Achieving Managed Self-service BI with Halo and Microsoft Power BI
Self-service BI (SSBI) is an attractive alternative to traditional, IT-centric BI in that it empowers business users to directly access data sources, perform analyses, and build visualizations for timely insights into business performance. However, inconsistent results and unreliable insights are risks associated with “unmanaged” SSBI where IT is largely bypassed. These risks can be mitigated and effective SSBI can be achieved by combining self-service BI and enterprise BI technologies to enable reliable, enhanced insights by facilitating agility without compromising best practices.

Halo is offering a new best practices model where business users can access the bulk of their data from the Halo data warehousing platform, and then blend this data with other external and internal data to build powerful visualizations using Microsoft Power BI.

The Halo data warehousing platform delivers this valuable, managed self-service BI to users by enabling centralized data models, granular security, robust integration and data cleansing. Combined with Power BI, Halo permits users to reap the benefits of SSBI without sacrificing governance and best practices.

What is Microsoft Power BI?
Microsoft Power BI is a SaaS (software-as-a-service) offering for hybrid business intelligence. Power BI content can be developed using a web browser, Power BI Designer desktop application, or Excel Power BI tools. This content can then be published to PowerBI.com for viewing, or alternatively can be viewed from Power BI native mobile applications for Android, iOS or Windows.

The Power BI Designer desktop application and Excel Power BI tools each include self-service data integration for loading, preparing, transforming and combining disparate data sources into a semantic model. These tools provide drag-and-drop as well as interactive report authoring.

What is the Halo data warehousing platform?
The Halo data warehousing platform provides an enterprise-ready solution for data governance and security. Combined with the self-service BI technology of Microsoft Power BI, these products offer a compelling approach for advanced business analysts and data-oriented managers to access and visualize their data quickly within a secure and governed environment.

Halo is a data integration and analysis platform that automates the database design and build process, ETL code generation and documentation, deployment and maintenance. Its embedded security and data management capabilities help data owners and IT to effectively ensure the organization is operating from well-curated data, a “single source of truth”, and reliable data assets for analysis.

Halo is easily deployed on a standard SQL server instance, and requires only modest SQL skills to use and manage. The product’s secret lies within its libraries of prebuilt automation scripts, predefined connections to standard databases and enterprise applications, and cloud-based authentication and security using industry standard protocols.
Taken together, Microsoft Power BI and the Halo data warehousing platform form the most complete vision for managed SSBI on the market today. The steps to integrate Halo with Power BI are delineated below.

**Accessing Halo in Microsoft Power BI Desktop application**

Once Halo is configured on your server and you have created your Power BI account, it's easy to use the two applications together. Halo can be accessed directly from the Power BI desktop application (see steps below).

Launch Power BI and select Get Data to connect to the SQL database:

Select SQL Server Database as the data connection:
Power BI will give options to either Import Data, or perform a Direct Query against the Halo Data Warehouse.

![Navigator with selected tables](image1)

From the Halo Data Warehouse, select the tables that will be explored in Power BI:

The SQL data from the Halo Data Warehouse is now ready for analyses and visualization in Power BI.
Halo offers the ability to link directly to tables in the data warehouse, or to generate purpose-built cubes for aggregated reporting and analysis. Within Power BI, the workflow highlights the available cubes, and users have the ability to explore the data in the cube prior to analysis.

Connecting to a Microsoft OLAP cube that is produced by Halo is very simple in Power BI. From the Get Data menu, simply select SQL Server Analysis Services Database.

Select the server where the OLAP database resides as well as the option to import the data into Power BI, or Connect Live.
Select the OLAP cube model from Halo.

The OLAP cube that Halo produced is now available for analyses and visualization in Power BI.
The transformative power of the Microsoft Power BI / Halo approach is that businesses can now easily add new data to their governed data in real time to create new views and analyses. The difference is that the core data remains governed, controlled and documented. Rather than data and report chaos, data blending and reporting is now clean, clear and controlled.

In the example screenshot, historical sales data from an ERP housed in Halo’s data warehouse is blended with sales forecast data from an Excel file. Sales managers can now blend together historical information from a governed data warehouse with their sales forecasting data to get a clear picture of the current states of sales and the pipeline ahead.

In Power BI, combining external data with the data extracted from Halo is as simple as selecting the Get Data option to bring in additional datasets.

Combining data from the Halo data warehousing platform with other internal and external data sources

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In Power BI, combining external data with the data extracted from Halo is as simple as selecting the Get Data option to bring in additional datasets.
The Halo data and the Excel data are now combined in Power BI for analysis.
Leveraging security in Halo

A universal requirement for enterprise users is data-level security. This can be daunting and time-consuming for IT to support without the appropriate tools, especially in the SSBI space. Halo’s security layer is the foundation of a robust SSBI capability. Halo offers data security at the row, column and cell levels. Security is managed by roles established specifically for your organization. Halo uses SAAML-2 protocols for cloud-based security and access. When used together, Halo and Power BI meet all the security requirements of the most stringent security needs. Employing user Access Rights provided by IT, Halo enforces them as security roles within Microsoft Analysis Services cubes (both tabular and multidimensional models), and creates a secure data access layer using database views in the Halo data warehouse by filtering data based on the user name and associated security roles. This procedure ensures that security is enforced on all levels regardless of how data is accessed from Power BI.

Automatically refresh Halo data in Microsoft Power BI dashboards

Power BI provides functionality to schedule an automatic refresh of data from the underlying data sources utilized within Power BI dashboards. In addition, Halo is pursuing publication of Halo data to Microsoft Power BI as data is refreshed in Halo. More firms are adopting Power BI as their ad-hoc analysis interface. Among Halo’s clients, there is increasing interest in using the Halo BI platform for data integration and distributed reporting while relying on Power BI for building ad-hoc visualizations and dashboards. This use case is easily supported with a single, low-cost investment in a true SSBI solution.