

# Using Scoring in Underwriting Analytics and Marketing

**Karthik Balakrishnan, Ph.D.**

Vice President, Analytics  
ISO Innovative Analytics

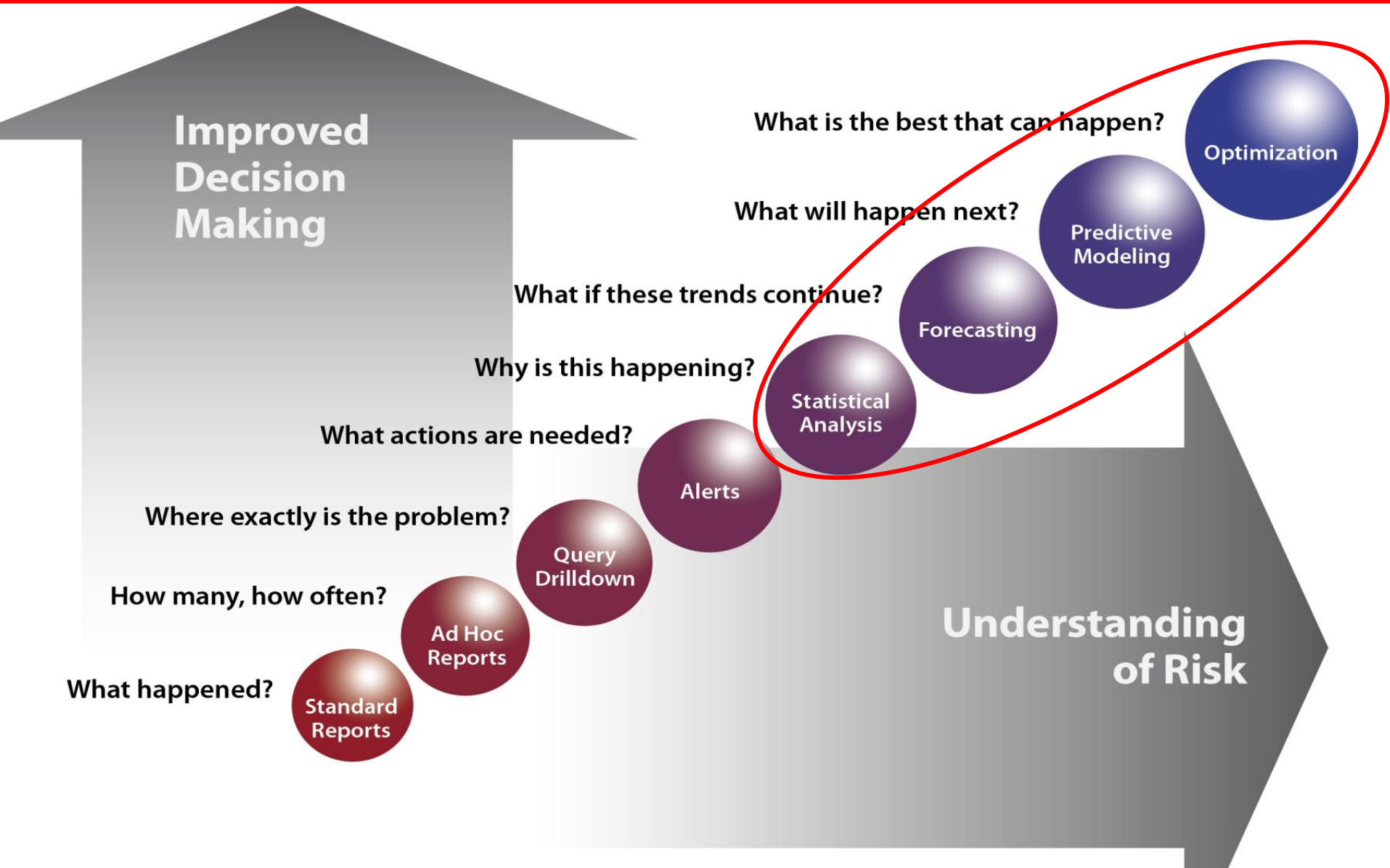


# Agenda

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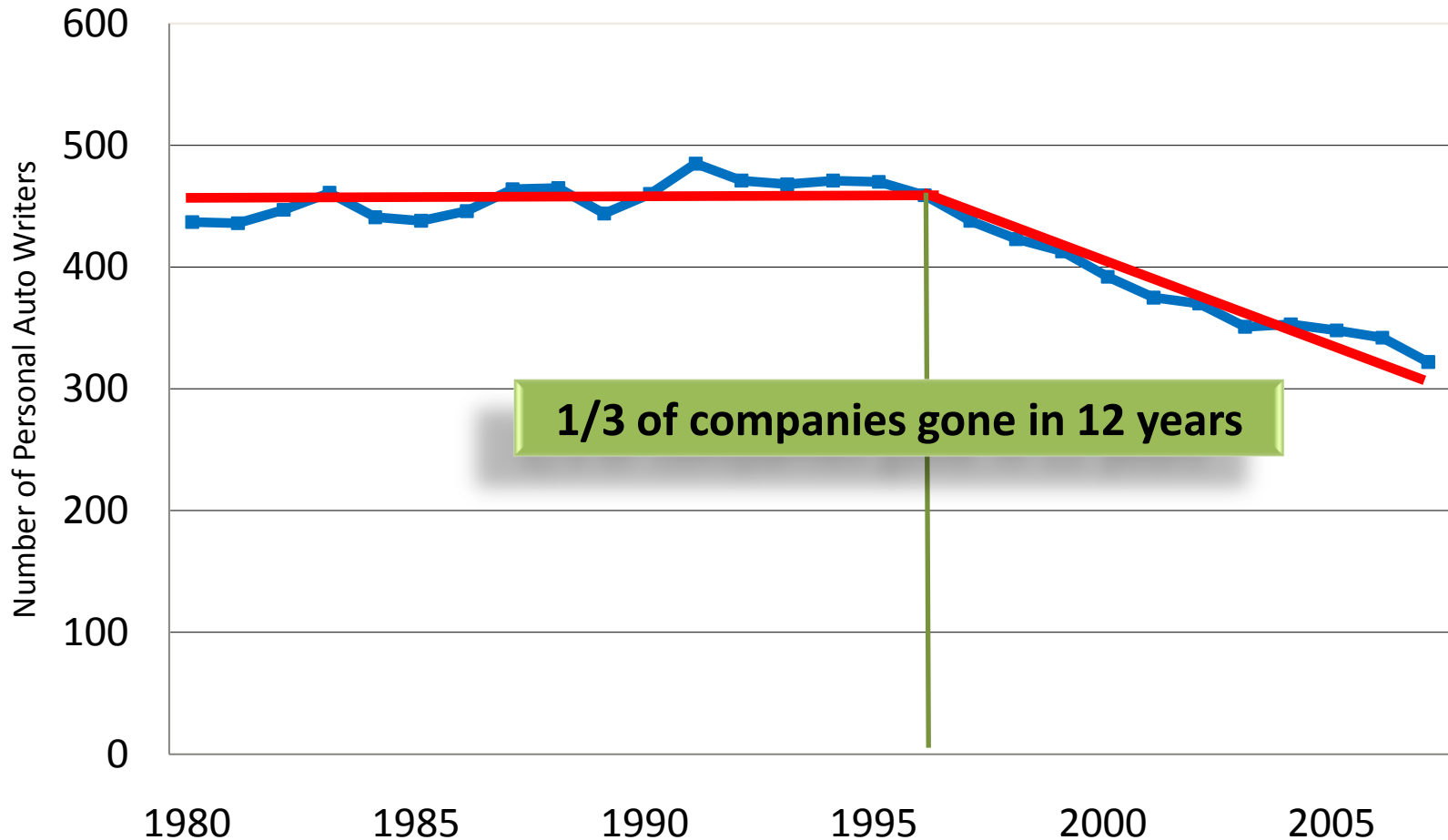
- **What is scoring/analytics?**
- **Why should we care?**
- **What can we do?**

