Predicting Contract Success With Structured and Unstructured Data

Scenario

In this workshop, you'll learn how to build, test, deploy and monitor a model predicting contract success.
It uses IBM's Watson Studio, to analyze and build, test and deploy machine learning models.
We merged unstructured textual concepts coming from many documents using Watson Discovery with structural contract data.
Once merged, we then build, deploy and monitor a ML model using IBM Watson Studio.

AI Ladder & ModelOps

IBM Cloud Pak For Data provides a stack of capabilities broken down into these 4 areas known as the AI Ladder.
ModelOps is an end to end process for developing and deploying data science assets to production that are monitored for bias.

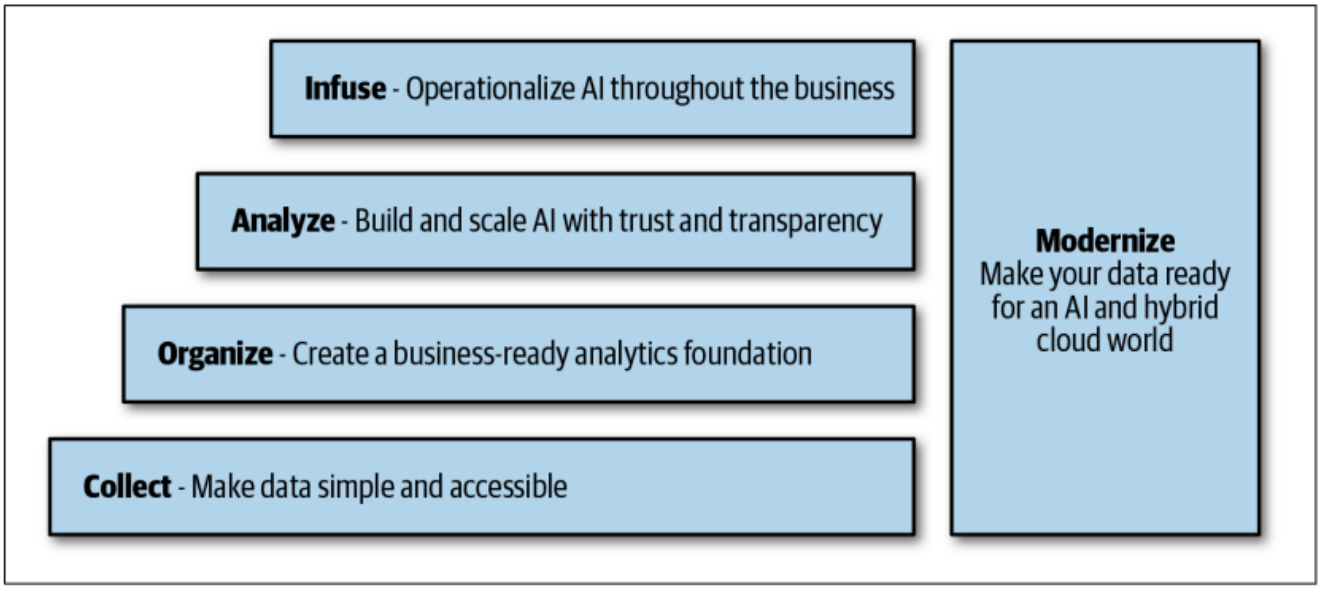


Figure 1 AI Ladder - Collect, Organize, Analyze, and Infuse AI into downstream applications.

Predicting Contract Success Workshop Start

In today's workshop you'll learn how to predict contract success using IBM's Watson Studio to:

- **Collect** and connect to data used in a machine learning project to predict contract success.
- Search and find trusted structured and unstructured contract data that's been **Organized**/cataloged containing built-in security policies protecting data.

- Build, Test, **Analyze,** Deploy, and Monitor a machine learning model with explainable reasons why bias and drift may exist within your contract models.
  You can build contract success models three ways:
    - Auto AI – Run contract data through many models using machine learning automation to determine best fit model to predict contract success.
    - Open Source Python or R using Jupyter Notebooks/Studio and R Studio to build contract success models.
    - Modeler Flows – Sequential model building without code meant to provide data science and data preparation capabilities to those that don't know and reducing data scientists' time to deliver a model predicting contract success.
- Visualize **infused** scored records built to predict contract success in dashboards, and other downstream applications.

[ADD STUARTS CONTENT HERE]

Using Watson Discovery With Watson Studio To Predict Contract Success

In our previous demo with Watson Discovery, we learned how it was able to provide Domain Concepts like "Intellectual Property" from many contractual documents.
When building our machine learning model to predict contact success, we're going to merge the unstructured concepts like "Intellectual Property" with the historical contract history to build and deploy a more robust machine learning model to predict contract success.

