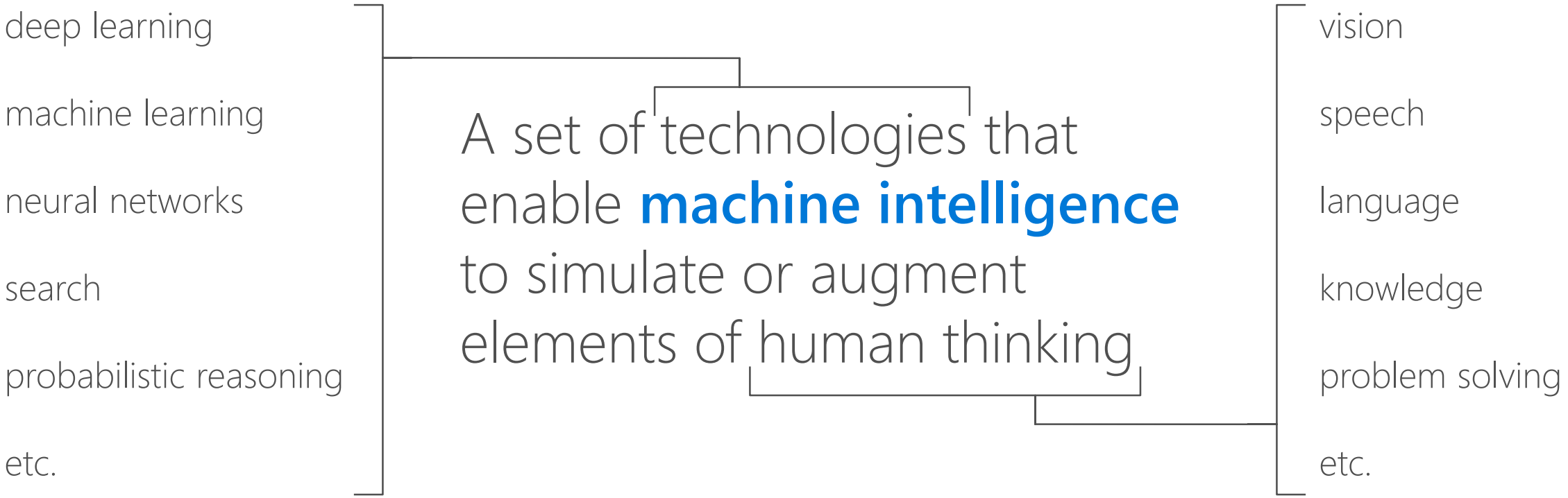
Microsoft

Artificial Intelligence & Copyright

Jule Sigall, Associate General Counsel, IP Policy & Copyright

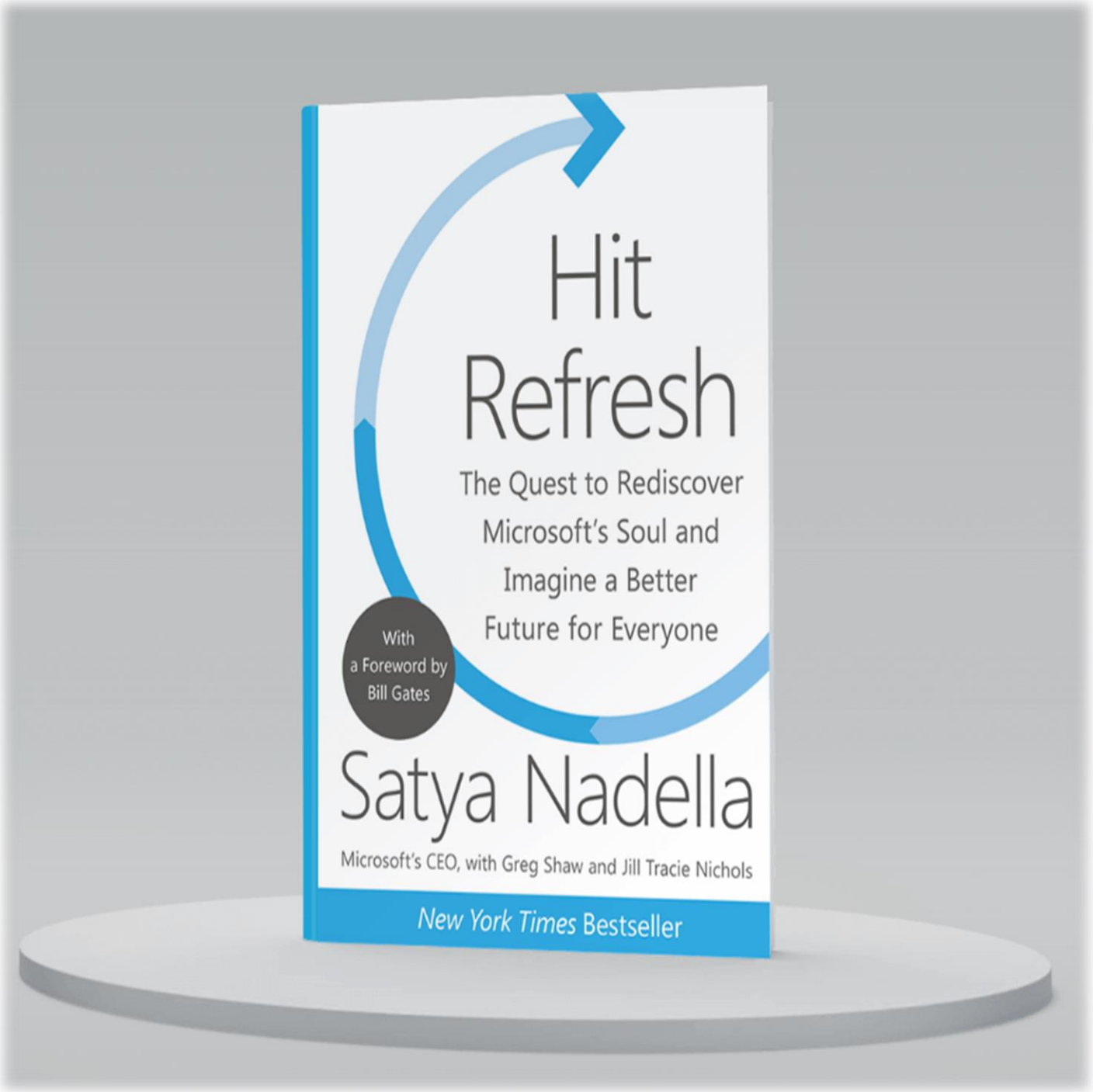
Artificial Intelligence



What's Driving the Growth of AI Today?

"A confluence of three breakthroughs – Big Data, massive computing power, and sophisticated algorithms"

Satya Nadella



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Big Data

From 2013 to 2020 the total amount of digital data created worldwide will grow from 4.4 to 44 zettabytes

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Where is all this Data Coming from?

