Configurator Model - Functional Requirements Document (FRD)

Project Name: CRM Lead Management Web Application
Client: ACE Insurance Brokers
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Tech Stack Target: ASP.NET Core (Razor Pages), C#, SQL Server, Entity Framework Core, Redis Cache, Hangfire, REST/JSON APIs, Identity + JWT/OIDC, Azure/AWS for hosting, CI/CD (GitHub Actions/Azure DevOps).

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Part I: Functional Requirements Document (FRD)

1. Introduction

1.1 Purpose

This FRD defines the functional requirements for developing a CRM Lead Management Web Application tailored to the needs of an insurance company. The application will streamline lead acquisition, tracking, policy conversion, communication, reporting, and compliance with IRDAI regulations.

1.2 Scope

- Lead capture from multiple channels and de-duplication
    - Link provided to data provider to upload excel data
    - Manually upload Excel data into database
- Lead scoring, prioritization, auto-assignment and SLA tracking
- KYC & verification (PAN/Aadhaar*, CKYC*, Vahan* for motor) *via external APIs
- Policy need analysis, quote generation workflow, and proposal handoff
- Campaign management (email/SMS/WhatsApp), CTI/dialer integration, tasking & calendar
- Agent/Partner portal, commissions configuration & tracking
- Dashboards, reports, exports (Excel/PDF), data archival & retention
- Admin configuration (products, premiums, rules), workflow & approvals engine

1.3 Intended Users

Agents, Team Leaders, Managers, Administrators, Support Staff, Compliance Officers.

2. System Overview

The system integrates with multiple insurer APIs, communication APIs (Email, SMS, WhatsApp, IVR (Dialer), vehicle verification services, and internal business workflows. It supports both online and offline lead journeys, including automated renewal generation(NAV), auto-distribution of leads, call handling, and quality assurance.

3. System Requirements

Functional Requirements:

- Lead creation, import, and management
- Assigning leads to agents
- Lead tracking by status and activity
- Reminders and follow-ups
- Policy sales tracking
- Reporting & analytics

Non-functional Requirements:

- Scalability: Handle large call & lead volumes (Speed / Data volume)
- Security: Data encryption, masking, and role-based access
- Compliance: TRI & IRDA regulations, call recording norms
- Performance: Minimal downtime, fast API response
- Auditability: Complete logs of lead changes & user activities

4. Functional Requirements

4.1 DB & Reporting

- Renewal times tracking
- Call count reporting (all & unique, userwise)
- Validation with Vahan and other external sources
- Data pool creation from lost leads
- Duplicate lead segregation
- Multi-phone number mapping per customer
- Agent performance reports
- Management reports – Total sales, Renewals, Client retention etc.

4.2 Lead Funnel

- Raw data ingestion from client
- Data cleaning & mobile/vehicle validation
- Expiry date checks with CRM and NAV
- Verification of leads using Vahan API
- Lead tagging (NB - New Business / RN - Renewal)
- Lead pool creation and uniqueness checks

4.3 User Management

- Role-based access (Caller/Ops/Claims)
- Language-based assignment
- Leave management & auto reassignment
- Product & sub-product based allocation
- Auto-disable user access on expiry
- Reporting manager & employee code linkage

4.4 Lead Distribution

- Equal distribution as per NB (New Business) /RN (Renewal) master logic
- State-wise distribution (based on vehicle registration)
- Manual reassignment by admin/user
- Auto-renewal leads assigned to same CSC
- Lead distribution of Premium Customer to top performers

4.5 Renewal Management

- Auto-generation of renewal leads
- Renewal data upload functionality
- Renewal versioning & tracking
- Auto-assignment to same user (CSC)
- Notifications to insured (as per regulations)

4.6. Document Management

- Upload and manage KYC documents (NAV)
- Generate policy proposals
- Download templates and forms
- Secure cloud storage integration
- Vault for KYC document and policies

4.7 Call Management

- Scheduled dialer with office timing & holiday logic
- IVR management & inbound call routing
- Call recording, barging, and transfer
- Click-to-call functionality
- Missed call pool management
- Call quality monitoring

4.8 Status Management

- Master-driven dispositions & sub-dispositions
- Status categories: Open, Won, Lost, Overdue
- Call scheduling with target dates
- Free-text notes & interaction history
- Speech to text feature
- Interaction count per lead

4.9 Communication Management

- Auto-quote sharing at defined frequency
- Triggered communication (SMS, WhatsApp, Email)
- Scheduled reminders & follow-ups
- Document storage with masking
- Quote sharing with pre-defined templates

