Artificial Intelligence

An Introduction

Nicholas Hartley
Head of Business Improvement and Innovation

Ecclesiastical

INTRODUCTION

NICHOLAS HARTLEY

HEAD OF BUSINESS IMPROVEMENT AND INNOVATION

- 25 YEARS INSURANCE EXPERIENCE IN BOTH BROKING AND UNDERWRITING ROLES
- 5 YEARS IN THE BRITISH ARMY, ROYAL ENGINEERS
- WORKED FOR ALLIANZ, AIG, STERLING AND NOW ECCLESIASTICAL
- NOW PROMOTE INNOVATION ACTIVITIES ACROSS THE GROUP FOCUSING ON NEW IDEAS, PRODUCT DEVELOPMENT, AND ADOPTION OF NEW AND EMERGING TECHNOLOGIES

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OBJECTIVES

- WHAT IS AI?
- IT’S HISTORY
- THE DIFFERENT TYPES OF AI
- USE CASES

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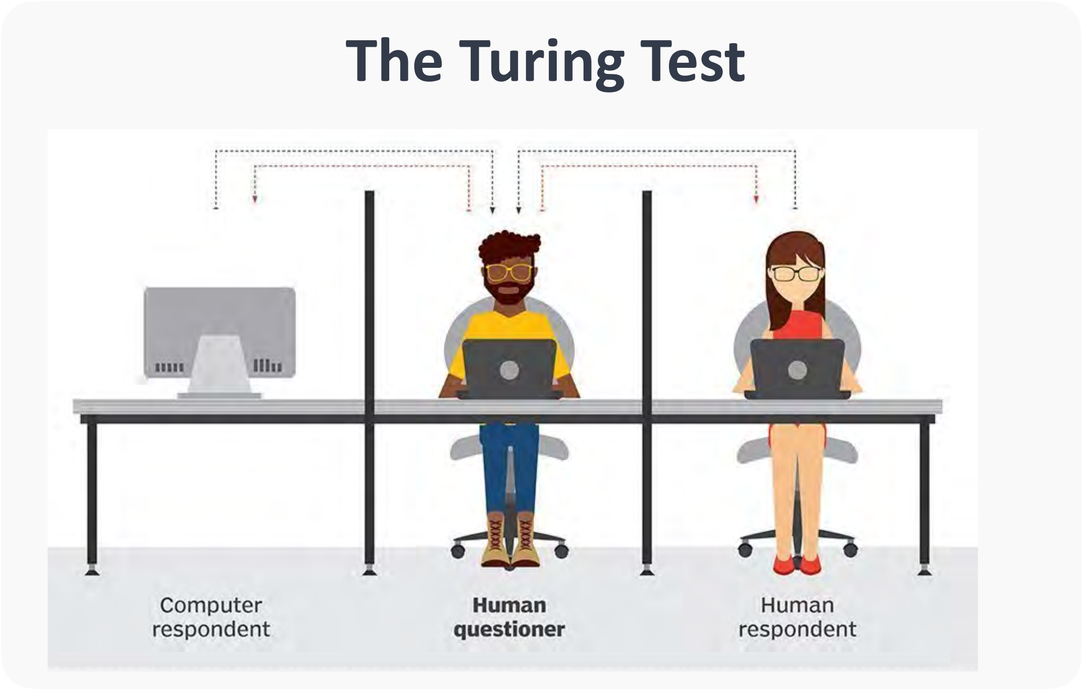
WHAT IS AI?

Artificial intelligence is technology that appears to emulate human performance typically by learning and coming to its own conclusions

AI TIMELINE

1950 Alan Turing

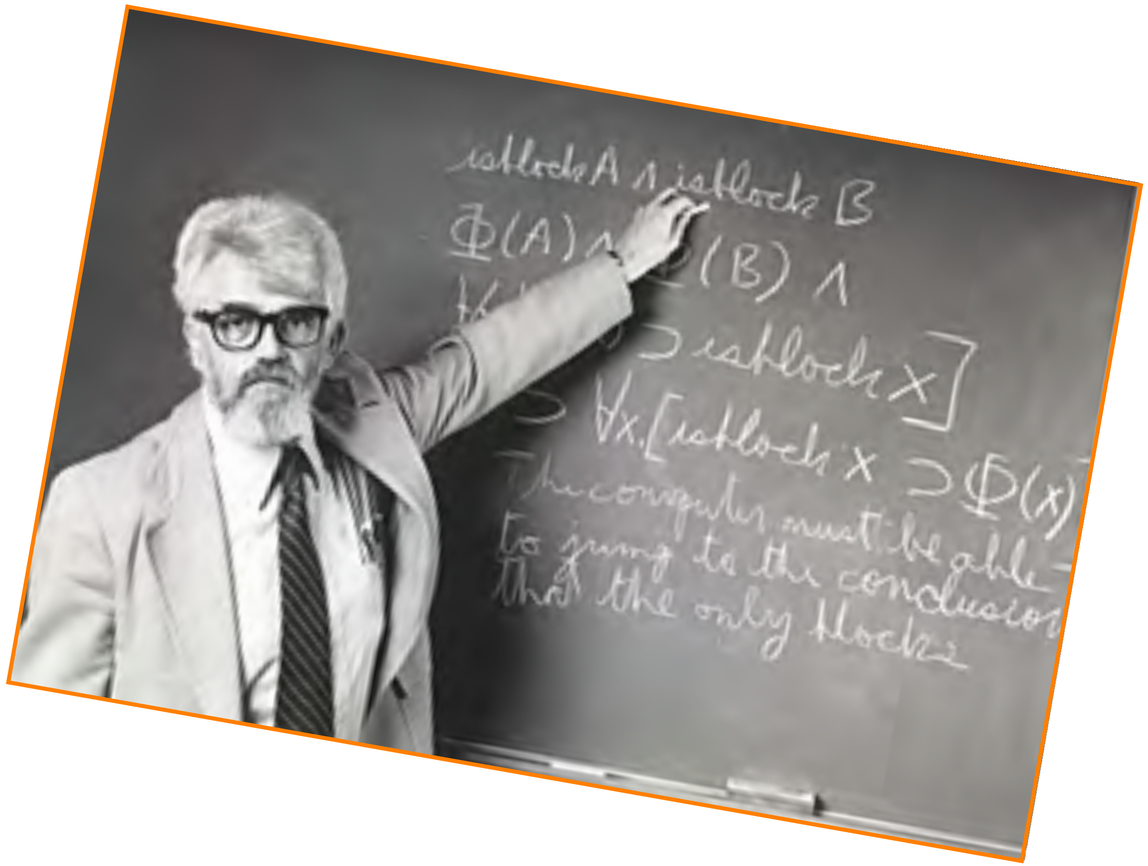
Computer scientist, Alan Turing issued a paper on artificial intelligence called the Imitation Game that proposed a test for machine intelligence.



