

What's new in Power BI and reporting (for developers)



Agenda

- The world is changing
- New Power BI embed capabilities in AL
- New Data Analysis UI on queries
- Multi-worksheet data in Excel layouts
- Teaching tips and help links on reports and queries
- Learning resources
- Go-dos

The world is
changing



The word *Reporting* in Business Central means three things

Analytical reports

Chart of Account

Purchase statistics

Customer - Top 10 list

...

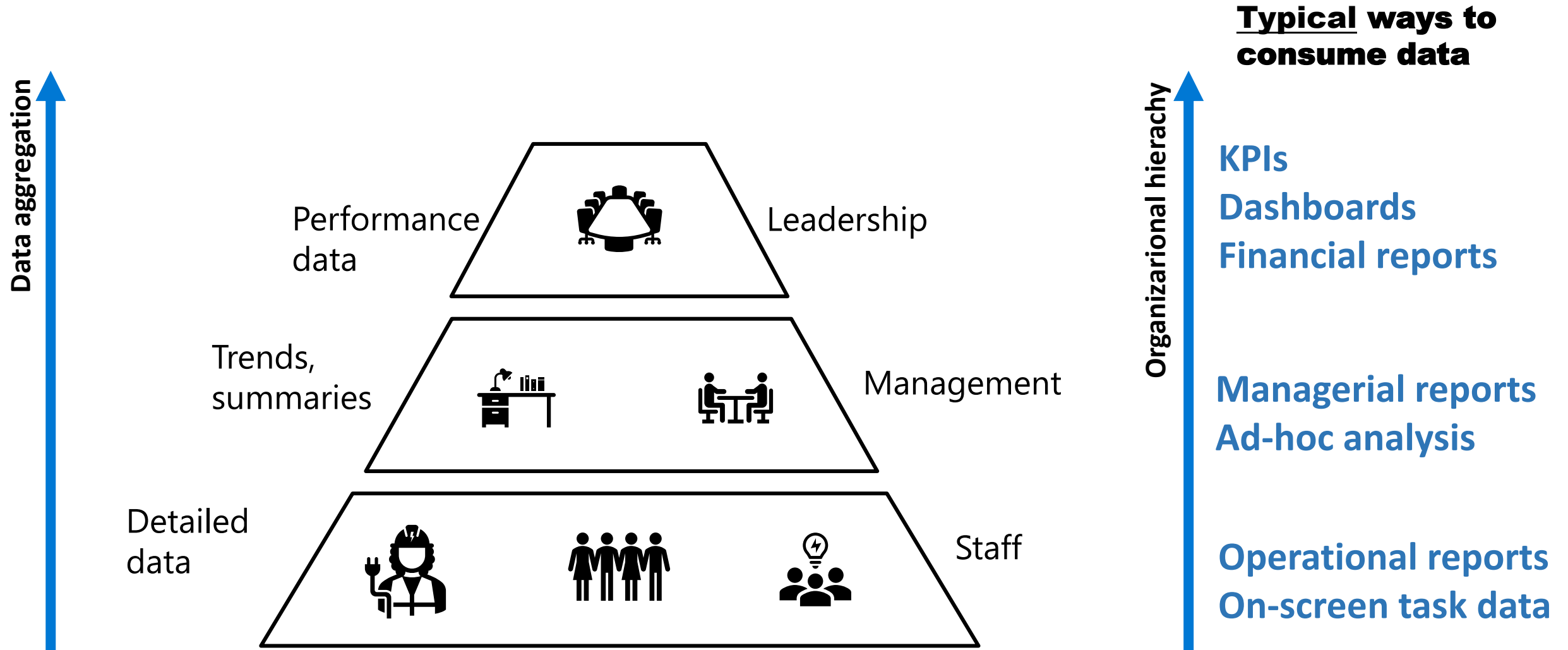
Processing only reports (AL code with a request page)

Printable documents (e.g. invoices)



Not covered in this presentation

Typical *analytics* needs in organizations



Vision: all analytics/reporting is designed for online consumption (not print)

