

# innovantage

Recruitment Intelligence | Creating Business Advantage

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# Importance of Data

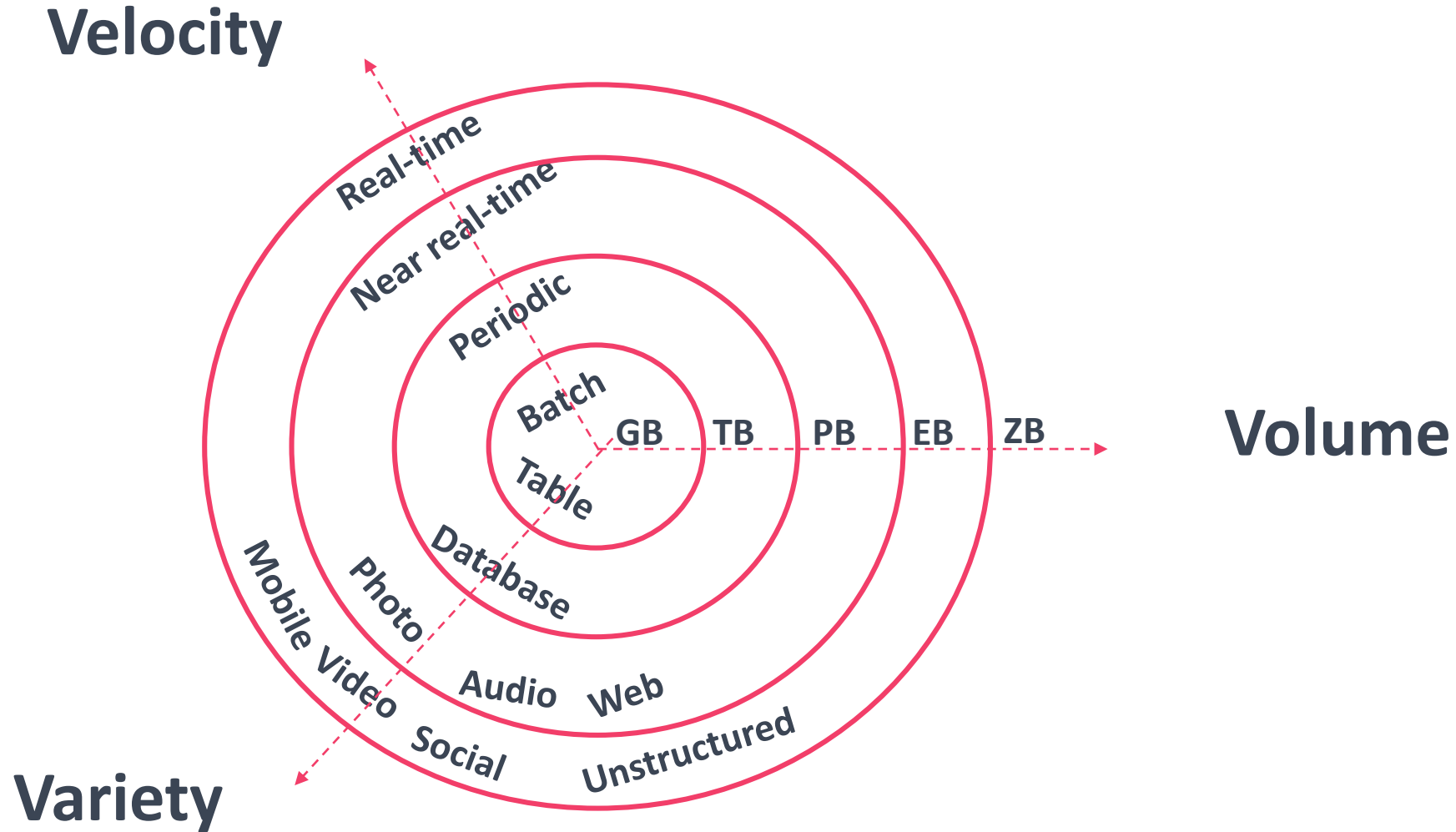
## Interpretation of Analytics

How Analytics can help you succeed in  
Today's War for Talent



# Big Data

Defined as the Three Vs



# Velocity

## Speed of Data Processing

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Every minute...

