



META**FUSED**

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*Artificial Intelligence: Its happening NOW*

Madhuban Kumar



How do you define art...



YouTube



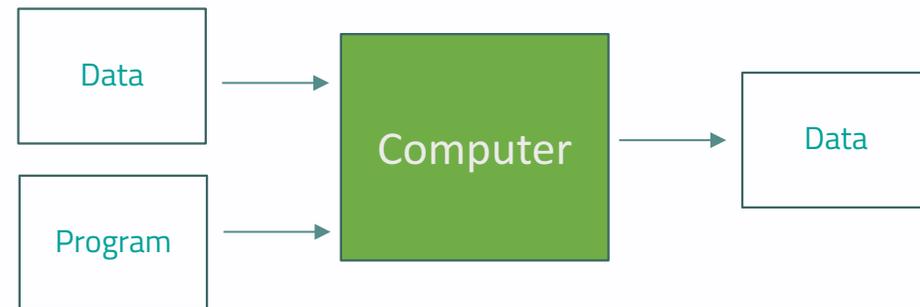
# Artificial Intelligence is not Programming

“Field of study that gives computing the ability to learn without explicitly being programmed”

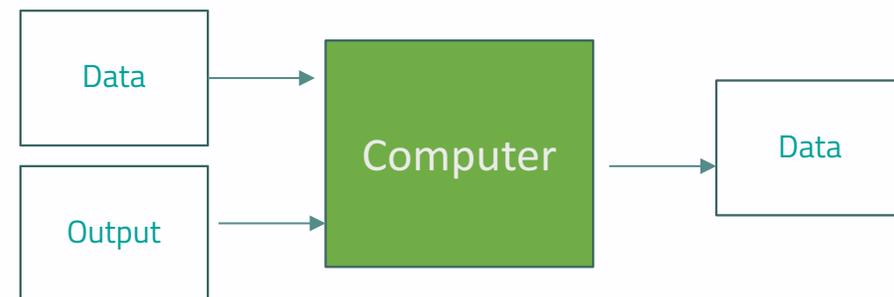
Arthur Samuel



## Traditional Programming

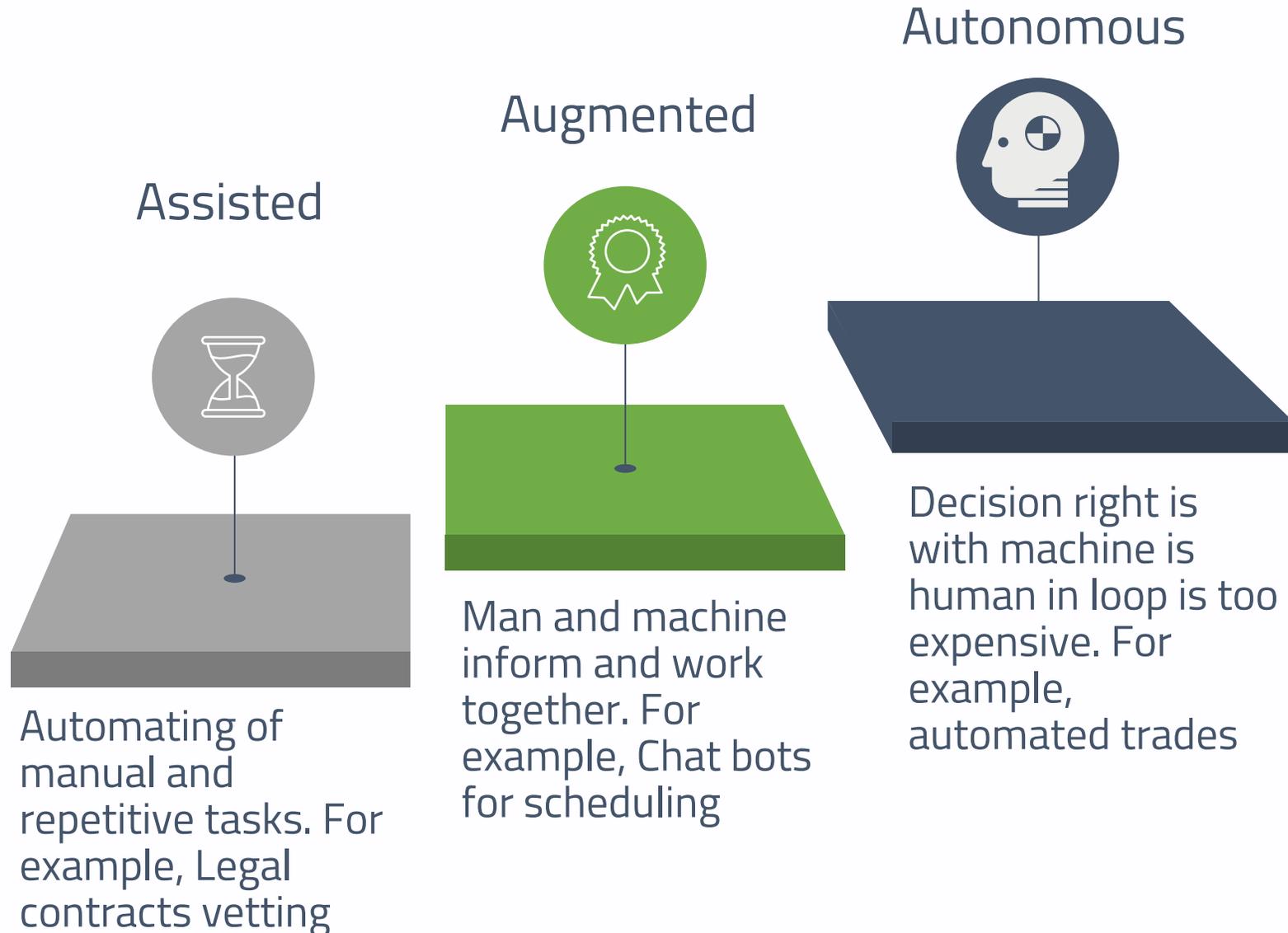


## Machine Learning



# Example of detecting churn in banking

# What is Artificial Intelligence



# Artificial general intelligence (AGI)



**Intelligence** of a machine performing any intellectual task that a human being can.

It is a decade away.....

# Narrow or Weak intelligence (AI)



## FINAL SCORES

Match	Black	White	Result
1	Lee Sedol	AlphaGo	W + Res
2	AlphaGo	Lee Sedol	B + Res
3	Lee Sedol	AlphaGo	W + Res
4	AlphaGo	Lee Sedol	W + Res
5	Lee Sedol	AlphaGo	W + Res

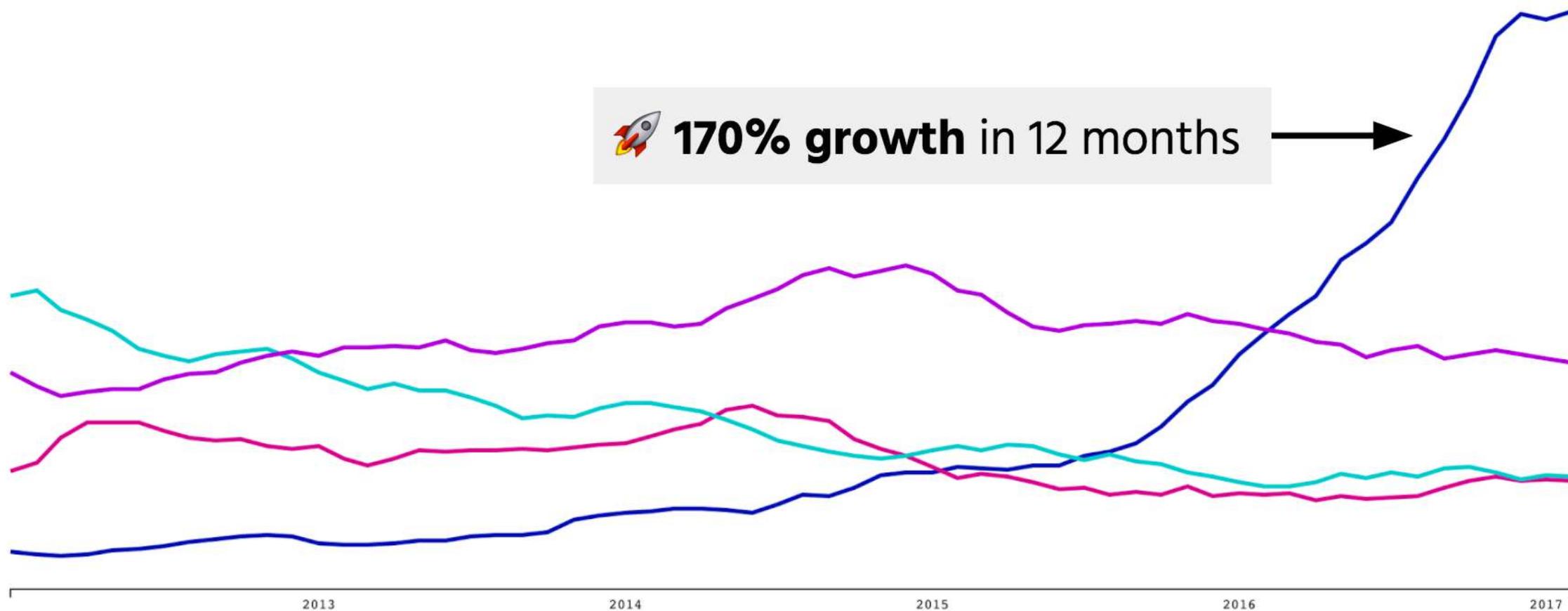
**Its** non-sentient artificial intelligence focused on one **narrow** task.

