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ASSEMBLE INSURANCE TANZANIA
LTD

Software Requirements Specification

SAS - Smart Assemble System (Re-engineering of AIT Core Health Insurance System)

Version: 1.0

Date: 2025-08-01

Status: Final Draft

https://www.assemble.co.tz/

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1 Document Information

Field	Value
Project Name	SAS - Smart Assemble System (Re-engineering of AIT Core Health Insurance System)
Version	1.0
Date	2025-08-01
Project Manager	TBD
Tech Lead	TBD
Qa Lead	TBD
Platforms	['Web', 'Mobile (iOS/Android)', 'Desktop']
Document Status	Final Draft
Client	Assemble Insurance Tanzania Limited
Document Code	AIT-082025

2 Project Overview

2.1 What Are We Building

2.1.1 System Function

SAS (Smart Assemble System) is a comprehensive health insurance management platform designed to handle end-to-end insurance operations including sales, underwriting, membership management, claims processing, provider network management, customer relationship management, wellness programs, and financial integration. The system replaces the legacy AIT core system with a modern, scalable, web-based centralized platform.

2.1.2 Users

- Internal Staff: Admins, Underwriters, Claims Processors, Finance Officers, Customer Service Representatives, Wellness Agents, IT & Audit Personnel
- External Members: Individual and Corporate Insurance Members
- Healthcare Providers: Hospitals, Clinics, Doctors, Pharmacies
- Sales Intermediaries: Sales Agents, Brokers, Sales Executives
- Management: Executives, Business Development Managers, Regional/Country Sales Managers

2.1.3 Problem Solved

Legacy system limitations in processing health insurance operations efficiently. Need for automated workflows, real-time processing, multi-channel access, integrated financial systems, and comprehensive reporting capabilities. Current manual processes causing delays in claims processing, policy issuance, and member services.

2.1.4 Key Success Metric

Reduction in claims processing time from days to hours, 95% system uptime, automated policy issuance within 24 hours, real-time member verification, and seamless integration with external systems (Sage ERP, Active Directory, Hospital Systems, Payment Gateways)

2.2 Scope

2.2.1 In Scope

- Web-based centralized medical insurance system

- Self-service member portal and mobile application

- Sales module/portal/mobile application for multi-level sales management

- Provider module/portal for healthcare facilities

- Admin portal for internal staff operations

- Business Intelligence dashboard with real-time analytics

- Complete membership lifecycle management (enrollment, renewal, termination, reinstatement)

- Underwriting and product configuration system

- Claims processing and case management (verification, adjudication, payment)

- Provider network management and accreditation

- Financial management (invoicing, receipting, premium collection, commission calculation)

- Customer service and retention tools (ticketing, CRM, chatbot)

- Wellness program management

- Re-insurance management (treaty configuration, bordereaux)

- Integration with Active Directory, Sage ERP, Hospital Systems, Banks, SMS/Email gateways

- Multi-currency support and exchange rate management

- Comprehensive reporting and audit trail

- Role-based access control with maker-checker workflows

- Document management and card printing

- API for third-party integrations

- Technical training and documentation delivery

2.2.2 Out Of Scope

- General insurance products (motor, property, etc.)

- Direct integration with government regulatory systems (to be handled separately)

- Third-party actuarial software integration

- Blockchain-based claims processing

- International claims processing outside Tanzania and Kenya markets

3 User Requirements

3.1 Authentication User Management

Feature Code	I Want To	So That I Can	Priority	Notes
FT-AUTH-INTERNAL-LOGIN	Log in and out securely with role-based access as an internal user (employee or executive of Assemble)	Access my dashboard and perform role-specific functions based on my user type	Must	Integration with Active Directory (AD) for user retrieval and management. Support for SSO.
FT-AUTH-EXTERNAL-LOGIN	Log in and out securely with role-based access as an external beneficiary, member, or partner of Assemble	Access my dashboard and perform role-specific functions based on my user type	Must	Database authentication with email/password. Support for members, providers, agents/brokers.
UR-3101	Create User Groups/Profiles each with a set of user roles	Manage permissions and access control systematically	Must	Role-based access control (RBAC) implementation
UR-3102	Configure security policy on password complexity	Ensure strong authentication security across the platform	Must	Configurable password rules: length, complexity, expiry, history
UR-3103	Implement a Maker-Checker mechanism for all critical transactions	Ensure proper authorization and reduce fraud risk	Must	Dual control for sensitive operations like claims approval, policy changes,

Feature Code	I Want To	So That I Can	Priority	Notes
				financial transactions
UR-3104	Log all user activity in the system	Track user actions for audit, compliance, and security purposes	Must	Comprehensive audit trail including timestamps, user IDs, IP addresses, actions performed
UR-3105	Extract a user audit trail report	Review user activities and investigate security incidents	Must	Filterable by user, date range, action type, module
UR-3106	Integrate the core system with Active Directory (AD) for user management	Centrally manage internal user accounts and authentication	Must	LDAP integration for SSO. Provide reports showing active/inactive users with historical data extraction (as at XX date).

3.2 Core Business Features

Feature Code	I Want To	So That I Can	Priority	Notes
FT-SALES-001	Manage the complete sales lifecycle from lead to policy issuance	Track sales performance, manage commissions, and grow the business	Must	Includes lead management, quotations, applications, policy issuance, commission calculation, and sales reporting
FT-MEMBERSHIP-001			Must	

Feature Code	I Want To	So That I Can	Priority	Notes
	Manage complete member lifecycle including enrollment, renewal, changes, and termination	Maintain accurate member records and provide seamless service		Supports individual, family, and corporate enrollments with bulk operations
FT-UNDERWRITING-001	Configure insurance products with flexible benefit structures and pricing	Offer competitive products that meet diverse customer needs	Must	Support for full insurance, full fund, and hybrid products with individual and family benefits
FT-CLAIMS-001	Process claims efficiently from submission to payment	Ensure timely settlement and member satisfaction	Must	Includes verification, adjudication, approval workflows, payment processing, and reconciliation
FT-PROVIDER-001	Manage provider network including accreditation, contracts, and payments	Maintain quality network and control costs	Must	Provider registration, credentialing, contract management, price lists, and provider grouping
FT-FINANCE-001	Manage financial operations including invoicing, receipting, and integration with ERP	Ensure accurate financial records and reconciliation	Must	Seamless integration with Sage ERP for AR/AP, premium collection, and commission payments

