

# Intelligent Monitoring: Best Practices for Measuring and Reacting to the Market

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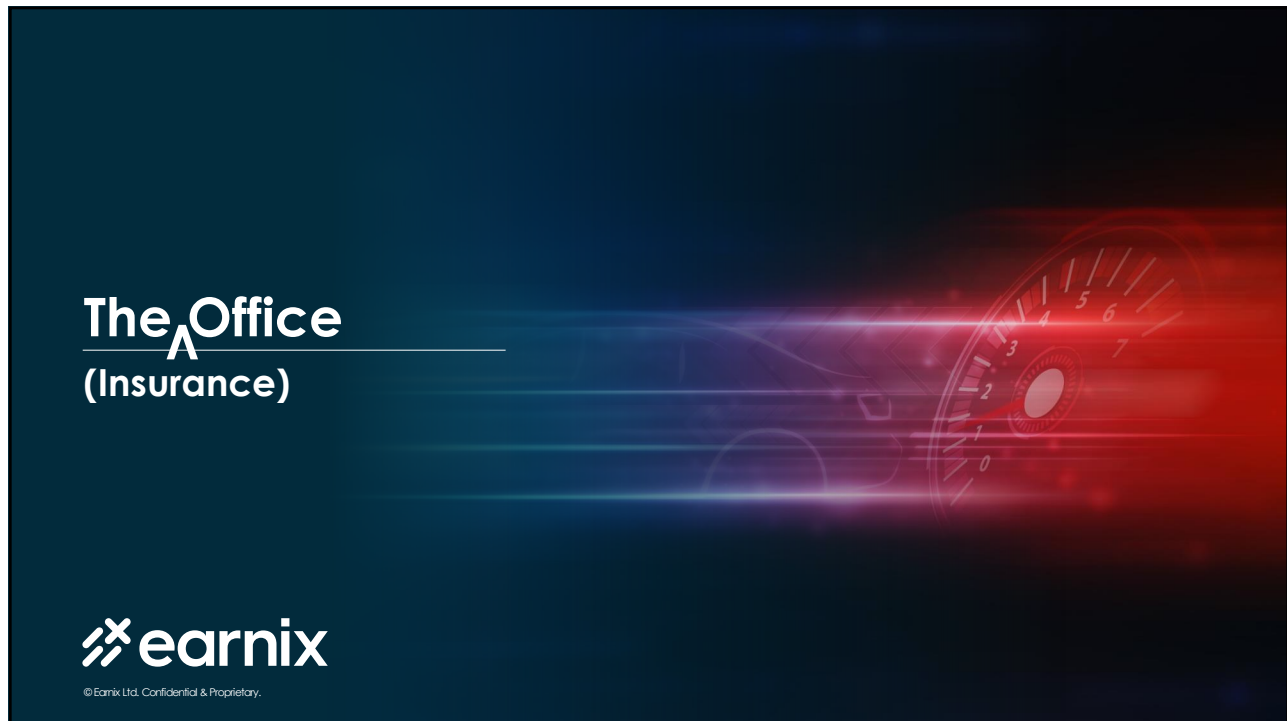
## Intelligent Monitoring Agenda

- ⚡ Current State of 'The Office'
- ⚡ Monitoring Defined
- ⚡ Getting Started
- ⚡ Common challenges



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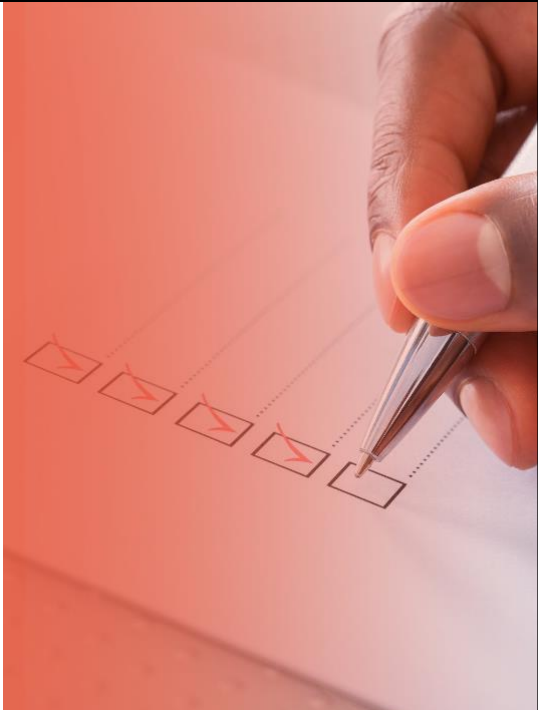
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### Poll Question

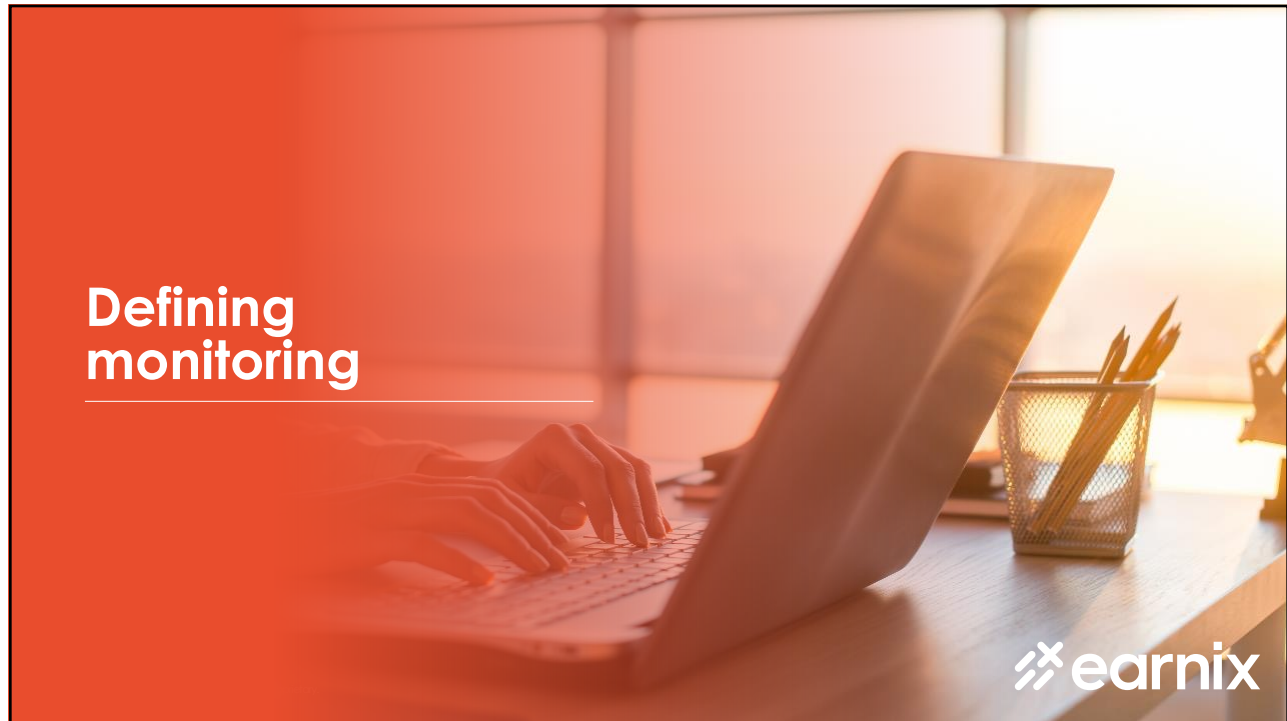
Which theme from 'The Insurance Office' hits closest to home?

