2017 Predictive Analytics Symposium

Session 3, Building a Data Science Team

Moderator:
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Presenters:
Peter Banthorpe
John D. Houston, FSA, MAA

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Session 3, Building a Data Science Team

September 14, 2017

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Panel Discussion Topics

- Evolution of data science in your organization
- Working as a cross-functional team
- Organizational design
- Global differences
- Resource planning
  - Skills matrix
  - Hiring and retaining top talent
  - Computing resources

Evolution

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Who are Global Research and Data Analytics?

People

41 dedicated research and analytics professionals including:

- 17 data scientists
- 12 qualified actuaries

Over 325 years of combined industry experience. Three locations globally.

Technology

Dedicated high capacity research servers running:

- R / Revolution R / STATA / Python
- Hadoop / Spark

Data visualisation tools including Tableau

Hosted solutions for ease of model implementation

Providing Solutions through Partnerships

Inside RGA….

- Local and Regional pricing, underwriting and R&D functions
- Medical Directors (>20 globally)
- RGA Innovation units

…..and out

- Clients
- Data companies
- Academia

Working together

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Data Science and the Actuary

Data Science Team goal is to drive quantifiable value for the organization

Algorithms + Experts + Process > the individual parts

Society of Actuaries Mission

Through education and research, the SOA advances actuaries as leaders in measuring and managing risk to improve financial outcomes for individuals, organizations, and the public.

Society of Actuaries Vision

Actuaries are highly sought-after professionals who develop and communicate solutions for complex financial issues.

Data Science and Actuarial Talent

Similarities

- Driven to solve complex multi-dimensional problems
- Motivated by opportunities to discover new insights
- Desire to be constantly learning
- Key skills to be effective in driving organizational value
  - Framing the business problem
  - Communications
  - Creativity

Differences

- Actuaries tend to have deeper insurance domain knowledge
- Data Scientists come in many forms and may be exposed to training that is not part of the actuarial curriculum

Building wider organizational Data and Analytical capability

Varying levels of knowledge…	…across different concepts…	…for many functional areas
No meaningful knowledge required	Nomenclature	Data practioners
Awareness	Data Analytics Eco-system	Actuaries
Basic	Regulations	Underwriters
Practioner	Use cases	Medical
Advanced Practioner	Processes	IT
Subject Matter Expert	Data Engineering	Business Development
	Algorithms	& many more
	Tools	
	Technical Implementation	
	Business Implementation	

Organizational design

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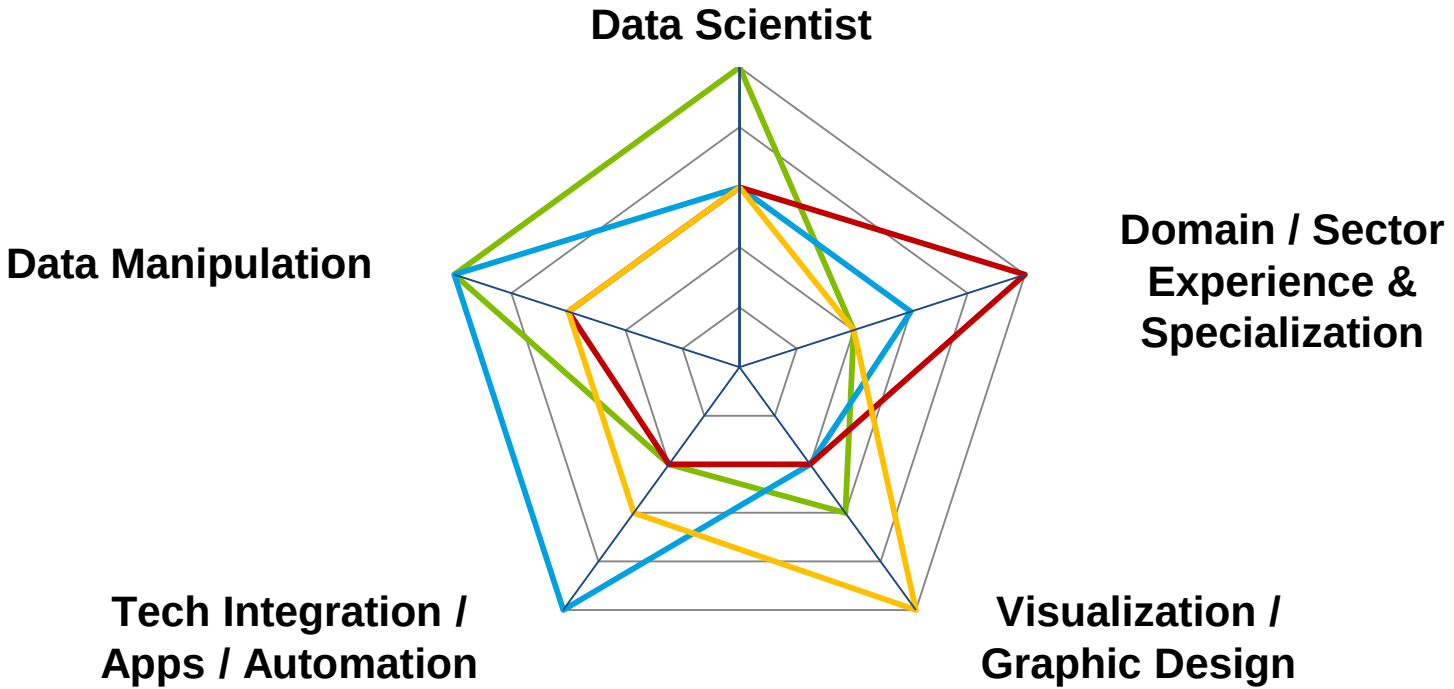
Process of Driving Value Through Data Science

