



Faster and Better Decisions with **Power BI and Solver**

The Best of Cloud-based BI & CPM for
Modern Reporting, Analysis and Budgeting

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Introduction

The purpose of this white paper is to provide an overview of Power BI as a visualization solution that extends Solver's financial reporting and budgeting functionality with world-class analysis.

Power BI has risen to become the world's leading Business Intelligence (BI) solution, ahead of other visualization tools like Tableau and Qlik. At the same time, Solver has become a leader in Corporate Performance Management (CPM), by streamlining financial reporting and planning processes. Both solutions are tightly integrated and available globally in the Microsoft Azure cloud.

This white paper is focused on Power BI and the integration to Solver, and not Solver itself. Please see Solver's web-site for more information on Solver.

For the latest information or to discuss your specific needs, please contact your local Solver partner, visit Solver's [web-site](#) or email us at info@solverglobal.com.

Product Summary

Solver provides a single, cloud-based solution that automates reporting and planning processes, and supports faster and better decisions based on key information from across the organization's data sources.

Key benefits that Solver provides include:

- A top-rated Corporate Performance Management (CPM) solution by G2 based on user satisfaction
- Global partner channel with industry expertise to help you whenever and wherever
- Cloud software, support, and upgrades, packaged into a subscription price, providing unmatched ROI over traditional CPM solutions
- Built for business users to manage the entire solution without the need for developers
- Executive and management data from across the organization that is easily accessible in ONE place with Solver's intelligent *Data Warehouse*
- Solver's multi-tenant cloud application provides quick initiation, SOC 2 compliance, automatic software upgrades, and scalability at one's convenience
- Solver provides the power and the familiarity of cloud-connected Excel to solve the most complex formula and layout requirements for reporting and planning template designers
- Easy-to-use, pre-built integration to Power BI, the world's #1 visualization solution
- Fast and cost effective integrations provided with Solver's wizard-driven CSV, SQL, and prebuilt ERP/CRM Connectors
- Unlimited access to reports and dashboards from secure web portal
- Hybrid cloud option provides customers with real-time cloud reporting capabilities for their on-premise ERP system

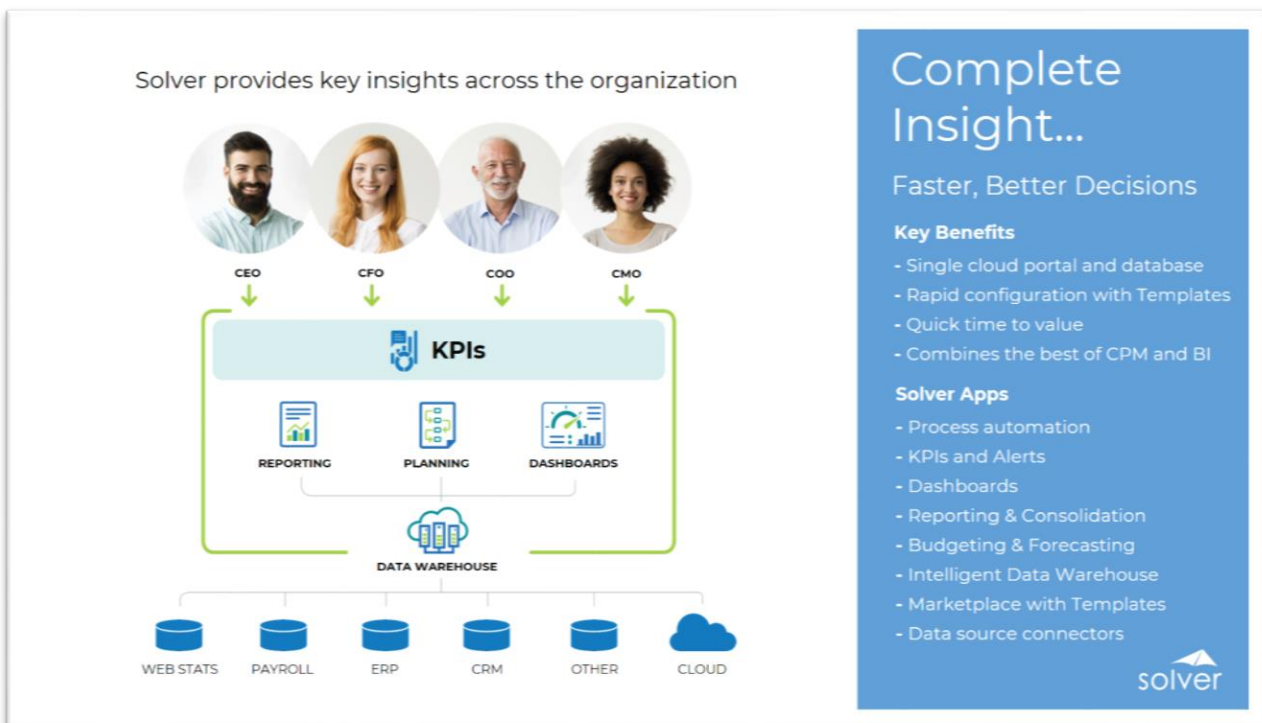


Figure 1. Solver architecture overview

Company Summary

Solver, Inc. is redefining the category of cloud-based reporting and planning. The Solver solution is built to enable faster and better business decisions across the entire organization. Solver combines financial and other key data into a single tool, powered by the most flexible report and planning form designer on the market. Organizations use this solution to automate and streamline financial and operational reports, consolidations, and budgeting and forecasting processes. Solver empowers users with complete insight that drives intelligent decisions and competitive advantages. Headquartered in the United States, Solver, Inc. has more than a dozen offices and hundreds of partners globally that provide local and industry expertise. To learn more, visit www.solverglobal.com.

