

## 2015 CAS RATEMAKING AND PRODUCT MANAGEMENT SEMINAR

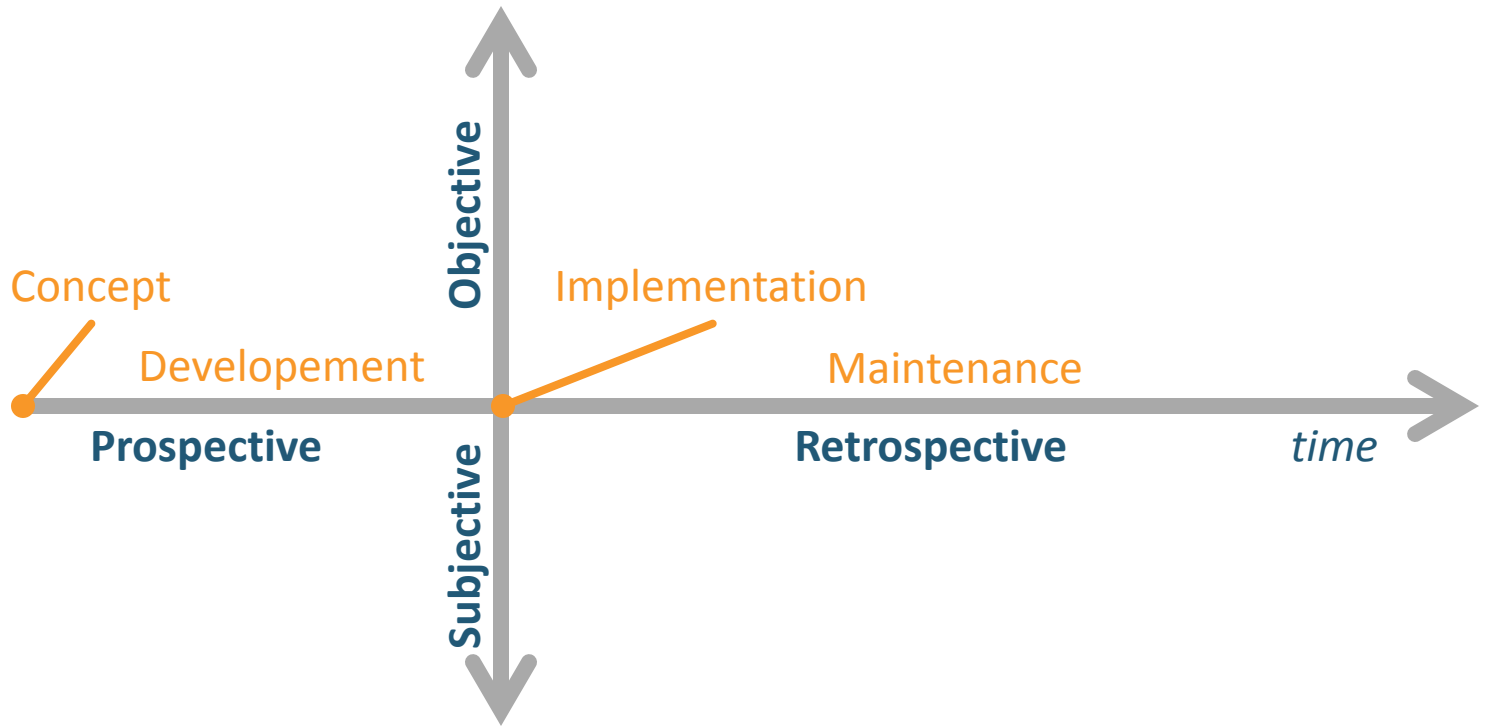
### Product Development Workshop PART 7

# PRODUCT MONITORING AND RISK MANAGEMENT

Donald F.J. Hendriks, ACAS, ASA, MAAA

DIRECTOR OF PRICING AND DATA ANALYTICS  
HASTINGS MUTUAL INSURANCE COMPANY

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# PRODUCT MONITORING

# Prospective Metrics

Measure the status of the product *before the product change.*

- Start with some benchmarks.
- Use standard objective and subjective metrics.
- Develop retrospective monitoring tools *in advance.*

# Prospective Metrics

## Monitor your progress.

- Always take a look back and see if your change was successful.
- Use what you learn.
- Refine your tools as new information comes to light.

# Prospective Metrics

## What are you trying to accomplish?

- Why are you making this product change?
  - Is there a problem that you are trying to address?
  - Is there a specific area you want to target for growth?
  - How should this impact your current book of business?

# Prospective Metrics

## What are you trying to accomplish?

- What metrics can you use to gauge success?
  - Improved business profile.
  - Customer or agency satisfaction.
  - Image in the market.
  - Growth, Profitability, Retention.
  - Lift.

