

# DATA AND ARTIFICIAL INTELLIGENCE



## Introduction to Data Analytics

# DATA AND ARTIFICIAL INTELLIGENCE



## Data Analytics in Different Sectors



## Learning Objectives

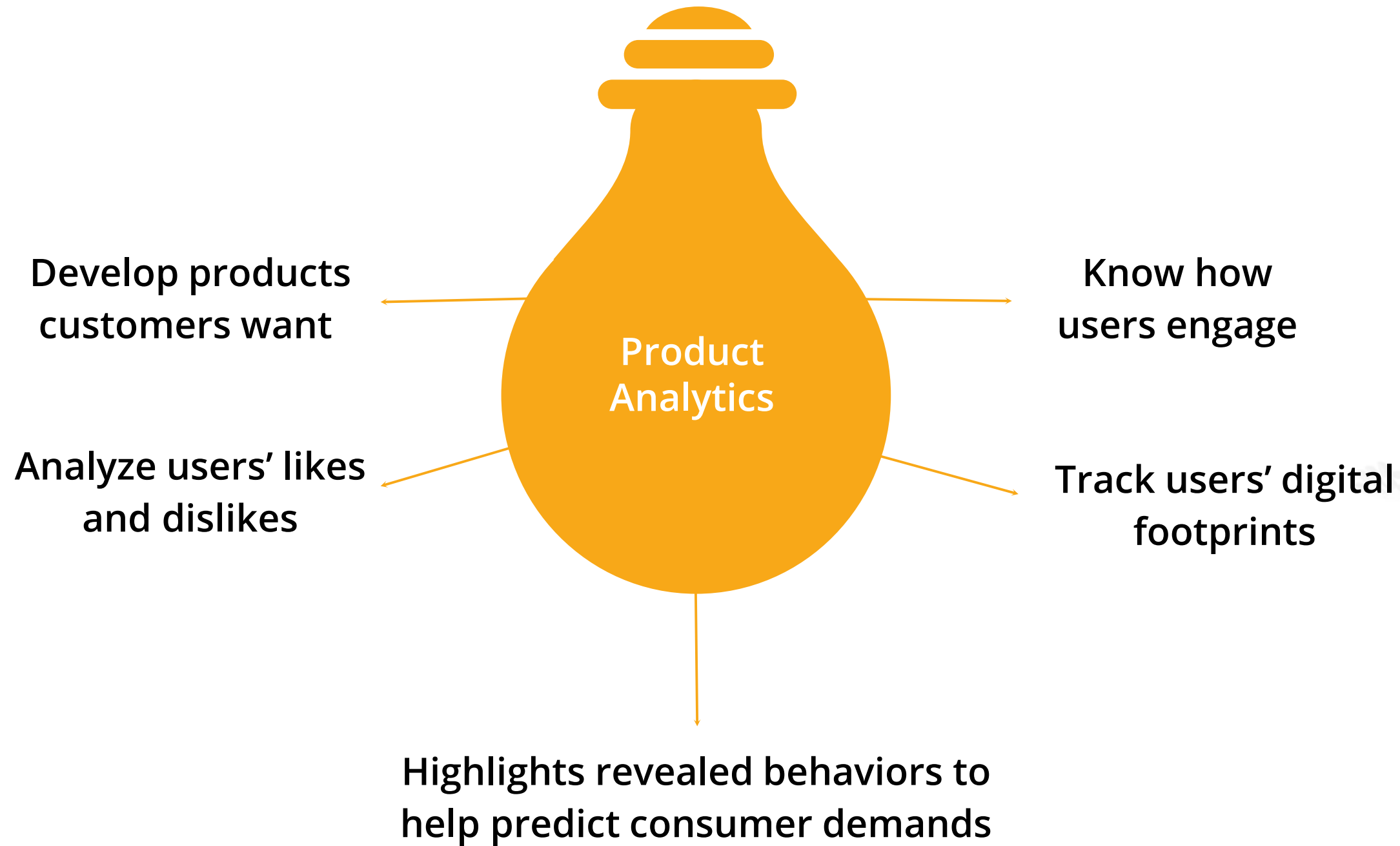
By the end of this lesson, you will be able to:

- 🕒 Explain how top companies use analytics
- 🕒 Describe how Netflix uses analytics to drive engagement
- 🕒 Explain how analytics changed different sectors



## Analytics for Products or Services

# Analytics for Products or Services



# McKinsey & Company

“Companies that use customer analytics comprehensively report outstripping their competition in terms of profit almost twice as often as companies that do not.”

# Benefits of Analytics on Products or Services



- Customers buy more when they get what they are looking for.
- Analytics helps product teams to dig deeper and identify user needs that might not have been captured otherwise.
- Example: Details associated with a shirt size, how it will look on a customer, and which jeans can be bought along with the shirt do make a lot of sense for the buyer.

## How Google Uses Analytics



# How Google Uses Analytics

Google uses tools and techniques of data analytics to understand requirements based on several parameters.



It uses the collected data to streamline search results.

# How Google Uses Analytics

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Businesses use data analytics while advertising through Google Ads.



Google Ads

Google Ads learns user's preferences, likes, dislikes, and inclinations.

Based on the preferences, Google shows users tailored advertisements.



