The SGMA Data Series

What to Collect, Why it Matters, and How to Use It

Session 3

Storing and Managing Data

Where Your Data Lives & Why It Matters

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Introductions

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Session 2 Recap:
How to Collect the Right Data

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Data Collection Strategies

Manual:
The Baseline

Hybrid:
Digitizing Workflows

Automated:
Streamlining the Process

Manual Collection

- Data Entry Issues
- Process Inefficiencies
- Data Quality Challenges
- Compliance and Scalability

Hybrid: Digitizing Manual Workflows

- Single Point of Entry
- Less Staff Time
- Data Validation
- Relational Database

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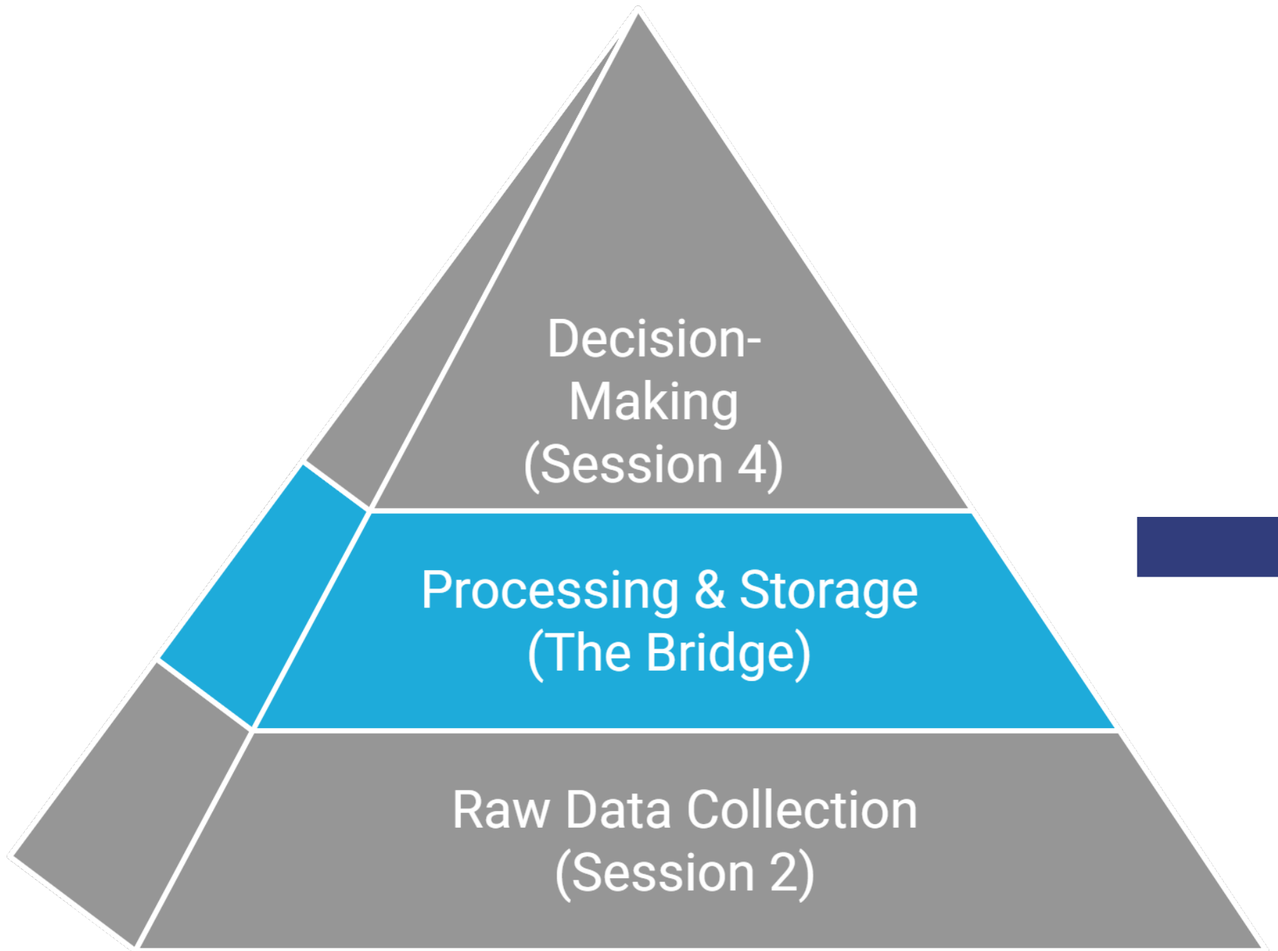
From Collection to Decision-Making



