



March 13–15, 2023
San Diego, CA
Loews Coronado Bay Resort

Ratemaking, Product and Modeling Seminar



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Improving Agency Analytics

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Improving Agency Analytics

Agenda

1. Modeling agency or distribution channel loss ratios
 - Asking the right question
 - Similarities and differences vs. policy level pricing analytics
 - Challenges to consider
 - Potential terms to include in the model
 - Other target variables to consider
 - Types of models to consider
 - Considerations when discussing with business areas
2. Maturing your analytics culture
3. Example
4. Q&A

Modeling agency or distribution channel loss ratios

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Modeling agency or distribution channel loss ratios

QUESTION 1: How does your company write business?

- a. Captive agents
- b. Independent agents
- c. MGAs
- d. Direct
- e. Multiple distribution channels

Modeling agency or distribution channel loss ratios

What question are you trying to answer?

- New agent hires are not having the success of previous hires. Which agents need additional training?
- Loss ratios are accelerating, necessitating a reduction in new business writings. Which MGAs should you stop writing through?
- Business is acquired through 50 different online marketing channels, with very few having more than one million in annual premium. Which of these distribution channels are likely to see high future loss ratios?
- Underwriting has capacity to audit the book of business of 5% of the agency field force. Which agents should be audited?
- What characteristics determine whether an agent is going to be successful or not?

Modeling agency or distribution channel loss ratios

QUESTION 2: How does your company currently analyze agency/distribution channel loss ratios?

- a. Historical loss ratio analysis
- b. GLM or similar
- c. Non-GLM predictive model
- d. Not currently reviewed
- e. Not sure

Modeling agency or distribution channel loss ratios

Similarities and differences vs. policy level pricing analytics

- **Similarities with traditional pricing analytics**
 - Overall process is the same
 - Many of the same variables can be included
- **Differences from traditional pricing analytics**
 - Fewer regulatory considerations
 - More likely to include underwriting related variables in the model

Modeling agency or distribution channel loss ratios

Challenges to consider

- What are some differences by region/company/LOB that could bias the model?
- Adjusting for state RLI
- Variables that are purposely mispriced
- Lifetime client value
- How to handle a book of business that's rolled over from one agent to another

Modeling agency or distribution channel loss ratios

Potential terms to include in the model

Traditional Class Plan	Agency Attributes	Behavior Measures
<ul style="list-style-type: none">• Multi-line business• Credit Score• Prior Claims• Accidents and Violations• Payment and billing data	<ul style="list-style-type: none">• Agent Profile• Total and new business volume• Years as an agent• Mix of business<ul style="list-style-type: none">• Atypical distribution• Shifts over time• Performance<ul style="list-style-type: none">• Retention• Conversion• Loss Ratio	<ul style="list-style-type: none">• Quoting behavior• Overriding pre-populated fields• Report ordering• Discount utilization

Modeling agency or distribution channel loss ratios

Other target variables to consider

- Premium write off
- Agent retention
- Client retention
- Placement / Conversion rate
- Units written

Modeling agency or distribution channel loss ratios

Types of models to consider

- **Agents with the highest loss ratio in prior year(s)**
 - Very simple and easy for stakeholders to implement
- **Simple one way or two-way interactions**
 - Might be data limitations to implement anything more complex
- **Parameterized or nonparameterized models**
 - Tweedie GLM with your target variable being loss ratio
 - GBM

Maturing your analytics culture

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Maturing your analytics culture

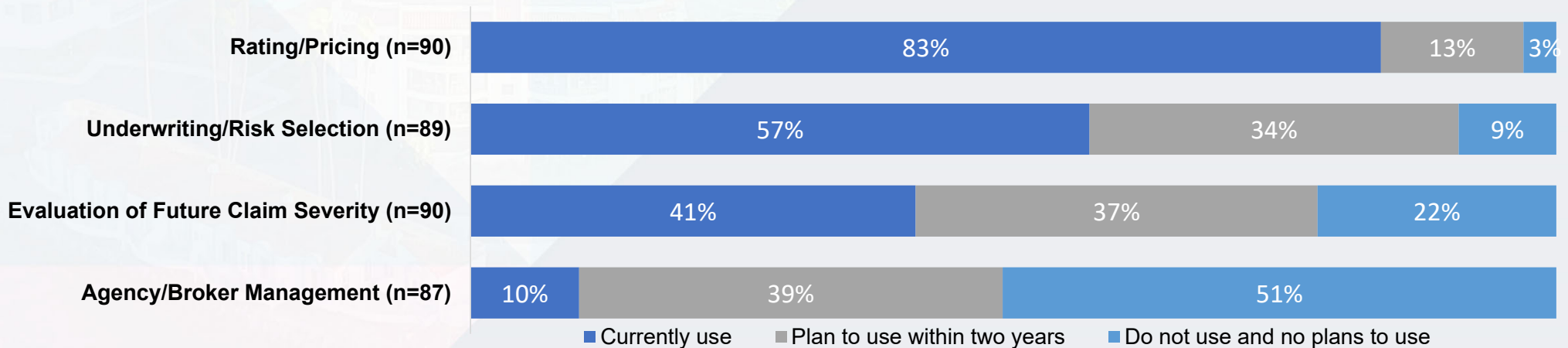
QUESTION 3: How does the analytic maturity of your sales team compare to those making rating decisions?