# What is Analytics?

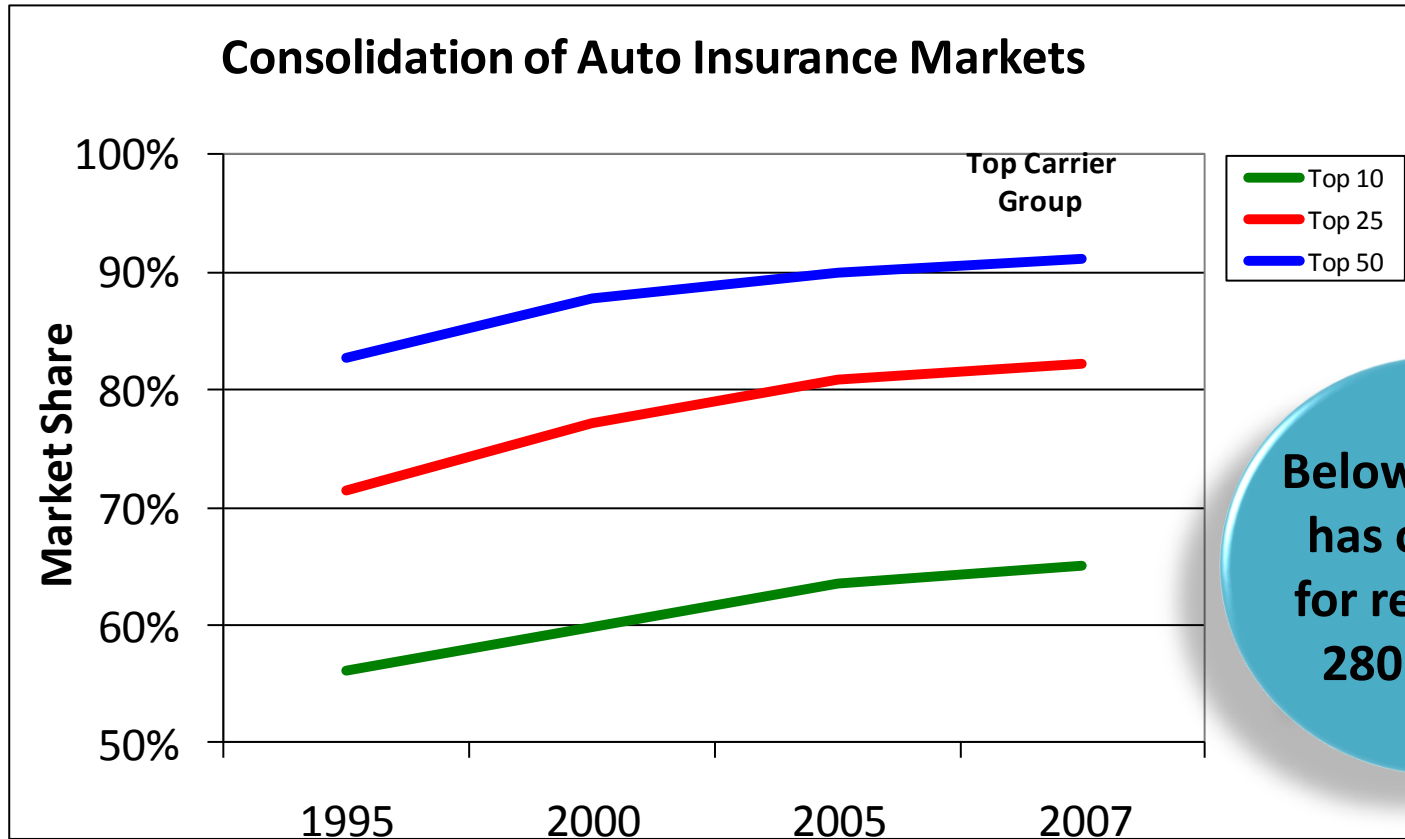


# Why Should We Care?

## Companies writing Personal Auto Insurance in the US



# Indication of Increased Competition



**Below 50 now  
has only 9%  
for remaining  
280 groups**

**Better  
Systems**

**Better  
Data**

**Better  
Analytics**

**Better  
Decisions**

# Where can Analytics be Applied?

## Operations Analytics

- Claims
  - Subrogation
  - Fraud
  - Litigation
  - IME
  - etc.
- Premium Inadequacy
  - Premium Audit WC/GL
  - Cov A ITV (PL)
- Loss Control
- Attrition Scoring
- etc...

## Actuarial Analytics

- New Binning for factors
- Novel Rating Factors
- Novel Pricing Models
- Enhancing Reserving Models
- New Product/Coverage Pricing
- etc.

## Operations Analytics

Insurance Lifecycle

## Marketing Analytics

## Marketing Analytics

- Strategic Market Dev.
  - Target Mkt
  - Niche identification
- Channel Optimization
  - Segmentation & LTV
- Product Innovation
  - Ideation support
- Customer Optimization
  - Segmentation & LTV
- Targeted Marketing Campaigns
  - Acquisition
  - X-sell/Up-sell
- etc.

## U/W & Actuarial Analytics

## U/W Analytics

- Risk Understanding
  - Causes of Loss
  - U/W sweet-spots
- Risk Qualification rules
- Risk Scoring Models
- Risk Tiering/Subsidy Models
- Renewal Scoring
- etc.

# Change Happens...

**Every year . . .**

50% of personal auto policyholders change vehicles or drivers

**Every hour there are . . .**

254 marriages  
124 divorces  
5,663 moves  
7,100 job changes  
6,402 registration changes  
445 new driver's licenses  
163 drunk driving incidents  
2,800 auto claims

