AP DIGITAL SERIES:

"Best Bang for your Buck" A study of Time and ROI

RETAIL INDUSTRY LEADERS ASSOCIATION

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“Best Bang for your Buck”
A Study of Time and ROI

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McCombs School of Business

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And a special thanks to our Zebra Partner:
Ed Tonkon — President, Zebra Retail Solutions


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The University of Texas at Austin
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MS Business Analytics
McCombs School of Business

THE UNIVERSITY OF TEXAS AT AUSTIN
McCOMBS BUSINESS ANALYTICS

Class Size: 93

Average GPA: 3.58

GRE/GMAT Scores
- Avg GRE Quant: 162
- Avg GMAT: 727

37% Female
63% Male

73% US & PR
27% International

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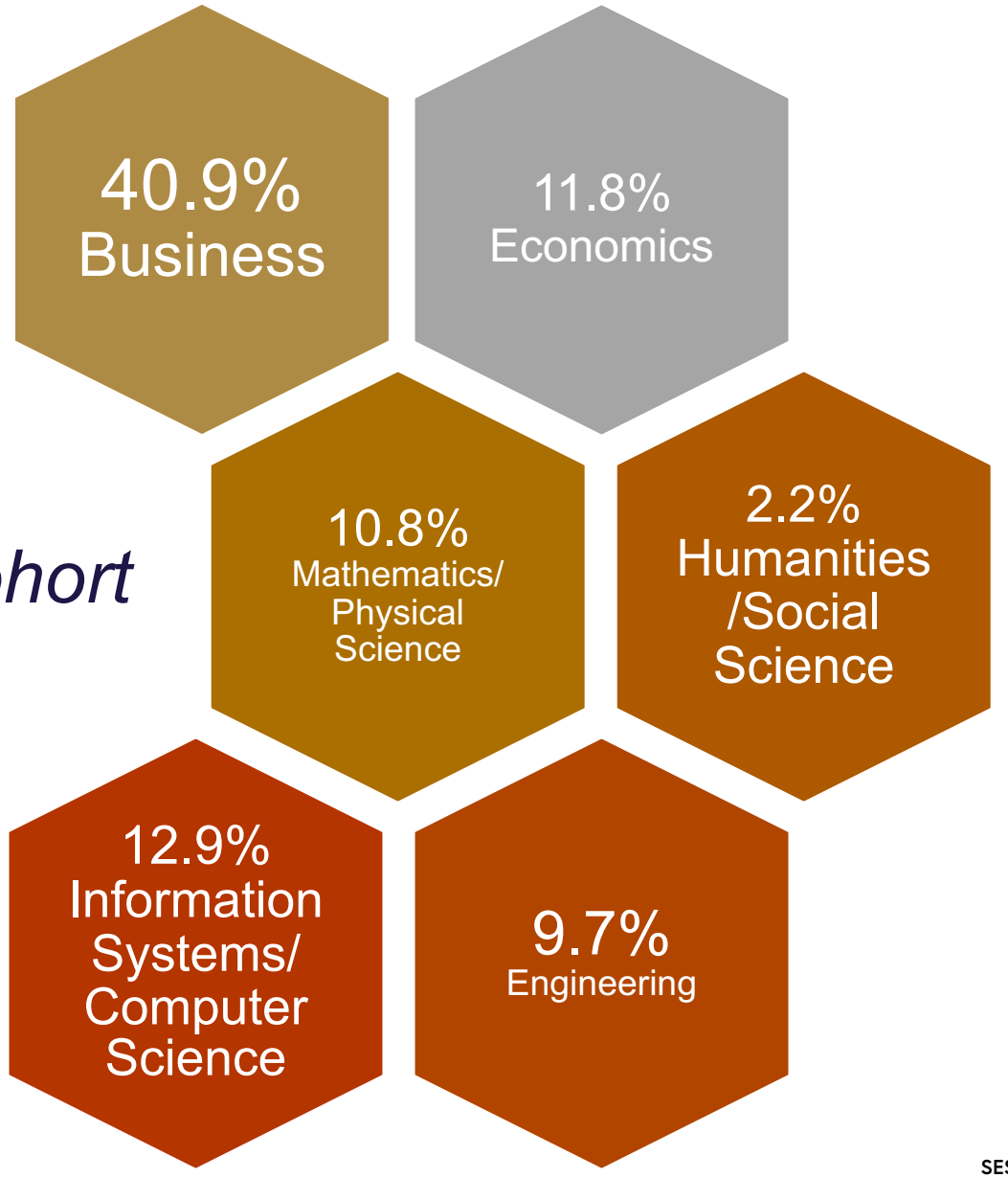
UT MSBA Program

Academic Background:

Diverse Student Cohort



TEXAS McCombs
The University of Texas at Austin
McCombs School of Business

Master of Science in Business Analytics (MSBA)

Ranked fifth worldwide

10-month intensive M.S. program

Mix of quantitative, business, communication and technology training (tool agnostic)

Preparing students to be “data-driven storytellers”

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Agenda

1. Business Context & Outcomes
2. Data Collection & Synthesis
3. Data Analysis
4. Execution and Change Mgmt
5. Conclusion & Next Steps
6. Questions

01 Business Context & Outcomes

Problem Statement

Lowe's has over 1700 locations. Its asset protection division leverages tons of different technologies for AP programs and systems.

With so many moving parts and varying programs and systems from store to store, Lowe's AP seeks to better understand which investments yield the most return.

How can we identify the gaps between corporate expectations and tasks performed by asset protection managers in stores?

Business Value

The findings of this project lay a foundation for future research and investments in AP programs and equipment.

Qualitative insights gathered directly from AP managers, quantitative data from historical records and past time-studies, and optimization analyses underlie our suggestions

These suggestions focus on how Lowe's can proactively manage ROI & shrink and prioritize future spending to reduce shrink in the long-term.

02 Data Collection & Synthesis

Collecting Shadowing Data

The Goal

Capture time-to-complete information for managers' tasks

Identify potential performance & knowledge gaps

Challenges

Logistics & scheduling • Only 34 time data points • Four of 1700+ stores

Takeaways

Lots of variance based on risk level — Asset Protection and Safety Managers (APSMs) in high-risk stores & Senior Asset Protection Managers (SAPMs) in low-risk stores

Ideas for manager surveys — Focus on six main task groups & Explore external vs. internal tasks

Collecting Survey Data

The Goal

Capture more data, specifically time-to-complete four main tasks (quantitative)

Supplement with managers' *opinions* on relative task importance, feedback on software and equipment efficiency, and more (qualitative)

Challenges

Unstructured responses, multi-hot encoding for many questions • Sparsity • Less direct approach to ROI

Takeaways

Managers have lots of specific feedback regarding equipment efficiency and ROI from KTs & RWDs

We should examine differences in ROI between APSMs and SAPMs

Historical Shrink & Case Management Data

Shrink Data

Current year-to-date shrink dollars and percentage per store, a candidate target variable; also includes risk level (updated in January) for each store

