

AI Powered Town Council Feedback Response System

Enhancing Operational Efficiency, Governance, and Resident Engagement

Project Team

Abdul Shariff Aboo Kassim

Kam Zhi Hao

Isabelle Khang Hui Wen

Siti Salwa Abdul Rahim

Programme

Industry Graduate Diploma

AI Integrated Learning Project
(ILP)

Date

10 February 2026 – 28 April 2026



Background

Town Councils receive a wide variety of resident feedback daily — from minor maintenance requests to urgent safety concerns. Much of the current case-handling process relies on **manual review, officer judgement, and follow-up**, creating bottlenecks and inconsistency.

- ① This project explores how a digital prototype enhanced with AI can support officers in handling resident feedback more effectively, while maintaining full accountability.



Disclaimer: Use of AI-Assisted Coding Tools

- ▶ The development of this prototype involved the use of AI-assisted coding tools, specifically Microsoft Copilot.
- ▶ Copilot was used as a support tool to assist in code generation, debugging, and refactoring during development.
- ▶ All system design decisions, architectural choices, and final code implementations were reviewed, validated, and controlled by the project team.
- ▶ The use of AI was intended to enhance productivity and learning, not to replace human judgement or responsibility.



Prototype Scope & Data Disclaimer

- ▶ This project demonstrates a prototype using AI to improve efficiency and consistency.
- ▶ All cases, addresses, and officer actions shown are sample data for demonstration only.
- ▶ A real deployment would integrate with existing Town Council systems and databases, enabling a much more comprehensive and operationally accurate implementation.

Problem Statement

Existing feedback-handling processes face compounding challenges that reduce both officer effectiveness and resident satisfaction.

High Administrative Workload

Officers spend significant time on manual data entry and case interpretation.

Delays in Triage & Response

Without structured support, prioritising cases takes longer than necessary.

Inconsistent Categorisation

Case handling varies between officers, making reporting unreliable.

Limited Auditability

Actions taken on cases lack a clear, traceable record for supervisory review.

Project Objectives



01

Improve Efficiency

Streamline the handling of resident feedback end-to-end.

02

Support Decision-Making

Give officers structured AI-driven guidance on each case.

03

Enhance Transparency

Ensure every action is traceable and auditable.

04

Responsible AI Use

Demonstrate accountable, human-centred AI in public sector governance.

How the Prototype Improves Efficiency



Automates Admin Tasks

Repetitive data-entry and categorisation steps are handled by the system, freeing officer time.



AI-Driven Suggestions

Officers receive real-time recommendations to assist interpretation and decision-making.



Unified Case View

A single interface shows the full lifecycle of every case, reducing context-switching.



Focus on Resolution

Officers spend less time on paperwork and more time resolving resident issues.



Town Council Unified Portal

Welcome!

Use the sidebar to switch between:

-  Resident Feedback Submission
-  Staff Admin Dashboard

Prototype Demo

Faster Case Triage

- ▶ AI automatically analyses resident feedback upon submission
- ▶ Suggests case category, priority level, and handling unit
- ▶ Reduces time spent on manual reading and initial sorting
- ▶ Enables officers to quickly assess urgency and case type
- ▶ Allows officers to focus on review and action rather than triage

Fork

Case: TC-20260428-104346-511B4A13

Issue Description from Resident

Resident-submitted description

There are visible water stains, dampness, intermittent dripping, discolouration, possible mould growth, and paint peeling. The issue tends to worsen overnight, especially when the unit above is in use.

This is a serious concern as I am living with a baby who sleeps in the same room. There are also multiple electrical appliances and power points nearby, posing potential health and safety risks.

I would appreciate an urgent inspection to identify the source, advise on responsibility (if involving the unit above), and carry out the necessary repairs. Kindly provide an estimated timeline for resolution.

This is the original description submitted by the resident and cannot be edited.

AI Classification (Suggested)

The AI assessment below is based on the resident description shown above.

