Optimization of distribution channels using statistical techniques
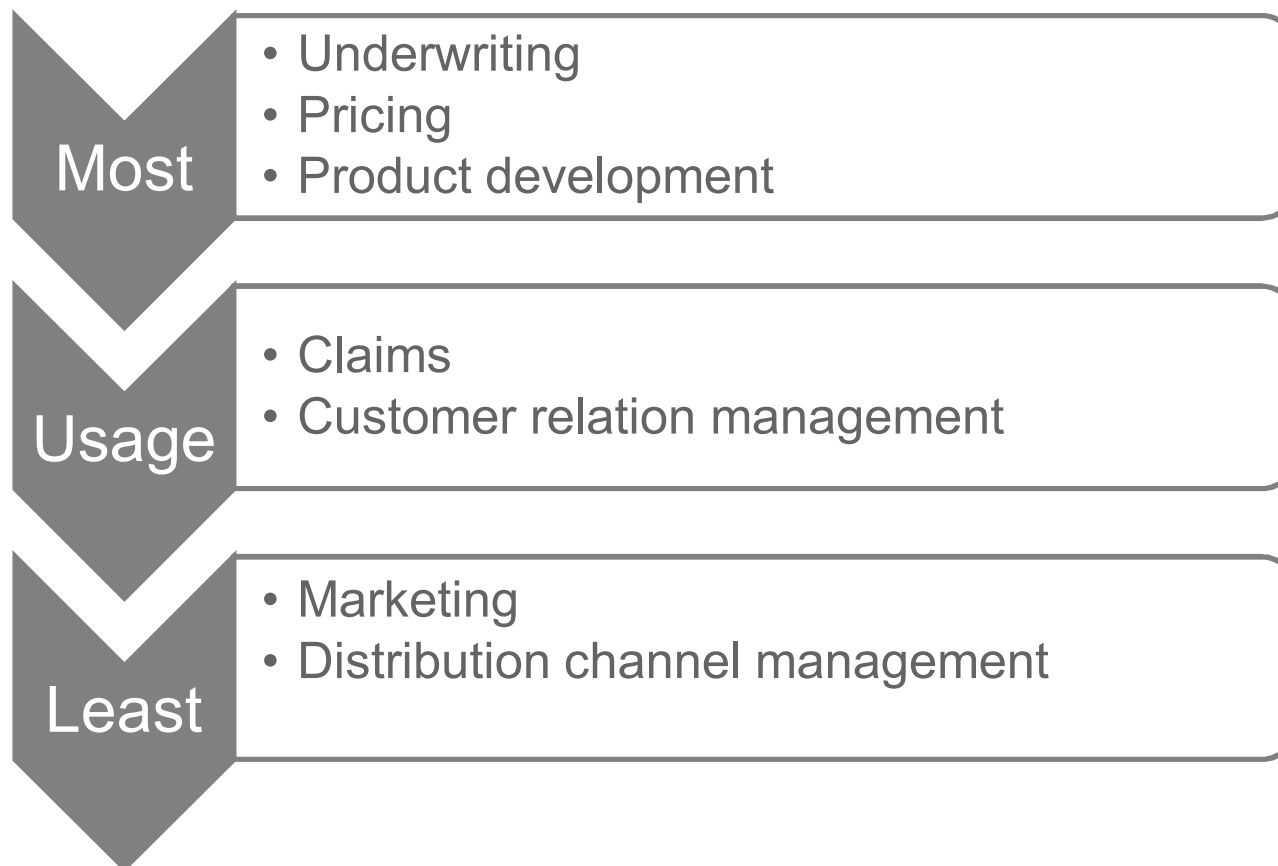
Benny S. Yuen