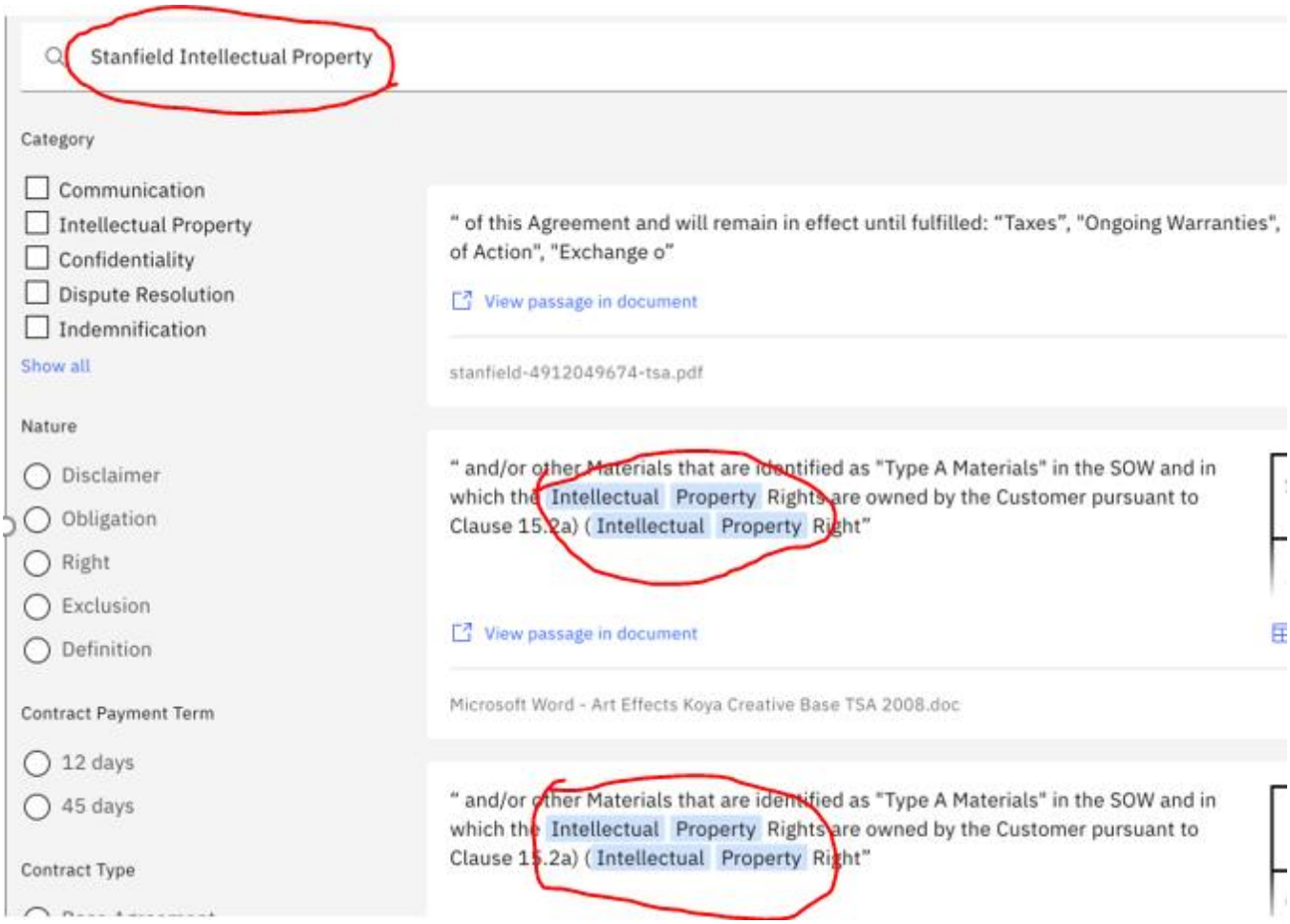
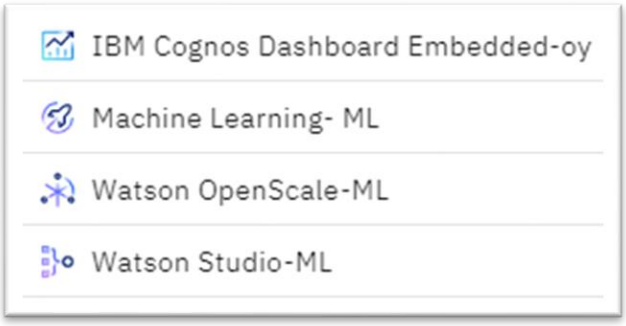


Figure 2 Example of using Watson Discovery To Uncover Common Categories

Required software, access, and files

1. To complete this lab, you will need a **Cloud Pak for Data as a Service** (**CPDaaS**) account: https://dataplatform.cloud.ibm.com
   If you don't have a CPDaaS account, use the same URL to sign up for a free trial. The account will be activated in approximately 5 minutes.
2. If you already have an **IBM Cloud** account, make sure that you provisioned the required services
   a. **Watson Studio**
   b. **Watson Machine Learning (WML)**
   c. **Watson OpenScale**
   d. **IBM Cognos Dashboard Embedded.**
3. Navigate to your *Resource list* in your **IBM Cloud** dashboard: https://cloud.ibm.com/resources
4. Check if the mentioned services are displayed under **Services**. If not, search for the services in the **Catalog** and add them.