It is happening now.....

# Attention in AI keeps growing over other tech

"Artificial Intelligence" "Cloud Computing" "Social Networks" "mobile app"

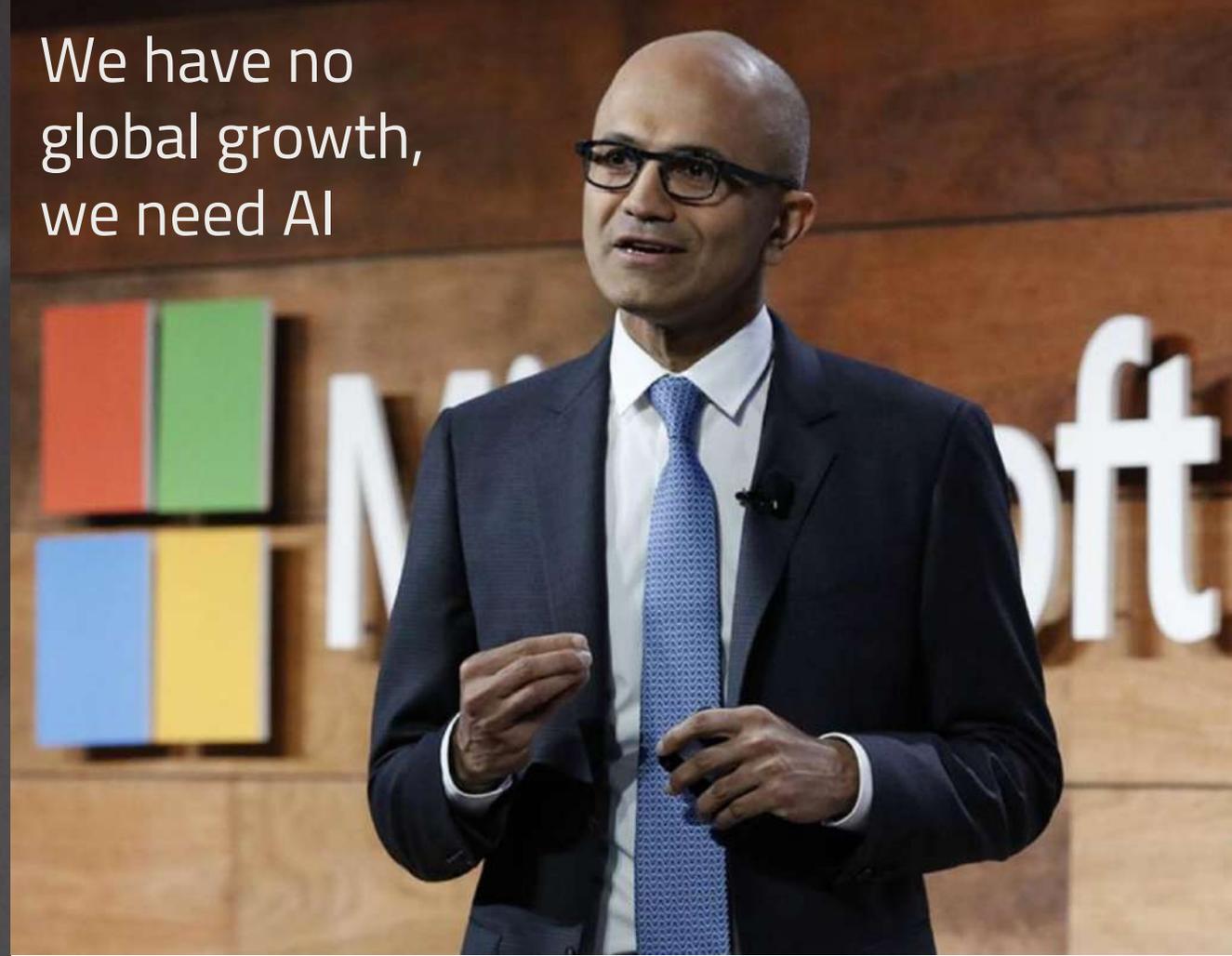
Attention in tech media



Moving into an AI first company



We have no global growth, we need AI



**Andrew Ng**  
@AndrewYNg



Following

"AI is the new electricity!" Electricity transformed countless industries; AI will now do the same.

# Majors move into open source



facebook



Microsoft



Google



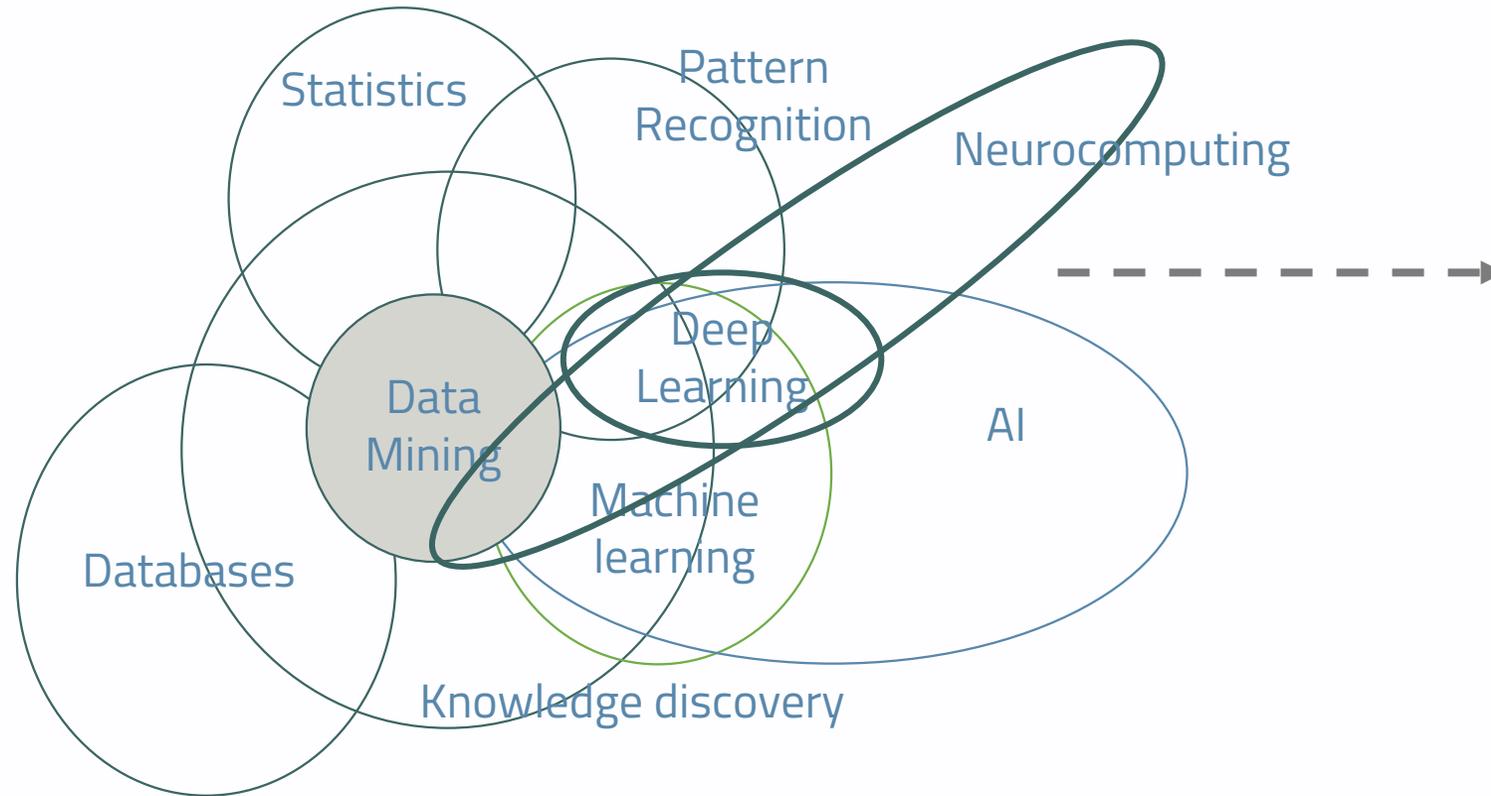
amazon



Major global internet  
company release  
Artificial intelligence and  
Machine learning  
frameworks into as  
open source