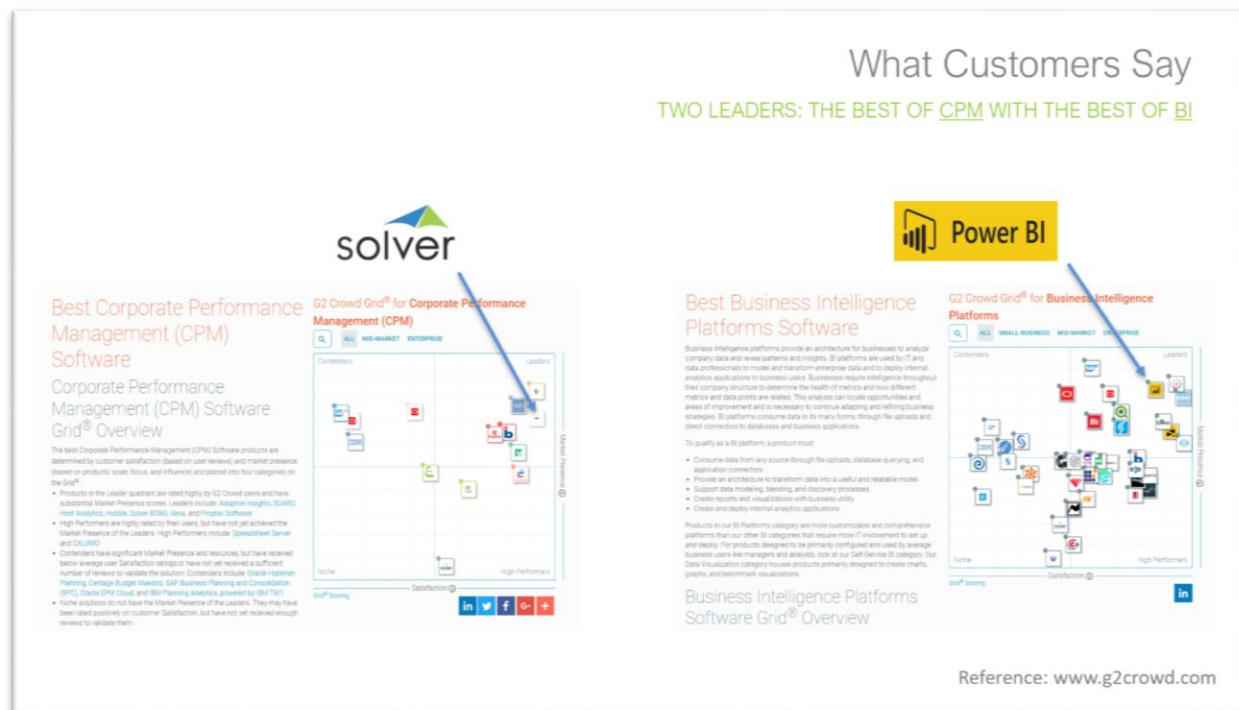
Why Power BI as a Visualization tool for Solver?

The below list summarizes some of the benefits that Power BI brings to Solver customers.

Complimentary Best of Breed Solutions (vs all-in-one approach)

As technology drives rapid change across all industry verticals and across all departments in a company, it is more important than ever to constantly monitor the “pulse” of the business with KPIs, financial reports and interactive analysis, while at the same time projecting the future through accurate budgets and forecasts. A significant portion of this job falls on the Office of Finance, and modern cloud-based Business Intelligence (BI) solutions like Power BI and Corporate Performance Management (CPM) solutions like Solver are the tools specifically made for these tasks.



Solver and Power BI are a natural fit together, each product being a leader in the G2 quadrants for CPM and BI respectively. While Solver is tailored for Corporate Performance Management (Financial Reporting, Consolidations and Planning), Power BI is mainly focused on visualization.



While some CPM solutions offer simple graphics capabilities, most organizations these days end up deploying best-of-breed dashboard solutions like Power BI to

fulfill more comprehensive analysis needs across departments and management teams. The result is that companies often wind up acquiring multiple visualization tools that staff need to learn and duplicate efforts to maintain KPIs and data models. Solver, on the other hand, takes a best-of-breed approach by remaining focused on CPM functionality and instead integrating tightly to Microsoft's Power BI, the world's dashboard leader, according to both Gartner Group and G2.

In the table below, it is easy to see how the two solutions compliments each other to satisfy all the analytics, reporting and planning needs of an organization.

| Enabling Faster and Better Decisions | | |
|---|---|---|
| WITH THE BEST OF BI & THE BEST OF CPM | | |
| <div>   </div> | | |
| Features and Functionality | | |
| Software category: business intelligence (BI) solution | ✓ | |
| Software category: corporate performance management (CPM) solution | | ✓ |
| Input forms for budgeting and forecasting (Excel add-in to web forms) | | ✓ |
| Workflow for budgeting process | | ✓ |
| Business data warehouse (SQL Azure) combines financial and operational data | | ✓ |
| Financial report writer for P&L, balance sheet, cash flow | | ✓ |
| Built-in financial rules for currency conversion and eliminations | | ✓ |
| Tree builder for financial consolidations | | ✓ |
| Dashboard designer | ✓ | |
| Rich, interactive graphical visualizations | ✓ | |
| Cloud dashboard portal | ✓ | |
| Natural language queries for easy and quick answers | ✓ | |
| Ad-hoc reporting | ✓ | |

Pre-built connector approved by Microsoft and delivered from within Power BI

With Solver's pre-built Power BI connector, users safely and easily transfer data, dimensions and data schema from Solver and into their Power BI models, often saving weeks of manual work that otherwise has to be performed by technical Power BI experts. The connector is Microsoft-certified and available from within Power BI. Data refresh can be automatically scheduled to keep dashboards updated with no human effort involved.

Microsoft Investment to keep Power BI as top ranked BI solution

The top benefit of using Power BI as the visualization tool for Solver is that customers get to use the world's number one dashboard solution and thanks to Microsoft's massive, ongoing investments in Power BI, they can rest assure that they always have the best functionality on the market available to them.

Single cloud platform for Solver and Power BI

Both Power BI and Solver are running in Microsoft's Azure cloud. With a single, globally available cloud platform for both BI and CPM, customers not only benefit from everything Microsoft continuously adds to their Azure functionality and services, but they can also rest assured that Microsoft, the world's largest technology company, is keeping their cloud up and running and that they are always working to improve it.

Existing and rapidly growing Power BI skillset in the workforce

One of the advantages of using Power BI with Solver is that there is a very large pool of skilled resources to draw from worldwide, whether you are looking for in-house staff, contractors or partners.

Dual use of Power BI licenses

A rapidly increasing number of companies already own or plan to purchase Power BI licenses for various uses in their organizations. Other than for Solver's API, this can eliminate the need to pay anything extra because they can reuse the same Power BI licenses for Solver. A major additional advantage is that there therefore is no need to learn and maintain multiple dashboard tools.