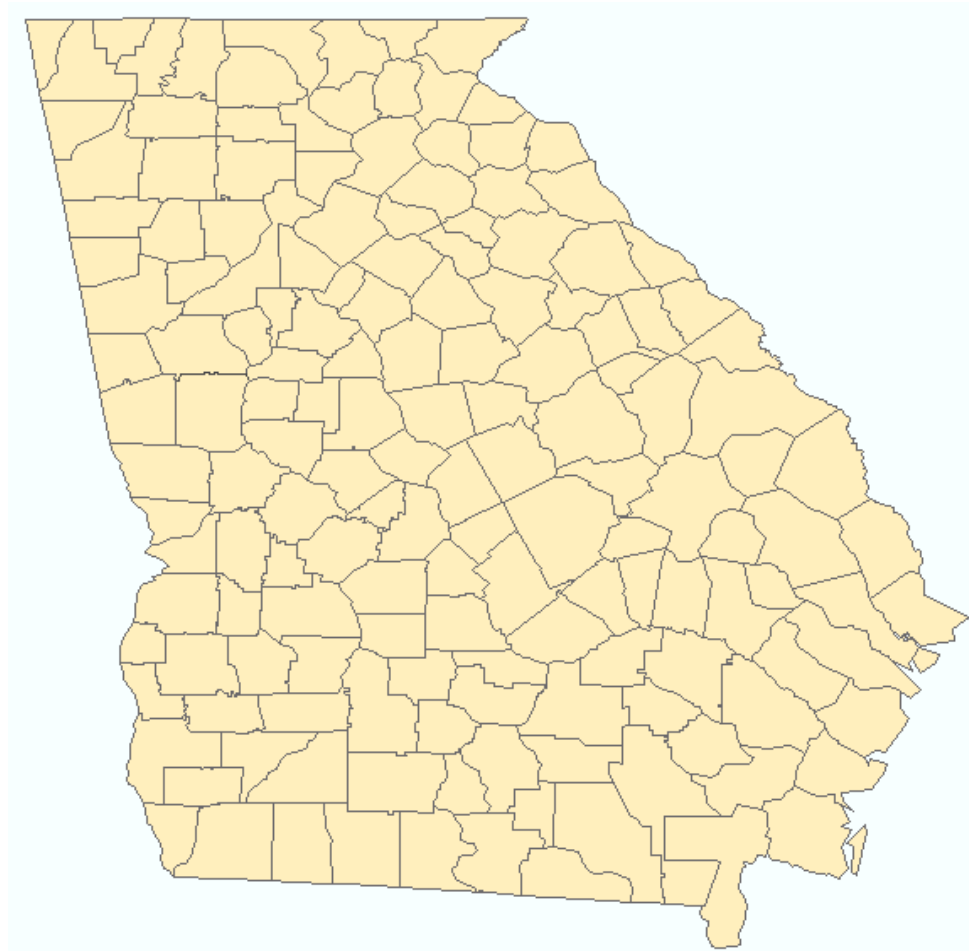
# ....Making the Most of It

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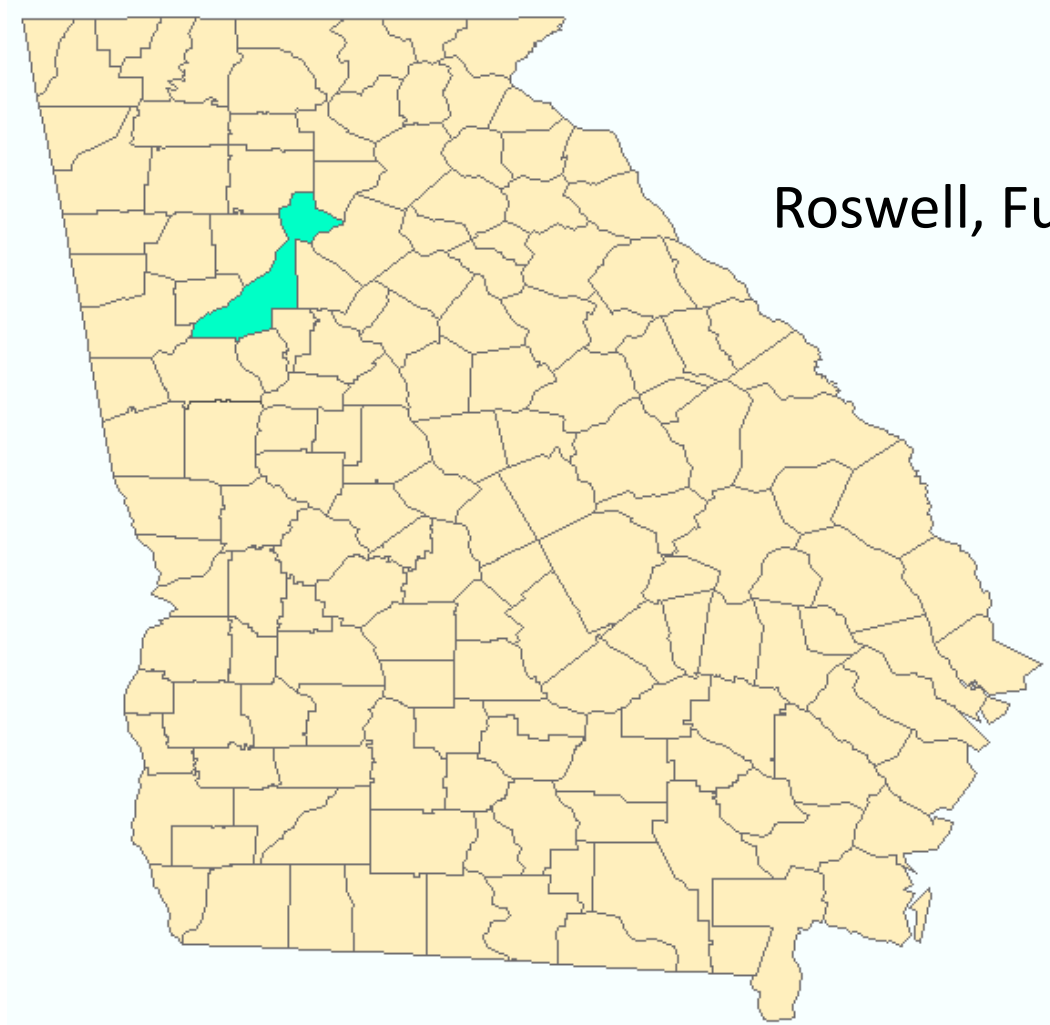
- **New vehicle added to policy**
  - Van? Perhaps a new-born child at home
    - Offer Life Insurance
- **New driver on policy**
  - Spouse?
  - Maybe recently married?
    - Offer Life Insurance
    - SVP coverage – Ring/Jewelry, Silverware, etc.