# How Google Uses Analytics

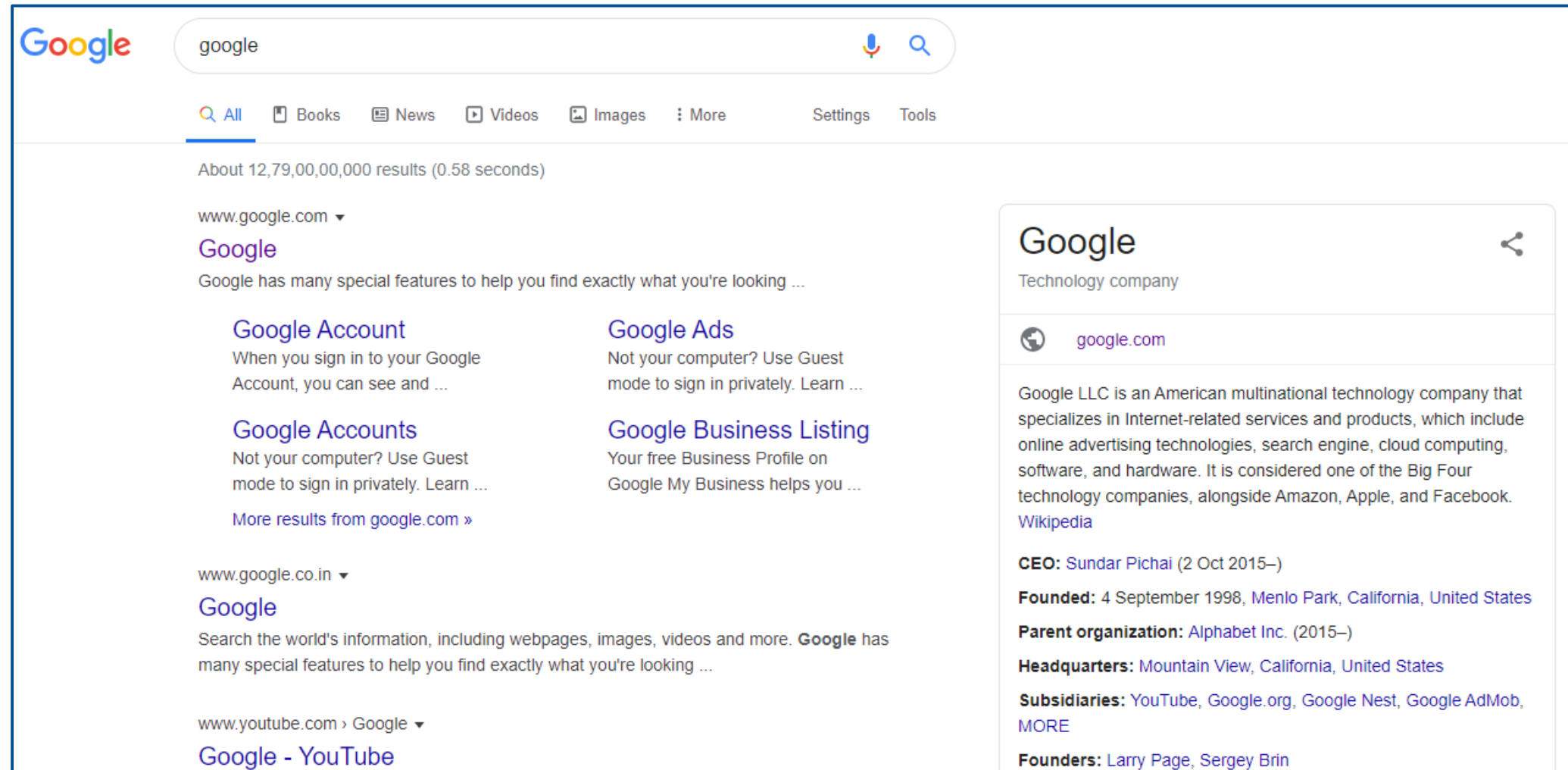


Self-driving cars comprehend situations and make educated choices using data analytics.



# How Google Uses Analytics

Google shows millions of results for a question ranked in a perfect order.

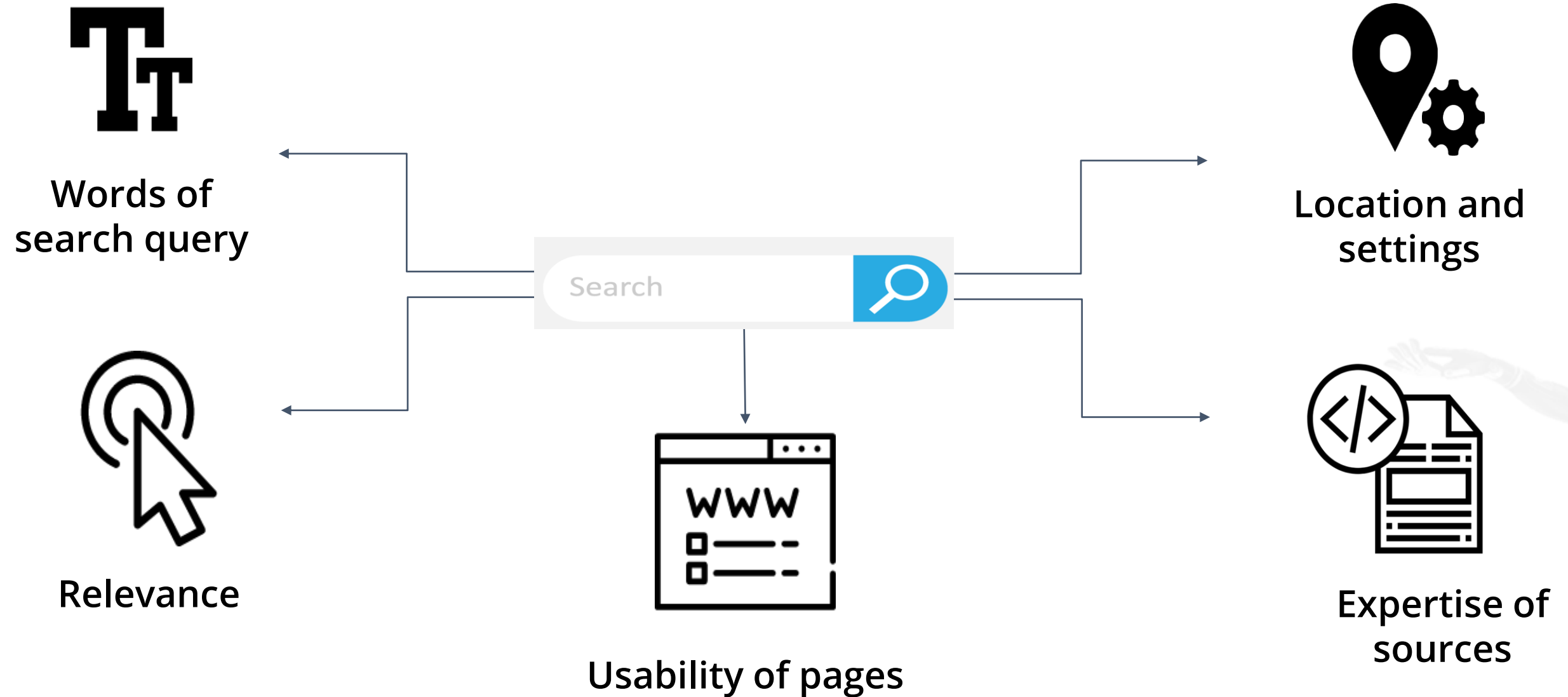


It runs complex algorithms to match the query with all the available data and ranks the results.



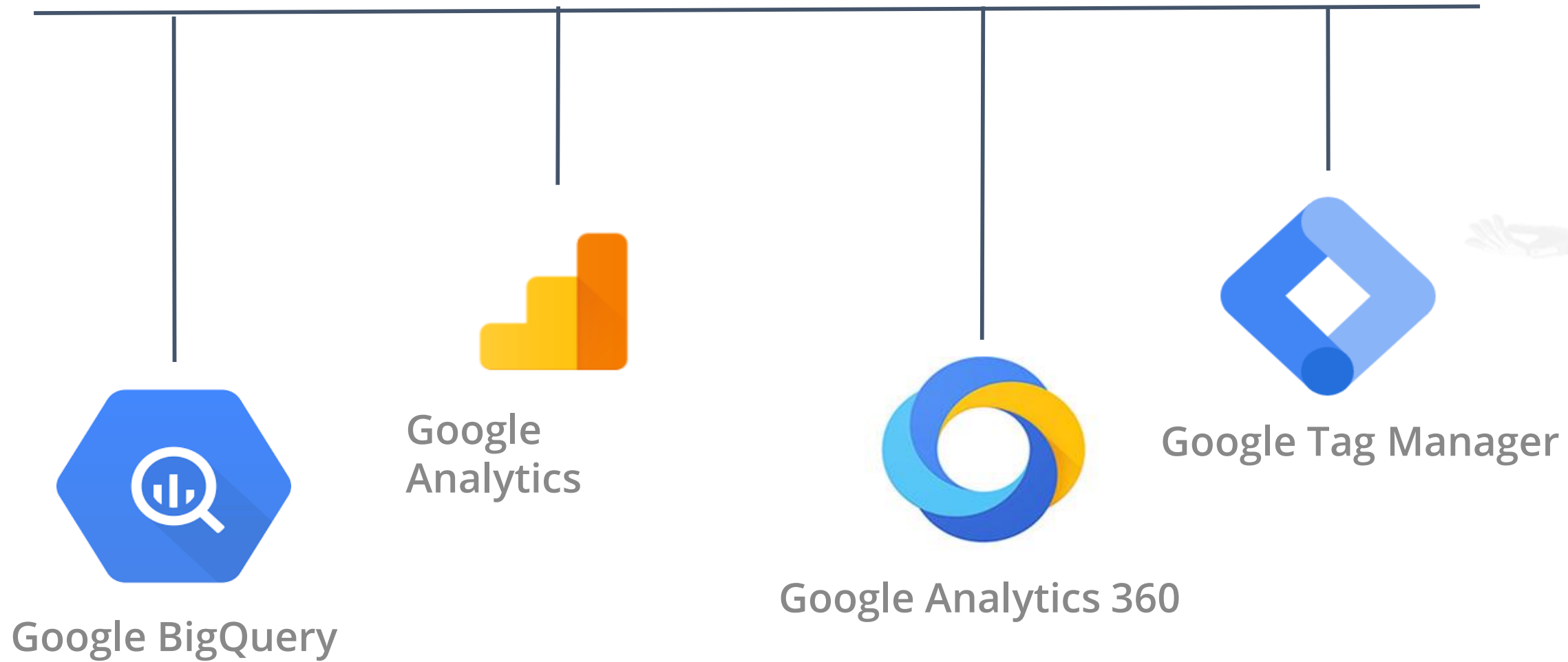
# How Google Uses Analytics

Google uses data analytics to refine its core search and ad-serving algorithms and consider these factors:



# How Google Uses Analytics

Google



# How Google Uses Analytics

Google Analytics 360 and Google Analytics enable you to collect data from websites, mobile apps for iOS and Android, and from the custom data source.