- Limited by the nature of YTD figures (generated in February)

Case Management Data

Line-item-level data on AP incidents across 1041 stores, for 2019 and ‘20 fiscal years

Also including store number, two pairs of dates and times, total case value, and recovery status

- Limited to the 227 stores where survey data and case management data coordinate

What we mean by ROI: $\$\frac{Amount\ Recovered - Cost\ of\ Recovering}{Cost\ of\ Recovering} = \%\ ROI$

* Salary based on APSMs who reported their salary on Glassdoor.com

Synthesis into a Single Key Data Set

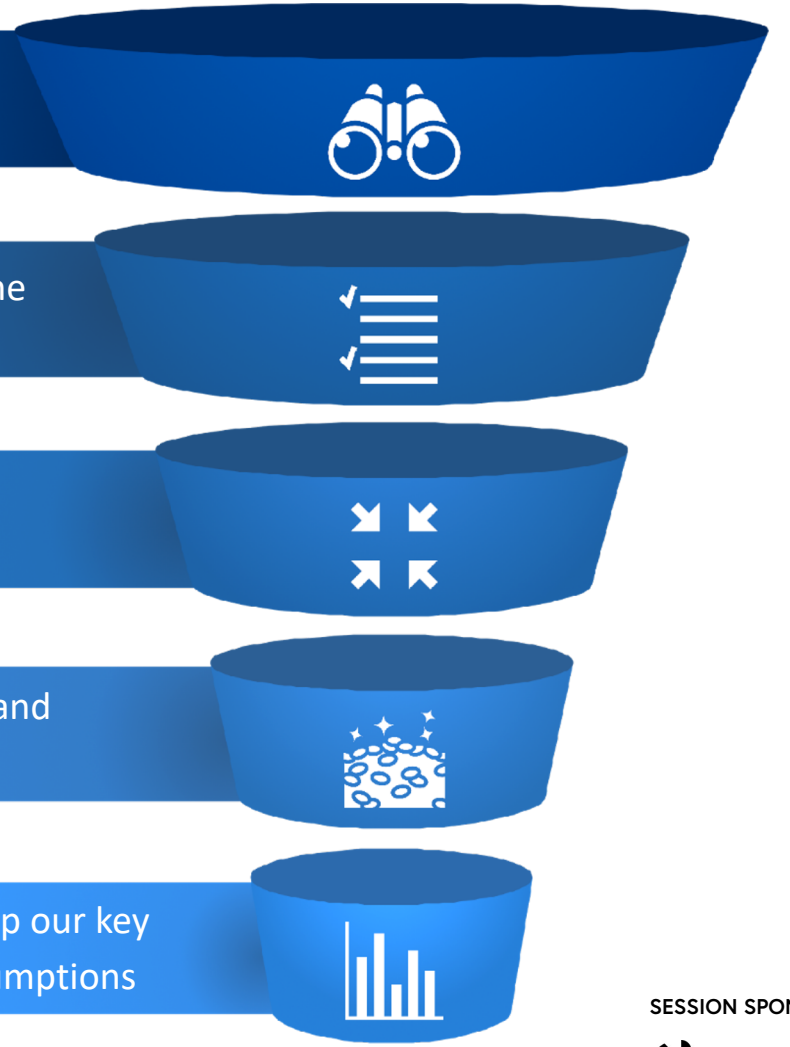
Shadowing Sessions helped us figure out how to narrow our focus, and highlighted the differences in stores w.r.t. risk level

Survey Results called KT and RWDs to our attention while supporting the idea that ROI is significantly different between SAPMs and APSMs

Shrink & Risk Reports gave us key metrics to validate against survey responses and would serve as predictors in our subsequent models

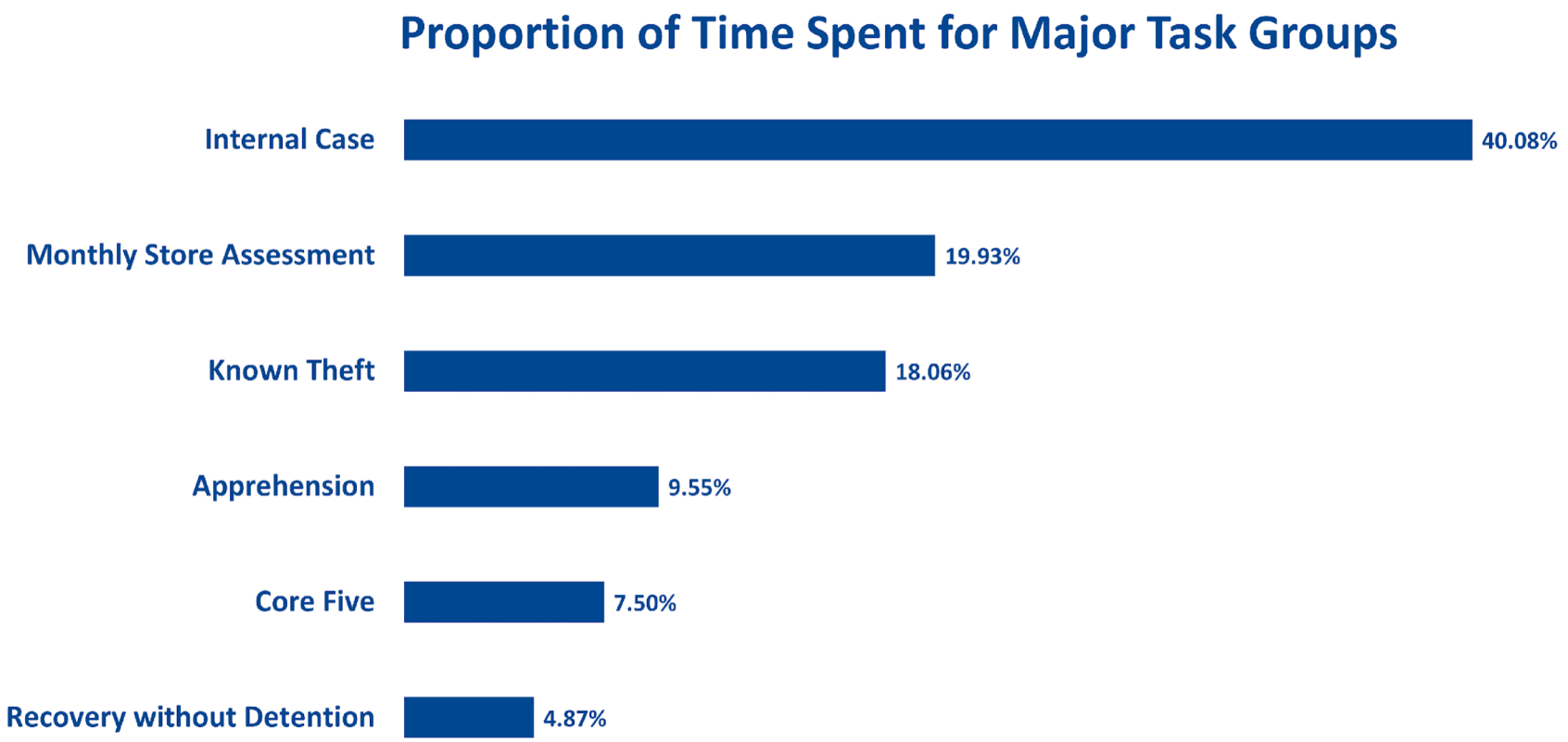
Case Management Data gave us what we needed to estimate ROI and tie all our information together

