Questions From a Predictive Modeler In Small Business Insurance:

Things I wish I had known earlier

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March 21, 2012

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Agenda

1. Why do it?

2. Why doesn't management know what they want?

3. Okay, let's build a predictive model – who's gonna do it?

4. Pulling data – how hard could that be?

5. Modeling which way?

6. We've built great models. That's enough, right?

7. Cool. Models built and implemented. Relaxation time?
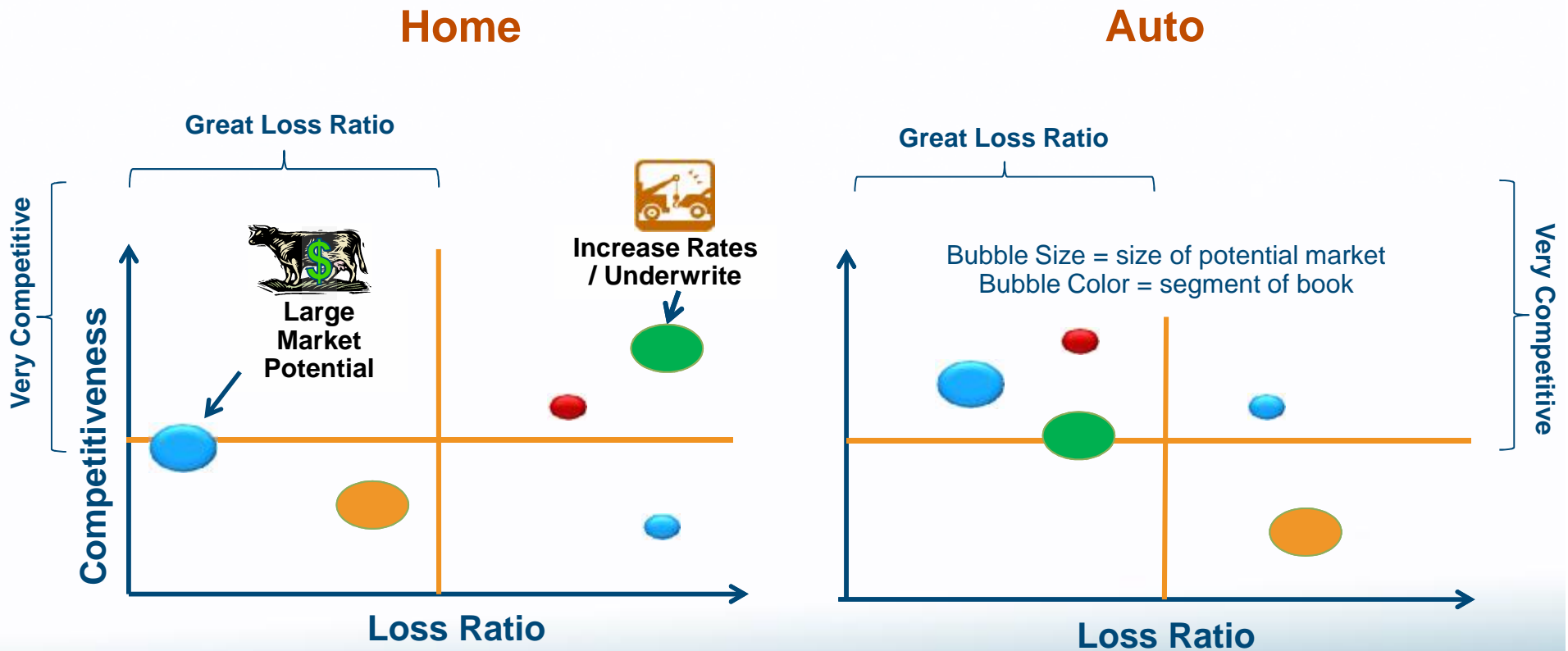
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Why Do It?

Why Doesn't Management Know What They Want?

