



Industry

Insight



Some Stats_

- ★ *“The ability to read, understand and create data is the most sought after skill in modern businesses”*
(Regional Head of Waterstons, 2019)
- ★ *“Data Driven Innovation could deliver £20bn in productivity next 5 years”*
(Digit, 2019)
- ★ *Demand for data skills has tripled in 5 years (+231%)*
(Royal Society Report, 2019)
- ★ *“Demand has grown sixfold compared to five years ago, and data analysts will continue to be the most sought after profiles over the next 5 years” - LinkedIn*
- ★ *718 jobs in Scotland contain the keyword ‘data’*
(S1 Jobs, Nov 2019)
- ★ *“Data represents a £20 billion opportunity to Scotland over the next five years”*
(Scottish Enterprise, 2019)

What's out there?

What should I do?

Before you begin looking_

In the field of “data” identifying the jobs you want to look for can get complicated quickly for a couple of reasons:

1. There is no universal definition of “data analyst” or “data scientist” that every company agrees on. Different positions with the same title may require different skill sets, or they may require exactly the same skills
2. There are MANY other job titles that involve data that you might not find if you’re just searching for “data analyst” or “data scientist”. Don’t limit yourself.

Focus on the skills, not the title_

The Skills You'll Need

We're looking for someone educated to a degree level in a numerical subject, with experience in SQL, SAS and Python. You'll also need experience in a previous analytical role.

You'll Also Demonstrate

- Excellent analytical and problem solving skills
- Proven application of business analysis tools and techniques
- Good communication and interpersonal skills

The Skills You'll Need

In this role, strong data analysis and data visualisation skills are vital, as is the ability to not only make sense of large data sets, but to extract the insight and help business stakeholders understand what it means for them.

Focus on the skills, not the title_

Required skills/ experience

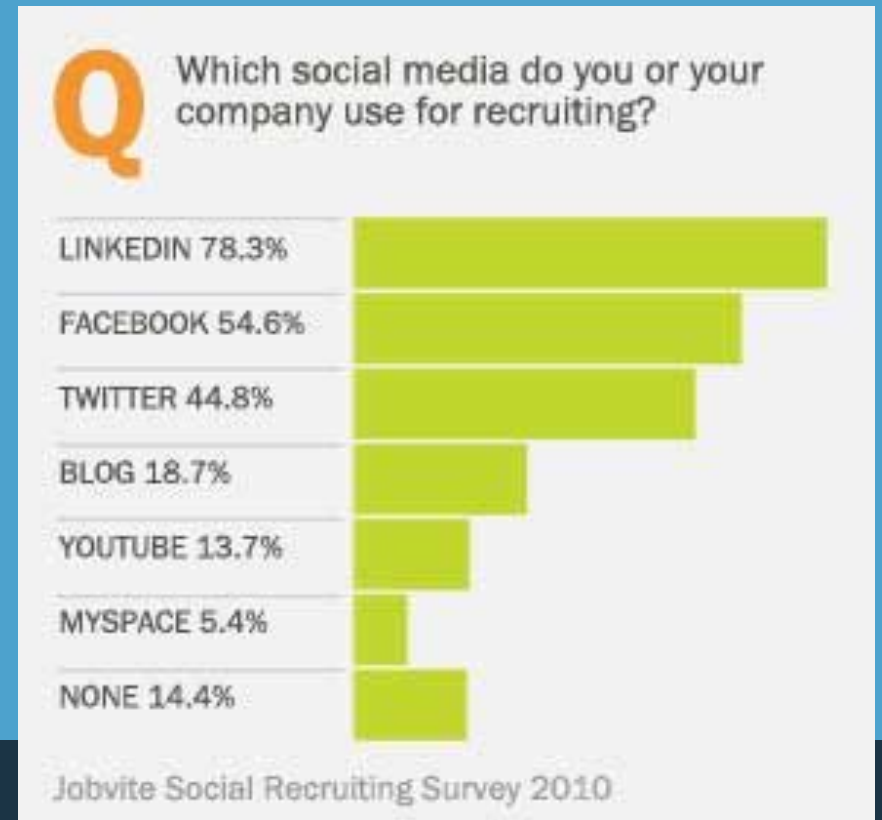
- Advanced Knowledge of using R and Python for financial modelling, scenario analysis, optimisation, machine learning and API development
- Knowledge of using Excel and Visual Basic for financial modelling, scenario analysis and basic reporting
- Experience of using data science to tackle business problems preferably with access to Big Data resources
- Retail banking or pricing problems experience desirable