AI Classification Result

Category: Housing

Sub-category: Water leakage / ceiling leak

Priority: Urgent

Severity: Critical

Handling Unit: Town Council Estate Management / Building Maintenance

Confidence: 98%



Officers can act on a pre-classified case in seconds rather than minutes.

Standardised Officer Actions & Case Tracking

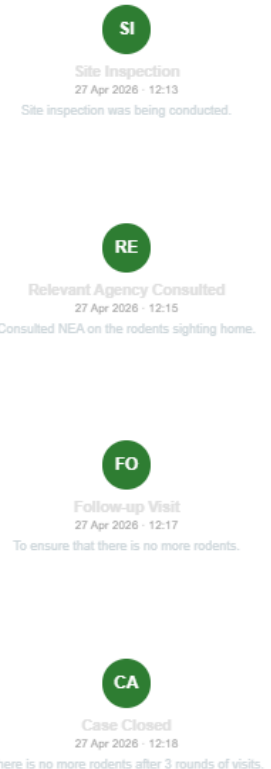
Predefined Action Types

Officers select from structured actions, eliminating ambiguity and reducing inconsistency across the team.

Systematic Logging

Every status change is recorded automatically, creating a reliable audit trail for supervisors.

Actions Taken



These features collectively improve consistency, oversight, and response time.

Standardised Officer Actions & Case Tracking

Visual Case Timeline

A chronological view shows all officer actions, AI involvement, and overrides — reducing duplicated effort.

Resident Notifications

Timely updates are triggered automatically after actions, with AI-assisted drafting for consistent tone.

The screenshot displays a user interface for case tracking. At the top, there is a list of three updates from 'emira.diyas@gmail.com' (marked as 'External') regarding 'Update on Your Town Council Case (TC-20260427-121157-1BBE1E9F)'. Each update includes a timestamp (Mon 8:18 PM, Mon 8:17 PM, Mon 8:15 PM) and a preview of the message: 'Dear Jane Lee, We would like to provide you with an ...'. Below this list, a detailed view of the selected update is shown. It includes the case ID, a greeting, a statement of intent to provide an update, a green checkmark indicating 'Action taken: Follow-up Visit', an 'Outcome / Details' section with a greeting and a thank you message, a red star icon indicating 'Current case status: In Progress', and a closing statement about monitoring the situation.

External emira.diyas@gmail.com Mon 8:18 PM
Update on Your Town Council Case (TC-20260427-121157-1BBE1E9F)
Dear Jane Lee, We would like to provide you with an ...

External emira.diyas@gmail.com Mon 8:17 PM
Update on Your Town Council Case (TC-20260427-121157-1BBE1E9F)
Dear Jane Lee, We would like to provide you with an ...

External emira.diyas@gmail.com Mon 8:15 PM
Update on Your Town Council Case (TC-20260427-121157-1BBE1E9F)
Dear Jane Lee, We would like to provide you with an ...

Update on Your Town Council Case (TC-20260427-121157-1BBE1E9F)

Dear Jane Lee,

We would like to provide you with an update regarding the matter you reported to the Town Council.

✅ Action taken:
Follow-up Visit

📄 Outcome / Details:
Dear Resident,

Thank you for getting in touch. We are taking steps to make sure the area is properly dealt with and to reduce the chance of any further rodent activity.

We appreciate your patience while this is being addressed, and we will continue to monitor the situation. If you notice anything else in the meantime, please let us know.

