

# eRecruitment – Product Requirements Document (PRD)

## 1. Introduction

### 1.1 Purpose

This document defines the end-to-end requirements for a best-practice eRecruitment system. It specifies a progressive-profiling applicant journey to maximize registration conversion, ensure POPIA compliance (including special personal information handling), and deliver a robust Applicant Tracking System (ATS) for administrators to manage postings, screening, communications, and reporting.

### 1.2 Scope

In scope (MVP + near-term):

1. Applicant Account Creation: Fast, low-friction sign-up.
2. Applicant Profile: Central profile hub powered by CV parsing; document uploads; optional Employment Equity (EE) data with explicit consent.
3. Applicant Job Portal: Search, view, and apply (multi-step with pre-screen, declarations, source attribution).
4. Administrator Portal: Post management, configurable pre-screening, KPI dashboard, bulk communications, exports.

Out of scope (future roadmap): Interview scheduling, assessments, reference checking automation, background checks, offer & onboarding workflows, careers site CMS, talent pooling/CRM, internal mobility, requisition approvals.

### 1.3 User Personas

- Job Applicant: Prioritizes speed, clarity, mobile-first UX, and privacy control; expects re-use of profile data across applications.
- Administrator (Recruiter/HR): Needs rapid posting, high-signal filtering, actionable dashboards, compliant communications, and auditability.

### 1.4 Success Metrics (North-Star & KPIs)

- Registration conversion (landing → account created)  $\geq 65\%$ .
- Profile completion  $\geq 55\%$  within 24h; CV-parse success  $\geq 90\%$  for supported formats.

- Time-to-qualified-shortlist (posting → first shortlist) ≤ 5 business days.
- Email deliverability ≥ 98%, bounce rate ≤ 2%.
- Mobile task completion (apply) success ≥ 95%; CSAT ≥ 4.4/5.
- POPIA requests (access/delete) fulfilled within 15 business days (trackable).

## 2. System Overview & User Flows

### 2.1 New Applicant Flow (Progressive Profiling)

Landing → Register → Account → Profile → Documents → Ready to Apply

- Step 1 – Create Account: Email, Password, T&Cs consent; instant login on success.
- Step 2 – Build Profile: Profile dashboard with progress bar;
- Prompt 1 – CV Upload/Parse: Auto-populate Work Experience & Education.
- Prompt 2 – Review & Complete: Personal info, languages, references, etc.
- EE (Optional): Race & disability behind a dedicated consent.
- Step 3 – Attachments: ID, Matric, licences, qualifications; profile reaches 100%.

### 2.2 Job Application Flow (Logged-in)

- Find Job → Apply → Modal 1: Pre-Screen (killer questions) → Modal 2: Declarations (+ just-in-time SA ID/Passport) → Modal 3: Source → Modal 4: Confirm & Submit → Success message + email.

### 2.3 Administrator Flow

- Login → Dashboard (KPIs) → Create/Edit Job (details + pre-screen config) → Manage Applicants (filters, bulk select) → Bulk Communicate (templates, personalization, audit).

### 2.4 High-Level Architecture (Narrative)

- Web clients: Applicant portal + Admin portal (responsive SPA).
- APIs: Auth, Profile, Parsing, Jobs, Applications, Communications, Reporting, Audit.
- Services: CV parsing provider, Email/SMS provider, File storage (encrypted), Analytics.
- Data: Relational core (jobs, users, applications) + object storage for documents.
- Security: OAuth2/OIDC, RBAC, encryption at rest/in transit, consent ledger, audit trail.

## 3. Detailed Requirements

### Module 1: Applicant Account Creation

#### #### 3.1 Create Account

User Story: As a new applicant, I want to create an account in under 30 seconds so I can start my profile.

#### Fields & Rules

- Email \* (unique, valid format; case-insensitive uniqueness)
- Password \* ( $\geq 8$  chars; at least 1 letter + 1 number; breached-password check)
- Confirm Password \* (must match)
- Checkbox \*: "I accept the Terms & Conditions" (link to T&Cs & Privacy Policy)

Controls: Create Account; show strength meter; show "Continue with Google/Microsoft" (v3.2 optional SSO).

