

From Row-Level Accuracy to Operational Intelligence

How a technically correct automation platform failed its users — and the research, structural redesign, and AI-driven notification layer that turned data visibility into operational trust.

ROLE

Head of Product Design

TEAM

PM · 6 Engineers · Data Science · Enterprise Operations

SCOPE

Reconciliation workflows

Notification system

AI triage layer

A/B validation

Fund hierarchy

5% → 0.2%

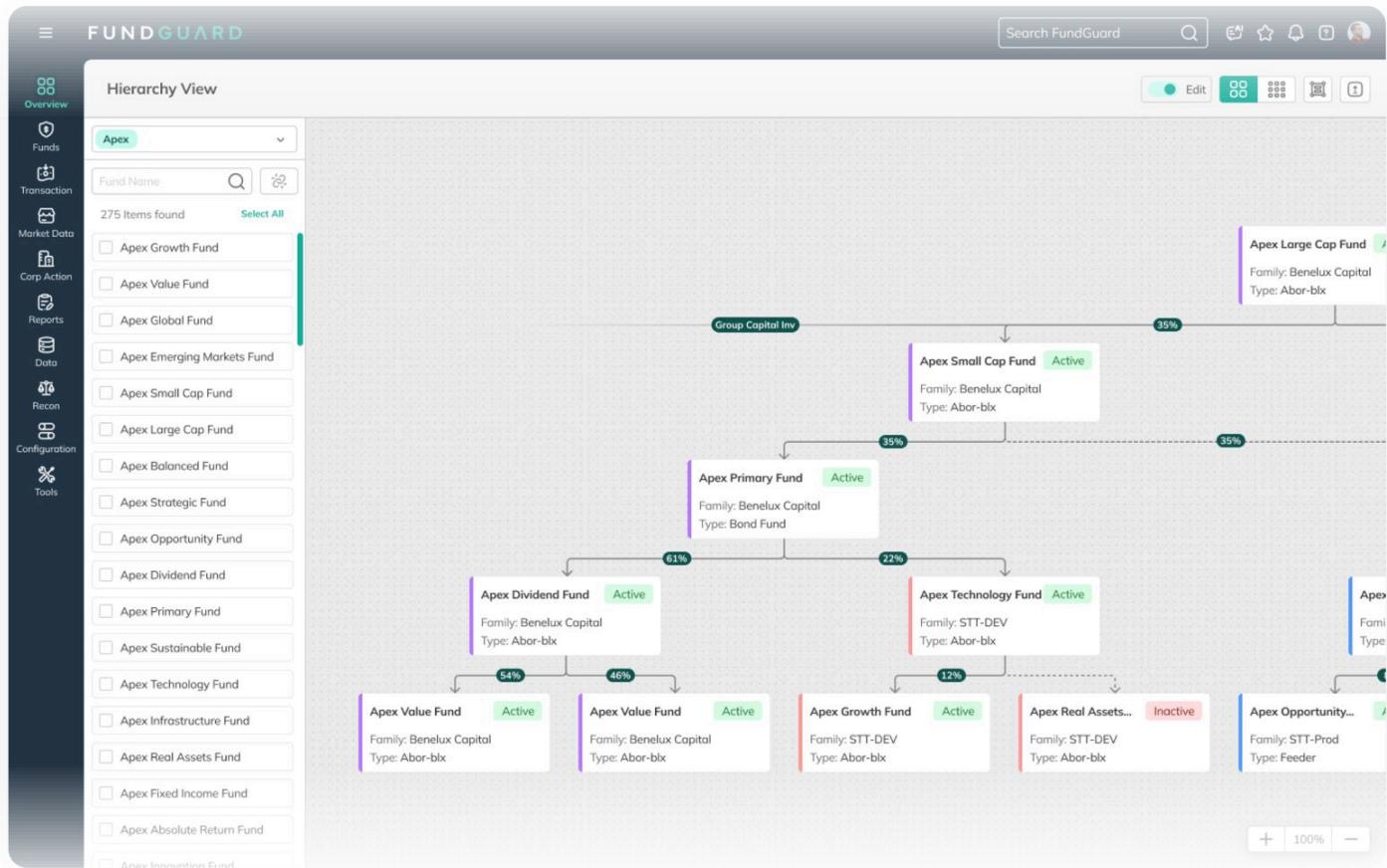
Error rate

+30%

Automation adoption

+40%

Resolution speed



01 The Reality We Walked Into

State Street runs reconciliation at a scale most teams never encounter. Every business day, before markets open, the window is non-negotiable.

