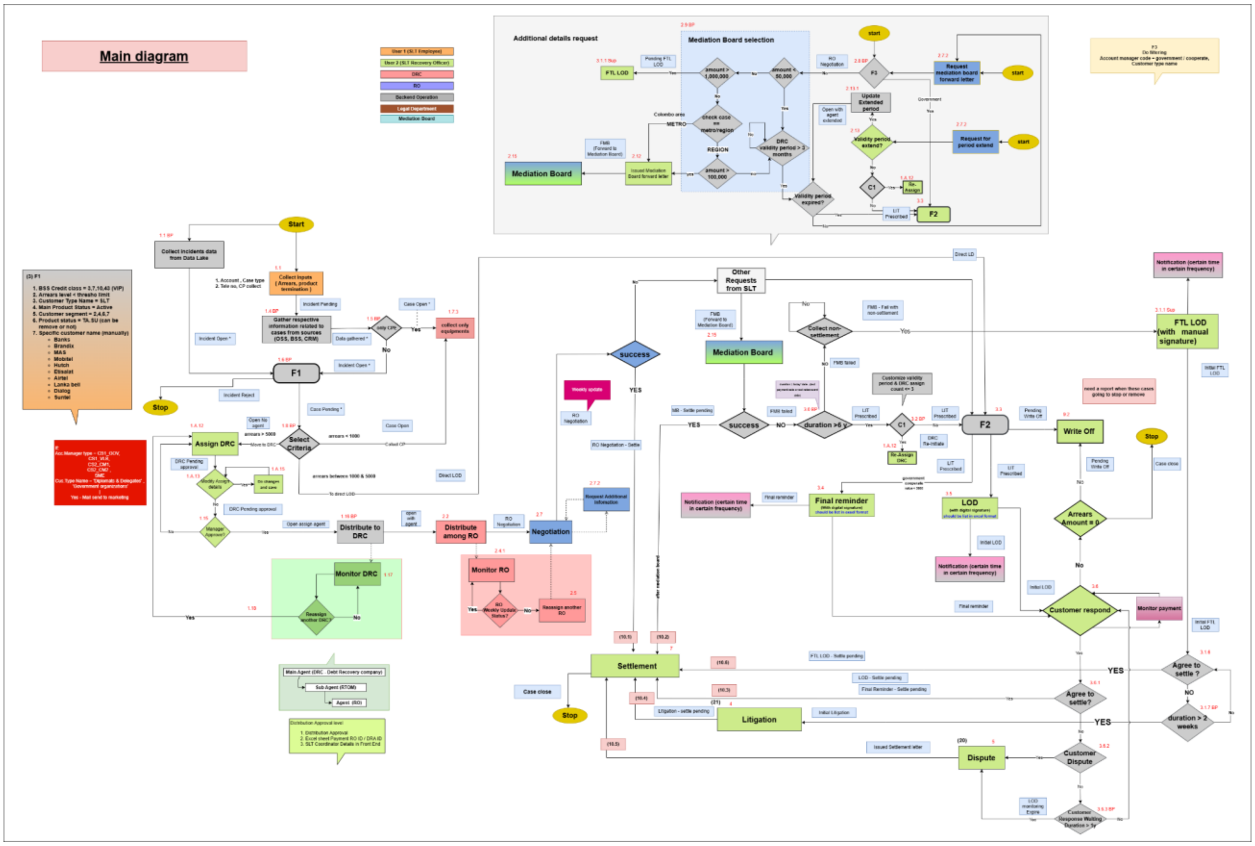

Figure 4: Main Diagram