# Spatial Analysis – Georgia Book of Business

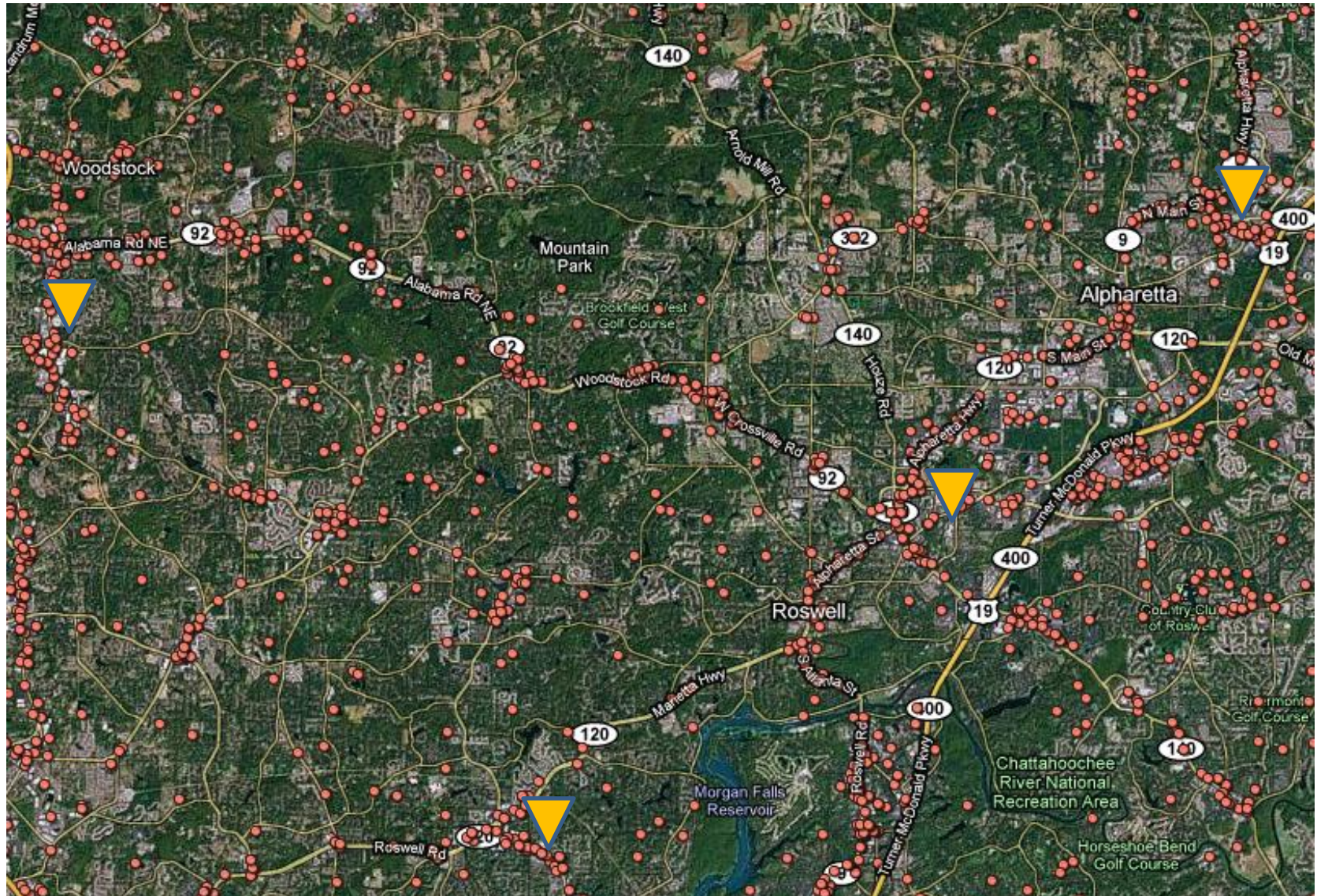


# Simple Spatial Analysis



Roswell, Fulton County

# Spatial Analysis of Book of Business

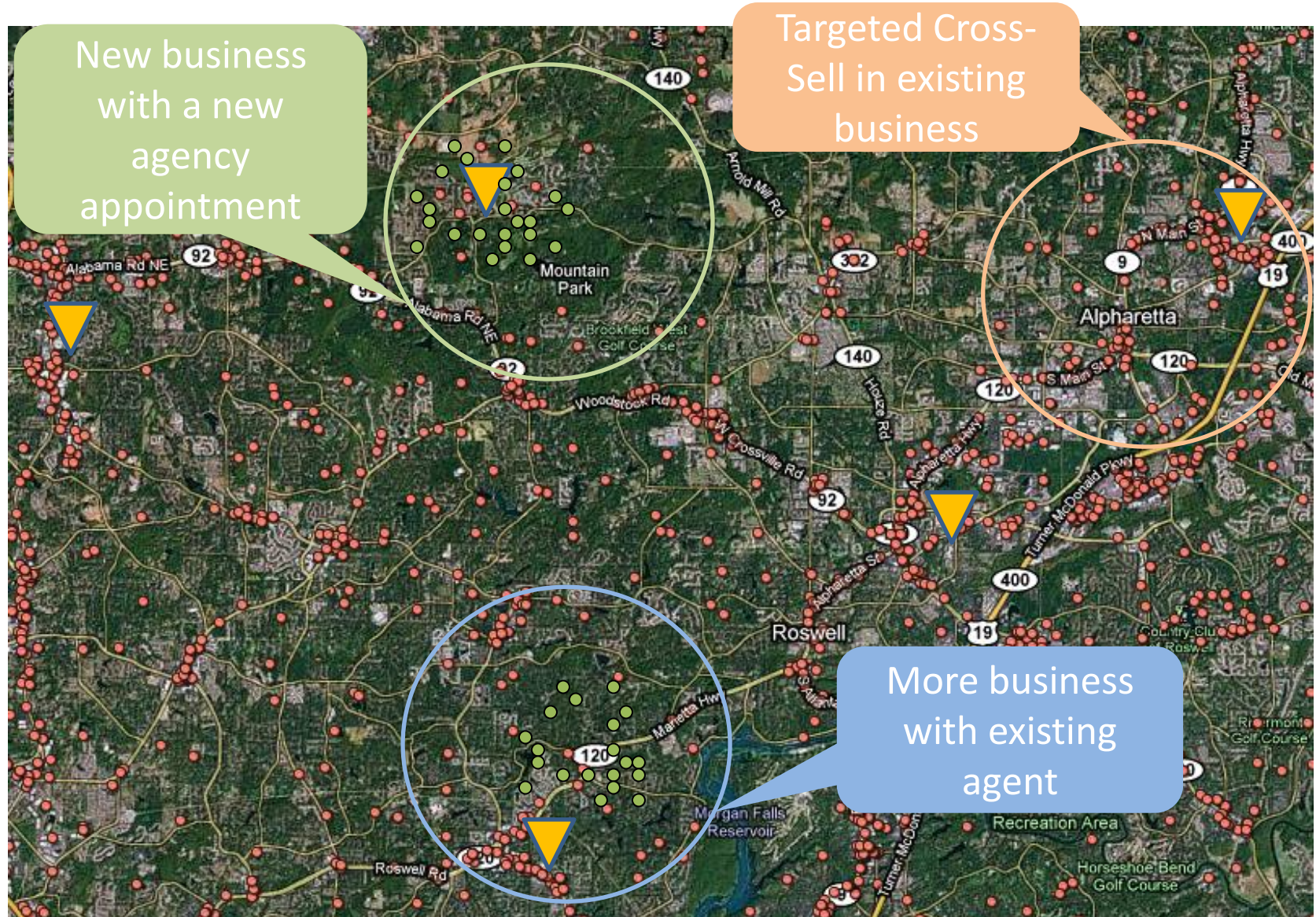


# Simple Segmentation

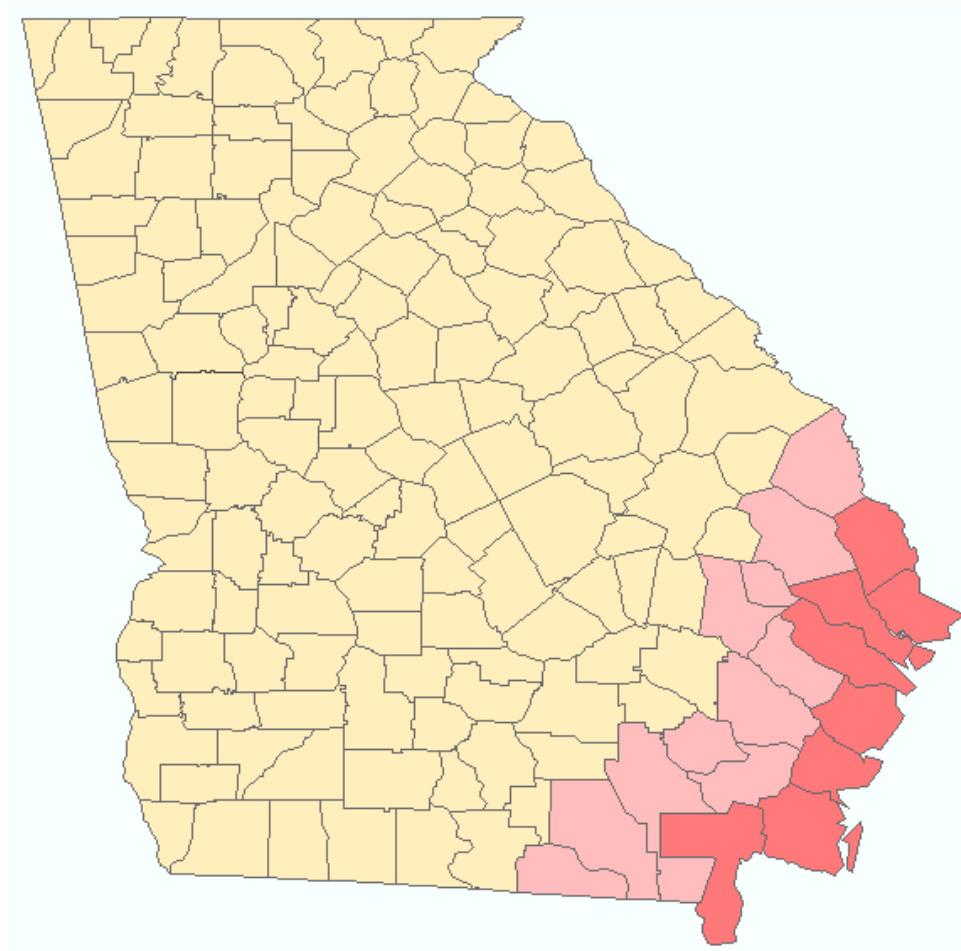
Age	Marital Status	Policies	Avg. Premium	# of Lines	Loss Ratio
< 25	Married	Some	Med	Low	✓ Med
< 25	Single/Other	Many	Low	Low	High
25-40	Married	Many	Med	Med	✓ Low
25-40	Single/Other	Many	Low	Med	Med
41-65	Married	Some	High	High	✓ Very low
41-65	Single/Other	Some	High	Med	Low
> 65	Married	Few	Low	Low	✓ Low
> 65	Single/Other	Few	Low	Low	Med

**Primary Target Segment – 41-65 year old, married households**  
**Secondary Target Segment – Married households**

# Targeted Growth with Marketing Analytics



# Not All Opportunities are Actionable



Savannah and  
nearby areas

# More Sophisticated Segmentation

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- **More data/attributes**
  - E.g., occupation, education, hobbies, etc.
- **External data**
  - Household information
  - Neighborhood information
  - Psychographic segmentation systems
    - Nielsen PRIZM<sup>®</sup>, Acxiom PersoniX, etc.
  - Geo-spatial segmentation systems
    - ISO PreScreen<sup>™</sup>, etc.



# Segment – Home Sweet Home

## 19 Home Sweet Home

Upper-Mid, Middle Age w/o Kids

Widely scattered across the nation's suburbs, the residents of Home Sweet Home tend to be **upper-middle-class married couples** living in **mid-sized homes without children**. The adults in the segment, mostly **under 55**, have gone to college and hold **professional and white-collar jobs**. With their upper-middle-class incomes and small families, these folks have fashioned comfortable lifestyles, filling their homes with **exercise equipment, TV sets, and pets**.