- One-off requests from management
- Following the annual rate change schedule
- Investing as much time on low premium and high premium states
- Dropping everything into a pivot table to hunt for something interesting
- Nothing, we have it figured out

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## Monitoring

“ Observe and check the progress or quality of (something) over a period of time; keep under systematic review. ”

**Examples of (something):**

- Rate Change
- Competitive Situation
- Underwriting Action
- Marketing Action

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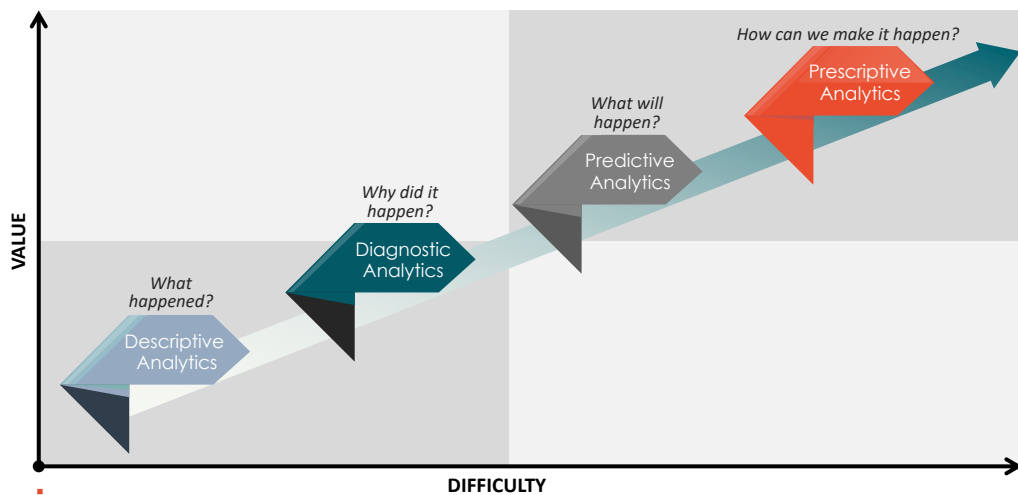
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## Benefits of Monitoring

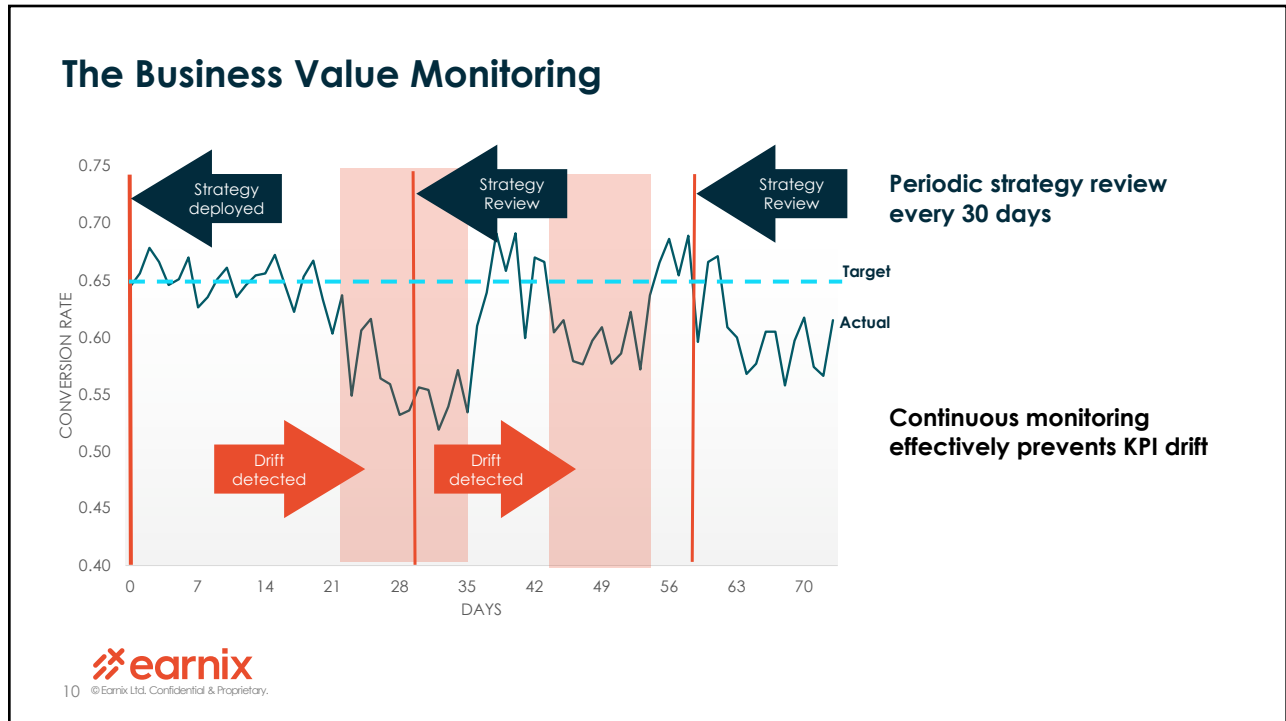


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## Monitoring Can Evolve Over Time



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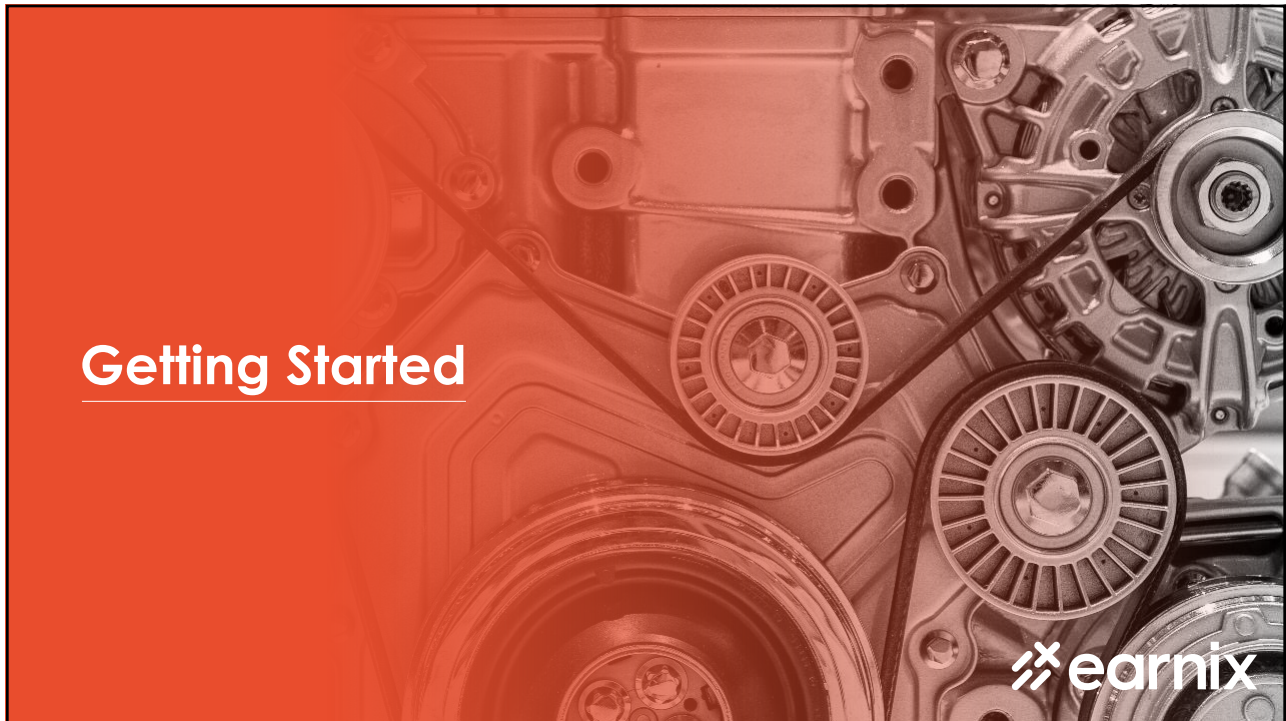
### Poll Question

