

Should we hire data scientists for our Pricing Department ?

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Agenda



BIG DATA AND BUSINESS ANALYTICS



ORIGINS OF DATA SCIENCE



PROFILE OF DATA SCIENTIST AND JOBS MATRIX



2020 FUTURE PREDICTIONS



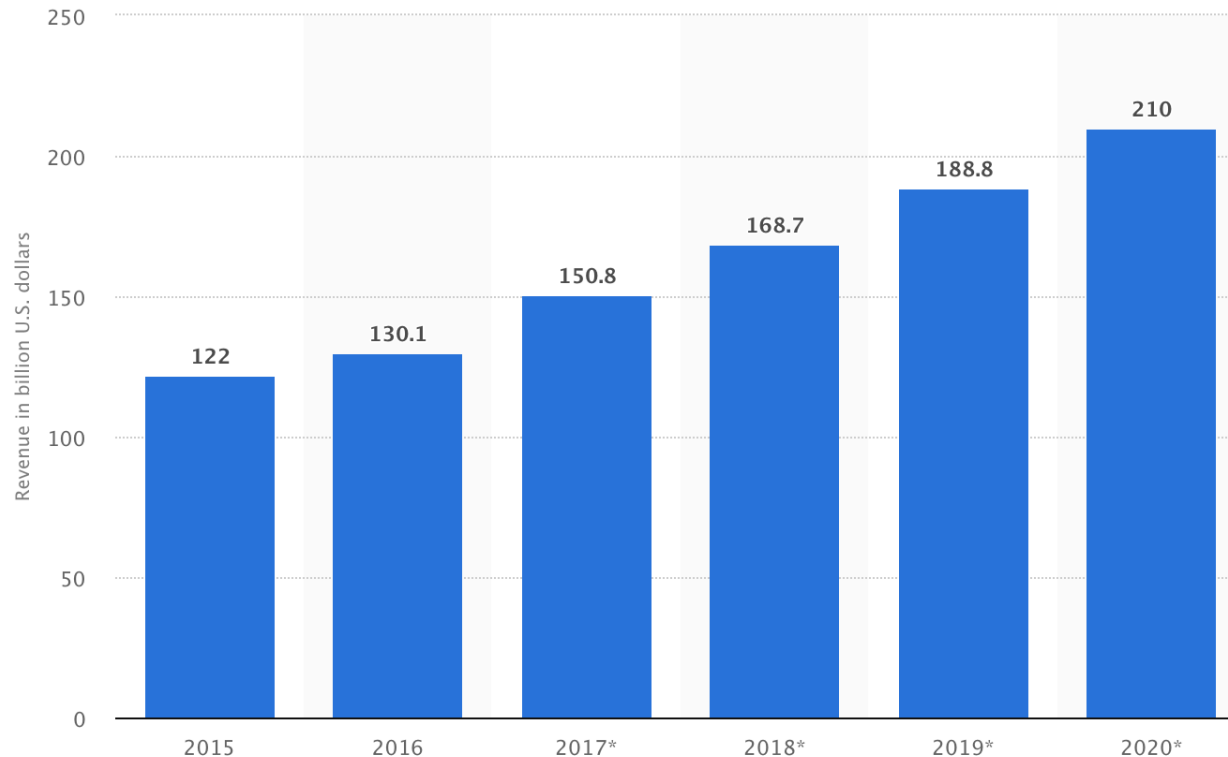
COMMON ISSUES WHEN HIRING THE TEAM



CONCLUSIONS

Revenue generation from Big Data and Business Analytics

IN YEAR 2020, THE ESTIMATED REVENUE TO BE GENERATED BY BIG DATA AND ANALYTICS WILL REACH \$210 BILLION



- ▶ In 2017, big data and business analytics was expected to generate 150.8 billion U.S. dollars worldwide.
- ▶ Out of the 85% companies who are trying to be data-driven, only 37% have been successful in their initiatives
- ▶ Only 0.5% of all accessible data is analyzed and used.

