Use that Data! Predictive Modeling Applications for Claims and Underwriting

CAS Annual Meeting

Commitment Beyond Numbers

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About the Presenters

- **Greg Frankowiak,** FCAS, MAAA, CSPA, CPCU, MSM
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- Jersey City, NJ

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Agenda

- Overview of modeling lifecycle
- Recent trends in data, technology, services
- Applications for underwriting
- Applications for claims
- Benefits
- Implementation and monitoring considerations

How familiar are you with predictive modeling on a scale of 1-10?

1 I was thinking "modeling" in another context

3 Limited background

5 Worked with models somewhat

7 Solid understanding, maybe even built a few

10 It's my job!

Polling Question

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What ways does your organization currently use predictive models? Select all applicable.

A Underwriting

B Claims

C Marketing

D Pricing

E Capital Modeling

F Other Uses

G Not Sure

Polling Question

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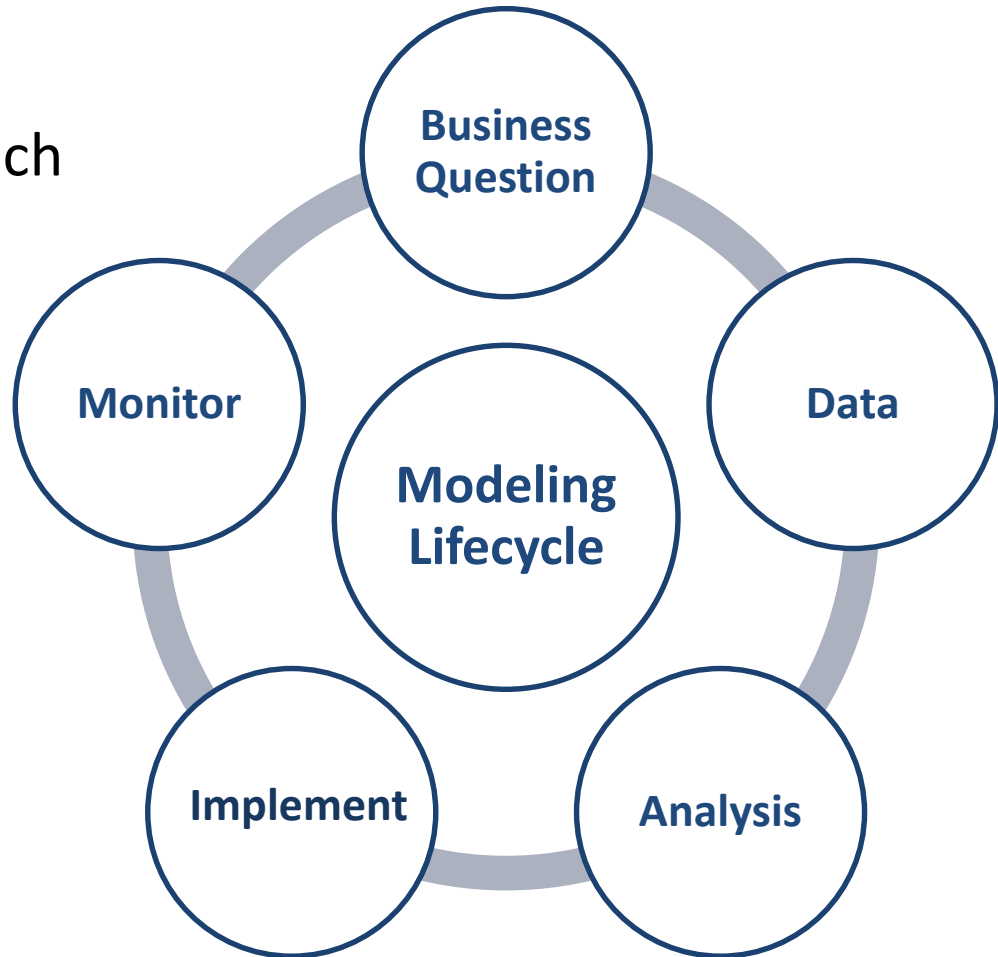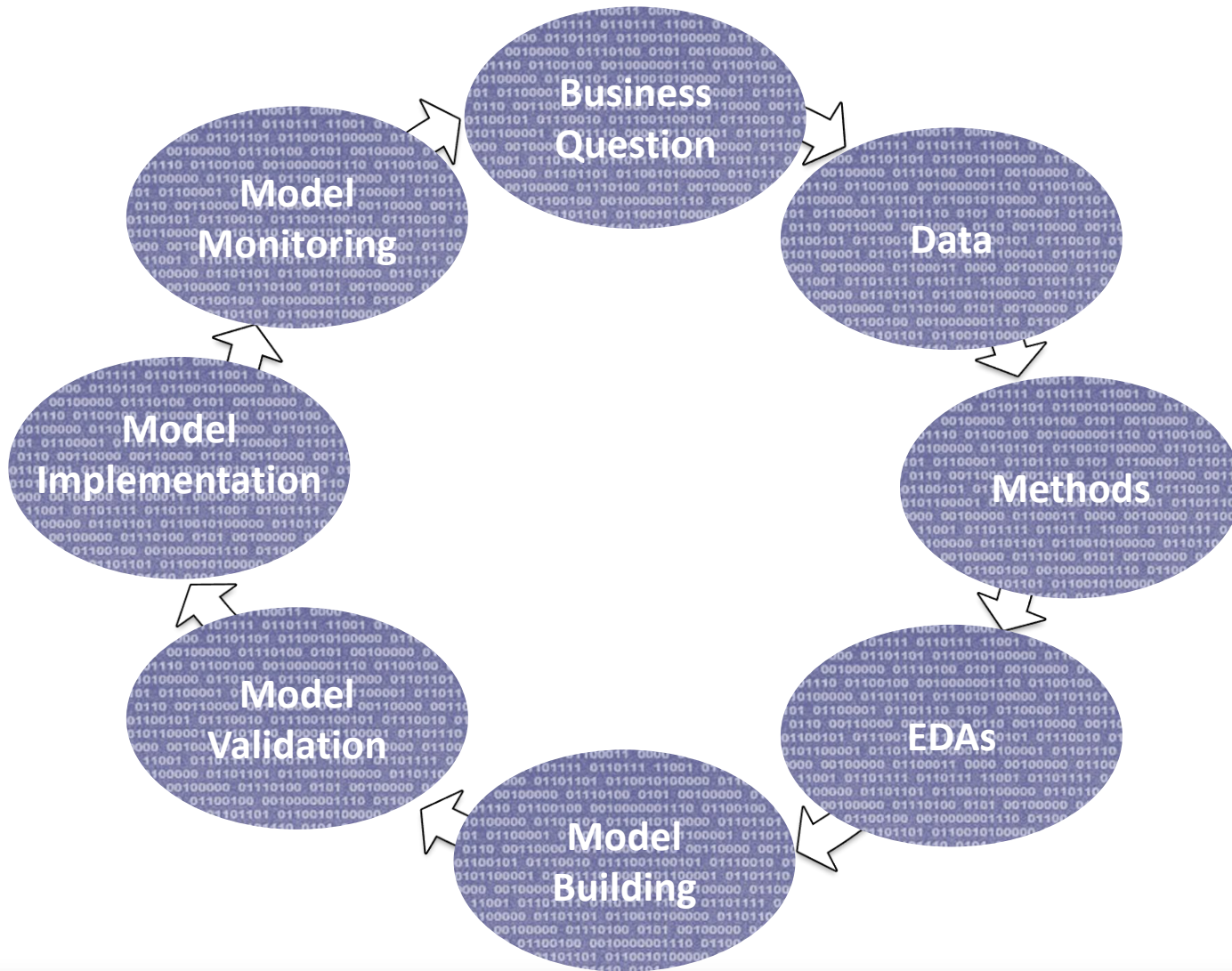
Modeling Lifecycle

- Many uses of predictive modeling within insurance

- Opportunity to utilize data more fully to address business challenges

Modeling Lifecycle

The models may get the glory...but there is so much more to it!