Our Unified Dataset holds all the information we need to develop our key analysis, based on manager feedback, $$$ data, and critical assumptions



03 Data Analysis

Summary of Survey Data



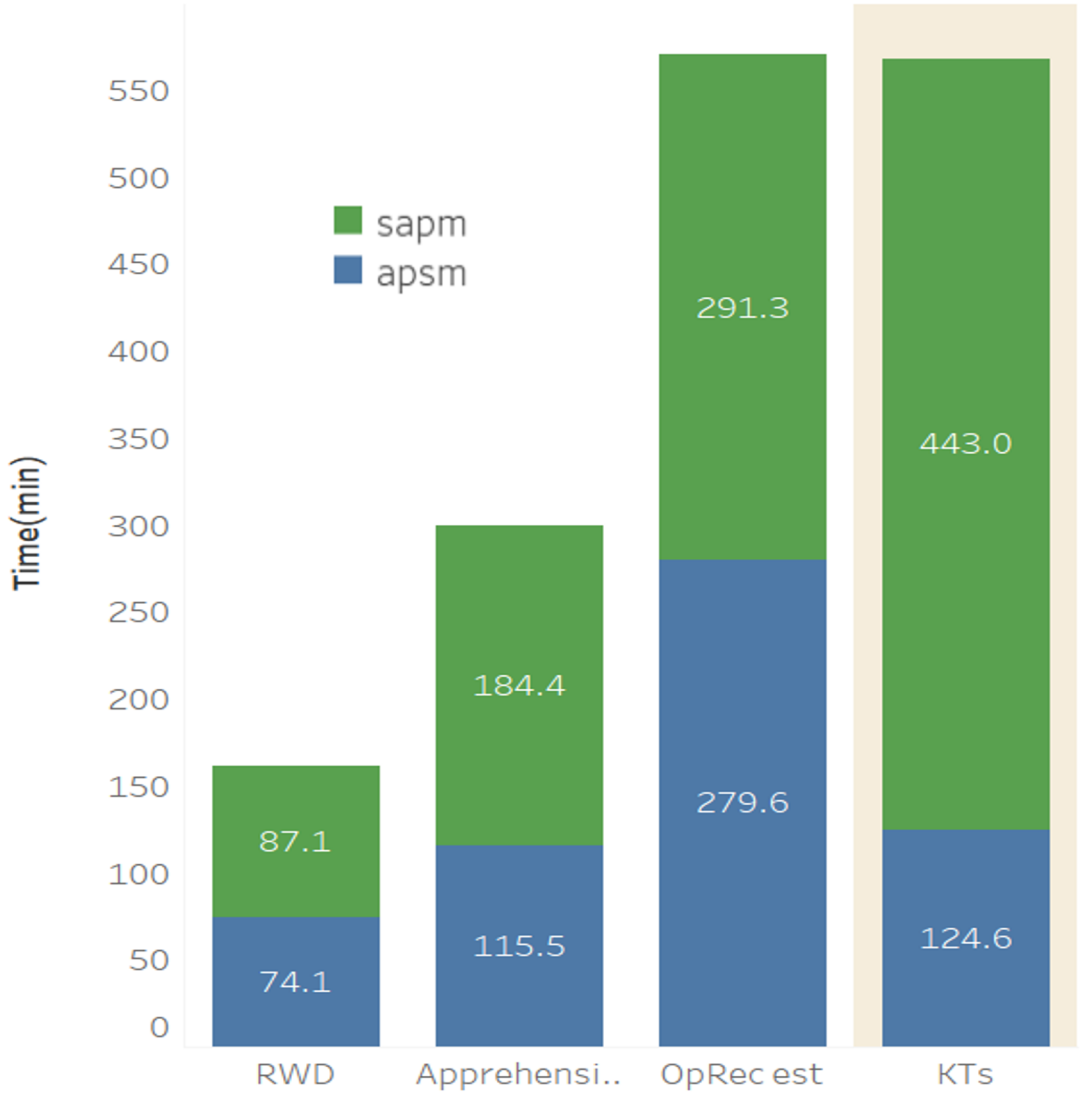
Most Important Tasks

Red File
Internal Case
Monthly Store Assessment
Core Five Walk

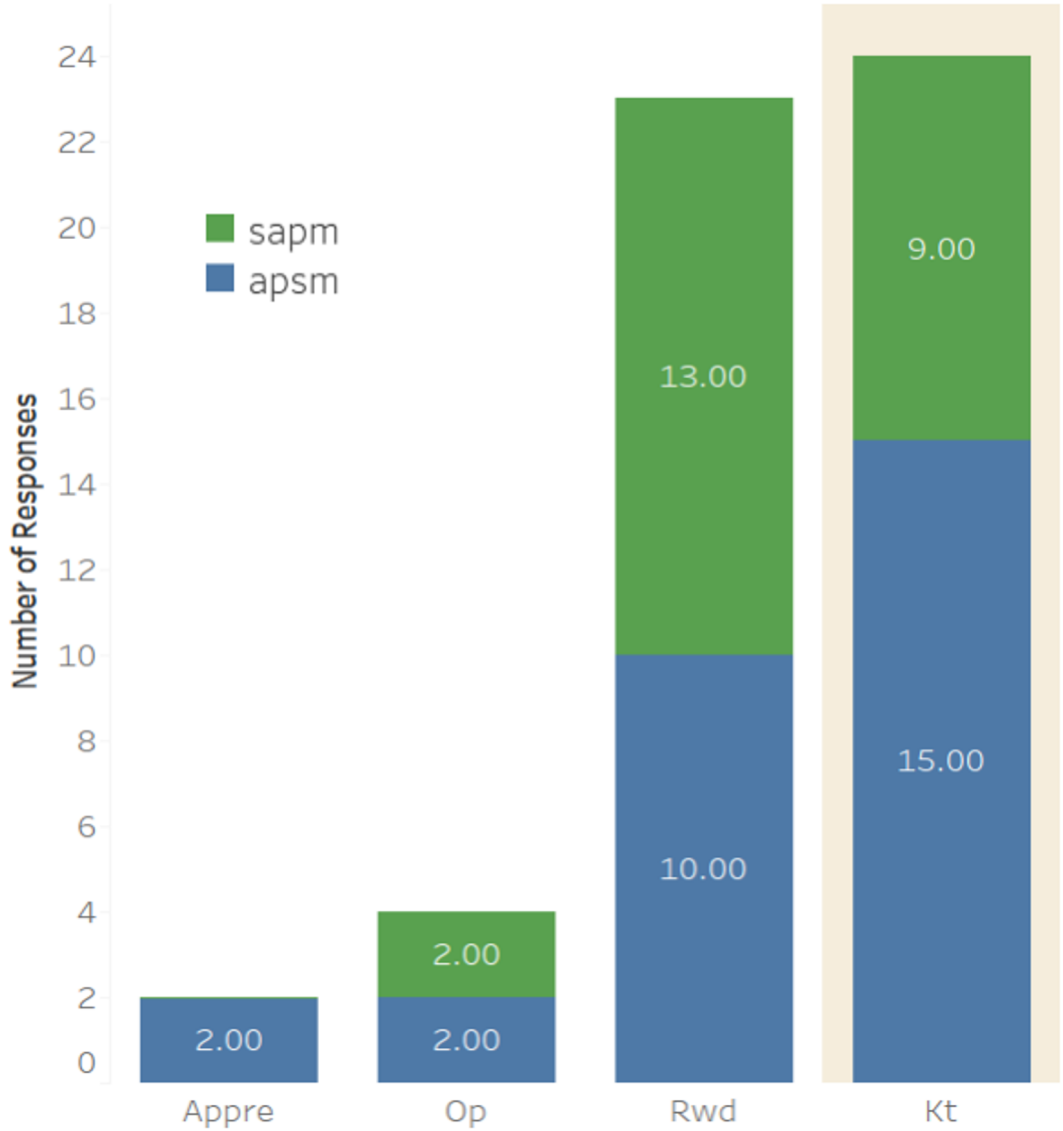
Least Important Tasks

Known Theft
RWD
Report

Average Time on Tasks



Least Important Tasks



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Survey Response NLP

“Bang for the buck [for known thefts] is too low. I have gotten very low-dollar internal cases off of EBR tool but the sheer number and time invested doesn’t give great ROI.”

“The known thefts take the most time during our days and [produce] very little ROI. Case [closures] from PD are very low in this, and even if they are caught we receive zero restitution.”

Survey Response NLP

Other Common Threads that tie into Case Efficiency

Slow rollout of equipment upgrades: 28.31%

Surveillance tech out of date, more so in some stores than others ● Managers would like to offer input on system design and to be able to request changes to adapt to AP needs

