



Institute
and Faculty
of Actuaries

The Role of the Actuary in Data Science

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Research approach

- Analysis of job adverts
 - Data science vacancies in a variety of industries
 - Actuarial vacancies
- Interviews
 - Recruitment agents
 - Consultancies – big consultancies who have both data science and actuarial teams

SWOT analysis

Strengths

Weaknesses

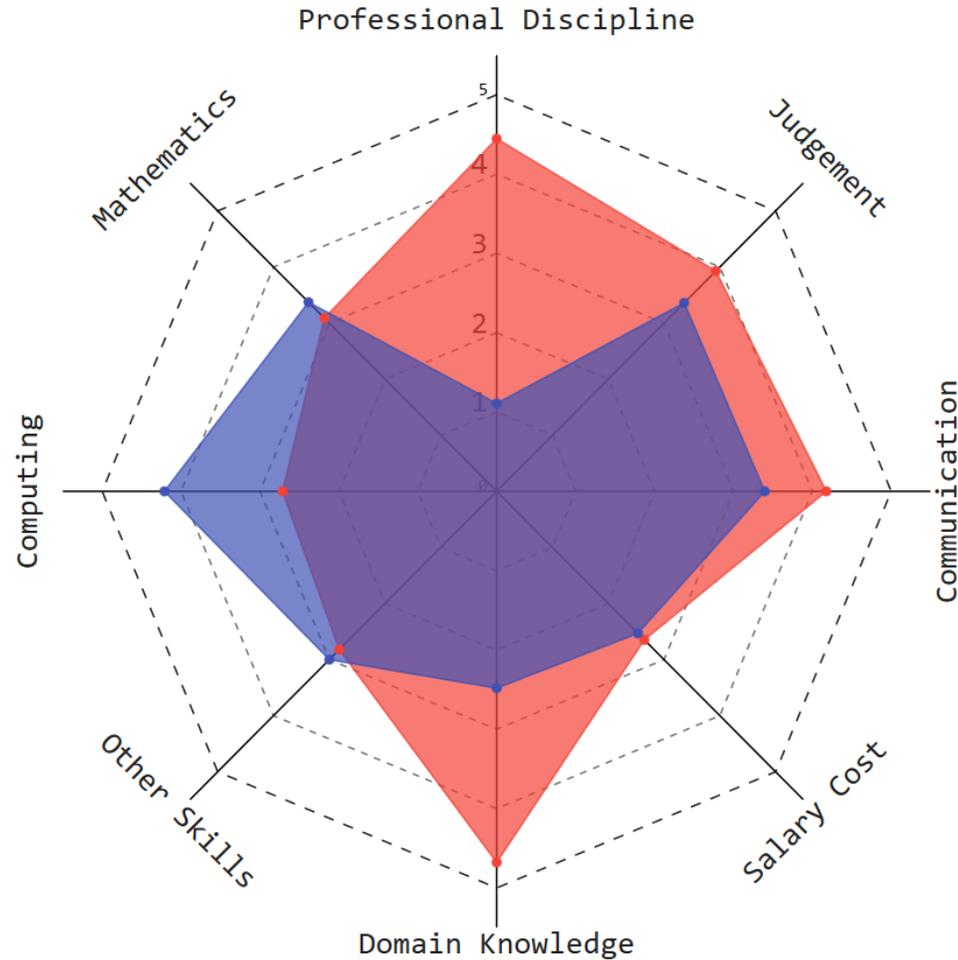
Opportunities

Threats

Comparison of skill requirements

Strengths	Weaknesses

- Actuary
- Data Scientist



(Consistent results from job adverts analysis and all interviews)

Anecdotal impressions of actuaries

Weaknesses

Often communication skill is an issue, and being able to see the bigger picture and how their results affect the company on a wider scale

Anecdotal impressions of actuaries



Weaknesses

- What skills or knowledge do you think actuaries lack to work in non-traditional fields?
 - programming skill
 - communication skills
 - lack of commerciality
- Are there any skills / attributes that are so unique to the actuarial profession that no other professionals can bring them to an organisation?
 - the ability to sign-off, and required certificates
 - otherwise – no.

