

# Artificial Intelligence is the future, but what is happening in market research right now?



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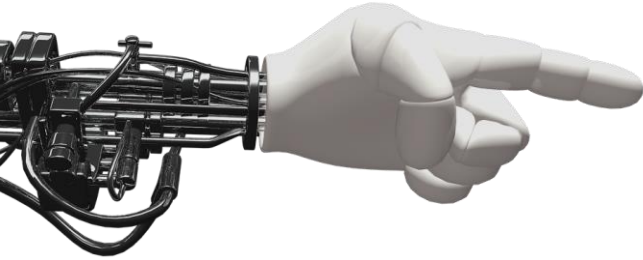


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# Agenda



- What is the buzz about?
- What Is and Isn't AI?
- What is AI, why is it like magic?
- Feedback from industry leaders
- Conclusions and Recommendations

● "Artificial Intelligence"  
Search term

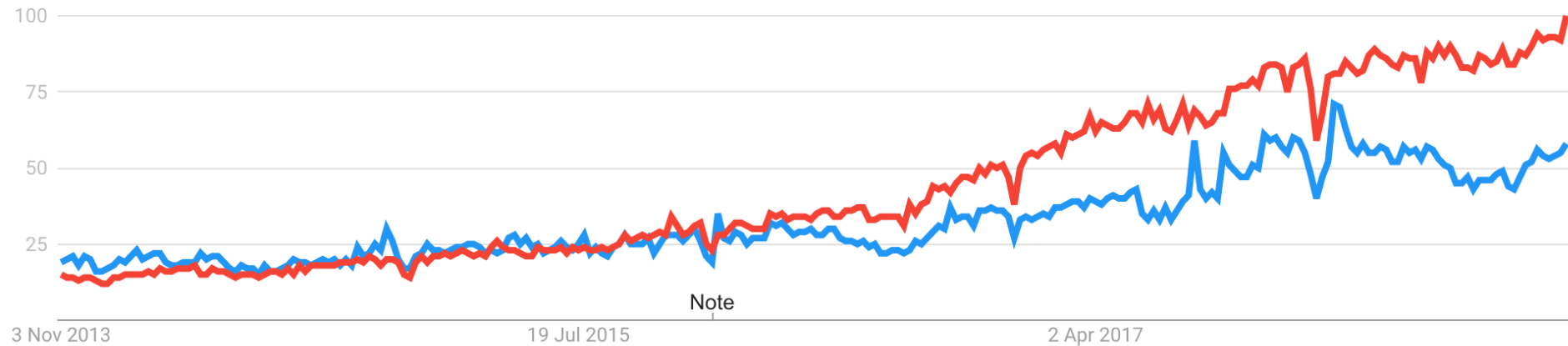
● "Machine Learning"  
Search term

Worldwide ▼

Past 5 years ▼

All categories ▼

Web Search ▼



LONDON. NOV 8-9 - 2018

**IoT**WORLD  
FORUM 2018

**Registration**

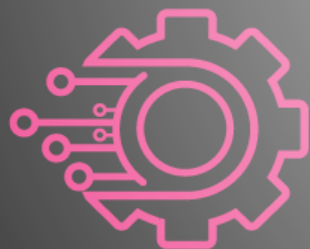
**A2IC 2018**

ARTIFICIAL INTELLIGENCE  
INTERNATIONAL CONFERENCE

NOVEMBER 21-23, 2018

BARCELONA

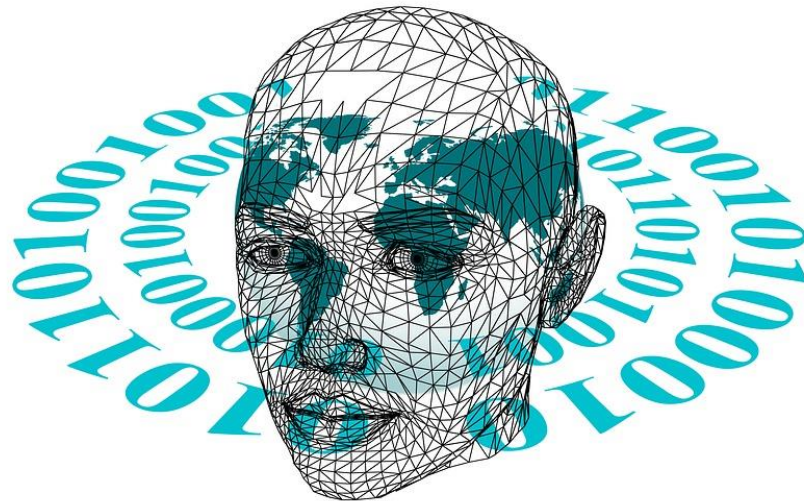