1. Consume data: Core business scenarios have **out-of-the-box reporting/analytics**
2. Enable: Most user analytics needs covered with **nocode/lowcode** solutions
3. Enable: Customers have **easy access to data** – for advanced BI and analytics

ISVs can deliver analytics as well

There is also document reporting ([not part of this presentation](#))

New Power BI
embed capabilities
in AL

An abstract graphic on the right side of the slide. It features a large, light blue semi-circle in the upper right quadrant. Below it, there is a white rounded rectangle. To the left of this rectangle, there is a light blue rounded rectangle that overlaps with the white one. The background is a dark blue gradient.

More control of Power BI embedding for AL developers

Report opens in expanded mode.

User cannot change a report or report page.

Support for Power BI Metrics [scorecards](#).

Example 1: Open a report in expanded mode

```
trigger OnAction()  
begin  
    // Dashboard, Report (which also includes scorecards), Report Visual, Dashboard Tile  
    TempPowerBIDisplayedElement.ElementType :=  
        TempPowerBIDisplayedElement.ElementType::"Report";  
    TempPowerBIDisplayedElement.ElementId :=  
        TempPowerBIDisplayedElement.MakeReportKey(...);  
    TempPowerBIDisplayedElement.ElementEmbedUrl :=  
        'https://app.powerbi.com/reportEmbed?reportId=...';  
    TempPowerBIDisplayedElement.Insert();  
  
    PowerBIElementCard.SetDisplayedElement(TempPowerBIDisplayedElement);  
    PowerBIElementCard.Run();  
end;
```

Example 2: don't allow the user to change page/report

```
// Do not show panes to change filters and pages
TempPowerBIDisplayedElement.ShowPanelsInExpandedMode := false;
TempPowerBIDisplayedElement.ShowPanelsInNormalMode := false;
TempPowerBIDisplayedElement.ReportPage := 'ReportPage7'; // <--- This is also new

// Hide action to select a different report
PowerBIContextSettings.CreateOrReadForCurrentUser('<context (e.g. role center name)>');
PowerBIContextSettings.LockToSelectedElement := true;
PowerBIContextSettings.Modify();
```

Demo

Improved Power BI embed capabilities in AL



New Data Analysis UI on queries

New Data Analysis UI on queries

Open query URL

`/?query= <query object id>`

New: *Analysis* toggle button – opens new UI

New: Support for RunObject

RunObject on a query

```
pageextension 50110 ItemListWithQuery extends "Item List"
{
    actions {
        addbefore("Inventory - List") {
            action("Analyze items") {
                ApplicationArea = All;
                Caption = 'Analyze Item ledger';
                RunObject = query "Item hero query";
                Tooltip = 'Open the Item ledger query in analysis mode.';
                Image = Item;
            }
        }
    }
}
```

The screenshot displays the Dynamics 365 Business Central interface. The main window shows a table of items with columns for No., Description, Type, Quantity on Hand, Status, BOM, and Batch. The 'Inventory - List' page is active, and the 'Analyze Item ledger' action is highlighted in the 'Actions' pane. A red box highlights the 'Analyze Item ledger' action, and a tooltip is visible next to it, stating 'Open the Item ledger query in analysis mode.'.