Origin of data science

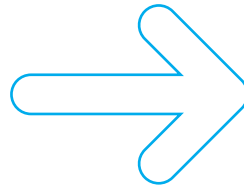
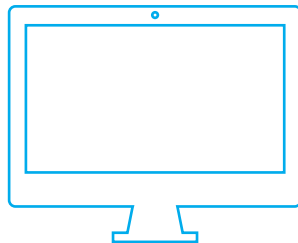
1974 - PETER NAUR - CONCISE SURVEY OF COMPUTER METHODS

Data science is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from data in various forms, both structured or unstructured, similar to data mining. (Wikipedia)

Traditional IT Department

- ▶ Data storage / management
- ▶ Data mining
- ▶ Data maintenance
- ▶ Software management

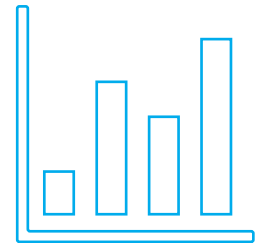
Traditional tools & system to support core functions like HR, Commercial, Finance etc using SAP, Oracle, CRM, and many others.



Business related departments (HR, Finance, Commercial, Operations, Strategy, Pricing)

- ▶ Data selection and analysis
- ▶ Data visualization
- ▶ Data presentation
- ▶ Data communication

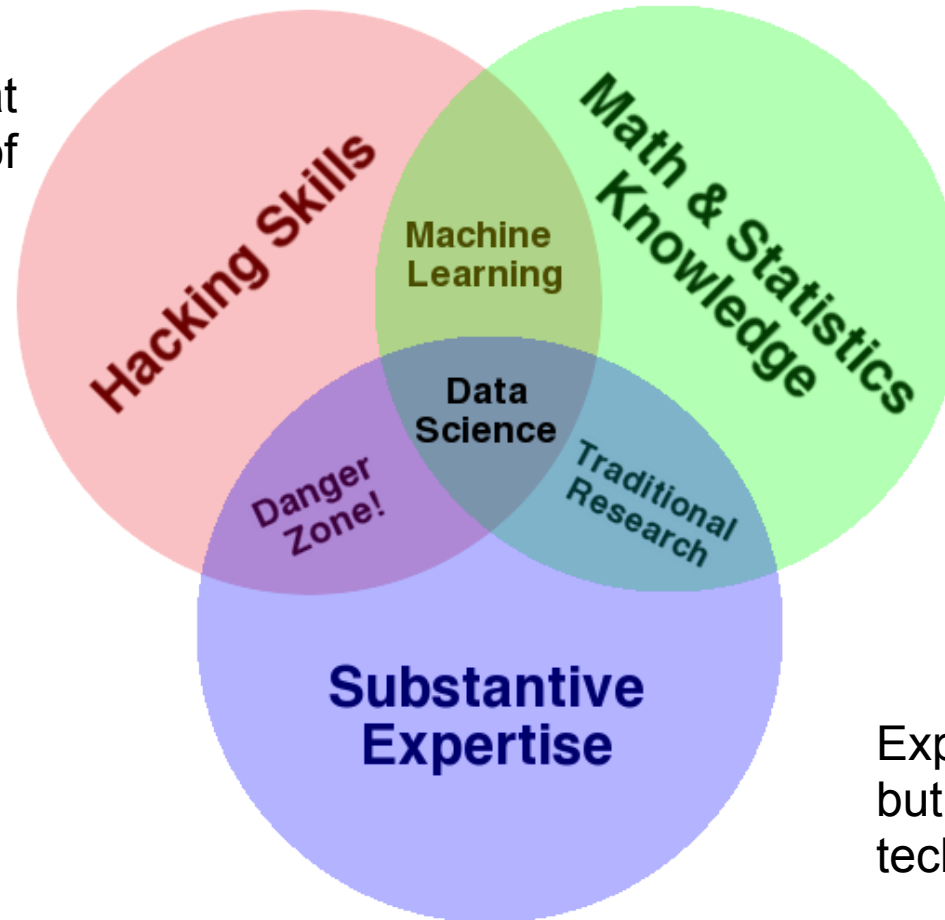
Traditional tools to perform & present the analysis using Office, Databases, Visualization tools and others



