AI-Powered Anomaly Detection Tool

A Proposal for Workiva's Spreadsheets Users

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Meet the Team ✨

Nick

Lenet

Today’s Overview

Phase 1
Discover

Collect user data and findings through various research tactics

Phase 2
Define

Synthesize user data collected from spreadsheet users

Phase 3
Design

Ideate and create UI solutions for an AI-Powered anomaly detection tool

Phase 4
Deliver

Refine designs into a high fidelity prototype and deliver the final AI feature

Phase 1: Discover

Investigating competitors and user behaviors

Competitor Analysis

Feature	Tableau	Power BI	Excel Add-ins
Automation	❌ Manual setup required	✅ Built-in anomaly detection	❌ Mostly manual
Ease of use	⚠️ Requires formulas	✅ User-friendly UI	⚠️ Requires stat knowledge
Visualization	✅ Custom visualizations	✅ Integrated anomaly charts	⚠️ Basic charts & add-ons
Explanation	❌ No automatic insights	✅ AI-driven explanations	❌ None
Customization	✅ Flexible (manual)	✅ Adjustable sensitivity	✅ Add-ons offer options
Integration	✅ Works with BI tools	✅ Seamless in Microsoft	✅ Widely used but limited AI

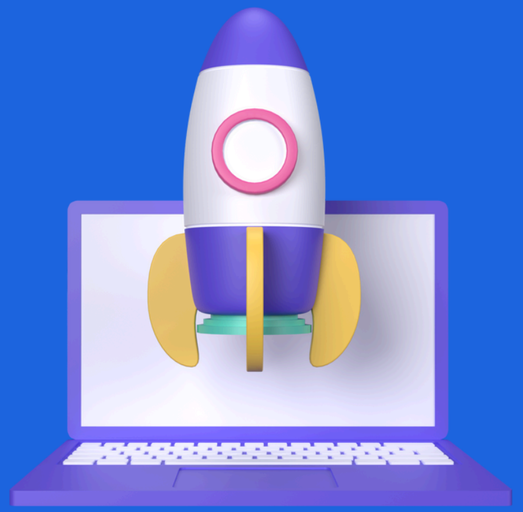
How Workiva can stand out

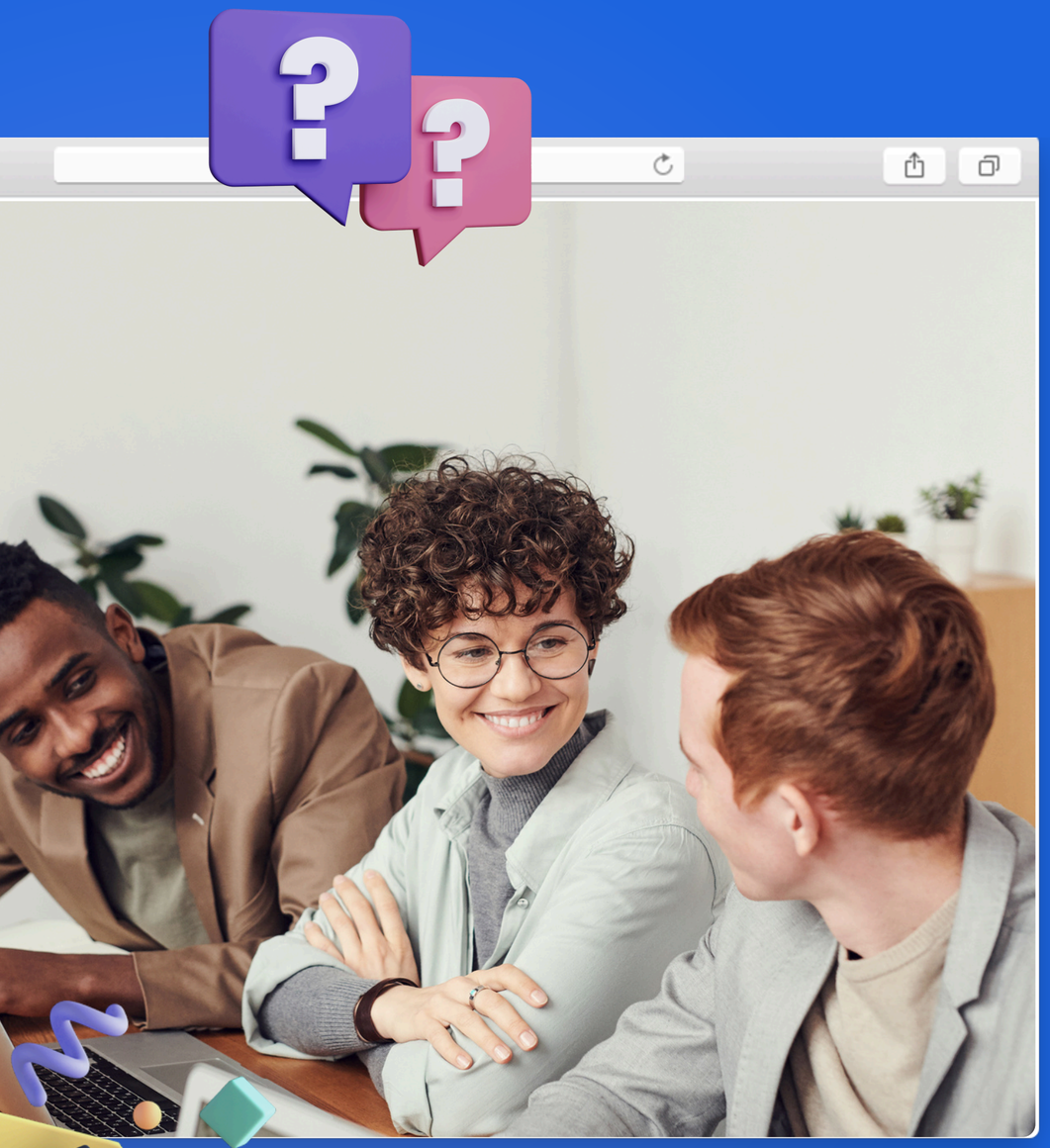
🧠 **AI-Powered Insights:** Go beyond detection—explain ***why*** an anomaly occurs

