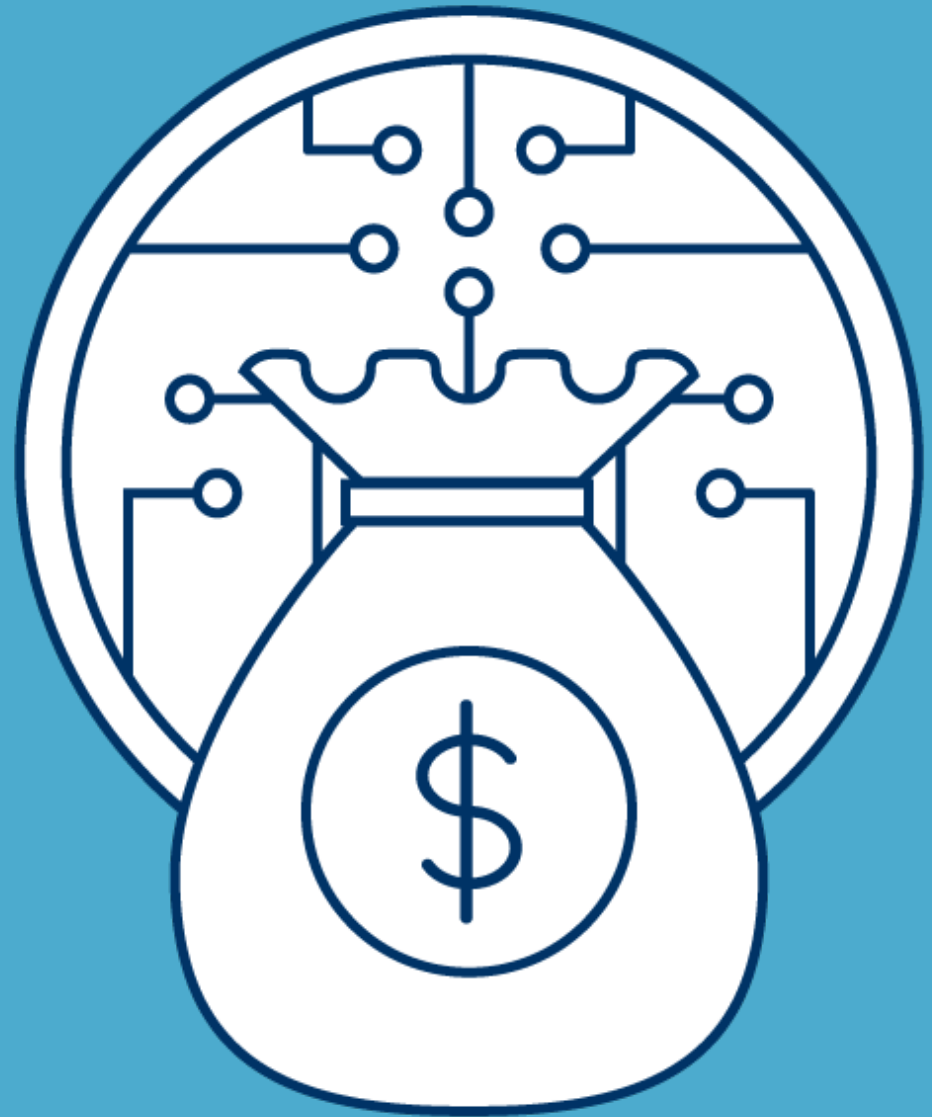


Financial services & the deep learning revolution

 CBINSIGHTS





TRUSTED BY THE WORLD'S LEADING COMPANIES



“We use CB Insights to find emerging trends and interesting companies that might signal a shift in technology or require us to reallocate resources.”



Beti Cung,
CORPORATE STRATEGY, MICROSOFT





Own the future.