Data Science Venn diagram

HOW TO REACH DATA SCIENCE

Manipulation of text files at command lines, thinking of algorithms etc



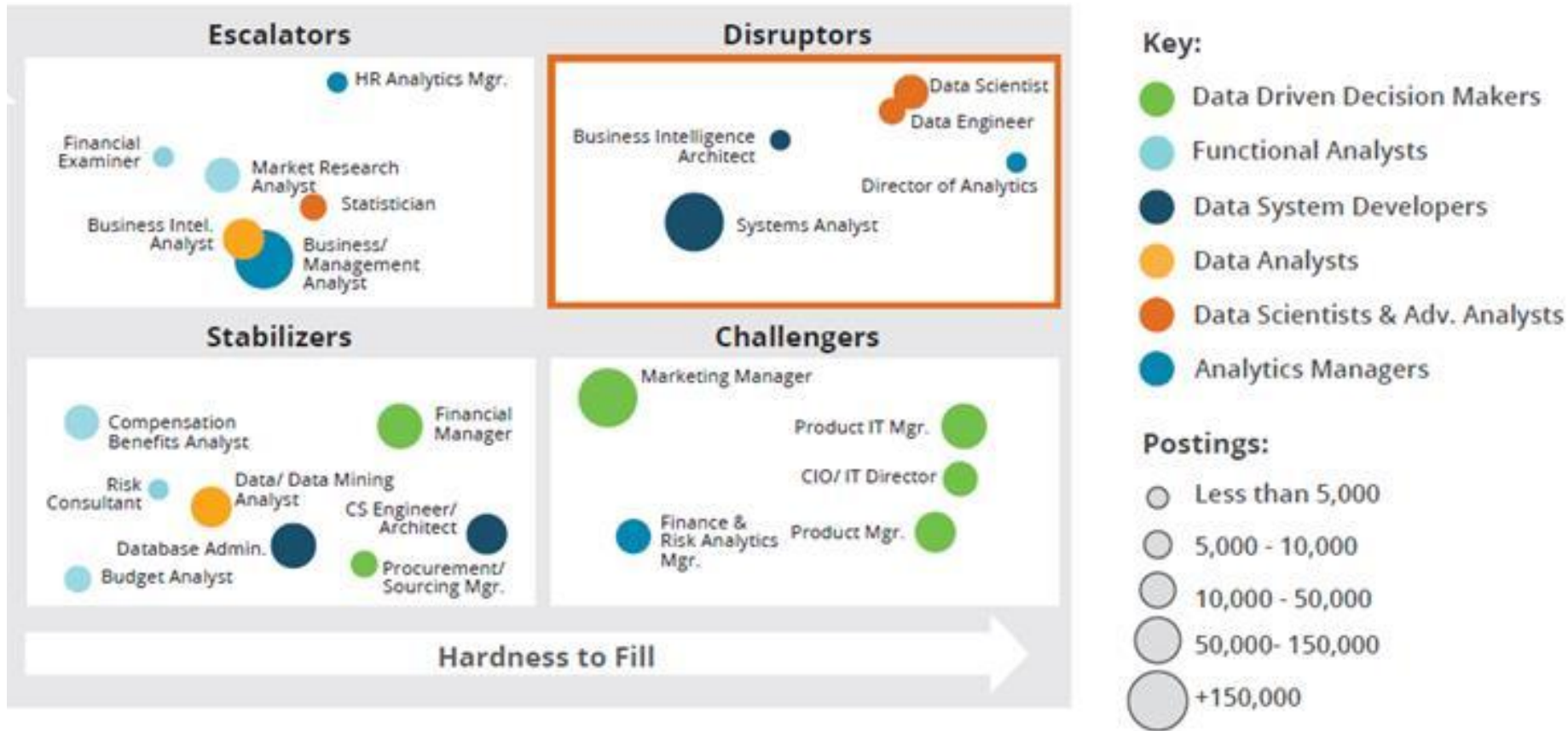
Maths and statistics are the basis of machine learning

