



Data transformation from D365 FO to Power BI

This document shows the data transformation with Data Lake Architecture of BI4Dynamics's Finance and Operations Solution. The transformation is done automatically in 3 subsections/steps:

1. **Preparation:** Export F&O tables to the Data lake and insert them into Data Warehouse.
2. **Transformation:** Data Warehouse Automation with best-in-class content.
3. **Consumption:** Analyze data with visualization tools, such as Power BI and Excel.

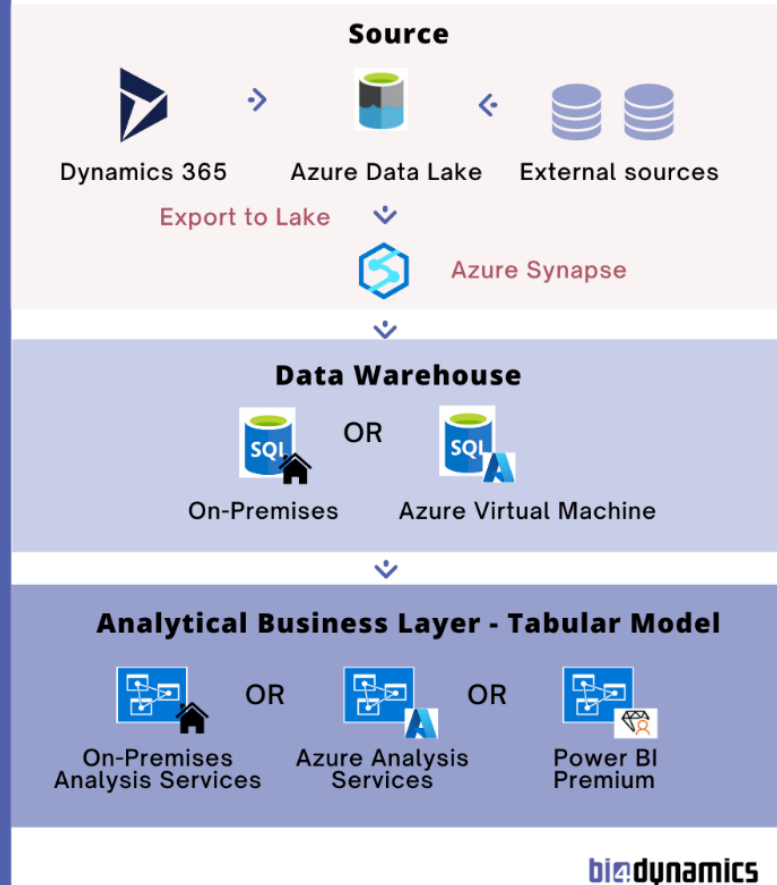
This unique data transformation with **Data Lake** and **Synapse** ensures first-in-class business intelligence from D365F&O. BI4Dynamics automated process builds **Data Warehouse**, and **Analysis Services** ensure powerful analysis on the document level **without sacrificing the speed** of data processing and **querying in less than a week**.

The result of the BI4Dynamics application is the best-in-class Power BI and Excel dashboards that bring insightful information with drag and drop Business Intelligence experience.