**200,000,000**  
*emails are sent*

**360,000** *Tweets*  
*are sent on Twitter*

**30,000** *images*  
*are uploaded on Flickr*



**571** *new*  
*websites are created*

**293,000** *Facebook*  
*statuses are updated*

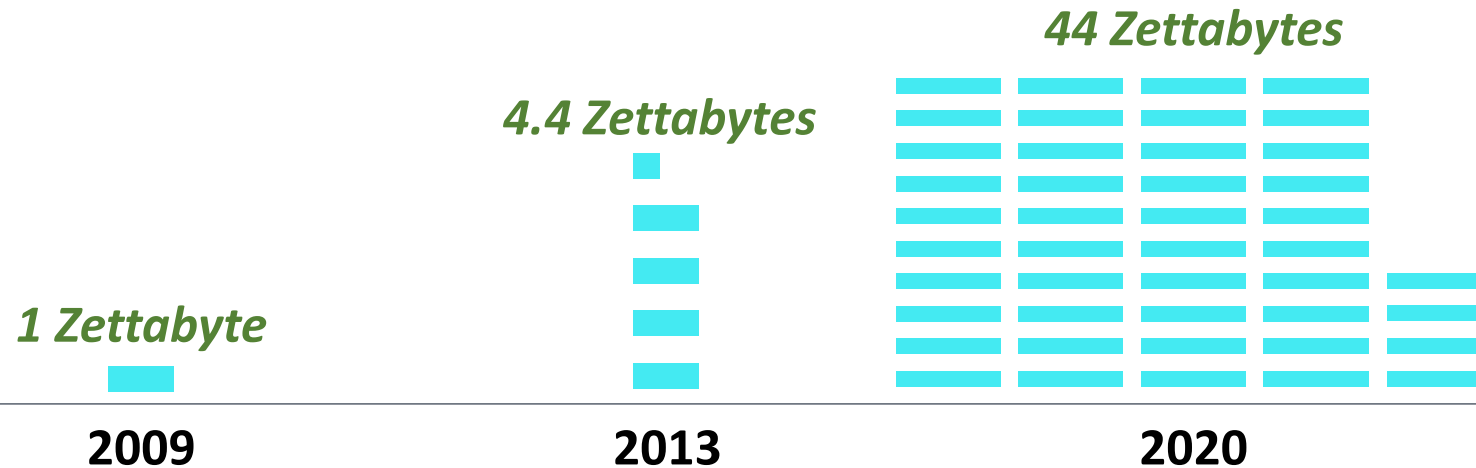
**300** *hours of video are*  
*uploaded to YouTube*

**16,700** *customer transactions*  
*are processed by Walmart*

# Volume

## Amount of Data

**Global data production is growing at an astonishing pace**



*Popularity of internet*

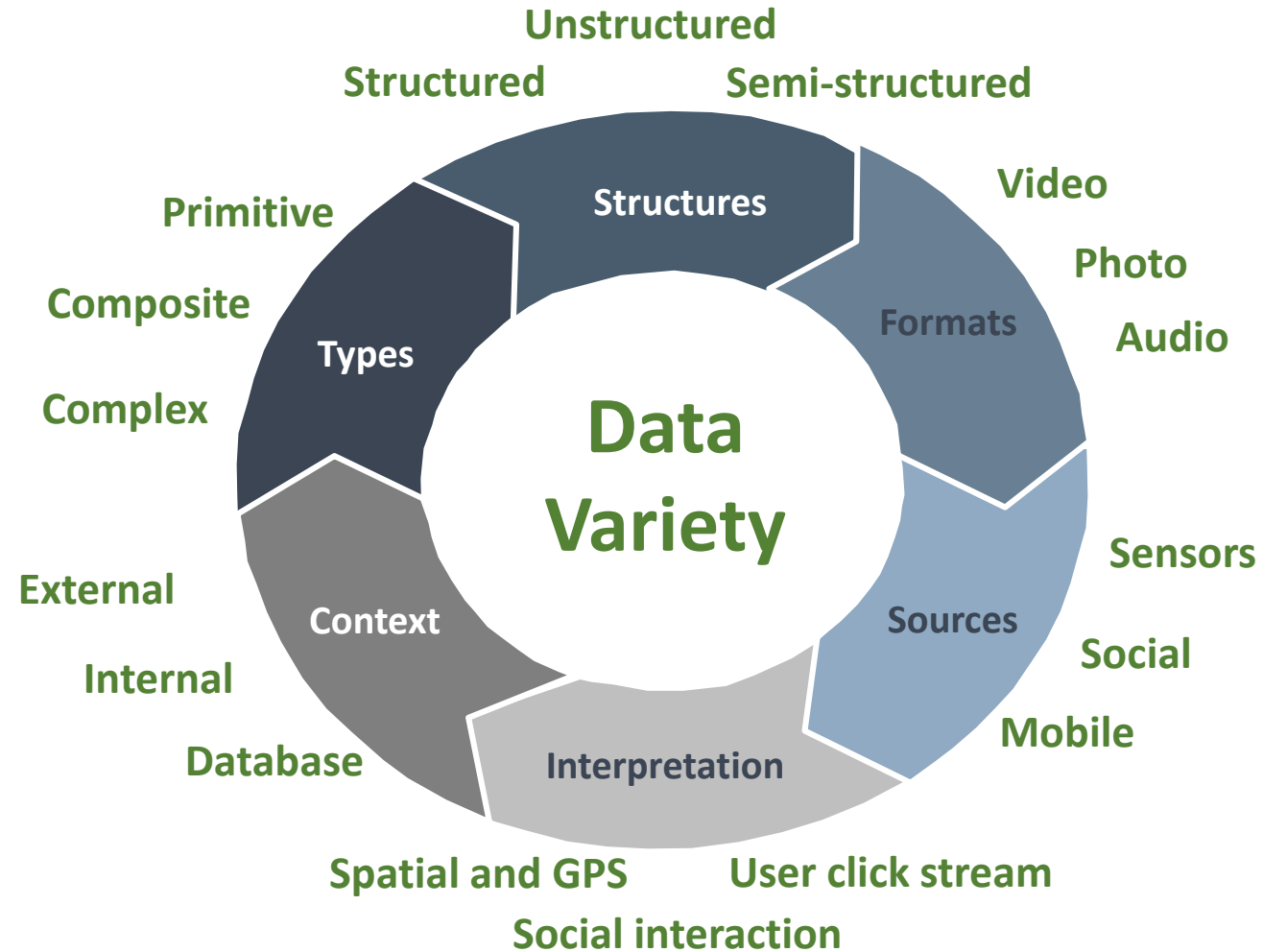
*Increase in data acquisition capacity*

*Shift from using sample data to analyze trends to using overall data to analyze trends*

