Design Architecture

B. Architecture Design Document (Draft)

Title: Interactive AM Roadmap – Architecture Design Document

1. System Overview:

- **Objective:** Provide a self-contained interactive roadmap solution that updates local data and compiles it into an HTML file.
- **Components:**
  - **Data Management Module:** Handles local data updates.
  - **Build/Compile Module:** Reads data files and generates the interactive HTML.
  - **User Interface Module:** Renders the roadmap with various views and interactive elements.
  - **CRAD Opportunities Module:** Manages opportunity tagging and filtered views.

2. System Architecture:

- **Client-Side Architecture:**
  - **HTML/CSS/JavaScript:** The final output is a single HTML file that contains:
    - Embedded data (as JSON).
    - Inline or bundled JavaScript for interactive behavior.
    - CSS for styling.
  - **Modular JavaScript:** Organized into functions or modules addressing:
    - Data parsing and rendering.
    - View management (switching between Program, Product, Material System, etc.).
    - Event handling for user interactions (filtering, sorting, tagging).

- **Build Process:**
  - A local script (e.g., Node.js, Python) that:
    - Reads the local data file.
    - Uses templates (e.g., Handlebars, Mustache, or plain JS templating) to produce the final HTML.
    - Validates that all data meets the schema defined in the requirements.

3. Data Flow and Interaction:

- **Step 1:**
  - User updates the local data file.
- **Step 2:**
  - The build process ingests the data file and regenerates the HTML file.
- **Step 3:**
  - The updated HTML file is uploaded to SharePoint.
- **Step 4:**
  - Users interact with the HTML file; client-side scripts manage dynamic views and interactions.
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Data Flow:

- Update the flow to reflect the decoupled data model where products are now a separate entity and can be associated with multiple programs.
- Include the new data relationships and UI mapping (e.g., joining material system details to product displays, listing CRAD opportunities by name).

UI Layer:

- Document the enhanced UI design with separate views for Programs, Products, Material Systems, and CRAD Opportunities.
- Highlight responsive design, enhanced filtering, and expand/collapse functionality.

4. Future Enhancements:

- Integration with cloud storage for automatic updates.
- Modular expansion for additional roadmap categories.
- Enhanced user authentication and data versioning if needed.