One Example: "Gartner estimates by 2020, 80% of all new vehicle models in mature markets will have data connectivity, and 30% of connected-vehicle models will have built-in, function-level, OTA software capabilities."

Ford GT

- More than 50 sensors and 28 microprocessors to keep power in check
- More than 3000 signals — handled by six "communication area networks"
- Generating 300MB of data per second, more than 100GB of data per hour

Picture Source: Dave Doe\Flickr\Creative Commons

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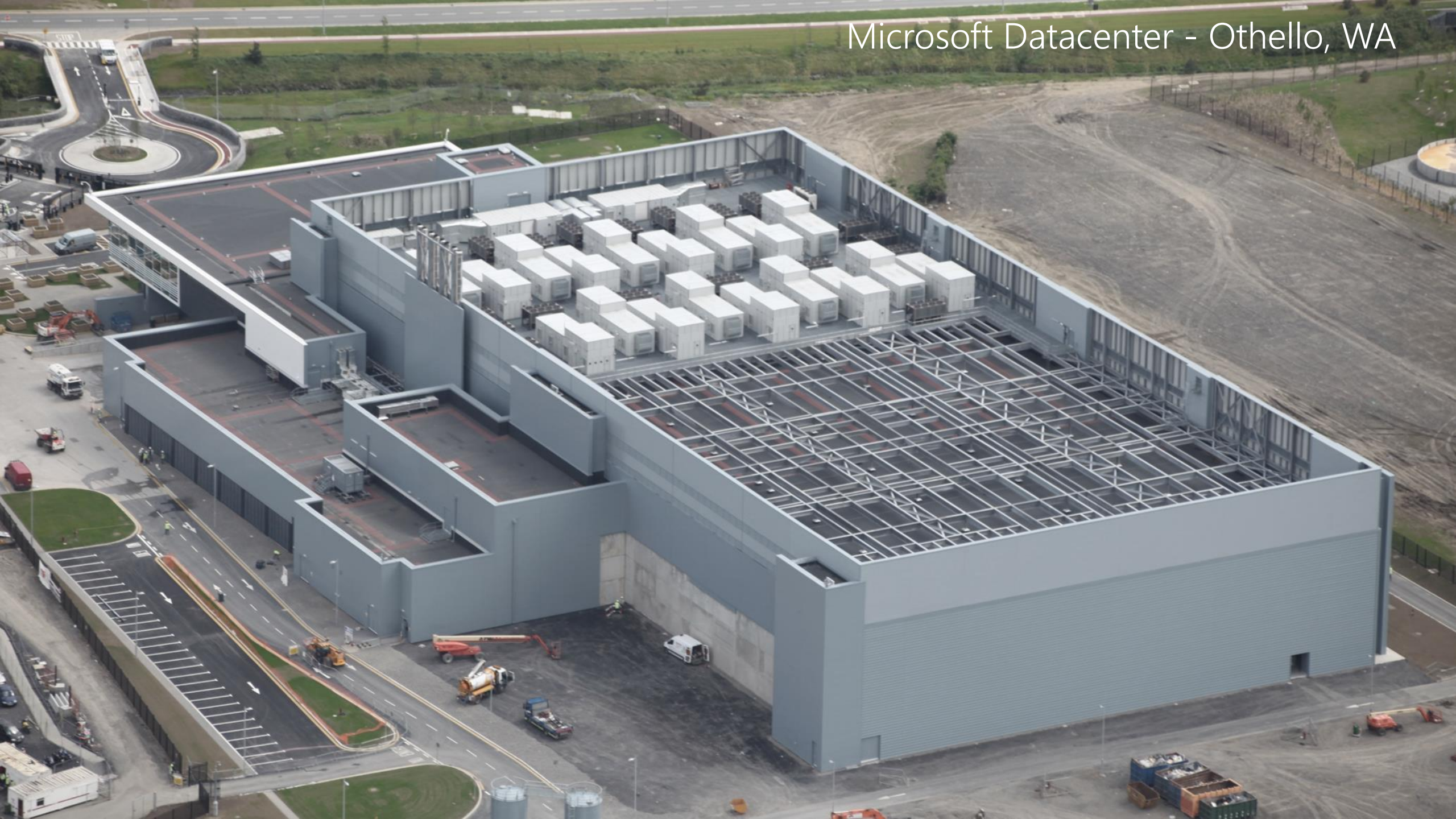
Source: Michael Ramsey and James F. Hines; Master the Four Stages of Connected-Vehicle Evolution to Lead the Renaissance of the Automobile; Gartner; December 30, 2016


