

Data Science:

**Getting Value out of
Big Data**

After this video you will be able to..

- Describe what modern data science is and its connections to big data
- Explain why data science is the key to getting value out of big data
- List the right set of skills for a data scientist to fit your organization



Insight → Data Product

**Big Data + Analysis
Question → Insight**

Insight → Data Product

**Big Data + Analysis
Question → Insight**



Book Recommendations

Customer
Demographic

Previous
Purchases

Book reviews



What kind of
books does this
customer like?



Book
recommendations



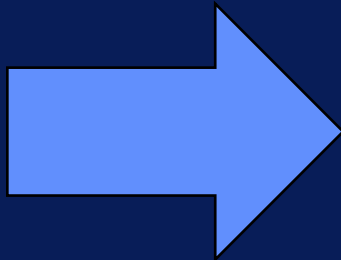
amazon.com[®]

Find Potential Audience for a Book

**Model of
customer's book
preferences**



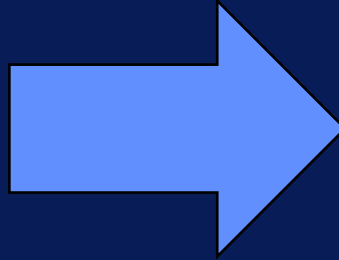
**New book
information**



**Who is likely to
like this book?**

Market a New Book

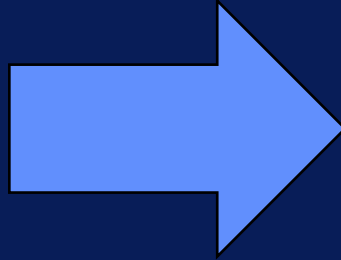
**Who is likely to
like this book?**



**Action to market
the book to the
right audience**

Market a New Book

Who is likely to
like this book?



Action to market
the book to the
right audience

Insight



Action

Actionable Information

Historical data





Near real-time data

A large, light blue arrow with a black outline points downwards from the combined data boxes to the 'Prediction' box.