# Objective Metrics

## Underwriting Metrics

- Loss Ratio.
- Combined Ratio.
- Proportion of business in high-performing tiers .

## Marketing Statistics

- Total growth: annual change in premiums, units or policies.
- Hit Ratio: percentage of quoted business that is bound.
- Retention: percentage of last year's policies that renewed.

# Subjective Metrics

## Customer Feedback

- “Customers are satisfied, but not extremely satisfied.”
- “The most important thing is price.”

## Agency Feedback

- Company serves a niche.
- Company is consistent in the way it does business.

## Company Image

- “Just another player in a highly commoditized market.”
- “Claims service is excellent.”



# RPM Insurance Company

Year	Premiums	Loss Ratio	Retention	Hit Ratio	Growth
2009	21,100	67.8%	85.1%	25.2%	3.6%
2010	21,897	68.3%	84.6%	24.4%	4.2%
2011	23,020	69.5%	83.5%	25.8%	4.7%
2012	24,240	71.2%	81.2%	27.4%	5.3%
2013	26,034	74.1%	79.6%	28.3%	7.4%
2014	28,403	77.1%	78.9%	29.6%	9.1%

- Historically good business is deteriorating.
- Product appears to be out-of-line with the market.

# Quantify Target Impact

## Objective Goals:

	Current	Target	Difference
Loss Ratio	77.1%	72.0%	-5.1%
Retention	78.9%	75.9%	-3.0%
Growth Rate	9.1%	3.0%	-6.1%
Lift	<i>...whatever that is.</i>		

Set up goals *before* implementation.

# Quantify Target Impact

## Subjective Goals:

- Acceptance by agency force.
- Acceptance by customers.
- Enhance brand identity.
- Project image as forward-thinking.

Set up goals *before* implementation.

# Lift – What is it?

- Statistical Definition: Measure of the performance of a model as a predictor.

$$\begin{aligned} L &= \sum \frac{P(X=A|\hat{x}=A)}{P(X=A)} \\ &= \sum \frac{P(X=A \cap \hat{x}=A)}{P(X=A) \times P(\hat{x}=A)} \end{aligned}$$

# Lift – What is it?

- Real-Life Definition: What the model does for me.
- *Often not the same* as the Statistical Definition.
- Does *not* equate to loss ratio or profits.

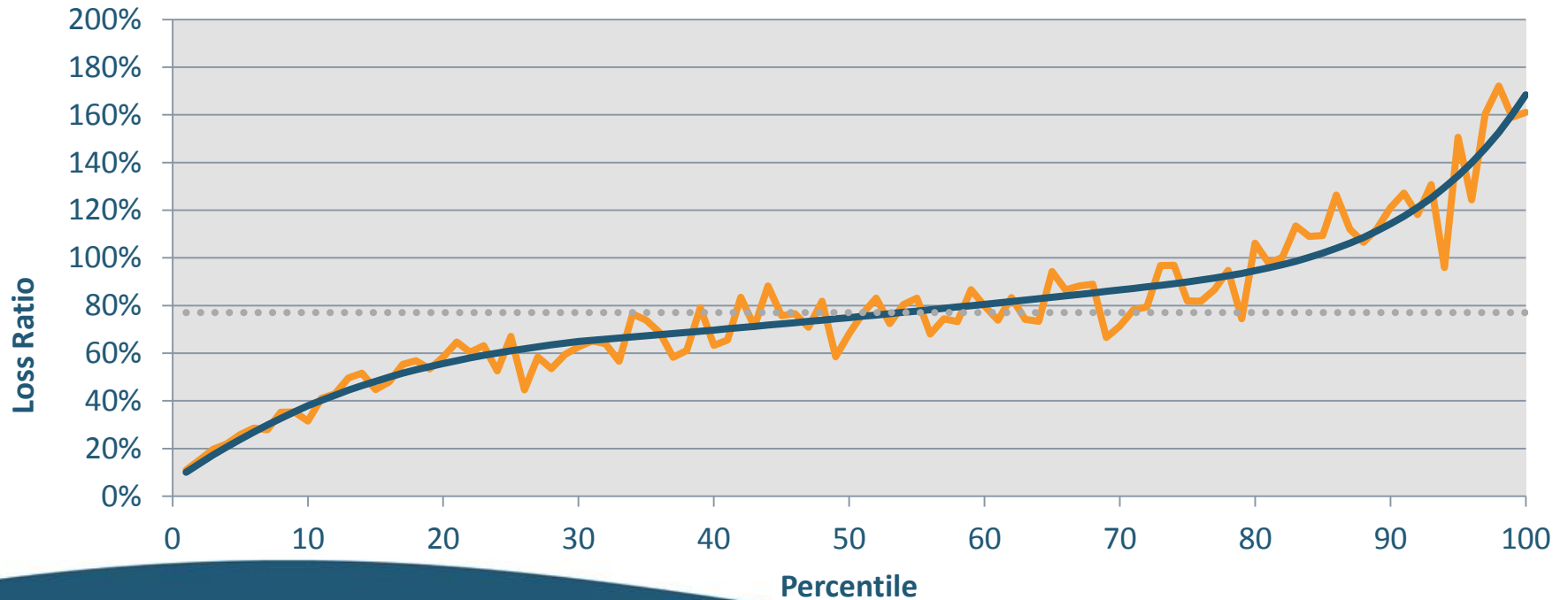
$$L = \sum \frac{P(X=A|\hat{x}=A)}{P(X=A)}$$

