

**Insurance and Actuarial
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Use of Scoring in Marketing

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CAS Seminar on Ratemaking – Boston, Massachusetts

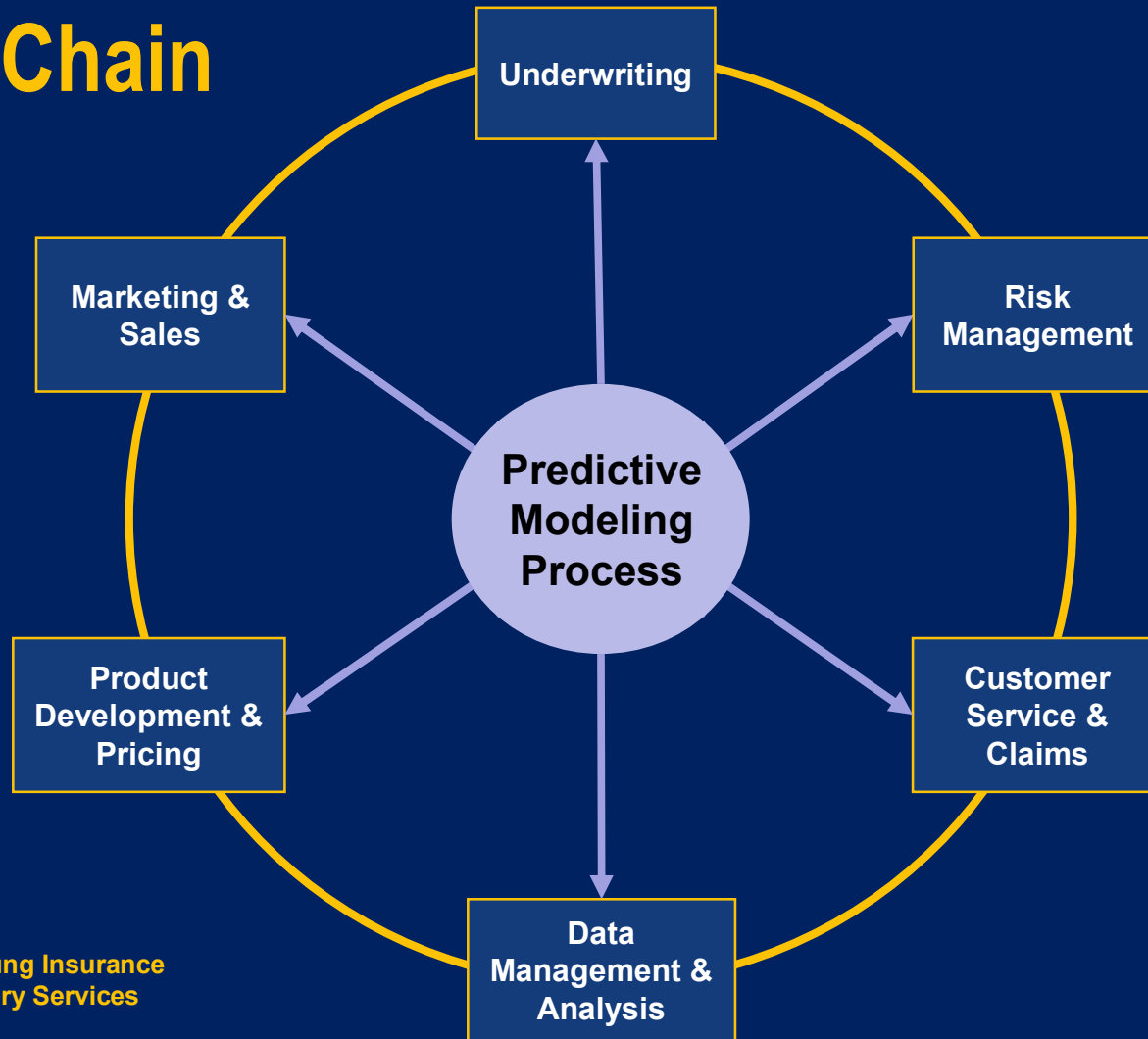
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Agenda

- Overview
- Marketing Objectives
- Types of Marketing Applications
- Applying Scoring in Marketing

Overview – Predictive Modeling Across the Value Chain



Source: Ernst & Young Insurance and Actuarial Advisory Services

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Overview

- Marketing applications seek to achieve the following:
 - Better alignment between marketing and underwriting departments
 - Reduction of the acquisition costs associated with new business
 - Shrink the loss ratio gap between new and renewal business
 - Focus on strengths of organization (level of competitiveness and distribution channel preferred accounts)

Marketing Objectives

Marketing objectives need to be considered in design of a marketing application

- **Growth targets**
 - Amount of growth?
 - What areas?
 - Types of accounts to target?
- **Competitiveness of territory/state**
 - Where is my company's pricing competitive?
 - How strong is my brand?
 - State of local market?

