



ENABLING QA THROUGH ANAPLAN MODEL TESTING

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Abstract

Anaplan is a cloud-based platform that can create various business models to meet different organizational planning needs. However, the test strategy for Anaplan varies depending on the application platform, cross-track dependencies and the type of testing. This white paper examines the key best-practices that will help organizations benefit from seamless planning through successful Anaplan testing.

What is Anaplan?

Anaplan is a cloud-based operational planning and business performance platform that allows organizations to analyze, model, plan, forecast, and report on business performance. Once an enterprise customer uploads data into Anaplan cloud, business users can instantly organize and analyze disparate sets of enterprise data across different business areas such as finance, human resources, sales, forecasting, etc. The Anaplan platform provides users with a familiar Excel-style functionality that they can use to make data-driven decisions, which otherwise would require a data expert. Anaplan also includes modules for workforce planning, quota planning, commission calculation, project planning, demand planning, budgeting, forecasting, financial consolidation, and profitability modelling.

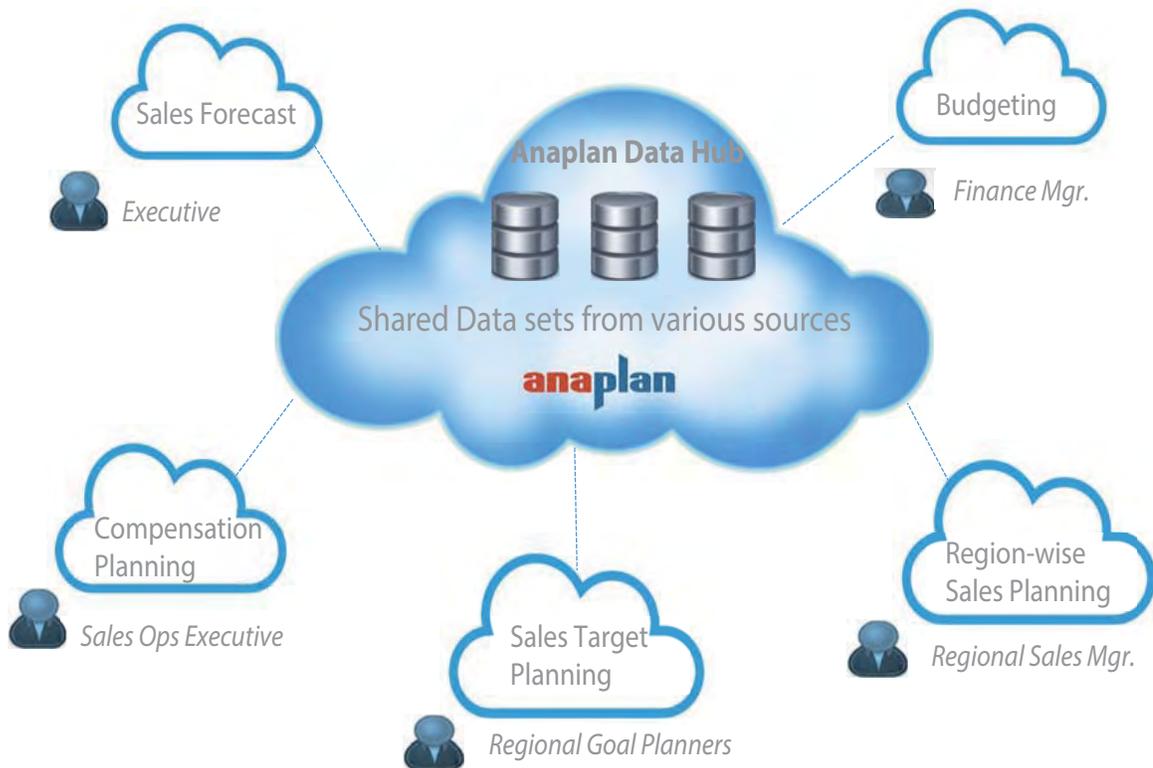


Fig 1: Illustration of an Anaplan model

7 best-practices for efficient Anaplan testing

1. Understand the domain



As Anaplan is a platform used for enterprise-level sales planning across various business functions, its actual users will be organizational-level planners who have an in-depth understanding of their domains. Thus, to certify the quality of the Anaplan model, QA personnel must adopt the perspective of end-users who may

be heads of sales compensation or sales operations departments, sales managers, sales agents, etc.

2. Track Anaplan data entry points



One of the features that makes Anaplan a popular choice is its provision of a wide range of in-built and third-party data integration points, which can be used to easily load disparate data sources into a single model. For most business users, data resides across many granular levels

and it cannot be handled reliably with traditional Excel spreadsheets. Anaplan offers a scalable option that replaces Excel spreadsheets with a cloud-based platform to extract, load and transform data at any granular level from different complex systems while ensuring data integrity.

It is essential for QA teams to understand the various up-stream systems from where data gets extracted, transformed and loaded into the Anaplan models. Such data also needs to be checked for integrity.