CAS Ratemaking and Product Management Seminar
New Orleans, LA, March 21, 2011

Use of statistical techniques

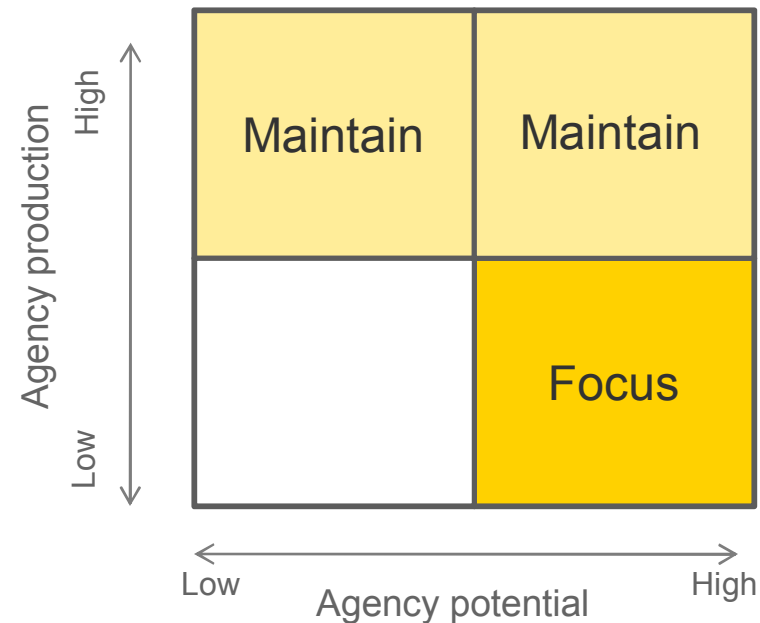▶ Use of analytics in many functional areas; degree varies by areas

Most
- Underwriting
- Pricing
- Product development

Usage
- Claims
- Customer relation management

Least
- Marketing
- Distribution channel management

Optimization of distribution channels

► **Use of statistical approach will help identify and quantify the dimensions that drive an agency success rate**

► **Provides a systematic and analytical approach to evaluate agency performance**

   ► Creates objectivity and consistency between key stakeholders and over time

   ► Provides a more robust benchmarking tool

   ► Assists in creating actions plans to improve agency performance

► **Captures and quantifies sales and marketing knowledge of the agency plant**

   ► Bridges the potential communication gap between sales/marketing and pricing/product management

► **Leverages external data to enhance analytics**

   ► A proven approach in predictive modeling

   ► Able to handle multiple dimensions and large volume of data

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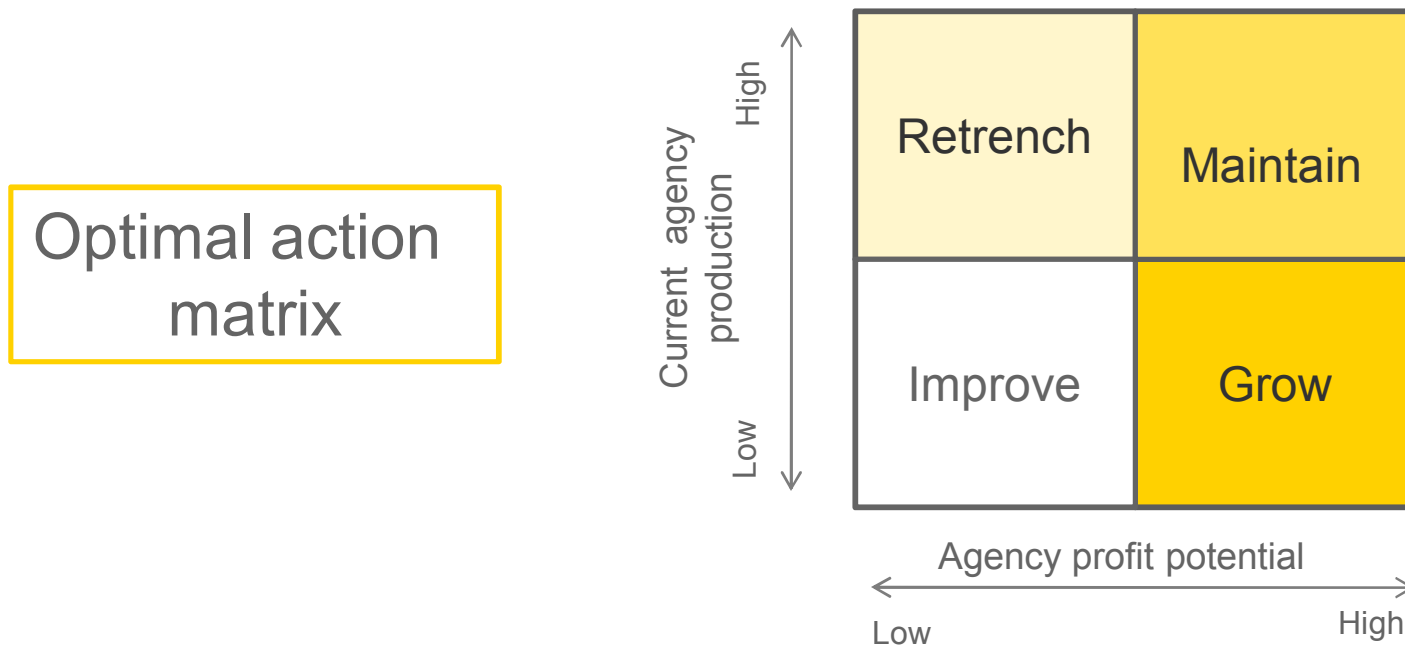*Quality In Everything We Do*