§ Management *says* they want to be a leader in predictive analytics but *rarely* realizes the level of commitment required (modeling skills, I.T., culture).

§ Data – Is your company large or small? Compliment with non-company data? For example: ISO, Census, IBC, Stats Canada, data vendors.

§ People – Do you have anyone on your team that knows modeling?

§ Management assumes modeling is Broccoli – something on the plate you are supposed to eat, but they are not sure why it's good for you or what to do with it once it's built.

§ Pricing models built to target a technical price.

   – Implementable & cost effective rating variables ? (Rating on whether roof, plumbing, electrical updated is great but how are you going to get this new attribute populated on existing book? Considered the cost of using credit score may require paying for credit score on all quotes, even if you only close 25%, not only on policies you bind.)

   – Models are more useful if also understand competitive position. Why reduce rates for lowest loss ratio segment of book when you are already the cheapest?

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Why Doesn't Management Know What They Want?

§ Management prefers short and sweet. Instead of a 20 page presentation, below is an example of sharing modeling results packed with information on 1 page:

Home

Auto

Great Loss Ratio

Great Loss Ratio

Very Competitive

Very Competitive

Competitiveness

Increase Rates / Underwrite

Large Market Potential

Bubble Size = size of potential market
Bubble Color = segment of book

Loss Ratio

Loss Ratio

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Let's Build A Predictive Model. Who's Gonna Do It?

There are four basic sources of resources for a modeling effort:

§ Actuaries:
- Frequently assigned regardless of background / commitment. (Ralph's good at math, right?)
- Great modelers; need time to climb the learning curve?; lack the interest or drive?

§ Consultants:
- Know modeling but not the company, it's customers, or it's data.
- Will push their version of modeling tool, project management, etc.
- More costly than in house resources

§ Outside Hires:
- Expensive to onboard.
- Need time to be brought up to speed.
- May not fit with the company culture.

§ Vendors:
- Use pre-built modeling software or use programming language to build from scratch .
- Pre-built can be a fast and cheap way to get models up and running, especially for smaller companies. Programming language will provide full flexibility but time need skills and time.

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Pulling Data – How Hard Could That Be?

Pulling data is almost always the hardest part of any modeling effort.

Questions to ask:

- How many data systems will you have to access? (earned premiums and exposures, policy attributes, reported losses, quote data, etc.)

- How reliable is the data? Are there historical oddities in it, due to a change in claims or underwriting practices?

- What transformations are required? How will you treat cats and cap large losses? How mature does the loss data need to be?

- What internal vs external data will you use? What can you match up to your historical data?

- What data is useable in terms of implementation later?

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Modeling Which Way?

This is the fun part. Enjoy.

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We've Built Great Models. That's Enough, Right?

Modeling efforts need to have implementation in mind right from the start

§ Translating model results into something actionable:

- Modify existing manual rate calculation variable, or add a new one.

- Discretionary pricing can be dictated by model, and implemented by an underwriter or by algorithm.

- Use results to re-underwrite worst performing segment(s).

§ Successful Implementation requires good project management:

- Communication with all parties impacted (IT, underwriting, sales, policyholder.)

- Realistic consideration of implementation time for system changes, and training, as well as how far in advance do you create renewals?

- Know the laws. Create national model and modify for some states where legislation requires it.

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Cool. Models Built And Implemented. Relaxation Time?

New data is coming on line all the time

§ ISO has modeling data and modeling components

§ Lexis/Nexis introducing personal credit, public record data, models

Models degrade over time

§ Book shifts, especially after introducing changes

§ Market shifts – variables once reliable differentiators become common

§ Agents may learn to game your models

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Cool. Models Built And Implemented. Relaxation Time?

Need to constantly monitor product performance

§ Refresh model

§ Enhance existing models

Your best people may leave

§ Loss of modeling or I.T. resources makes models hard to maintain

§ Need to constantly train your team

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