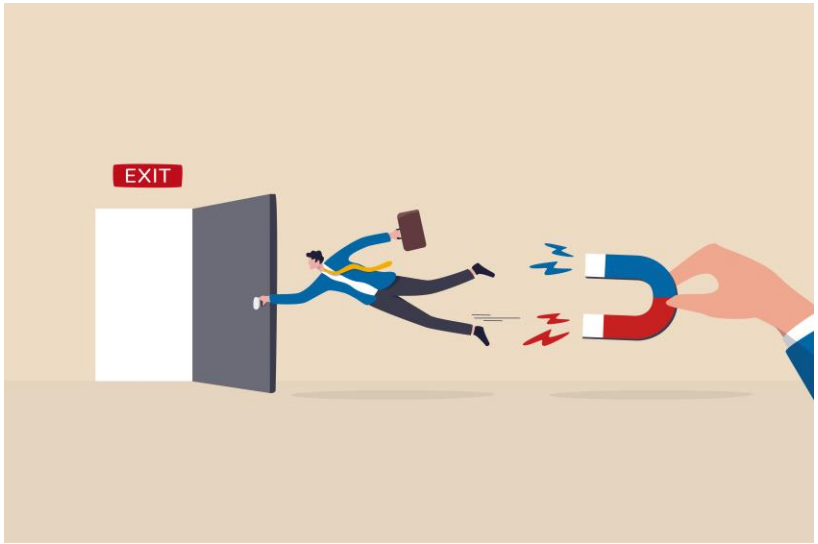
# Customer Churn Demo

## Plus setting expectations on AI and ML




Designed by eamesbot/ Freepik

**Celia Muriel** - https://celiamuriel.blogspot.com/

## So what is Artificial Intelligence?

### Draft definition

«AI are machines acting in ways that seem intelligent.»

Thomas Malone

Director of the MIT Center for Collective Intelligence

# Artificial intelligence

## Accurate definition

«AI is about the architectures that deploy methods enabled by constraints exposed by representations that support models of thinking, perception, and action.»

Patrick Winston

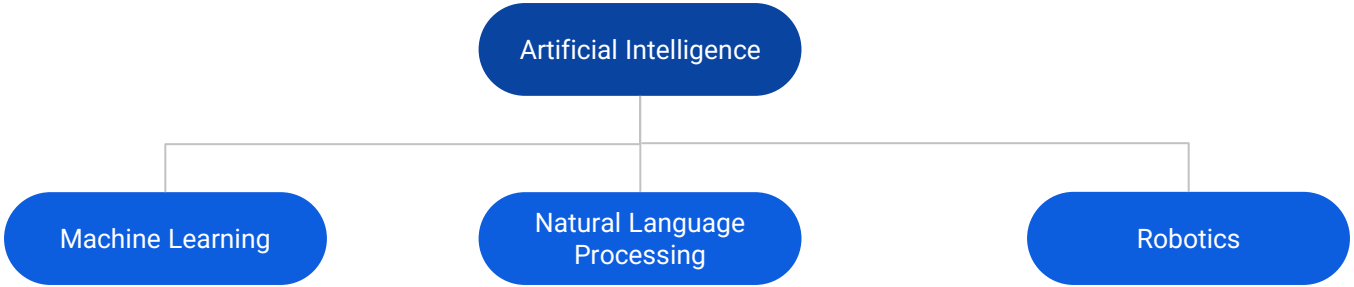
Ford Professor of AI and Computer Science at the MIT

If you get the representation right of an initial set of requirements, you are almost done to solve the problem given. Representations support models of thinking, perception and action.
Models behave to some extent as the real thing, and they allow to predict, to understand, to calculate. **Their real value is that it exposes constraints**.