Unconsolidated software: 5.36%

Record-keeping and surveillance systems do not play well with one another ● AP-engagement platforms compete for associates' time and attention

Managers want more face time with associates

Far more effective for fostering buy-in, AP-education, team-efficacy ● Also allows for more time on salesfloor, which managers prefer to maximize when possible

NLP Sentiment Analysis - Survey Responses

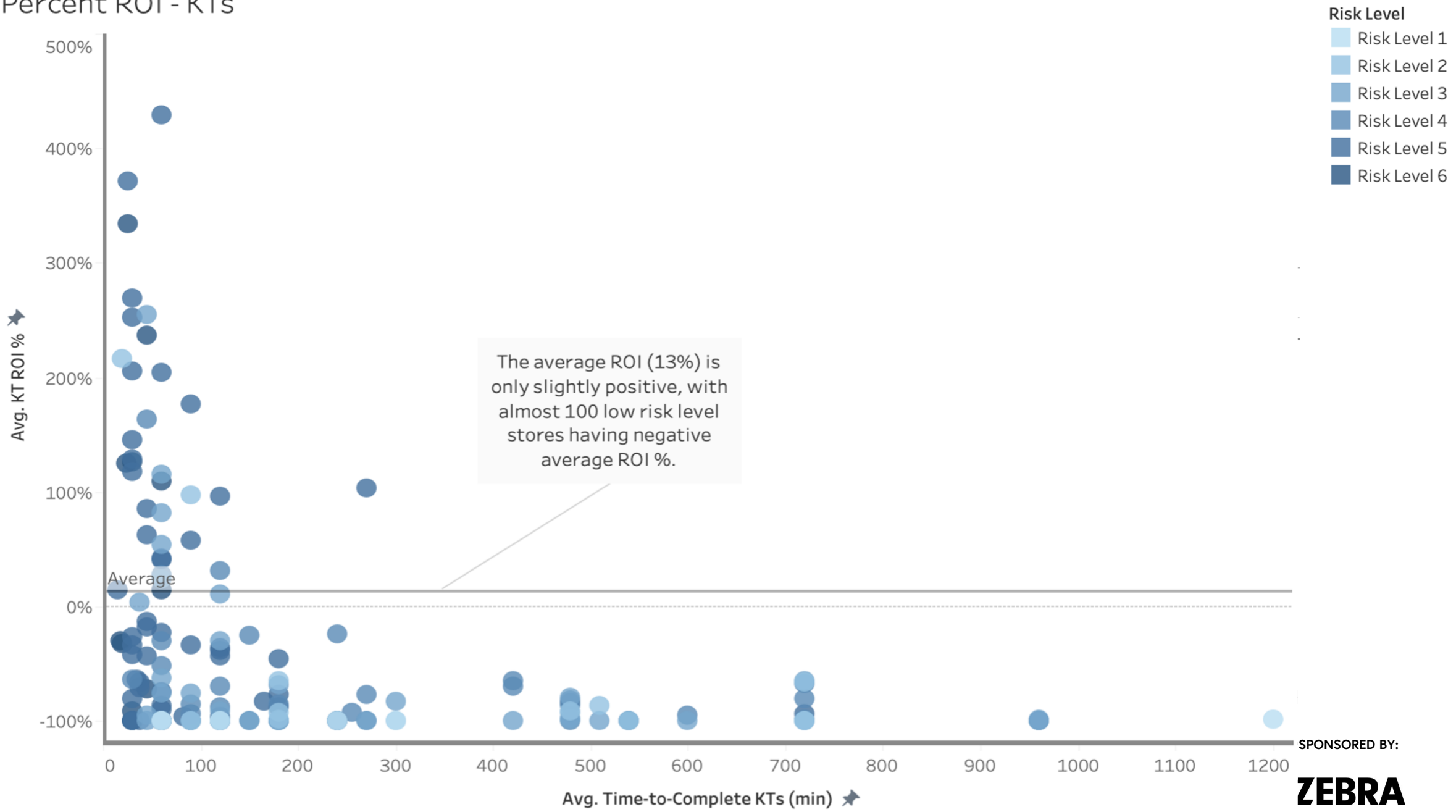
Positive Sentiment

Face-to-face time with associates • Safety related tasks and the importance of buy-in • Operational excellence and benefits to shrink as results of above combined with continuous associate development

Negative Sentiment

Outdated surveillance software & equipment, slow rollout of updates • Associate training involves too many separate, redundant platforms (e.g., AP4Me, FE4Me, Lowe's U, etc.) • Reporting workflow suffers from similar issue • Low-dollar value RWDs and KTs yield little, even negative, ROI

Percent ROI - KTs



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Known Theft Threshold Optimization

Is there a case value that is *too* low to overcome the cost of investigating?