PREPARATION

BI4Dynamics D365

Data Lake Architecture



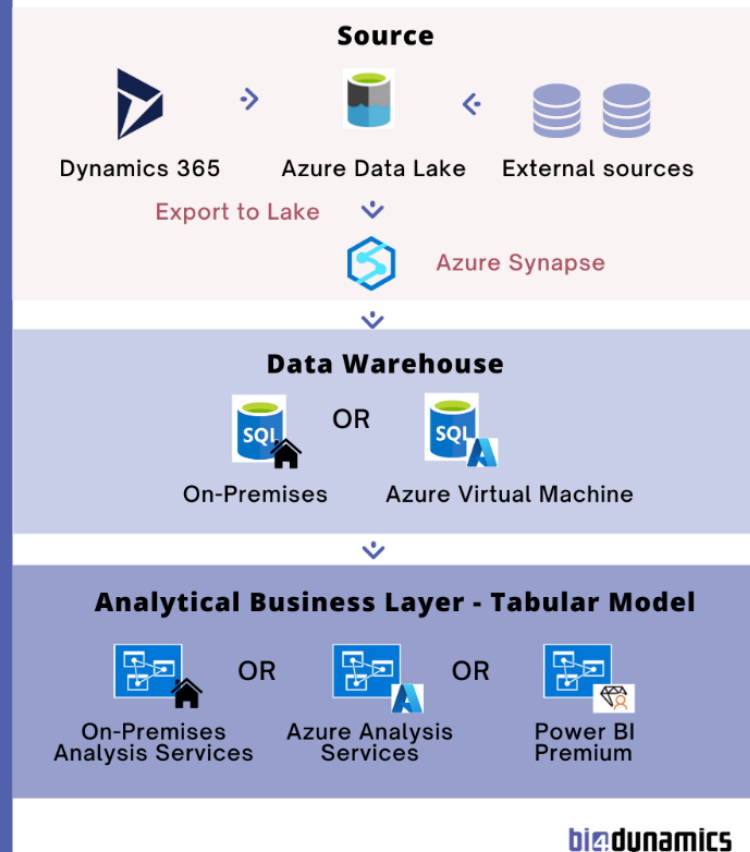
Preparation

The preparation phase starts with installing an extension into the F&O solution. Therefore, the **Export to Lake** extension is set up, together with an **Azure Storage** account and **Power BI** account.

The installation of the Export to Lake extension is necessary for the successful running of selected tables that are landing as **CSV files** in **Data Lake Storage**. These CSV files of the Data Lake Storage **cannot** be usefully consumed with Power BI, hence, the choice without any competition for reading these files is **Azure Synapse**. Azure Synapse is reading the CSV files and materializing/inserting these tables into **SQL Data Warehouse**.

The Export to Lake operation is **not affecting** the **production process** and the refresh time is not scheduled since it is **set up** by **Microsoft**.

BI4Dynamics D365 Data Lake Architecture TRANSFORMATION



Transformation

Data Transformation is the process where BI4Dynamics takes the raw copy of tables that landed in the BI4Dynamics staging area and transforms it using SQL objects (stored procedures, views, dimensions, facts).

The **SQL engine** is super scalable and can process **terabytes of data** in a couple of hours. The engine can digest any model and the whole process is **fully automated**, hence, you don't have to worry whether this will be affected by the user or any other environment.

There is **no need for specific SQL knowledge**. All customizations are wizard-driven and require only FO knowledge.

Would you like to experience the same content that we are showing you? – No worries!

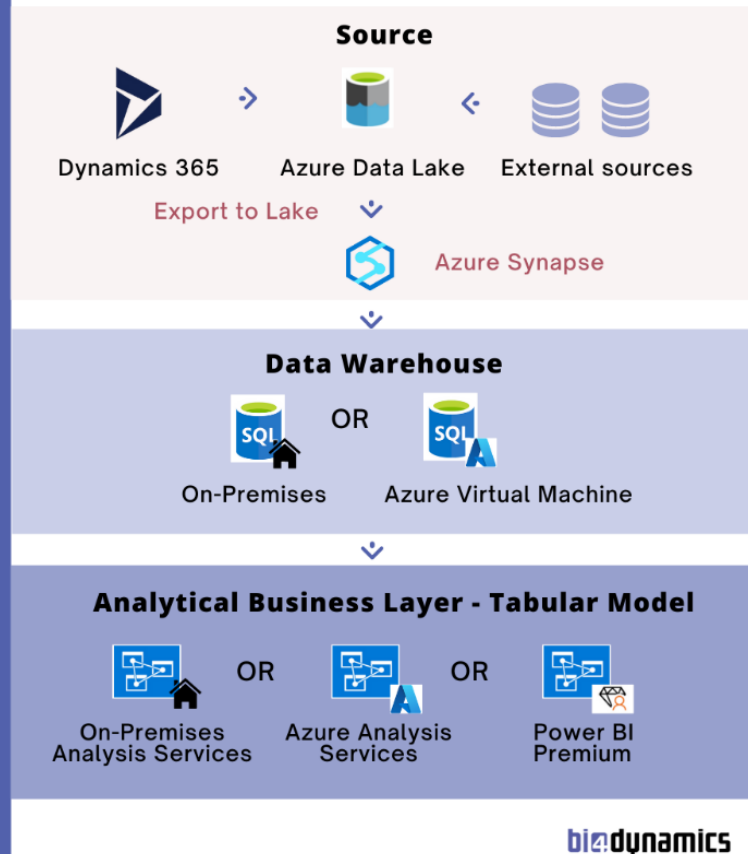
Go to our [Power BI Account](#) and use the following credentials:

