

Technologies impacting the future of Wholesale

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N · A · W

NATIONAL ASSOCIATION OF
WHOLESALE-DESTRUCTORS

NAW Billion Dollar CEO
Roundtable
Oct 10-11, 2018

DRAFT

IBM

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Artificial Intelligence



Data & Analytics



Internet of Things



Beer brewing



Photography



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The Future is Now - Seeing, Speaking and Thinking Logistics operations

enabled by...

- Artificial Intelligence (AI)
- Vision AI
- Conversational AI
- AI + IoT
- Blockchain
- Quantum Computing





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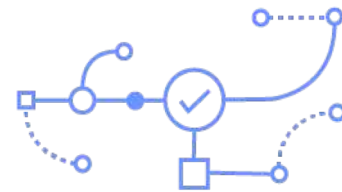
- AI Overview
- Vision AI
- Conversational AI
- AI + IoT
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AI is creating a new partnership between humans and machines that enhances, scales and accelerates human expertise



Understands

Adapt and make sense of data; “read” text, “see” images, and “hear” natural speech with context



Reasons

Interpret information, organize it and offer synthesized answers and rationale for conclusions



Learns

Accumulate data and derive insight at every interaction, continuously improving results



Interacts

With abilities to see, talk and hear, artificial intelligence systems interact with humans in a natural way

Intuition
Abstraction
Morals
Imagination
Compassion
Debate

Humans excel at:



AI
systems **augment**
human expertise



Artificial Intelligence excels at:

Locating Knowledge
Pattern Identification
Natural Language
Self Learning
Eliminate Bias
Endless Capacity

AI is creating a new partnership between humans and machines that enhances, scales and accelerates human expertise

**Humans
+
Machines**

>

**Humans
or
Machines**

[

Average Humans
+
Machines
+
Strong Processes

>

Strong Humans
+
Machines
+
Weak Processes

]

>

**Humans
or
Machines**

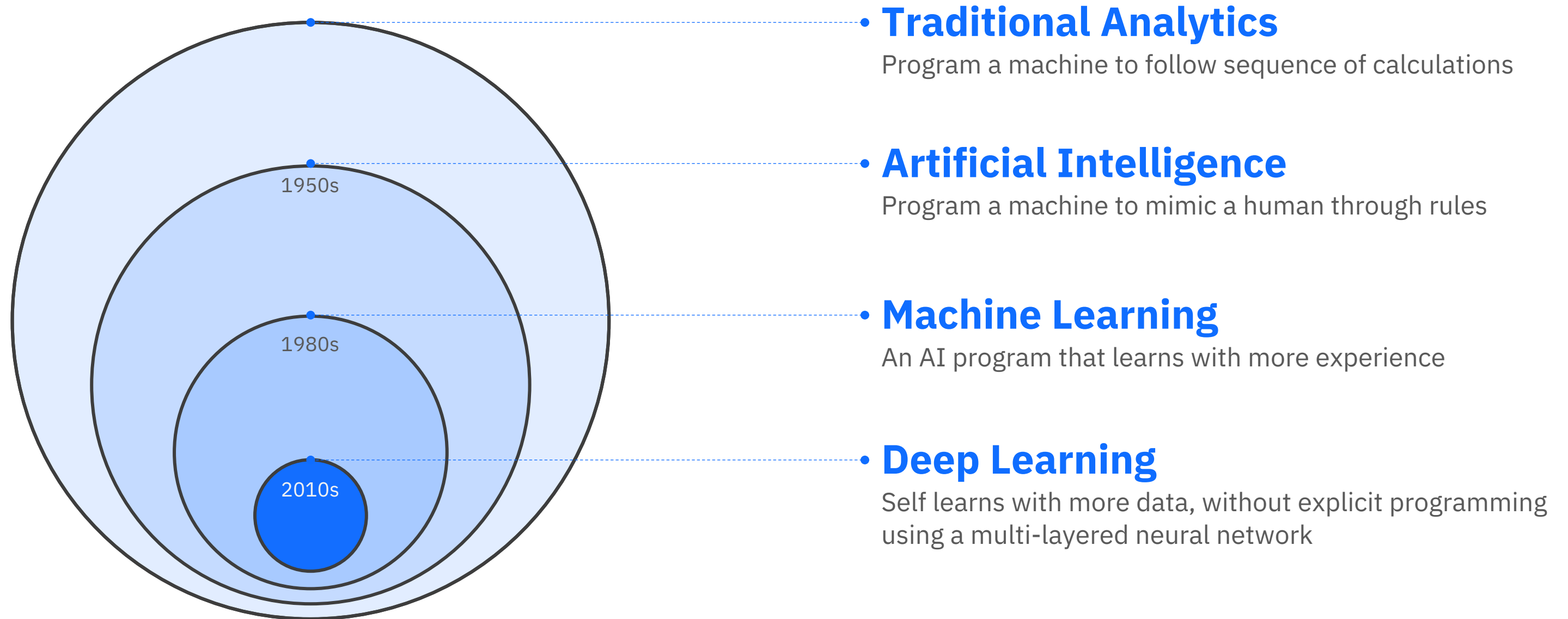
Enterprises that make AI their competitive differentiator need 3 key ingredients

Data
as-an-asset

Re-imagine
Processes

People
(Talent, Culture
& Change)

Evolution of Artificial Intelligence



Deep Learning for Image recognition - Muffin or Chihuahua?