**What level of monitoring does your company do today for implemented rate reviews?**

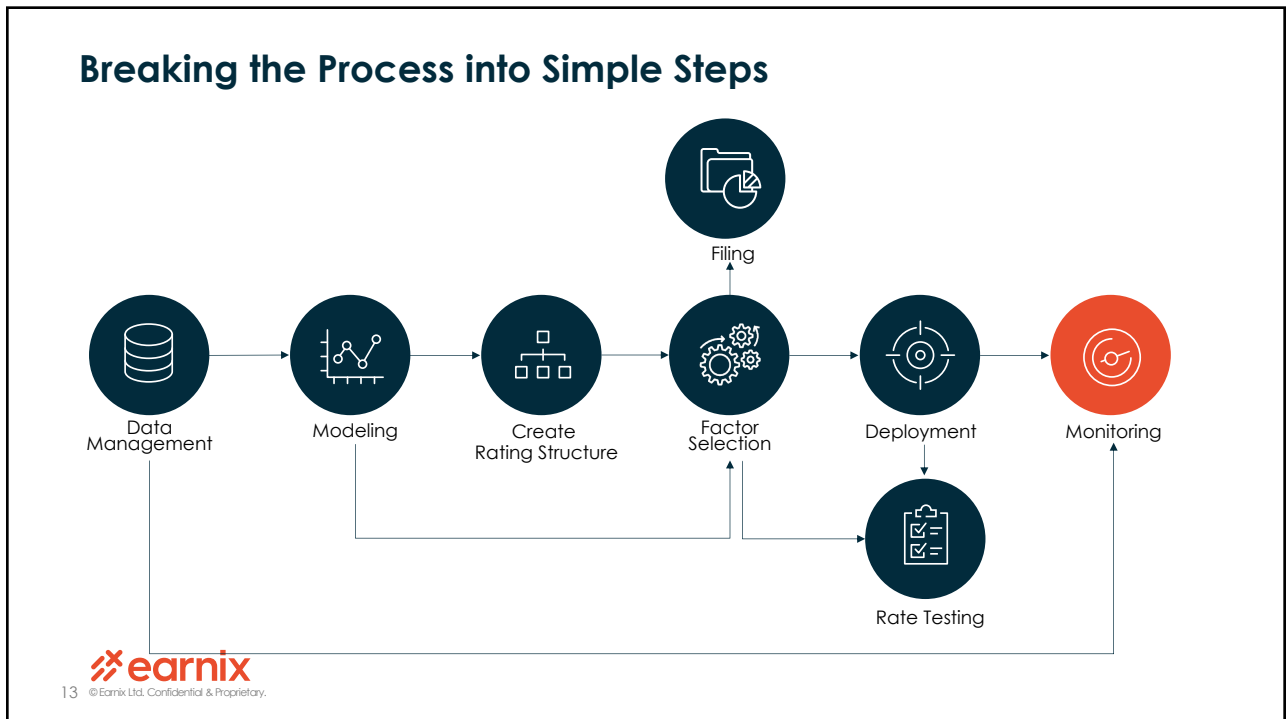
- Little to none
- Ad-hoc, big states or major reviews
- Monitoring happens with next rate review
- Scheduled monitoring (semi-annual, monthly, etc.)
- Continuously – automated intelligent monitoring

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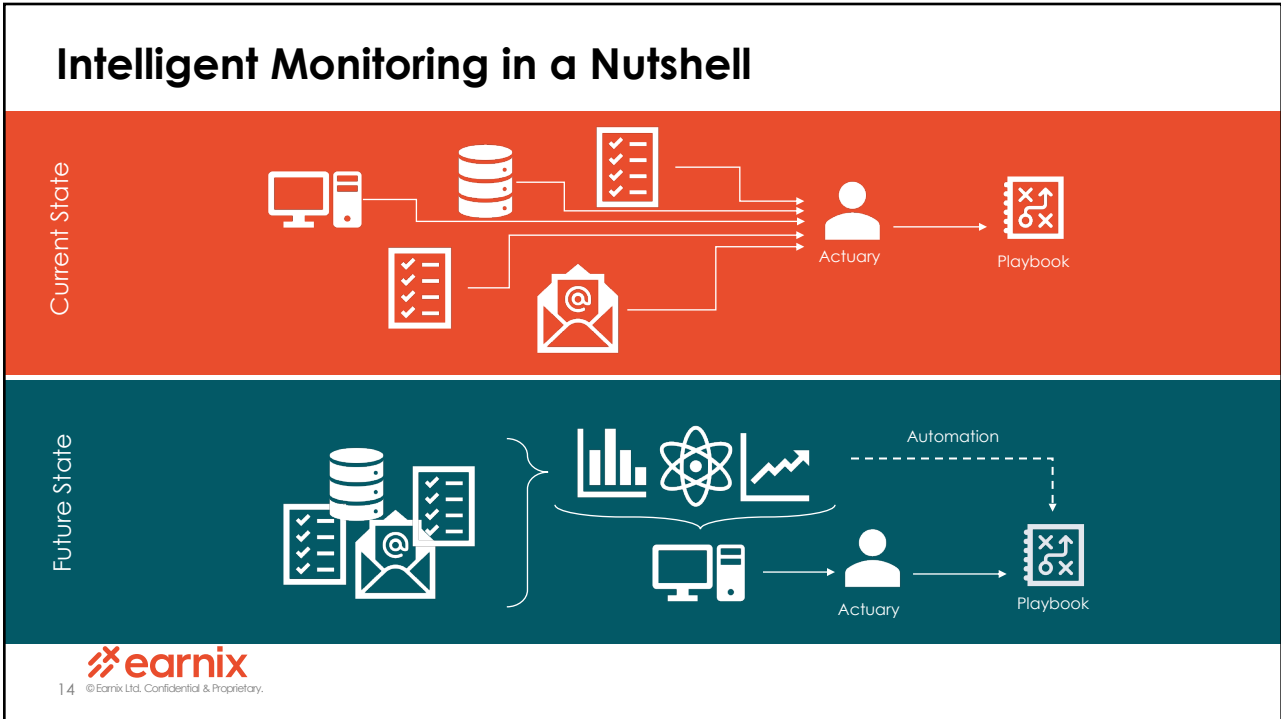
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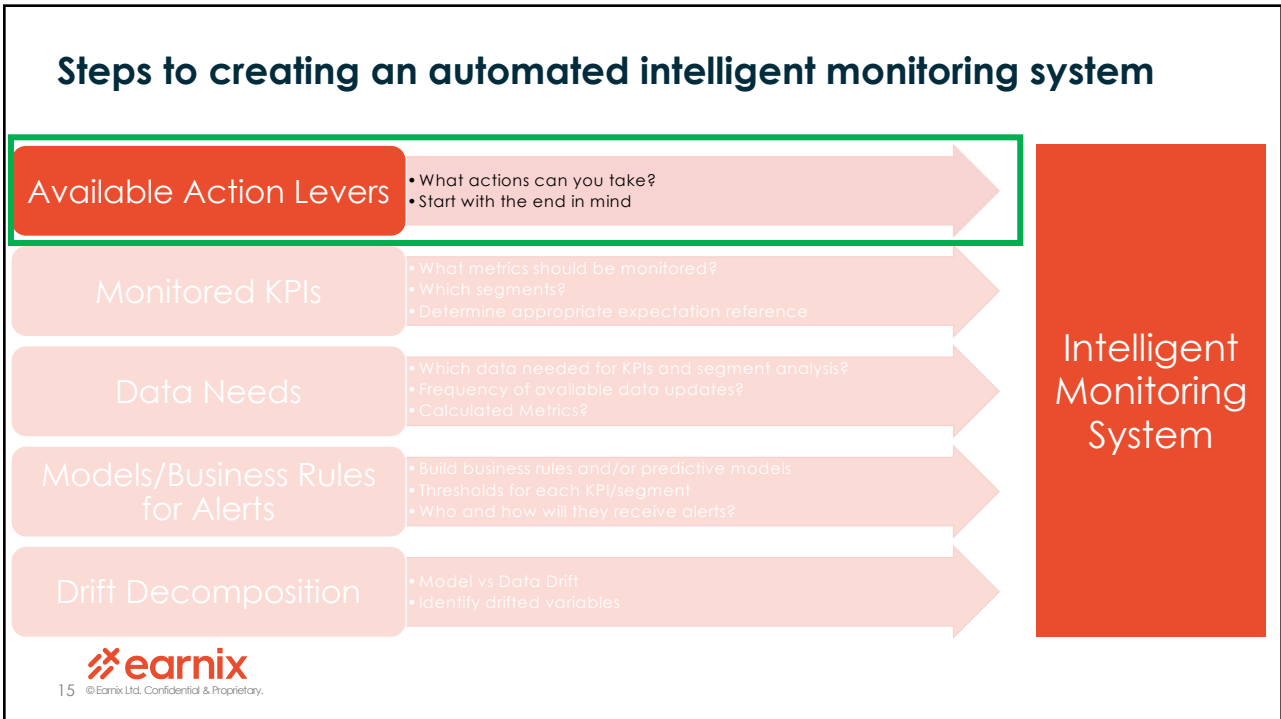
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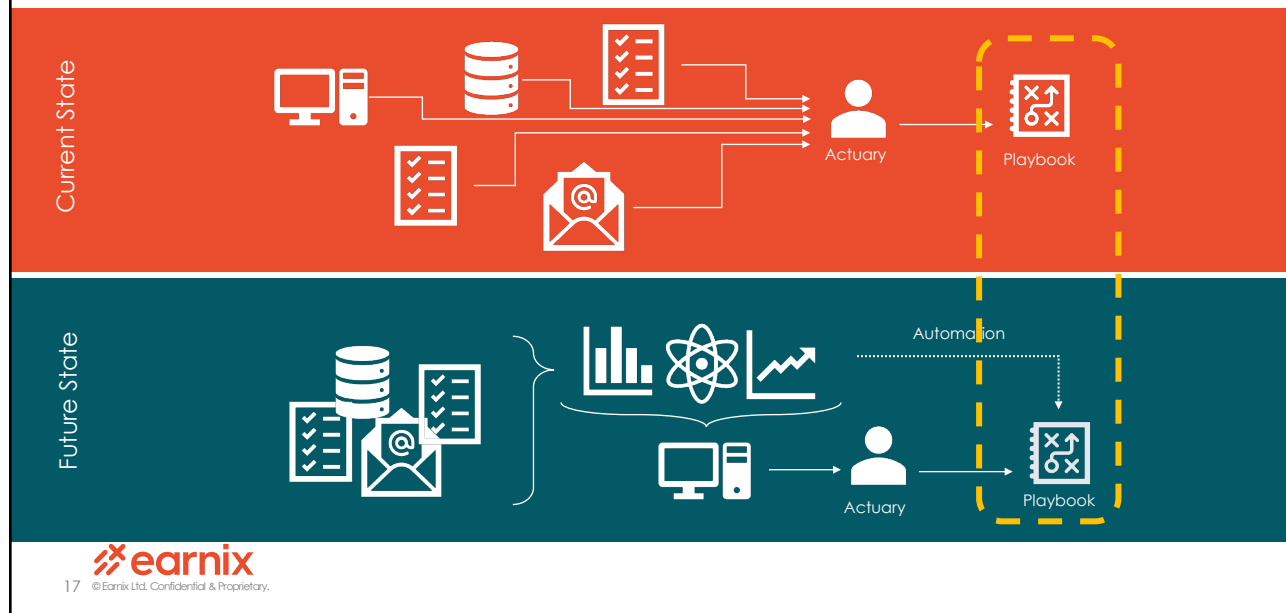


