MMO Team

Mastercard MMO Tool

Contents

[Data Scientist - Tool Features Overview 2](#_Toc180418766)

[Home 2](#_Toc180418767)

[Data Import 2](#_Toc180418768)

[Data Assessment 2](#_Toc180418769)

[AI Model Transformations 3](#_Toc180418770)

[AI Model Build 3](#_Toc180418771)

[AI Model Tuning 4](#_Toc180418772)

[AI Model Validation 4](#_Toc180418773)

[AI Model Media Performance 4](#_Toc180418774)

[Response Curves 4](#_Toc180418775)

[Scenario Planner 5](#_Toc180418776)

[Saved Scenarios 5](#_Toc180418777)

[AI Model Media Recommendation 5](#_Toc180418778)

[User Management 5](#_Toc180418779)

[Media Planner - Tool Features Overview 6](#_Toc180418780)

[Saved Scenario 6](#_Toc180418781)

[AI Model Media Recommendation 6](#_Toc180418782)

# Data Scientist - Tool Features Overview

## Home

This page allows users to create new projects, delete projects, clone shared projects, and modify access to users.

**Features:**

* **Create New Project:** Start a new project from scratch.
* **Delete Project:** Remove an existing project permanently.
* **Clone Shared Project:** Duplicate a project that has been shared with you.
* **Modify User Access:** Manage access permissions for different users associated with the projects.

**Note:** If you see a blank PPT upon download, please check the view of the PPT. It is possible that it opens up in Slide Master view. Please close Slide Master view in order to view the contents of the PPT. If the issue persists, please follow the instructions on the following link to change the default settings on your PowerPoint app: [Change the default view - Microsoft Support](https://support.microsoft.com/en-us/office/change-the-default-view-8d82ef84-c016-4ef4-b477-e319090de0eb#:~:text=Click%20File%20%3E%20Options%20%3E%20Advanced.,default%2C%20and%20then%20click%20OK).

## Data Import

The Data Import page allows users to bring in any additional data apart from what’s being fetched using APIs and processed by Data Engineering pipelines and standardize both API and non-API data to the desired end granularity. It features options for feature engineering, variable grouping, and data imputation.

**Features:**

* **Categorization:** Allows for the categorization of similar variables for streamlined analysis.
* **Feature Engineering:** Enables the creation and grouping of columns to build better models.
* **Data Imputation:** Provides methods to fill in missing or incomplete data values.

## Data Assessment

This page is designed to enhance data quality and insights, focusing on selected targets and panels.

**Features:**

* **Response Metric Analysis:** Evaluates the performance metrics and trends relevant to the selected target and panel.
* **Univariate and Bivariate Report:** Offers a detailed univariate and bivariate report.
* **Variables Analysis:** Evaluates the significance of media and non-media variables for the chosen target/panel and validates the variables to be considered for the next steps.
* **Correlation Analysis:** Utilizes correlation plots to reveal the relationships between variables.

## AI Model Transformations

Transformation capabilities include Media and Exogenous Transformations such as lag, lead, moving average, power, saturation, and adstock adjustments.

**Features:**

* **Transformations:** Applies specific alterations (lag, lead, moving average, power, saturation, and adstock) to media and exogenous variables to enhance model performance.
* **Summarization of Transformation:** Provides a detailed overview of all transformations applied, including their sequence.

## AI Model Build

This feature integrates transformation creation with model building for both panel and non-panel levels.

**Features:**

* **Diverse Models:** Constructs models for various metrics using OLS and mixed effect models.
* **Model Selection:** Chooses the most significant model utilizing metrics such as coefficients, P-value, R Square, Adjusted R Square, and MAPE.

**Modeling Techniques**

**OLS Model** The OLS (Ordinary Least Squares) model will be used for non-panel models within the media mix model. This method provides a straightforward approach to estimating the relationships between variables and is effective in understanding the impact of media spends on response and ROI.

**Features:**

* **Linear Regression Analysis:** Utilizes OLS to model the relationship between media spends and outcomes, providing insights into the effectiveness of individual media channels.
* **Coefficient Interpretation:** Offers clear interpretation of the coefficients, helping to identify the impact of each media channel on the overall response.
* **Prediction Accuracy:** Ensures accurate forecasts of media performance by minimizing the sum of squared residuals.

**Mixed Effect Model** The Mixed Effect Model will be employed for panel models within the media mix model. This approach accounts for both fixed effects (consistent across entities) and random effects (varying across entities), making it ideal for analyzing media impact across different segments.