**now open!**



**AI & BIG DATA**  
**EXPO** GLOBAL 2019

# Topics from just one of these conference agendas...

- Machine learning
- Neural networks and deep learning
- Pattern recognition
- Knowledge representation
- Ontologies and Semantic Web
- Reasoning
- Uncertainty in AI
- Knowledge discovery and big data
- Multiagent systems
- Natural language processing
- Computer vision and perception
- Cognitive systems
- Computational creativity
- Ethics in AI



So many terms... !

# What Is, and Isn't AI?

Simple Survey shared with the research industry,  
just 5 questions, 305 responses as of 4 November.

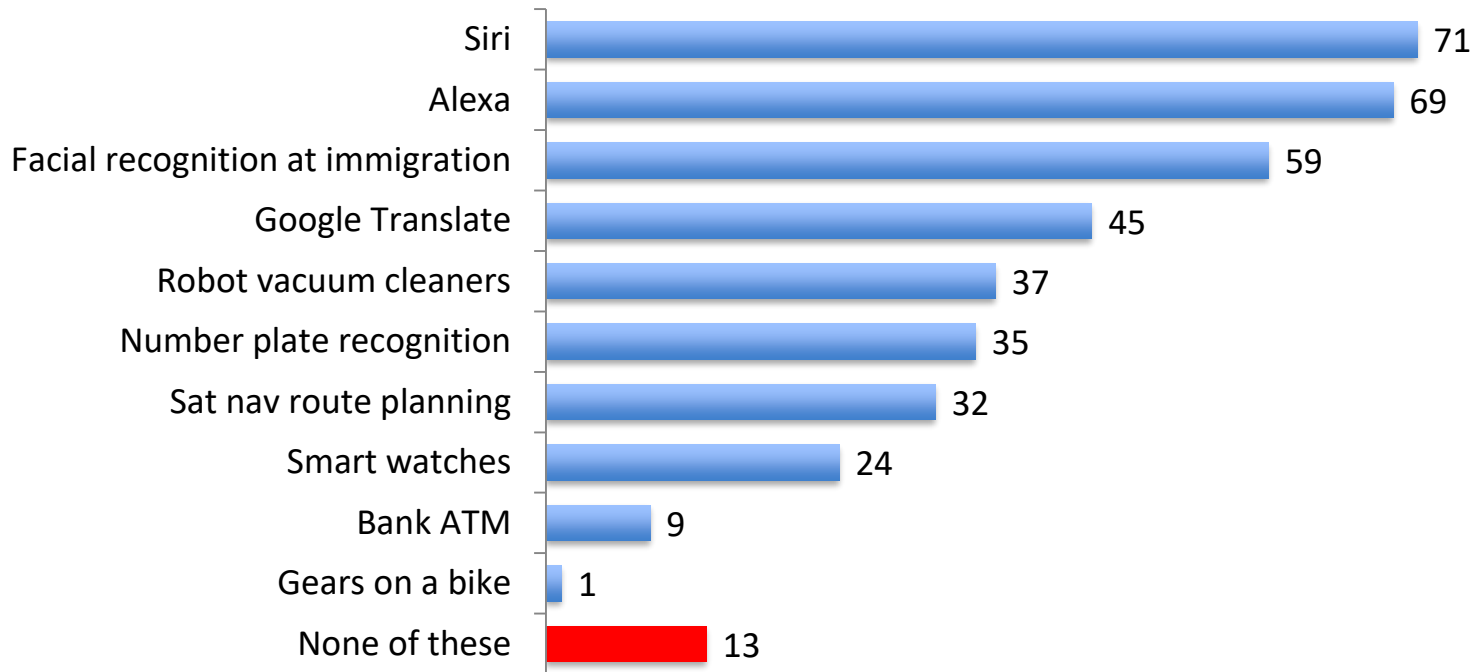
| Countries          |     |
|--------------------|-----|
| UK                 | 32% |
| USA                | 11% |
| 35 Other Countries | 56% |

| Role     |     |
|----------|-----|
| Agencies | 50% |
| Services | 26% |
| Clients  | 17% |
| Academic | 1%  |
| Other    | 6%  |