Skills and experience we are looking for

- Advanced analytical skills (statistical background)
- Strong SQL skills for querying and exploring data sets
- Proven experience delivering insight from disparate data sets
- Ability to clearly communicate complex ideas to varied and non-technical stakeholders
- Creative and inquisitive: flair for developing insightful analysis and solving real business problems using data
- Working knowledge of BI tools such as Power BI and Tableau to visualise insights from big data
- Technically advanced in at least one data technology (e.g. R, Python, SQL, SAS, PySpark etc)

Social Media Presence_

Social media for job seekers is more important than ever



Social Media Presence_

Why employers use it

- 90% of employers check potential candidates social media before interview, even if it wasn't listed on their CV (*LinkedIn UK survey, 2017*)
- Advertise their companies and company values. According to TalentWorks, 59% of candidates said they searched a company on social media before interviewing with them.
- Social media is now a way to screen candidates before an interview. Recruiters often say they can learn a bit about a candidate before meeting them.
- Helps them target passive candidates : those that aren't actively looking for work, but who would be interested in changing jobs if the right one came along.

Why candidates should use it

- Your social networking profile links you up to hundreds of people – this gives you access to more opportunities to just appear in your feed
- It is a good way to make yourself stand out from the crowd
- You can get people to recommend you and your skills (like LinkedIn skills)
- Groups and people in your field can be good to follow as they post information you can learn and talk about. By keeping yourself informed you stay up to date with the field.
- You can also look at companies' social media profiles

Social Media Presence_





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919 Following **19K** Followers

👤 Followed by TRAIN@Ed MSCA COFUND project, Outliers Analytics, and 90 others you follow

Buttons: ⋮, ✉, 🔔, Following



Tyler Morgan-Wall
@tylermorganwall

Developer of rayshader, rayrender | PhD in Physics from @JohnsHopkins | @Penn | he/him

📍 DC 🌐 tylermw.com 📅 Joined March 2011

157 Following **5,522** Followers

👤 Followed by Data Visualization Society, Jack Taylor, and 63 others you follow

Buttons: ⋮, ✉, Follow

Apply_

- Apply even if you don't meet 100% of the criteria. Job adverts represent the perfect candidate, but organisations rarely find perfection.

Why Women Don't Apply for Jobs Unless They're 100% Qualified

by Tara Sophia Mohr

August 25, 2014

<https://hbr.org/2014/08/why-women-dont-apply-for-jobs-unless-theyre-100-qualified>

Should You Apply For A Job You're Not Qualified For?

By Gerald Walsh ©



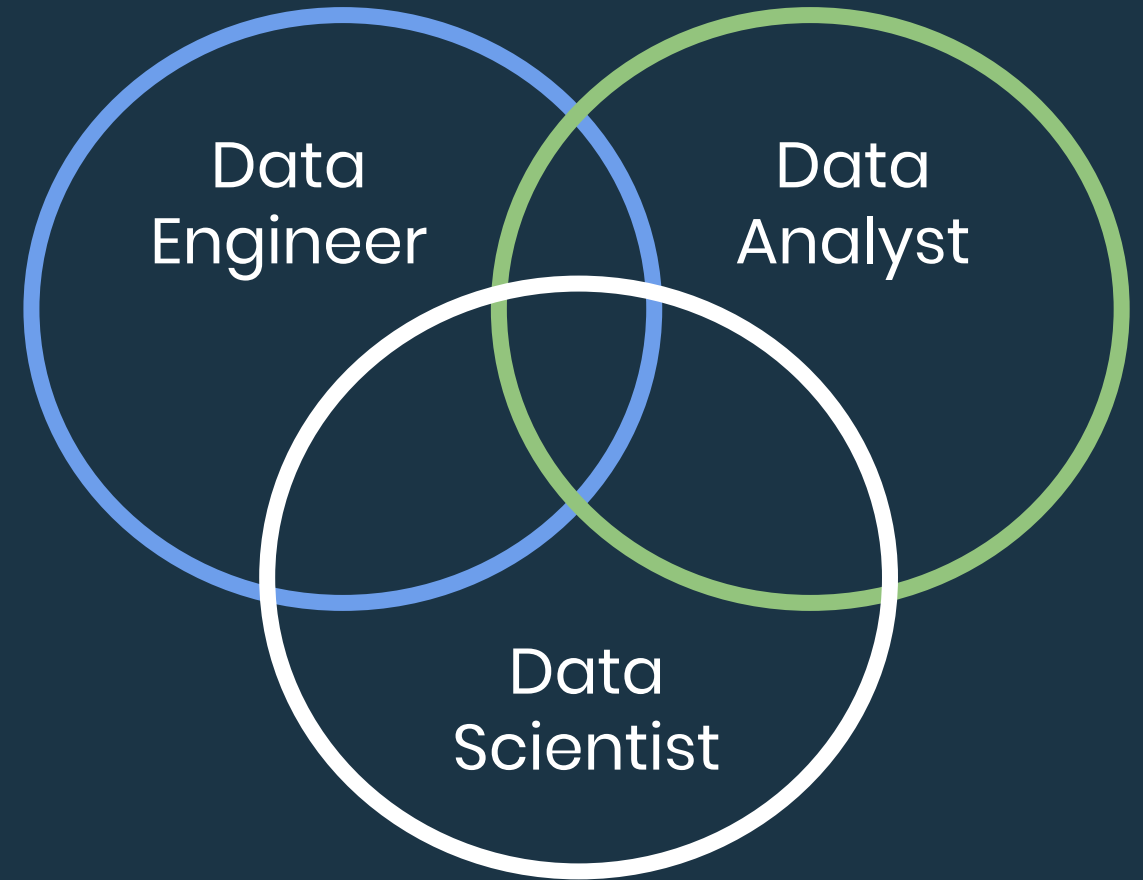
What's out there?