NOTE: You will likely not have the same endings. (IE. '-oy' and '-ML')

5. Download the **project zip file** to your machine.

Required skills

We recommend that users who work through this lab:

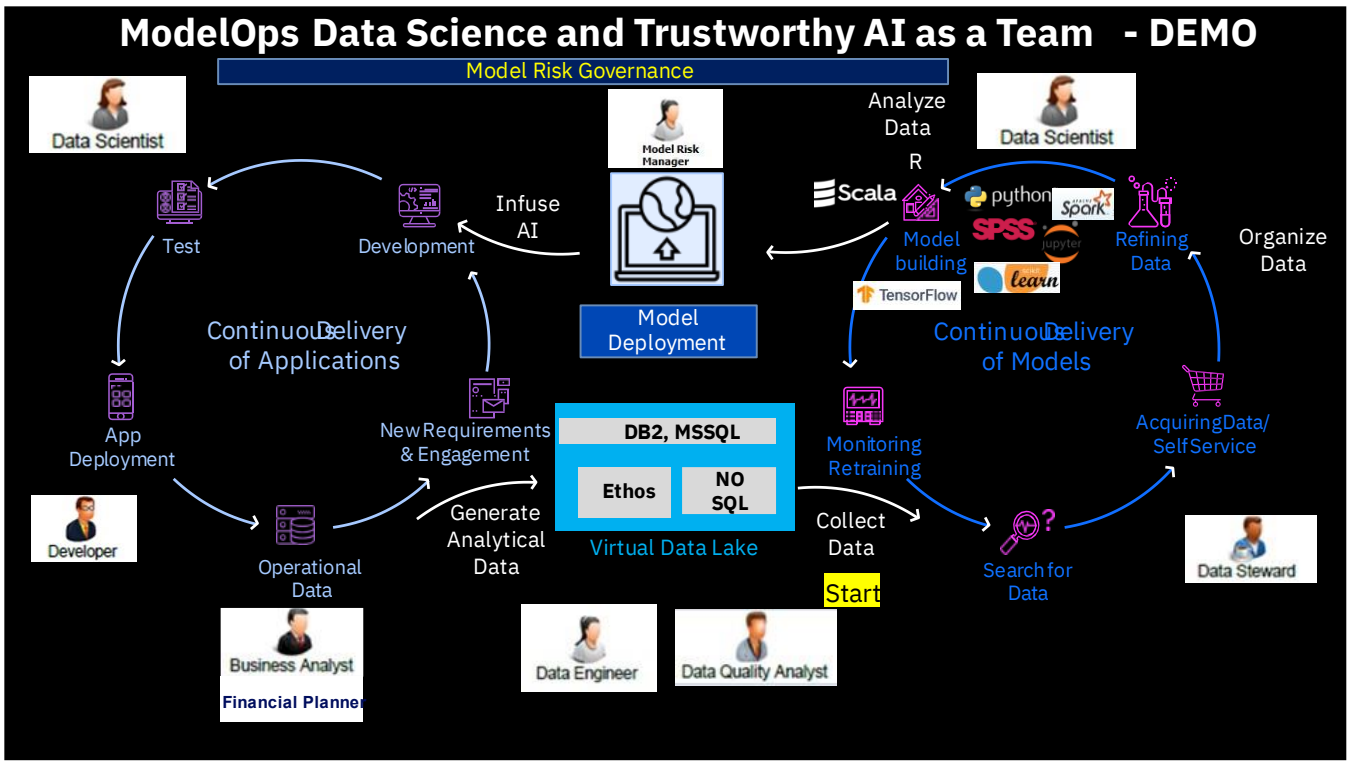
- Understand the data science lifecycle
- Have at least beginner knowledge of different methods for creating models

ModelOps Overview

ModelOps is a process used to build, test, deploy, and monitor data science machine learning models.
An important focus of ModelOps is the automation of model deployment, monitoring, and governance.