We often focus on getting the data **(Collection)** or the final report **(Decision).**

But without robust **Storage,** the path between the two is broken.

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From Chaos to Clarity

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Why Data Storage is a Hidden SGMA Risk

Bad storage isn't just an IT nuisance; it is a compliance and implementation challenge.

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How Are You Storing Your Data?

Spreadsheets & Shared Drives
The default starting point.

Consultant-Owned Systems
Data lives with the vendor.

Local Databases
Custom, on-premise solutions.

Cloud Platforms
Centralized, accessible systems.

There is no 'perfect' system, but there are necessary trade-offs for every stage of SGMA maturity.

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Spreadsheets: Familiar, Flexible, Fragile

Pros:
- Easy to start
- Lowcost
- Widely understood

Cons:
- Nightmare version control
- Manual rollups prone to human error
- Zero audit trail

Spreadsheets scale effort, not insight.
They break as data volume increases.

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When Data Lives Outside the GSA

Consultant Systems:

- Low internal workload, but limited ownership.
- If the consultant leaves, the data strategy often leaves with them.

Local Databases:

- Powerful but brittle.
- Often reliant on the institutional knowledge of one specific staff member.

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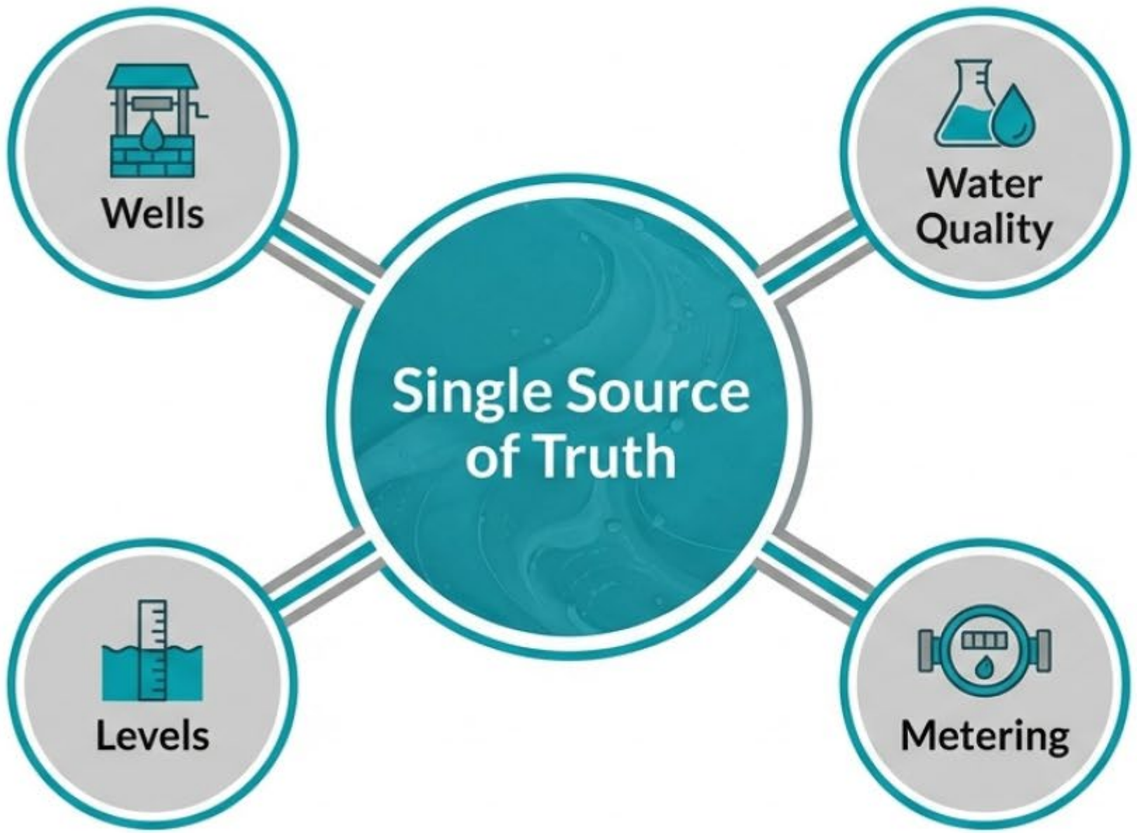
Databases: Centralization as a Foundation



