

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



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Published December 2018

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Executive Summary

This report is based on a survey of 317 participants, consultations with industry leaders, and our own desk research. Our main conclusions are:

1. AI (Artificial Intelligence) is indeed in widespread use in market research, and that use is likely to expand rapidly.
2. However, the term artificial intelligence is the source of considerable disagreement, there is wide variation about which approaches are described as AI or not.
3. Since AI cannot be defined clearly in terms of what it is (partly because intelligence itself has not been clearly defined), definitions tend to be based on whether a system appears to be 'intelligent' or 'clever'.
4. Key examples of market research techniques that represent approaches that are widely accepted to be artificial intelligence include: Chatbots, Automated Facial Coding, Automated Sentiment Analysis, Automated Transcription of Video, and Text Analytic Software.
5. Outside of the world of market research the two most widely selected examples of artificial intelligence were Siri and Alexa, with about two-thirds saying they were examples of AI. This is a similar number to those who said Chatbots in market research are examples of AI. However, even with these two examples, one-third of participants indicated that they did not class Siri and/or Alexa as AI.
6. A key distinction when reviewing artificial intelligence is to determine whether it is 'doing AI' or 'using AI'. 'Doing AI' refers to utilising an approach such as unsupervised machine learning to solve a specific problem. 'Using AI' refers to creating a system via AI that can then be applied to a range of problems (in the way that Google Translate can be used to translate text) – when the tool is developed we are 'doing AI', when the tool is applied we are 'using AI'.
7. If a technique could fairly be described as artificial intelligence by some people, it should probably be described as AI by users and vendors of that technique. Being overly narrow about definitions of what is and isn't AI could hold back the rapid adoption of new, innovative, and cost-effective solutions.

Thanks

We would like to thank everybody who has contributed to this project, for example the companies who we consulted, the 317 people who participated in the survey, and the ASC for inviting us to speak at their Conference.

Introduction

This report has been written by Ray Poynter and Rosie Ayoub and is based on the presentation we gave at the 15 November ASC Artificial Intelligence Conference in London.

This report draws on a survey with 317 participants from the research world (asking people to identify which technologies are or are not Artificial Intelligence), interviews conducted with leaders in the utilisation of AI in market research, desk research, and our own experience in the field.

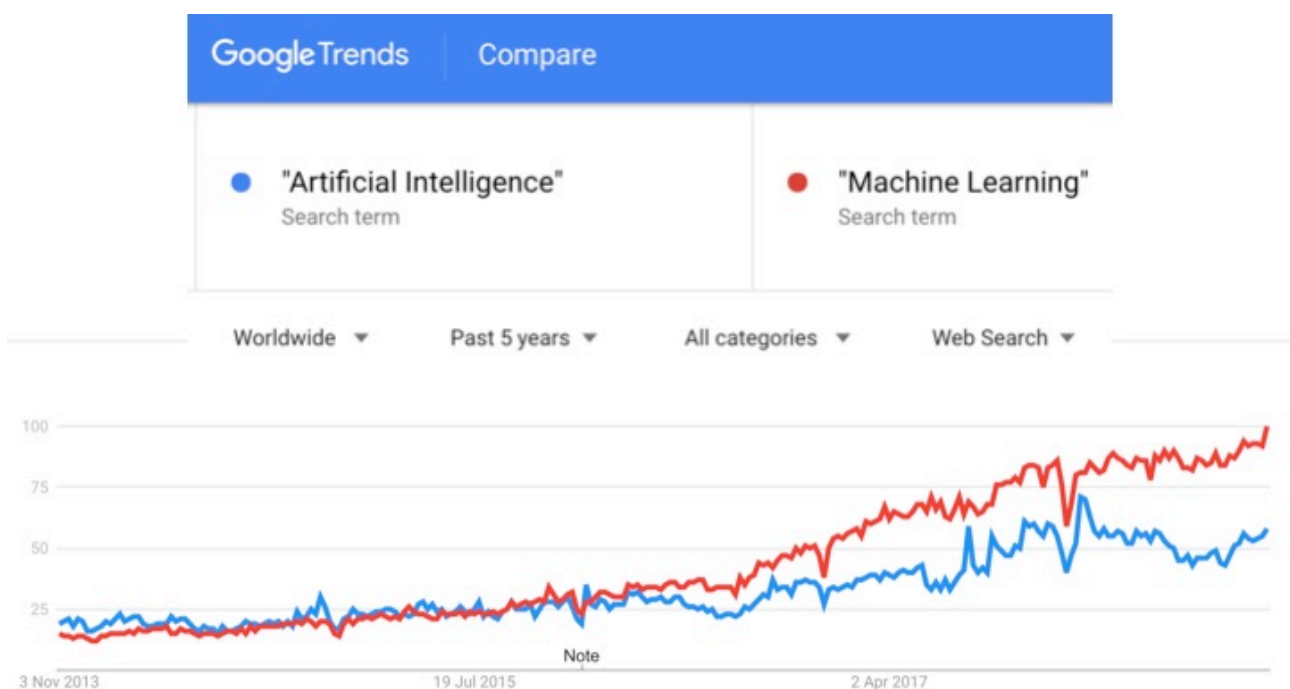
We in market research are very good at taking external innovation from outside industries and adapting it for our own purposes. But what are people actually doing in the context of AI? How much is in action and how much is just experimental?