### DISCLAIMER

Nielsen PRIZM® segments are used **ONLY** for illustrative purposes and should **NOT** be taken as endorsement by the author

Social Group:	The Affluentials
Lifestage Group:	Midlife Success
2009 Statistics:	
US Households:	2,109,604 (1.83%)
Median HH Income:	<b>\$70,201</b>
<b>Lifestyle Traits</b>	
Order from sears.com Rent/buy exercise videos Read Cigar Aficionado Watch Style Channel Volkswagen Passat	
<b>Demographics Traits</b>	
Urbanicity:	Suburban
Income:	Upper-Mid
Income Producing Assets:	Above Avg.
Age Ranges:	<55
Presence of Kids:	HH w/o Kids
Homeownership:	Mostly Owners
Employment Levels:	Professional
Education Levels:	College Grad
Ethnic Diversity:	White, Black, Asian, Mix





# Segment – Shotguns & Pickups

## 51 Shotguns & Pickups

Lower-Mid, Younger w/ Kids

The segment known as Shotguns & Pickups came by its moniker honestly: it scores near the top of all lifestyles for **owning hunting rifles and pickup trucks**. These Americans tend to be **young, working-class couples with large families**, living in **small homes and manufactured housing**. Nearly a third of residents live in mobile homes, more than anywhere else in the nation.

Social Group:	Middle America
Lifestage Group:	Mainstream Families
2009 Statistics:	
US Households:	1,871,911 (1.62%)
Median HH Income:	<b>\$43,273</b>
<b>Lifestyle Traits</b>	
Shop at Sears Hardware Own a horse Read North American Hunter Watch Outdoor Channel Ford F-Series	
<b>Demographics Traits</b>	
Urbanicity:	Rural
Income:	Lower-Mid
Income Producing Assets:	Low
Age Ranges:	<b>25-44</b>
Presence of Kids:	HH w/ Kids
Homeownership:	Mostly Owners
Employment Levels:	BC, Service, Mix
Education Levels:	High School Grad
Ethnic Diversity:	White, Black, Mix

# Segment – Fast-Track Families








20 Fast-Track Families

Upscale, Middle Age w/ Kids

With their **upscale incomes, numerous children, and spacious homes**, Fast-Track Families are in their prime acquisition years. These middle-aged parents have the disposable income and educated sensibility to want the best for their children. They **buy the latest technology** with impunity: **new computers, DVD players, home theater systems, and video games**. They take advantage of their rustic locales by **camping, boating, and fishing**.

Social Group:	Landed Gentry
Lifestage Group:	Young Accumulators
2009 Statistics:	
US Households:	1,918,827 (1.66%)
Median HH Income:	<b>\$76,680</b>
<b>Lifestyle Traits</b>	
Order from buy.com Business travel by airplane Read American Hunter Watch Country Music Television Chevrolet Suburban Flex Fuel	
<b>Demographics Traits</b>	
Urbanicity:	Town/Rural
Income:	Upscale
Income Producing Assets:	Above Avg.
Age Ranges:	<b>35-54</b>
Presence of Kids:	HH w/ Kids
Homeownership:	Mostly Owners
Employment Levels:	Management
Education Levels:	College Grad
Ethnic Diversity:	White

# Power of Additional Segmentation

Segment	Policies	Avg Premium	LR	Age	Kids?	Income
Shotguns & Pickups	Many 	Low	High	25-44	Yes	Lower-Mid
Fast Track Families	Some 	Med	Low	35-54	Yes	Upscale
Home Sweet Home	Some 	High	Low	< 55	No	Upper-Mid
Pools & Patios	Many 	Med	Med	45-64	No	Upper-Mid
New Empty Nests	Few 	Med	High	65+	No	Upper-Mid

## Target Segments

**Primary – Fast Track Families**

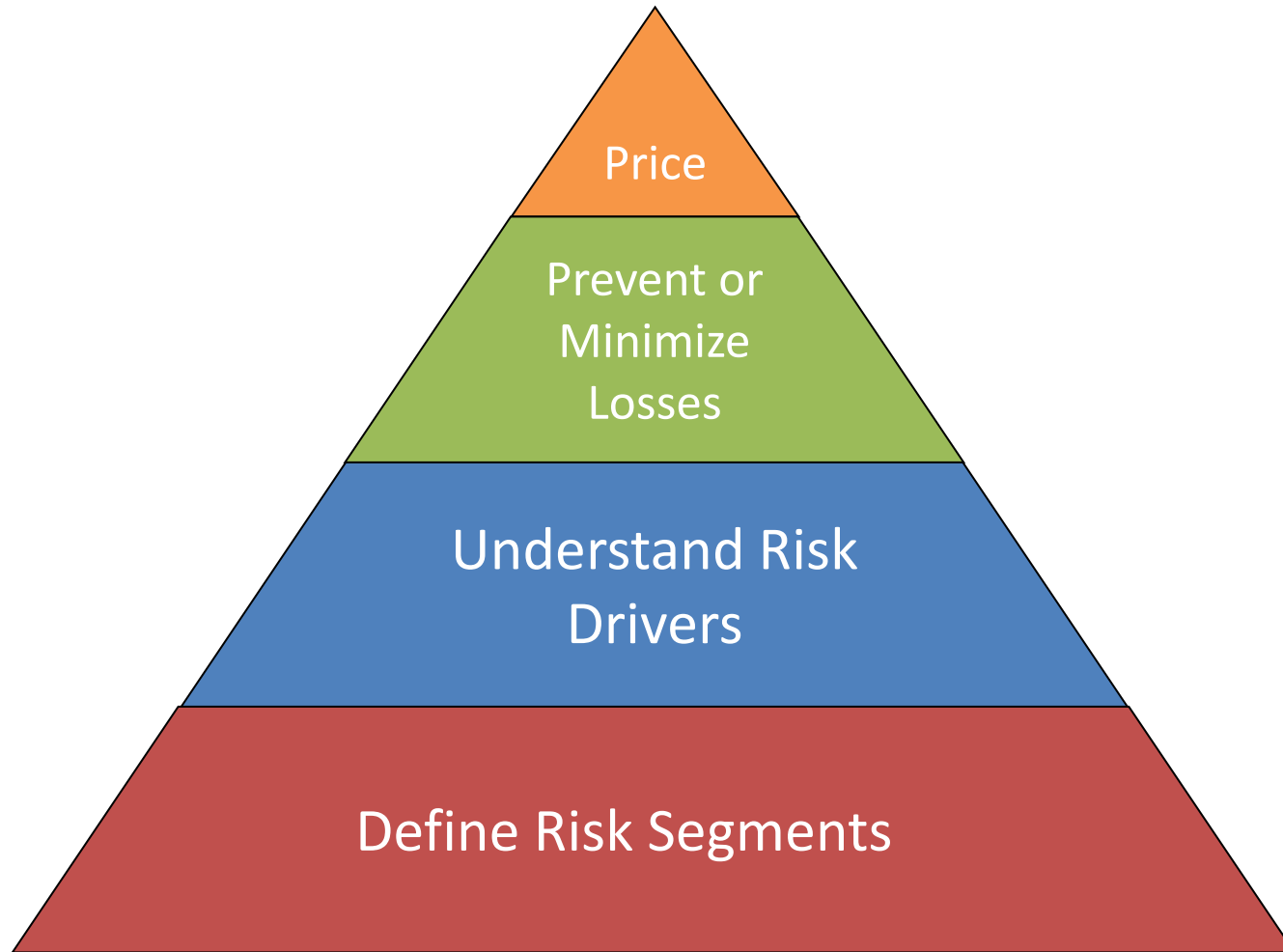
**Secondary – Home Sweet Home, Pools & Patios**

# Targeted Product/Service Innovation

Fast Track Families	Home Sweet Home	Pools & Patios
Free car-seat installation	Simplified Pet Insurance endorsement	Enhanced travel insurance coverage
Improved add-on extended coverage for Electronics items	Improved add-on extended coverage for Electronics items	Free jewelry and valuables appraisal
Automatic Identity theft coverage	Joint marketing for fitness membership discounts	

# Underwriting & Pricing Philosophy

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# Understanding Risk Drivers

