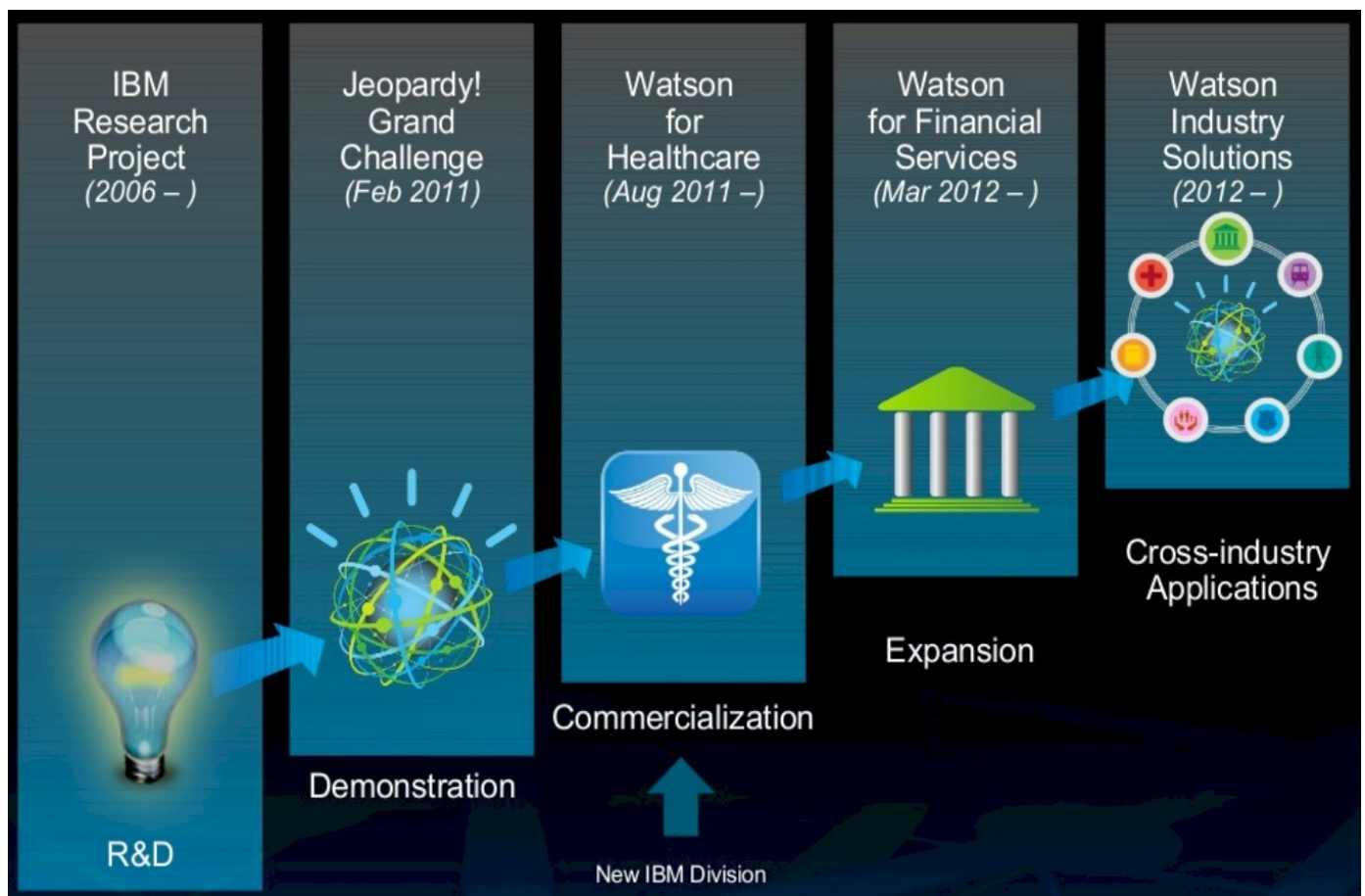


# Machine Learning Models & IBM Watson

## Introduction :

The project involves training a machine learning model using IBM Cloud Watson Studio and deploying it as a web service. The goal is to become proficient in predictive analytics by creating a model that can predict outcomes in real-time. The project encompasses defining the predictive use case, selecting a suitable dataset, training a machine learning model, deploying the model as a web service, and integrating it into applications.