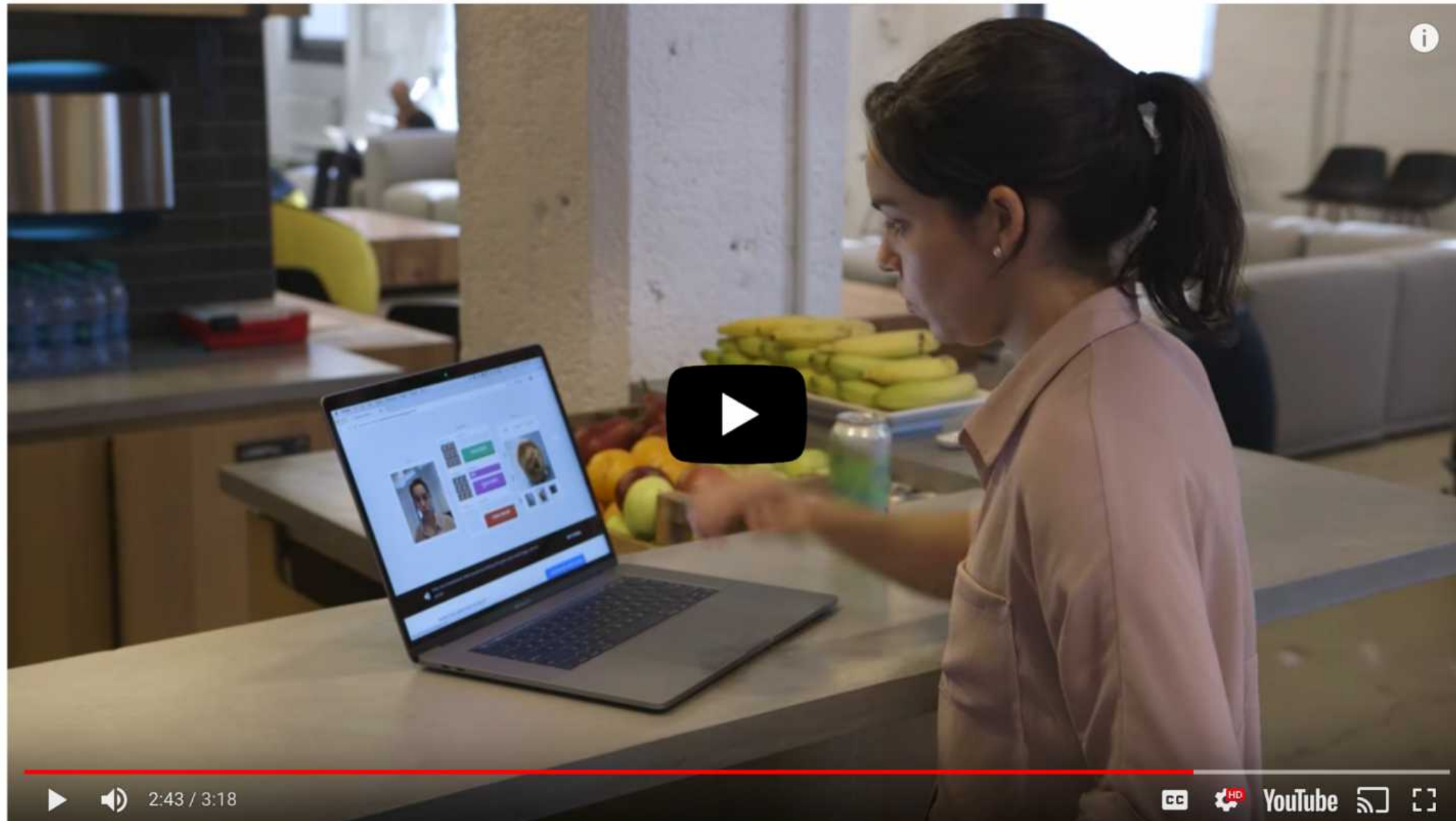




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Training a AI machine to see and learn in under 2 sec...