Microsoft Datacenter - Othello, WA

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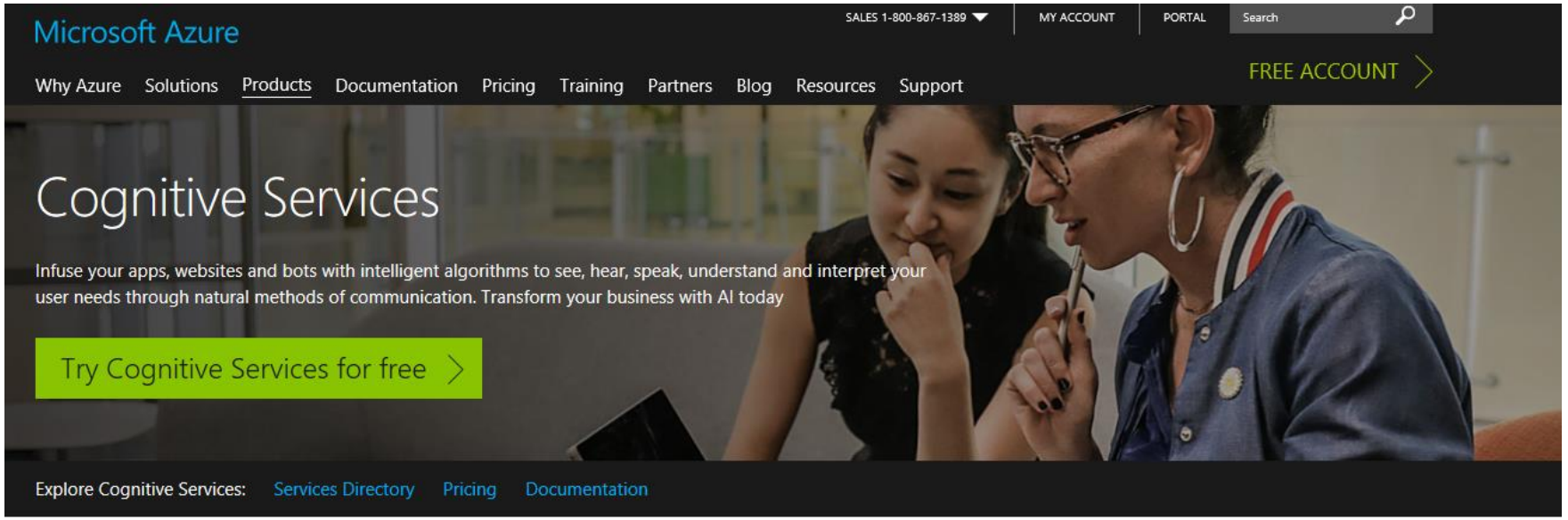
Availability of Modern Tools to Access Complex AI Algorithms



Use AI to solve business problems

Vision

Image-processing algorithms to smartly identify, caption and moderate your pictures.

Speech

Convert spoken audio into text, use voice for verification, or add speaker recognition to your app.

Knowledge

Map complex information and data in order to solve tasks such as intelligent recommendations and semantic search.

Search

Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call.

Language

Allow your apps to process natural language with pre-built scripts, evaluate sentiment and learn how to recognize what users want.

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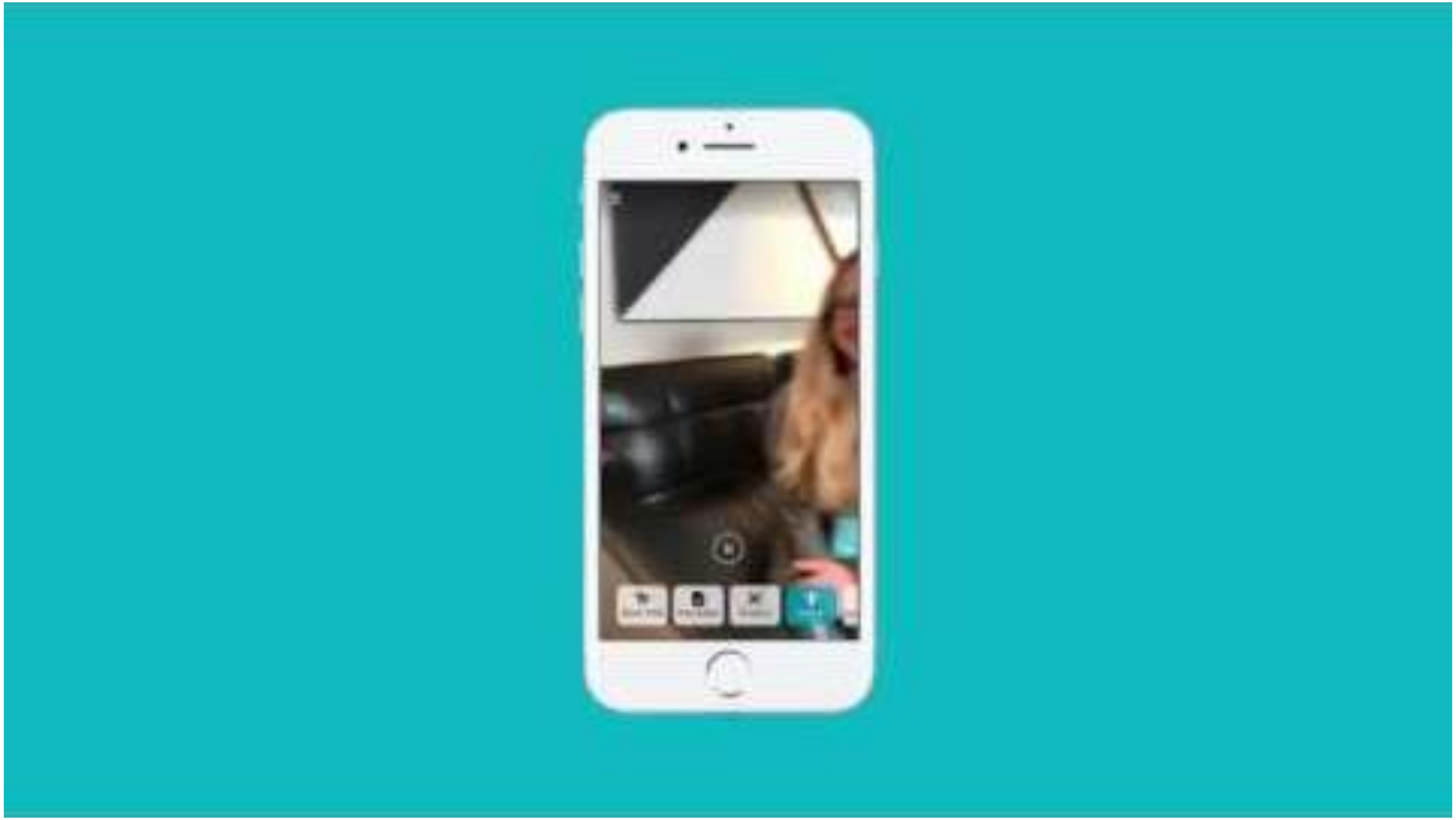
Microsoft “Seeing AI” App



