Okay, here is a Functional Requirements Document (FRD) for version 1.0 of the AI Transformation Prioritization Tool, consolidating the features and specifications discussed.

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\*\*Functional Requirements Document (FRD)\*\*

\*\*Product:\*\* AI Transformation Prioritization Tool

\*\*Version:\*\* 1.0

\*\*Date:\*\* April 20, 2025

\*\*1. Introduction\*\*

\* \*\*1.1 Purpose:\*\* This document outlines the functional requirements for version 1.0 of the AI Transformation Prioritization Tool. The tool is designed to assist organizations (via consultants or internal leaders) in identifying and prioritizing job roles, functions, and specific tasks for AI transformation initiatives based on strategic goals, pain points, feasibility, and potential ROI. It also provides initial capabilities for tracking the performance of deployed AI solutions.

\* \*\*1.2 Scope:\*\* Version 1.0 focuses on establishing the core workflow:

\* Guided data capture via a multi-step wizard.

\* Management and use of a Job Role & Function Library (with initial JD parsing and external scraping capabilities).

\* Management and use of an AI Functionality Matrix (with initial dynamic population capabilities).

\* An LLM-driven processing engine for analysis and prioritization.

\* A reporting engine generating initial prioritization recommendations (including heatmaps) and basic post-deployment performance/ROI views.

\* A management UI for library administration.

\* \*\*Out of Scope for v1.0:\*\* Advanced interactive dashboards, complex real-time data integrations beyond basic API endpoints, sophisticated benchmarking, deep customization of questionnaires beyond module selection, advanced user role management beyond Admin/User.

\* \*\*1.3 Definitions:\*\*

\* \*\*AI:\*\* Artificial Intelligence

\* \*\*LLM:\*\* Large Language Model

\* \*\*JD:\*\* Job Description

\* \*\*ROI:\*\* Return on Investment

\* \*\*KPI:\*\* Key Performance Indicator

\* \*\*Heatmap:\*\* A visual matrix representation of data values using colors.

\* \*\*Wizard:\*\* A multi-step guided user interface for data input.

\* \*\*Module:\*\* A section of the application focused on a specific business area (e.g., GTM, Engineering).

\* \*\*Spidering/Scraping:\*\* Automated extraction of data from websites or APIs.

\* \*\*1.4 Intended Audience:\*\* Product Managers, Software Developers, QA Testers, Project Stakeholders.

\* \*\*1.5 References:\*\* Project discussions and specifications outlined in the preceding chat conversation (April 20, 2025). Frontend Component Specifications v0.

\*\*2. Overall Description\*\*

\* \*\*2.1 Product Perspective:\*\* A web-based Software-as-a-Service (SaaS) application designed for use by consultants and internal business/operational leaders. The frontend is intended for deployment on platforms like Vercel, communicating with a cloud-hosted backend.

\* \*\*2.2 Product Features (High-Level):\*\*

\* Discovery Wizard for Assessment Data Capture

\* Job Role & Function Library Management (including Parsing & Scraping)

\* AI Functionality Matrix Management (including Scraping)

\* LLM-Driven Processing & Prioritization Engine

\* Reporting Engine (Initial Recommendations & Basic Performance Tracking)

\* Admin Management User Interface

\* \*\*2.3 User Classes and Characteristics:\*\*

\* \*\*Consultant/Facilitator:\*\* Uses the Wizard during client workshops, reviews/presents reports, may use Management UI for prep.

\* \*\*Business/Operational Leader (Client):\*\* Participates in Wizard sessions, consumes reports.

\* \*\*Administrator:\*\* Manages libraries (Job Roles, AI Matrix), potentially manages users and system configurations via Management UI.

\* \*\*2.4 Operating Environment:\*\*

\* \*\*Frontend:\*\* Modern web browser (Chrome, Firefox, Edge, Safari latest versions).

\* \*\*Backend:\*\* Cloud-based hosting environment supporting required services (database, compute for processing/LLMs, API hosting).

\* \*\*2.5 Design and Implementation Constraints:\*\*

\* Reliance on external LLM APIs necessitates cost-management strategies.

\* Modular architecture is required for future scalability.

\* Asynchronous processing is needed for scraping/population tasks.

\* Compliance with terms of service for any scraped websites/APIs.

\* Initial frontend deployment target: Vercel.

\*\*3. System Features\*\*

\* \*\*3.1 Discovery Wizard\*\*

\* \*\*FR-WIZ-001:\*\* The system \*shall\* provide a multi-step wizard interface accessible via a dedicated URL path (e.g., `/wizard`).