Vision AI

➤ Fault detection,
Safety, Predictive
Maintenance
in Logistics

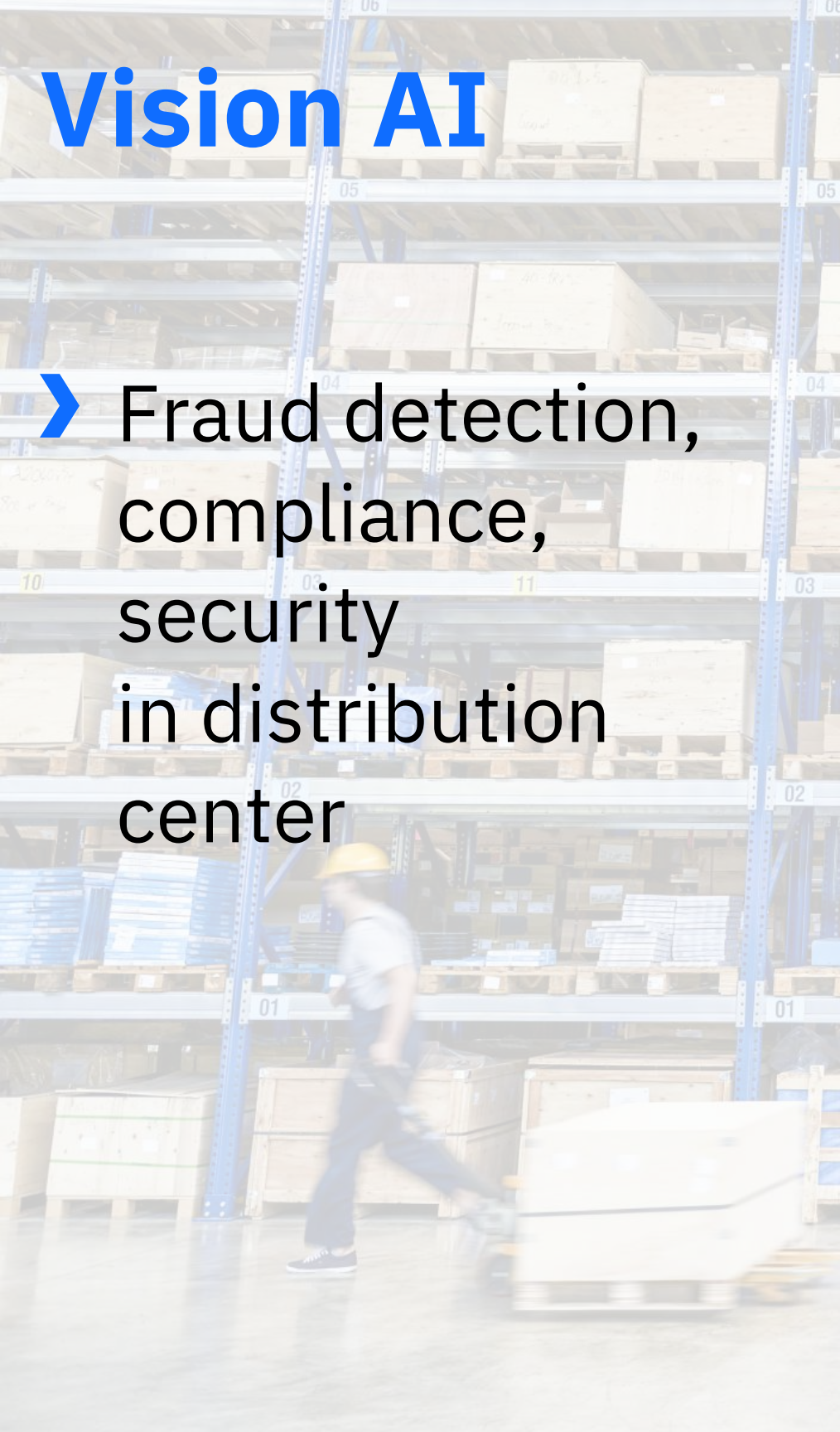


Site: York
Train: 3
Car Number: 6
Direction: North
Axle Count: 625
Defect Axle Number: 312
Severity Level:
Reason: Cotter key missing