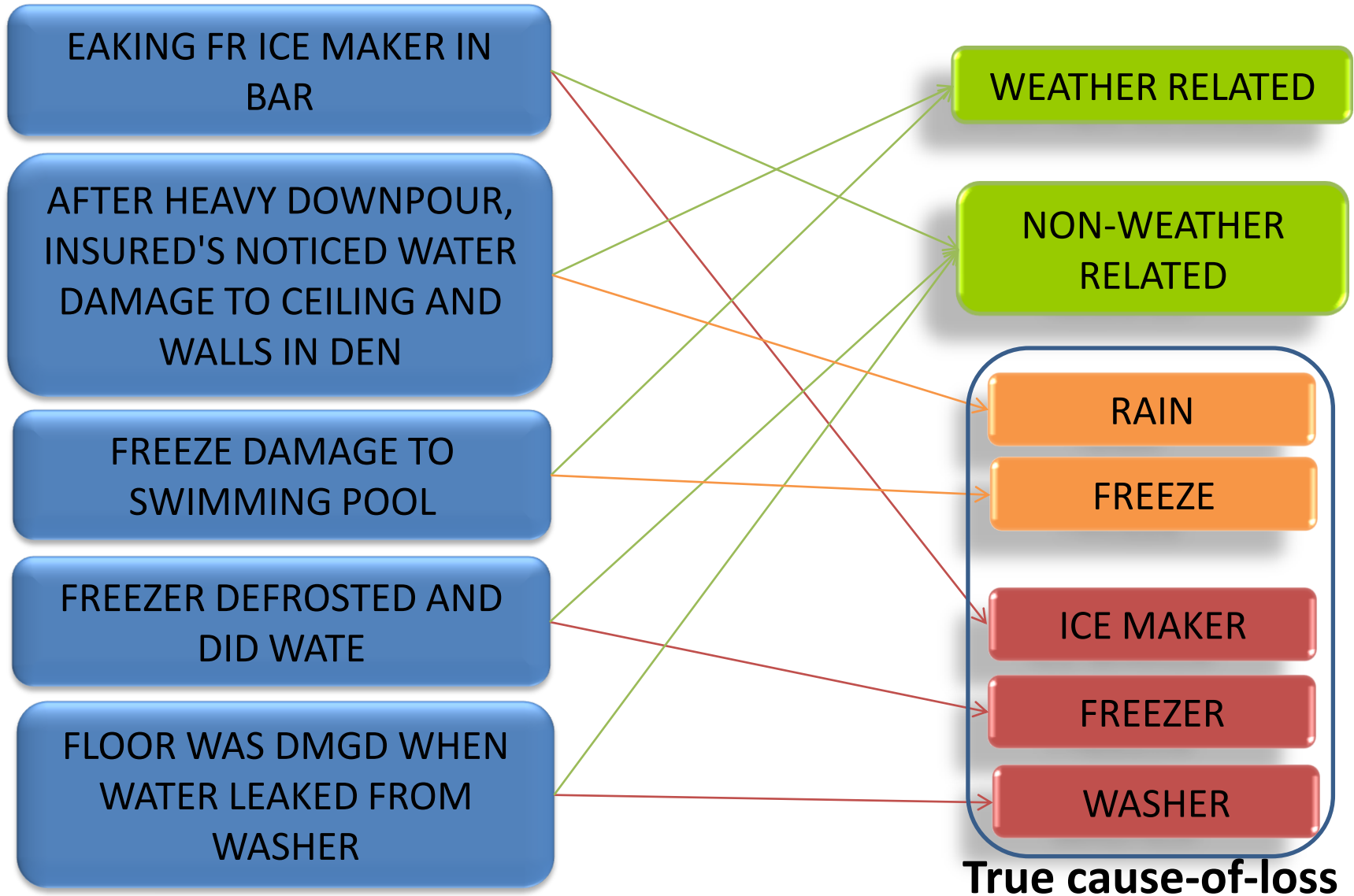
- **Should be easy – analyze cause of loss**
- **Limited value in “cause of loss” fields**
  - E.g., Homeowners – Water, Fire, Theft, etc.
- **It works, but doesn’t provide deep insights into the “real” cause of loss**
  - E.g., Water damage caused by...
    - Burst pipe
    - Overflowing bathtub/sink
    - Dishwasher/Washer leak
    - Roof leak
    - Water through window, etc.

# Text Mining to the Rescue

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- **Claims systems contain tremendous insights buried in “textual” form**
  - Adjuster notes
  - Description of loss (limited size)
- **Not an easy task – real-world challenges**
  - Ill-formed text, typos, abbreviations, grammatical issues, etc.
- **Text Mining – art and science of extracting useful business insights from unstructured data**