What should I do?

Here are the typical roles...

Core Data Team_

- A core data team typically consists of these three roles (although some of the role titles will be used interchangeably)
- **Data engineer:** responsible for moving and propagating access to data. Chief mandate is to get data in the right place
- **Data analyst:** focused on answering business questions using data. This person effectively serves as the bridge between data and business insights.
- **Data scientist:** main job is to build predictive models and automated classifications off existing data



Data Analyst

Key skills sought:

- Numerate and analytical
- Good verbal and written communication
- Ability to express complex data ideas to non-subject matter experts
- Strong problem solving skills
- Experience of programming languages (e.g. R, Python, SQL)
- Maths and/or Stats background

Who you might work with:

- Data Engineers, Database Programmers, Data Managers, Business leads, Clients, Product Owners, Marketing teams

What might a typical role involve?

- Implementing appropriate analytics tools
- Cleaning and wrangling data
- Creating reporting dashboards
- Responsible for the provision of data and analysis to drive business decision making
- Work with a team of data analysts to create output

Salary for a Junior Data Analyst: £24-28K (average)

Salary for an experienced Data Analyst £40-50K

Data Engineer_

Key skills sought:

- Experience with SQL/Python
- Strong communication skills for working across data teams
- High attention to detail
- Ability to work with data warehouse technologies and storage systems
- Experience in data migration
- Experience building systems of data extraction
- Experience processing large datasets

Who you might work with:

- Data Analysts, Business Executives, Customer Fulfilment Teams, Data Collection Specialists

What might a typical role involve?

- Understand how data is collected from survey systems and how best to migrate that data
- Liaise with key stakeholders and data analysts to understand how they use the data
- Work with local and remote data systems
- Be able to use data as a foundation to solve business problems
- Capturing data requirements from both customer and technical teams
- Identifying data sources to support data requirements

Salary for a Junior Engineer: £26–28K (average)

Salary for an experienced Engineer: £35–45K+

Data Scientist

Key skills sought:

- Advanced knowledge of programming language (R, Python, SQL)
- Familiarity with machine learning, API development, statistical modelling and predictive analytics
- Experience using data science to tackle business problems
- Knowledge of statistics

Who you might work with:

- Data Scientists, Stakeholders, Data Analysts, Data Engineers, Clients, Business Staff, Research Teams

What might a typical role involve?

- Explore and apply new sources of data, techniques and implementation routes
- Build, test, deploy and maintain analytical solutions
- Understand predictive modelling and machine learning techniques and use these in the business
- Be a knowledge point for queries regarding predictive analytics

Salary for a Junior Data Scientist: £28-32K (average)
Salary for an experienced Data Scientist £50-60K+

Business Analyst

Key skills sought:

- Experience with SQL
- Experience with data visualisation and telling stories with data
- Conscious listening and excellent communication skills
- Numerate and data literate
- Excellent business knowledge
- Strong analytical and quantitative skills, with the ability to determine trends and propose solutions

Who you might work with:

- Data Analysts, Business Clients, Marketing Teams, Office Staff

What might a typical role involve?