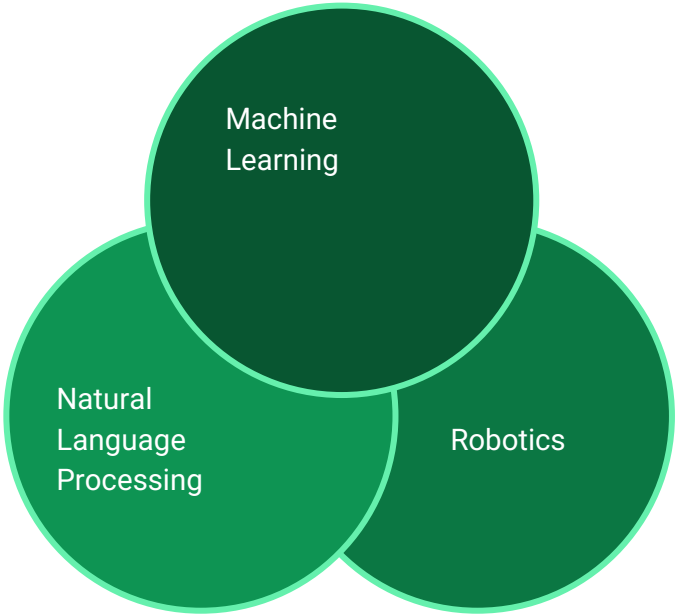
**Constraint makes methods possible**.