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Marketing Objectives

Marketing objectives need to be considered in design of a marketing application

- Limitations of distribution channel
 - Marketing reach in terms of proximity of agency force or company marketing personnel
 - Alignment of company's targeted accounts and agency's expertise/profitability
 - Not the preferred company
- Underwriting restrictions
 - Classes to avoid
 - Lack expertise

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Marketing Objectives

The design of the marketing plan also needs to consider:

- Where you may be “out-segmenting” your competition
- Demographics of a given area

Age

Class

**Growing/
Shrinking?**

- New agency appointments
- Prior profitability by segment

Types of Marketing Applications

The type of marketing application is based on the availability of external data and the ability to leverage the existing underwriting scoring model

External data can be divided into three groups:

- External response data (e.g., claims data)
- External data used for scoring in underwriting model
 - External variables used to score a given account
- External exposure/contact data
 - Payroll, revenue, number of employees
 - Name of business, address
 - Unique identifier, e.g., Federal Employer Identification Number (FEIN)

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Types of Marketing Applications

- With external claims data on an individual account level, a separate model can be built reflecting actual prior loss experience
 - Compile exposure/contact data for each account
 - Compare predictors from marketing model to underwriting model
 - Identify and minimize the differences in predictors to achieve better alignment in risk evaluation
 - Consider any reject bias that may be distorting the underwriting model
 - Rank risks based on scores and preferred risk profiles

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Types of Marketing Applications

- Without external claims data, the existing underwriting model will need to be applied
 - Compile exposure/contact data for each account
 - Collect predictors utilized in the underwriting model
 - Normalize for the new territory/state effects with summarized external claims data on a territory/state basis
 - Identify and score all risks in territory/state of interest utilizing the predictors compiled
 - Compile marketing lists reflecting existing distribution channel in a territory/state
 - Incorporate referral information to enhance the expected hit rate where possible

Applying Scoring in Marketing

The end product for a marketing application is a target marketing list. Accounts would be scored from best to worst, and provide the following account information:

**Account
Name**

**Account
Address**

**Type of
Business**

**Referral
Information**

**Respective
Score**

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Applying Scoring in Marketing

Marketing Lists - Target Policyholder Database

Score	License Number	Nearest Agent	Name	Specialty	Address	City
0.178	IA0013172	Agent 6	Physician 1	Pediatrics		Iowa City
0.210	IA0071531	Agent 1	Physician 2	Family Practice		Iowa City
0.236	IA0057666	Agent 2	Physician 3	Family Practice		Des Moines
0.245	IA0030108	Agent 1	Physician 4	Ophthalmology		Iowa City
0.247	IA0022882	Agent 9	Physician 5	Psychiatry		Logan
0.251	IA0013348	Agent 3	Physician 6	Family Practice		Iowa City
0.255	IA0068656	Agent 1	Physician 7	Family Practice		Coralville
0.255	IA0010370	Agent 10	Physician 8	Anesthesiology		W Des Moines
0.262	IA0023000	Agent 8	Physician 9	Family Practice		Bellevue
0.268	IA0045519	Agent 1	Physician 10	Pediatrics		Iowa City
0.282	IA0047197	Agent 7	Physician 11	Internal Medicine		Sioux City
0.287	IA0042407	Agent 2	Physician 12	Family Practice		Ames
0.293	IA0028414	Agent 10	Physician 13	Neurology		Iowa City

Source: Ernst & Young Insurance
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Applying Scoring in Marketing

Compilation of a marketing list needs to consider distribution channel(s) utilized by the company. The following additional information would be required by distribution channel:

- Agency
 - Need to geocode addresses of accounts and agencies to determine appropriate assignments
 - Profitability has been shown to deteriorate the farther the risk is from the physical location of the agency's office
 - Need to consider the risk profile of the agency to evaluate profitable and unprofitable segments

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Applying Scoring in Marketing

- Direct

- Need to provide referral information (where possible) to assist in the hit rate
- Need to geocode and map targeted accounts to help identify which areas to prioritize
- Need to rank accounts based on their respective scores and their alignment with company's preferred risk profiles

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Applying Scoring in Marketing



Most profitable 10%

All other accounts

Source: Ernst & Young Insurance and Actuarial Advisory Services