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**“Monitoring is useless...  
It is the actions you take that matter”**

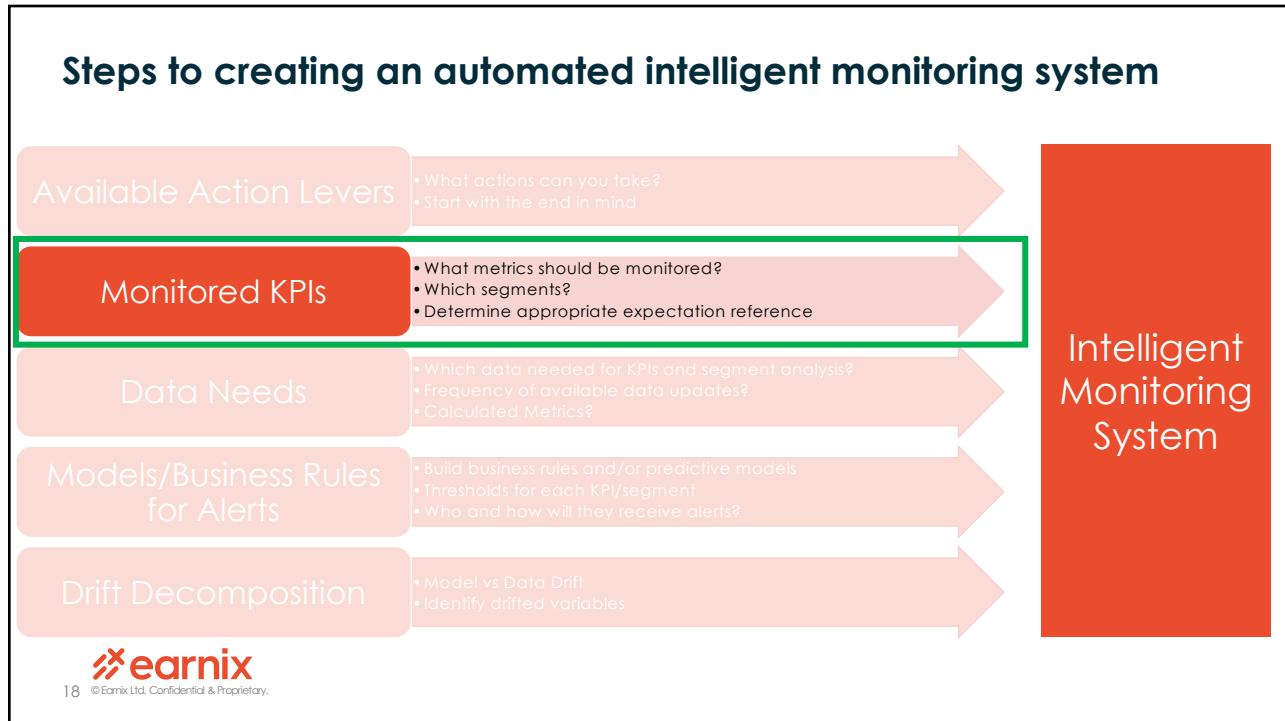
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### Start with the End in Mind