Goal — Find a case value threshold where the average amount lost is less than the cost of investigating.

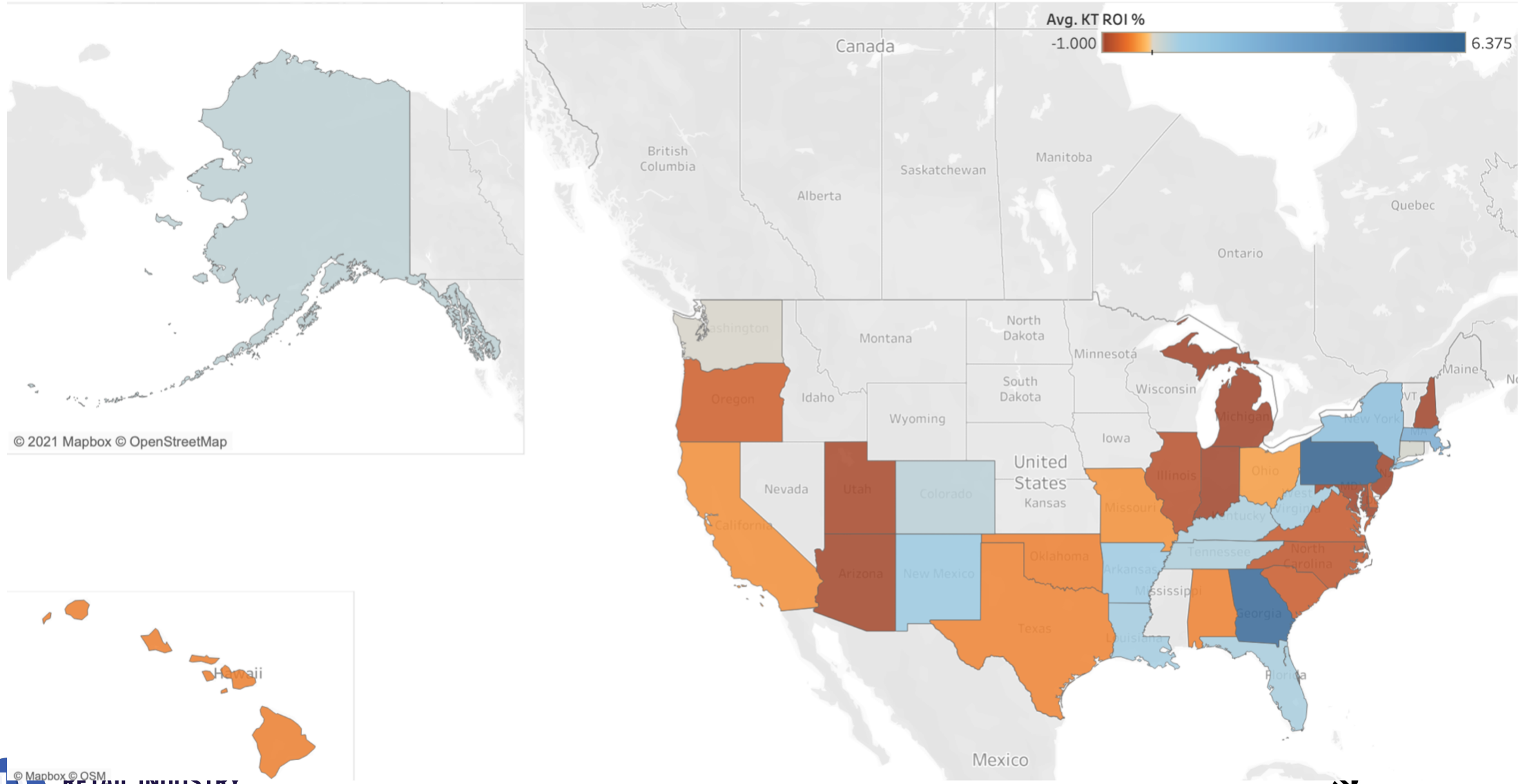
Method — Iterated through threshold values from $1 to $500

If total case value => threshold value, calculate actual ROI

If total case value < threshold value, count the case value as lost

Threshold values — Low-risk stores use $105 • high-risk store use $33

KT ROI Map



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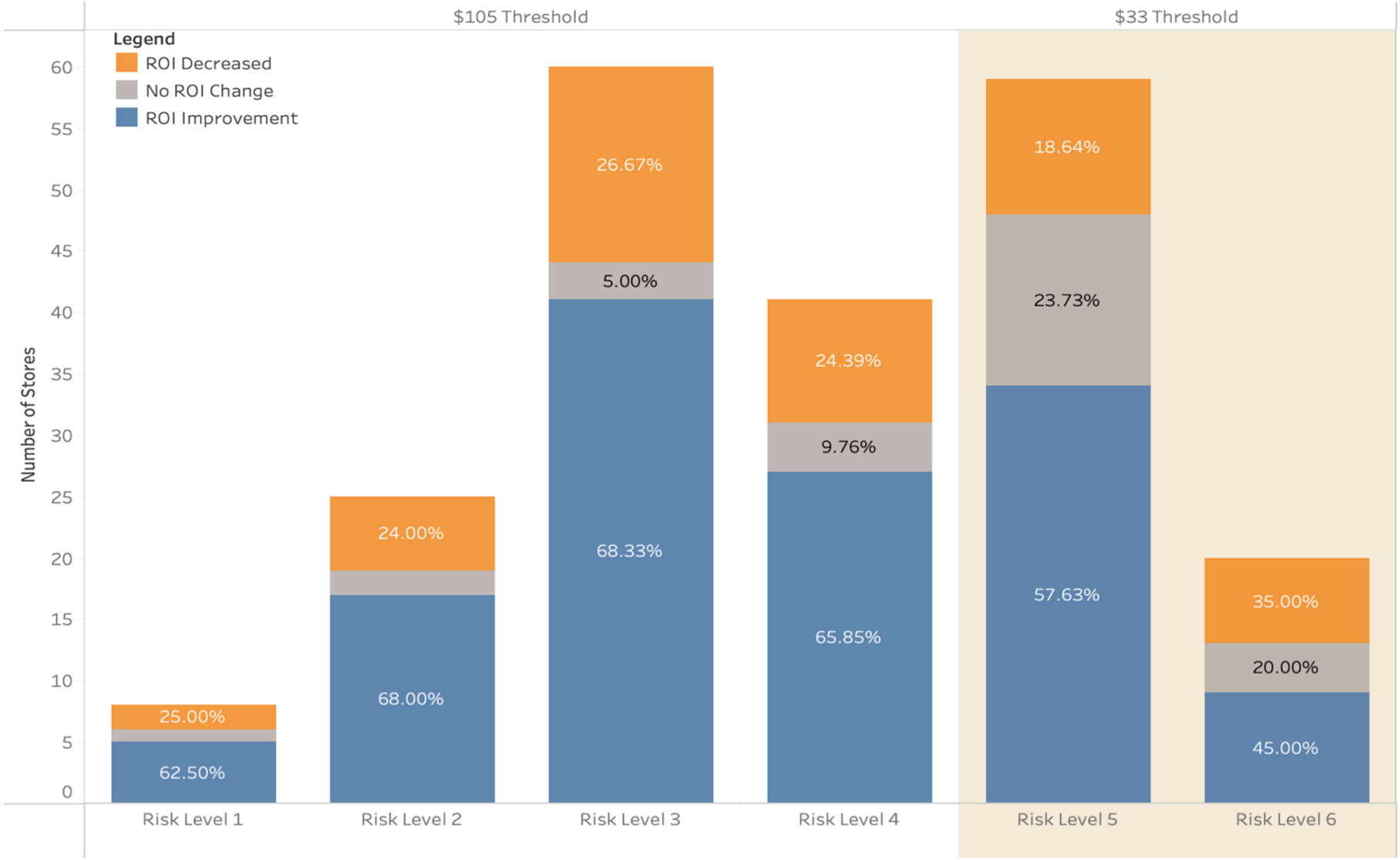
Impact of Case Value Thresholds by Store Risk Level