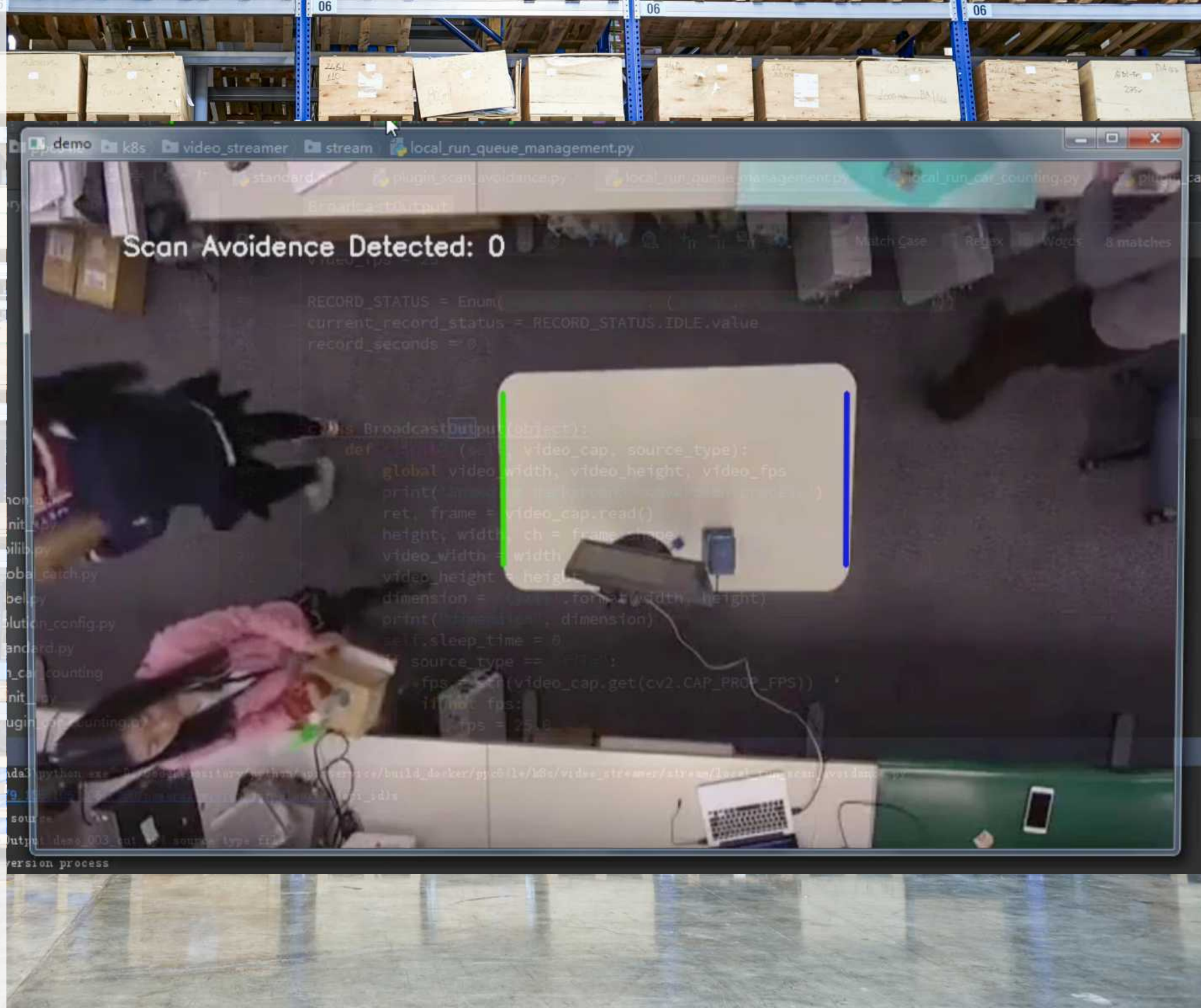
Site: HenryHouse
Train: 3
Car Number: 5
Direction: East
Axle Count: 642
Defect Axle Number: 312
Severity Level:
Reason: Cotter Key Present






Vision AI

➤ Fraud detection, compliance, security in distribution center



Vision AI

➤ Compare paper and electronic invoices against contracts

Tanker Bill of Lading 1ST ORIGINAL 

Global Shipping Inc.
97000 BINTULU, SARAWAK, MALAYSIA

TO ORDER

XYZ Inc.
NETHERLANDS, EVERT VAN DE BEEKSTRAAT
CHIMHOI, EUROPE

BL NO: BTU-RDM-06

On board the tanker
MT PYXIS EPSILON

CAPT VALERIAN FUTKARADZE

Vessel No: VVY-4

MAITA

Loading port: BINTULU, MAYLASIA

To be delivered to the port of: ROTTERDAM

Containers	Container Type	Description	Gross Weight
MSCU469740	1x40	Lubricants and Oils	40940.000L
INBU5337354	1x40	Lubricants and Oils	40940.000L
TTNU4304268	1x40	Lubricants and Oils	40940.000L
TEXU7054374	1x40	Lubricants and Oils	40940.000L

This shipment of 5489.572 Metric tons was loaded on board the Vessel as part of one original lot of 5489.572 Metric tons shown in 28 with no segregation as to parcels. For the whole shipment EQUB (AL) bills of Lading have been issued for which the Vessel is received from all responsibilities to the extent it would be if one set only would have been issued. The Vessel undertakes to deliver only that portion of the cargo actually loaded which is represented by the percentage that the total amount specified in the Bill(s) of Lading bears to the total separation thereof at the time of delivery.

The quantity measurement weight gauge, quality, nature and value and actual condition of the cargo unknown to the Vessel and the Master to be delivered to the port of discharge or to near thereto as the Vessel can safely get always upon your payment of freight as agreed. Cargo is warranted free of damage to Vessel except for the usual risks inherent in the carriage of the commodity as described.

This shipment is carried under and pursuant to the terms of the Charter dated 01 SEPTEMBER 2016

As shippers, we warrant that the description of the cargo and the weight, quality, nature and value and actual condition of the cargo are correct and that the cargo is as described in the Bill of Lading and that the cargo is as described in the Bill of Lading and that the cargo is as described in the Bill of Lading.

The Master is authorized to act for all purposes in arranging for salvage assistance or in terms of an Open Form. The freight is payable discountless and is earned in full upon delivery of the cargo and/or cargo lost or not lost or abandoned.

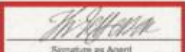
It is understood and agreed that other than said ship owner or demise charterer, no person, firm or corporation or other legal entity whatsoever is or shall be deemed to be liable with respect to the shipment as carrier, sea or otherwise in contract or in tort. It, however, it shall be adjudged that any other than said ship owner or demise charterer is carrier in contract or carriage shall be available to suit.