\* \*\*FR-WIZ-002:\*\* The system \*shall\* display a progress indicator showing the user's current step and the total number of steps.

\* \*\*FR-WIZ-003:\*\* The system \*shall\* allow navigation between steps using "Next" and "Previous" buttons. A "Submit" button \*shall\* be present on the final step.

\* \*\*FR-WIZ-004:\*\* Each wizard step \*shall\* display a title, description/instructions, and one or more questions.

\* \*\*FR-WIZ-005:\*\* The system \*shall\* support the following question input types:

\* Text Input (single-line)

\* Text Area (multi-line)

\* Rating Scale (e.g., 1-5 Likert scale)

\* Ranking List (drag-and-drop ordering)

\* Role/Function Selector (multi-select from Job Role Library)

\* Single Choice (Radio Buttons)

\* Multiple Choice (Checkboxes)

\* \*\*FR-WIZ-006:\*\* The system \*shall\* embed contextual guidance or help text for specific questions or steps.

\* \*\*FR-WIZ-007:\*\* The system \*shall\* capture and temporarily store user inputs as they progress through the wizard.

\* \*\*FR-WIZ-008:\*\* Upon final submission, the wizard data \*shall\* be sent to the Backend Processing Engine.

\* \*\*FR-WIZ-009:\*\* The system \*shall\* perform basic input validation (e.g., for required fields) before allowing progression or submission.

\* \*\*FR-WIZ-010:\*\* The system \*shall\* allow wizard content/questions to be configured based on a selected business module (e.g., GTM, Finance).

\* \*\*3.2 Job Role & Function Library\*\*

\* \*\*FR-LIB-001:\*\* The system \*shall\* provide a persistent data store for a standardized library of Job Roles, Business Functions, and associated Key Responsibilities.

\* \*\*FR-LIB-002:\*\* The system \*shall\* allow Administrators to perform CRUD (Create, Read, Update, Delete) operations on the Job Role Library via the Management UI.

\* \*\*FR-LIB-003:\*\* The system \*shall\* provide a feature to parse uploaded Job Description documents (e.g., .txt, .docx, .pdf).

\* \*\*FR-LIB-004:\*\* The JD parsing feature \*shall\* extract potential Job Titles and Key Responsibilities using NLP/LLM techniques.

\* \*\*FR-LIB-005:\*\* The system \*shall\* attempt to map extracted JD information to the standardized roles and responsibilities within the library. Administrators \*shall\* be able to review and correct these mappings via the Management UI.

\* \*\*FR-LIB-006:\*\* The system \*shall\* provide an \*asynchronous\* feature to scrape publicly available job boards/APIs for common job titles and responsibilities.

\* \*\*FR-LIB-007:\*\* Scraped job data \*shall\* be processed and suggested for inclusion or mapping within the standardized library, subject to Administrator review via the Management UI. This serves to augment or pre-populate the library.

\* \*\*3.3 AI Functionality Matrix\*\*

\* \*\*FR-AIM-001:\*\* The system \*shall\* provide a persistent data store for a curated Master Library of AI Capabilities, categorized (e.g., NLP, Data Analysis) and described.

\* \*\*FR-AIM-002:\*\* The system \*shall\* allow Administrators to perform CRUD operations on the AI Functionality Matrix via the Management UI.

\* \*\*FR-AIM-003:\*\* The system \*shall\* map Key Responsibilities (from the Job Role Library) to relevant AI Capabilities based on semantic analysis, keywords, or predefined rules.

\* \*\*FR-AIM-004:\*\* The system \*shall\* provide an \*asynchronous\* feature to scrape predefined, reliable sources (e.g., AI research sites, vendor docs) to identify and categorize new/emerging AI features.

\* \*\*FR-AIM-005:\*\* Scraped AI capability data \*shall\* be suggested for inclusion in the AI Functionality Matrix, subject to Administrator review and validation via the Management UI.

\* \*\*3.4 Processing Engine\*\*

\* \*\*FR-ENG-001:\*\* The system \*shall\* receive submitted data from the Discovery Wizard.

\* \*\*FR-ENG-002:\*\* The engine \*shall\* utilize LLM APIs for tasks including: understanding natural language inputs (pain points, goals), assisting in JD parsing, assisting in mapping responsibilities to AI capabilities, and potentially contributing to scoring logic.

