Campaign Planning & Measurement

ROI Analysis and Forecasting Simplified

Version 0.2

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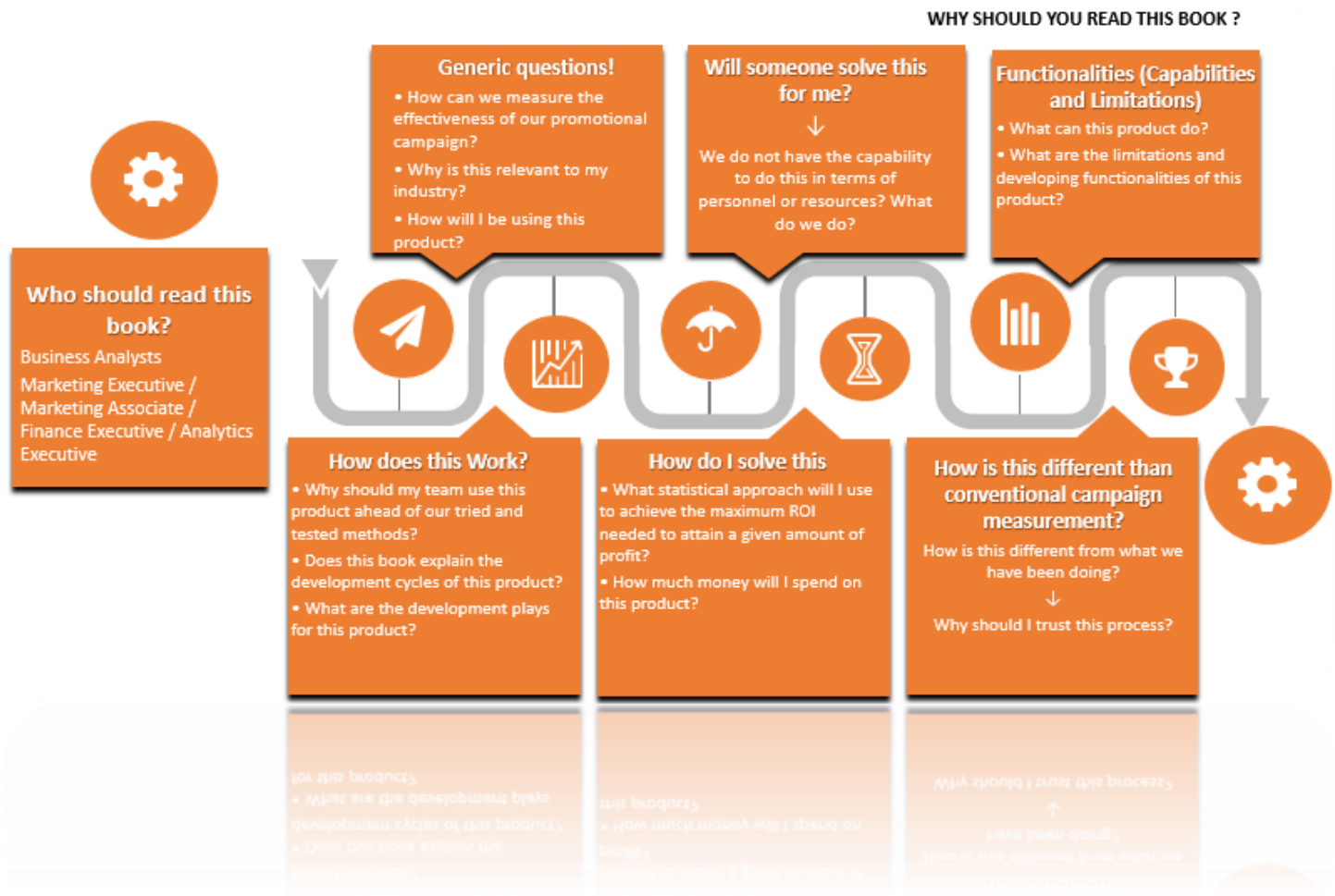
ABOUT THIS PLAYBOOK: KEY READING OUTCOMES

With scientific and technological advances in medical treatments, a boom in healthcare expenditure fueled by increasing demand from an aging population, and efforts to tackle critical illnesses, investors' interest in life sciences has grown over the years. However, when it comes to managing campaign effectiveness, the rise of CRM has led to many innovations in marketing practices. In parallel with this, you no longer see the allocation of the marketing budget as an expense. You may rather see it as an investment in the relation with the customer. Therefore, these allocation decisions are subject to the same kind of scrutiny any other investment decision is subject to what is the return on investment? Through this book, the marketing and finance teams can quickly achieve the clarity on the questions that occur regularly to them for their return on investments on various marketing campaigns.



1. CAMPAIGN ROI ANALYTICS: PLAY#1 PHARMA MARKETER'S NOTION

1.1 The Emerging Role of Campaign ROI Management and Marketing Execution across Silos

Measuring and managing the marketing campaign effectiveness is very important. In the gone years, experts have introduced Data Mining into mainstream marketing. However, now it is most frequently used to improve targeting. The entire process of campaign management covers phases testing measuring-tweaking campaigns, which runs at an increasingly higher speed. By manipulating both marketing execution and targeting, one attempts to increase the response.

Since these effects operate simultaneously, the influence they exert, get mingled. Therefore, measuring the effectiveness of campaigns is slightly more complicated. This book describes a comprehensive test-design to evaluate the relative contribution of marketing execution and regression campaign models in increasing response. As data mining models get reused, their effectiveness needs get monitored. This framework includes multiple methodologies to perform the campaign effectiveness measurement, such as test and control analysis, regression-based methods, benchmarks/analogs, primary market research, one-off evaluation, and marketing execution.

Additionally, there is a growing tendency for marketers to be held more directly accountable for the results of their marketing efforts and expenditures. An essential aspect of the new marketing paradigm is to feedback the results of past marketing campaigns into the organization, leading to a continuous learning process. New generations of Customer Relationship Optimization and Marketing Automation tools enable running multiple campaigns together. To achieve organizational learning, it is important to track results closely and compare results across campaigns. When running many simultaneous campaigns, it becomes even more important to do this consistently.

Our eventual goal, through this book, is to demonstrate the marketing execution effect, which we may attribute to actions under the voluntary marketing control. This effect results in a difference in response between two otherwise equivalent customer groups when one of them undergoes some (marketing) treatment, and the other does not.

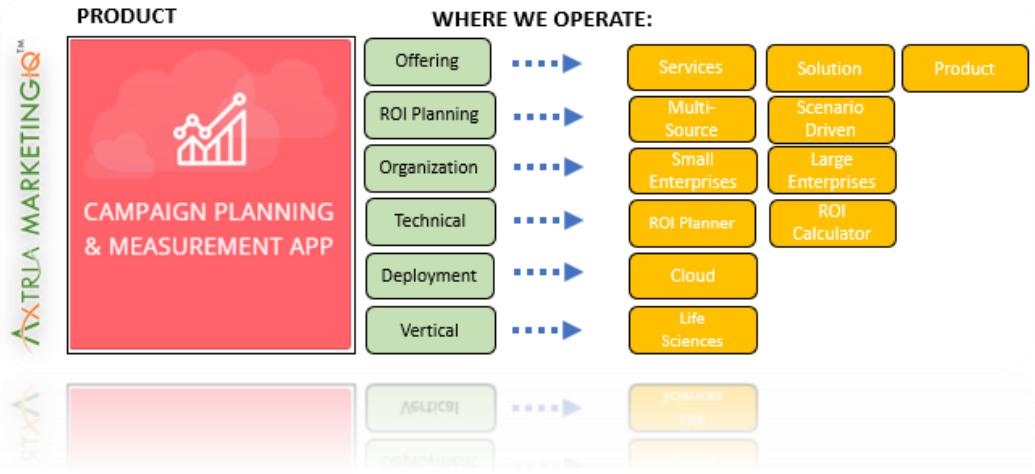
1.2 ROI in Pharma Industry

Return on investment (ROI) calculations are standard tools used by pharmaceutical and biotechnology companies in evaluating product returns, guiding decisions on further product development, or terminating programs before company losses. ROI calculations compare the estimated profits from a product to the investments necessary to get the product developed, approved, and marketed. You get risk factors incorporated into the ROI, which consider multiple factors, including competitor products and market demand.

