Hands-on Application of Generative AI Tools (Workflow Automation and Content Creation)

KOICA-ESCAP Joint Capacity Building Training Programme on
Digital Technologies for Addressing Climate Change Impacts in the Pacific
20 – 30 October 2026
Brisbane, Australia

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Part 1. Theory and Examples

Hands-on Application of Generative AI Tools (Workflow Automation and Content Creation)

Day 2 Practice 2

30-Minute Theory and Examples + 50-Minute Exercise

Learning Outcomes and Session Plan

Learning outcomes

By the end of this practice, participants will be able to:

- design sequential prompt chaining
- eliminate manual transcription errors to ensure data integrity
- maintain multi-audience consistency across executive reports and public advisories
- apply human-in-the-loop (HITL) verification to prevent AI hallucinations
- streamline emergency communications to maximize operational efficiency

Session plan

- Theory and examples: 30 minutes
- Guided exercise: 50 minutes

Operational Scenario

- Transforming unstructured post-disaster satellite-phone field assessments into multi-channel public and administrative communications



Institutional Data Security Policy

- Never copy, paste, or upload real citizen names, exact coordinates of sensitive infrastructure, classified or restricted documents, or unannounced internal government databases into a public AI service.
- This exercise uses only synthetic data. Participants must use approved institutional systems and data-handling procedures for real government work.



Core Concept: Multi-Step AI Workflow Design

- Instead of issuing isolated, individual prompts, workflow automation uses a sequential prompt chain within a single chat thread:

```
[Raw Field Notes] ➔ (Prompt 1: Structure & Summarize) ➔
[Executive Summary Table] ➔ (Prompt 2: Adapt Content) ➔
[Public Advisory Post] ➔ [Human Verification Audit]
```

The Necessity: Why Move Beyond Single Prompts?

Relying solely on single, standalone prompts in high-stakes operational environments introduces critical limitations. Implementing multi-step workflow chains addresses these challenges directly:

- Eliminates Manual Transcription Errors
- Maintains Multi-Audience Consistency
- Maximizes Operational Efficiency

The Necessity: Why Move Beyond Single Prompts?

Eliminates Manual Transcription Errors: Manually copying, pasting, or formatting corrupted datasets across multiple tools creates room for human error. Automated chaining ensures data consistency straight from raw notes to final deliverables.



The Necessity: Why Move Beyond Single Prompts?

Eliminates Manual Transcription Errors

Real-World Example:

- When an official manually copies and types numbers from raw field notes into an Excel spreadsheet or report, they might accidentally mistype "14 households" as "41 households" or omit a critical figure.
- With sequential prompt chaining, the AI directly reads and structures the raw data, preventing human errors caused by manual copy-pasting or re-typing.

The Necessity: Why Move Beyond Single Prompts?

Maintains Multi-Audience Consistency: Complex crises require translating technical data into different formats (e.g., executive tables, technical extension briefs, and public social media alerts). A sequential workflow ensures that every communication stems from the exact same verified baseline data.



The Necessity: Why Move Beyond Single Prompts?