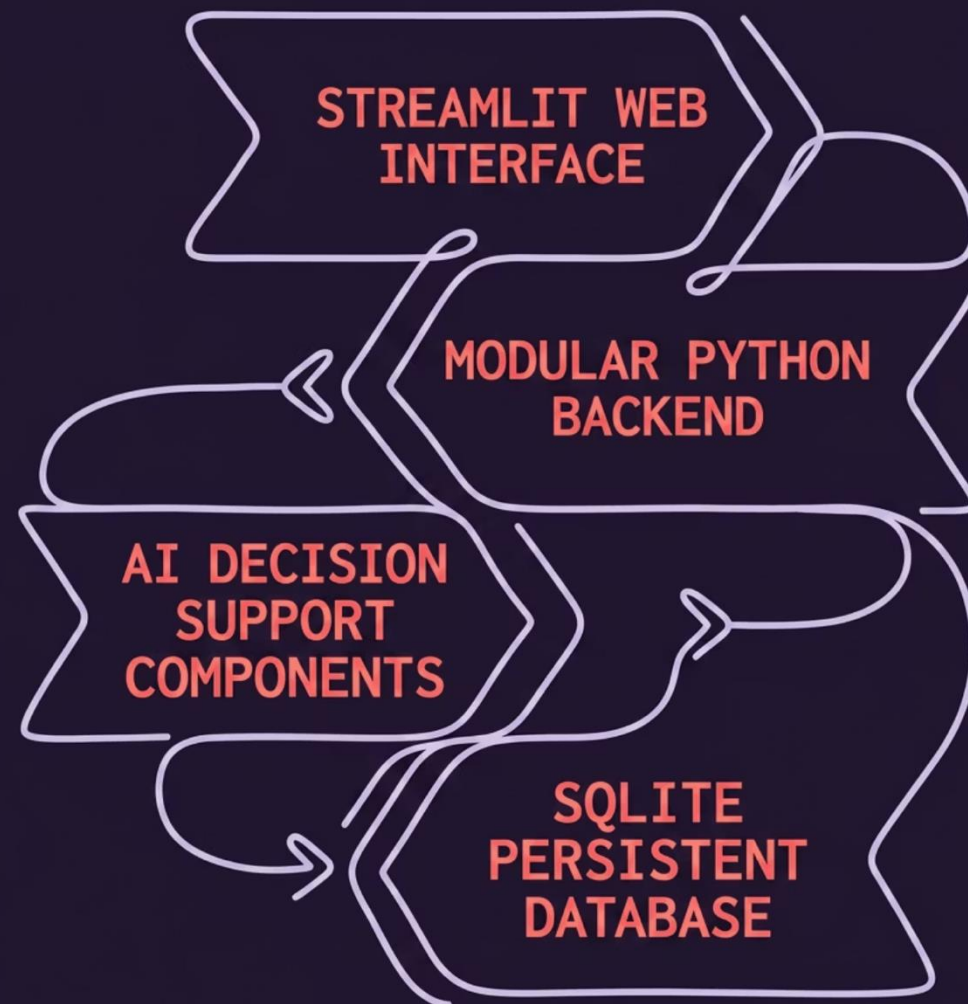
🔴 Current case status:
In Progress

Our officers will continue to monitor the situation and will take further action if required.
If additional information is needed, our team may contact you.

These features collectively improve consistency, oversight, and response time.

SECTION 2: DEVELOPMENT

System Architecture & Development Approach



Development Principles

- Iterative, incremental feature development
- Clear separation between UI, logic, and AI layers
- Early workflow testing before AI integration
- Deployed on Streamlit Cloud for real-world simulation

- ❑ Modular design supports future enhancement and scalability without rebuilding core components.

Key Functional Modules & Database Design



Submission Management

Resident submissions and attachments captured and stored.



Officer Dashboard

Unified admin interface for case review and action.



Case Workflow Tracking

Progress entries, officer decisions, and status changes logged throughout.



Notification Handling

Automated resident updates triggered at key case milestones.



AI Classification

Category, priority, severity, and guidance generated per case.

The database design supports full audit trails — critical for public sector accountability.

The Role of AI in the Prototype

AI was introduced to **reduce officer workload, improve consistency, and support**. Every AI recommendation is advisory; final decisions remain with officers at all times.

1

Classify

Category, priority, severity & handling unit suggested on submission.

2

Guide

Next actions, status changes, and escalation indicators recommended.

3

Communicate

Empathetic, consistent resident responses drafted automatically.

4

Govern

All AI actions logged; officer override recorded for accountability (e.g., officer may disagree with AI classification).

Officer Action Taken

Action Type

Contractor Engaged

Update status

In Progress

Action Notes

CONTRACTOR HAS BEEN TOLD BUT THEY KEEP IGNORING US. THEY VERY LOUSY. I HAVE BEEN WANTING TO CHANGE THEM BUT I CANNOT BECAUSE NO BUDGET.