$$L = \frac{r_{\max} - r_{\min}}{2}$$

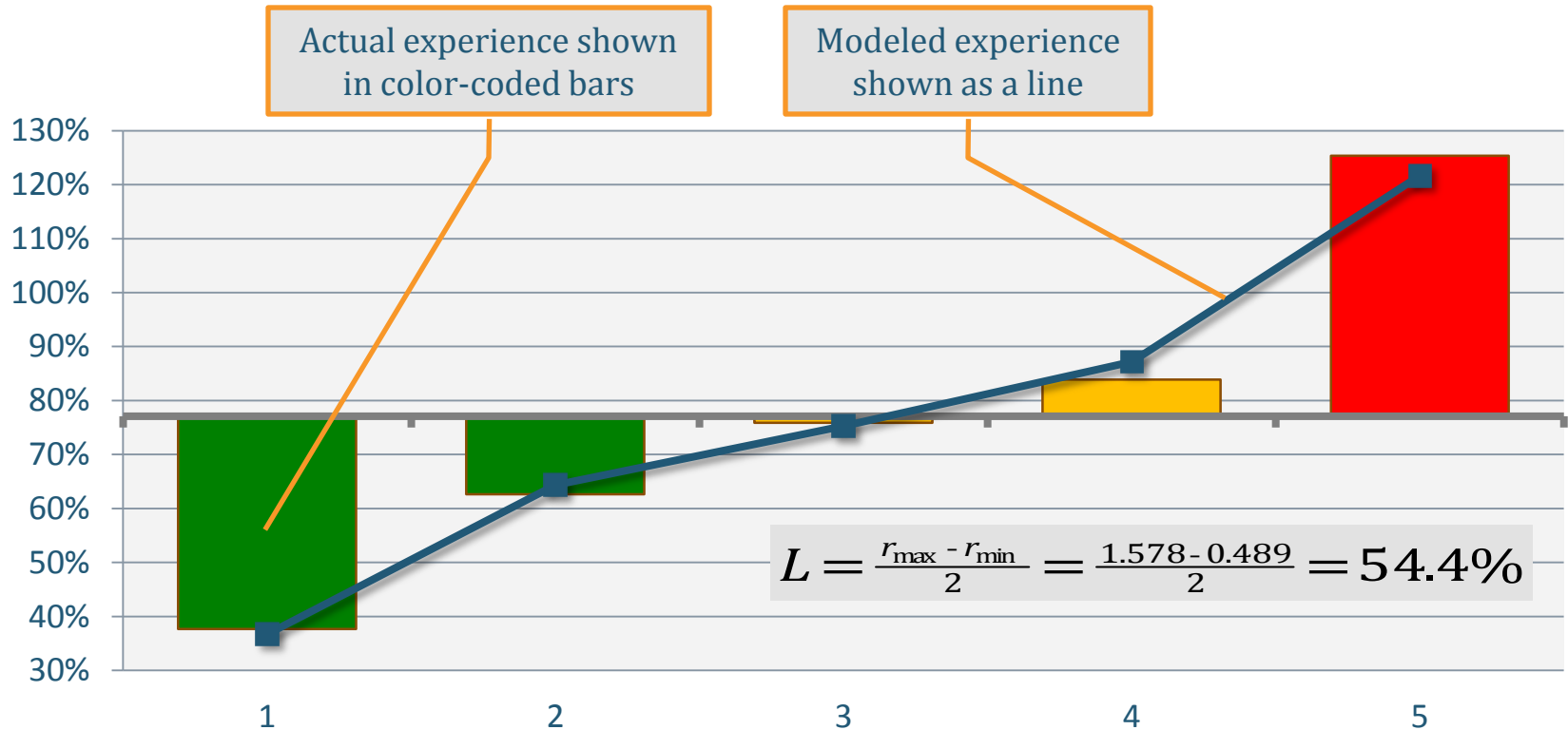
$$L = \frac{\sum |r_x - 1| P_x}{\sum P_x}$$