Benefits

- **Single Source of Truth:** Everyone looks at the same numbers.
- **Built-in Validation:** The system catches errors, not the user.
- **Accessibility:** Staff and Board can answer questions without digging through emails.

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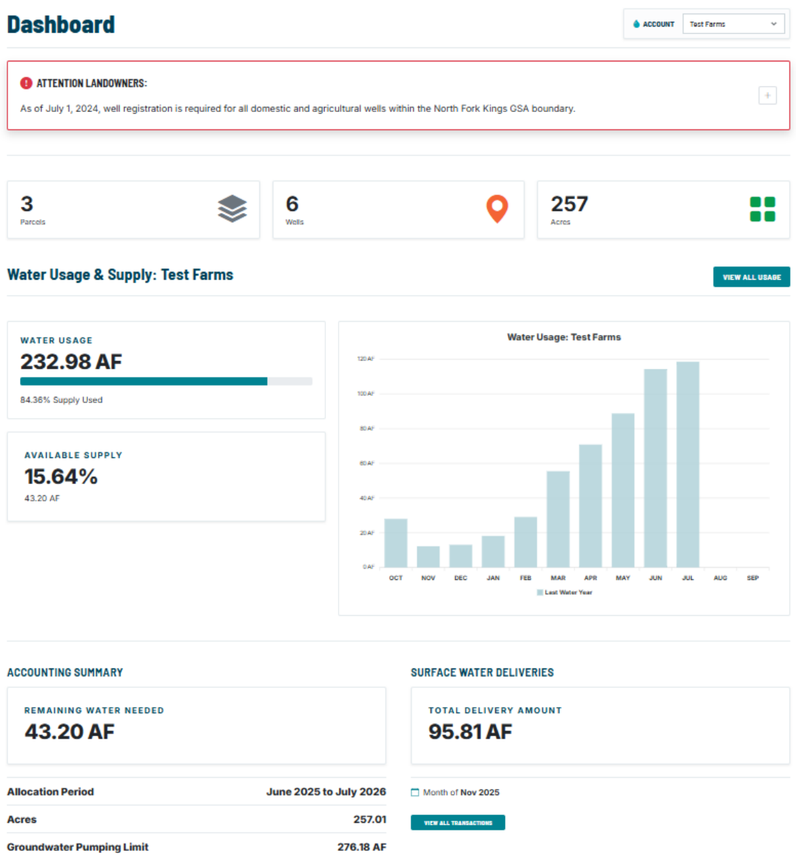
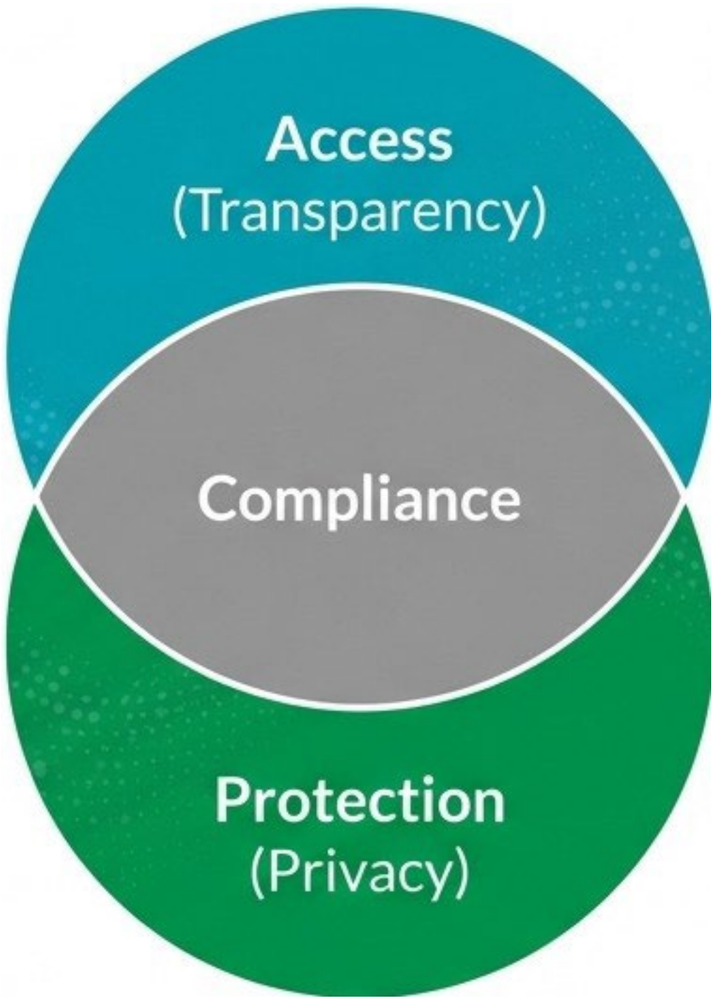
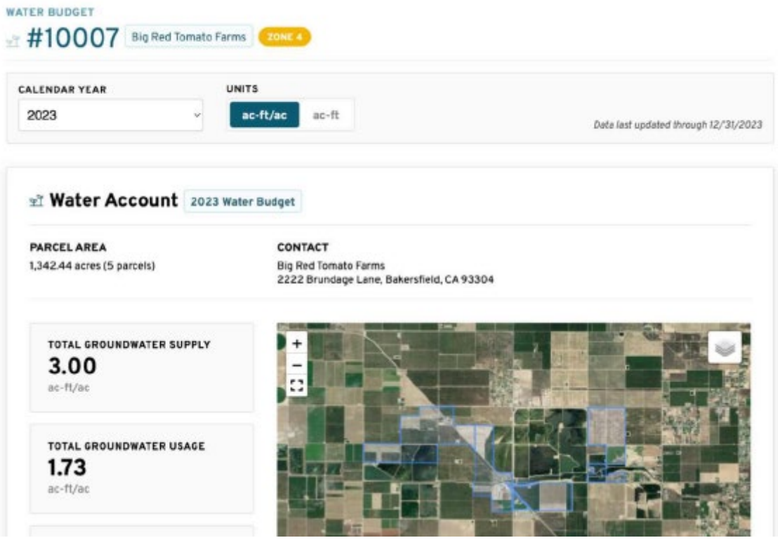
Cloud-Based Platforms: Security Meets Access







Landowner data ≠Public data. Role-based access allows specific transparency for regulators without exposing sensitive private details to the public.

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Cost Tradeoffs of Data Storage Options

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Leveraging AI

AI-DRIVEN SGMA DATA MANAGEMENT: FROM COST BARRIER TO EFFICIENCY DRIVER

Modern AI and automation tools (like OCR and automated validation) have shifted the landscape, reducing long-term costs, minimizing staff burden, and mitigating risks for GSAs.