THE SCALE

10,000

accountants verifying fund transactions across ~10 systems — every day

P&L verification

Ledger matching

FX conversion

Tax calculations

THE COST

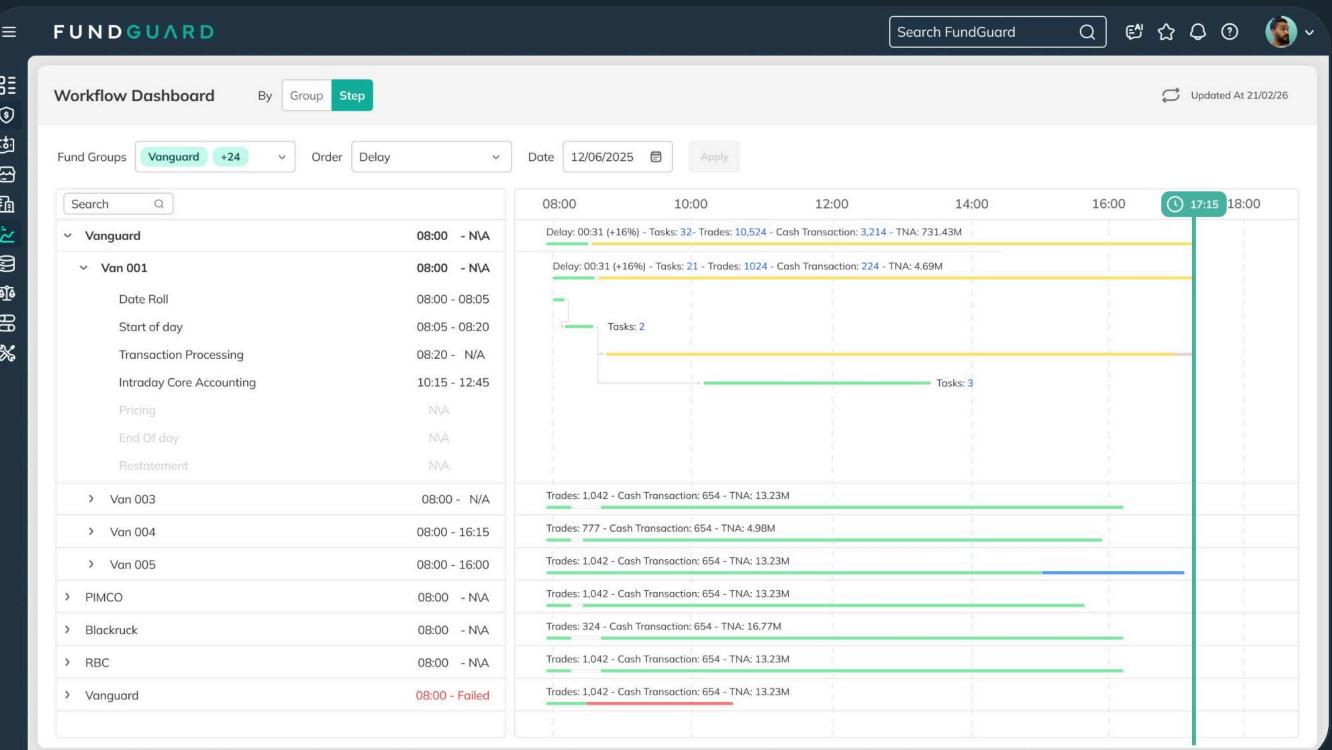
~5%

typical error rate

Incorrect NAV sent to investors and regulators

Rework cycles, compliance exposure, financial liability

Hundreds of millions in annual operating cost



The operational heartbeat – each row is a fund's daily reconciliation lifecycle

At this scale, manual review isn't slow.

It's structurally unsustainable.

0.2

FundGuard Automated What Humans Verified Line by Line

The platform replaced manual line-level checking with automated row-level accuracy validation. It compared accounting records against real-time investment positions, flagged discrepancies, and identified gaps continuously.

5% → 0.2%

96% reduction in error rate

The screenshot shows the FundGuard Workflow Dashboard. At the top, there's a header with the FundGuard logo, a search bar, and a user profile icon. Below the header is a navigation bar with icons for different sections like Overview, Workflows, and Reports. The main area is titled 'Workflow Dashboard' and has a filter section with 'Fund Groups' set to 'Vanguard +24', 'Order' set to 'Delay', and a date of '12/06/2025'. There are also 'Apply' and 'Updated At 21/02/26' buttons. The main table lists reconciliation steps for various funds and groups. The columns include: Status, Date, Step Name, Fund group, Fund, Act. Completed, Starting Conditions, Completion Conditions, Starting Time, and SLA Time. Each row shows the progress of a specific step for a given fund and group, with visual indicators for completion and status (e.g., green for completed, blue for pending). A vertical sidebar on the left contains more navigation links.