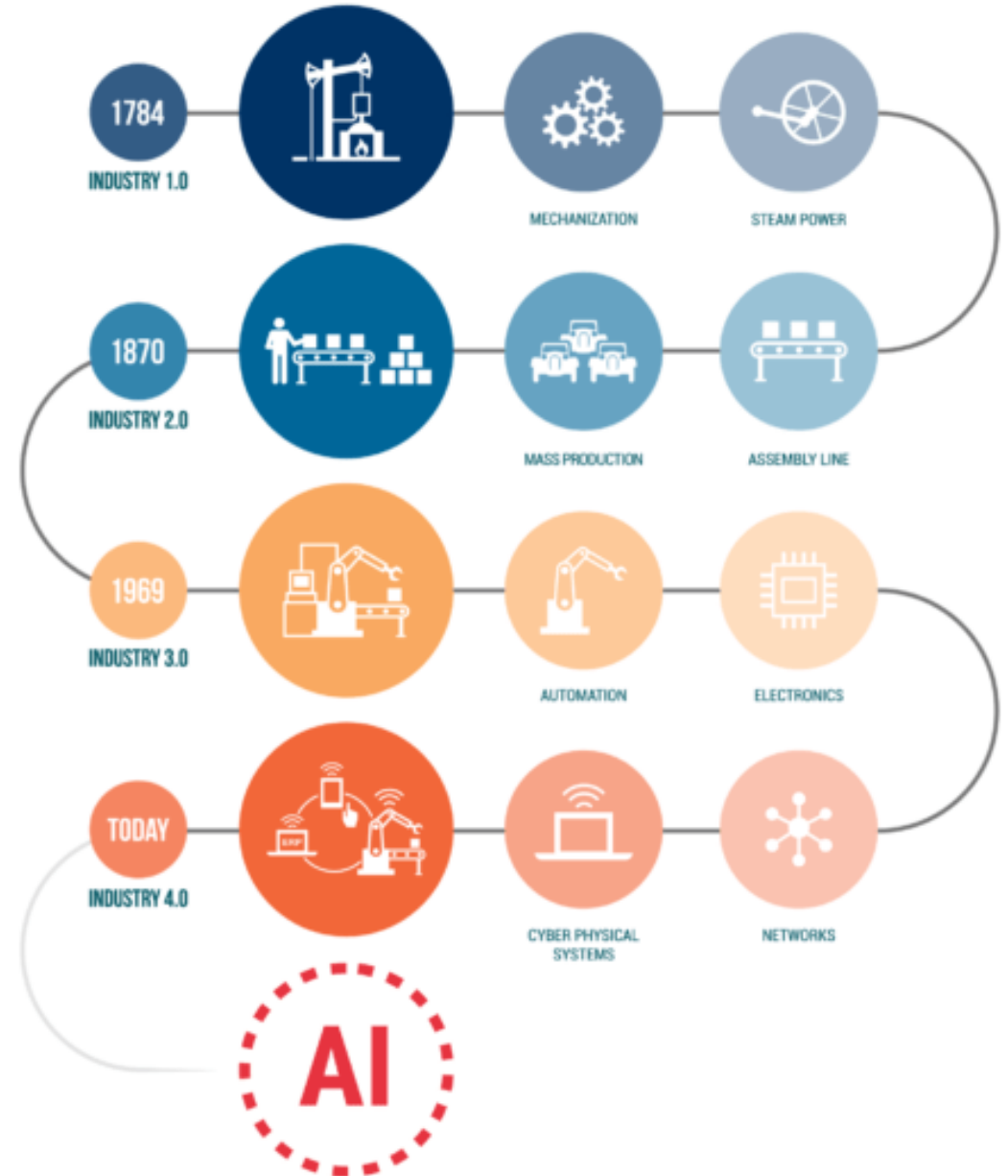
The CB Insights machine intelligence platform synthesizes, analyzes and visualizes millions of documents to deliver fact-based insights. It enables smart companies to predict trends, see competitors' strategies, explore new markets and reveal opportunities to capitalize on change.

[CLICK TO TRY CB INSIGHTS](#)

A NEW INDUSTRIAL REVOLUTION

AI is ushering in a new age of machines

AI software is beginning to automate entry-level white-collar jobs.



