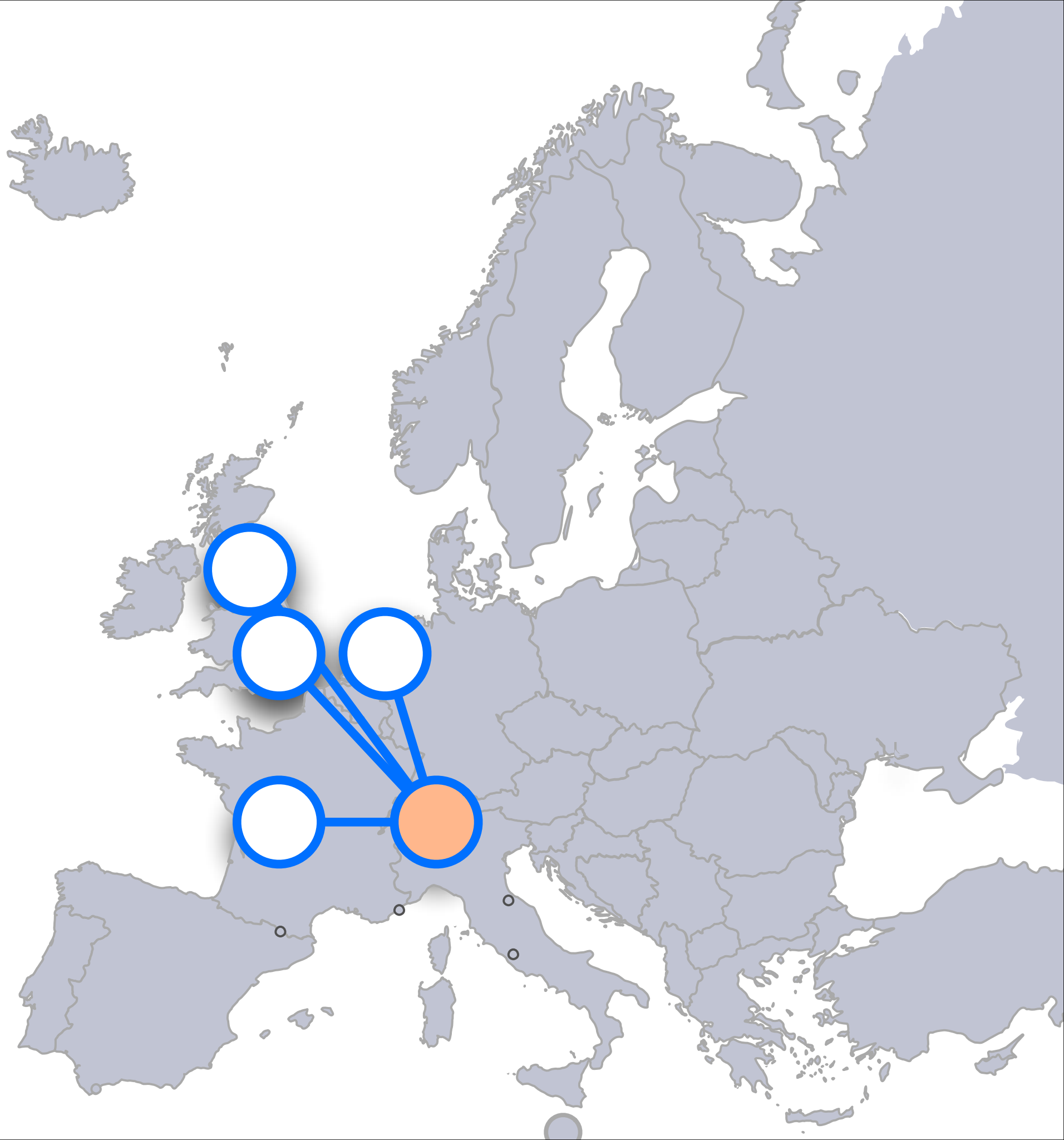


HR meet Data Science

What it is, potential benefits & how to get started



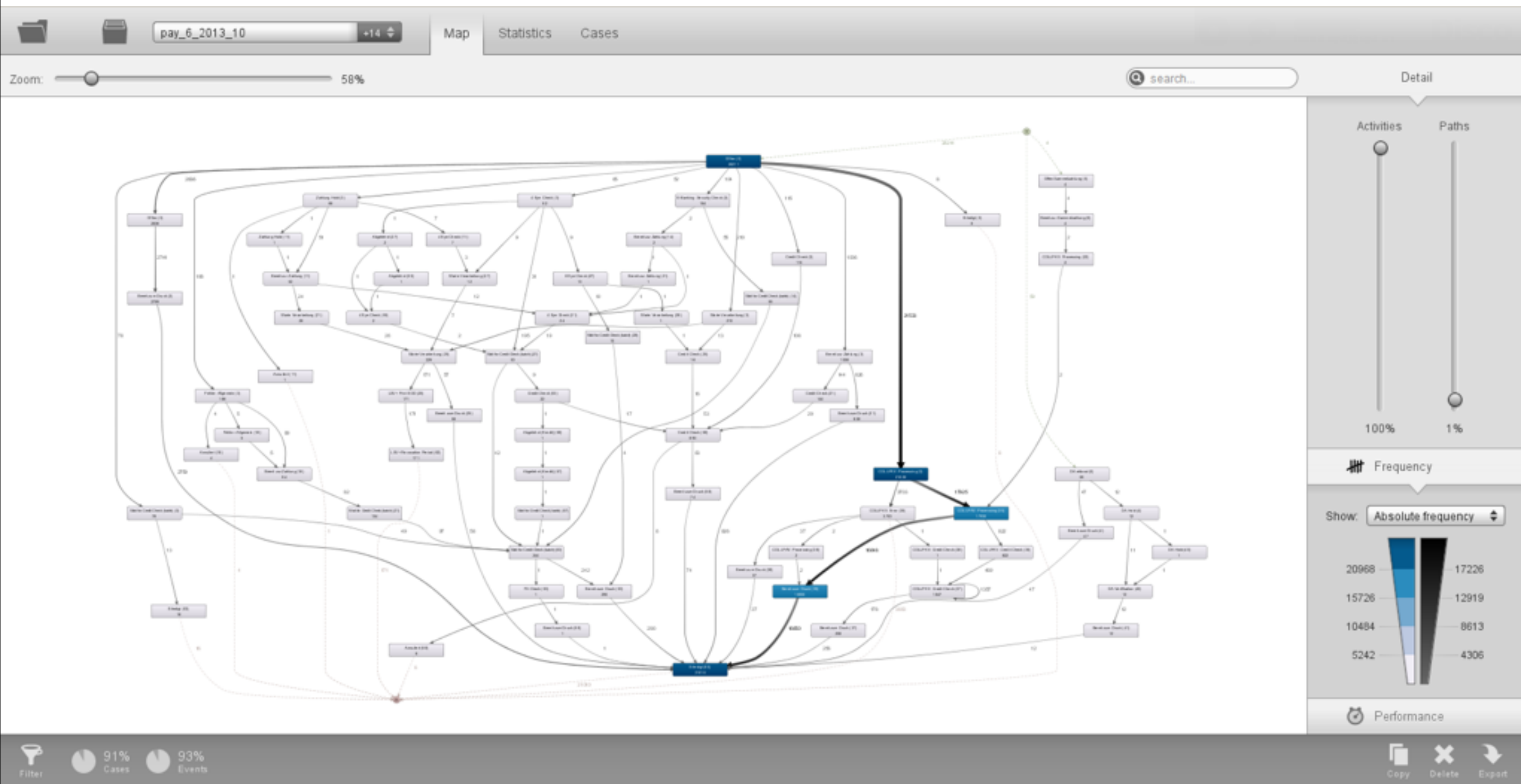
“I was looking for something like baseball,
where there's a lot of data and the
competition was pretty low.”

Nate Silver, Guardian interview

OrgOrgChart

Autodesk Research

Automated process discovery from log files



“All people decisions at Google are based on data and analytics.” ... “bring the same level of rigor to people-decisions that we do to engineering decisions.”

Google People Operations (POPS) mantra

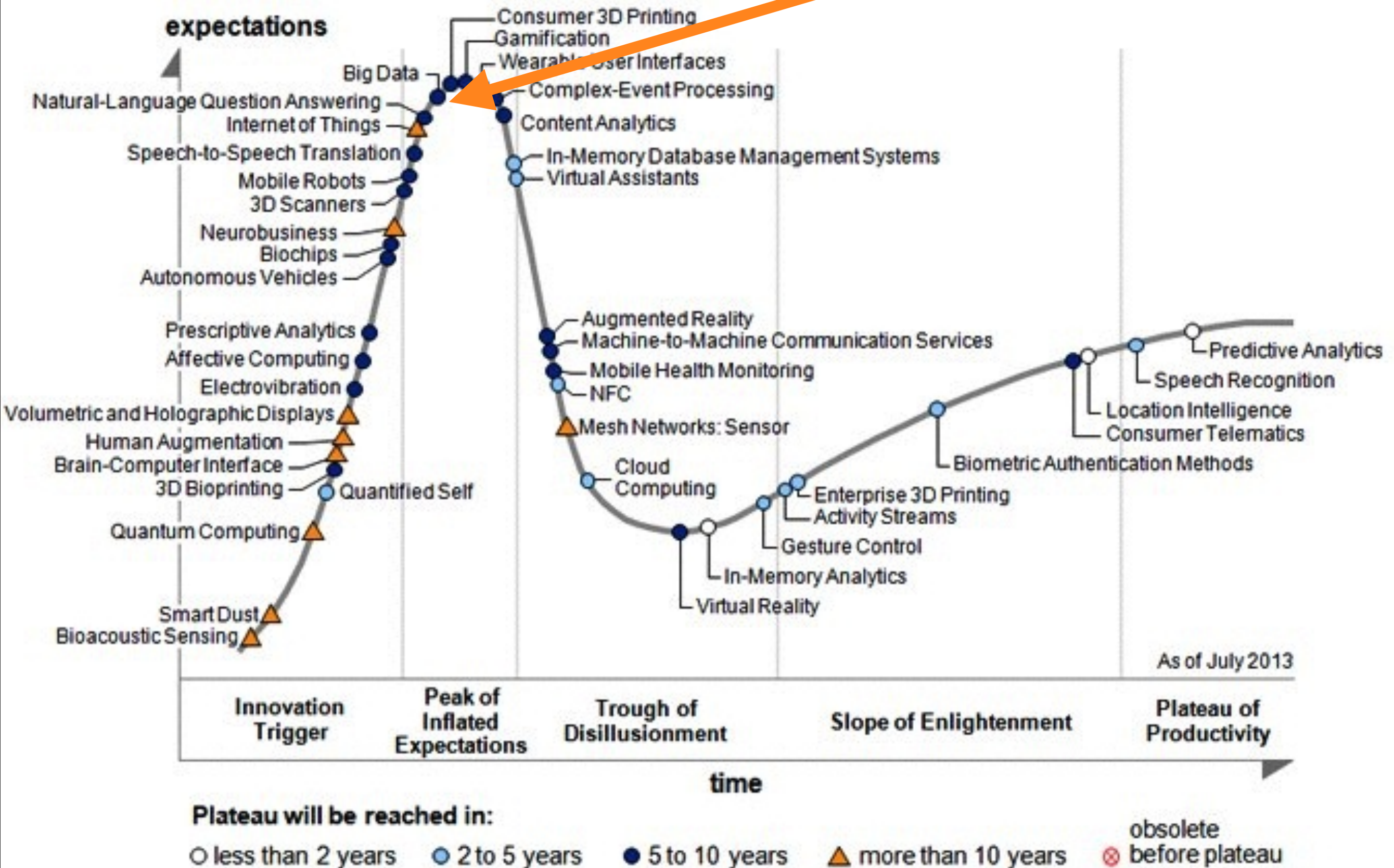
Leading Analytic Organizations have 17%
better talent outcomes than other
organizations

