Data Science Cycle

What Data Scientists do

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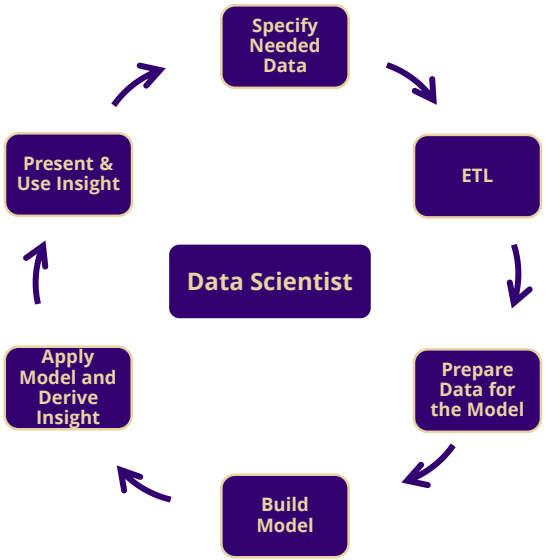
Data Science Cycle



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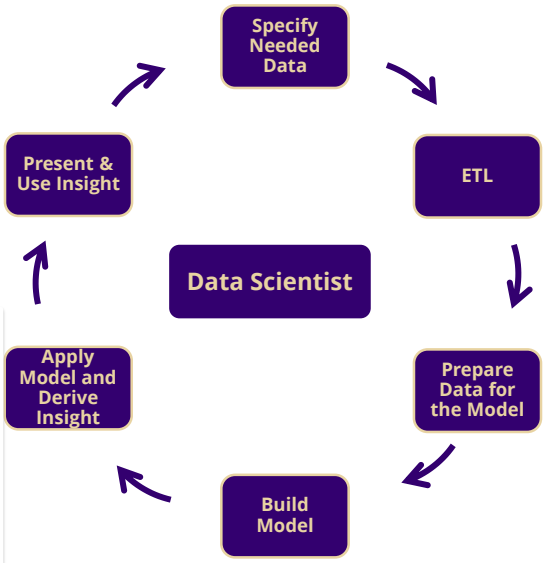
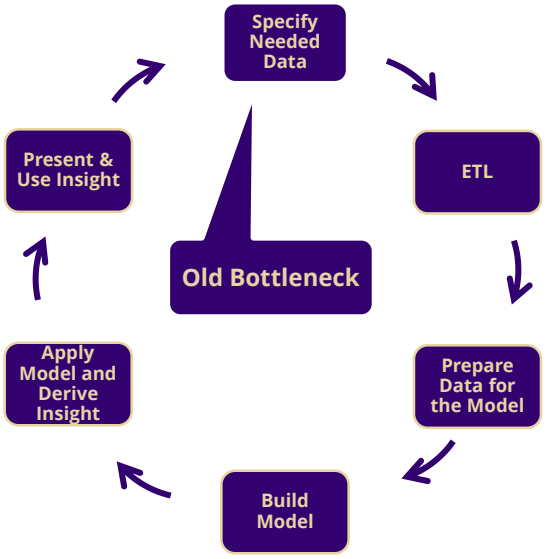


Data Science Cycle
- Data scientist oversees cycle
- Analogies with
  - Cross Industry Standard Process for Data Mining (CRISP-DM)
  - Scientific Method

Data Science Cycle



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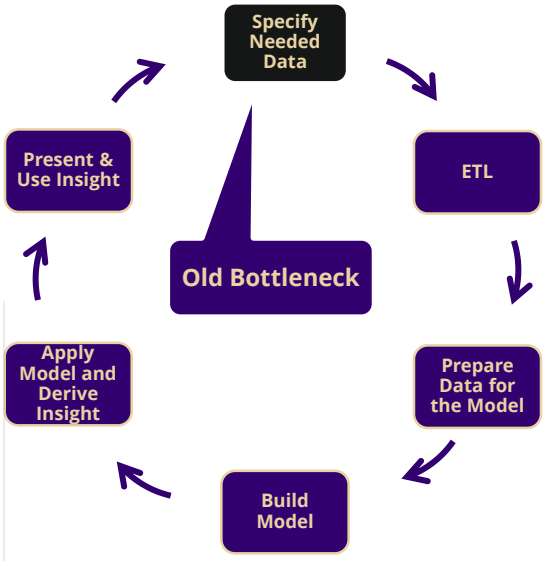
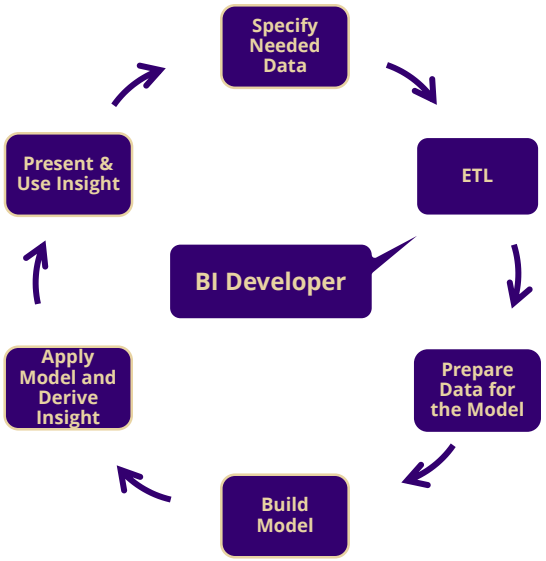