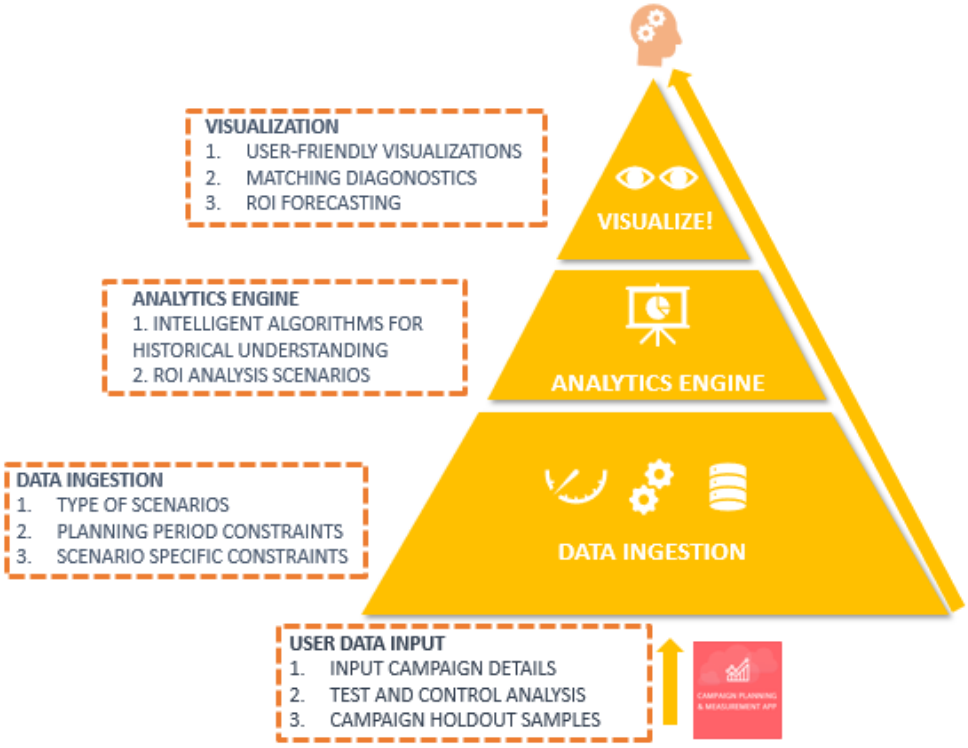
2. PRESEASON: PLAY #2: THE PRODUCT

2.1 Campaign Planning and Measurement App

Campaign Planning and Measurement Application is a tool developed by Axtria to help pharmaceutical organization on determining their campaign effectiveness. Pharma and health organizations do promotions and campaigns of their brands and measure their campaign effectiveness. The Campaign Planning & Measurement app helps these organizations to plan, design and measure the marketing campaign ROI. Campaign Planning & Measurement, a part of the Axtria's Marketing IQ platform offers a robust and easily usable option – which created a positive experience for pharma leaders in search of predictive solutions to smartly plan, execute, and evaluate marketing campaigns. Axtria's Marketing ROI Analytics enable maximized returns on marketing investment by predicting the best set of targeted tactics across multiple channels and customer personas.



The software built on a cloud platform Marketing IQ enables you to perform the campaign effectiveness measurement using the methodology of Test and Control Analysis. This methodology provides effectiveness of campaign by comparing the sales generated between two groups, known as test group and control group. Test group consists of customers who have received the campaign promotions whereas control group consists of customers who have not received any promotions. Test-Control method is a special scenario of A/B Testing. In A/B testing, two groups, namely, group A and group B receive different promotions, whereas in test and control, only one of the groups receives promotion.



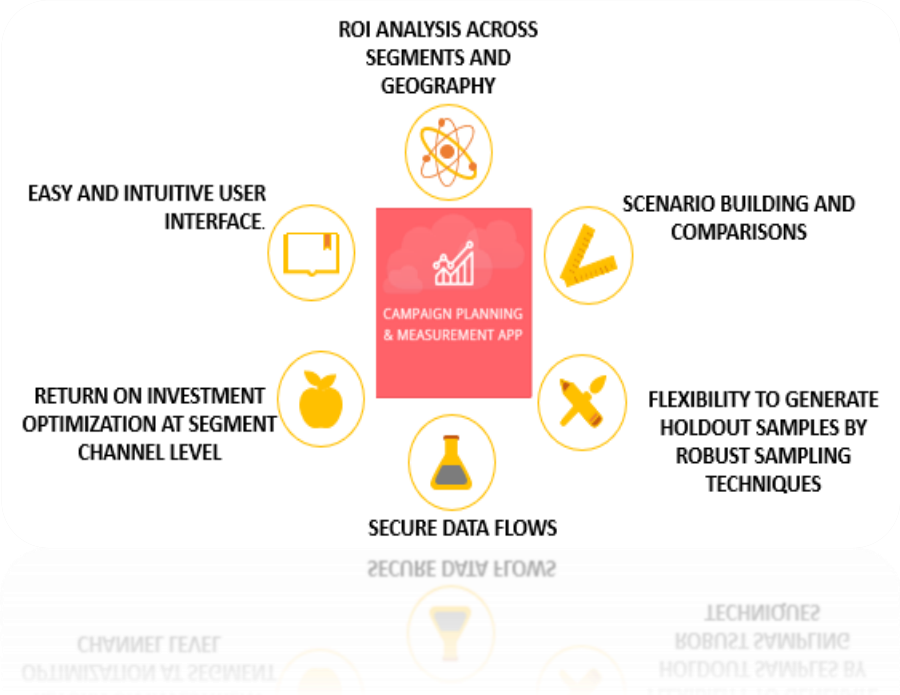
The application is adaptable and flexible to generate Holdout Samples and multiple scenarios associated with a session for campaign planning by various sampling techniques.

2.2 Features and Abilities

In addition to an intuitive user interface, the Campaign ROI provides a plethora of features/abilities to its users that include:

FEATURE LIST

- Flexibility to generate Holdout Samples by various sampling techniques
- Ability to perform ROI Analysis across Segments and Geography
- Ability to upload independently devised additional segments, which the system merges with the universe data
- Ability to review uploaded data
- Ability to generate multiple scenarios associated with a session leveraging various sampling methods
- Ability to review and analyze the distribution by segments in the merged data before creating Holdout Samples
- Ability to specify the Holdout percentage to perform Random Sampling
- Ability to select a subset of the Categorical Variables to perform Stratified Sampling
- Ability to perform analysis on the generated Holdout Sample by segments and their levels
- Ability to download the Holdout Sample and send it to the appropriate vendor



- Ability to view the created scenarios of unlaunched campaigns
- Ability to to choose the time alignment method between Dynamic T_0 alignment (based on the exposure of HCP to campaign) and Calendar alignment (based on the first and last exposure to the campaign)
- Ability to review the contents of the saved holdout generation scenario
- Ability to see, add vendor-channel configurations for sending out the holdout files
- Ability to create a session when Campaign is launched, and Test and Control group is defined/non-defined
- Ability to select variables for analysis
- Ability to perform exact and approx. matching of test and control groups
- Ability to choose mapping and matching method
- Ability to perform analysis based on differences of difference or ANCOVA

2.3 The Campaign Planning and Measurement Process: From Envision! to Provision!

How does Campaign Planning & Measurement App work?

Campaign Analyzer app is built on a sophisticated data engine. This data engine provides the underlying connectors to the various databases which the business analyst uses, from which the application collects and ingests relevant data (the different types of data the book will explain as it takes you through the finer nuances of working with the tool). The

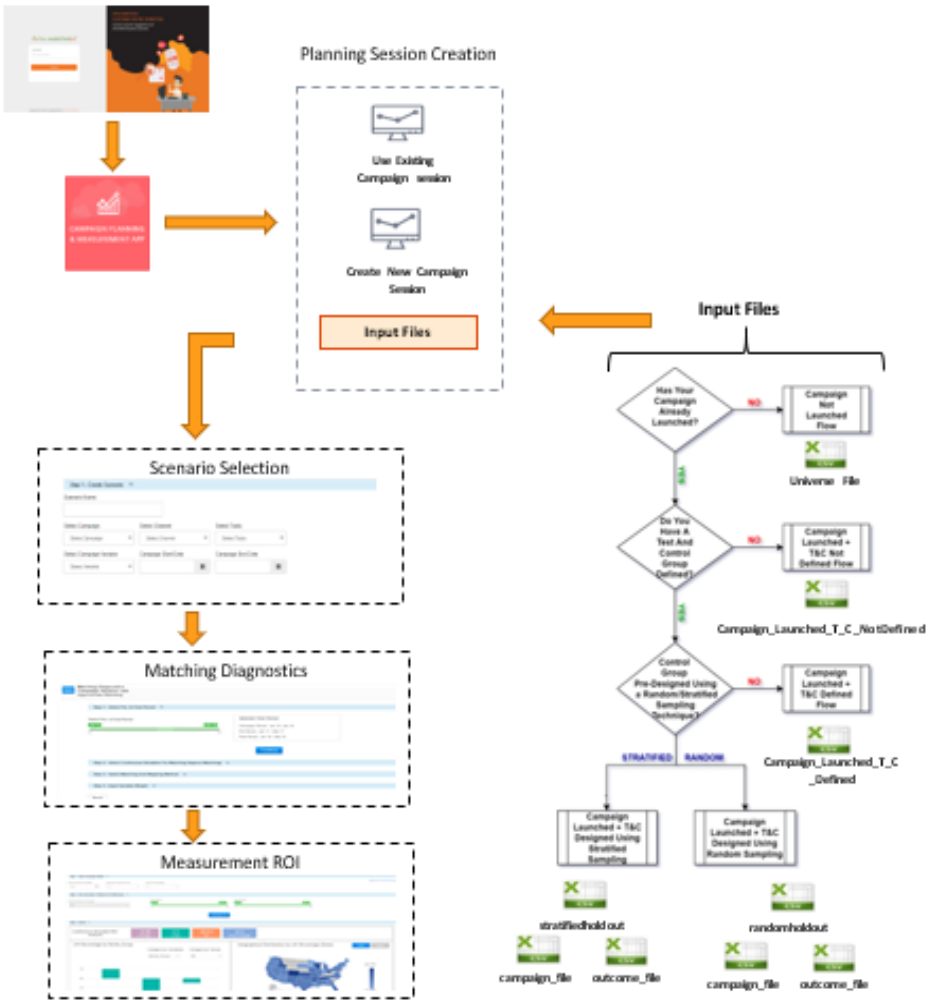
application modifies this data as per the scenario designed by the marketer in his mind. After the modification, the application feeds the data through its Analytics engine, which runs several innovative and mean algorithms to give you the most anticipated ROI relevant to the scenario you envisioned! The application enables users to create/run the following workflows in order to simplify their understanding of campaign ROI analysis and measurement process:

1. **When the Promotional Campaign is not launched**
2. **When the Promotional Campaign is launched but the differentiation between exposed and unexposed HCPs is not defined**
3. **When the Promotional Campaign is launched but the differentiation between exposed and unexposed HCPs is defined**

To understand the above workflows in detail, please refer to section 2.6. Let us see how a business analyst goes about her activities while using the Campaign Planning & Measurement app.