**Features:**

* **Hierarchical Data Handling:** Effectively models data with multiple levels, such as media spends across different regions or demographics.
* **Fixed and Random Effects:** Simultaneously analyzes both fixed and random effects, providing a comprehensive view of media effectiveness.
* **Segmented Insights:** Delivers tailored insights for different segments, helping to optimize media strategy across varied audiences.

## AI Model Tuning

Model Tuning offers advanced options like Event Flags, addition of Trends, Cyclical Pattern, sine and cosine waves.

**Features:**

* **Event Flags:** Incorporates the effect of specific events on the target.
* **Trends:** Incorporates long-term trends and seasonality.
* **Cyclical Pattern:** Utilizes sine and cosine waves to capture and adjust for seasonal variations.
* **Contributions Analysis:** Calculates contributions from the tuned model for each media channel.

## AI Model Validation

This page saves the model's outcomes, including channel contributions, an EDA report, and a thorough Analysis of Model Results.

**Features:**

* **Channel Contribution:** Details the impact of each media channel on outcomes.
* **EDA Report:** Provides an exploratory data analysis summary.
* **Analysis of Model Results:** Offers a comprehensive review of the model's performance.

## AI Model Media Performance

This section provides a comprehensive overview of historical spending, including channel-wise spends, revenue, ROI, and weekly contributions.

**Features:**

* **Spends Analysis:** Breaks down channel-wise spend and revenue.
* **ROI and Contributions:** Evaluates return on investment and weekly/aggregated channel performance.

## Response Curves

This page updates response curves and allows for testing and saving these fits.

**Features:**

* **Response Curve Update:** Allows for the modification and refinement of response curves.
* **Curve Testing and Saving:** Facilitates the evaluation of curve fits and preserves/download curve parameters.

## Scenario Planner

The Scenario Planner page enables forward and reverse optimization, allowing users to either maximize targets given certain spends or minimize spends given a target revenue.

**Features:**

* **Optimization:** Supports both forward and reverse financial planning, with adjustments based on percentage or actual spend values.
* **Channel Focused:** Enables optimization based on specific media channels for focused strategies.
* **Responsive S Curves:** Showcases real-time, responsive S curves that highlight regions indicating underinvestment, optimal spending, and areas of potential overinvestment.
* **Dynamic Visualization:** Provides ROI/MROI for in-depth analysis and immediate scenario feedback.

## Saved Scenarios

Users can save, load, download, and delete scenarios involving spends, ROI, and MROI for both actual and simulated cases.

**Features:**

* **Optimized Results Visualization:** Displays the outcomes of optimization, highlighting effectiveness and efficiency in scenario planning.
* **Effectiveness and Efficiency Analysis:** Provides detailed visual insights into how optimization impacts campaign performance and resource utilization.

## AI Model Media Recommendation

This analysis page gives an overview of optimized spends (actual, planned, and delta), budget allocation (% split and planned spends), and forecasts on response and return by media channel.

**Features:**

* **Optimized Spends Overview:** Compares actual, planned, and delta spends.
* **Budget Allocation Analysis:** Breaks down the percentage split and planned expenditures.

## User Management

This user management page allows administrators to manage user access to the tool.

**Features:**

* **Add Users:** Grant new users access to the tool.
* **Delete Users:** Remove users from the tool. *Please note that deleting a user will also delete all projects associated with that user.*

# Media Planner - Tool Features Overview

**Scenario Planner**

The Scenario Planner page enables forward and reverse optimization, allowing users to either maximize targets given certain spends or minimize spends given a target revenue.

**Features:**

* **Optimization:** Supports both forward and reverse financial planning, with adjustments based on percentage or actual spend values.
* **Channel Focused:** Enables optimization based on specific media channels for focused strategies.
* **Responsive S Curves:** Showcases real-time, responsive S curves that highlight regions indicating underinvestment, optimal spending, and areas of potential overinvestment.
* **Dynamic Visualization:** Provides ROI/MROI for in-depth analysis and immediate scenario feedback.

## Saved Scenario

Users can save, load, download, and delete scenarios involving spends, ROI, and MROI for both actual and simulated cases.

**Features:**

* **Optimized Results Visualization:** Displays the outcomes of optimization, highlighting effectiveness and efficiency in scenario planning.
* **Effectiveness and Efficiency Analysis:** Provides detailed visual insights into how optimization impacts campaign performance and resource utilization.

## AI Model Media Recommendation

This analysis page gives an overview of optimized spends (actual, planned, and delta), budget allocation (% split and planned spends), and forecasts on response and return by media channel.

**Features:**

* **Optimized Spends Overview:** Compares actual, planned, and delta spends.
* **Budget Allocation Analysis:** Breaks down the percentage split and planned expenditures.