🚀 **Beginner-friendly Usability:** A no-code solution that requires ***minimal setup***

📊 **Adaptive Visuals:** Make anomalies ***instantly recognizable*** within spreadsheets

🔄 **Workflow Integration:** Enable users to address anomalies at their convenience ***without disrupting*** their immediate workflow





What do spreadsheet users want?

- Rely on checks and balances to verify their data (turning to team members)
- Depend on formulas to check their work
- Need accuracy to build trust and credibility within their company
- Value time (tight deadlines = pressure to make mistakes)
- Detect errors manually

Need Control

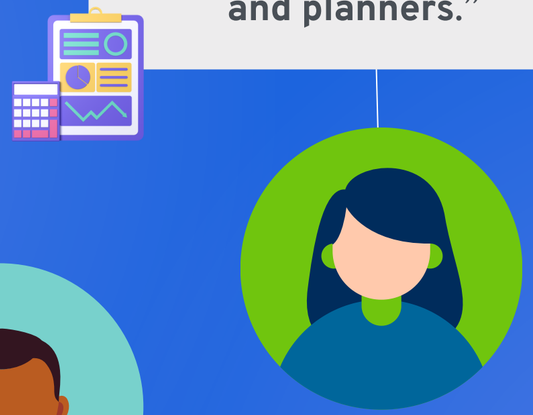
All users reported the **value of using their “gut” or “intuition”** to troubleshoot errors. Users **value their own experience and past knowledge to make the final decisions.**

Interviewees said...

"Sometimes I export the data to a separate sheet just to test formulas cleanly. **It's very old-school, but it's the only way I feel confident.**"

"I had a copy-paste error where one of the formulas wasn't dragging correctly. About 6 rows were missing data entirely. **No one caught it until I manually reviewed it at the end of the month.**"