2.3.1 Business Process Overview

Campaign Planning & Measurement App uses the test and control methodology to measure campaign effectiveness. The method has three workflow steps:



- **Setup:** It involves gathering the inputs in a format required for measuring campaign effectiveness. As inputs, test and control methodology needs a universe which is a union of test group and control group. The test has information about Promotion Start. However, this information is not present with the control—the application filters the input data to have HCPs with complete pre and post information.

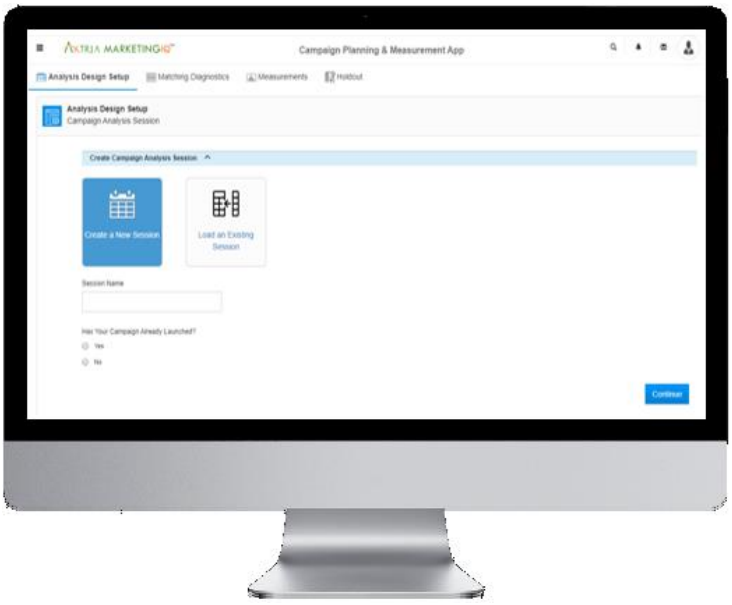
- **Matching:** The user matches test and control groups to form test-control pairs such that the test and control are similar in all aspects. The matching can occur based on categorical variables such as specialty, location, and gender, or continuous variables like sales, calls, etc. Matching can be performed at two levels: Exact Match and Approximate Match. The application allows users to perform these matches on de-casted test and control data. It also enables users to enter the number of pre and post months in case of approximate matching. (For more information, please refer to section 2.5.2).

- **Lift Computations:** Calculate the effectiveness of the campaign based upon test performance relative to control performance in post-campaign period. Lift refers to the difference between the

test performance and control performance in these periods. Various methods used at this step are difference of differences (DOD) and Statistical processes like Analysis of Covariance (ANCOVA). The app allows you to input the months of pre and post period (perform the dynamic T0 alignment) while calculating the campaign ROI effectiveness using DOD and ANCOVA methods. For more information, please refer to section 2.5.3.

2.3.2 Creation of a Campaign Session

As Campaign Planning & Measurement is a cloud-based platform, it operates almost in a plug and play option for users. The Axtria administrator allocates a single sign on-login to business analyst for all Marketing IQ applications, which the analyst can use to arrive at the landing page, where he can proceed to create new sessions or load the existing sessions to view scenario specific visualized dashboards. This screen shows a user their existing sessions and helps them to revisit their scenario details.



Let us investigate the finer nuances of ROI application in our subsequent sections.

2.4 Campaign Measurement App Inputs

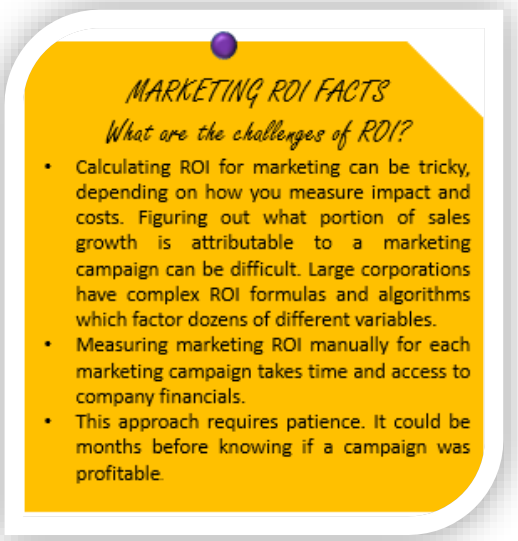
The next step followed by the user is to input the necessary data or load the existing data, which a user can achieve by defining a session name, creating holdout groups by completing a pre-defined questionnaire. Based on different conditions, the user can then input the data below onto the application:

A. **Universe File:** The file typically holds a universe/list of all HCPs with the segmentation data as test and control group. The test group consists of HCPs who have received the promotions while the control consists of HCPs who have not received any promotion. Usually, the test group is much smaller in size when compared to the control group, but the overall composition in terms of behavior and distribution would remain the same in both the groups. It also needs a specified pre promotion and post promotion period in which the measurement of campaign effectiveness takes place. The analytics team utilizes the data from the historical spend and sales data and the typical market mix modelling techniques to find a relationship between promotional efforts and the sales thus generated. The file identifies an HCP worth to include in a promotional campaign via the test-control flag (TC flag).

B. **Segment File:** The file consists of the high-level, segmented data showing the list of HCPs along with their true categorical values. The data represents the distribution of categorical variables at segment levels. Identifying and selecting these variables are the eventual steps, which help the analyst to perform the ROI analysis.

C. **Campaign File:** This file typically holds the HCP data at a target campaign, marketing channel level, and other data related to tactic, year month, number of clicks, and number of promotions. Based on the historical data, we recommended that the brand manager updates and uploads the campaign data till whenever possible.

D. **Outcome File:** We recommend that the user reviews all necessary formats of the file to input before uploading them. The outcome file yet again holds the HCP data at a target campaign, marketing channel level, and other data related to tactic, year month, sales and calls done for the promotional efforts.



2.5 Investment Effectiveness Evaluation! From Envision to Provision!

Once a brand manager invests in campaigns, they would want to know how effective the campaign has been. Some of the key metrices, which can be considered for measuring the campaign effectiveness are sales, market share, ROI, brand awareness, click-to-open rate, brand positioning etc. Based on these resultant parameters, a brand manager can take a more informed future campaign decision by investing on more effective customer segments and channels. With Campaign Planning & Measurement app, Axtria offers you a method to analyze, plan, design, visualize, measure, and compare marketing campaigns' ROI to narrow down to ones that win you the Super Bowl!

What methods do we have for measuring the campaign effectiveness?

We have several methodologies to perform the campaign effectiveness measurement. Some of them are:

A. **Test and Control Analysis:** Involves the sales comparison between customers who have received promotion and customers who have not
B. **Regression-based Methods:** Involves regression-based models to compute effectiveness of campaign
C. **Benchmarks/Analogs:** Leverages the understanding of the consistent affect, which have been validated to hold in similar situations
D. **Primary Market Research:** Involves getting engaged with customers or using customer data to understand the impact of Campaign

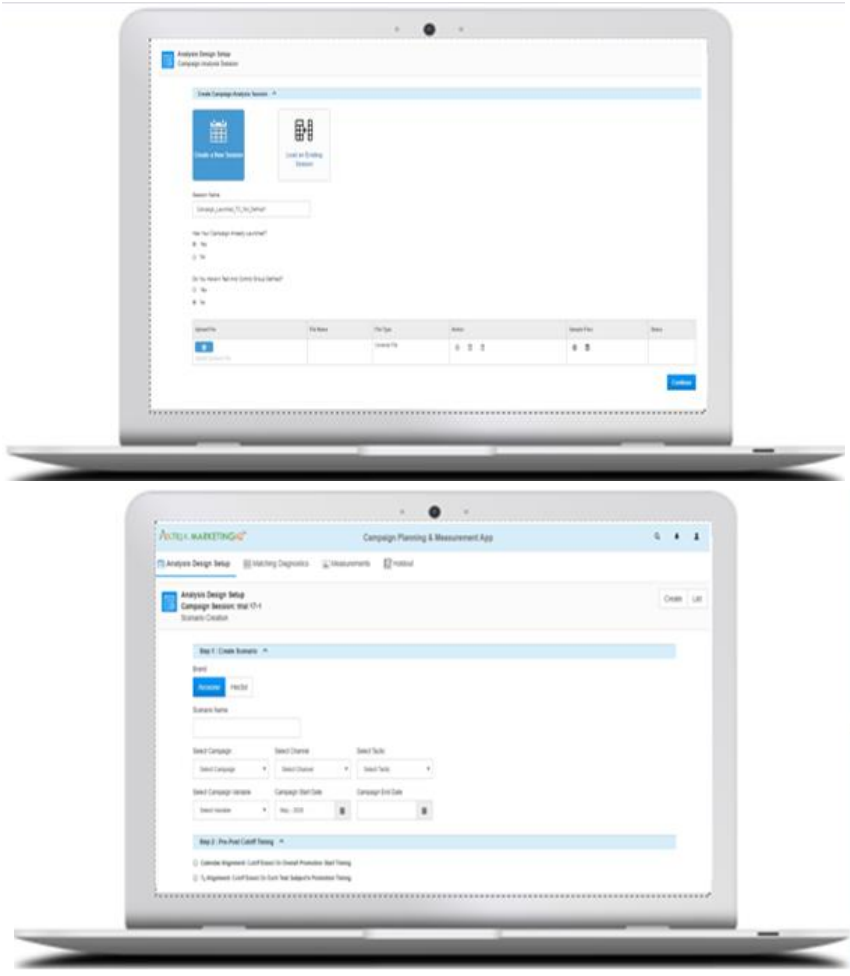
How to choose the best method?

