Data Flow Diagram & User Stories

**Team ID:** LTVIP2025TMID21203

**Project Name:** Sustainable Smart City Assistant

# Data Flow Diagrams

## Level 0: Context Diagram

External Entities .....



- City Officials .,\_ .....

- Citizens ..........

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[Smart City System] Pinecone Vector



System Admin ..........

. External Entities

IBM Watsonx API



[Sustainable Smart City Assistant]



[Smart City System] .,\_ .....



DB



[Smart City System] File Storage

## Level 1: System Overview

. 2.

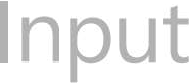


1. User Input



. 4. Service

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Input Validation



. 3. Request



Routing



Processing

5. ..... 6. Data Retrieval ..... 7. Al Processing 8. External APls



Response Generation



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9.



Database Operations

## Data Stores:

* **D1:** Policy Documents
* **D2:** Citizen Feedback
* **D3:** KPI Data
* **D4:** Vector Embeddings
* **DS:** Generated Reports

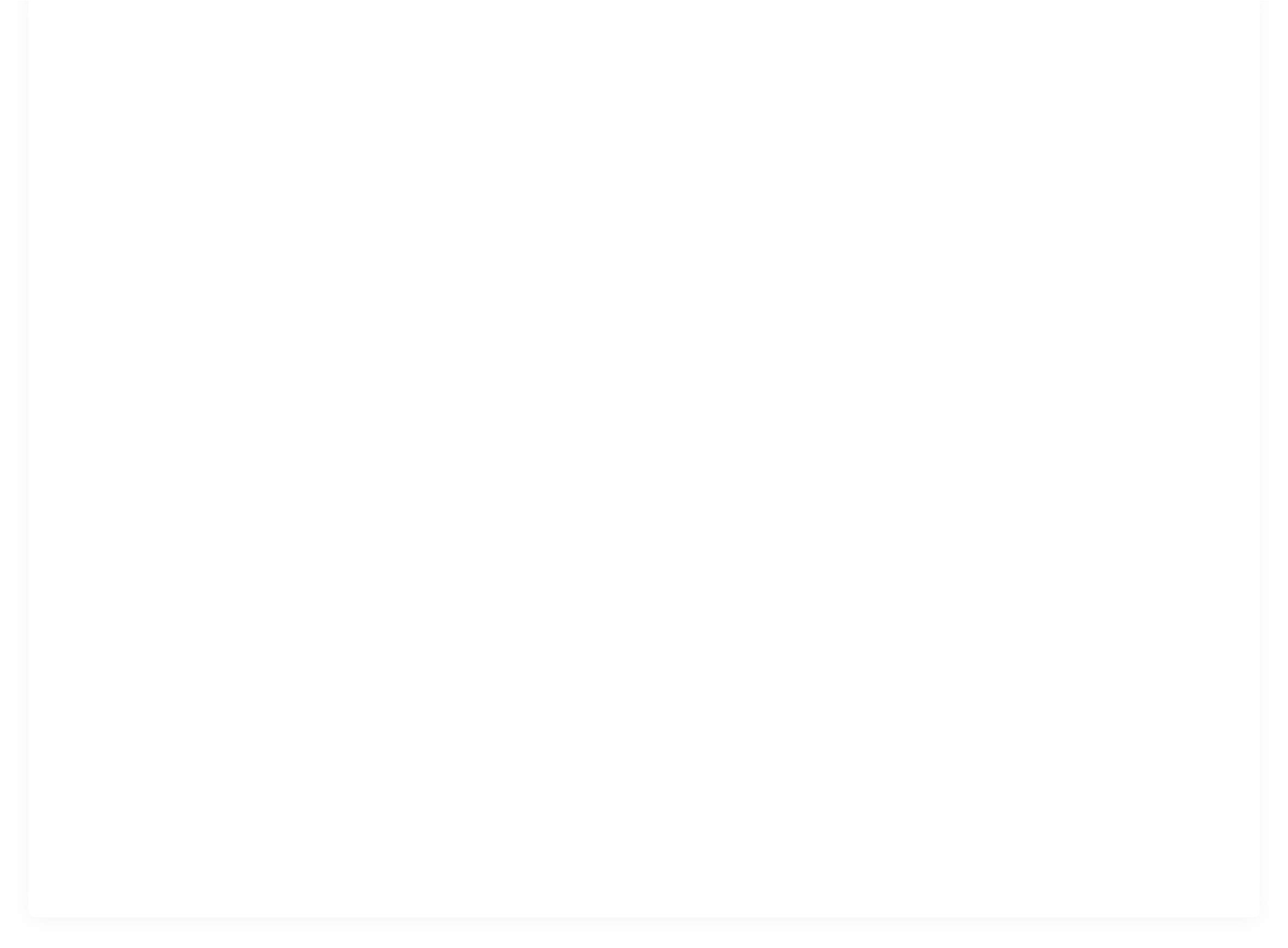
# User Stories



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| --- | --- | --- | --- | --- | --- | --- |
| **User Type** | **Functional Requirement**  **(Epic)** | **User Story**  **Number** | **User Story / Task** | **Acceptance Criteria** | **Priority** | **Release** |
| **City Official** | Dashboard Access | US-1 | As a city official, I can view real-time KPI metrics on an  interactive dashboard | I can see Air Quality, Water Usage, Energy Consumption, and  Waste Recycling data | High | Sprint- 1 |
| City Official | Al Assistant | US-2 | As a city official, I can ask questions about city performance  through chat interface | I receive contextual responses about city metrics and policies | High | Sprint- 1 |
| City Official | Report Generation | US-3 | As a city official, I can generate comprehensive  sustainability reports | I receive detailed Al- generated reports with insights and  recommendations | Medium | Sprint- 4 |
| **Citizen** | Feedback Submission | US-4 | As a citizen, I can submit feedback about city services through  categorized forms | I can select category, enter details, and receive confirmation | High | Sprint- 2 |