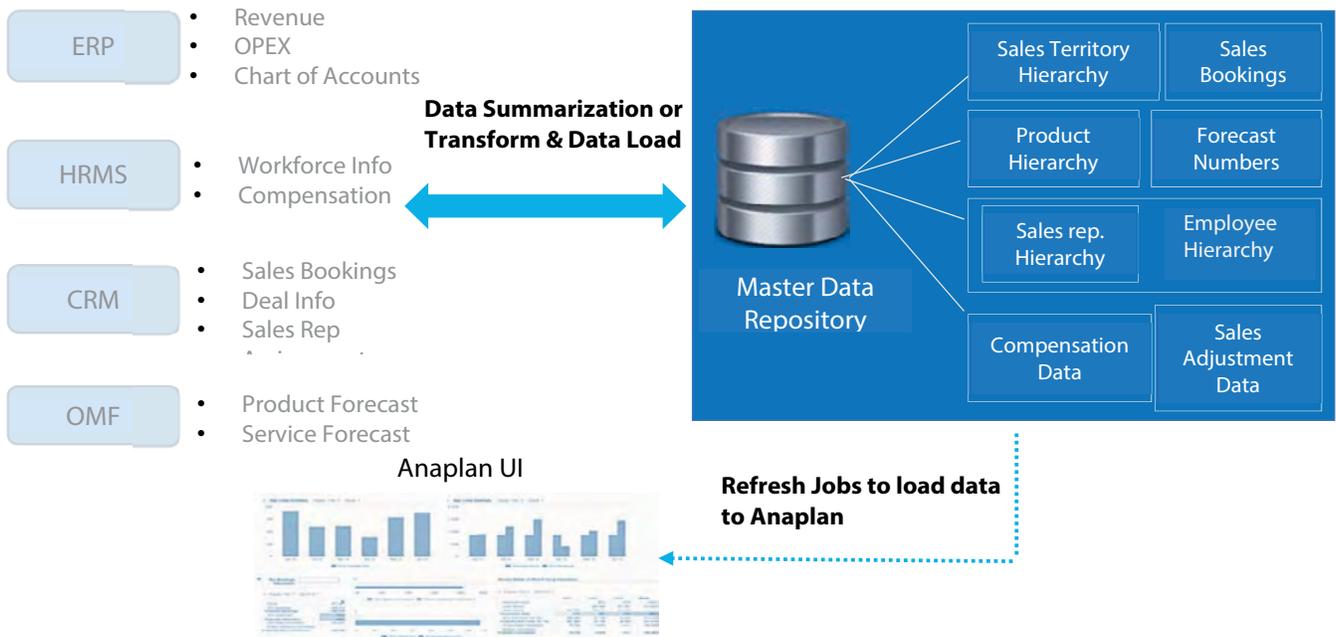


Fig 2: Representation of Anaplan data integration



3. Ensure quality test data management



The quality of test data is a deciding factor for testing coverage and completeness. Hence, the right combination of test data for QA will optimize testing effort and cost. Since Anaplan models cater to the financial, sales, marketing, and forecasting domains of an organization, it is essential to verify the accuracy of the underlying data. Failure to ensure this could result in steep losses amounting to millions of dollars for the organization. Thus, it is recommended that the QA teams dedicate a complete sprint/cycle to test the accuracy of data being ingested by the models.

The optimal test data management strategy

for testing data in an Anaplan model involves two steps. These are:

- Reconciling data between the database and data hub – Data from the source database or data files that is received from the business teams of upstream production systems should be reconciled with the data hub. This will ensure that the data from the source is loaded correctly into the hub. In cases of hierarchical data, it is important to verify that data is accurately rolled up and that periodic refresh jobs are validated to ensure that only the latest data is sent to the hub according to the schedule.
- Loading correct data from the hub into the model – Once the correct data is loaded into the hub, testing moves on to validate whether the correct data is loaded from the hub to the actual Anaplan model. This will ensure that the right modules are referenced from the hub in order to select the right data set. It also helps validate the formulas used on the hub data to generate derived data. For every model that is being tested, it is important to first identify the core hierarchy list that forms the crux of the model and ensure that the data is validated across every level of the hierarchy, in addition to validating the roll-up of numbers through the hierarchy or cascade of numbers down the hierarchy as needed.



4. Validate the cornerstones



It is a good practice to optimize test quality to cover cornerstone business scenarios that may be missed earlier. Some recommendations for testing Anaplan models are listed below:

- Monitor the periodic data refresh schedules for different list hierarchies used in the model and validate that the data is refreshed on time with the latest production hierarchy
- As every model may have different user roles with selective access to dashboards, ensure that functional test cases with the correctly configured user roles are included. This upholds the security of the model since some dashboards or hierarchical data should be made visible only to certain pre-defined user roles or access levels
- The Anaplan model involves many data fields, some of which are derived from others based on one or more business conditions. Thus, it is advisable to include test scenarios around conditions such as testing warning messages that should be displayed, or testing whether cells that need to be conditionally formatted based on user inputs that either pass or fail the business conditions

5. Use automation tools for faster validation



IT methodologies are evolving from waterfall to agile to DevOps models, leading to higher releases per year, shorter implementation cycle times and faster time-to-market. Thus, the test strategy of QA teams too should evolve from the waterfall model. Incorporating automation in the test strategy helps keep pace with shorter cycle times without compromising on the test quality. Anaplan implementation programs leverage agile and possess a wide range of testing requirements for data, integration and end-to-end testing, thereby ensuring that testing is completed on time.