Machine learning



Weaknesses

- We fed a machine learning algorithm the text of our job adverts and asked: (paraphrased) “what does an actuary need to become a data scientist?”
 - Python
 - Machine learning
 - visualisation
 - R
 - maths
 - database
 - SAS

Wider horizons

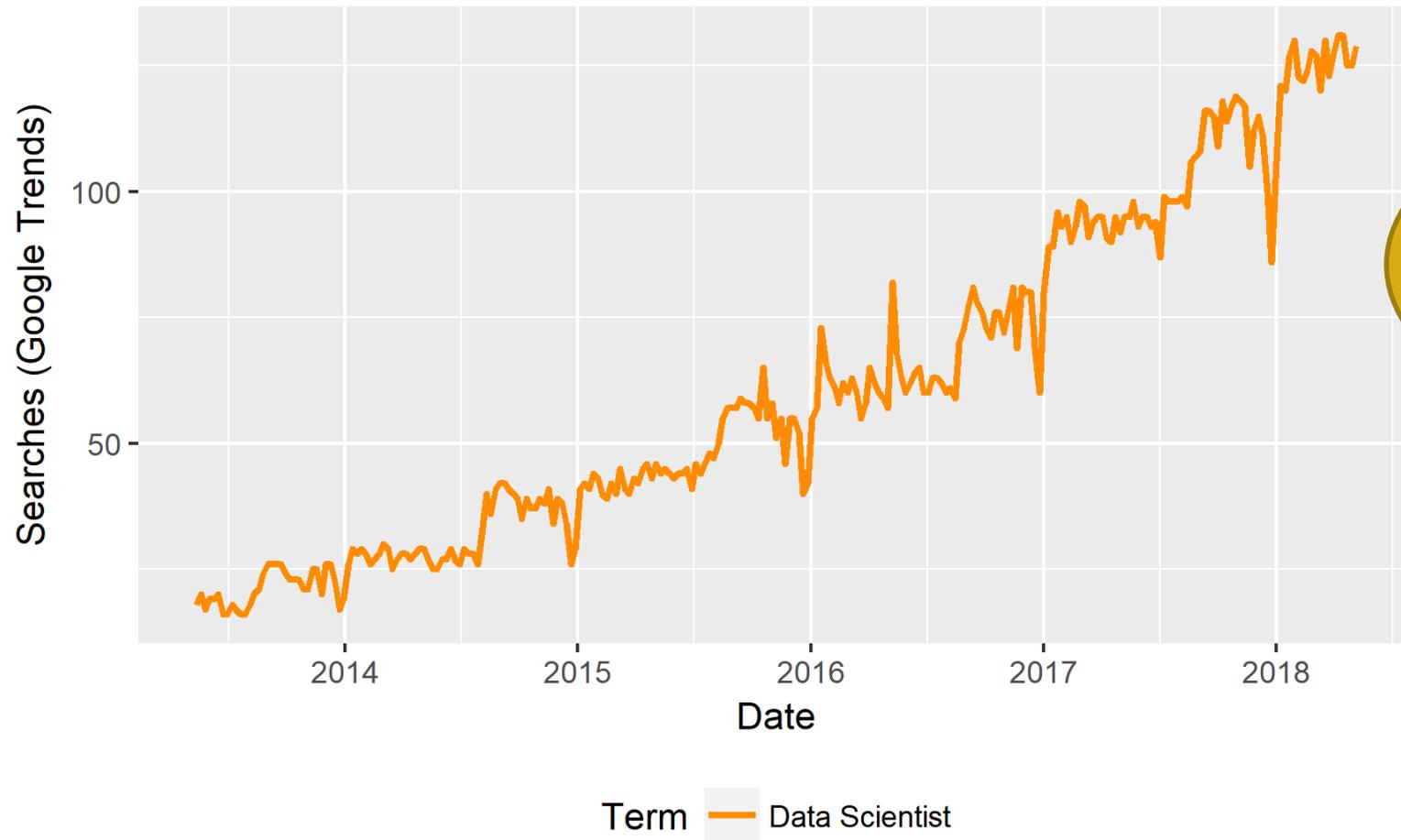


...by 2020 the number of positions for data and analytics talent in the United States will increase by 364,000 openings, to 2,720,000.

— Burning Glass, 2017

- Vast range of industries with a need for Data Scientists
 - 19% Finance and Insurance
 - 18% Professional, Scientific, Tech
 - 17% Information
 - 13% Management of Companies
 - examples from fashion to aerospace, real estate to cyber security...
- Actuaries **with the right skill set** can move into these roles