Specify Needed Data

- Data scientist evaluates if data will support a model
- Data scientists rarely create data
- In Design Of Experiment (DOE) data scientists help create data

Data Science Cycle



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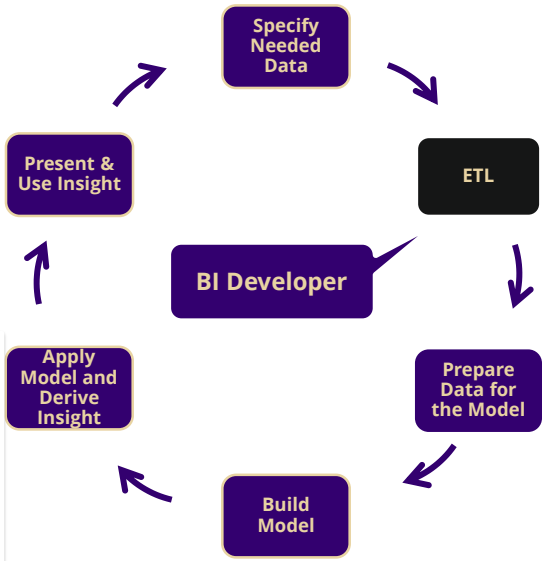
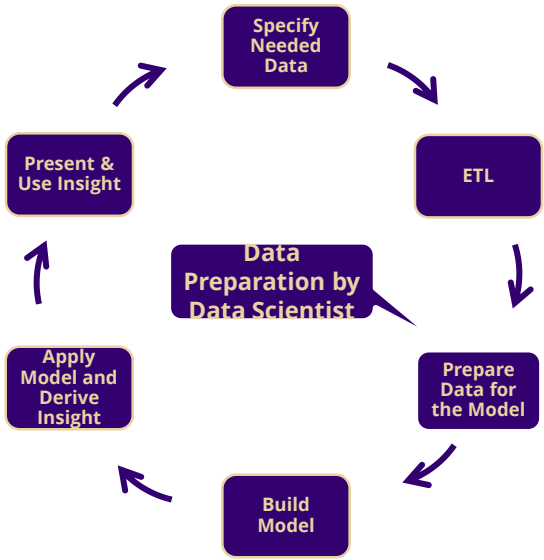


Extract Transform Load (ETL)
- BI developers do ETL
- Transformations in ETL differ from data preparation for models

Data Science Cycle



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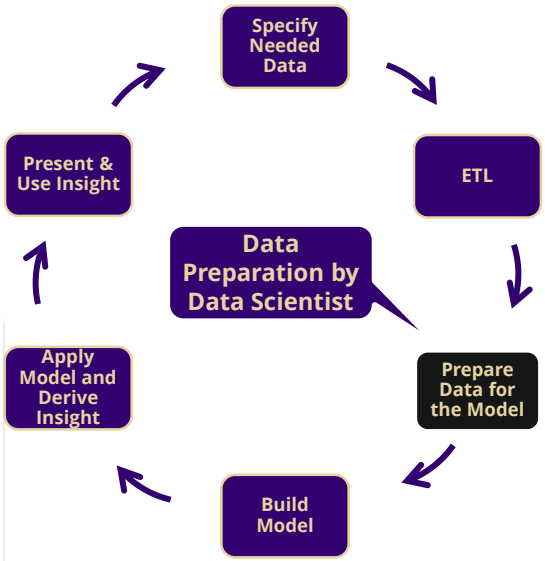

Prepare Data for the Model

- Data Scientists prepare data for modeling
- Data preparation for modeling requires an understanding of the model