Google Analytics 360



Google Analytics

# How Google Uses Analytics

Google Cloud Service, which lets developers and businesses conduct interactive analysis, uses Google BigQuery to become faster and cost-efficient.



Google BigQuery



Google Tag Manager

Google Tag Manager is a simple, reliable, and easy to integrate tag management solution that allows management of website tags without editing the code.



## How LinkedIn Uses Analytics

# How LinkedIn Applies Analytics

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LinkedIn employs data analytics to revamp its job listings, *who's viewed your profile,* and *who's viewed your posts.*



Analytics helps to bring and retain millions of new customers.



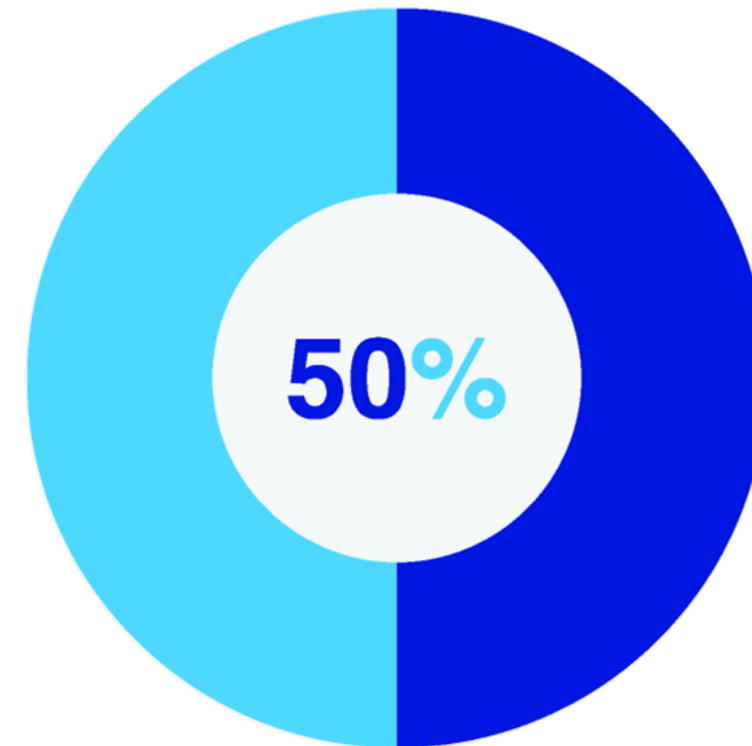
# How LinkedIn Applies Analytics

LinkedIn identifies the connections, job postings, and skill sets for a user.

**CONNECT**

**POST A JOB**

**SKILLS**

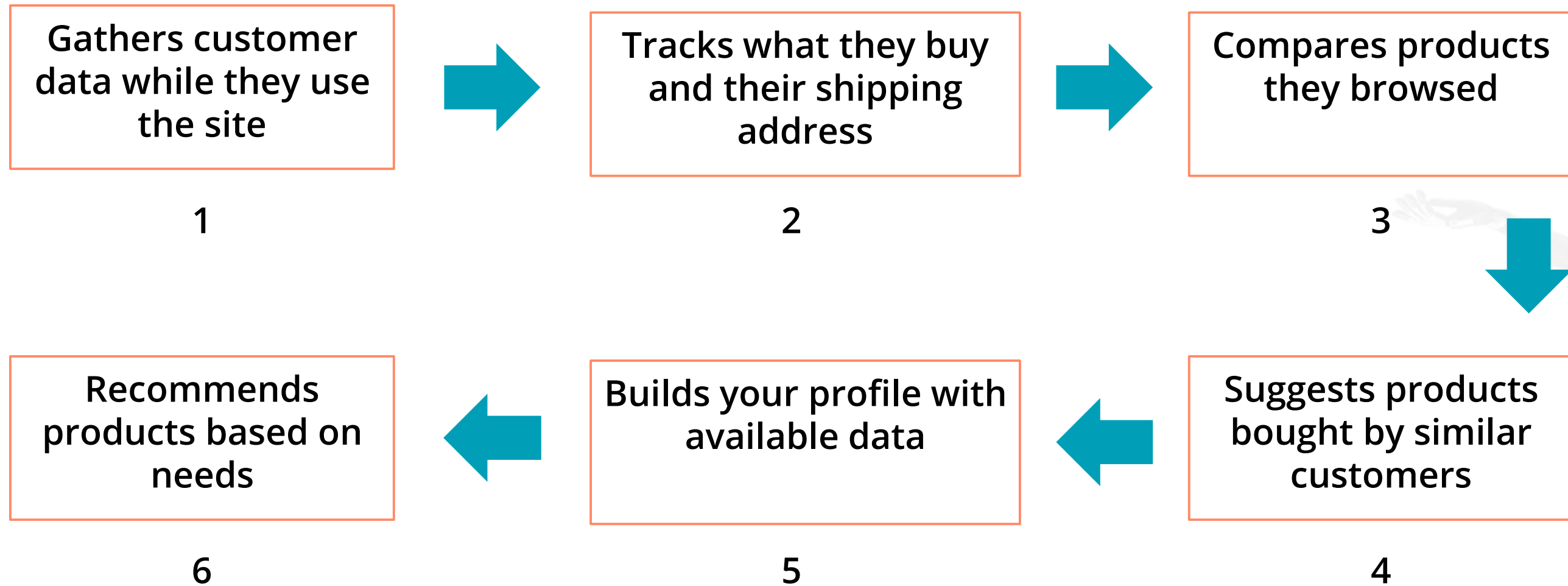


50% of LinkedIn engagement comes from the *Jobs you may be interested* feature.

## How Amazon Uses Analytics



## How Amazon Uses Analytics



# How Amazon Uses Analytics

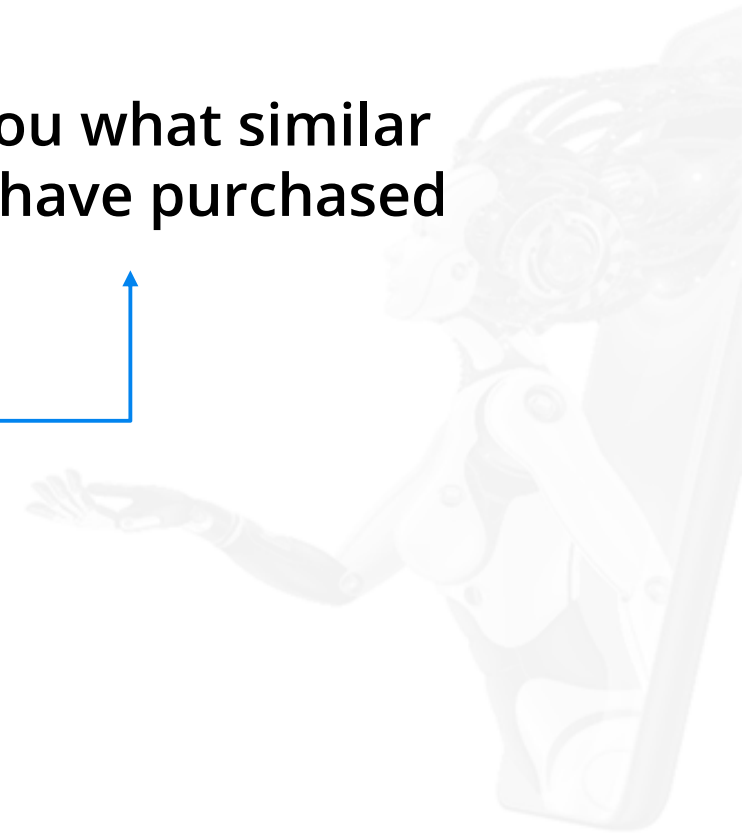


Decides what you want to buy based on your profile

Offers you what similar profiles have purchased

**Recommendation technology**

Amazon regularly fine-tunes the recommendation engine by collecting data from customers while they browse.