Status	Date	Step Name	Fund group	Fund	Act. Completed	Starting Conditions	Completion Conditions	Starting Time	SLA Time
Completed	12/06/2025	Start of day	Group 001	Fund 017	16/16			08:00 AM	08:30 AM
Completed	12/06/2025	Transaction Processing	Group 001	Fund 023	6/6		Sign-Off	08:29 AM	04:00 PM
Completed	12/06/2025	Data Analysis	Group 001	Fund 012	8/8	Perdefine		02:30 PM	05:30 PM
Completed	12/06/2025	Market Research	Group 001	Fund 027	5/5	Step Forward +1		03:45 PM	07:15 PM
Completed	12/06/2025	Performance Review	Group 001	Fund 019	9/9	Validation +1		03:05 PM	07:00 PM
Completed	12/06/2025	Project Kick-off	Group 001	Fund 011	10/10	Step Completed +1		06:00 PM	09:00 PM
Awaiting Approval	12/06/2025	End of day	Group 001	Fund 022	7/10	Step Completed +1		12:45 PM	04:35 PM
Scheduled	12/06/2025	Morning Briefing	Group 001	Fund 051	2/5		Sign-Off	01:15 PM	05:00 PM
Archived	12/06/2025	Team Sync	Group 001	Fund 045	1/3		Sign-Off	10:25 AM	06:00 PM
On Hold	12/06/2025	Client Follow-up	Group 001	Fund 033	2/7	Step Completed +1		10:54 AM	06:15 PM
Pending	12/06/2025	Report Generation	Group 001	Fund 058	0/5	Manual +1		11:23 AM	06:30 PM
Review	12/06/2025	Budget Planning	Group 001	Fund 005	0/7	Step Completed +1		04:20 PM	08:00 PM
Under Investigation	12/06/2025	Strategic Meeting	Group 001	Fund 040	0/12	Completed +1		05:15 PM	08:30 PM

Figure: The automated reconciliation surface – real-time gap identification across steps

Technically solved. Behaviorally, the story was different.

Users continued rechecking, exporting to Excel, and running parallel workflows. The automation was correct — but not trusted.

The Front Interface Reflected the Database – Not User Operations.

The V1 table was a direct surface of the reconciliation data model. Every relevant field was present. But it wasn't designed for how operations teams actually work.

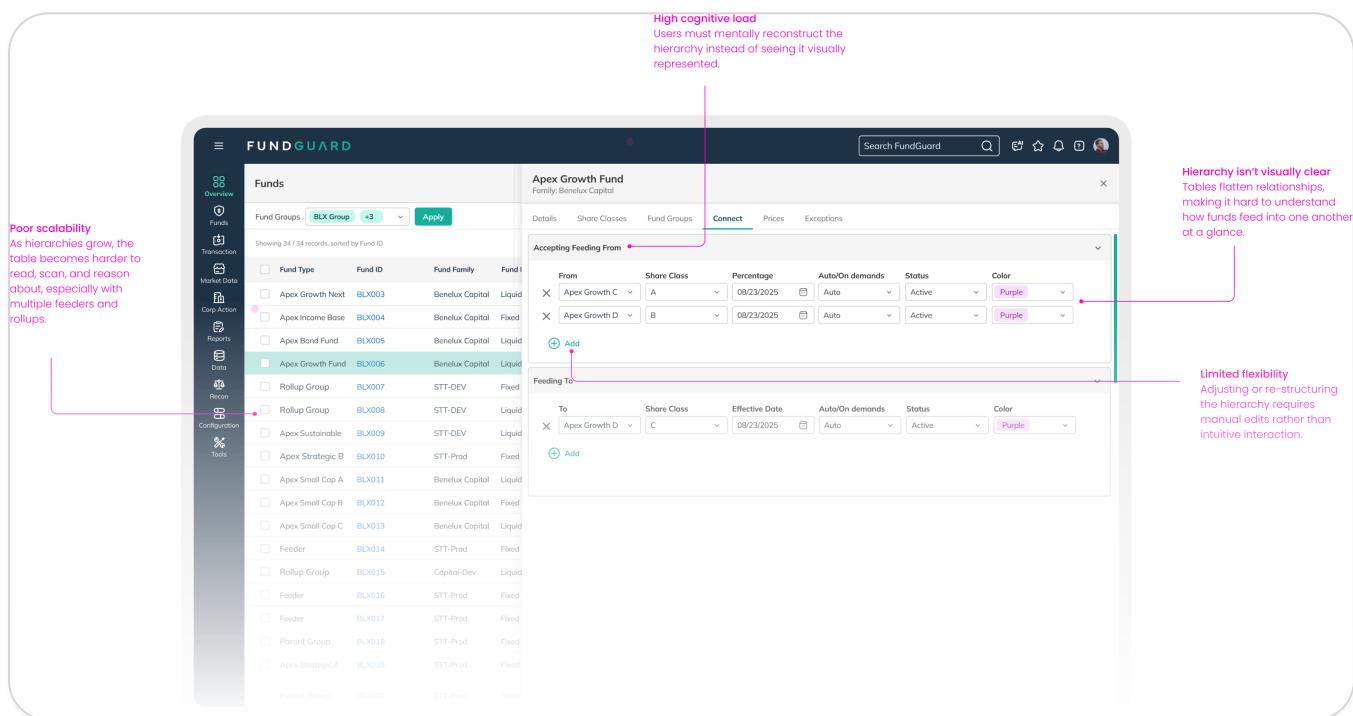


Figure: VI reconciliation table – Status, Issues/Gaps, Date+Time, Financial Institution

WHAT V1 CONTAINED

Status	Pass/fail per row
Issues / Gaps	Flagged discrepancies
Date + Time	Timestamp per event

Institution

Financial entity name

WHAT VI MISSED

- (x) How teams were organized (groups of ~10)
 - (x) How asset managers monitored across fund groups
 - (x) What happened when data streamed in real time
 - (x) Which client was actually at risk
-

The table exposed data. It never exposed operational structure.