STARTUP FUNDING

Interest in AI software is soaring

1,100+

**New startups
raised 1st equity since
2016**

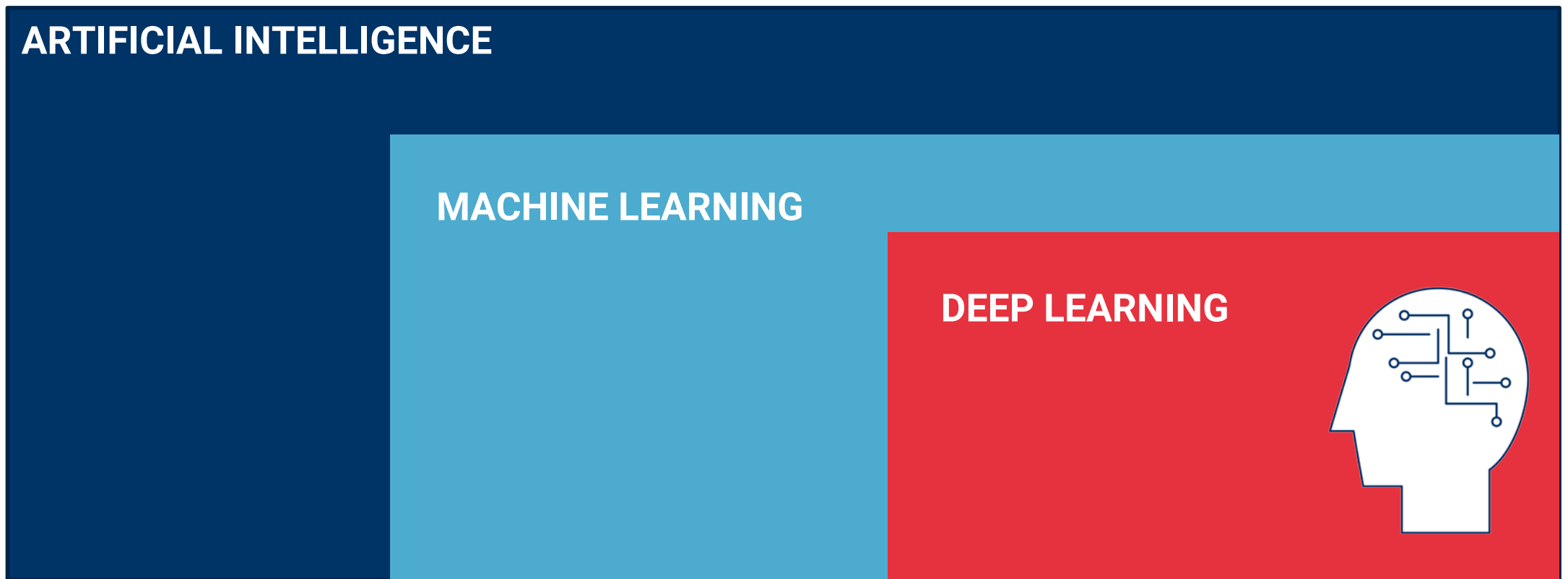
\$15.2B

**Equity funding in 2017
alone, a 141% jump from
the previous year**

300+

**Companies entered
incubators in 2017, 3x
more than 2016**

... and the bleeding edge is an approach called
'deep learning'

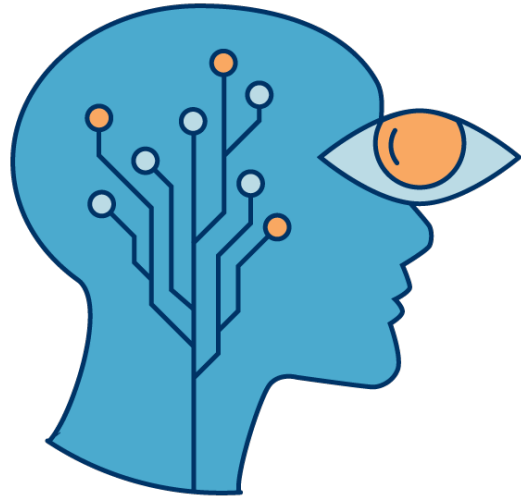


AI INSPIRED BY THE HUMAN BRAIN

“Deep learning... has drawn heavily on our **knowledge of the human brain**. In recent years deep learning has seen **tremendous growth in popularity and usefulness.**”

Deep Learning by Ian Goodfellow and Yoshua Bengio and Aaron Courville

Deep learning is good at what human senses excel at:



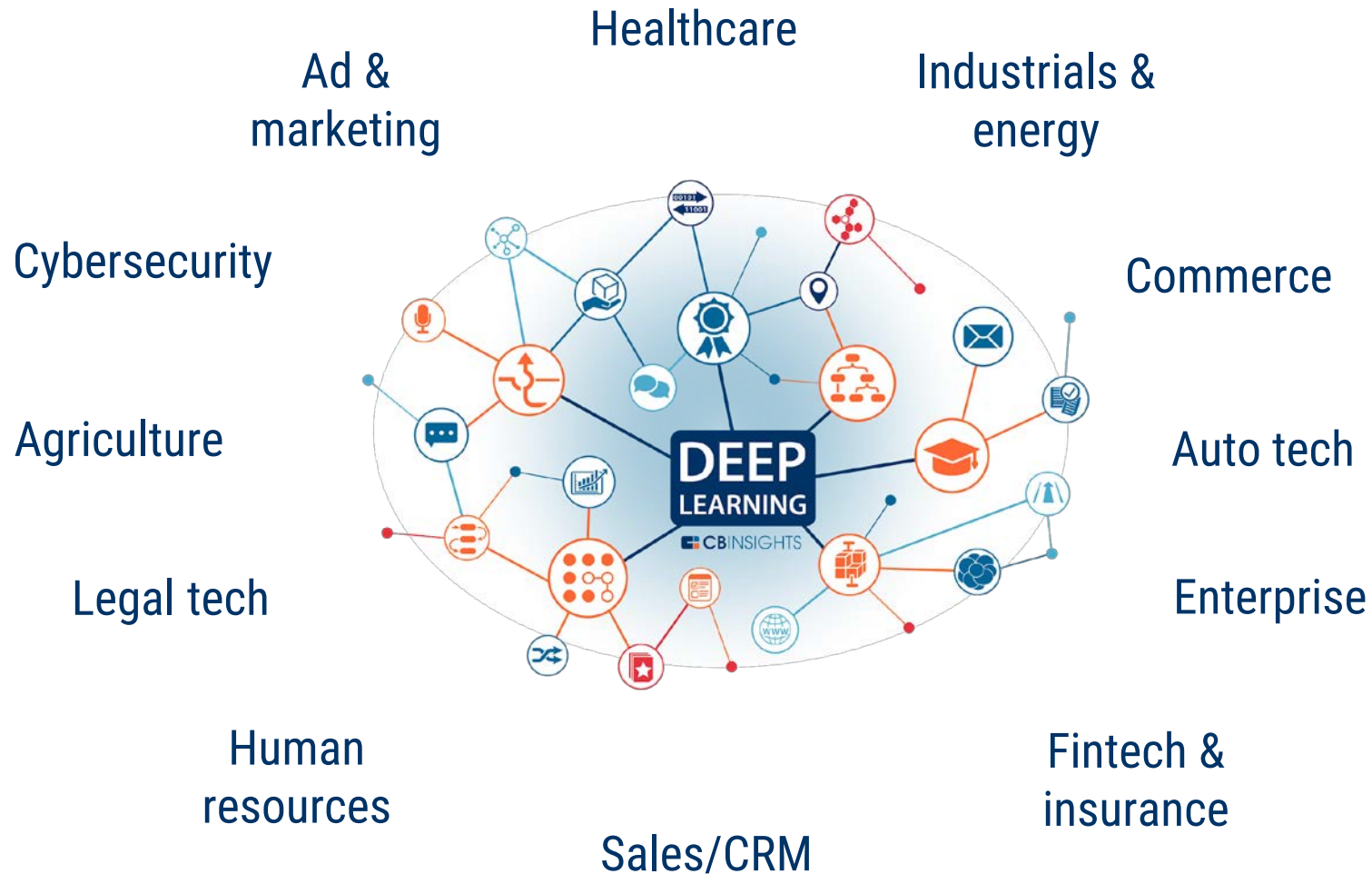
See, identify and classify things



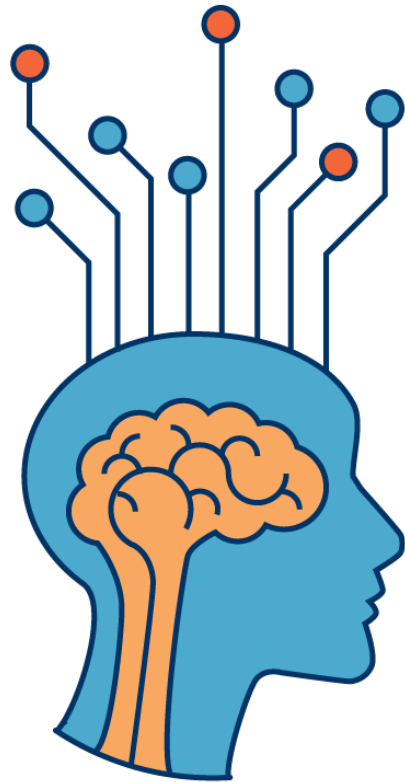
Process human language and respond to it

A NEW INDUSTRIAL REVOLUTION

And it is disrupting every major industry



DL's potential applications in fin services are vast



FRAUD PREVENTION

CUSTOMER SERVICE

PREDICTIVE ANALYTICS

TRADING

REGULATORY COMPLIANCE

CAPITAL MARKETS

CLAIMS PROCESSING

NOVEL APPLICATIONS ARE EMERGING

Startups and **big tech** companies are using deep learning to **drive profits** and **reduce risk**.