Feature Code	I Want To	So That I Can	Priority	Notes
FT-CRM-001	Provide excellent customer service and retention capabilities	Improve customer satisfaction and reduce churn	Should	Ticketing system, online portals, chatbot, feedback management, and retention workflows
FT-WELLNESS-001	Offer and manage wellness programs for members	Promote preventive care and member engagement	Should	Program management, booking system for wellness services, tracking, and reporting
FT-REPORTING-001	Access comprehensive reports and real-time dashboards	Make data-driven decisions and monitor business performance	Must	Real-time dashboards for all operations with export capabilities and scheduled reports
FT-REINSURANCE-001	Manage reinsurance treaties and generate bordereaux reports	Manage risk transfer and comply with reinsurance agreements	Should	Treaty configuration, premium bordereaux, claims bordereaux

3.3 Additional Features

Feature Code	I Want To	So That I Can	Priority	Notes
UR-2901	Provide a test environment for changes and user training	Test new features and train users without affecting production	Must	Separate test/ staging environment mirroring production

Feature Code	I Want To	So That I Can	Priority	Notes
UR-3201	Implement serial controls on claim forms and registration numbers	Prevent fraud and ensure unique identification	Must	Auto-generated sequential numbers with no gaps
UR-3301	Generate exception reports on data extremes, amendments, deletions, and reversals	Detect anomalies and potential fraud	Must	Automated alerts for suspicious activities
UR-3401	Provide an API for interfacing with provider systems and other AIT systems	Enable seamless data exchange and integration	Must	RESTful API with authentication and documentation
UR-3402	Integrate all system operations reports to Teammate system	Consolidate reporting across AIT systems	Should	Example: Production Report integration
UR-3403	Access real-time dashboards for all operations	Monitor business performance instantly	Must	Live metrics, KPIs, and visual analytics
UR-3404	Receive full technical training for the AIT technical team	Support end-users effectively	Must	Comprehensive training program for IT staff
UR-3409	Access comprehensive user training manuals and guidelines	Learn how to use the system effectively	Must	User-friendly documentation for all user types

Feature Code	I Want To	So That I Can	Priority	Notes
UR-3410	Receive technical documentation covering architecture, integrations, and source code	Maintain and extend the system	Must	System architecture, deployment specs, API docs, and source code documentation
UR-3411	Configure global multi-currency settings with exchange rates	Support operations in multiple currencies	Must	Support for USD, TZS, KES with configurable exchange rates

4 Detailed Feature Requirements

4.1 Ft Auth Internal Login

4.1.1 Priority

Must Have

4.1.2 User Story

As an internal staff member, I want to log in using my Active Directory credentials so that I can access the admin portal and perform my job functions securely.

4.1.3 Preconditions

User must have an Active Directory account with appropriate permissions

4.1.4 Postconditions

User is authenticated and redirected to their role-specific dashboard

4.1.5 Test Cases

Id	Description	Weight
AUTH-INTERNAL-TC-001	Verify successful login with valid AD credentials	High
AUTH-INTERNAL-TC-002	Verify login fails with invalid credentials	High
AUTH-INTERNAL-TC-003	Verify SSO functionality across admin and BI portals	High
AUTH-INTERNAL-TC-004	Verify session timeout after configured inactivity period	Medium
AUTH-INTERNAL-TC-005	Verify logout functionality and session cleanup	High

4.2 Ft Auth External Login

4.2.1 Priority

Must Have

4.2.2 User Story

As an external user (member, provider, or agent), I want to log in using my email and password so that I can access my portal and manage my account.

4.2.3 Preconditions

User must have a registered account in the system

4.2.4 Postconditions

User is authenticated and redirected to their portal dashboard

4.2.5 Test Cases

Id	Description	Weight
AUTH-EXTERNAL-TC-001	Verify successful login with valid credentials for member portal	High
AUTH-EXTERNAL-TC-002	Verify successful login with valid credentials for provider portal	High
AUTH-EXTERNAL-TC-003	Verify successful login with valid credentials for agent portal	High
AUTH-EXTERNAL-TC-004	Verify password reset functionality via email	High
AUTH-EXTERNAL-TC-005	Verify account lockout after multiple failed attempts	High
AUTH-EXTERNAL-TC-006	Verify phone number verification during registration	Medium

4.3 Ft Sales 001

4.3.1 Priority

Must Have

4.3.2 User Story

As a sales agent, I want to manage leads, create quotations, and track sales performance so that I can meet my targets and earn commissions.

4.3.3 Preconditions

Sales agent account with appropriate permissions

4.3.4 Postconditions

Sales activities are tracked, commissions calculated, and policies issued

4.3.5 Test Cases

Id	Description	Weight
SALES-TC-001	Verify lead creation and assignment to sales agent	High
SALES-TC-002	Verify quotation generation with accurate premium calculation	High
SALES-TC-003	Verify sales target setting and tracking per agent	Medium
SALES-TC-004	Verify commission calculation based on configured rates	High
SALES-TC-005	Verify sales performance reports by agent, product, channel	High
SALES-TC-006	Verify member list upload by sales agent or client	Medium
SALES-TC-007		High

Id	Description	Weight
	Verify sales hierarchy configuration (Country > Region > Branch > Unit > Agent)	

4.4 Ft Membership 001

4.4.1 Priority

Must Have

4.4.2 User Story

As an underwriting officer, I want to enroll members, manage their policies, and handle renewals so that members have continuous coverage.

4.4.3 Preconditions

Valid policy and product configuration in the system

4.4.4 Postconditions

Members are enrolled, cards issued, and policy documents generated

4.4.5 Test Cases

Id	Description	Weight
MEMBERSHIP-TC-001	Verify individual member enrollment with all required fields	High
MEMBERSHIP-TC-002	Verify family-based enrollment with multiple members	High
MEMBERSHIP-TC-003	Verify bulk member upload via Excel with validation	High
MEMBERSHIP-TC-004		Medium

Id	Description	Weight
	Verify member photo upload and display	
MEMBERSHIP-TC-005	Verify automatic policy renewal with notifications	High
MEMBERSHIP-TC-006	Verify member addition mid-policy with prorated premium	High
MEMBERSHIP-TC-007	Verify member termination with refund calculation	High
MEMBERSHIP-TC-008	Verify member reinstatement after termination	Medium
MEMBERSHIP-TC-009	Verify card printing and dispatch tracking	High
MEMBERSHIP-TC-010	Verify policy document generation with member list	High
MEMBERSHIP-TC-011	Verify TIN number capture and visibility in plan schedule	Medium
MEMBERSHIP-TC-012	Verify duplicate detection during enrollment	High
MEMBERSHIP-TC-013	Verify family grouping by ID number during bulk upload	Medium

4.5 Ft Underwriting 001

4.5.1 Priority

Must Have

4.5.2 User Story

As an underwriting manager, I want to configure insurance products with flexible benefits and pricing so that I can offer competitive products to the market.