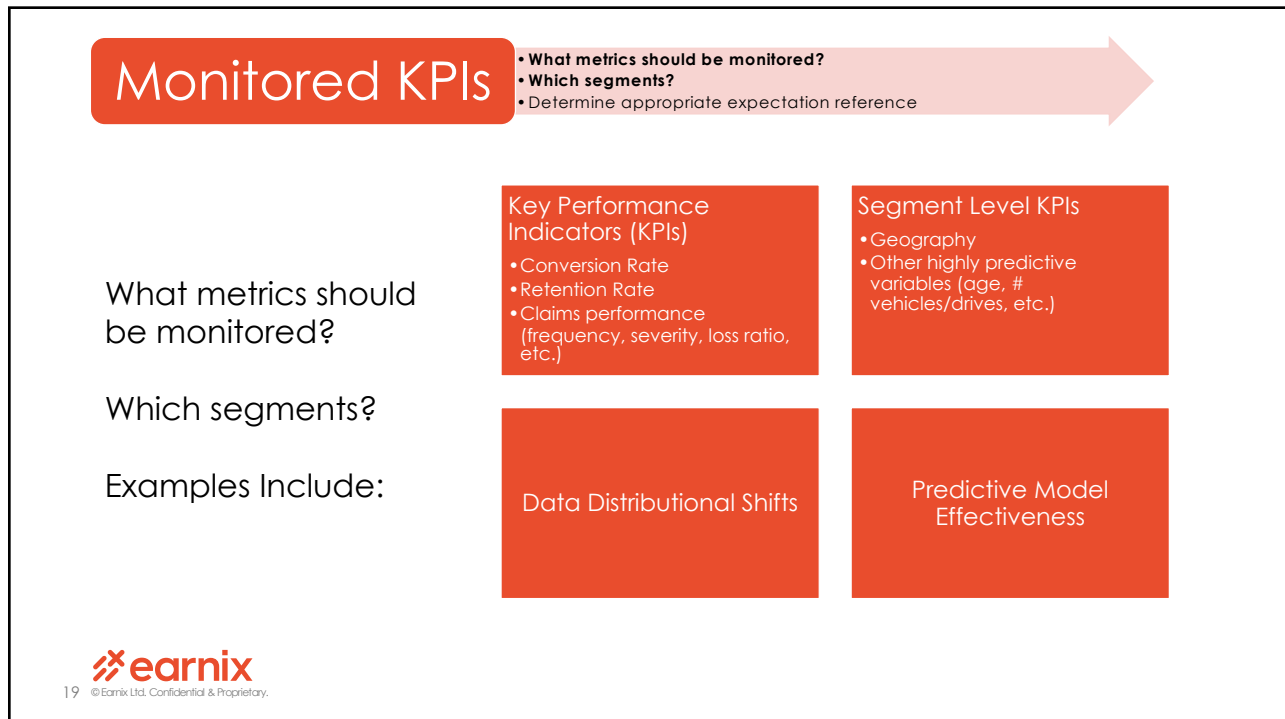


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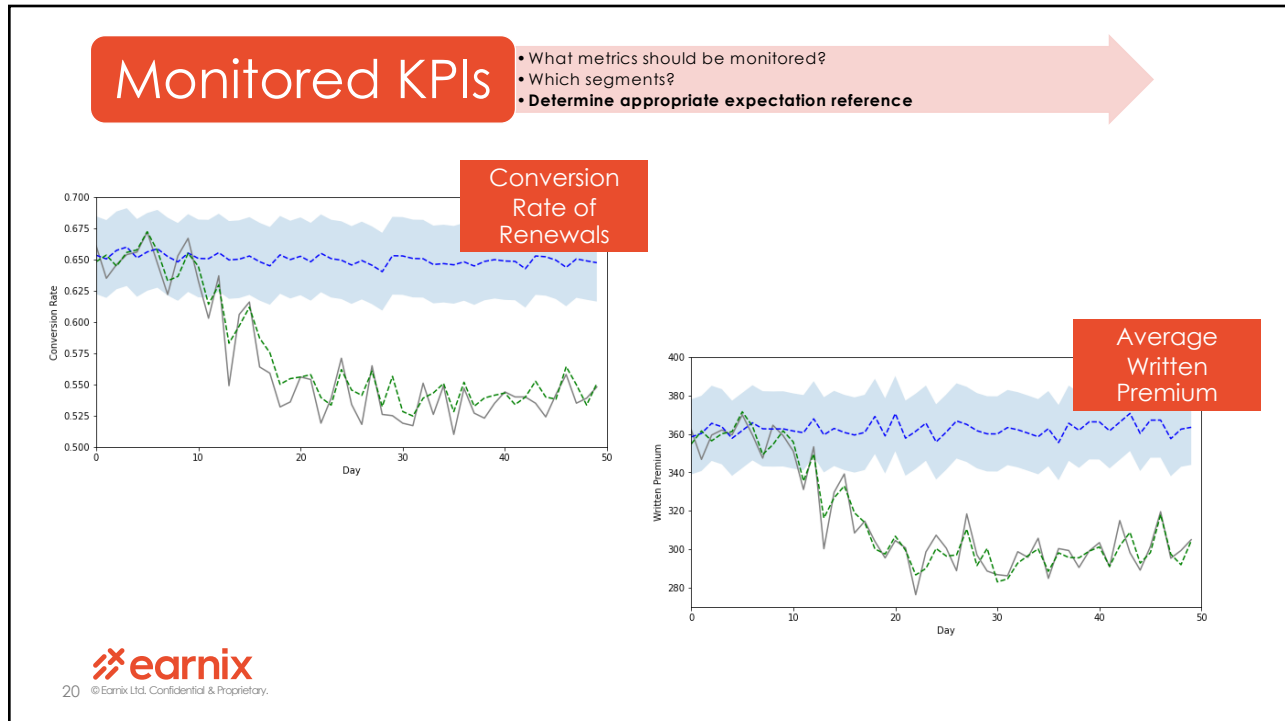




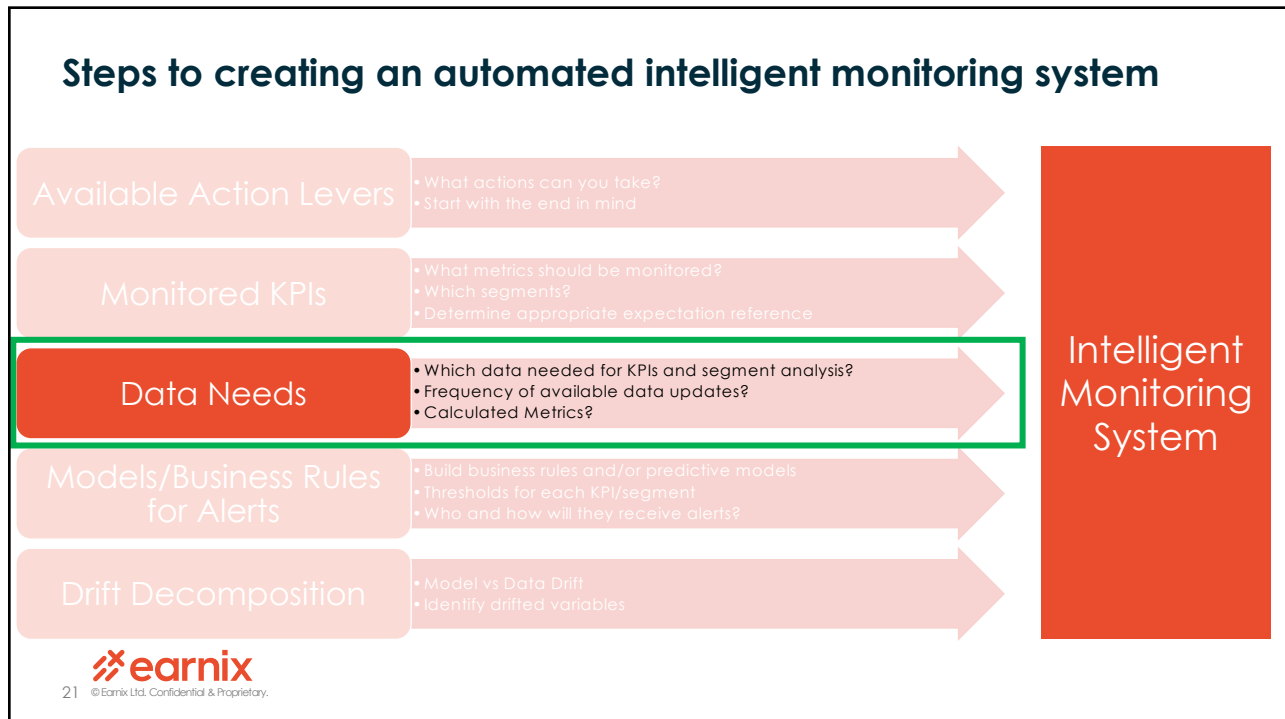
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**“Errors using inadequate data are much less than those using no data at all.”**

**- Charles Babbage**



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### Intelligent Monitoring Data Considerations