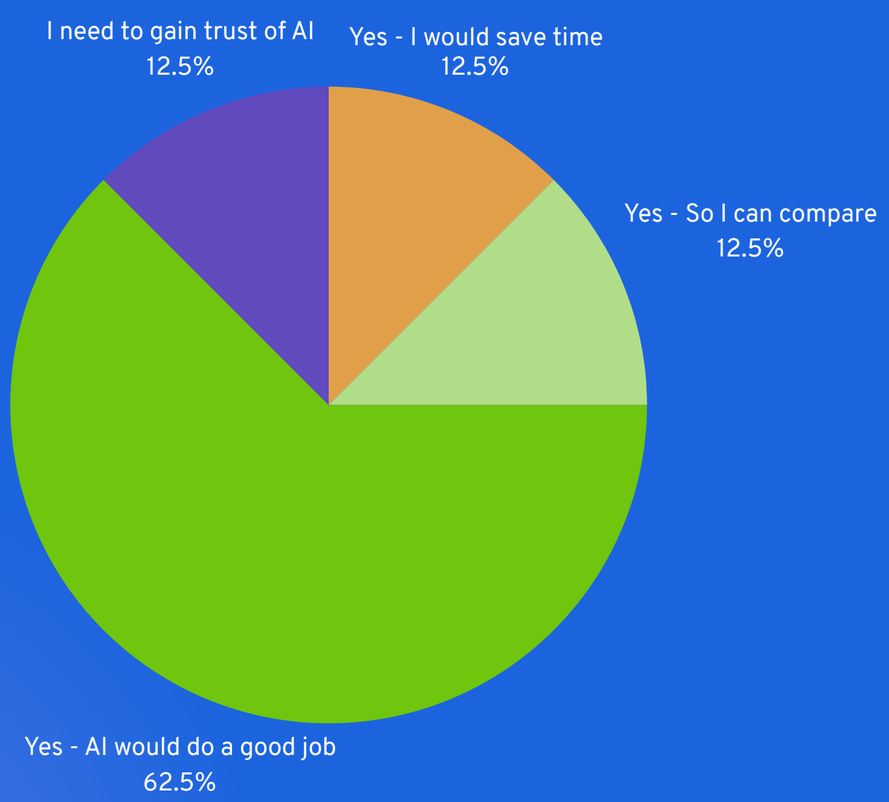
"We don't use tools to identify patterns - **we are the tools as the analysts and planners.**"



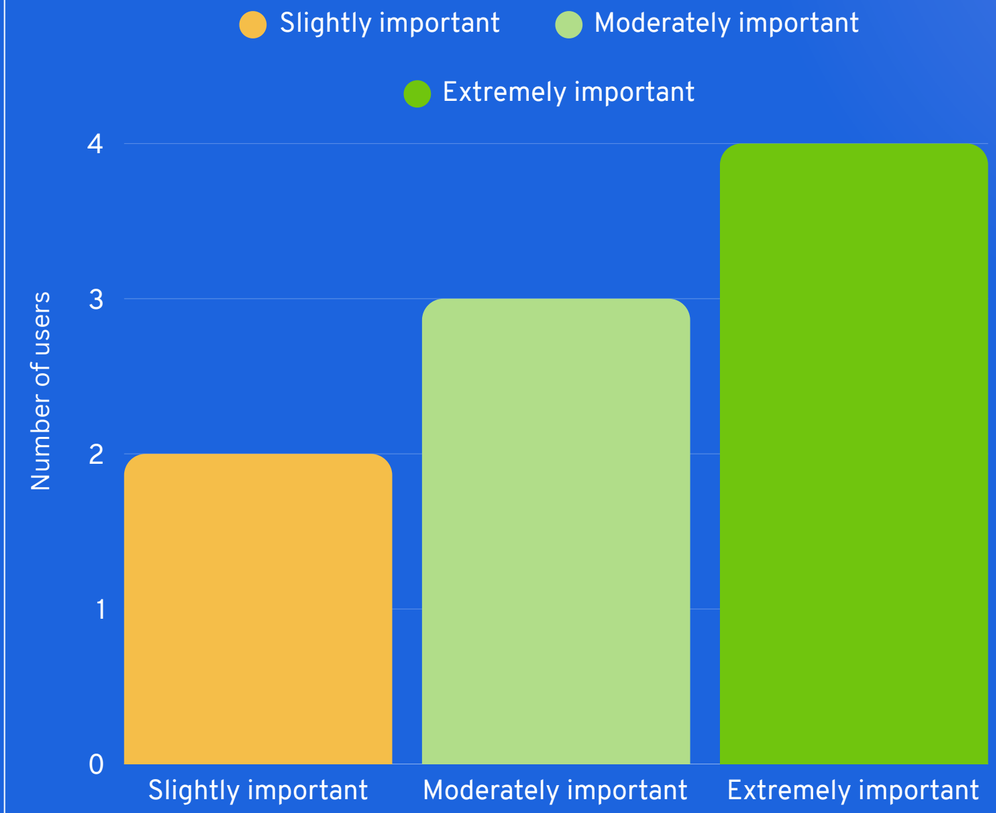
"I would like to verify information myself. I **don't want AI making decisions for me—I want it to point me** in the right direction."

"**A gut check at first**—the spike seemed off. I ran a count of unique values and noticed duplicates that shouldn't be there. **That's something our tools missed.**"

Survey Data



Do users trust AI to highlight spreadsheet mistakes?



Importance of dismissing AI suggestions

Phase 2: Define

Synthesizing & making sense of the gathered data

LUKE HARPER

“I would like to verify information myself. I don’t want AI making decisions for me—I want it to point me in the right direction.”

