



# Industry 4.0 Advancing IoT Through AI

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# Summary

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1. What is Industry 4.0
2. What is Internet of Things (IOT)
3. What is Artificial Intelligence (AI)
4. Industry 4.0 and IoT digital revolution
5. Industrial AI's Impact on Manufacturing
6. AI & IoT : A Powerful Combination
7. Conclusion and Perspectives



Big Data  
and Analytics



Autonomous  
Robots



Simulation



Horizontal and  
Vertical System  
Integration



Industrial Internet  
of Things (IIoT)

# What is Industry 4.0?



Cybersecurity



The Cloud



Additive  
Manufacturing



Augmented  
Reality

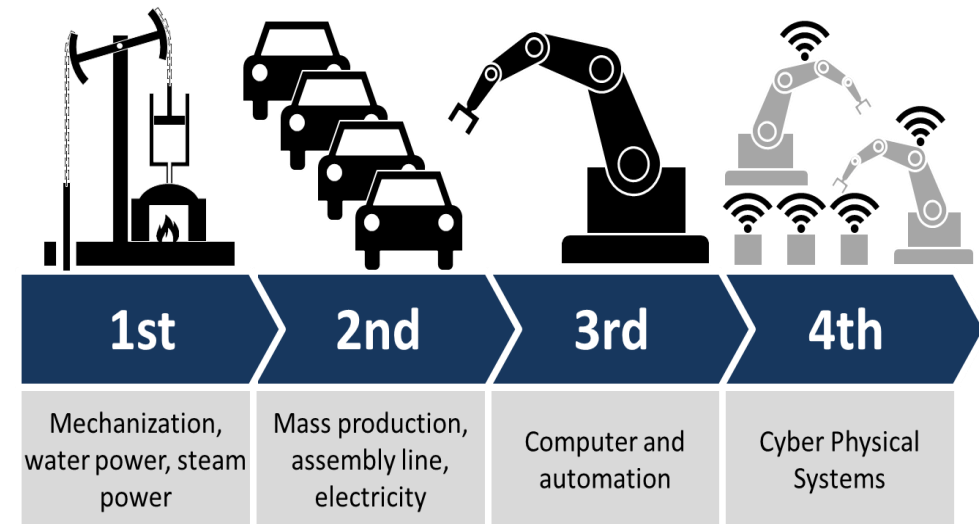


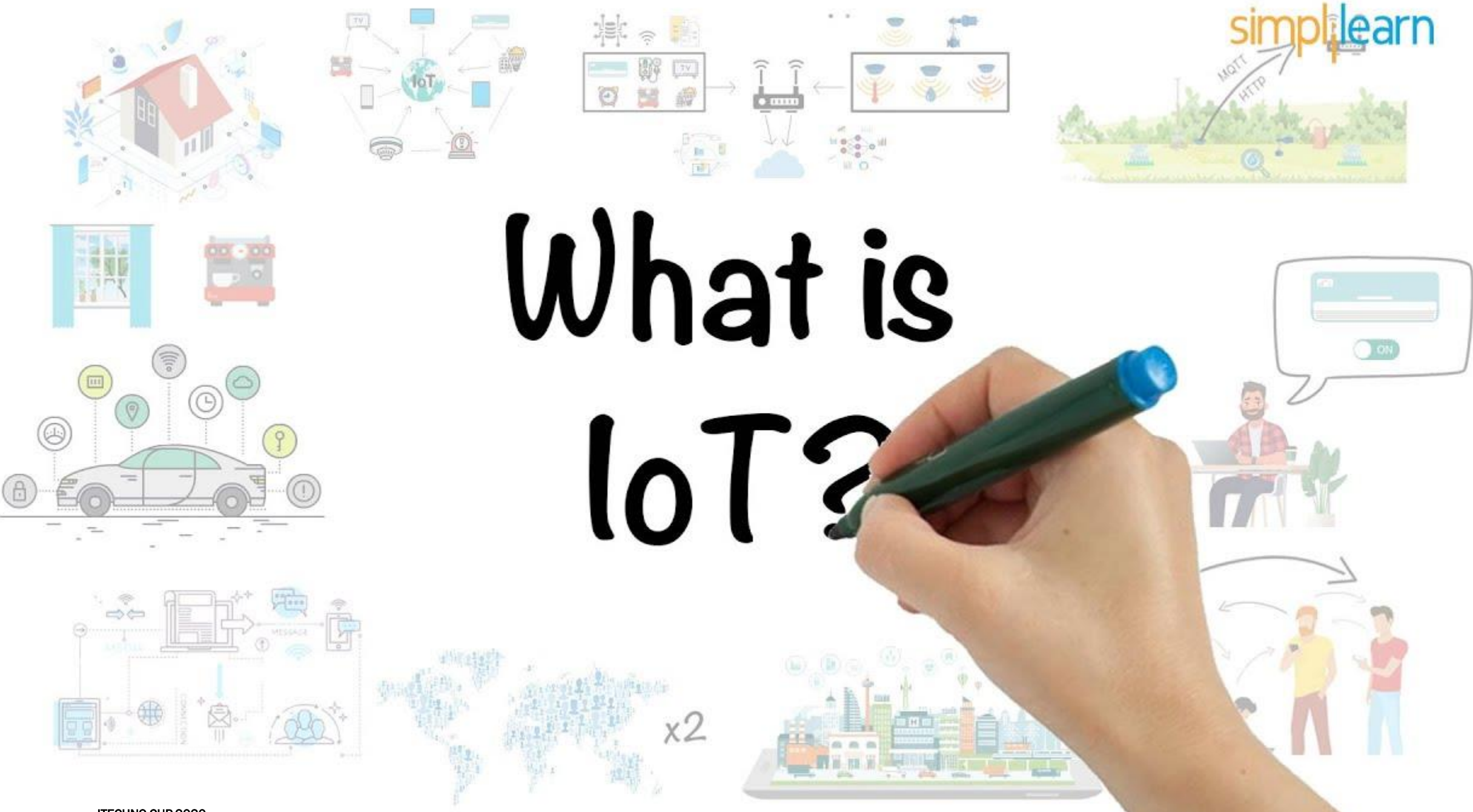
# What is Industry 4.0 ?

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Industry 4.0 is the digital transformation of manufacturing/production and related industries and value creation processes.

Industry 4.0 is used interchangeably with the fourth industrial revolution and represents a new stage in the organization and control of the industrial value chain.





simplilearn

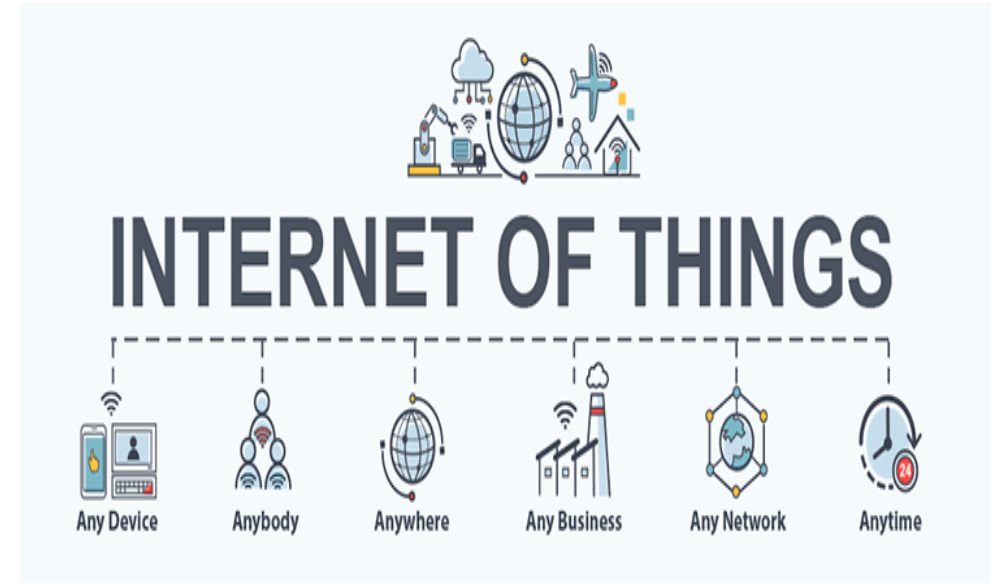
MQTT  
HTTP

# What is IoT?

# What is Internet of Things (IoT)

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The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.