Prediction

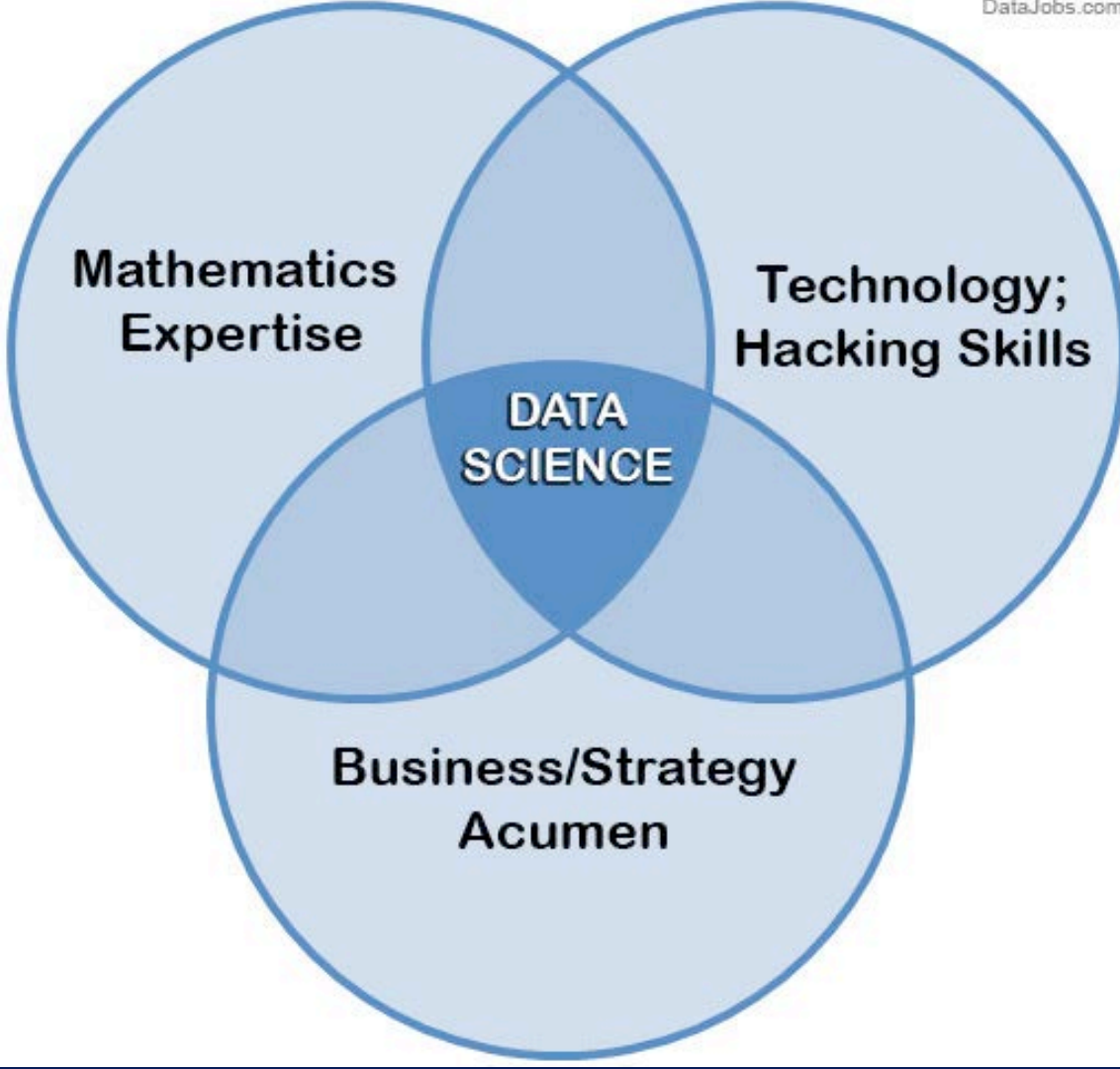
Prediction

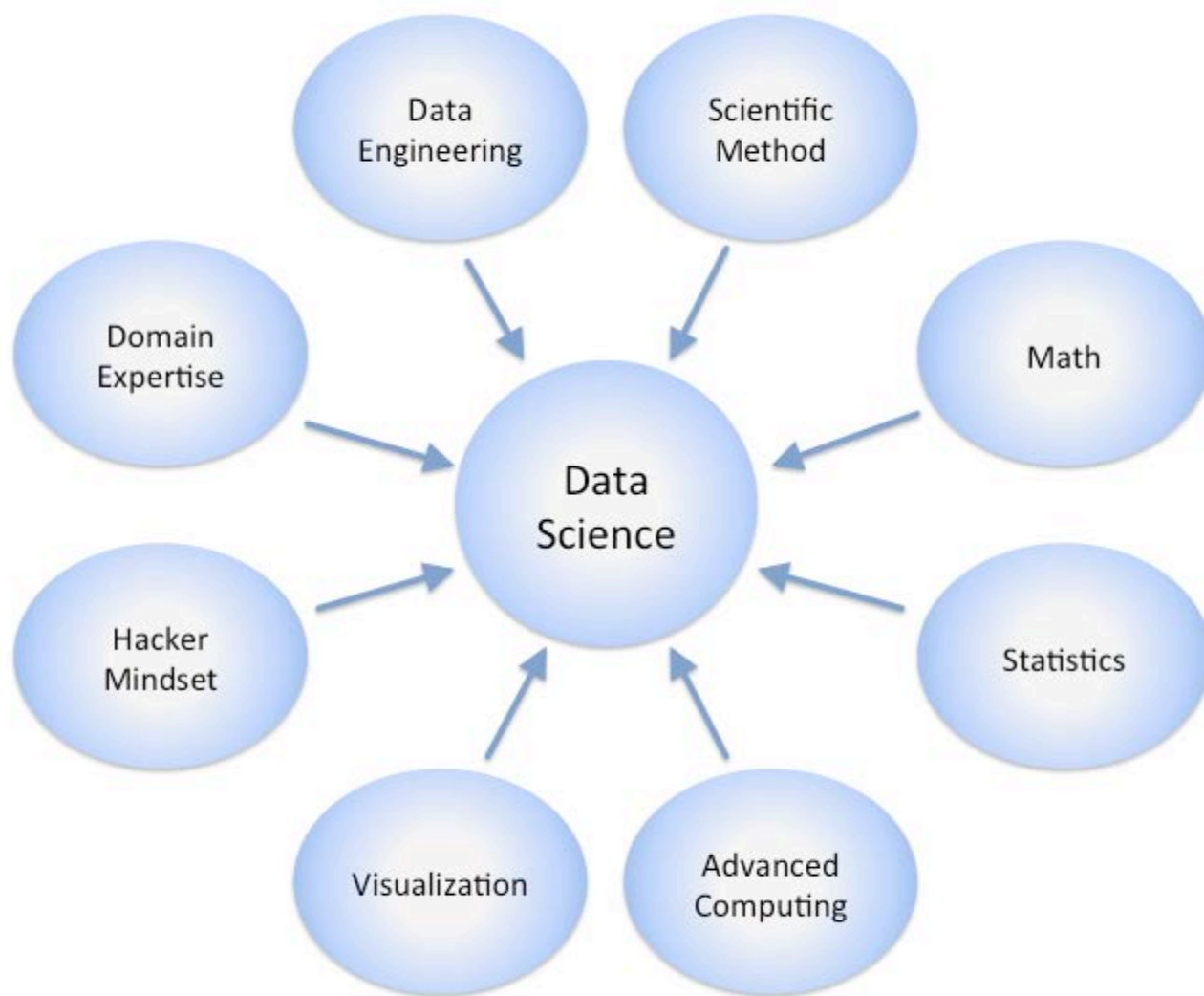
<p>TODAY</p> <p>62 37</p> <p>morning fog, partly cloudy</p> 	<p>TOMORROW</p> <p>58 41</p> <p>rain showers, cloudy</p> 
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Action



