



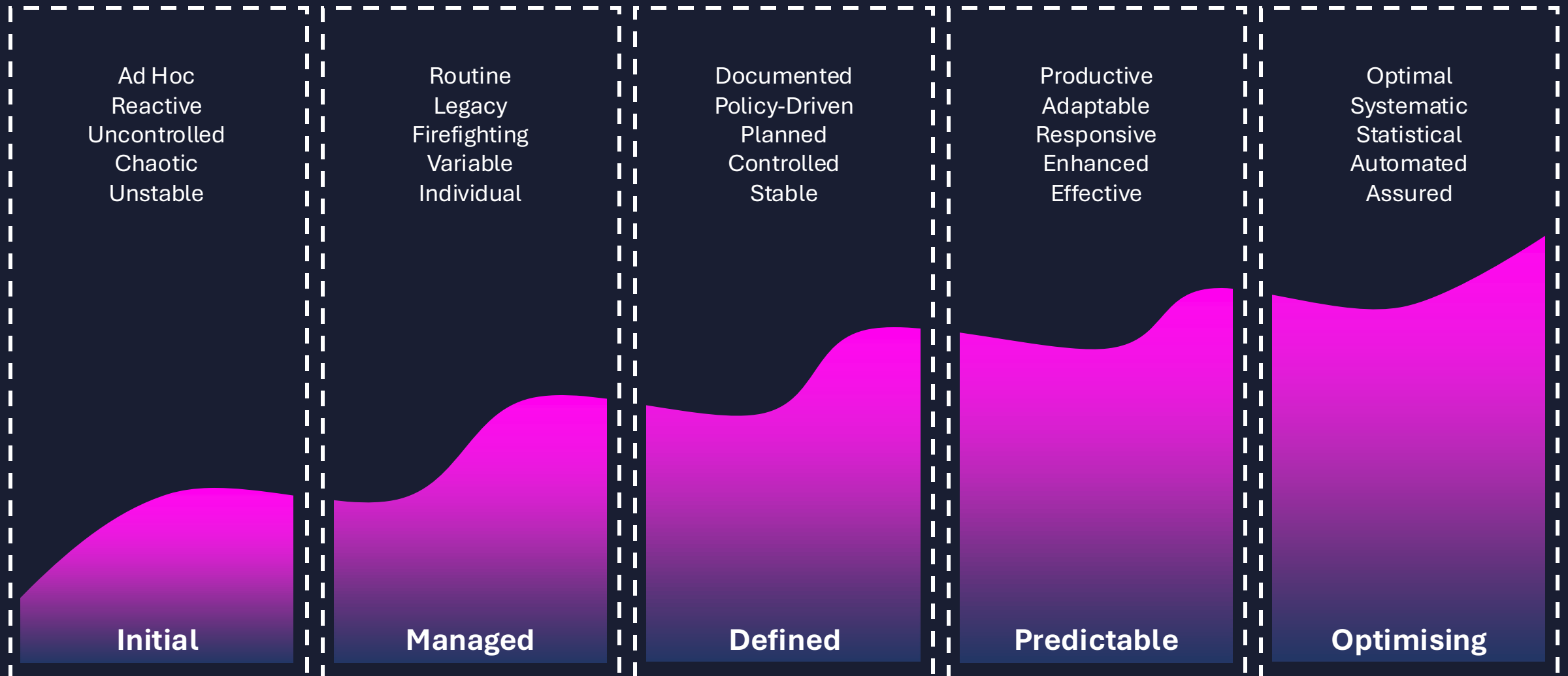
Data & AI

Jay Fitzhenry & Reuben Barry

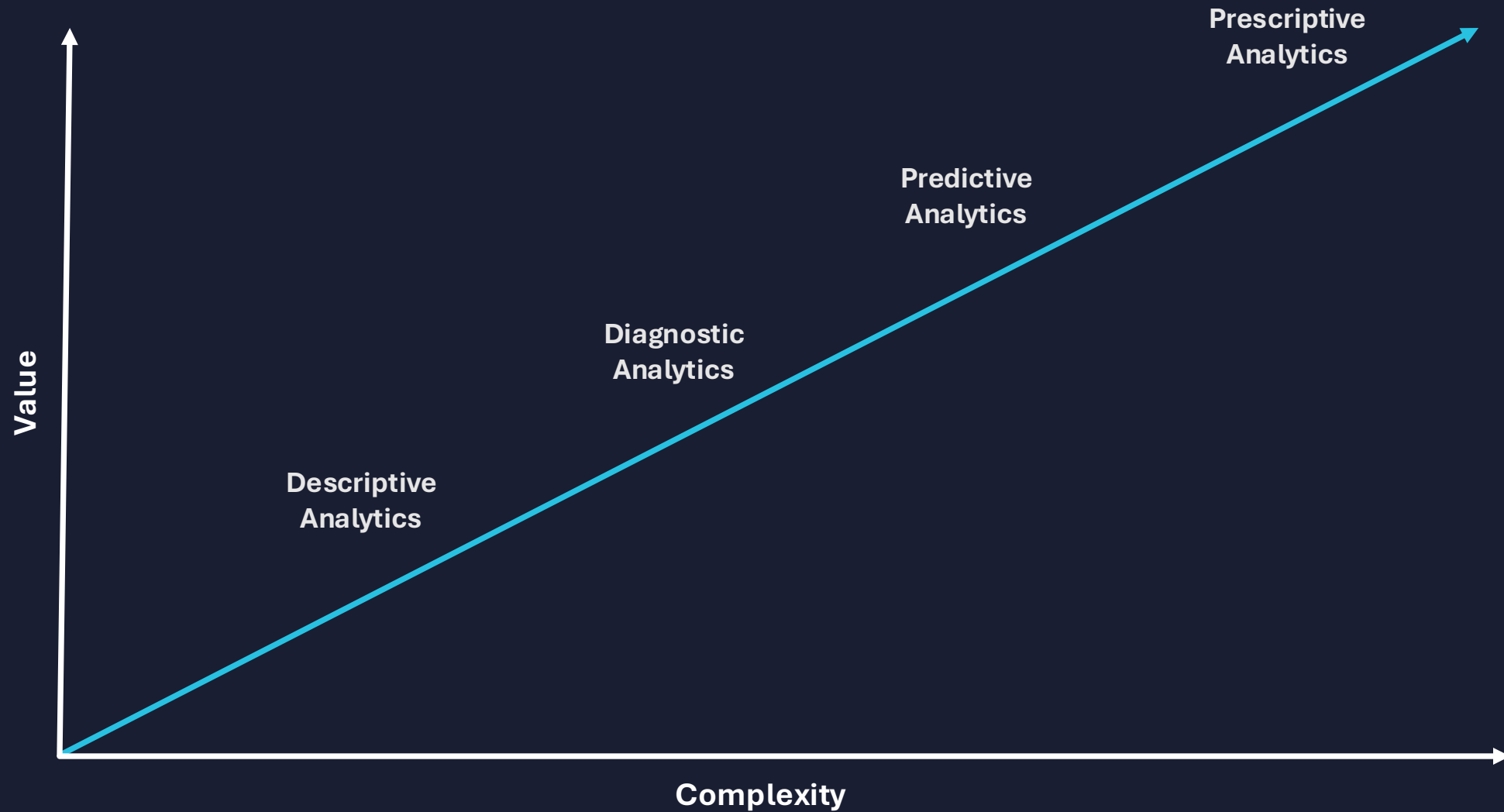


jfitzhenry
reubenbarry

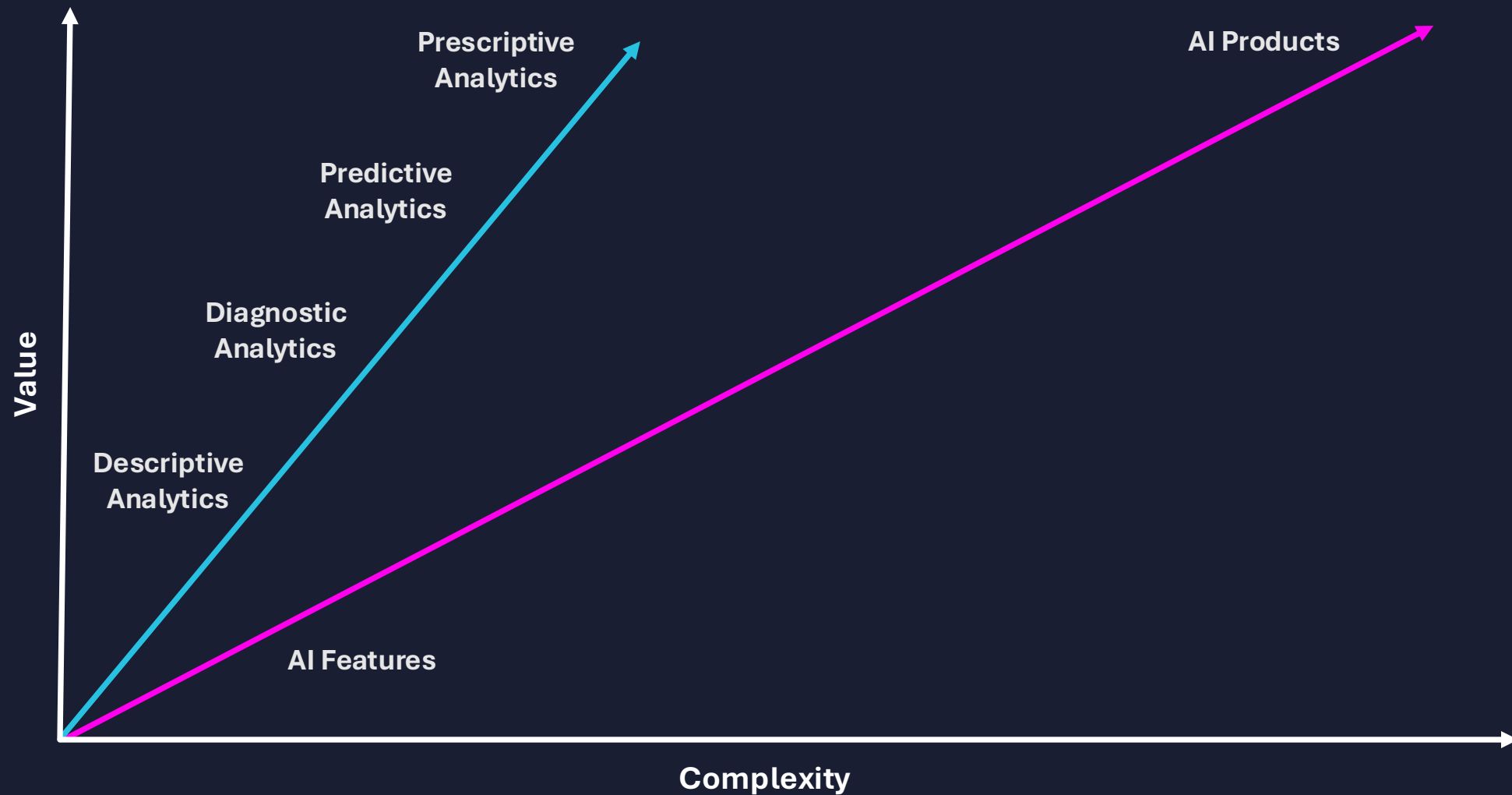
Data Maturity



The Analytics Journey



The Analytics Journey



The Analytics Journey





Ingestion

Data Discovery

Automation

Data Storage

Descriptive

Diagnostic

Predictive

Prescriptive

The screenshot shows the Microsoft Fabric 'Get data' dialog box. The dialog has a title bar 'Get data' and a close button. Below the title bar is the heading 'Choose a data source to get started'. There is a search bar with the placeholder text 'Search'. Below the search bar are several filter tabs: 'All', 'File', 'Database', 'Power Platform', 'Azure', 'Online services', and 'Other'. The 'All' tab is selected. Below the tabs is a grid of data source cards. Each card has an icon, a name, and a category 'Other'. The cards are arranged in a 4x3 grid. The first row contains 'OData', 'Odbc', and 'Amazon S3'. The second row contains 'Amazon S3 Compatible', 'Dynamics 365', and 'Dynamics AX'. The third row contains 'Dynamics CRM', 'Google Cloud Storage', and 'Http'. The fourth row contains 'Microsoft365', 'REST', and 'SAP BW Open Hub Application Ser...'. The fifth row contains 'SAP BW Open Hub Message Server', 'SAP Table Application Server', and 'SAP Table Message Server'. The background of the dialog is a blurred view of the Microsoft Fabric interface, showing the 'Load Data' button and the 'Home' tab.