04 Three Structural Failures Surfaced Through Research.

Through workflow shadowing and interviews, we mapped the behavioral signals to three root causes.

01 Team structure mismatch

Teams work in groups of ~10. Asset managers need a bird's-eye view — not individual rows.

The interface was organized by data. The work was organized by people.

02 Notification flood

Every gap, anomaly, and status change triggered an alert. Without deduplication, hundreds competed for attention.

The system was loudest about things that mattered least.

03 ⚠️ Noise eroded trust

When every notification feels equally urgent, none feel trustworthy. Users fell back on Excel and manual checks.

Accurate automation, operationally invisible under noise.

THE FEEDBACK LOOP



05 ~~The~~ hypotheses Guided the Redesign.

H1

If the interface mirrors organizational structure (asset manager → fund group → fund), users will orient faster and need fewer clicks.

RATIONALE

Teams work in groups of ~10. Asset managers need portfolio-level awareness, not row-level scanning.

RISK

Adding a new layer introduces navigation cost. Drill-down must be fast and contextual.

VALIDATION

Time-to-answer for "which client is at risk" should decrease measurably.

H2

If notifications are deduplicated, time-windowed, and severity-ranked, users will act on alerts instead of ignoring them.

RATIONALE

Streaming data creates duplicate alerts for the same underlying issue. Volume destroys signal.

RISK

Aggressive deduplication could suppress genuine issues. False negatives are worse than noise.

VALIDATION

Alert click-through rate should increase. Excel export frequency should decrease.

H3

If users receive specific workflow context in notifications (not just "an issue was found"), they will resolve exceptions faster.

RATIONALE

Generic alerts force users to investigate context themselves. The notification should carry enough information to act.

RISK

More detail per notification increases cognitive cost per item. Balance is critical.

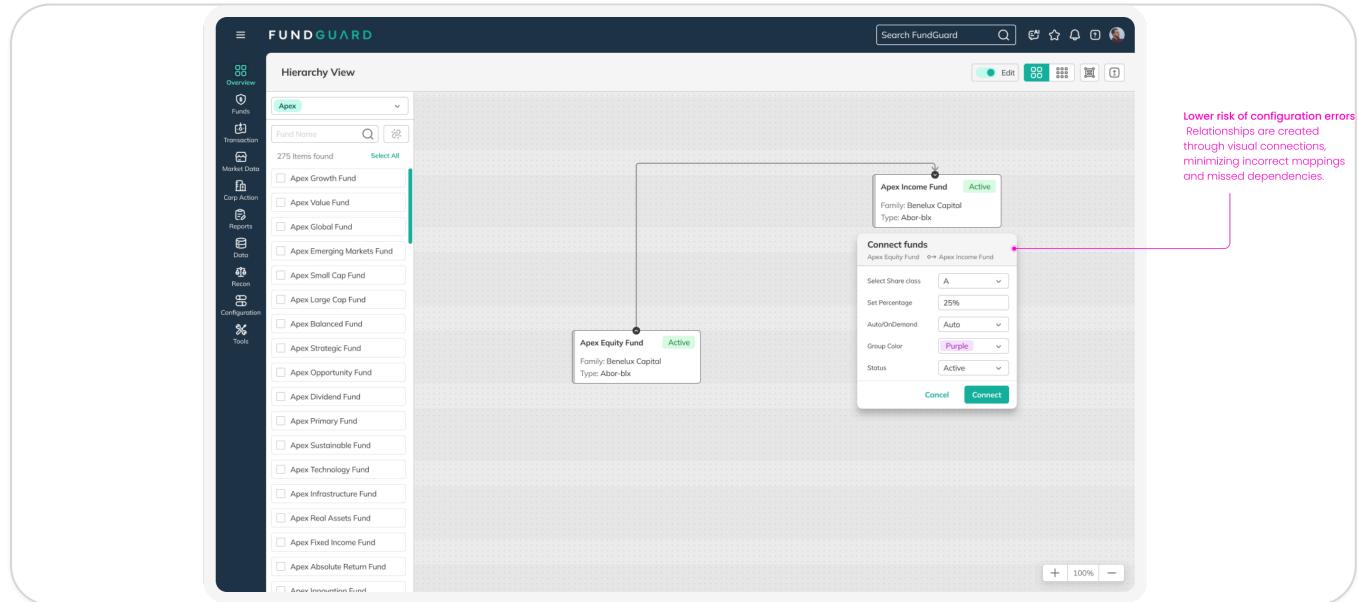
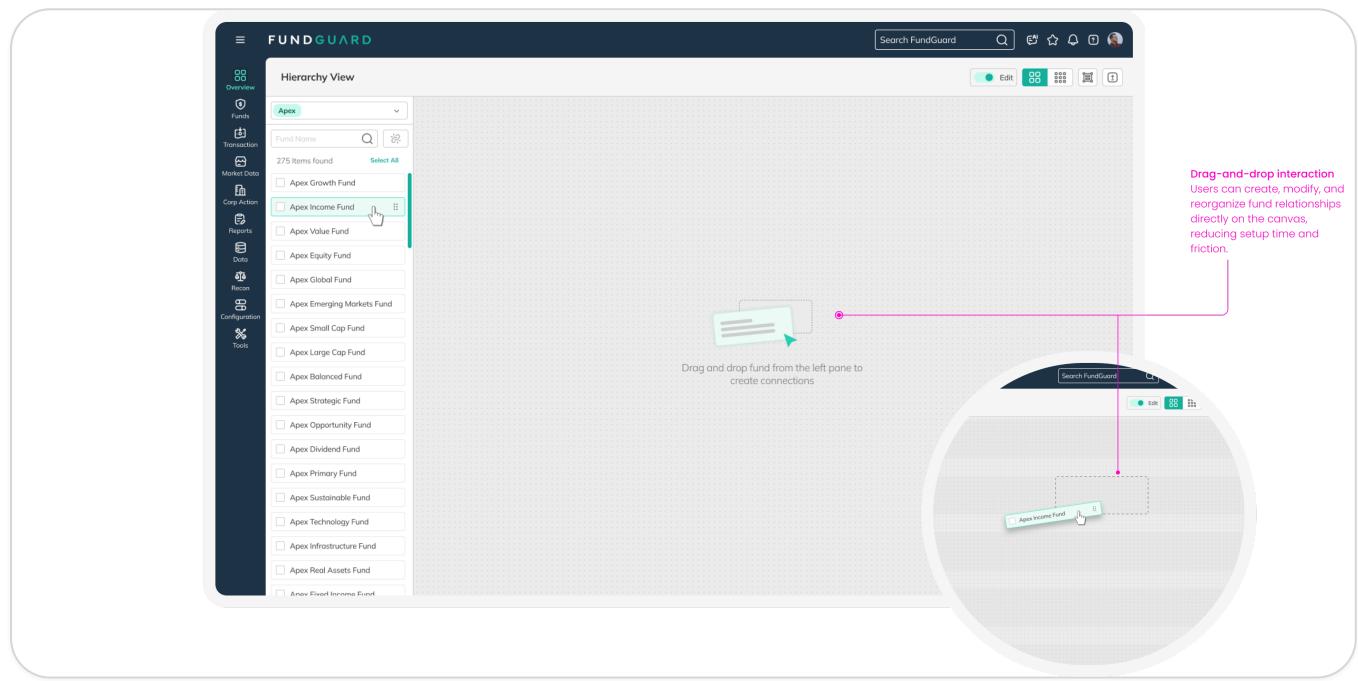
VALIDATION