# Variety

## Types of Data

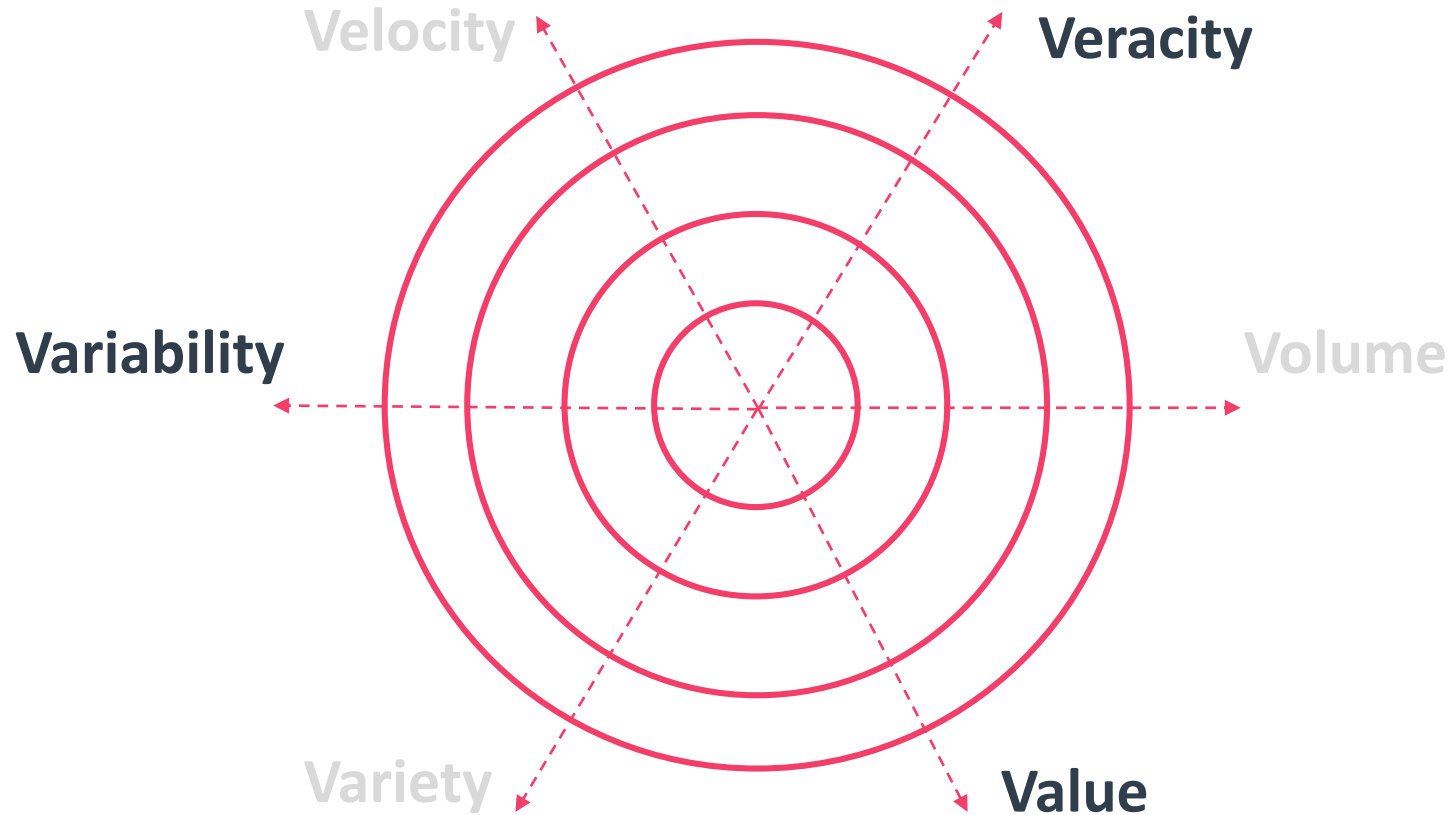
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# Three Additional Vs

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**Big data is expanding on six different fronts at an increasing rate**



# Variability: Meaning of Data

Consider these three example Tweets:

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User 1

**Twitter User 1** @TwitterUser1 · 3m  
Just had drinks at the Hoof Cocktail Bar. Had such a great time!

5 6

User 2

**Twitter User 2** @TwitterUser2 · 28m  
Just spent two hours in line at the Hoof Cocktail Bar. Great, there goes half my night!