Expertise is based on research but may not be supported by technology

Data Science and Analytics Jobs Matrix

DISRUPTORS - HBR INTRODUCED THE DATA SCIENTIST TERM IN 2012 AS SEXIEST JOB IN 21ST CENTURY

Figure 2. DSA Jobs Matrix



Profile of Data Scientist

70% MEN WITH AN AVERAGE OF 2 YEAR DATA SCIENCE EXPERIENCE BUT HIGHLY EDUCATED



Male

70% of Data Scientists in our research were male



2 Languages

Data scientists speak at least 1 foreign language on average



2 years

This is a new profession. The median experience as data scientists of professionals in our research was 2 years



4.5 years

People who work as data scientists currently have a median work experience of 4.5 years (including previous positions)



R and/or Python

More than 50% of the data scientists in our research work in R and/or Python

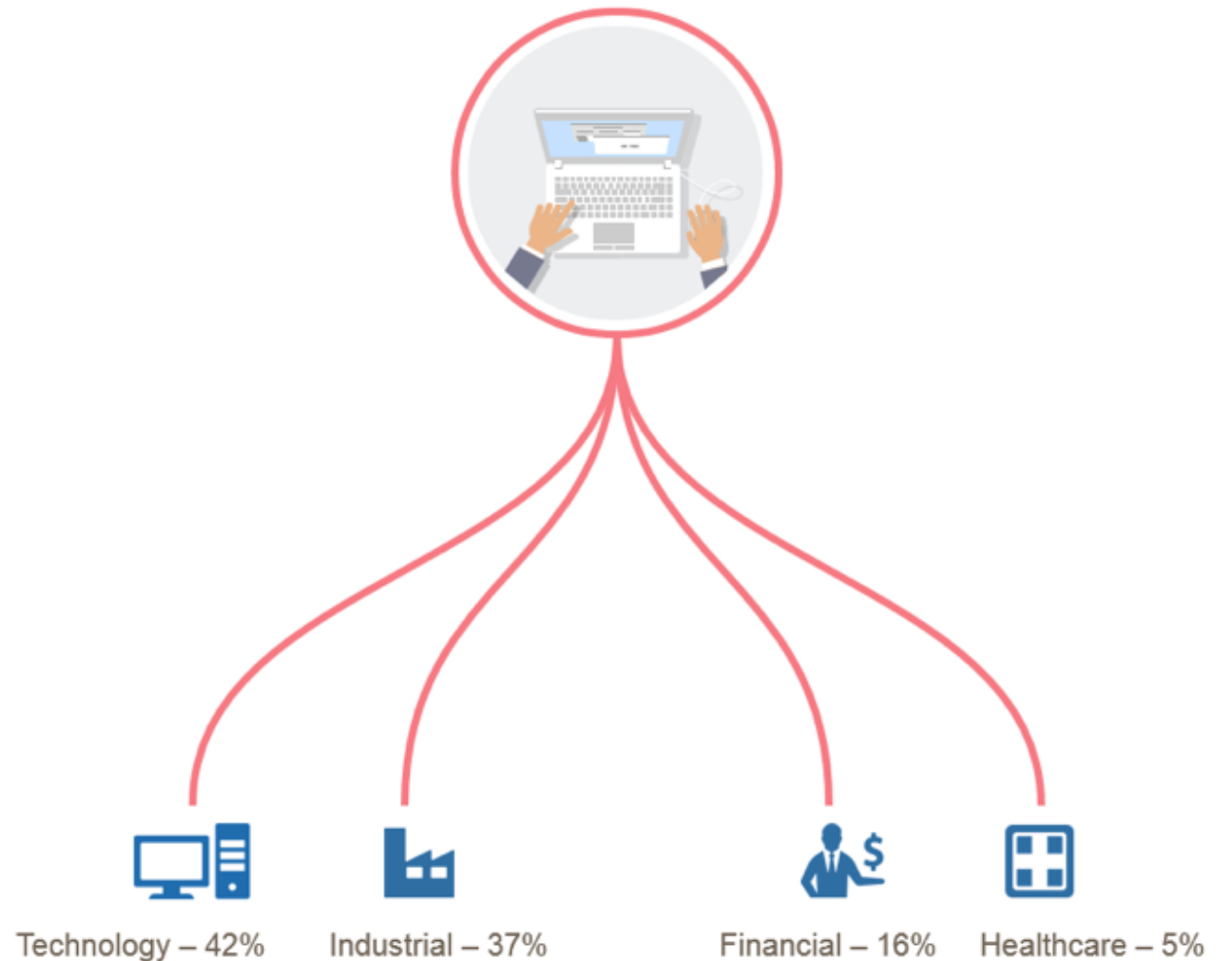
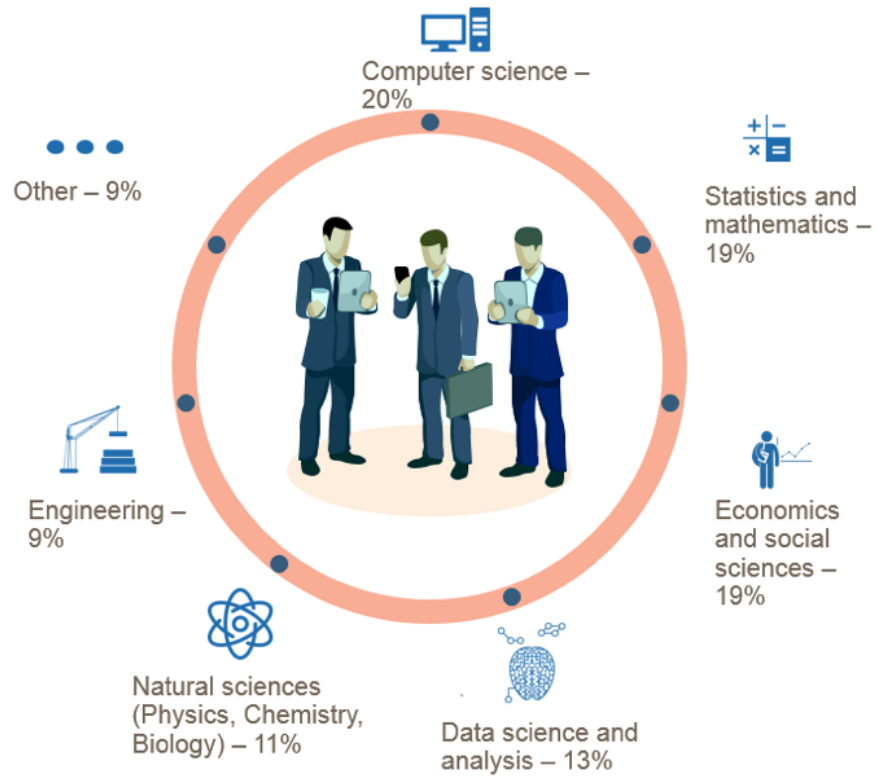


Master or PhD

75% of data scientists have a PhD (27%) or a Master (48%) degree





Background of data scientist & industries hiring

19% OF SCIENTISTS HAVE STATISTICAL OR MATHEMATICAL STUDIES



The future of Data Scientists

2020 PREDICTIONS

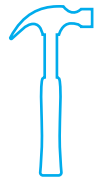
-  700.000 openings in 2020 (data scientist, engineers or developers)
-  Average salary of \$114.000
-  Higher demand in Finance, IT, Professional Services and Insurance companies
-  Machine learning, big data and data science skills are the most challenging to recruit

**IBM Predicts
Demand For Data
Scientists Will Soar
28% By 2020**

Defining the team

UNDERSTANDING THE PROFILES WE NEED FOR OUR BUSINESS

Data Engineer



- ▶ Build architecture and data infrastructure
- ▶ Ability to store, pull and clean data
- ▶ Run data test
- ▶ Define software tools
- ▶ Large scale processing systems
- ▶ Management and maintenance of databases



