

## CAS Predictive Modeling Panel Discussion

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### There are several trends changing the game for analytics

- A massive wave of **new sources of data** has come online (unstructured data, external data, open data initiative, internet of things)


- There are an increasing number of digital interactions between carriers and their customers is **enabling collection of new data and real-time testing of hypotheses**


- Billions of dollars of investment is driving a rapidly evolving ecosystem of **new analytic technology and tools** available for use by carriers


- Data visualization moving to **dynamic results** allowing business users to enhance/adjust queries in real-time



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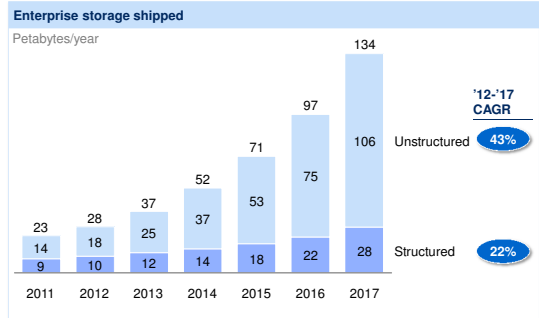
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### Demand for unstructured data storage is increasing and growing faster than structured data

**Enterprise storage shipped**

Petabytes/year



Year	Structured (Petabytes/year)	Unstructured (Petabytes/year)
2011	9	14
2012	10	18
2013	12	25
2014	14	37
2015	18	53
2016	22	75
2017	28	106

'12-'17 CAGR  
 Unstructured **43%**  
 Structured **22%**

SOURCE: IDC Structured vs. unstructured data

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Example from outside the industry



House of Cards: A Guaranteed Hit



What they analyzed

- 30 million 'plays' a day
- 4 million subscriber ratings
- 3 million searches
- 76,897 unique 'tags'

What they learned

- Unexpected directors, actors, and shows were disproportionately popular among viewers:
  - David Fincher
  - Kevin Spacey
  - The British 'House of Cards'

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Example from outside the industry



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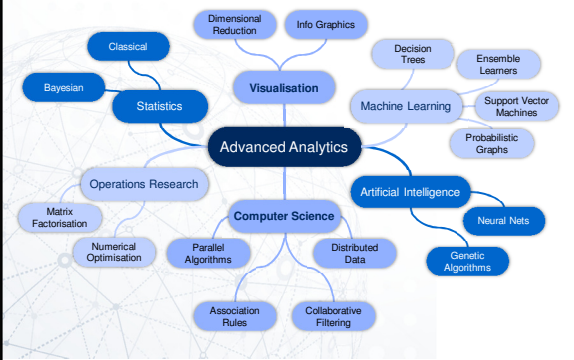
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Advanced analytics is a rapidly evolving, cross-disciplinary field



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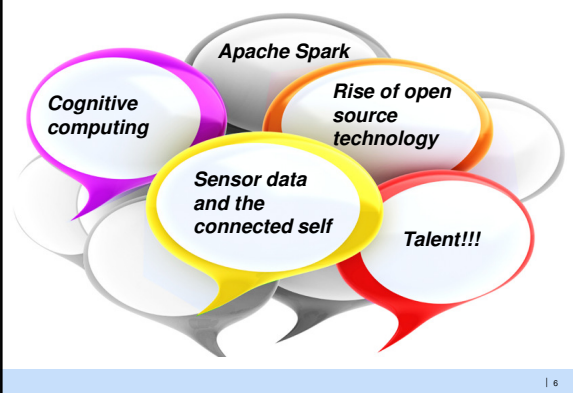
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**Big topics of discussion from a recent insurance analytics conference**




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**Insurance carriers are using Advanced Analytics to drive benefits in several areas**

Example applications	Benefits
<ul style="list-style-type: none"> <li>Enhance existing models by adding new data sources or quantifying multivariate interactions (e.g., enhance a risk selection model)</li> <li>Build new models to inform day-to-day operations (e.g., predict customer churn)</li> <li>Extract insight from unstructured data (e.g., identify "push" subrogation opportunities from claim adjuster notes)</li> <li>Extract insight from external data (e.g., drive risk classification using text analysis of company websites)</li> <li>Many others</li> </ul>	<ul style="list-style-type: none"> <li>Take work off of the plate of expert resources and enable them to focus on areas where their expertise matters</li> <li>Drive consistency in decision making</li> <li>Uncover hidden opportunities</li> <li>Many others</li> </ul>

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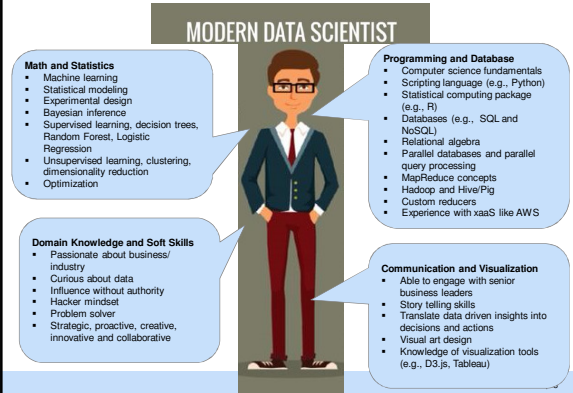
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**And of course all of this requires the elusive Data Scientist**