Optimization of distribution channels

► Maximize the production potential of the distribution force

  ► Identify those that have the highest potential

  ► Deploy sales resources to harness those with highest potential

  ► Create action plans to "improve" potential

Optimal deployment of sales/marketing resources

Maintain	Maintain
	Focus

Agency production: High / Low

Agency potential: Low — High

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Profitability optimization

► Maximize the profit potential of the distribution force

   ► Identify those that have the highest potential

   ► Deploy resources to harness those with highest potential

   ► Create action plans to "improve" low profit potential

   ► Appoint agencies with the highest likelihood of success

Optimal action matrix

	Retrench	Maintain
	Improve	Grow

Current agency production — High / Low

Agency profit potential — Low / High

Production & profit drivers

New business premiums

► Number of agencies

► Number of quotes per agency

► Conversion rate

► Average new business premium

Renewal premiums

► Number of policies at inception period

► Retention rate (versus renewal rate)

► Average renewal premium

► Allow for better focus and specify accountability

Loss ratio

► Frequency

► Severity

► Earned premium per exposures

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Increase in new business/quotes

► Sales and marketing focuses on increase in quotes

► Two methods to increase overall number of quotes:

  ► Expand agency force – will reach a saturation point

  ► Optimize agencies' quotes volume – Increase number of quotes per agency

► Levers that will increase quotes:

  ► Commission – has expense implications

  ► Underwriting – has profit implications

  ► Pricing (higher conversion → more quotes) – has profit implications

  ► Optimal deployment of sales and marketing resources– can have minimal impact on expense

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Increase in new business/quotes

▶ New business counts driven by quotes and conversion rate

Expanding volume of quotes

Increase in new business

(continued)