MLaaS AlaaS

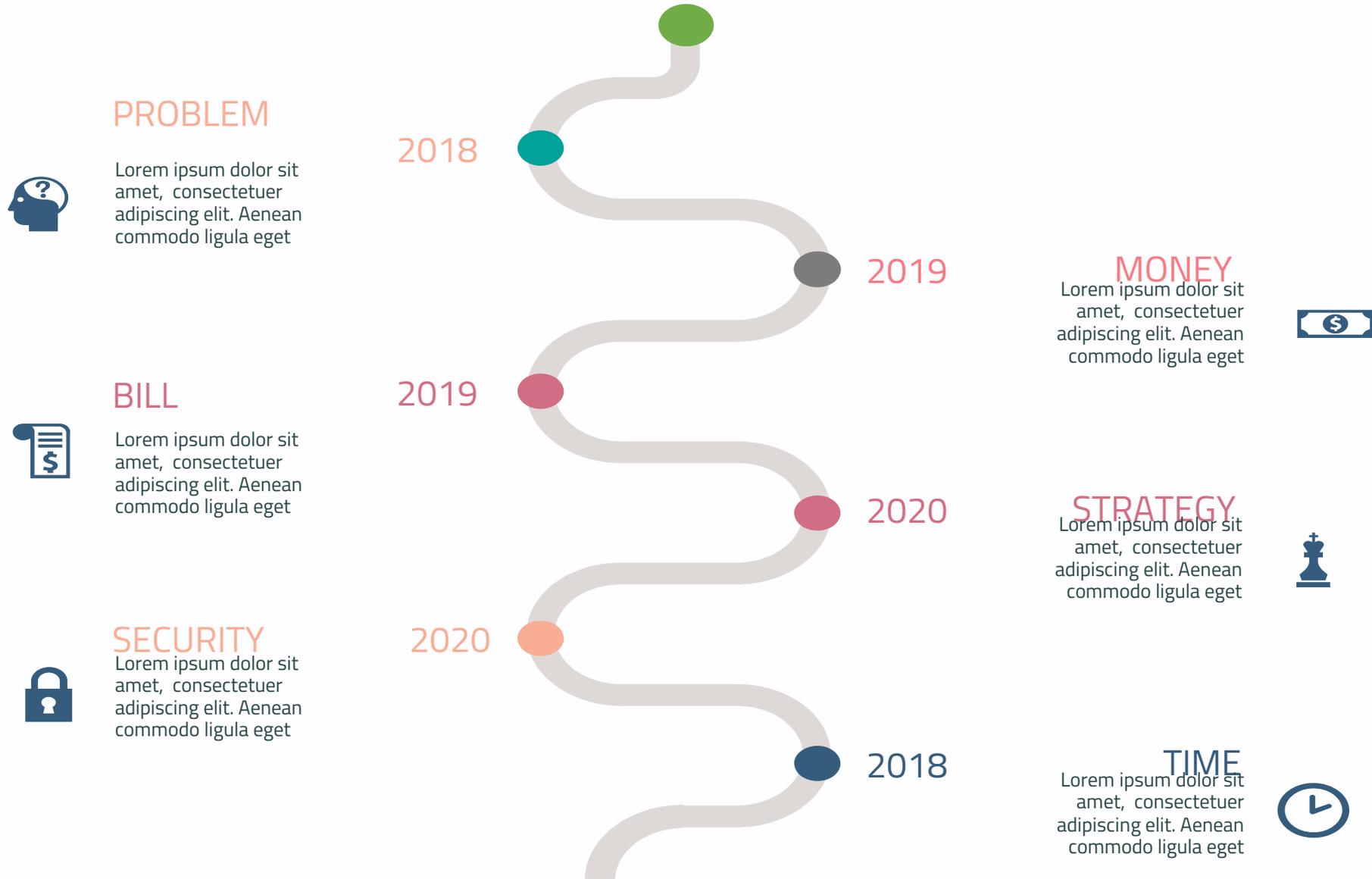
# What is Machine Learning/ Artificial Intelligence



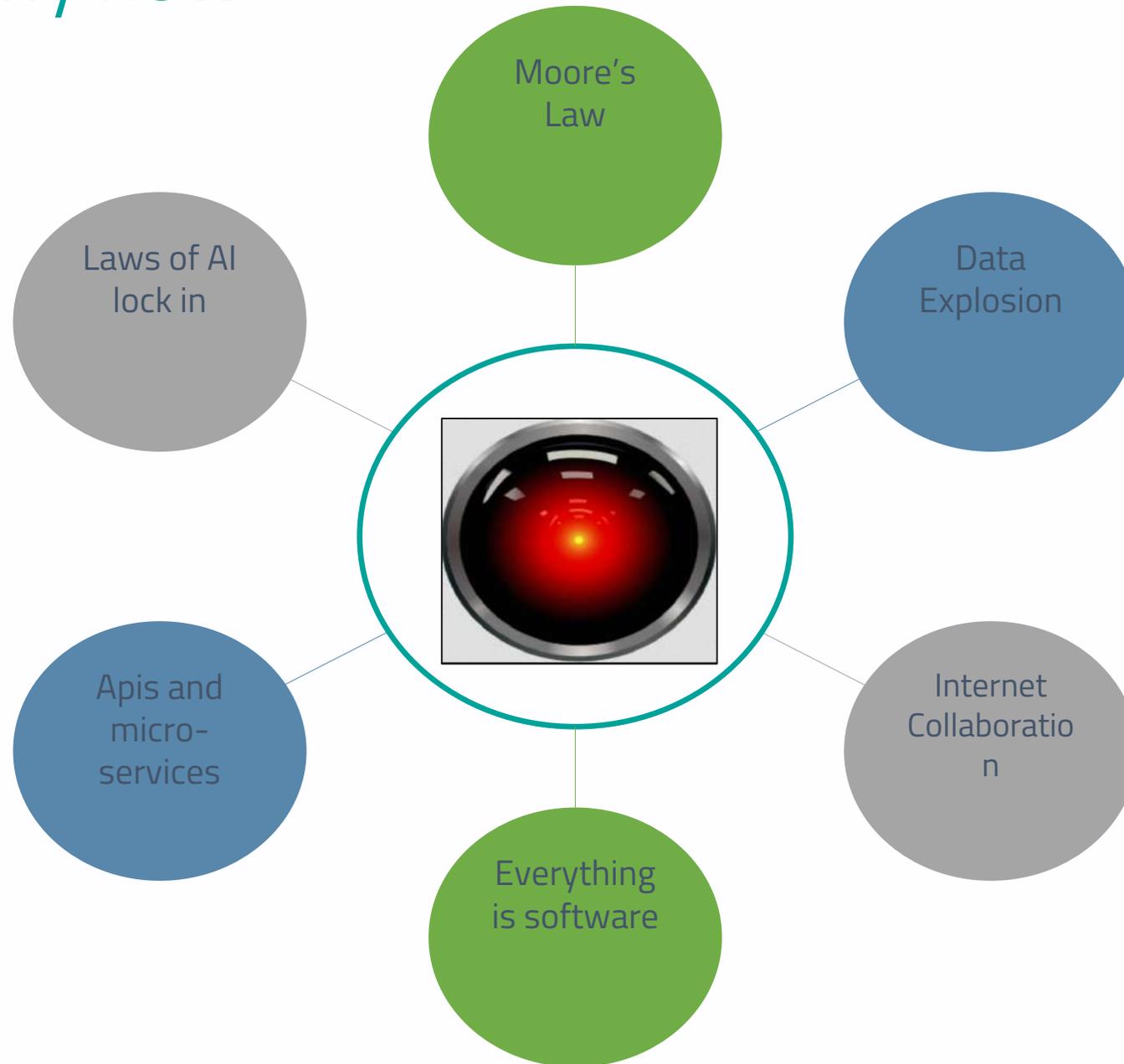
Machine learning is a category of research and algorithms focused on finding patterns to make predictions.