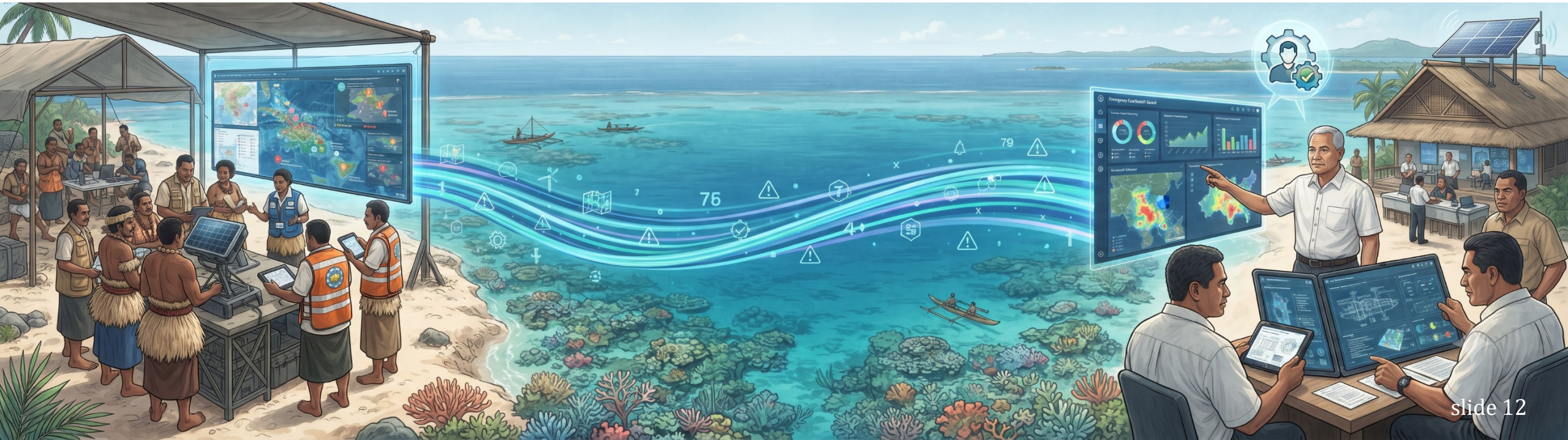
Maintains Multi-Audience Consistency

Real-World Example:

- When handling the same disaster field data, you may need to produce both an executive summary report for ministry leadership and a public social media advisory for local residents.
- Using separate, disconnected chats can lead to contradictory information (e.g., stating the health team arrives on Tuesday in the report, but accidentally on Wednesday in the advisory).
- A single, continuous chat thread ensures that all deliverables stem from the exact same verified baseline data.

The Necessity: Why Move Beyond Single Prompts?

Maximizes Operational Efficiency: Streamlining multi-stage tasks into a unified chat thread saves valuable time during urgent scenarios, allowing officials to focus on strategic decision-making and human-in-the-loop verification rather than tedious manual formatting.



The Necessity: Why Move Beyond Single Prompts?

Maximizes Operational Efficiency

Real-World Example:

- In a high-stress, time-sensitive emergency situation where communication channels are constrained, constantly opening new chat windows and re-typing long background contexts (“Here is our island's raw field data...”) wastes precious time and energy.
- By keeping the conversation in the same thread, you can simply issue a quick, concise follow-up command like, "Now convert those urgent items into a Facebook advisory,” allowing officials to focus on rapid decision-making rather than repetitive formatting.

Exercise: Scenario Background

- During an extreme weather event on “Island X,” an officer in the field transmitted the following raw, unorganized notes via satellite phone:

```
Raw Notes: Sector 4 bridge washed out. 14 households moved to
high school evacuation center. Water supply contaminated by sea
surge. Need water purification tablets urgently. Health team
arriving Tuesday. Infrastructure repair delayed by high winds.
```

- You can modify/upgrade the raw notes if necessary.
- Set your raw notes.

📐 Step 1: Data Summarization & Structuring (Cabinet Briefing)

- Open your designated AI chat interface. Copy and paste the raw field notes into the chat window alongside the following prompt (prompt 1).

  “Act as an emergency communications officer. Review the raw field notes below collected from Island X and format them into a structured Executive Summary table containing exactly three columns: [Sector Affected], [Current Status], and [Urgent Action Items]."

  Raw Notes: Sector 4 bridge washed out. 14 households moved to high school evacuation center. Water supply contaminated by sea surge. Need water purification tablets urgently. Health team arriving Tuesday. Infrastructure repair delayed by high winds.

Step 1: Data Summarization & Structuring (Cabinet Briefing)

- Verify Output: Ensure the AI created a clear 3-column table categorizing infrastructure, Housing/Evacuation, Water & Sanitation, and Public Health.
- Output Notes:

Sector Affected	Current Status	Urgent Action Items
Infrastructure / Transport	Sector 4 bridge washed out; repairs delayed by persistent high winds.	Coordinate alternative transport routes; clear debris once high winds subside.
Housing & Evacuation	14 displaced households relocated to high school evacuation center.	Assess resource needs (food, bedding, hygiene) at the school center.
Water & Sanitation	Primary water supply contaminated by severe sea surge.	Dispatch and distribute water purification tablets immediately.
Public Health	Medical health response team scheduled to arrive on Tuesday.	Prepare local receiving area and briefing materials for incoming medical team.

📐 Step 2: Content Transformation (Public Advisory)

- In the exact same chat thread (do not start a new conversation), type and submit the following prompt (prompt 2):

  ```
  Now, convert the ‘Urgent Action Items’ from that table into an official Facebook advisory warning local residents about water safety. Keep it under 100 words, use clear action points, and include relevant emojis for readability. Do not mention specific village names that are not in the raw data.
  ```

- Observer Context Retention: Notice how the AI automatically uses the water contamination details and actions identified in Step 1 without needing you to re-paste the notes.

📐 Step 2: Content Transformation (Public Advisory)

- Output Notes:

🚨 URGENT PUBLIC WATER ADVISORY FOR ISLAND X 🚨

Following recent sea surges, our primary water supply is heavily contaminated with saltwater. Please follow these critical safety rules immediately:

* 💧 DO NOT drink untreated water from the main supply.

