



From Big Data to Big Analytics

Automated Analytic Platforms for Data Exploration

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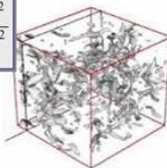
Jim Gray and the Fourth Paradigm

Science Paradigms

- Thousand years ago:
science was **empirical**
describing natural phenomena
- Last few hundred years:
theoretical branch
using models, generalizations
- Last few decades:
a **computational** branch
simulating complex phenomena
- Today:
data exploration (eScience)
unify theory, experiment, and simulation
 - Data captured by instruments
Or generated by simulator
 - Processed by software
 - Information/Knowledge stored in computer
 - **Scientist analyzes database / files
using data management and statistics**



$$\left(\frac{c}{a}\right)^2 = \frac{4\pi G\rho}{3} - K \frac{c^2}{a^2}$$



Need to Develop Better Tools For Data:

Capture

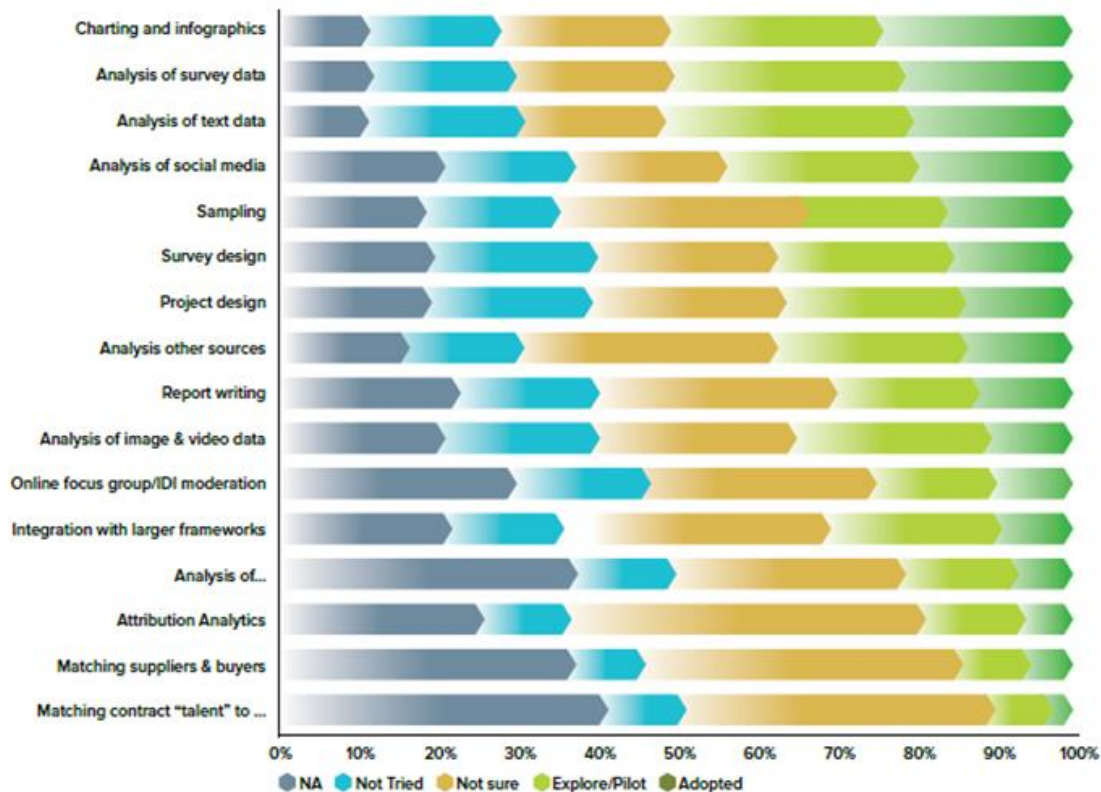
Curation

Analysis

Visualization

Automation

AUTOMATION ADOPTION ACROSS PLATFORMS

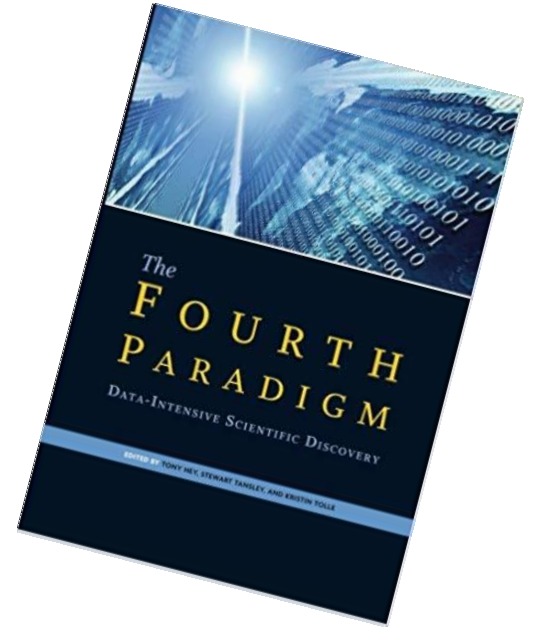


Often viewed through the lens of operational efficiency

From Hypothesis Testing to Data and Model Mining

“This ready availability of diverse data is shifting scientific approaches from the traditional, hypothesis-driven scientific method to science based on exploration.”

Gannon and Reed 2009



BIG *ANALYTICS*

volume

velocity

variety

Automated Analytic Insight Exploration Platforms

IRIS

Ipsos

Research

Insight

Scout

Phase 1
Preparation

Data Preparation and
Specification

Phase 2
Automated Analytics

Analysis of Models

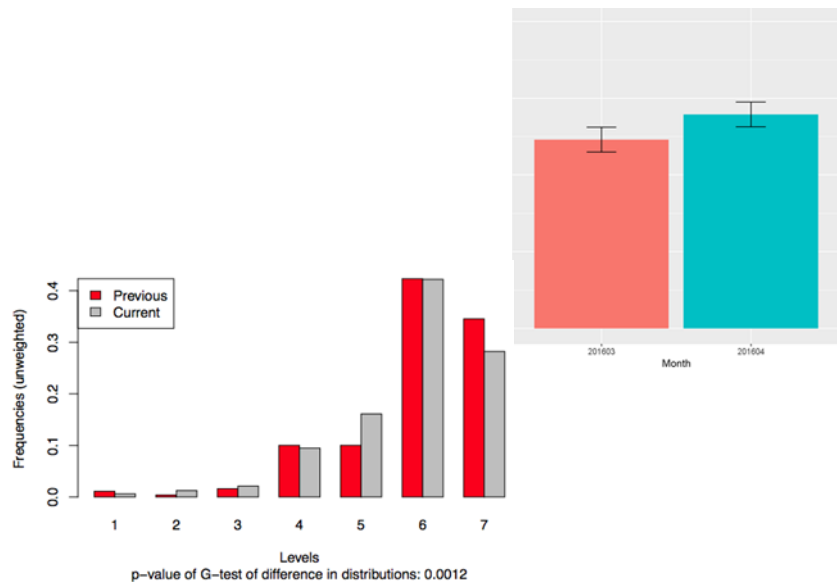
Development of
Database of Models

Phase 3
Insight Discovery

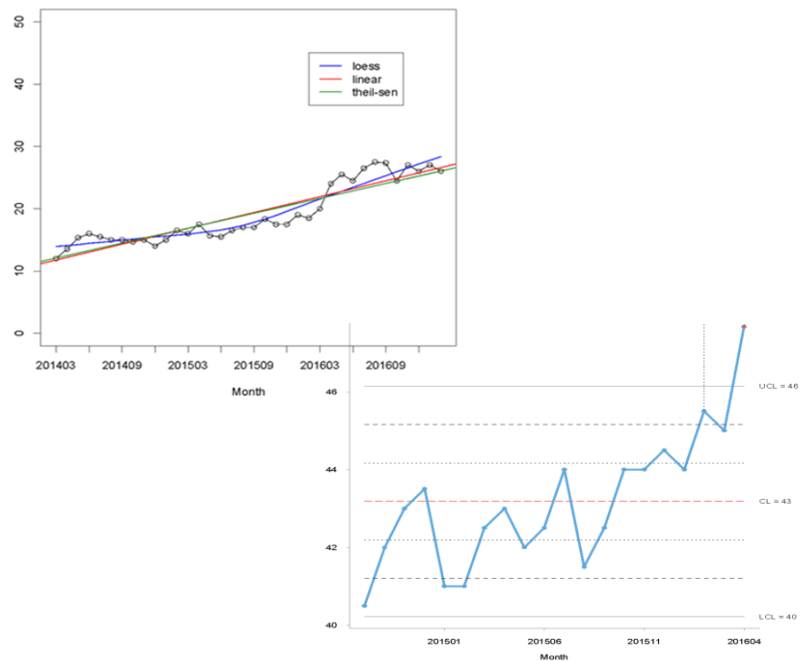
Platform to Extract
Insights from Analysis