Get data

Choose a data source to get started

Search

All File Database Power Platform Azure Online services ... Other

OData Other

Odbc Other

Amazon S3 Other

Amazon S3 Compatible Other

Dynamics 365 Other

Dynamics AX Other

Dynamics CRM Other

Google Cloud Storage Other

Http Other

Microsoft365 Other

REST Other

SAP BW Open Hub Application Ser... Other

SAP BW Open Hub Message Server Other

SAP Table Application Server Other

SAP Table Message Server Other



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Power Query interface showing a data flow from Source to Promoted headers, Changed column..., Added custom, and Changed column... The interface includes a ribbon with tabs: Home, Transform, Add column, View, and Help. The Transform tab is active, showing various data transformation options like Transpose, Reverse rows, Count rows, Replace values, Detect data type, Mark as key, Rename, Pivot column, Unpivot columns, Convert to list, Fill, Move, Split column, Format, Merge columns, Extract, Parse, Number column, and Date and time column.

Queries [1]

Table.TransformColumnTypes(#"Added custom", {{"MonthNo", Int64.Type}})

	1 ² 3 SalesOrderID	OrderDate	1 ² 3 CustomerID	1 ² 3 Lineltem	1 ² 3 ProductID	1 ² 3 OrderQty	1.2 LineltemTotal	1 ² 3 MonthNo
1	71774	01/06/2022	29847	1	836	1	356.9	6
2	71774	01/06/2022	29847	2	822	1	356.9	6
3	71776	01/06/2022	30072	1	907	1	63.9	6
4	71780	01/06/2022	30113	1	905	4	873.82	6
5	71780	01/06/2022	30113	2	983	2	923.39	6
6	71780	01/06/2022	30113	3	988	6	406.79	6
7	71780	01/06/2022	30113	4	748	2	1637.4	6
8	71780	01/06/2022	30113	5	990	1	323.99	6
9	71780	01/06/2022	30113	6	926	1	149.87	6

Completed (2.42 s) Columns: 8 Rows: 99+ Add default destination...

Publish

Ingestion

Data Discovery

Automation

Data Storage

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Diagnostic

Predictive

Prescriptive

The screenshot displays the Microsoft Fabric Dataflow configuration interface for a Dataflow named 'Load Orders'. The interface is divided into several sections:

- Top Navigation:** Includes 'Load Data', a search bar, and icons for notifications, settings, download, help, and user profile.
- Activity Tabs:** 'Home', 'Activities' (selected), 'Run', and 'View'.
- Activity Toolbar:** Contains icons for 'Copy data', 'Dataflow', 'Notebook', and various other data processing and monitoring tools.
- Activity Card:** A card for the 'Load Orders' Dataflow, showing a trash icon, code editor icon, document icon, and a green 'Run' button.
- Configuration Panel:**
 - General Tab:**
 - Name:** 'Load Orders' with a 'Learn more' link.
 - Description:** An empty text area.
 - Activity state:** Radio buttons for 'Activated' (selected) and 'Deactivated'.
 - Timeout:** '0.12:00:00'.
 - Retry:** '0'.
 - Advanced:** A link to expand more settings.
 - Settings Tab:** Currently empty.
- Right Sidebar:**
 - Search:** A search bar.
 - Move and transform:** Includes 'Copy data', 'Dataflow', and 'Delete data'.
 - Metadata and validation:** Includes 'Lookup' and 'Get metadata'.
 - Control flow:** Includes 'If conditions', 'Switch', 'Filter', 'Wait', 'ForEach', 'Until', and 'Set variable'.

Ingestion

Data Discovery

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Prescriptive

The screenshot displays the Microsoft Fabric OneLake catalog interface. The left sidebar shows the navigation menu with options like Home, Workspaces, OneLake catalog, Monitor, Real-Time, Workloads, Fabric Sandbox, and Sales. The main area is titled 'Sales' and shows a table view of the 'sales' table. The table has 11 columns: SalesOrderID, SalesOrderNumber, OrderDate, CustomerName, EmailAddress, Item, Quantity, and Price. The table is filtered to show 1000 rows. The status bar at the bottom indicates 'Succeeded (6 sec 158 ms)' and 'Columns 9 Rows 1,000'.

	ABC	SalesOrder...	123	SalesOrderL...	OrderDate	ABC	CustomerN...	ABC	EmailAddress	ABC	Item	123	Quantity	12
1		SO51555	7		6/23/2021 12:00:...		Chloe Garcia		chloe27@advent...		Patch Kit/8 Patch...	1		2.29
2		SO54042	7		8/9/2021 12:00:0...		Logan Collins		logan29@adven...		Half-Finger Glov...	1		24.4
3		SO54784	7		8/22/2021 12:00:...		Autumn Li		autumn3@adve...		All-Purpose Bike...	1		159
4		SO58572	7		10/25/2021 12:0...		Cesar Sara		cesar9@adventu...		Short-Sleeve Cla...	1		53.9
5		SO58845	7		10/30/2021 12:0...		Peter She		peter8@adventu...		Sport-100 Helm...	1		34.9
6		SO58845	8		10/30/2021 12:0...		Peter She		peter8@adventu...		Long-Sleeve Log...	1		49.9
7		SO60233	7		11/16/2021 12:0...		Jason Mitchell		jason40@advent...		Sport-100 Helm...	1		34.9
8		SO61412	7		12/3/2021 12:00:...		Nathaniel Cooper		nathaniel9@adv...		Short-Sleeve Cla...	1		53.9
9		SO62984	7		12/29/2021 12:0...		Miguel Sanchez		miguel72@adve...		Racing Socks, M	1		8.99
10		SO51555	6		6/23/2021 12:00:...		Chloe Garcia		chloe27@advent...		Mountain Bottle ...	1		9.99
11		SO52058	6		7/4/2021 12:00:0...		Elijah Ross		elijah7@adventu...		Short-Sleeve Cla...	1		53.9
12		SO53255	6		7/28/2021 12:00:...		Edward Taylor		edward31@adve...		Short-Sleeve Cla...	1		53.9
13		SO53852	6		8/5/2021 12:00:0...		Maria Reed		maria4@advent...		Hydration Pack - ...	1		54.9
14		SO54042	6		8/9/2021 12:00:0...		Logan Collins		logan29@adven...		Short-Sleeve Cla...	1		53.9
15		SO54377	6		8/15/2021 12:00:...		Ashlee Xu		ashlee12@adve...		Water Bottle - 3...	1		4.99
16		SO54784	6		8/22/2021 12:00:...		Autumn Li		autumn3@adve...		Patch Kit/8 Patch...	1		2.29
17		SO55957	6		9/10/2021 12:00:...		Melissa Richards...		melissa31@adve...		Water Bottle - 3...	1		4.99