source: Corporate Executive Board: The Talent Analytics Era

Big data is a bit like teenage sex:
Everyone talks about it, nobody really
knows how to do it, everyone thinks
everyone else is doing it, so everyone claims
that are doing it.

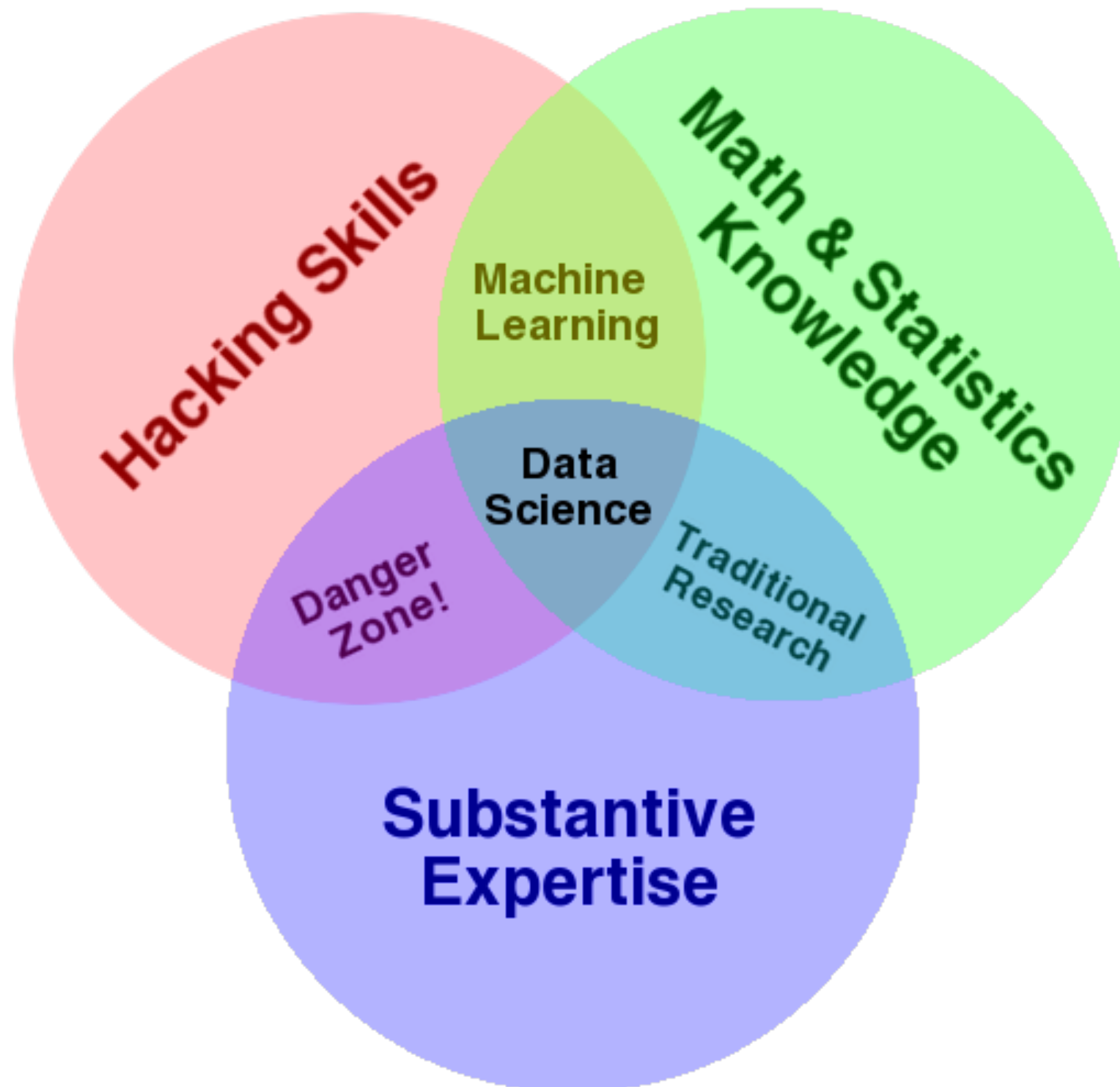
Gartner 2013 Hype Cycle

Big Data



What is data science?