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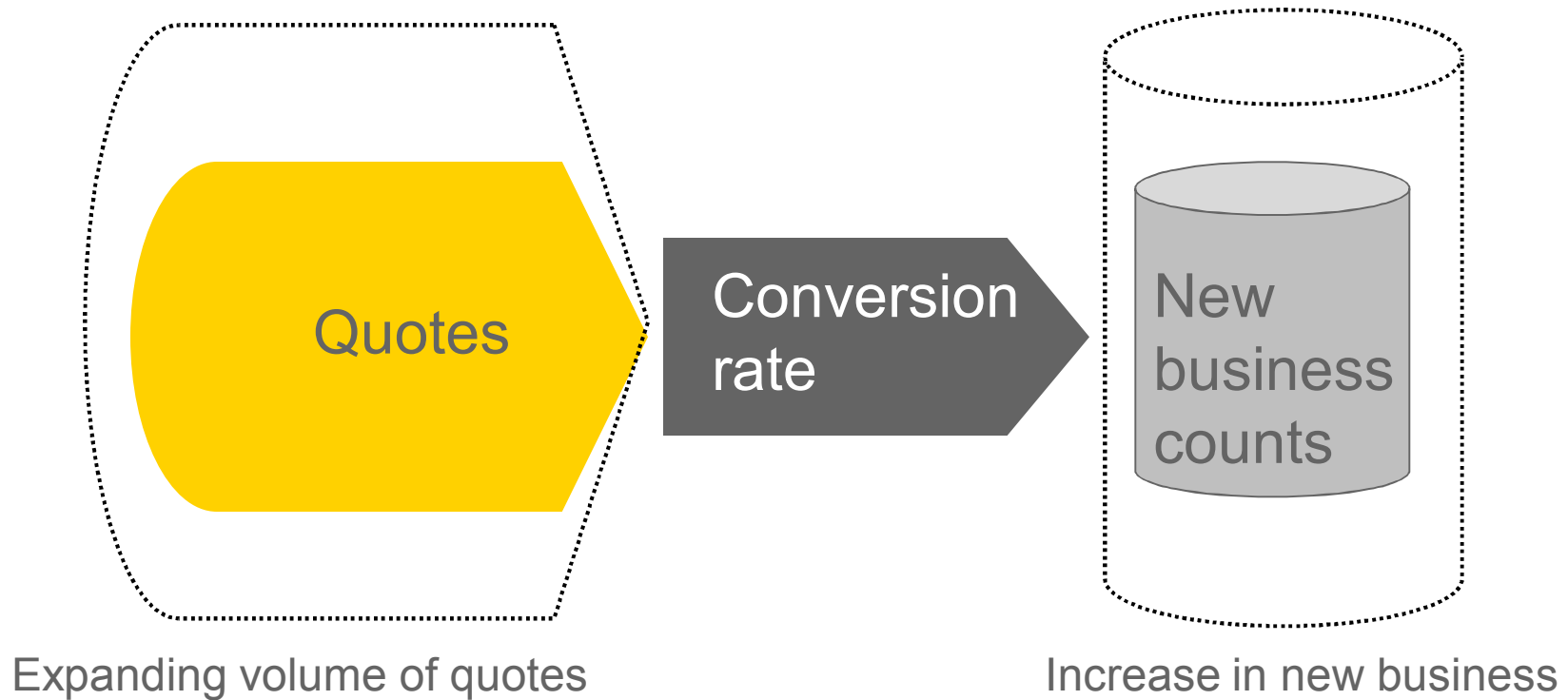
Identifying and maximizing an agency's potential

Need to define and quantify "potential"

► Traditionally rely heavily on sales force knowledge and understanding; often in anecdotes

   ► Best case scenario = consistent yet subjective evaluation

► Need to develop a systematic and analytical approach to supplement sales team's knowledge

Identify dimensions that drive potential

► Internal – agency attributes that increase the likelihood of success

   ► Examples : # of producers, years of operation, companies represented, agency volume, etc.

► External – Outside the control of the agency

   ► These can be altered by company => change in potential

   ► Examples: rate competitiveness, market size, brand, etc.

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Examples of individual dimensions