Username: demo@bi4dynamics.com

Password: **PBIweL0Ve**

BI4Dynamics D365 Data Lake Architecture

CONSUMPTION



Semantic Layer – Excel, Power BI, or another tool

Data Warehouse data are pushed to the Tabular database for a **better user experience**. Users will connect with **Excel, Power BI, or any other tool**, where also permissions are set.

The tabular database can be implemented on:

- On-Premises using existing hardware.
- Azure Analysis Services, hosted by Microsoft, paid per service, not per user.
- Power BI Premium Capacity – paid per user, not per server.

The business intelligence content is the same in all cases. We will **help you choose the right environment** by taking into consideration database size, the number of users, geographic usage, self-service needs of advanced users, needs for sending reports to users' emails, and other factors.

All of this gives you **control** over the cost and features without requiring you to compromise content over services. Moreover, you can always go to the document level, you don't have to do service on aggregations and the data size can start with **Giga** or even **Terabytes**. The SQL will crunch **any data** and the semantic layer will aggregate this data.

Feature ³	Power BI Pro	Power BI Premium Per user	Power BI Premium Per capacity
Collaboration and analytics			
Mobile app access	•	•	•
Publish reports to share and collaborate	•	•	
Paginated (RDL) reports		•	•
Consume content without a per-user license			•
On-premises reporting with Power BI Report Server			•
Data prep, modeling, and visualization			
Model size limit	1 GB	100 GB	400 GB
Refresh rate	8/day	48/day	48/day
Connect to more than 100 data sources	•	•	•
Create reports and visualizations with Power BI Desktop ⁴	•	•	•
Embed APIs and controls	•	•	•
AI visuals	•	•	•
Advanced AI (text analytics, image detection, automated machine learning)		•	•
XMLA endpoint read/write connectivity		•	•

Difference between Power BI Pro & Premium

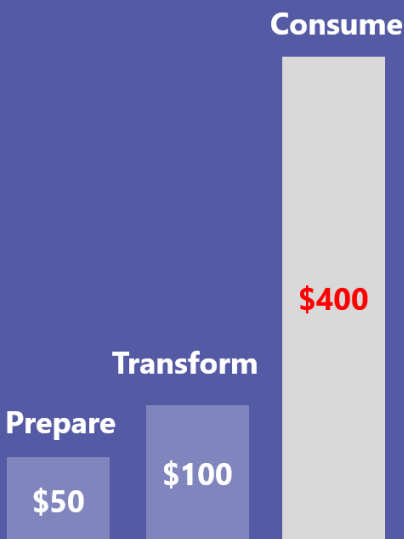
The table above shows that Power BI Pro and Power BI Premium have **similar** features and also Power BI Premium per **user** and per **capacity** have **similar** features as well.