AGE	:	34
LOCATION	:	DENVER, CO
OCCUPATION	:	SALES REPRESENTATIVE
TECH COMFORT LEVEL	:	MODERATE

BIOGRAPHY

Luke travels regularly for work and has tight deadlines. He is detail-oriented, organized, and uses spreadsheets to track clients, revenue, and financial overviews. As a team player, Luke relies on his team to manually validate his work

PAIN POINTS

- Manually checking data leads to errors that can be easily overlooked
- Frustrated by sheets freezing or crashing
- Time limitations lead to errors when working under deadline pressure
- Struggles to keep formulas intact

BEHAVIORS

- Primarily uses Microsoft Excel and Google for work
- Likes to verify information himself and run it by teammates
- Prefers using past knowledge to guide intuition when reviewing anomalies

GOALS & NEEDS

- Stay organized and on-the-go
- Maintain credibility with his team & leadership
- Wants control over making the final decision

The main problem

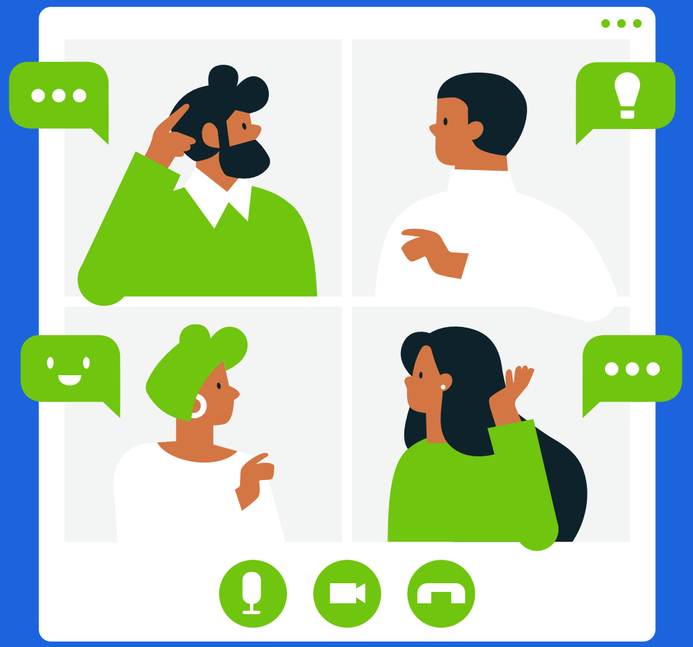
Luke and his team face challenges in efficiently detecting errors and anomalies in spreadsheet data. Their current process relies heavily on manual checks to validate formulas, set conditions, and interpret data, making the process slow and prone to oversight, especially when facing time constraints and deadlines.

While AI-driven solutions could streamline anomaly detection, Luke prefers to trust his own expertise and institutional knowledge over automation to maintain control and credibility in decision-making.

How might we...?

1. Help spreadsheet users **feel confident** when evaluating anomalies in their data?
2. Help users **feel in control** when using our AI tool?
3. Enable users to detect errors **without compromising their agency**?
4. Design a tool that **enhances, rather than replaces, users' expertise** in anomaly detection?
5. Make error detection feel intuitive and **trustworthy** for spreadsheet users?
6. **Balance automation with manual validation** to improve efficiency?

Brainstorming solutions & potential features



Solutions	Reasons
Optional AI Scan	Allow users control to choose AI or work manually
In-cell notifications	Notify without compromising or slowing down workflow
Dismiss feature	Users retain control over suggestions
Suggestions	Provides anomaly explanations without compromising agency
Customization for advanced users	Accessible for spreadsheet beginners & experts