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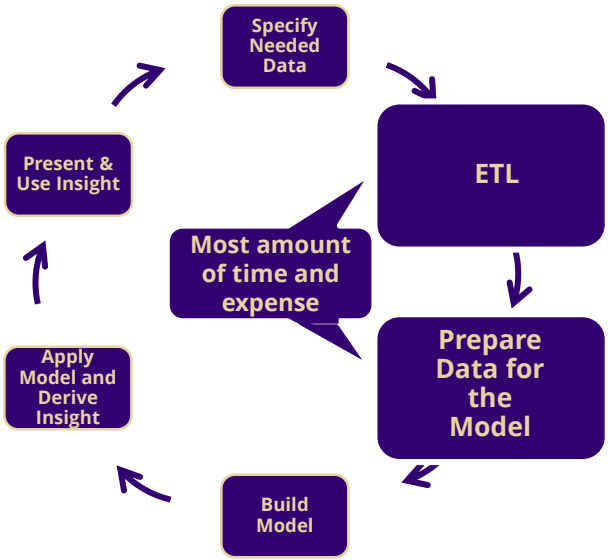

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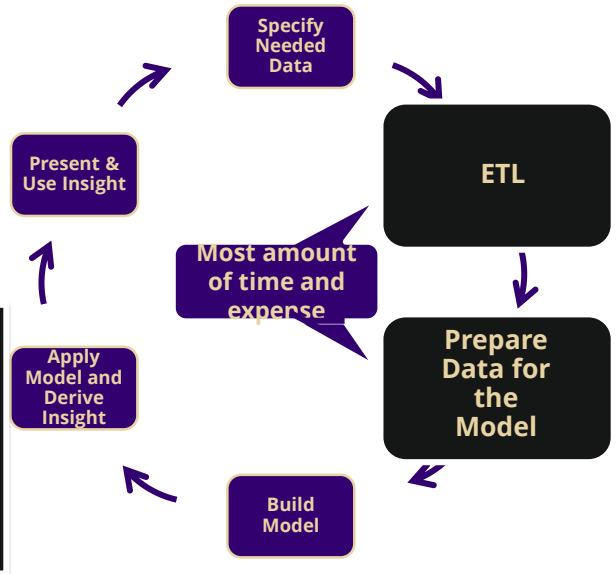
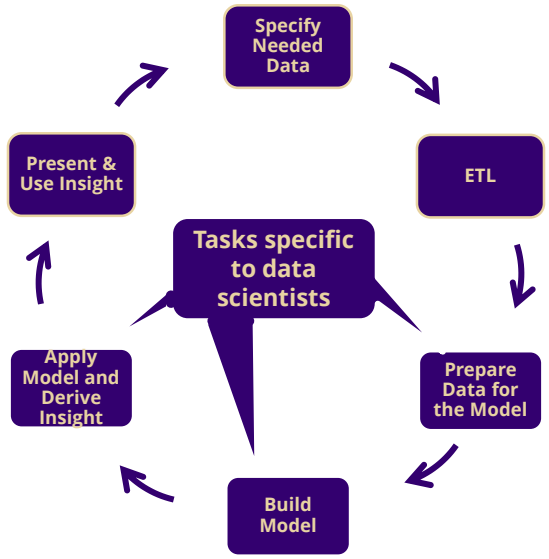


ETL and Data Preparation

- Data access and ETL consume the more time than any other step
- Data preparation consumes most of the data scientists time

Data Science Cycle



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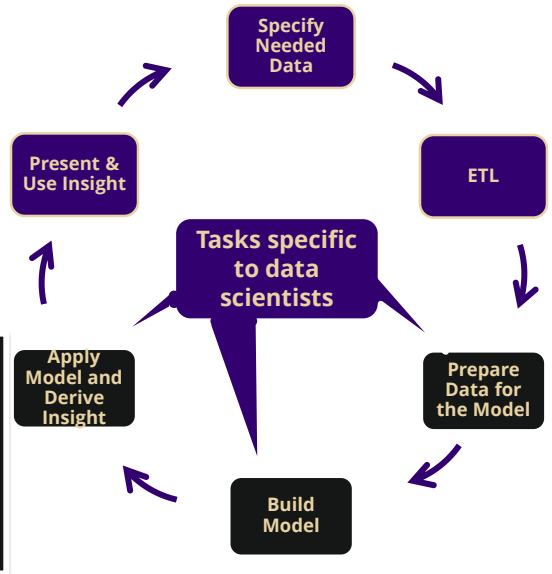
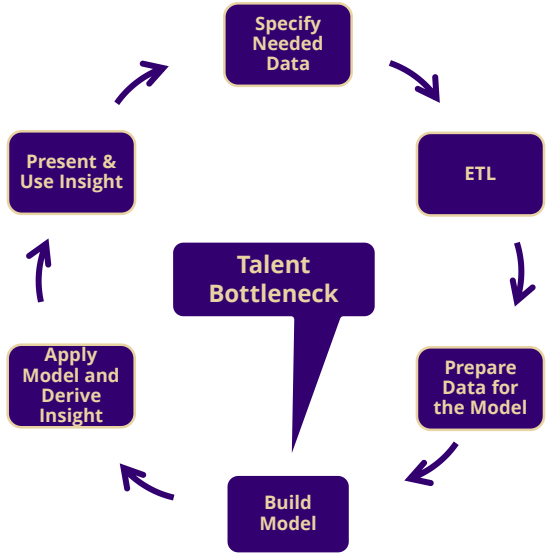