* 💊 USE TABLETS: Water purification tablets are being distributed immediately. Use them for all drinking and cooking water.

📐 Step 2: Content Transformation (Public Advisory)

- Continued.

  * 🏫 EVACUATION UPDATE: 14 households are safely at the high school center.
  * 🩺 HEALTH TEAMS: A medical response unit arrives this Tuesday.

  Stay safe, look out for your neighbors, and boil water if purification tablets are unavailable!

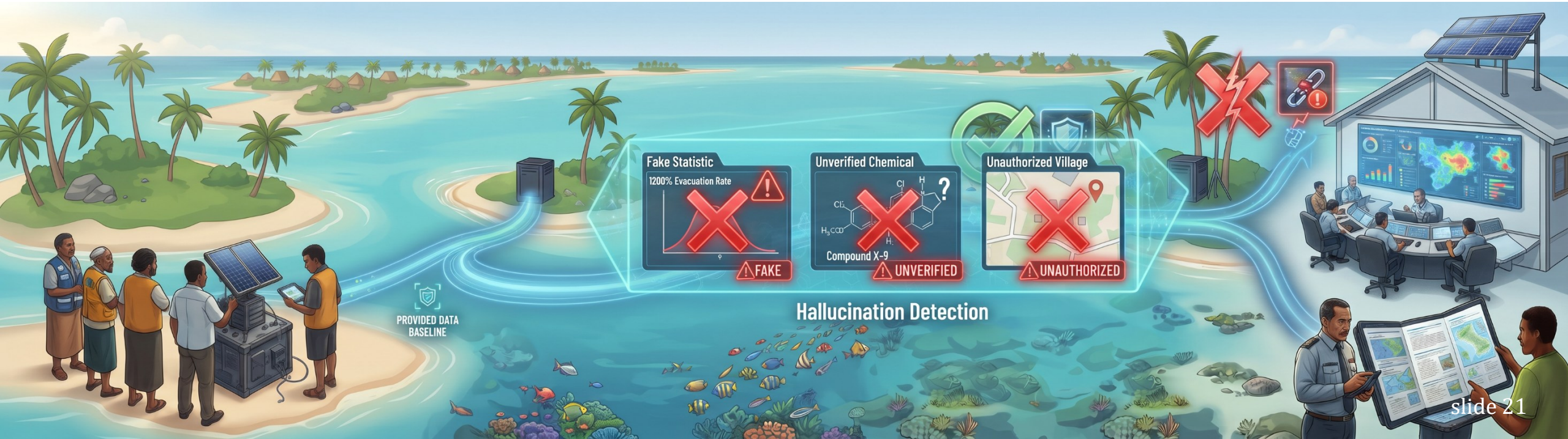
Step 3: Human-in-the-Loop Verification Audit

- Before approving any AI-generated communication for public release, complete the auditing checklist below:

Audit Checklist Item	Verification Question	Status (Pass / Fail)
Metrics Check	Did the AI preserve the exact number of households (14)?	[ ] Pass [ ] Fail
Timeline Check	Did the AI correctly retain Tuesday as the health team arrival day?	[ ] Pass [ ] Fail
Hallucination Check	Did the AI invent unverified facts (e.g., specific village names, unmentioned damage)?	[ ] Pass [ ] Fail
Constraint Check	Is the public advisory brief (under 100 words) and formatted with emojis?	[ ] Pass [ ] Fail

Step 3: Human-in-the-Loop Verification Audit

- **Hallucination Detection**: The AI successfully stayed within the boundaries of the provided background data. It did not invent fake scientific statistics, mention unverified chemical names, or fabricate a specific real-world village name that was not authorized.





Part 2. Guided Exercise

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Day 2 Practice 2

30-Minute Theory and Examples + 50-Minute Exercise

📐 Guided Exercise: Agricultural & Infrastructure Assessment

- Raw Field Notes

  High tide and wave surge flooded Sector 2 coastal taro patches. 2.5 hectares of crops showing yellowing and root rot due to salinity. Community solar-powered desalination pump damaged by debris. Emergency fuel reserves for backup generator down to 15%. Need replacement pump parts and agricultural soil flushing advisors by Thursday.