► Agency index

  ► Quantifies the various key agency attributes that drive success

► Market size index

  ► Measures the market opportunity within a rating territory

► Rate competitiveness index

  ► Ranks the company's rate competitiveness in each rating territory

► Brand index

  ► Effect of sales & marketing efforts

  ► Includes the ease of use effect

  ► Captures the "intangible" factors

► These dimensions contribute to the success of the agency with the company

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Normalization of individual dimensions
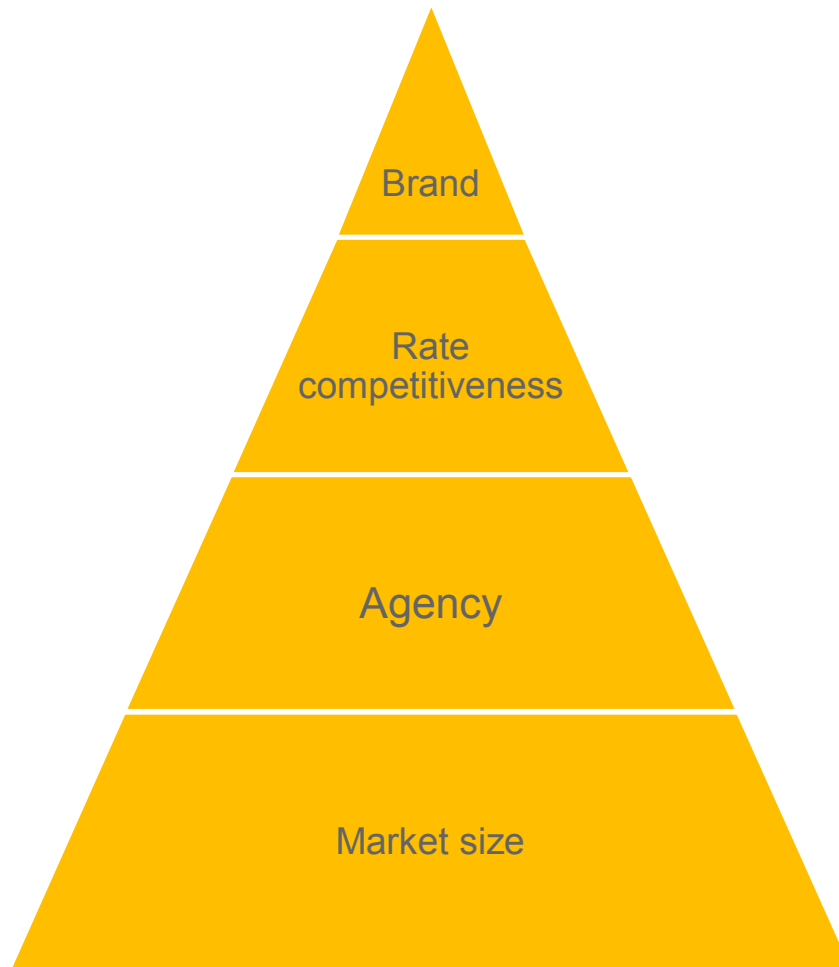
▶ All these dimensions contribute to the success of an agency