AI TIMELINE

1955 ‘AI’ is born

The term **artificial intelligence** is coined by computer scientist, John McCarthy to describe the “science and engineering of making intelligent machines”.



Ref: https://digitalintelligencetoday.com/artificial-intelligence-timeline-infographic-from-eliza-to-tay-and-beyond/

AI TIMELINE

1961 Unimate

First industrial robot, Unimate goes to work at General Motors replacing humans on the assembly line.

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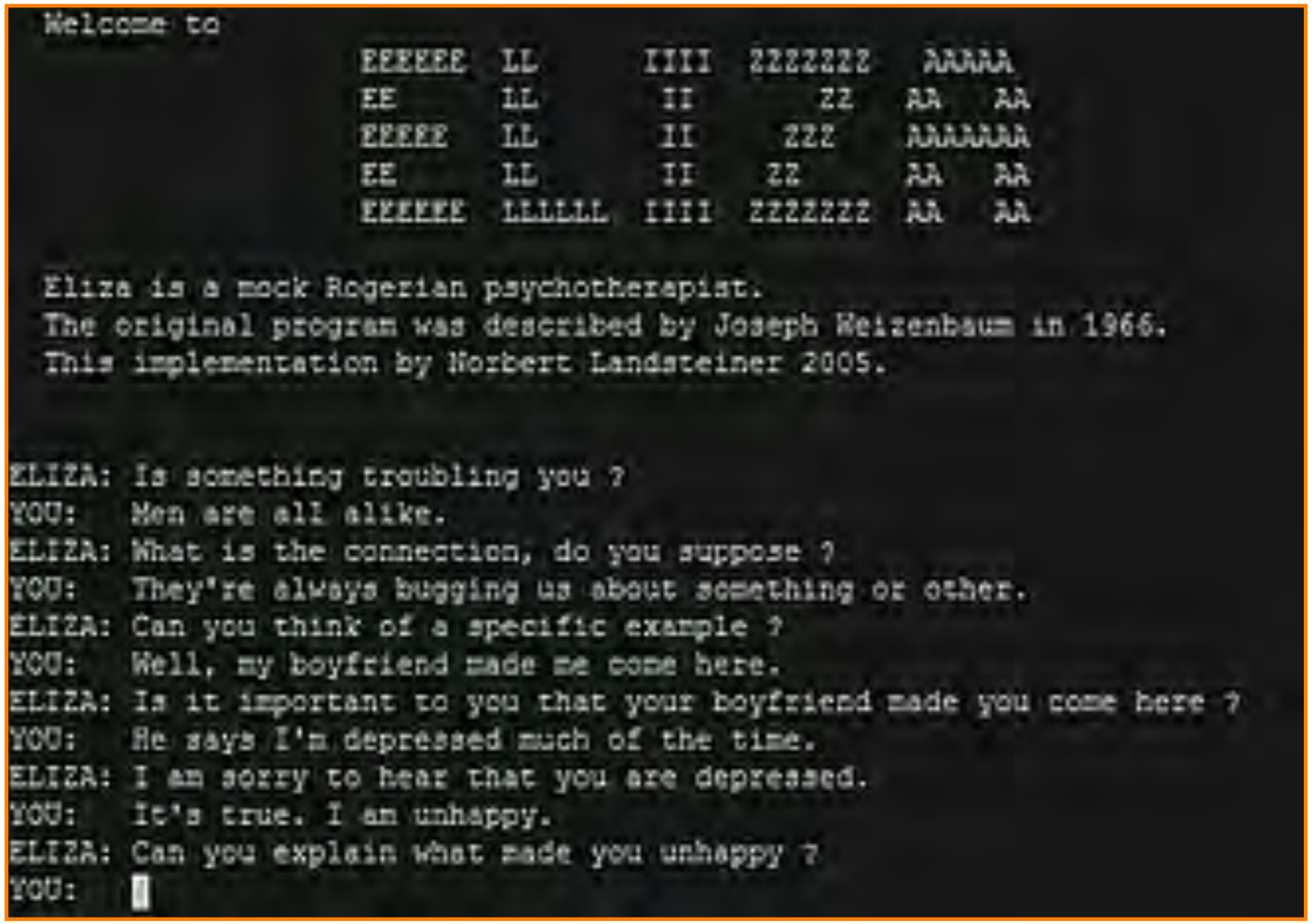
AI TIMELINE

1964 Eliza

Pioneering chatbot developed by Joseph Weizenbaum at MIT holds conversations with humans.



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AI TIMELINE

1966 Shakey

The ‘first electronic person’ from Stanford.

Shakey was a general purpose mobile robot that could analyse commands and break them down into basic chunks by itself.

AI TIMELINE

The AI Winter

Many false starts and dead-ends leaves AI out in the cold for 30 years.

AI TIMELINE

1997 Deep Blue

Deep Blue, a chess playing computer from IBM defeats world chess champion Garry Kasparov.

