Safetypedia: Crowdsourcing Mobile App Safety Labels

May 15, 2025

Lisa LeVasseur, Irene Knapp, Bryce Simpson, Saish Mandavkar, & George Vo

INTERNET
SAFETY
//LABS

A 501(c)3 non-profit organization 84-4115719

Agenda

1. ISL safety labels
2. Safetypedia pilot project
3. Results thus far
4. Discussion

Safety Labels

ISL Mobile App Safety Labels

Palm Beach County School Dist - Android
Education Technology > Community Engagement Platform
Owner: Intrado Corporation
Last Tested: April 18, 2022

Schools Using (2022): 1 Elem, 1 Middle, 0 High
Privacy Policy Covers Children Under 13: No

Score Triggers:
- High Risk SDK
- Webview
- Google
- Behavioral Ads
- Facebook
- Amazon
- Twitter
- Adobe
- MaxPreps

Very High Risk

App Safety Facts - Summary

PRIVACY RISKS — **8** 3rd Parties — **17** Permissions — Webview — Behavioral Ads

Observed Network Traffic	This App	App Category Average n=414
Aggregator Platforms	6	3.7
Total # of Companies	149	19.9
Data Broker Companies	30	2.2
Total # of Domains	482	57.9
Risky Domains	331	29.1
Data Broker Domains	24	3.7
Total # of SDKs	21	9.2
Risky SDKs	15	5.2
Data Broker SDKs	1	0.1

Risky Behaviors	This App	App Category %
Ads	Yes	23.2%
Behavioral Ads	Yes	11.1%
Webview	Yes	84.5%

User Data

Sensitive Permissions	Location, Phone Service, Physical Environment, Files, Join User Identifiers, User Behavior, Social Information

- ✓ Launched in 2023
- ✓ Objective reporting of safety & privacy risks in tech behavior.
- ✓ Independently tested.
- ✓ App behavior "ground truth".

Internet Safety Labs 2025

4
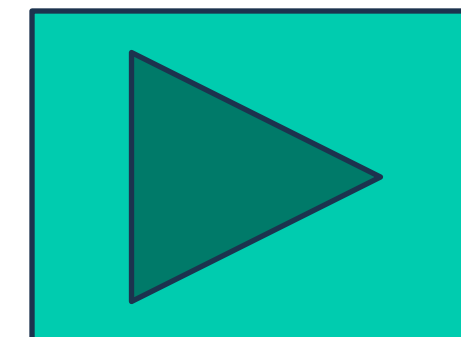
Safety Header

Brand Logo

Privacy Score | Autonomy Score | Security Score | Fairness Score | Info Score

Privacy Risks

Safety Risks Summary

Autonomy Risks

Security Risks

Fairness Risks

Product Info Errors & Omissions

Safety Risks Details

Privacy Risks

Autonomy Risks

5

Safetypedia Pilot

Pilot Project (Ongoing)

- Started November 2024
- 25 participants
  - University students, lawyers, privacy activists
  - No software expertise needed.
- 7 certified safety inspectors
- 161 apps inspected
  - **112 retested apps**
  - **49 new apps**
- 318 new subdomains
- 202 new companies
- 2 new SDKs

Safetypedia Pilot Process

Safetypedia Pilot Process (cont'd)