Data Science Tasks

- The data science skill set revolves around creating and applying models

Data Science Cycle



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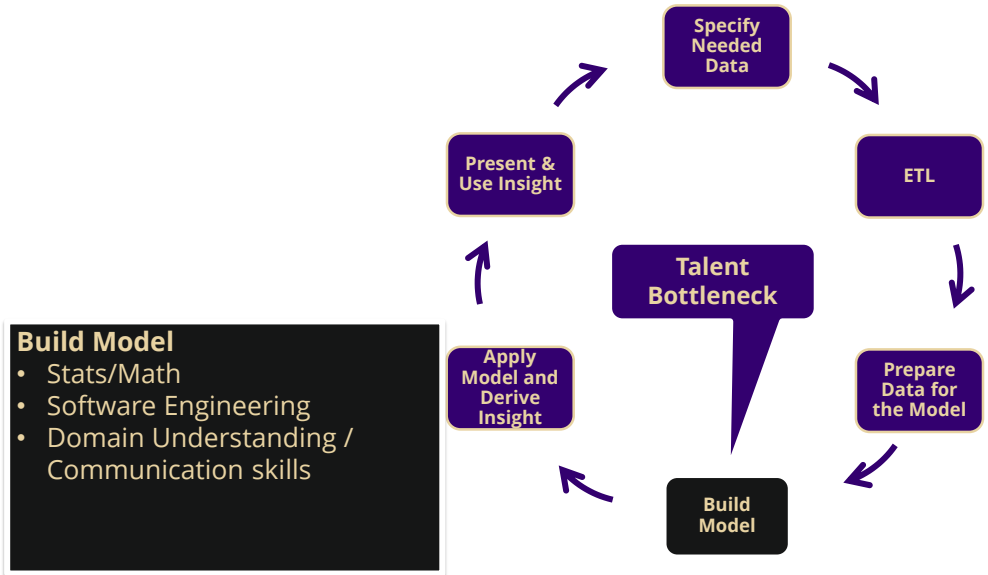

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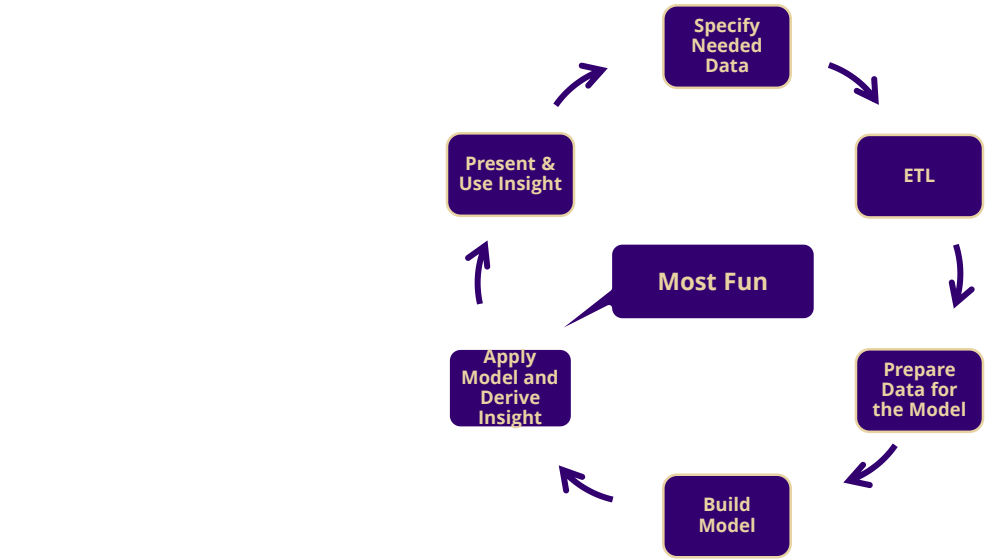

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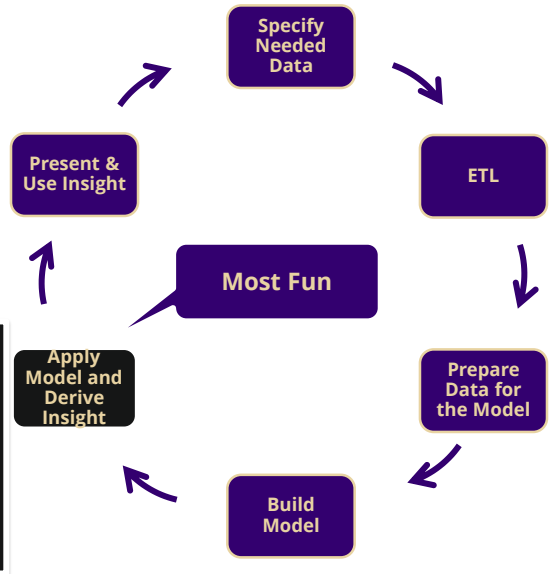