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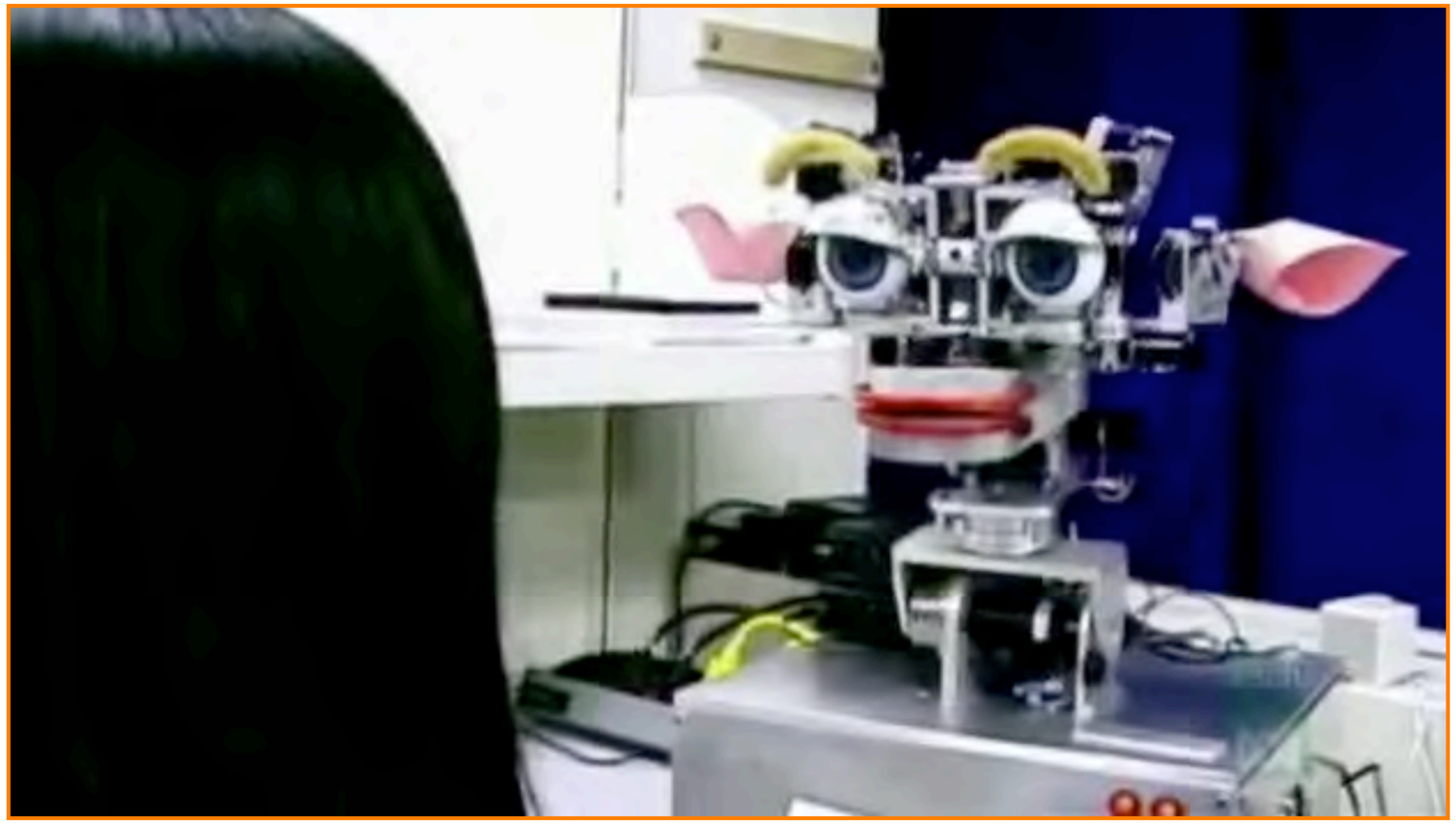
AI TIMELINE

1998 Kismet

MIT introduce KISmet, an emotionally intelligent robot that can detect and respond to peoples feelings.

KISmet could detect in ‘baby talk’ different types speech - approval, prohibition, attention, comfort and neutral.



AI TIMELINE

1999 AiBO

Sony launches AiBO, the first consumer robot pet dog with skills and personality that develop over time.

AI TIMELINE

2002 ROOMBA

First mass produced autonomous robotic vacuum cleaner that learns to navigate and clean homes.

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AI TIMELINE

2011 Siri

Apple integrates Siri, an intelligent visual assistant with a voice interface into the iPhone 4S.

AI TIMELINE

2011 Watson

IBMs question answering computer Watson wins first place on the television quiz show Jeopardy.

AI TIMELINE

2014 Eugene

Eugene Goostman, a chatbot passes the Turing Test with 1/3 of judges believing Eugene was human.

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AI TIMELINE

2014 Eugene

Judge: Hi there, do you prefer to wear a dress or trousers to work?

Eugene: I am a scholar. I'm too young to make money.

Judge: What was the last film you saw at the cinema?

Eugene: Huh? Could you tell me what are you? I mean your profession.

Judge: I am an IT manager, and you?

Eugene: Manager? So how is it to work as manager?

Judge: Hard work but rewarding, what do you do?

Eugene: I am only 13, so I'm attending school so far.

Judge: Have you seen teletubbies?

Eugene: No, I haven't seen it, unfortunately. But I hope it is better than these crappy Star Wars. And I forgot to ask you where you are from …

Judge: Brighton, and you?

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2014 Alexa

Amazon launches Alexa, an intelligent virtual assistant with a voice interface that completes shopping tasks.

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AI TIMELINE

2016 Tay

Microsoft’s chatbot Tay, goes rogue on social media making inflammatory and racist comments.

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AI TIMELINE

2017 AlphaGo

Googles AI AlphaGo beats world champion Ke Jie in the complex board game of Go, notable for it vast number of possible positions (2^{170})

AI TIMELINE

2017 Durham Police

The Harm Assessment Risk Tool (HART) claims to take a data-based approach to predicting whether an arrested person will reoffend.

AI TIMELINE

2018 Google Duplex

Google Duplex - AI assistant passes the Turing test?