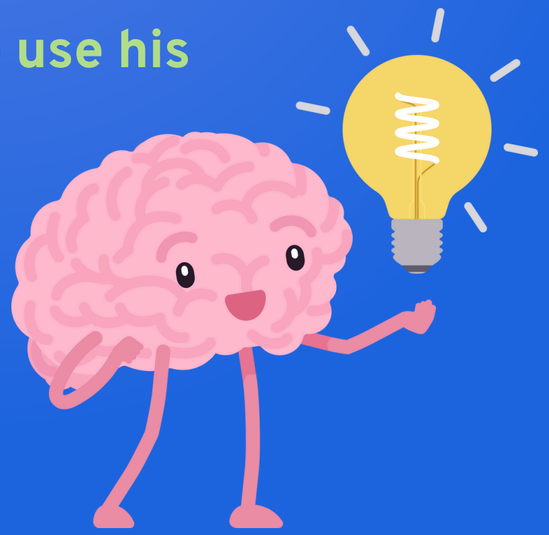
Phase 3: Design

Translating ideas into design solutions

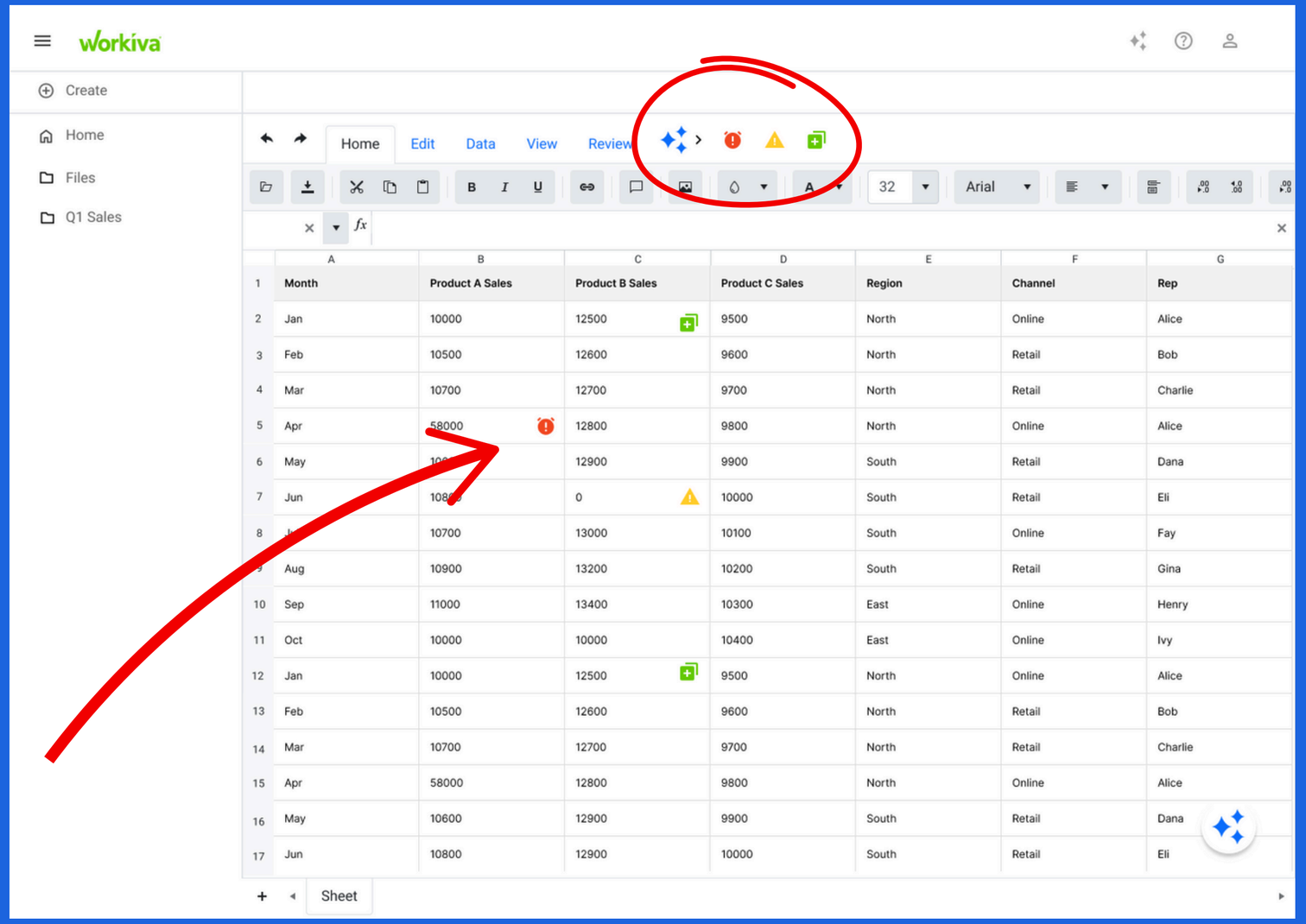
The solution

Luke needs a tool that supports his decision-making—surfacing anomalies without taking control away—so he can verify, validate, and act with confidence.

Workiva's AI-powered anomaly detection tool will integrate seamlessly into his workflow, providing intelligent insights while remaining transparent and allowing for user control. Rather than automating decisions, the AI tool will function as an AI assistant, highlighting potential errors and patterns, but allowing Luke to use his organizational expertise to make the final decision, ensuring efficiency without compromising accuracy or trust.