An effective Data Science team must be capable of more than just algorithm building. It must be willing and able to work across the organization on

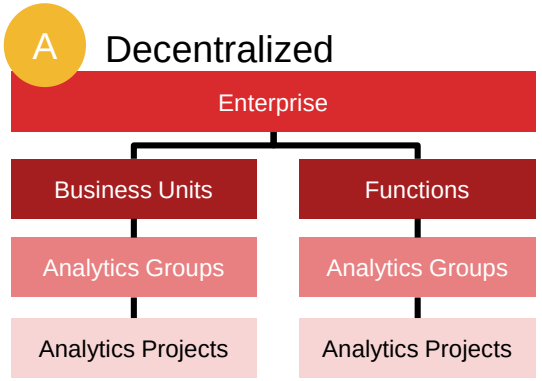
- Researching, ordering, loading and auditing raw data
- Creating data features
- Documentation
- Meetings / communications
- Project management
- Quality control
- Technical implementation
- Business implementation

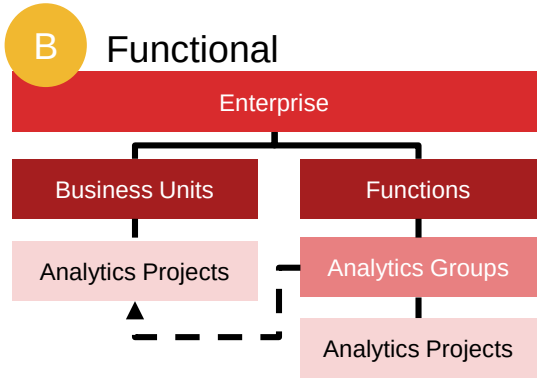
Example of an integrated data science team

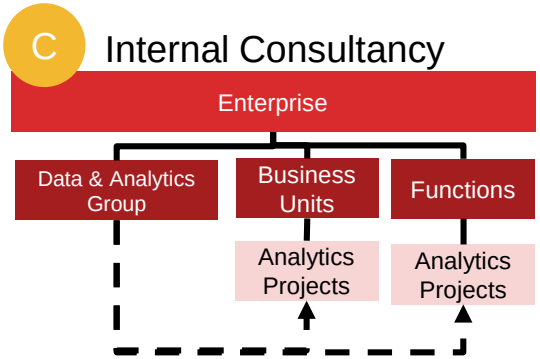
Multi-disciplinary teams that work together to address an organizations most complex issues

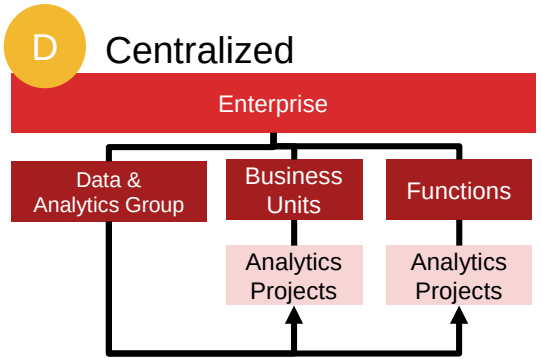


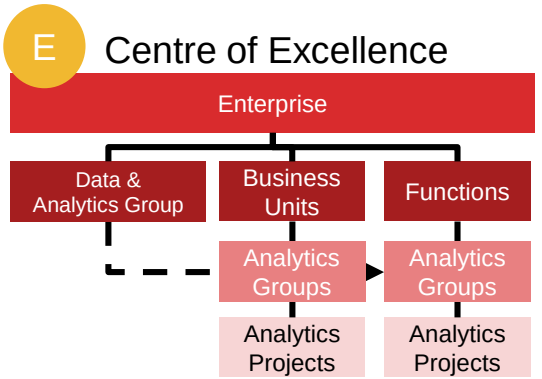
Organizing Your Data and Analytical Capabilities