No.	Description	Type	Quantity on Hand	Status	BOM	Batch
1896-S	ATHENS Desk	Inventory	4	No	No	PCS
1900-S	PARIS Guest Chair, black	Inventory	0	No	No	PCS
1906-S	ATHENS Mobile Pedestal	Inventory	5	No	No	PCS
1908-S	LONDON Swivel Chair, blue	Inventory	3	No	No	PCS
1920-S	ANTWERP Conference Table	Inventory	10	No	No	PCS
1925-W	Conference Bundle 1-6	Inventory	0	No	Yes	PCS
1928-S	AMSTERDAM Lamp	Inventory	8	No	No	PCS
1929-W	Conference Bundle 1-8	Inventory	0	No	Yes	PCS
1936-S	BERLIN Guest Chair, yellow	Inventory	100	No	No	PCS
1953-W	Guest Section 1	Inventory	-49	No	Yes	PCS
1960-S	ROME Guest Chair, green	Inventory	2	No	No	PCS
1964-S	TOKYO Guest Chair, blue	Inventory	4	No	No	PCS
1965-W	Conference Bundle 2-8	Inventory	-81	No	Yes	PCS
1968-S	MEXICO Swivel Chair, black	Inventory	10	Yes	No	PCS
1969-W	Conference Package 1	Inventory	-7	No	Yes	PCS
1972-S	MUNICH Swivel Chair, yellow	Inventory	0	No	No	PCS
1980-S	MOSCOW Swivel Chair, red	Inventory	0	Yes	No	PCS

Demo

New Data Analysis UI on queries

Multi-worksheet data in Excel layouts



Multi- worksheet data in Excel layouts

Excel layouts feature did not handle parent-child/overview-detail types of data very well.

With this change, such report datasets can be designed in a way that enables a very rich way to model things further in PowerPivot.

How it works

ExcelLayoutMultipleDataSheets = false

IntegerColumn	TextColumn	ChildIntegerColumn	ChildTextColumn	IntegerColumn2	TextColumn2	Child2IntegerColumn	Child2TextColumn	IntegerColumn3	TextColumn3	Child3IntegerColumn	Child3TextColumn
0	0	100	100	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
0	0	101	101	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
0	0	102	102	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1	1	100	100	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1	1	101	101	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
1	1	102	102	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
2	2	100	100	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
2	2	101	101	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
2	2	102	102	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	0	0	100	100	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	0	0	101	101	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	0	0	102	102	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	1	1	100	100	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	1	1	101	101	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	1	1	102	102	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	2	2	100	100	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	2	2	101	101	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	2	2	102	102	NULL	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	0	0	100	100	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	0	0	101	101	NULL	NULL	NULL
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NULL	NULL	NULL	NULL	NULL	1	1	100	100	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	1	1	101	101	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	1	1	102	102	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	2	2	100	100	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	2	2	101	101	NULL	NULL	NULL
NULL	NULL	NULL	NULL	NULL	2	2	102	102	NULL	NULL	NULL