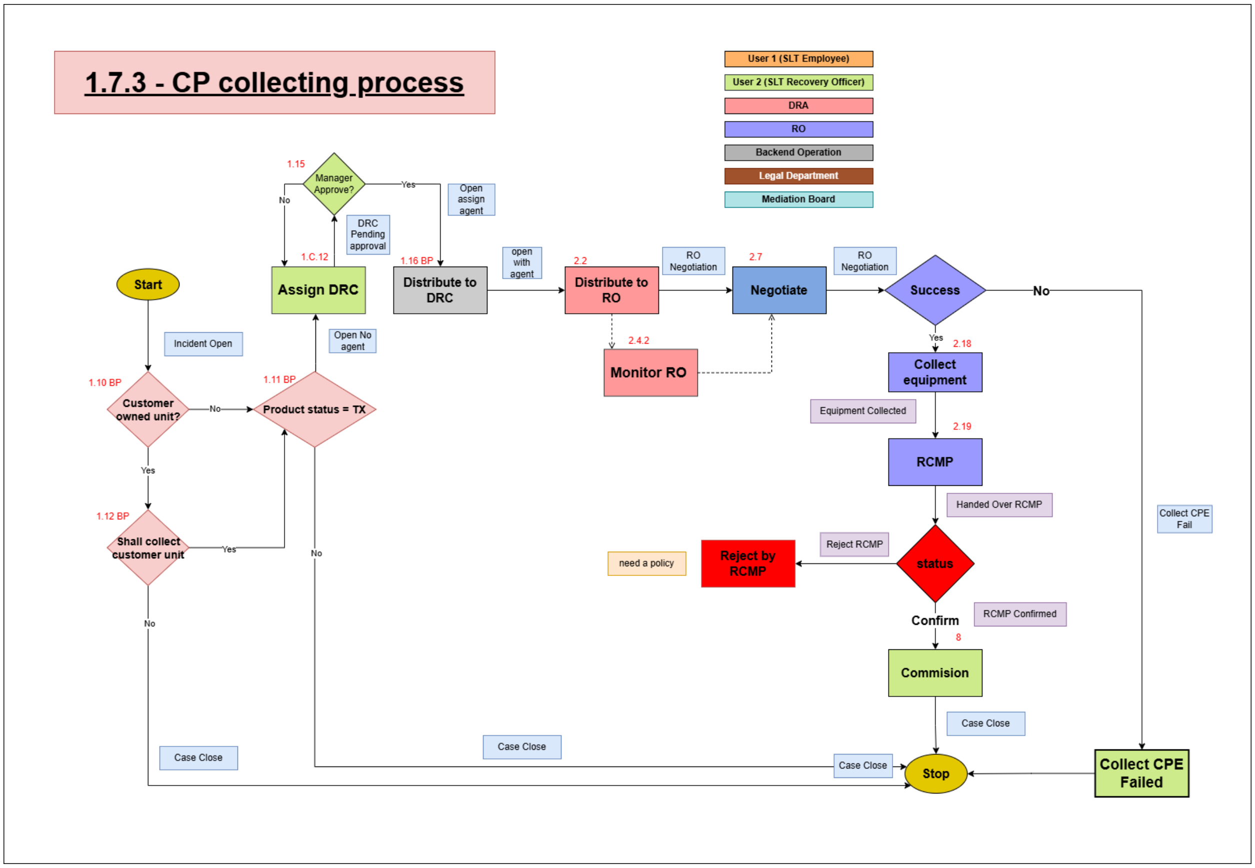

Figure 5 : CP Collecting

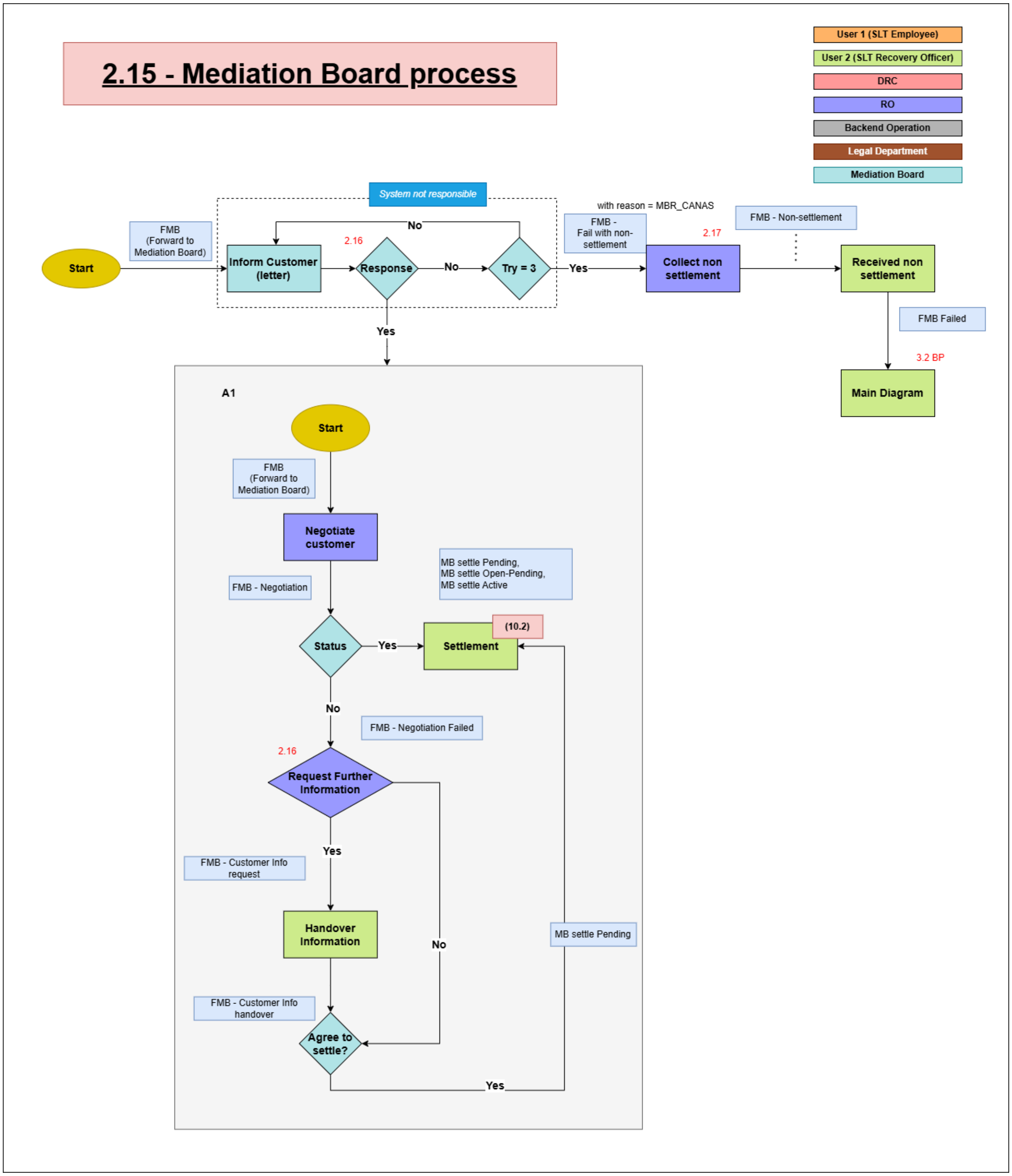