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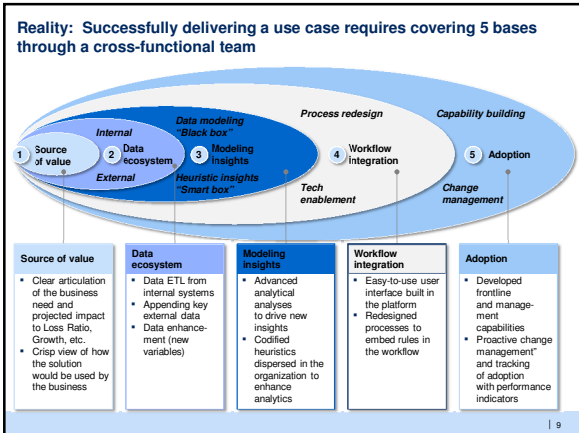
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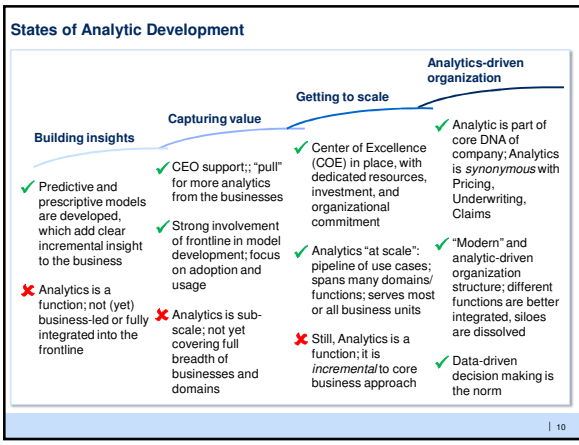
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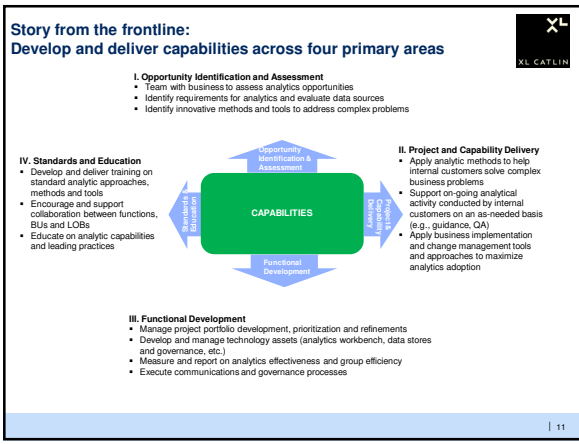
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**Story from the frontline:**  
**XL Catlin as a More Analytical Company**

**Improved underwriting results through underwriting tools which**

<p>Include new and proprietary underwriting risk factors</p>  <p>Improved risk classification</p>	<p>Incorporate predictive vs hindsight analytics</p>  <p>Know why it happened, not just what happened</p>	<p>Use multivariate vs one way analysis</p>  <p>Eliminate adverse selection and lost opportunity</p>
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**These advances will make all underwriting tools better**

XL CATLIN

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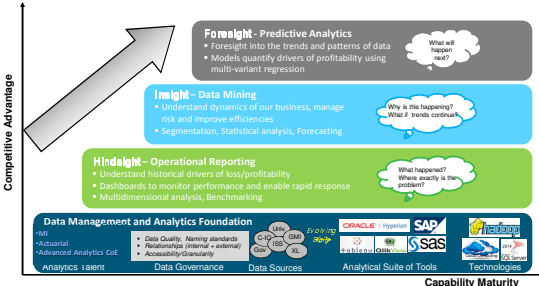
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**Story from the frontline:**  
**Capability curve**

There isn't a one size fits all approach to analytics. While predictive models have significant value, the analytical method depends on the business problem you are trying to solve.



**ForSight - Predictive Analytics**

- Foresight into the trends and patterns of data
- Models quantify drivers of profitability using multi-variant regression

What will happen next?

**InSight - Data Mining**

- Understand dynamics of our business, manage risk and improve efficiencies
- Segmentation, Statistical analysis, Forecasting

Why is this happening? What if trends continue?

**HindSight - Operational Reporting**

- Understand historical drivers of loss/profitability
- Dashboards to monitor performance and enable rapid response
- Multidimensional analysis, Benchmarking

What happened? Where exactly is the problem?

**Data Management and Analytics Foundation**

- Data Quality, Naming standards
- Privacy/Security (Internal + External)
- Accessibility/Granularity

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**Five lessons learned from successful advanced analytic journeys**

- 1** Commitment from senior business executives is critical for success
- 2** Create a business-back, prioritized roadmap of use-cases
- 3** Most carriers **don't use all of their internal data effectively**, only pursue external data when use cases demand it
- 4** Science is important, but **operationalizing** the data-driven insights is **often a bigger challenge** than producing the insights
- 5** Scaling **requires more than just attracting top data analytics talent** – "two sport" managers and data management functions are critical

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