**KPI Metrics**

**Calculated Metric**

**Raw Data**

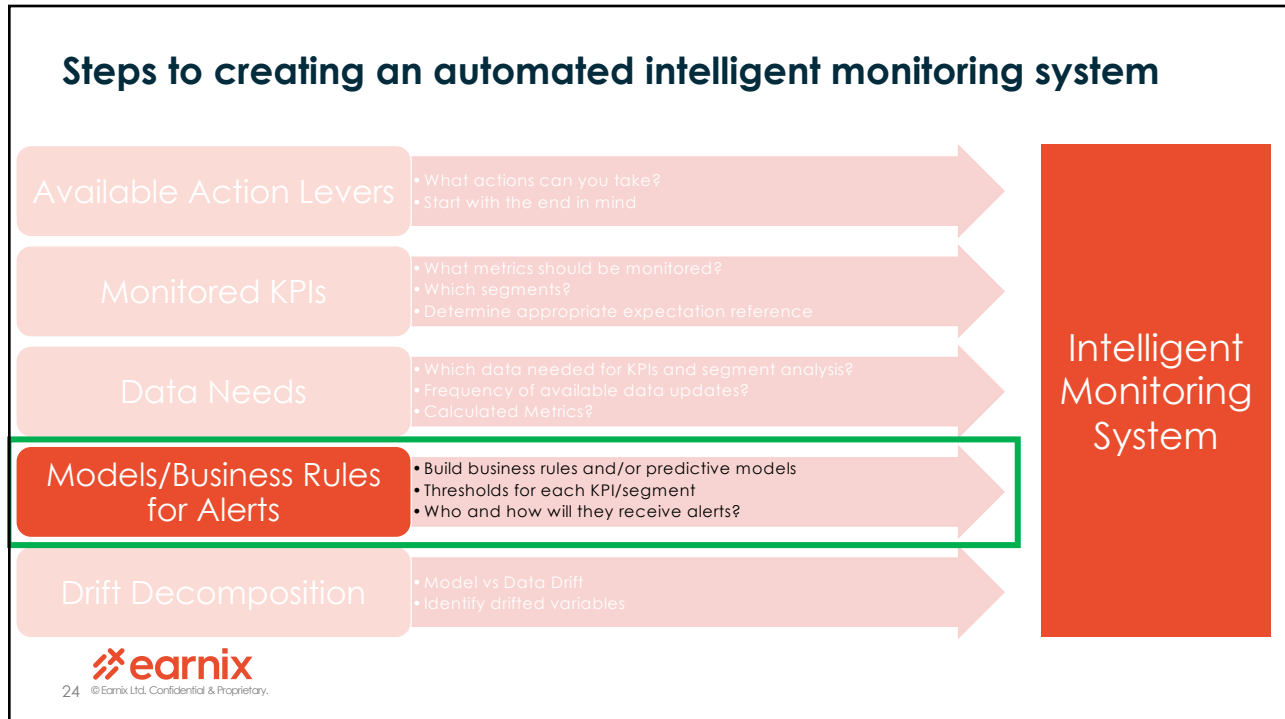
**Segmentation**

**Frequency**

**Governance**



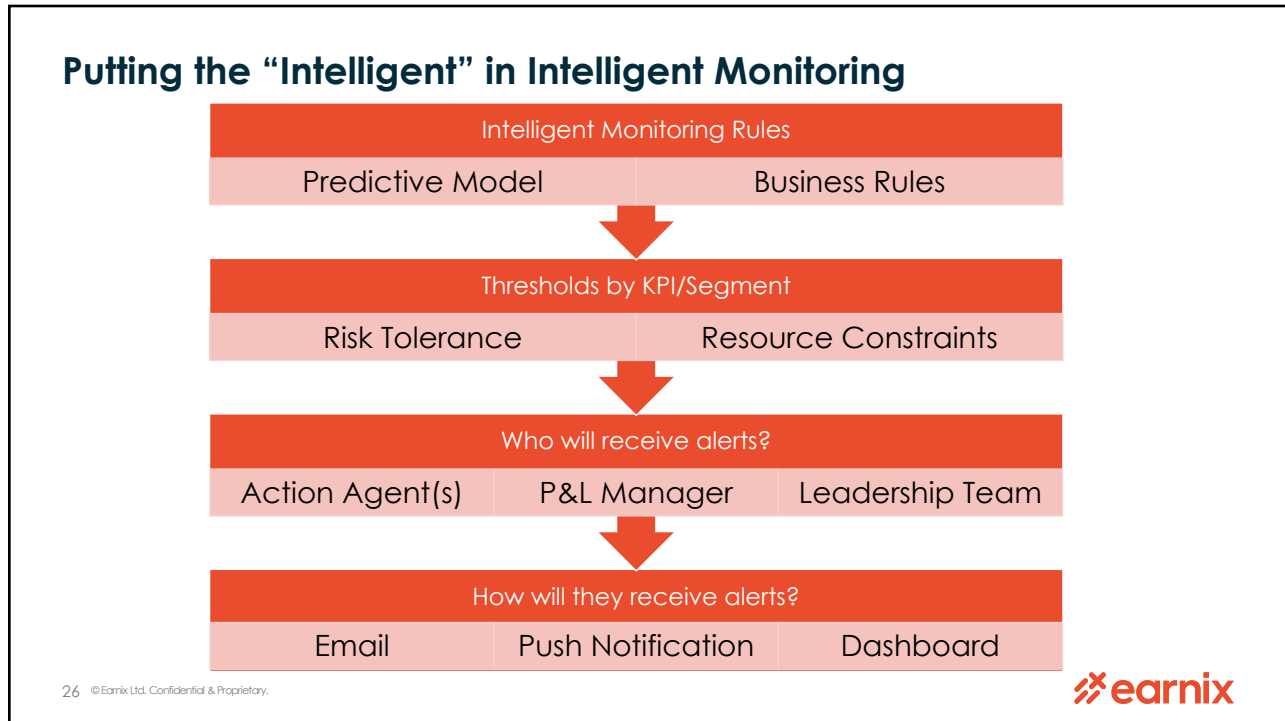
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### Poll Question

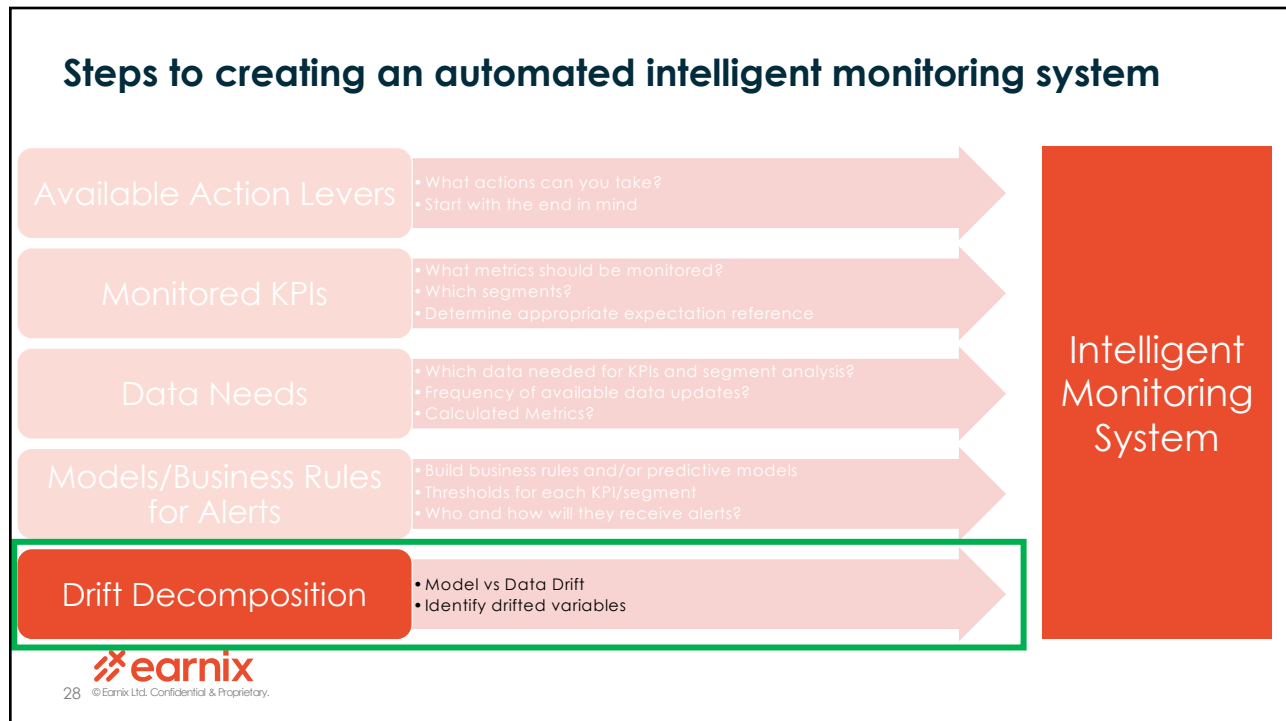
**What area is primarily responsible for monitoring the effectiveness of rate activity today?**

- Pricing actuarial team
- Product management
- Underwriting
- Centralized reporting team
- Multiple teams
- Other
- Unsure

