

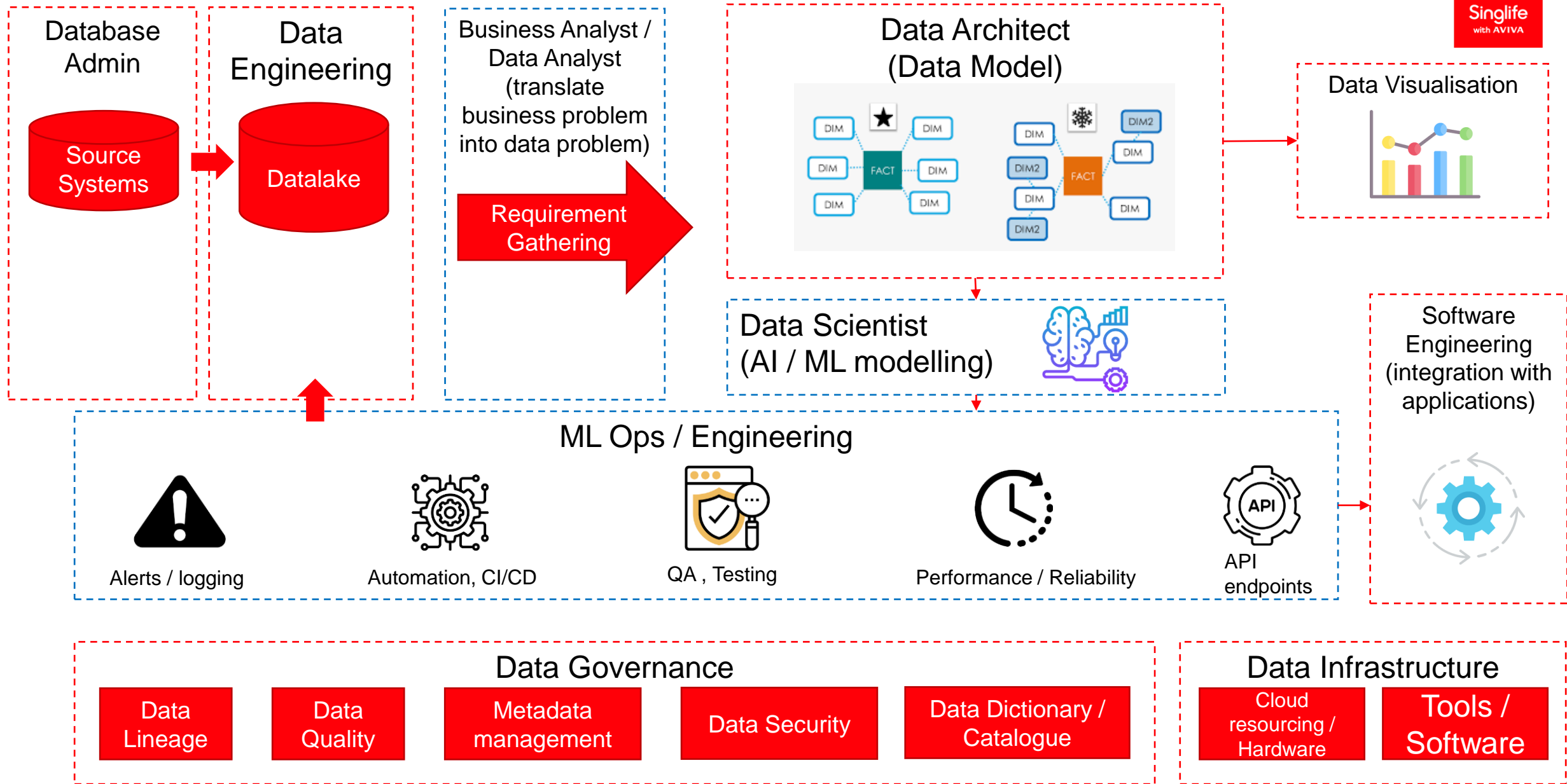


The Role of Actuaries in the Age of Data

Samuel Chu



The different areas of Data



How the Data skillset can help an Actuary

	Actuary	Data
Compute		
Storage		
Scripting / Coding language		
Algorithms		
Model Accuracy	<div style="display: flex; justify-content: space-around;"> <div style="background-color: red; color: white; padding: 5px;">AIC, BIC, Chi²</div> <div style="background-color: red; color: white; padding: 5px;">Actual vs Expected</div> <div style="background-color: red; color: white; padding: 5px;">Risk Margin</div> <div style="background-color: red; color: white; padding: 5px;">UW Loadings</div> <div style="background-color: red; color: white; padding: 5px;">Capital / Solvency / RI</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="background-color: red; color: white; padding: 5px;">AUC, ROC</div> <div style="background-color: red; color: white; padding: 5px;">Confusion Matrix</div> <div style="background-color: red; color: white; padding: 5px;">AB Test</div> <div style="background-color: red; color: white; padding: 5px;">Champion / Challenger</div> <div style="background-color: red; color: white; padding: 5px;">Iterative, feedback loop</div> </div>
Engineering		
Governance	<div style="display: flex; justify-content: space-around;"> <div style="background-color: red; color: white; padding: 5px;">ADICS</div> <div style="background-color: red; color: white; padding: 5px;">Reconcile GL</div> <div style="background-color: red; color: white; padding: 5px;">Password protected</div> <div