Lessons Learned

Viewpoints on Increasing Analytical Capabilities in an Organization

A presentation for 2012 CAS Ratemaking & Product Management Seminar
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Agenda

Drawing from client engagements in predictive modeling for personal lines ratemaking/underwriting, I'll discuss the importance of:

- Articulating business objectives/constraints

- Aligning analytics with business objectives/constraints

- Establishing a project plan

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Business objectives and constraints

- Rate segmentation projects are generally aimed at improving profitability and growth (two goals that can sometimes seem incompatible).

- Can you articulate the project goals and the constraints that must be met? For example,
  - Create a new product with accurate and refined rate segmentation
  - Improve current product's loss ratio, incur moderate IT spend, and keep policyholder retention above 87%
  - Improve competitive win ratio, particularly for high-valued homes
  - Maintain rating accuracy with a more streamlined quoting process

- Do all areas agree on measures of success?

Business objectives and constraints

- What are you willing to change (or do) to achieve goals?

  - Company/tier placement

  - Rating structure

  - Rate relativities

  - Territories

  - Introduction of renewal premium capping

- What is acceptable in terms of:

  - Generating large policyholder swings

  - Competitive position

  - IT cost

  - Stakeholder acceptance (regulatory, underwriting, agency)

  - Speed-to-market

Business objectives and constraints

- Are there preconceptions you want to test? For example -

  - Class plan needs more granularity

  - Tier placement is not working well

  - Not competitive for young drivers

  - Rating plan lacks interactions

  - Does type of roof really matter?

- What's out of scope for this project? For example -

  - Re-defining territory boundaries

  - Incorporating elasticity

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- Aligning analytics with business objectives/constraints

  - Data

  - Analytical methods

  - Communications and decision support

  - Monitoring and refining

- Establishing a project plan

Data

Establish data requirements that align with project objectives and scope

- A rate segmentation overhaul or price optimization project requires more extensive data gathering than slight tweaks to an existing rating plan

- Investigate external data and prioritize according to business objectives

- Have you included data that will help you test preconceptions?

- Specify and communicate database requirements

- Establish data dictionary and issues log

- Establish protocol for data cleaning, checking, reconciling

- Identify areas of future improvement (i.e., okay to have imperfect data – use it, but keep improving)

Analytical methods

Select analytical methods that align with business objectives:

- Degree of accuracy vs transparency / explain-ability
    - Neural nets are great, but is that level of accuracy needed for this project?
    - Is a parametric solution (e.g., generalized linear models) easier to communicate?
- Different methods for different stages
    - Supervised/unsupervised learning techniques for data exploration, dimension reduction and model localization decisions
    - Generalized linear models for estimating expected loss costs
- Skills and timelines

Decision support

How does an analysis support implementation decisions?

- Keep management engaged in analytics throughout process

- Tailor communications to decision-makers and be visual

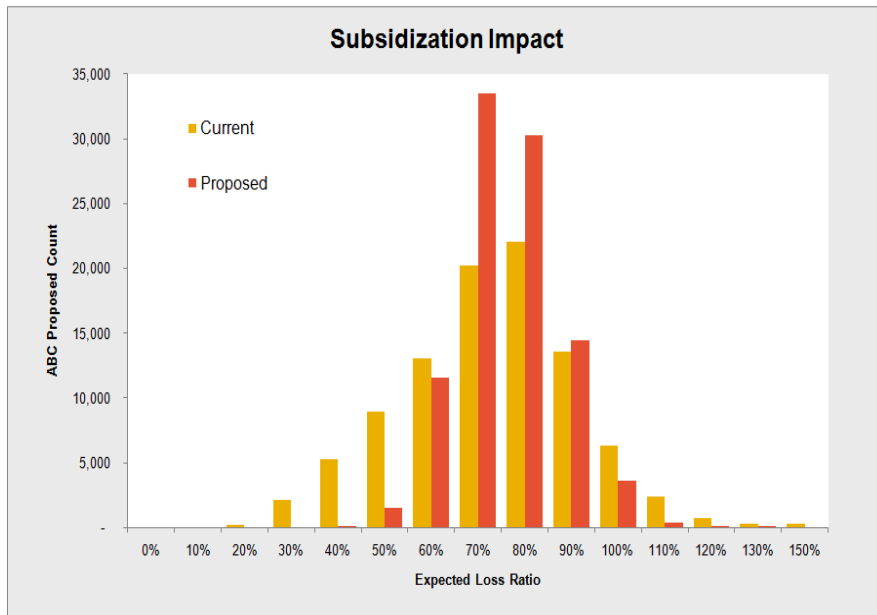- Consider scenario testing potential rate/underwriting changes