TRADITIONAL CLOUD SYSTEMS

Manual & Resource Intensive

- **Manual / Labor Intensive:** Data entry and error-checking rely on human effort.
- **High Long-Term Staff Expense:** Significant ongoing personnel costs for data tasks.
- **High Risk (Human Error / Bottlenecks):** Vulnerable to manual mistakes and workflow delays.

AI-ENABLED CLOUD SYSTEMS

Automated & Efficient

- **Automated Ingestion & OCR:** AI tools replace manual data entry and error-checking.
- **Reduced Staff & Resource Burden:** Automation handles repetitive tasks, freeing up team focus for implementation.
- **Lower Risk & Long-Term Cost Mitigation:** Modern systems lower total cost of ownership by reducing human error and workflow bottlenecks.

CHALLENGE OUTDATED ASSUMPTIONS: Avoid rejecting modern systems based on historical high costs of manual setups.

Manual Process	**Data Entry**	Automated OCR
High Staff Expense	**Cost Profile**	Reduced Operational Costs
High Risk	**Risk Level**	Lower Risk (Validation)

CONSULTANT ACCOUNTABILITY: Ask consultants how they specifically leverage AI to improve efficiency and cost-effectiveness.

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Why Traceability Matters

Can you answer: "Who changed this number, when did they change it, and why?"

Board Confidence
(Evidence-based)

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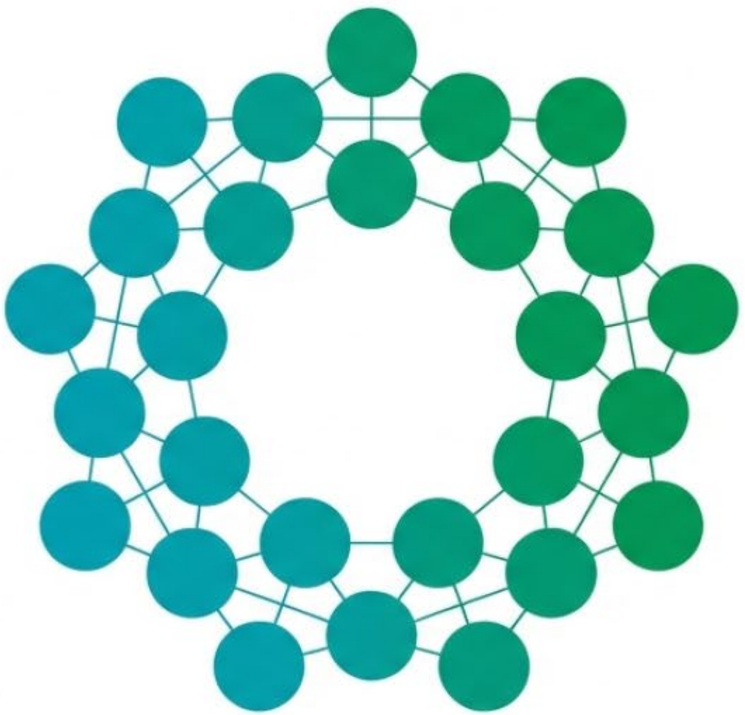
Good Management is About Relationships

It's not just about where the file is saved. It's about how the data points relate to one another.