20 5

User 3

**Twitter User 3** @TwitterUser3 · 57m  
Greatly disappointed that the Hoof Cocktail Bar doesn't serve complete meal...

48 89



# Veracity

## Data Accuracy

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- Data is messy and requires an enormous amount of upfront work to produce an accurate dataset
- Considering volume, velocity and variety of big data, organizations can no longer commit time to cleanup data and make it certain before conducting analysis

**Data cleansing is overly complex...**

*...Removing duplicates...*

*...Fixing partial entries...*

*...Eliminating null/blank entries...*

*...Concatenating data...*

*...Collapsing/splitting columns...*

*...Aggregating results into buckets...*

# Veracity

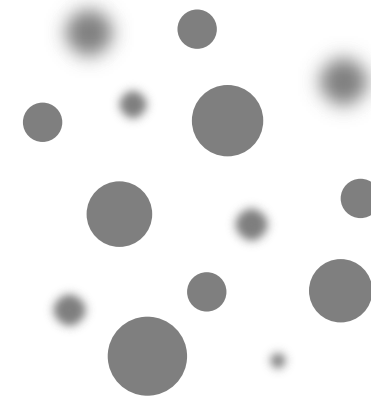
## Data Accuracy

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- Additionally, unstructured data contains a significant amount of uncertain and imprecise data
- Thus, organizations must now analyze imprecise data and must factor in a level of uncertainty to the results

### Uncertainty due to...

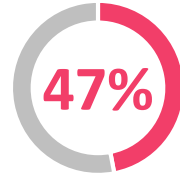
- *Data inconsistency*
- *Incompleteness*
- *Ambiguities*
- *Latency*
- *Deception*
- *Model approximations*



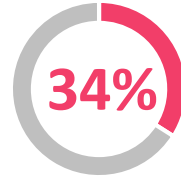
# Value: Data Extraction

Big data is worthless without the ability to turn it into value, but that is not easy

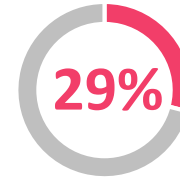
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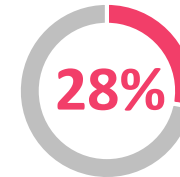
say data **integration complexity** is an obstacle