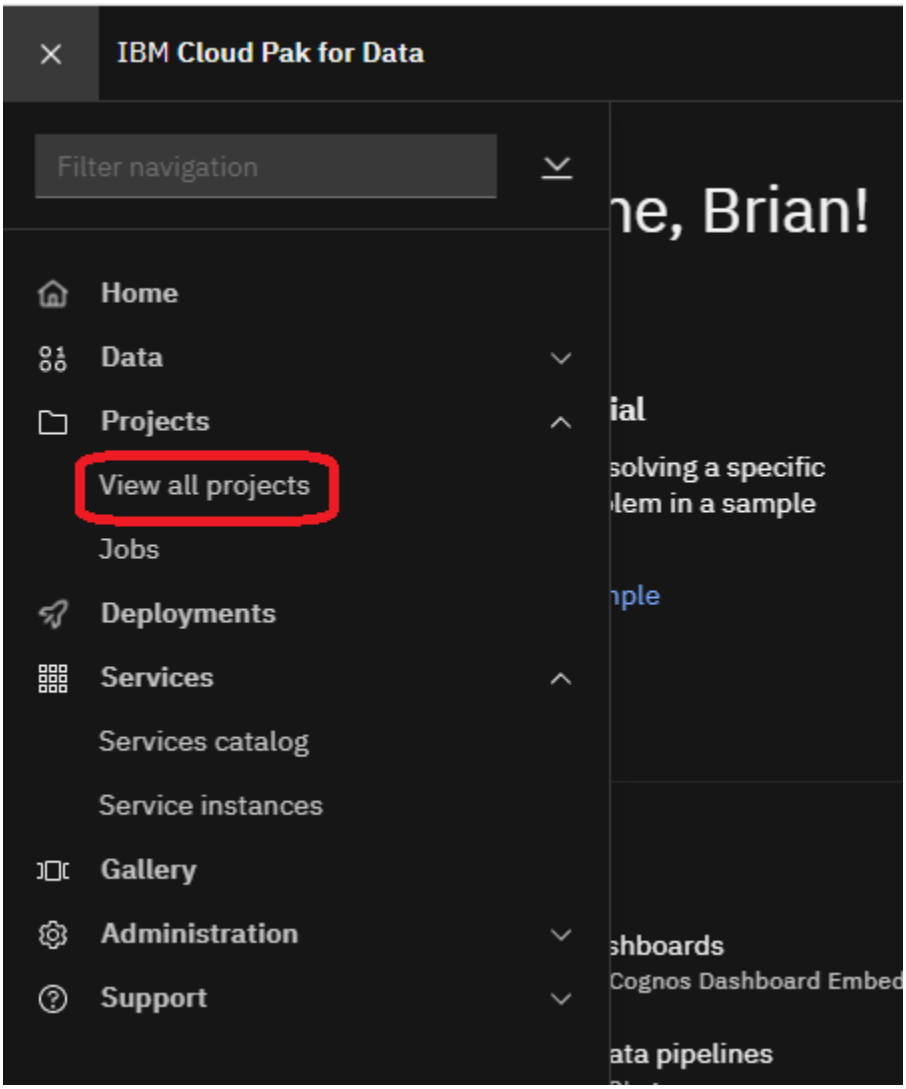
In this lab you will:

- Meet the needs of all analysts not just data scientists to build a Contract Success Model in 3 different ways.
- Deploy the Contract Success Model as a live scoring service to allow developers to integrate within their code.
- Monitor a deployed model for bias and drift
- Share transactional bias details with data scientists to correct model accuracy and bias.

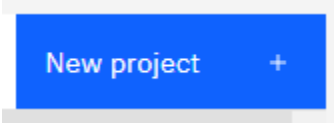


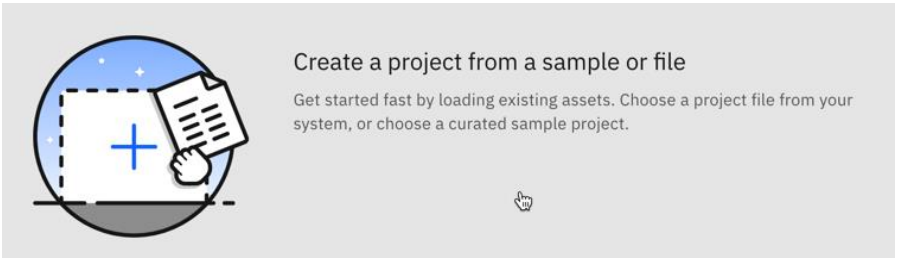
Step 1: Build model

1. Sign into Watson Studio. From the quick navigation on the left, select **Projects → View all projects**.



2. On the far right, click the **New project**, then select **Create a project from a sample or file**.





3. Drag the *project zip* file (downloaded from Git) from your machine to the **Upload file** section. Name your project **Intelligent Contracts**

Select a **Cloud Object Storage** service
Select **Dashboard Service** from the dropdown list
Click **Create**.

4.