TRACKING PHYSICAL ASSETS

Trading on futures with deep learning

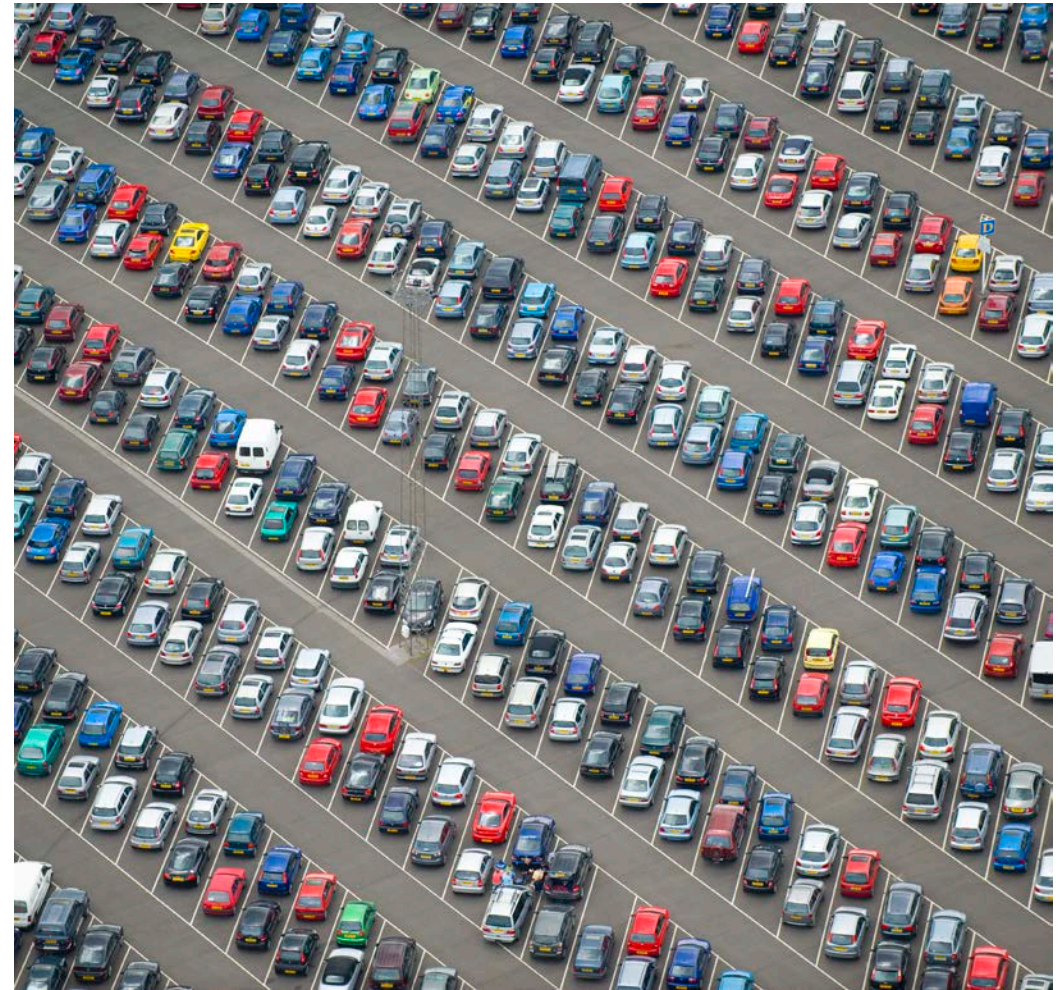


TRADING ON FUTURES WITH DEEP LEARNING

Hedge funds and fintech companies are partnering with startups that **analyze satellite images** using deep learning to **track oil, crop, and water inventories.**

RISK ASSESSMENT

Processing auto claims with deep learning



CHINA'S ANT FINANCIAL

“The accident-processing system is a good example of how advances in AI can **flip an existing system on its head...** It has become possible to automate this kind of image processing in recent years using... **deep learning.**”

MIT Tech Review interviewing Yuan (Alan) Qi, Chief data scientist at Ant Financial,

SECURITY

Anti-money laundering with deep learning



DANKSE BANK USES GOOGLE TENSORFLOW FOR DEEP LEARNING

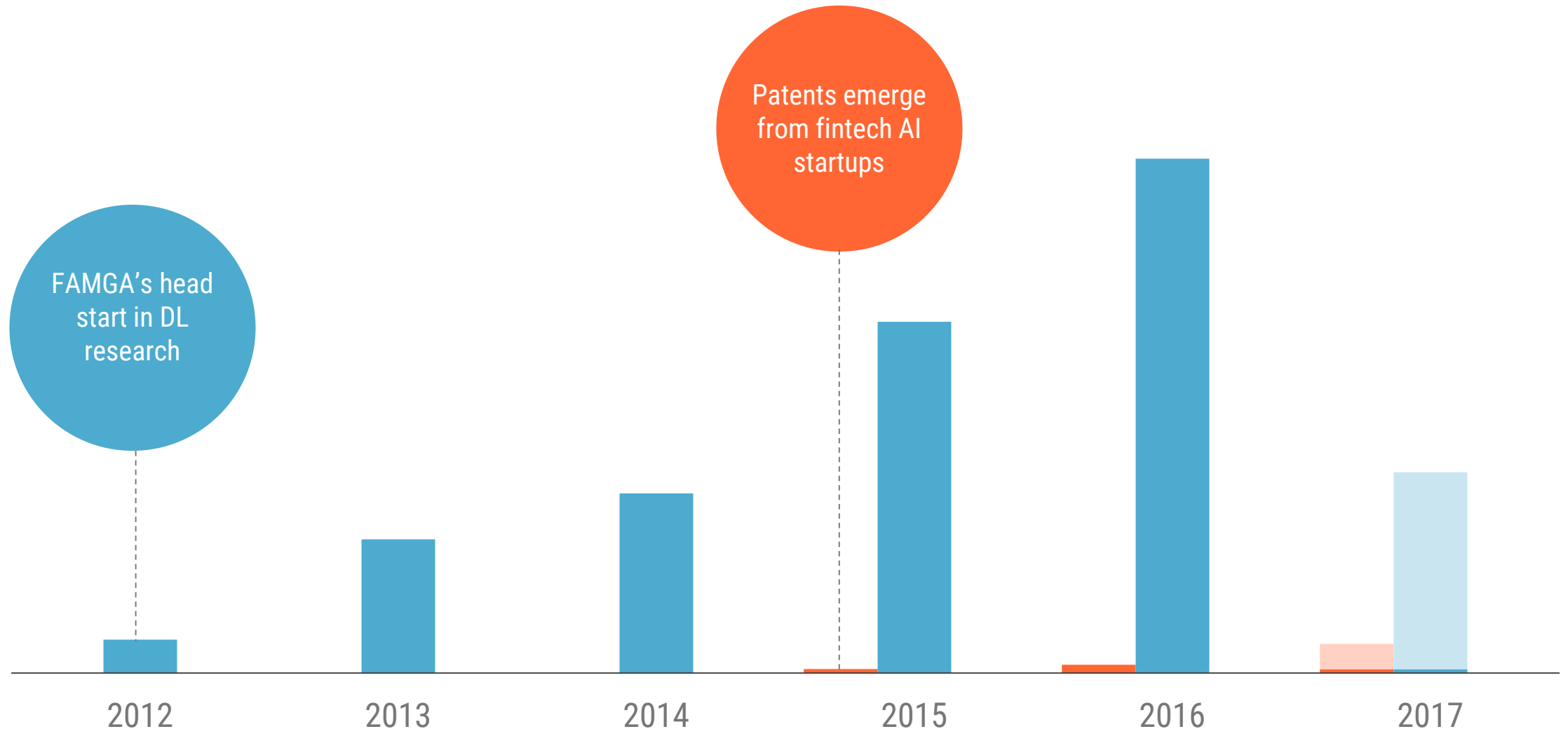
“There is evidence that criminals are employing **sophisticated machine-learning techniques to attack**, so it’s critical to use **sophisticated machine learning to catch fraud** in banking and mobile payment transactions.”