Methodology selection depends upon the quality of data, frequency of campaign and reach of the campaign. You may refer to the table below to get an idea of when you can use a specific methodology:

Methodology	Frequency of Campaign	Reach	Quality of Data
Test and Control	Periodic	Low	High
Regression based	Continuous	High	High
Benchmarks	Any	Any	Any
Primary Market Research	Any	Any	Low

Axtria's Campaign Planning & Measurement app uses the test and control methodology to measure campaign effectiveness. Depending upon the possible campaign sessions (discussed in section 2.6), it facilitates all the necessary tasks in a flow described below:

2.5.1 Analysis Design Setup



This flow enables brand managers/analysts to perform campaign analysis in multiple sessions. It allows them to create/edit a campaign session and to load an existing session. This further involves defining the session and associating it with multiple scenarios to create holdout samples, completing the workflow questionnaire related to campaign and data to help application define the pre-processing data elements (data to be uploaded). After this, the application prepares the uploaded data for processing. The application, then, converts the data into wide format, i.e., it creates column for every month. Further, the application separates categorical variables and continuous variables into different vectors. It drops all the redundant columns from the data frames and make ID as the first column.

Based on the type of matching to perform, scenario-specific processing of data is performed. If the matching is to be done using Euclidean distance, then based on the type selected by user, either individual, total or average function gets called. In the case of launched campaigns, the application allows you to run the entire workflow using two types of pre and post-period alignments:

- Dynamic T0 Alignment

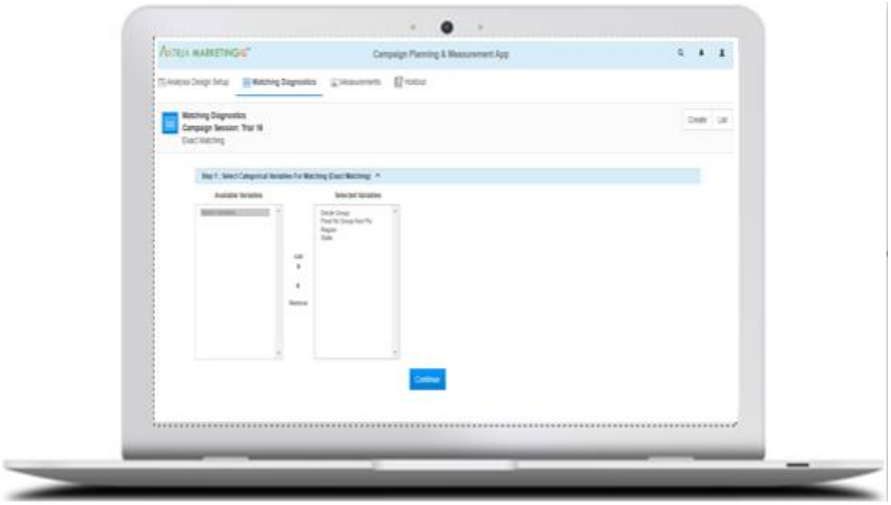
- Standard Calendar Alignment

Using the first method, users can dynamically align pre and post periods at HCP-level based on their exposure to the campaign. Calendar alignment, on the contrary, is a standard time alignment process that allows users to adjust pre and post periods based on the first and last exposure to the campaign. Once you complete inputting the scenario creation criteria, you will have to select a Pre-Post Cut-off timing method. (**Calendar Alignment:** Cut-off Based on Overall Promotion Start Timing or **T0 Alignment:** Cut-off Based on Each Test Subject's Promotion Timing**).**

2.5.2 Matching Diagnostics

Overview

The flow enables users to perform the exact and approximate matching of variables present in the data. Matching Diagnostics allows users to select categorical variables for matching, view Exact Match Report for analysis, adjust pre-period and post period for campaign analysis, select continuous variables for approximate matching, select matching and mapping method, input the variable weight and Euclidean distance cut off, visualize the analysis and perform the statistical inference calculation based on a metric and an operation level prior to the actual ROI measurements.



The Campaign Planning & Measurement app performs approximate matching (with replacement) using distance between two datapoints via a Euclidean distance or Error Variation methods. On the other hand, matching without replacement is performed based on the distance between test and control group data elements. The application then prepares the final data by combining the existing data with the test data which have not got any control. Additionally, the flow allows you to perform t-test on the complete data and segment-level data and provides the confidence level between the test and control pairs. Let's discuss the two matching techniques in detail:

Exact Matching

Exact Matching is performed to find the test and control pairs by matching their categorical values.

Example:

Customer_Id	Decile_Group	State	T_C_Flag
A	High	CA	TEST
B	Medium	TX	TEST
C	High	TX	CONTROL
D	Medium	CA	CONTROL

Case I: If the user performs matching on the Decile Group, then TEST 'A' will match with CONTROL 'C' and TEST 'B' will match with CONTROL 'D'.

Case II: If the user performs matching on the State, then TEST 'A' will match with CONTROL 'D' & TEST 'B' will match with CONTROL 'C'

Case III: If the user performs matching on both Decile Group and State, there will be Zero Matched Pairs.

Approximate Matching

Approx. Matching (logically) occurs on the result of the exact matching. The goal is to get a control against a test by looking at how close the continuous variables for the test and controls are. Two approaches used are:

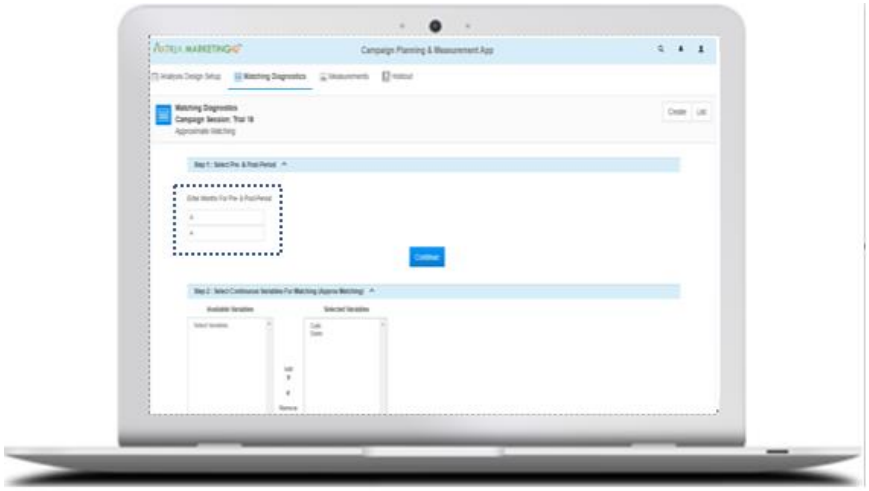
I. Euclidean Distance: Match the test control pair with minimum distance

1. $\text{Distance} = \sqrt{(\text{Test}_{\text{Calls}} - \text{Control}_{\text{Calls}})^2 + (\text{Test}_{\text{Sales}} - \text{Control}_{\text{Sales}})^2}$

II. Error Variation: Match the test control pair with minimum absolute error/difference

$$\text{Error} = | \text{Test} - \text{Control} | / \text{Max}(\text{Test} - \text{Control})$$

The application enables to enter months for pre and post periods while performing the approx. matching.

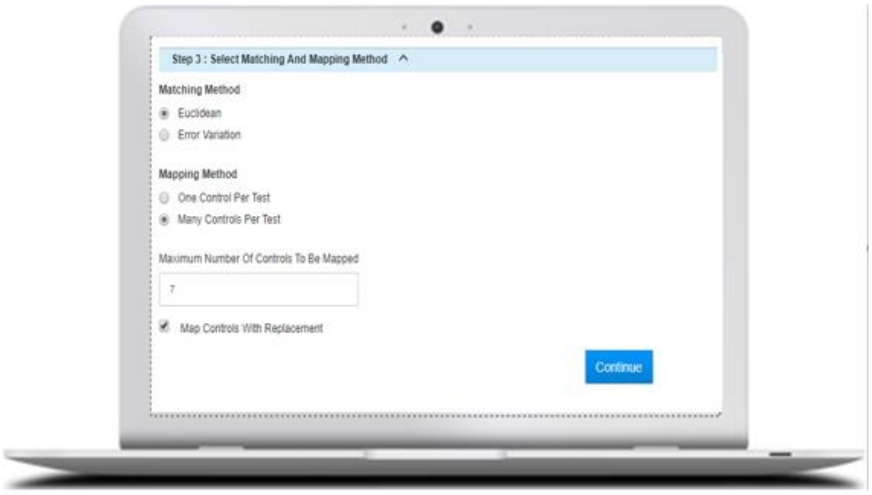


The choice of controls can be One-to-One or One-to-Many:

I. One-to-One: One control is mapped to one test. The idea is to pick the control having the minimum distance from the test
II. One-to-Many: Many controls are mapped to one test. The idea is to pick 'n' controls having the least distance from the test.

