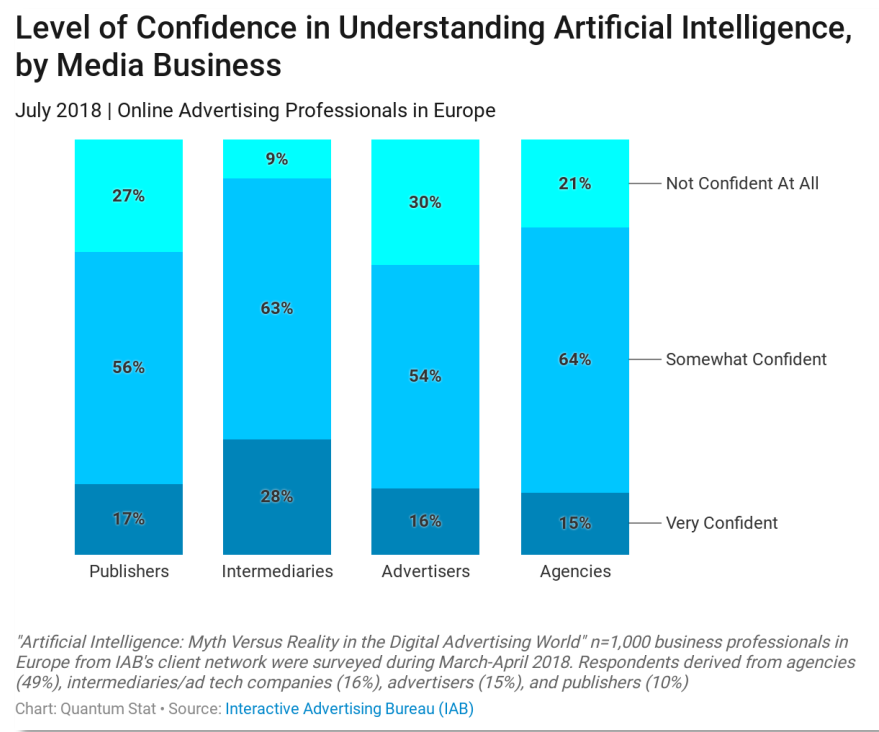


According to a recent IAB report, our level of confidence in understanding Artificial Intelligence remains murky. Only 17% of publishers feel very confident they understand it.



Yikes! But there’s a reason why the word “Artificial Intelligence” falls victim to ambiguity when being discussed by the media. Let us split this difficulty into two avenues:

- 1) Disambiguation Problem: A lack of context when ascribing AI since it can mean so many different things. Artificial Intelligence can be used to describe a product, a computer science field or even a mathematical process, but oftentimes, the contextual clues are only cryptically implied by authors.
- 2) Complexity Problem: Heightened ambiguity in the inner workings of the emerging technology. How does it really work? And what the heck is the difference between classical vs. deep learning, classification vs. prediction, continuous vs. discrete, discriminative vs. generative models, batch vs online learning etc. We know, it’s a lot! But throughout our AI Insights series, we will be dissecting how everything works and it will be lucidly explained so you can impress your friends the next time you play Jenga!

The focus of this paper will explore the disambiguation problem.

Disambiguation | The sense of a word can have multiple meanings

For the most part, the usage of “Artificial Intelligence” in the media has been implied under 3 meanings:

- **Field:** “Artificial Intelligence” discussed as a field or industry. Common subsets of the AI field are natural language processing (NLP), computer vision, or pattern recognition etc.
- **Product:** “Artificial Intelligence” discussed as an end-user product (e.g. Amazon’s Alexa, IBM’s Watson, fintech software, H.A.L. from the 2001 Space Odyssey etc.)
- **Process:** “Artificial Intelligence” discussed as a process or technology in which a computer program achieves predictability after learning patterns from data. The most popular process used today: machine learning.

Terminology as a Network

With regards to terminology, the difficulty arises because the content in the field of Artificial Intelligence is assumed to fall under a hierarchy, but in reality, terminology is more like a web or a network. This is what makes the use of “Artificial Intelligence” difficult to comprehend at times, especially when coupled with the disambiguation problem discussed above. For example, an author can discuss 1 field and multiple processes or 1 process across multiple fields or even how 1 product can incorporate various processes from different fields and so on...

Let’s go through a few examples highlighting the 3 meanings discussed in the disambiguation section:

Example | 1 |

Product: A Twitter sentiment analysis computer program used by a savvy digital marketer in Los Angeles

Process: the machine learning algorithm analyzes the tweets of her brand’s Twitter page in order to get a snapchat into the sentiment of her followers. The algorithm is able to classify the sentiment of tweets into 3 outcomes: Positive, Neutral, or Negative.

Field: Natural Language Processing

Example | 2 |

Product: Facebook’s Picture Face Detection

Process: The machine learning algorithm scans the pixels of your face and then is able to predict (tag) your face from your friend’s pictures.

Field: Computer Vision

Example | 3 | (fictitious)

Product: Rebecca (a smart mirror that is able to identify your perfect attire)

Process: Rebecca uses 2 machine learning algorithms: 1) The camera attached to your mirror scans what you are wearing via its computer vision 2) The camera sends a signal to your mobile app and uses a natural language processing algorithm to speak with you through a chat interface. Thus, it able to recommend your best attire for a night-out.

Field: Computer Vision and Natural Language Processing

If you noticed, in the last example we used 2 different processes under one product. This is the network on which AI terminology is susceptible of falling in, and this network is growing. A tangible example: the smartphone has already turned into a network with many native applications already running on several AI technologies e.g. virtual assistants, search engines etc. This complexity will only become greater as the technology matures across time, but at least we have a few foundational principles to filter out the disambiguation problem when reading a future article discussing “Artificial Intelligence.”

Stay tuned for more upcoming AI insights releases on www.quantumstat.com