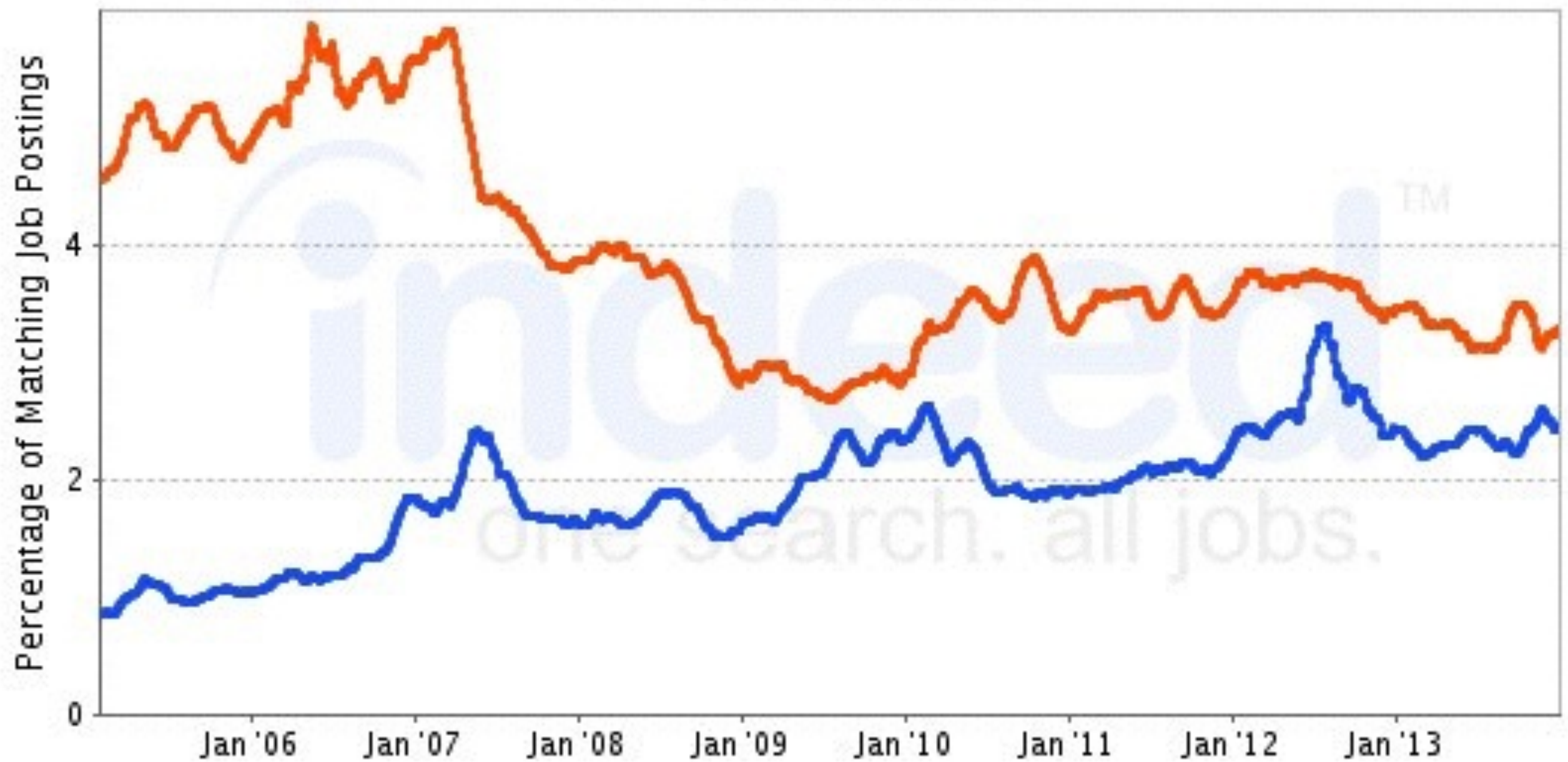
Drew Conway's Data Science Venn Diagram



HR advertised jobs

Job Trends from Indeed.com

— HR — talent management



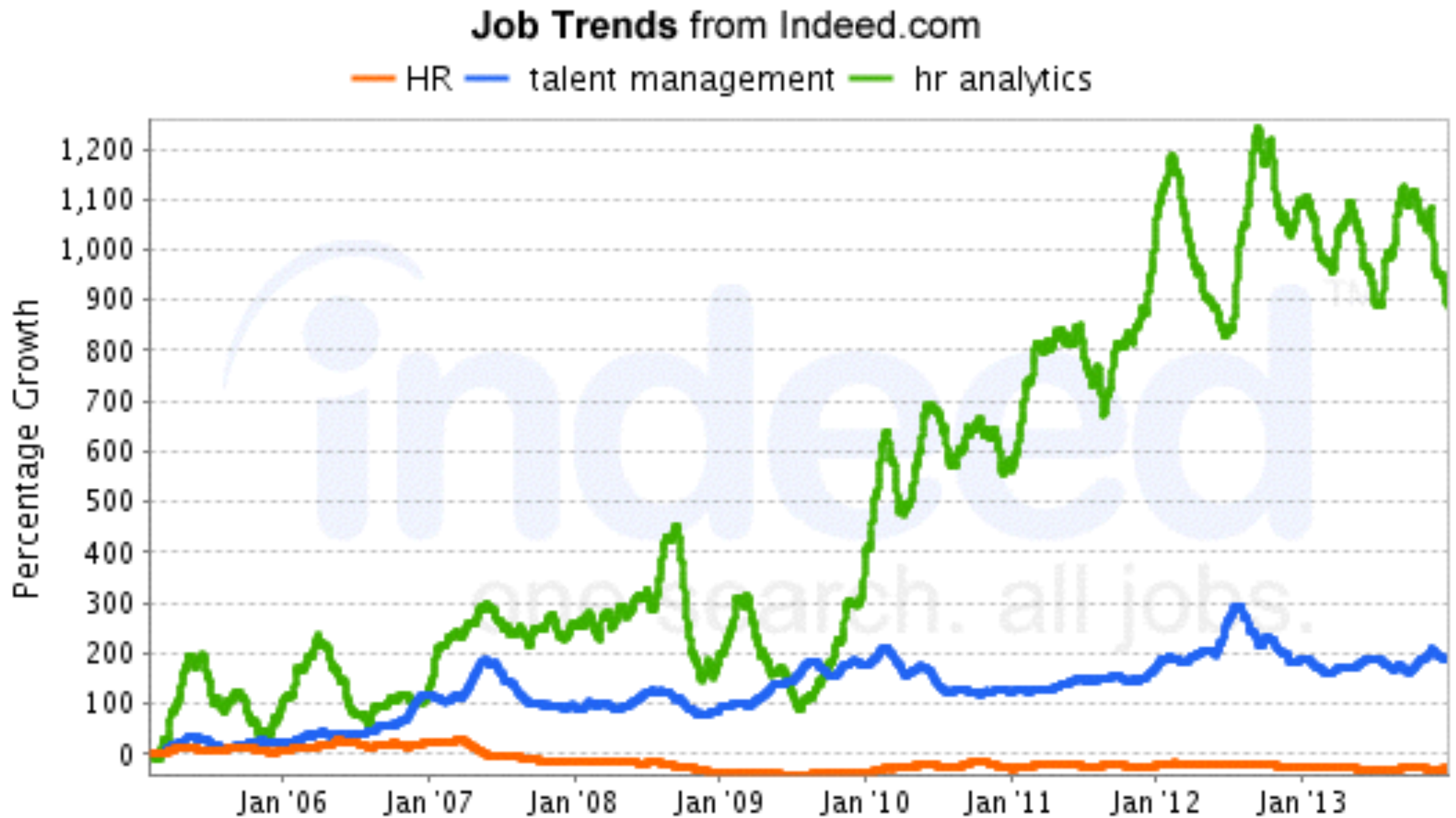
HR job growth

Job Trends from Indeed.com

— HR — talent management



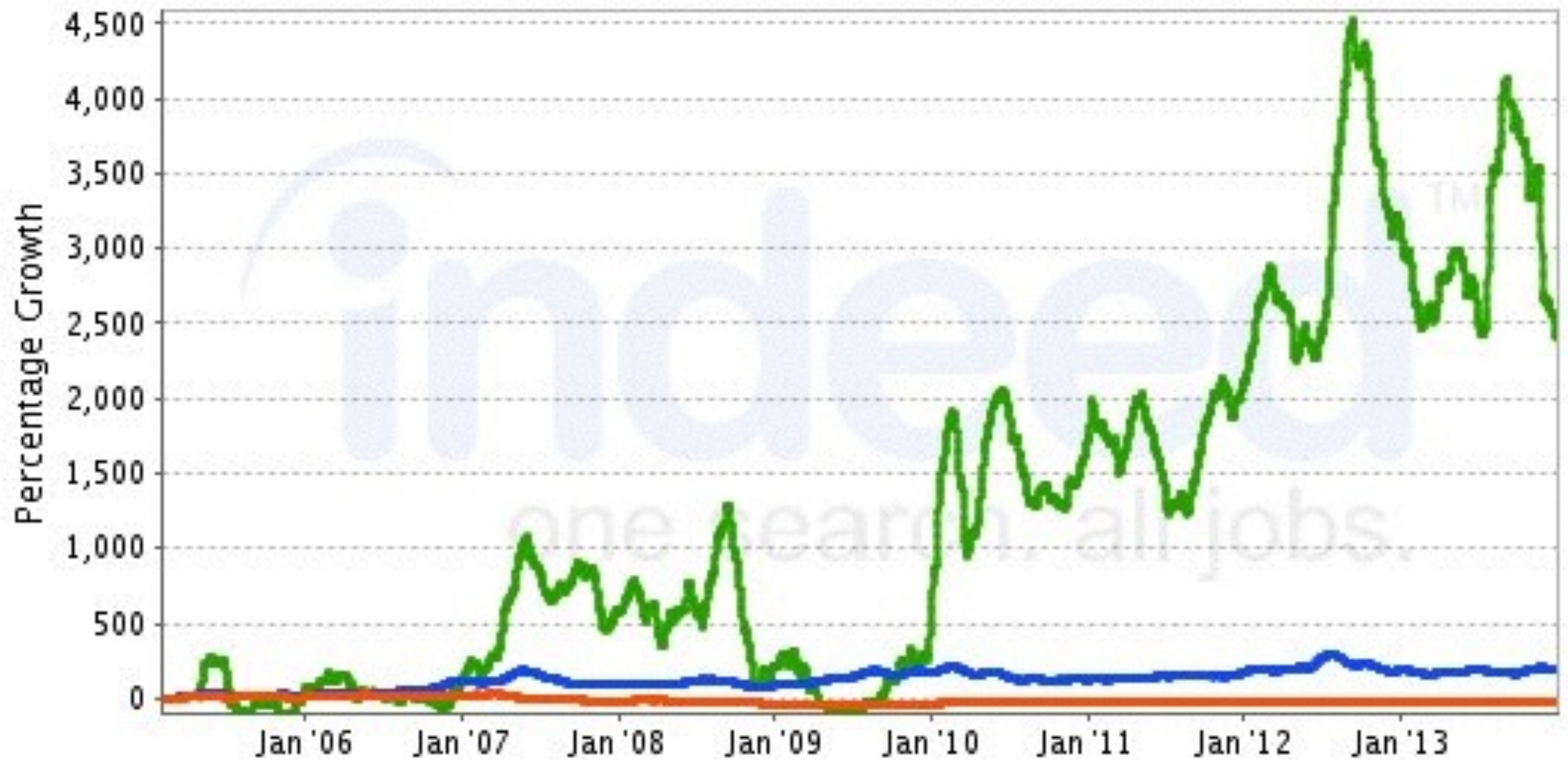
Growth in analytics jobs in HR



Growth in analytics jobs in HR

Job Trends from Indeed.com

— HR — talent management — hr talent analytics



Jobs:Walt Disney



Workforce Management...provide analytical support toward **decision support** and system methodology improvement efforts... may involve forecasting, workload planning, staffing, scheduling, or deployment. Ensure the appropriate methodology, measurements, tools and quantitative techniques (e.g. **data gathering, statistics, computer simulation, process flow analysis**, etc.) are applied in projects.

- recent graduate or post grad level in **Industrial Engineering, Mathematics, Computer Science**, or equivalent major with specialization in **Operations Research or Statistics**

Jobs: Chevron



Careers at Chevron

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Job Description



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Job Title: Team Lead, Talent Analytics & Reporting

Requisition Number: 018735295

Job is available in these locations: Houston, Texas, USA

Overview External: Chevron is one of the world's leading energy companies, with approximately 60,000 employees working in countries around the world. We explore, produce and transport crude oil and natural gas; refine, market and distribute fuels and other energy products; manufacture and sell petrochemical products; generate power; and develop future energy resources, including biofuels and geothermal energy.

Chevron is accepting online applications for the position of Team Lead, Talent Analytics & Reporting located in Houston, TX through February 27, 2014 at 11:59 p.m. (Eastern Standard Time).

Position Details:

Responsibilities for this position may include but are not limited to:

- This Team Lead, Talent Analytics & Reporting position is responsible for creating better, faster business decisions through credible workforce data.
- The Team Lead manages a high-performing team of Analysts that provide human capital analytics and reporting to stakeholders across the enterprise (including Corporate Departments, Opcos, and Senior Leadership).
- This includes helping set the team vision and strategy, identifying projects, managing project plans, diagnosing stakeholder problems, and demonstrating the business value of solutions.
- Builds a Talent Analytics competency across the enterprise through skilled relationship building, teaching and stewardship of a Community of Practice.
- Designs advanced statistical research studies and technical diagnostics to improve management decisions regarding global talent. This involves: the identification of pivotal roles and critical skills, the development of internal and external talent gaps, the development of optimal buy/build/borrow talent sourcing strategies, the modeling of alternate "what-if" talent scenarios, the alignment of HR and other business/financial data.

Jobs requirements



Careers at Chevron

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[Job Alerts](#)

Job Description



Masters or PhD degree required in Data Science, Statistics, Economics, Econometrics, IO Psychology, Finance or a related field.

Job Title: Team Lead, Talent Analytics & Reporting

Requisition Number: 016732295

Job is available in these locations: Houston, Texas, USA

Chevron Experience:

Chevron is one of the world's leading energy companies, with approximately 50,000 employees working in countries around the world. We explore, produce and transport crude oil and natural gas; refine, market and distribute fuels and other energy products; manufacture and sell petrochemical products; generate power; and develop future energy resources, including biofuels and geothermal energy.