Apply Model and Derive Insight

- Applying the model is the most fun

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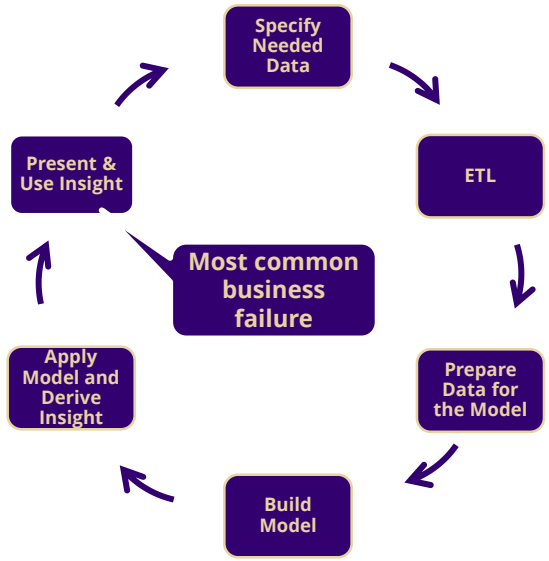

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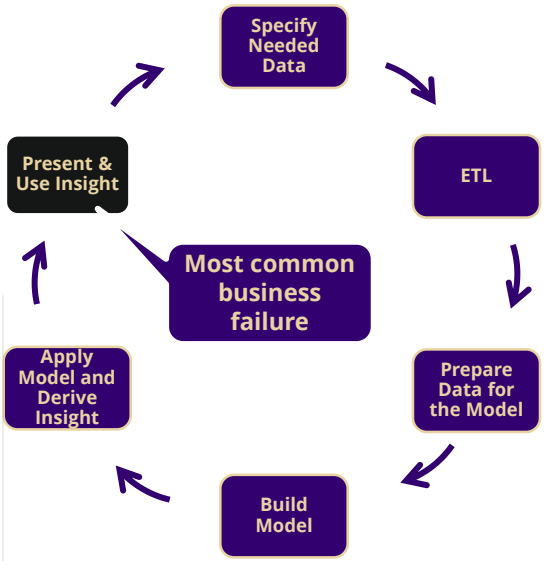

Present & Use Insight
- Often overlooked
- Often underestimated
- Get result to right person at right time
- Last mile of predictive analytics

Data Science Cycle

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The Four Analytics

What Data Scientists do

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The Four Analytics

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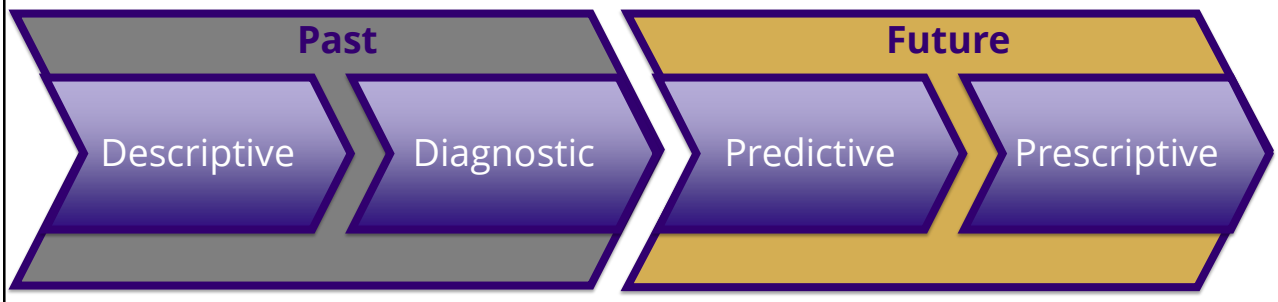