▶ Need to quantify each index separately

▶ Isolate the effect of each

▶ Some through modeling; some through existing definitions

▶ Each agency will have an individual dimension index

▶ Measure the importance of each dimension

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Market Size Index

Market Size

► Measures the market opportunity within a geographical area

   ► Rating territories

   ► Agency radius of operations

► Define measurements

   ► No need for modeling

► Examples of measurements within the defined geographical area

   ► # of licensed drivers

   ► Census populations

   ► # of quotes

   ► Industry # of policies

   ► Top 3 writers' written premium

Agency index
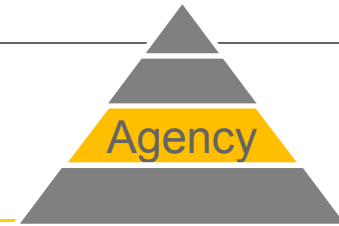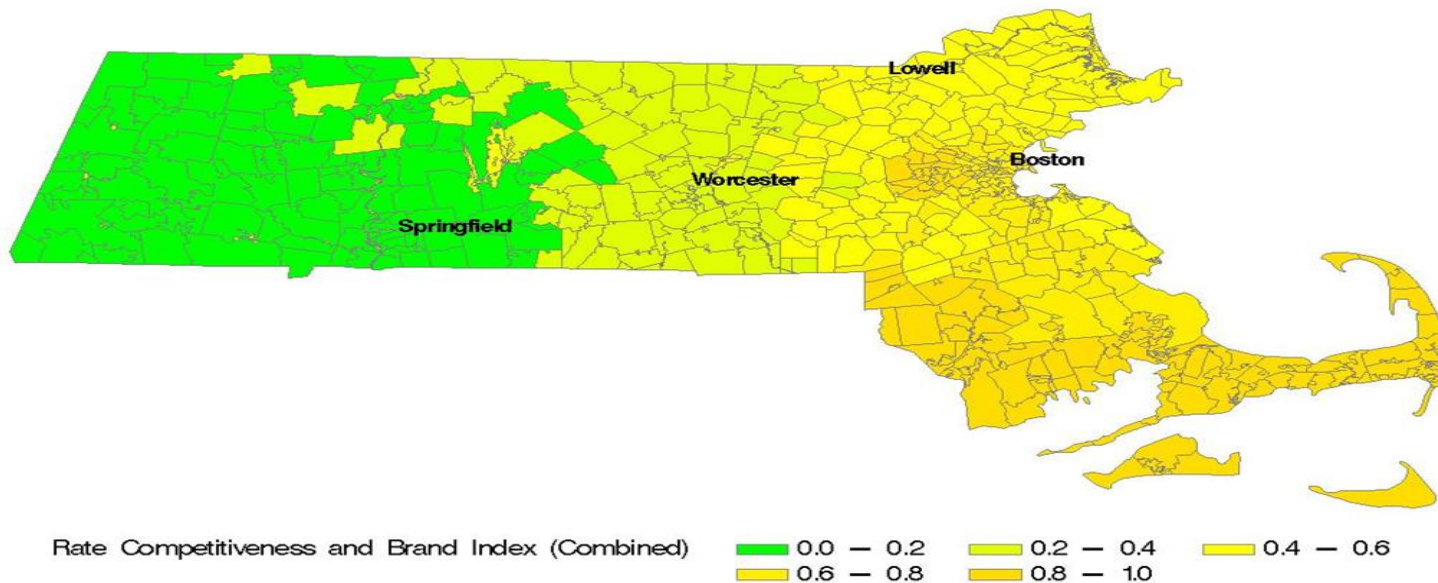
► Measures the overall agency attributes that drive success with the company

► Define predictors and responses for modeling

► Build a model to determine which predictors are the most relevant

► Examples of predictor candidates (agency attributes)

  ► Years of operation

  ► Size of agency (e.g. – premium volume, # of employees, # of licensed agents, etc.)

  ► Credit attributes

  ► # of companies represented (independent agencies)

  ► Type of companies represented (i.e. who)

  ► Customer base demographic alignment and value

  ► Operational efficiency (e.g. - % of cancelled, % of up-rate, etc.)

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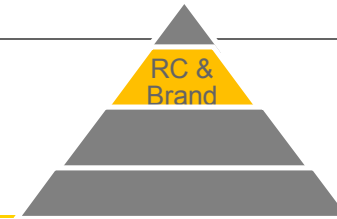*Quality In Everything We Do*

Rate competitiveness and brand index
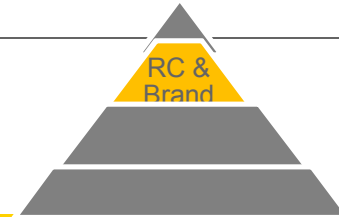
► Model to isolate the effects of market size and agency

► Valuable in examining the rate competitiveness and brand combined index

  ► Generate "heat map" to identify - growth opportunity, appointment opportunity, and area of vulnerability

Rate Competitiveness and Brand Index in Massachusetts

Lowell

Boston

Worcester

Springfield

Rate Competitiveness and Brand Index (Combined)
■ 0.0 — 0.2   ■ 0.2 — 0.4   ■ 0.4 — 0.6
■ 0.6 — 0.8   ■ 0.8 — 1.0

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Rate competitiveness index

- ► Need Rate competitiveness index (RCI) to isolate the brand index
- ► Companies have done much work on this
  - ► Can leverage existing company's analysis
- ► Also can be most controversial
  - ► Need for a consistent and agreed upon definition of "competitiveness"
  - ► Many ways to define this
- ► Examples of tools used to measure RCI
  - ► Win rate analysis
    - ► Need robust market baskets; e.g. quoted consumers; inforce profile; driving population
    - ► Quote/conversion rate information
  - ► Market perception
    - ► Mystery shoppers
    - ► Surveys
  - ► Can be simplistic – e.g. Low/Medium/High