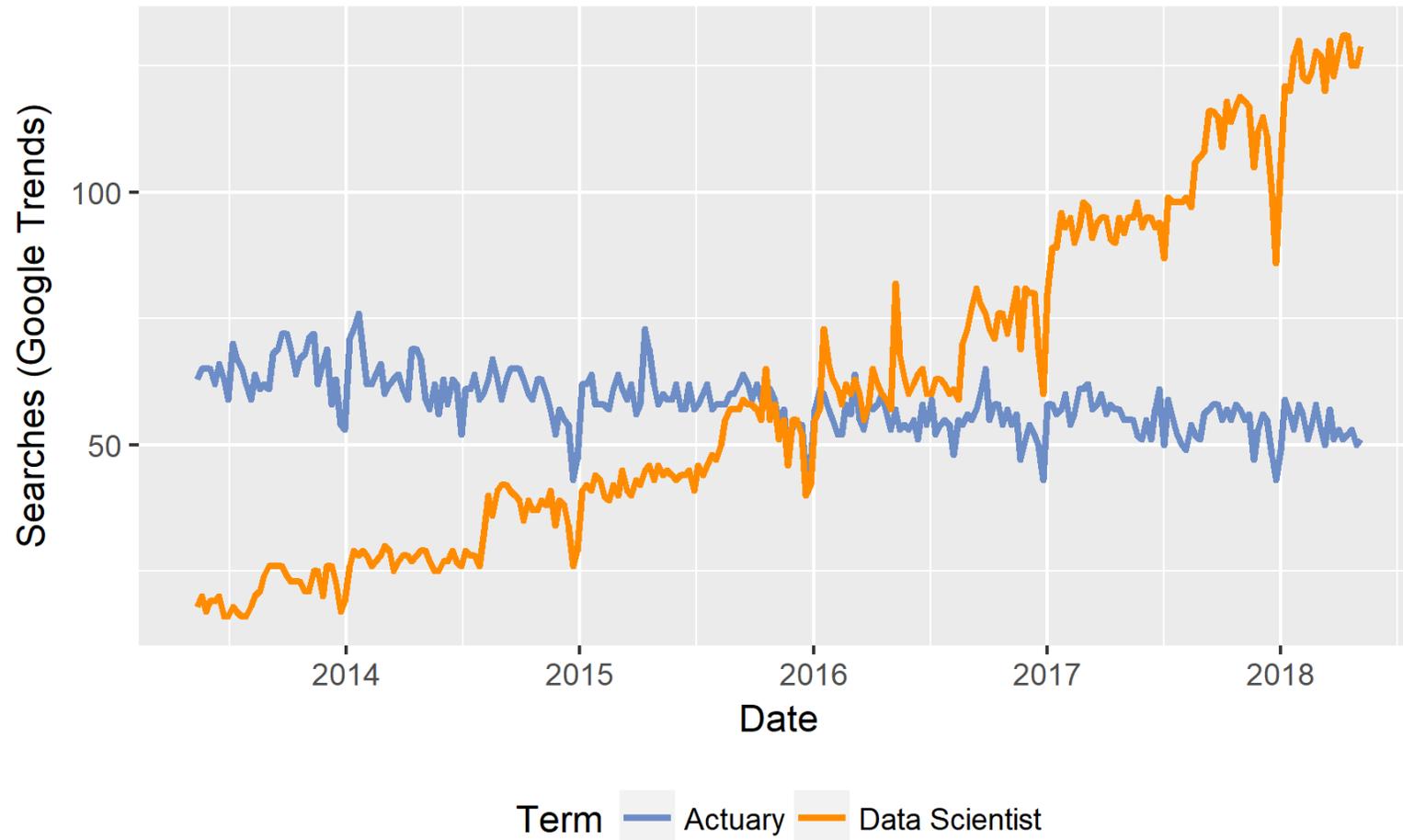
More than a fad



“Do you think actuaries are more or less likely to enter non-traditional roles than previously?”

Overwhelmingly: “more likely”

More than a fad



Invasion of the data scientists



- Certified role of actuaries is safe
- But not necessarily true that actuaries cannot be replaced by non-actuaries in other positions
 - Personal lines pricing – possibly most obvious area of risk (large data sets, predictive models)
 - Other fields could be at risk as well (e.g., granular reserving)
- Failure to keep up with current technology and methodology will lead to a loss in relevance
- Greater use of “big data” and new technologies will necessitate new skills

A call to arms: what can you do?

- Upskill in:
 - Machine learning fundamentals
 - Programming: R/Python
 - Data handling: SQL/Hadoop/Spark
- IFoA education:
 - Syllabus for students
 - Lifelong learning
 - Conferences / seminars
- Gain machine learning experience:
 - Kaggle (www.kaggle.com)
 - SOA: Kaggle Involvement Program
- Maintain awareness:
 - Industry research
 - Other actuarial bodies
 - Data Science MIG

Questions

Comments

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