**All methods in a system must be organised into some overall architecture** that deploys them.

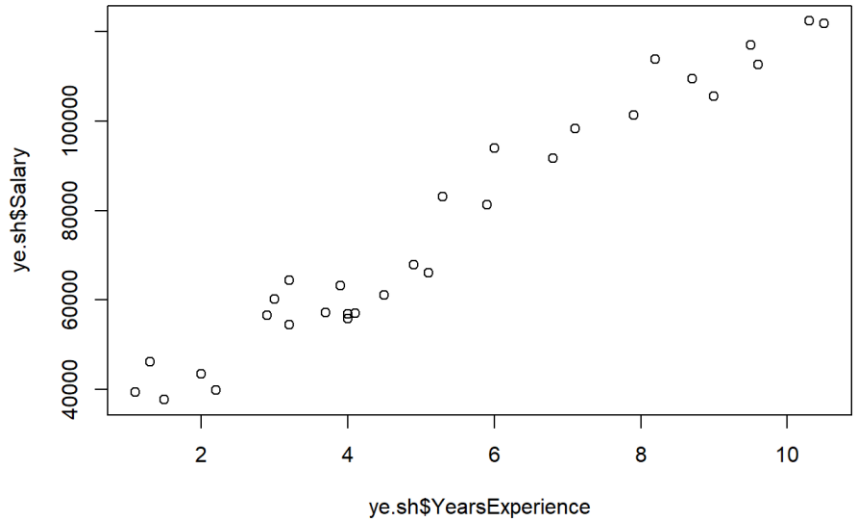
# AI main types



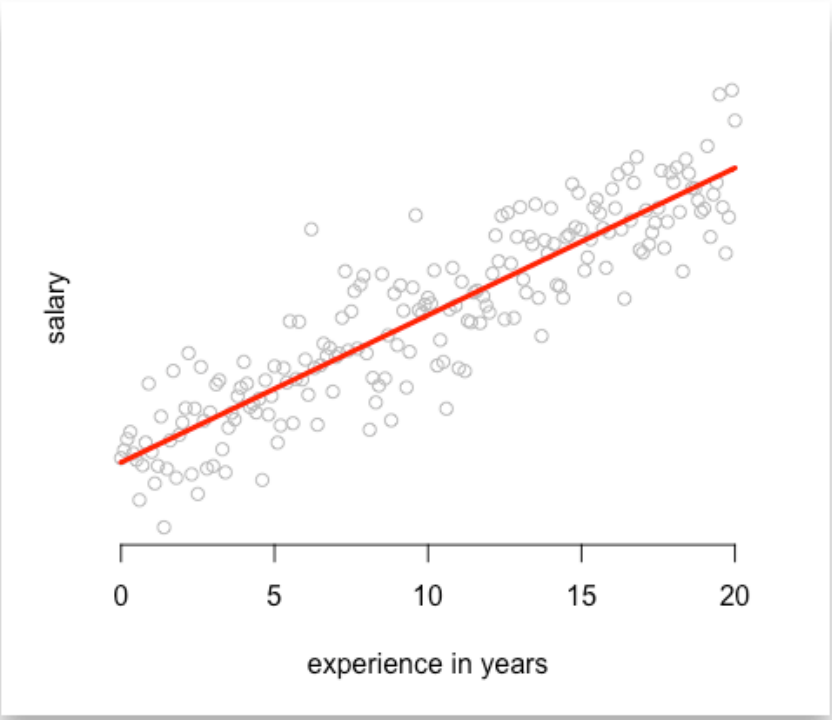
# AI Types complement one to each other



# So I want to make a prediction on my data

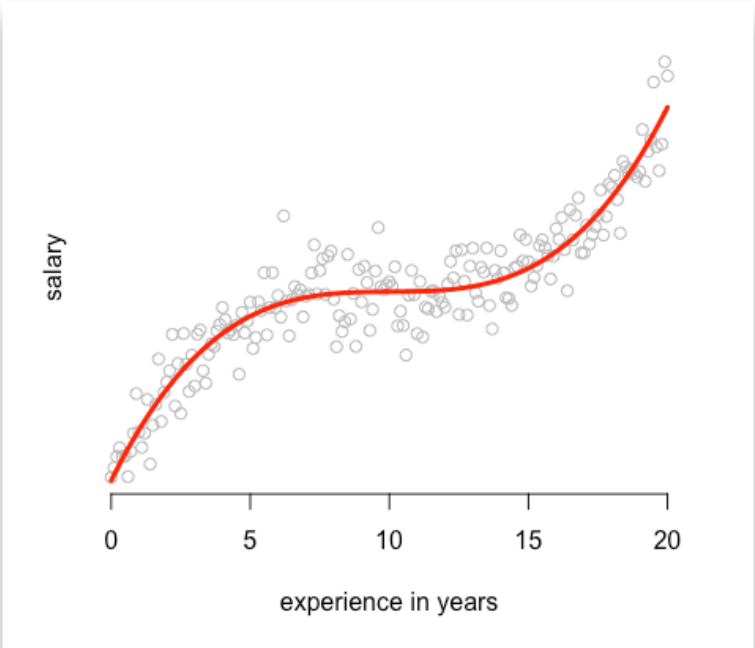


# Apply a statistical model to predict salaries




This is a **linear regression**, a model used in machine learning

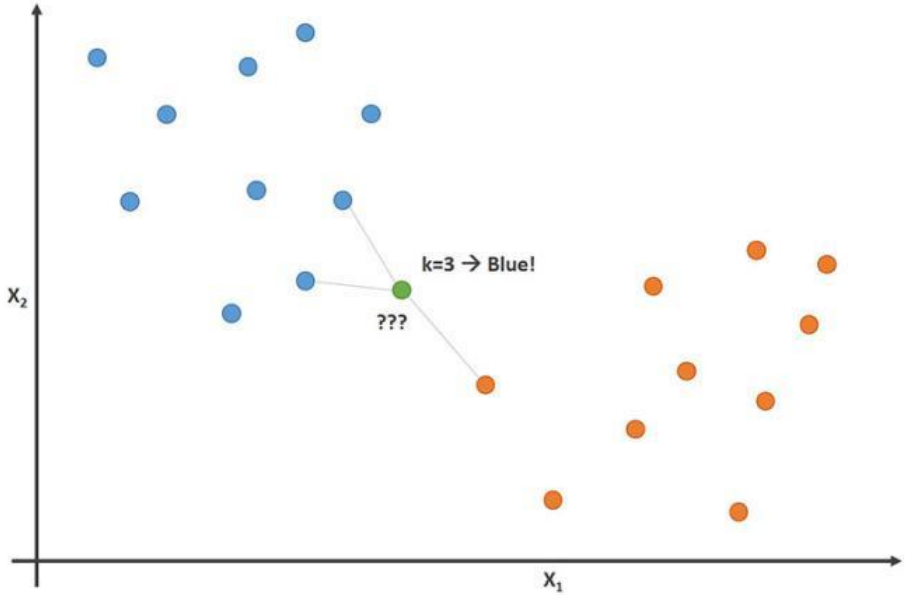
# Try other model to see if your data fits better