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Brand index
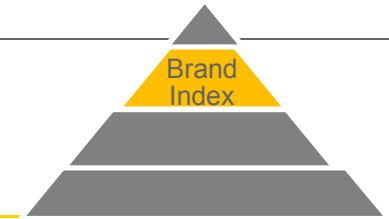
Brand
Index

► Residual effect after removing the rate competitiveness index from the combined

► One approach is to model the brand index for each of the RCI levels

► Examples of brand index predictors:

  ► Marketing spend

  ► # of sales representatives visits

  ► Relative retention ratio

  ► Ease of use measurement

  ► Customers survey

► An important index to determine factors that contribute to success of an agency with a company other than rate competitiveness

► High brand Index may be able to offset low RCI

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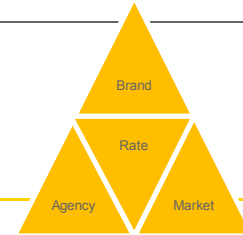
Composite index

► Calibrate the appropriate weights for each index to derive the Composite Index – through modeling

► One approach is to use a "success score table" by agency

    ► Company's knowledge on what drive agencies to be successful

    ► Some examples: Agencies with a 5-year business plan; agencies that do not shop their renewals; advertising spend above certain threshold

Agency	Success factors				
	A	B	C	D	Total
I	0	1	1	1	3
II	1	0	1	0	2
III	0	0	1	1	2
IV	1	1	1	1	4
V	0	0	1	0	1

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Composite index
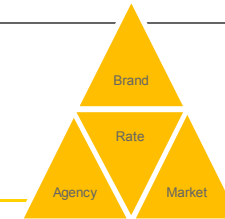
► Each agency will have an score for each individual dimension and the composite

► Composite score = objective definition of "potential"