4.5.3 Preconditions

System configured with benefit types and pricing parameters

4.5.4 Postconditions

Products are available for quotation and sales

4.5.5 Test Cases

Id	Description	Weight
UNDERWRITING-TC-001	Verify creation of full insurance product	High
UNDERWRITING-TC-002	Verify creation of full fund product	High
UNDERWRITING-TC-003	Verify creation of hybrid product (benefit-wise insured/fund)	High
UNDERWRITING-TC-004	Verify parent-child benefit structure setup	Medium
UNDERWRITING-TC-005	Verify Buffer/Excess of Loss cover configuration	High
UNDERWRITING-TC-006	Verify SBP (Special Benefit Pool) configuration	High
UNDERWRITING-TC-007	Verify indemnity configuration and management	High
UNDERWRITING-TC-008	Verify product cloning functionality	Medium
UNDERWRITING-TC-009	Verify benefit editing with authorization	High
UNDERWRITING-TC-010	Verify waiting period configuration (entry date and policy level)	High
UNDERWRITING-TC-011		High

Id	Description	Weight
	Verify exclusions and waiting period setup per client	
UNDERWRITING-TC-012	Verify multi-currency premium configuration	High
UNDERWRITING-TC-013	Verify loading/discount isolation across policy terms	Medium

4.6 Ft Claims 001

4.6.1 Priority

Must Have

4.6.2 User Story

As a claims processor, I want to efficiently process claims from submission to payment so that members receive timely reimbursement for covered services.

4.6.3 Preconditions

Valid member with active policy and approved provider

4.6.4 Postconditions

Claim is adjudicated, approved/rejected, and payment processed if applicable

4.6.5 Test Cases

Id	Description	Weight
CLAIMS-TC-001	Verify member verification using fingerprint scanning	High
CLAIMS-TC-002	Verify member verification using facial recognition	Medium
CLAIMS-TC-003	Verify member verification using OTP	Medium

Id	Description	Weight
CLAIMS-TC-004	Verify offline verification during connectivity outage	High
CLAIMS-TC-005	Verify pre-authorization request submission and approval	High
CLAIMS-TC-006	Verify claim registration with provider invoice	High
CLAIMS-TC-007	Verify claim classification (Inpatient/Outpatient)	High
CLAIMS-TC-008	Verify auto-processing against policy clause conditions	High
CLAIMS-TC-009	Verify claim rejection with coded reasons	High
CLAIMS-TC-010	Verify claim reprocessing through Indemnity	Medium
CLAIMS-TC-011	Verify claim reprocessing through Excess of Loss	Medium
CLAIMS-TC-012	Verify claim reprocessing through Ex-gratia	Medium
CLAIMS-TC-013	Verify claim reversal with appropriate controls	High
CLAIMS-TC-014	Verify SMS notification to member on claim utilization	Medium
CLAIMS-TC-015	Verify claims transmittal report generation	High
CLAIMS-TC-016	Verify waiting period enforcement during verification	High
CLAIMS-TC-017	Verify processing of claims for terminated members (within grace period)	Medium
CLAIMS-TC-018		High

Id	Description	Weight
	Verify exclusion of benefits not eligible to certain members (e.g., maternity to males)	

4.7 Ft Provider 001

4.7.1 Priority

Must Have

4.7.2 User Story

As a provider network manager, I want to manage provider relationships, contracts, and price lists so that I can maintain a quality network and control costs.

4.7.3 Preconditions

Provider registration form and documentation

4.7.4 Postconditions

Provider is accredited, contracted, and can submit claims

4.7.5 Test Cases

Id	Description	Weight
PROVIDER-TC-001	Verify provider accreditation process	High
PROVIDER-TC-002	Verify provider information editing with audit trail	Medium
PROVIDER-TC-003	Verify provider suspension/ termination with effective date	High
PROVIDER-TC-004	Verify contract upload and management	High
PROVIDER-TC-005		Medium

Id	Description	Weight
	Verify alert on contract expiry (90 days)	
PROVIDER-TC-006	Verify price list upload with effective date tracking	High
PROVIDER-TC-007	Verify mapping of provider items to internal tariff	High
PROVIDER-TC-008	Verify item deactivation on price list	Medium
PROVIDER-TC-009	Verify provider group creation and management	High
PROVIDER-TC-010	Verify linking client to specific provider groups	High
PROVIDER-TC-011	Verify capitation arrangement configuration	High
PROVIDER-TC-012	Verify provider statement generation	High

4.8 Ft Finance 001

4.8.1 Priority

Must Have

4.8.2 User Story

As a finance officer, I want to manage invoicing, receipting, and reconciliation so that financial records are accurate and up-to-date.

4.8.3 Preconditions

Sage ERP integration configured and operational

4.8.4 Postconditions

Financial transactions are recorded in both SAS and Sage ERP

4.8.5 Test Cases

Id	Description	Weight
FINANCE-TC-001	Verify deposit invoice generation after quotation	High
FINANCE-TC-002	Verify tax invoice generation after member enrollment	High
FINANCE-TC-003	Verify invoice includes member listing and premium breakdown	High
FINANCE-TC-004	Verify VAT and tax rate configuration	High
FINANCE-TC-005	Verify premium categorization (Fund, Wellness, Medical)	Medium
FINANCE-TC-006	Verify commission rate configuration per client	High
FINANCE-TC-007	Verify exchange rate integration from Sage	High
FINANCE-TC-008	Verify invoice cancellation/ reversal with controls	High
FINANCE-TC-009	Verify prorated premium on member additions	High
FINANCE-TC-010	Verify prorated refund on member deletions	High
FINANCE-TC-011	Verify credit note application during invoice generation	High
FINANCE-TC-012	Verify receipt of single/ multiple invoices in one transaction	High
FINANCE-TC-013	Verify receipt cancellation/ reversal	High
FINANCE-TC-014	Verify premium register report (summary and detailed)	High

Id	Description	Weight
FINANCE-TC-015	Verify commission window based on DBN flows	Medium
FINANCE-TC-016	Verify integration with Sage for AR (invoices/receipts)	High
FINANCE-TC-017	Verify integration with Sage for AP (claims/commissions)	High
FINANCE-TC-018	Verify UPR and DAC report generation	High

4.9 Ft Crm 001

4.9.1 Priority

Should Have

4.9.2 User Story

As a customer service representative, I want to manage customer inquiries, feedback, and retention activities so that I can improve customer satisfaction.