Figure 6: Mediation Board

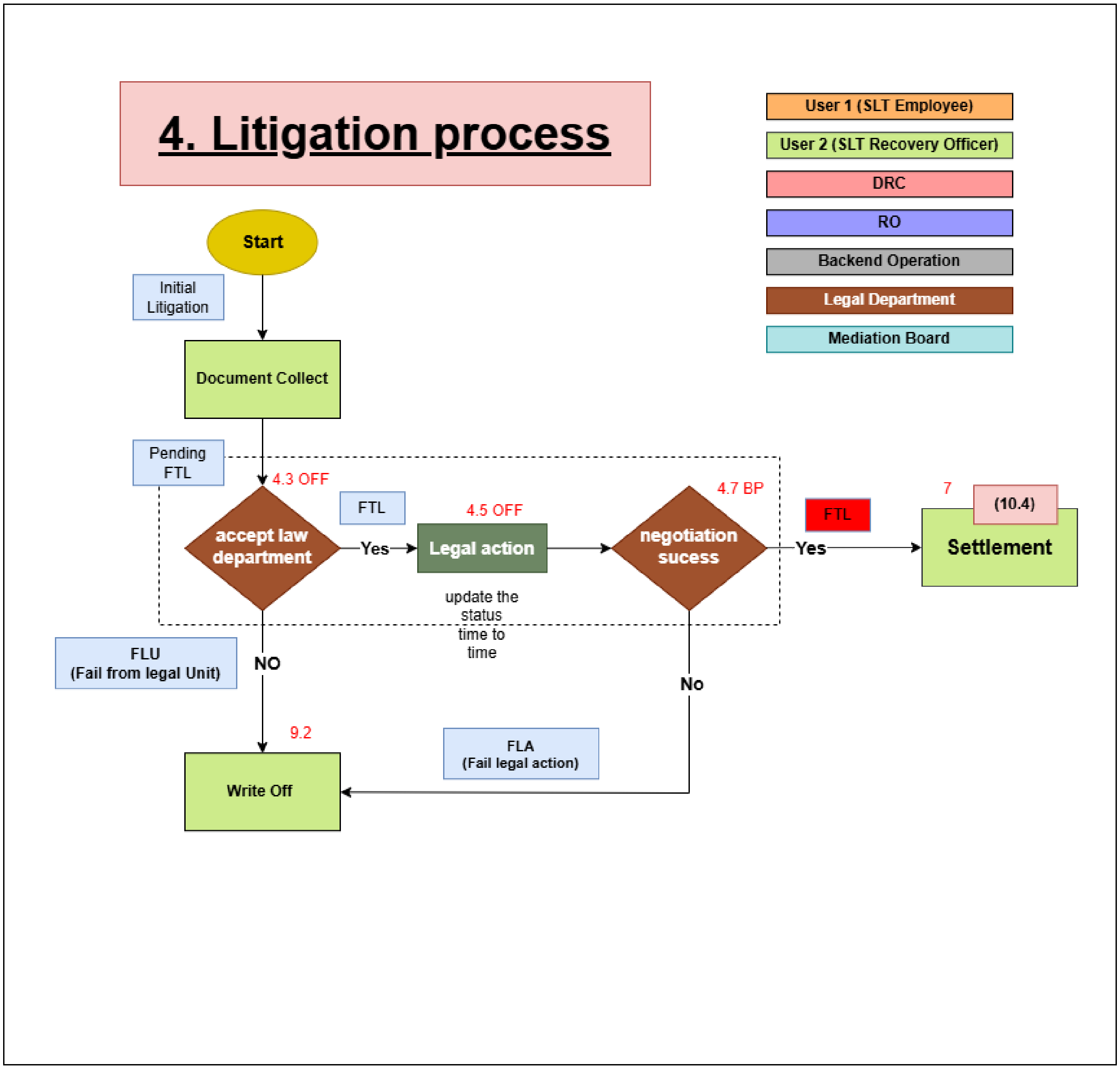