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What does this mean for IP?

Copyright in the world of AI

What is Copyright Trying to Protect?

Very simple version: Copyright promotes knowledge and understanding ("Progress of Science" in U.S. Constitution) through creation of **works of authorship** by prohibiting **copying** of those works.

But, **works of authorship** has proven complicated, especially with computer programs and factual materials

And whether **copying** is enough to create liability is complicated by facts and circumstances around the purpose of copying and use

Both of these issues come into play with AI

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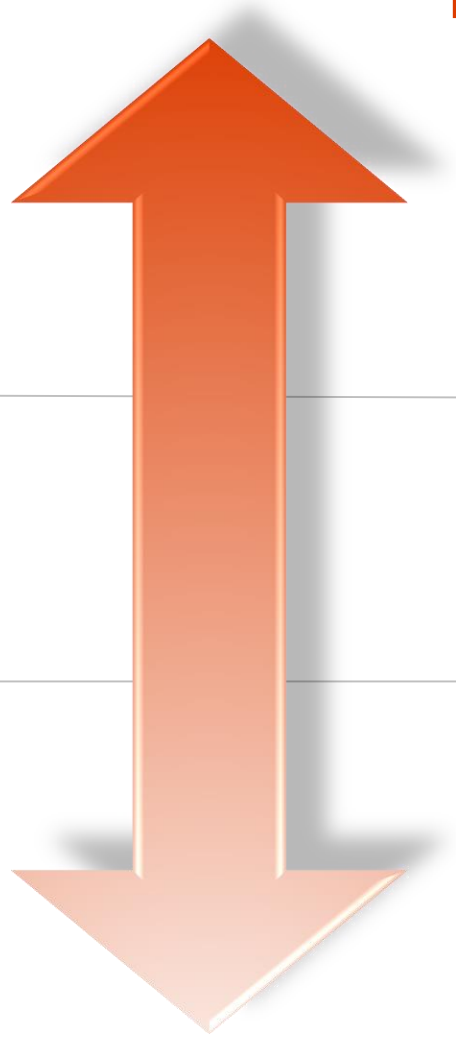
Traditional View of Copyright Protection

Type of work	Level of protection
Photos, books, music etc.	High
Structure, sequence, and organization of programs	Thin and fact-specific
Data, facts, ideas, analysis	None*



*EU provides a level of database protection

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What does this mean for IP?

Using works of authorship to train AI

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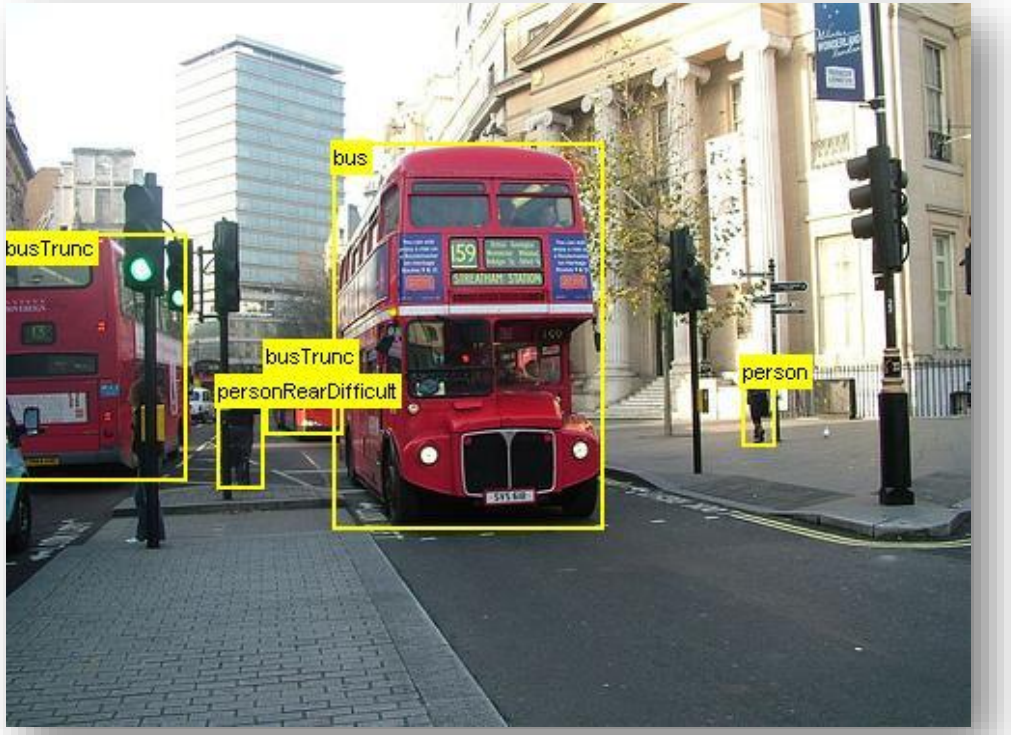
Picture source: flickr/lodekka CC-BY-2.0