## Disney's Success Story

# Disney's Success

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Disney uses data analytics in innovative ways to improve the customer experience.



Disney

Technology improves customers' experience and helps to retain them.





# Disney's Success

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Disney World launched its *MyMagicPlus* program in 2013 where each guest got a MagicBand equipped with RFID technology.



As guests swiped their bands at a ride, this info shipped real-time to the operations team which allowed decisions to be made about adding staff or incentivizing guests to head to another ride or attraction.

## **Netflix: Using Analytics to Drive Engagement**

# Netflix: Using Analytics to Drive Engagement

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Netflix has 130 million+ worldwide streaming subscribers.

# NETFLIX

It gathers a tremendous amount of data from these subscribers to make better decisions on its streaming services.

Data analytics helps decide which programs will be of interest and the recommendation system influences 80% of the content on Netflix.



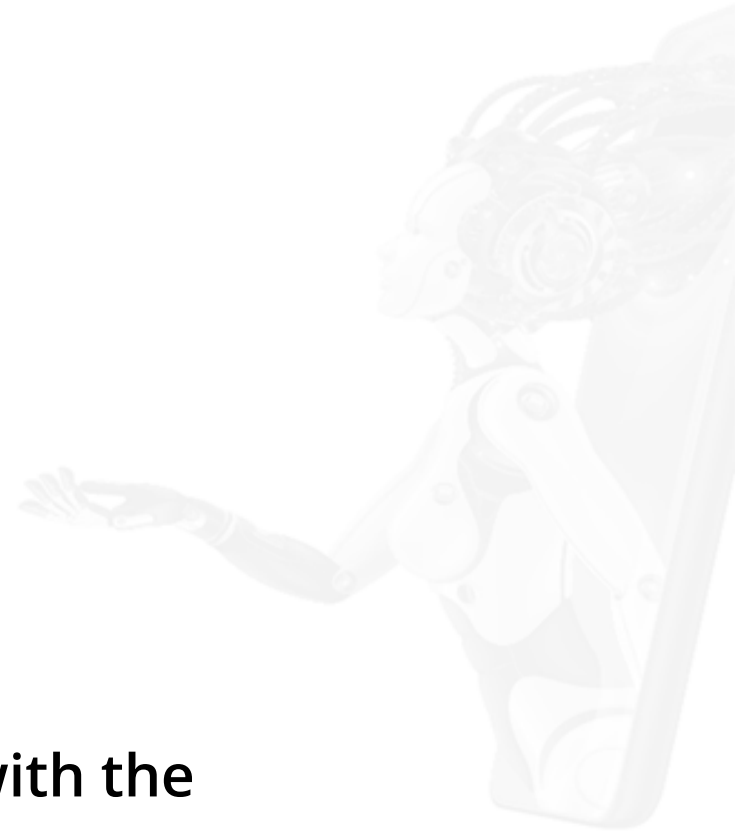
# Netflix: Using Analytics to Drive Engagement

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Netflix ensures it has accurate algorithms for predicting and recommending content.

# NETFLIX

In 2009, the company offered a \$1 million prize to the group who came up with the best algorithm for predicting how customers would like a movie based on previous ratings.



## Netflix: Using Analytics to Drive Success



# Netflix: Using Analytics to Drive Success

Data analytics has helped Netflix massively in becoming the best online streaming platform.



Netflix tracks these factors to identify user preference:

- Ratings and watched movies
- Pause, rewind, and fast forward
- Day, date, and time
- Devices used
- Searches, browsing history, and scrolling behavior
- Volume, color, and scenery



# Netflix: Using Analytics to Drive Success



If a user watch Fast and Furious on Friday, then a similar genre movie will be displayed as a personalized recommendation for Saturday.

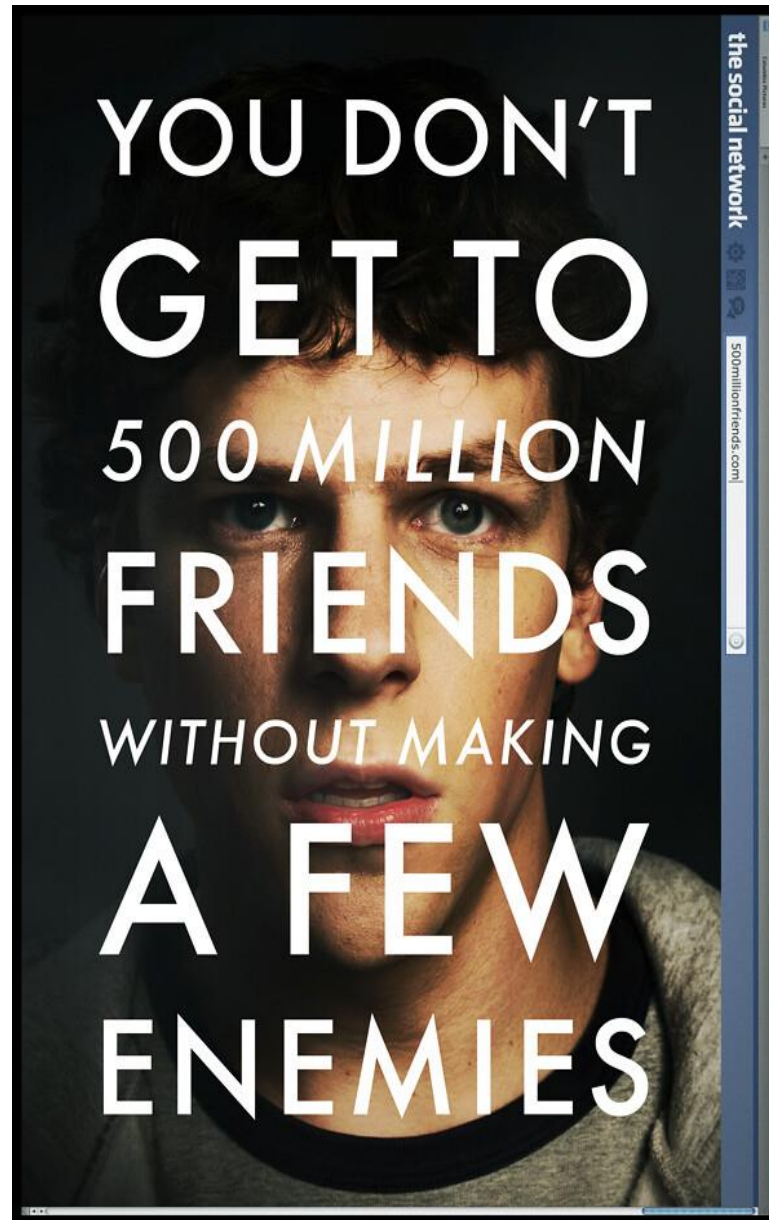


Orange is the New Black and House of Cards are two examples of how data analytics is used to understand its subscribers and cater to their needs.