Key design additions



	Month	Product A Sales	Product B Sales	Product C Sales	Region	Channel	Rep
2	Jan	10000	12500	9500	North	Online	Alice
3	Feb	10500	12600	9600	North	Retail	Bob
4	Mar	10700	12700	9700	North	Retail	Charlie
5	Apr	58000	12800	9800	North	Online	Alice
6	May	10[illegible]	12900	9900	South	Retail	Dana
7	Jun	10800	0	10000	South	Retail	Eli
8	[illegible]	10700	13000	10100	South	Online	Fay
9	Aug	10900	13200	10200	South	Retail	Gina
10	Sep	11000	13400	10300	East	Online	Henry
11	Oct	10000	10000	10400	East	Online	Ivy
12	Jan	10000	12500	9500	North	Online	Alice
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17	Jun	10800	12900	10000	South	Retail	Eli

Zero / Missing

Sales dropped to 0. This could be a missing entry or a reporting issue. Please review the source.

View Details Dismiss Alert

Duplicate Row

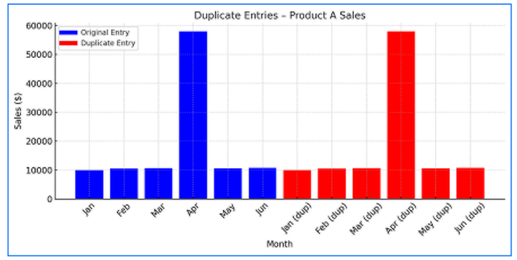
Sales decreased by 25% from last month and 34% from the average. This may indicate a shift in demand or data inconsistency.

Duplicate Of: Row 2

Matching Fields: $13,000 – $13,500

3-Month Average: $13,200 (Jul–Sep)

Previous Value: $13,400 (Sep) Add Notes



AI Insight: [illegible]ers to be a repeated version of a previ[illegible]s row. Duplicates ca[illegible]kew[illegible] totals and create misle[illegible]ing patterns."

Suggested Actions:

- Remove or archive this row
- Confirm with the data owner
- Check for automated paste/import issues