The Transformative Nature of Machine Learning

Use as a Work

versus

Use as Data



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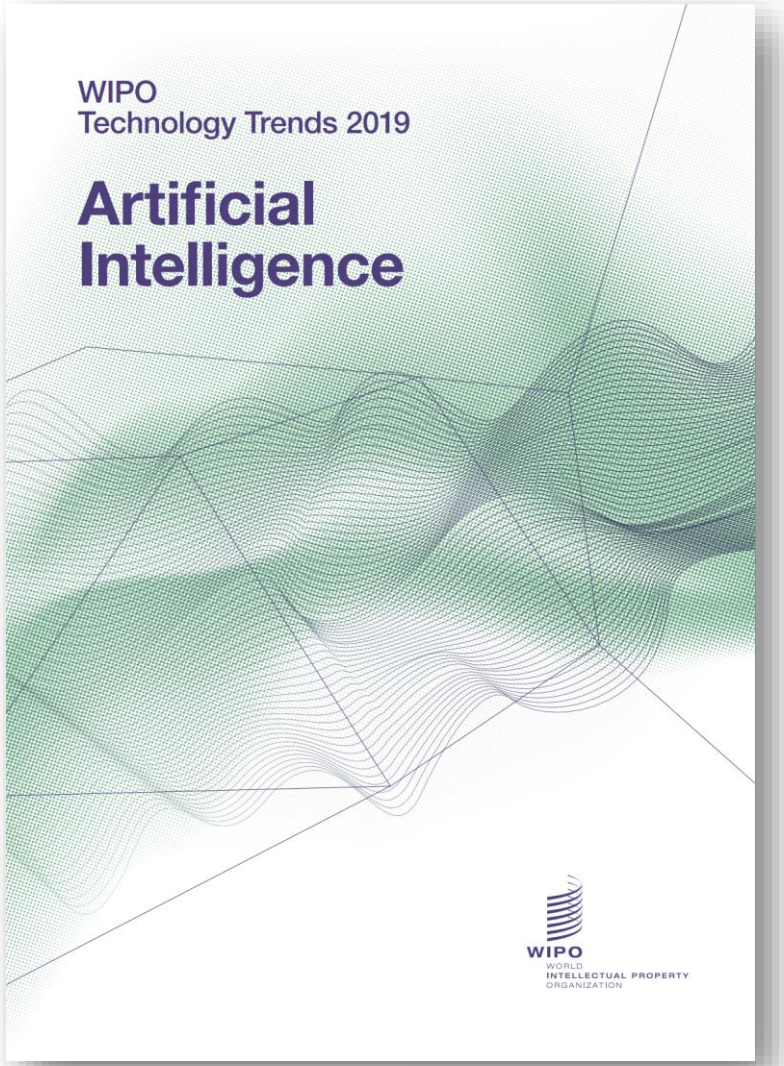
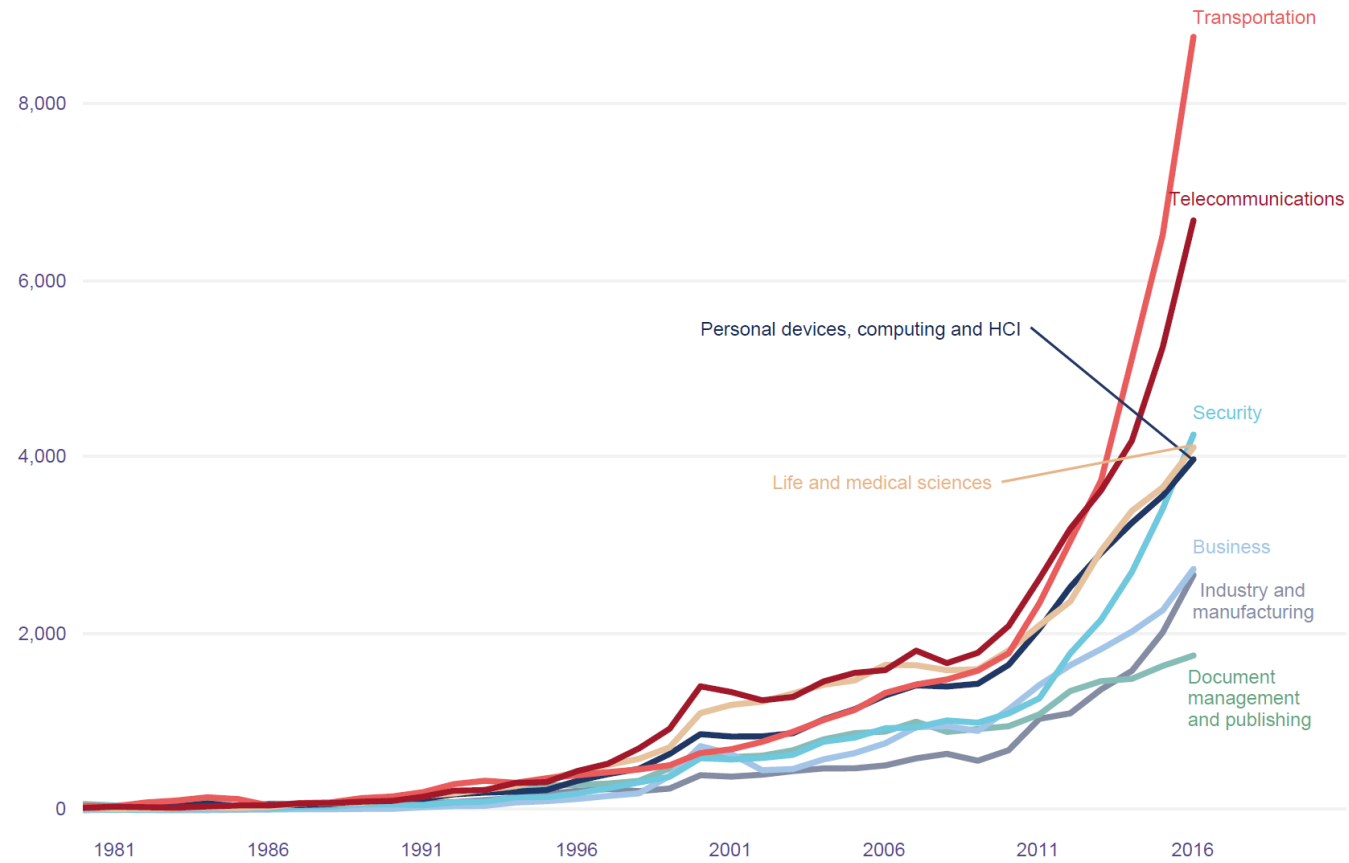