► Compare objective score with subjective view

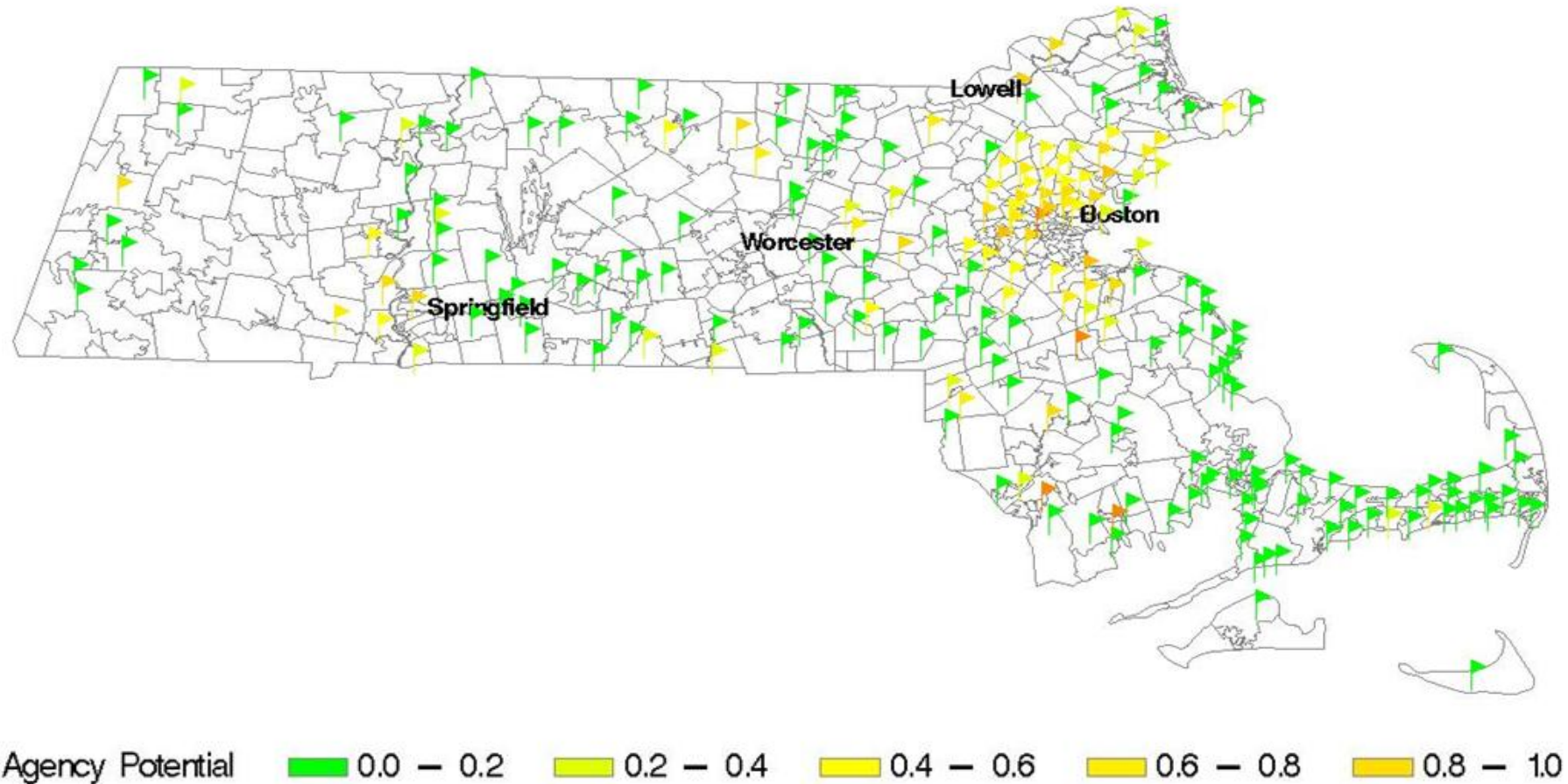► Rank composite score with agency volume with company

► Sample output:

Agency	Terr.	Individual indices				Composite**	Production*	
		Agency	Market	Rate	Brand		Past	Projected
I	10	90	70	80	90	83	20	70
II	10	80	70	80	65	76	15	60
III	10	30	70	80	20	52	30	25
IV	20	80	50	50	80	65	20	40
V	20	30	50	50	30	40	20	10

*- new business counts in a month **- Twice as much weights given to Agency and Rate*

(continued)

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Agency Potential and Agency Force in Massachusetts

| Agency Potential | ■ 0.0 – 0.2 | ■ 0.2 – 0.4 | ■ 0.4 – 0.6 | ■ 0.6 – 0.8 | ■ 0.8 – 1.0 |

Purposes/usage

► Assess the score outputs and identify patterns of drivers of performance

► Prioritize sales/marketing resources

   ► Getting more with same resources

   ► Add resources

► Identify areas of vulnerability

   ► Low combined RCI and brand index (See attached)

► Identify geographical areas of expansion

   ► High combined RCI and brand index

► Refine agency appointment criteria

   ► Predictors that drive high agency index

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Purposes/usage

► Formulate action plans

   ► Micro level – affecting only a few agencies

   ► Macro level – affecting many or all agencies

► Track effectiveness of levers

   ► Measure the change in scores from actions

► Agency benchmarking

   ► Allow for easier comparison of agency performance

► More robust business plan

   ► More effective bottom-up planning

   ► Example: Unreasonable to expect grow from agencies with low composite scores

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Benefits of statistical approach

► Use additional data to supplement existing sales/marketing teams' knowledge

► Objective, consistent, and structured approach

► Able to objectively compare different sales team members view

  ► Provide consistent definitions

► Handle multiple dimensions (characteristics) at one time

► Distill large volume of data

► Perpetually self-learned

► Repeatable process

► Retain sales teams' knowledge

  ► Loss of sales team member ⇏ Loss of knowledge

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