A convenience sample drawn from contacts in MR and MR-related Social Media

# Outside of MR, what is AI?

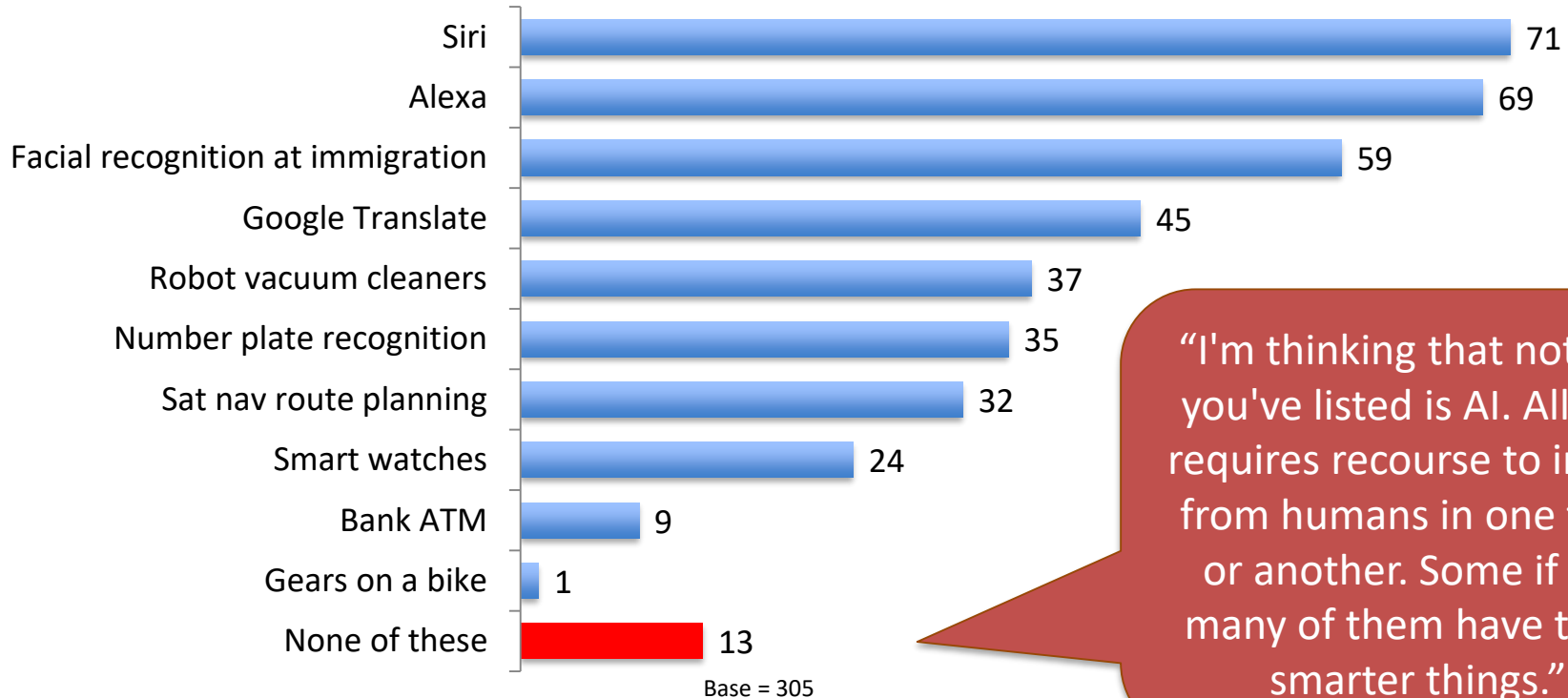
% Saying Yes, An Example Of AI



Base = 305

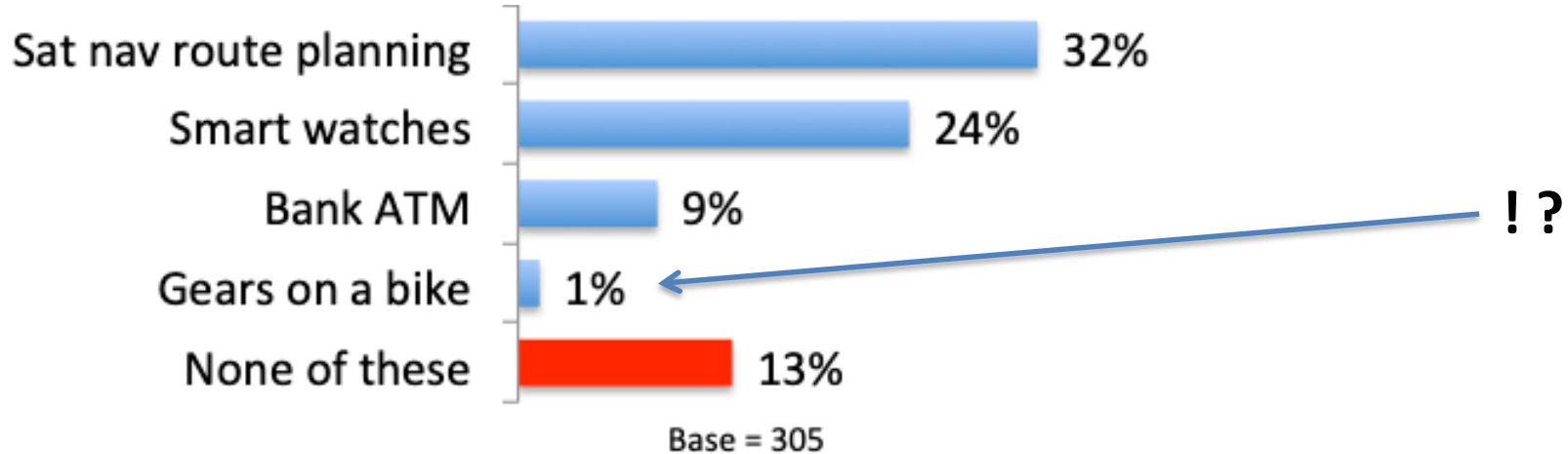
# Outside of MR, what is AI?

% Saying Yes, An Example Of AI



“I'm thinking that nothing you've listed is AI. All of it requires recourse to inputs from humans in one form or another. Some if not many of them have to do smarter things.”