Figure 3.18. Patent families for top application field categories by earliest priority year

Patent families related to AI application fields emerged in the 1990s, with transportation and telecommunications overtaking all other fields



Note: A patent may refer to more than one category

"Patenting activity in the artificial intelligence realm is rising at a rapid pace, meaning we can expect a very significant number of new AI-based products, applications and techniques that will alter our daily lives – and also shape future human interaction with the machines we created," said WIPO Director General Francis Gurry.

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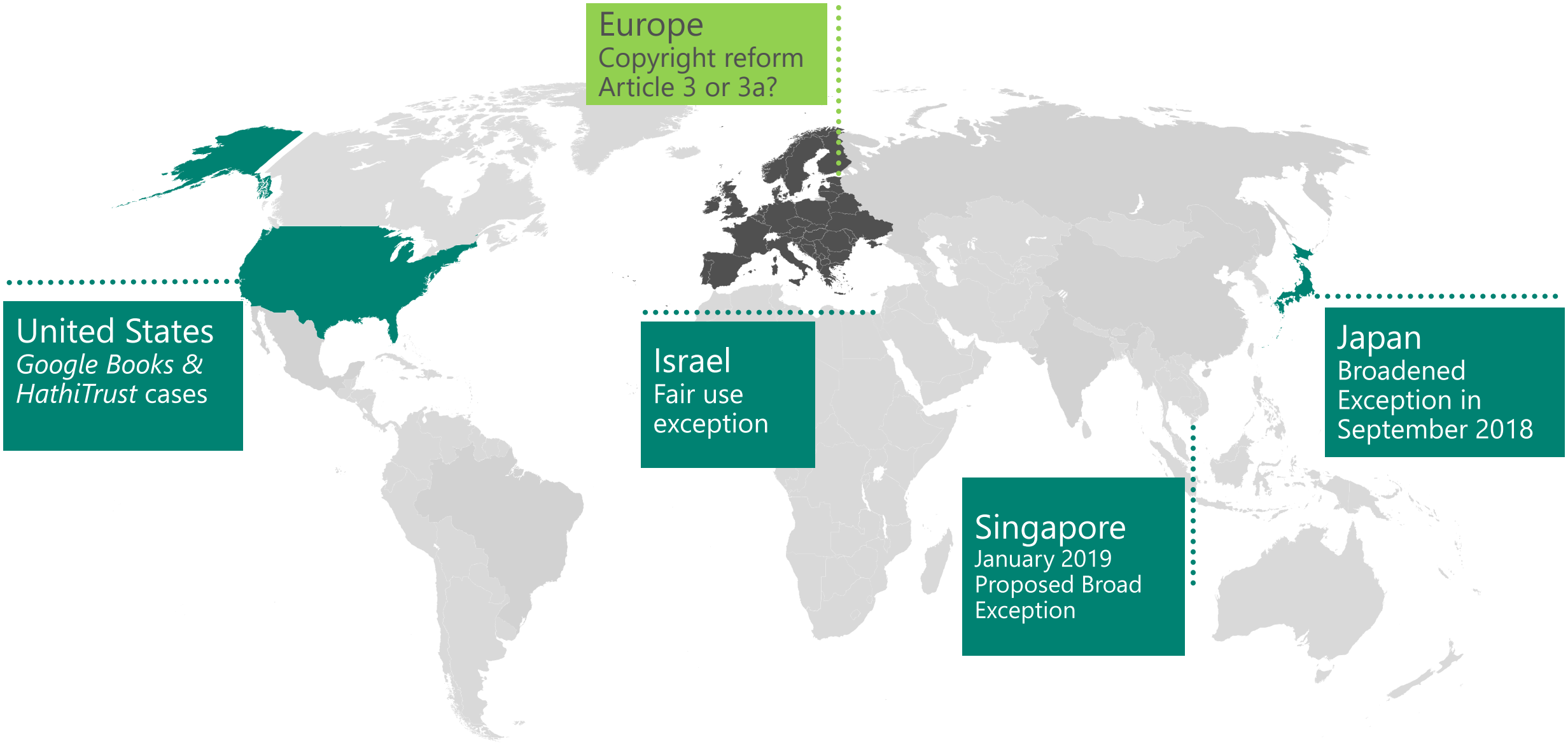
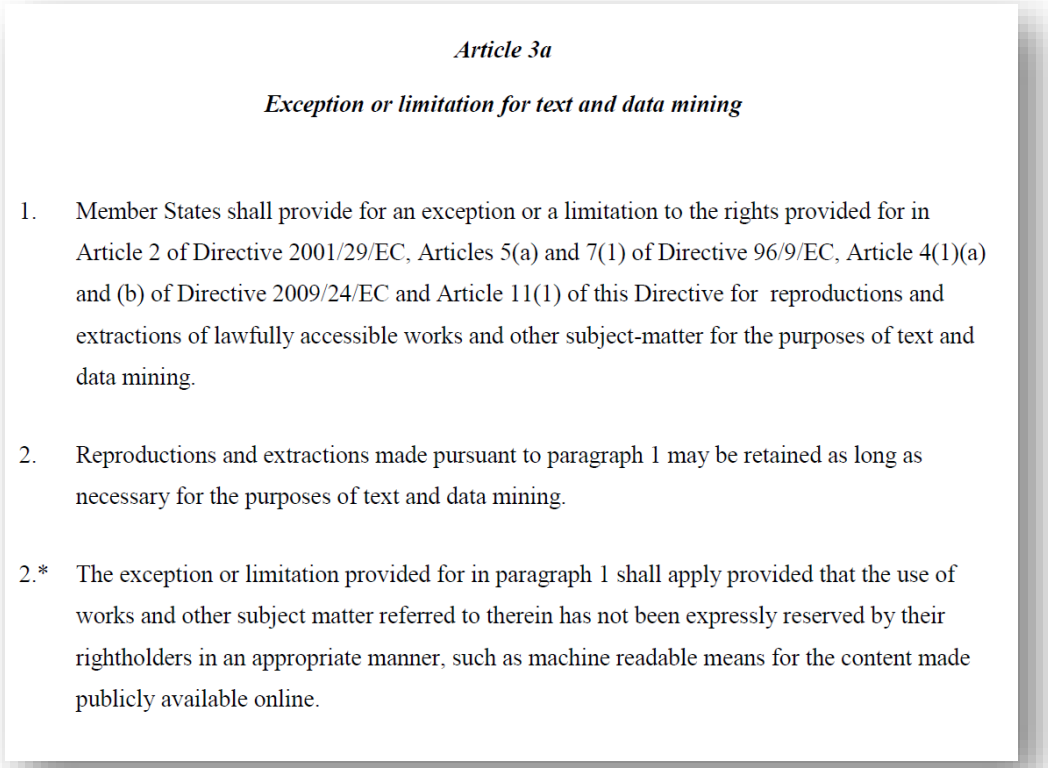
Making Copyright Safe for AI/ML: Global Trends