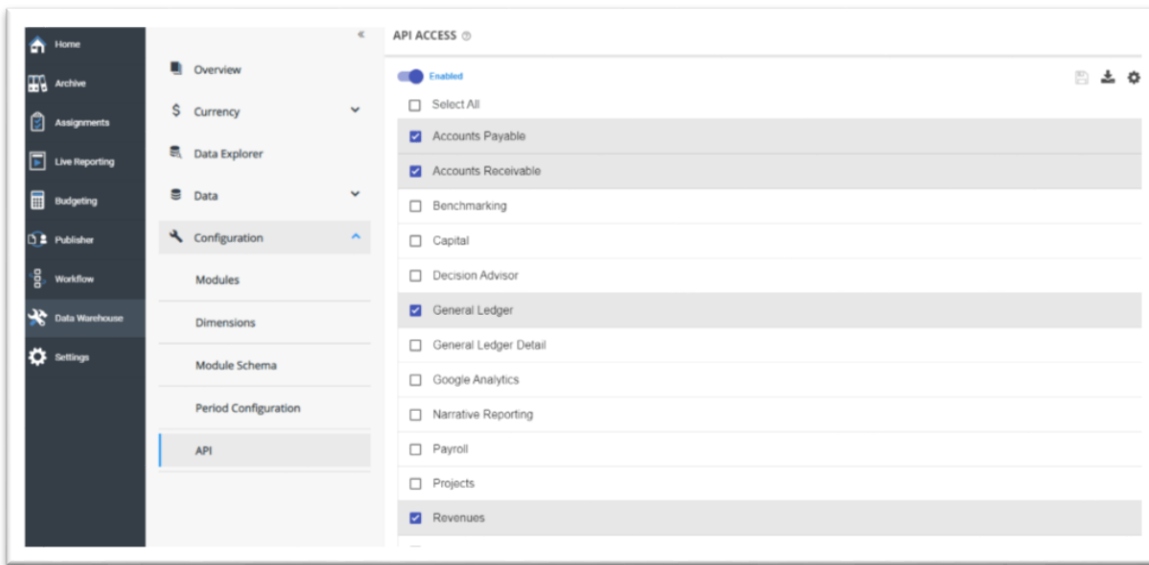
Easy Integration – How the pre-built Connector works

There are two simple components required to connect Power BI to Solver:

- 1) The Solver Application Programming Interface (API) for secure Internet access to Solver's cloud database. This user-friendly interface is located inside of the Solver Cloud portal.
- 2) The Microsoft-certified Solver connector for Power BI to load data and dimensions from Solver.

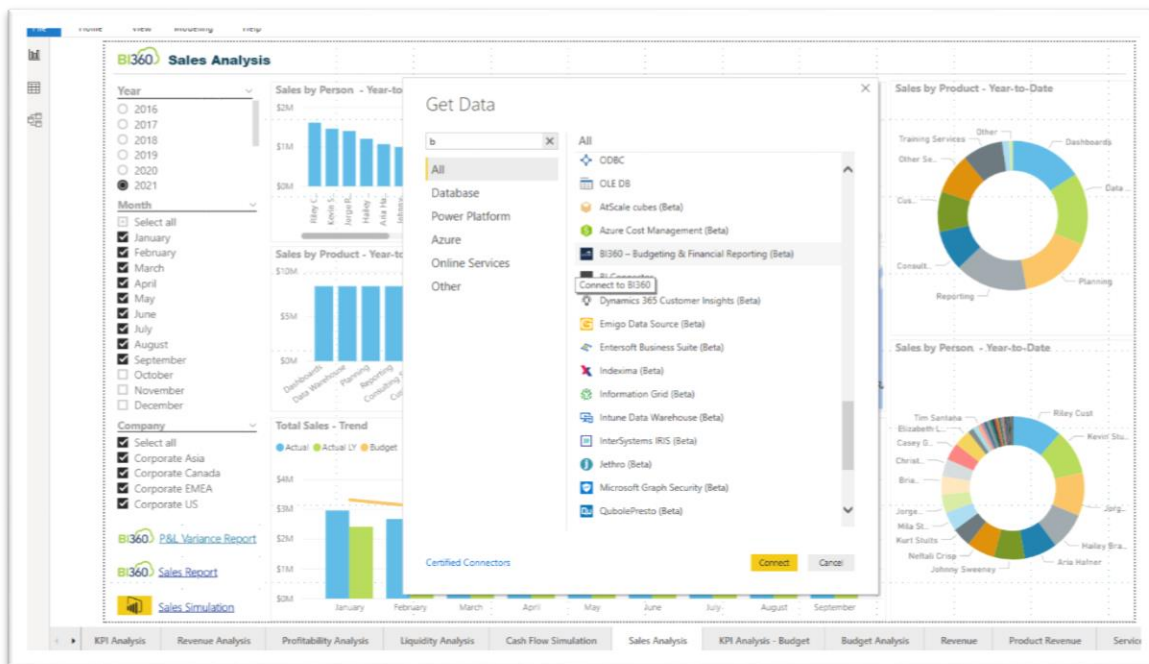
Secure Internet Access with Easy to Configure Solver API

With a few simple clicks, a power user can select the modules in their Solver data model that they want to securely expose to the Power BI connector. The API provides both the URL and the Access Token required by Power BI.



Pre-built and Microsoft approved Power BI Connector

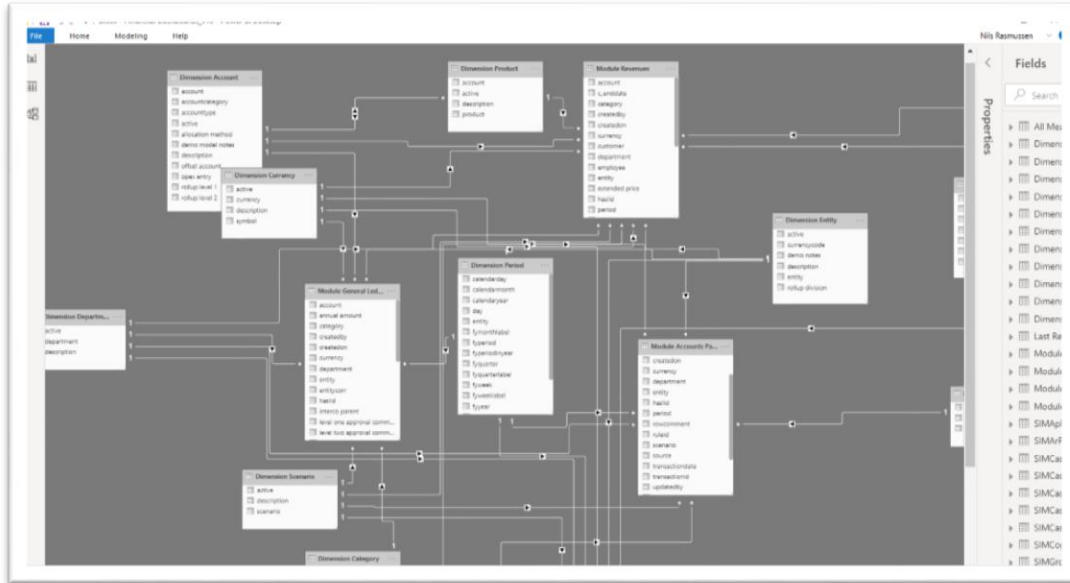
Solver's connector was designed with guidance and approval from the Microsoft Power BI team. It is located in the Get Data menu in Power BI and provides a secure connection to the Solver API.