lack **skills** necessary to derive value



say the **data set sizes** limit their ability to analyze



say it **takes too long** to analyze the data

**Many enterprises are moving quickly to implement big data analytics and technologies**



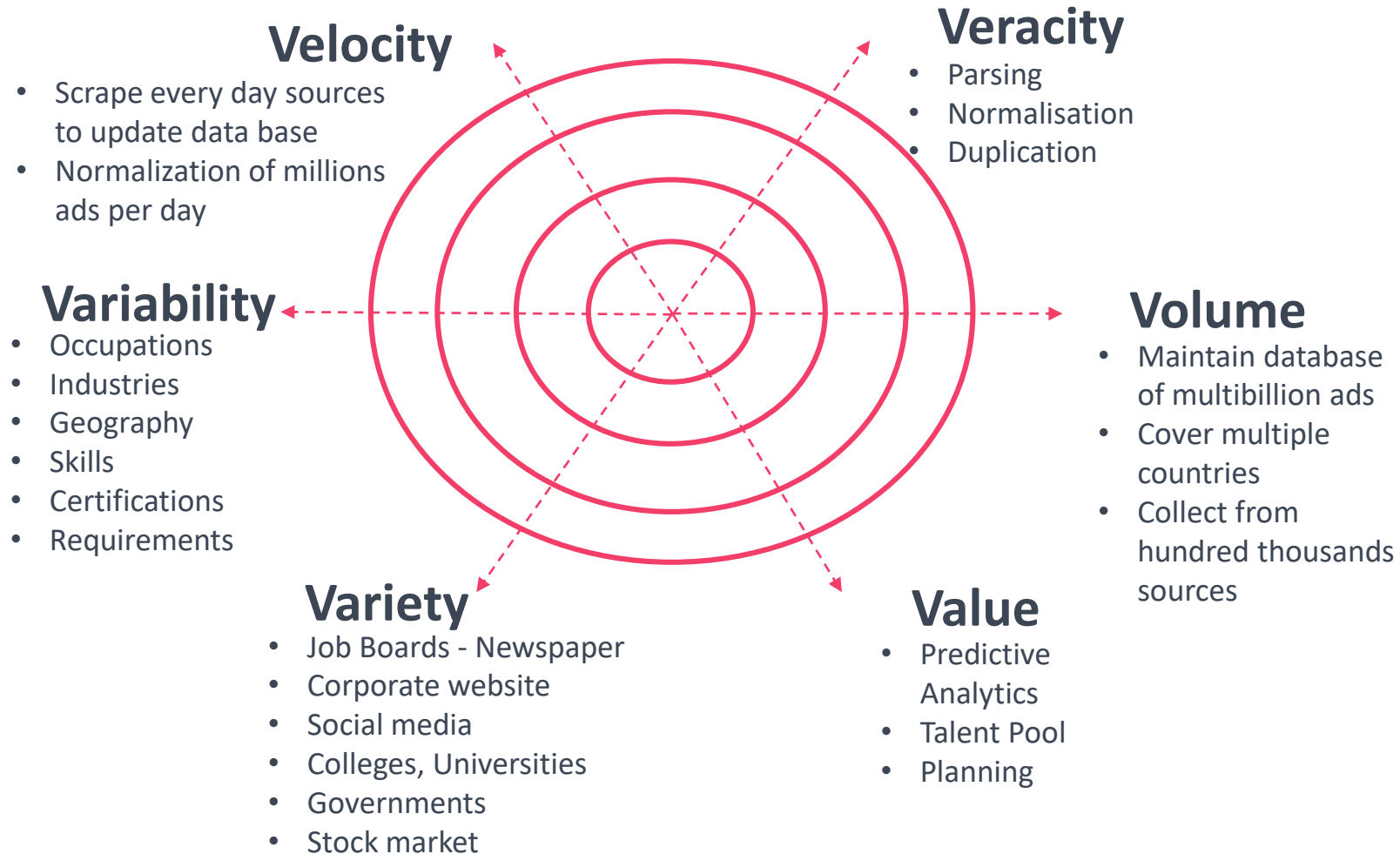
**Machine Learning**

**Artificial Intelligence**

**Data Mining**

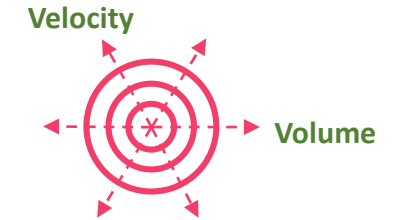
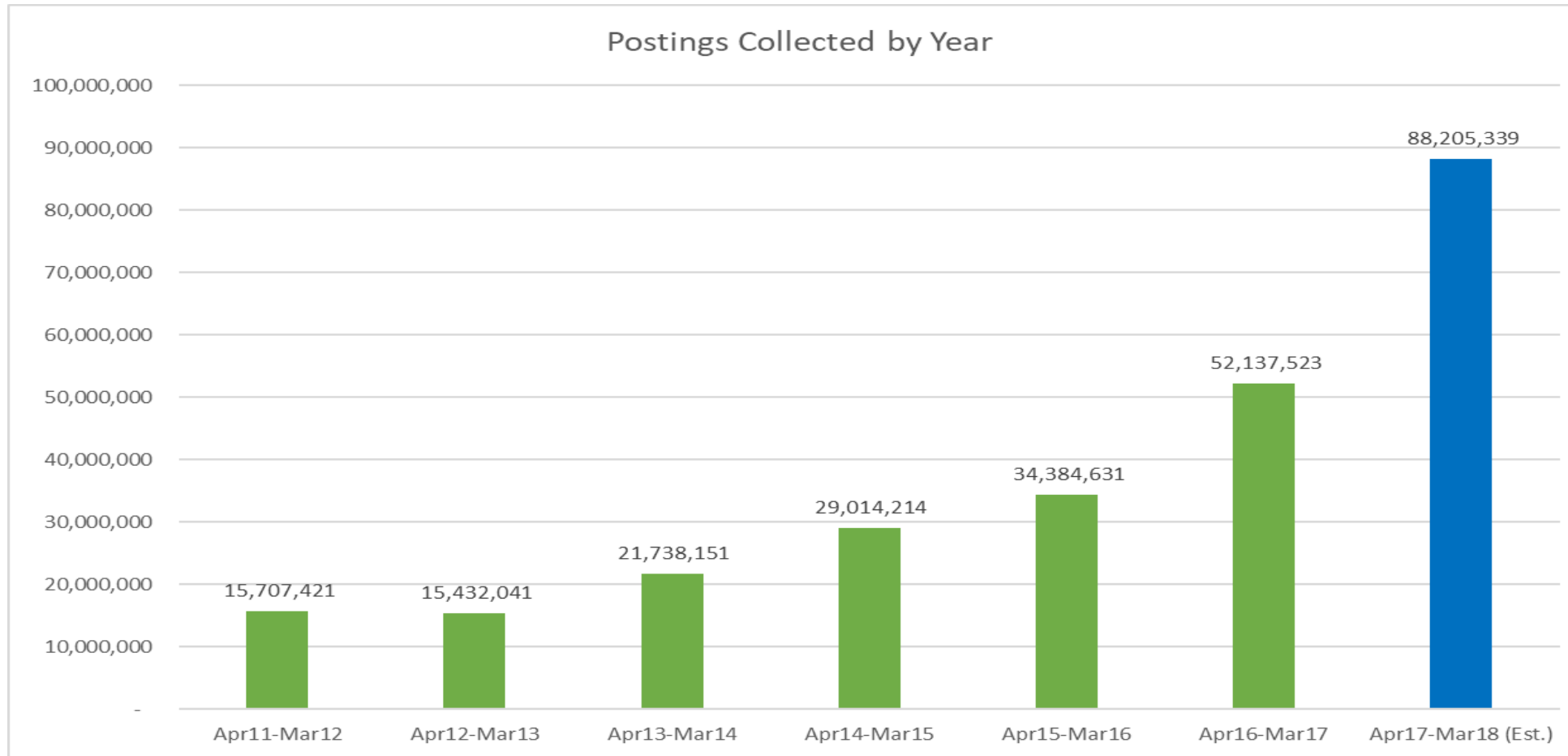
# Big Data and Recruitment