# WHAT IS A.I.?

# What is Artificial Intelligence (AI) ?

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Artificial intelligence (A.I.) is generally defined as the property of machines that mimic human intelligence as characterized by behaviors such as cognitive ability, memory, learning, and decision making.







BearingPoint®

# Industry 4.0 & IoT – key elements of the digital revolution

#HotTopics

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# Industry 4.0 and IoT Digital Revolution ?

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- Sensor Expertise and Machine Connection.
- Sensing as a Service (what's possible/agile IoT).
- Edge Management Concept.
- Secure connection and Device Management.
- Data Lakes and Data Model.
- Advanced Analytics.
- Machine learning and prediction.
- Business Model creation and Business case.



# ARTIFICIAL INTELLIGENCE

THE DRIVING FORCE OF INDUSTRY 4.0

# Artificial Intelligence

## The Driving Force of Industry 4.0

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- Predictive maintenance.
- Generative design.
- Price forecasting of raw material.
- Robotics.
- Edge analytics.
- Quality assurance.
- Process optimization.



# AI & IoT

## A POWERFUL COMBINATION

HOW TWO BROAD TECHNOLOGIES ARE INFLUENCING LIFE IN THE LAB



# AI & IoT

## A Powerful Combination

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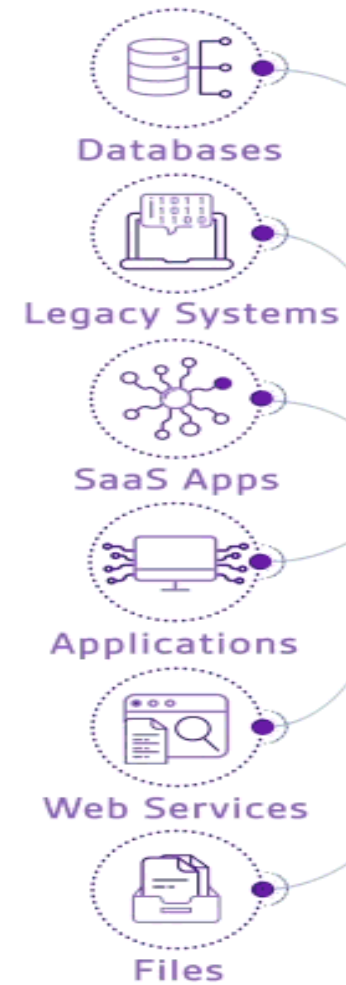
The convergence of AI (Artificial Intelligence) and IoT can redefine the way industries, business, and economies functions.

AI enabled IoT creates intelligent machines that simulate smart behavior and supports in decision making with little or no human interference.

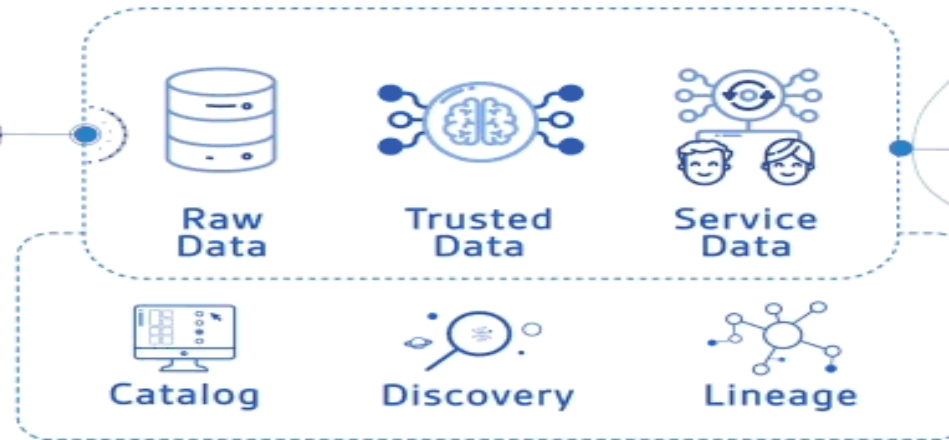
Combining these two streams benefits the common person and specialists alike.