4.9.3 Preconditions

CRM module configured with ticket types and workflows

4.9.4 Postconditions

Customer issues are tracked, resolved, and satisfaction measured

4.9.5 Test Cases

Id	Description	Weight
CRM-TC-001	Verify ticket creation from multiple channels	High
CRM-TC-002	Verify ticket assignment and escalation	High

Id	Description	Weight
CRM-TC-003	Verify live claim ratio notifications on CRO dashboard	Medium
CRM-TC-004	Verify HR portal for corporate clients	High
CRM-TC-005	Verify HR can upload renewal lists and forms	High
CRM-TC-006	Verify CRO can view company and HR information	Medium
CRM-TC-007	Verify online membership application with phone verification	High
CRM-TC-008	Verify individual renewal workflow without email to underwriters	Medium
CRM-TC-009	Verify automatic renewal after payment confirmation	High
CRM-TC-010	Verify CRO can view clients by status (lost, renewed, delayed, new)	Medium
CRM-TC-011	Verify live provider report on CRO dashboard	Medium
CRM-TC-012	Verify single online portal for feedback and queries	High
CRM-TC-013	Verify automatic renewal letter generation	Medium
CRM-TC-014	Verify chatbot integration with WhatsApp	Should
CRM-TC-015	Verify activity tracking for corporate CROs	Medium

4.10 Ft Wellness 001

4.10.1 Priority

Should Have

4.10.2 User Story

As a wellness agent, I want to manage wellness programs and client consultations so that I can promote preventive care and member engagement.

4.10.3 Preconditions

Wellness module configured with programs and providers

4.10.4 Postconditions

Wellness activities are tracked and members are engaged

4.10.5 Test Cases

Id	Description	Weight
WELLNESS-TC-001	Verify client wellness information recording	Medium
WELLNESS-TC-002	Verify query/case management from start to finish	High
WELLNESS-TC-003	Verify real-time case status tracking	Medium
WELLNESS-TC-004	Verify addition of new query types by authorized users	Medium
WELLNESS-TC-005	Verify reminder system for follow-up sessions	Medium
WELLNESS-TC-006	Verify wellness report filtering	Medium
WELLNESS-TC-007	Verify wellness package payment tracking	Medium

Id	Description	Weight
WELLNESS-TC-008	Verify live wellness program bookings (e.g., psychologist)	High
WELLNESS-TC-009	Verify client can view and book available time slots	High
WELLNESS-TC-010	Verify booking confirmation via SMS/WhatsApp	Medium
WELLNESS-TC-011	Verify client can change session time or provider	Medium
WELLNESS-TC-012	Verify gym module attendance tracking	Should
WELLNESS-TC-013	Verify online wellness quotation and booking	Medium

4.11 Ft Reporting 001

4.11.1 Priority

Must Have

4.11.2 User Story

As a manager, I want to access comprehensive reports and dashboards so that I can monitor performance and make informed decisions.

4.11.3 Preconditions

Data available in the system for reporting

4.11.4 Postconditions

Reports are generated accurately and available for export

4.11.5 Test Cases

Id	Description	Weight
REPORTING-TC-001	Verify real-time dashboard for all operations	High
REPORTING-TC-002	Verify sales performance reports by agent, product, channel	High
REPORTING-TC-003	Verify production per user report	Medium
REPORTING-TC-004	Verify member list reports by various filters	High
REPORTING-TC-005	Verify underwriting status report	High
REPORTING-TC-006	Verify claims register and transmittal reports	High
REPORTING-TC-007	Verify member/family utilization reports	High
REPORTING-TC-008	Verify corporate utilization reports with claim ratios	High
REPORTING-TC-009	Verify provider distribution and statement reports	High
REPORTING-TC-010	Verify exception reports for data extremes	Medium
REPORTING-TC-011	Verify SBP/Buffer/ Indemnity/Ex-gratia reports	Medium
REPORTING-TC-012	Verify exceeded benefits analytical reports	High
REPORTING-TC-013	Verify claim experience reports by age band, region, product	High
REPORTING-TC-014	Verify report export to PDF, Excel, Word formats	High

Id	Description	Weight
REPORTING-TC-015	Verify scheduled report generation and distribution	Medium

4.12 Ft Reinsurance 001

4.12.1 Priority

Should Have

4.12.2 User Story

As an underwriting manager, I want to manage reinsurance treaties and generate bordereaux so that I can manage risk transfer efficiently.

4.12.3 Preconditions

Reinsurance treaties configured in the system

4.12.4 Postconditions

Bordereaux reports generated and risk transfer tracked

4.12.5 Test Cases

Id	Description	Weight
REINSURANCE-TC-001	Verify treaty configuration setup	High
REINSURANCE-TC-002	Verify premium bordereaux generation	High
REINSURANCE-TC-003	Verify claims bordereaux generation	High
REINSURANCE-TC-004	Verify bordereaux export formats	Medium

5 Technical Requirements

5.1 Performance Standards

Requirement	Target	How To Test
Inter-module communication response time	≤ 3 seconds	Load testing with Apache JMeter simulating concurrent requests across modules. Measure response time from API call to response received.
System uptime	99.5% availability (excluding planned maintenance)	Monitor uptime using system monitoring tools (Prometheus/Grafana) over a 30-day period. Calculate uptime percentage.
Concurrent users support	Support minimum 500 concurrent users without performance degradation	Stress testing with 500+ simulated concurrent users performing typical operations. Monitor response times and system resources.
Database query performance	95% of queries execute in < 1 second	Enable slow query logging in PostgreSQL. Analyze query performance using EXPLAIN ANALYZE. Optimize queries exceeding threshold.
Report generation time	Standard reports generate in < 30 seconds	Measure time from report request to delivery for each report type with production-like data volumes.
Claim processing time	Auto-adjudication completes in < 10 seconds per claim	Measure time from claim submission to adjudication result. Test with various claim types and complexity levels.
Member verification response		Measure response time from verification request to

Requirement	Target	How To Test
	< 2 seconds for real-time verification	eligibility result at provider portal.
File upload processing	Bulk member upload (1000 records) completes in < 5 minutes	Upload test files with 1000, 2000, 5000 member records. Measure processing time including validation.