📐 Task 1: Data Summarization and Structuring

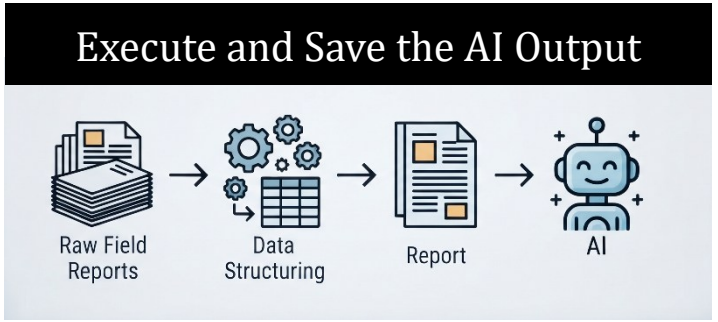
- Open your designated AI chat interface, and copy and paste the raw field notes along with the first prompt.
- Prompt 1:

```
"Act as an agricultural disaster analyst. Review the raw field notes below collected from Island Y and format them into a structured Executive Summary table containing exactly three columns: [Sector Affected], [Current Status], and [Urgent Action Items]."
```

Task 2: Content Transformation

- In the exact same chat thread (do not start a new conversation), type and submit the second prompt:
- Prompt 2:

```
"Now, convert the 'Urgent Action Items' from that table into an official technical advisory for local agricultural extension officers and farmers. Keep it under 100 words, use clear bullet points, and focus on immediate recovery steps. Do not include external locations or equipment types not mentioned in the raw data."
```



Task 3: Human-in-the-Loop Verification Audit

- Before sharing the generated summary and technical advisory with ministry leadership or field teams, complete the audit checklist below to check for accuracy and consistency.

Audit Checklist Item	Verification Question	Status (Pass / Fail)
Structure Accuracy Check	Did the executive summary table accurately include the requested three columns ([Sector Affected], [Current Status], [Urgent Action Items])?	[ ] Pass [ ] Fail
Data Integrity Check	Were key facts from the raw notes (taro patch salinity, desalination pump damage, 15% fuel reserve, Thursday deadline) reflected without omission?	[ ] Pass [ ] Fail

to be continued.

Task 3: Human-in-the-Loop Verification Audit

- Continued.

Audit Checklist Item	Verification Question	Status (Pass / Fail)
Format & Length Check	Is the technical advisory under 100 words with clear bullet points for agricultural extension officers?	[ ] Pass [ ] Fail
External Information Check (Hallucination)	Were no unverified machinery models, chemical names, or external village names added that were missing from the raw data?	[ ] Pass [ ] Fail

📐 Task 4: Your Own Data Practice and Autonomous Expansion

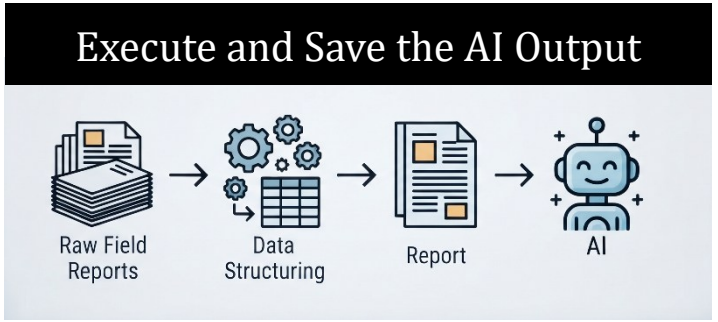
Create your own custom dataset based on a different disaster scenario (e.g., severe flooding, power outage, or water pipeline burst) and cyclically execute the full multi-step workflow:

1. Write Raw Field Notes: Draft 3 to 4 sentences of raw field observations representing a realistic emergency scenario on an island.
2. Execute Prompt 1 (Structuring): Input your raw notes into the AI chat thread along with a prompt to convert them into a structured 3-column Executive Summary table.

Task 4: Your Own Data Practice and Autonomous Expansion

Continued.

3. Execute Prompt 2 (Transformation): Without opening a new chat, instruct the AI to adapt the urgent items into a targeted communication (such as an SMS alert, a community bulletin, or an official briefing note).
4. Self-Audit: Review your final output using the Human-in-the-Loop verification checklist to ensure data security and accuracy.



Task 5: Peer Review and Cross-Model Reflection

Exchange your final outputs with a partner or small group to evaluate different AI behaviors, share insights, and finalize your workflow documentation:

1. Peer Validation: Compare your structured summary table and public advisory with a peer who used a different disaster scenario or a different generic AI platform.
2. Identify Variations: Discuss any minor formatting differences, wording choices, or potential hallucination risks encountered during the prompt chain.
3. Institutional Takeaways: Conclude with your group on how sequential prompt chaining and strict human-in-the-loop audits protect data integrity and streamline emergency response communications.

Thank you for your attention.