Internet Safety Labs 2025
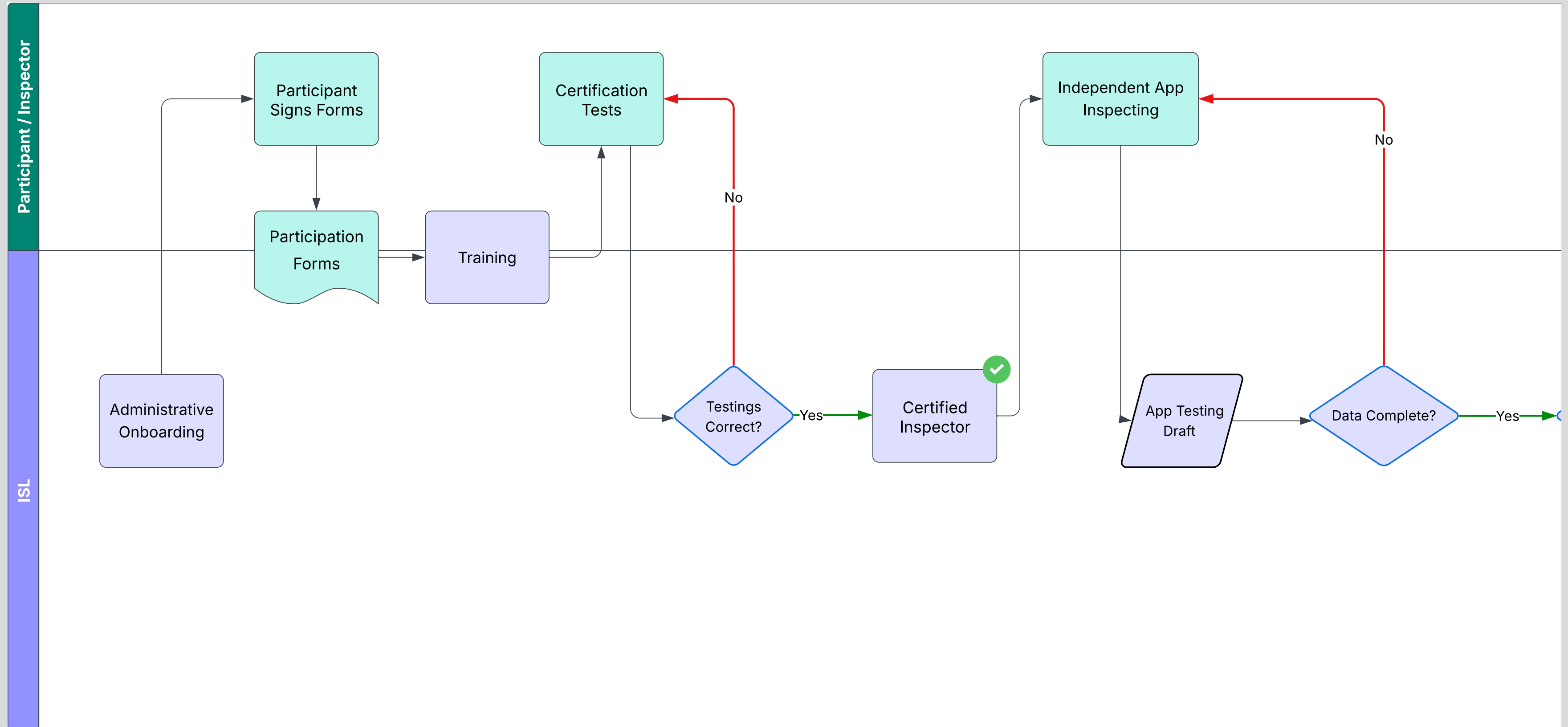