Machine learning falls within the artificial intelligence (AI umbrella) which in turn intersects with the boarder area o knowledge discovery and data mining

# History of Artificial Intelligence

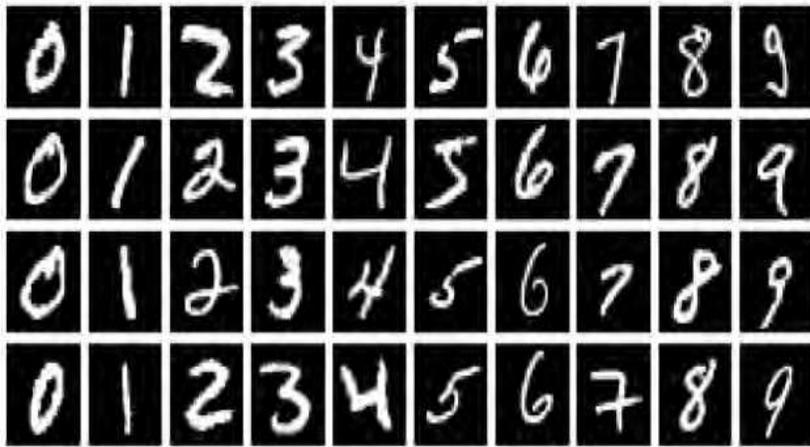


# Why now

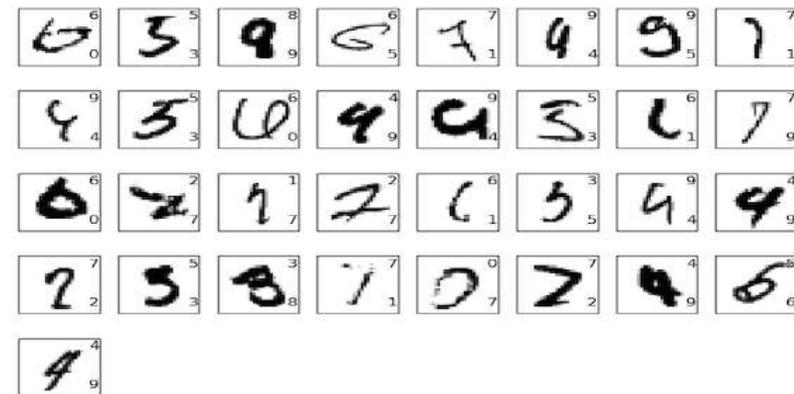


# The level of accuracy is daunting

MNIST



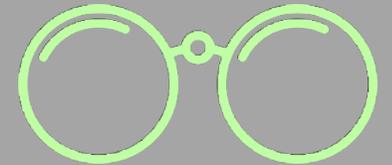
Data set



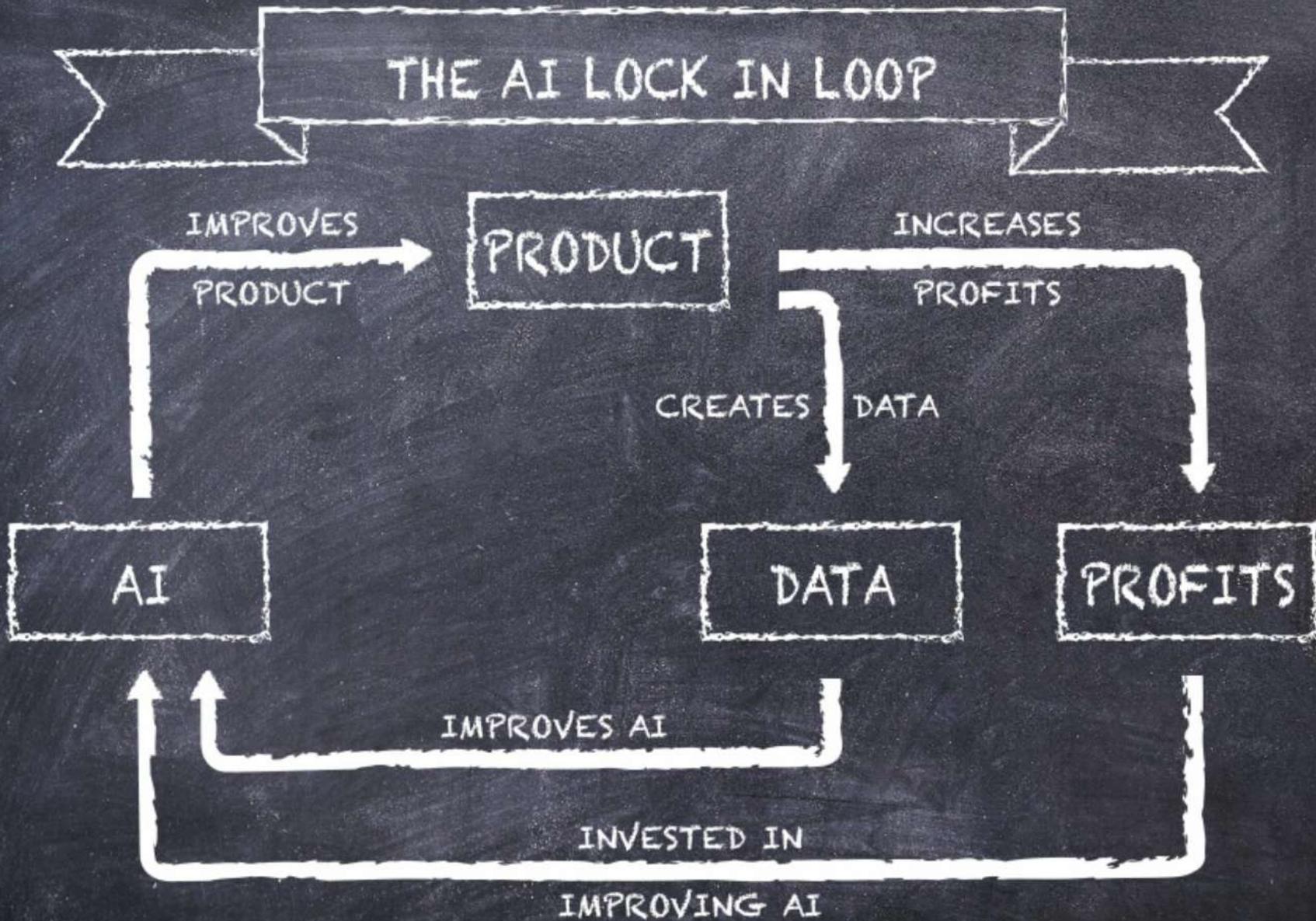
MNIST database of handwritten digits, used as benchmark for handwriting image recognition

Bottom left predicted value

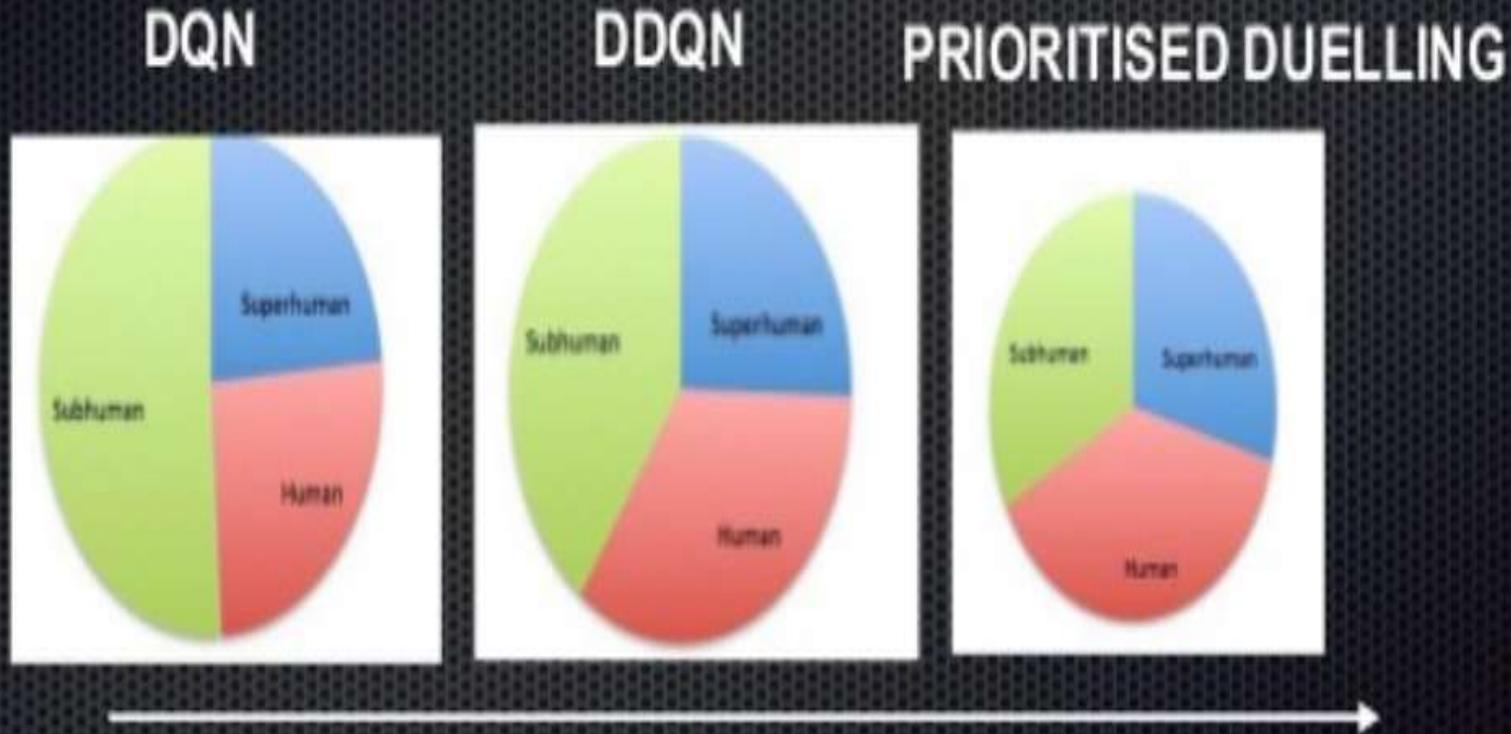
Over 90% of excel spread sheets contain errors.  
With AI, 10,000 images of random writing has 33 errors