Polynomial model.

In machine learning we try different models and adjust them to see which one fits better our data so we get a more accurate prediction.

# There are many statistical models we can use for machine learning




Other example: the K-Nearest Neighbors (KNN) regression model groups data according to similar characteristics

# Machine Learning use cases

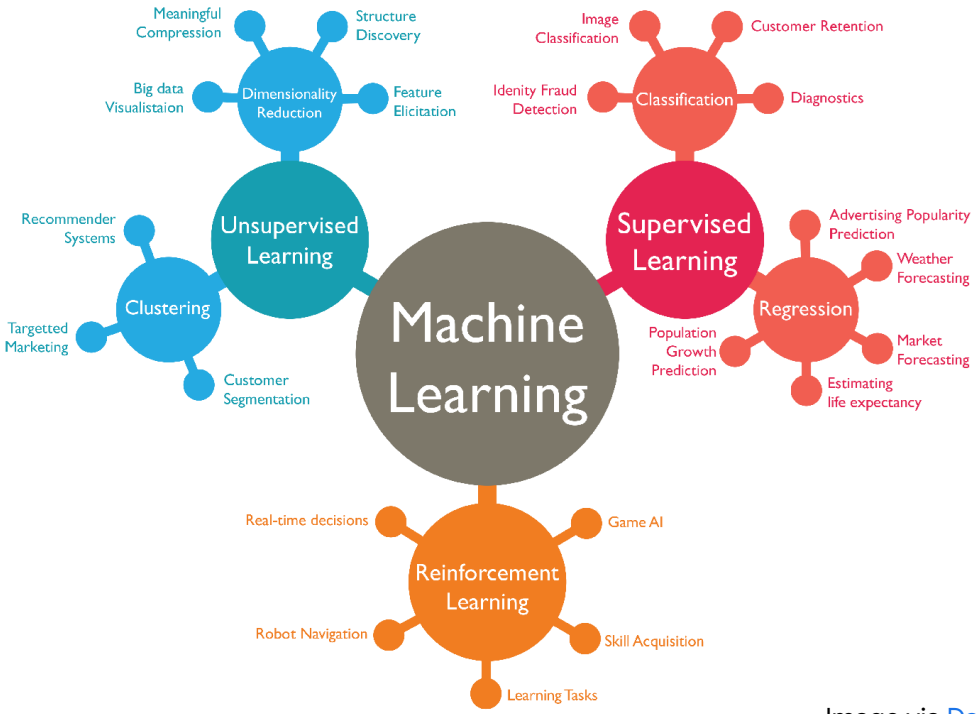