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# 1st Challenge

## Collect all Jobs

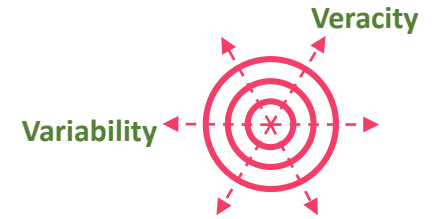


# 2nd Challenge

## Normalize the Data

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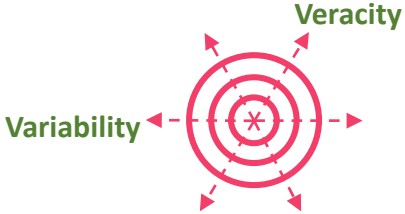
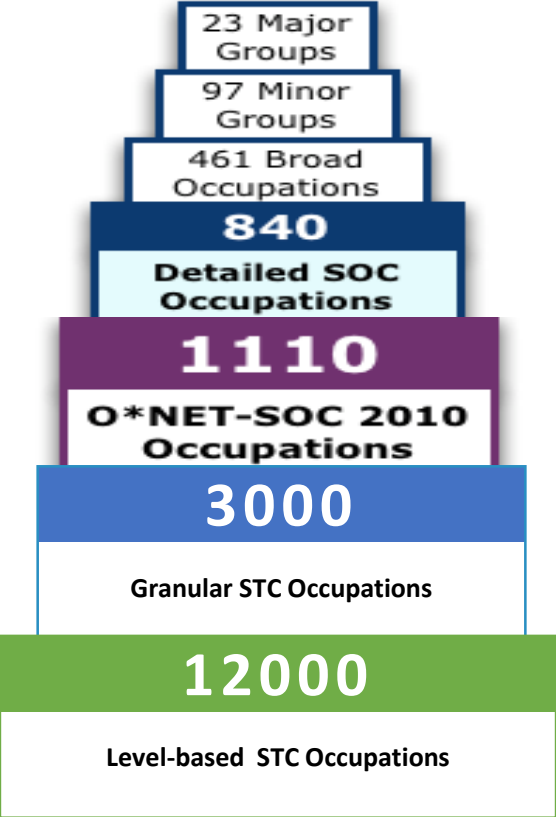
- Location: locality, community, county, region, country
- Advertiser: name, industry
- Job Type: Full-time / Part-time
- Job Hours: Permanent, Contractual, Temporary, Internship
- Salary: £/hour, £/week, £/month, £/year
- Title: Classifier



# 3rd Challenge

## Classify all Jobs

Based on the 2010 SOC Classification:

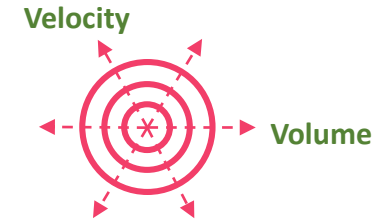


13116100043 – Senior Digital Analyst						
Inno UTT Code	13	1	161	00	04	3
Occupational	SOC2	SOC3	SOC6	SOC8	UTT10	UTT11
Category Description	Business and Financial Operations Occupations	Business Operations Specialists	Market Research Analysts and Marketing Specialists	Market Research Analysts and Marketing Specialists	Digital Analyst	Senior Digital Analyst

# How...by creating an intelligent robot

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- Scrapes job boards and corporate sites
- Learns how a website looks and acts, without a specific robot being created for that website
- Should a website change (design or functionality), it can reconfigure itself without the need for human intervention
- Crawlers run every day, some multiple times/day