Fighting financial fraud at Danske Bank with artificial intelligence, *O’Reilly Conference*

**But traditional
financial
institutions are
falling behind
in DL research**




...with no deep learning patent activity so far



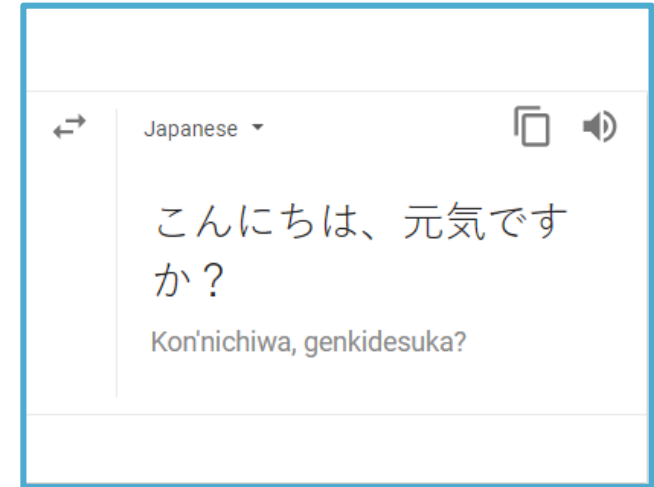
Big tech is pushing the boundaries of DL research



 Amazon's grab-and-go store



 Apple's Face ID feature in iOS10



 Google translation tools

BIG TECH SWITCHES LANES

And may **soon bring its AI** to **financial services**



Amazon uses machine learning tools
for lending



Amazon India unveils Seller Lending Network,
uses machine learning to facilitate loans

ALIBABA, TENCENT CONTINUE GLOBAL EXPANSION

Chinese big tech is already ahead in the game



MIT
Technology
Review

Meet the Chinese Finance Giant That's Secretly an AI Company

“By feeding thousands of example images into a **very large neural network**, it is possible to train it to recognize things that even a human may struggle to spot.”

“We built a system, based on **deep learning**, to carry on conversations; to provide answers to your questions,” Qi says. “

Talent wars will heat up as banks start building dedicated AI research teams



DEMAND FAR EXCEEDS SUPPLY

AI talent doesn't come cheap

Goldman Sachs

BUSINESS INSIDER

Goldman Sachs poached a deep learning expert from Amazon to lead AI efforts

“Charles Elkan has joined Goldman Sachs as a managing director leading the firm's machine learning and AI strategies, according to an internal memo viewed by Business Insider. Elkan comes from Amazon, where he was responsible for the Artificial Intelligence Laboratory at Amazon Web Services...”

JPMORGAN
CHASE & CO.

THE WALL STREET JOURNAL.

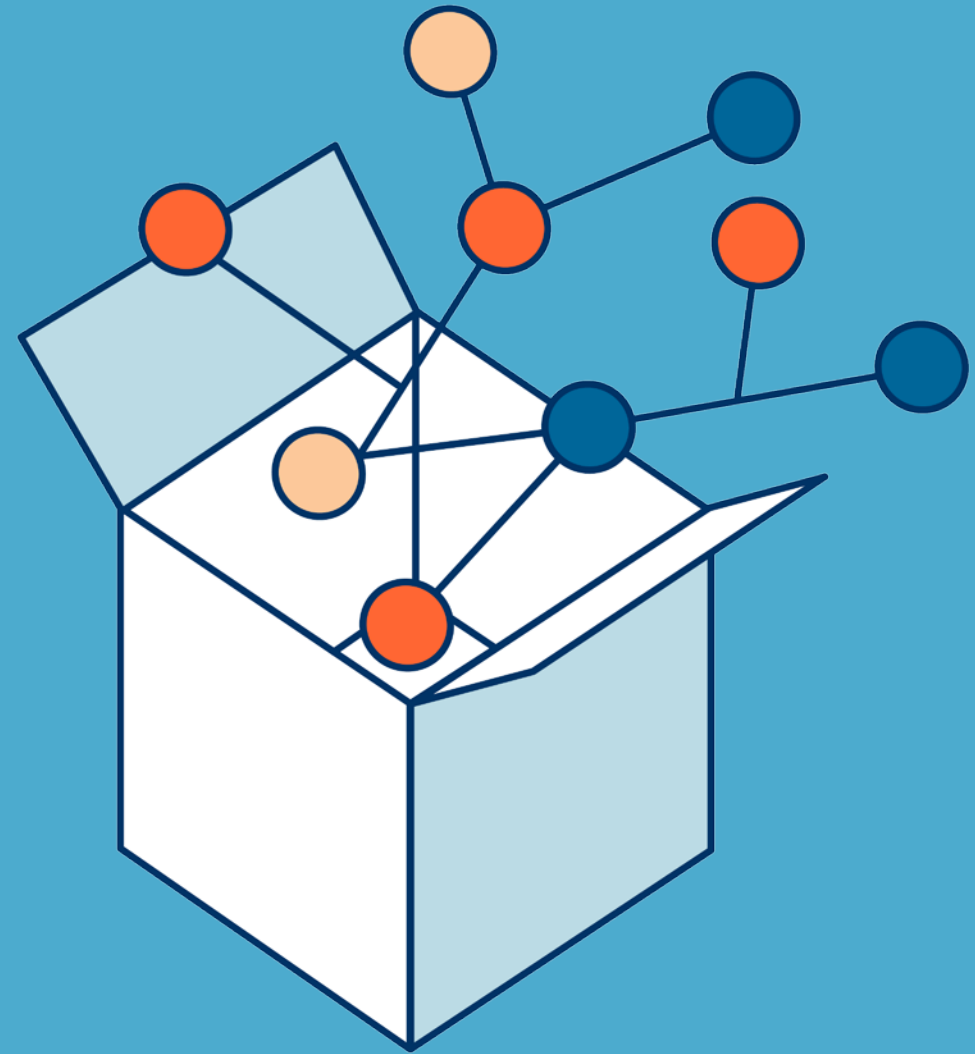
JPMorgan Taps Carnegie Mellon Professor for New Artificial Intelligence Role