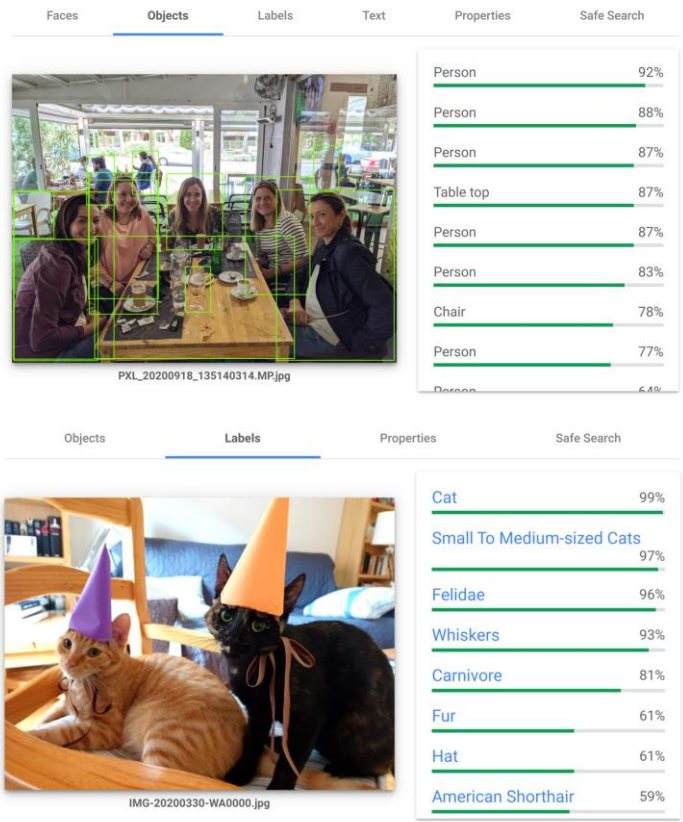

Image via [Dan Shewan]

# So what does it mean that we aim to democratise AI, and offer in-dept AI capabilities?

Some of our services offer complex AI capabilities in a plug-and-play fashion

Example: Vision API

- No need to code all the capabilities
- Just upload a photo and get results



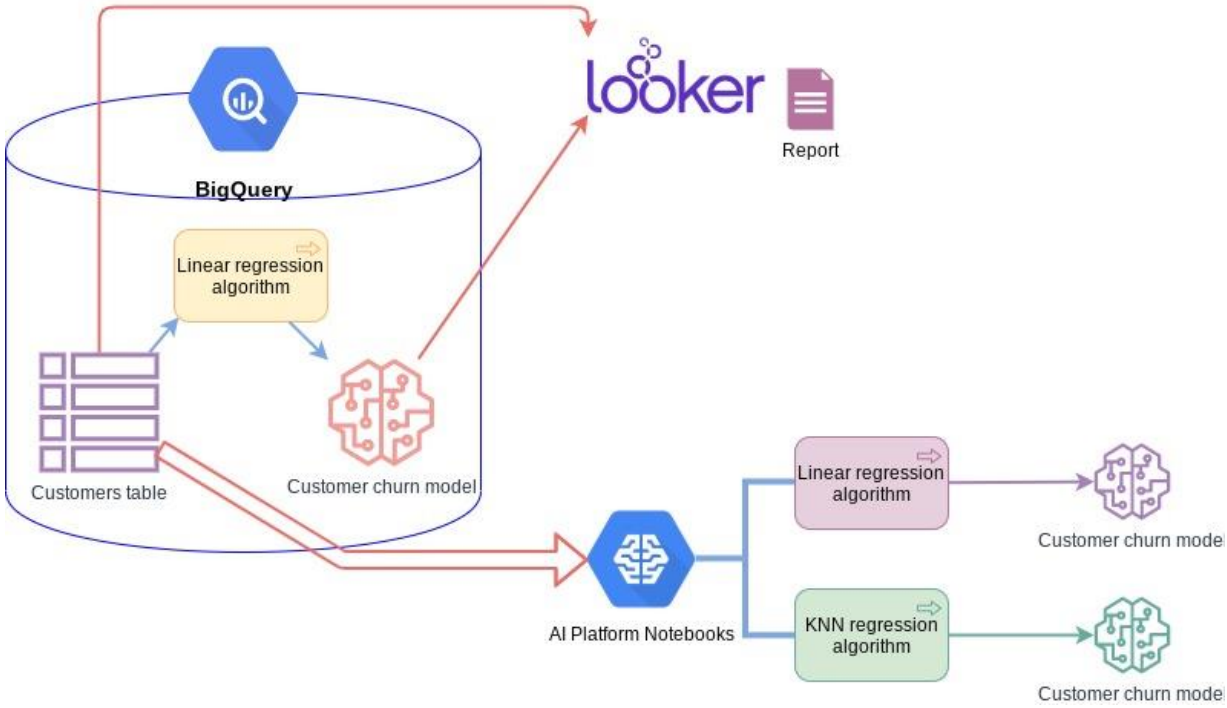
# Single source of information, simplicity to elaborate a model