Save Action

Dear Cindy Loh,

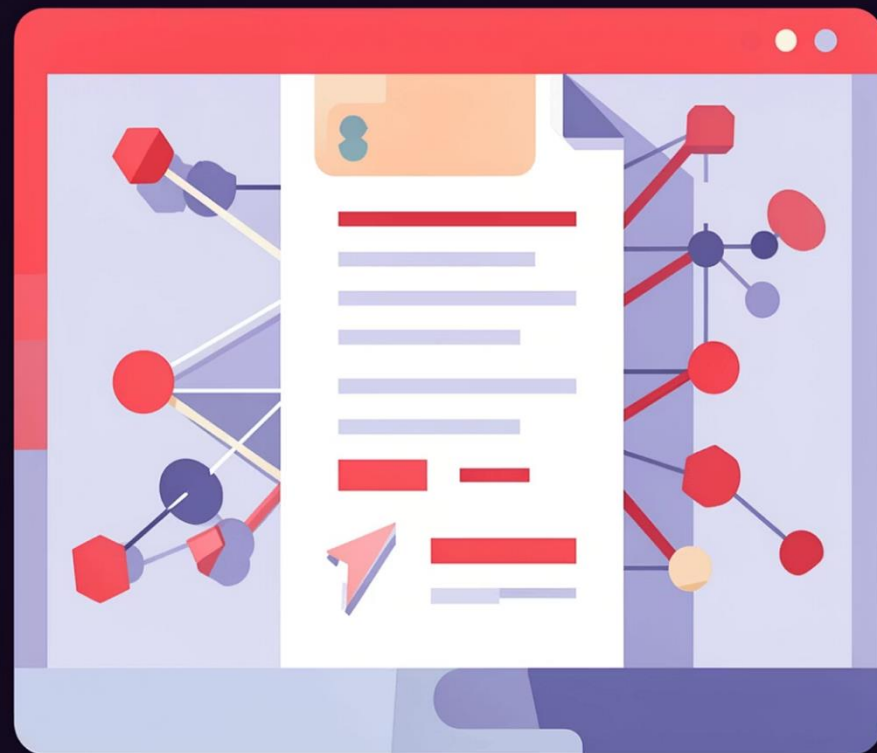
We would like to provide you with an update regarding the matter you reported to the Town Council.

✅ Action taken:
Contractor Engaged

✍ Outcome / Details:
Dear Resident,

Thank you for getting in touch. I'm sorry for the ongoing inconvenience, and I want to reassure you that we have raised the matter with the contractor again and asked for it to be addressed as soon as possible.

We understand your frustration and will continue to monitor the situation closely. Please be assured that we are doing what we can to press for a prompt resolution.



AI-Assisted Case Management

Intelligent decision support reshapes service delivery — responsibly, transparently, and with humans firmly in control.

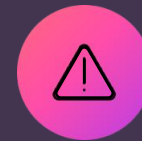
AI Classification Function

When a resident submits a case, AI immediately analyses the text to surface structured recommendations — reducing manual triage time and improving consistency.



Case Category

Suggests the primary and sub-category based on the submitted text



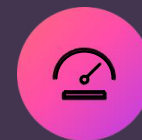
Priority & Severity

Flags urgency level to help officers allocate resources appropriately



Handling Unit

Recommends the most appropriate team or department for assignment



Confidence Scores

Each suggestion includes a reliability indicator to guide officer judgement



AI Workflow Guidance

Contextual AI recommendations help officers navigate complex cases — without replacing their judgement.

i All recommendations are advisory. Officers retain full decision-making authority at every step.

→ Suggested Next Actions

Tailored steps based on the current case context and history

→ Tracks Status Changes

Prompts officers when a status update is made

→ Escalation Indicators

Highlights cases that may require notifying relevant agencies

AI-Assisted Resident Communication

Drafting responses is one of the most time-consuming tasks in case management. AI reduces that burden while raising the quality of every reply.