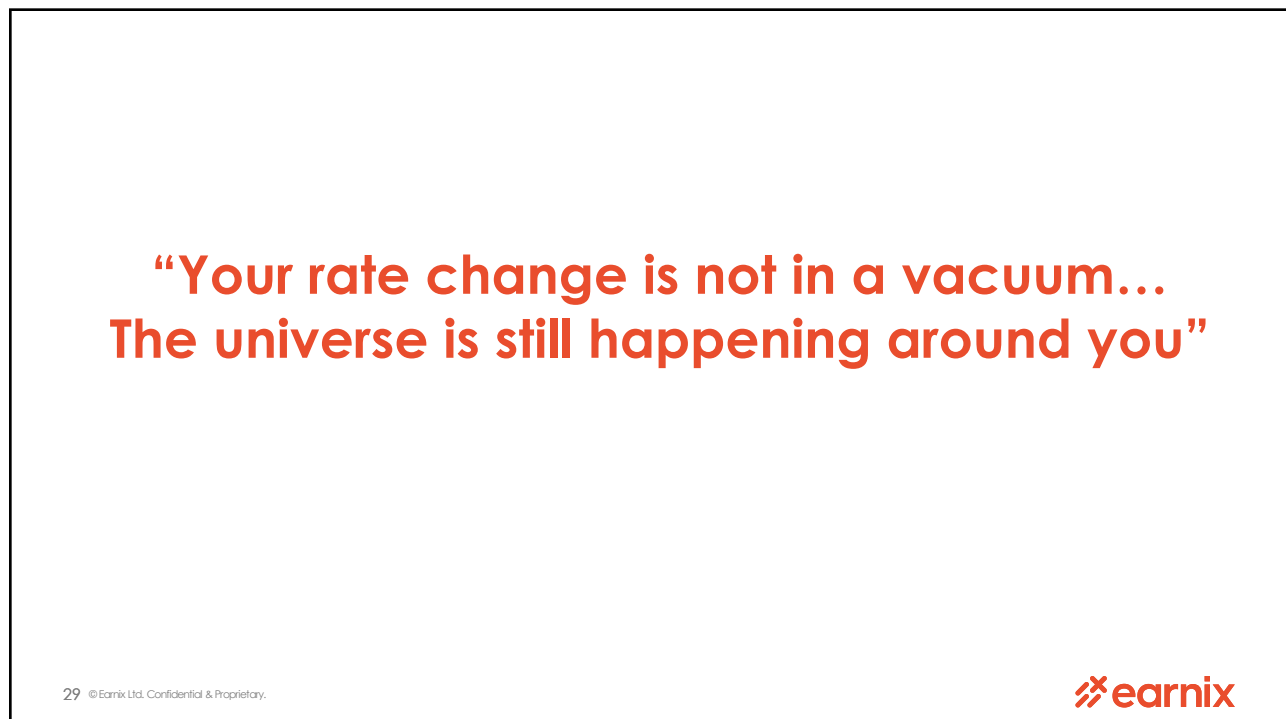


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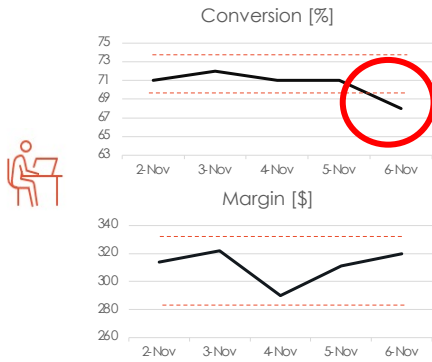
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## Root Cause Analysis

KPI monitoring



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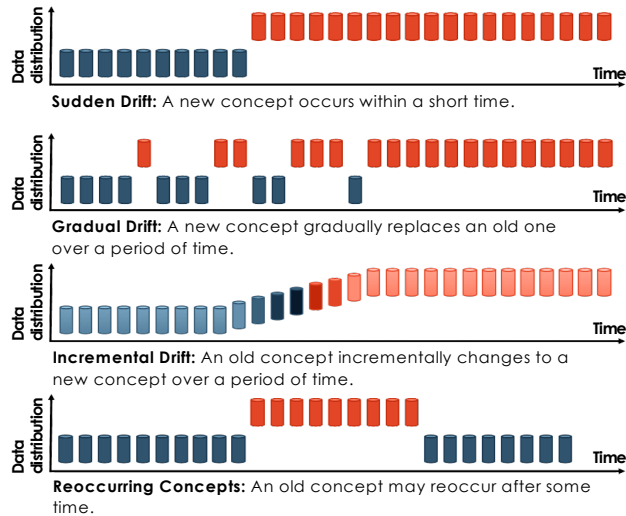
## Model Drift vs Data Drift

Sources of **model** drift:

- Customers change behavior
- Business environment changes
- Regulation changes

Sources of **data** drift:

- Change in mix of business
- New variables; new values
- Data errors



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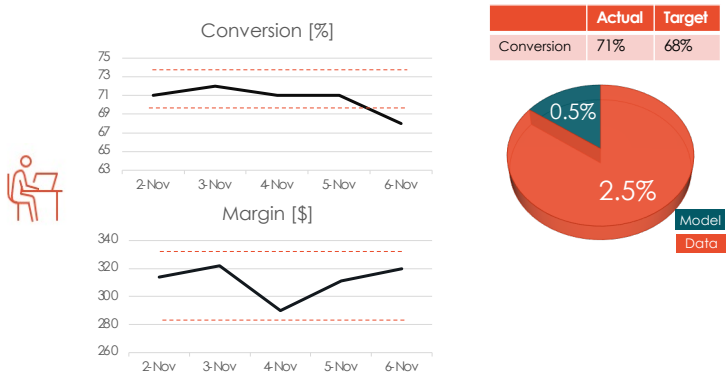


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## Root Cause Analysis

KPI monitoring

Drift decomposition



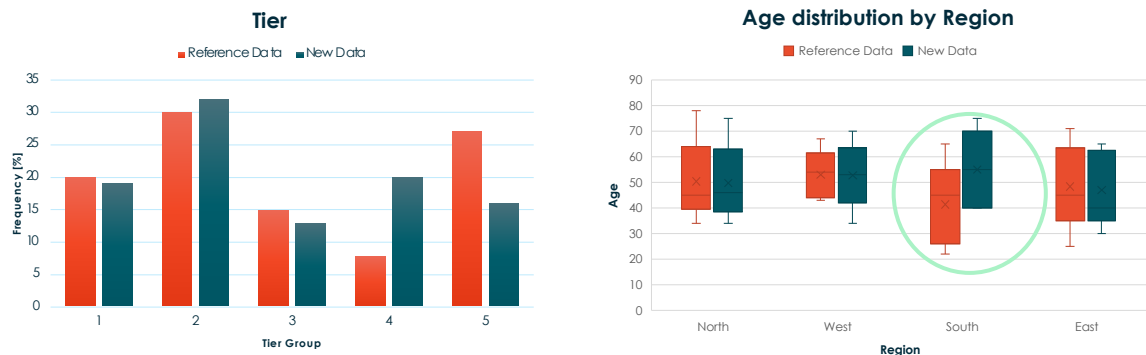
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## Drift Decomposition: Data Drift

Identifying the drifted variable is not enough, drifted segments should be highlighted.



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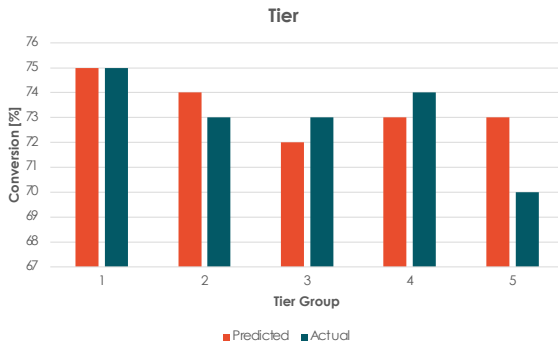


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## Drift Decomposition: Model Drift

Identifying the drifted variable is not enough, drifted segments should be highlighted.



Conversion[%] – Actual vs. Predicted  
Pre-Defined Segments

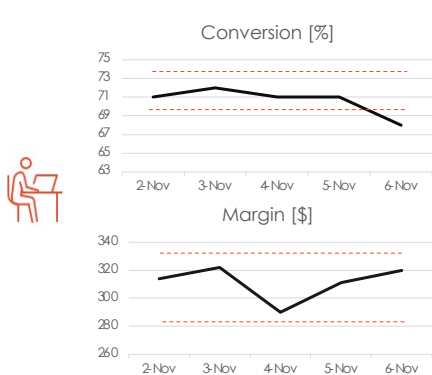
Segment	Predicted	Actual	Difference [relative]
Young Drivers	75	68	-9.3%
Rural Areas	70	71	+1.4%
High Risk	73	70	-0.4%

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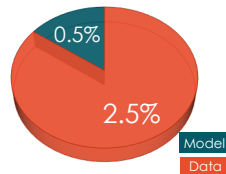


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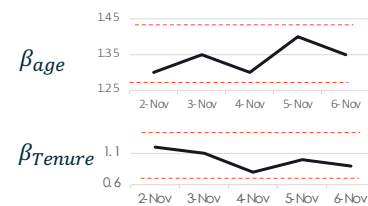
## Root Cause Analysis