\* \*\*FR-ENG-003:\*\* The engine \*shall\* implement cost-optimization techniques for LLM API usage, including model selection, prompt optimization, caching, batching, and monitoring.

\* \*\*FR-ENG-004:\*\* The engine \*shall\* apply a prioritization algorithm combining wizard inputs (ratings, rankings), task data, and AI Functionality Matrix mappings (suitability/potential) to generate scores for roles/tasks.

\* \*\*FR-ENG-005:\*\* The prioritization output \*shall\* represent dimensions like Business Value/Impact vs. Implementation Effort/Feasibility.

\* \*\*FR-ENG-006:\*\* The system \*shall\* provide an API endpoint to receive basic post-deployment performance data related to implemented AI solutions (e.g., time saved, tickets resolved).

\* \*\*FR-ENG-007:\*\* The engine \*shall\* aggregate and process ingested performance data for use by the Reporting Engine.

\* \*\*3.5 Reporting Engine\*\*

\* \*\*FR-REP-001:\*\* The system \*shall\* generate reports based on the output of the Processing Engine.

\* \*\*FR-REP-002:\*\* Reports \*shall\* be viewable within the web application and exportable to PDF format.

\* \*\*FR-REP-003:\*\* Reports \*shall\* include the following sections:

\* Executive Summary

\* Analysis Scope (Business Area, Roles)

\* Identified Opportunities/Pain Points Summary

\* Prioritization Heatmap (visualizing Value vs. Effort or similar)

\* Prioritization List/Details (ranked items with scores)

\* AI Solution Mapping (showing relevant AI capabilities for top priorities)

\* Basic Performance Dashboard (displaying ingested KPIs like time saved, tasks automated - potentially with simple trend charts)

\* Basic ROI Analysis (displaying calculated ROI based on inputted cost/benefit data)

\* Consultant Commentary Section (displaying manually entered text)

\* \*\*FR-REP-004:\*\* The Prioritization Heatmap \*shall\* use color gradients to clearly indicate priority levels.

\* \*\*FR-REP-005:\*\* The system \*shall\* provide a mechanism (likely manual input field associated with the report) for consultants to add qualitative commentary.

\* \*\*FR-REP-006:\*\* The Performance Dashboard section \*shall\* display KPIs ingested via the backend API (FR-ENG-006). Initial display may use placeholder data if no real data is available.

\* \*\*FR-REP-007:\*\* The ROI Analysis section \*shall\* calculate and display ROI based on manually input cost data and benefit data derived from performance metrics.

\* \*\*3.6 Management UI\*\*

\* \*\*FR-MGT-001:\*\* The system \*shall\* provide a separate, secure web interface for Administrator users.

\* \*\*FR-MGT-002:\*\* The Management UI \*shall\* provide interfaces for CRUD operations on the Job Role Library (FR-LIB-002) and AI Functionality Matrix (FR-AIM-002).

\* \*\*FR-MGT-003:\*\* The Management UI \*shall\* allow Administrators to review, approve, or reject suggestions from the JD parsing (FR-LIB-005), job board scraping (FR-LIB-007), and AI capability scraping (FR-AIM-005) processes.

\* \*\*FR-MGT-004:\*\* The system \*shall\* provide basic user management capabilities (e.g., inviting/disabling users, assigning Admin role).

\* \*\*FR-MGT-005:\*\* The Management UI \*shall\* provide views to monitor the status of asynchronous scraping tasks.

\*\*4. External Interface Requirements\*\*

\* \*\*4.1 User Interfaces:\*\*

\* \*\*FR-UI-001:\*\* The application \*shall\* provide a web-based graphical user interface accessible via standard browsers.

\* \*\*FR-UI-002:\*\* The UI \*shall\* be intuitive and follow standard web usability conventions.

\* \*\*FR-UI-003:\*\* The UI design \*shall\* be clean, professional, and suitable for presenting to business clients.

\* \*\*FR-UI-004:\*\* The UI \*shall\* be responsive for typical desktop screen sizes.

\* \*\*FR-UI-005:\*\* The UI components defined in the "Frontend Component Specifications v0" \*shall\* be implemented.

\* \*\*4.2 Hardware Interfaces:\*\* None specified.

\* \*\*4.3 Software Interfaces:\*\*

\* \*\*FR-SI-001:\*\* The system \*shall\* integrate with external LLM provider APIs via secure protocols (HTTPS) using API keys.

\* \*\*FR-SI-002:\*\* The system \*shall\* interact with public job board websites/APIs for scraping (subject to their Terms of Service).