#### Acceptance Criteria

- AC1: Duplicate email returns friendly error.
- AC2: Password policy enforced client- and server-side.
- AC3: Account created and session established upon success.
- AC4: All events logged (consent, account creation) in audit trail.

### Module 2: Applicant Profile

#### #### 3.2.1 CV/Resume Parsing

User Story: As an applicant, I want my CV to auto-fill my profile.

#### Requirements

- Accept .pdf, .doc, .docx up to 10MB.
- Populate: Work Experience (employer, title, dates, responsibilities); Tertiary Education (institution, qualification, year).
- Show diff/preview for user confirmation; user can edit any field.
- Performance:  $\leq 5$ s for 90th percentile; graceful spinner + retry.
- Fallback: If parsing fails, continue with manual entry; flag quietly for analytics.

#### Acceptance Criteria

- AC1: 90% of supported files produce at least one structured work/education item.
- AC2: Parsed fields are editable and traceable (parsed vs user-edited).
- AC3: Failed parses never block profile completion.

#### #### 3.2.2 Profile Sections

User Story: Complete professional profile with personal details, skills, and references.

##### Modules & Fields

- Personal: First/Last Name, Title, Gender, Nationality, Citizenship, Mobile, Telephone.
- Work Experience: Employer, Job Title, Start/End, Responsibilities (pre-filled editable).
- Tertiary Education: Institution, Qualification, Year (pre-filled editable).
- Secondary Education: School, Highest Grade, Year.
- Language Proficiency: Language, Read/Write/Speak (levels: Basic/Intermediate/Fluent).
- References: Name, Relationship, Contact Number, Email, Consent to Contact (checkbox).
- Skills (v3.2): Free-text + normalized tags; suggested from CV.

##### UX

- Section badges show completeness; autosave; mobile-first; inline validation.

##### Acceptance Criteria

- AC1: Progress bar updates accurately per section weights.
- AC2: Autosave prevents data loss on navigation/refresh.
- AC3: Phone and email formats validated per region where possible.

#### #### 3.2.3 Employment Equity (POPIA-Compliant)

User Story: Provide EE data optionally with clear consent and visibility rules.

##### Requirements

- Entire section optional and isolated.
- Fields: Race (dropdown), Disability (Yes/No + details if Yes).

- Explicit Consent (separate checkbox): “I voluntarily consent to provide this sensitive information for Employment Equity (EE) reporting purposes only. I understand it will be kept confidential and will not be visible to hiring managers during selection.”
- Visibility: EE data not visible in admin applicant views; only included in anonymized/aggregated EE reports.
- Consent Ledger: Store timestamp, IP, user agent, consent text version.

#### Acceptance Criteria

- AC1: Applications processed without EE data.
- AC2: Admin cannot access an individual's EE values.
- AC3: Reports expose only aggregate EE metrics ( $k$ -anonymity  $\geq 5$ ).

#### #### 3.2.4 Attachments

User Story: Upload supporting documents in one place.

#### Upload Slots

- Detailed CV \* (latest; linked to parser)
- Identity Document \* (front/back where applicable)
- Matric Certificate \*
- Driver's Licence (optional)
- Qualifications (multi-upload)
- Professional Registrations (multi-upload)

#### Rules

- Allowed types: PDF, JPG, PNG; max 10MB per file; virus scan; encryption at rest.
- Redaction helper (optional v3.2) for masking ID numbers on preview.

#### Acceptance Criteria

- AC1: Drag-and-drop + mobile upload supported.
- AC2: Duplicate file warning; versioning for CV.
- AC3: All uploads scanned and quarantined on malware detection.

## **Module 3: Applicant Portal (Search & Apply)**

### **#### 3.3.1 Job Search & Discovery**

- Keyword, location, department filters; sort by date posted.
- SEO-friendly job detail pages; share links; save job; subscribe to alerts (v3.2).
- Performance: search results < 2s.

#### Acceptance Criteria

- AC1: Filter combinations return correct subsets.
- AC2: Empty-state messaging with suggestions.

### **#### 3.3.2 Application Process**

User Story: Apply with job-specific questions and declarations.