style="background-color: red; color: white; padding: 5px;">Version Control</div> <div style="background-color: red; color: white; padding: 5px;">Model Change Doc</div> </div>	<div style="display: flex; justify-content: space-around;"> <div style="background-color: red; color: white; padding: 5px;">Data Governance</div> <div style="background-color: red; color: white; padding: 5px;">Data Quality</div> <div style="background-color: red; color: white; padding: 5px;">Metadata Management</div> <div style="background-color: red; color: white; padding: 5px;">Data Security</div> <div style="background-color: red; color: white; padding: 5px;">Data Lineage</div> </div>

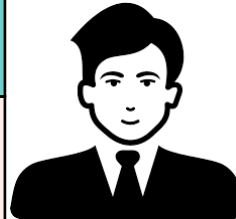
How the Actuarial skillset can help Data professionals

Subject Domain Knowledge

- Drivers of profitability
- PIF
- Customer Lifetime Value
- Product design / benefits
- Profit & Loss / Balance Sheet
- Reinsurance

Regulation

- Insurable Interest
- IFRS17
- Solvency / Liquidity / Capital



Risk Quantification

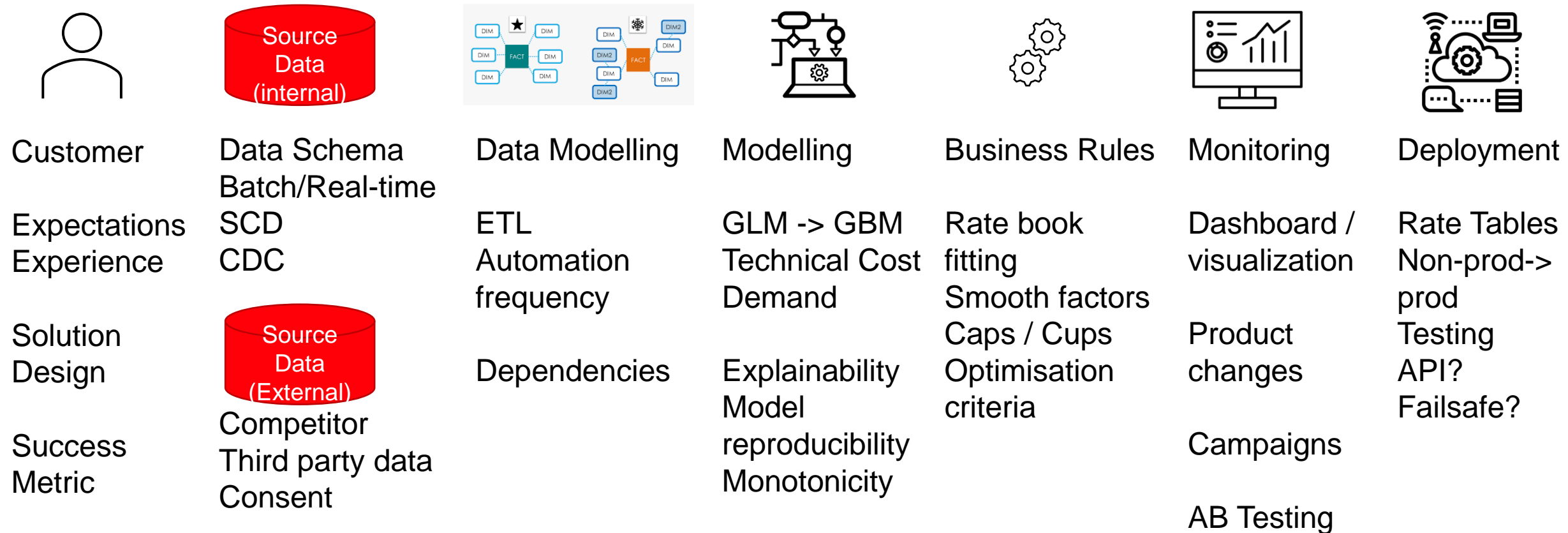
- Making risk adjusted ROI investments
- Data architecture decisions
- Credibility Theory
- Exposure / Development

Communication

- Translate complex concepts into simple terms
- Insurance value chain

Actuarial Use Case

Dynamic Pricing



Reflections of an Actuarial Data Scientist

Great Data Scientist

AI / ML Superstars

?

Unicorns



Actuaries who know how to use Python

Actuaries that want to become CDOs

Not so Great Data Scientist

Spreadsheet Warriors



Proud Actuaries

Not so Great Actuary

Great Actuary

