SMB Compliance Automation Platform - Project Phases

Overview

A unified AI-driven compliance automation platform for small businesses (10-50 employees) with:

- A canonical core schema (common data model + workflow engine)
- YAML-configurable niche templates for different industries
- AI-powered document processing (OCR + LLM)
- CRM connectivity
- White-label/customer branding capability

Phase 1: Foundation & Architecture (Weeks 1-2)

1.1 Requirements & Niche Selection

Tasks for Human:

- Select initial target niche from the 15 identified pain points
- Define MVP feature set - what must ship vs. what can wait
- Identify 2-3 beta users/companies for feedback

Tasks for AI Agent:

- Research competitors in chosen niche
- Generate user stories and acceptance criteria
- Draft sample documents for testing (e.g., sample COIs, leases)

1.2 Core Schema Design

Tasks for Human:

- Review and approve ERD design
- Validate schema against chosen niche requirements

Tasks for AI Agent:

- Design canonical schema ERD with these entities:

- Account / Organization (multi-tenant)

- User (auth, roles)

- Entity (generic: Vendor, Vehicle, Property, Contract, etc.)

- Requirement / Task (compliance items with due dates)

- Document (metadata + extracted data JSON)

- Notification (scheduled alerts)

- AuditLog (change tracking)

- RequirementType / DocumentType (lookup tables from YAML)

- Generate database migration scripts

1.3 YAML Template Structure

Tasks for AI Agent:

- Define YAML schema specification for niche configs

- Create first niche YAML template (e.g., Vendor COI Tracking)

- Build YAML validation script

YAML sections to define:

- niche - name and description

- entity_types - primary objects with custom fields

- requirement_types - compliance tasks, frequencies, notification rules

- document_types - expected fields, AI extraction prompts

- workflow_rules - conditional automations

1.4 Tech Stack Setup

Tasks for AI Agent:

- Initialize repository structure

- Set up Python backend (FastAPI recommended)

- Set up React/Next.js frontend scaffold

- Configure PostgreSQL database

- Set up authentication (Firebase Auth or Auth0)

- Configure cloud storage (S3/GCS) for documents

- Set up CI/CD pipeline (GitHub Actions)

Phase 2: Backend Core Development (Weeks 3-4)

2.1 Database & Models

Tasks for AI Agent:

- Implement ORM models matching schema

- Create database migrations

- Build seeding scripts for lookup tables

2.2 Core API Endpoints

Tasks for AI Agent:

- CRUD APIs for all core entities:

    o /api/entities - generic entity management

    o /api/requirements - compliance task management

    o /api/documents - upload, list, retrieve

    o /api/notifications - alert management

- Authentication middleware

- Multi-tenant data isolation

- API documentation (OpenAPI/Swagger)

2.3 YAML Config Loader

Tasks for AI Agent:

- Build YAML parser that loads niche config at startup

- Dynamically populate lookup tables from YAML

- Create config validation on load

- Handle custom fields via JSONB columns

Phase 3: AI Integration Pipeline (Weeks 5-6)

3.1 Document Processing

Tasks for AI Agent:

- Implement file upload endpoint with S3 storage

- Integrate OCR engine (Tesseract for MVP, option for Google Vision API)

- Build text extraction pipeline for PDFs

3.2 LLM Data Extraction

Tasks for AI Agent:

- Integrate OpenAI API (GPT-4)

- Build prompt templates for each document type (from YAML)

- Implement structured JSON output parsing

- Add confidence scoring and validation rules

- Handle extraction failures gracefully

- Store extracted data in Document record

3.3 Workflow Automation

Tasks for AI Agent:

- Link extracted data to Requirements (e.g., expiry_date → due_date)

- Auto-create/update Requirements when documents are processed

- Implement notification scheduler (daily cron job)

- Integrate email service (SendGrid/Mailgun)

- Build notification templating with Jinja2

Phase 4: Frontend Development (Weeks 6-8)

4.1 Core UI Components

Tasks for AI Agent:

- Login/signup pages

- Dashboard with compliance overview

- Entity list and detail views

- Dynamic forms based on YAML entity_type fields

4.2 Document Management UI

Tasks for AI Agent:

- Document upload component

- Processing status indicator

- Extracted data review/edit interface

- Document preview

4.3 Compliance Tracking UI

Tasks for AI Agent:

- Requirements list with status filters

- Calendar/timeline view of upcoming deadlines

- Overdue alerts display

- Mark complete functionality

4.4 Branding/White-Label Support

Tasks for AI Agent:

- Theme configuration system (colors, logo)