5.2 Platform Requirements

Platform	Minimum Version	Target Version	Notes
Web Browser	Chrome 90+, Firefox 88+, Safari 14+, Edge 90+	Latest stable versions	All portal modules require modern browser capabilities with WebSocket support for real-time features. JavaScript must be enabled.
Mobile Devices	iOS 13+, Android 9.0+	iOS 15+, Android 12+	Flutter mobile app requires minimum screen size 5 inches, camera for document scanning, and biometric sensors for authentication.
Server Infrastructure	Ubuntu 20.04 LTS or RHEL 8+	Ubuntu 22.04 LTS	On-premise deployment using Docker Swarm for orchestration. Minimum 32GB RAM, 8 CPU cores for production cluster.
Database	PostgreSQL 13+	PostgreSQL 15+	Master-replica cluster configuration with minimum 3 nodes. SSD storage required for optimal performance.

Platform	Minimum Version	Target Version	Notes
Cache & Queue	Redis 6.2+	Redis 7.0+	Used for caching and Celery task queue. Minimum 8GB RAM allocation.

5.3 Security Privacy

Requirement	Must Have	Implementation
Data encryption at rest	True	PostgreSQL database encryption with AES-256. Sensitive fields (biometric data, medical records) encrypted at application level using Django's encryption libraries.
Data encryption in transit	True	TLS 1.2+ for all communications. Wildcard SSL certificate (*.sas.assemble.com) managed by Traefik. HTTPS enforced via HSTS headers.
Role-based access control (RBAC)	True	Django's permission system with custom user groups and roles. Granular permissions at module and operation level.
Multi-factor authentication (MFA)	False	Optional MFA using OTP for high-privilege accounts (admins, finance officers). SMS or authenticator app based.
Audit trail logging	True	All user actions logged with timestamp, user ID, IP address, and action details. Logs stored for minimum 7 years for compliance.
Session management	True	Secure session cookies with HttpOnly and Secure flags.

Requirement	Must Have	Implementation
		Configurable timeout (default 30 minutes inactivity). Session revocation on logout.
Password security	True	Configurable password complexity rules. Minimum 8 characters with uppercase, lowercase, number, special character. Password hashing using PBKDF2-SHA256. Password history to prevent reuse.
API authentication	True	JWT tokens for API access. Token expiry and refresh mechanism. API key authentication for system integrations.
Data backup	True	Daily automated database backups with 30-day retention. Weekly full backups with 1-year retention. Encrypted backup storage.
GDPR/Data protection compliance	True	Data minimization principles. Consent management for data processing. Right to erasure (soft delete) functionality. Data access request handling.
Penetration testing	True	Annual third-party penetration testing. Quarterly internal security audits. Vulnerability scanning with automated tools.
Disaster recovery plan	True	RTO (Recovery Time Objective) of 4 hours. RPO (Recovery Point Objective) of 1 hour. Documented DR procedures with quarterly drills.

5.4 Scalability Requirements

Requirement	Target	Implementation
Horizontal scaling of Django instances	Scale from 3 to 10+ instances based on load	Docker Swarm with auto-scaling policies based on CPU/memory utilization
Database read scaling	Support 3+ read replicas for reporting and analytics	PostgreSQL streaming replication with connection pooling (PgBouncer)
Celery worker scaling	Independent scaling of worker pools by task type	Separate worker pools for claims, reports, and general tasks with auto-scaling
Cache layer	Redis cluster with minimum 16GB memory	Cache frequently accessed data (member info, product config) with TTL strategy

5.5 Integration Requirements

Requirement	Protocol	Purpose	Must Have
Active Directory integration	LDAP/LDAPS	Internal user authentication and management	True
Sage ERP integration	REST API / ODBC	Financial transactions synchronization (AR/AP, invoices, receipts, payments)	True
Hospital Management Systems	REST API	Claims submission, member verification, pre-authorization	True
Payment gateway integration	REST API	Online premium payments, mobile money integration	True
SMS gateway integration	REST API / SMPP	Member notifications, OTP delivery, alerts	True

Requirement	Protocol	Purpose	Must Have
Email service integration	SMTP / API	Email notifications, document delivery, reports	True
Teammate system integration	REST API	Production reports and operational data sharing	False

6 External Dependencies

6.1 Third Party Services

Service	What It Does	Criticality	Backup Plan
Active Directory (Microsoft AD)	Centralized authentication and user management for internal staff	High	Local database authentication fallback for internal users in case of AD unavailability
Sage ERP System	Financial management, accounting, invoicing, and payment tracking	High	Queue financial transactions in SAS for later synchronization. Manual reconciliation procedures documented.
SMS Gateway Provider	Send SMS notifications for member alerts, OTP, claim updates, renewal reminders	Medium	Secondary SMS provider configured. Email notifications as fallback for non-OTP messages.
Email Service Provider	Send email notifications, policy documents, reports, and communications	Medium	Secondary SMTP server configured. Document delivery through portal as alternative.
Payment Gateway (Banks/Mobile Money)	Process premium payments online via credit cards, bank transfers, mobile money	High	Manual payment recording option. Multiple payment gateway integrations for redundancy. Offline payment channels (bank deposits).

Service	What It Does	Criticality	Backup Plan
Hospital Management Systems	Electronic claims submission, member verification, pre-authorization requests	Medium	Manual claims submission through provider portal. Offline verification using exported member lists.
SSL Certificate Authority (Let's Encrypt)	Provide SSL/TLS certificates for secure communications	High	Commercial CA as backup. Cert-manager for automatic renewal and failover.
Teammate System (AIT)	Receive operational reports and production data from SAS	Low	Reports stored in SAS and exported manually if integration fails.

6.2 Device Requirements

Feature	Required	Optional	Notes
Internet Connectivity	True	False	Minimum 2 Mbps bandwidth per concurrent user. Offline mode supported for member verification with sync capability.
Biometric Scanner (Fingerprint)	False	True	Required at service points for member verification. USB fingerprint scanners compatible with web browser APIs.
Webcam/Camera	False	True	Required for facial recognition member verification. Mobile devices use built-in cameras.