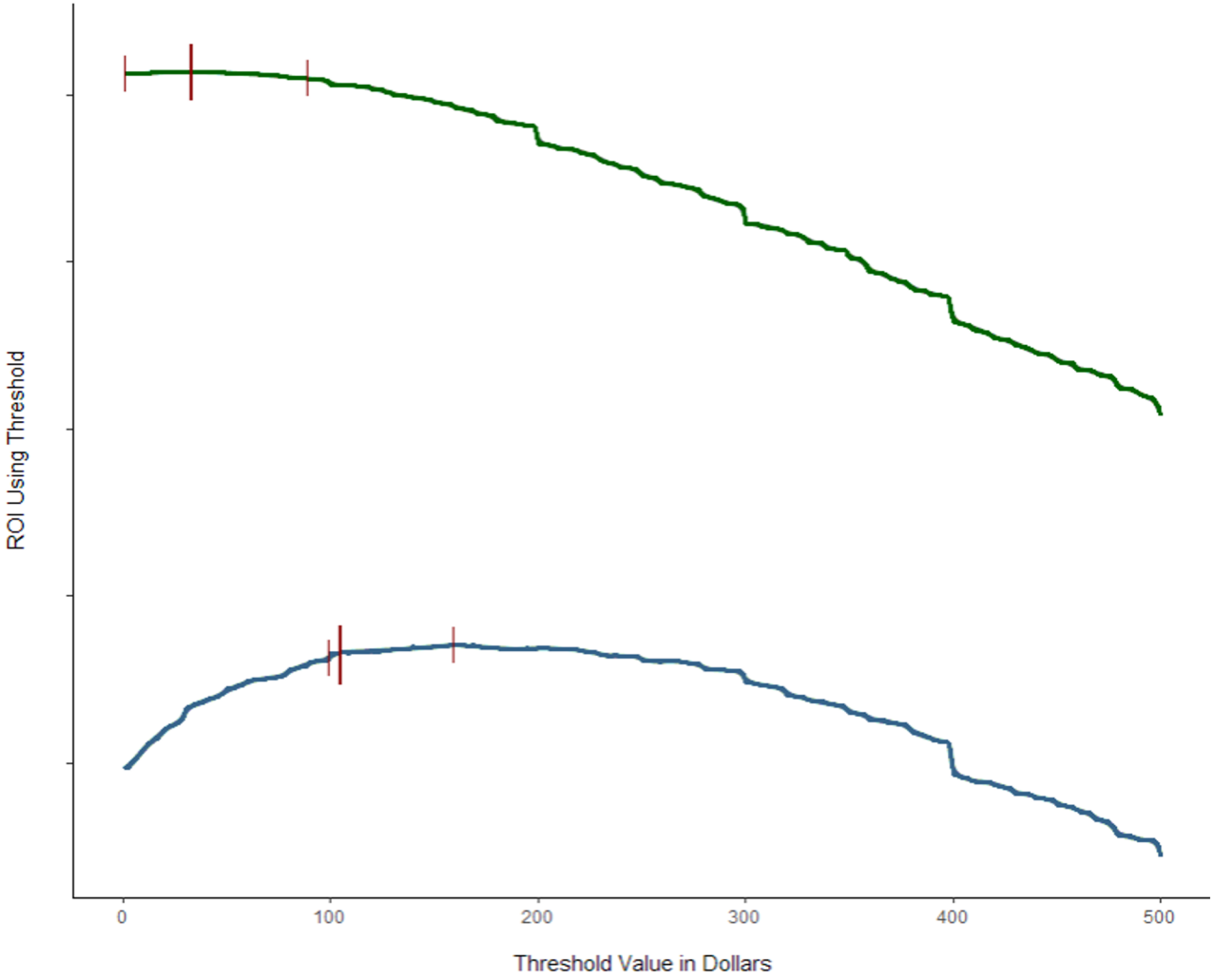
ROI $ (↑23.9%)

Friendly Reminder

Low-risk stores are levels 1-4, and groups of stores have 1 SAPM

High-risk stores are levels 5 & 6, and each store is run by 1 APSM

Threshold Validation



Bootstrapping Validated Threshold Intervals

Meant to control for outliers among high-risk level (APSM) stores specifically

200 iterations, 11k line-items & 200 test thresholds per

High-Risk Stores
$33 Threshold (bootstrapping gives $28.36)
Acceptable interval: $10 to $45
Without threshold (i.e., $0), ROI decreases by $46.90)