- Improve business processes using data
- Act as an intermediary between business and IT/data analysts
- Creation and maintenance of complex spreadsheets and presentation of results from these in a business context
- Find stories in a data set and provide a coherent narrative and key data insights

Salary for a Junior BA: £28–30K (average)

Salary for an Experienced BA: £40–50K+

Data Consultant

Key skills sought:

- Good knowledge of statistics
- Excellent communication and presentation skills
- Experience working in data roles and companies
- Strong data manipulation and data presentation skills
- Ability to work across different companies and provide analytical and problem solving skills to each flexibly
- Ability to parse, manipulate and review large quantities of data and translate complex material into conclusions

Who you might work with:

- Data Scientists, Data Engineers, Stakeholders, Business Staff

What might a typical role involve?

- Implementing appropriate analytics tools
- Use and understand client requirements to help apply business focused solutions
- Communicate technical concepts and analytical outputs to a diverse set of stakeholders (internal and external)
- Use a combination of data, analysis, and business judgements to identify and lead new opportunities

Salary for a Junior DC: £30–35K (average)

Salary for an Experienced DC: £45–55K+

Outside the “normal” data-team family_

(A.K.A. Roles with the same skills as the previous jobs,
but different names)

- Big Data Analyst
- Information Analyst
- Machine Learning Analyst
- Security Specialist
- Data Security and Governance
- Data Visualisation / Dashboard Designer
- Data Manager
- Database Programmer
- Clinical Programmer
- Statistical Programmer
- Statistician
- Data Modeller
- BI/MI Analyst

Technologies_

Technologies_

Although we've been working primarily with R, there are many other tools available:



Programming languages_



- object oriented scripting language
- Easy to read, write and maintain code
- Works with databases
- Supports functional and structured programming methods
- Open source
- Some limitations: not the best tool out there for working with databases. Can have a steep learning curve



- Easy to learn
- Strong ability to work with large databases
- Has customer support
- Has a GUI
- Lots of legacy code written in financial/pharma sector (so lots of jobs)
- Some limitations: it's very expensive, not open source, limited plotting/text mining options

Visualisation Tools_



- Business analytics service by Microsoft
- Can use it to connect datasets, transform and clean data, and create charts/graphs to provide business insights
- Allows you to view/analyse/visualise huge datasets that you can't open in excel (uses compression algorithms)
- User friendly: has drag/drop features
- Can create wide range of custom visualisations/dashboards/charts/etc.



- Powerful and fast data visualisation tool
- Can connect to multiple data sources (flat sheet, databases, etc.)
- Easy to use: has desktop version with GUI, can create diagrams with drag and drop
- Allows you to create interactive and appealing dashboards

Database types _



- Non-relational database
- Any data can be stored in any record format (documents/graphs/networks)
- More scalable and allow you to work with rapidly changing structured, semi-structured and unstructured data



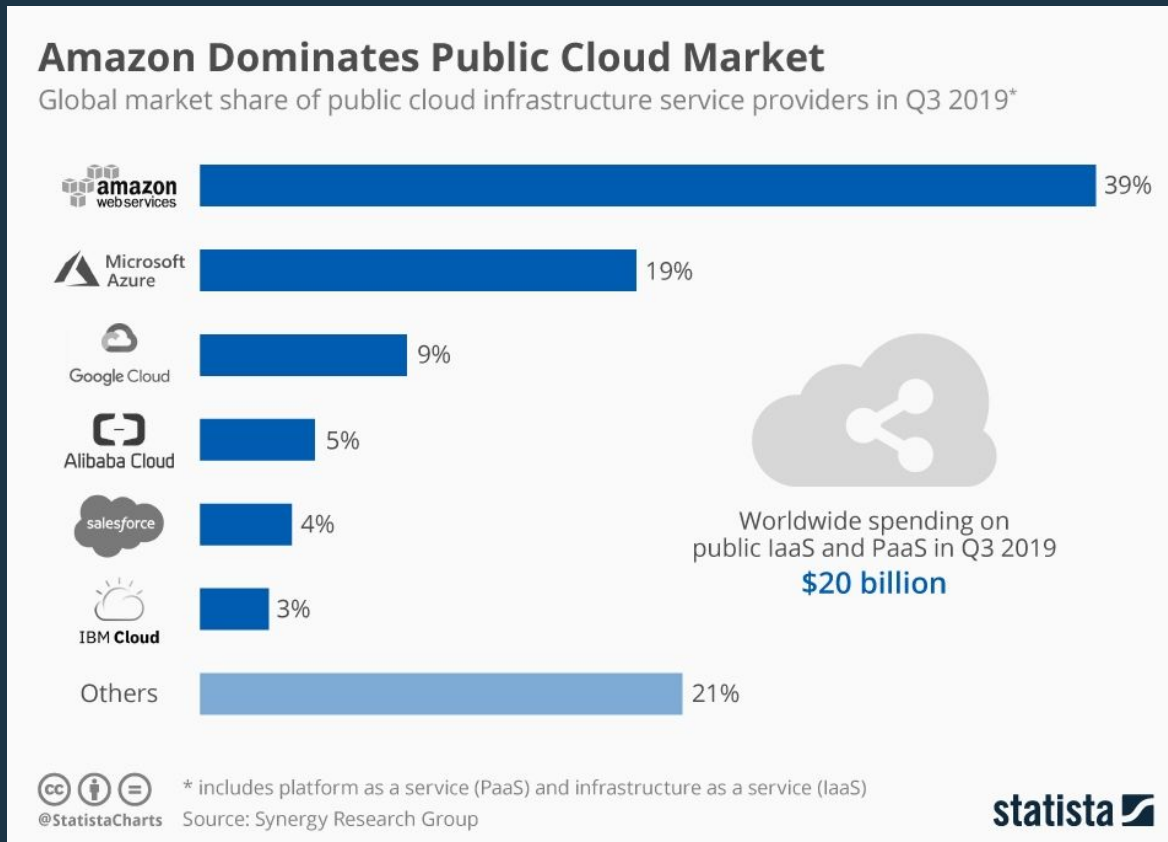
- Relational database
- Data has inherent structure
- Allows high speed data queries from databases
- Simple syntax, widely used