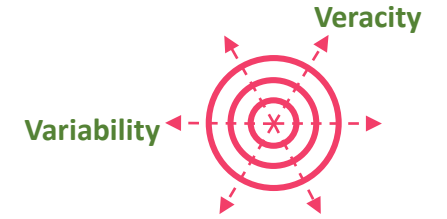




# The Attributes

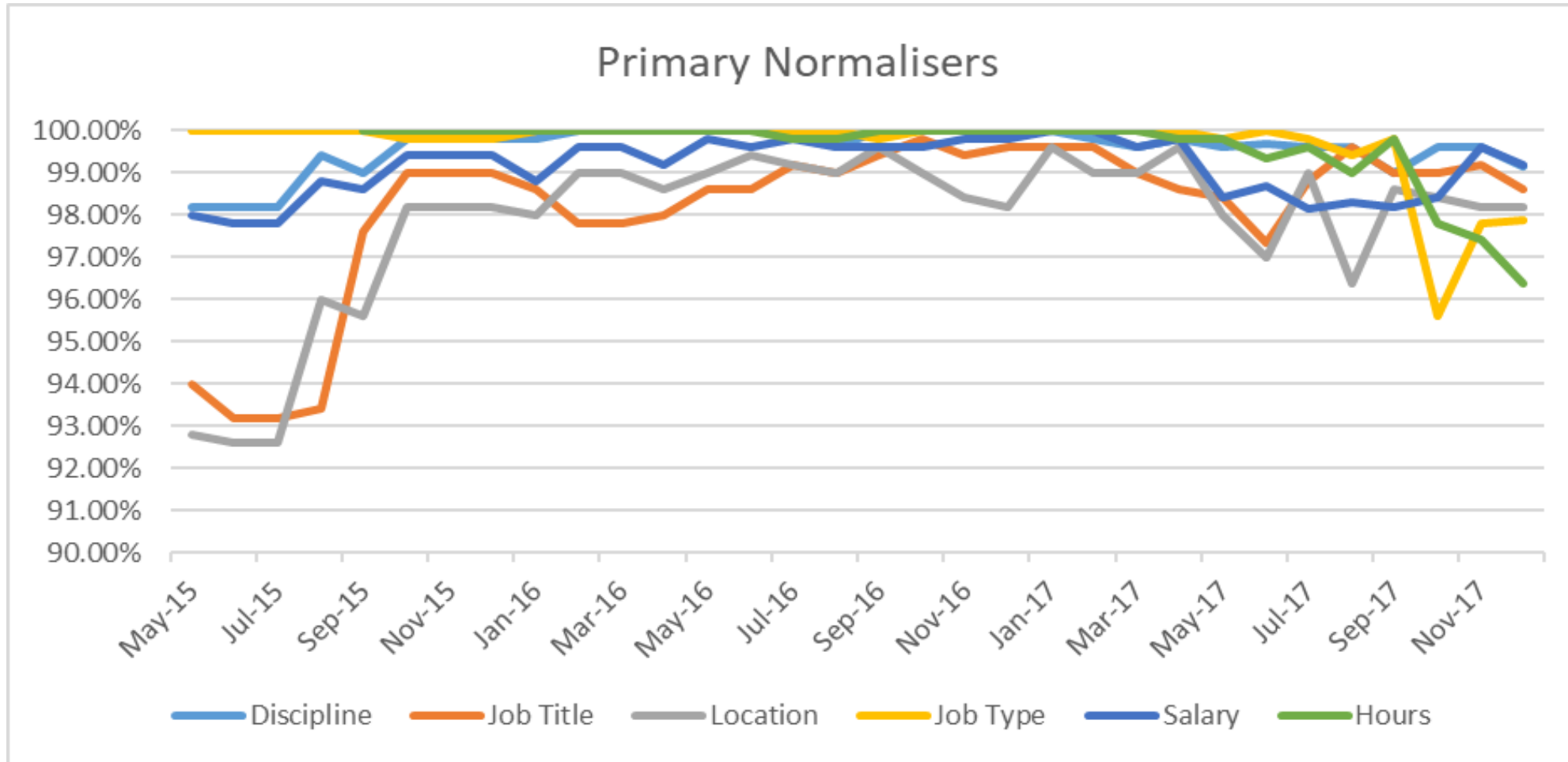
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- A list of granular occupations
- Title cleaner before classification
- Extraction of level of experience
- Extraction of soft and hard skills
- Machine-Learning based classification of jobs using skills
- Remove duplicates



# Data Accuracy

## Primary Normalisers

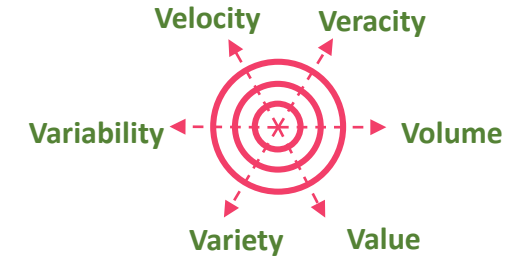


# The Result:

## How Can We Use all of This

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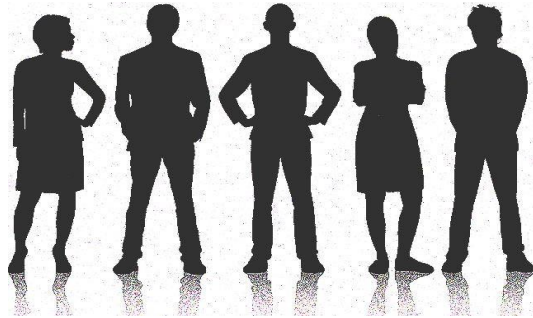
- Send recruiting leads to staffing agencies
- Inform recruiters about the Job market
  - Predict trending skills from job descriptions for a specific industry
  - Identify which skills are paying a premium
  - Report on market share
- Campaigning using intent data
  - Find out when a passive seeker is on the verge or becoming an active one
- Enhance the job seeker experience by showing search results using their intent data



# Analytics

## How is it delivered

**Insight** – real time vacancy data for recruiter, lead generation and candidate placement



Recruitment & Jobboards

**Analytics** – Delivering historical, current and future data surrounding your particular industry



HR Companies

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Insight



Recruiter Activity



Missed Advertisers



Customer Penetration



Market



Strategic Accounts



Hiring



Salaries

Recruitment Intelligence | Creating Business Advantage

# UK Opportunity

## Job Market in the UK

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- More than 60+ million vacancies in the UK posted every year
  - 300+ Job boards
  - 200,000+ company URLs
- About 800,000 unique open vacancies at any time
- More than 25,000 staffing agencies, employing about 100,000 recruiter
- About 32.1M in the workforce, with 4.3% unemployment rate (Dec'17)