However, the key difference is the **size** of the Data Modelling, in Power BI **Pro** maximum size is **1GB** and in Power BI **Premium** is **100 GB**, while the **refresh** in **Pro** is 8 times/per day and in **Premium** is 48 times/per day.

For BI4Dynamics is very important that we can publish the tabular model or **XMLA endpoint read/write connectivity** in Power Bi Premium. We can also work with paginated reports which means we can create a report builder and send it to anyone even if it is not a Power BI Pro or Premium user through the Outlook application. Hence, this makes the difference between **10\$/per user/per month** for **Pro** and **20\$/per user/per month** for **Premium**.

MONTHLY AZURE COSTS

Use case: DFO Database = 100 GB



	Unit	Consumption	Monthly cost
Data Lake	\$ 0.15/ GB month	200 GB storage	\$30
Azure Synapse	\$5 / 1 TB	20 times 200 GB = 4 TB	\$20
Azure VM	8CPU/64GB =\$2/h	1.5 h * 20 days = 30 h	\$60
VM Disk	250 GB	Disk + other minor Costs	\$40
Analytics	AAS on tier S1, 25 GB (200h) or 20 Power BI Premium users, 100 GB (24/7)		\$400
Total			\$550

BI4DYNAMICS license is charged separately,

Monthly Microsoft Azure Costs

The table above shows the monthly Azure costs of Microsoft and these costs are not connected with the BI4Dynamics, the costs for BI4Dynamics depend on different parameters.

The table shows an example of database size in F&O of **100GB** and the Azure costs in each step of our Data Transformation with Data Lake Architecture:

- **Preparation** segment does not have a huge impact on the monthly total costs, since, **Data Lake** costs 20-30\$ per month, and **Azure Synapse** costs 10-20\$ per month. This sums up to a total of **50\$ per month**.
- Azure VM with 8 core and 64GB of memory costs **2\$/per hour**. For eg., if you run it **1.5/hours** per day and **20 days/per month** it comes to a total of **30h** and will cost **60\$**. If you need a better performance in Azure VM it will cost **100\$** approx. Therefore, the **Transformation** part also does not have a huge impact on the total monthly cost.
- However, the costs of **Consumption** are the ones that have the biggest impact on the total monthly costs. Analysis Services on Tier 2 with **25GB** of Disk space for (100h/2\$ per hour=**400\$**) and this includes the cost for **20** users of Power BI Premium, 720h or 24/7 for a 100GB data model.

These costs could be much cheaper if a company has a smaller database or smaller number of users, in such a scenario the total cost will be approx. **550\$**.

Conclusion

The elaboration of all three phases above shows that the most important choices for a new BI4Dynamics F&O user are in the **Consumption** section. Regardless, this does not mean that the **Preparation** and **Transformation** sections are not of vital importance, but in these two sections the choices are already made by BI4Dynamics, and we chose the best performing tools for the execution of both sections.

In the **Consumption** section as we already described there are 3 options between whom the user can choose from and this choice should be made based on the specifications that its company has. The options and the conditions for making a choice are the following:

- **On-Premises** → Best option when the company has **hardware** available. The drawbacks are that this option has only **Local Access** and for a user to connect to the data when not present in the company, this user must use **Remote Desktop Connection**. Also, companies who want mobile and web access must pay an additional 10\$ per user for Power BI Pro.
- **Azure Analysis Services** → The advantage of this option is the fact that is on the cloud, hence, it is accessible from any device and anywhere. Moreover, to **save money** with this option you can switch it off when you are not using it (use it 8h per day only). However, this need/idea for saving money originates from the high cost this option can produce. Since it is **paid per service** it can be expensive for larger databases. On the contrary, for databases up to 20 GB, it can be much more affordable. Moreover, same as the 1st option for companies who would like mobile and web access must pay an additional 10\$ per user for Power BI Pro.
- **Power BI Premium** → This option has the biggest ratio between its advantages and drawbacks. Since it is **paid per user**, the server is available and can be used **24/7**. Also, for databases up to 100 GB has high performance (compared to AAS). When it comes to the number of users it is the most affordable option for companies that have up to **20 users** (compared to AAS). On the contrary to the 1st and 2nd option, in this option, the company **does not** need to pay 10\$ for mobile and web access, since Power BI Pro is **included** in Power BI Premium per user for **20\$ per month**. On the other hand, the drawback is that under certain specifications it can be the most expensive option, but if the company is valuing more the performance of the solution and it has no budget constraints, then **Power BI Premium** is the best option available.