“JPMorgan Chase & Co. is investing further in artificial intelligence.

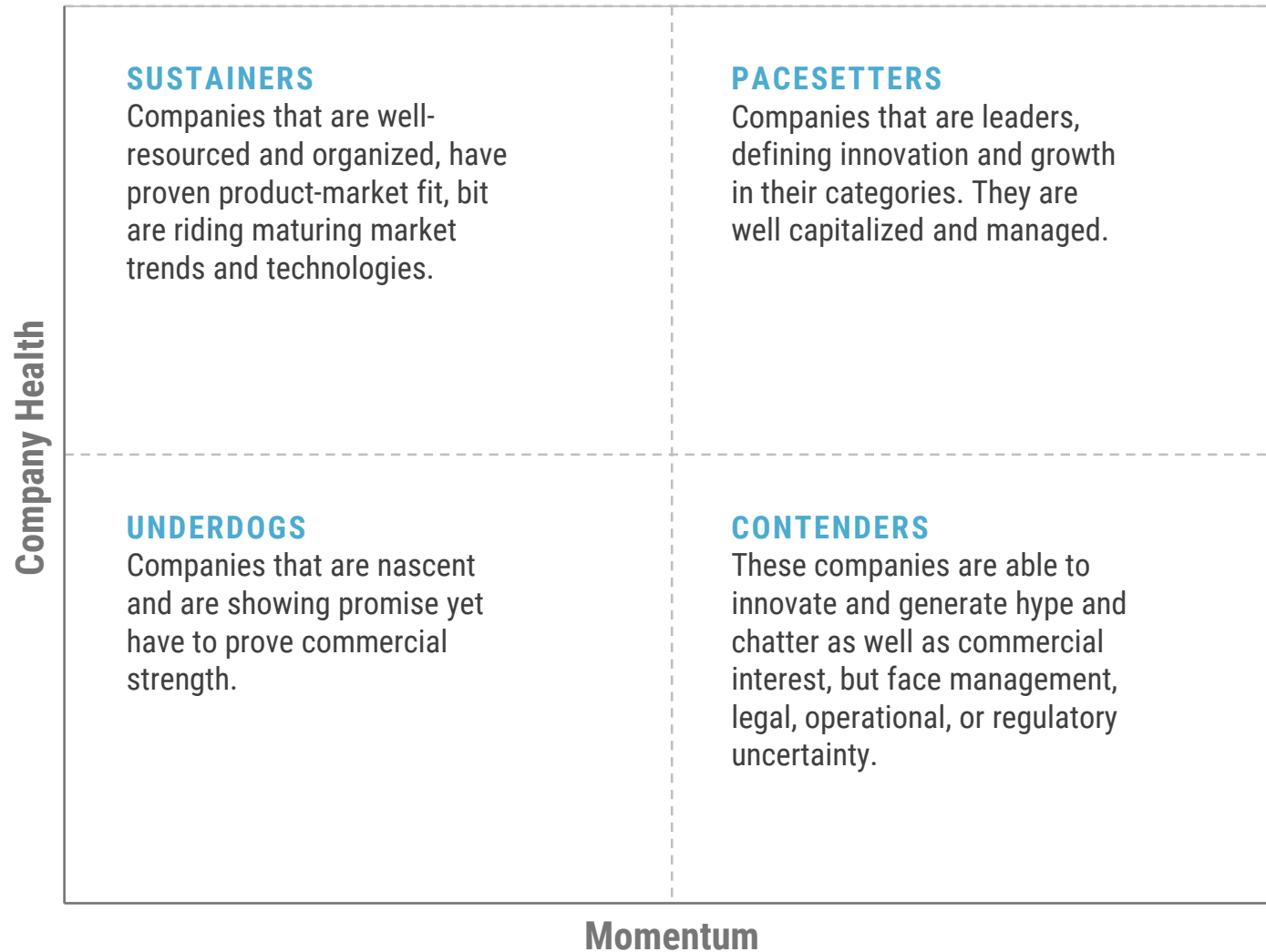
The largest U.S. bank by assets said Thursday that Carnegie Mellon University’s head of machine learning will join JPMorgan in a new role, head of artificial-intelligence research.”