Feature	Required	Optional	Notes
Card Printer	True	False	PVC card printer for member ID card printing. Integrated with card management module.
Document Scanner	False	True	For scanning claim documents and supporting documentation. Mobile app can use camera as scanner.
Barcode/QR Code Scanner	False	True	For scanning member cards at service points. Mobile devices use camera.

7 Release Planning

7.1 Development Phases

Phase	Features Included	Timeline	Success Criteria
Phase 1 - Foundation & Core Modules	['FT-AUTH-INTERNAL-LOGIN', 'FT-AUTH-EXTERNAL-LOGIN', 'UR-3101 - User Groups/Profiles', 'UR-3102 - Password Policy Configuration', 'UR-3103 - Maker-Checker Mechanism', 'UR-3104 - User Activity Logging', 'UR-3105 - Audit Trail Reports', 'UR-3106 - Active Directory Integration', 'UR-3405 - Web-based Centralized Platform', 'UR-3411 - Multi-currency Configuration', 'UR-2901 - Test Environment Setup']	3 months	Authentication and authorization system operational. Admin portal accessible. User management functional. Audit trail tracking all activities.
Phase 2 - Product & Membership Management	['FT-UNDERWRITING-001', 'FT-MEMBERSHIP-001', 'UR-0301 to UR-0317 - Product Configuration', 'UR-1201 to UR-1702 - Member Enrollment & Management', 'UR-1801 to UR-1819 - Card Printing & Reports', 'UR-2803 to	4 months	Product configuration complete. Member enrollment operational (individual, family, corporate). Bulk enrollment working. Card printing functional. Policy

Phase	Features Included	Timeline	Success Criteria
	UR-2817 - Enhanced Enrollment Features']		documents generated.
Phase 3 - Sales & Agent Management	['FT-SALES-001', 'UR-0101 to UR-0210 - Sales Management', 'SE-001 to SE-022 - Sales Portal Features', 'UR-3407 - Sales Module/Portal/Mobile App', 'UR-0601 to UR-0616 - Quotation & Invoicing']	3 months	Sales agent hierarchy configured. Lead management operational. Quotation generation working. Commission calculation automated. Agent portal accessible.
Phase 4 - Finance & Billing	['FT-FINANCE-001', 'UR-0601 to UR-0616 - Invoice & Receipt Management', 'UR-0701 to UR-1107 - Premium Management', 'UR-4001 to UR-4006 - Sage Integration']	3 months	Invoicing operational. Receipt management functional. Sage ERP integration complete. Premium collection tracking. Commission payment processing.
Phase 5 - Claims Processing	['FT-CLAIMS-001', 'UR-2301 to UR-2739 - Claims Management', 'Advanced verification methods (fingerprint, facial recognition, OTP)']	4 months	Member verification functional (all methods). Claims submission operational. Auto-adjudication working. Pre-authorization process functional. Claims payment processing. Provider portal for claims submission.
Phase 6 - Provider Network Management	['FT-PROVIDER-001', 'UR-1901 to UR-2211 - Provider Management', 'UR-3408 - Provider Portal']	2 months	Provider registration operational. Contract management functional. Price list management working. Provider groups configured.

Phase	Features Included	Timeline	Success Criteria
			Provider portal accessible. Capitation arrangements functional.
Phase 7 - Customer Service & Wellness	['FT-CRM-001', 'FT-WELLNESS-001', 'CC-001 to CC-003 - Call Center Features', 'RT-001 to RT-013 - Retention Features', 'CW-001 to CW-022 - Wellness Features', 'UR-3406 - Self-service Member Portal']	3 months	Member portal operational. Customer service ticketing functional. Wellness program management working. Chatbot integrated. Retention tools operational.
Phase 8 - Reporting & Analytics	['FT-REPORTING-001', 'UR-3403 - Real-time Dashboards', 'UR-3402 - Teammate Integration', 'All department-specific reports']	2 months	BI dashboard operational. All standard reports available. Real-time metrics functional. Report scheduling working. Export capabilities operational.
Phase 9 - Re-insurance & Advanced Features	['FT-REINSURANCE-001', 'UR-2801 to UR-2802 - Re-insurance Management', 'UR-3201 - Serial Controls', 'UR-3301 - Exception Reports', 'UR-3401 - API for Integrations']	2 months	Re-insurance treaty management functional. Bordereaux generation working. API documentation complete. External integrations operational.
Phase 10 - Training, Testing & Go-Live	['UR-3404 - Technical Training', 'UR-3409 - User Training Materials', 'UR-3410 - Technical Documentation', 'System-wide UAT',	2 months	All training completed. UAT passed. Performance benchmarks met. Security audit cleared. Production data migrated.

Phase	Features Included	Timeline	Success Criteria
	'Performance testing', 'Security audit', 'Data migration', 'Go-live preparation']		System live and stable.

7.2 Release Checklist

- All phase features implemented and tested

- UAT sign-off from all departments

- Performance testing passed (concurrent users, response times)

- Security audit completed and vulnerabilities addressed

- Penetration testing passed

- Data migration completed and verified

- Integration testing with external systems passed

- Backup and disaster recovery procedures tested

- User training completed for all user types

- Technical training completed for IT team

- Documentation delivered (user manuals, technical docs, API docs)

- Production environment configured and tested

- Monitoring and alerting configured

- Support processes and procedures documented

- Go-live communication plan executed

- Rollback plan documented and tested

- Production data reconciliation procedures in place

- Performance baselines established

- Support team ready (L1, L2, L3)

- Business continuity plan approved

8 Risks Assumptions

8.1 Risks

Risk	Probability	Impact	Mitigation
Integration complexity with Sage ERP may cause delays	High	High	Early engagement with Sage team. Dedicated integration testing phase. Mock services for parallel development. Detailed API documentation and testing.
Hospital systems integration may have varying standards	High	Medium	Standardized API with adapters for different hospital systems. Fallback to manual processes. Provider portal as alternative submission channel.
Active Directory integration may have network/connectivity issues	Medium	High	Local authentication fallback. Caching of user credentials. Comprehensive error handling and monitoring.
Data migration from legacy system may be complex	High	High	Dedicated migration team. Data cleansing phase. Multiple migration dry-runs. Parallel run period. Comprehensive reconciliation procedures.