Modeling Lifecycle

Recent Trends in Data, Technology, and Services

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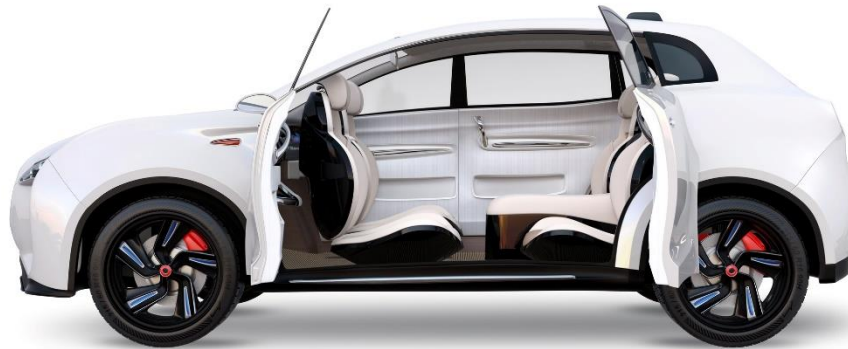
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More Recent Trends

- Data
  - "Big Data"
  - Third party data/consumer reports
  - Text
  - Images
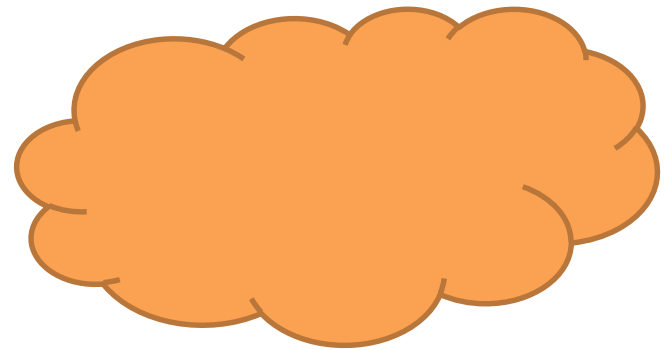 - Voice/Natural Language Processing
  - What's next?

More Recent Trends

- Sensor data—within homes for example

- Internet of Things (IoT)

- Advanced Driver Assistance Systems (ADAS)

- Telematics

More Recent Trends

- Technology
  - Open source
  - Distributed processing/Hadoop
  - Blockchain
  - Cloud capabilities (AWS for example)
    - Tools
    - Storage
    - Processing

More Recent Trends

- Services
  - Loss prevention
  - Loss recovery (end to end)
  - Drones/claims handling
  - Personalized
  - Simple

Group Discussion!

- What else do you see?

- Report out

Applications for Underwriting

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Underwriting Modeling Applications

- Selection/rejection

- Home inspection

- Straight through processing

- New business defection

- Retention analysis

- Proper classification of business

- Report ordering

Example – Home Inspection

Step 1
Quantify ITV and Condition Hazard risks

Step 2
Identify right inspection type

Inspection Score
ITV Score = +5%
CH = .20

Recommendation: Waive Inspection

Inspection Score
ITV Score = -12%
CH = .81

Recommendation: Exterior Inspection

Step 3
Rank order policies on ITV and CH scores

Step 4
Select policies with highest deviations

Risk Selection Framework

Policy Number	ITV HZ Score	Inspection Recommendation
	Highest Risk	
		Threshold
	Lowest Risk	

+

Policy Number	Condition HZ Score	Inspection Recommendation
	Highest Risk	
		Threshold
	Lowest Risk	

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Example – Report Ordering

- The Situation
    - Increasing use of third party data
    - Not free! (Generally)
    - Motor Vehicle Records (MVRs) > $20 per MVR

- The Solution
    - Predict the likelihood of useful return
    - Level of tolerance?