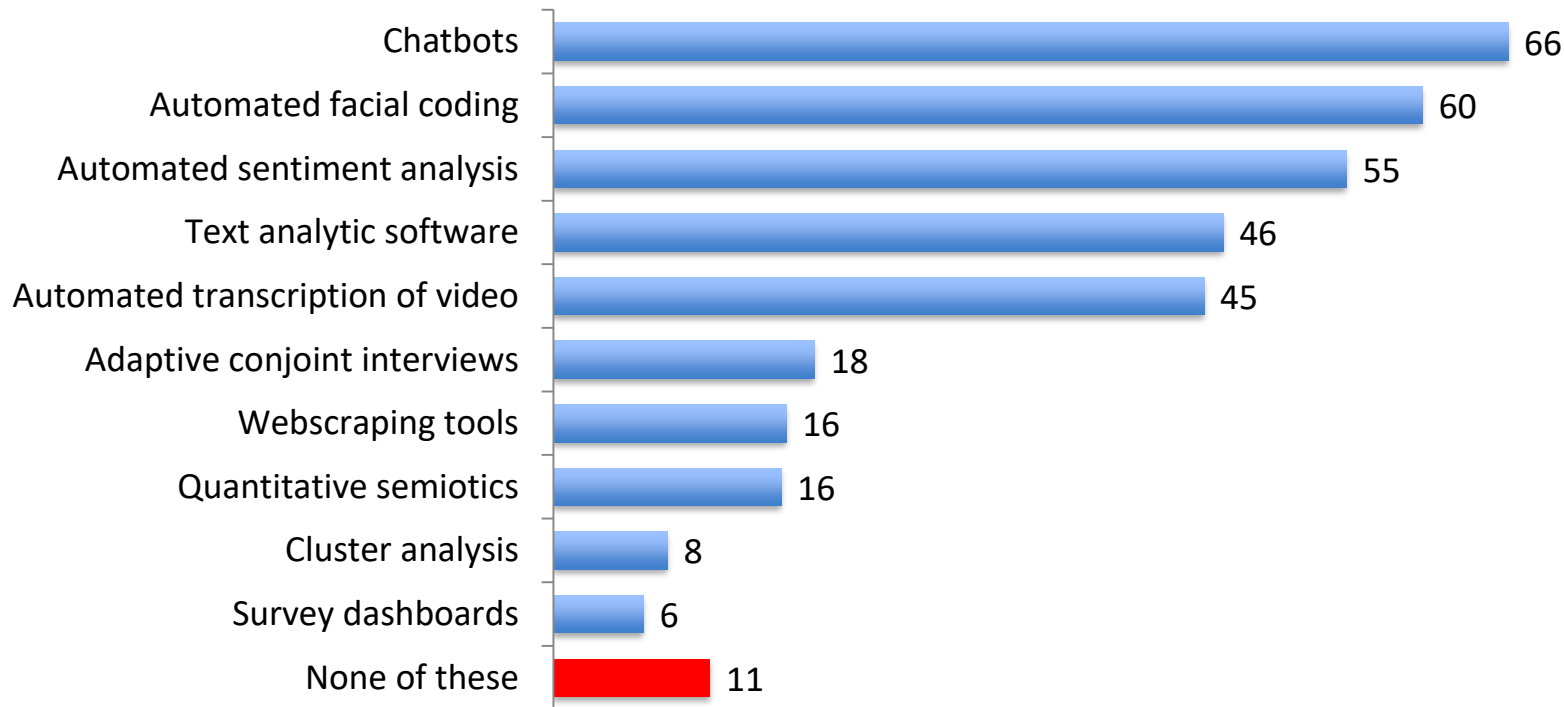
# Gears?



Measures heat rate, cadence, power & speed and changes the gears for you – always optimizing the ratios.

# Inside MR, What is AI?

## % Saying Yes, An Example Of AI



Close to the scores for  
Siri and Alexa

# Chatbots



HOW IT WORKS

EXAMPLES

FEATURES

## Market Research Survey Chatbot

The Market Research Chatbot enables you to  
conduct market research on Facebook.

## 5 Big Qual Market Research Ch You Can Build Today

For 12 months at least, AI, machine learning and chatbots have been hot topics in the m  
There has been tremendous noise about the use of these innovative technologies for research, whispers  
the big qual utopia is finally on the horizon, followed very swiftly by an, 'erm, if a robot can run a focus gr  
what will I do?' panic!

M > | AMERICAN MA  
ASSOCIATION

Advertising

Bra

s:

Membership

E

y Chatl



What We Do

Features

Pricing

Hi I'm Wizu, The AI Chatbot For  
Conversational Surveys

Why Chatbots are the next big thing in Survey  
Research



# Differences in Perceptions

| % Saying Yes, An Example Of AI   | Clients | Agencies | Services |
|----------------------------------|---------|----------|----------|
| <i>Base</i>                      | 53      | 151      | 79       |
| None of these                    | 9       | 12       | 8        |
| Survey dashboards                | 8       | 3        | 10       |
| Cluster analysis                 | 6       | 6        | 13       |
| Quantitative semiotics           | 19      | 17       | 13       |
| Webscraping tools                | 23      | 15       | 13       |
| Adaptive conjoint interviews     | 21      | 19       | 18       |
| Automated transcription of video | 38      | 48       | 47       |
| Text analytic software           | 53      | 42       | 51       |
| Automated sentiment analysis     | 60      | 54       | 57       |
| Automated facial coding          | 57      | 58       | 66       |
| Chatbots                         | 72      | 68       | 56       |

There may be differences between the groups,  
but with our sample size, we can't make assertions.