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Jobs: Sears

[SHOP YOUR WAY](#) | [sears](#) | [kmart](#) | [mygofer](#) | [CRAFTSMAN](#) | [Kenmore](#) | [PartsDirect](#) | [LANDS'END](#) | [Sears Home Services](#) | [Sears Outlet](#) | [Sell on Sears](#) | [See all](#)

SEARS HOLDINGS CORPORATION

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Job details

Job 1 of 1

[Apply to job](#)[Send to friend](#)[Save to cart](#)**Requisition ID**

267781BR

Job Title

Workforce Planning Analyst

Business

Home Services - In Home

Job Function

Analytics

Employment Category

Regular, Full-time

Sears Req Type

Salaried Exempt

Job Description

The Analyst, Planning and Analytics aids the Manager, Planning and Analytics in building sophisticated planning models and leverages complex algorithms to determine proper technical staffing solutions to meet demand for all in-home repair districts nationally. This position builds mathematical models and implements them through software programming.

Job requirements

The screenshot shows the Sears Holdings Corporation website. At the top, there is a navigation bar with logos for SHOP YOUR WAY, sears, kmart, mygofer, CRAFTSMAN, Kenmore, PartsDirect, LANDS'END, Sears Home Services, Sears Outlet, Sell on Sears, and See all. Below this is the company name "SEARS HOLDINGS CORPORATION" in a large, serif font. A secondary navigation bar contains links for Home, Press Releases, Investors, Corporate Governance, Community, and Careers. The main content area features a breadcrumb trail: "openings" (selected), "results", and "details". To the right of the trail is a "? Help" link. The job listing is for a "Workforce Planning Analyst" in the "Home Services - In Home" business, under the "Analytics" function. The employment is "Regular, Full-time" and "Salaried Exempt". The job description states: "The Analyst, Planning and Analytics aids the Manager, Planning and Analytics in building sophisticated planning models and leverages complex algorithms to determine proper technical staffing solutions to meet demand for all in-home repair districts nationally. This position builds mathematical models and implements them through software programming."

building sophisticated planning models and leverages **complex algorithms** to determine proper technical staffing solutions to meet demand for all in-home repair districts nationally. **This position builds mathematical models and implements them through software programming.**

Job Title	Workforce Planning Analyst
Business	Home Services - In Home
Job Function	Analytics
Employment Category	Regular, Full-time
Sears Req Type	Salaried Exempt
Job Description	The Analyst, Planning and Analytics aids the Manager, Planning and Analytics in building sophisticated planning models and leverages complex algorithms to determine proper technical staffing solutions to meet demand for all in-home repair districts nationally. This position builds mathematical models and implements them through software programming.

Job requirements

SHOP YOUR WAY | sears | kmart | mygear | CRAFTSMAN | Kenmore | PartsDirect | LANDS'END | Sears Home Services | Sears Outlet | Sell on Sears | See all

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Job Details

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Requisition ID	267781BR
Job Title	Workforce Planning Analyst
Business	Home Services - In Home
Job Function	Analytics
Employment Category	Regular, Full-time
Sears Req Type	Salaried Exempt
Job Description	The Analyst, Planning and Analytics aids the Manager, Planning and Analytics in building sophisticated planning models and leverages complex algorithms to determine proper technical staffing solutions to meet demand for all in-home repair districts nationally. This position builds mathematical models and implements them through software programming.

Jobs: Nestlé



Data Scientist Strategic Workforce Planning - 2 years

Nestlé - Vevey, CH-VD

Posted 2 days ago

[Apply on company website](#)

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Other Details

About this job



Job description

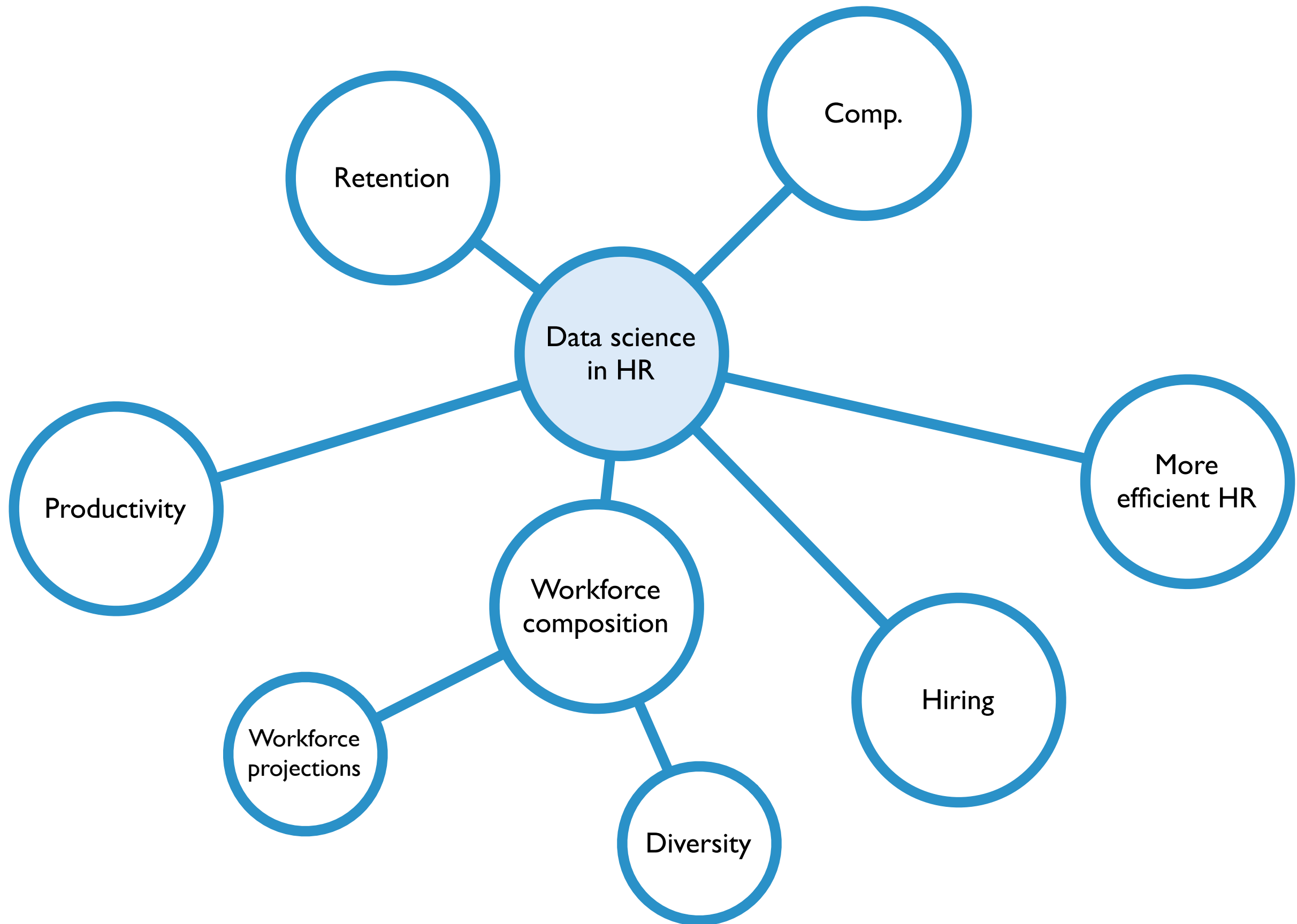
Data Scientist Strategic Workforce Planning

“I want to secure tomorrow and enjoy today”

Job requirements

Ph.D. in Mathematics, Statistics, Physics, Engineering or Industrial-Organizational Psychology or Master's degree with 2+ years' professional experience in independently analyzing complex data

Areas of focus for HR analytics



Always start here



Analytic Value Chain



Decisions based on
experience & gut
feel

Information is
structured but raw

Ratios, counts:

Can show trends
but audience gets
numb over time

Showing only when
needed reduces
fatigue

Correlations &
Relationships

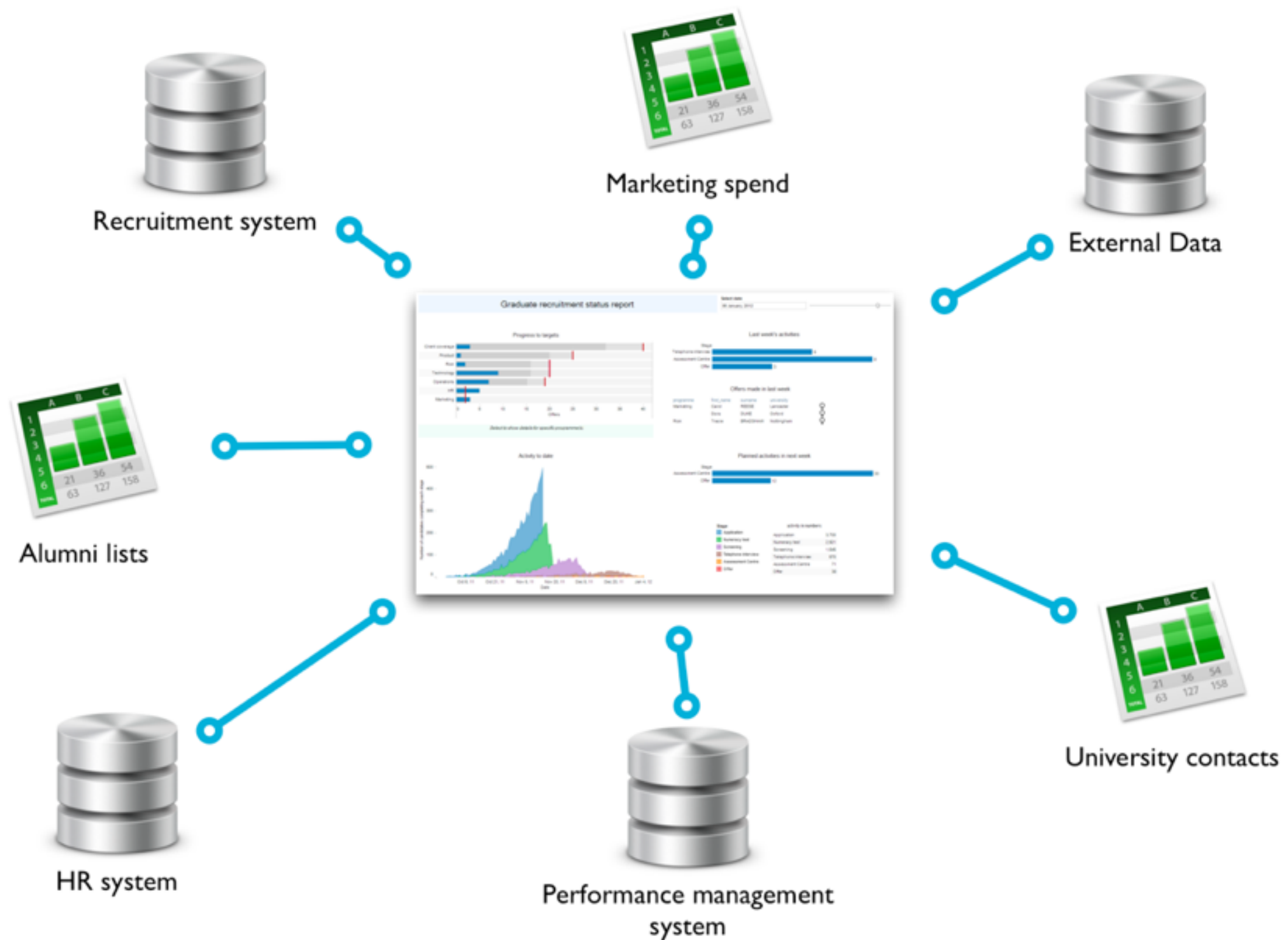
Often misses the
'Why?'