- ▶ Computer Science or Engineering background
- ▶ Infrastructure development skills: hardware and software systems
- ▶ Problem solver
- ▶ Ability to change and review process



- ▶ University background
- ▶ Google / IBM

Data Analyst

- ▶ Data analysis & interpretation of trends and pattern in complex data sets
- ▶ Quantitative methods and statistical techniques
- ▶ Use of primary and secondary data sources
- ▶ Extract KPIs and prioritise business and information needs
- ▶ Locate and define new process improvement opportunities

- ▶ Business, Science or Economics background
- ▶ Excellent analytical skills
- ▶ Office software (excel, database, powerpoint)
- ▶ Knowledge of visualisation tools (Tableau, Power BI, QlikSense)

- ▶ University Degree / other courses

Data Scientist

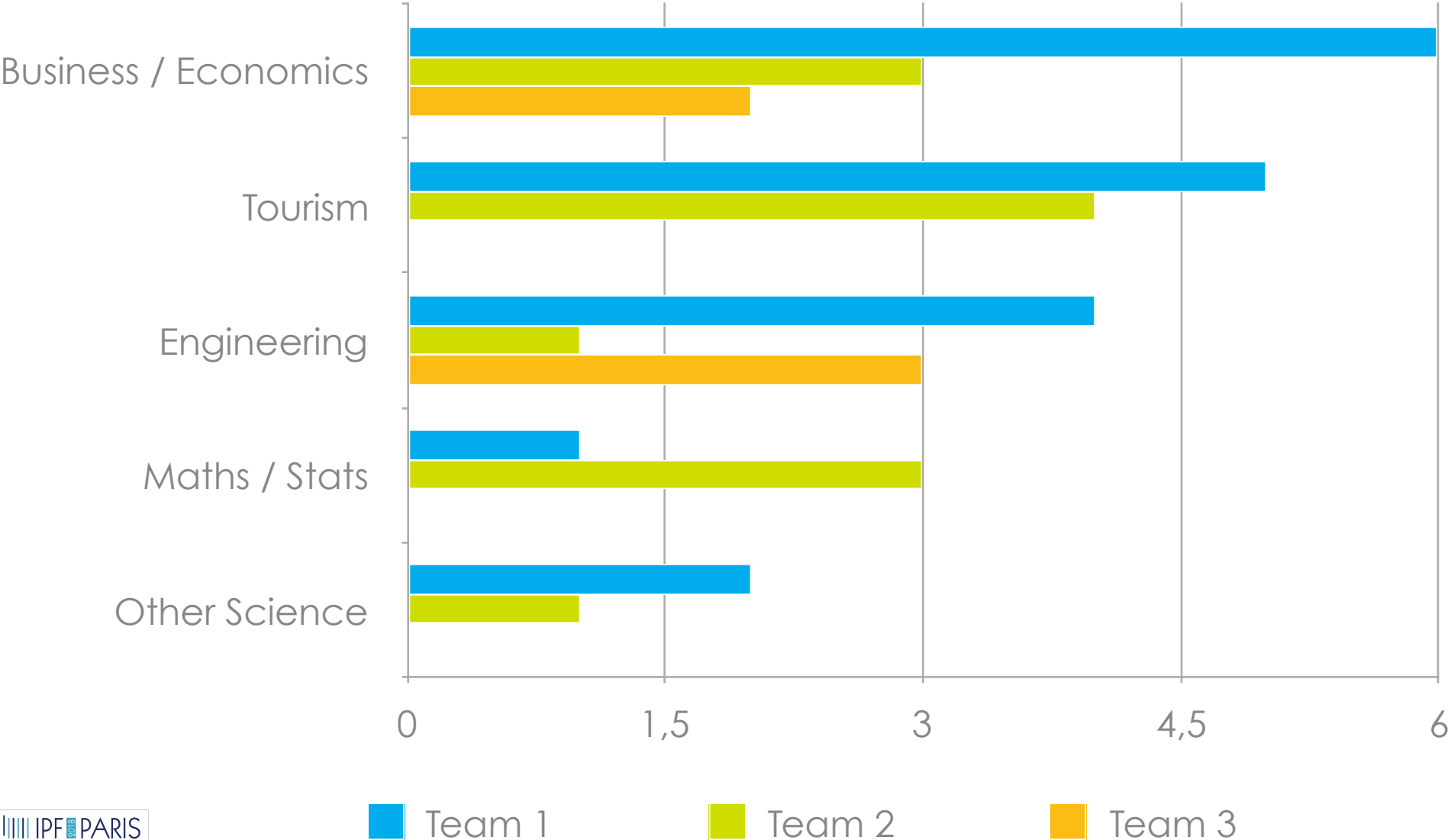
- ▶ Evolution of the data analyst
- ▶ Conducts sophisticated and systematic analysis of data to solve a problem/issue
- ▶ Runs experiments, pulls and cleans data
- ▶ Formulates hypothesis and extracts insights from data sets
- ▶ Communicates the results to people