Ingestion



Transformation

Data Engineering
Architecture
Orchestration

Descriptive

Diagnostic

Predictive

Prescriptive

Transform data for Silver | Saved

Search

Home Edit Run View

Comments History Develop Share

PySpark (Python) Environment Workspace default Data Wrangler

Explorer

Data items Resources

+ Add data items

Sources

> Sales

```
1 # Load data from the CSV files in the bronze folder into a Spark dataframe, then display the fi
2
3 from pyspark.sql.types import *
4
5 # Create the schema for the table
6 orderSchema = StructType([
7     StructField("SalesOrderNumber", StringType()),
8     StructField("SalesOrderLineNumber", IntegerType()),
9     StructField("OrderDate", DateType()),
10    StructField("CustomerName", StringType()),
11    StructField("Email", StringType()),
12    StructField("Item", StringType()),
13    StructField("Quantity", IntegerType()),
14    StructField("UnitPrice", FloatType()),
15    StructField("Tax", FloatType())
16 ])
17
18 # Import all files from bronze folder of lakehouse
19 df = spark.read.format("csv").option("header", "true").schema(orderSchema).load("Files/bronze/*
20
21 # Display the first 10 rows of the dataframe to preview your data
22 display(df.head(10))
```

[2] ✓ - Command executed in 3 sec 540 ms by Jay Fitzhenry on 9:27:17 AM, 1/16/25 PySpark (Python)

Not connected AutoSave: On Selected Cell 1 of 4 cells



Ingestion



Transformation

Data Engineering

Architecture

Orchestration

Descriptive

Diagnostic

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Prescriptive

SQL analytics endpoint

Home Reporting

SQL query 1

```
1 SELECT TOP (100) [SalesOrderNumber],
2 [SalesOrderLineNumber],
3 [OrderDate],
4 [CustomerName],
5 [EmailAddress],
6 [Item],
7 [Quantity],
8 [UnitPrice]
```

Messages Results

	ABC SalesOrd...	123 SalesOrd...	OrderDate	ABC Custome...	ABC EmailAdd...	ABC Item	123 Quantity	12F UnitPri
1	SO51555	7	2021-06-23	Chloe Garcia	chloe27@adv...	Patch Kit/8 Pa...	1	2.29
2	SO54042	7	2021-08-09	Logan Collins	logan29@adv...	Half-Finger Gl...	1	24.49
3	SO54784	7	2021-08-22	Autumn Li	autumn3@ad...	All-Purpose B...	1	159
4	SO58572	7	2021-10-25	Cesar Sara	cesar9@adve...	Short-Sleeve ...	1	53.99
5	SO58845	7	2021-10-30	Peter She	peter8@adve...	Sport-100 Hel...	1	34.99
6	SO58845	8	2021-10-30	Peter She	peter8@adve...	Long-Sleeve L...	1	49.99
7	SO60233	7	2021-11-16	Jason Mitchell	jason40@adv...	Sport-100 Hel...	1	34.99
8	SO61412	7	2021-12-03	Nathaniel Co	nathaniel9@a	Short-Sleeve	1	53.99

Succeeded (3 sec 548 ms) Columns: 9 Rows: 100



Ingestion



Transformation

Data Engineering

Architecture

Orchestration

Descriptive

Diagnostic

Predictive

Prescriptive

The screenshot displays the Microsoft Fabric interface. On the left, a sidebar shows the 'Sales' workspace with a list of queries. The main area shows a query named 'Line Items by Sales Order' with a visual pipeline and a data table.

Explorer

- Warehouses
 - queryinsights
 - sys
 - Security
- Queries
 - My queries
 - Items by Revenue
 - Line Items by Sales Order**
 - SQL query 1
 - Top Customers by Quantity
 - Total Sales by Year
 - Visual query 1
 - Shared queries
- Model layouts

Visual Pipeline:

Source (sales) → Database → Table → Choose columns → Grouped rows → Renamed columns

Table Data:

	SalesOrderNumber	LineItems
1	SO63011	2
2	SO47512	1
3	SO54484	4
4	SO56764	4
5	SO60083	3
6	SO60203	2
7	SO56310	1
8	SO61495	1
9	SO49617	1

Completed (3.78 s) Columns: 2 Rows: 99+



Ingestion



Transformation

Data Engineering

Architecture

Orchestration

Descriptive

Diagnostic

Predictive

Prescriptive

View SQL

Copy to clipboard

```
1 select [rows].[SalesOrderNumber] as [SalesOrderNumber],
2     count(distinct([rows].[SalesOrderLineNumber])) + max(case
3         when [rows].[SalesOrderLineNumber] is null
4         then 1
5         else 0
6     end) as [LineItems]
7 from
8 (
9     select [SalesOrderNumber],
10          [SalesOrderLineNumber]
11     from [Sales].[dbo].[sales] as [$Table]
12 ) as [rows]
13 group by [SalesOrderNumber]
```