Data Science is Team Work!





MODERN DATA S

Data Scientist, the sexiest job of 21th century requires a mixture of intersection of mathematics, statistics, computer science, communication and business. Finding a data scientist is hard. Finding people who understand who a data scientist is, is equally hard. So here is a little cheat sheet on who the modern data scientist really is.

MATH & STATISTICS

- ☆ Machine learning
- ☆ Statistical modeling
- ☆ Experiment design
- ☆ Bayesian inference
- ☆ Supervised learning: decision trees, random forests, logistic regression
- ☆ Unsupervised learning: clustering, dimensionality reduction
- ☆ Optimization: gradient descent and variants



DOMAIN KNOWLEDGE & SOFT SKILLS

- ☆ Passionate about the business
- ☆ Curious about data
- ☆ Influence without authority
- ☆ Hacker mindset
- ☆ Problem solver
- ☆ Strategic, proactive, creative, innovative and collaborative

MODERN DATA SCIENTIST

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PROGRAMMING & DATABASE

- ☆ Computer science fundamentals
- ☆ Scripting language e.g. Python
- ☆ Statistical computing packages, e.g., R
- ☆ Databases: SQL and NoSQL
- ☆ Relational algebra
- ☆ Parallel databases and parallel query processing
- ☆ MapReduce concepts
- ☆ Hadoop and Hive/Pig
- ☆ Custom reducers
- ☆ Experience with xaaS like AWS

COMMUNICATION & VISUALIZATION

- ☆ Able to engage with senior management
- ☆ Story telling skills
- ☆ Translate data-driven insights into decisions and actions
- ☆ Visual art design
- ☆ R packages like ggplot or lattice
- ☆ Knowledge of any of visualization tools e.g. Flare, D3.js, Tableau



**Are data scientists
unicorns?**

"ALL FOR ONE -
ONE FOR ALL"



**DOUGLAS
FAIRBANKS**

presents

"THE THREE MUSKETEERS"

*Adaption, Costuming
Research under*
EDWARD KNOBLOCK

Direction under
FRED NIDLO

Photography under
ARTHUR EDESON



Have passion for data

"ALL FOR ONE -
ONE FOR ALL"

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Relate problems to analytics

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Relate problems to analytics

Care about engineering solutions



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"ALL FOR ONE -
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Have passion for data

Relate problems to analytics

Care about engineering solutions

Exhibit curiosity

Communicate with teammates

Photography under
ARTHUR EDESON

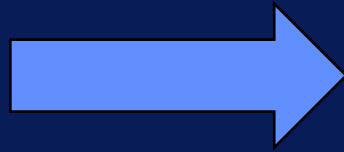




Data Science

**The sum is bigger than
the parts!**

Big Data



Actionable Insight

**Data
Scientist**

Technical Skills

Business Skills

Soft Skills