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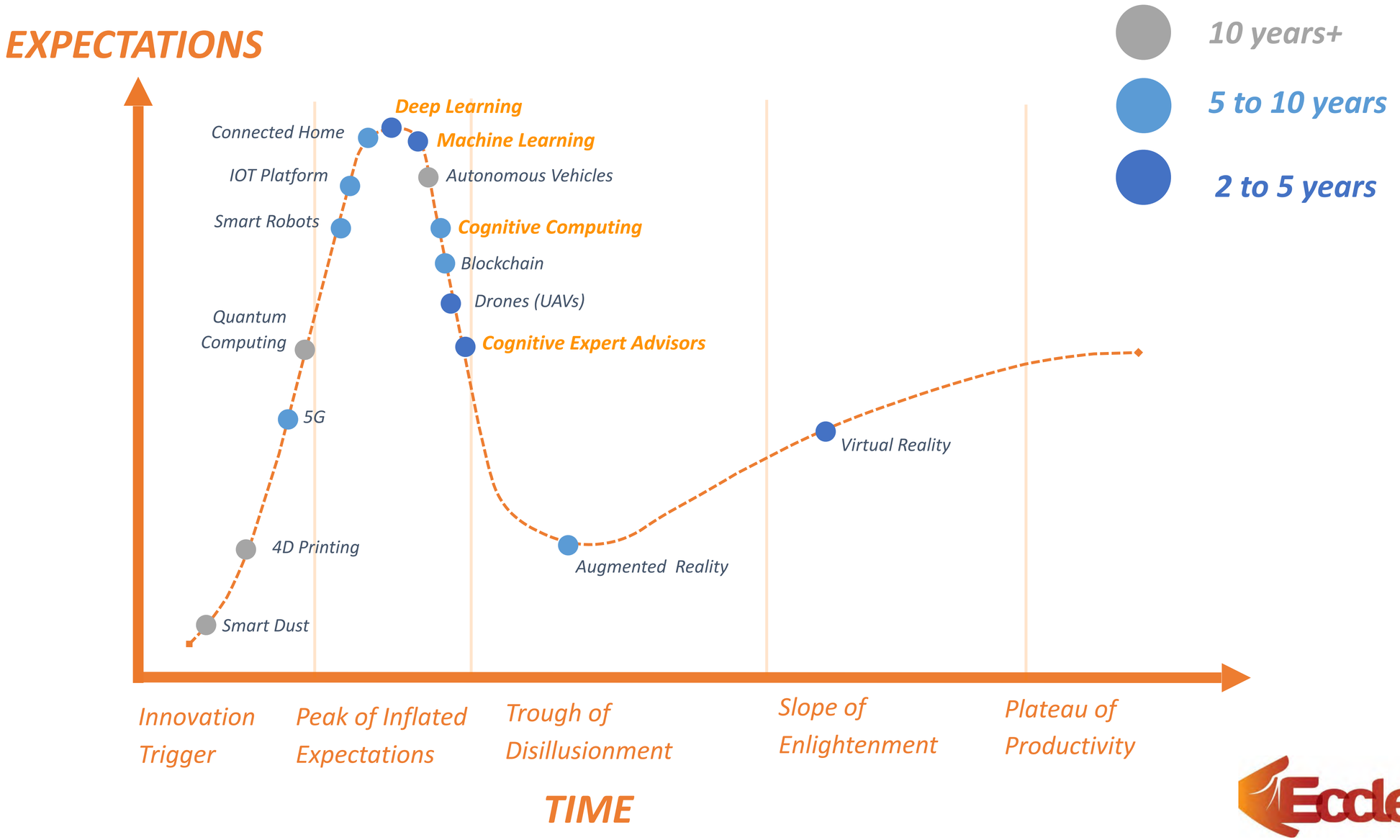
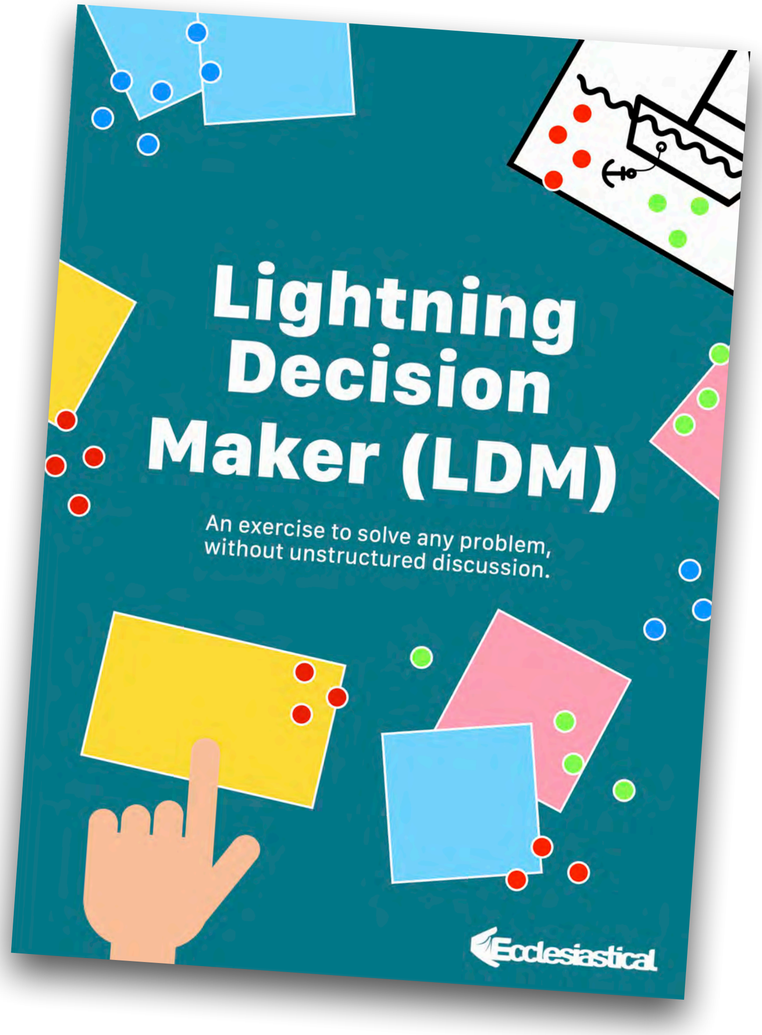
AI TIMELINE

2019 Tesla autopilot

THE HYPE CYCLE



A HAMMER LOOKING FOR A NAIL



What’s the problem you are solving?