# Machine Learning Models & IBM Watson

## Tasks you can perform:

### Steps:

1. **Predictive Use Case:** Define a use case for predictive analytics, such as predicting customer churn or product demand.
2. **Dataset Selection:** Choose a relevant dataset to train the machine learning model.
3. **Model Training:** Select a suitable machine learning algorithm and train the model using IBM Cloud Watson Studio.
4. **Model Deployment:** Deploy the trained model as a web service using IBM Cloud Watson Studio's deployment capabilities.
5. **Integration:** Integrate the deployed model into applications or systems to make realtime predictions.

## Method :

### Watson Studio Local supports the following machine learning model types:

- Spark ML
- PMML with online scoring
- Custom models with batch scoring
- scikit-learn 0.19.1 (Python 2.7 and Python 3.5) - 0.19.1 (GPU-Python 3.5) with pickle or joblib format
- XGBoost 0.7.post3 (Python 2.7 and 3.5) - 0.71 (GPU-Python 3.5)
- Keras 2.1.3 (Python 2.7 and Python 3.5) - 2.1.5 (GPU-Python 3.5)
- TensorFlow 1.5.0 (Python 2.7 and Python 3.5) - 1.4.1 (GPU-Python 3.5)
- WML

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## Predictive Use Case:

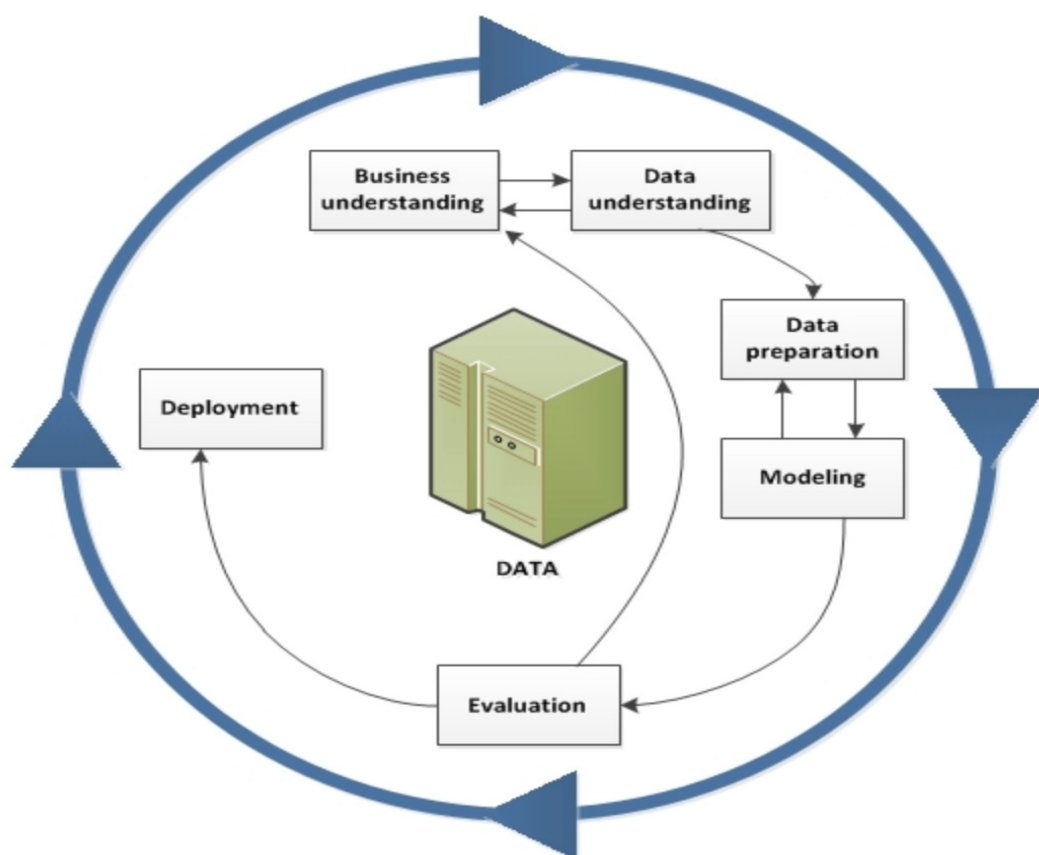
Predictive analytics can be used for a wide range of tasks, such as: Customer segmentation: dividing customers into groups based on characteristics like demographics, behavior, and buying habits. Churn prediction: identifying which customers are likely to cancel a service or stop using a product.