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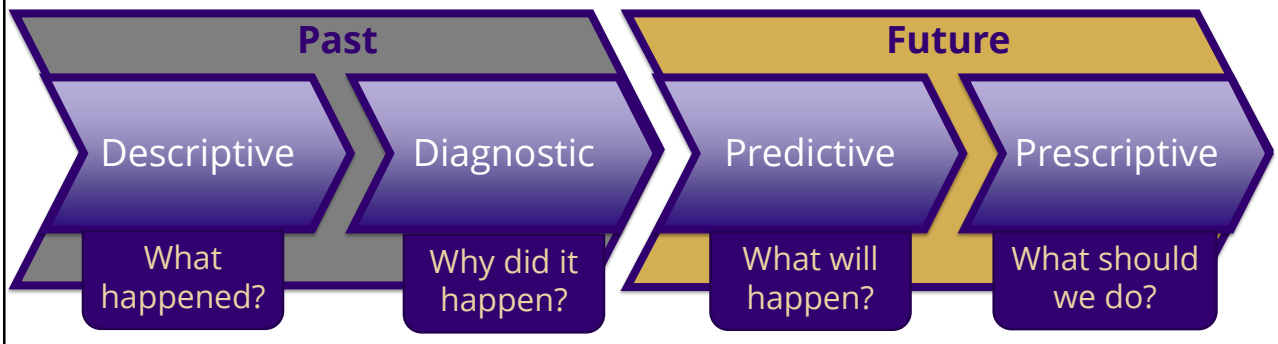
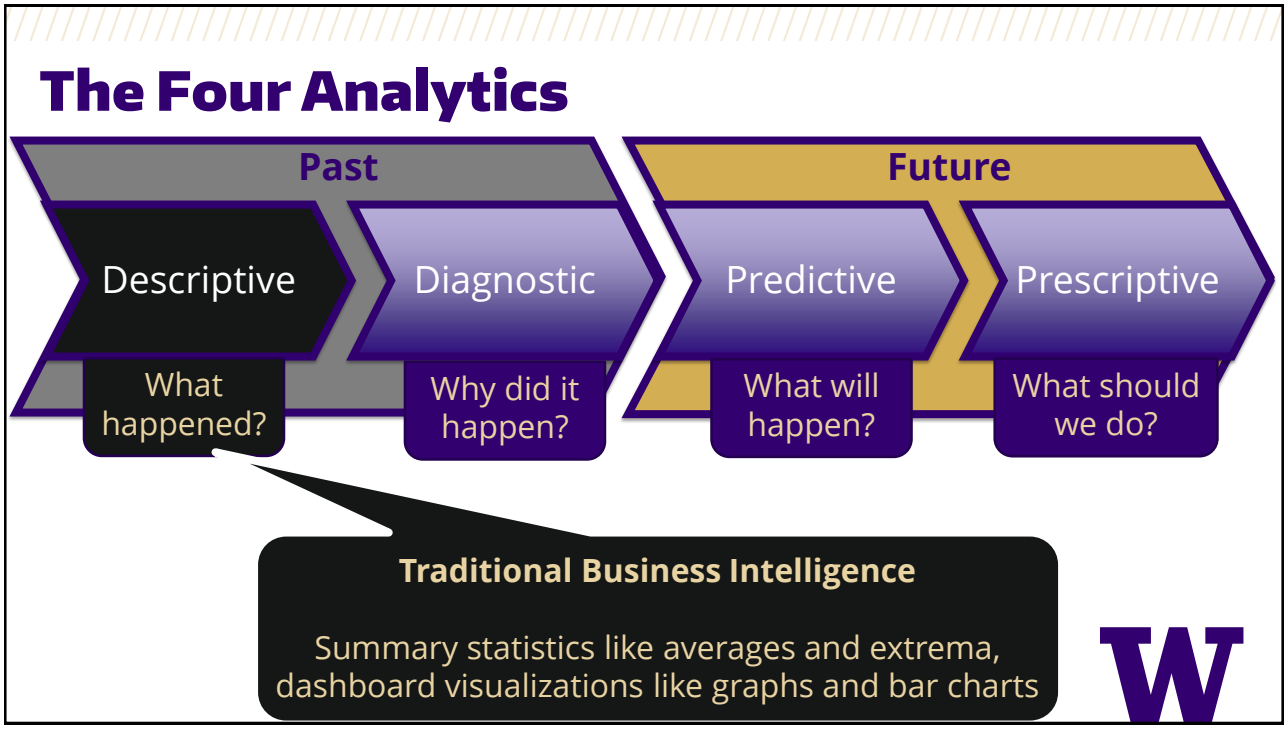
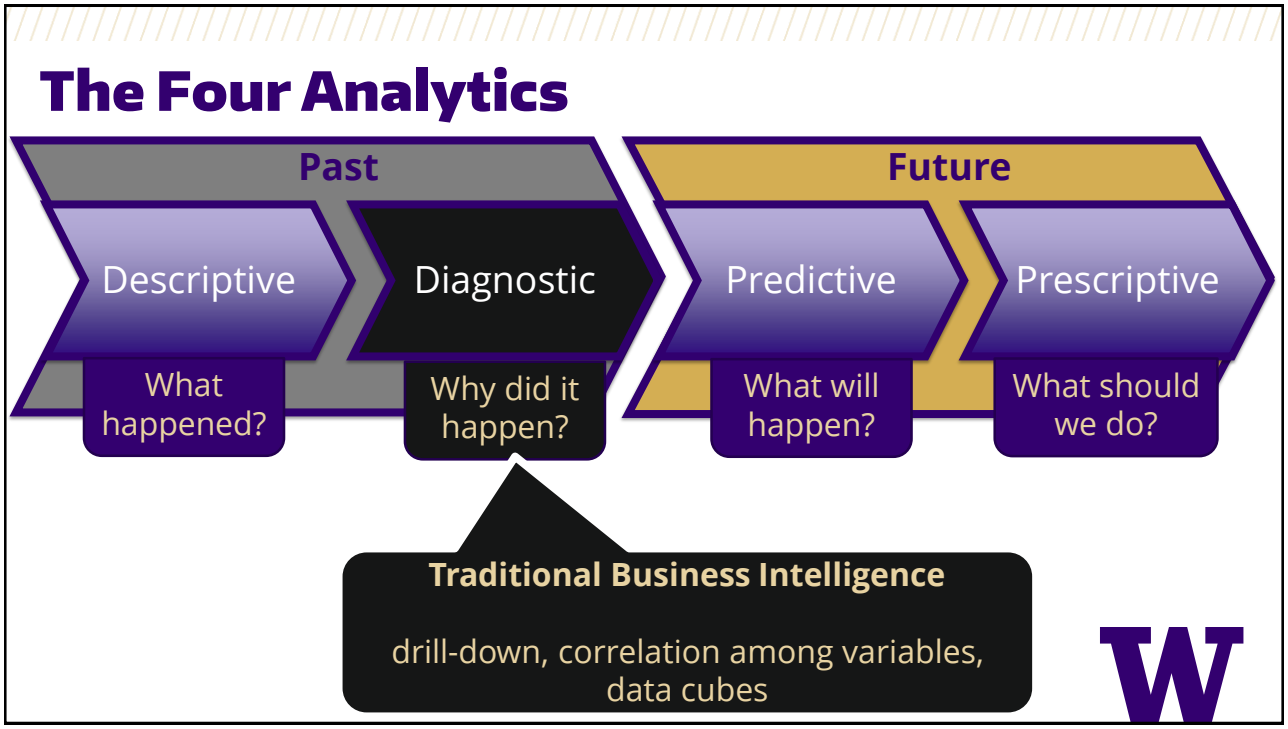