Leads to action

Needs to
incorporate a
narrative

Changes in
processes and
policies

Data comes from multiple systems

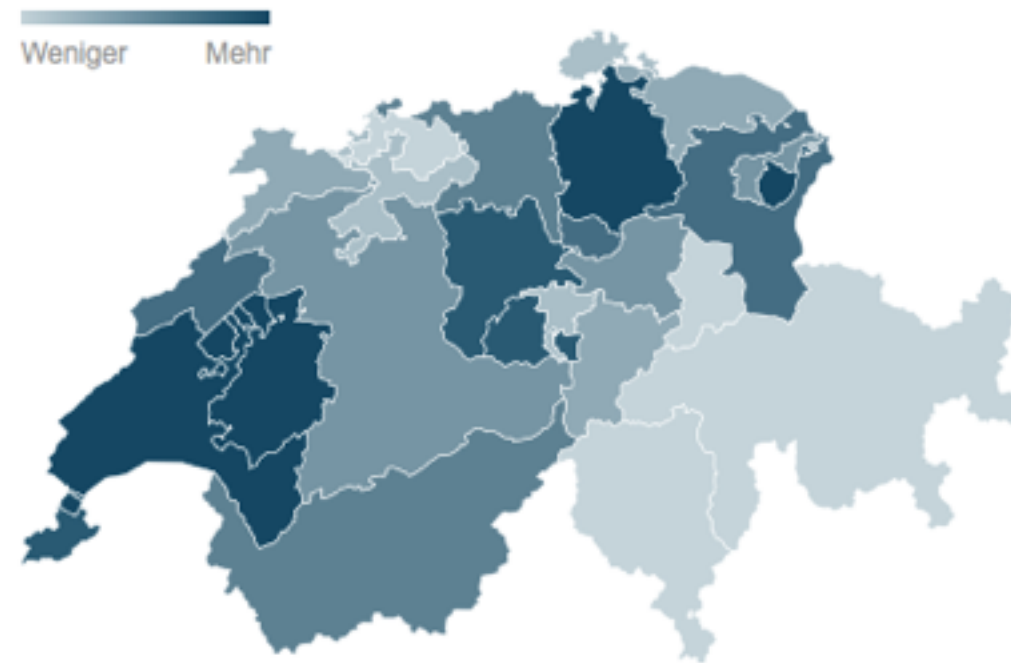


The important part of *communicating data* is
communicating not data.

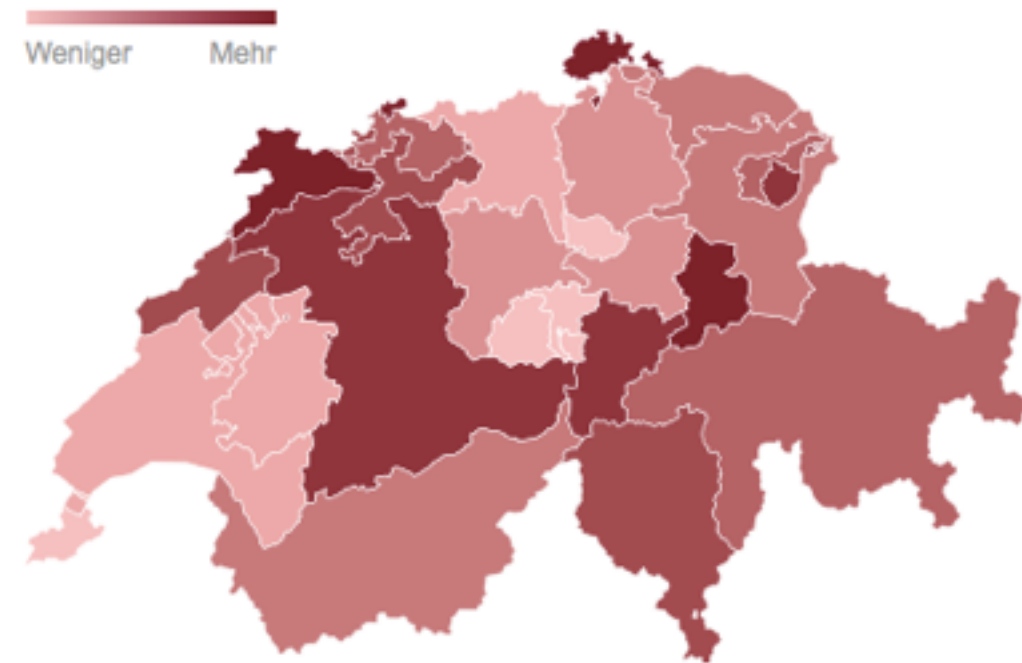
Data visualisation to help people understand and explore

Wie sich die Bevölkerung in den Kantonen verändert

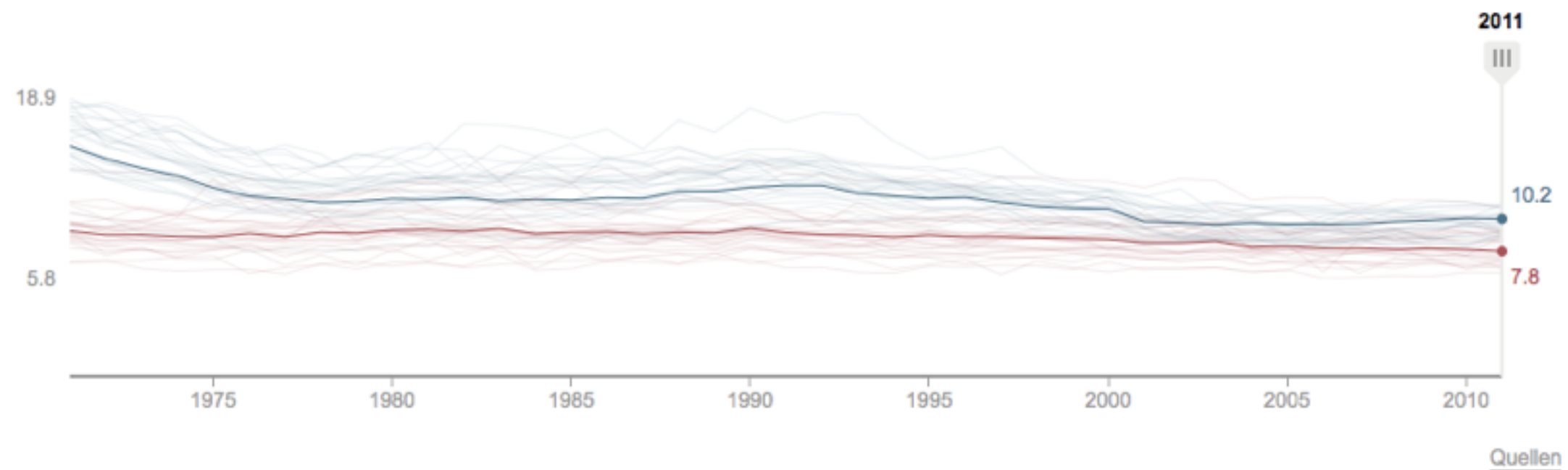
Geburten pro 1000 Einwohner im Jahr 2011



Todesfälle pro 1000 Einwohner im Jahr 2011



Geburten und Todesfälle pro 1000 Einwohner in der Schweiz



Data visualisation to help people understand and explore

Adjust the weightings to personalise the ranking

1

By default the overall ranking gives no special weighting. To personalise the ranking based on what's important to you adjust the sliders below.

Customer weighting

Investor weighting

Jobseeker weighting

Media weighting

Message weighting

Society weighting

2

To highlight a company of interest please select it here:

Company to highlight

Barclays

Original position

Adjusted position



Winners and Losers

The following companies have changed the most based on your weightings.

Top 10 climbers

Google
Agricultural Bank of China
Wells Fargo
JPMorgan Chase & Co
Goldman Sachs
China Construction Bank
Royal Bank of Canada
Bank of China
Bank of America
Itau Unibanco.

Top 10 fallers

PetroChina
Industrial & Commercial Bank of China
Gazprom
Sanofi
China Shenhua Energy
PepsiCo
Wal-Mart Stores
Vale
Daimler
Cisco Systems

Notes:

* Serving customers is proportional for all other metrics - ie Total other metrics / 248 x 32 = Customer

Where several companies have equal change they are sorted alphabetically.