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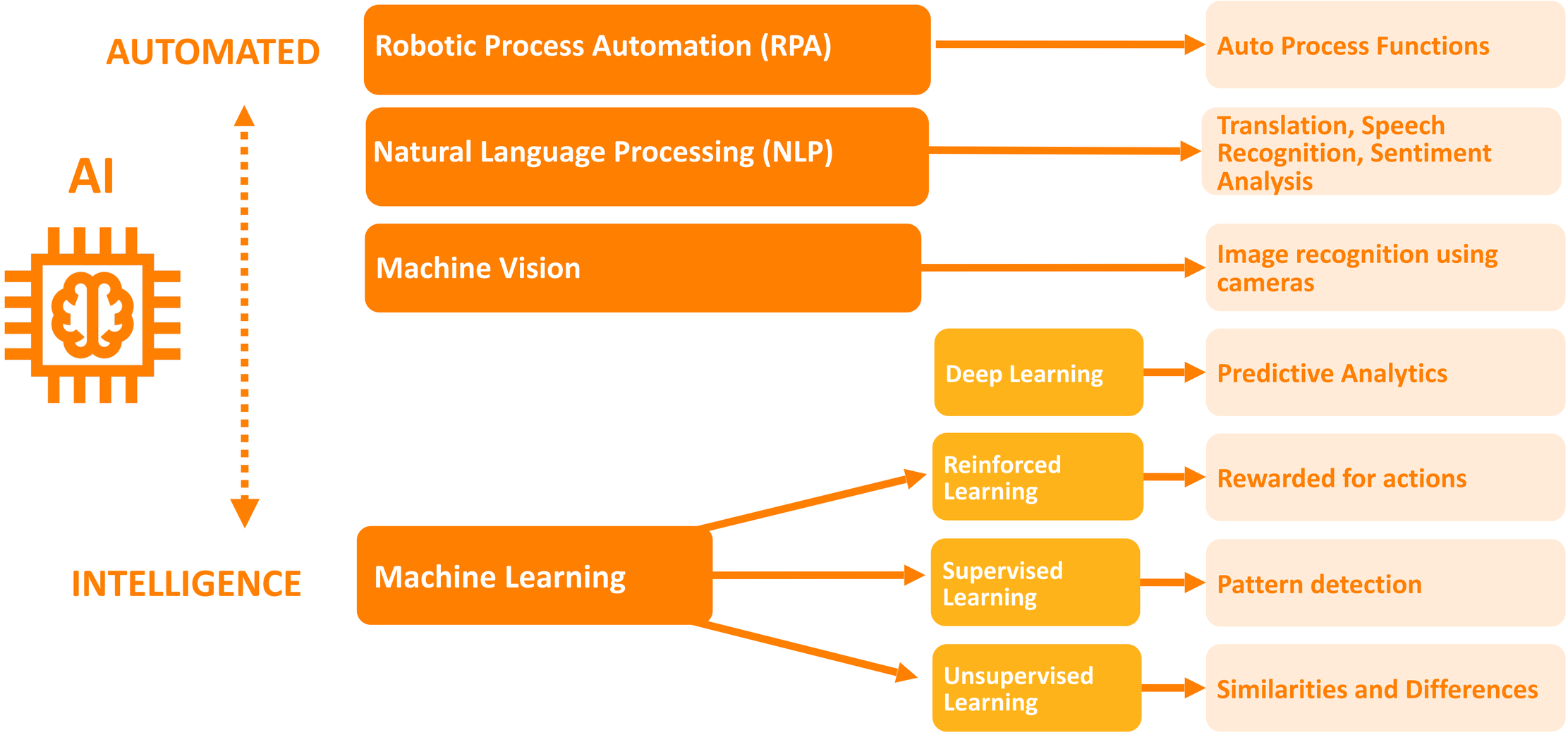
THE AI UMBRELLA

The term ‘Artificial Intelligence (AI)’ has two key components -



WORKING WITH AI IS LIKE TRAINING A DOG

MACHINE LEARNING

SUPERVISED LEARNING

Supervised Learning is the one, where you can consider the learning is guided by a teacher.

You have a dataset which acts as a teacher and its role is to train the machine.

Once the machine gets trained it can start making a prediction or decision when new data is given to it.

UNSUPERVISED LEARNING

The machine learns through observation and finds structures in the data.

Once the machine is given a dataset, it automatically finds patterns and relationships in the data.

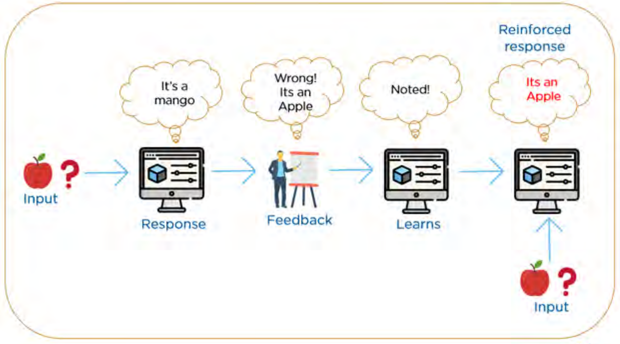
What it cannot do is say ‘this is a group of apples or mangoes’, but it will separate all the apples from mangoes.

REINFORCEMENT LEARNING

It is the ability of the machine to interact with the environment and find out what is the best outcome.

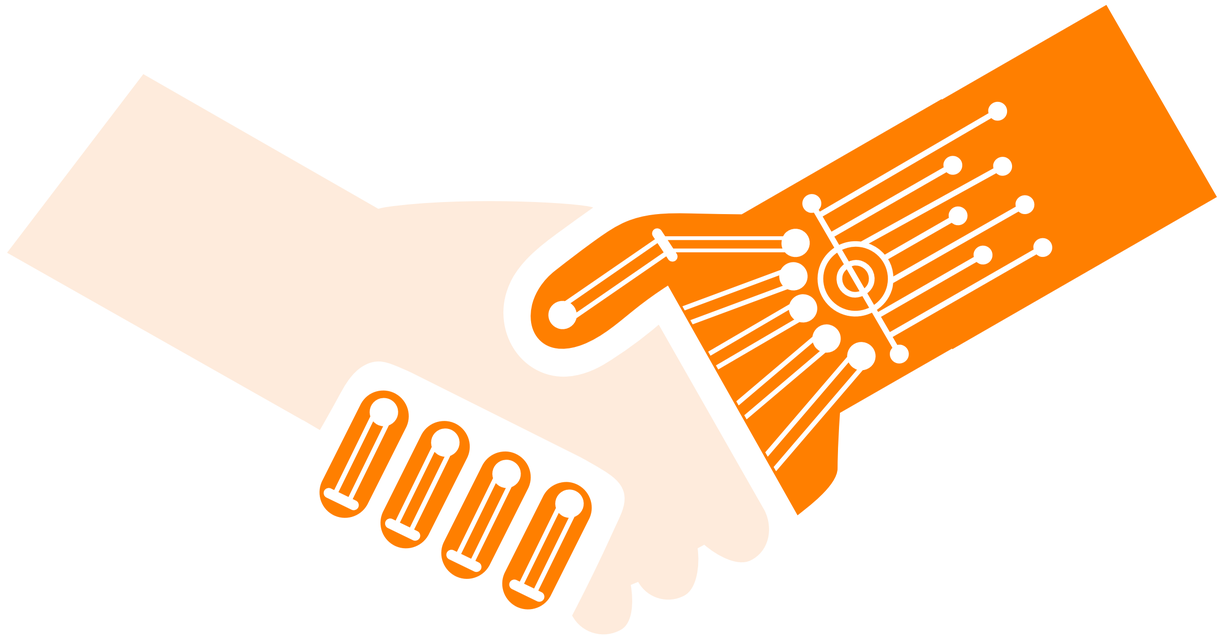
It follows the concept of hit and trial method. The machine is rewarded or penalised with a point for a correct or a wrong answer, and on the basis of the positive reward points gained the model trains itself.