Figure 7: Litigation Process

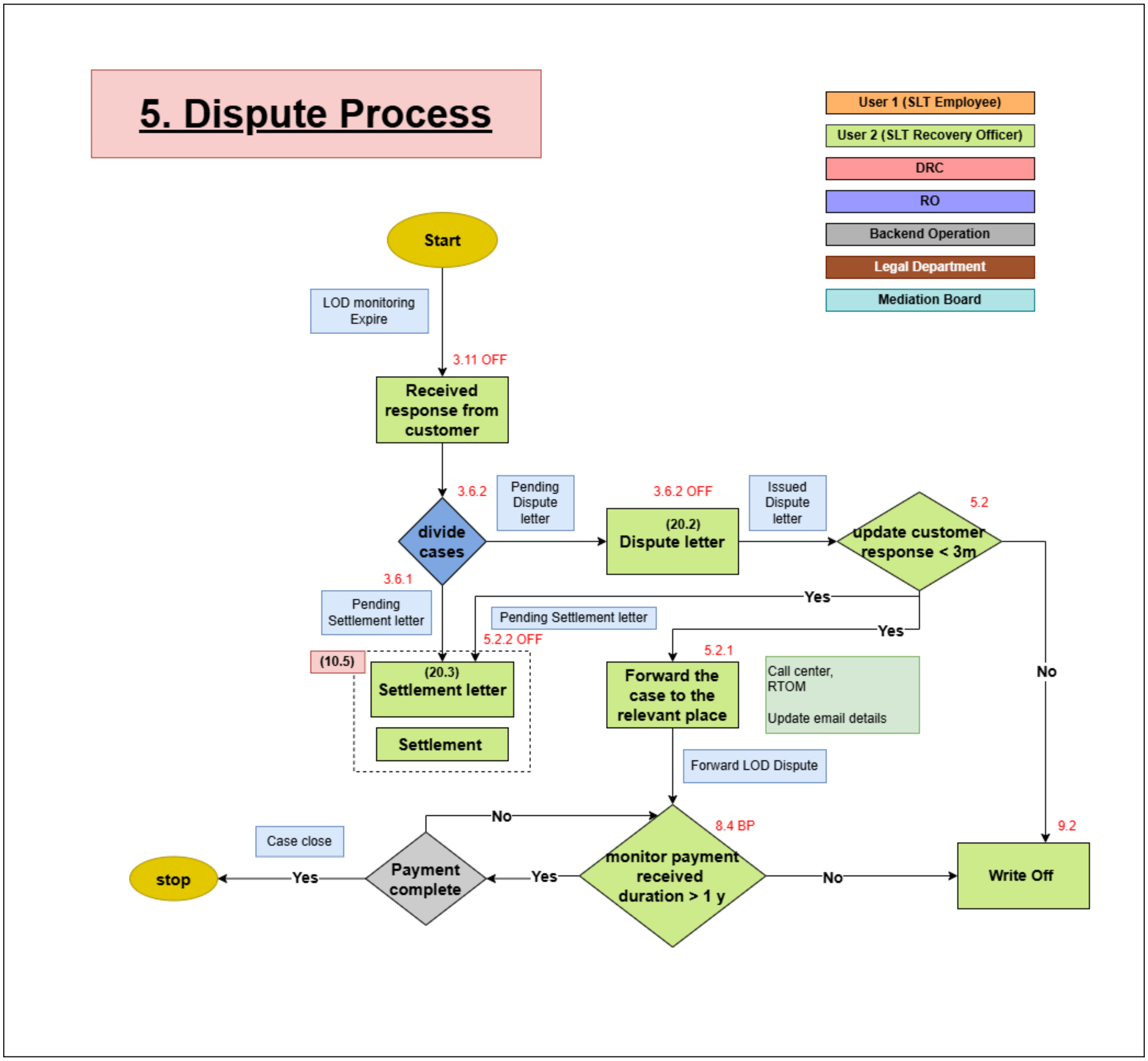

Figure 8: Dispute Process