- a. Much less advanced
- b. Slightly less advanced
- c. About the same
- d. Slightly more advanced
- e. Much more advanced
- f. Unsure

Maturing your analytics culture

Overall industry maturity is lower in the agency management space

In which areas does your company group currently use or plan to use advanced analytics?



Source: WTW Advanced Analytics Survey, 2021

Maturing your analytics culture

Consider a few key steps to drive utilization of new analytics



1. **A**dopt a common starting point



2. **B**reakdown data silos



3. **C**ommunicate results in relevant ways

Maturing your analytics culture

Adopt a common starting point: Leverage business partner's complimentary strengths

	Data Scientist / Actuary	Underwriter / Sales Manager
Strengths	<ul style="list-style-type: none">• Deep experience modeling insurance loss data• Understanding of loss cost drivers	<ul style="list-style-type: none">• Strong knowledge of operations• Pragmatic understanding of agency performance indicators
Weaknesses	<ul style="list-style-type: none">• Limited domain knowledge in distribution space	<ul style="list-style-type: none">• Limited understanding of advanced analytics

Considerations:

- Illustrate importance of starting with business insight and letting that inform modeling vs. other way around.
- What metrics/measures exist today that you can build from?
- What does UW use today to evaluate agencies? Can it be translated into modeling dataset?

Maturing your analytics culture

QUESTION 4: How robust is your agency attribute and behavioral data?

Recall the previous categories of data considered:

Traditional Class Plan	Agency Attributes	Behavior Measures
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Maturing your analytics culture

QUESTION 4: How robust is your agency attribute and behavioral data?

- a. Limited
- b. Okay
- c. Robust
- d. Unsure

Maturing your analytics culture

Breakdown data silos by exploring non-traditional avenues



Considerations:

- What is your sales process for prospecting new agencies? What data do they collect?
- Are there third-party data sources used to support agency operations?
- Do electronic notes from agency visits exist?
- Where is this information stored?

Maturing your analytics culture

QUESTION 5: What is your most common media for sending / receiving modeled results?

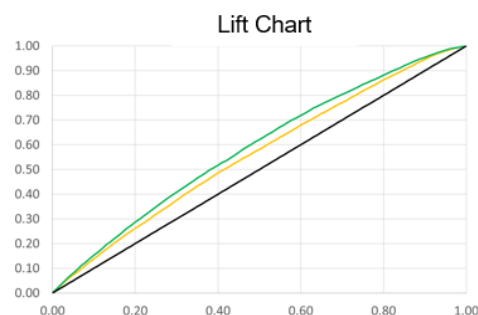
- a. Excel spreadsheets with tables and graphs
- b. PowerPoint presentations / Whitepapers
- c. Sent directly through policy system or other modeling software
- d. Shared via user friendly reporting tool
- e. Other / Unsure

Maturing your analytics culture

Communicate results in a relevant way

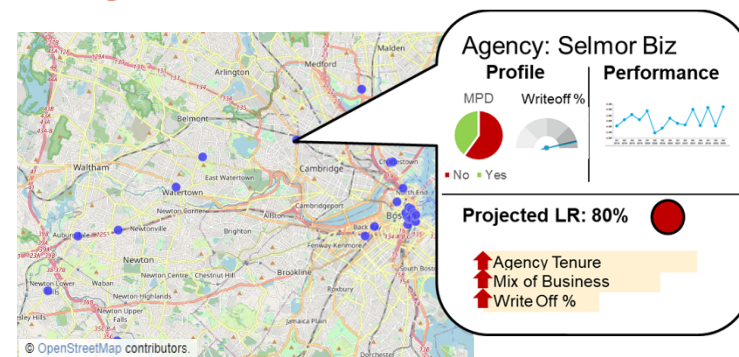
What works for a Product Manager...