Ranking trends 2008 to 2013

1

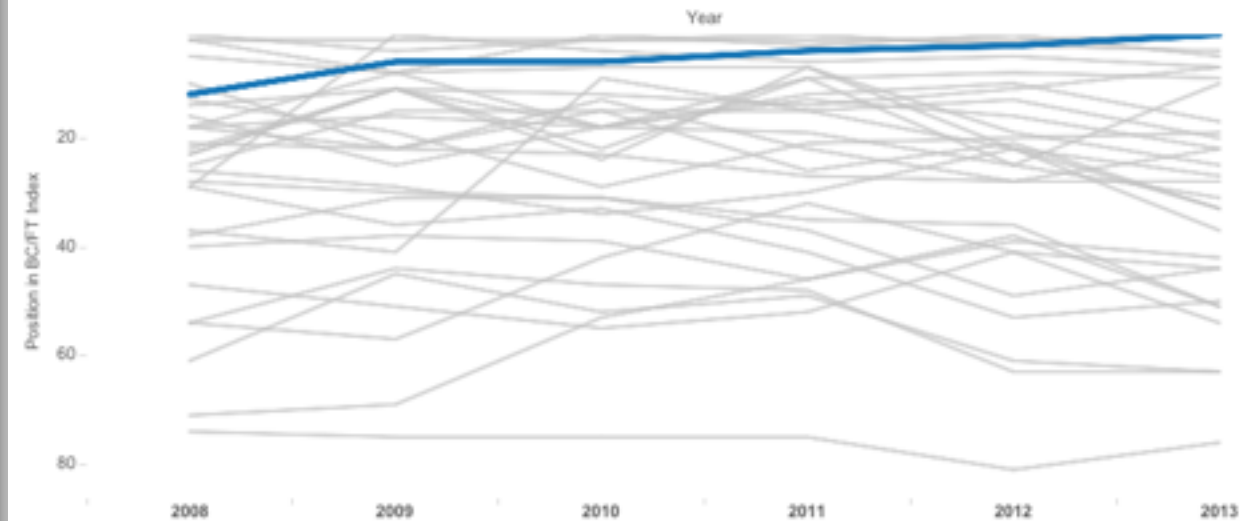
Choose a company

Eni

Thirty companies have been in the BC/FT Index for the last 6 years. Explore how they've changed over time.

Eni's performance over time

The blue line shows the ranking position of Eni against the other 29 firms who have been present in each ranking.



2

Select a year to show details of performance in each category

How Eni performed in 2013

Eni, in blue, shown against the median score of other firms in the 2013 ranking



Note

The Bowen Craggs methodology has evolved over time to account for changes in the way businesses communicate over the internet. To account for this comparisons are made to other participants in each year rather than absolute scores.

Changing from data visualisation to decision tools

Is It Better to Buy or Rent?

FACEBOOK TWITTER GOOGLE+ EMAIL SHARE

Whether renting is better than buying depends on many factors, particularly how fast prices and rents rise and how long you stay in your home. Compare the costs of buying and renting a home in the calculator below. Click the **ADVANCED SETTINGS** button to change inputs such as your rate of return on investments, condo/common fees and your tax bracket.

YOUR INFORMATION

Monthly rent

1,100

Home price

172,000

Down payment (%) \$34,400

20.0

Mortgage rate (%) \$781

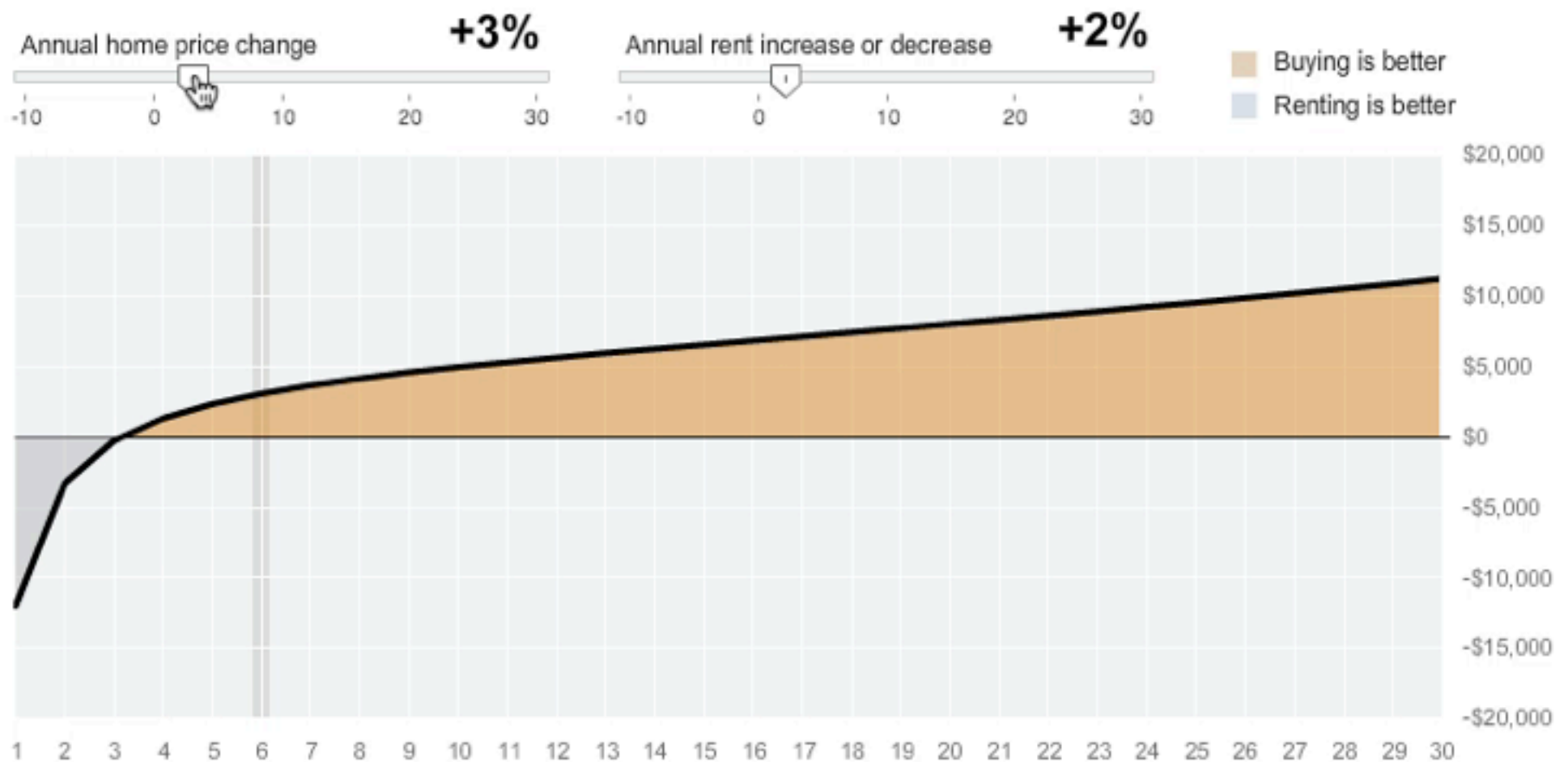
5.50

Annual property taxes (%) \$2,322

1.35

Buying is better than renting after 4 years.

ADVANCED SETTINGS »



YEAR-BY-YEAR ANALYSIS

Year 6

If you stay in your home for 6 years, **buying** is better.