Solver DW star schema automatically transfers to Power BI

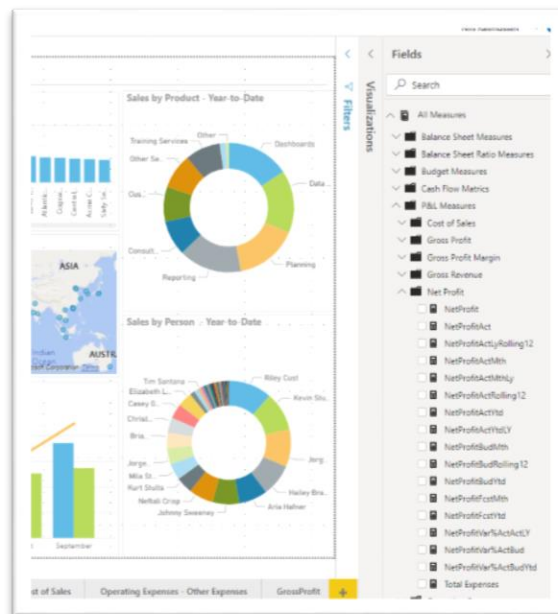
Within a matter of a few minutes and with no technical skills required, a power user has configured Solver's API and the Power BI connector. At this point, data and dimensions can be loaded into Power BI. Perhaps the most valuable time- and effort

saving lies in the fact that the Solver's data structure (for data and dimensions checked off in the API), a so-called star-schema, is also transferred to Power BI, eliminating the need to also set it up there.



Pre-built Power BI KPIs for Solver

More than 200 pre-built Power BI KPIs are available for Solver, which can save days of implementation time.



Pre-built dashboard templates

While Power BI has a large number of visuals available for custom designed dashboards, there are also a number of free, prebuilt Power BI dashboard templates available for Solver with a focus on financial, sales and budget data, including interactive simulations for sales, marketing and cash flow.

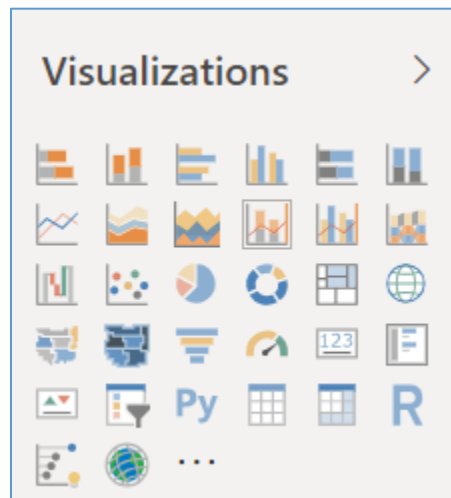


Power BI Features important to Solver customers

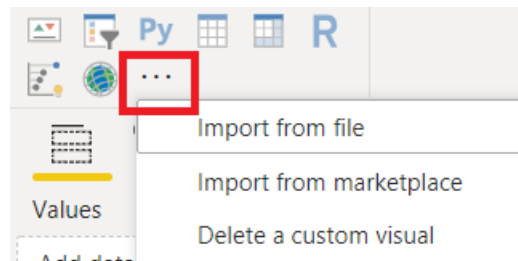
World-class Visualization

Visualizations provide a graphical view of relationships and insights that have been discovered in your data. A Power BI report can consist of a single page with one visual, or it might have multiple pages full of visuals. In the Power BI service, visuals can be pinned from reports to dashboards.

There are many different visual types such as bar charts, line charts, scatter plots and maps available directly from the Power BI **Visualizations** pane.



From here, you can also import visualizations from the Power BI marketplace or a file containing a custom visualization.



For more visualization choices, you can visit the [Microsoft AppSource community site](#) to find and download custom visuals provided by Microsoft and the Power BI developer community.

Alerts

Power BI's Web Service portal offers easy to set up alerts to notify users by email when a KPI breaches a set threshold.

User security and administration

Once your datasets have been loaded into the Power BI web service, members of any workspaces where those datasets reside will have access to them. You can use the Row-level Security (RLS) feature in Power BI to restrict data access for specific users based on user Roles to which they're assigned. The basic concept is similar to the security model used in Solver. Users are assigned to Roles, and roles can in turn have filters applied to them to restrict access to specific records within tables, such as specific department codes, business Entities, etc.

Roles and filters are created as part of your Power BI data model prior to publishing it into the Power BI web service. Thus, RLS is configured by the power user within Power BI Desktop and works with datasets imported into Power BI desktop, as well as with datasets that are accessed using a live connection to the source via DirectQuery, for example from a SQL Server database.

Sharing Power BI data models and dashboards

Sharing is one of the methods provided in the Power BI Service for granting access to your dashboards and reports to other users. Keep in mind that sharing of content, whether inside or outside your organization, requires a Power BI Pro license. Your recipients will also need Power BI Pro licenses, unless the content you're sharing resides in a Power BI Premium workspace. You can share dashboards and reports from most areas within the Power BI web service such as your Favorites, lists of content shared with you, your personal workspace, or other workspaces you have access to. When you share a dashboard or report, those you share it with can view it and interact with it but can't edit it. The process for sharing is straightforward: in a list of dashboards or reports, or in an open dashboard or report, select Share. You'll then be prompted to enter names of groups with whom to share content, or individual users based on their email address.

Another easy and convenient option for sharing content such as datasets, reports and dashboards with a larger audience is to bundle them together and publish them as an App. Creating an App takes no technical skills and is an easy, wizard-driven process. Power BI Apps address the challenges administrators face when managing permissions on multiple datasets and dashboards, as well as the difficulty end users may have keeping track of all of the available dashboards and learning how to navigate them. Using Power BI Apps, you can easily deploy a collection of purpose-built dashboards and reports to a large number of business users as a content bundle, rather than sharing them all individually. You can distribute apps to the whole organization or to specific people or groups. To publish content such as reports and dashboards using an app, you first add them to an App Workspace, and from there you can publish the contents of the workspace as an app. You can then share the app with multiple users and groups. More information on apps [here](#).

Business users get then get your apps in a few different ways:

- They can find and install your app from Microsoft AppSource.

- You can send them a direct link.
- You can install it automatically in your coworkers' Power BI accounts if your Power BI administrator gives you permission.

You can create the app with its own built-in navigation, so your users can easily find their way around your content. They can't modify the contents of the app. They can interact with it either in the Power BI service, or on the Power BI mobile app—filtering, highlighting, and sorting the data themselves. They get updates automatically and you can control how frequently the data refreshes. You can also give them Build permissions to connect to the underlying datasets, and to create copies of the reports in the app. Read more about the [Build permission](#).

Linking from Power BI to Solver Reports and Input forms

Dashboard designers can insert hyperlinks in Power BI dashboards that link directly to supporting reports and input forms in the Solver Cloud portal, making it easy for users to navigate from Power BI to Solver for deeper analysis, budgeting, forecasting, KPI target input and modelling. Power BI users quickly discover the benefits of access to Solver's strong, formatted financial reporting and input forms with enterprise workflow capabilities.

Automatic Data Refresh from Solver

Once Solver's Power BI connector has been set up in Power BI Desktop and the data model has been published to Power BI web service, it is very easy to configure automatic cloud-to-cloud data refreshes between Solver and Power BI.