The Four Analytics
Past
Future
Descriptive
Diagnostic
Predictive
Prescriptive
What happened?
Why did it happen?
What will happen?
What should we do?
Traditional Business Intelligence
Summary statistics like averages and extrema, dashboard visualizations like graphs and bar charts


The Four Analytics
Past
Future
Descriptive
Diagnostic
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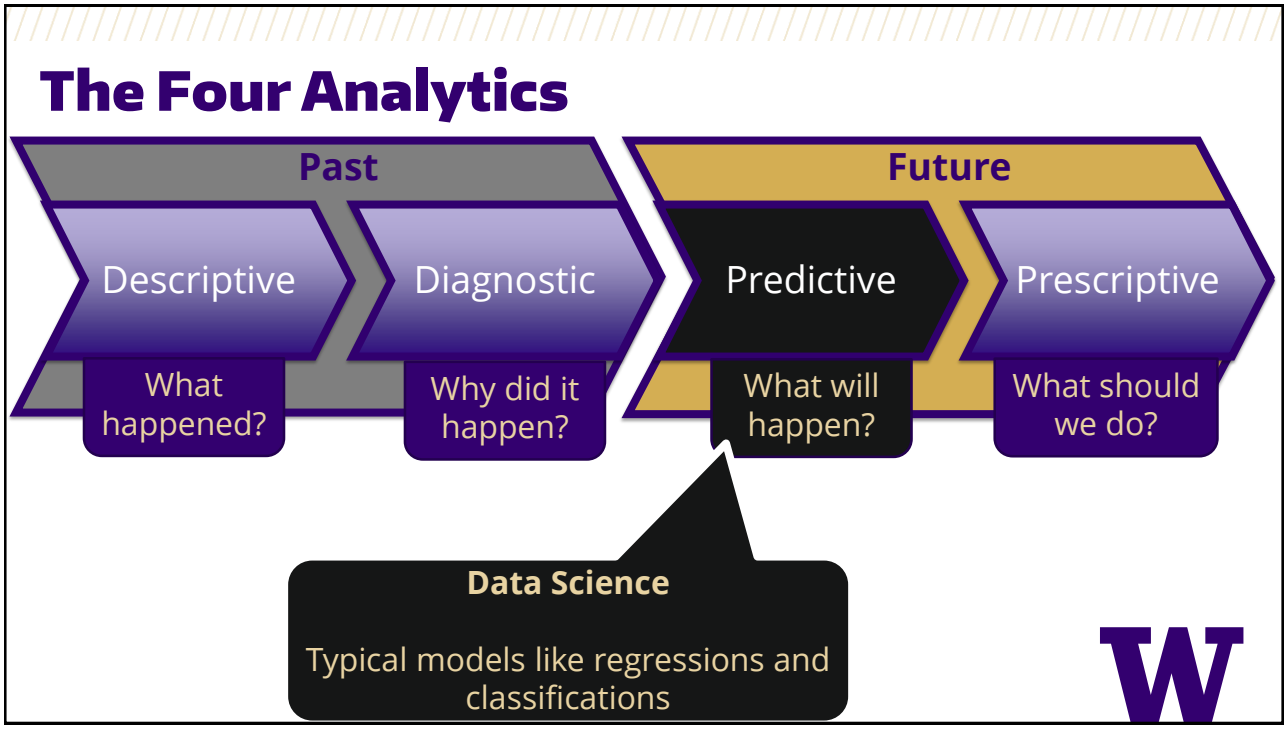
Prescriptive
What happened?
Why did it happen?
What will happen?
What should we do?
Traditional Business Intelligence
drill-down, correlation among variables, data cubes