Buying

Spent in year 6

Cumulative spent from years 1 to 6

PURCHASE COSTS

Down payment

34,400

Closing costs

6,880

YEARLY COSTS

Renting

Spent in year 6

Cumulative spent from years 1 to 6

INITIAL RENTING COSTS

Rent deposit

1,100

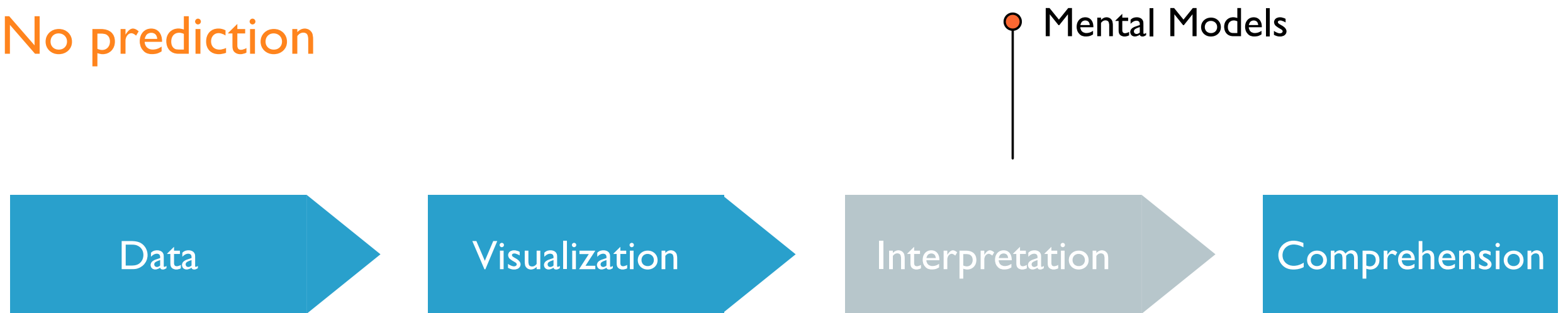
Broker's fee

0

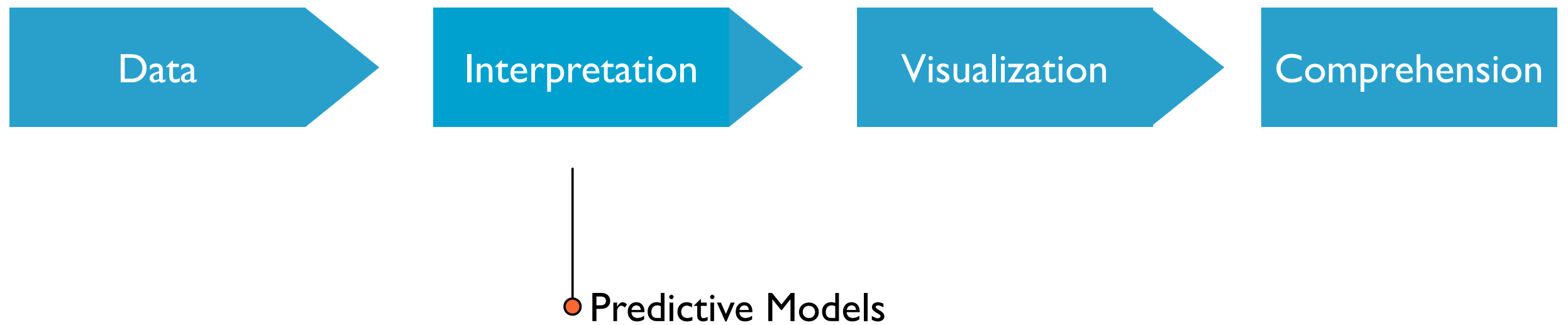
YEARLY COSTS

The importance of prediction

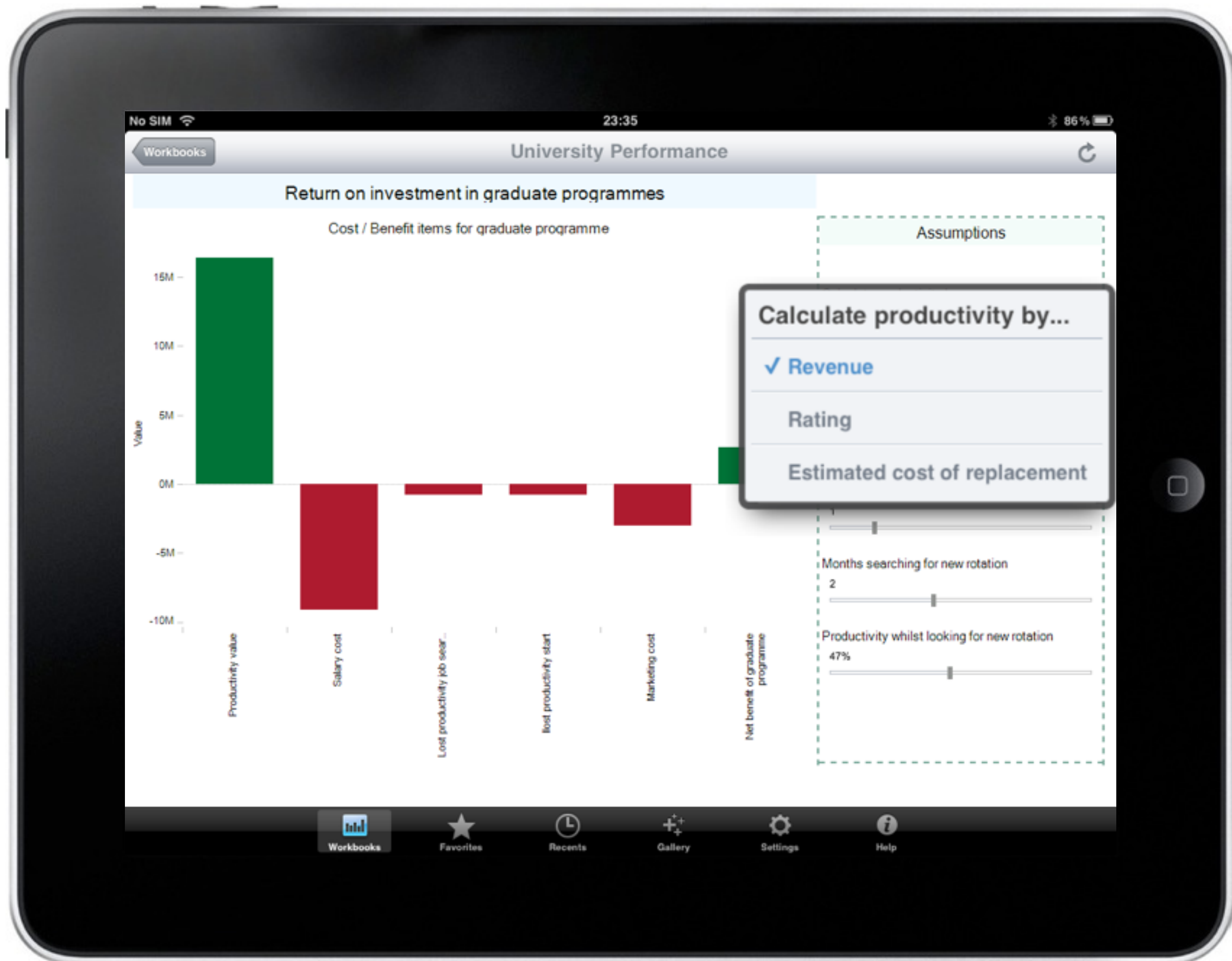
No prediction



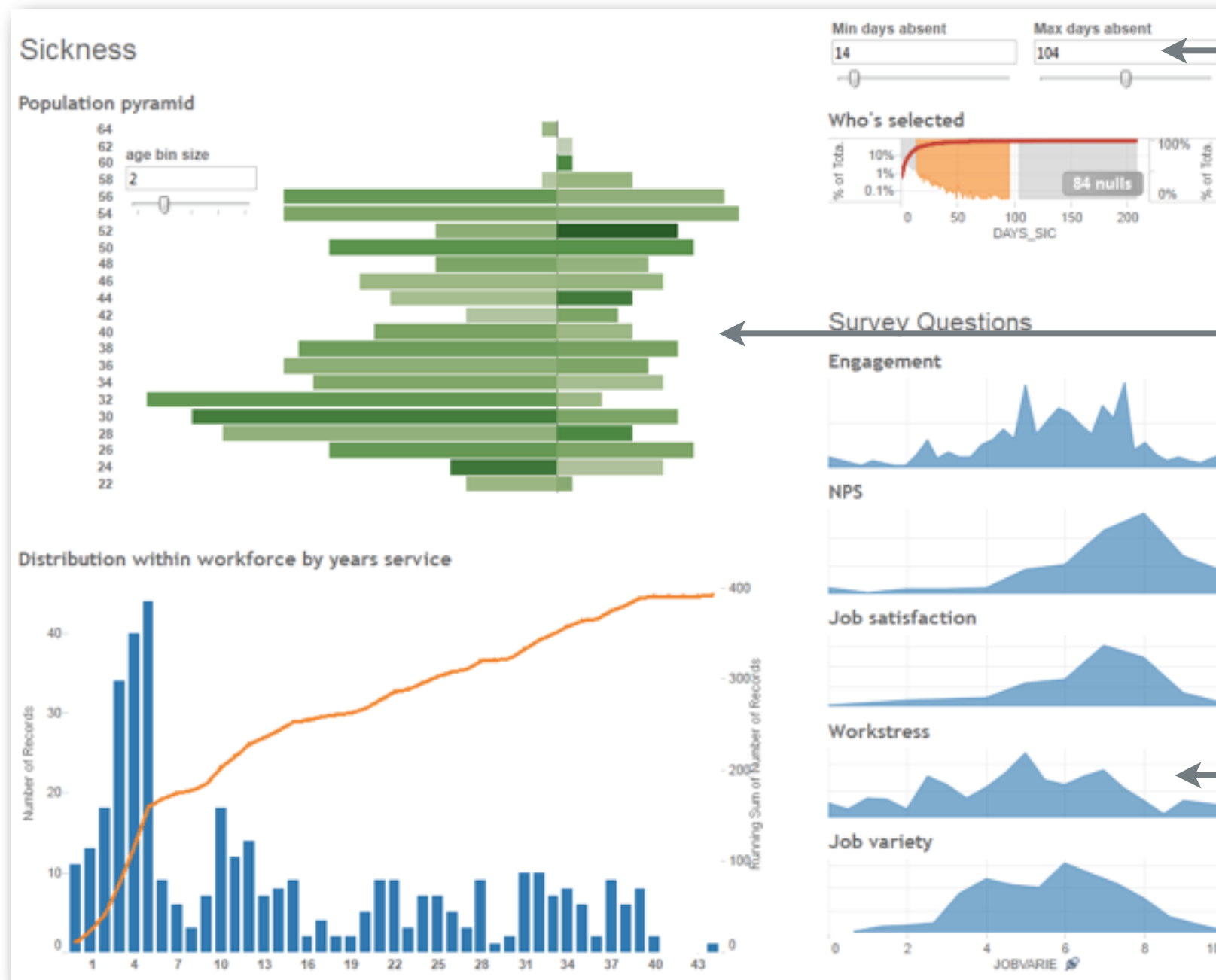
With prediction



Decision tools for managers



Providing the answers to the right questions



Which group?

Who's in this group?

What are they thinking?

The importance of code

```
1 # Set up space
2
3
4 setwd("~/I
5 Survey.Data <- read.csv("Survey-Data-25th-September.csv")
6
```

Code makes analysis:

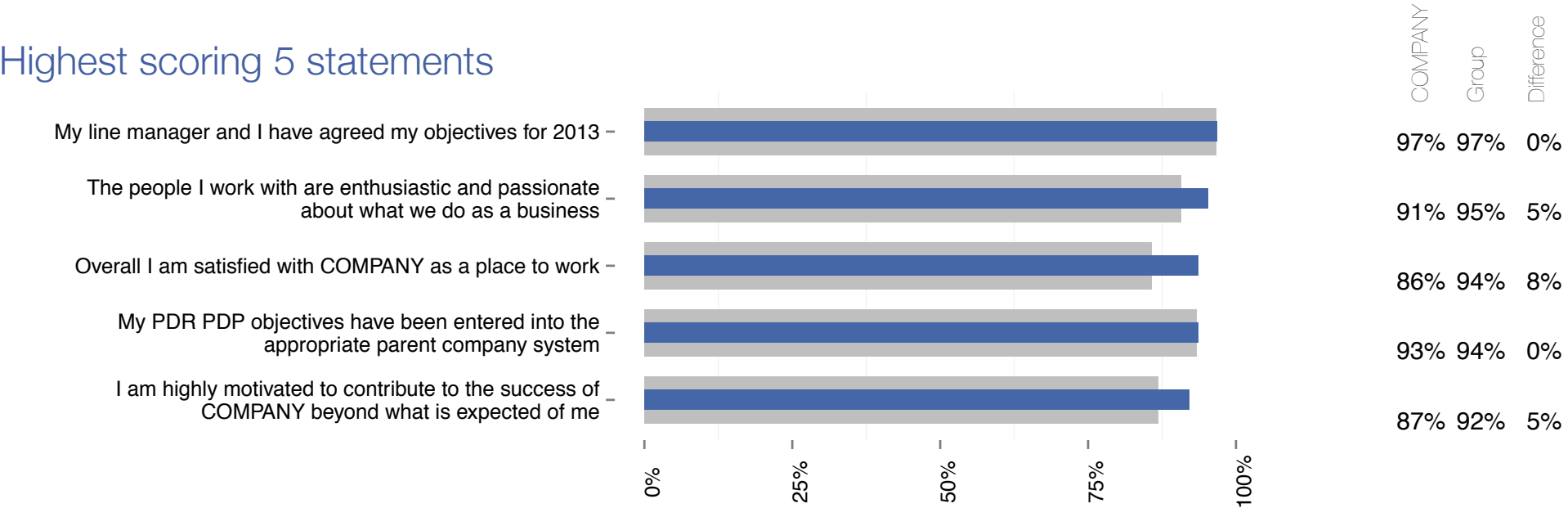
- Reproducible
- Scalable
- Increases quality
- Decreases cost
- Fast

```
26 Open.Text <- Data[,c(1, 31, 35, 43:44)]
27 Demographics <- Data[,c(1, 32:35, 38, 40, 45:53)]
28 Likert <- Data[,c(1:30, 36:37, 39, 41:42)]
29
30 # Create Long version of Likert
31
32 library(reshape2)
33 Likert.Long <- melt(Likert, id.vars="Record.ID", variable.name="Question", value.name="Response")
```

