

2017 CAS Ratemaking and Product Management Seminar

PRODUCT MANAGEMENT WORKSHOP

Part 7: Product Monitoring

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Outline

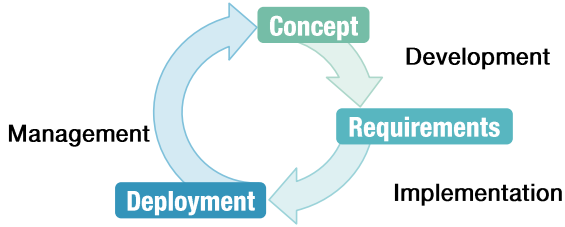
- Metrics
 - Prospective vs. Retrospective Metrics
 - Subjective vs. Objective Metrics
 - Lift and the Value of Lift
 - Establishing Metrics
- Product Monitoring
 - Identifying successes and failures
 - A tool you can use
- Group Discussion



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Product Life Cycle



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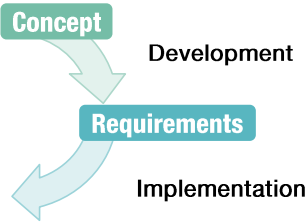


Prospective Evaluation



Identify your goals *before the product change.*

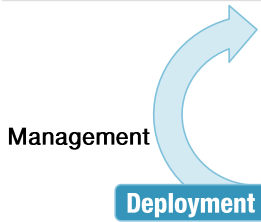
- Start with some benchmarks.
- Use standard objective and subjective metrics.



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Retrospective Evaluation



Look back to gauge your success.

- Based on prospective benchmarks.
- Advantage: historical data is usually available for comparison.
- Don't get sidetracked.

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Prospective Evaluation



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?
 - Are you trying to protect a particular portion of your current book of business?
- How should this impact your current book of business?

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Prospective Evaluation



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.



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Retrospective Evaluation



Monitor your progress

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



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Objective Metrics



Underwriting Metrics

- Loss or combined ratio
- Service times
- Mix of business
 - Proportion in high-performing tiers
 - Multi-policy business
- Amount of coverage
 - Insurance-to-value
 - Average deductible or retention

Marketing Metrics

- Total growth
 - Premiums written
 - Exposures (units)
 - Policies
- Hit Ratios
 - Percentage of quoted business that is bound
- Retention
 - Percentage of last year's business that renewed.

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Subjective Metrics



Customer Feedback

- "Customers are satisfied, but not extremely satisfied."
- "The most important thing is price."
- "I'd like a better mobile app."

Agency Feedback

- "The company serves its niche."
- "They have always been easy to work with."
- "You're just too out-of-touch with younger generation."

Company Image

- Excellent claims service.
- Innovative product offerings.
- Insurance for teenagers.

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Case Study

RPM INSURANCE COMPANY



RPM Insurance Company



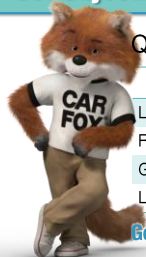
Year	Premiums	Loss Ratio	Retention	Hit Ratio	Growth
2011	\$ 21,100	67.8%	85.1%	25.2%	3.6%
2012	21,897	68.3%	84.6%	24.4%	4.2%
2013	23,020	69.5%	83.5%	25.8%	4.7%
2014	24,240	71.2%	81.2%	27.4%	5.3%
2015	26,034	74.1%	79.6%	28.3%	7.4%
2016	28,403	77.1%	78.9%	29.6%	9.1%

- Strong growth, but falling retention
- Deteriorating loss ratio
- Hit ratio taking off
- Are we being adversely selected against?

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Set Objective Goals



Quantify your target impact up front

Metric	Current	Target	Difference
Loss Ratio	77.1%	72.0%	-5.1%
Retention	78.9%	75.9%	-3.0%
Growth Rate	9.1%	1.5%	-7.6%
Lift		Uhhhhh...	

Goals must be set up before implementation

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Set Subjective Goals



- Agency force
 - Few complaints
 - No book-rolls
- Customers
 - Few questions
 - Few cancellations
- Enhance Brand Identity
 - Positive word-of-mouth
 - Positive comments on blogs and social media
- Employee buy-in

Goals must be set up before implementation

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Lift: Statistical Definition



- Measure of the effectiveness of a predictive model.
- Calculated as the ratio between the results obtained with and without the model.

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

$$= \frac{\sum \Pr(X = A \cap \hat{x} = A)}{\Pr(X = A) \times \Pr(\hat{x} = A)}$$

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Lift: Real-Life Definitions



- What the model does for me?
- Often not the same as the statistical definition.
- Does not equate to change in loss ratio or profit.