All of the provisions written, printed, or stamped on either side hereof are part of this Bill of Lading Contract, in witness whereof the master has signed:

Originals ☐ One ☐ Two ☒ Three

Issued at Bintulu, Malaysia

Issued Date 30-09-2016


Signature as Agent
With authority for and on behalf of Master
CAPT VALERIAN FUTKARADZE

AI-driven OCR instead of template based



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AI

➤ Intelligent Advisor,
Agent assist,
Chat bots across
Supply Chain

- 24x7 always-on
- Cost reduction
- Optimize workflows to drive efficiency
- Proactive notifications

Customer facing

- Request a delivery
- Update an existing order
- Track shipment
- Delivery Notifications
- Answers to FAQ

Operations facing

- Track customer orders
- Track delivery status
- Warehouse management
- Fleet management
- HR operations

Conversational AI

Intelligent Advisor, Agent assist, Chat bots across Supply Chain

- 24x7 always-on
- Cost reduction
- Optimize workflows to drive efficiency
- Proactive notifications

Structured FAQ responses

eg. What's the last scanned location of the package# 1ZAHJ128SBB2?

Understand intent in context

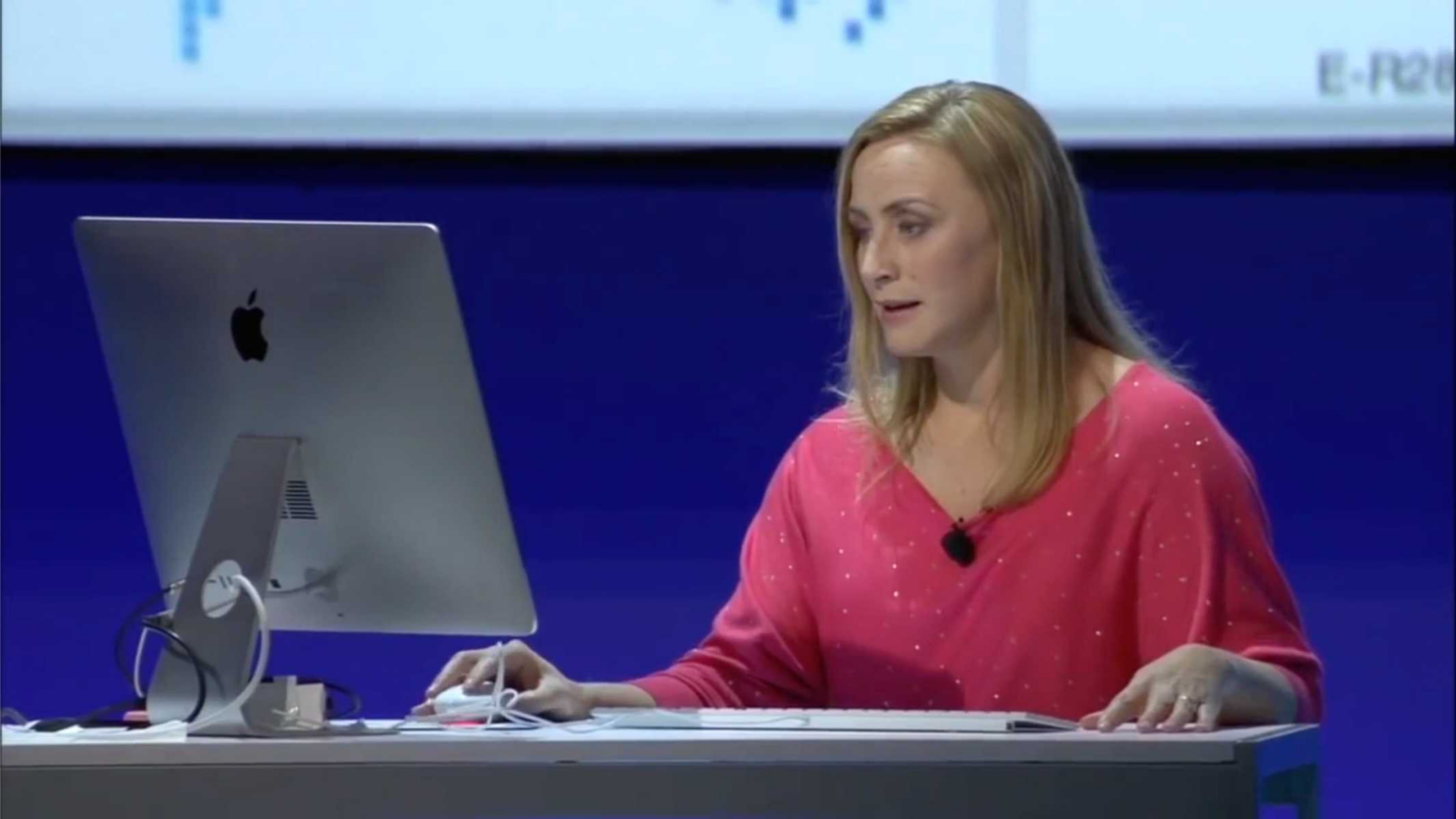
Assist an agent by understanding the intent of the customer conversation and collate relevant data

Voice conversations with customers

Virtual agents that can listen and talk to customers in natural language and evolve from queries to conversations

Virtual Expert

Form opinions based from a broad set of data and discuss collaborate with humans in natural language like an expert team member





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AI + IoT

➤ Glean insights from connected devices across the supply network





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Blockchain is creating extraordinary opportunities for businesses to come together in new ways.