Types of Analytics

Wave over Wave Analysis

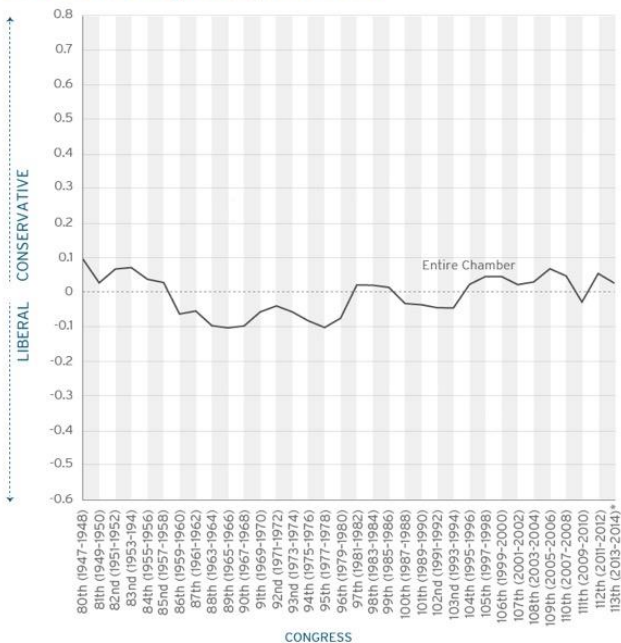


Longitudinal Analysis



Distribution Tests

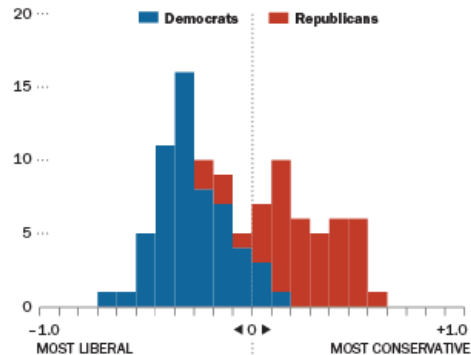
Average Ideological Positions of Senate Party Coalitions, 80th-113th Congresses, 1947-2014



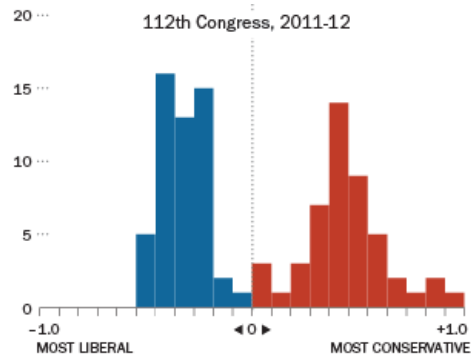
The data for the 113th Congress only include the first session.

Source: Keith Poole, Professor of Political Science at the University of California, San Diego, and Howard Rosenthal, Professor of Politics at Princeton University, developed ideological scores based on members' voting records. The Poole-Rosenthal scores can be viewed at voteview.com. A positive score denotes a conservative ideology, while a negative score denotes a liberal one. Scores closest to zero reflect the most centrist ideologies, while more extreme scores reflect stronger conservative or liberal ideologies.