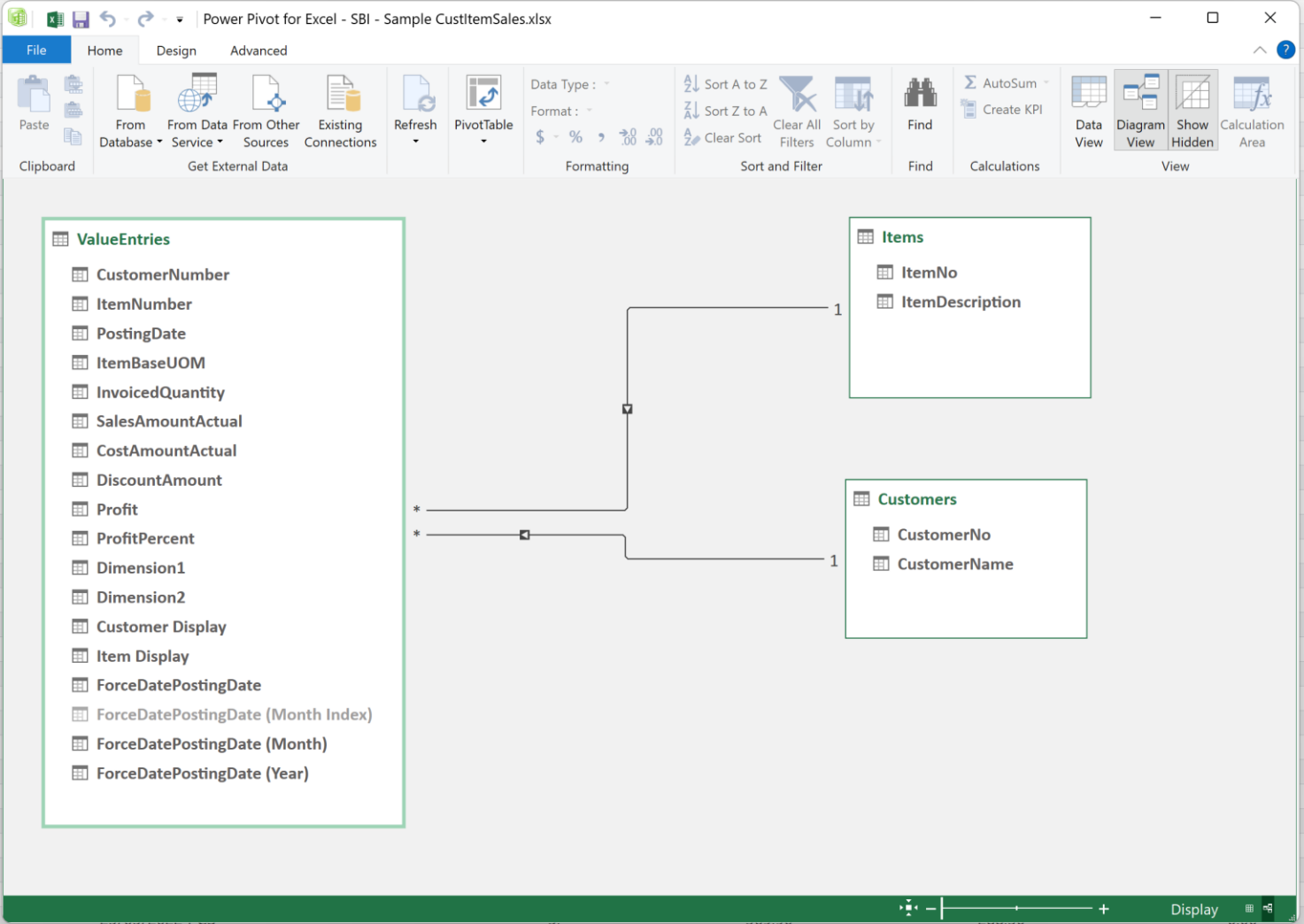
ExcelLayoutMultipleDataSheets = true

IntegerColumn	TextColumn	ChildIntegerColumn	ChildTextColumn
0	0	100	100
0	0	101	101
0	0	102	102
1	1	100	100
1	1	101	101
1	1	102	102
2	2	100	100
2	2	101	101
2	2	102	102

B4

1896-S

	A	B	C	D	E	F	G	H	I	J
1	CustomerNumber	ItemNumber	PostingDate	ItemBaseUOM	InvoicedQuantity	SalesAmountActual	CostAmountActual	DiscountAmount	Profit	ProfitPercent
2	10000	1896-S	23/01/2022	PCS	5,	3.247,00	2.533,00		0,00	714,00
3	10000	1896-S								999,60
4	10000	1896-S								1.142,40
5	10000	1896-S								1.428,00
6	10000	1896-S								1.142,40
7	10000	1896-S								1.142,40
8	10000	1896-S								856,80
9	10000	1896-S								856,80
10	10000	1896-S								714,00
11	10000	1896-S								714,00
12	10000	1896-S								571,20
13	10000	1896-S								428,40
14	10000	1896-S								856,80
15	10000	1896-S								1.142,40
16	10000	1896-S								1.428,00
17	10000	1953-W								163,20
18	10000	1953-W								1.876,80
19	10000	1960-S								110,40
20	10000	1960-S								110,40
21	10000	1960-S								138,00
22	10000	1960-S								138,00
23	10000	1960-S								110,40
24	10000	1960-S								110,40
25	10000	1960-S								110,40
26	10000	1960-S								110,40
27	10000	1960-S								82,80
28	10000	1960-S								82,80
29	10000	1960-S								82,80
30	10000	1960-S								55,20
31	10000	1960-S								110,40
32	10000	1960-S								110,40
33	10000	1960-S								138,00
34	10000	1965-W								910,20
35	10000	1965-W								1.668,70
36	10000	1965-W								151,70
37	10000	1969-W								1.109,00
38	10000	1972-S								54,40
39	10000	1972-S								54,40
40	10000	1972-S								81,60
41	10000	1972-S	21/04/2022	PCS	3,	369,90	288,30		0,00	81,60
42	10000	1972-S								81,60