#### Flow

- Trigger: Click Apply Now.
- Modal 1 – Pre-Screening: Admin-set killer questions (Yes/No, MCQ). Client-side feedback but decision enforced server-side.
- Modal 2 – Declarations:
- Field: South African ID Number \* (or Passport). Collected just-in-time.
- Validate SA ID checksum and DOB/gender derivation; store hash + last 4 for minimization in non-critical views.
- Yes/No declarations (e.g., convictions, conflict of interest/state business, etc.).
- Modal 3 – Source of Hire: Dropdown (LinkedIn, Company Site, Referral, Other + free-text).
- Modal 4 – Final Confirmation: Summary; Confirm & Submit; success toast + email.

#### Acceptance Criteria

- AC1: Applicants failing mandatory pre-screen receive polite, immediate feedback; application not created unless policy allows.
- AC2: Successful submission sends “Application Received” email with job reference.
- AC3: All declaration responses and JIT ID capture recorded with timestamp and IP in audit.

## Module 4: Administrator Portal

### #### 3.4.1 Dashboard

#### Widgets

- Applicant Funnel: New → Screened → Interview → Offer → Hired (configurable stages).
- Source of Hire: Pie/Donut with drill-down to role level.
- Time to Hire: Avg days from posting to offer; trend vs last 90 days.
- Active Jobs: Cards with new-applicant counts and SLA alerts.

#### Acceptance Criteria

- AC1: Metrics recalculate hourly (or near-real-time if evented).
- AC2: Drill-downs exportable (CSV/XLSX).

### #### 3.4.2 Create/Edit Job Post

#### Fields

- Title, Department, Location, Employment Type, Description (rich text), Min/Max Salary (optional, masked to applicants if configured), Close Date, Visibility (public/internal), Hiring Manager (reference).
- Pre-Screening Config: Add question; type Yes/No or MCQ; designate pass answer; optional scoring/weights (v3.2); mark as killer.

#### Acceptance Criteria

- AC1: At least one killer question recommended (nudge) for high-volume roles.
- AC2: Validation prevents saving with inconsistent scoring rules.

### #### 3.4.3 Applicant Management

- List with search & filters (stage, pre-screen pass/fail, source, tags).
- Bulk actions: advance/reject, tag, assign to recruiter.
- Applicant detail: profile snapshot (no EE data), attachments, history timeline, private notes (with privacy warning), consent status.

## Acceptance Criteria

- AC1: Filter “Pre-screening: Pass / Fail / All” works server-side.
- AC2: Bulk actions are transactional and auditable.

### ##### 3.4.4 Communications

- Template Manager: Create/Edit/Delete templates; variables: [Applicant.FirstName], [Job.Title], [CloseDate], [Company.Name], etc.
- Bulk Send: Select applicants → choose template → preview per recipient → send; per-recipient success/failure log.
- Automations (v3.1 groundwork): Link template to state changes (e.g., move to Rejected → auto-send “Rejection”).

## Acceptance Criteria

- AC1: Personalization renders correctly per recipient.
- AC2: Delivery/bounce metrics recorded; unsub logic for marketing-type comms; transactional emails exempt.

## 5. Data Model (Key Entities)

- User (Applicant/Admin): id, email, password\_hash, roles, last\_login, consent\_versions.
- Profile: user\_id, personal fields, language proficiencies[], work\_experience[], education[]
- EE Profile (separate table): user\_id, race, disability, consent\_token, visibility\_scope.
- Document: user\_id, type, filename, storage\_uri, checksum, malware\_scan\_status, version.
- Job: id, title, dept, location, description, salary\_range, status, close\_date, visibility.
- PreScreen Question: job\_id, text, type, pass\_answer, weight, is\_killer.
- Application: id, job\_id, user\_id, stage, submitted\_at, source\_of\_hire, outcome.
- Declaration: application\_id, question, answer, id\_type, id\_hash, captured\_at, ip.
- Comm Template: id, name, body, variables, status.
- Email Log: application\_id/user\_id, template\_id, to, status, provider\_message\_id, sent\_at.
- Audit Event: actor\_id, entity\_type, entity\_id, action, payload\_hash, timestamp.
- Consent Ledger: user\_id, consent\_type, text\_version, given\_at, ip, ua.