For a table visualization of the advantages please see "Table 1.1" on the last page of this document.

Table 1.1

Hosting Environment	Advantages:	Disadvantages:
On-Premise	<ul style="list-style-type: none"> • Good option if you have existing Hardware available. 	<ul style="list-style-type: none"> • Only Local Access available • For mobile and web access, an additional cost of 10\$/per user/per month will appear for Power BI Pro services.
Azure Analysis Services	<ul style="list-style-type: none"> • When not used, can be switched off. With this, savings can be obtained. • Azure connection to the analysis database available – the data is accessible from anywhere. • Affordable for databases up to 20 GB. 	<ul style="list-style-type: none"> • Paid per service (not per user). • Can be expensive for larger databases. • For mobile and web access, an additional cost of 10\$/per user/per month will appear for Power BI Pro services.
Power BI Premium	<ul style="list-style-type: none"> • Pay per user (not per server). • Server is available 24/7. • Very good performance for big databases(up to 100 GB). • Most affordable option for companies that have up to 20 users (compared to AAS). • Best performing option. (if there are no budget constraints). • Ideal for companies that require mobile and web access. (Power BI Pro is included into the Power BI Premium per user for 20\$ per month). 	<ul style="list-style-type: none"> • The most expensive option.

After reading this document and reviewing the video "[D365 F&O Architecture with Data Lake](#)" you still have doubts and you are not sure which option is the most suitable for your company, do not worry! **We will be happy to assist you in the choice procedure, advice you and with this eliminate your doubts and leave you solely with confidence for the choice you are about to make.**

BI4Dynamics Value Proposition

We are truly excited about this Data Lake enablement by Microsoft for F&O customers as well as Power BI Pro and Premium. With these two technologies from Microsoft coupled with BI4Dynamics, we believe that we have **solved the reporting, analytics challenge faced by F&O clients.**

BI4Dynamics provides an absolutely phenomenal value proposition based on our 15 + years of experience in this space. Where can one get **150+ Out of the box “Best in Class” Power BI dashboards and Excel reports** with almost **every dimension and measure that can allow clients like you to expend the analytics in any dimension.**

For a limited time, **we are offering a complete onboarding experience free of charge. No obligations.** We understand that you need access to your data now, and not months from now.

1. Introduction demo

Get a sense of how standardized solutions can lower your risk of implementation and bring BI to your organization in a matter of days, not months. BI4Dynamics introduction demo is always tailored to your unique requirements and business processes.

2. Free trial installation

The very next day after installation you will have access to your Data Warehouse with more than a million rows of code, OLAP Cubes, or a Tabular model with 2,000 BI fields that are ready to be accessed.

3. Power BI and Excel dashboards

BI4Dynamics out-of-the-box offering includes more than 150 Power BI Dashboards for web and mobile usage and Excel reports that cover all standard application areas ([Sales](#), [Receivables](#), [Finance](#), [Inventory](#), [Purchase](#), [Payables](#)) and [Retail](#). The selection of predefined reports is [listed in our ebook](#).

To see all dashboards in action go to our [Power BI Account](#) and use the following credentials:

Username: demo@bi4dynamics.com | Password: **PBIweLOVe**

4. Walk-through data

The session guided by a senior BI consultant will **give you in-depth information about your business.** and **help you find unexpected events and trends** in your business.

Contact our team at sales@bi4dynamics.com or [request a demo](#).