However, there are times when it becomes challenging to deliver maximum test coverage within each sprint because

testing Anaplan involves testing each scenario with multiple datasets. Thus, it is useful to explore options for automating Anaplan model testing to minimize delays caused during sprint testing and ensure timely test delivery. Some of these options include using simple Excel-based formula worksheets and Excel macros along with open source automation tools such as Selenium integrated with Jenkins. This will help generate automated scripts that can be run periodically to validate certain functionalities in the Anaplan model for multiple datasets. These options are further explained below:

Reusable Excel worksheets – This involves a one-time activity to recreate the dashboard forms into simple tables in Excel worksheets. The data fields in Anaplan can be classified into 3 types:

- Fields that require user input
- Fields where data is populated from various data sources within Anaplan or other systems
- Fields where data gets derived based on defined calculation logic. Here, the formula used to derive the data value is embedded into the Excel cell such that the derived value gets automatically calculated after entering data in the first two kinds of fields

Using such worksheets accelerates test validation and promotes reusability of the same Excel sheet to validate calculation accuracy for multiple data sets, which is important to maintain the test quality :

- Excel macros – To test the relevant formula or calculation logic, replicate the Anaplan dashboard using excel macros. This macro can be reused for multiple data sets, thereby accelerating and enhancing test coverage
- Open source tools – Open source tools like Selenium can be used to create automation scripts either for a specific functionality within the model or for a specific dashboard. However, using Selenium for Anaplan automation comes with certain challenges such as:
 - › Automating the end-to-end scenario may not be feasible since Anaplan requires switching between multiple user roles to complete the end-to-end flow

- › The Anaplan application undergoes frequent changes from the Anaplan platform while changes in the model build require constant changes in the scripts
- › Some data validation in Anaplan may require referencing other data sets and applying calculation logic, which may make the automation code very complex, causing delays in running the script

6. Ensure thorough data validation



Anaplan can provision a secure platform to perform strategic planning across various domains. It provides flexibility and consistency when handling complex information from distinct data sources from various departments within the same organization. Identifying the correct underlying data is crucial for successful quality assurance of business processes using the Anaplan model. There are two key approaches when testing data in Anaplan. These include:

- User access level – Business process requirements in some Anaplan models allow only end-users with certain access levels to view data and use it for planning. For instance, a multi-region sales planning model will include sales planners from different sales regions as end users. However, users should be allowed to only view the sales, revenue and other KPIs pertaining to their region as it would be a security breach to disclose the KPIs of other sales regions
- Accuracy of data integrated from various systems – When the data being tested pertains to dollar amounts, for example, sales revenue, it is critical to have a thorough reconciliation of data against the source because a variation of a few dollars could lead to larger inaccuracies or discrepancies when the same data is rolled up the hierarchy or used to calculate another data field

Since most Anaplan models contain business-critical numbers for financial reporting, it is important to run thorough tests to ensure accuracy.



7. Integration testing



Integration testing should be an integral part of the testing strategy for any Anaplan application. Typically, there are multiple integration points that may have to be tested in an Anaplan implementation program owing to:

- Different data integration points – Disparate data sets are imported into the data hub and then into the Anaplan models using different kinds of integration options such as flat files, Anaplan connect, Informatica, in-built data import, etc.
- Different Anaplan models – There may be more than one Anaplan model being

implemented for a medium to large-scale organization for different kinds of planning. These need to be integrated with each other for smooth data flow. For instance, the output of a model built exclusively for sales forecasting may be an important parameter for another model that deals with sales planning across an organization's regional sales territories. Thus, besides testing the integration points between these models, it is advisable to have dedicated end-to-end cycle/sprint testing with scenarios across all these models and the integrated systems

- Different data sets – The periodic refresh of data sets used across Anaplan models happens through Informatica,

manual refresh, tidal jobs, etc. QA teams should understand how each data set is refreshed, identify the relevant job names and test these to ensure that the latest active hierarchy is periodically refreshed and loaded into the model. This will eliminate inaccuracies arising from data redundancies owing to inactivation or changes in the data structure in the upstream systems

Anaplan implementation programs can be either standalone or inter-linked models. Irrespective of the type of implementation, an approach that follows the 7 best practices outlined in this paper will help QA teams optimize their strategy for Anaplan test projects.

Conclusion

Anaplan's cloud-based, enterprise-wide and connected platform can help global organizations improve their planning processes across various business sectors. The Anaplan model is a simple, integrated solution that enables informed decision-making along with accelerated and effective planning. The strategic approach is one that leverages domain knowledge, test data management, automation, data validation, and integration testing, to name a few. The Infosys 7-step approach to effective Anaplan testing is based on our extensive experience in implementing Anaplan programs. It helps testing teams benefit from the best strategy for QA across various business functions, thereby ensuring smooth business operations.



References

<https://www.anaplan.com>

For more information, contact askus@infosys.com



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