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## 6. Integrations & Dependencies

- CV Parsing Provider: REST API; SLAs  $\geq$  99.5%; PII processor terms in place.
- Email Provider: SPF/DKIM/DMARC configured; webhooks for delivery/bounce.
- SMS/OTP (optional): For step-up auth; fall back to email OTP.
- Storage: Encrypted object store (KMS-managed keys), regional residency.
- Analytics: Privacy-respecting (e.g., Matomo self-hosted) with IP anonymization.

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## 7. Security, Compliance & Privacy (POPIA)

- Encryption: TLS 1.2+ in transit; AES-256 at rest; secrets rotated.
- AuthN/Z: OIDC; RBAC (Applicant, Recruiter, Hiring Manager, Admin, Info Officer).
- Data Minimization: JIT SA ID capture; store hashed ID + last four where feasible.
- Access Controls: EE data segregated; least privilege; admin views exclude EE.
- Consent & Rights: Consent ledger; DSAR endpoints (access/correct/delete/export); deletion within defined retention windows.
- Audit & Forensics: Immutable audit log with tamper-evidence; export on request.
- Third-Parties: DPAs in place; cross-border transfer safeguards.

### Acceptance Criteria

- AC1: Penetration test findings (High/Critical) remediated before go-live.
- AC2: POPIA readiness checklist signed by Information Officer.

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## 8. Non-Functional Requirements

- Performance:
- Resume parse  $\leq$  5s p90; Job search  $\leq$  2s p95; Dashboard queries  $\leq$  3s p95.
- Availability: 99.9% monthly uptime (excl. planned maintenance).
- Scalability: Horizontally scalable stateless services; CDN for assets.
- Reliability: Idempotent APIs; retries with backoff; circuit breakers.
- Observability: Centralized logs, metrics (APM), alerts on SLO breaches.
- Accessibility: WCAG 2.2 AA (keyboard nav, contrast, ARIA, screen-reader labels).
- Localization: EN (MVP); framework ready for Zulu/Afrikaans/Xhosa (v3.2).

- Browser/Device: Last 2 major versions of Chrome/Edge/Firefox/Safari; iOS/Android ≥ 2 latest.
- Error Handling: Human-readable messages; error codes for support; self-help links.

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## 9. Reporting & Analytics

- Operational: Funnel, Source of Hire, Time to Hire, Volume by Role/Dept, Diversity (aggregate EE only), SLA breaches.
- Exports: CSV/XLSX for candidates, applications, question responses; scheduled delivery to secure SFTP (v3.2).
- Privacy: Aggregation thresholds; differential privacy for sensitive slices (optional).

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## 10. Data Retention & Deletion

- Applications: Retain 24 months from last activity (configurable); then anonymize.
- Documents: Retain while active application exists; purge on deletion request or after retention expiry.
- Logs/Audit: 24 months (minimum) then archive.
- Backups: Encrypted; 35-day rolling; tested quarterly restore.

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## 11. Operational Considerations

- Environments: Dev, Staging, Production; data segregation enforced.
- CI/CD: Automated tests (unit/integration/e2e), SAST/DAST, IaC, blue-green deploys.
- Feature Flags: Gradual rollout for parsing provider and automations.
- Support/SLA: P1 (2h response), P2 (8h), P3 (2 business days).

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## **12. Acceptance Tests (Representative)**

- Create account with duplicate email → friendly error.
- Upload supported/unsupported CV → parse success/fallback path.
- EE consent unchecked → system proceeds without EE data.
- Fail killer question → application blocked with guidance.
- SA ID checksum invalid → inline error; valid → proceed and log.
- Bulk reject with template → personalized emails sent; audit captured.
- Admin cannot view EE values in any individual screen.

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## **13. Risks & Mitigations**

- Parsing accuracy variance: Provide edit UX; track provider accuracy; enable provider swap via interface.
- Email deliverability issues: Warmup domains; monitor bounce; feedback loops.
- Data privacy breaches: RBAC, encryption, DLP scans, quarterly audits.
- High applicant volumes: Queueing on parse & email; autoscaling; backpressure.

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## **14. Assumptions & Constraints**

- Applicants predominantly use mobile devices; design mobile-first.
- POPIA and internal Information Governance policies are authoritative.
- Budget supports at least one third-party parsing and email provider.