Matching can happen with or without replacement:

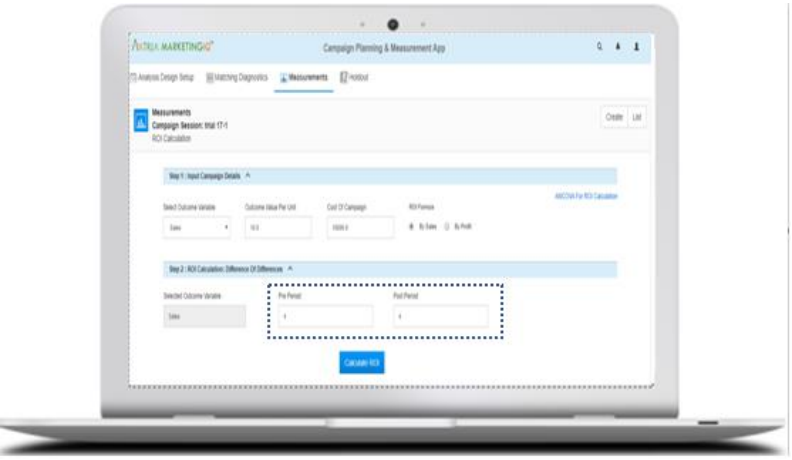
I. With Replacement: A control once matched, can be matched to other tests
II. Without Replacement: A control once matched cannot be matched to any other test



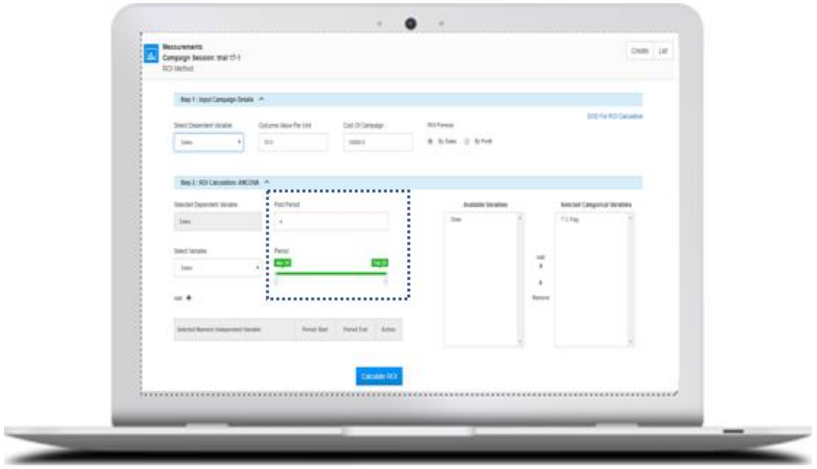
In addition to above, while inputting weight of selected continuous variables for approx. matching, the flow allows users to manually enter the pre and post period months for these variables and include both periods for one of these variables.

2.5.3 Lift Computations/Measurements

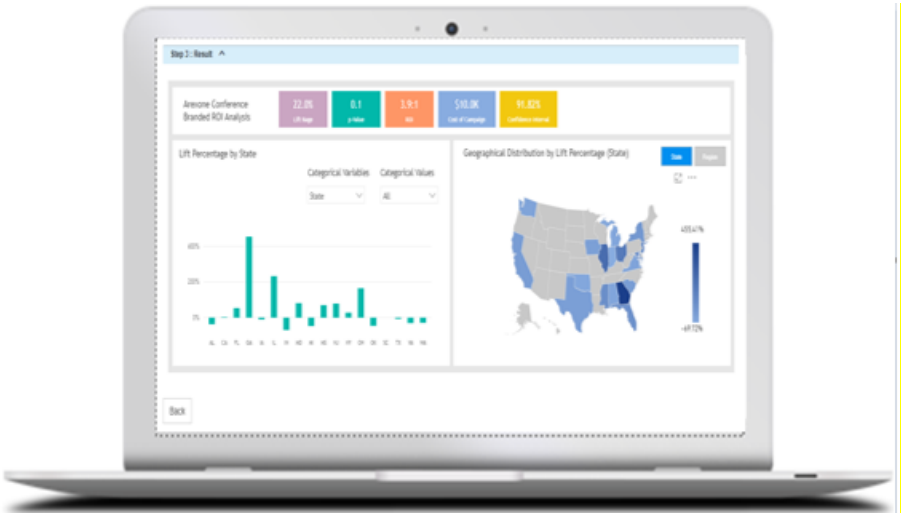
The flow enables users to perform the ROI calculation for both matched and unmatched test and control pairs. It allows to choose between ANCOVA and Differences of Difference method to perform measurements and display the ROI results in terms of the selected outcome variable (sales or calls). An analyst is supposed to input the necessary campaign details/variables and select the ROI formula to proceed with the calculation and the output visualization. The application provides ability to input number of pre and post period months in ROI DOD screen and ANCOVA screen.



Differences of Difference



ANCOVA



ROI Results

ROI Computation Using DOD

The Differences of Difference method lets you calculate the impact or lift as:

Impact (Lift) = (Test UnitsPost – Test UnitsPre) – (Control UnitsPost – Control UnitsPre)

Impact Percentage (Lift Percentage) = Impact (Lift) / {Control UnitsPost}

Financial Impact = Impact (Lift) * Price Per Unit

ROI = {Financial Impact / (Channel Promotion Cost)} – 1

ROI Computation Using ANCOVA

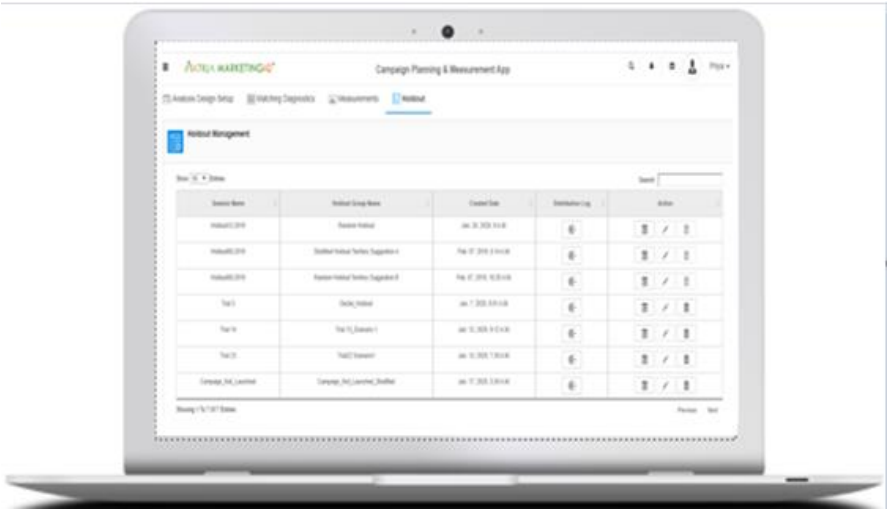
Analysis of covariance (ANCOVA) is a general linear model which blends ANOVA and regression. ANCOVA evaluates whether the means of a dependent variable (DV) are equal across levels of a categorical independent variable (IV) often called a treatment, while statistically controlling for the effects of other continuous variables that are not of primary interest, known as covariates (CV) or nuisance variables.

$$Lift = (Test_{mean} – Control_{mean}) / Control_{mean}$$

ROI = (Lift/(1 + Lift)) * (Price per Unit / Cost of Campaign) * $Test_{mean}$ * number of x (dependent variables.

2.5.4 Holdout

The Holdout flow helps users manage an ecosystem from where the user can send the generated holdout groups to the vendors directly through their configured channels. The holdout management tab enlists all the holdout sessions so created along with details such as name, group name, date of creation, distribution log, and the necessary action options they can perform against each of these sessions.



2.6 Campaign Session Possibilities

While creating a session, the analyst specifies the pre-processing constraints (session name and campaign related questionnaire) in the Campaign Planning & Measurement app. These inputs map the types of sessions that may arise during planning with the possibility of application of a plethora of constraints. The sessions that a user can build are primarily divided into four major categories:

1. **Campaign Not Launched :** Users can create this session workflow if their campaign is not launched
2. **Campaign Launched and Test & Control Group undefined:** Users can create this session when their Campaign is launched but the flag to differentiate between exposed and unexposed HCPs (called Test-Control flag/TC_Flag) is not defined in the input data.

4. **Campaign Launched and Test & Control Group defined using Random Sampling:** Users can create this session when their Campaign is launched and the flag to differentiate between exposed and unexposed HCPs is defined using random sampling technique.
5. **Campaign Launched and Test & Control Group defined using Stratified Sampling:** Users can create this session when their Campaign is launched and the flag to differentiate between exposed and unexposed HCPs is defined using stratified sampling technique.

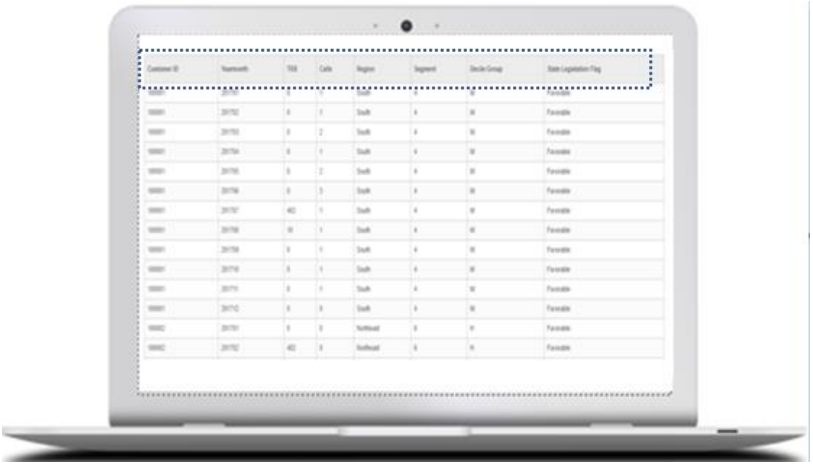
2.6.1 Campaign Not Launched

A brand manager or an analyst executes this workflow when he has not launched the campaign yet and he wishes to generate the test and control groups from the universe set.