- Per-tenant branding storage

- CSS variable-based theming

Phase 5: CRM Integration (Week 7-8)

5.1 Integration Architecture

Tasks for AI Agent:

- Design integration layer (webhooks + API connectors)

- Build abstract CRM interface

5.2 Initial CRM Connectors

Tasks for AI Agent (pick 1-2 for MVP):

- HubSpot integration

- Salesforce integration

- Zapier webhook support (fallback for any CRM)

5.3 Data Sync

Tasks for AI Agent:

- Sync entities (Vendors/Contacts) bidirectionally

- Push compliance status to CRM

- Pull contact updates from CRM

Phase 6: Testing & Hardening (Week 9)

6.1 Automated Testing

Tasks for AI Agent:

- Unit tests for core business logic

- Integration tests for API endpoints

- E2E tests for critical user flows

- AI extraction accuracy tests with sample docs

6.2 Security Review

Tasks for AI Agent:

- Auth/authorization audit

- Data isolation verification

- Input validation review

- Secrets management check

6.3 Performance Testing

Tasks for AI Agent:

- Load test with 50+ entities, 100+ documents

- Optimize slow queries

- Review AI API usage costs

Phase 7: Beta Launch & Feedback (Week 10)

7.1 Beta Deployment

Tasks for Human:

- Identify and invite 3-5 beta users

- Conduct onboarding calls

- Gather feedback

Tasks for AI Agent:

- Deploy to production environment

- Set up monitoring (Sentry, logging)

- Create user onboarding guide

- Build feedback collection mechanism

7.2 Iteration

Tasks for AI Agent:

- Fix critical bugs from beta feedback

- Improve AI prompts based on real documents

- UX improvements based on user friction points

Phase 8: Polish & Launch Prep (Week 11)

8.1 Production Readiness

Tasks for AI Agent:

- Final bug fixes

- Performance optimization

- Error handling improvements

- Email template refinement

8.2 Marketing Preparation

Tasks for Human:

- Approve marketing copy

- Record demo video

Tasks for AI Agent:

- Generate landing page copy

- Create FAQ/help documentation

- Draft launch announcements

Phase 9: Public Launch (Week 12)

9.1 Launch Activities

Tasks for Human:

- Post on Product Hunt / Hacker News

- Social media announcements

- Direct outreach to prospects

Tasks for AI Agent:

- Monitor server health and errors

- Track API usage and costs

- Respond to support requests (with human review)

9.2 Post-Launch Planning

Tasks for Human:

- Review metrics and feedback

- Decide next niche to add

Tasks for AI Agent:

- Compile feedback analysis

- Draft next 90-day plan

Parallel/Ongoing Work Streams

Documentation (Throughout)

- API documentation

- YAML config documentation

- User guides

- Developer setup guide

DevOps (Throughout)

- CI/CD maintenance

- Backup configuration

- Monitoring dashboards

Niche Expansion Template (Post-MVP)

For each new niche (e.g., Fleet Compliance, Lease Management, Workers Comp):

1. **Research Phase** (AI Agent)

   o Analyze pain points from AutomationPainPointSolutions.pdf

   o Research industry-specific regulations

   o Gather sample documents

2. **Configuration Phase** (AI Agent)

   o Write YAML template for niche

   o Create AI extraction prompts for document types

   o Define notification rules

3. **Testing Phase** (AI Agent)

- o Test with sample documents

  - o Validate extraction accuracy

  - o User acceptance testing

4. **Launch Phase** (Human + AI)

  - o Enable niche in production

  - o Market to niche-specific audience

Key Decision Points for Human

1. **Which niche to start with?** (Recommendation: Vendor COI Tracking - clear scope, high demand)

2. **Pricing model?** (Free beta → subscription)

3. **CRM integrations priority?**

4. **Self-service vs. managed onboarding?**

Files to Create

/backend

 /app

  /models   # SQLAlchemy models

  /api   # FastAPI routes

  /services   # Business logic

  /ai   # OCR + LLM pipeline

  /config   # YAML loader

 /migrations   # Alembic migrations

 /tests

 main.py

```
/frontend

 /src

  /components    # React components

  /pages       # Route pages

  /hooks       # Custom hooks

  /services     # API client

  /theme        # Branding/theming


/configs

 /niches

  coi_tracking.yaml

  fleet_compliance.yaml

  lease_management.yaml


/docs

 api.md

 yaml_schema.md

 user_guide.md
```

Verification Checklist

Before each phase completion, verify:

- All tests pass

- API endpoints documented

- No security vulnerabilities

- Performance acceptable

- User can complete core workflow end-to-end