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

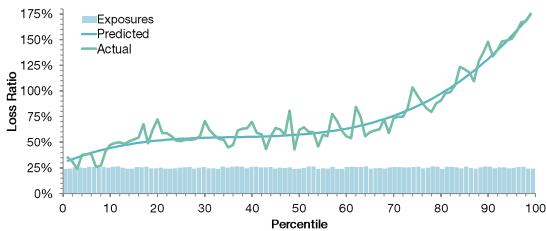
$$L = \frac{r_{max} - r_{min}}{2}$$

$$L = \frac{\sum_i |r_i - 1| P_i}{\sum_i P_i}$$

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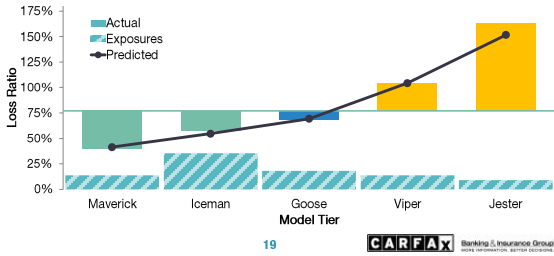
Lift: How it is communicated



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Lift: A different way to display



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Value of Lift

- Shows expected impact of segmentation
- Prospective metric
 - Based on expected outcomes
 - Can be used retrospectively as a success measure
- Translates into standard objective metrics
 - Loss Ratio
 - Growth
 - Retention
 - Profit

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Base Rate Increase

Tier	Maverick	Iceman	Goose	Viper	Jester	Total
Expiring Premium	4,296	11,175	5,739	4,331	2,862	28,403
Rate Change	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Quoted Renewal Premium	4,532	11,790	6,055	4,569	3,020	29,965
Expected Retention	64.00%	73.40%	77.50%	82.10%	97.30%	76.54%
Retained Premium	2,901	8,654	4,692	3,751	2,938	22,936
Quoted New Bus. Premium	2,793	7,266	3,732	2,816	1,861	18,469
Expected Hit Ratio	5.60%	13.80%	25.30%	40.00%	63.40%	23.88%
Expected New Bus. Premium	156	1,003	944	1,126	1,180	4,410
Expected Premiums	3,057	9,656	5,637	4,878	4,118	27,346
Expected Losses	1,266	5,276	3,901	5,086	6,244	21,774
Expected Loss Ratio	41.4%	54.6%	69.2%	104.3%	151.6%	79.62%
Current Loss Ratio						77.10%

Base rate increase leads to a higher loss ratio!

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Segmented Rate Increase



Tier	Maverick	Iceman	Goose	Viper	Jester	Total
Expiring Premium	4,296	11,175	5,739	4,331	2,862	28,403
Rate Change	-28.0%	-5.0%	0.0%	24.3%	37.5%	1.29%
Quoted Renewal Premium	3,093	10,615	5,739	5,384	3,937	28,768
Expected Retention	95.56%	92.07%	78.30%	65.65%	50.74%	79.10%
Retained Premium	2,956	9,773	4,494	3,535	1,997	22,755
Quoted New Bus. Premium	1,901	6,523	3,527	3,308	2,419	18,469
Expected Hit Ratio	16.3%	17.4%	27.0%	22.3%	22.9%	19.97%
Expected New Bus. Premium	310	1,135	952	738	554	3,689
Expected Premiums	3,266	10,908	5,446	4,273	2,551	26,444
Expected Losses	1,956	6,796	3,921	3,584	2,813	19,069
Expected Loss Ratio	59.9%	62.3%	72.0%	83.9%	110.2%	72.11%
Current Loss Ratio						77.10%

A 1.9% rate change leads to a 4.9% drop in loss ratio!

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Value of Lift



Tier	Maverick	Iceman	Goose	Viper	Jester	Total
Base Rate Change						
Projected Premium	3,100	9,656	5,637	4,833	4,118	27,344
Projected Losses	1,284	5,276	3,901	5,039	6,244	21,745
Segmented Rate Change						
Projected Premium	3,266	10,908	5,446	4,273	2,551	26,444
Projected Losses	1,956	6,796	3,921	3,584	2,813	19,069
Value of Lift Calculation						
Projected Premium	166	1,252	(191)	(560)	(1,567)	(900)
Projected Losses	672	1,520	20	(1,455)	(3,432)	(2,675)
Value of Lift	(507)	(268)	(210)	896	1,865	1,775

Underwriting impact in year 1 of \$1.8 million!

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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.

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Review Objective Metrics



	Initial	Target	Model	Actual	Variance
Loss Ratio	77.1%	72.0%	72.1%	73.1%	+1.1%
Retention	78.9%	75.9%	79.1%	78.4%	+2.5%
Growth Rate	9.1%	3.0%	-3.2%	-2.3%	-5.3%

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

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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.

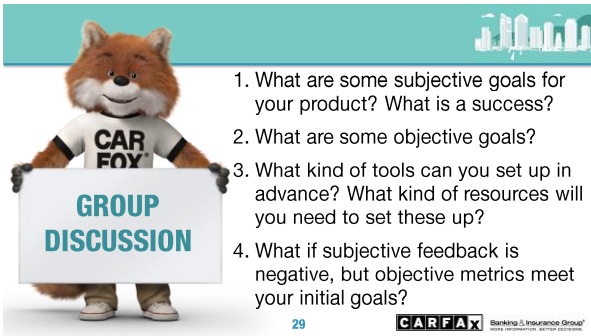
Objective Metrics

- Should be reviewed regularly.
 - Easier to attain
 - Set up standard report
- Subject to market conditions.
 - Can change rapidly.
- Can be used to verify or counter subjective metrics.

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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?

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