Other Beneficial Microsoft Azure Cloud Services

As the global cloud leaders, Microsoft, AWS and Google rapidly expand their international data center locations, they are at the same time building numerous cloud services that customers can take advantage of to improve various aspects of their businesses.

From a Microsoft standpoint, Solver customers that deploy Power BI for visualizations are also likely to keep automating other areas of their business with additional Azure-based cloud services. Some of these are discussed below.

Global Data Centers

Increasingly, governments are requiring financial and other data to remain in their country or region. You can view current Microsoft Azure regions [here](#).

Data Security

While Power BI and Solver have detailed row-level and role-level security, both solutions also benefit from the general security provided by the Microsoft Azure cloud platform. You can read more about this [here](#).

Artificial Intelligence and Machine Learning

Artificial Intelligence (AI) and a sub-set of this field called Machine Learning (ML) are some of the hottest topics to get an edge in business today. An increasing number of organizations use ML models for better insights and predictions about their business.

There are numerous use cases in finance and operations where ML can help detect fraud, intelligently prioritize salespeople's pipeline calls, and create automated forecasts, etc.

With Azure Machine Learning (more information [here](#)) being a major investment area for Microsoft, Power BI becomes a direct beneficiary (more information [here](#)) through pre-built integrations. As described earlier in this paper, Solver feeds data to Power BI, and it is an original data source in areas such as Budgeting and Forecasting, and customers benefit from ML, Power BI and Solver all integrating in the Microsoft Azure Cloud.

Microsoft Office 365, Teams and Other Cloud Services

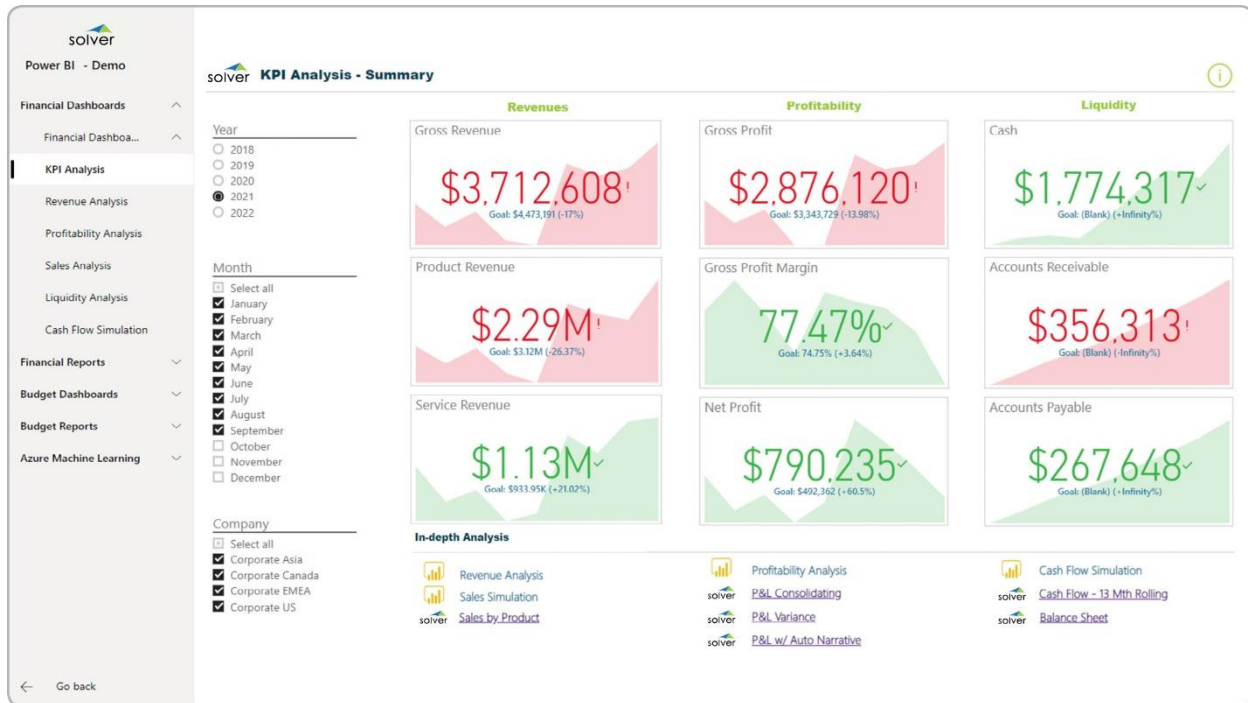
Power BI is part of the Office 365 product family. Like with Solver, this includes excellent Microsoft Excel integration.