EU Copyright Directive Update

Two New Mandatory Exceptions
Article 3 for non-commercial research institutions
Article 4 for all other users, applies to publicly available material



Article 3a

Exception or limitation for text and data mining

1. Member States shall provide for an exception or a limitation to the rights provided for in Article 2 of Directive 2001/29/EC, Articles 5(a) and 7(1) of Directive 96/9/EC, Article 4(1)(a) and (b) of Directive 2009/24/EC and Article 11(1) of this Directive for reproductions and extractions of lawfully accessible works and other subject-matter for the purposes of text and data mining.

2. Reproductions and extractions made pursuant to paragraph 1 may be retained as long as necessary for the purposes of text and data mining.

2.* The exception or limitation provided for in paragraph 1 shall apply provided that the use of works and other subject matter referred to therein has not been expressly reserved by their rightholders in an appropriate manner, such as machine readable means for the content made publicly available online.

Article 4 creates "an additional exception for text and data mining going beyond the area of research. This exception will contribute to the development of data analytics and artificial intelligence in the EU."

European Commission - Fact Sheet (Feb 2019)

What does this mean for IP?

Works of authorship 'created' by AI

Burrow Giles v. Sarony - 1868

"…photography copies everything and explains nothing, it is blind to the realm of the spirit."

-Charles Blanc

"An author is 'he to whom anything owes its origin; originator; maker; one who completes a work of science or literature."