A/B test: lean notification vs detailed notification. Compare click-through and hover engagement.

06 Connected Interventions.

We restructured the interface around how teams think and how urgency should be processed – not how the database was organized.

DESIGN PROCESS ARTIFACTS



01

Dashboard aligned to organizational logic

Each card surfaces health score, task volume, delay metrics. One click, full context.

Workflow Dashboard

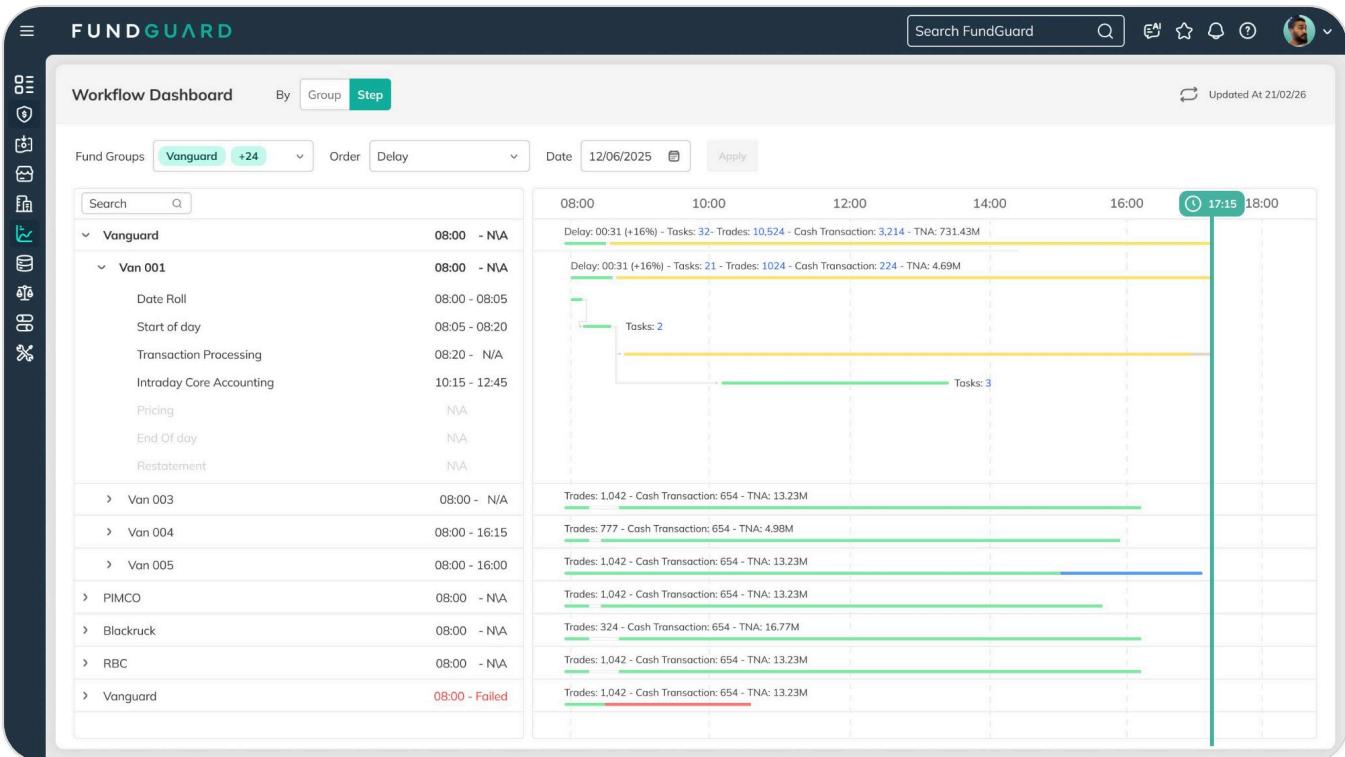
Fund Groups: Vanguard (+24) Order: Delay Date: 12/06/2025 Apply View:

Vanguard	PIMCO	BlackRock	Charles Schwab
TNA - 192.76M Funds Status: 150 Tasks: 52 Delay: 00:26 (32%) Transactions: 10.8k (32%) Delayed Funds: Fund001, Fund002, Fund004 (+4)	TNA - 192.76M Funds Status: 163 Tasks: 12 Delay: N/A Transactions: 10.8k (32%) No Delayed Funds	TNA - 192.76M Funds Status: 178 Tasks: 12 Delay: N/A Transactions: 10.8k (32%) No Delayed Funds	TNA - 192.76M Funds Status: 42 Tasks: 12 Delay: N/A Transactions: 10.8k (32%) No Delayed Funds
Vanguard TNA - 192.76M Funds Status: 254 Tasks: No Tasks Delay: N/A Transactions: N/A Delayed Funds	PIMCO TNA - 192.76M Funds Status: 132 Tasks: No Tasks Delay: N/A Transactions: N/A No Delayed Funds	BlackRock TNA - 192.76M Funds Status: 132 Tasks: No Tasks Delay: N/A Transactions: N/A No Delayed Funds	Charles Schwab TNA - 192.76M Funds Status: 132 Tasks: No Tasks Delay: N/A Transactions: N/A No Delayed Funds

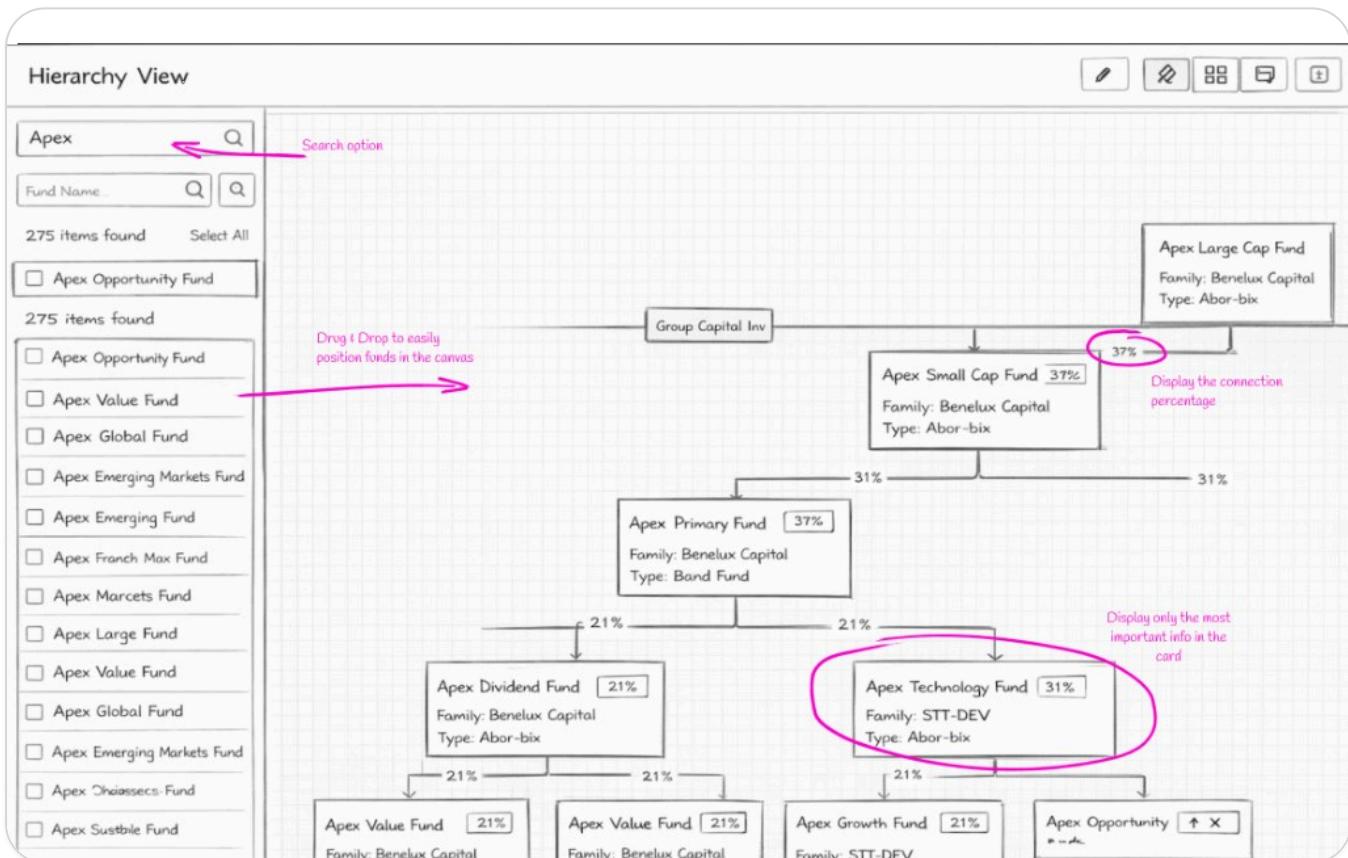
Workflow Dashboard

Fund Groups: Vanguard (+24) Order: Delay Date: 12/06/2025 Apply View:

Vanguard1 TNA: 192.76M USD Funds Status: 150 Tasks: 52 Trans.: 10.5k (32%) Delay: 00:26 (120%) Delay (Avg): 00:26 (120%) Delayed Funds: Van 001 (+4)	PIMCO TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): 00:26 Delay (Avg): 00:26 Delayed Funds: Van 001 (+4)	BlackRock TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): 00:26 Delay (Avg): 00:26 Delayed Funds: Van 001 (+4)	Charles Schwab TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): 00:26 Delay (Avg): 00:26 Delayed Funds: Van 001 (+4)	Vanguard TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds
T. Rowe Price TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	JP Morgan TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	T. Rowe Price TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	Franklin Templeton TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	PIMCO TNA: 192.76M Funds Status: 150 Tasks: 52 Trans.: 32% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds
PIMCO TNA: 192.76M Funds Status: 150 Tasks: N/A Trans.: 100% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	Charles Schwab TNA: 192.76M Funds Status: 150 Tasks: N/A Trans.: 100% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	JP Morgan TNA: 192.76M Funds Status: 150 Tasks: N/A Trans.: 100% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	T. Rowe Price TNA: 192.76M Funds Status: 150 Tasks: N/A Trans.: 100% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds	T. Rowe Price TNA: 192.76M Funds Status: 150 Tasks: N/A Trans.: 100% Delay (Plan): N/A Delay (Avg): N/A No Delayed Funds
BlackRock TNA: 192.76M Funds Status: TNA: 192.76M	Charles Schwab TNA: 192.76M Funds Status: TNA: 192.76M	BlackRock TNA: 192.76M Funds Status: TNA: 192.76M	JP Morgan TNA: 192.76M Funds Status: TNA: 192.76M	Vanguard TNA: 192.76M Funds Status: TNA: 192.76M



Group-level monitoring → dense grid → drill-down timeline per fund



Canvas-based fund hierarchy – relationships, allocations, and status visible spatially

Structural clarity

UI mirrors team assignments.

Cognitive reduction

500 rows → 20 meaningful groups.

Risk visibility

"Which client is at risk?" — answered instantly.

02 Aggregated notification system

From raw streaming alerts to prioritized, deduplicated digests.



Time window

Configurable scan period



Deduplicate

Merge identical gaps



Group

Related issues clustered



Prioritize

Severity-ranked delivery

07 From Detection to Triage.

The notification system already collected gap data. The AI layer turned that raw data into operational intelligence.



Pattern recognition

Scans the full notification stream for recurrence and severity signals.



Severity ranking

Low to critical, based on financial impact and downstream risk.



Time-window scan

Groups issues within the same operational window.



Deduplication

One entry per root cause. Near-identical issues consolidated.