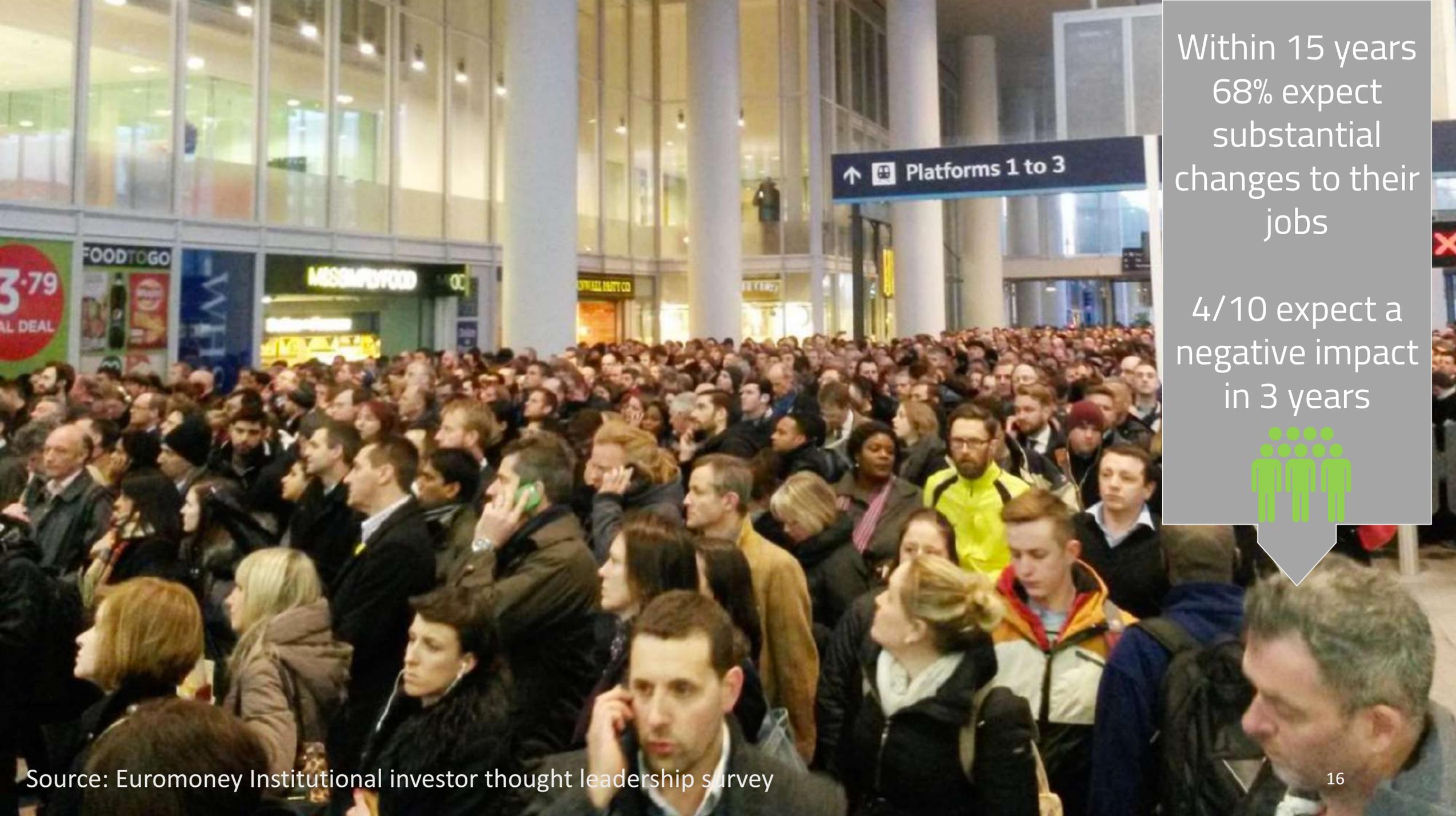
# The concept of AI lock-in



# Algorithms are becoming 'automated'



IMPROVEMENT OVER 12 MONTHS



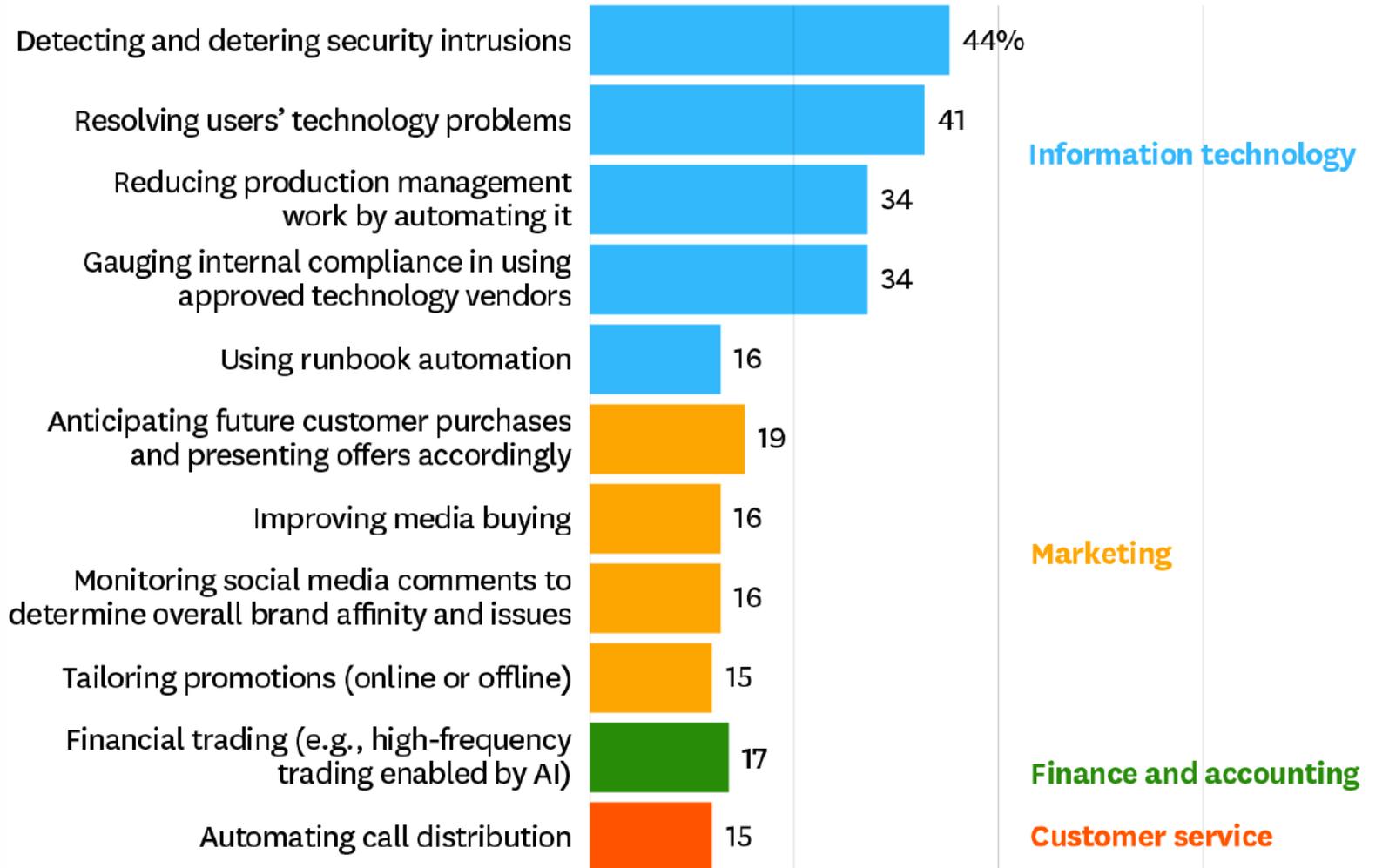
Within 15 years  
68% expect  
substantial  
changes to their  
jobs

4/10 expect a  
negative impact  
in 3 years



## How Companies Around the World Are Using Artificial Intelligence

IT activities are the most popular.