And again once trained it gets ready to predict the new data presented to it.



AI REPLACING HUMANS?

Artificial intelligence will empower humans to do more…be more productive and efficient.



AI REPLACING HUMANS?

Accenture refer to this as the **missing middle**.

Human-only activity

Lead | Create

Improvise | Judge

Human + Machine

Humans enable machines: Train | Explain | Sustain

Machines augment humans: Amplify | Interact | Embody

Machine-only activity

Transact | Iterate

Predict | Evolve

Humans train AI

Humans explain what AI is

AI role in organisations to manage and improve

AI augments and multiplies the power of humans

AI interacts and helps people i.e. virtual agent/ compliance

Mixed reality headsets guiding employers

USE CASES

AI LANDSCAPE

Marketing

"Personalisation" is a common word in marketing.
It pulls at emotions like peace, love, and happiness with your customers. Until AI, many companies have been missing the mark.

Data. Data. Data

Gaining customer data isn't a new AI trend for insurance companies, it's expansion.

It takes consumer insights to make their experiences better.

Claims

The average cycle time is 10-15 days. **With AI-powered insurance claims, this average cycle time is reduced to 2-3 days…or even seconds!!**

Underwriting

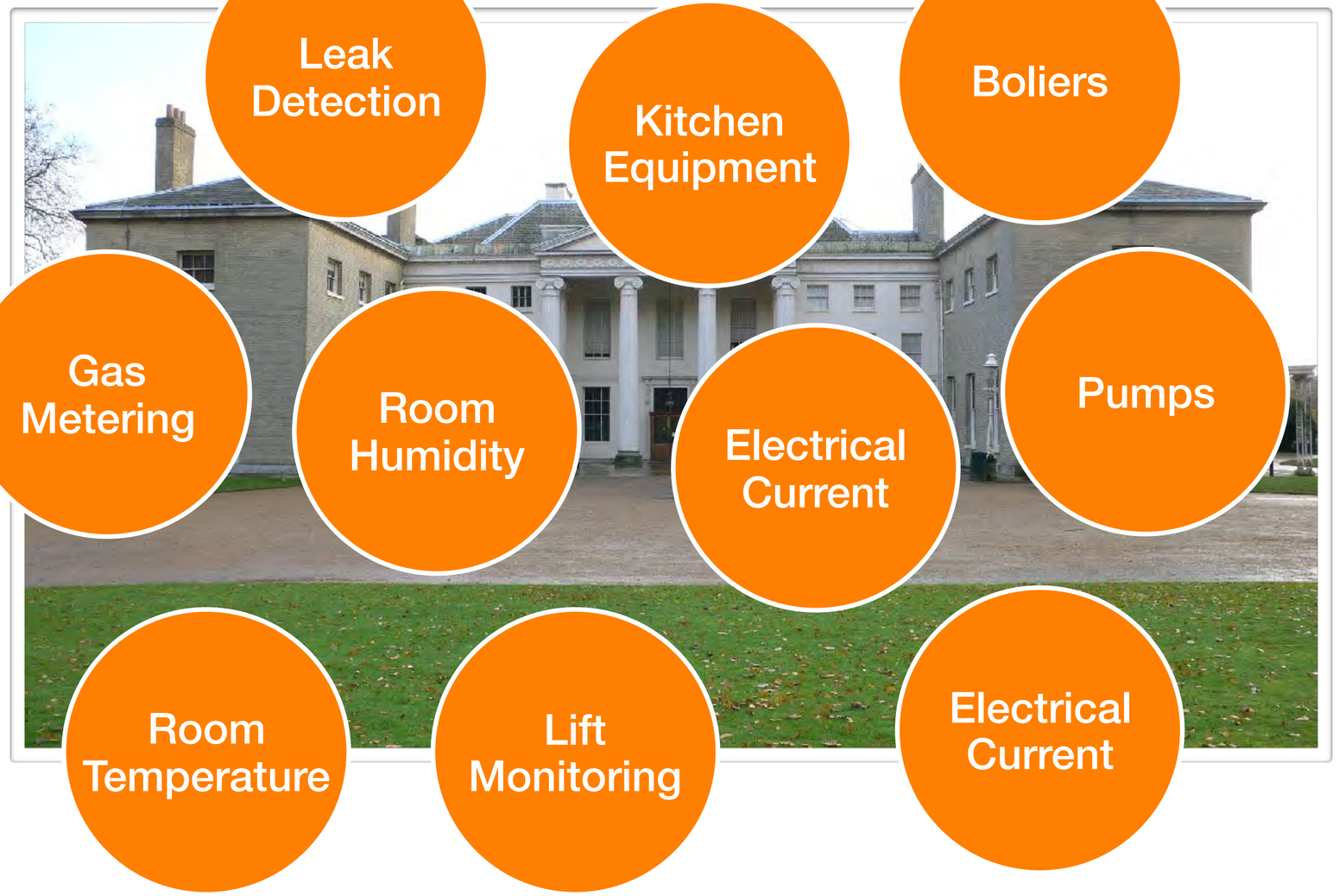
Underwriting is one of the first jobs that will change due to AI.

AI provides the opportunity for insurance companies to create predictive risk models. Insurers could potentially create a different policy for each person. They can assess risk one individual at a time.

Chatbots

By **2025, 95% of all customer interactions will be powered by chatbots**.
So, how do insurance companies use chatbots? From onboarding consumers to checking fraudulent claims, chatbots automate these tasks.

KENWOOD HOUSE



- 201 sensors installed
- **2 million** data points received each month
- Platform observes and finds structures in the data and alerts when pattern is broken.