Low-Risk Stores
$105 Threshold • Acceptable interval: $103 to $160

Threshold Takeaways

SAPMs do not handle known thefts as efficiently as APSMs

Supported survey data and shadowing sessions

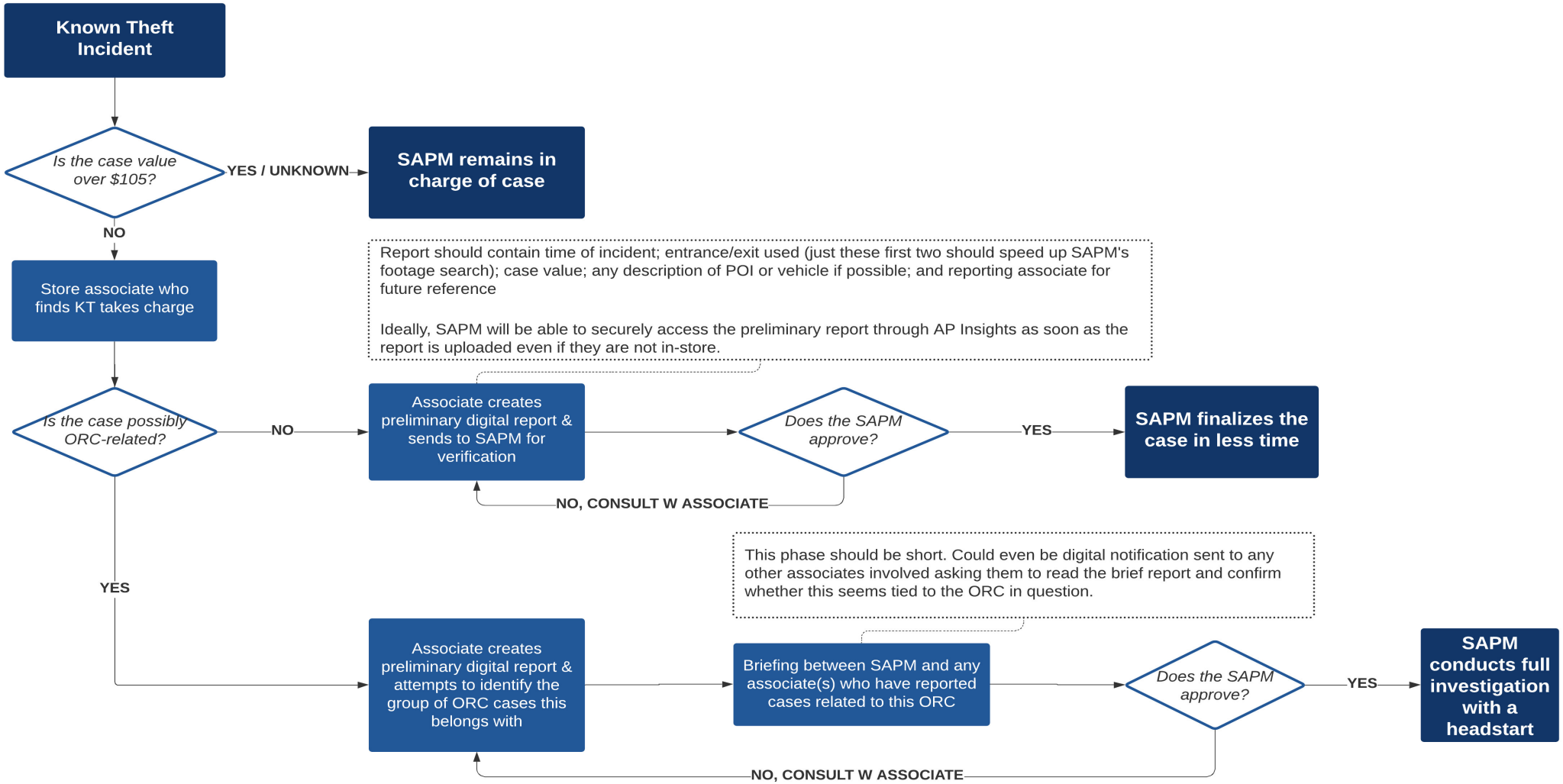
SAPMs advocate for delegation to the associates who bring KTs to their attention in the first place

This can be improved with more data and applied to other tasks

We can get a specific threshold for each store

Thresholds can be immediately implemented at no overhead expense

Threshold Takeaways



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04 Execution & Change MGMT

Execution & Change Management

Known thefts are a critical and directly actionable opportunity for ROI improvement. Implementing a threshold can cut losses and improve ROI by as much as 24%.

Doing so incurs no overhead expenses and affords managers more time with associates and time to focus on RWDs.

From survey responses, the most immediately addressable gaps are (1) low ROI from low-dollar RWDs and KTs, (2) unconsolidated software for record-keeping and AP/safety engagement, and (3) the delayed “camera refresh” and other security-related gaps

05 Conclusion & Next Steps

Conclusion

Collected data **related to asset protection tasks, shrink, and ROI**

Discovered strong, negative sentiment toward **low-value known thefts**

Highlighted a **performance gap between APSMs and SAPMs**

Proposed a way to **increase ROI for known theft cases using threshold values**

Developed a change management plan to enable Lowe's AP to **proactively manage shrink and increase ROI**

Next Steps

Review — Collect — Action

Action Steps

- **Reviewed known theft questionnaire for data points that are not actionable**
  - Are we asking questions just to ask them?
  - Is every section actionable?
- **Review all ROI related questions**
  - How do we make a 5-minute form a 1-minute form?
  - Solicitated feedback from the field organization on action steps & tasks
- **How do we make investigations more efficient?**
  - Made remote investigations faster through bandwidth optimization of VMS
  - Integrated our EBR tool with our case management tool for faster "conversations"
  - Made a "clone" button more available to users if cases had the same attributes
  - Changed some of the auto approval thresholds for cases
- **Put Senior AP's on a more consistent training cycle**

Future State

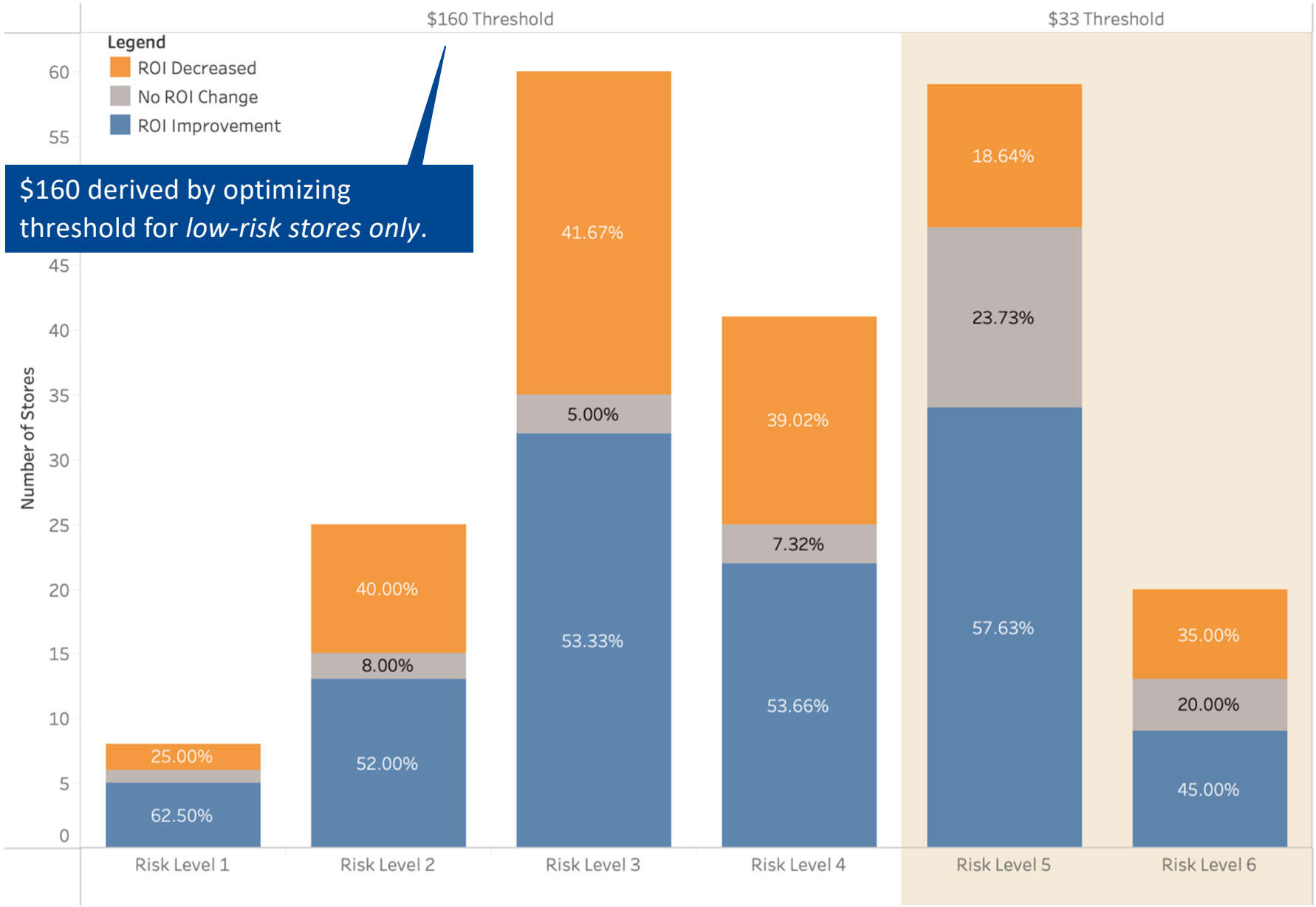
- **Play gatekeeper on the questions we are asking**
  - Add a question, take a question
- **Improve Investigative tools for Senior AP's**
  - Integrate more exception-based reporting tools into the case management platform
  - Have the autonomous behavior from the case management tool
    - Suggested ORC linking
    - Autofill on common offenders
- **Full Review of our current VMS platform**
  - Increase efficiency through "tagging" or following offenders to cut down on research time
  - Can we make investigations live in one place or easier to package?
- **Implement the threshold?**