The Four Analytics
Past
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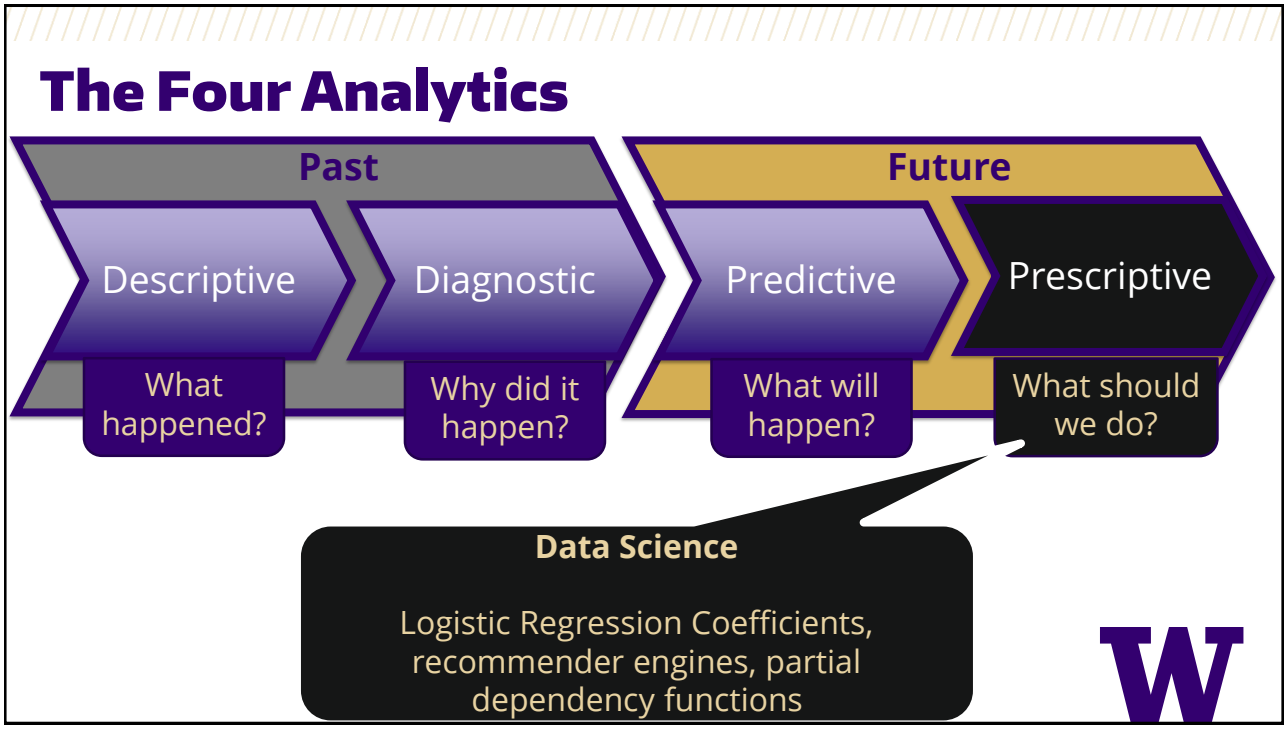
What happened?
Why did it happen?
What will happen?
What should we do?
Data Science
Typical models like regressions and classifications


The Four Analytics
Past
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What happened?
Why did it happen?
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Data Science
Logistic Regression Coefficients, recommender engines, partial dependency functions

The Four Analytics

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