Communications

Actuaries like to know the modeling results validate well on a hold-out sample of data
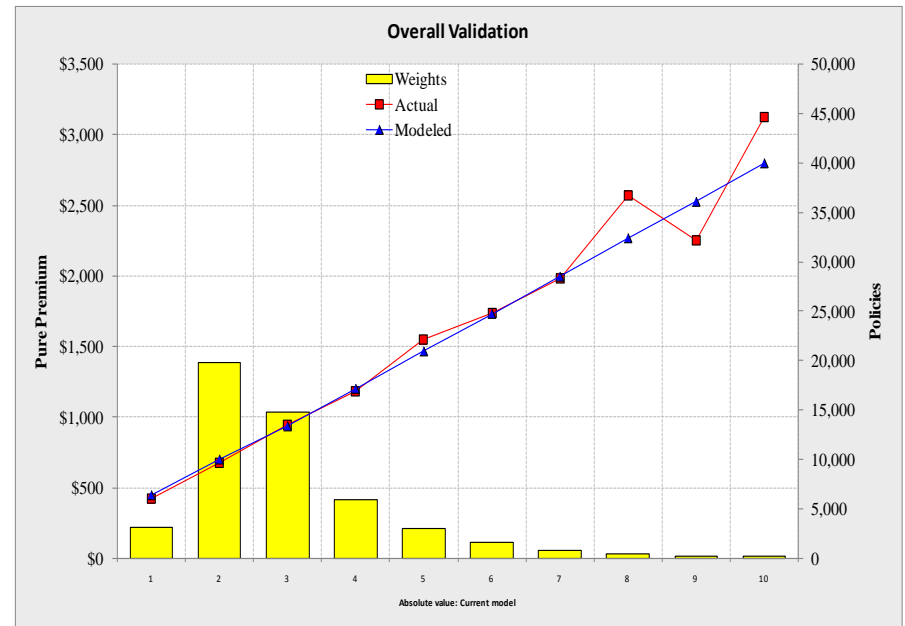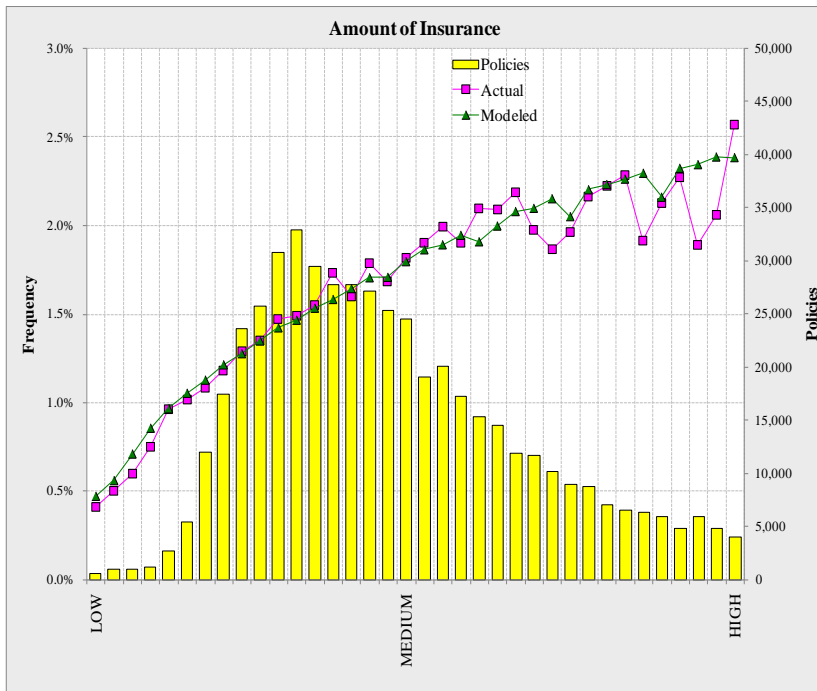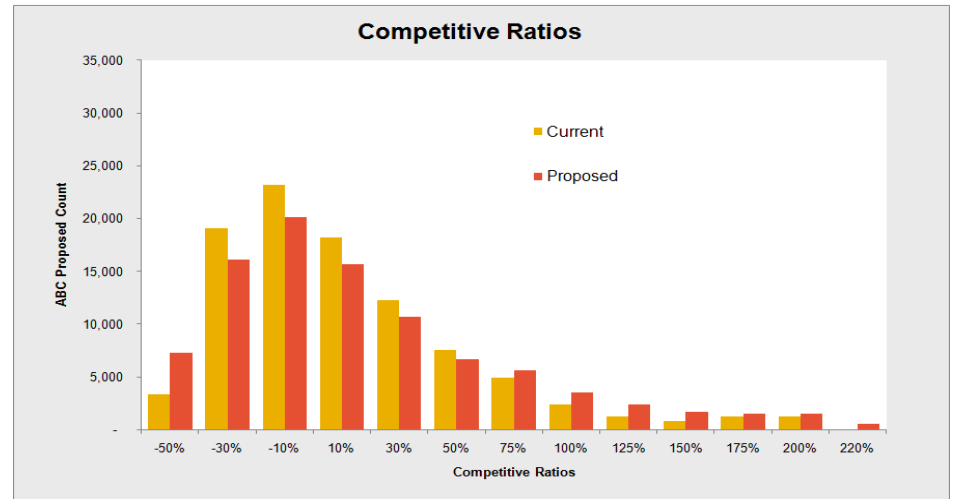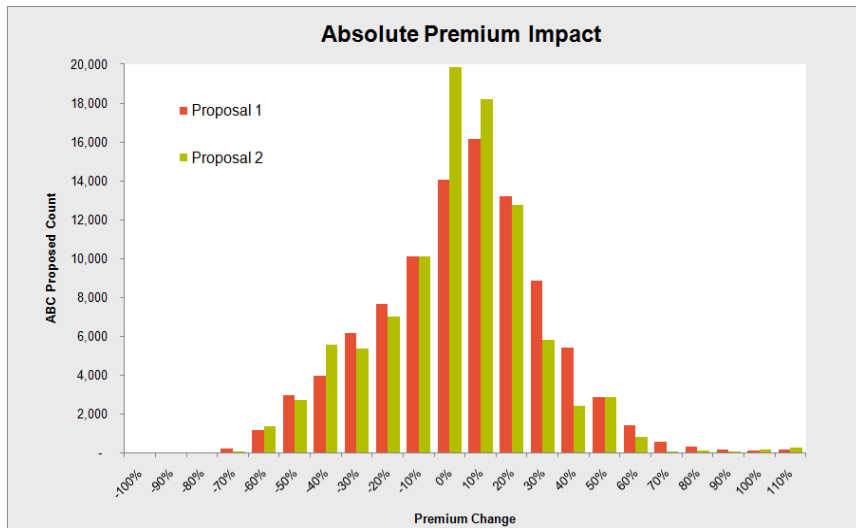
Communications