-Justice Samuel Miller, US Supreme Court

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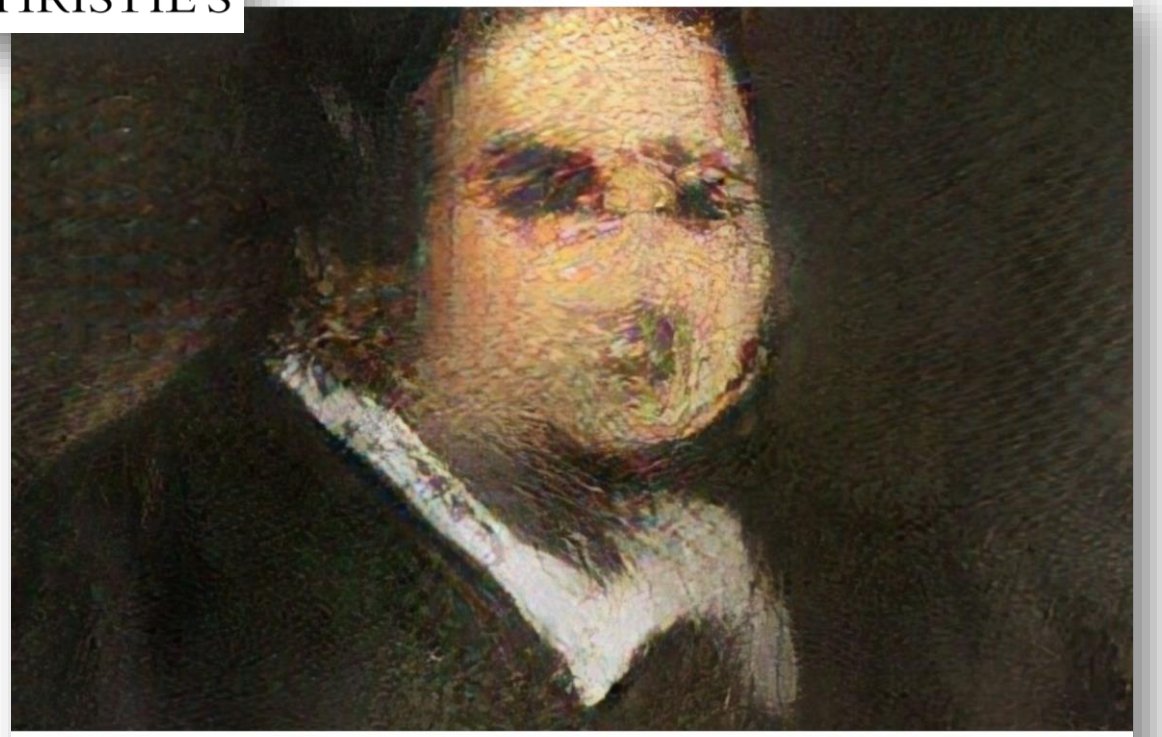
CHRISTIE'S



Is artificial intelligence set to become art's next medium?

AI artwork sells for $432,500 — nearly 45 times its high estimate — as Christie's becomes the first auction house to offer a work of art created by an algorithm

$$\min_G \max_D \mathbb{E}_x[\log(D(x))] + \mathbb{E}_z[\log(1 - D(G(z)))]$$

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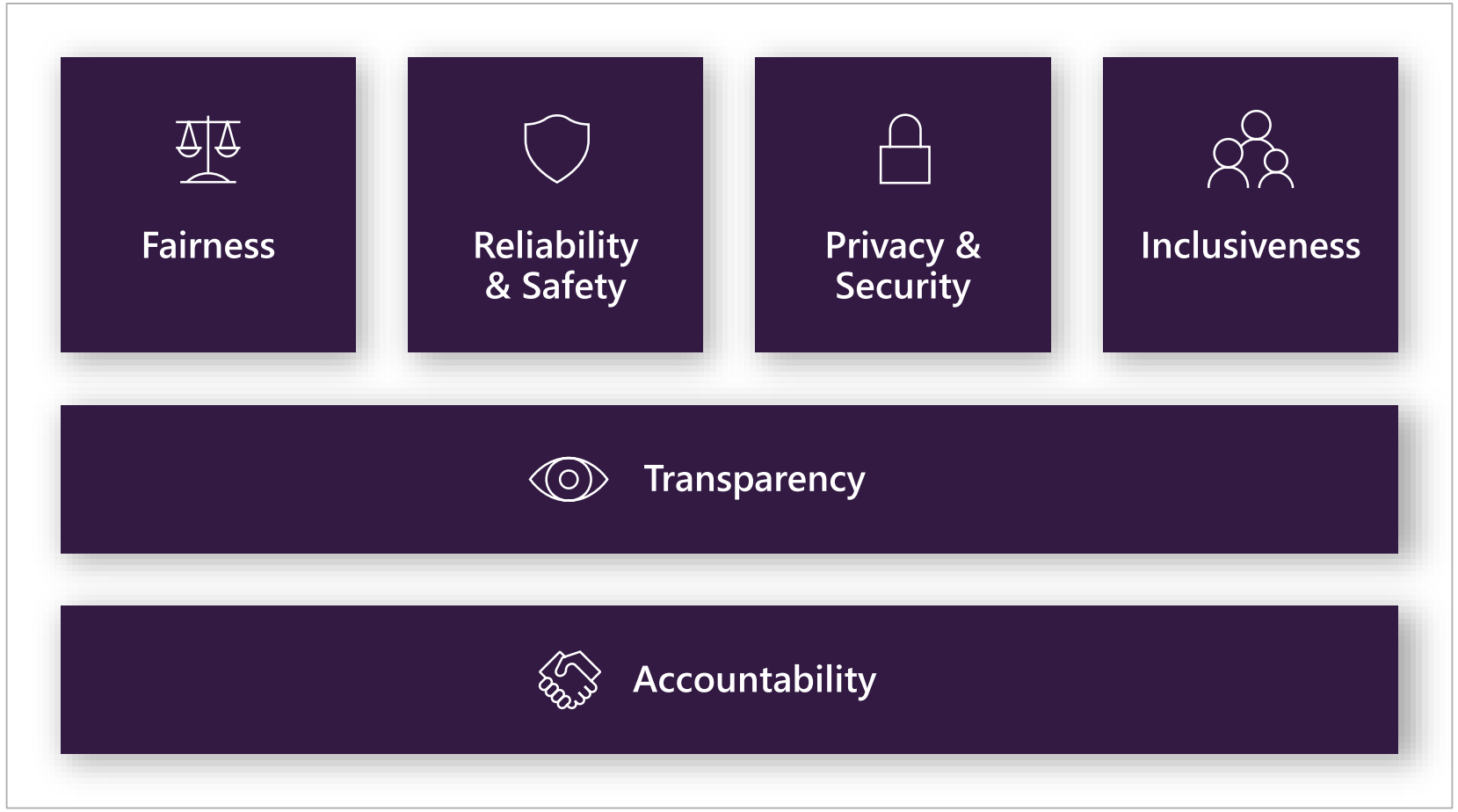
The ethics of AI



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