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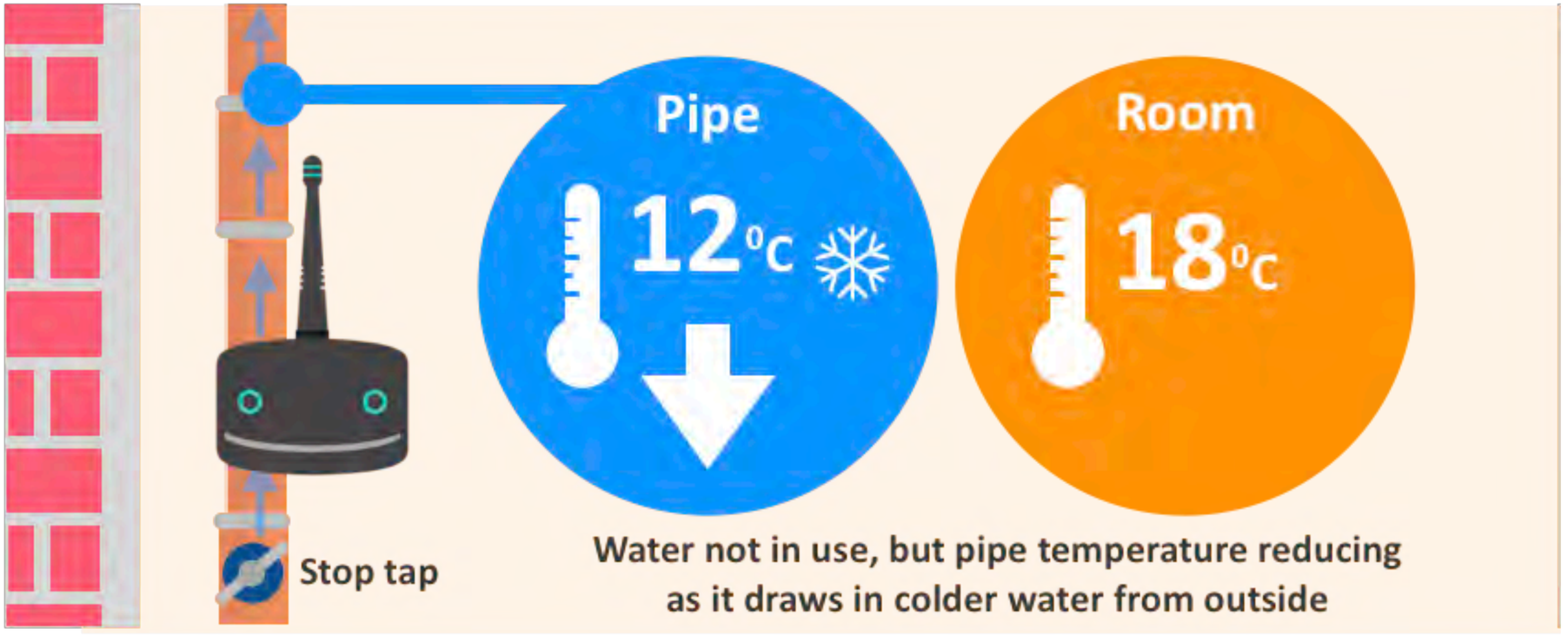
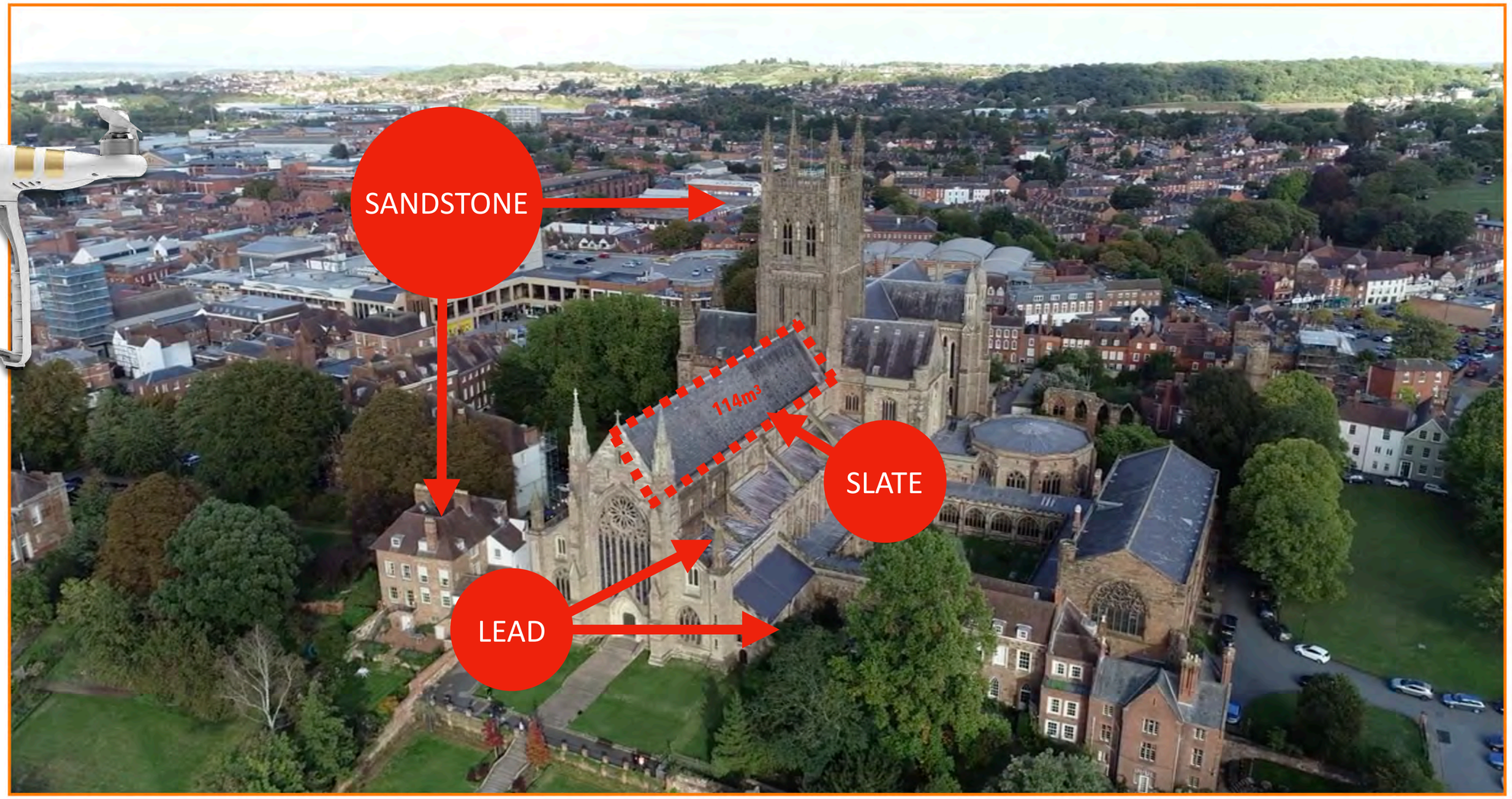
LEAKBOT