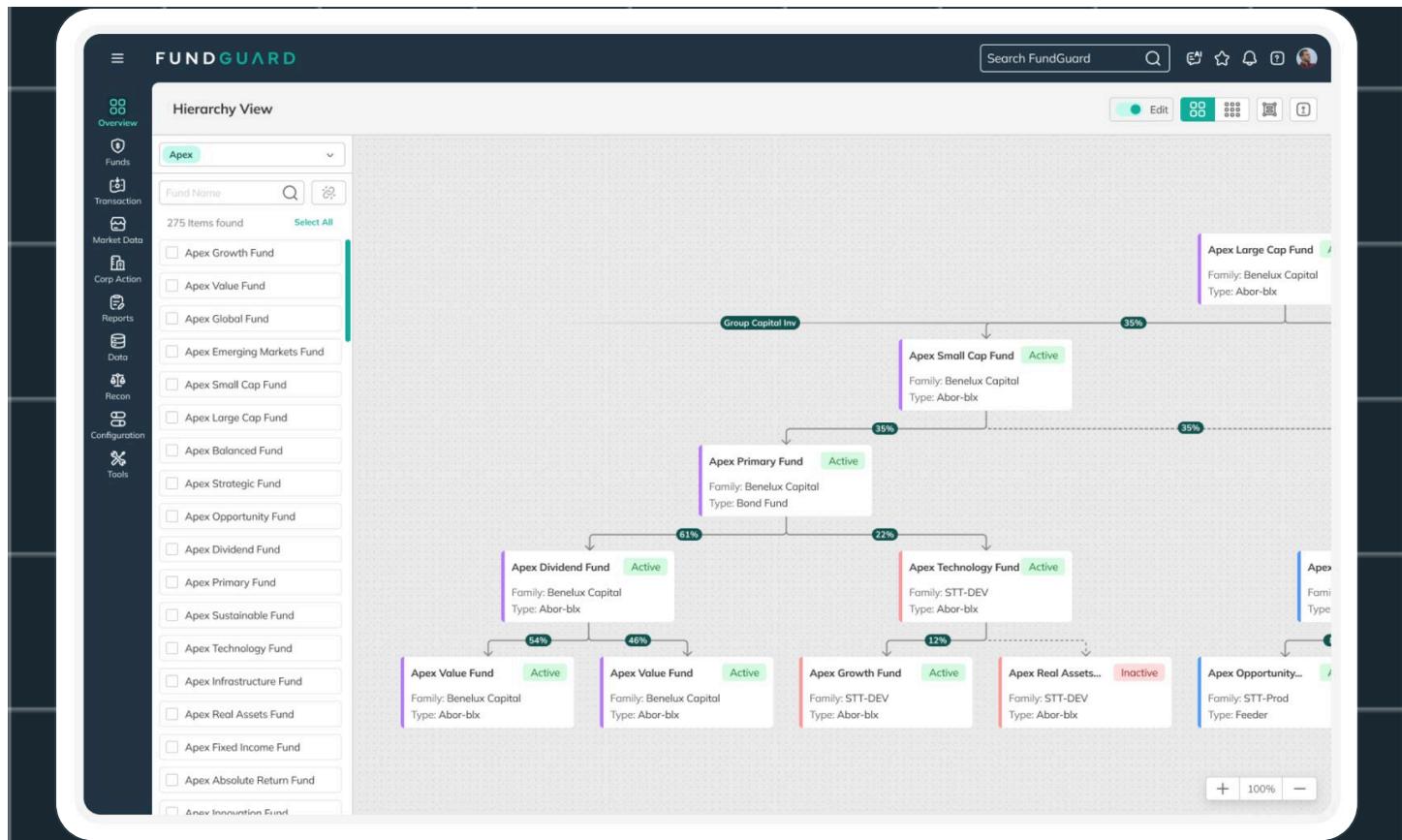
Fix suggestions

Resolution steps from historical patterns and gap type.



Right-time delivery

Digest arrives when the user is most likely to act.



CRITICAL

NAV discrepancy – PIMCO Global Bond Fund

HIGH

Allocation mismatch – Vanguard Growth Equity (3 occurrences consolidated)

Suggestion: Review feeding configuration for sub-fund B

LOW

Timestamp drift – BlackRock Income Fund

08 Detailed – Which Notification Drives Action?

We hypothesized that users wanted specific workflow details in notifications — not just status labels. We tested two variants to validate.

VARIANT A – LEAN

- Status label only (pass/fail)
- Fund name + timestamp
- Generic "View details" action
- No severity indicator

VARIANT B – DETAILED WINNER

- ✓ Severity badge (low → critical)
- ✓ Specific gap description
- ✓ Contextual resolution suggestion
- ✓ Impacted fund + downstream risk



Clicks down

Variant B provided enough context to act directly from the notification.



Hovers up

Users engaged deeply — hovering to read severity and suggestions.

+30% +40%

engagement rate

resolution speed

Users didn't want less information.

They wanted the right information, in context.

OUTCOME

From row visibility and noisy alerts to operational structure and prioritized signal.

5%→0.2%

Error rate

+30%

Automation adoption

+30%

Notification engagement

+40%

Resolution speed

The redesigned system – canvas hierarchy with visible relationships, allocations, and embedded status

The redesign addressed two connected problems simultaneously: the interface didn't match how teams worked, and the notification system didn't match how humans process urgency.

When the dashboard mirrored organizational logic and notifications carried genuine operational intelligence, users stopped building workarounds. They started relying on the system.

Trust and adoption are linked through structural alignment:
when the system reflects how users think, reliance follows naturally.

KEY TAKEAWAYS

01

Automation accuracy is necessary but not sufficient. Users trust systems they can understand — not systems that are merely correct.

02

Interface structure must reflect organizational logic. When the UI mirrors how teams work, cognitive load drops and orientation speed increases.

03

Notification volume is the enemy of notification value. Deduplication, time-windowing, and severity ranking convert noise into signal.

04

Detailed context outperforms lean summaries — when it's structured well. The A/B test confirmed that users want specificity, not brevity.

05

Trust is built through inspectable reasoning, not through dashboards alone. The AI layer succeeded because its logic was visible, not because it was powerful.

The gap between accurate automation and trusted automation
is never technical. It's cognitive.