Our investigation and report focuses on the here and now, as opposed to hypothetical futures. You can hear lots about what will be done in the future and where AI will take us. For example, we may or may not be out of a job depending on who you ask. But, for this project we wanted to really get to the heart of what is available for you to use on your projects today.

The Buzz About AI

As the years pass, the latest buzz in market research tends to evolve. Recently we've had Big Data and we have had privacy and GDPR. This year AI seems to be central to most market research conversations. It's the new headline topic for conferences across the globe.

Google Trends is a good way of assessing whether the interest a topic is increasing or not. The chart below looks at two terms ("Artificial Intelligence" and "Machine Learning") from 2013 to 2018, with a global focus.



Artificial intelligence is gaining momentum in popular culture and has firmly captured the imagination of a wide range of people. But, as the chart indicates, machine learning has taken over as the most popular AI-related term that people search for.

So, to find out what people actually think, we did what all good researchers do – we conducted research. We ran a survey and we talked to people who are currently deploying artificial intelligence in market research, this report summarises our findings and conclusions.

The Survey

The first thing to note is that this is a convenience sample, it is drawn from people to whom the authors are connected, and the survey link was also shared via social media. The sample represents a wide range of countries, and includes people from agencies (suppliers of research), the MR services sector (e.g. panel companies and software platforms), and buyers/users of research (i.e. clients).

Given that the project was to understand the claims and understanding of the market research industry in terms of artificial intelligence, this sample is interesting but not statistically robust.

The survey was hosted by QuestionPro and the fieldwork took place between 23 October and 13 November 2018

Sample Composition
















The survey collected just two descriptive characteristics, role and country.

Type of participant	Count	%
Supplier of research	159	50%
Supplier to the research industry	80	25%
Buyer/user of research	54	17%
Other	24	8%
Total	317	100%

Country	Overall	%
UK	101	32%
USA	40	13%
Norway	19	6%
Australia	17	5%
Sweden	17	5%
India	14	4%
Canada	10	3%
France	10	3%
Finland	9	3%
Germany	8	3%
Denmark	7	2%
Netherlands	7	2%
Italy	6	2%
Japan	6	2%
Latvia	5	2%
Plus 25 other countries with five or fewer responses.		

What is AI, Outside of Market Research?

We showed the participants a range of products and services and asked them to select which they considered to be examples of Artificial Intelligence.

Technology/Service	Count	%	
Siri	226	71%	
Alexa	219	69%	
Facial recognition at immigration	188	59%	
Google Translate	147	46%	
Robot vacuum cleaners	117	37%	
Programmatic advertising	116	37%	
Number plate recognition	114	36%	
Dictation apps	107	34%	
Sat nav route planning	103	32%	
Shazam	101	32%	
Smart watches	75	24%	
Snapchat filters	41	13%	
Bank ATM	27	9%	
Gears on a bike	4	1%	
None of these	41	13%	

Even Siri and Alexa (services that are clearly Artificial Intelligence in the opinion of the authors of this report) are only judged to be examples of AI by two-thirds of the participants.






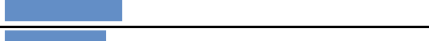
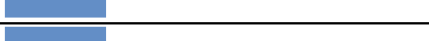
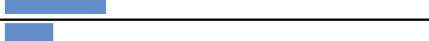
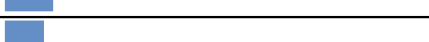
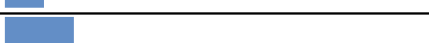
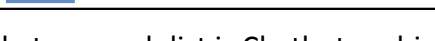
At the other end of the scale, about one-in-eight say none of these services are examples of AI. One of the open-ended comments summed up this position *“I’m thinking that nothing you’ve listed is AI. All of it requires recourse to inputs from humans in one form or another. Some if not many of them have to do smarter things.”* For some people, anything we can do now is not AI; AI is always a bit further.

What the data shows is that there is no consistency in how people define AI. However, the data does show that amongst the people we surveyed, Siri and Alexa were the most widely seen as being AI, and Google Translate was defined as AI by about half the people taking part in the survey.