Clearer, Empathetic Drafts

AI generates warm, professional responses tailored to the resident's concern

Consistent Structure

Ensures every communication follows an approved, readable format

Faster Routine Replies

Reduces time officers spend drafting standard responses — freeing focus for complex cases





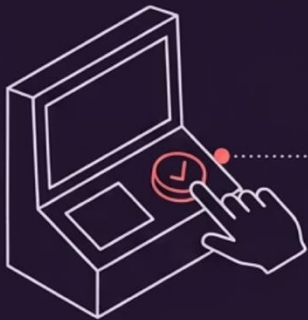
LOGGED AI ACTIONS

Detailed audit trail of all actions.



OFFICER OVERRIDES

Every deviation recorded and tracked.



HUMAN-IN-THE-LOOP

Critical decisions require human check.



GOVERNANCE ALIGNMENT

Accountability for officers to standards.

AI Governance & Control

Responsible AI deployment in the public sector demands more than good intentions — it requires structural safeguards built into the system from day one.

Every AI action is explicitly logged. Officer overrides are captured in the audit trail. The human-in-the-loop design ensures no decision is taken without officer authorisation.



This governance model aligns with public sector accountability requirements and supports future compliance reviews.

Key Lessons Learnt

Three principles emerged consistently across the project — shaping both the design approach and the path forward.

```
# -----
# [X] AI rewrite helper (ADD THIS HERE)
# -----
#
def rewrite_action_notes_for_resident(action_notes: str) -> str:
    """
    Rewrites internal officer notes into a resident-friendly update.
    Safe fallback if AI is unavailable.
    """
    if not action_notes or not action_notes.strip():
        return action_notes

    try:
        import os
        from openai import OpenAI

        client = OpenAI(api_key=os.getenv("OPENAI_API_KEY"))

        prompt = (
            "You are a Town Council officer writing an email update to a resident.\n\n"
            "Rules:\n"
            "- Do NOT copy or reuse the officer's wording\n"
            "- Write in clear, polite, reassuring language\n"
            "- Maximum 2 short paragraphs\n"
            "- Do not include internal or technical details\n\n"
            "Internal officer notes for context only:\n"
            f"{action_notes}"
        )
```

Decision Support, Not Automation

AI delivers the greatest value when it augments officer capability — not when it attempts to replace human reasoning. Automation without context creates risk.

AI Classification (Suggested)

The AI assessment below is based on the resident description shown above.

AI Classification Result

Category: Lift/Elevator

Sub-category: Lift door malfunction / closing too quickly

Priority: High

Severity: Major

Handling Unit: Lift Maintenance Contractor

Confidence: 96%

Transparency Builds Trust

Officers engage more confidently with AI suggestions when they could see confidence scores and understand the basis for each recommendation.

Case Progress

[X] AI classification completed
2026-04-17T16:46:11
AI classified issue as Lift / Elevator (96% confidence)

[X] Admin Category Update
2026-04-17T16:46:17
Category set to Plumbing

[X] Officer overrode AI category
2026-04-17T16:46:17
Category changed from 'Lift / Elevator' (AI suggestion) to 'Plumbing'.