- ▶ Computer, Engineering & Science degrees
- ▶ Matlab, SPSS, SQL, Java, C++
- ▶ Program. languages: R or Python
- ▶ Modelling and regression: statistical and mathematical methods, machine learning, etc

- ▶ University Degree / PhD

Background of the pricing analyst / manager

BACKGROUND STUDIES WITHIN THE TEAM



Common difficulties in hiring a team

FACTORS TO DEPLOY AN ENTERPRISE ANALYTICS STRATEGY

- * More focus on data gathering / manipulation and lack of insight generation
- * Lack of interaction of the analyst team with organisation or team empowerment
- * Lack of understanding from the data scientist point of view
- * Data science is not deployed instantaneously: define tools and assign team
- * Lack of guidelines or definition of what are the real business needs
- * High cost of hiring data science: data science project to work on or lack of investment in analytics

Preferred skills & background

WHAT PROFILES DO WE NEED FOR OUR BUSINESS?

Business understanding

- ▶ Experience in the industry where the company is operating is always a plus if you are looking for quick results & fast implementation of methodologies

Passion for data

- ▶ Profiles who enjoy getting involved with data gathering, pulling, cleaning and extracting results

Results oriented

- ▶ Understanding company's goals or department needs guarantees success in the results

Agile methodologies

- ▶ Working under a constant mood of changing things to improve the business keeps analysts' engagement at very high levels

Communication skills

- ▶ Being capable of presenting results is key to involve the whole organisation

Some hiring samples

SUCCESSFUL AND FAILURE HIRINGS

Failure when hiring a data scientist for repetitive behaviour analysis



- ▶ After few months of searching for candidates, the company hired an analyst with a background of science
- ▶ The new hire had completed a final year thesis on **scientific methods to identify repetitive behaviour patterns**
- ▶ The work was useful for the company who was interested to **understand consumer behaviour purchase patterns from customers**
- ▶ The person was hired for this purpose and role
- ▶ The necessary systems and tools to perform the job assigned were not available due to a **lack of IT budget assignment for this project**
- ▶ Project was finally closed and analyst had to change the role and find new tasks.