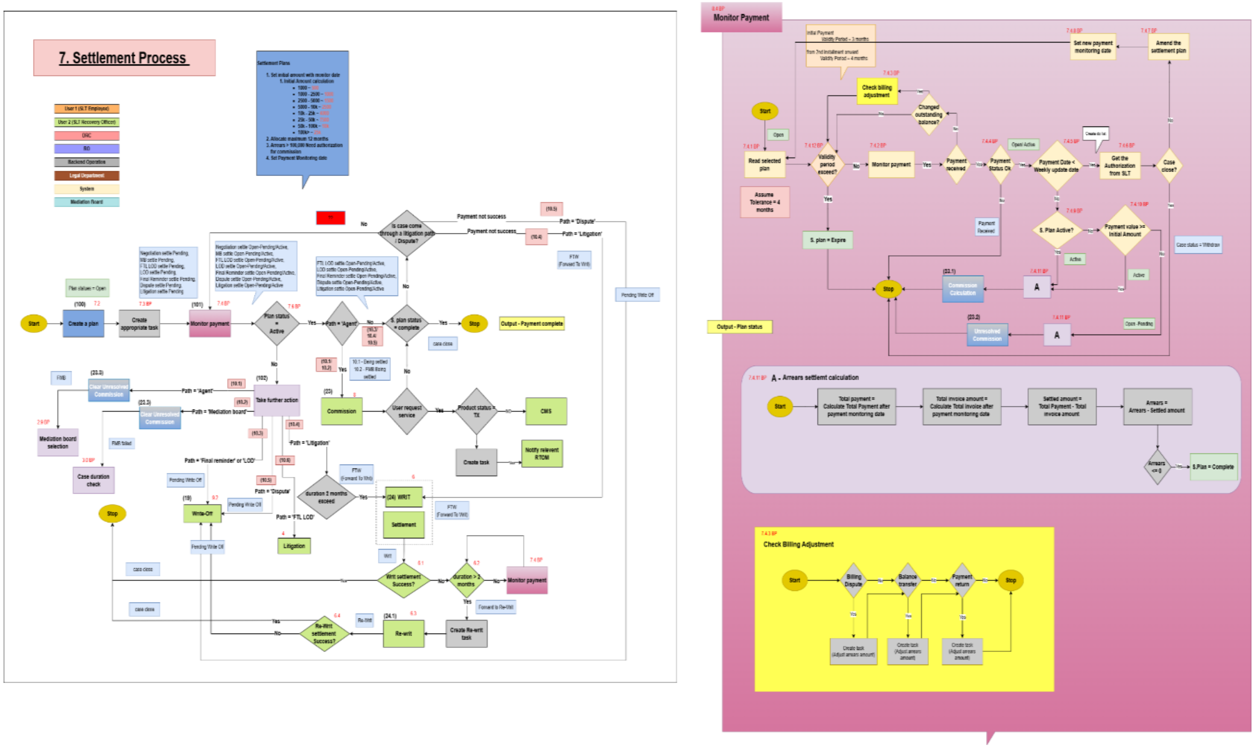

Figure 9: Settlement Process