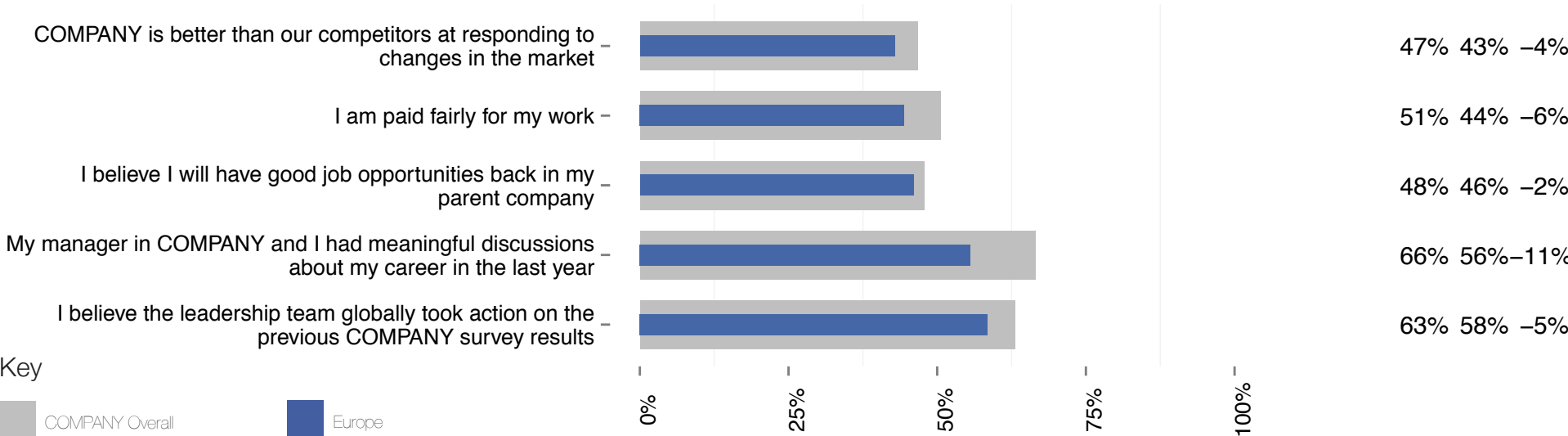
Code can automate report production

Highest and lowest scoring questions Europe compared to COMPANY Overall

Highest scoring 5 statements



Lowest scoring 5 statements



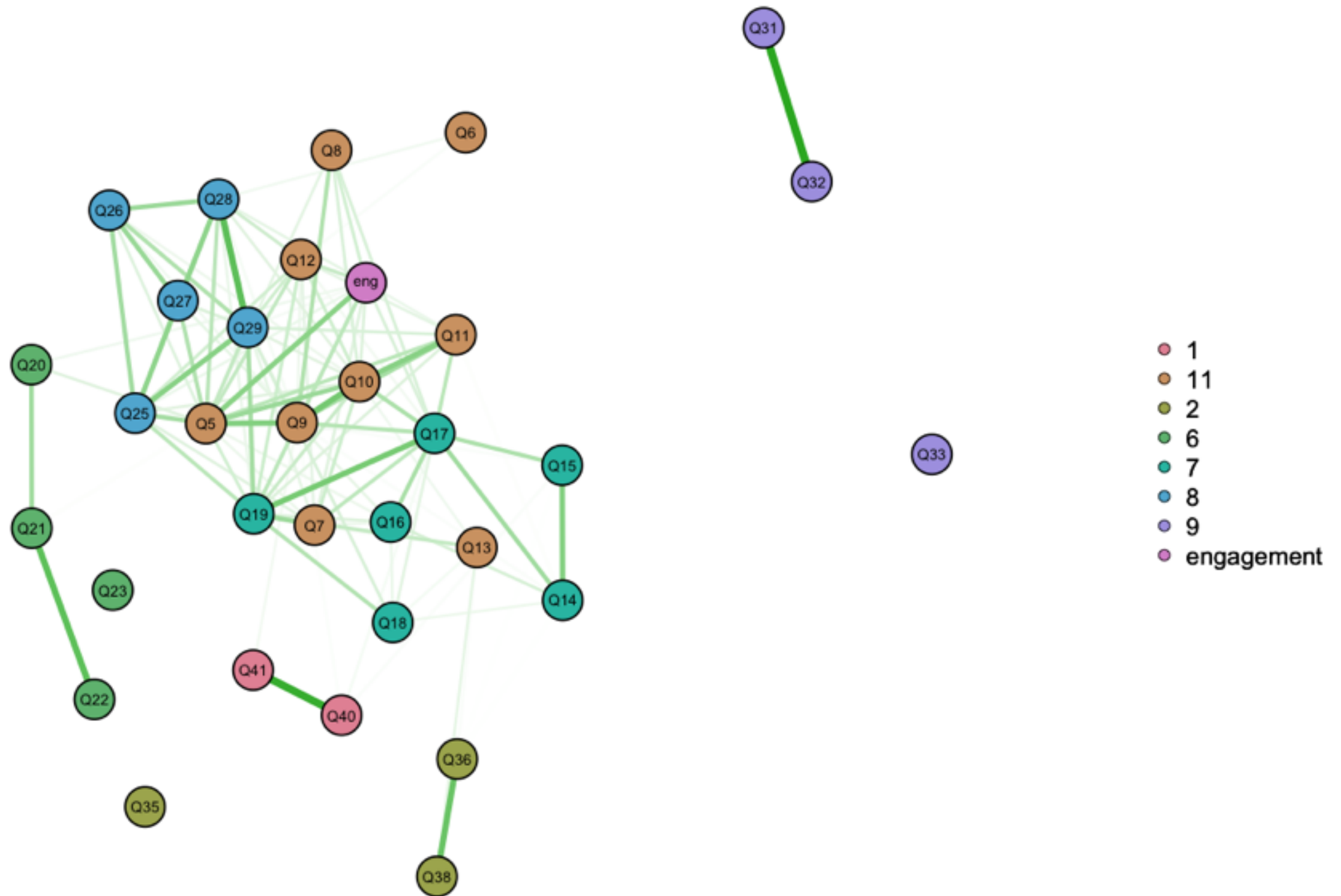
Thinking probabilistically

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

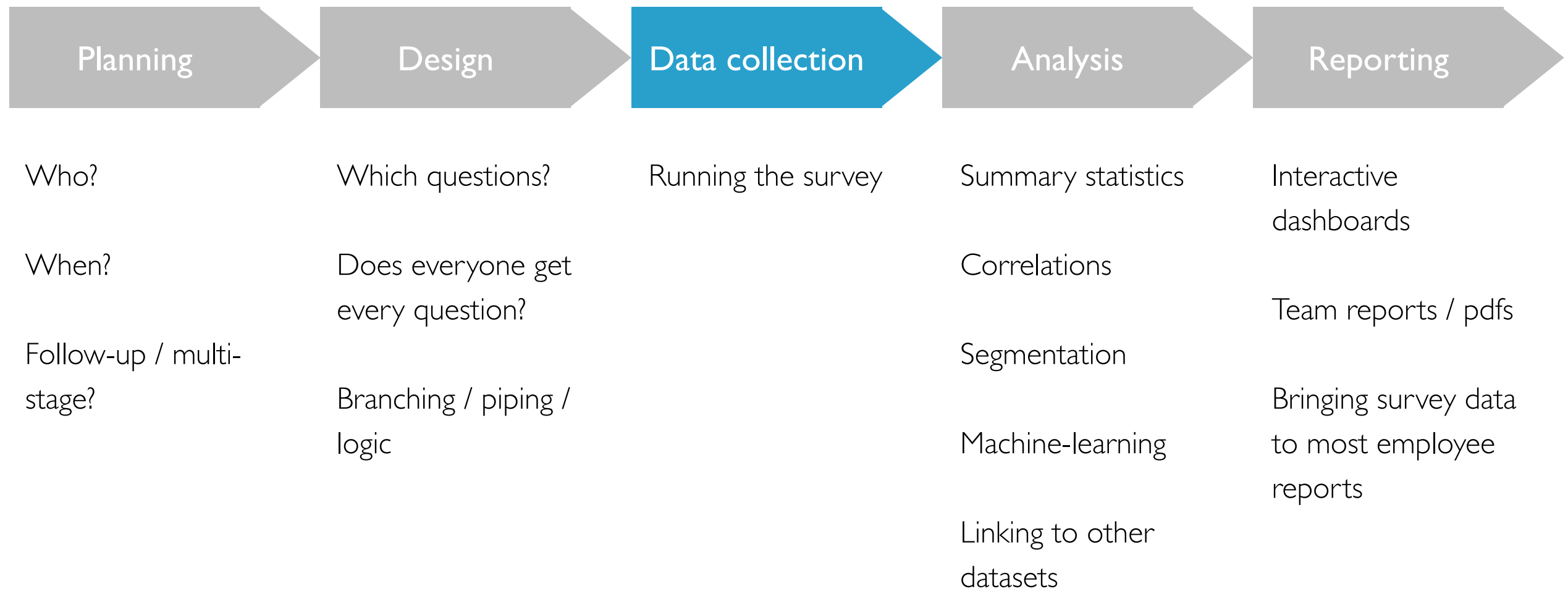
“When you have eliminated the impossible,
whatever remains, however improbable,
must be the truth”

Sherlock Holmes, The sign of the Four

Correlation network of typical survey



Current survey process time-consuming



Workometry

andrew.marritt@organizationview.com