The Internet transformed Information – Blockchain will transform transactions

*A Blockchain is a shared ledger distributed across a business network. Business transactions are permanently recorded in append-only blocks to the ledger. All the consensually confirmed and validated transaction blocks are linked from the first block to the most current block with each block linked to its previous block using the cryptographic hash of the previous block - hence the name **Blockchain**.*

Consumer Industry Supply Chain applications:

- Food safety and traceability
- Global Trade and Supply Chain visibility
- Trade promotions management
- Provenance and anti-counterfeiting



A trusted,
distributed ledger



Shared business
processes



Permissioned
access

Using Blockchain
virtually anything
of value can be
tracked and
traded, without
requiring a central
point of control.



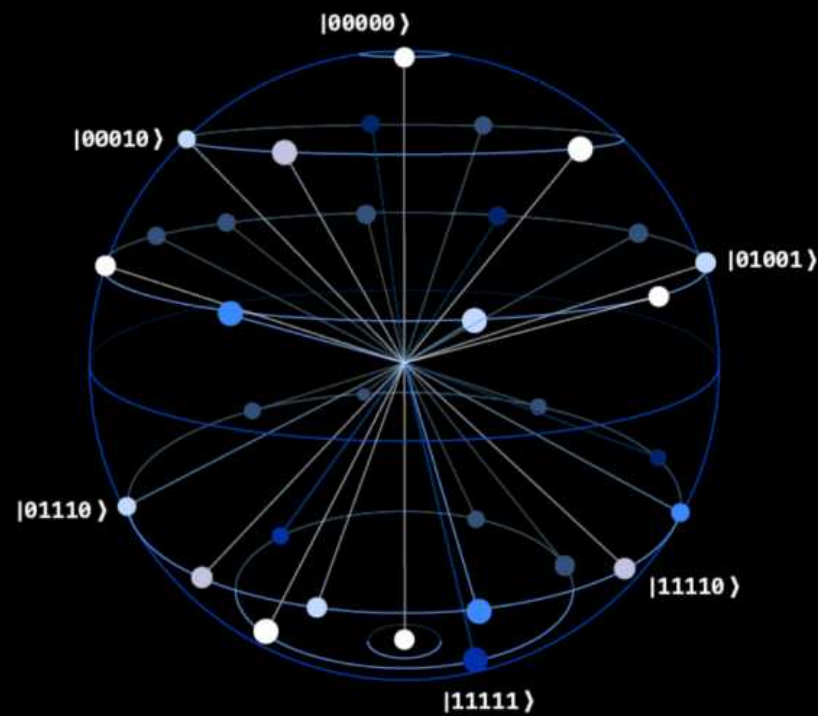


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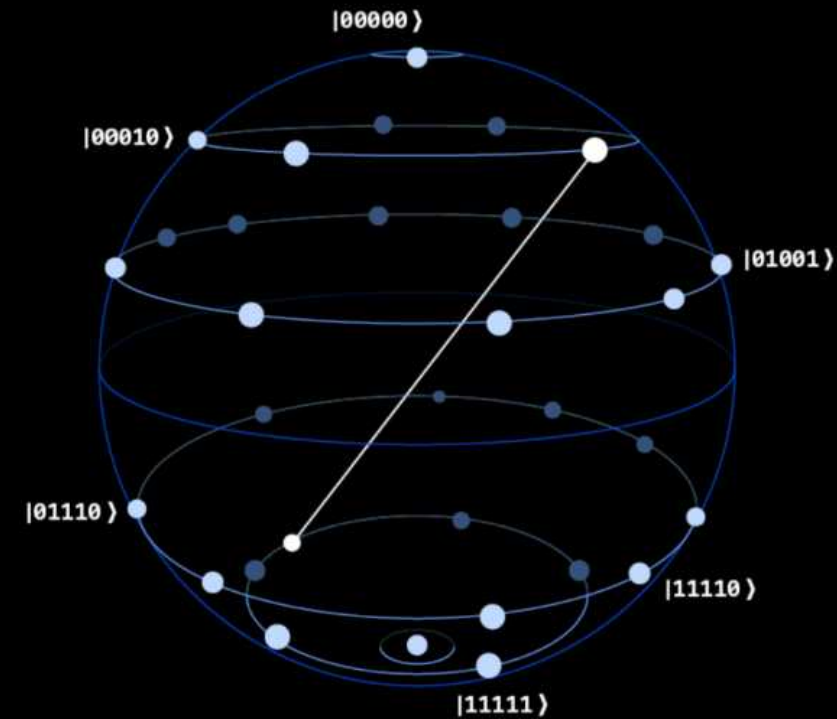
How do quantum computers work?