Job losses will happen first in machine to machine communication and highly repeatable tasks





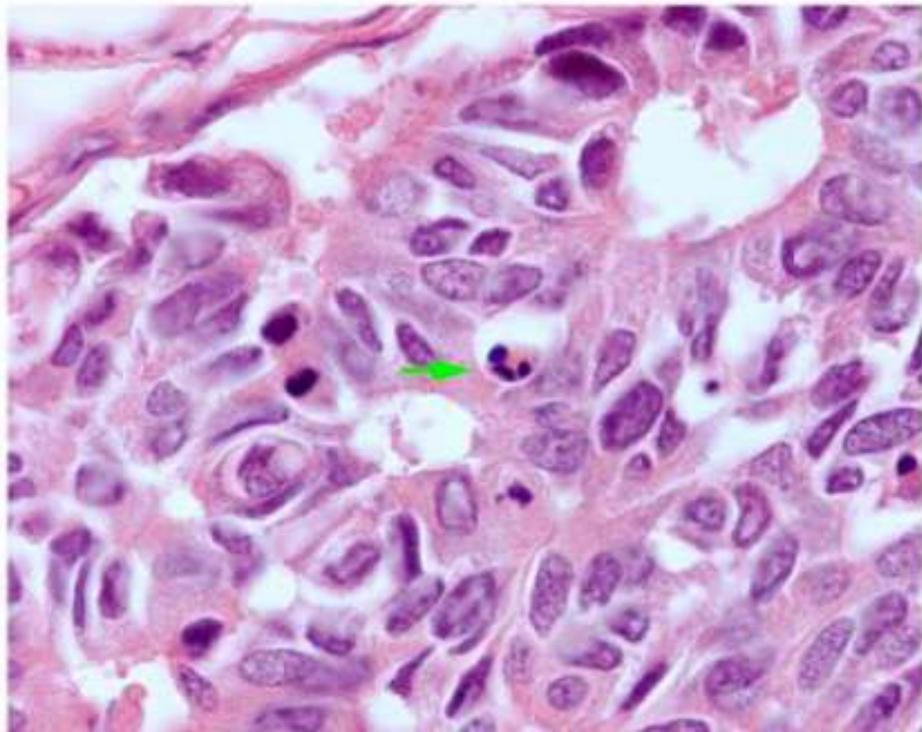
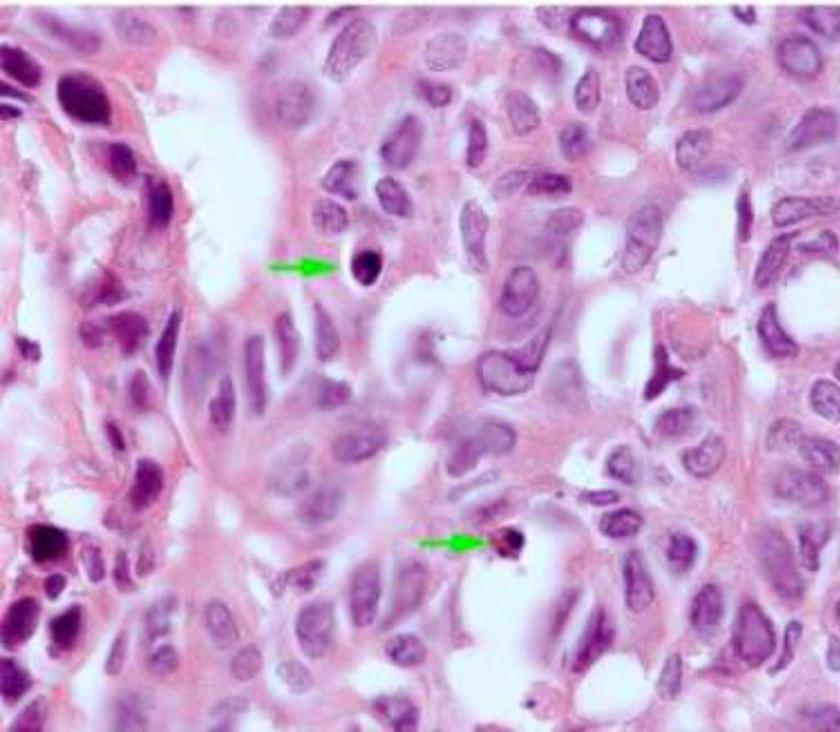
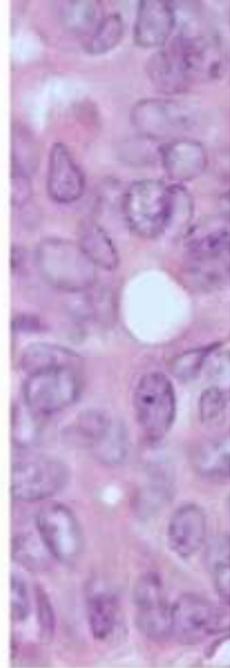
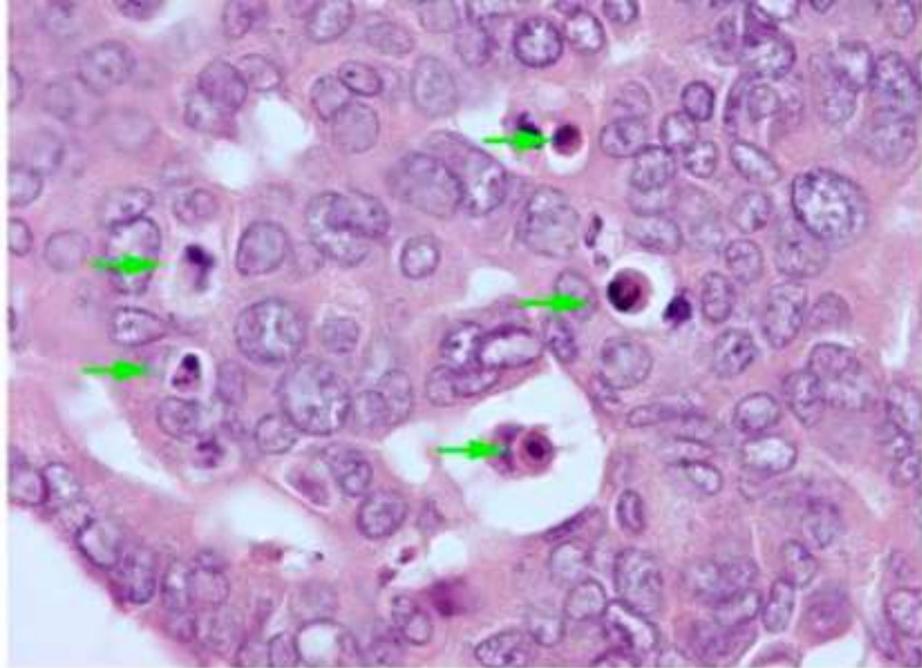
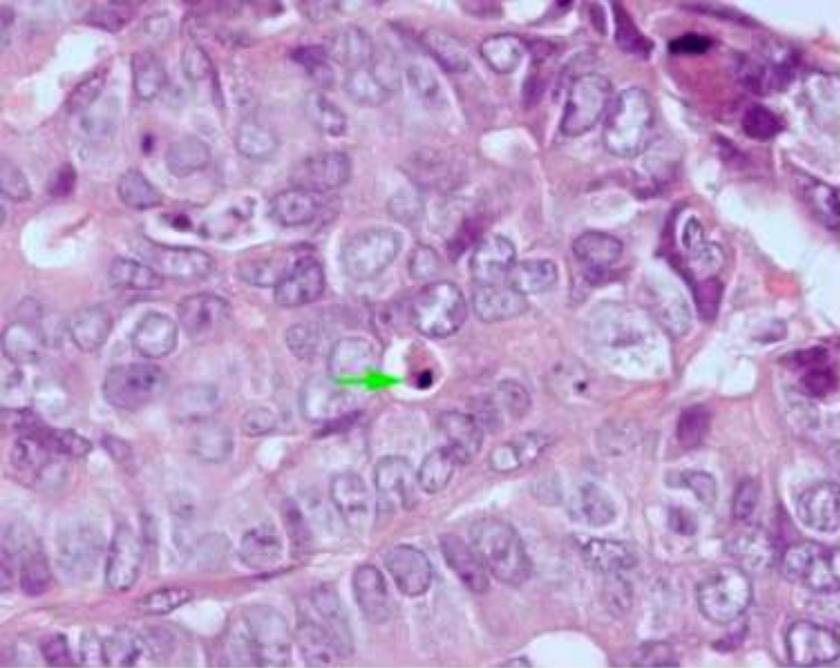
Artificial  
Intelligence  
processed  
360,000 of  
annual legal  
contracts in  
seconds  
without errors





Artificial Intelligence designed the Opera in Hamburg from its shape, seating and acoustics





Artificial  
Intelligence  
identified  
10,000  
individual  
cancerous traits  
V  
Humans  
identified a few  
hundred traits



# “I suspect that it’s going to transform all aspects of the financial industry”

Andrew Lo, Director of the Laboratory for Financial Engineering at the MIT Sloan School of Management

How positive or negative an impact will AI have on financial services?