Management wants to know how the change is expected improve profitability and maintain/grow volume

Communications

Agents want to know how it will disrupt their existing portfolios or how it will provide new competitive opportunities

Monitoring and refinement

Plan to monitor and refine.

- Regular monitoring of quick-developing metrics against plan
  - Hit ratios, average premiums, frequencies
  - In aggregate and by segment
- Be prepared to test model as new data emerges
- Continue to seek new predictors and refinements to analytical methods

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Project plans

Poor planning leads to poor execution.

- Project plans should define
  - Key tasks
  - Key decisions
  - Deliverables
  - Roles
  - Timeframes
  - Budgets
- Identify dependencies and contingencies
- In other words – who does what by when, and how are decisions made

Roles

- Each project member has a role on each task (e.g., lead / perform / review / support / be informed)

- Analytical teams require various skill sets:
  - Data retrieval / manipulation
  - Analytical / statistical skills
  - Management – ability to relate results to business objectives

- Analytical work can't be a hobby (i.e., enlist full-time dedicated resources)

- Have a staffing contingency plan
  - Spread knowledge
  - Document effectively
  - Software

Supporting needs

Be honest about what you need to achieve goals – e.g.,

- Skills / training

- Consulting support (be honest and be creative)

- Hardware (computer upgrades, increased storage)

- Software (this often has side benefit of training, support, consistent procedures, and means of documentation)

Spreading the knowledge

- What worked well (or not) on this project?

- Can results from one project assist other functional areas?
    - Loss projections
        - Pricing, Reserving, Claims Management
    - Growth projections
        - Product Management, Marketing, Agency Management, Pricing
    - Profitability assessments by segments
        - Pricing, Product Management, Marketing, Agency Management

Contact Details

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