\* \*\*FR-SI-003:\*\* The system \*shall\* interact with predefined AI information sources for scraping capabilities (subject to their Terms of Service).

\* \*\*FR-SI-004:\*\* The system \*shall\* provide an inbound API endpoint (REST/JSON over HTTPS) to receive post-deployment performance data from external systems (e.g., ITSM, CRM, AI tool logs). The specific data format for v1.0 needs definition but should be simple key-value pairs related to defined KPIs.

\* \*\*4.4 Communications Interfaces:\*\*

\* \*\*FR-CI-001:\*\* All communication between the client (browser) and server, and between the server and external APIs, \*shall\* use HTTPS.

\*\*5. Non-Functional Requirements\*\*

\* \*\*5.1 Performance:\*\*

\* \*\*NFR-PERF-001:\*\* Wizard UI interactions (e.g., loading next step) \*should\* complete in under 3 seconds.

\* \*\*NFR-PERF-002:\*\* Standard report generation (excluding initial LLM processing on submission) \*should\* complete in under 10 seconds.

\* \*\*NFR-PERF-003:\*\* Latency associated with LLM API calls \*shall\* be managed and communicated to the user where appropriate (e.g., loading indicators during processing).

\* \*\*5.2 Security:\*\*

\* \*\*NFR-SEC-001:\*\* User authentication \*shall\* be required for accessing the application. Role-based access control (Admin vs. User) \*shall\* be implemented.

\* \*\*NFR-SEC-002:\*\* API keys for external services (LLMs) \*shall\* be stored securely and not exposed client-side.

\* \*\*NFR-SEC-003:\*\* All data transmission \*shall\* be encrypted using HTTPS.

\* \*\*NFR-SEC-004:\*\* Input validation \*shall\* be implemented on both client and server sides to prevent common vulnerabilities (e.g., XSS).

\* \*\*NFR-SEC-005:\*\* Data privacy considerations for stored JDs or user information \*shall\* be addressed (e.g., anonymization if needed, compliance with GDPR/CCPA).

\* \*\*5.3 Reliability:\*\*

\* \*\*NFR-REL-001:\*\* The application \*should\* target a minimum uptime of 99.5%.

\* \*\*NFR-REL-002:\*\* The system \*shall\* implement graceful error handling and provide informative error messages to the user.

\* \*\*NFR-REL-003:\*\* Backend data \*shall\* be backed up regularly.

\* \*\*5.4 Maintainability:\*\*

\* \*\*NFR-MAIN-001:\*\* Code \*shall\* follow established coding standards and be well-commented.

\* \*\*NFR-MAIN-002:\*\* The modular architecture \*shall\* be adhered to, allowing for independent updates and testing of components.

\* \*\*5.5 Usability:\*\*

\* \*\*NFR-USE-001:\*\* The Wizard flow \*shall\* be intuitive and require minimal training for target users.

\* \*\*NFR-USE-002:\*\* Reports \*shall\* present complex information clearly and concisely, with effective visualizations (Heatmap).

\* \*\*NFR-USE-003:\*\* Consistent terminology and UI patterns \*shall\* be used throughout the application.

\* \*\*5.6 Scalability:\*\*

\* \*\*NFR-SCALE-001:\*\* The architecture \*shall\* support a growing number of users, assessments, and library entries.

\* \*\*NFR-SCALE-002:\*\* Asynchronous processing for scraping tasks \*shall\* be designed to handle potential volume without blocking core application performance.

\* \*\*5.7 Cost Optimization:\*\*

\* \*\*NFR-COST-001:\*\* The system \*shall\* implement and monitor strategies (caching, model selection, prompt tuning, batching) to minimize LLM API costs.

\*\*6. Other Requirements\*\*

\* \*\*6.1 Data Requirements:\*\*

\* \*\*FR-DATA-001:\*\* The system \*shall\* store assessment data, user information, library content, matrix content, and performance metrics persistently.

\* \*\*FR-DATA-002:\*\* Data schemas \*shall\* be defined and managed using appropriate database design principles.

\* \*\*6.2 Legal and Compliance:\*\*

\* \*\*FR-LEGAL-001:\*\* The system \*shall\* comply with relevant data privacy regulations (e.g., GDPR, CCPA) regarding user data and potentially personal information within uploaded JDs.

\* \*\*FR-LEGAL-002:\*\* Use of scraped data \*shall\* respect the Terms of Service of the source websites/APIs.

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\*\*End of Functional Requirements Document v1.0\*\*