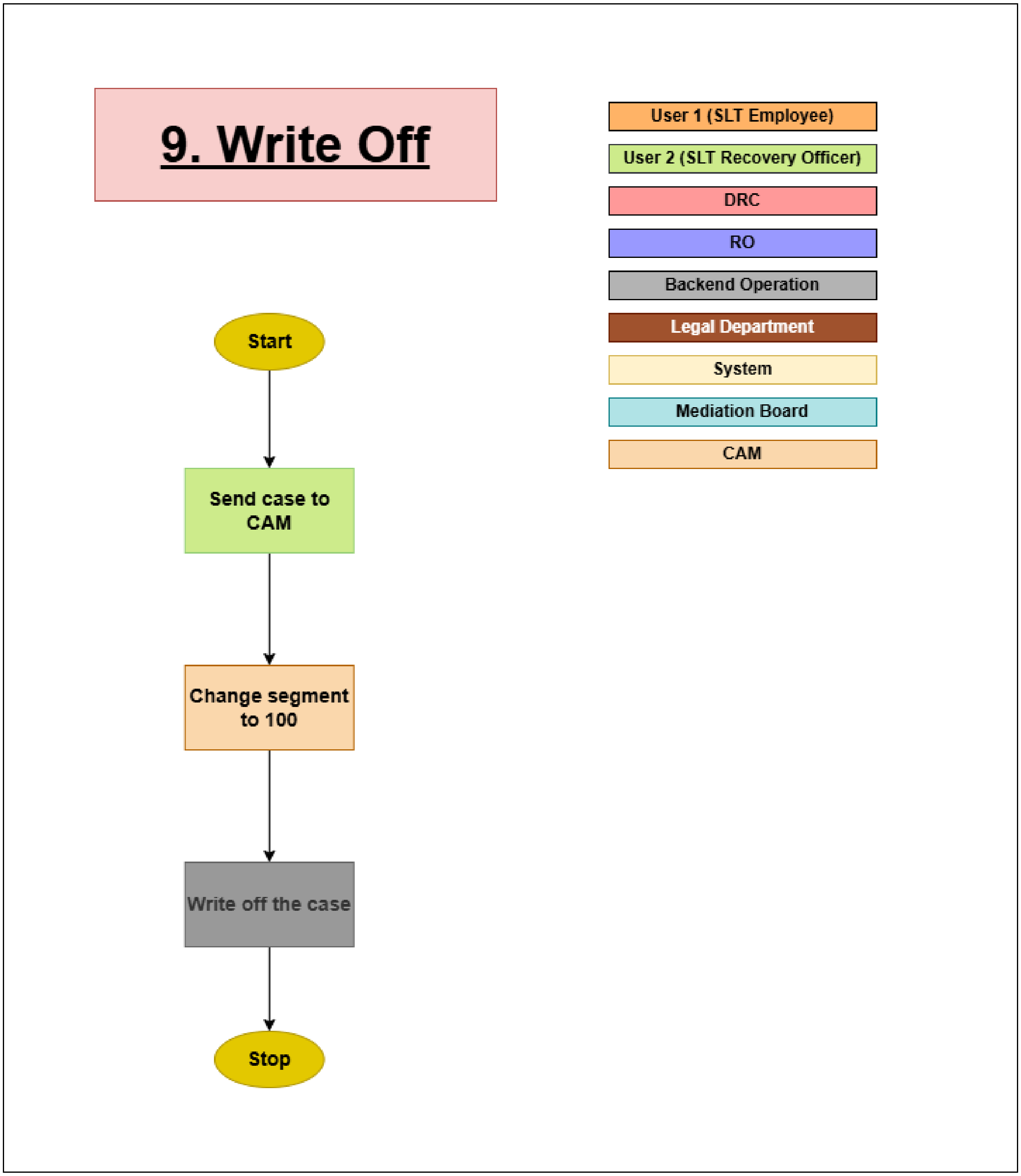

Figure 10: Write Off

9.3. State Transition Diagram

