Strategic Challenges Survey - Design & Rationale

Thesis Phase 2: Questionnaire Design

Link to Survey: https://forms.gle/cVHdBa4a6d2mgxJr6

1. Overview & Objectives

The second phase of this research involves a targeted quantitative survey titled *"Strategic Challenges in Cloud Systems & Data Architecture Evolution"*. The primary objective is to validate the theoretical friction points identified in Phase 1 (Literature Review) against real-world data from industry practitioners.

While Phase 1 established the "what" (the existence of challenges in Security, FinOps, and Interoperability), Phase 2 focuses on the "how much" (severity) and "where" (context). The survey is designed to move beyond anecdotal evidence and provide statistical backing for the hypothesis that current cloud data platforms suffer from significant fragmentation and governance overhead.

Specific research goals for this phase include:

1. **Correlating Maturity with Governance Challenges**: Determining if advanced architectures (e.g., Data Mesh) actually reduce friction or introduce new complexities.
2. **Quantifying "Hidden" Costs**: Assessing the impact of elusive metrics like "orphaned resources" and cognitive load on productivity.
3. **Identifying the Market Gap**: Discovering which "missing tools" practitioners prioritize, directly guiding the prototyping stage.

2. Methodology

Target Audience: The survey targets technical decision-makers and senior engineers (CTOs, Lead Architects, Heads of Data Governance) rather than junior developers. This ensures responses reflect a strategic, organizational view rather than just individual contributor pain points.

Privacy & Ethics: To encourage honest transparency regarding sensitive topics like security failures or wasted budget, the survey is strictly anonymous. No personally identifiable information or sensitive company data is collected.

3. Survey Structure & Analytical Rationale

The questionnaire is structured into four logical sections, each designed to test specific hypotheses.

Section 1: Demographics & Organizational Profile

- **Rationale**: To normalize the data. Responses regarding "cloud waste" or "governance difficulty" vary wildly between a 50-person startup and a 100,000-employee enterprise. Collecting role and headcount allows us to segment the analysis (e.g., *"Does FinOps maturity correlate with company size?"*).

Section 2: Architectural Maturity & Usage

- **Rationale**: To classify the respondent's technical environment. We need to distinguish between legacy on-premise constraints and modern cloud-native challenges.
- **Key Insight Sought**: By asking about their specific architecture (Data Lake vs. Lakehouse vs. Mesh) and cloud strategy (Single vs. Multi-Cloud), we can cross-reference significantly different friction points. For instance, we hypothesize that Multi-Cloud organizations will report higher difficulty in *IAM consistency* than Single-Cloud ones.

Section 3: Validating Friction Points

This section forms the core of the problem validation, using Likert scales to quantify subjective pain points.

- **Security Policies**: The goal is to measure the *operational burden* of security. If respondents rate "enforcing consistent policies" as highly difficult, it validates the need for the "Automated Policy Propagation" tool.
- **Governance in Decentralization**: We categorize the biggest challenges (IAM inconsistency vs. Visibility vs. Compliance) to pinpoint exactly *where* decentralization breaks down.
- **FinOps Maturity**: By classifying cost management into *Reactive* (Bill Shock), *Proactive*, or *Automated*, we assess the market readiness for automated cost-saving tools.
- **Orphaned Resources**: This directly validates the "AutoStop" prototype concept. If respondents indicate "Significant" waste from idle resources, the value proposition of an automated cleanup tool is confirmed.

Section 4: Interoperability & Vendor Lock-in

- **Rationale**: To understand the barriers to data liquidity.

- **Key Investigation**: We investigate whether *Egress Fees*, *Data Gravity*, or *Formats* are the primary blocker. Additionally, understanding the adoption of Open Table Formats (Iceberg/Delta) helps predict the future relevance of vendor-neutral tools.

Section 5: Prototype Discovery & Future Outlook

- **Rationale**: This is the "Call to Action" for Phase 3. Instead of guessing what to build, we explicitly ask practitioners which tool would provide the highest value.
- **Outcome**: The winning option among "Automated Policy Propagation," "Cost Anomaly Prevention," etc., will directly dictate the functional prototype developed in the final phase of this thesis.