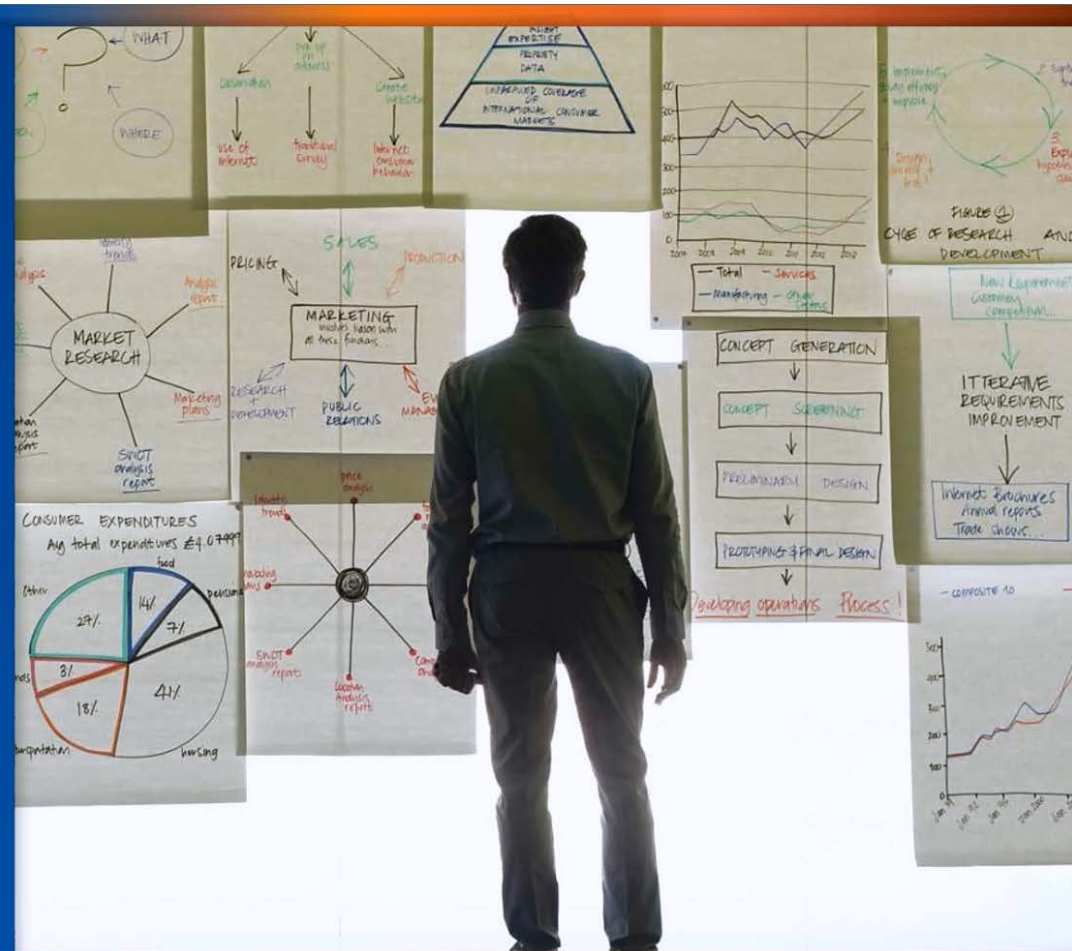




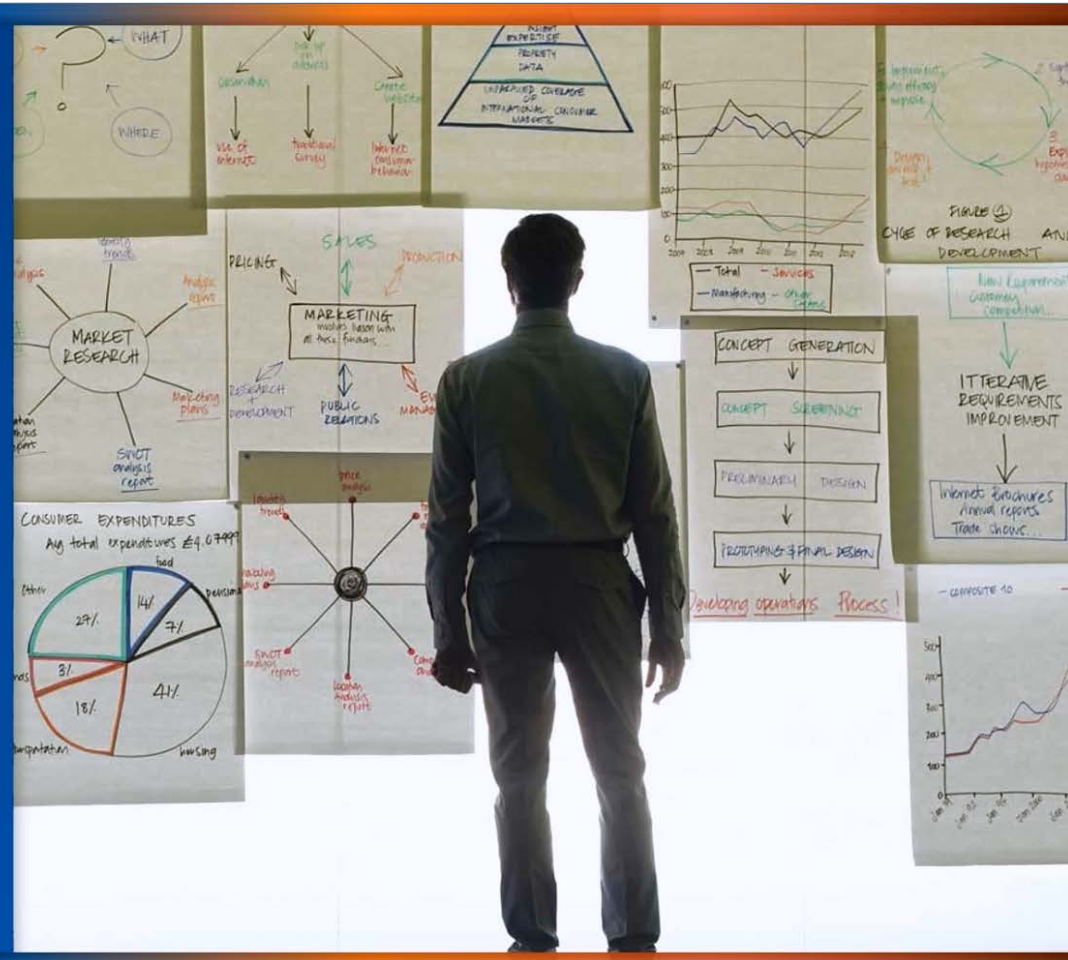
Fundamentals of Visualization

What is Data Visualization and Why Do We Do It?

What is data
visualization and
why do we do it?



Data visualization
is using pictures to
represent data





John Snow's map of