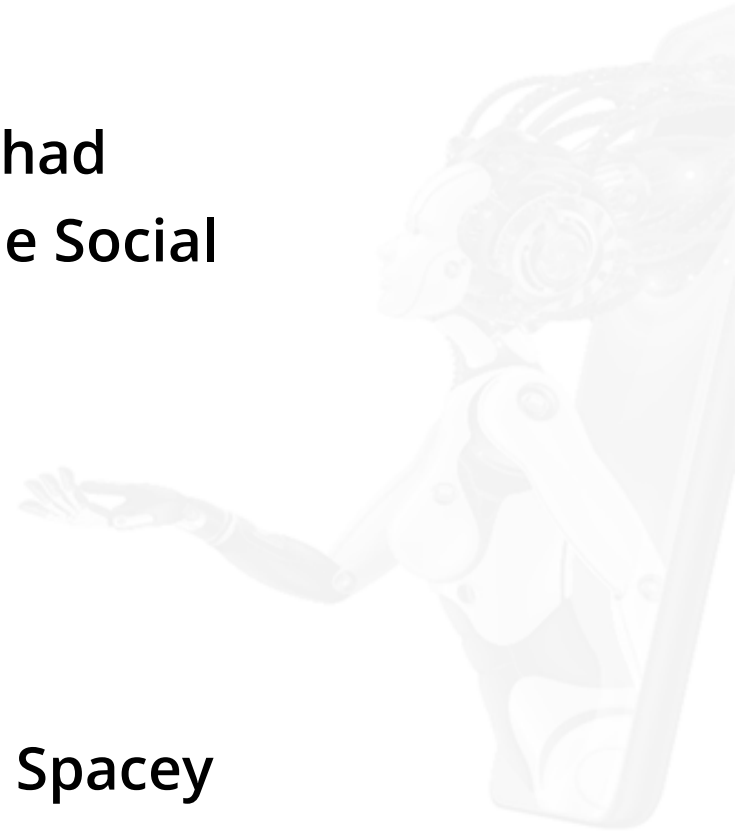
Netflix spent \$100 million to buy House of Cards as it was confident that the show would be a hit.

# Netflix: Using Analytics to Drive Success



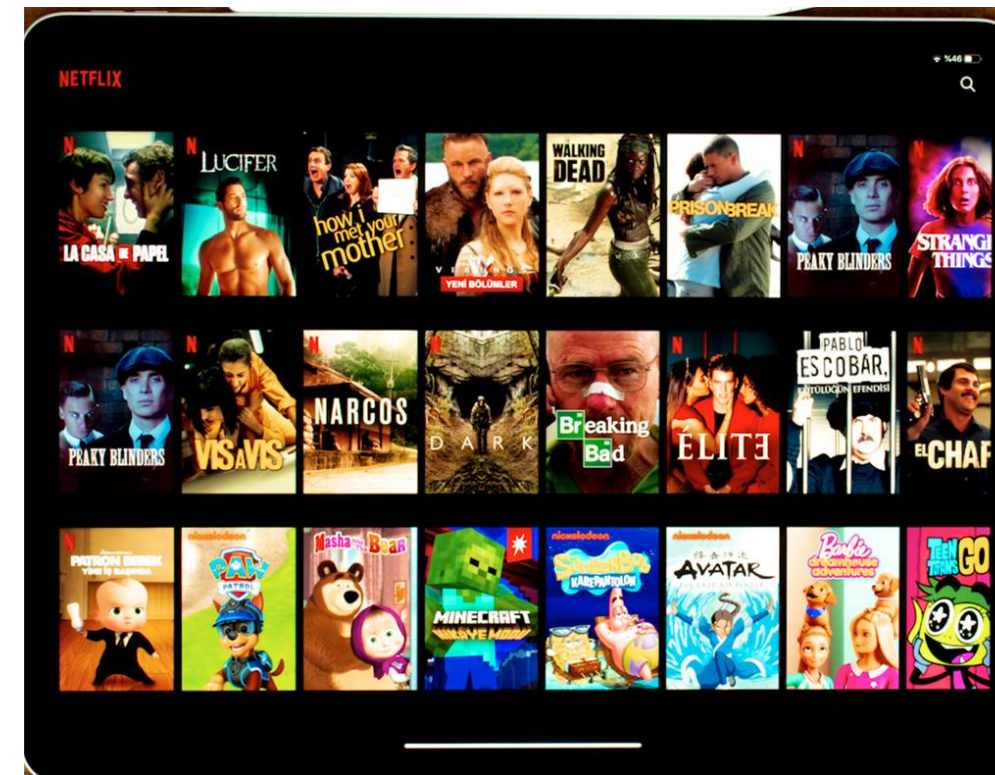
By analyzing its data for House of Cards, Netflix realized:

- A significant percentage of its subscribers had streamed director David Fincher's work The Social Network
- Films featuring Kevin Spacey were always successful with its audience
- A successful show in Britain starring Kevin Spacey and directed by David Fincher, for an American audience, will be a big hit.



# Netflix: Using Analytics to Drive Success

- Netflix has a Personal recommender system that orders the entire collection in a personalized way.
- It has a video-video similarity algorithm that provides an estimate of what a user would like to watch.
- Netflix is a perfect case study for those who require an engaged audience to survive.
- Netflix's approach to content is highly successful as it renews 93 percent of its original series.





## Media and Entertainment Industry

# Media and Entertainment Industry

Media and entertainment companies are in a unique position to leverage their data assets for profitable customer engagement.



Data sources that help syndicate content closely aligned to viewer preferences:

- Viewing history
- Searches, reviews, and ratings
- Location and device data
- Clickstreams and log files
- Social media sentiment



