

Product Requirements Document: ClimateSage ESG Platform

- **Version:** 3.3
- **Date:** June 29, 2025
- **Status:** Draft for Review

1. Introduction & Vision

ClimateSage is a Software-as-a-Service (SaaS) platform designed specifically for Small and Medium Enterprises (SMEs) in the UAE. Its core mission is to demystify and streamline Environmental, Social, and Governance (ESG) reporting. The platform will translate complex ESG jargon into plain, actionable questions, automate data collection across multiple overlapping compliance frameworks, and provide dynamic, insightful dashboards tailored to various stakeholders. This empowers time-poor SMEs to meet growing regulatory demands, improve their sustainability performance, and unlock new financing and business opportunities.

2. The Problem

SMEs in the UAE face a growing but complex challenge regarding ESG. The primary problems are:

- **Knowledge Gap:** The majority of SME owners and staff are not ESG experts. They find the terminology (e.g., "Scope 2 Emissions") confusing and the reporting process intimidating.
- **Regulatory Pressure:** Forthcoming regulations, such as the UAE's Federal Climate Law (effective May 2025), will make ESG disclosures a legal obligation, moving it from a "nice-to-have" to a "must-do".
- **Reporting Duplication:** SMEs in sectors like hospitality are forced to report similar data to multiple bodies (e.g., generic ESG, Dubai Sustainable Tourism - DST, Green Key), creating significant redundant administrative work.
- **Financial & Commercial Barriers:** Access to favorable bank financing is increasingly dependent on evidencing a strong ESG profile. Furthermore, large corporations are cascading ESG requirements down their supply chains, putting non-compliant SMEs at risk of being delisted.

3. Goals & Objectives

The primary goals of the ClimateSage platform are:

Goal Type	Objective	How We'll Measure It
User Goal	Radically simplify the ESG data collection and reporting process for SMEs.	Reduce user-reported time spent on ESG data collation by over 50%; Wizard completion rate > 80%.
Business Goal	Become the leading ESG platform for the UAE's hospitality sector within two years.	Achieve X number of paying subscribers; achieve Y% market share in the Dubai hotel sector.

Goal Type	Objective	How We'll Measure It
Product Goal	Deliver a single source of truth for an organization's ESG data.	100% of generated reports (ESG, DST, Green Key) pull from the same central data records without re-entry.

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4. Target Audience & User Personas

The platform is designed for various users within and outside an SME. Based on our stakeholder analysis, key personas include:

- **Fatima, the General Manager (Owner / C-Suite):** As the primary decision-maker, she needs a high-level overview. **She asks:** "Are we on track? Are we at risk? Are we eligible for better financing?"
- **David, the Engineering Head (Site Manager):** Responsible for operational data at one or more facilities. **He asks:** "What data do I need to enter this month? How is my site performing on energy and water consumption?"
- **Ali, the Restaurant Manager (Contributor):** Tasked with specific data entry. **He asks:** "Where do I upload this month's waste disposal receipts?"
- **Amina, the External Auditor (Auditor):** Needs to verify data for assurance.

She asks: "Is this data traceable? Can I see the original evidence for this number? What is the complete audit trail?"

- **Karim, the Bank Loan Officer (Investor & Banks):** Evaluates the company's risk profile.

He asks: "What is this firm's ESG risk score? Do they meet our green financing covenants?"

5. Functional Requirements

5.1 Onboarding & Organization Setup

- **REQ-001: Invited Onboarding:** New organizations will join via a "Request Demo" flow that triggers a unique, tokenized email invitation.
- **REQ-002: Guided Initial Setup:** The first user from an organization (the org_admin) will be guided through a simple wizard to set up their organization profile, including name, sector, and a plain-text industry_description.
- **REQ-003: Location & Sub-Location Management:** Users must be able to define their operational sites. The system must support a parent-child hierarchy to register sub-locations (e.g., a specific restaurant within a hotel complex) under a primary site.

5.2 User & Role Management (RBAC)

- **REQ-004: Role-Based Invitation:** An org_admin can invite other users and assign them specific roles (site_admin, contributor, viewer, etc.).
- **REQ-005: Scoped Permissions:** A user's permissions must be scoped correctly. A role can be organization-wide (where

site_id is NULL) or limited to a specific site.

5.3 Framework Management

- **REQ-006: Automatic Framework Activation:** The system will automatically activate mandatory frameworks based on the organization's profile. For example, a company in the "Hospitality" sector with a site in "Dubai" city will have the DST framework enabled.
- **REQ-007: Voluntary Framework Opt-In:** Users must be able to browse and opt-in to voluntary frameworks like Green Key, which will then activate the relevant questions and reporting modules.