- NoSQL database used for high volume data storage
- Document oriented database model : instead of using tables and rows (as in relational databases), the MongoDB architecture is made up of collections and documents

DATA STORAGE

- Public cloud platforms
- Offers computing power, database storage, secure file storage, and the ability to run web and app servers.
- 3 main players: Amazon Web Services (AWS), Microsoft Azure and Google Cloud Platform (GCP).



BIG DATA



- Open source software for scalable, distributed computing
- Allows for the distributed processing of large data sets across clusters of computers
- Applies the concepts of functional programming across data
- Provides massive storage for any kind of data, enormous processing power, and the ability to handle virtually limitless concurrent tasks or jobs.



- A powerful analytics engine designed to handle batch processing
- Open source, distributed cluster computing framework
- Has libraries for SQL, machine learning and graph communication.
- Supports Java, Python, Scala and R
- Data scientists incorporate spark to rapidly query, analyse, and transform data at scale.
- R package compatible



Project management_

AGILE_

- From the software development industry but now used in some data projects
- Was developed because the **waterfall** PM methodology couldn't keep up with the fast moving software industry (in waterfall all requirements are decided and documented before the development begins).
- Agile places an emphasis on collaboration, flexibility and continuous improvement (iteration).
- Good for cases where project requirements are likely to change or are not known at the start of the project (this is often the case).
- No fixed plan. Continuously respond to feedback from stakeholders
 - good because it means you don't get to the end of the project and discover it's not what they want
 - bad because it means stakeholders need to give a lot of time throughout the project
- To find out more about Agile there is an Agile Manifesto which is a formal document setting out the 4 key values and 12 principles of agile methodology. The 4 key values are:
 - **Individuals and interactions** over processes and tools
 - **Working software** over comprehensive documentation
 - **Customer collaboration** over contract negotiation
 - **Responding to change** over following a plan

SCRUM_

Overview

- Scrum is a way to implement Agile methodology.
- There is 2-3 weekly sprints, daily standups, sprint planning and reviews.

Terminology

Sprints: incremental builds in which a goal (e.g. working software or a self-contained analysis) is delivered to the client every 2 or 3 weeks.

Sprint planning: planning session at start of each sprint, involving everyone in the team

Daily stand-up meetings: discuss progress from day before and expectations for day ahead

Sprint review: meeting to show goal progress to the client at the end of each sprint

Sprint retrospective: meeting with everyone in the team to discuss how the last sprint went and any changes for the future.

Scrum master

- Often, there is no project manager. Instead, the team is expected to be self-organizing and self-managing (so may not be appropriate for some teams, or teams of a big size)
- There is a 'scrum master' but rather than 'managing' the team their responsibility is to ensure the team follows Agile methodology, and to clear any potential problems ('blockers') the team encounters along the way.

Any Questions?

What do you want to know more about?