# Defining AI

- Philosophically difficult
- Sunflowers turning towards a light show a sort of intelligence
- Turing Test (and similar) focus on how it seems, NOT what it is
  - If it behaves like it is intelligent, it is intelligent



# Categorising AI

- Expert Systems
  - Lots of “IF” statements and lookup lists/dictionaries
- Supervised Machine Learning
  - Machine ‘learns’ to replicates a training set
- Unsupervised Machine Learning
  - Fancy cluster analysis – no learning in most cases
- Deep Learning
  - Hierarchical learning, think Google and Go
- Artificial General Intelligence
  - Machines that can ‘think’, we are probably 30 to 50 years away from this being achieved

# Dispelling the Magic



# Dispelling the Magic

- Topic Modelling using unsupervised machine learning with LDA (Latent Dirichlet Allocation)
- The computer finds the themes and describes them
- Without a training set, and without you explaining what the words mean

# The Data

NewMR Survey, what sort of training do you think the MR Industry needs?

| ID    | Country   | Role     | Text                                                       |
|-------|-----------|----------|------------------------------------------------------------|
| R0001 | UK        | Client   | Storytelling, the use of Analytics and business strategies |
| R0002 | USA       | Client   | Visualisation and stories are the most important thing     |
| R0003 | USA       | Supplier | How to see the story in the data and data analytics        |
| R0004 | Australia | Supplier | More about Artificial Intelligence and business needs      |
| R0005 | UK        | Supplier | Business Strategy                                          |
| ##### | #####     | #####    | #####                                                      |
| ##### | #####     | #####    | #####                                                      |
| ##### | #####     | #####    | #####                                                      |

2 topics

- 1) Stories and storytelling (linked with Clients and USA)
- 2) Business Strategy (linked with Suppliers and UK)

Would you call that artificial intelligence?

# Remove punctuation and convert to lower case

| ID    | Remove punctuation, put in lower case                     |
|-------|-----------------------------------------------------------|
| R0001 | storytelling the use of analytics and business strategies |
| R0002 | visualisation and stories are the most important thing    |
| R0003 | how to see the story in the data and data analytics       |
| R0004 | more about artificial intelligence and business needs     |
| R0005 | business strategy                                         |

# Remove 'stop' Words

| ID    | Remove stop words                          |
|-------|--------------------------------------------|
| R0001 | storytelling analytics business strategies |
| R0002 | visualisation stories                      |
| R0003 | see story data data analytics              |
| R0004 | artificial intelligence business needs     |
| R0005 | business strategy                          |

# Stemming (or Lemmatisation)

| ID    | Stem                             |
|-------|----------------------------------|
| R0001 | stor- analy- business strateg-   |
| R0002 | visuali- stor-                   |
| R0003 | see stor- data data analy-       |
| R0004 | artific- intelli- business needs |
| R0005 | business strateg-                |

Stemming is crude and common, Lemmatisation is better and rarer

# Count the Words

| Stem     | Count |
|----------|-------|
| analy-   | 2     |
| artific- | 1     |
| business | 3     |
| data     | 2     |
| intelli  | 1     |
| needs    | 1     |
| see      | 1     |
| stor-    | 3     |
| strateg- | 2     |
| visuali- | 1     |

**Discard the rare words**

| Stem     | Count |
|----------|-------|
| analy-   | 2     |
| business | 3     |
| data     | 2     |
| stor-    | 3     |
| strateg- | 2     |

# Create a Matrix of the Data

| ID    | analy- | business | data | stor- | strateg- |
|-------|--------|----------|------|-------|----------|
| R0001 | 1      | 1        | 0    | 1     | 1        |
| R0002 | 0      | 0        | 0    | 1     | 0        |
| R0003 | 1      | 0        | 2    | 1     | 0        |
| R0004 | 0      | 1        | 0    | 0     | 0        |
| R0005 | 0      | 1        | 0    | 0     | 1        |

# Latent Clusters

2 Topics

A

stor-

B

business, strateg-

| ID    | A<br>(story) | B<br>(Biz & strategy) | Country   | Role     |
|-------|--------------|-----------------------|-----------|----------|
| R0001 | 0.5          | 0.5                   | UK        | Client   |
| R0002 | 1            | 0                     | USA       | Client   |
| R0003 | 1            | 0                     | USA       | Supplier |
| R0004 | 0            | 1                     | Australia | Supplier |
| R0005 | 0            | 1                     | UK        | Supplier |

Stories and storytelling are linked with Clients and USA  
Business Strategy is linked with Suppliers and UK

} Added by a human

Would you call that artificial intelligence?