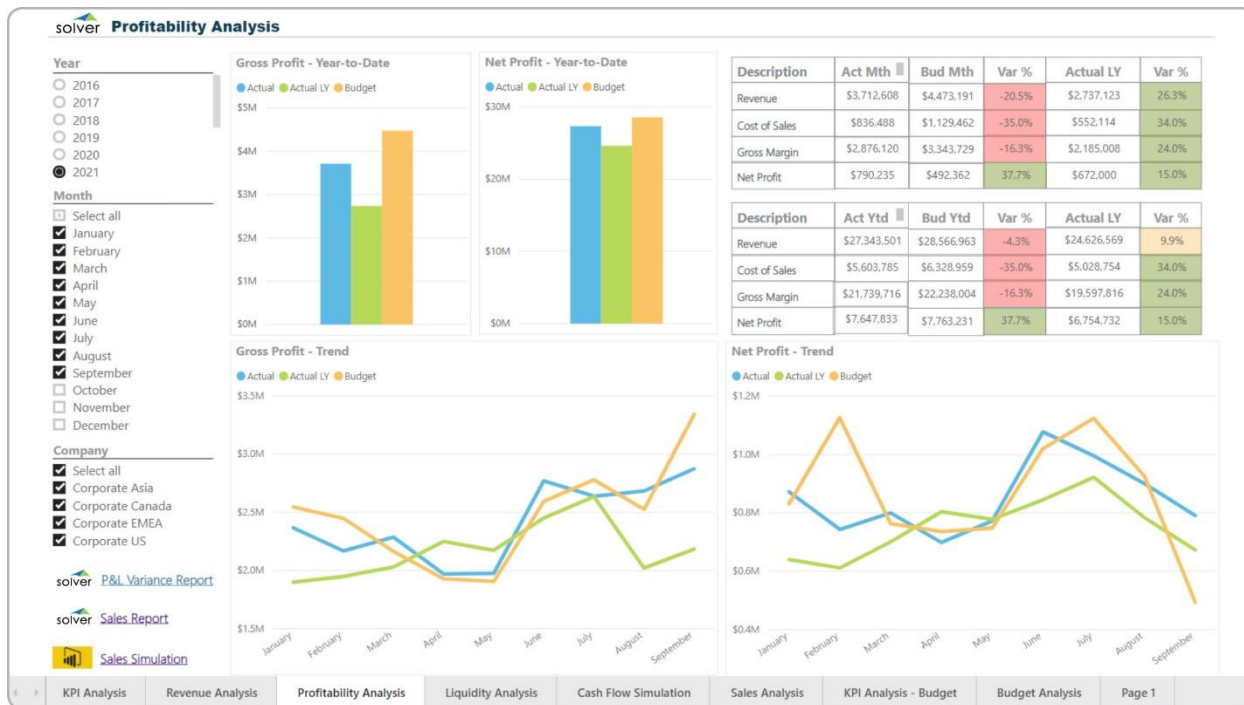
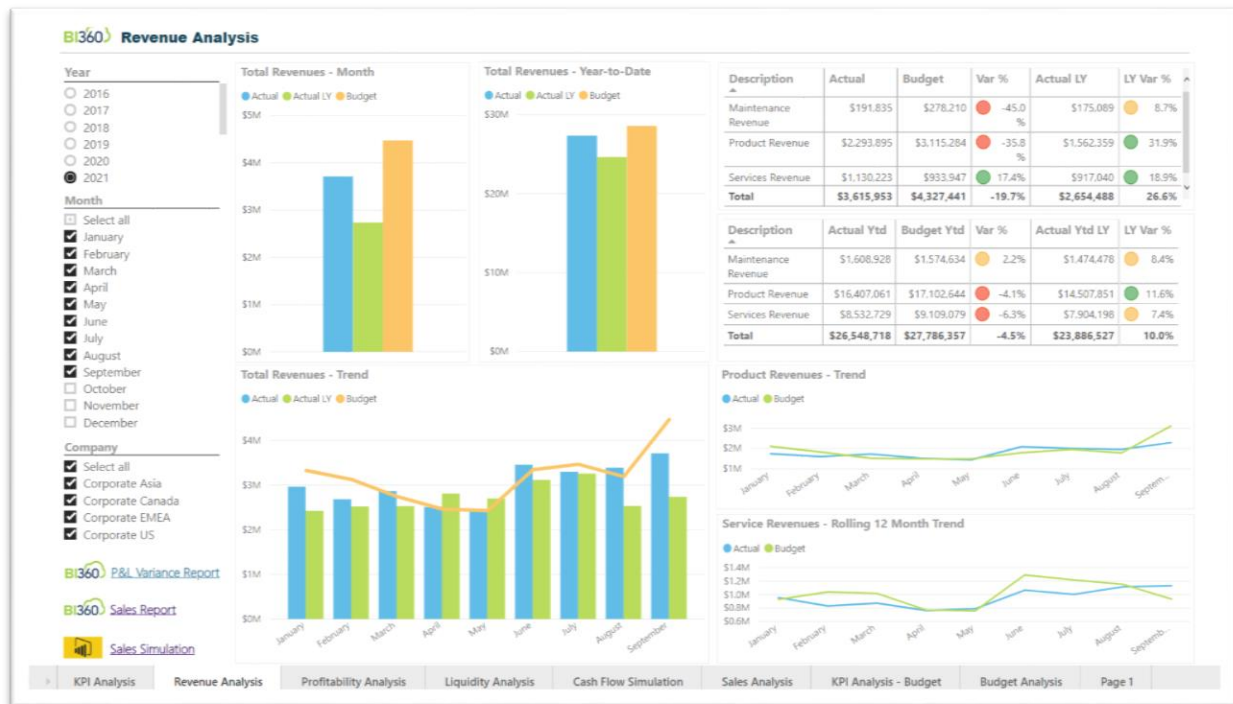
Another rapidly growing Azure service is Teams (more information [here](#)). Microsoft Teams is a unified communications platform that combines persistent workplace chat, video meetings, file storage, and application integration. Power BI is also available as an App inside of Teams.

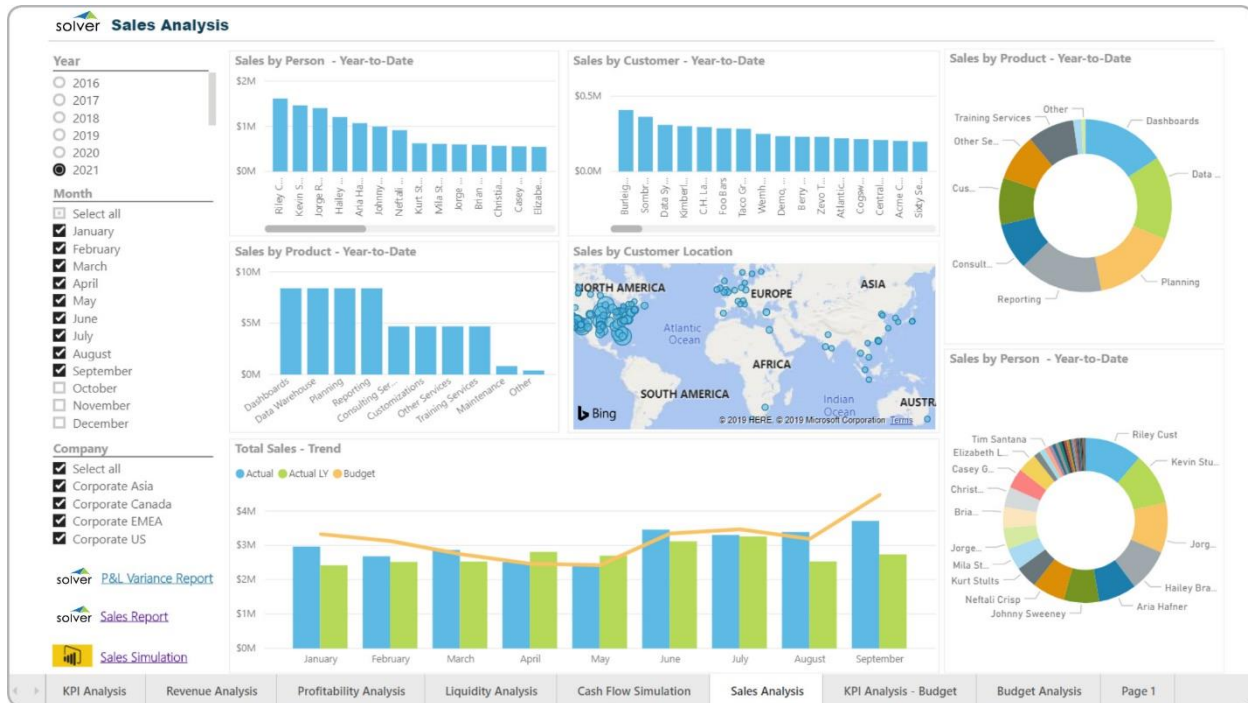
One of the emerging use cases for the Office of Finance is to use Teams to share and chat about financial reports, budgets and KPI dashboards from Solver and Power BI. This allows for extensive collaboration features to discuss results and agree to related action items as well as keeping an auditable history of comments.