Modeled Results					
Agency	Years in Business	Multi Policy Distribution	LOB Focus	Number of Carriers	Modeled Loss Ratio
ABC	20+	90.0%	Commercial	4	53.0%
DEF	5	50.0%	Personal	8	65.0%
GHI	1	40.0%	Non-Standard Auto	7	80.0%
JKL	12	70.0%	PL and CL	5	70.0%



Focus: Precision, Details

...Might not work for an Underwriter



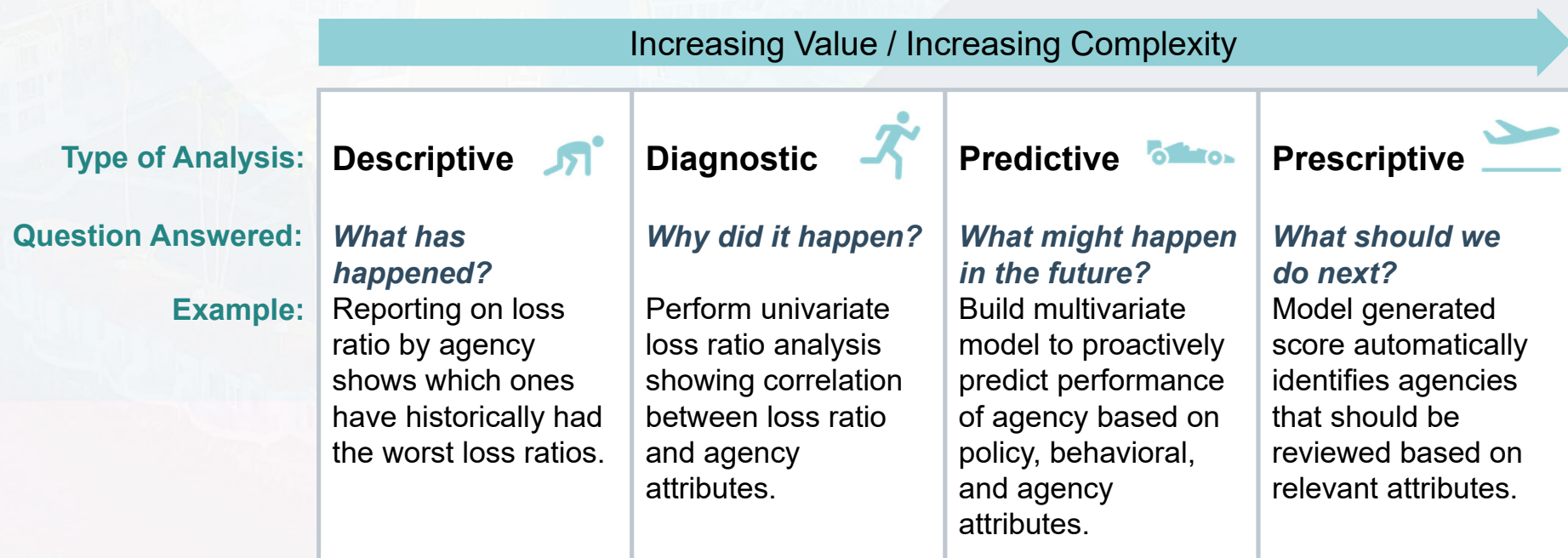
Focus: Explainability, Visualization

Considerations:

- What information and reporting is used today by your business partners?
- How do they consume information today?
- Ability to bring together disparate sources of information and operationalize in single framework is big win.

Maturing your analytics culture

Agency analytics is a journey - consider your current state and target incremental progress



Modeling agency or distribution channel loss ratios

Example

You are a data scientist for a small commercial lines insurance company that writes through independent agents.

Your loss ratio for commercial auto has gone from the low 60s in 2019-2021 to 79% in 2022. Leadership is asking for your help to determine which agents are most likely to see high loss ratios in the future.

Variables available for analysis

Annual PMT %:	Percent of an agent's book that pays annually vs quarterly, monthly, etc.
Agent Tenure:	Number of years the agent has been writing the company
Avg Veh Age:	Average vehicle age of the agent's book of business
% of writeoff:	Percent of premium that has been written off due to nonpayment
% w Convictions:	Percent of an agent's book that has a driver with a traffic violation
Multiple line %:	Percent of an agent's comm auto policies that have an associated BOP policy
Affinity%:	Percent of an agent's book written through XYZ Grocer, an affinity partner

Leadership would like to underwrite the book of business but wants to limit the number of agents that see an underwriting review.

Q&A

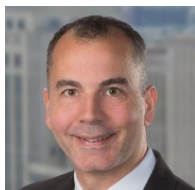


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Thank you

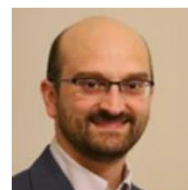


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