While IoT deals with devices interacting using the internet, AI makes the devices learn from their data and experience.

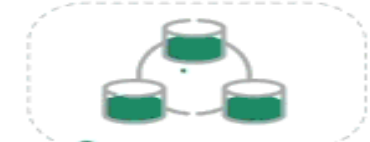
## Datasources



## Data Loaders



## Data Sharing



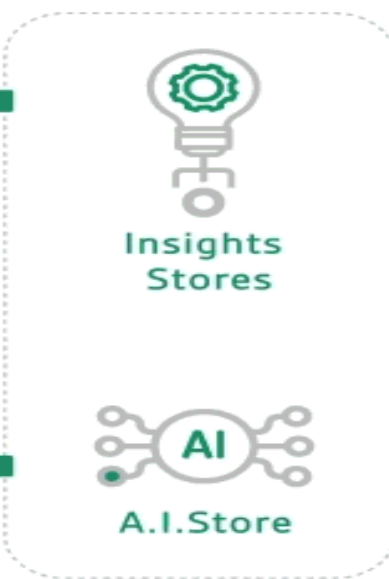
## Data Visualization



## M.L Development



## Add-ons



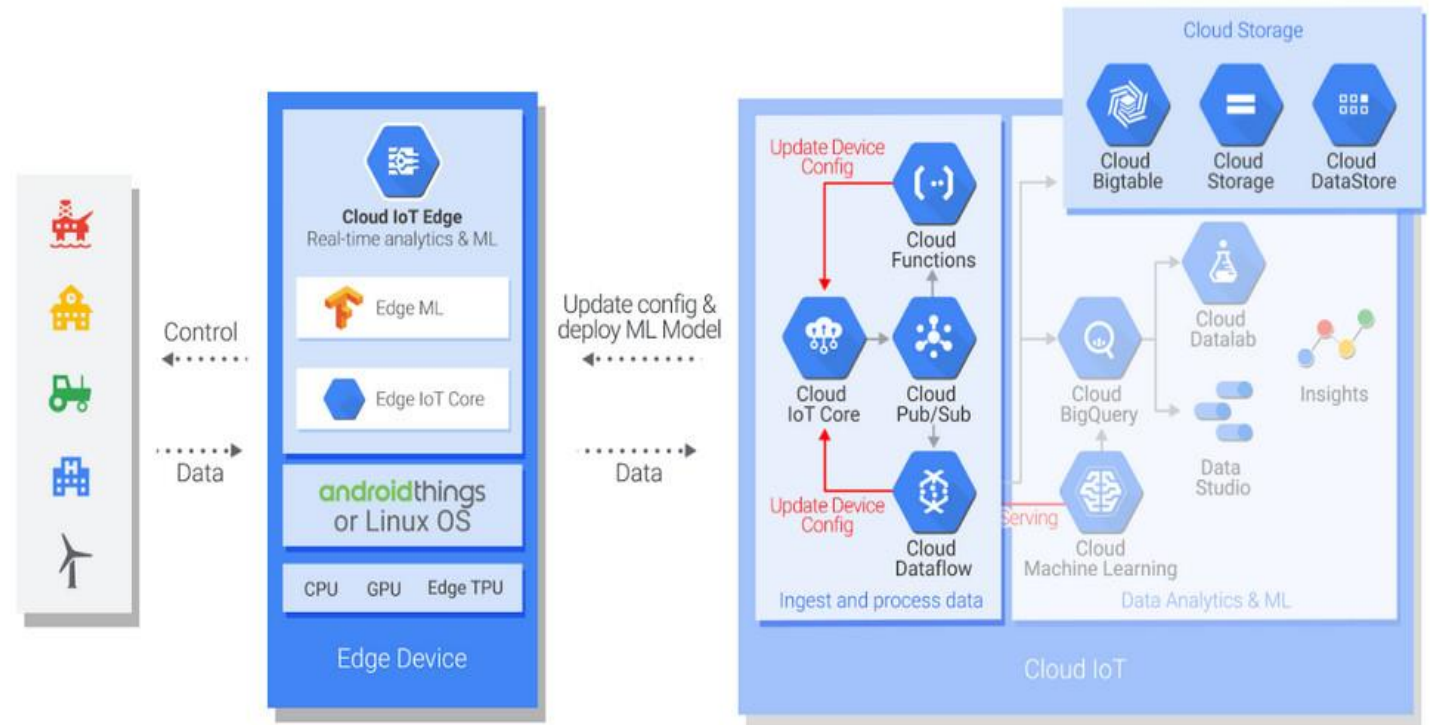
# AI & IoT

## A Powerful Combination

Google Cloud Services for **IoT** and **AI** are all located in one platform called **Google IoT Platform**, where **Edge Devices** send data to **Cloud IoT Edge**.

**Cloud IoT Core** connect, manage, and ingest data through **Google Pub/Sub**, then the data is stored in **Cloud Storage**.

Google offers **Cloud Machine Learning** to implement AI solution and other services like Big Data Analysis like **BigQuery**,