# Media and Entertainment Industry

Gets insights into audience behavior

Pinpoints customer drawbacks



Data Analytics

Provides personalized advertising

Makes useful recommendations

## Education Industry

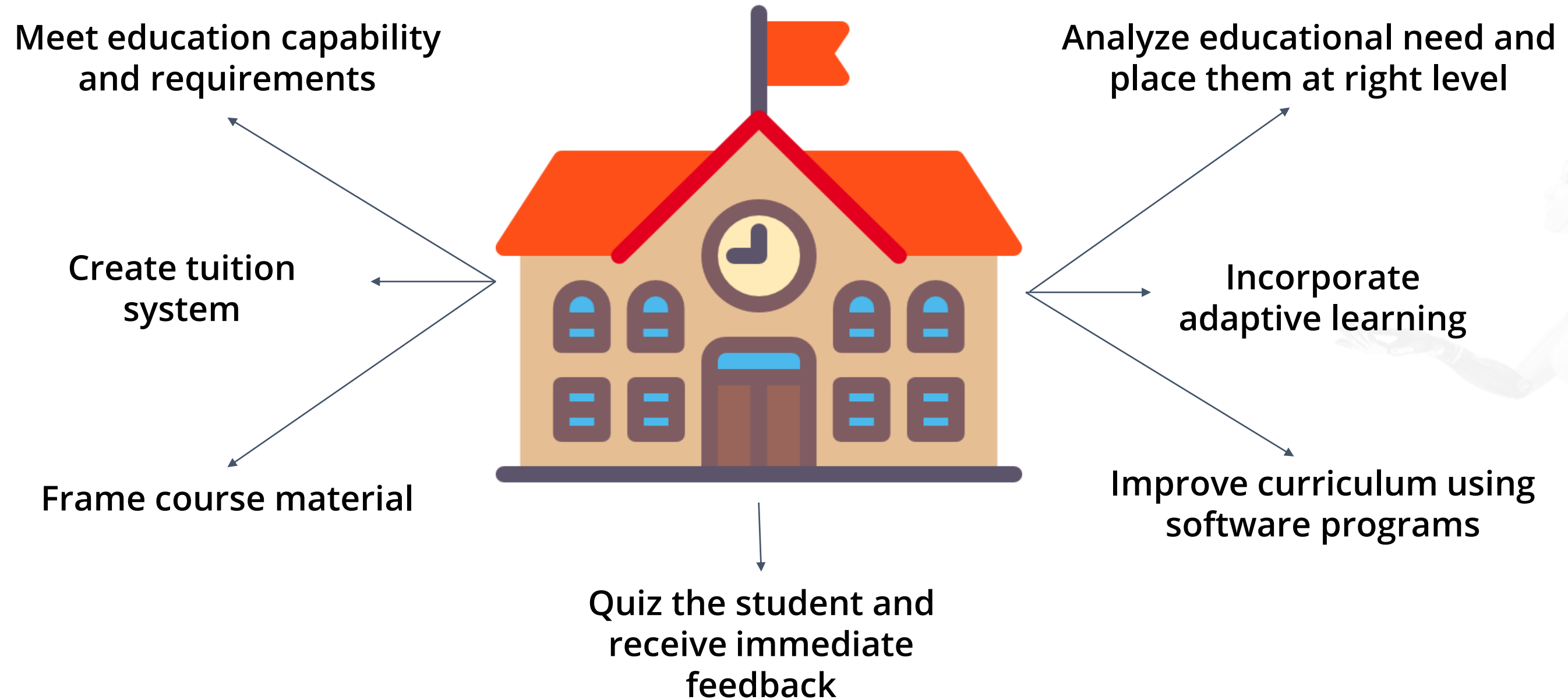
# Education Industry



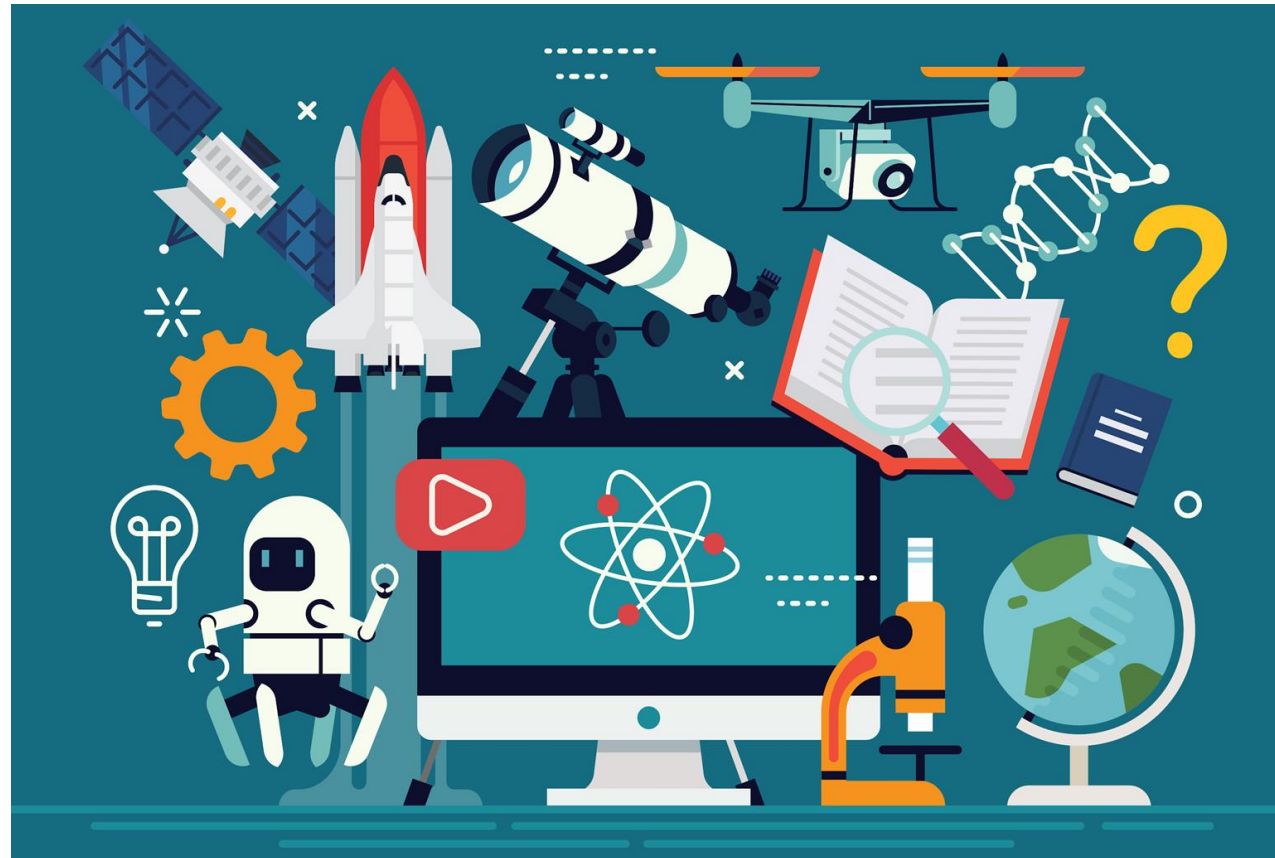
- Data analytics is used from kindergarten to doctoral level.
- Teachers monitor pupils' performance using data analytics and get real-time information on what has been learned.

# Education Industry

Schools use data analytics to:



# Education Industry



Data analytics system helps:

- Detect and match grades
- Compare a student's score with field requirement
- Pull academic, attendance, financial, disciplinary, and engagement data
- Enhance student experience by changing the course of student's learning

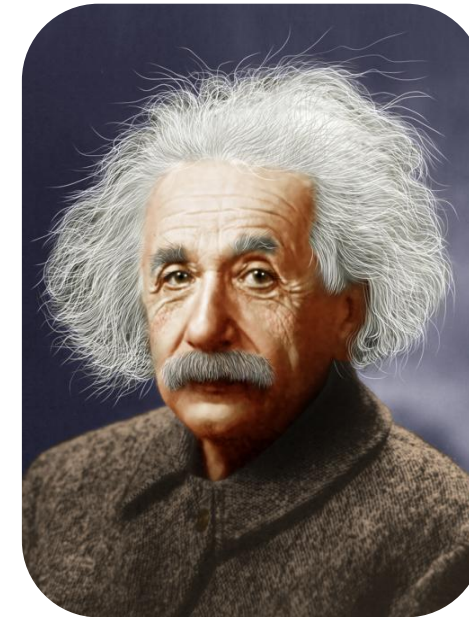


# Education Industry

It is important to have a system that can advise students for best career paths based on their strengths and weaknesses.

“Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.”

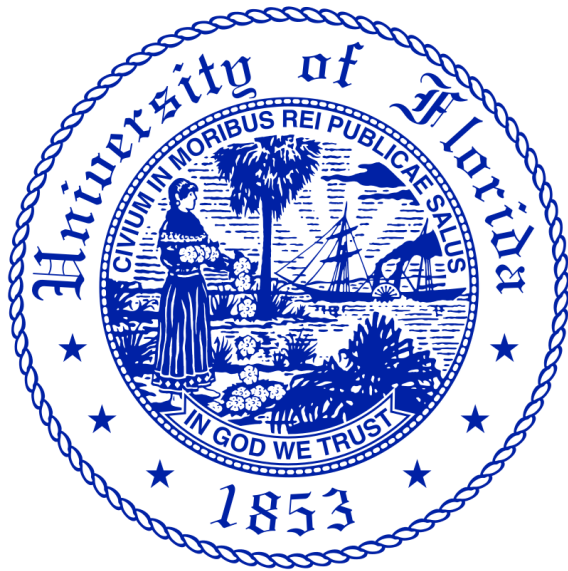
—Albert Einstein





# Education Industry

IBM has its own project that has been using analytics and helping schools succeed.



These universities use data analytics to help students by extracting data to monitor and predict their performance.

## Healthcare Industry

# Healthcare Industry

Healthcare industry is one of the most promising areas where data analytics can be applied.

Reduces costs of treatment

Avoids preventable diseases



Data Analytics

Predicts outbreaks of epidemics

Improves quality of life

# Healthcare Industry

Healthcare business intelligence helps doctors make data-driven decisions and improve patients' treatment



Example: Data analytics tools can predict potential diabetes patients and can advise preventive measures.