# Text Mining HO Loss Descriptions

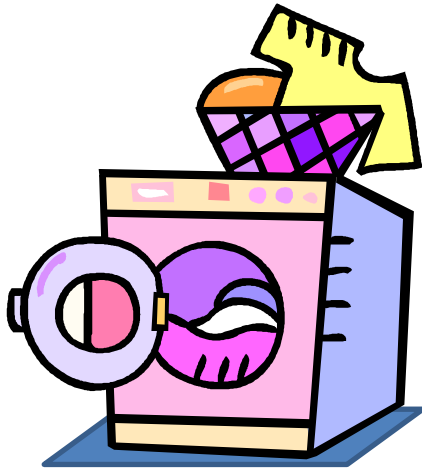




# Better Business Actions – Loss Prevention

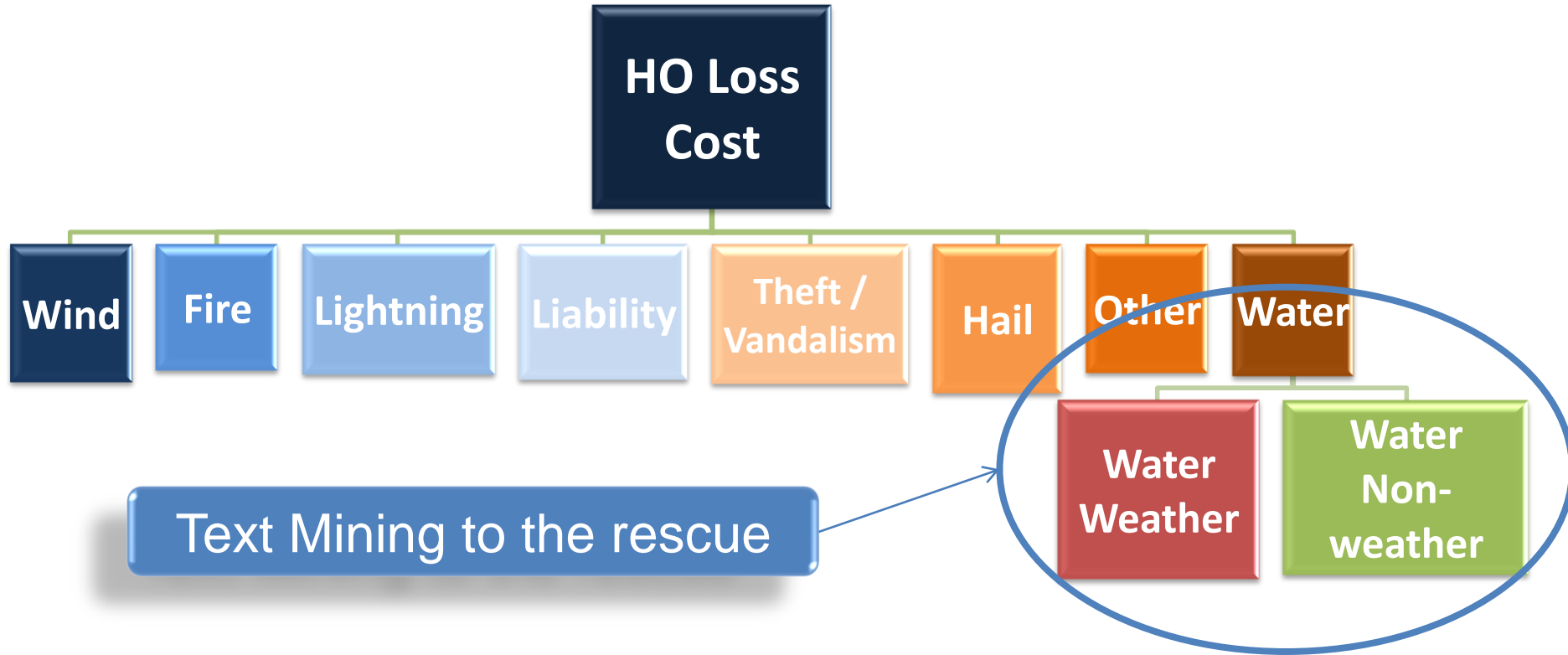
- **Prevent / minimize losses**

- Specialized offers for target customer segments
  - Overflow trays in washers



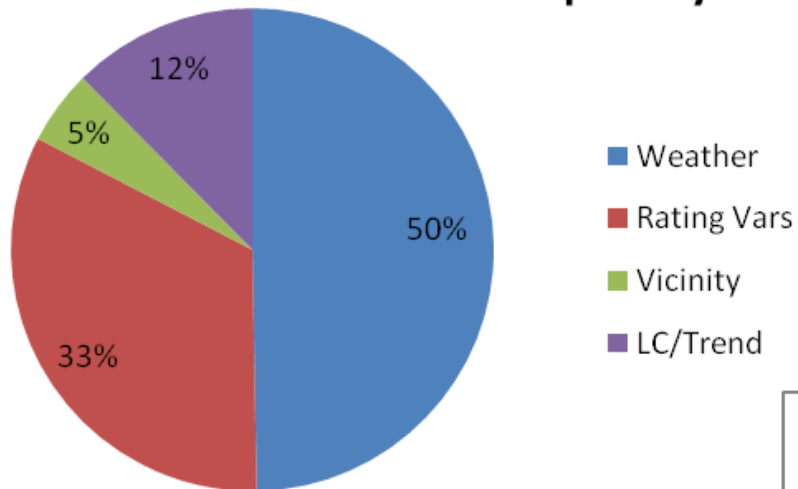
- Discounted “servicing” of refrigerators

# Better Business Actions – Accurate Models

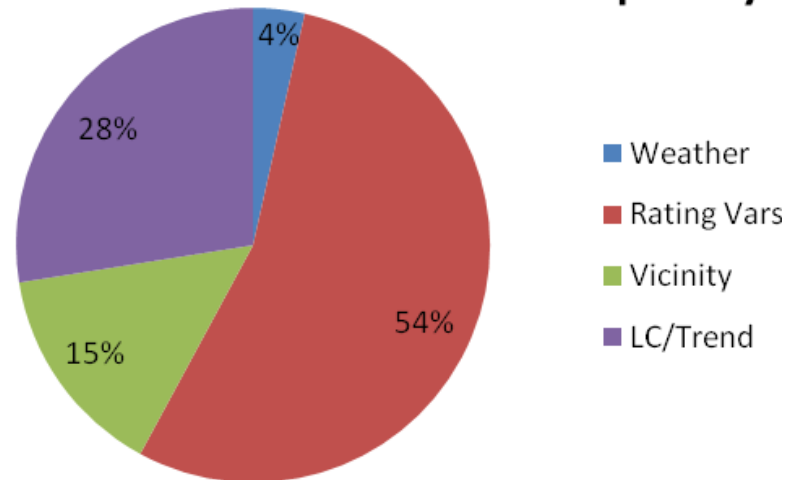


# Tighter and Relevant Predictors

## Water Weather - Frequency



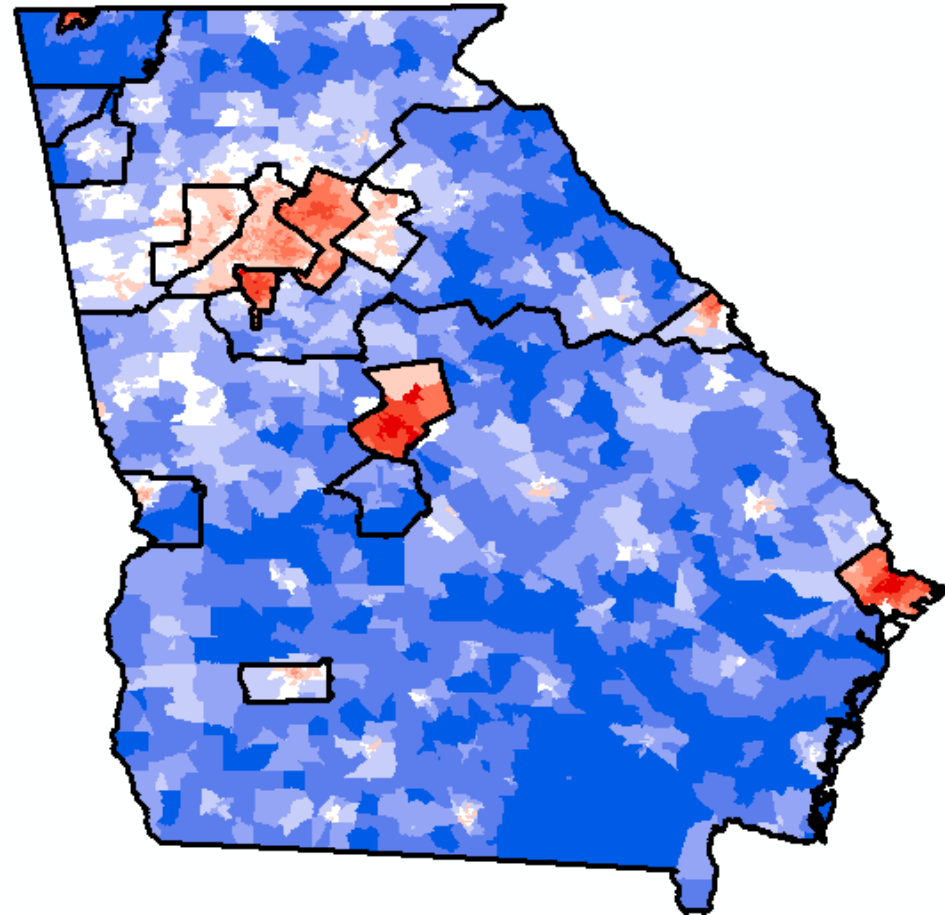
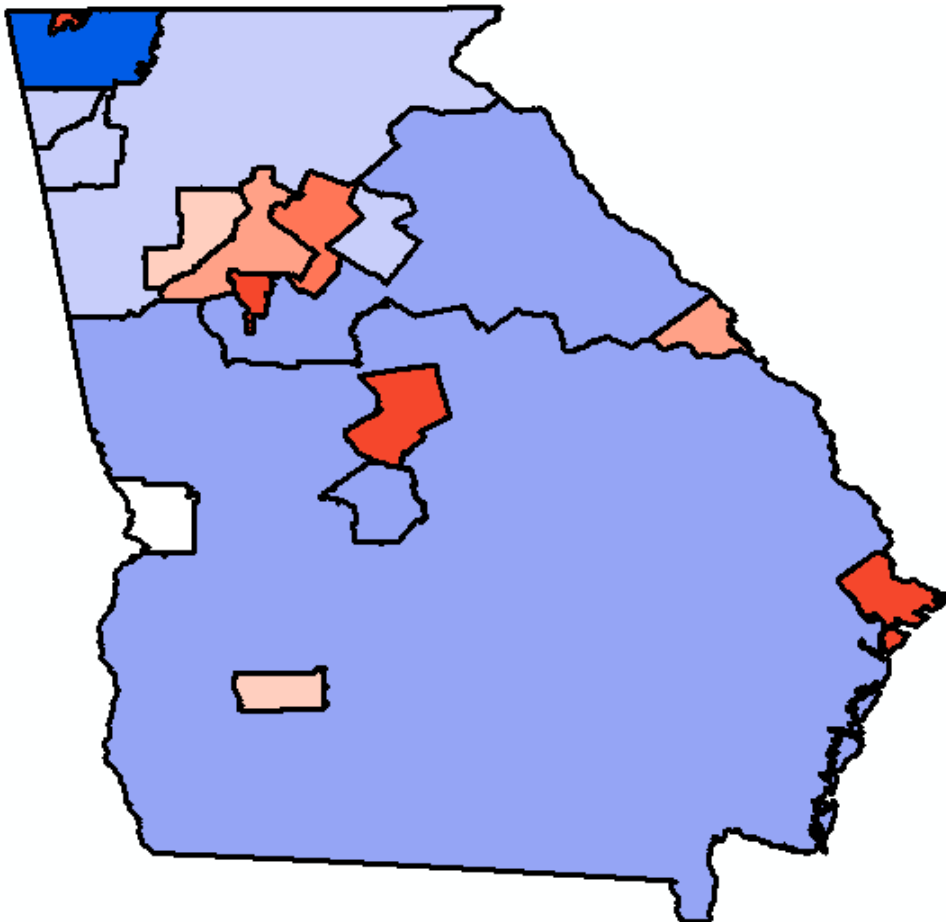
## Water Non-Weather - Frequency