# What Does The Human Add?

- Asking the right questions, gathering the right data
- Choice of algorithms
- Overriding defaults in stemming and lemmatisation (e.g. make Artificial Intelligence a single word, and group with AI)
- Choosing the number of clusters, naming the clusters, interpreting & determining if the solution is useful

All solutions are wrong, some are useful

# Consulting With Leaders in the Field



Plus several who wanted to remain anonymous

# So what does everyone do?

Actually lots of things which *people* used to do...

- Sentiment & Topic detection (lots of this)
- Coding / tagging open ends
- Video analysis, object recognition, facial recognition (so quite a bit of *machine vision*)
- Speech to text
- Translations
- Fraud detection

...Right through to mimicking human conversation and having the bot become the interviewer on the fly!



# Using machines to see for us...

## RealEyes, Big Sofa, Living Lens

- Very clever (and getting *cleverer*) machine vision, seeing people's expressions, their attention, their level of interest.
- Speech-to-text to allow further analysis and editing
- Quickly processing phenomenal amounts of data



# Making light work of open ends...

- Confrimit, IPSOS, Kantar, Digital Taxonomy
- Coding open ends, tagging, doing topic / sentiment analysis on social media content
- Handling Quant & Big Data sets very easily –  
(millions upon millions of words)



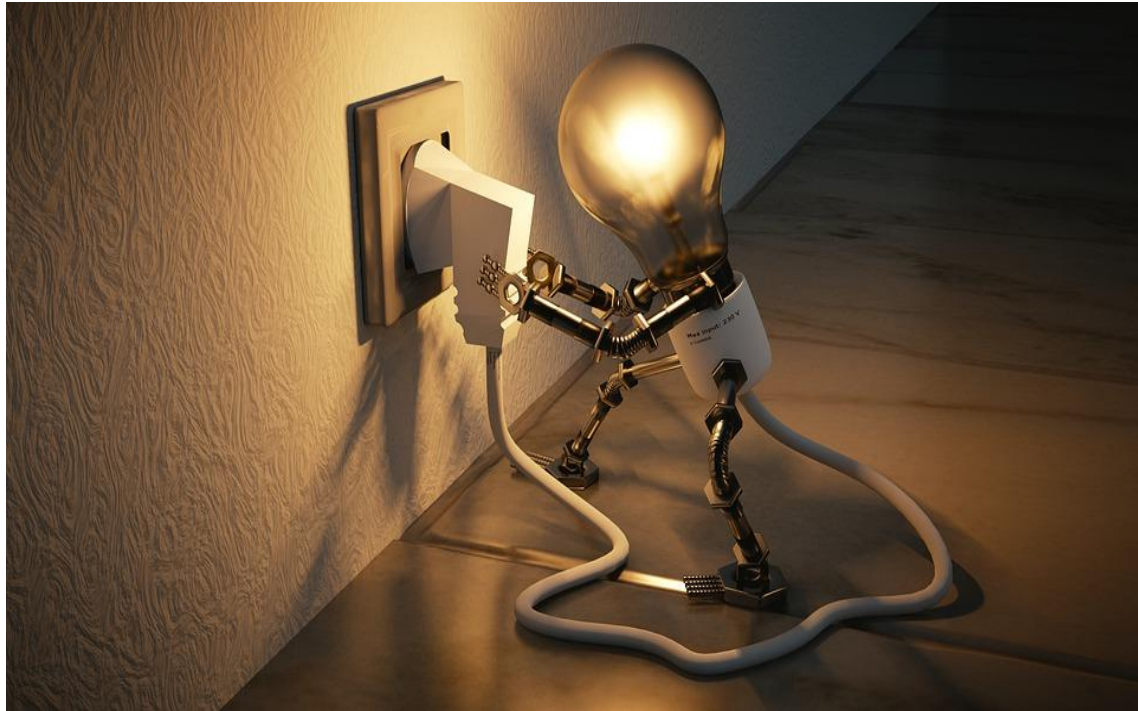
# Becoming the interviewer...