Mark as Reviewed

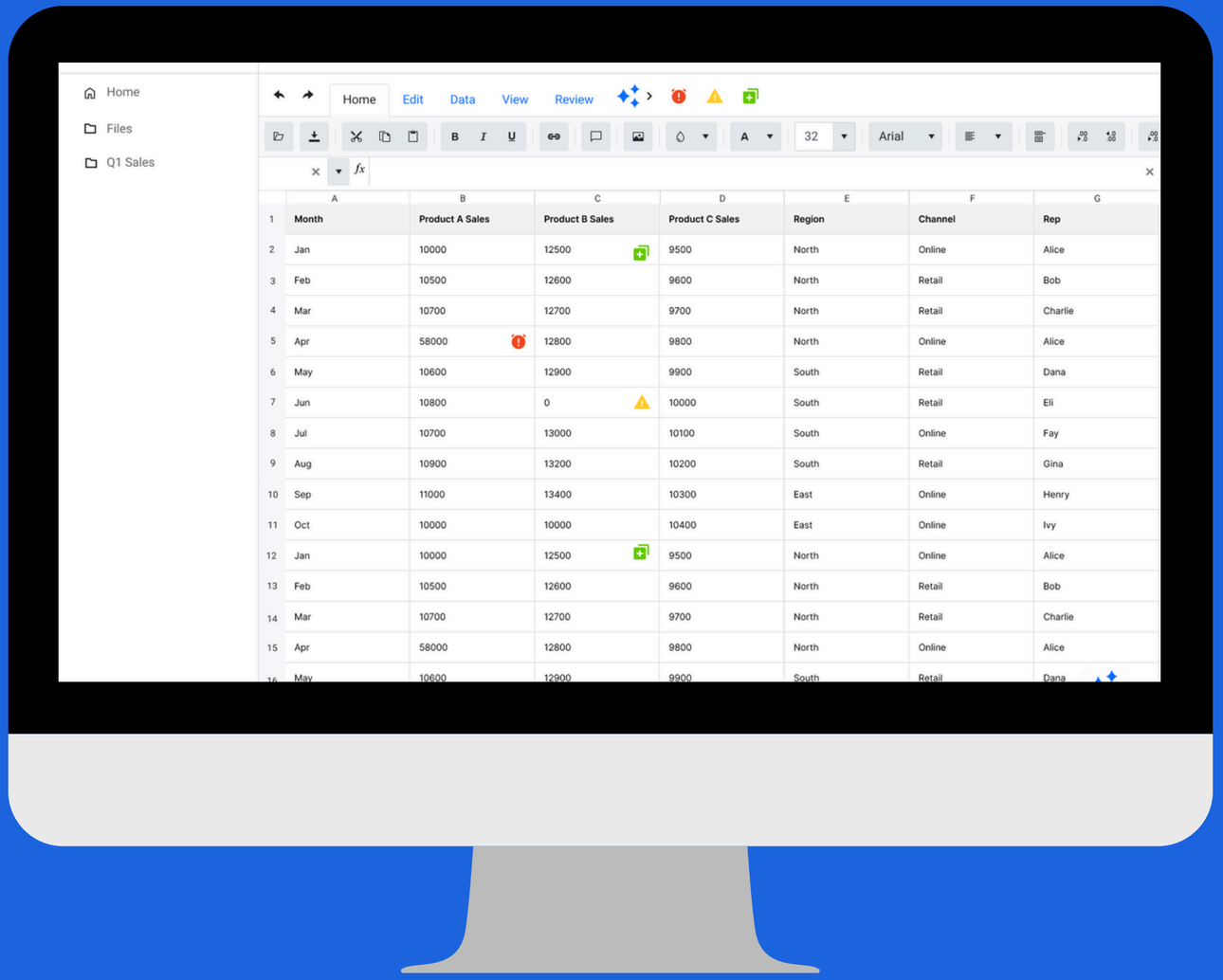
Customer journey map

	Initiate AI Scan	Awareness of errors detected by AI	View short summary of errors	View details / dismiss notification	Manually fix errors
Touchpoint	AI button	Error icons appear inline on spreadsheet	Popup with short anomaly description	Detailed popup	Spreadsheets view
Customer Actions	Clicks AI scanning button	Notes error notifcations in cells	Hovers over error icons to learn more	Dismisses notification or reads detailed view	Has control to validate and make changes themselves
Customer Experience	🤔	😮	😌	🤩	😄
Customer Quotes	**"I need to check my work. I might have missed something while manually checking."**	**“Turns out there were a few things I missed!”**	**"This makes sense. Let’s investigate."**	**“This explains why the data was off! I’ll go ahead and dismiss it now.”**	**“Now I can confidently review the errors and make the necessary changes.”**
Website Solution	Add AI scanning button above spreadsheet view	Inline incons appear within cells	Add popup for quick anomaly summary over icon	Add detailed view and dismiss button	Provides suggestions, but allows users to make final call

Phase 4: Deliver

Assembling solutions into the final prototype

The final prototype



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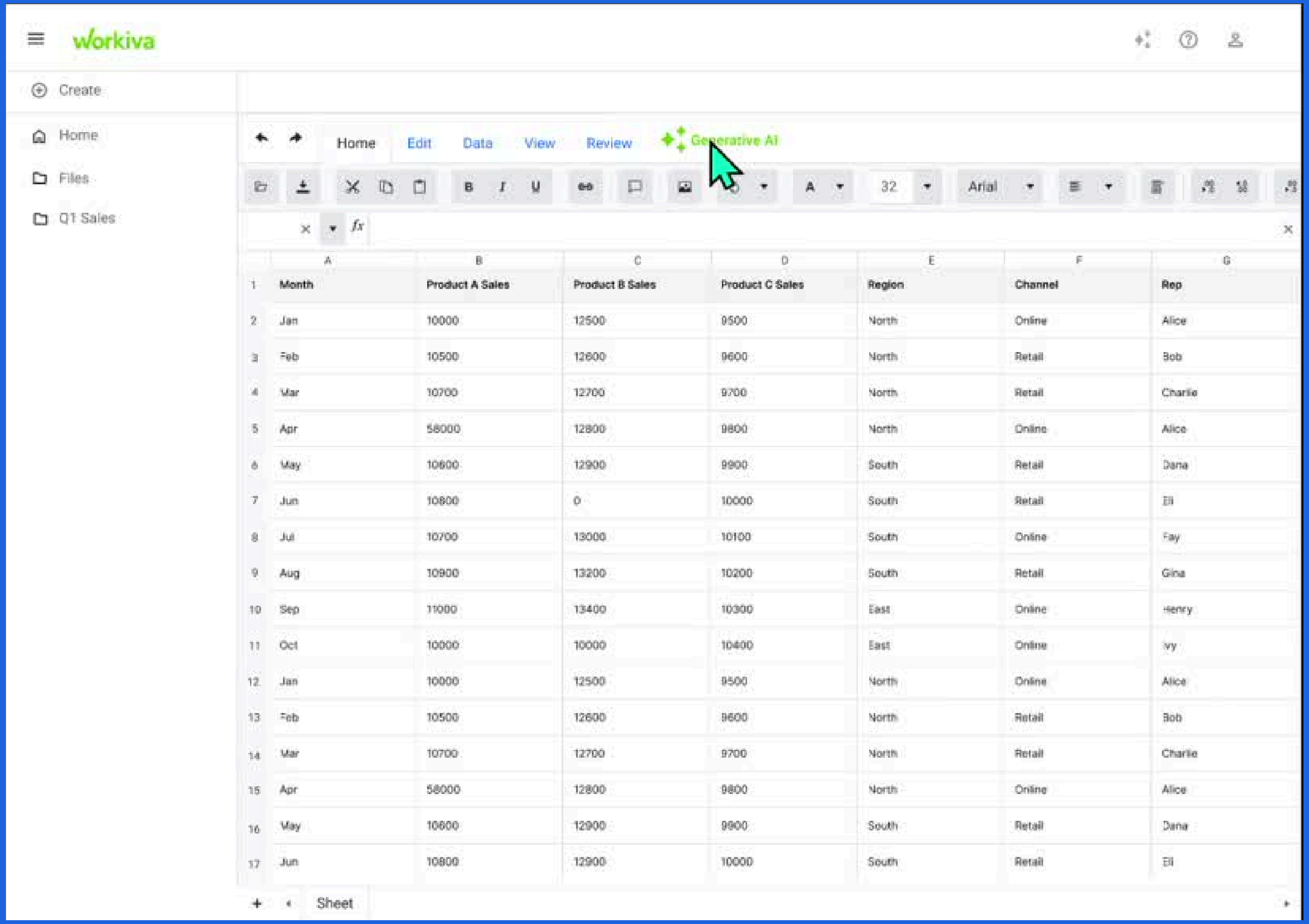