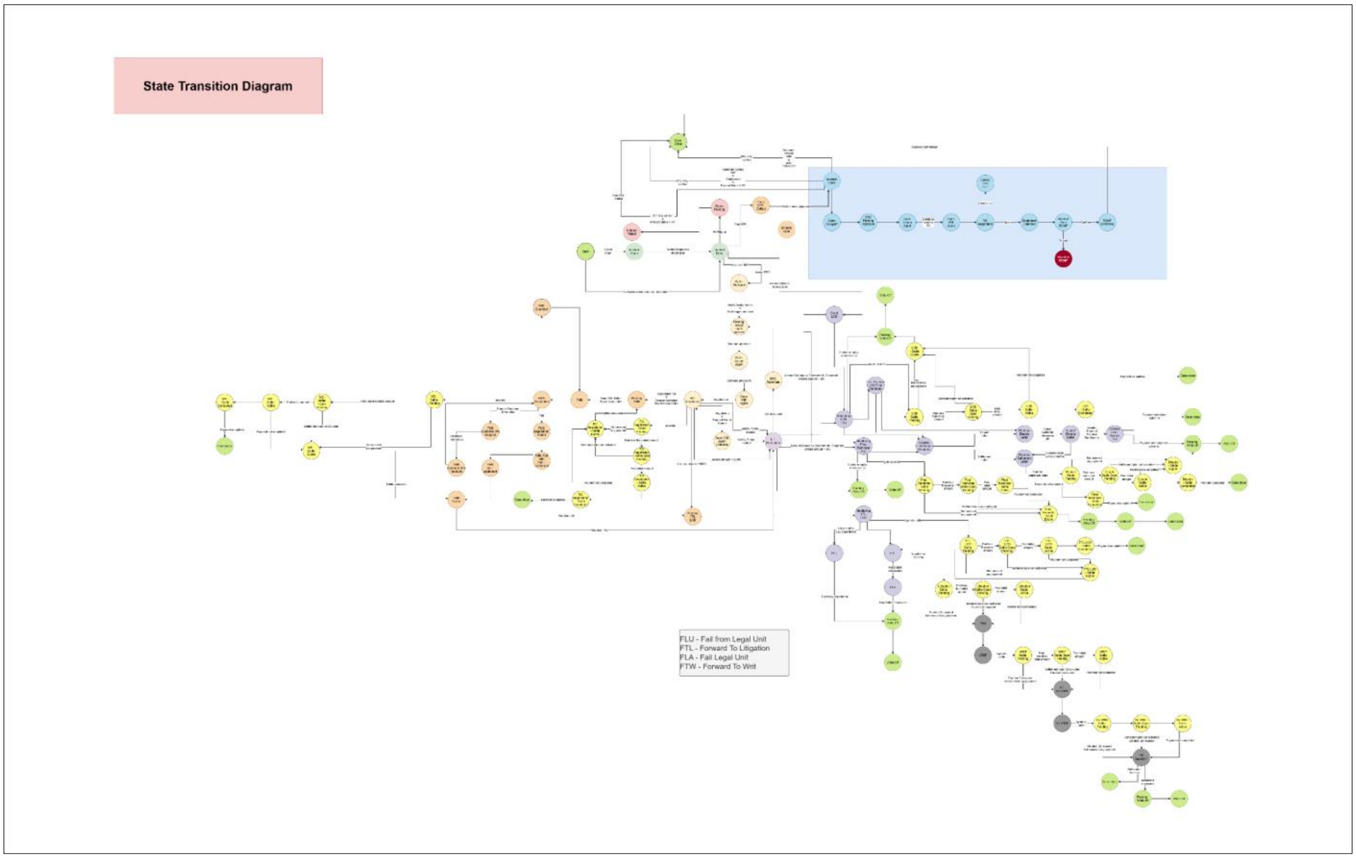

Figure 11: State Transition Diagram