“Manuela Veloso will build on the U.S. bank’s existing work applying machine learning technology.”

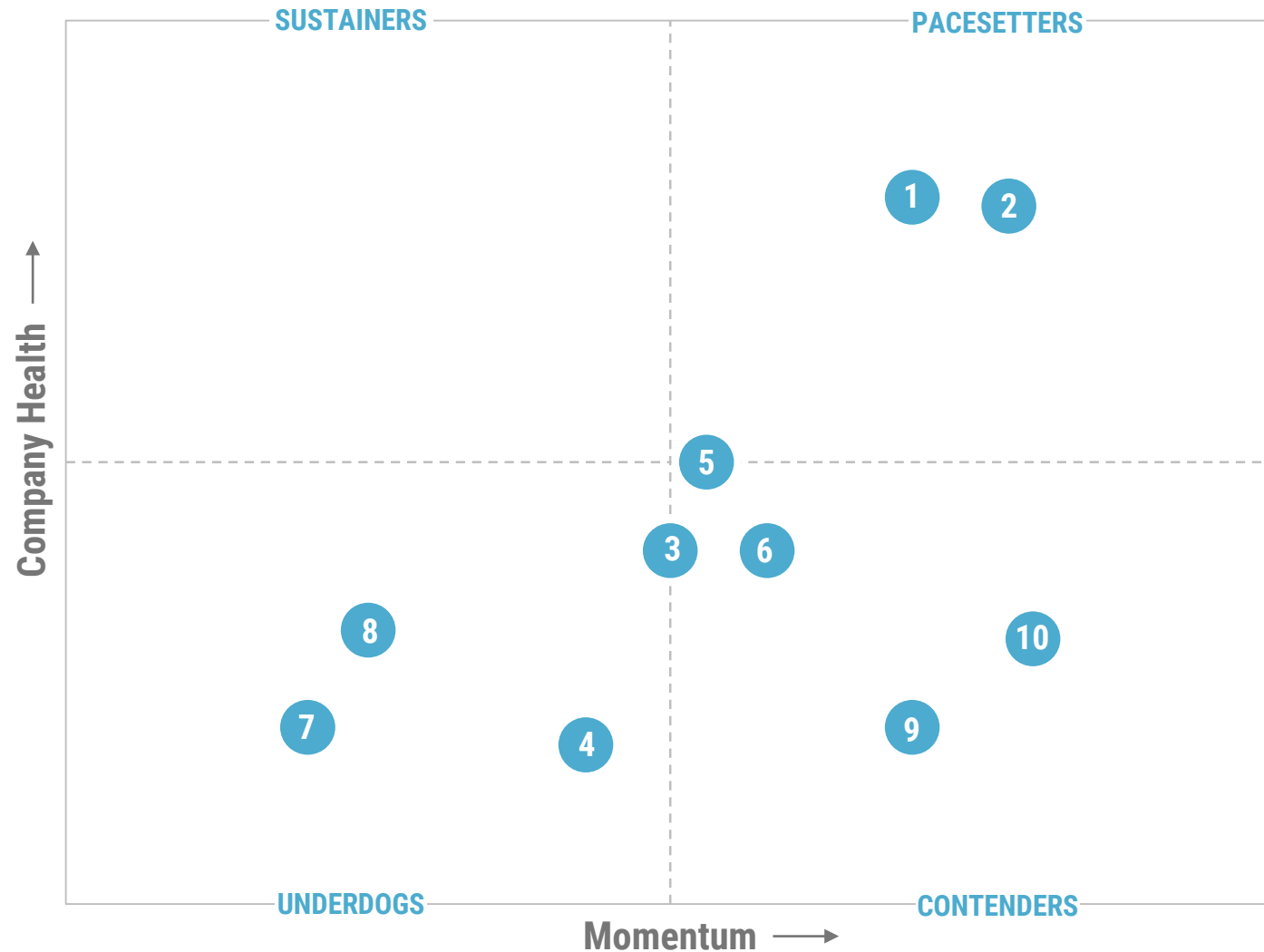
**Partnerships
with DL
startups will
increase
adoption in the
near term**



The CB Insights CUSP Quadrant



Startups using deep learning in fin services



	Startup or Sector	Segment
1	ELEMENT AI	Enterprise AI
2	 Orbital Insight	Satellite image analysis
3	 CAPE ANALYTICS	Real estate insurance
4	 Captricity	Digitizing paper trail
5	 zest finance	Underwriting
6	 Descartes Labs	Satellite image analysis
7		Hidden
8		Hidden
9		Hidden
10		Hidden