[X] Admin Category Update
2026-04-17T16:46:26

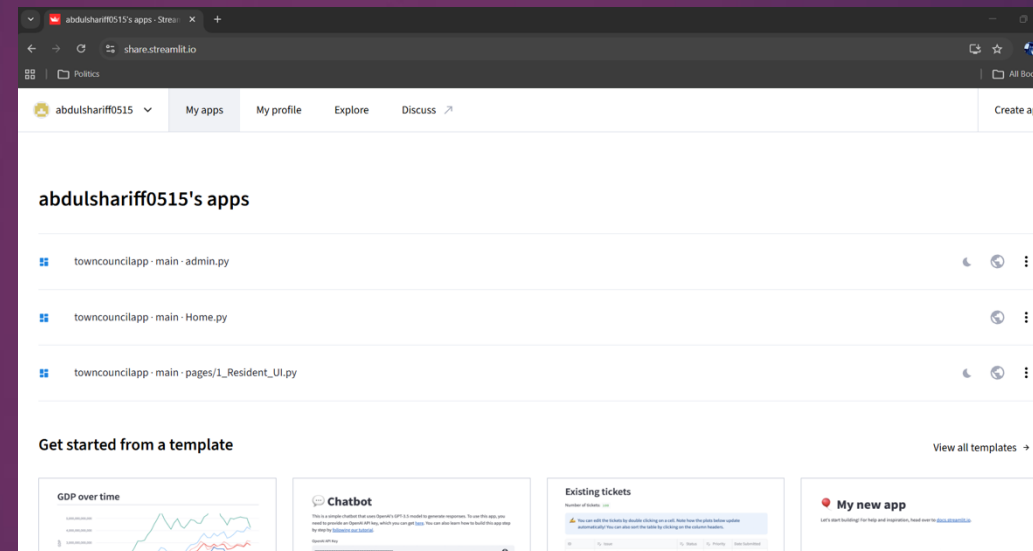
Governance Must Be Foundational

Accountability features cannot be retrofitted. Logging, override tracking, and audit trails must be designed in from the outset — not added as an afterthought.

Technical Lessons

Building and deploying the prototype surfaced practical insights that will directly inform the next phase of development.

main	1 Branch	0 Tags	Go to file	Add file	Code
AbdulShariff0515	Integrate AI for resident-friendly action notes	b1c2880 · yesterday	39 Commits		
components	Components	last week			
data	Data file	2 days ago			
pages	Update 2_Admin_Dashboard.py	2 days ago			
utils	Case Action	2 days ago			
.gitignore	Added .streamlit and .env	3 weeks ago			
Home.py	Initialize Home.py with Streamlit setup	last month			
README.md	Initial commit	last month			
ai_classification.py	AI Classification	last week			
db.py	Add function to save case action and notify resident	2 days ago			
email_utils.py	Refactor email utility functions and add case update	2 days ago			
notifications.py	Integrate AI for resident-friendly action notes	yesterday			
requirements.txt	Add python-dotenv and openai to requirements	last month			
workflow.py	Add files via upload	last month			



1 Module Boundaries Matter

Clear separation between system components significantly reduced integration and deployment complexity

2 Cloud Deployment Is a Reality Check

Moving to a live cloud environment exposed real-world constraints not visible in local testing

3 Small Errors, Large Impact

Minor design inconsistencies — seemingly trivial — proved capable of causing significant runtime failures

Current Prototype Limitations

The prototype is a proof of concept. Understanding its boundaries is essential for any evaluation or transition to production.

System Limitations

Not Production-Ready

Requires further hardening before operational deployment

Single-Instance SQLite

Database architecture is not designed for concurrent multi-user environments

No Authentication Hierarchy

Role-based access control and user permission tiers are not yet implemented

AI-Specific Limitations

Prompt Quality Dependency

Output reliability is sensitive to how inputs are structured and framed

Edge Case Accuracy

Models are not fine-tuned on real operational data — atypical cases may yield lower accuracy