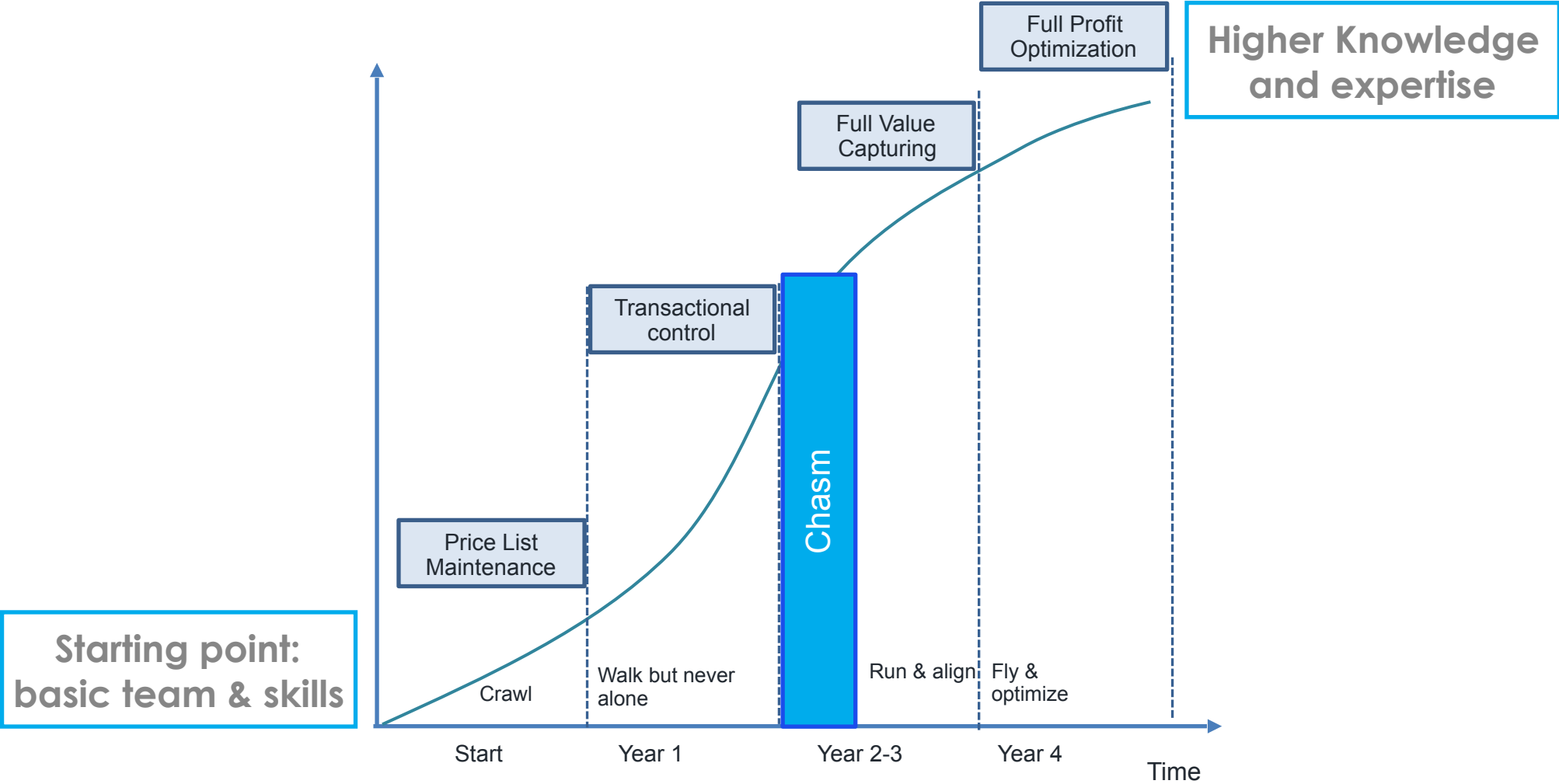
Successful candidate hiring for predictive analytics



- ▶ The company was looking to **implement a predictive analytics strategy** to define the optimal price for certain customers at any given date
- ▶ The goal of this strategy was to **maximise revenues for high seasonal periods** by understanding the tiers (lower and maximum price) a customer was willing to pay for the product
- ▶ The analyst had a science degree and a background in a similar industry worked on a **detailed analysis and modelling price tiers including competitors prices.**
- ▶ With last minute units available, the analyst could decide what would be the price for the product
- ▶ This would lead to lift prices up and generate **higher revenues for the company.**

How far are you in the Pricing Maturity Index?

HIRE YOUR TEAM BASED ON WHERE YOU WANT TO BE POSITIONED



Source: European Pricing Platform (EPP) – Price maturity model (2012)

THANK YOU