9.4. Data Flow Diagram

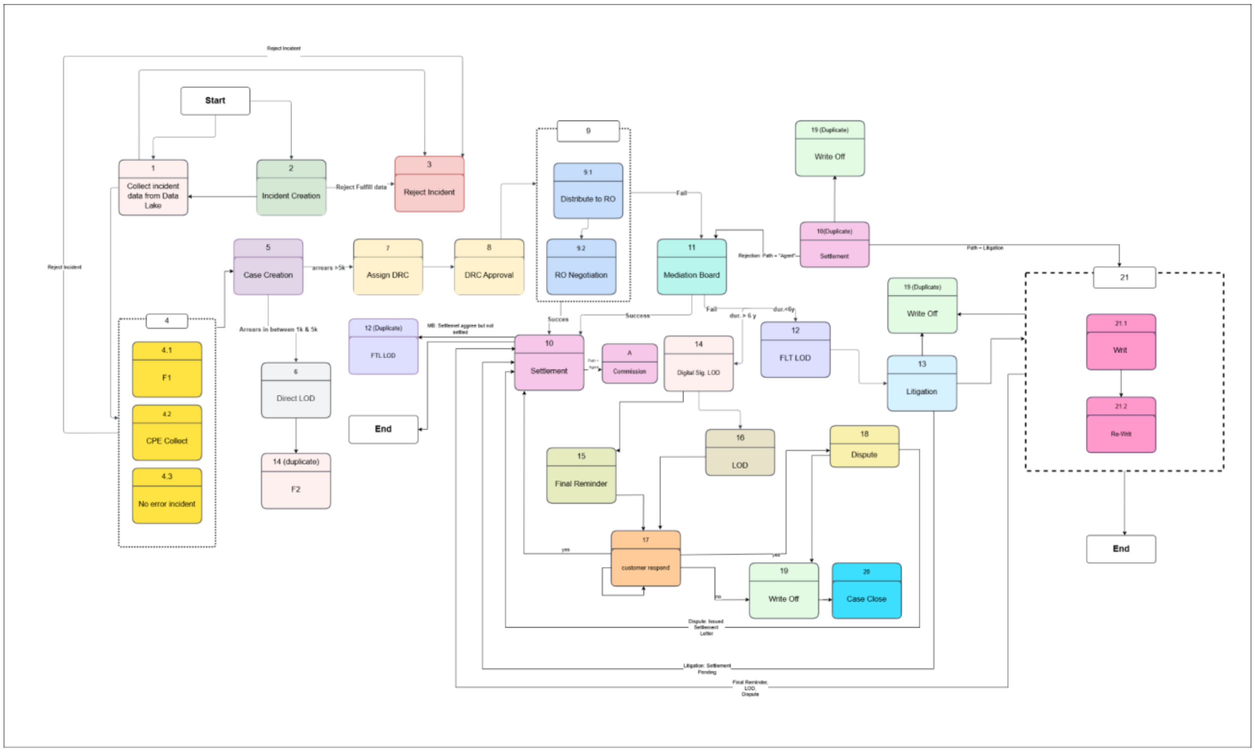

Figure 12: Data Flow Diagram