	Actual	Target
Conversion	71%	68%



### Model drift



### Data drift (by impact)

1. Age
2. Tier
3. Tenure
4. Region
5. Car Value

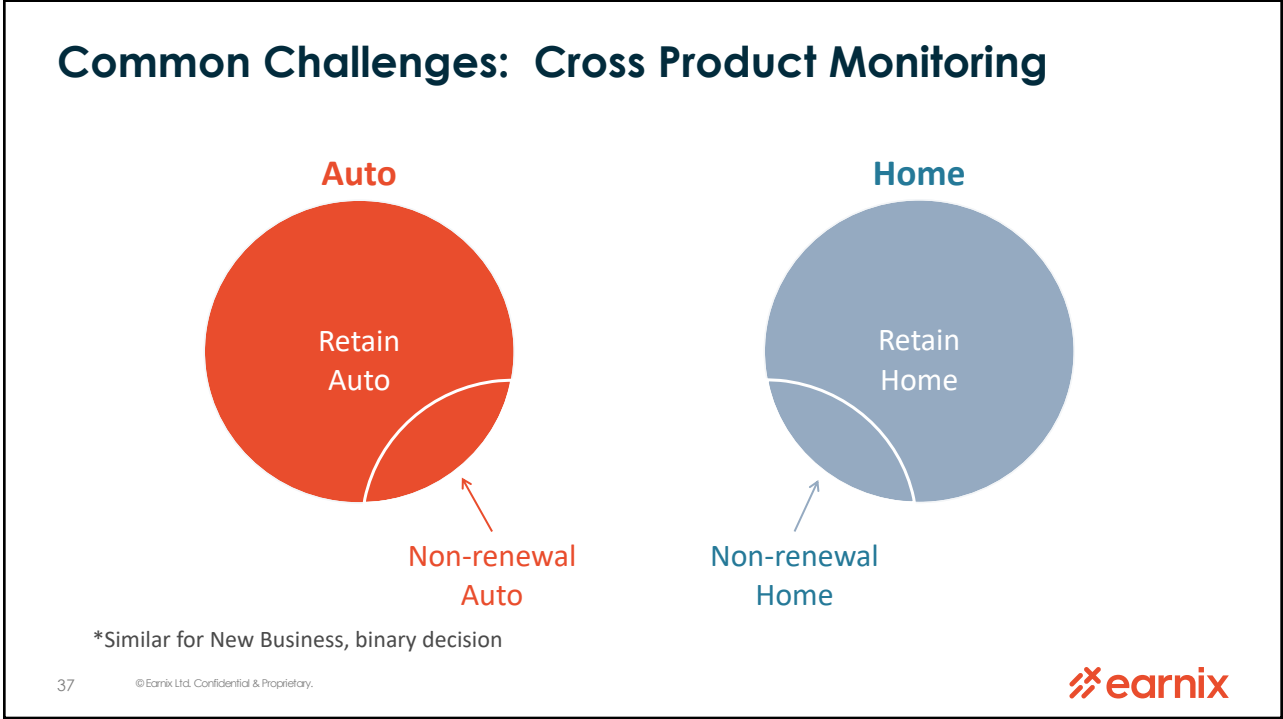
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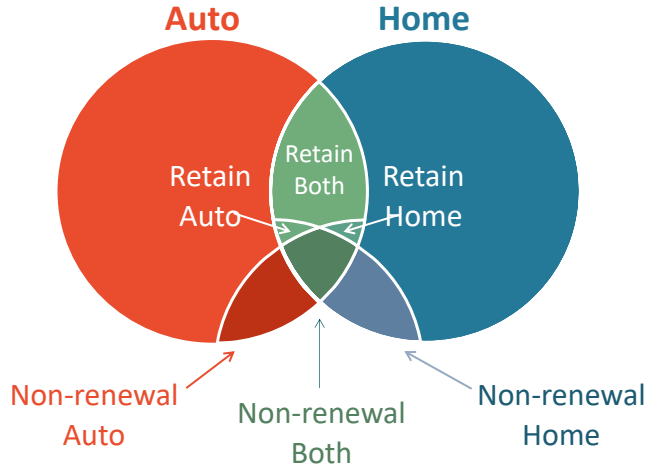


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## Common Challenges: Cross Product Monitoring



\*Blend between new and renewal behavior, multinomial decision

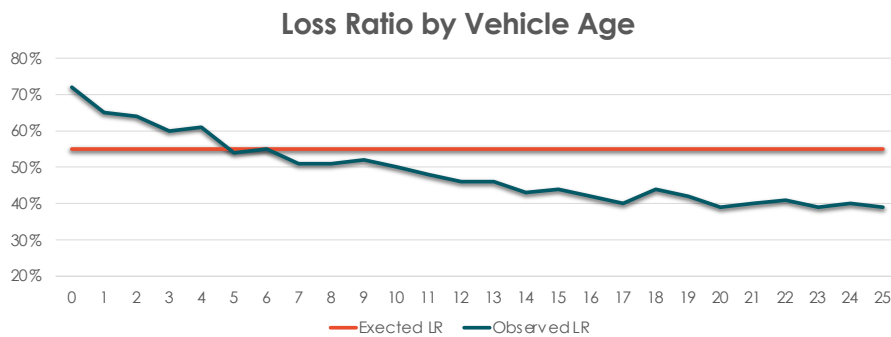
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## Common Challenges: Intentional Subsidies – raising false flags



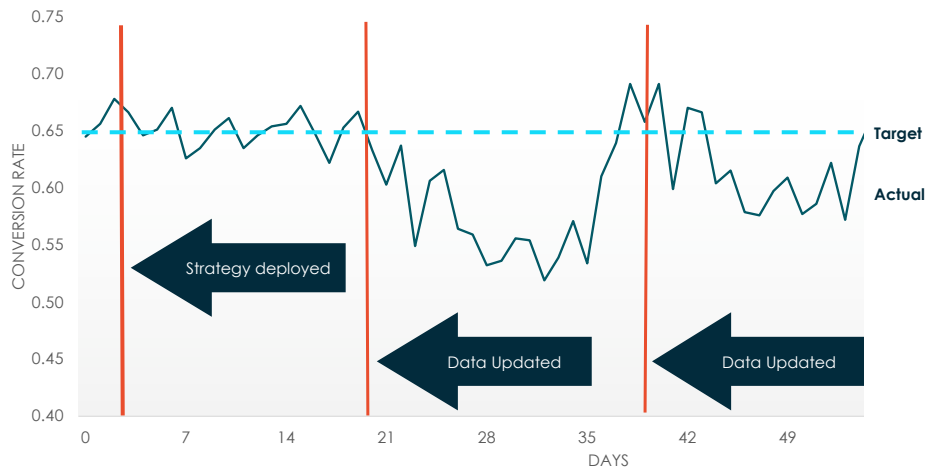
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## Common Challenges: Frequency and Variability



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## Common Challenges

- Cross Product Monitoring
- Intentional Subsidies
- Lower frequency data updates
- Highly variable responses – low credibility
- Priorities/limited time
- Monitoring too many things
- Multiple sources of truth
- No pre-determined response plan

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### Poll Question

**What is the biggest barrier to setting up an intelligent monitoring system?**

- Access to the right data
- Access to the right technology
- Too many other priorities
- Corporate culture is not disciplined enough at this time
- Do not have resources with the right skillset
- No barrier exist



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### Steps to creating an automated intelligent monitoring system

- Available Action Levers

  - What actions can you take?
  - Start with the end in mind
- Monitored KPIs


  - What metrics should be monitored?
  - Which segments?
  - Determine appropriate expectation reference
- Data Needs

  - Which data needed for KPIs and segment analysis?
  - Frequency of available data updates?
  - Calculated Metrics?
- Models/Business Rules for Alerts

  - Build business rules and/or predictive models
  - Thresholds for each KPI/segment
  - Who and how will they receive alerts?
- Drift Decomposition

  - Model vs Data Drift
  - Identify drifted variables


Intelligent  
Monitoring  
System




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## A Day in the Life of the Future Pricing/Product Manager







**Automated KPIs** notify Jerry that Conversion Rates are slipping in his state and point out the impacted segments




Jerry does some **Real-Time Segmentation** to confirm that one of his best customer segments is shrinking




From the **Demand Models**, Jerry knows this segment is elastic and will react strongly to any rate change



Jerry checks the **Unconstrained Loss Cost Models** for the segment and sees that these customer have a Rate decrease indication




At this point, Jerry has a pretty good idea to adjust Rate. He uses his **What-If capability** to forecast the expected KPIs and formulate a final proposal



The hardest part is over. Jerry uses the automated workflow to guide the new rates through approvals, filing and QA testing


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## Takeaways

- ✓ Dream big! Put out a big proposal – management will love it
- ✓ Start with the end in mind – ACTION!
- ✓ An intelligent monitoring system should result in less work over time, not more work
- ✓ Know how to articulate data drift
- ✓ Generate meaningful alerts and call for action to different stakeholders
- ✓ Automated Intelligent Monitoring is a journey, take it in steps



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## Questions?



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The slide features a dark blue background with a faint image of a person's hands holding a tablet displaying various data charts and graphs. The Earnix logo is prominently displayed in the top left, and the text 'Thank You' is centered in a large, white, sans-serif font. The Earnix logo and copyright notice are repeated in the bottom left corner.

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