Inputs: Universe file (Mandatory), Segment File (optional)

Prerequisites: Data with no TC Flag column

Format: CSV file format with the necessary information pre-specified (can be reviewed using "Review" File button)



UNIVERSE DATA

Technique Used: Random Sampling**,** Stratified Sampling

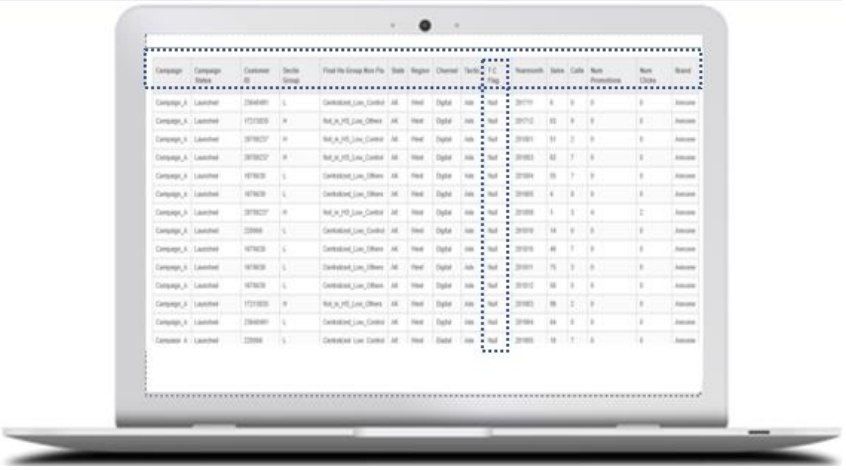
2.6.2 Campaign **Launched and Test & Control Group Undefined**

A brand manager or an analyst executes this workflow when he has launched the campaign but does not have the test and control group information defined

Inputs: Universe file (Contains Information such as Categorical Variables, Sales, Calls, Number of Promotions on a year month-level in each Campaign channel Tactic).

Prerequisites: Data with TC flag column as null

Format: CSV format with the necessary information pre-specified (can be reviewed using "Review" File button)



UNIVERSE DATA

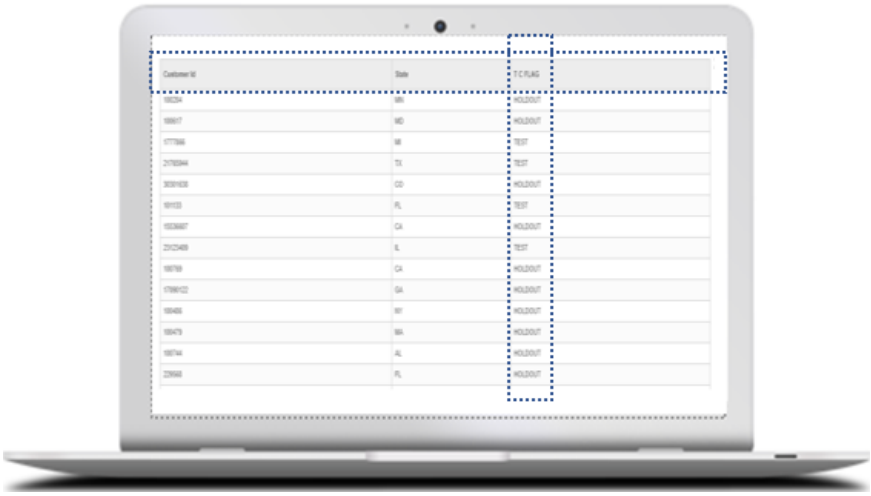
Steps Involved: Exact Matching**,** Approximate Matching**,** ROI Computation Using DOD**,** ROI Computation Using ANCOVA

2.6.3 Campaign Launched and Test & Control Group defined using Random Sampling

A brand manager or analyst executes this workflow when he has the campaign as launched and the test and control information defined using the random sampling technique.

Inputs: Universe file (RandomHoldout file containing the HCP universe along with a T_C_Flag), Campaign file, Outcome file

Prerequisites: Data with TC flag column defined as Test and Holdout



Format: CSV format with the necessary information pre-specified (can be reviewed using "Review" File button)

UNIVERSE DATA

Steps Involved: ROI Computation Using DOD, ROI Computation Using ANCOVA

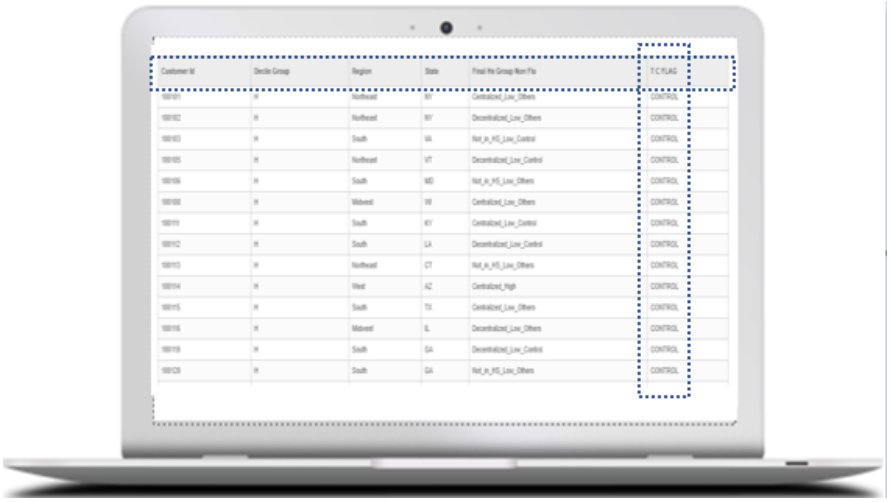
2.6.4 Campaign Launched and Test & Control Group defined using Random Sampling

A brand manager or an analyst executes this workflow when he has launched the campaign and has the test and control information defined using the stratified sampling technique

Inputs: Universe file (StratifiedHoldout containing the HCP universe along with a T_C_Flag), Campaign File, Outcome File

Prerequisites: Data with TC flag column defined as Control

Format: CSV format with the necessary information pre-specified (can be reviewed using "Review" File button)



UNIVERSE DATA

Steps Involved: ROI Computation Using DOD, ROI Computation Using ANCOVA

2.7 Sampling Techniques

The app offers you the flexibility to generate holdout samples by the help of robust sampling techniques. You can have the control group pre-designed using the following two techniques:

1. **Stratified Sampling**

Stratification is the process of dividing members of the population into homogeneous subgroups before sampling. The strata should define a partition of the population. Using this technique, the app performs the sampling of test and control data based on Categorical data. The steps involved in this technique include:

Step 1: Defining segments to perform stratification upon

Step 2: Dividing the strata into two groups by randomly picking members from the strata.

2. **Random Sampling**

The method includes randomly selecting the specified ratio of tests and controls from the universe.

Example

Let's say you need to run a promotional campaign. As inputs, our investment evaluation methodology needs an HCP universe, which is a union of the test group (contains HCPs who have received campaign promotions) and control group (provides info regarding HCPs who have not received any promotions). To define these groups, you can perform a random or a stratified sampling technique to generate T/C flag that differentiates between the exposed and unexposed HCPs from promotions:

Universe	
HCP	**Segment**
1	A
2	A
3	A
4	A
5	B
6	B
7	B
8	B
9	B
10	B
11	B
12	B

Random (75% Holdout)		
HCP	**Segment**	**T_C Flag**
1	A	T
2	A	C
3	A	T
4	A	C
5	B	C
6	B	T
7	B	C
8	B	C
9	B	C
10	B	C
11	B	C
12	B	C

Stratified (75% Holdout)		
HCP	**Segment**	**T_C Flag**
1	A	C
2	A	T
3	A	C
4	A	C
5	B	C
6	B	C
7	B	C
8	B	T
9	B	C
10	B	C
11	B	T
12	B	C

Test	A	2 (50% of A)
	B	1 (12.5% of B)

Test	A	1 (25% of A)
	B	2 (25% of B)

Please note: *Categorical variables include the demographic info of all the physicians. For example, state, specialty, decile, segment. Continuous variable signifies the data such as monthly sales and calls done to all physicians.*

3. PRESEASON: PLAY #3: USERS, ROLES, PERMISSIONS

The section explains various user roles to which the Campaign allows the access permissions. The section also details the extent of responsibilities and access rights for each of these roles:

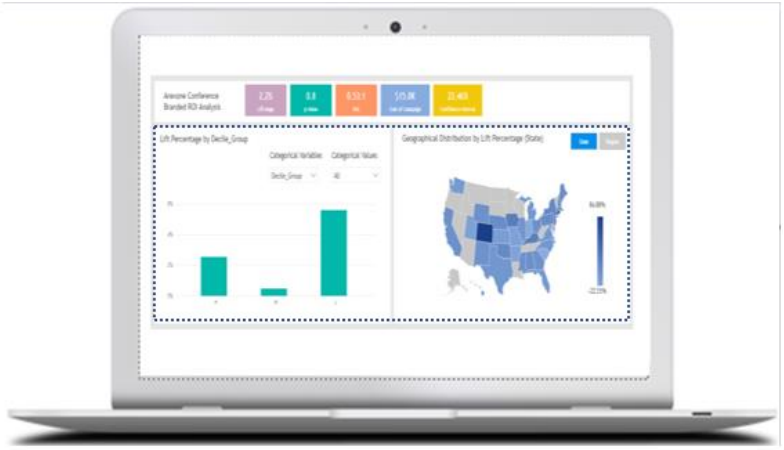
Permission	ANALYST	PLANNER	REVIEWER	AXTRIA ADMIN
Create/Edit Planning Sessions and Scenarios	✔	X	X	Front-End and Back-End maintenance
View Planning Sessions and Scenarios	✔	✔	✔	Managing the Access Rights
Visualizations	✔	✔	✔	Provides seamless functioning experience to analysts, planners and reviewers
Share Planning Sessions	✔	X	X	
Scenario Creation and Collaboration	✔	✔	X	Maintaining visual connections
Share Scenario	✔	✔	X	

- **Analyst:** Suppose a business analyst/analyst executive needs to understand and operate on the finer nuances of the application. In such a case, the user can create planning sessions and perform advanced analytical functions.
- **Planner:** If the business analyst wants to be a part of all the processes that occur after the data loading, the planner can be adopted. In such a case, the user can create new scenarios and modify shared scenarios when required.
- **Reviewer:** The reviewer will not have access to edit the scenarios or any of the underlying assumptions for their creation. You can use this option to develop a unique source of engagement point where a non-affiliated member or other people looking for insight can be granted access to only review the previously generated and shared scenarios.
- **The Axtria Administrator:** Maintains and supports the backend while aiding all three roles for a seamless experience along with their functions.