Risk	Probability	Impact	Mitigation
User adoption challenges due to change from legacy system	Medium	Medium	Comprehensive training program. Change management strategy. Super-user champions. Phased rollout by department. Extended support during transition.
Performance issues under high concurrent load	Medium	High	Performance testing early and often. Horizontal scaling capability. Caching strategy. Database optimization. Load balancing configuration.
Security vulnerabilities in biometric data handling	Low	High	Encryption at rest and in transit. Security audit and penetration testing. Compliance with data protection regulations. Regular security updates.
Third-party service downtime (SMS, payment gateways)	Medium	Medium	Multiple provider redundancy. Queuing mechanisms for retry. Offline capabilities where possible. Manual fallback procedures.
Scope creep extending timeline	High	High	Strict change control process. Requirements freeze per phase. Prioritization of must-have vs should-have. Regular stakeholder reviews.

Risk	Probability	Impact	Mitigation
Infrastructure capacity insufficient for growth	Low	Medium	Scalable architecture design. Horizontal scaling capability. Regular capacity planning. Cloud migration path if needed.

8.2 Assumptions

- Client has on-premise infrastructure with adequate capacity (32GB RAM, 8 CPU cores minimum)

- Active Directory is operational and accessible from application servers

- Sage ERP has documented API for integration

- Network connectivity is stable between all integrated systems

- Client IT team available for coordination and support during development

- Legacy system data can be extracted in structured format for migration

- Users have access to modern web browsers (Chrome 90+, Firefox 88+, Safari 14+)

- Biometric devices (fingerprint scanners) are compatible with web browser APIs

- SMS and email gateway providers are pre-selected by client

- Payment gateway integrations are coordinated by client with banking partners

- Hospital management systems have technical teams for integration coordination

- TIRA compliance requirements are documented and stable

- Client will provide test data and support for UAT

- Training can be conducted on-site or remotely as needed

- Production deployment will be on-premise using Docker Swarm

- Client has SSL certificate or will use Let's Encrypt

- Backup infrastructure is available for disaster recovery

- Client has defined SLAs for system availability and performance

9 Market Specific Considerations

9.1 Primary Market

- Tanzania

- Kenya

9.2 Target Demographics

- Individual retail customers seeking health insurance coverage

- Small and Medium Enterprises (SMEs) with 5-100 employees

- Large corporates with 100+ employees requiring group health insurance

- Sales agents and brokers distributing insurance products

- Healthcare providers (hospitals, clinics, pharmacies) in urban and semi-urban areas

9.3 Local Considerations

Consideration	Details
Regulatory Compliance	System must comply with TIRA (Tanzania Insurance Regulatory Authority) requirements for health insurance operations, reporting, and data management.
Multi-currency Support	Support for TZS (Tanzanian Shilling), KES (Kenyan Shilling), and USD for cross-border operations and premium payments.
Mobile Money Integration	Integration with M-Pesa (Kenya) and M-Pesa/Tigo Pesa/Airtel Money (Tanzania) for premium payments given high mobile money adoption.
Language Support	Primary language English. Optional Swahili localization for member-facing portals to improve accessibility.

Consideration	Details
Network Connectivity	Offline mode support for member verification due to intermittent internet connectivity in some service areas. Sync capability when online.
Provider Network Distribution	Provider network concentrated in urban areas (Dar es Salaam, Nairobi, Mombasa, Arusha). System should support regional provider grouping and referral management.
Tax Regulations	VAT and other insurance taxes must be configurable per country. Integration with local tax authorities if required.
Identity Verification	Support for local ID systems (NIDA in Tanzania, National ID in Kenya) for member registration and verification.

9.4 Payment Preferences

Preference	Value
Mobile Money	60%
Bank Transfer	25%
Cash Bank Deposit	10%
Credit Card	5%

9.5 Competition

Competitor	Strengths	Differentiation
Jubilee Health Insurance	Established brand, wide network, mobile app	SAS offers better digital experience, faster claims processing, wellness programs, multi-channel access
AAR Healthcare		SAS provides flexible product configuration, better agent

Competitor	Strengths	Differentiation
	Integrated healthcare services, own clinics	tools, comprehensive reporting
Britam Health Insurance	Strong financial backing, comprehensive products	SAS offers superior user experience, real-time processing, chatbot support, self-service capabilities
Resolution Health East Africa	Technology-focused, innovative products	SAS provides better provider network management, financial integration with Sage, extensive customization

10 Sign Off

10.1 Approval

Role	Name	Signature	Date

10.2 Document History

Version	Date	Changes Made	Changed By
0.1	2025-08-01	Initial draft created from client requirements document AIT-082025	Technical Team
1.0	2025-10-17	Comprehensive SRS populated with all requirements from client document and system design. Ready for stakeholder review.	Development Team

11 Additional Context

11.1 Success Metrics

11.1.1 Operational Efficiency

11.1.1.1 Metric

Claims processing time reduction

11.1.1.2 Baseline

5-7 days (current legacy system)