Edit SQL script Cancel

Completed (3.78 s) Columns: 2 Rows: 99+



Ingestion



Transformation

Data Engineering

Architecture

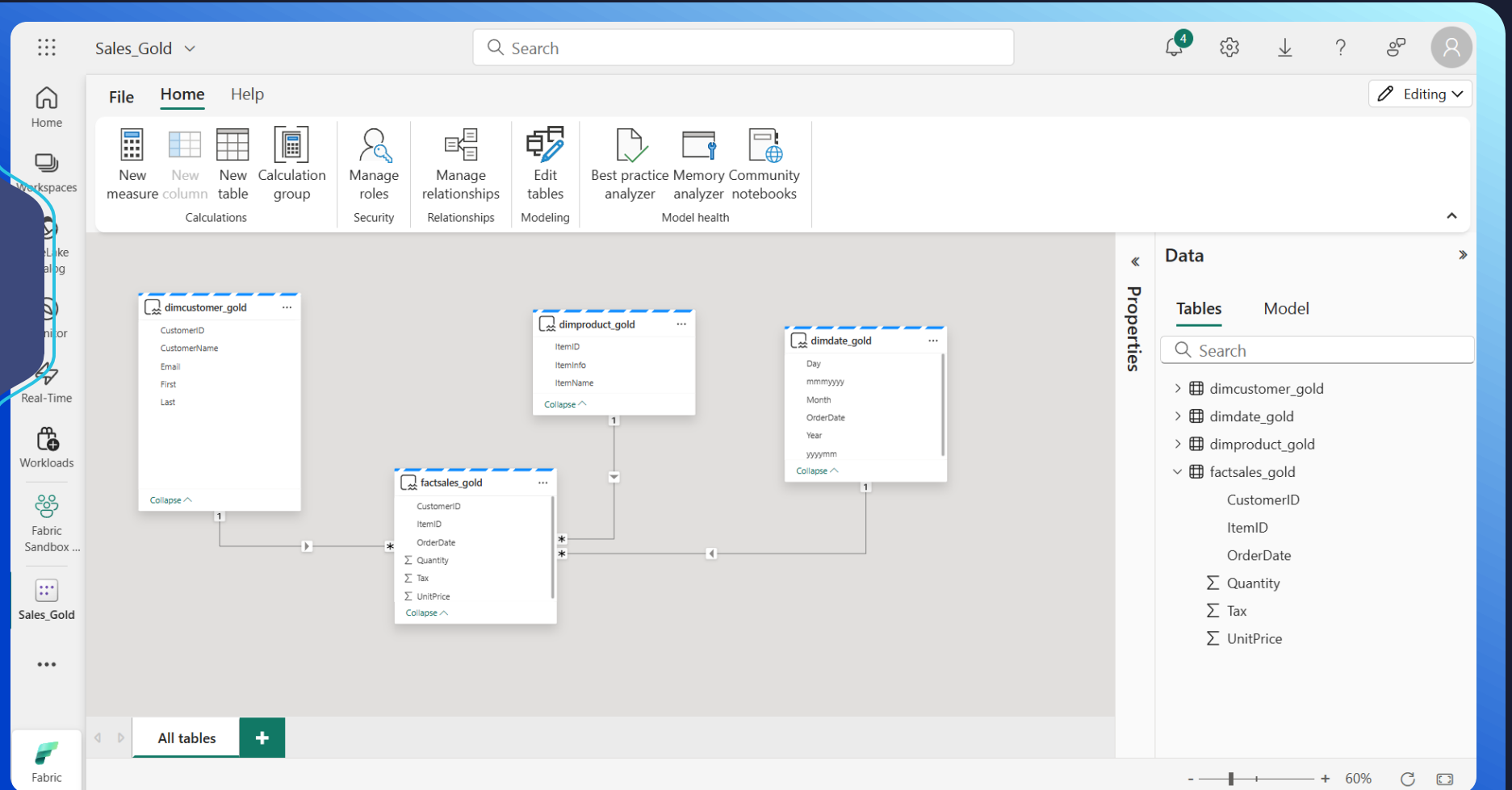
Orchestration

Descriptive

Diagnostic

Predictive

Prescriptive





Ingestion



Transformation



Serving

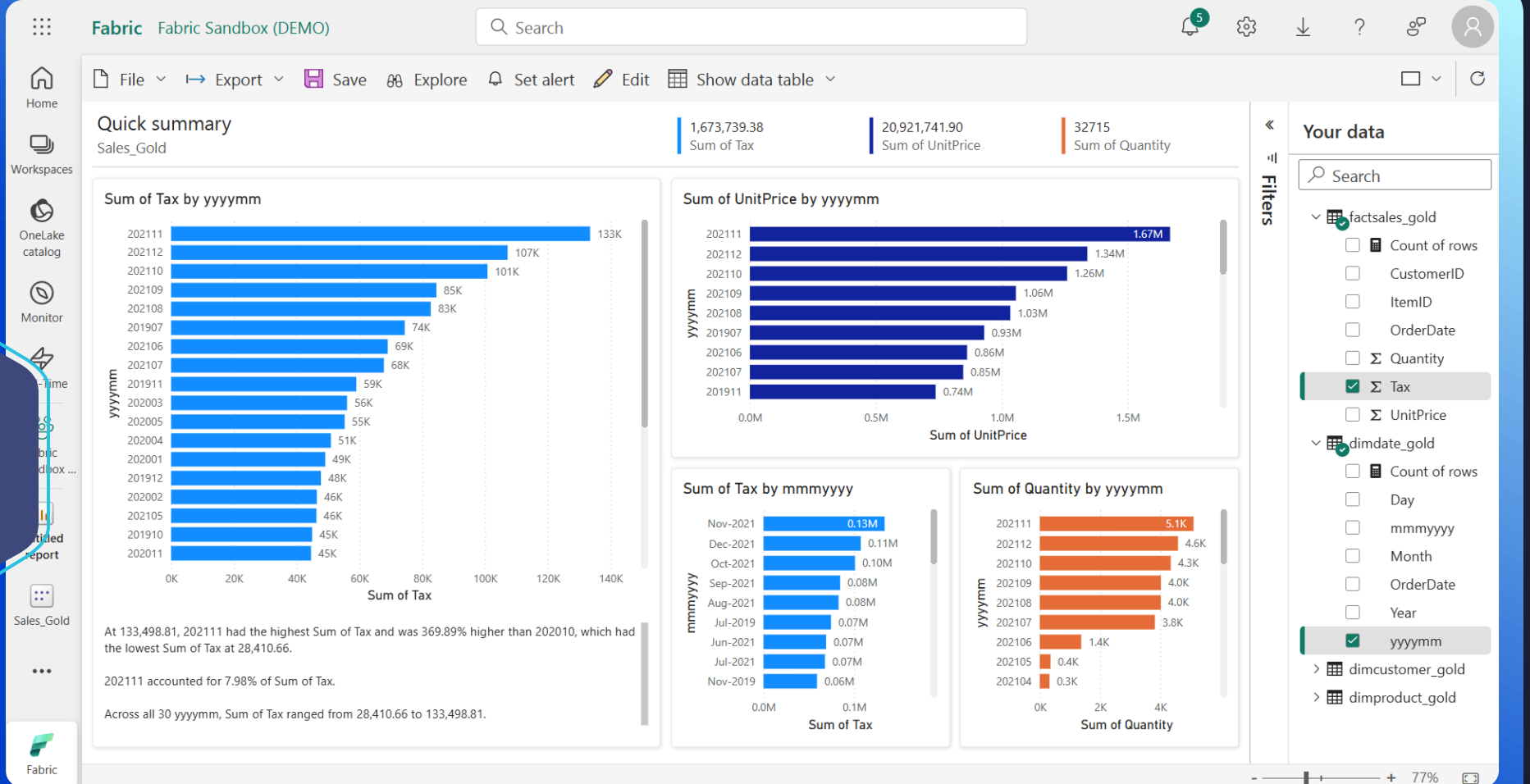
Machine Learning
Analytics
Reverse ETL

Descriptive

Diagnostic

Predictive

Prescriptive





Ingestion



Transformation



Serving

Machine Learning
Analytics
Reverse ETL

Descriptive

Diagnostic

Predictive

Prescriptive

Fabric Fabric Sandbox (DEMO) Search

File Home View Insert Editing

Image Text box Header Footer

Editor

Product Sales

ItemName	Quantity
ItemName	Quantity
Total	Total(5f)

Preview

Editing mode only shows up to 500 rows. Switch to viewing mode or export the report to see all rows.