Applications for Claims

Claims Modeling Applications

- Fraud detection/prevention
- Imagery analysis to accelerate claim payments
- Roof analysis via satellite image
- Replacement cost analysis with external data
- Claim settlement value
- Claim assignment
- Service provider evaluation
- Salvage/Subrogation
- Loss mitigation
- Early warning indicator
- Close without pay
- Chance to reopen/close within a set timeframe/large reserve adjustment/litigation

Example – Fraud Detection/Prevention

- The Situation
  - An estimated $40+ **b**illion problem
  - Hard to detect
  - Costly to pursue

- The Solution
  - Predict the likelihood of fraudulent activity
  - Identify possibility of 'bad actor'
  - Pattern recognition

Photo: en.wikipedia.org

Example – Loss Mitigation

- The Situation
  - Handling a claim well is good, but…
  - Still costs the insurer
  - Still a burden to the consumer

- The Solution
  - Predict the likelihood of issue happening
  - Provide loss mitigation services to prevent occurrence
  - Value-add for consumer

Photo: homedepot.com

Group Discussion!

- Benefits?

- Concerns?

- Challenges?

- Report out

Benefits of Using Modeling

- Streamline decisions

- Improved customer experience

- Increase efficiency (automation)

- Optimize use of underwriting and claims staff

- Increase consistency and accuracy

- Faster market reactions

Implementation and Monitoring

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Implementation Considerations

- Resistance => change management is critical

- Enhancing — Focusing — Empowering

- Can be viewed as "replacement"

- Get key business input early and often

Implementation Considerations

- With great power comes great responsibility…Decision vs. Recommendation

- All models are wrong, but some are useful…

Monitoring Considerations

- Two aspects of monitoring: correctness and business outcomes desired

  - Hitting the mark?

  - Inputs and outputs

Monitoring Considerations

- Start small and build up—focus on final outcome

- Streamline with tolerances

- Goal is to look at more without having a person do so

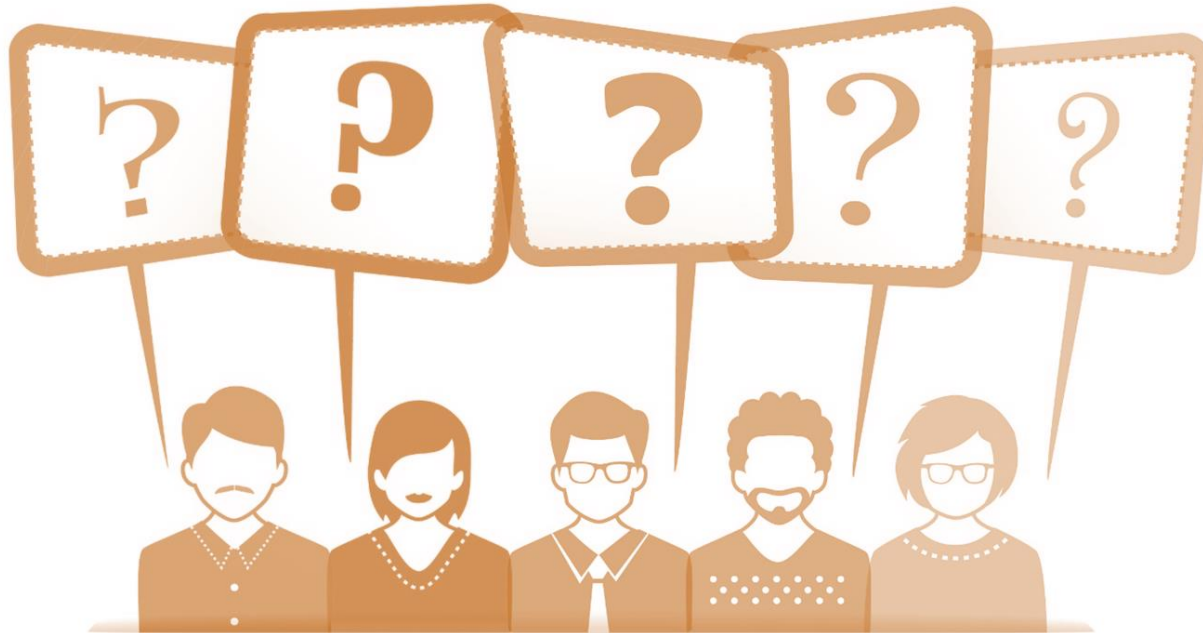- Actions taken if out of tolerance

Group Discussion!

- Key Takeaways

- Report out

Questions

Thank You for Your Time and Attention

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