# Healthcare Industry



- Doctors use data analytics to understand the health issues of a patient as early as possible.
- This helps them identify warning signs of serious illness and reduce the treatment cost.

# Healthcare Industry



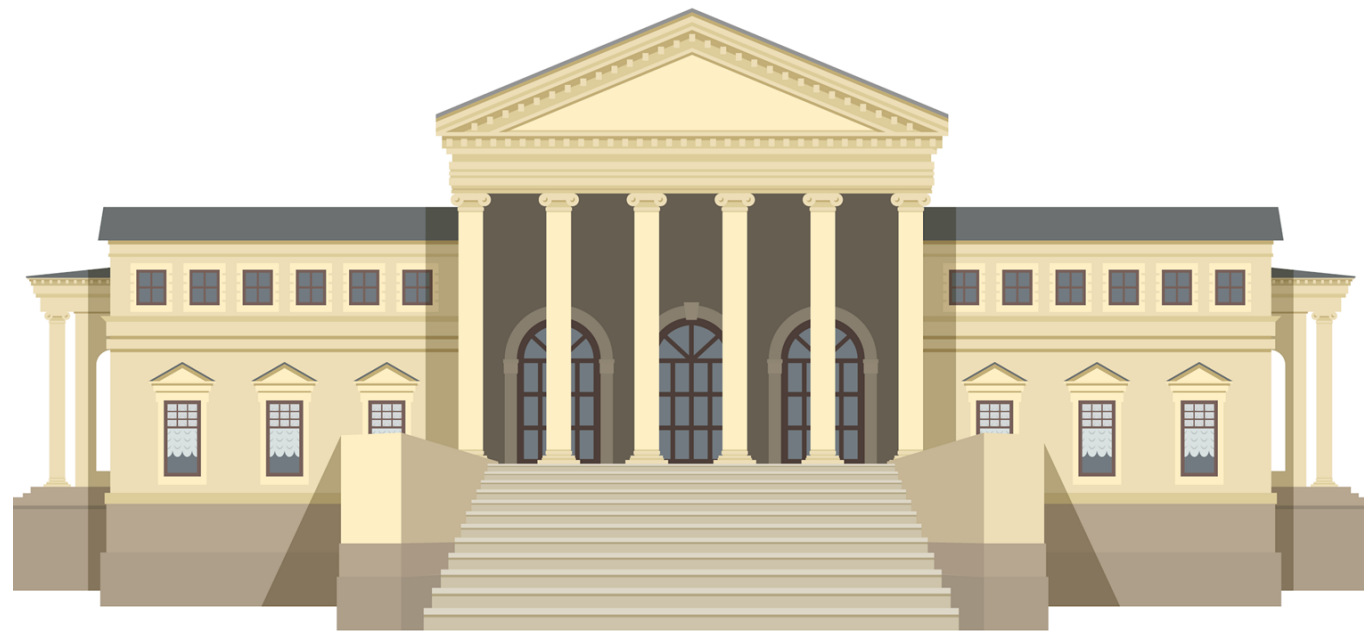
- Clinical Decision System software analyzes medical data and provides advice to doctors on prescriptive decisions.
- Healthcare wearables help collect patients' data continuously and stores this data on cloud.
- In case of any abnormality in health data, system sends an alert to the doctor in real time.



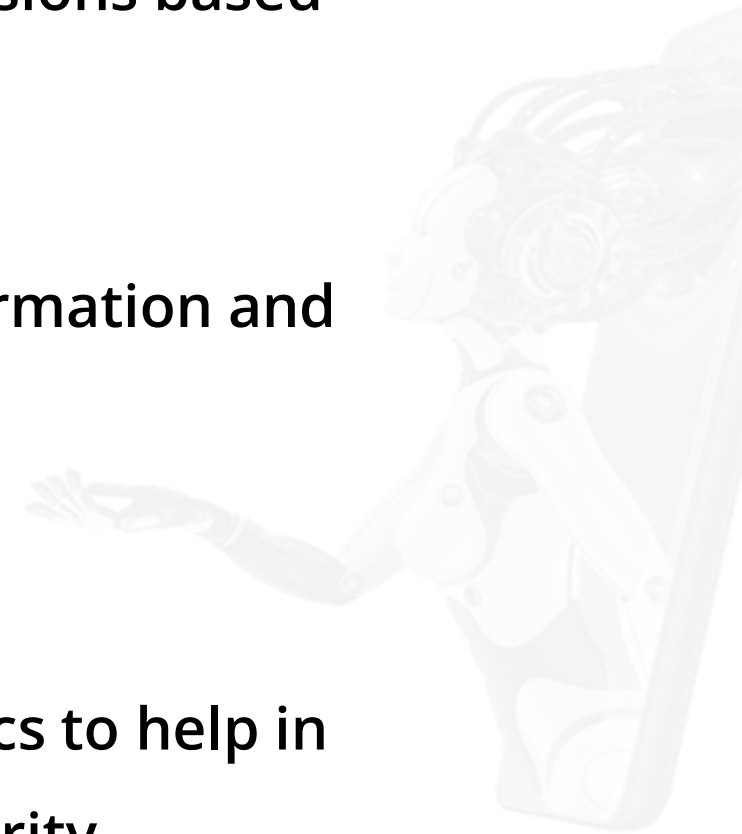
## Government

# Government

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- Government makes vital decisions based on the information received.
- It is difficult to verify the information and faulty data can have negative consequences.
- Government use data analytics to help in welfare schemes & cybersecurity.

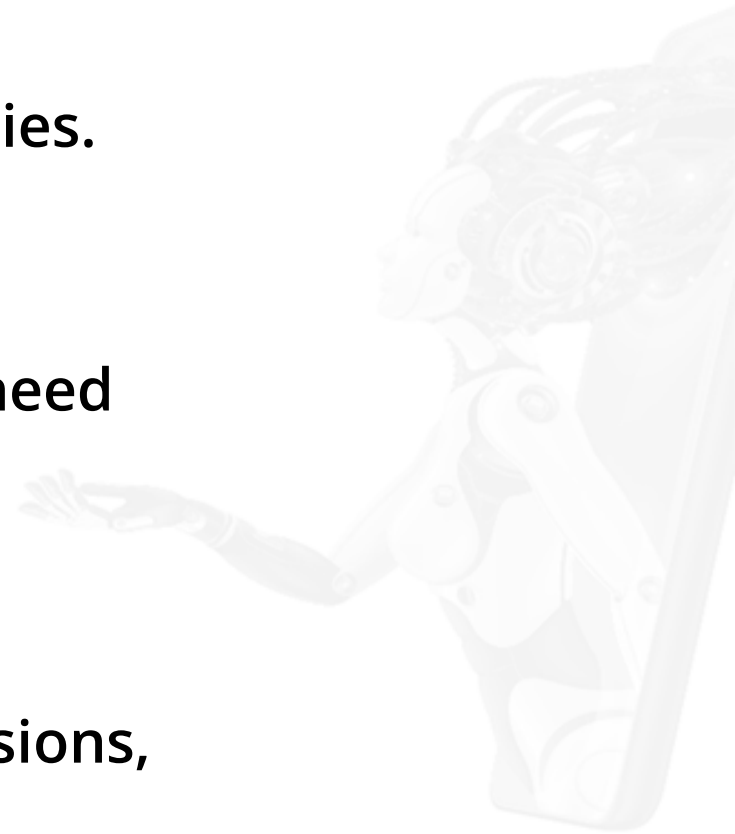


# Government: Welfare Schemes

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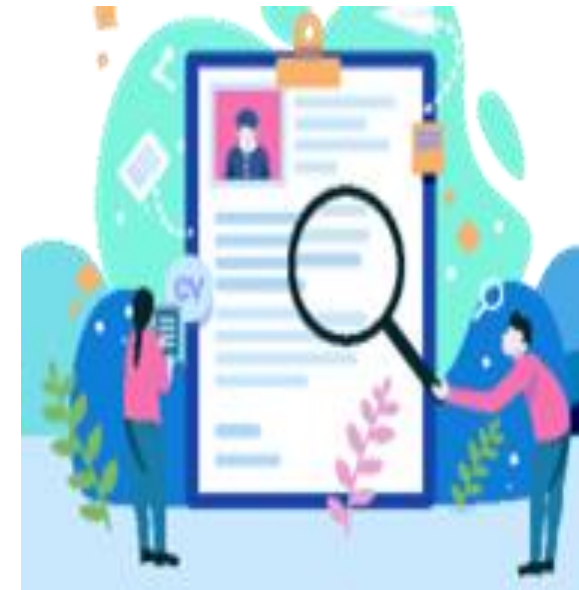


- Government accesses information relevant to their programs and policies.
- Data analytics platform allows government to pinpoint areas that need attention.
- It allows the government to make decisions faster, monitor those decisions, and quickly enact changes.