When you need to predict outcomes based on your own data, you still need to make your model.

We offer:

- A single source of data
  - Single source of truth
  - Remove silos
  - Reduce complexity
- Simplicity to prepare the data, create the model and run predictions

Without further ado, let's demo how to do customer churn in BigQuery



# Keys to leverage data

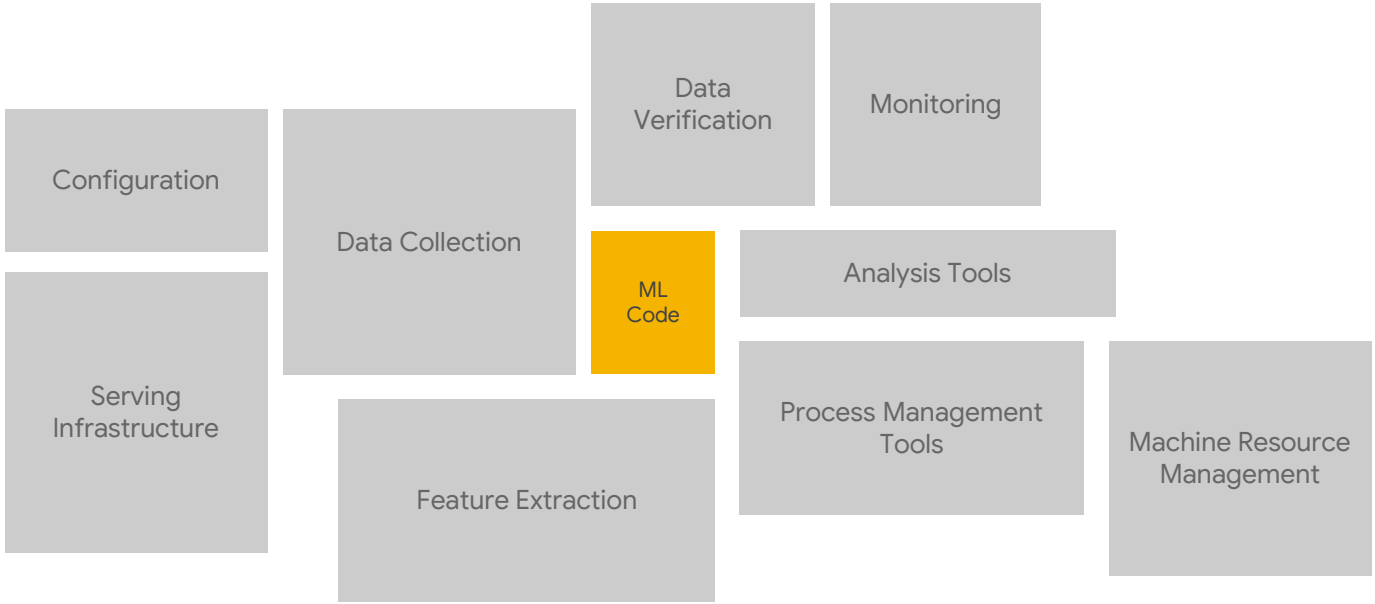
- Data flows (remove silos).
- Host the data in the cloud for anyone which needs it to use - anywhere, anytime within your organisation.
  - Improve collaboration
  - Enhanced security
- Data Governance.
- Cloud scale (processing, transformation).
- Resources spend more time on tasks with more business value - Cloud performs operations
- Innovate with native technologies, as Machine Learning