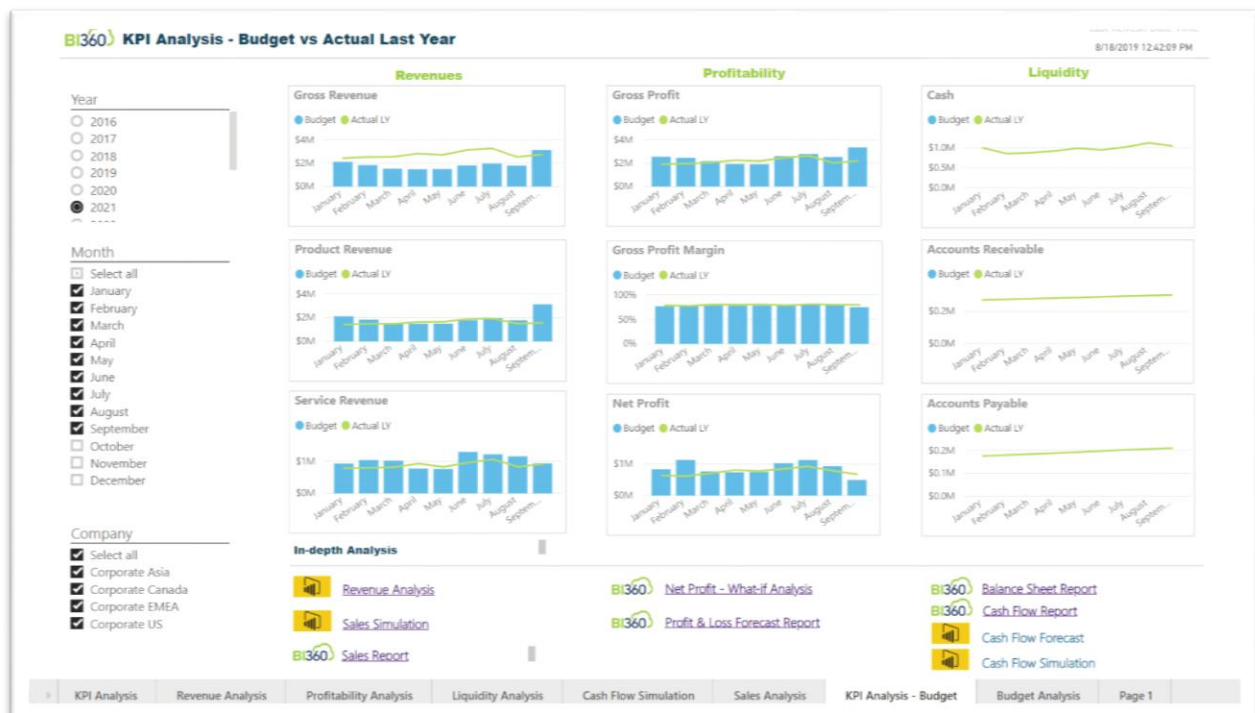
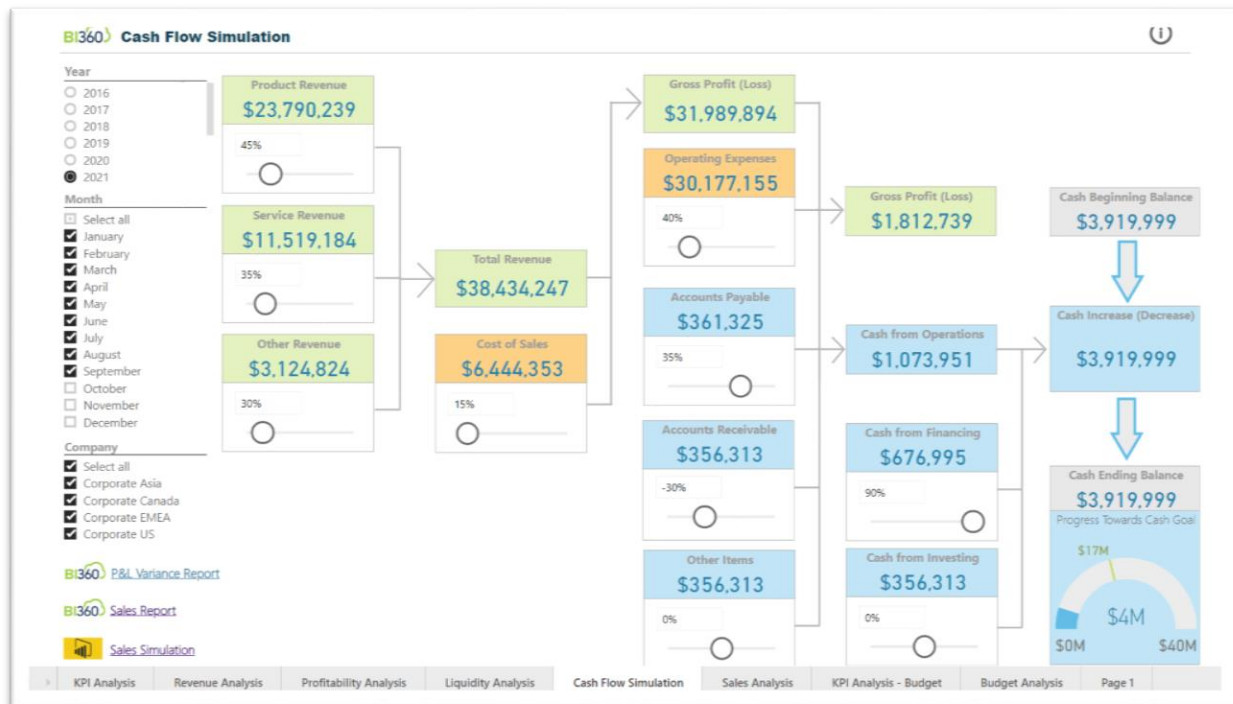
Appendix 1 – Screenshots of Dashboard Templates