Bias & Monitoring Risk

Without continuous oversight, subtle biases may emerge and go undetected



Future System Enhancements



Operational Integration

Connect with Town Council core systems for seamless, end-to-end case handling



Reporting & Analytics

Enhanced dashboards to support performance monitoring and service improvement



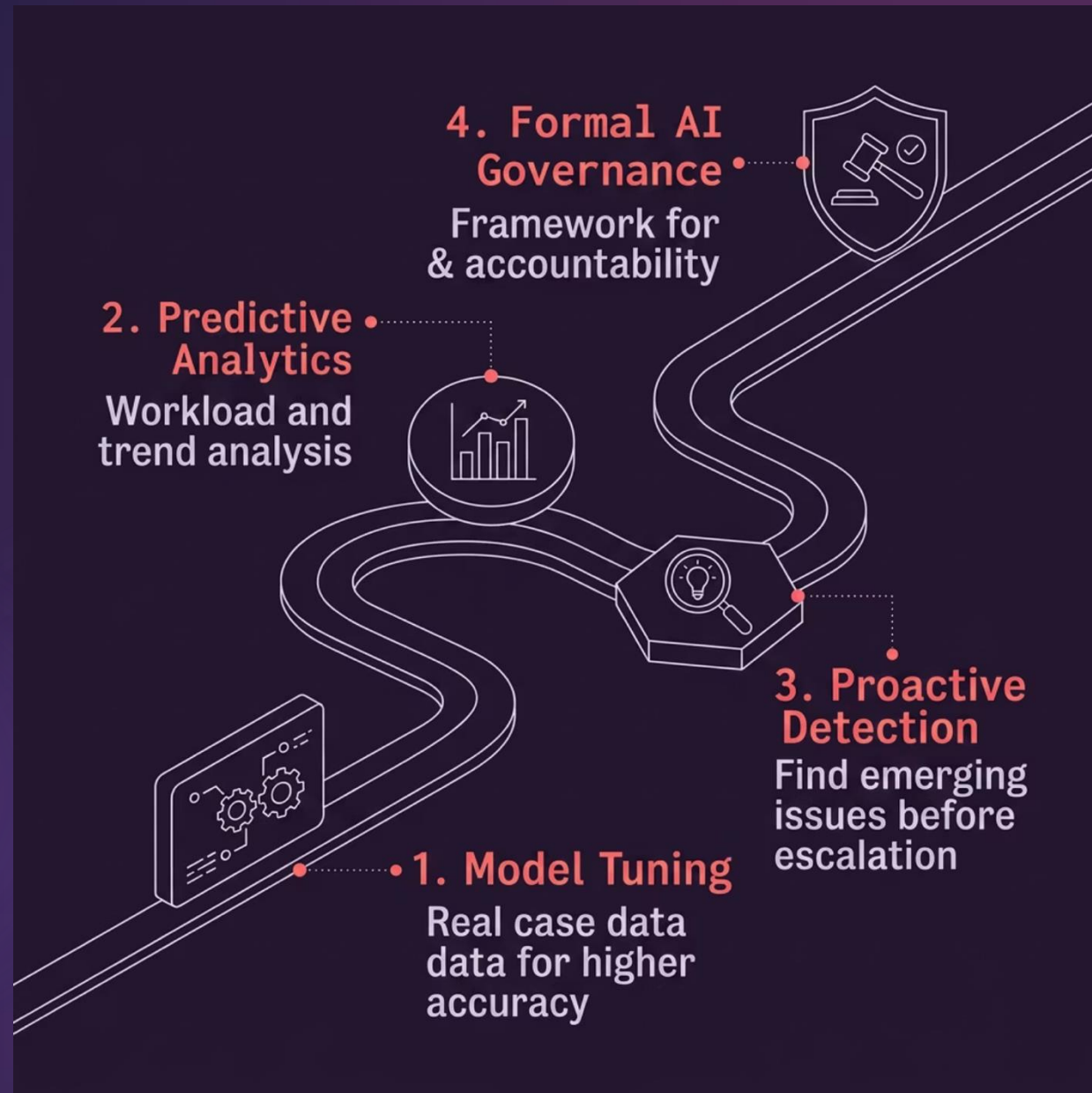
Multi-Language Support

Enable residents to submit feedback in their preferred language, improving accessibility



Role-Based Access Control

Tiered permissions to enforce governance and restrict data access by role



Conclusion & the Path Forward

The roadmap ahead focuses on deepening AI capability while maintaining the governance standards that make it trustworthy in a public sector context.

This prototype demonstrates how AI can responsibly improve public sector service delivery — while keeping human accountability firmly at the centre.

Improved Model Tuning

Fine-tuning on real case data will materially improve classification and recommendation accuracy

Predictive & Proactive AI

Moving from reactive support to anticipating workload pressures and emerging service issues



Thank You

ABDUL SHARIFF ABOO KASSIM

KAM ZHI HAO

ISABELLE KHANG HUI WEN

SITI SALWA ABDUL RAHIM