the 1854 Cholera
spread

50 Years of Crime

Exploring five decades of crime in the United States
(Source: Uniform Crime Reporting Website – Click to View)

Hover anywhere on charts to explore!

US Heat Map
By Crime Rate

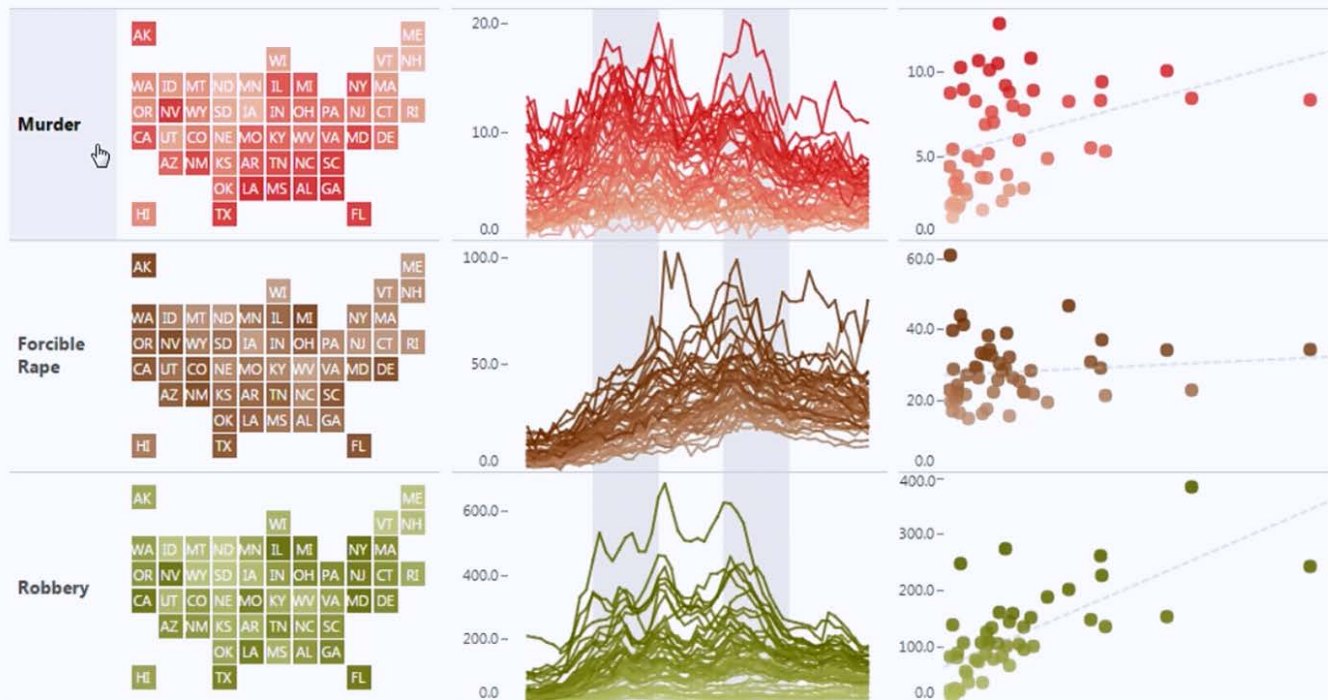
Crime Rate Trend by
State (1960 – 2012)