# What you need to do a customer churn prediction

(and machine learning in general)

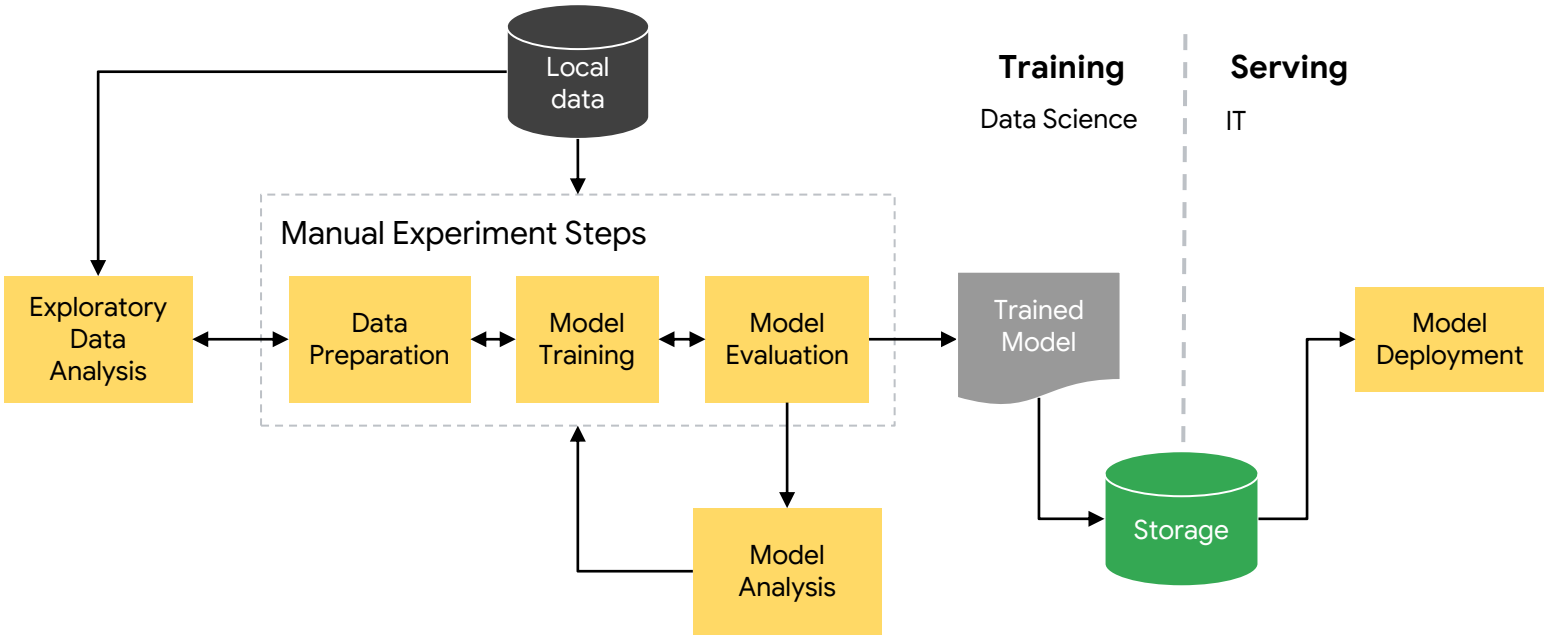
- **Data**
- Enough **historic** data
  - Make forecast
  - If data is too old, it doesn't match current situation and interfere with the prediction
- **Quality** data
  - No bias, missing information, etc.
- Choose algorithm to create your model
  - Trial and error process
  - Plenty of online  documentation/ examples

# Hidden Technical Debt in Machine Learning Systems




Hidden Technical Debt in Machine Learning Systems, NeurIPS 2015

# Where are teams today?



Thank you.