**TOP 3 POSITIVE**

**TOP 3 NEGATIVE**

Credit assessment

74%

Structure of the human workforce

40%

Risk management

69%

Market stability

Competitiveness of markets

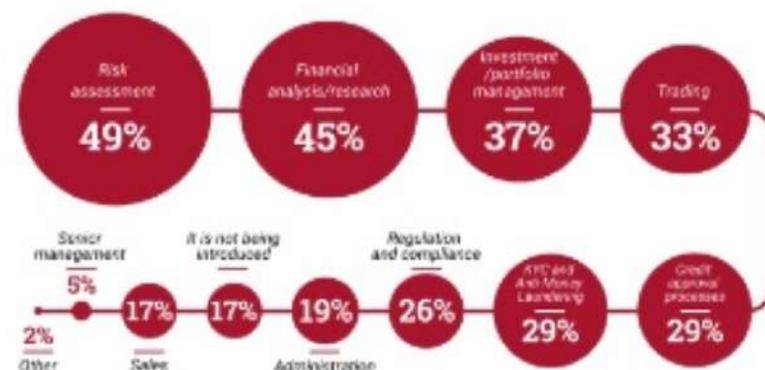
39%

64%

Regulation of markets

20%

Where do you expect AI/machine learning technology to be introduced in your organisation in the next three years?



Which FS functions will be changed the most by AI over the next three years?

Investment/portfolio management



Financial analysis



Trading



IT



Credit assessment



Risk assessment



● Not at all   
 ● Little   
 ● Moderately  
● Substantially   
 ● Completely   
 ● Don't know

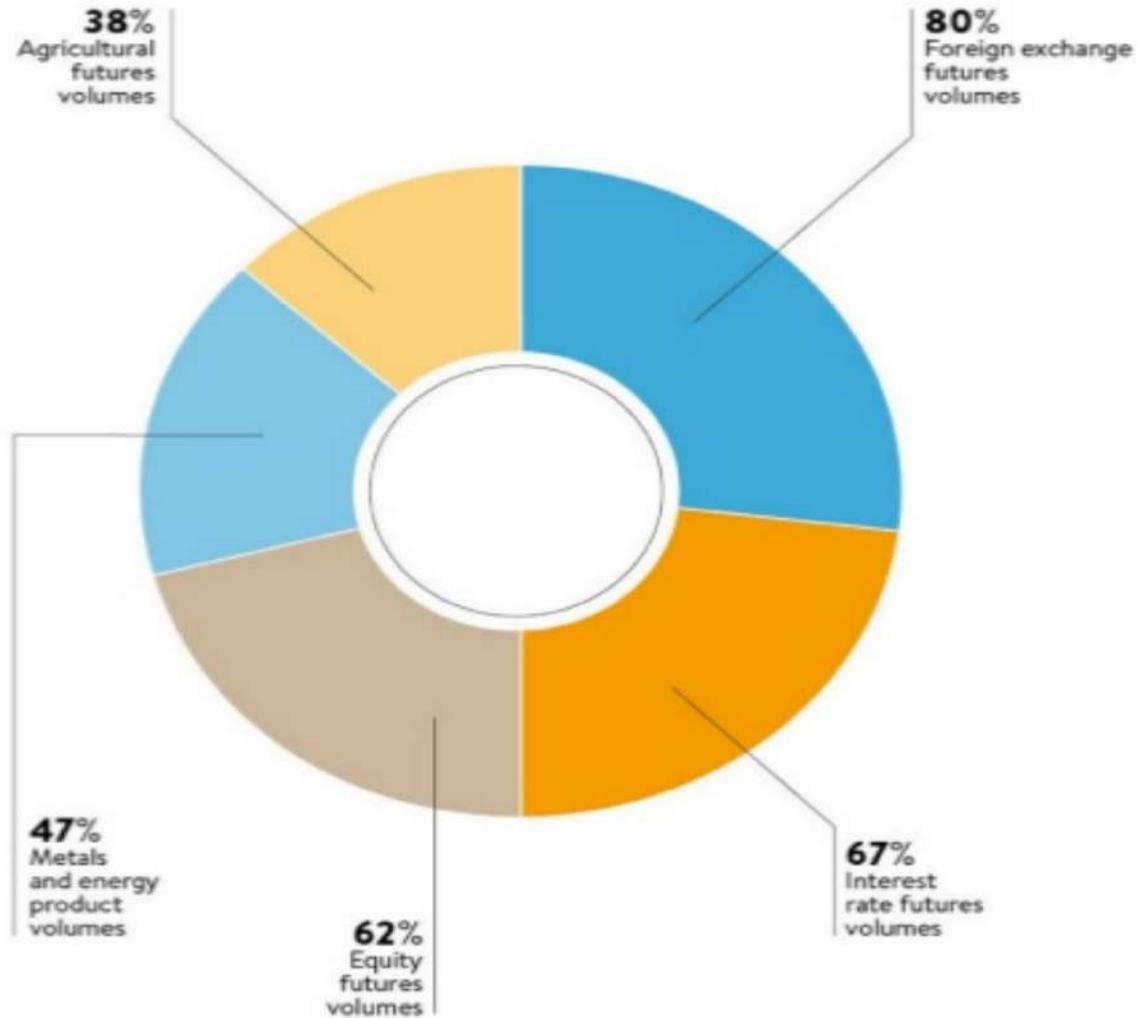
Financial  
services User  
cases in

Trading  
KYC  
Cross-Sell  
Fraud  
Pre-Arrears



# Where is AI being applied

## ALGORITHMIC TRADING SYSTEM (ATS) USAGE IN TRADING IN THE TWO YEARS TO OCTOBER 2014, ATSs WERE PRESENT IN:



Source: Commodity Futures Trading Commission 2015

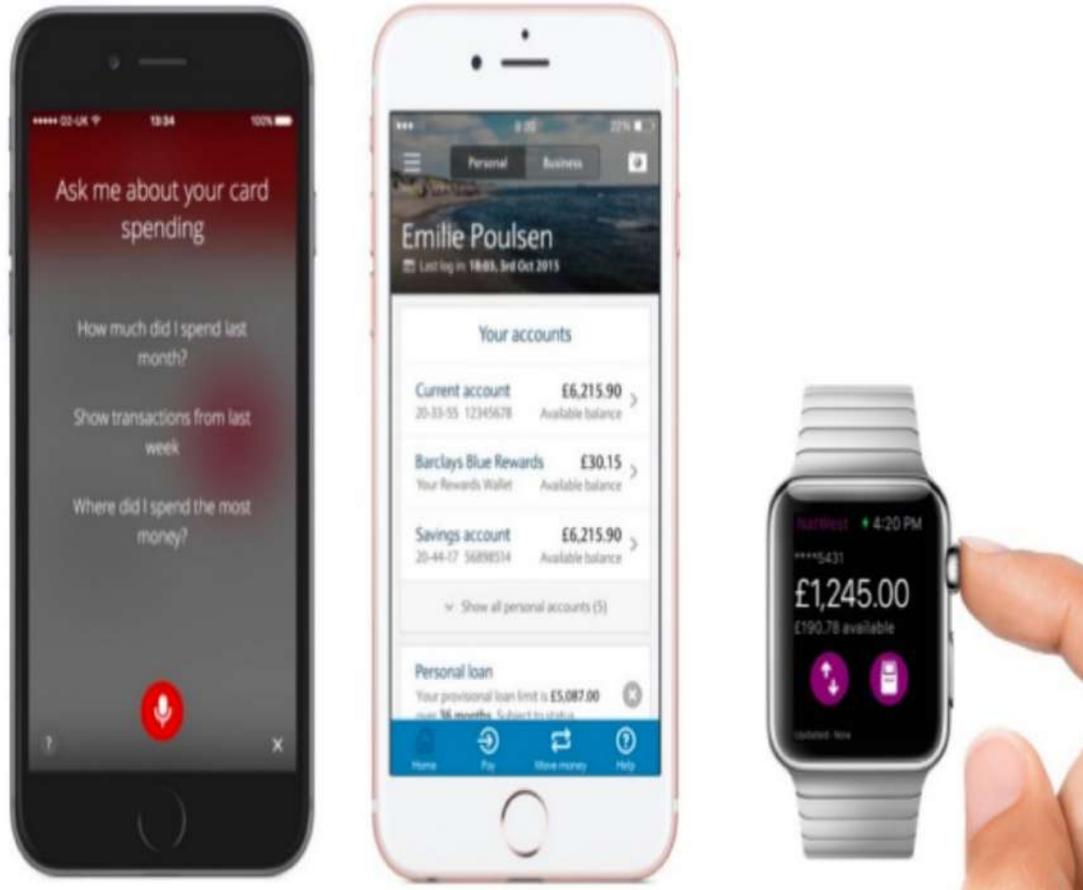
Algorithmic trading systems now handles 75% of the global trades worldwide



# Where is AI being applied

Biometric banking takes KYC to a whole new level

**SANTANDER: VOICE PRINT**  
**MASTERCARD: SELFIE ID**  
**HSBC: FINGERPRINT**



# Where is AI being applied

“In 5-10 years half of all financial advisors will be gone”  
Rick Edelman of Edelman Financial Services



See all your investments in one place with our award-winning mobile app.