Product Sales

ItemName	Quantity
All-Purpose Bike Stand	135
AWC Logo Cap	1063
Bike Wash - Dissolver	473
Classic Vest	256
Fender Set - Mountain	1081
Half-Zip Warm-Up	600

Filters

Search

ItemName

Quantity

Add data fields here

Data

Search

Sales_Gold

dimcustomer_gold

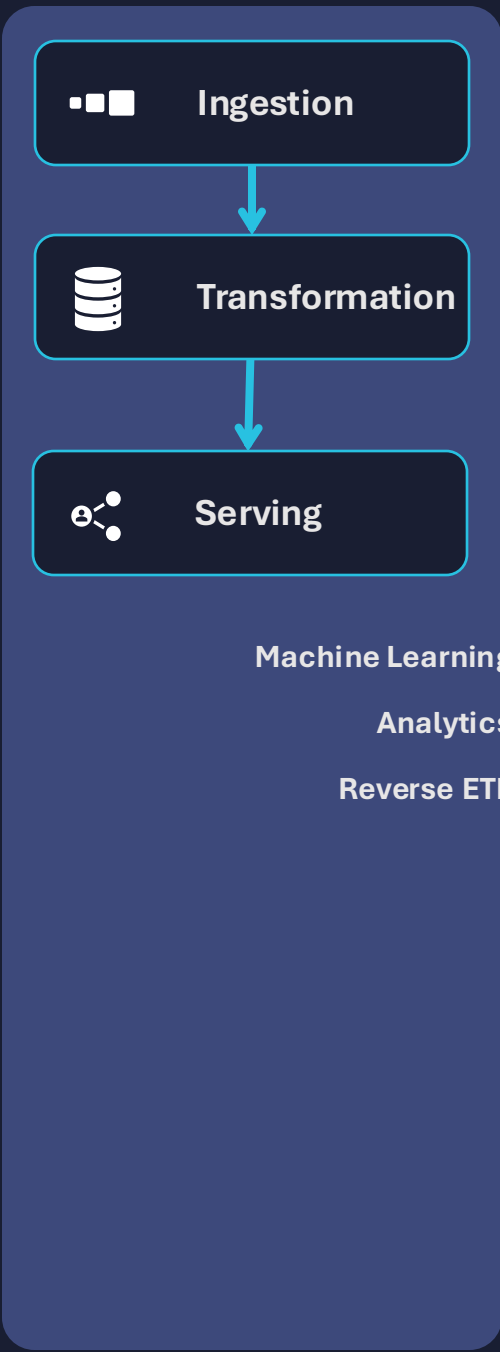
dimdate_gold

dimproduct_gold

factsales_gold

Fabric

Page 1 of 2



DescriptiveDiagnosticPredictivePrescriptive

experiment-diabetes

Search

5

HomeView

Save as ML modelDownload run filesDelete runNew AutoML run

experiment-diabetes

Search

> ✓ good_parsnip... 1/16/2025

> ✓ salmon_ballo... 1/16/2025

Run details

Run metrics (5)

training_mean_absolute_error31.483439772888655

training_mean_squared_error1683.83091476416

training_r2_score0.7321488177154096

training_root_mean_squared_error41.034508828109054

training_score0.7321488177154096

Run parameters (12)