Crime Rate vs
State Population

Pick Crime Category

- ☐ Property Crime
- ☒ Violent Crime

All Crime Rates per 100,000 Population



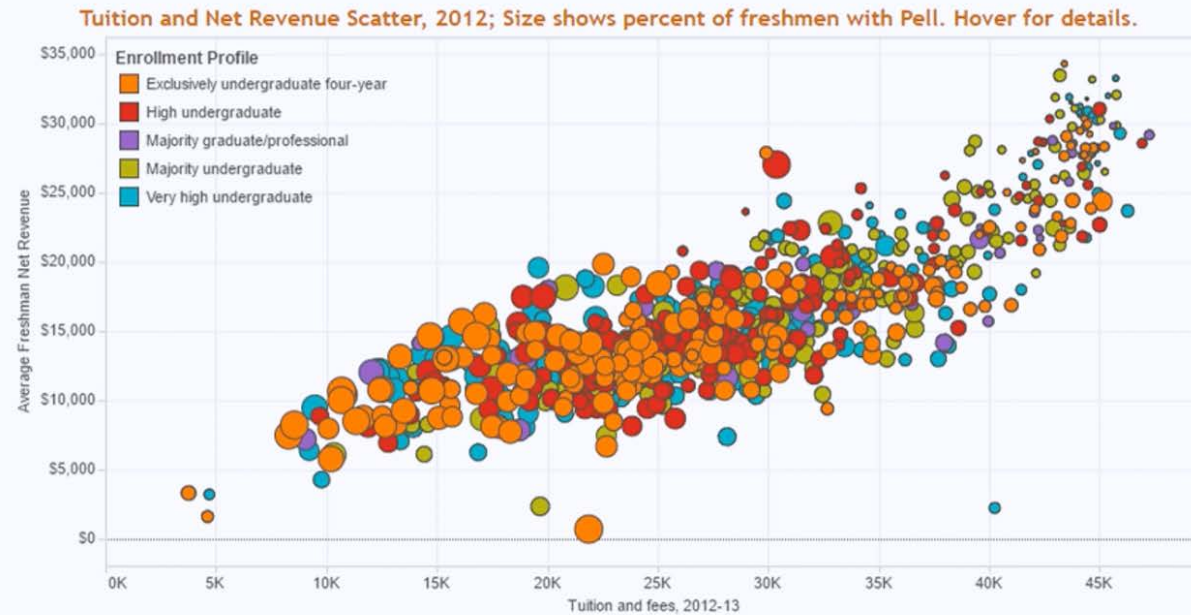


Asking questions
Using statistical and
quantitative tools
Explanatory and
predictive analysis