4.10 Integrations

- Insurer APIs (Tata AIG, Reliance, GoDigit, HDFC, Iffco Tokio)
- ERP integration
- Vahan API for vehicle verification
- WhatsApp API for document exchange & messaging
- Email & SMS services
- IVR and Dialer integrations

4.11 Flow & Stages

Lead Stages:
Prospect → Enquiry → Opportunity (New) → Opportunity (Renewal) → Won/Lost

Proposal & Claim Stages:
Quotation → Proposal → Sent for Ops → Payment Link Sent → Payment Success/Failed → QC → Policy Issued

4.12 Glossary

- Pitch
- FAQ
- Training Materials

4.13 Miscellaneous

- Customer scoring (stage-wise)
- Audit trail & activity logs

5. System Architecture (High-level)

- Centralized CRM Database
- API Integration Layer (ERP, Vahan, WhatsApp, Email, IVR)
- Call Management Server (dialer, IVR, recording)
- Web & Mobile User Interface
- Reporting & Analytics Dashboard

6. Acceptance Criteria

- Leads flow correctly through funnel stages
- Renewals auto-populate and assign correctly
- Communication (Email/WA/SMS) triggers accurately
- Calls recorded & retrievable
- Reports generated by user/product/stage
- API integrations tested and validated

7. User Roles & Permissions

Role	Description	Access Level
Admin	System owner, full access	All modules
Manager	Department head, oversee agents	All except system config
Team Leader	Manages a group of agents	Assigned leads only
Agent	Handles daily lead follow-up	Own leads only
Support	Upload docs, assist agents	Docs, communication tools

8. Database Design Overview

Core Tables:

- users – user details and role
- leads – lead information
- lead_assignments – agent-lead mappings
- policies – insurance product details
- lead_policies – lead-policy relationship
- communications – call/email/sms logs
- documents – uploaded files
- notes – internal comments

- tasks – follow-up tasks/reminders
- reports – cached report data

9. Technology Stack

Layer	Technology
Frontend	ASP.NET Razor
Backend	ASP.NET Core Web API
Database	Microsoft SQL Server
Authentication	JWT / OAuth2
Storage	AWS S3 / Firebase Storage
Notification	Twilio, SendGrid, Firebase, WhatsApp

10. API Structure (Sample)

Authentication

- bash
- CopyEdit
- POST /api/auth/login
- POST /api/auth/register
- GET /api/auth/logout

Lead Management

- bash
- CopyEdit
- GET /api/leads
- POST /api/leads
- PUT /api/leads/{id}
- DELETE /api/leads/{id}

Assign Lead

- bash
- CopyEdit
- POST /api/leads/{id}/assign

Communication Logs

- bash
- CopyEdit
- POST /api/leads/{id}/email
- POST /api/leads/{id}/sms
- POST /api/leads/{id}/call-log

11. Security Features

- Role-based access control (RBAC)
- Encrypted passwords (bcrypt)
- HTTPS everywhere
- Input sanitization & validation
- Audit logs
- OTP for login/verification (optional)

12. Deployment & Hosting

- **CI/CD Pipeline:** GitHub
- **Hosting:** AWS / Azure
- **Database:** SQL Microsoft SQL Server
- **Storage:** AWS S3 or similar

13. Future Enhancements

- AI-based lead scoring
- Chatbot integration
- Mobile app (Flutter/React Native)

Part II: Uber SOP Operational Requirements

1. Lead Management

- Lead ingestion from multiple channels: client uploads, APIs, shared links.
- Lead cleaning: validation of car registration, mobile numbers, duplicates.
- Expiry checks against NAV/CRM.
- Use of Vahan service vendor for data validation.
- Distribution rules: CSC (Customer Service Consultant) assignment by product, insurer, language, state.
- Renewal leads to be reassigned to same CSC.

2. CRM Process

- **Working Leads:** Assigned, open leads handled by CSCs.
- **All Leads:** Lost, issued, and working leads.
- **Prospects:** Leads where no interaction has happened.
- **Enquiries:** Leads where CSC (Customer Service Consultant) interaction happened.
- **Opportunities:** Quotations shared.
- **Renewals:** Renewal opportunities from NAV.
- **Payment Link Sent / Pay Later / QC / Issued / Lost:** Detailed workflows defined.

3. CRM Process for Offline Sales

- Payment Link Requested → Payment Confirmation → Sent for QC → Policy Issued.
- Renewal & Claim assistance handled separately.