# But a shift towards more prescriptive rules of worker engagement feels counterintuitive:

**Data, AI & robotics are changing employers' need for labour**

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The UK is behind the curve, choosing to utilise flexible labour over investment in data & automation

**Nation Expected to Lose 30% of Jobs to Automation in 15 Years**

Reboot: Adidas to make shoes in Germany again - but using robots

**A Japanese insurance firm replaced 30 workers with IBM's artificial intelligence technology**

# ...and Predictive Personalisation/Mass Customisation

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Will further change employer needs

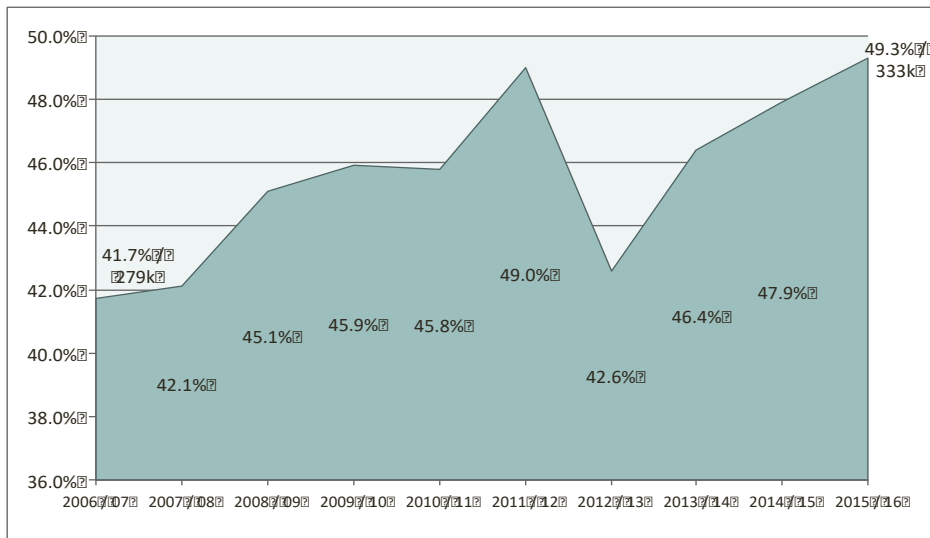


# The supply side, Gen Z,

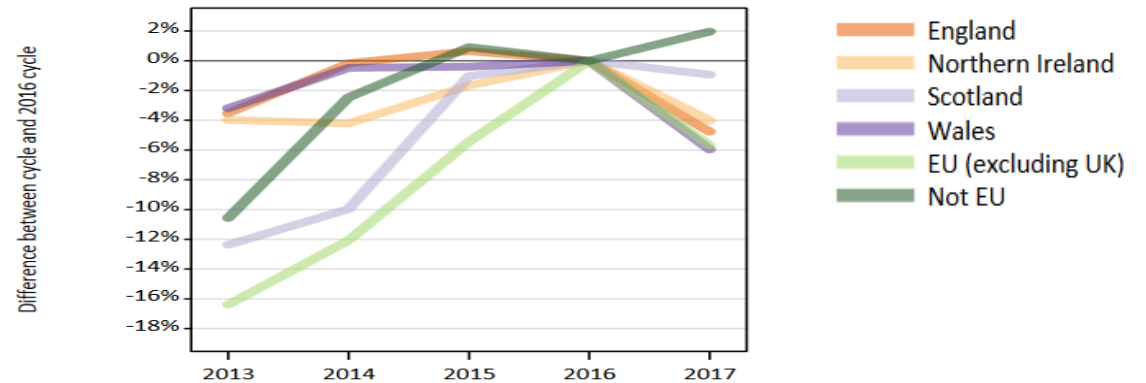
## Forcing employers to change how they engage with workers

**Gen Z are early starters** – More 16-18 year olds are going straight into work

The minority UK school leavers still go on to University. The % dipped after the fees were hiked in 2011, and have only just recovered.



The new UK Apprenticeship Levy is showing early signs of accelerating consideration of alternatives – notably as key employers, such as Dyson, are using it to offer higher level training. Students are paid to work and learn at employer-led university.



James Dyson Launches A New University To Bridge The UKs Engineering Skills Gap



# The supply-side, Gen Z

## Forcing employers to change how they engage with workers

### Gen Z are entrepreneurially minded



72% of US schoolkids surveyed in 2016, stated that they wanted to have their own business someday – 61% straight from school.

*Source: FCSA analysis of ONS data*

### Gen Z have high expectations from work

If don't feel appreciated will move on: will force you to be loyal to them as a consequence

### Gen Z are big on individuality

Will require bespoke work packages rather than fitting into career hierarchy

### Gen Z are globally minded

Will demand diversity in their work, and a global outlook/influence rather than repetition of (localised) tasks

## The conclusion:

All that we see, by way of demand data, highlights the continuation of traditional hiring practices, but

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A paradigm shift in Data Analytics, AI & Personalisation will disrupt the workforce composition / engagement - and the staffing industry's value proposition

# Thank You

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