- Hubert & Wizu are expert in the chatbot field doing sentiment and topic analysis and adjusting follow up questions as they go
- Predicting the need for clarification
- *Improving* the data collected



# ...And one day to pass the Turing test?

Hubert.ai ...  
*will automatically insert new question topics into conversations if unforeseen areas have been identified. For example, if in a study of 100 people, 30 of the first 50 respondents mentions a slippery floor, Hubert will ask the 51st respondent about their impression of the floors.*



# Using AI or Doing AI?

Using (faster)

Using Google  
Translation

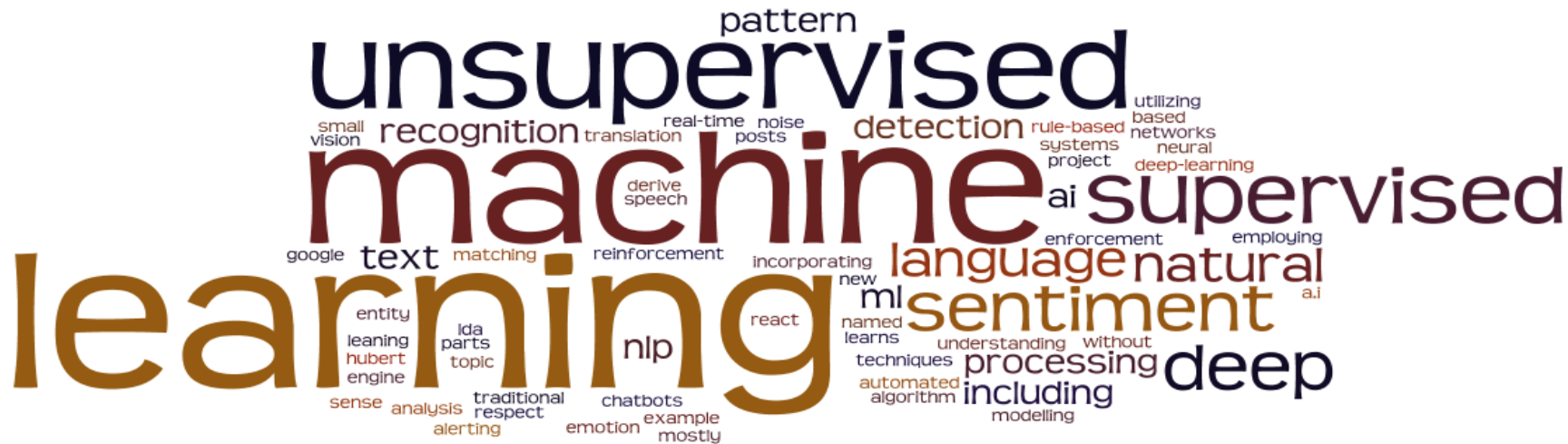
Interpreting  
expressions for projects  
having previously  
created the system  
with AI



Doing (slower)

Coding with  
new machine  
learning

Topic modelling



# Err... What again?

- **Supervised:** You've told it the answer options and it fits the choices into the frame. e.g. red, blue, happy, sad
- **Unsupervised:** It works on the data with no set output but looks to present you with the patterns or segments
- **Deep learning:** Working with big data sets, it learns and adjusts from experience with the data

**Are people actually using it or is it just  
for show?**



# Don't Fixate on What is and Isn't AI

- It should be adaptive/conditional
- It should look 'clever' until you examine the mechanics
  - like magic looks clever until you know the secrets
- Focus on the benefits e.g. speed and cost, or doing something not otherwise possible (scale or complexity)
- Assess what the human role is
  - And its implications for cost, reliability, speed etc.

# Questions to Ask

1. What specific tools are you using?
  - Expert systems, Machine Learning etc
2. Have you built tools using AI, or are you 'doing' new AI on each project?
  - Using pre-built tools can make things faster, bigger, cheaper & maybe better.
  - New AI allows things that might not otherwise be possible, but tends to be slower and more expensive.
3. Is this in widespread use, bespoke or pilot at the moment

# Thank You



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# Questions?