Number of Senators
93rd Congress, 1973-74



112th Congress, 2011-12



Public Opinion Case Study

Ipsos Global Advisor Survey

28 country

Monthly survey

Started March 2010



Image source: Yahoo News

<https://www.yahoo.com/news/world-headlines-reaction-trumps-exit-slideshow-wp-141618242.html>

IRIS Exploration

Wave	Market	Region	Test	Topic	Variable	Attribute	Brand	Category	Product	% Flagged	Direction	# Waves	Specific Topic	
Wave: 17JUN (139 flagged, 669 tests)											Flagged: 20.8%			
Topic: Undefined (82 flagged, 249 tests)											Flagged: 32.9%			
Topic: Terrorism Issues (11 flagged, 73 tests)											Flagged: 15.1%			
Topic: Social Issues (21 flagged, 148 tests)											Flagged: 14.2%			
Topic: Financial (14 flagged, 99 tests)											Flagged: 14.1%			
Topic: Environment (6 flagged, 50 tests)											Flagged: 12.0%			
Region: Asia Pacific (3 flagged, 12 tests)											Flagged: 25.0%			
Region: Latin America (2 flagged, 8 tests)											Flagged: 25.0%			
Region: Europe (1 flagged, 18 tests)											Flagged: 5.6%			
Topic: Health (5 flagged, 50 tests)											Flagged: 10.0%			
Wave: 16DEC (128 flagged, 666 tests)											Flagged: 19.2%			
Wave: 17MAR (110 flagged, 667 tests)											Flagged: 16.5%			
Wave: 16SEP (95 flagged, 666 tests)											Flagged: 14.3%			
Wave: 17SEP (107 flagged, 1296 tests)											Flagged: 8.3%			
Topic: Undefined (54 flagged, 398 tests)											Flagged: 13.6%			
Topic: Environment (10 flagged, 107 tests)											Flagged: 9.3%			
Region: Europe (6 flagged, 41 tests)											Flagged: 14.6%			
17SEP	Belgium	Europe	proportion	Environment	worry__clima...	2017/09			QoQ			2	Climate	
17SEP	France	Europe	proportion	Environment	worry__envir...	2017/09			QoQ			2	Environ	
17SEP	Germany	Europe	proportion	Environment	worry__clima...	2017/09			QoQ			2	Climate	
17SEP	Italy	Europe	proportion	Environment	worry__clima...	2017/09			QoQ			2	Climate	
17SEP	Poland	Europe	proportion	Environment	worry__envir...	2017/09			QoQ			2	Environ	
17SEP	Spain	Europe	proportion	Environment	worry__clima...	2017/09			QoQ			2	Climate	
Region: Asia Pacific (3 flagged, 26 tests)											Flagged: 11.5%			
Region: Latin America (1 flagged, 16 tests)											Flagged: 6.3%			

Options:

Show tests when expected FDR: 5%

Show tests with variable name containing:

Search Clear Text

Filter tests:

- Control Chart Distribution
 Trend Proportion
 Trend Delta

Group by Wave, by Market

Group by Market, by Category, by Product

Expand All Groups Collapse All Groups

Expand All But Inner-Most

Clear Groupings Reset Sort Order

PA demo

- Waves: 2016Q3 - QoQ
- FDR applied by Test

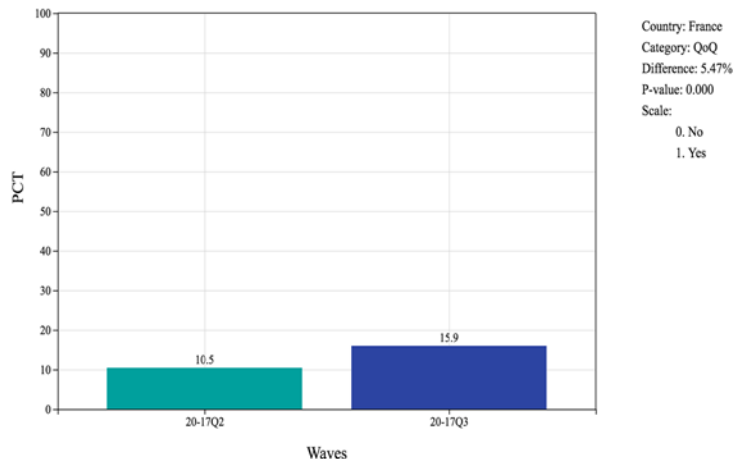
IRIS® v1.0.3

By Ipsos Science Centre

Drill for Insight Beyond Mining the Patterns

IRIS

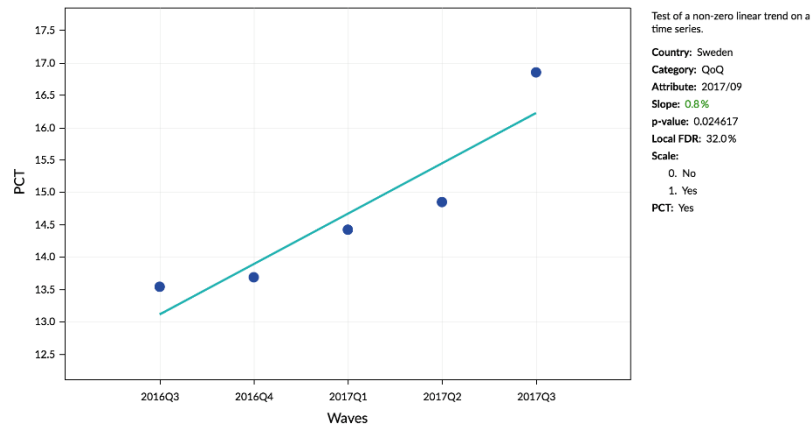
Environmental Threats



France

IRIS

Climate Change 2017/09



Sweden

Ranked in the Top 3 Concerns Most Worrying for Your Country

Google Business Case

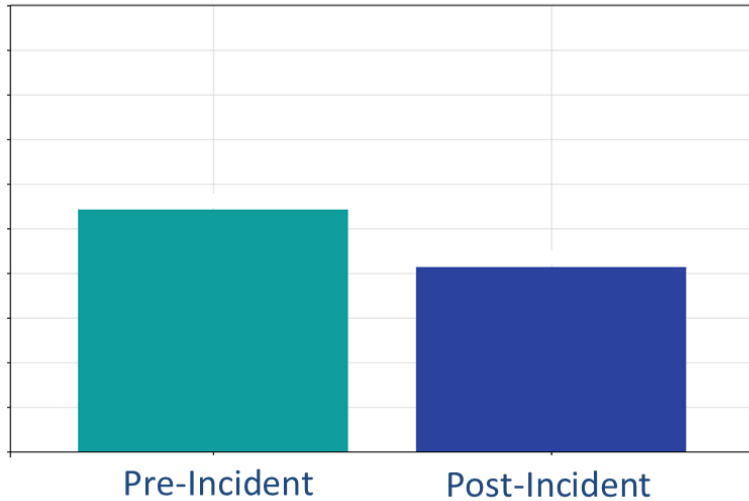


Partner to understand business environment and opportunities of various brands and products

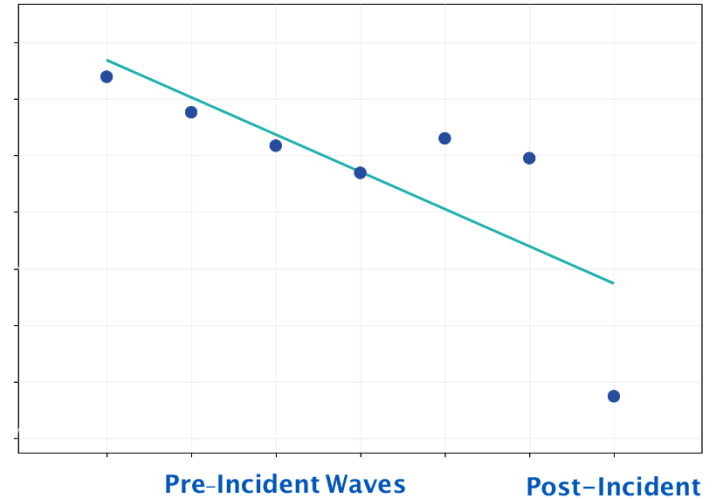


Post Pattern Exploration Magnitude Drill Down

IRIS



IRIS



BIG *ANALYTICS*

volume

velocity

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Thank You!



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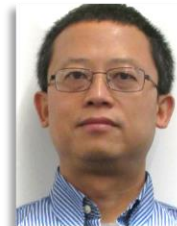


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