| Citizen | Eco-tips Access | US-5 | As a citizen, I can receive personalized eco-friendly tips and  recommendations | I get topic-specific environmental advice generated by **Al** | Medium | Sprint- 3 |
| Citizen | Information Access | US-6 | As a citizen, I can search for policy information using  natural language | I find relevant policy documents with semantic search | Medium | Sprint- 3 |
| **System Admin** | Document Management | US-7 | As a system admin, I can upload and manage policy  documents | Documents are processed and indexed for semantic search | High | Sprint- 2 |
| System Admin | System Monitoring | US-8 | As a system admin, I can monitor system performance and API health | I can view system metrics and API response times | Medium | Sprint- 4 |

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| **Data Analyst** | KPI Analysis | US-9 | As a data analyst, I can upload KPI data and view forecasting  analytics | I can see trend analysis and anomaly detection results | High | Sprint-  3 |
| Data Analyst | Anomaly Detection | US-10 | As a data analyst, I can identify unusual patterns in city  performance data | System alerts me to significant deviations from normal patterns | Medium | Sprint-  4 |
| **Developer** | API Integration | US-11 | As a developer, I can integrate with external APls for enhanced  functionality | **All** API endpoints work correctly with proper error handling | High | Sprint- 1 |
| Developer | System Scalability | US-12 | As a developer, I can ensure the system handles multiple  concurrent users | System maintains performance under load | High | Sprint-  4 |
|  | | | | | | |

**Acceptance Criteria Details**



### Dashboard (US-1):

* KPI cards display current values
* City selection dropdown works
* Data refreshes in real-time
* Mobile responsive design

### Chat Assistant (US-2):

* Natural language processing
* Context-aware responses
* Error handling for invalid queries
* Conversation history maintained

### Feedback System (US-4):

* Form validation works correctly
* Email notifications sent
* Feedback stored in database
* Unique ID generated for tracking