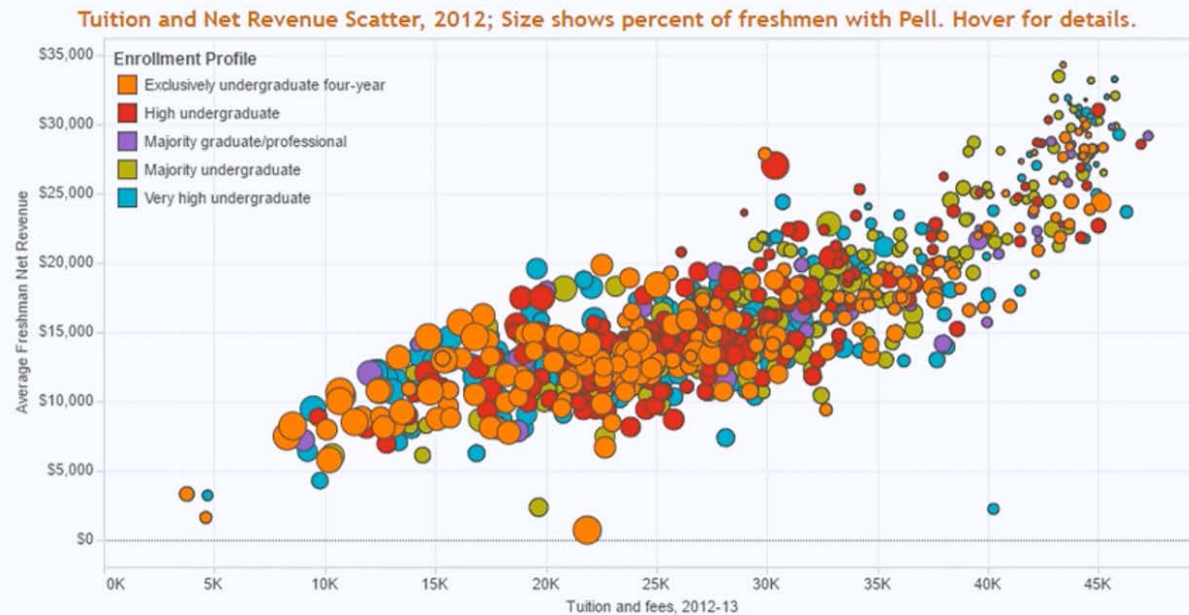
Data-driven or
fact-based decision
making

Decision makers
can access the
details they need
quickly





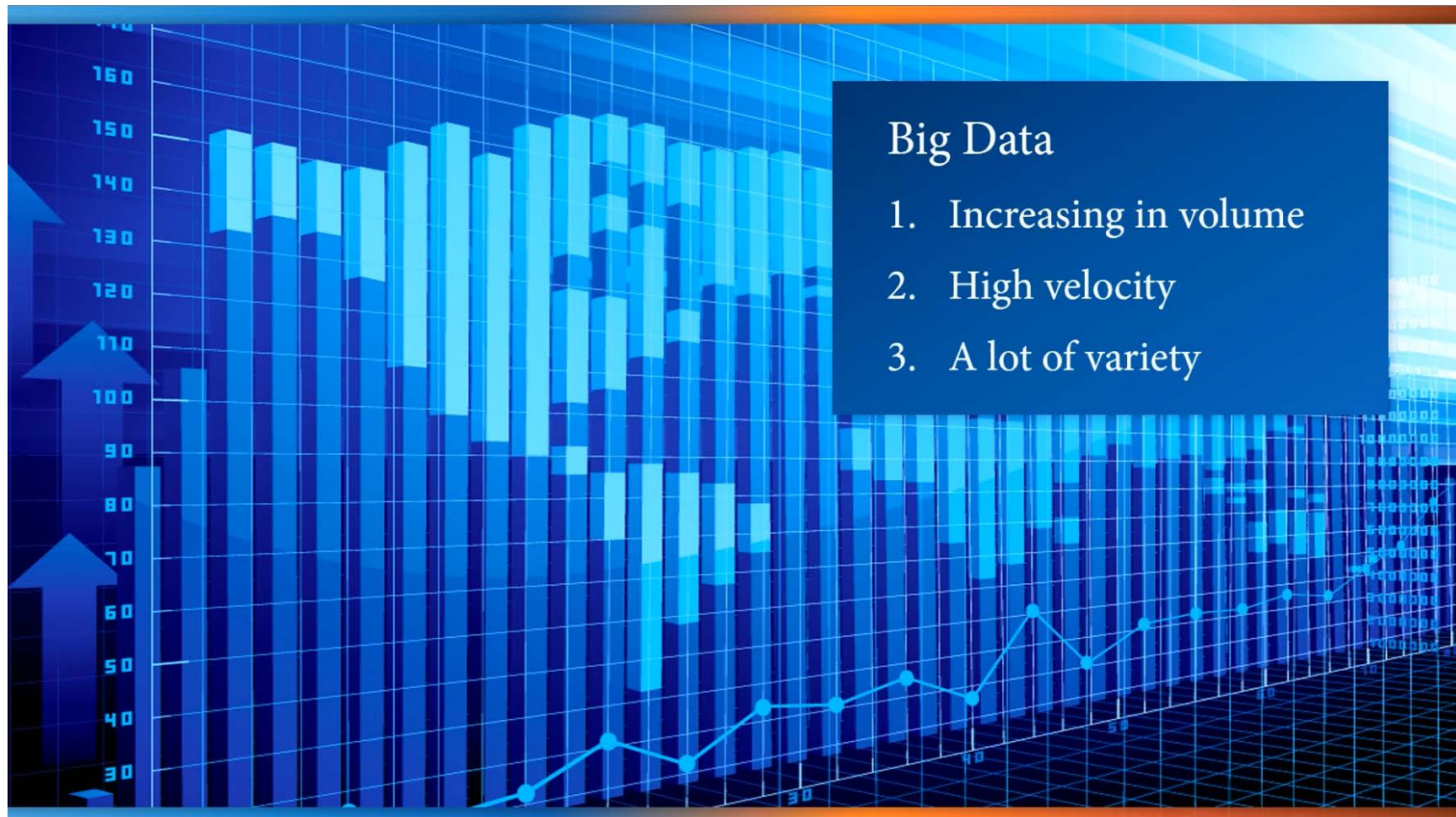
Why should we do data visualization?