Data in Files

Data in Relationship



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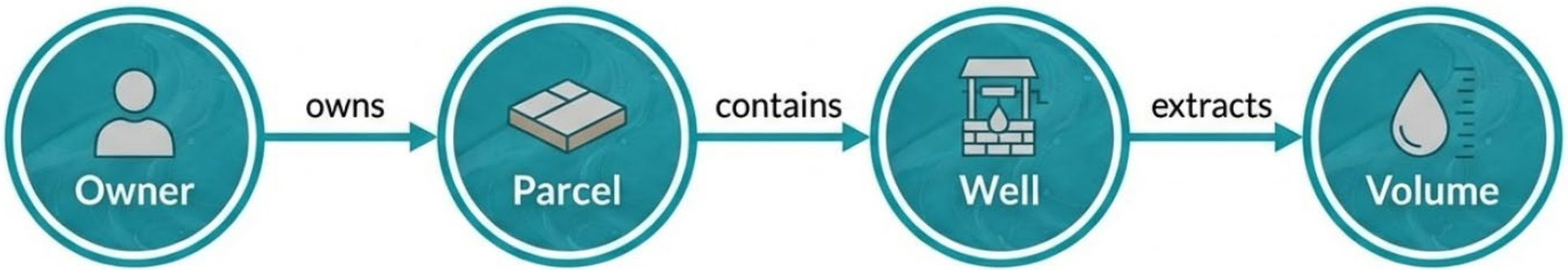
SGMA Decisions Depend on Connections



You cannot calculate an allocation without **linking** the **Parcel** to the **Account.**
Flat spreadsheets break these links; **relational** databases enforce them.

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GSA Administrator View

Configure Allocation

VERSION HISTORY

Configuration Name ⓘ

Allocation Period ⓘ

11/08/2025 — 11/08/2026

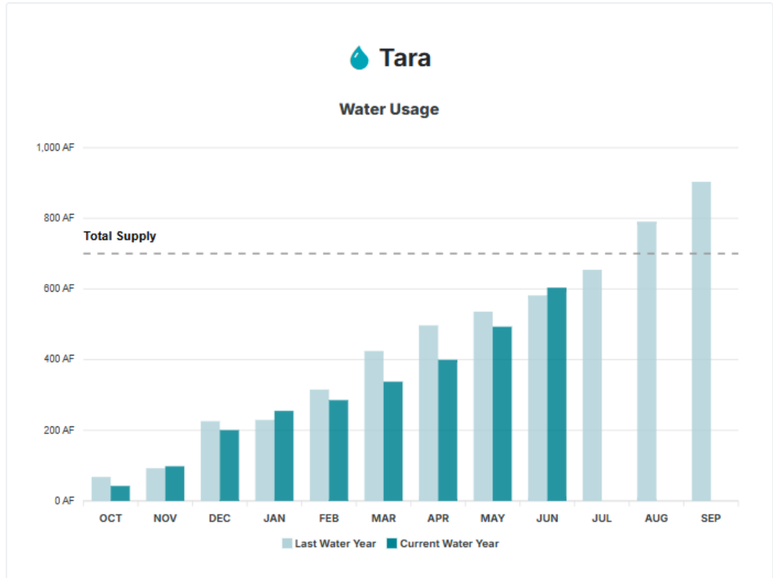
Native Sustainable Yield

Category	Allocation Factor
Native Groundwater ⓘ Assessed Acres × Native Groundwater AF	0
Abandoned Surface Water	0
River Seepage	0

Ramp Down Credit

Category	Allocation Factor
Ramp Down Credit	0

End-User View



Retrofitting structure later is painful and expensive. Static systems struggle in a dynamic SGMA world.

Design for Where You Are Going

Future Use Cases

- Water Allocations & Budgets
- Credits & Trading Markets
- Fee Assessments & Billing
- Enforcement Actions

A Quick Check

Is there a single source of truth, or multiple 'final' files?

Can you trace a reported number back to its raw source?

Can staff answer Board questions in minutes, not days?

Can your system handle a policy change without being rebuilt?

If not, it may be time to evolve your data strategy.

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From Data Storage to Data Action

Looking Ahead to Session 4: Using your data and tools for water accounting, allocations, and decision-support.

The goal isn't just to store data. It's to turn that science into solutions.

The SGMA Data Series

What to Collect, Why it Matters, and How to Use It

Next Time:

How to Use the Data

Questions?

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The Governance Questions Every GSA Must Answer

- 1.**Ownership:** Who officially owns the data?
- 2. **Permissions:** Who can edit vs. who can only view?
- 3. **Protocols:** How are changes tracked?

Governance *is not software; it is the policy that software* must *enforce.*

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