5.4 The Intelligent Data Wizard

- **REQ-008: Plain-Language Questions:** The wizard will present questions in simple, accessible language, avoiding technical jargon. Helper text will be available for additional guidance.
- **REQ-009: Dynamic Question Filtering:** The wizard will only show questions relevant to the user's active frameworks and industry profile by using a back-end tagging system.
- **REQ-010: "Collect Once, Use Many" Logic:** A single data point (e.g., monthly electricity consumption) entered once must be used to populate all relevant reports (ESG, DST, Green Key). The

data_records table is the single source of truth.

- **REQ-011: Integrated Evidence Upload:** Users must be able to upload supporting documents (e.g., PDFs, images) directly alongside the corresponding data point they are answering.

5.5 Dashboards & Reporting

- **REQ-012: Stakeholder Lens Dashboards:** The main dashboard will be viewable through different "lenses" (e.g., Owner, Regulator, Investor). Each lens will display a curated set of widgets, KPIs, and charts that answer the key questions of that specific stakeholder.
- **REQ-013: Time-Based Filtering:** All dashboard views must be filterable by reporting period (Monthly, Quarterly, Annually) and allow the user to navigate back and forth in time.
- **REQ-014: Framework-Specific Views:** Users must be able to filter the dashboard to see data pertaining to a specific framework (ESG, DST, Green Key) or an aggregated view. The ESG view must also be filterable by pillar (E, S, G).
- **REQ-015: Dynamic & Insightful KPIs:** KPIs will not be static numbers. They will show comparisons against previous periods (e.g., "+5% vs last month") and visual indicators (e.g., trend lines, progress against targets).
- **REQ-016: Report Generation:** The system must be able to generate formal, presentation-ready reports (e.g., in PDF format) based on the selected framework and time period.

5.6 Auditing & Traceability

- **REQ-017: Immutable Audit Log:** The system must maintain a comprehensive, immutable log of all important actions, such as data creation/updates, user invitations, and logins, for full traceability.
- **REQ-018: Read-Only Auditor Access:** An "Auditor" role will have read-only access to all relevant data, evidence files, and the audit log across the organization.

6. Features Out of Scope (for V1.0)

To ensure a focused and timely launch, the following features will be considered for future releases:

- **Direct Utility API Integration:** Automatic ingestion of bills from providers like DEWA. V1.0 will rely on manual data entry and file uploads.
- **Live Industry Benchmarking:** V1.0 may include static, hard-coded benchmarks, but live, dynamic benchmarking against industry peers is a future goal.
- **Mobile Application:** The platform will be a responsive web application first. A native mobile app is not in scope for V1.0.
- **Full Support for All Industries:** The initial launch will be heavily optimized for the **Hospitality** sector, with other industries like Manufacturing and Real Estate being added in subsequent releases.

7. Technical Requirements & Architecture

- **Database:** PostgreSQL.
- **Schema:** The implementation must strictly adhere to the defined **Schema v3.3**.
- **Primary Keys:** All primary keys for major tables will be UUIDs to ensure uniqueness.
- **Authentication:** User authentication and management will be handled by a dedicated, secure third-party service (as referenced by `fk_auth_users` in the schema design process).
- **Backend & Frontend:** To be determined, but must support a modern, reactive user experience.

8. Design & UX Principles

- **Clarity and Simplicity:** The UI must be clean, uncluttered, and use plain language throughout.
- **Aesthetic Quality:** The design will be inspired by the high-end, professional reports and dashboards of firms like McKinsey and BCG, focusing on excellent typography, ample whitespace, and a polished color palette.
- **Progressive Disclosure:** Dashboards will initially present high-level scorecards and KPIs. Users can then drill down into more detailed charts, tables, and evidence files as needed.
- **Interactivity:** The platform should feel responsive and alive, with smooth transitions, interactive charts, and clear visual feedback for user actions.

9. Success Metrics

We will measure the success of the ClimateSage platform using the following key performance indicators:

- **Adoption:** Number of active organizations; Monthly Active Users (MAUs).
- **Engagement:** Data Wizard completion rate; number of reports generated per user; session duration.
- **Value & ROI:** User-reported reduction in time spent on compliance; number of successful DST/Green Key submissions made through the platform.
- **Quality & Satisfaction:** User satisfaction score (CSAT/NPS); number of critical support tickets raised.