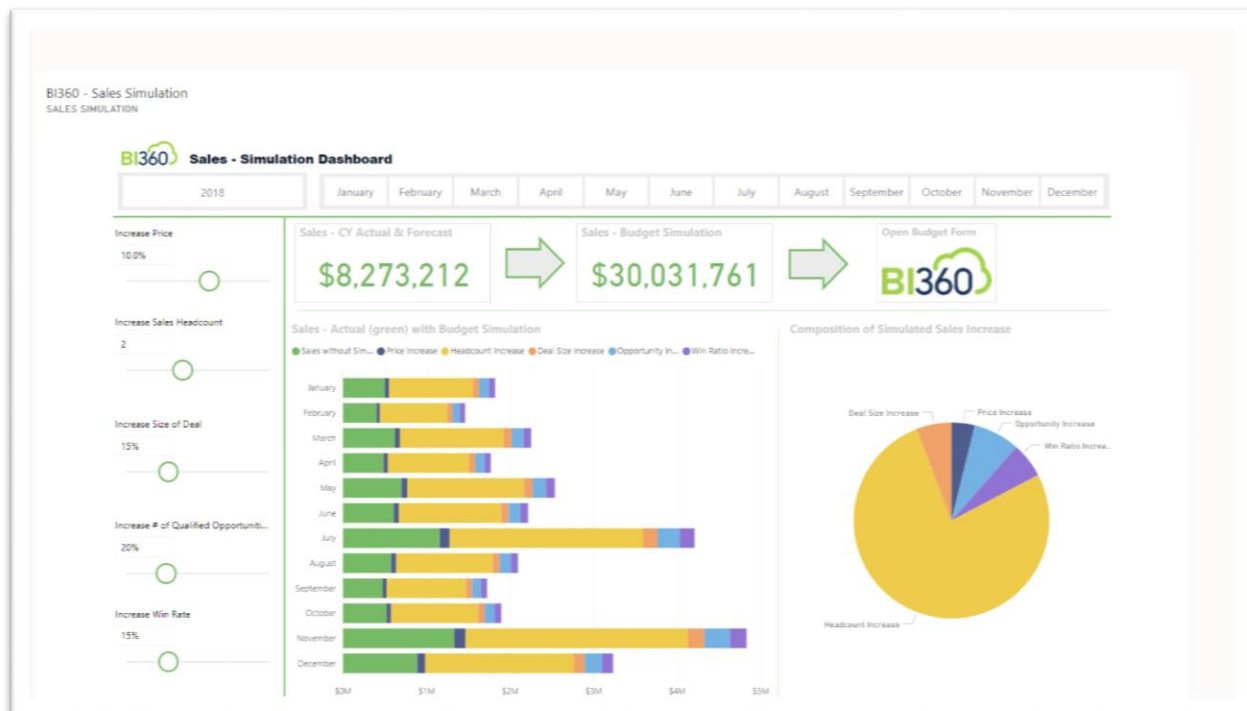
The following are examples of Power BI dashboard templates available to Solver customers to aid in analysis of financial and budget data from Solver. At the bottom of the dashboards you see direct links to related Solver cloud-based reports and input forms.

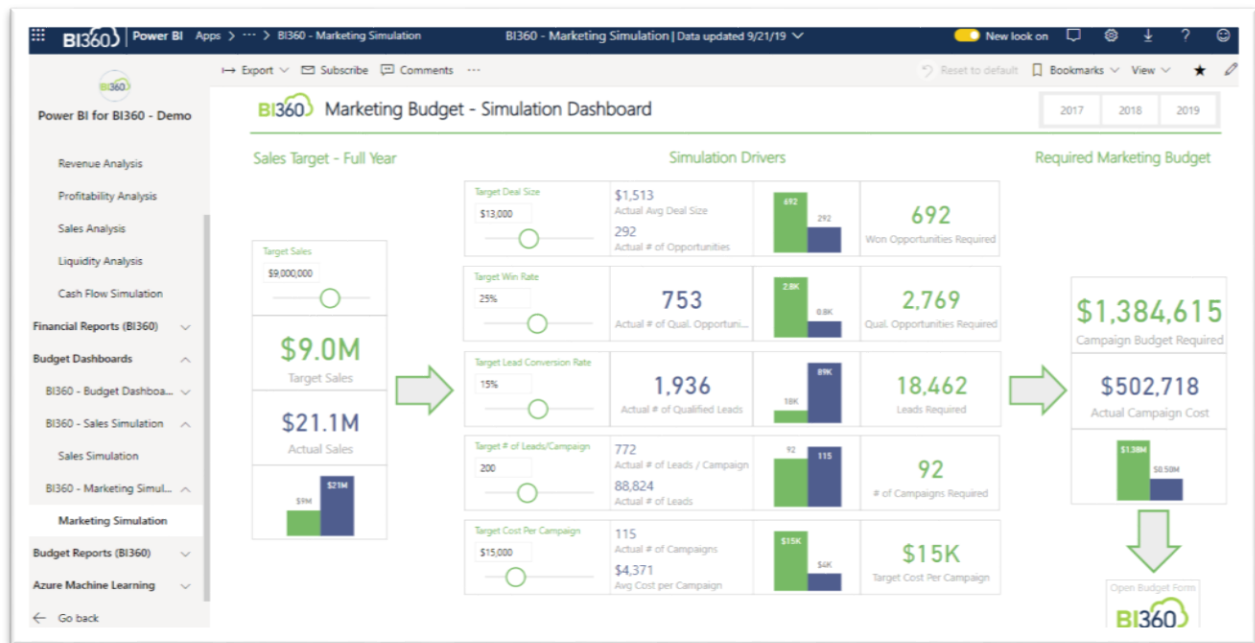












Appendix 2 – Power BI Resources

Learning Power BI

One of the advantages of using the Power BI, the world's leading BI solution, is that there is a large pool of human resources, written documentation, videos and online [user forums](#) available at your fingertips.

Solver customers can also find resources on Power BI in [Solver Academy](#).

Microsoft Partners

There is a quickly growing list of thousands of global Microsoft partners ready to consult their clients on the best use of Power BI, including most of the joint Solver/Microsoft Dynamics partners out there as well as other ERP system partners that prefer Power BI as the visualization experience.

Additional Information on MS Web sites

For more information on Power BI, these two sites are among the best:

User forum: Link [here](#).

Microsoft Power BI home page: Link [here](#).

Power BI User Group: Link [here](#).

Appendix 3 - About the Solver Data Warehouse

Solver customers organize their important data in the **Solver Cloud Data Warehouse**. From within the **Solver Cloud Portal**, they manage both the Data Warehouse and their budgeting, forecasting, financial reporting and consolidation processes using Solver's **Data Warehouse** menus, and its **Budgeting** and **Reporting** modules.

Another beneficiary of the Solver Data Warehouse is Power BI, where users can enjoy advanced visualizations and analysis. For first-time customers, it only takes minutes to activate Solver's application programming interface (API), configure the Power BI connector, and load data and dimensions over to Power BI.

In addition to the easy integration between Power BI and Solver, one of the top benefits is the star-schema structure of the Data Warehouse. This structure automatically transfers to Power BI, with no- to minimal data model design needing to take place before users can start creating dashboards. A number of dashboard templates (see [Appendix 1](#)) as well as more than 200 pre-defined Power BI KPIs ("Measures") are also available and can be modified to fit a customer's own model.

Appendix 4 – Power BI Licensing

Some companies already own Power BI licenses and then typically have no need to purchase anything more for Power BI.

You can find Power BI pricing [here](#) on the Microsoft web-site.

While Power BI Desktop is free, most organizations end up buying licenses to use and share Power BI content in the cloud. These commercial licenses are referred to as Power BI Pro and Power BI Premium. Whether you buy Power BI directly from Microsoft or through a certified partner, you can read more about that [here](#).