Universal quantum computers leverage quantum mechanical properties of superposition and entanglement to create states that scale exponentially with number of qubits, or quantum bits.



Superposition

A single quantum bit can exist in a superposition of 0 and 1, and N qubits allow for a superposition of all possible 2^N combinations.



Entanglement

The states of entangled qubits cannot be described independently of each other.

Exponential efficiency anticipated with quantum computing

Consider a Logistics problem of visiting all 50 states...



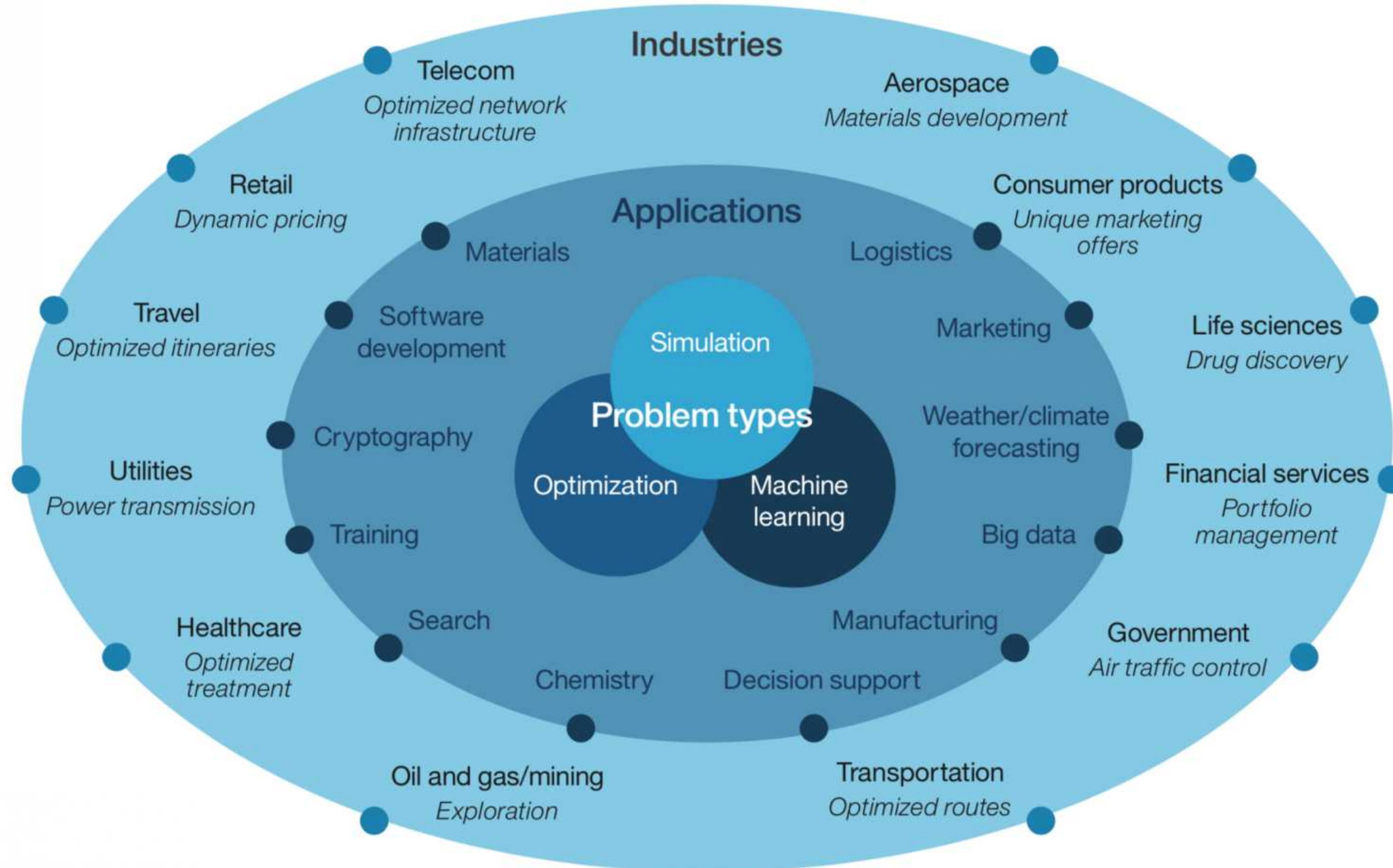
Would require evaluating **50! choices** ($50 \times 49 \times 48 \times \dots \times 1$)