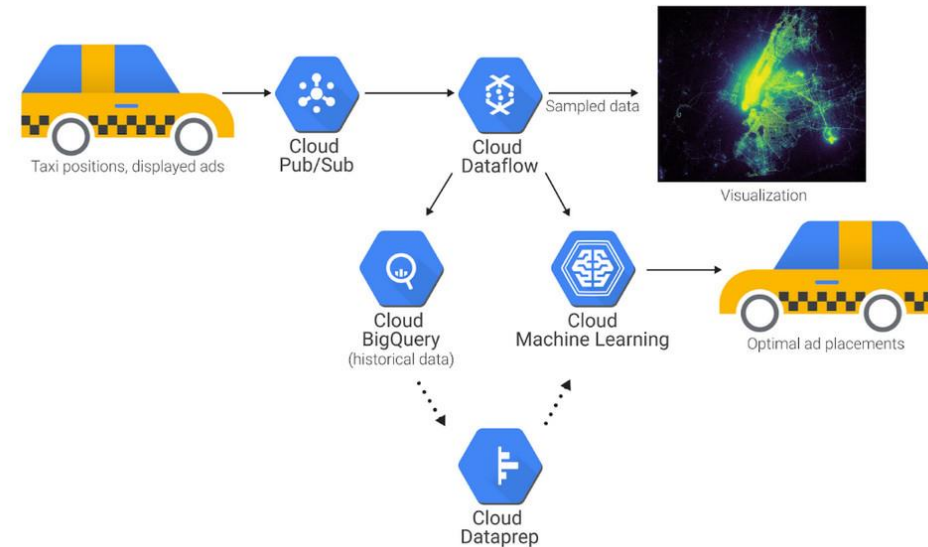
# AI & IoT

## A Powerful Combination

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The data pipeline collects data from New York City taxis using Cloud **Pub/Sub** and a **Dataflow** pipeline. The data is visualized as an overlay to a map of New York City, with green dots representing taxis. **BigQuery** is used to gather and explore the data set.

With **Cloud Dataprep** resides you can create recipes to transform and clean the data in preparation for **Cloud ML Engine**. The recipes will work on historical data and all data streaming into the pipeline





# Thank You

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Q & A