




## Effective Collaboration between Actuaries and Data Scientists

CAS Ratemaking, Product and Modeling Seminar  
March 19-21, 2018



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## Introductions

**Jeff Rambole** CSPA  
MS in Statistics

**Jeff Kinsey** FCAS MAAA CSPA CPCU ChFC CLU  
MS in Applied Mathematics



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## Agenda

- Analytical Organization at State Farm
- Collaborative Data Science
- Benefits of Collaboration
- Challenges of Collaboration
- Q&A

Live Polling will be used. Please navigate to this session in the CAS app or open the webpage link in the Live Stream.



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## Analytical Organization at SF

Hybrid based centralized/decentralized structure

<b>P&amp;C Actuarial</b> <ul style="list-style-type: none"><li>• Model development for pricing</li></ul>	<b>P&amp;C Underwriting</b> <ul style="list-style-type: none"><li>• Model development for underwriting</li></ul>	<b>Advanced Analytics / Data Science</b> <ul style="list-style-type: none"><li>• Model development for rest of enterprise</li><li>• Data Governance and maturation of advanced analytics for the enterprise</li></ul>
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## Data Scientist – How to define?



Statistics on a Mac




Data Analyst that lives in California

Josh Wills, Dir. of Data Eng. at Slack

Person who is better at statistics than any software engineer and better at software engineering than any statistician

Hillary Mason

...someone who can obtain, scrub, explore, model and interpret data, blending hacking, statistics and machine learning



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## Audience Poll

What is the most important skill for a data scientist?

<b>A</b> Data Wrangling	<b>C</b> Statistical Knowledge
<b>B</b> Data Visualization	<b>D</b> Feature Engineering



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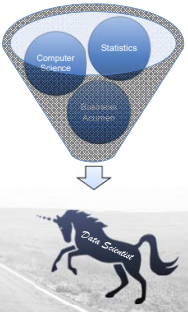
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### Data Scientist – How to define?

**Data Scientists Skillset:**

- ✓ Data Warehousing
- ✓ Statistical Modeling
- ✓ Machine Learning
- ✓ Big Data Tools
- ✓ Data Visualization
- ✓ Application Development
- ✓ Strong Communications
- ✓ Business Knowledge



**State Farm**

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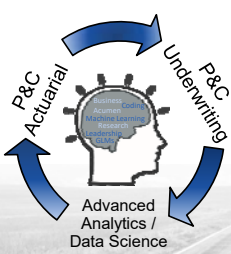
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### State Farm Research Center



- Collaborative Environment
- Applied Experience
- Idea Incubator
- Talent Pipeline

**State Farm**

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### Audience Poll

How many data science professionals are employed in your company?

A	0-4	C	25-49
B	5-24	D	50+

**State Farm**

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### Data Scientist – Integration Strategy

Functional Teams	 Actuaries	<b>Core Strengths</b> Loss projections Loss reserving Business of Insurance Business Statistics	
	 Data Scientist	Statistics Machine Learning Coding	
	 Collaborative Data Scientist	Loss projections Loss reserving Business of Insurance Statistics Machine Learning Coding	



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### Audience Poll

Do actuaries and data scientists collaborate in your company?

- A** No collaboration to date and none planned
- B** No collaboration to date but plans are in the works
- C** Some collaboration based on projects
- D** Data scientists and actuaries are embedded together



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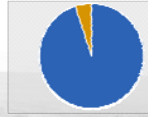
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### Analytical Organizations at SF

Hybrid based centralized/decentralized structure

P&C Actuarial	P&C Underwriting	Advanced Analytics / Data Science
		

■ Actuaries  
■ Data Scientist



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### Benefits of Collaboration

- Diversification of thought
- Project Management best practices
- Increased creativity
- Alternative Communication Strategies
- Increased "toolbox"
- Multidepartment advocacy

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### Challenges of Collaboration

- Terminology
- Software
- Computing Environments
- Different Strategies

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### Lessons Learned

- No I in team
- Development Opportunities
- Different World Views

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**Conclusion**



One Size ≠ All

(De) Central

Teams Powerful, Collab Even More



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**Questions**





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