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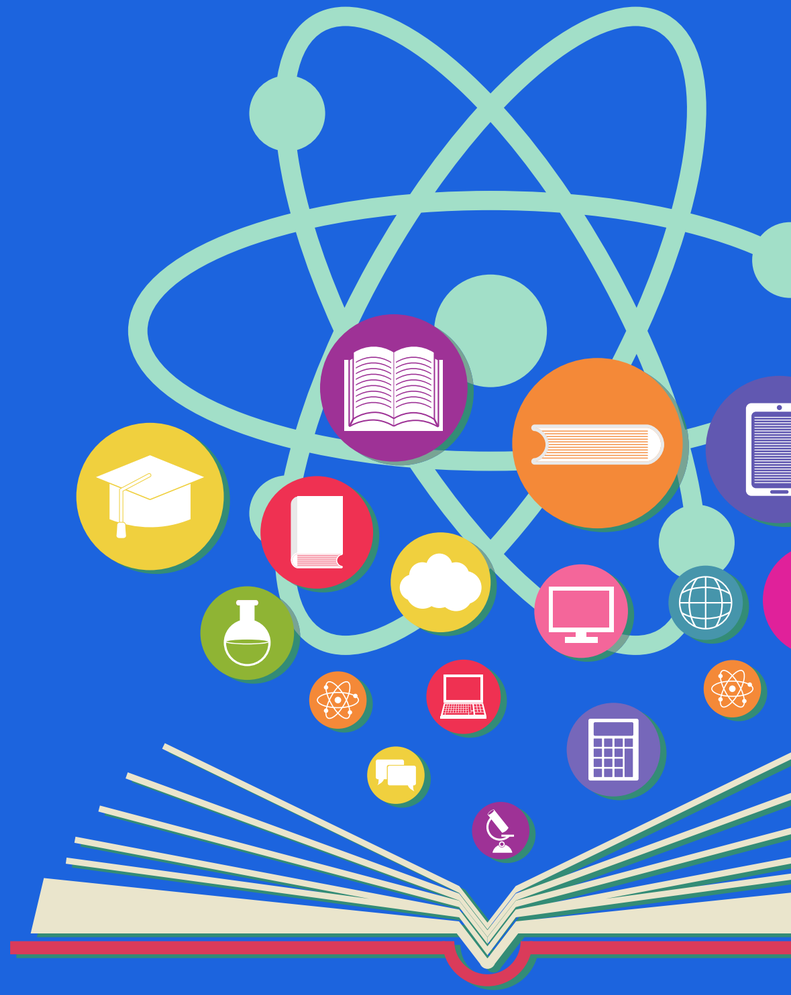
Takeaways & next steps

1. Add feature to enable automating anomaly correction
2. Add feature to view past anomalies after saving logs
3. Include sharing feature to invite teammates to investigate anomaly suggestions



Thank you for your time!