Data visualization helps us process data faster
Known as “picture superiority effect”

	Product A	Product B	Product C	Product D	Product E	Product F	Product G	Product H
Northeast	\$ 15,749.00	\$ 40,195.00	\$ 15,472.00	\$ 63,029.00	\$ 8,509.00	\$ 42,987.00	\$ 27,778.00	\$ 12,510.00
Southeast	\$ 48,044.00	\$ 20,741.00	\$ 40,643.00	\$ 15,687.00	\$ 12,342.00	\$ 23,297.00	\$ 10,401.00	\$ 10,522.00
Central	\$ 5,240.00	\$ 45,296.00	\$ 16,114.00	\$ 63,359.00	\$ 58,198.00	\$ 24,191.00	\$ 46,826.00	\$ 50,278.00
Northwest	\$ 12,860.00	\$ 11,548.00	\$ 43,134.00	\$ 19,331.00	\$ 60,563.00	\$ 51,475.00	\$ 28,954.00	\$ 14,405.00
Southwest	\$ 37,087.00	\$ 61,506.00	\$ 54,084.00	\$ 14,715.00	\$ 17,811.00	\$ 32,814.00	\$ 47,853.00	\$ 44,639.00

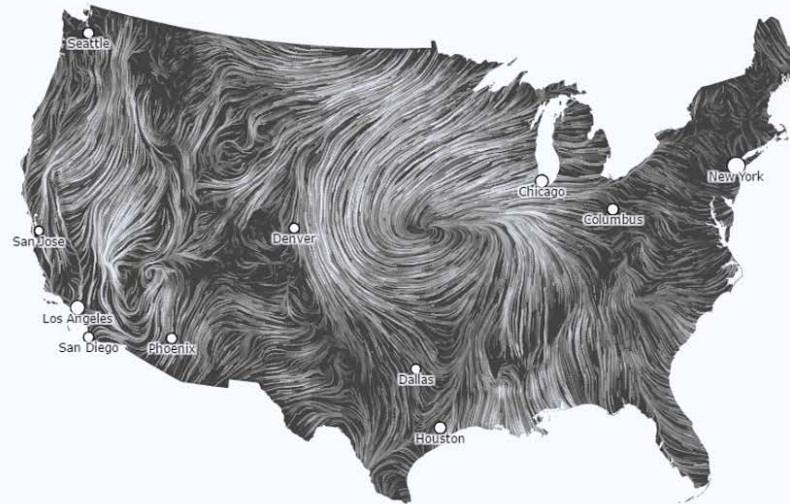
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wind map

April 30, 2016
1:35 pm EST
(time of forecast download)

top speed: 30.5 mph
average: 10.2 mph



The computational process (machine learning) uncovers
relationships

Real-time credit card monitoring Analyzing patterns and predicting fraud



Business Intelligence (BI)

Tools and techniques used to transform raw info into data for analysis



Big Data and Data Visualization

A visual representation of data for use in decision making