# Government: Welfare Schemes

Data analytics helps track and monitor land and livestock in a country to manage and support farmers and their resources.



Online talent platforms fill traditional jobs quickly by finding the right candidates for jobs and shorten the duration of unemployment.

# Government: Cybersecurity



- Government uses data analytics in real-time crime mapping, predictive policing, and catching tax evaders.
- Data analytics is used in cybersecurity for deceit recognition.
- It helps cyber analysts predict and avoid the possibility of intrusion and invasion.



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## Weather Forecasting

# Weather Forecasting



- Data analytics predicts natural calamity and helps take actions in advance.
- Data needed for weather forecasting:
  - Barometric pressure
  - Wind speed
  - Precipitation
  - Temperature
  - Humidity
- Experts use predictive analytics to strategize and help combat global warming.

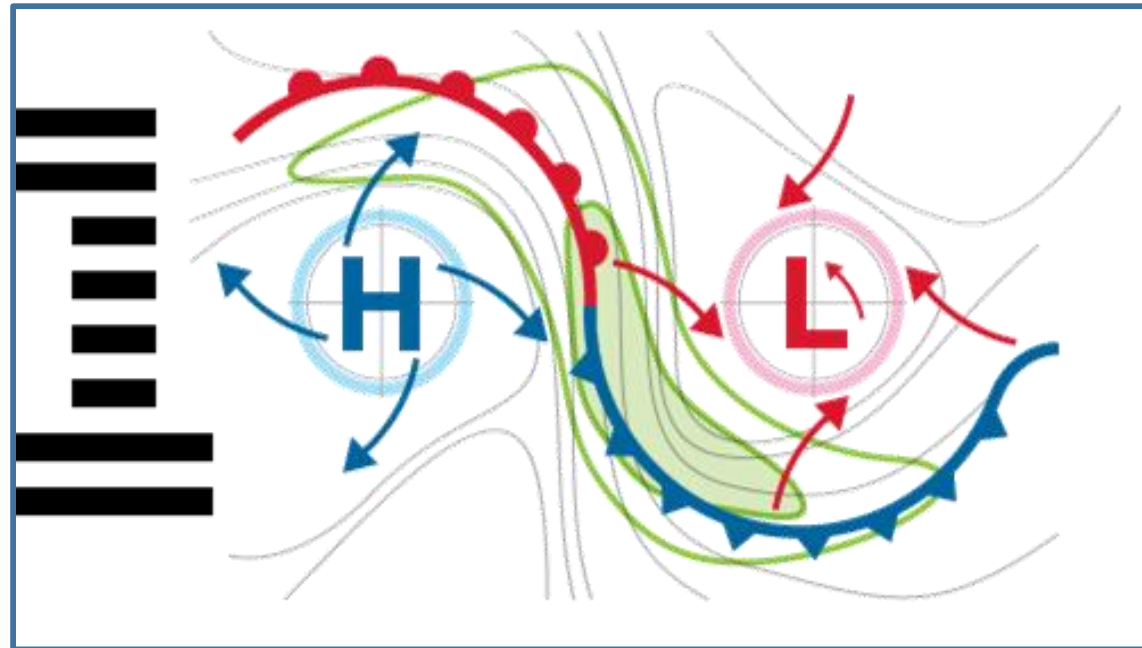


# Weather Forecasting



- Data analytics helps identify natural disaster patterns by collecting data on road condition and rainfall in a year.
- Local authorities use analytics tools to better anticipate problems caused by weather.
- It helps make plans to upgrade existing facilities and predict the availability of usable water around the world.

# IBM Deep Thunder

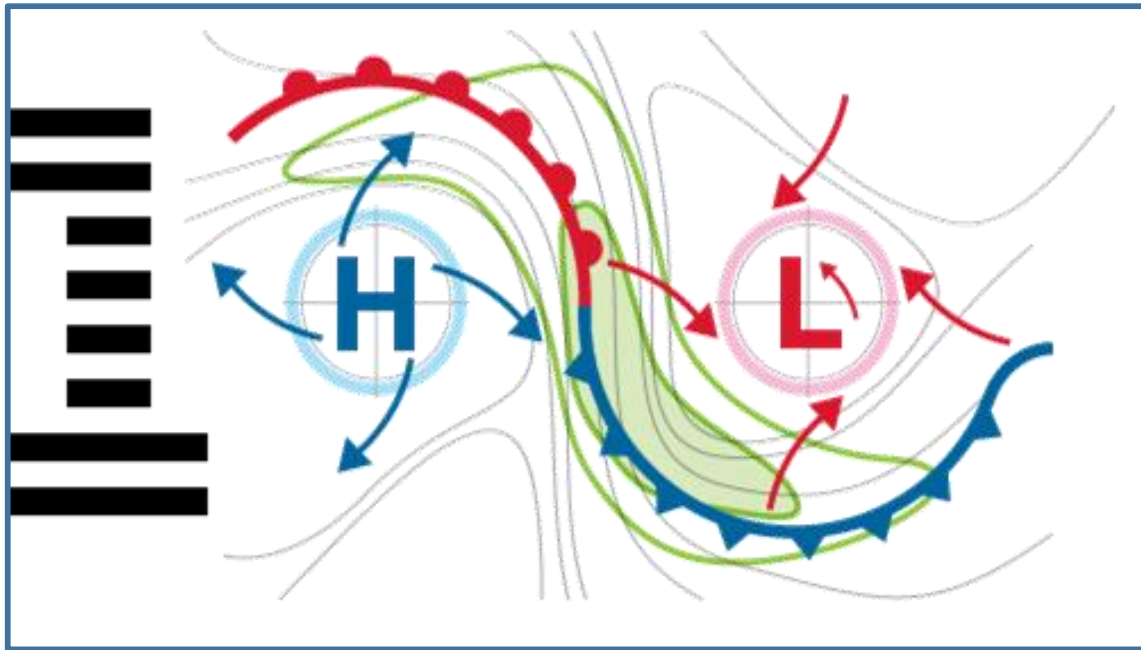


IBM Deep Thunder is a research project that:

- Provides weather forecasting
- Differs from other weather forecasting systems
- Provides forecasts for extremely specific locations

IBM is assisting Tokyo with improved forecasting for natural disasters to plan a successful 2020 Olympics.

# IBM Deep Thunder



Deep Thunder can provide information about:

- Severe flood areas
- Tropical storm directions
- Snow or rainfall areas
- Downed power line locations
- Windy areas
- Damaged bridges and roads
- Cancelled flights at specific airports



## Key Takeaways

- Data analytics helps businesses uncover valuable insights and increase efficiency.
- Data analytics helped companies like EY, Google, LinkedIn, Amazon, Disney, and Netflix grow their businesses.
- Data analytics is used in different sectors such as media, education, healthcare, government, and weather forecasting.