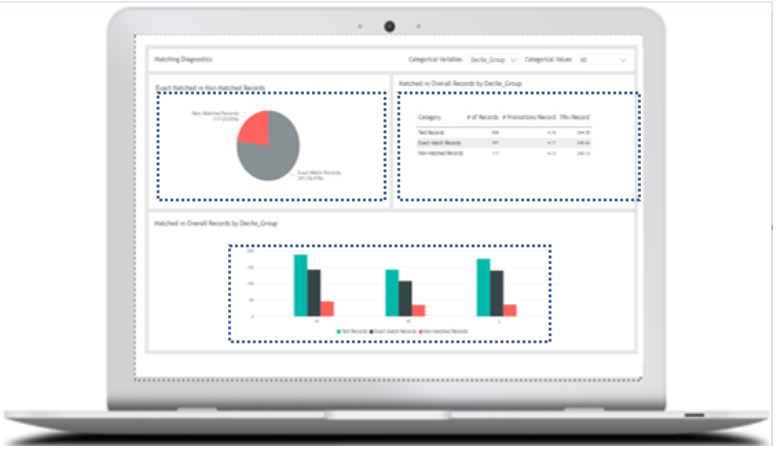
4. PRESEASON: PLAY #4: DATA VISUALIZATION

The data visualization is the key to making the marketing analytics study eye-opening. The Campaign Planning & Measurement uses an interactive series of visualizations represented as a story. The flow of these output views is highly intuitive and communicates the relationship among all possible combinations of input scenarios to calculate the returns on your marketing campaign investments. Such comparative analysis simplifies the cognizance for insights among the view of the stakeholders.

For all intended users, the Campaign Planning & Measurement app allows intuitive visualizations by granting complete access to the users for an in-depth analysis of a scenario. The study involves bar charts and graphical statistics explaining the underlying information and data relationships, which results in faster decision making. The application empowers pharma marketers to enhance their data understanding and clarity by providing proactive high-level and low-level visualization to anticipate their brand team's needs. These visualizations further make it apparent where the outliers are and what questions we need to ask. A fundamental belief of all data related activity is that visualization often helps generate cognizance for insights among all who view this, without any need to engage with data directly and repeatedly.



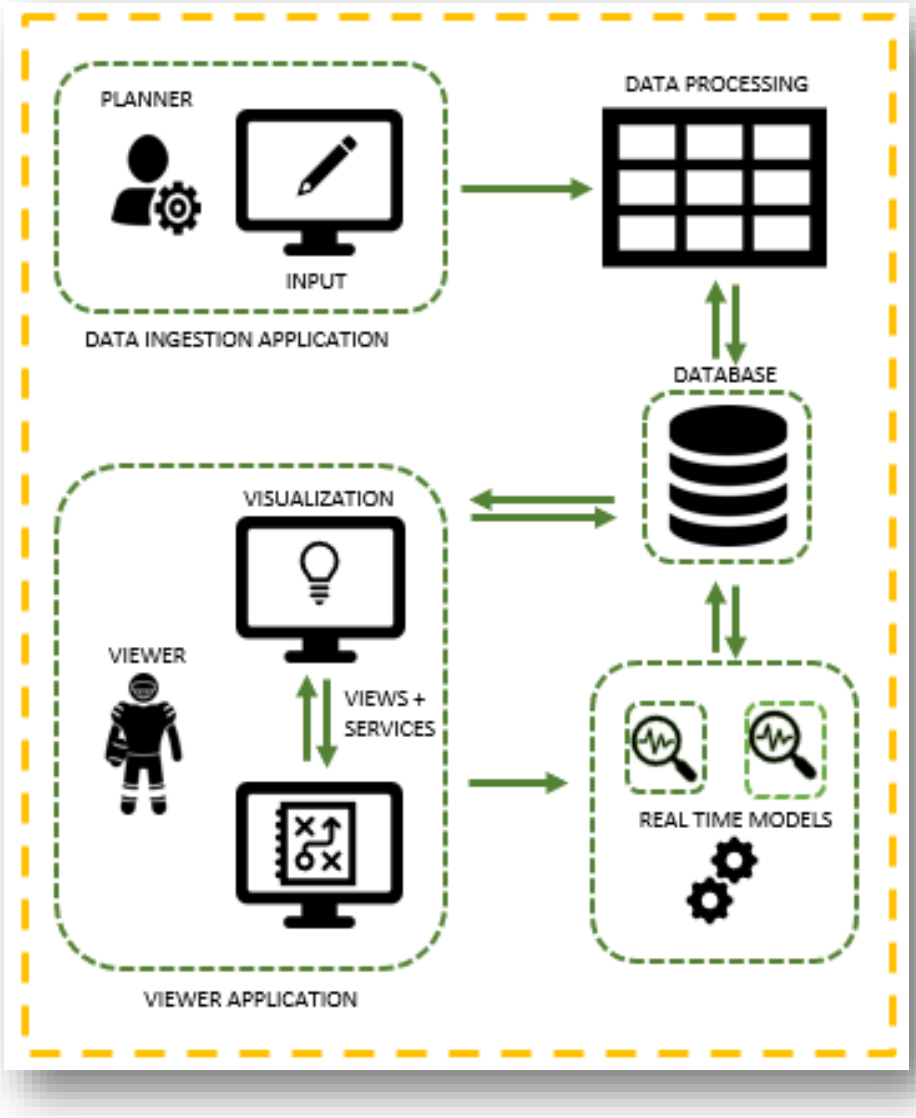
HIGH-LEVEL VISUALIZATION



LOW-LEVEL VISUALIZATION

5. PRODUCT CAPABILITY (TECHNICAL ARCHITECTURE)

Campaign Planning and Measurement app works as a plug-and-play software where the Axtria admin team establishes user roles required by the company and helps set up the application for the subscriber with necessary data input connections for processing through Axtria's cloud servers. After the setup completion, the app takes over as a scalable product to accommodate as many users (subscribers) as required by the teams. Once the application is up and running, the components and interactions below make up the structure of the application's robust framework:



The Data Ingestion Application: The data ingestion application can be connected to a repository for ingestion as and when required or can be uploaded manually by the subscriber with analyst access for further processing and, eventually, visualization.

The Viewer Application: The viewer application entails the user to view interactive visualizations and make edits / deep dives/zoom outs if necessary. The admin can share views on this application with multiple users with viewer access. The app is built on a robust Python Django Framework. Through interactions on this component, the underlying modeling engine is called into action. The basic front-end framework is built in HTML, CSS, and J Query scripts.

The Data Processor: The data processor performs various actions and validations on the data until it's fit to enter into the database. The viewer application then provides a trigger through the interaction mechanism with the analyst.

The Modeling Engine: The modeling engine processes the data in R Programming Language for statistical analysis and business logic application. The results of this application are fed to the database after processing. The Visualization tool (Power BI), accesses the R modeled data from the database to display the dashboard through Viewer Application.

The Database: The Database is built on Microsoft SQL Server and utilizes the Microsoft Azure Cloud Architecture, which provides a secure mechanism for data handling, which is necessary for the users of this application. The database and the schema provide the entire backbone for the functioning of this application.

6. SUPPORT AND INCIDENT MANAGEMENT

The section describes the steps involved in handling of multiple incident scenarios under implementation umbrella. It details the standard operating procedures for product setup, support, troubleshooting and servicing steps and escalation management.

a. PRODUCT SETUP

The overall setup is achieved in two steps, i.e., System Configuration and User Access.

a. **System Configuration:** This covers the implementation of Campaign Planning & Measurement App for subscribers and pushing the required data onto the Axtria Marketing IQ after ensuring the subscriber data format properly aligned with our required data structure.
b. **User Configuration:** Once the subscribers agree with Axtria's terms and conditions, Axtria will provide the app credentials (login and password) to the users specified by these subscribers.

b. TRAINING

Axtria conducts multiple training sessions discussed below where they train users on how to upload files, and to run and view scenarios on the app. If required, you can avail the additional training sessions, which will subject to extra charges as applicable.

c. SERVICE REQUEST AND TROUBLE-SHOOTING

The Axtria Support team manages the service and support requests as incidents in the following series of steps:

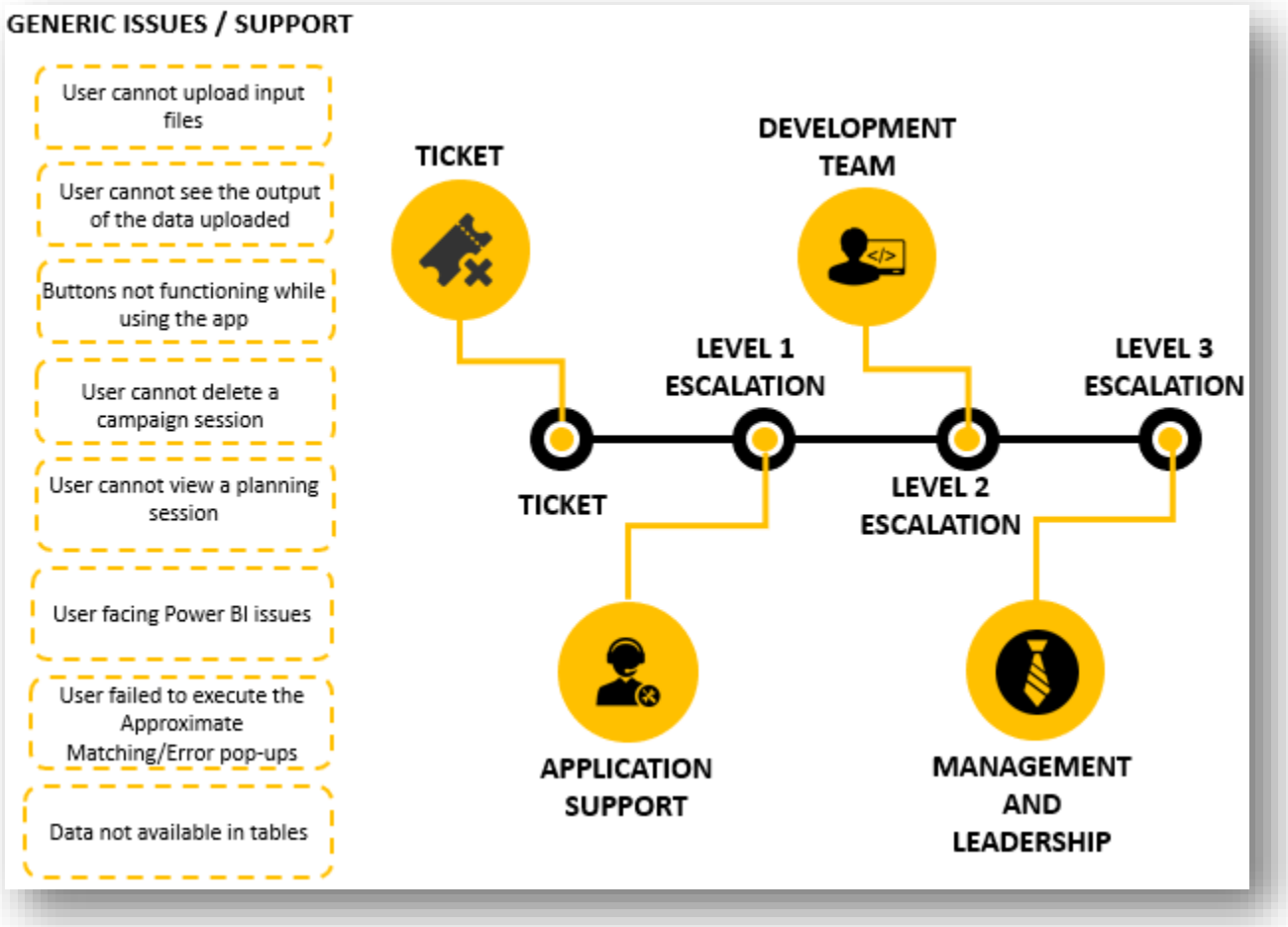
a. **Incident Classification:** Following are the types of incidents that the support team handle:
   - User Addition Execution (Addition, Modifications, Roles, Permissions): To serve additional user requests through the new subscriptions, the backend team extend the application for new users and modify their roles as per requirements.
   - Data Input Execution: Facing issues while manually inputting/uploading the excel data files onto the application
   - Data Output Execution (Visualization issues, Power BI dashboards/reports issues, user cannot see the output of the data uploaded)
   - Functionality Execution: (Button not functioning, inability to create a campaign session, failure execution of the approximate matching, error pop-ups)
   - Session Deletion Execution: Inability to delete a campaign session
   - Data unavailability: (Data not available in tables, user cannot view a planning session)

b. **Incident Prioritization:** The team Axtria prioritizes the incidents raised by the users as per the SLAs.
c. **Incident Execution:** The support team logs the incident as a ticket and initiates the procedure described in section 6.4 below.
d. **Incident Notification:** The client receives a notification after the incident resolved.

d. ESCALATION FLOW MANAGEMENT

You may follow the steps below for ticket logging and escalation:

- Ticket logging and prioritization
- L1- Implementation/Business
- L2- Application Development (if the ticket not solved by L1 support)
- L3- Management and Leadership (if the ticket not solved by L2 support)
- Incident report generation



7. PRODUCT PRICING AND DEMONSTRATION

Meet the business needs and budget of your brand manager with a competitive subscription (per brand and user) based pricing. The details about pricing will be available on request. Get in touch with us to schedule a free product demonstration! We'd love to hear from you!

Call Us At

+1-877-929-8742

E-mail Us At

info@axtria.com

Register yourself with us at

https://www.axtria.com/company/contact/

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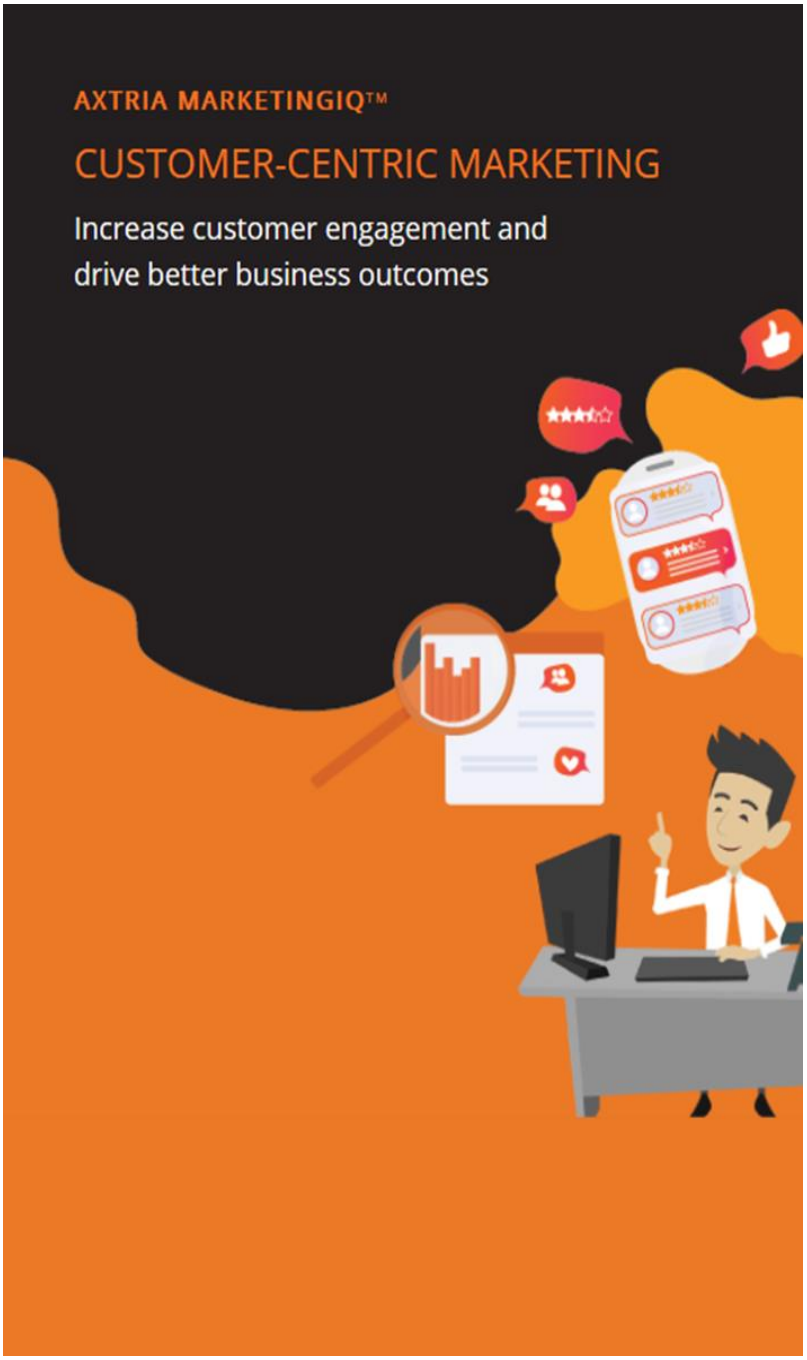
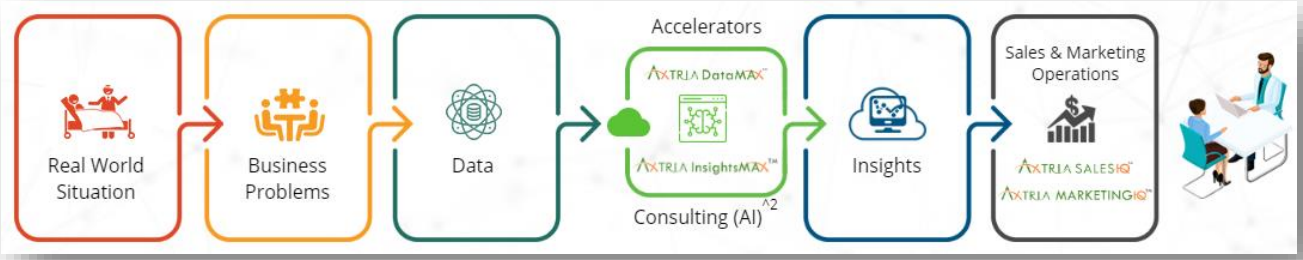


AXTRIA'S ROLE IN THE INDUSTRY

Axtria is a global software and data analytics provider to the Life Sciences industry powered with multitudes of experience providing best in class solutions devised by the most insightful people. We combine strong process knowledge of life sciences commercial operations, data analytics, and software. With consulting and cloud-based solutions, we enable life science companies with the digital transformation of their data to insights into the operations journey. The result is a future-ready outlook with improvement in sales and marketing effectiveness via data-driven decision making, the increase in efficiency, and organization agility.



With customers in over 30 countries, Axtria is transforming product commercialization by turning real-world and commercial data into insights, enabling simultaneous commercial operations, and powering real-time decision-making.

Our flagship products, Axtria SalesIQTM, Axtria MarketingIQTM, and Axtria DataMaxTM, deploy AI/ML, and our customers reap benefits of a modern cloud-based infrastructure through improved customer engagement, increased sales, and efficient business processes. The platforms are the most advanced and built specifically for the life-science industry.