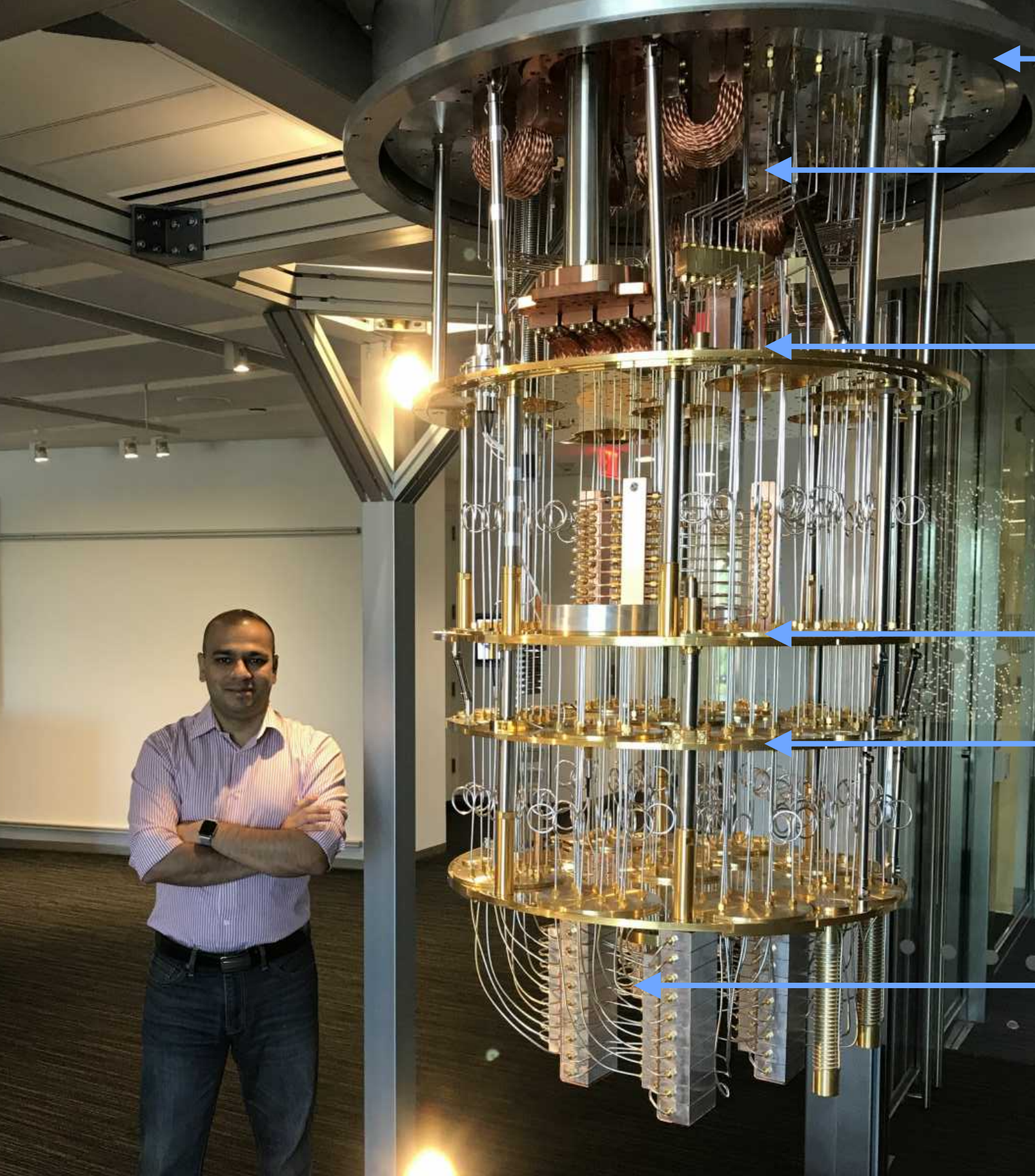
= 30,414,093,201,713,378,04
3,612,608,166,064,768,844,
377,641,568,960,512,000,0
00,000,000 choices

A quantum computer can represent these choices in a quantum superposition of only **215 effective qubits** ($\log_2(50!) = 214.3$)

Could find the best solution potentially **in minutes**

Quantum's potential impact on business problems





Room Temperature
~300 Kelvin

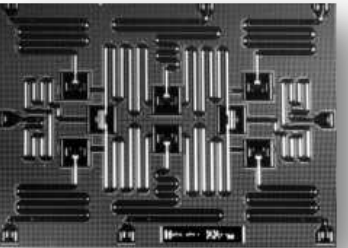
40 Kelvin

3 Kelvin

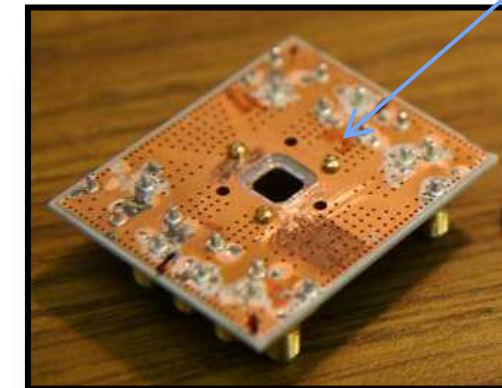
0.9 Kelvin

0.1 Kelvin

0.015 Kelvin



Chip with
superconducting
qubits and resonators



PCB with the qubit
chip at 15 mK
Protected from the
environment by
multiple shields

Refrigerator to cool
qubits to 15 mK with a
mixture of ^3He and ^4He

Thank you



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