LOWE'S
HOME IMPROVEMENT WAREHOUSE
QUESTIONS?

THANK YOU

Appendix

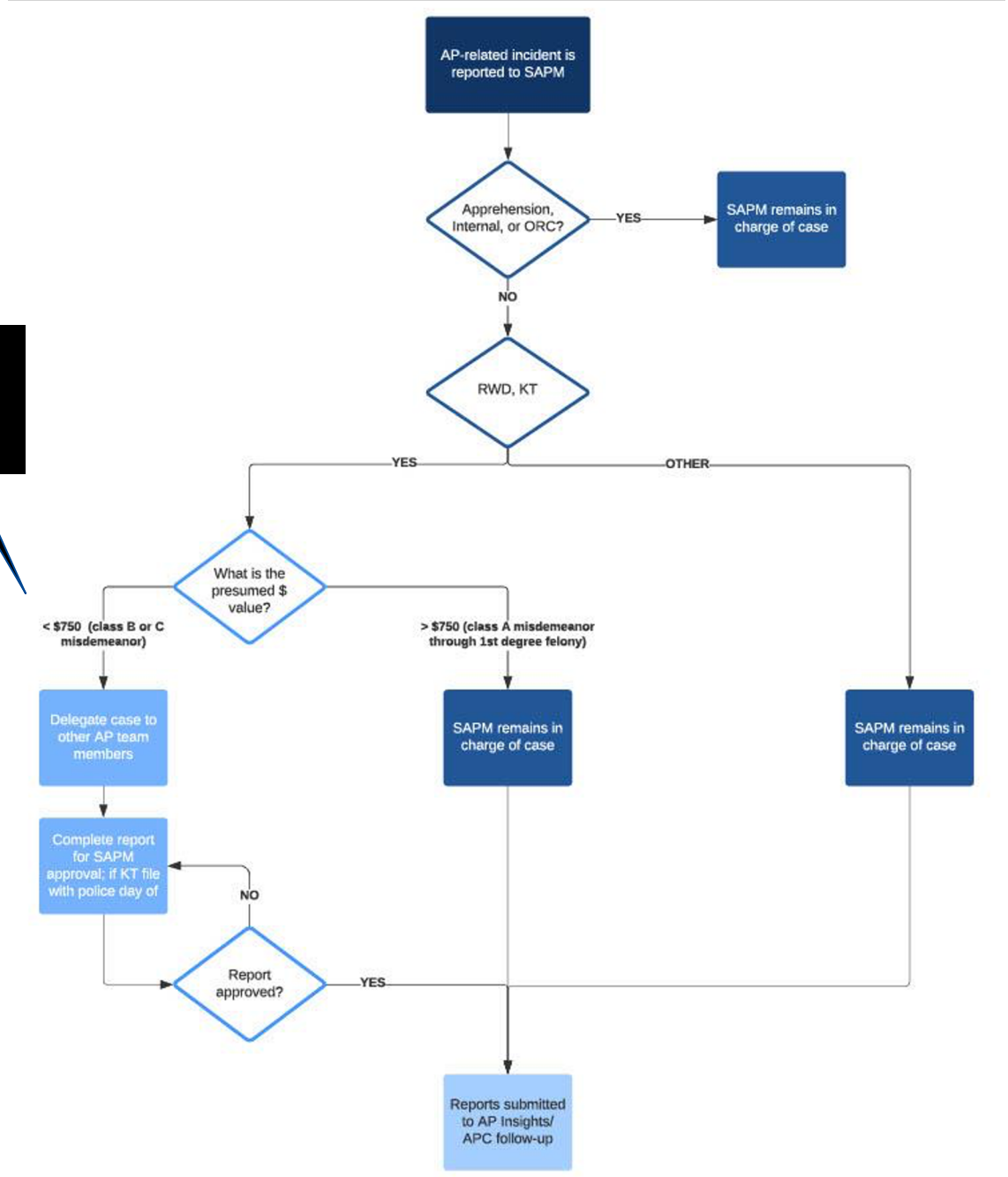
Impact of Case Value Thresholds by Store Risk Level



Current ROI with no case value threshold: **$(20,427)**
ROI with $160 case value threshold: **$(15,732)**

Percent increase in ROI: **23%**

These values can also be replaced with the appropriate threshold values from our original analysis



Threshold Sensitivity

How do our optimal thresholds and resulting ROI change in response to changes in cost?

Remember that cost is calculated as the amount of manager salary spent to complete a given task

- 10% increase in salary ⟶ thresholds yield 23.06% increase in ROI to $ (17,769.74)
  - Same ROI as original salary, different optimal threshold values
  - Low-risk threshold: $200 (↑25%) • High-risk threshold: $34 (↑3%)
- 10% decrease in salary ⟶ thresholds yield 20.63% increase in ROI to $ (14,062.61)
  - *Lower* ROI than original salary, which is counter intuitive, but cost is a function of time-to-complete and salary
  - Low-risk threshold: $160 (± 0%) • High-risk threshold: $32 (↓3%)