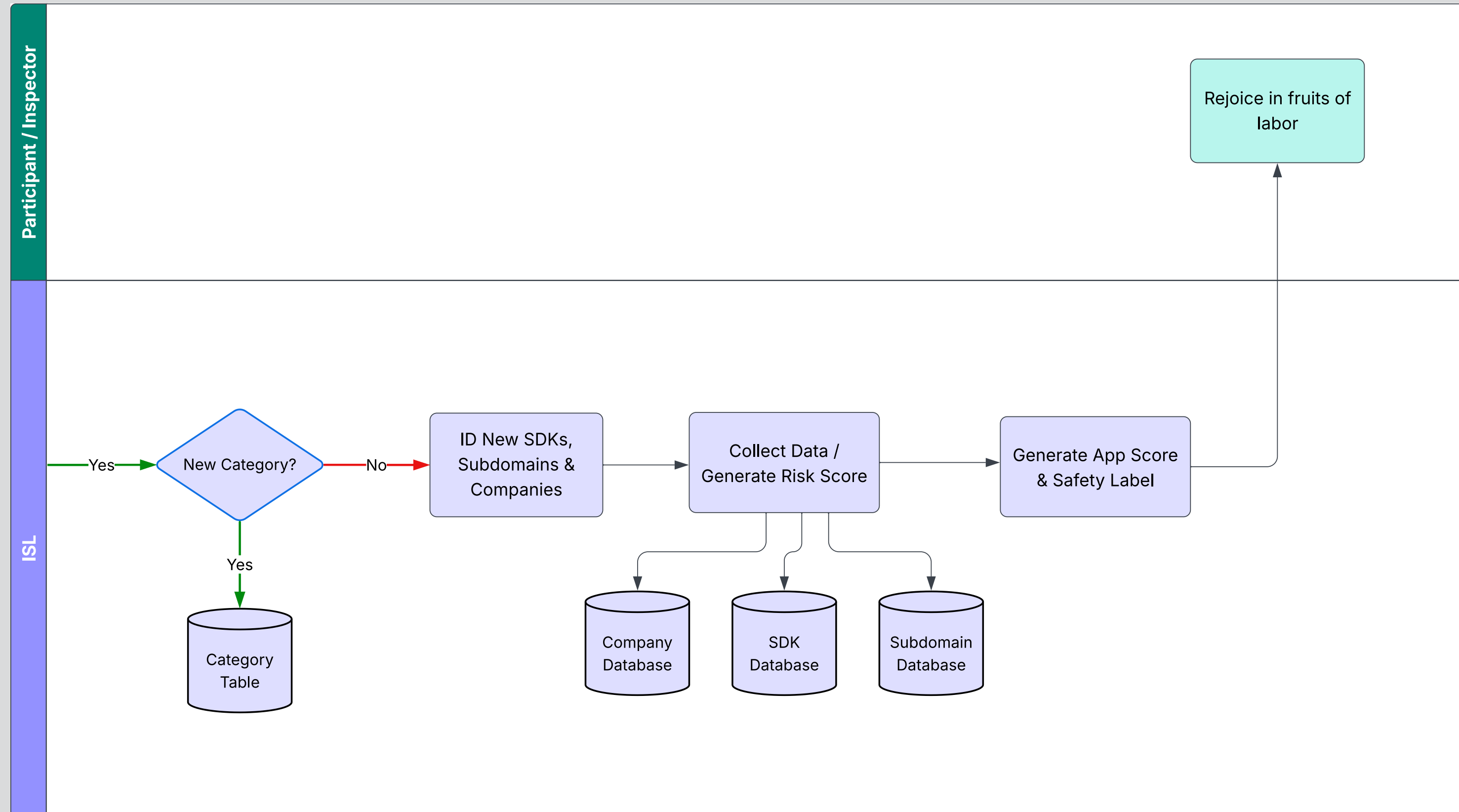
Learnings Thus Far