ccp_alpha0.0

criterionSquared_error

max_depth5

max_featuresNone

UD25



Ingestion



Transformation



Serving



AI Readiness

GraphQL

Multi-Model Integration

AI Platform

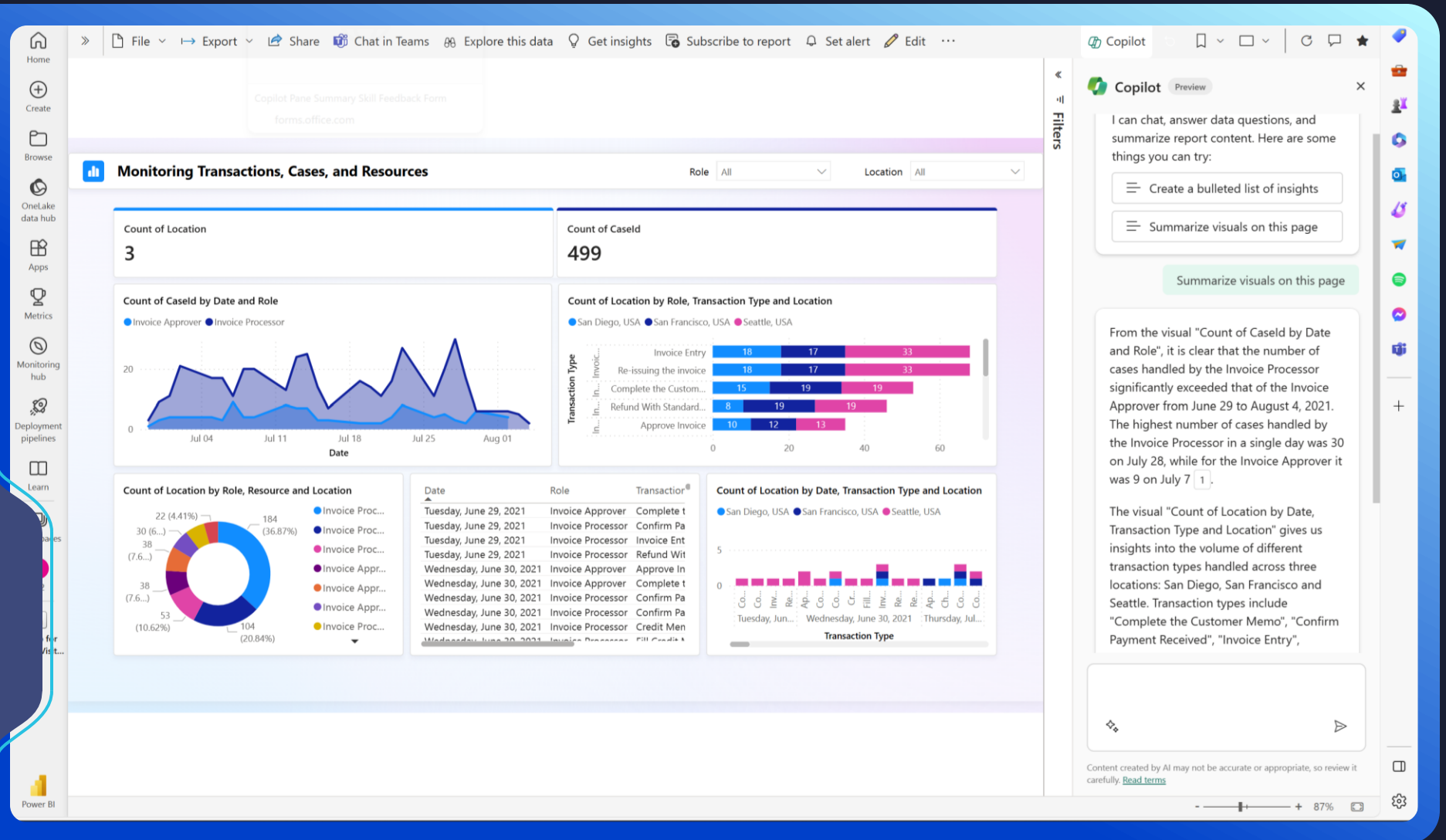
Copilot

Descriptive

Diagnostic

Predictive

Prescriptive





Ingestion



Transformation



Serving



AI Readiness

GraphQL

Multi-Model Integration

AI Platform

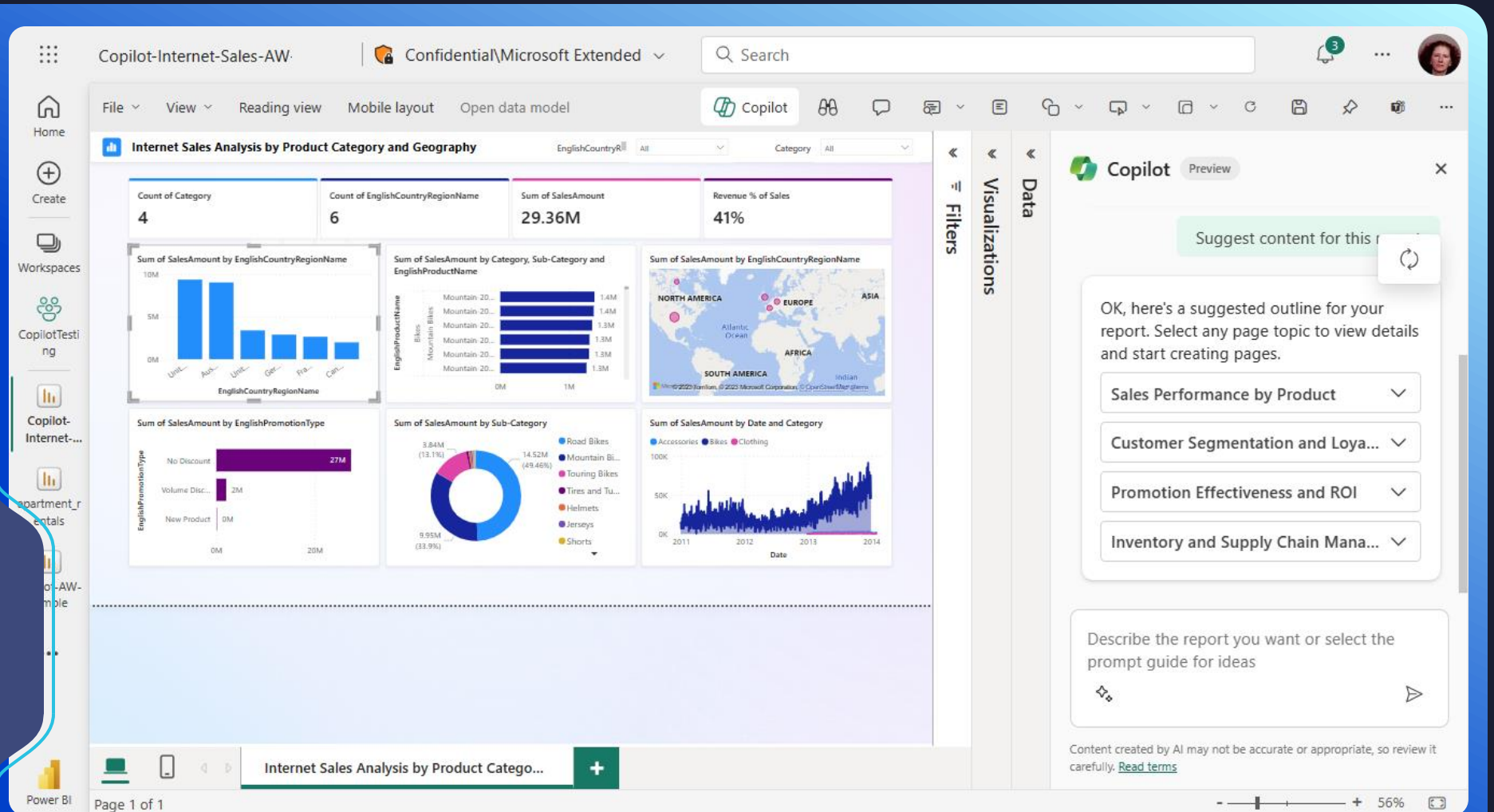
Copilot

Descriptive

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Ingestion



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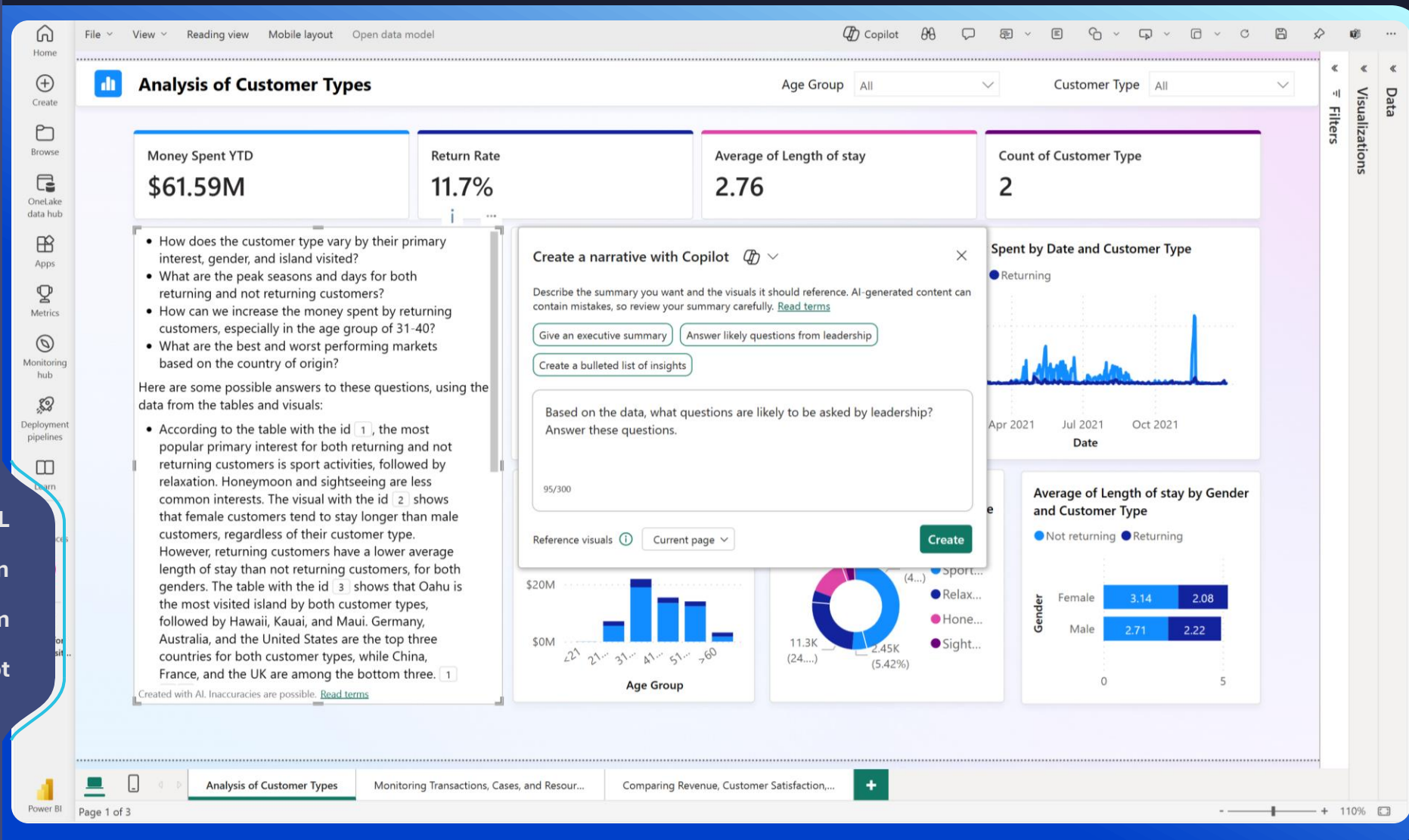
Copilot


Descriptive

Diagnostic


Predictive

Prescriptive



 Ingestion

 Transformation

 Serving

 AI Readiness

GraphQL

Multi-Model Integration

AI Platform

Copilot

Descriptive

Diagnostic

Predictive

Prescriptive

Azure AI Studio | Github PREVIEW / ai-services-resource / Model catalog

Overview

Get started

- Model catalog

Manage

- All resources
- Deployments
- Quota
- Content filters











































Find the right model to build your custom AI solution

Show filters

All filters Collections Industry Deployment options Inference tasks Fine-tuning tasks Licenses

Search

Models 71

 gpt-4o-realtime-preview  Audio generation	 gpt-4o-realtime-preview  Audio generation	 gpt-4  Chat completion
 gpt-35-turbo  Chat completion	 o1-preview  Chat completion	 o1-mini  Chat completion
 gpt-4o-mini  Chat completion	 gpt-4o  Chat completion	 gpt-4-32k  Chat completion
 gpt-35-turbo-instruct  Chat completion	 gpt-35-turbo-16k  Chat completion	 dall-e-3  Text to image
 dall-e-2  Text to image	 o1-preview  Chat completion	 o1-mini  Chat completion
 gpt-4o  Chat completion	 gpt-4o-mini  Chat completion	 whisper  Speech recognition
 tts-hd  Text to speech	 tts  Text to speech	 text-embedding-3-small  Embeddings

Shiny Toys

**What's next on the
Microsoft Fabric
roadmap?**

- Fabric Databases & GraphQL
- Copilot Across Capacities
- Data Agents

GraphQL Integration

The screenshot displays the Microsoft Fabric GraphQL integration interface. On the left, a 'Choose data' panel lists tables from the 'AdventureWorks' database, including 'dbo.SalesOrderDetail', 'dbo.ProductCategory', 'dbo.ProductDescription', 'dbo.ProductModel', 'dbo.ProductModelPr', 'dbo.Product', 'dbo.SalesOrderHead', 'dbo.Address', and 'dbo.Customer'. A table of data is shown in the background with columns: CustomerID, AddressID, AddressType, rowguid, and ModifiedDate.