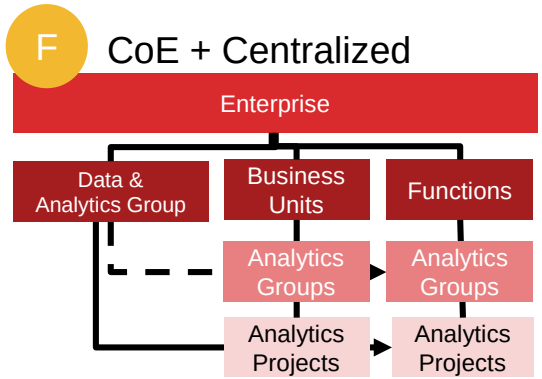












RGA

Global differences

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Resource planning

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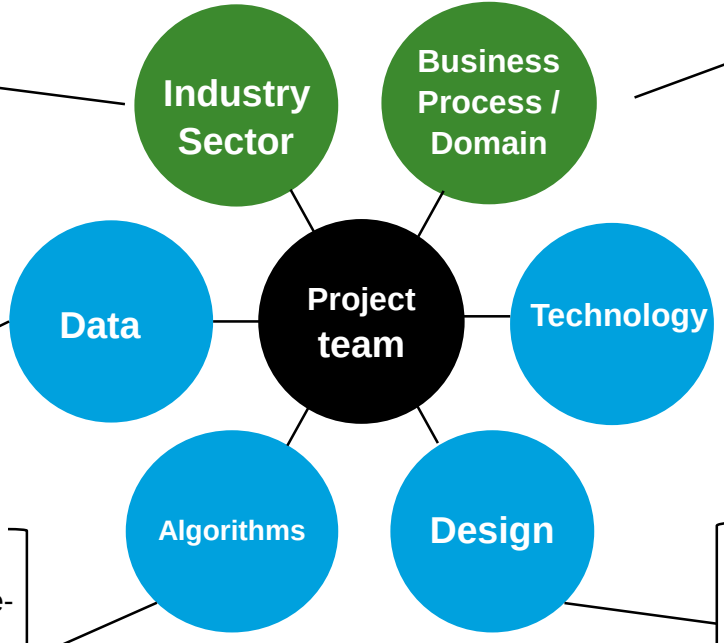
Skill Sets For A Data Science Team

- Public Sector
- Energy and Resources
- Technology Media and Telecommunications
- Consumer and Industrial Products
- Financial Services

- Risk
- Finance
- Customer
- Workforce
- Supply Chain



- Data architecture
- Data modeling
- Data extraction, transformation, and loading
- Data management / quality / governance

- Programming
- Infrastructure management / support
- Distributed systems
- Cloud management
- Systems integration

- Algorithm building: regression / time-series / classification / clustering / optimization / neural nets
- Graph and text mining

- User experience design
- Dashboard design
- Graphics design
- Information architecture/ design

Human resources

- How do you attract top talent?
- How do you retain top talent?
- What advice do you have for an actuary looking to move into the field?

Computing resources

How do you approach decisions regarding computing resources, including

- Coding languages
- Processing platforms
- Data storage

Q&A

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Interviewing

What has been the most effective interview method for assessing whether a candidate has the communication skills needed to succeed?

Comparison to Tech

In Seattle, there are plenty of other companies that draw data scientists, making it a concern that good talent will move on.

What is the biggest reason people leave your team?

Do you give your team any perks to make it feel like a data science team in a tech company?

Commitment to Learning

At least one of you mentioned that a data science team has to keep learning and growing.

How do you approach the split of project work versus research and development?

How much is that affected by your personal style and how much by your company strategy?

Partnerships

Have you partnered with a university?

What lessons have you learned from your experience, pros & cons?

Other partnerships?

Skills inventory

Of all the skills you think are important, which do you have more than enough of, and which are you lacking most?

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