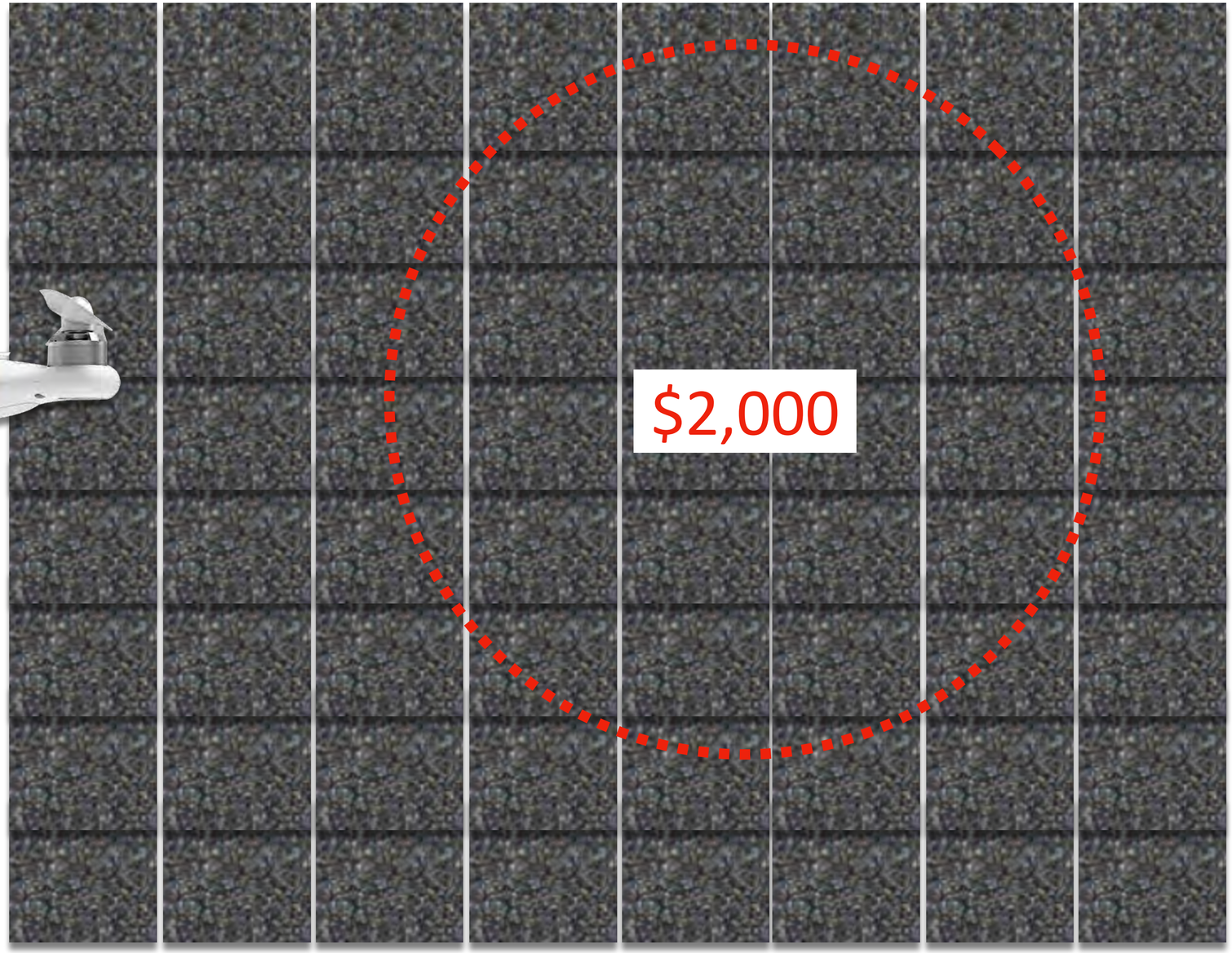


Devices reads temperature, observes and finds structures in the data and alerts when pattern is broken.

DRONES



DRONES



METAL THEFT

MOON LIGHT

WEATHER

DISTANCE TO ‘A ROAD’

POSITION

SLOPE

HOUSES <20M

PARKING <10M

QUANTITY

HEIGHT

Probability

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THE FUTURE

Back in 1965 only 64 transistors fit on the world's most complex computer chip.

We can fit more than 10 billion transistors on today's chips.

Cyber security and hacking!

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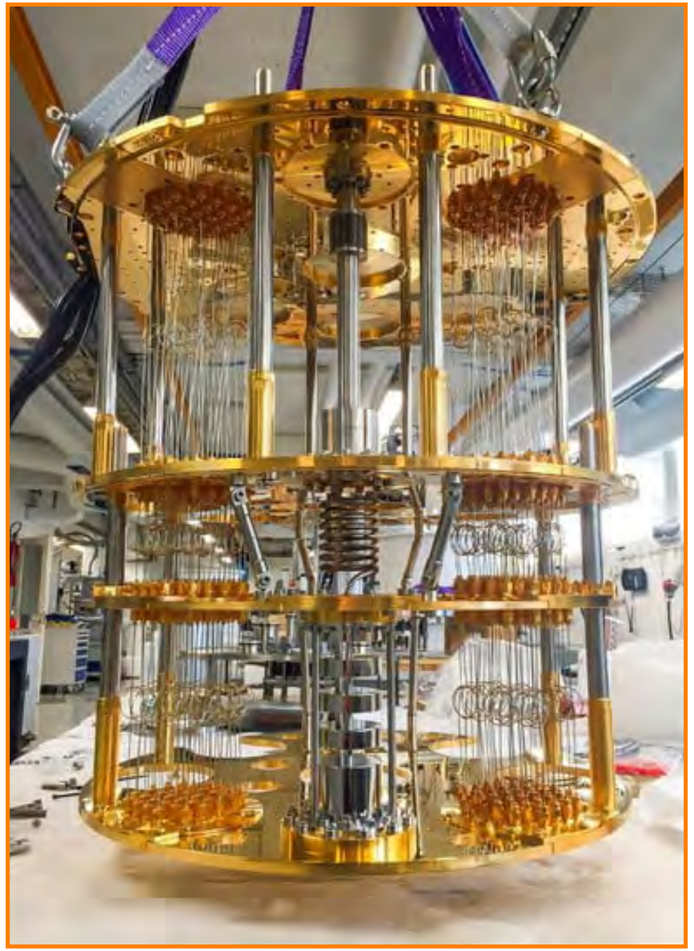
QUANTUM COMPUTING

A 100-qubit quantum computer can perform over 1,000 billion billion billion simultaneous calculations.

Those numbers are too big for humans to comprehend.



QUESTIONS