## Personalized Portfolio

Get a custom portfolio in minutes.



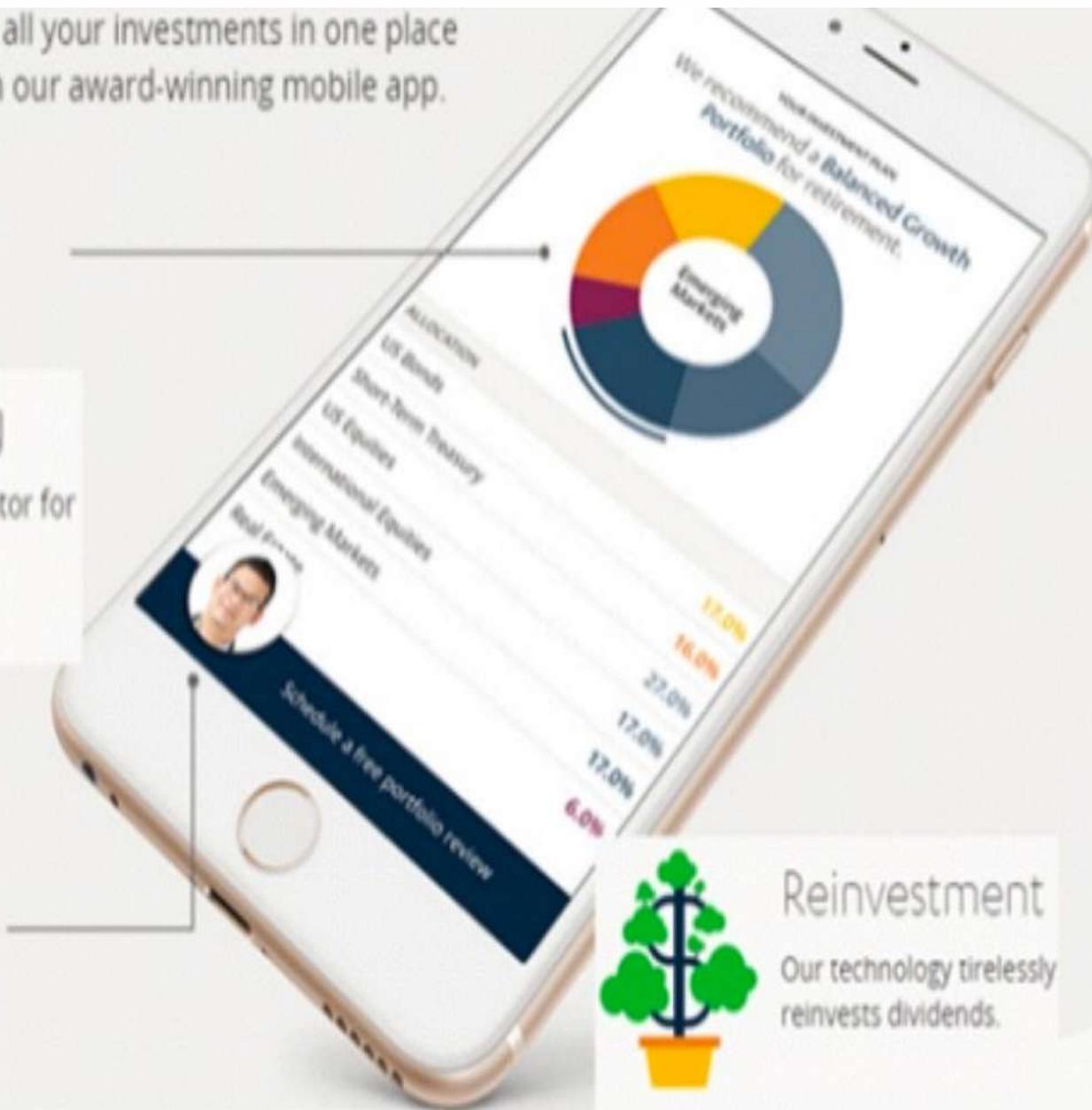
## Rebalancing

We continually monitor for allocation drift.

## Concierge Service

Make appointments with your personal investment advisor online.

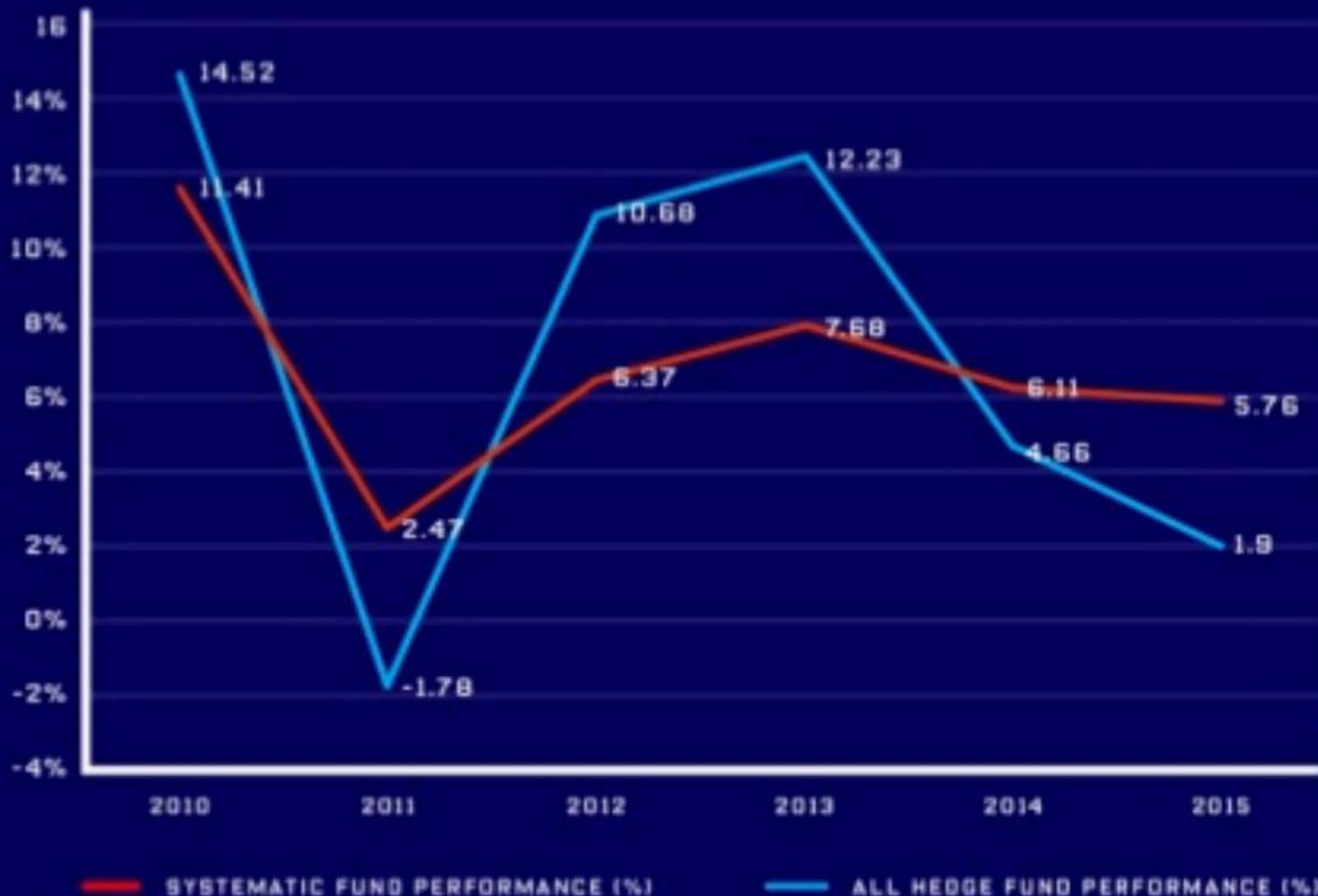
[Make an Appointment](#)



## Reinvestment

Our technology tirelessly reinvests dividends.

# Where is AI being applied



AIDYA: Hedge fund  
Identifies and executes trades automatically  
adapts to market changes



# Where is AI being applied

AIS LEARN TO TRADE  
ON ENCRYPTED DATA



**NUMERAI**

Collective artificial intelligence makes stock market predictions  
Data scientists submitted 12 billion last year



# Where is AI being applied



Robots as  
customer  
service in retail  
banks



# Where is AI being applied



Human AI  
Chatbots, like  
CLEO



# To get started....

Define business problems, pick one for a pilot

- Operations
- Risk
- Marketing

What's your key metrics for success

- Short term criteria for success
- Long term ratios

Key criteria to get started

- Lots of data
- Improve personal experience and or
- Cost of delivery





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Madhuban Kumar | 07968692984 | [mk@metafused.com](mailto:mk@metafused.com)

2017 cohort



Top 20 European startups '16

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