One point of note is the four people who selected gears on a bike. This option was added to the survey to give an easy option for participants, a category which was surely not AI. If one person had picked it we might have assumed it was an error. But with four picking gears as AI we did some checking and found products like the [ProShift Automatic Gear Shifting System](#) which measures the rider’s heart rate, cadence, power, and speed and uses that data to change the gears automatically, optimizing the ratio between the rotation of the pedals and the back wheel. This observation comes back to the point that AI is making its way into more and more facets of everyday life.

Inside Market Research, What is AI?

We showed the participants a list of technologies and services associated with market research and asked them to indicate which they thought were examples of artificial intelligence.

Technology/Service	Count	%	
Chatbots	208	66%	
Automated facial coding	192	61%	
Automated sentiment analysis	174	55%	
Automated transcription of video	146	46%	
Text analytic software	146	46%	
Adaptive conjoint interviews	57	18%	
Quantitative semiotics	49	15%	
Webscraping tools	49	15%	
Cluster analysis	24	8%	
Survey dashboards	19	6%	
None of the above	34	11%	

The first point to note is that the top contender from the market research list is Chatbots, which scores almost as highly as Siri and Alexa did on the previous question. For about two-thirds of people Chatbots are AI, but for one-third they aren't.

Automated Facial Coding and Automated Sentiment Analysis are rated by a small majority as AI, with Automated Transcription of Video and Text Analytics Software scoring about the same as Google Translate did in the general list.

Lack of familiarity with the topic may account in part for why Quantitative Semiotics (which uses Automated Sentiment Analysis, Unsupervised Machine Learning, Text Analytics and often Image Analysis) scores just 18%.

The responses indicate that for many of these topics a user of them would not be unusual if they described them as examples of AI, and not unusual if they did not describe them as AI. In such a situation there may well be commercial advantages in describing an approach as benefitting from AI. It is unlikely that not describing something as AI (when it is AI) would confer any commercial benefits. Indeed, downplaying the role of AI in a tool may hold back its adoption.

Differences by Sub-group

Other than the USA there are no countries with a sample size that warrant sub-group analysis. However, there are sufficient numbers to look for differences between the different roles.

Technology/Service	Clients	Research Agencies	Service Suppliers
Chatbots	70%	67%	56%
Automated facial coding	56%	58%	66%
Automated sentiment analysis	59%	54%	58%
Automated transcription of video	37%	49%	48%
Text analytic software	52%	42%	51%
Adaptive conjoint interviews	20%	18%	19%
Quantitative semiotics	19%	16%	14%
Webscraping tools	22%	14%	13%
Cluster analysis	6%	6%	13%
Survey dashboards	7%	3%	10%
None of the above	9%	12%	8%
Base	54	159	80

The key pattern is one of similarity between the groups, and differences between one person and another about what is and isn't artificial intelligence. Clients appear to class more items as AI, and this may relate to the phenomenon that the more somebody understands how a technique works the less likely they are to describe it as AI.

Consulting With Leaders in the Field

As well as conducting the survey we consulted a cross section of organisations that are active in this field – as shown by the logos below.



The sorts of uses of AI that these sources indicated they were using included:

- Sentiment & topic detection (lots of this)
- Coding / tagging open ends
- Video analysis, object recognition, facial recognition/analysis
- Speech to text
- Translations
- Fraud detection
- Chatbots

It is clear that in some cases bots are taking the jobs that used to belong to humans. The machines are able to code open ends, faster and in greater volumes than humans could in the same project timescale (and for less cost). 'Machine vision' allows computers to measure of interest and emotion. Processing large amounts of video footage (in some cases transcribing and translating as well) allowing for speedy and cost efficient processing projects, which may exceed human limits in terms of complexity or scale; be that language combinations, or sheer time taken to transcribe the hours or even days' worth of footage available.

Several of our sources (e.g. RealEyes, Big Sofa, and Living Lens) are using machines to 'see for you'. Key benefits include interpreting faces, speech-to-text transcription, and analytics, all leading to the fast and efficient processing of large and ever larger amounts of data.

One key target for AI relates to processing open-ended comments. Companies such as Confirmit, IPSOS, Kantar, and Digital Taxonomy are using AI to make light work of processing. The processing

includes coding, tagging, topic and sentiment analysis of a wide range of data including survey responses and social media. The volume of text the machines process would previously have been prohibitive in terms of cost or timings for previous human coders on a project.

One of the most notable points was the number, variety and sophistication of the range of chatbots on offer. Examples include, but are not limited to, Wizu, Surveybot, and Hubert.AI. The direction of travel of chatbots is illustrated by this comment from Hubert.ai “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.”