~~Learnings~~ **Challenges**

- Underestimated revisions to risk scoring
- Underestimated impact of manual data processing

Risk Scoring

- One taxonomy to rule them all: good idea or hubris?
  - Companies
  - Apps
  - SDKs
  - Subdomains
- Roll-up risk scoring is difficult
  - Problems with Impact * Likelihood
  - We keep peeling the onion—getting "smarter"
    - Don't want to keep changing scoring rubric.
    - But will it ever be "done"?

Risk Scoring (cont'd)

- App scores depend on
  - Company privacy scores (1st and 3rd parties)
  - SDK privacy risk scores
  - Subdomain privacy risk scores
- ~~Rescored~~ Rescoring every "Thing"
  - Companies, apps, SDKs, subdomains

Privacy Risk Evolution

- Originally just from SDKs and presence of "aggregator" traffic.

- Revised to reflect risk of subdomains observed in network traffic.

- Further revising to reflect risk of data elements shared per 3rd party (2026)

- Does it ever stop??

  - More nuance, more understanding, new risks

Discussion

Can crowdsourcing work as an effective tool for product safety transparency?

- So far, so good
  - Inspection data quality generally high.
- Haven't interviewed participants yet because safety label generation delays.
- Do we need manual testing once we have robust automation in place?
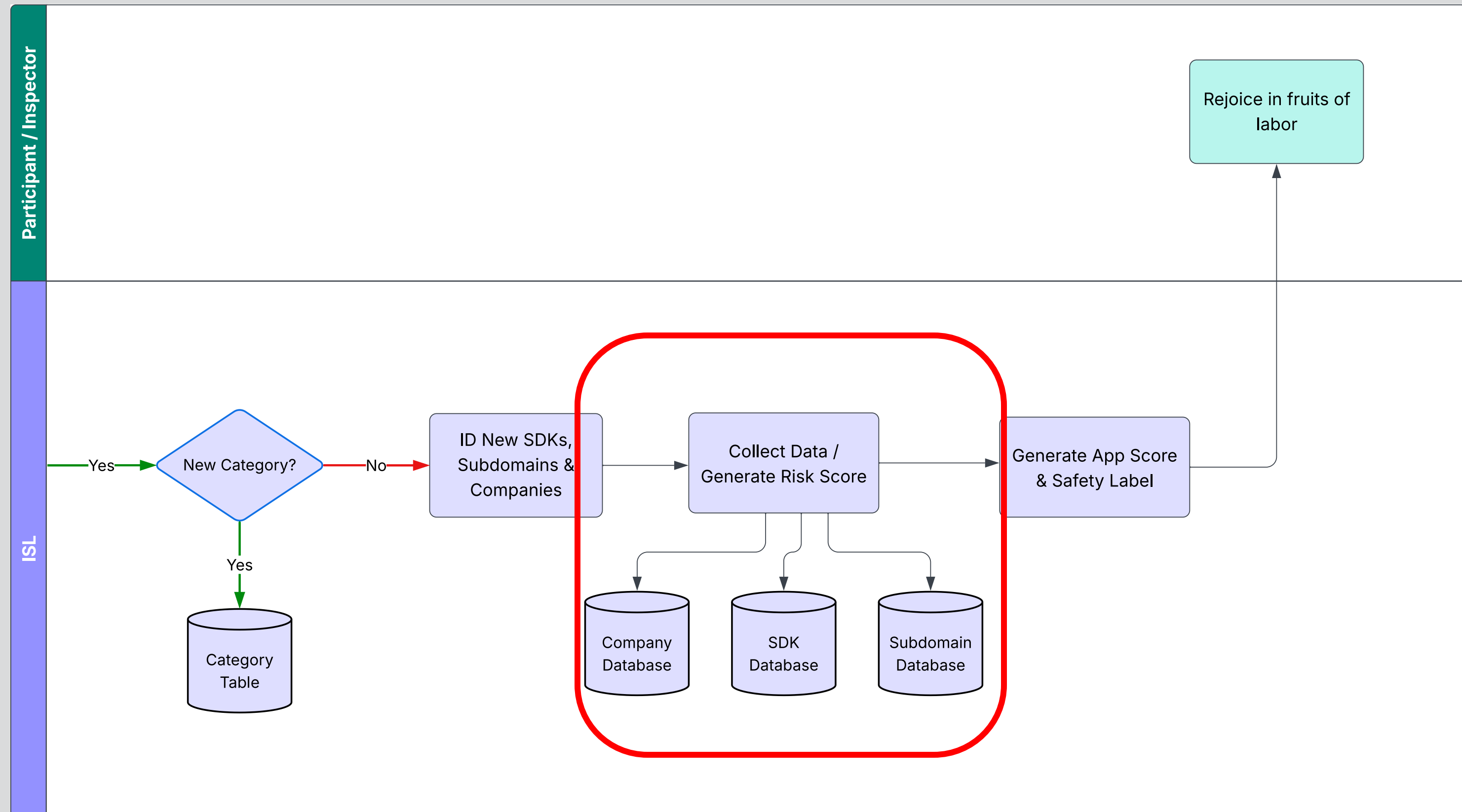
How to scale quality assurance?

- So far, not the long pole in post-inspection processing
- Some simple changes to the Safetypedia data collection portal.

How to automate data collection?

- Company data collection is the long pole.
  - Need company graphs
- External resources/tools
  - Exploring academic projects like ProperData
  - Exploring third party data partners for company data
- Bullish on LLMs for taxonomizing things
  - 3,009 Companies
  - 596 SDKs
  - 13,042 Subdomains

Manual Data Processing

Participant / Inspector

ISL

Yes → New Category? → No → ID New SDKs, Subdomains & Companies → Collect Data / Generate Risk Score → Generate App Score & Safety Label → Rejoice in fruits of labor

Yes ↓ Category Table

Company Database | SDK Database | Subdomain Database

Questions

- Can this be a thriving community over time?
  - ISL Certified Safety Inspectors
- How will that be better/worse than purely automated testing?
- Existing tools for low-cost **accurate** company data?
- Goal is instantaneous safety label generation.

Thank You!