## Dataset Selection:

If the training data is smaller or if the dataset has a fewer number of observations and a higher number of features like genetics or textual data, choose algorithms with high bias/low variance like Linear regression, Naïve Bayes, Linear SVM.

## Model Training:

Watson Machine Learning supports popular frameworks, including: **TensorFlow**, **Scikit-Learn**, and **PyTorch** to build and deploy models. For a list of supported frameworks, refer to Supported frameworks. To build and train a model: Use one of the tools that are listed in Analyzing data and building models.



# Machine Learning Models & IBM Watson

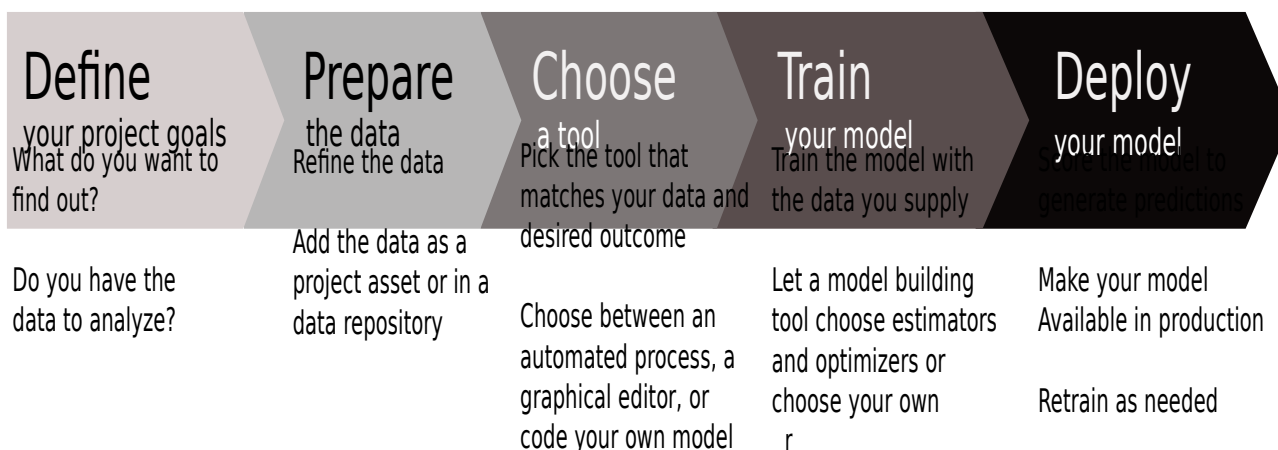
## Model Deployment:

- Using IBM Watson Machine Learning, you can deploy models, scripts, and functions, manage your deployments, and prepare your assets to put into production to generate predictions and insights.
- This graphic illustrates a typical process for a machine learning model. After you build and train a machine learning model, use Watson Machine Learning to deploy the model, manage the input data, and put your machine learning assets to use.

## Integration:

### Data Preparation:

- Cleaning the data and removing any data points that aren't relevant or are duplicate.
- Converting the data and transforming it into a format the deployed model can consume.
- Structuring the data and organizing it so the deployed model can easily access and use it.



**THANK YOU**