Overlaid on the right is a 'Query1' editor window. It features a 'Schema explorer' on the left with a search bar and a tree view containing 'AdventureWorks', 'Queries', and 'Mutations'. The main editor area contains a GraphQL query:

```
1 # Ctrl/Cmd + Space gives you auto suggestion
2 # query {
3   # customers {
4     # items {
5       # Name
6     }
7   }
8 }
9
```

Below the query editor is a 'Query variables' section with a list of variables (1-5) and their values. At the bottom, a 'Results' section shows a single result (1).

The bottom of the interface shows a navigation bar with 'Fabric', 'Schema', and 'Query' tabs.

Data Agents

The screenshot displays the Microsoft Fabric Data Agent interface. On the left is the 'Explorer' pane with a tree view of data sources under 'AdventureWorksLH' and 'dbo'. The main area shows a chat interface with a query and its results.

Home | Current | Share

Data agent instructions | Example queries | Clear chat | Publish | Revert to published version

Explorer

- + Data source
- AdventureWorksLH
 - dbo
 - dimaccount
 - dimcurrency
 - dimcustomer
 - dimdate
 - dimdepartmentgroup
 - dimemployee
 - dimgeography
 - dimorganization
 - dimproduct
 - dimproductcategory
 - dimproductsubcategory
 - dimpromotion
 - dimreseller
 - dimsalesreason
 - dimsalesterritory
 - dimscenario
 - factadditionalinternationalproductdescription
 - factcallcenter
 - factcurrencyrate
 - factfinance
 - factinternetsales
 - factinternetsalesreason
 - factproductinventory

Who are the top 5 customers by yearly income, and what are their state or province names?

The top 5 customers by yearly income and their state or province names are:

1. Trisha Wu - England
2. Devin Martin - California
3. Dalton Evans - British Columbia
4. Lolan Song - England
5. Alvin Nara - California

1 step completed | Response time: 8 sec

Sample questions

Ask a question to test the data agent's response

Created with AI. Mistakes are possible. [Review terms](#)

Thank You.

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R.Barry@node4.co.uk



jfitzhenry
reubenbarry