11.1.1.3 Target

< 24 hours for standard claims, < 1 hour for auto-adjudicated claims

11.1.1.4 Measurement

Track average time from claim submission to approval/payment

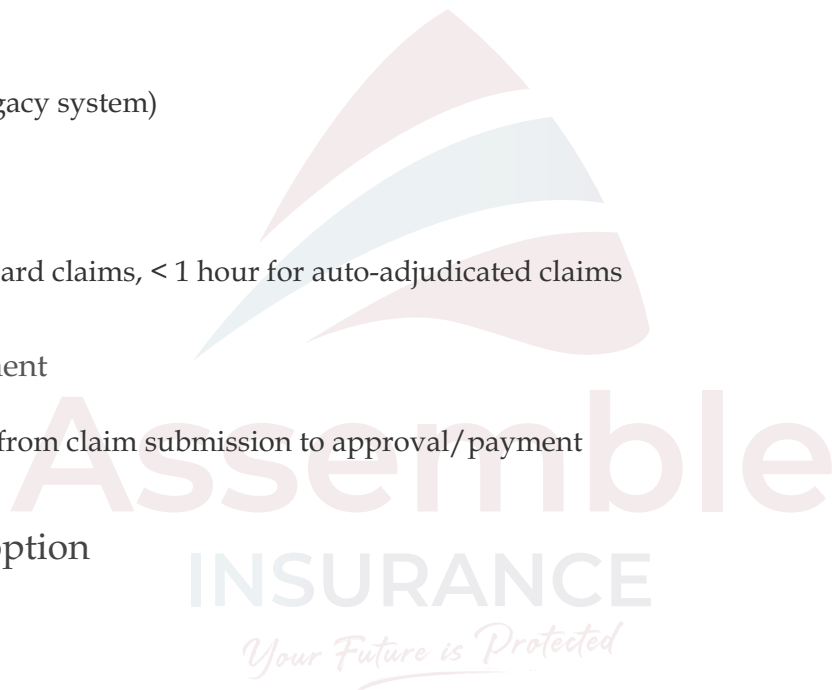### 11.1.2 User Adoption

11.1.2.1 Metric

Member portal registration and usage

11.1.2.2 Target

60% of members registered within 6 months, 40% monthly active users

11.1.2.3 Measurement

Track portal registrations, login frequency, feature usage

11.1.3 Provider Satisfaction

11.1.3.1 Metric

Provider portal usage and claim submission

11.1.3.2 Target

70% of claims submitted electronically within 12 months

11.1.3.3 Measurement

Track electronic vs manual claim submissions, provider feedback surveys

11.1.4 System Performance

11.1.4.1 Metric

System uptime and response time

11.1.4.2 Target

99.5% uptime, < 3 seconds average response time

11.1.4.3 Measurement

Monitor with Prometheus/Grafana, monthly uptime reports

11.1.5 Financial Accuracy

11.1.5.1 Metric

Reconciliation accuracy with Sage ERP

11.1.5.2 Target

99.9% accuracy, zero material discrepancies

11.1.5.3 Measurement

Monthly reconciliation reports, audit findings

11.1.6 Sales Productivity

11.1.6.1 Metric

Time from quotation to policy issuance

11.1.6.2 Baseline

7-10 days (current)

11.1.6.3 Target

< 24 hours for standard policies

11.1.6.4 Measurement

Track timestamps in sales workflow

11.1.7 Customer Satisfaction

11.1.7.1 Metric

Net Promoter Score (NPS)

11.1.7.2 Target

NPS > 50

11.1.7.3 Measurement

Quarterly customer satisfaction surveys

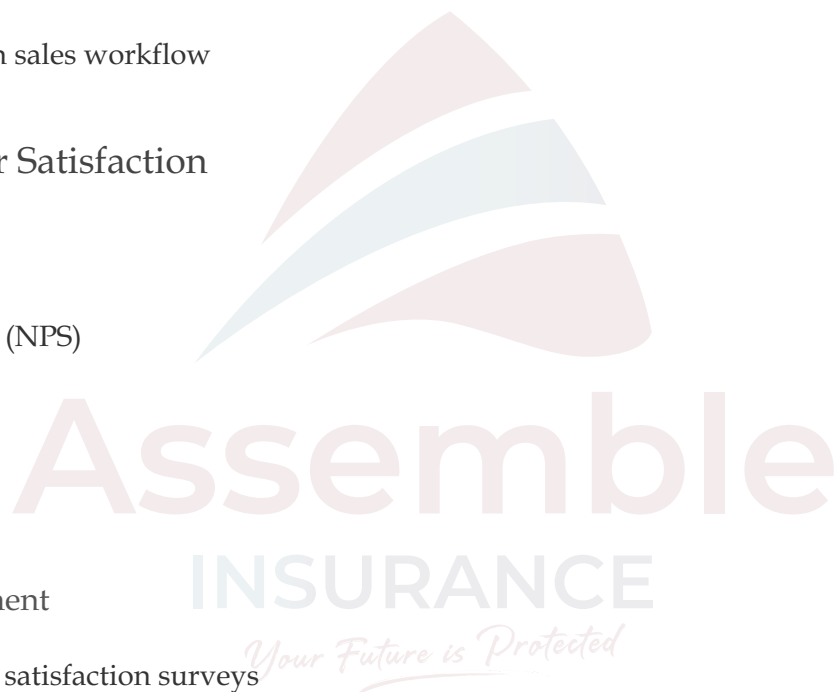## 11.1.8 Cost Reduction

11.1.8.1 Metric

Operational cost per policy

11.1.8.2 Target

20% reduction within 12 months

11.1.8.3 Measurement

Compare operational costs before and after system implementation

11.2 System Architecture

11.2.1 Approach

Modular Monolith with Django

11.2.2 Deployment

On-premise using Docker Swarm

11.2.3 Database

PostgreSQL cluster with master-replica configuration

11.2.4 Frontend

React 19 for all portals (admin, member, provider, agent, BI)

11.2.5 Mobile

Flutter for iOS and Android apps

11.2.6 Async Processing

Celery workers with Redis as broker

11.2.7 Ai Ml Service

FastAPI service for fraud detection, chatbot, churn prediction

11.2.8 Load Balancing

Traefik with subdomain-based routing

11.2.9 Caching

Redis for application cache and session storage

11.2.10 File Storage

Local file system with backup to external storage

11.2.11 Monitoring

Prometheus and Grafana for metrics and alerting

11.3 Portal Subdomains

11.3.1 Admin

admin.sas.assemble.com - Internal staff portal with AD SSO

11.3.2 Member

member.sas.assemble.com - Member self-service portal

11.3.3 Provider

provider.sas.assemble.com - Healthcare provider portal

11.3.4 Agent

agent.sas.assemble.com - Sales agent and broker portal

11.3.5 Bi

bi.sas.assemble.com - Business intelligence dashboard with AD SSO

11.3.6 Api

api.sas.assemble.com - REST API endpoints

11.4 Key Modules

11.4.1 Authentication

User auth, roles, permissions, AD integration

11.4.2 Membership

Member enrollment, profiles, biometric data, policy management

11.4.3 Sales

Lead management, policy sales, quotations, commission calculation

11.4.4 Underwriting

Risk assessment, pricing, product configuration

11.4.5 Claims

Claims submission, adjudication, payment processing

11.4.6 Finance

Billing, payments, reconciliation, Sage integration

11.4.7 Pnm

Provider network management, accreditation, contracts

11.4.8 Customer Service

Support tickets, inquiries, complaints, retention

11.4.9 Wellness

Wellness programs, health content, bookings

11.4.10 Reporting

Report generation, analytics, dashboards

11.4.11 Crm

Customer engagement, agents, chatbot, campaigns

11.4.12 Reinsurance

Treaty configuration, bordereaux generation

11.4.13 Core

Shared utilities, base models, audit logs, notifications