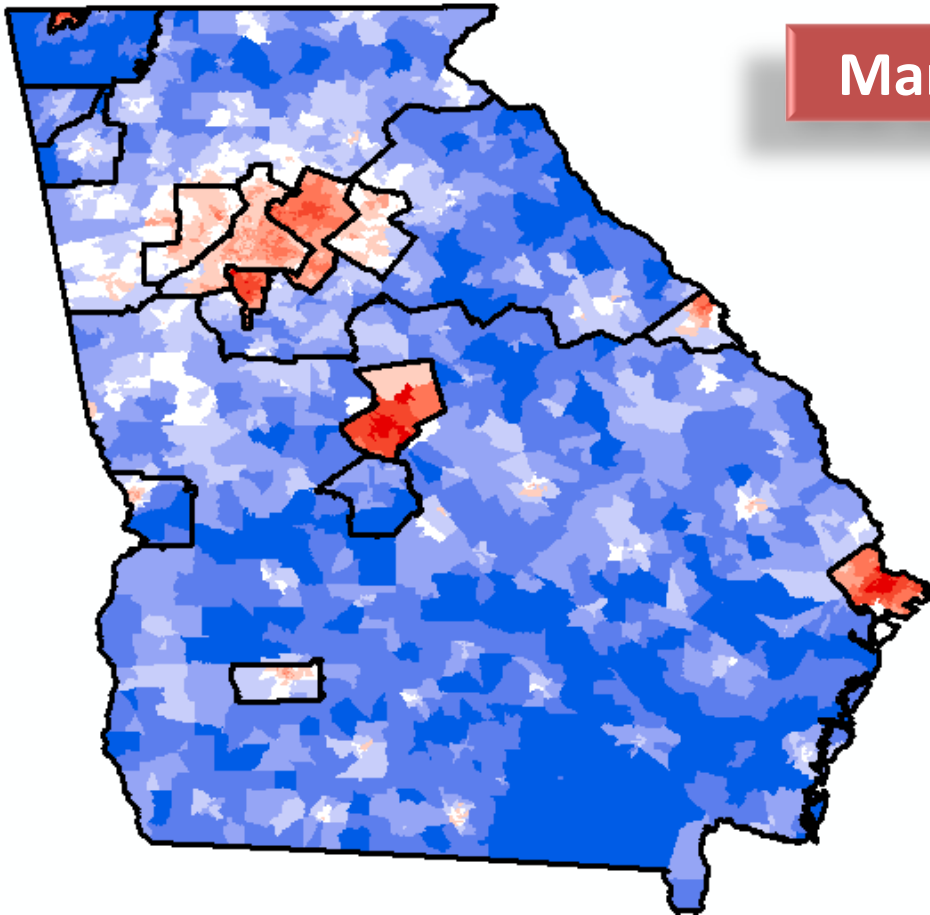
# Highly Refined Loss Costs – Block-Group

Territorial Loss Costs

Block-Group Level Loss Cost Predictions



# Geo-Spatial Segmentation – Marketing Use

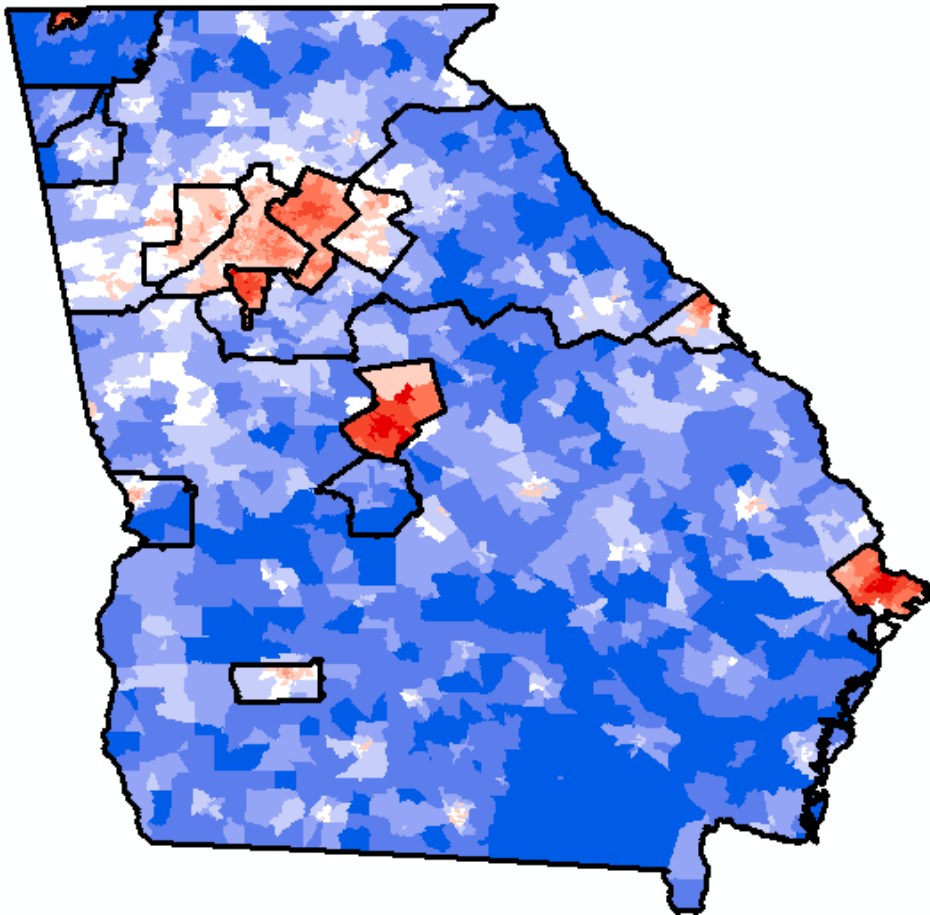


## Marketing/Prospecting Priority

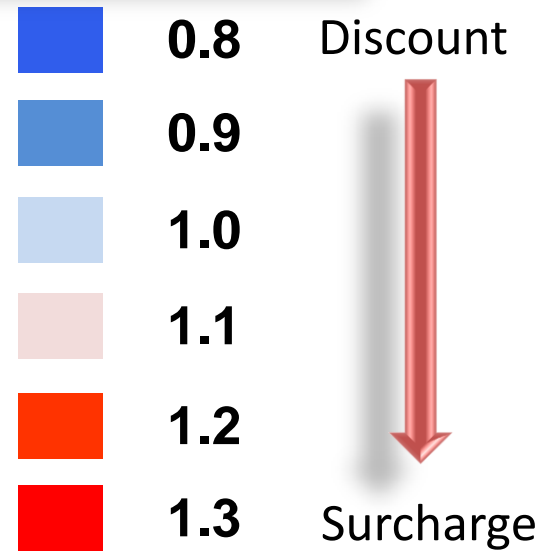


ISO PreScreen™

# Geo-Spatial Segmentation – Underwriting Use



## Tiering Factors



ISO Risk Analyzer® Personal Auto

# Summary

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- Better business decisions are the key to success
- Analytics can enable effective decision-making across the entire Insurance life-cycle
  - Innovation and efficiencies in marketing activities
  - Deep risk understanding and underwriting actions
  - Sophisticated and granular pricing
  - Etc.

It will not be a competitive advantage if you don't use it!

# Questions?

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**Karthik Balakrishnan**

Vice President, Analytics

ISO Innovative Analytics

**[kbalakrishnan@iso.com](mailto:kbalakrishnan@iso.com)**