4. Inbound Calls

- Sources: Uber platform, IVR, SIM card, WhatsApp.
- Distribution: Auto-routed to CSCs, missed calls redistributed.
- Categorized as enquiries or opportunities.

5. Outbound Calls

- Click-to-Call from CRM.
- If no CRM call, fallback to SIM card.

6. Reference Calls

- Existing insured customers share references.
- Logged as leads in CRM.

7. CSC Responsibilities

- 5 attempts in 5 days for unreachable leads.
- WhatsApp fallback if no response.
- Not Interested → marked lost immediately.
- Wrong number → one attempt only.

8. Communication Templates

- **Operations:** Payment link requests, claim assistance.
- **Customer:** Renewal, quotation sharing, sales script.
- **Post-Sales:** Thanking customer, confirmation scripts.

9. Reporting & MIS

- Daily Insurer MIS (TATA AIG, Reliance, etc.).
- Premium registers with tenure breakdown (3M, 6M, 12M).
- Pivot Reports by insurer, tenure, CSC.
- Advanced MIS: conversion %, lost reasons, retention ratio, productivity.
- Report for policies renewed before the current expiry date
- Graphical Dashboard - Analytics

10. Staffing Calculations

- CSC Load: 600 outbound/month.
- Inbound: 4,500/month.
- Expired: 2,000/month.
- Total CSCs Required: ~72.

11. Tech Solutions

- In-house CRM system.
- Motor Sell platform for policy generation.
- Vahan integration for vehicle verification.
- WhatsApp, NAV, SMS/email integration.

Part III: Configurator Model Extension

1. Introduction

This document defines the Configurator Model approach for the CRM Lead Management Web Application. The configurator model ensures flexibility, scalability, and maintainability by allowing business teams to adjust workflows, rules, and templates without requiring major code changes. It builds on the existing FRD and operational SOP by translating static requirements into configurable modules.

2. Configurator Layers

2.1 Lead Management Configurator

- Configure lead ingestion sources (API, Excel, manual upload)
- Define lead validation rules (duplicate checks, fleet definition, expiry checks)
- SLA (Service Level Agreement) & retry management (call attempts, WhatsApp fallback)
- Assignment logic: product-based, state-based, language-based

2.2 Workflow & Status Configurator

- Configurable status & sub-status library
- Separate workflows for online vs. offline sales
- Rules for QC, Payment Link, Claim Assistance flows

2.3 Communication Configurator

- Manage message templates for Email, SMS, WhatsApp
- Multi-language template support
- Trigger-based messaging (e.g., after Quote Shared)
- Schedule and frequency controls for reminders

2.4 Product & Insurer Configurator

- Add new insurers dynamically via admin panel
- Configure insurer-specific API endpoints & credentials
- Define premium rules (3M/6M/12M)
- Enable/disable products or sub-products

2.5 Call & CSC Configurator

- Inbound & outbound call routing rules
- CSC retry attempts, WhatsApp follow-up rules
- Dialer configuration (office hours, holidays, breaks)
- Missed call redistribution

2.6 Reporting Configurator

- Custom dashboards with KPIs (Conversion %, Lost Reasons)
- MIS report templates by insurer (TATA AIG, Reliance, etc.)
- Pivot and filter controls (date, insurer, product, CSC)
- Export configuration (Excel/PDF)

2.7 User & Access Configurator

- Define user roles & permissions (Admin, Manager, Team Leader, CSC, Support)
- Assign workflow/product access by role
- Auto-expiry and reassignment logic
- Hierarchy mapping (Manager → Team Leader → CSC)
- Dynamic Panel page for user lead assignment rules

3. Benefits

- **Scalability:** Easily add new insurers and products.
- **Flexibility:** Business teams configure without code changes.
- **Governance:** Centralized control with audit logs.
- **Future Ready:** AI scoring, chatbot integration, mobile plugins.

4. Example Use Cases

- Lead Distribution: Assign leads based on registration state → configured in Lead Management
- Offline Sale Workflow: Payment Link → QC → Policy Issued → configured in Workflow Builder
- Communication: Payment Link Request Email → configured in Communication Templates
- CSC Load: 600 leads per CSC/month → configured in CSC Configurator
- Reporting: Premium Register by Insurer → configured in Reporting Configurator

5. Architecture & Acceptance

Architecture:

- Configurator layer sits above CRM core.
- Admin UI for configurations.
- Rule Engine executes configurations at runtime.
- Audit trail for all changes.

Acceptance Criteria:

- Admin can configure workflows, products dynamically.
- Changes applied instantly to CRM.
- Logs maintained for all configuration updates.
- Reports validate impact of configurations.