Defining and Categorising AI

Having completed our survey, consultations, and desk research we felt it was time to tackle the issue of defining Artificial Intelligence.

The first point to note is that since there are no clear definitions of intelligence, it is impossible to adequately define artificial intelligence. Because of this, the tests for artificial intelligence (for example the Turing Test) tend to be based on how things look, rather than how they work. If it behaves like it is intelligent, then it is deemed intelligent. However, this tends to mean that people who understand how an algorithm works may be less likely to judge it to be ‘AI’. In this way AI is somewhat akin to magic – it only seems like magic until you understand how it is done.

Categorising AI

The following categorisation blends levity and research in equal measure, covering five specific topics that are all counted as part of the larger whole that is Artificial Intelligence.

- **Expert Systems.** In earlier years, expert systems were the core technique that defined artificial intelligence. Expert systems can be described as being a collection of ‘IF statements’ and lookup tables. Expert systems use programmers to write code that replicates what people say/know they do.
- **Supervised Machine Learning.** This is perhaps the most commonly used technique in AI today. The process of using supervised machine learning is a two-step process. The first step is to identify a training set, for example 2000 open-ended comments and 2000 codes applied by humans, or 10,000 faces and 10,000 descriptions of sentiment. Software (for example neural networks) is used to find a way of predicting the outcomes from the inputs. This system can then be used predict the outcomes from other inputs.
- **Unsupervised Machine Learning.** The term unsupervised machine learning is something of a misnomer as it is quite rare for ‘machine learning’ to be part of the process. Unsupervised machine learning tends to be a form of cluster analysis. For example, thousands of lines of text might be input, the software is then used to identify topics in the data, which are then interpreted by a human.
- **Deep Learning.** Perhaps a clearer name for this approach is ‘hierarchical learning’, which highlights the key feature of this approach, namely that the outputs of one pass of the system are fed into the next. A good example of deep learning is provided by Google’s AlphaGo. The first step was to teach the program to play Go, via traditional AI approaches. The computer then played games against itself, developing and testing different strategies, and evaluating those strategies by determining which won.
- **Artificial General Intelligence.** This is the term that refers to machines that match the science fiction writer’s view of artificial intelligence, i.e. machines that appear to think and which can tackle a wide range of previously unspecified projects. The estimates on when Artificial

General Intelligence might be with us vary from quite soon (say five years) through to never, with most estimates being more than forty years from now. Most of the concerns about robots replacing the human race are based on Artificial General Intelligence.

Using AI? Or, Doing AI?

Another source of confusion when assessing how much AI is being used is to determine whether people mean they used AI to create a solution (which they are now deploying to solve research problems) or are they using AI to create a solution to a specific research problem.

Techniques that use solutions that were created from AI (for example tools to code images, translate text, and find sentiment) tend to be faster and cheaper than human alternatives.

However, techniques that use AI to solve a specific problem tend to be time consuming and expensive, their benefit tends to lie in the area of doing something that could not readily be done.

Sometimes, the difference between doing and using AI blurs. For example consider a tracking project that collects open-ended comments. At the start of the project, human coders may create a training set by manually coding a large number of the open-ended comments. Supervised machine learning can then be used to create a system that will code the sorts of open-ended comments generated by this study – that is doing AI. For subsequent waves, the system developed in the first wave is run; this is quick and is using AI. At some point, more training will be added to the process (i.e. more ‘doing AI’), because new types of open-ended comments are likely to occur over time.

The Benefits and Characteristics of AI

For commercial and practical purposes, market researchers, the providers of services to market research, and the users of market research should not fixate on what is and isn’t AI.

The key thing about AI is that it should look ‘clever’, until it is fully understood. This tends to mean that an AI system should be adaptive; i.e. its outputs should be conditional on its inputs.

We would recommend the following:

- Focus on the benefits, for example is it speed and cost, or is it the ability to do something that could not otherwise be done (e.g. scale or complexity).
- Assess what the human role is, and its implication for cost, reliability speed etc. For example, does the human role require a data scientist or does it allow a generalist to conduct the research?
- What specific approaches are being used, e.g. Expert Systems, Machine Learning etc.
- Are you using AI (e.g. deploying tools created with AI) or doing AI (e.g. conducting unsupervised machine learning to conduct topic modelling)?
- Is this approach in widespread use, is it bespoke, or is it being used only in pilot mode?

About the Authors



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Ray is a co-author of The Handbook of Mobile Market Research, author of The Handbook of Online and Social Media Research and the #IPASOCIALWORKS Guide to Measuring Not Counting, co-founder of NewMR.org, co-editor of the ESOMAR book Answers to Contemporary Market Research Questions, a content author for the University of Georgia's Principles of Market Research course and is the Managing Director of The Future Place.



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