# Lift – How it is communicated

## Lift Chart



# Lift – A different way to display



# Value of Lift

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Total
Expiring Premium	5,677	5,684	5,682	5,679	5,680	<b>28,403</b>
Rate Change	+5.5%	+5.5%	+5.5%	+5.5%	+5.5%	
Quoted Renewal Premium	5,992	5,999	5,996	5,993	5,995	<b>29,975</b>
Expected Retention	64.0%	73.4%	77.5%	82.1%	97.3%	
New Business Quotes	3,694	3,694	3,694	3,694	3,694	<b>18,469</b>
Hit Ratio	5.6%	13.8%	25.3%	40.0%	63.4%	
Expected Premiums	4,042	4,912	5,578	6,399	8,173	<b>29,104</b>
Expected Losses	1,406	2,996	3,979	5,286	9,420	<b>23,088</b>
Expected Loss Ratio	34.8%	61.0%	71.3%	82.6%	115.3%	<b>79.3%</b>
Current Loss Ratio						<b>77.1%</b>

5.5% Rate increase doesn't reduce loss ratio!



# Value of Lift

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Total
Expiring Premium	5,677	5,684	5,682	5,679	5,680	<b>28,403</b>
Rate Change	-26.6%	+0.0%	+4.6%	+12.9%	+43.1%	
Quoted Renewal Premium	4,170	5,686	5,941	6,411	8,129	<b>30,337</b>
Expected Retention	80.0%	76.5%	78.1%	77.4%	70.6%	
New Business Quotes	2,571	3,501	3,660	3,951	5,009	<b>18,691</b>
Hit Ratio	16.3%	17.4%	20.5%	22.3%	22.9%	
Expected Premiums	3,756	4,961	5,389	5,845	6,888	<b>26,838</b>
Expected Losses	1,878	3,192	3,880	4,513	5,855	<b>19,318</b>
Expected Loss Ratio	50.0%	64.4%	72.0%	77.2%	85.0%	<b>72.0%</b>
Current Loss Ratio						<b>77.1%</b>

**Value of Lift: Getting rate where you need it.**

# Value of Lift

	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Total
<b>Current Rating Plan</b>						
Projected Premium	4,042	4,912	5,578	6,399	8,173	<b>29,104</b>
Projected Losses	1,406	2,996	3,979	5,286	9,420	<b>23,088</b>
<b>Proposed Rating Plan</b>						
Projected Premium	3,756	4,961	5,389	5,845	6,888	<b>26,838</b>
Projected Losses	1,878	3,192	3,880	4,513	5,855	<b>19,318</b>
<b>Impact of Implementation</b>						
Premium Change	-286	49	-189	-554	-1,285	<b>-2,266</b>
Change in Losses	471	196	-99	-772	-3,565	<b>-3,769</b>
<b>Value of Lift</b>	<b>-758</b>	<b>-147</b>	<b>-90</b>	<b>218</b>	<b>2,281</b>	<b>1,504</b>

After implementation, review your results.

**SIX MONTHS LATER...**

# Review Subjective Impact

## Agency Feedback

- No longer the company you were.
- Business practices seen as “unstable.”
- More competitive for working professionals.

## Brand Identity

- Concern we abandoned our market.
- Value proposition is better for high-retention risks.
- Market niche has changed.
- Market leader for lawyers and accountants.

# Review Objective Metrics

	Initial	Target	Modeled	Actual	Variance
Loss Ratio	77.1%	72.0%	72.0%	73.1%	<b>+1.1%</b>
Retention	78.9%	75.9%	75.9%	78.4%	<b>+2.5%</b>
Growth Rate	9.1%	3.0%	-7.8%	-2.3%	<b>-5.3%</b>

- Are variances within acceptable range?  
Missed significantly on growth target.
- Extenuating circumstances?
  - Market changes.
  - Underwriting criteria.
- What tweaks might improve performance?

# Product Monitoring

## Objective Metrics

- Should be reviewed regularly.
- Subject to market conditions.
- Can change rapidly.

# Product Monitoring

## Subjective Metrics

- Must be solicited to get multiple viewpoints.
  - Often one-sided.
  - Can be contradictory.
- Shouldn't be dismissed out-of-hand.
- Can be just as important as objective metrics.

1. What are some subjective goals for your product? What is a success?
2. What are some objective goals?
3. What kind of tools can you set up in advance? What kind of resources will you need to set these up?
4. What if subjective feedback is negative, but objective metrics meet your initial goals?

## GROUP DISCUSSION