COMPANY OVERVIEW
Schnitzer Steel is a scrap metal recycling and steel manufacturing company. Schnitzer operates 50 retail auto parts stores, 54 metal recycling facilities, 7 deep-water ports and a steel mill located in McMinneville, Oregon. Schnitzer delivers processed scrap metals and finished steel products to steel mills and foundries around the world.

PROJECT OVERVIEW
Unscheduled machinery downtime represents a significant cost to the company. Schnitzer hopes to leverage the delay data that has been tracking to understand unscheduled delays better and look for opportunities to minimize it. The goal of this project is to determine the environments in which unscheduled downtime is long or frequent.

PHASE 1 & 2: DISCOVER, PLAN, DESCRIPTIVE AND DIAGNOSTIC ANALYTICS
- Performed industry and company analysis
- Identified the problem and the project goal
- Retreived data from Schnitzer's Oracle SQL database, imported it to SSMS and connected it to PowerBI
- Created data management plan which included data dictionary, data profiling, data flow diagram, etc.
- Used PowerBI to build visualization for initial data discovery and descriptive analytics
- Identified potential trends to drill down into it for diagnostic analytics

PHASE 3 & 4: PRESCRIPTIVE, PREDICTIVE & COGNITIVE ANALYTICS, DEPLOY
- Used Azure Machine Learning Studio to test different models for predicting unscheduled delay duration
- Built a decision tree model for prediction of unscheduled delay duration using R and visualized using PowerBI
- Performed prescriptive analytics and identified key action items to improve data acquisition and model accuracy
- Performed cognitive analytics by applying text mining techniques to the comments field to predict unknowns in the dataset
- Created a transformation plan for Schnitzer