Multi-worksheet data in Excel layouts

```
report 50101 MyReport {  
  
    ExcelLayoutMultipleDataSheets = true;  
  
    // more code here...  
}
```

Teaching tips and
help links on
queries and reports



Teaching tips and help links on queries and reports

Help users understand what reports and queries can be used for.

Give them help links for the specific report or query.

Demo

Teaching tips and help links on reports and queries

Teaching tips and help links on report request pages

```
report 50101 MyReport {  
  
    requestpage {  
  
        // These properties control the title and content of the teaching tip.  
        AboutTitle = 'Awesome report';  
        AboutText = 'This is an awesome report. Use it to be awesome';  
  
        // Controls the help link for this report  
        ContextSensitiveHelpPage = 'business-central/sales-reports';  
  
        // more code here...  
    }  
}
```


Help

Search here...

Awesome report

This is an awesome report. Use it awesome

Take a tour

Go to Microsoft Learn

Other resources

- Help & Support
- Keyboard Shortcuts
- Community

Awesome report (caption)

Awesome report

This is an awesome report. Use it to be awesome

Show Help

Got it

+ Filter...

Filter totals by:

+ Filter...

Filter: Item Category

+ Filter...

Advanced >

Send to... | Print | Preview & Close | Cancel

AboutTitle
AboutText

ContextSensitiveHelpPage

Get started

Hi, meet Business Central!

You're all set to try out our demo. Go explore on your own, or take a tour.

Show demo tours

Activities

Sales This Month

\$1,906

> See more

Ongoing Sales

Sales Quotes	Sales Orders	Orders from Stock	Outgoing Invoices	Next Week
2	9	0	7	8
				3
				0

Teaching tips and help links on queries

```
query 50100 "My Item query" {  
  
    // Teaching tip title and text  
    AboutTitle = 'Analyze your inventory (slice and dice your data)';  
    AboutText = 'Use this data cube to analyze your inventory.';  
  
    // Controls the help link for this query  
    ContextSensitiveHelpPage = 'business-central/inventory-wms-reports';  
  
    // Where to show the query in Tell Me (search) and in Report/Role explorer  
    UsageCategory = ReportsAndAnalysis;  
  
    // more code here...  
}
```

← Analyze your inventory

Analyze your inventory (slice and dice your data)

Use this data cube to analyze your inventory. You can group and/or the data on any dimension you like.

[Show Help](#)

Got it

[illegible]☐ Pivot Mode☐ Search...

Item No.

Item description

☒ Item discount group

☒ ☐ ☐ ☐ ☐ Is item blocked?

☒ Base Unit of Measure

✔ Type

☒ Costing Method

Unit Cost

☒ Standard Cost

☒ Item Category Code

☒ Cost is Adjusted

☒ Tariff No.

☒ Indentation

Item category description

Item parent category code

☒ Location Code

1111 *Therapsid* *Therapsid* *Therapsid*

Row Groups

Drag here to set row groups

Σ Values

Sum(Unit Cost)

Sum(Standard C... (X)

Sum(Indentation)

sum(remaining ...)

Help

Search here...

Analyze your inventory (slice and dice your data)

Use this data cube to analyze your inventory. You can group and/or the data on any dimension you like.

Take a tour

 [Go to Microsoft Learn](#)

Other resources

 [Help & Support](#)

 Keyboard Shortcuts

Community

Resources

An abstract graphic on the right side of the slide. It features a large, light blue semi-circle in the upper right corner. Below it, there is a white rounded rectangle. To the left of this rectangle, there is a light blue rounded rectangle that overlaps with the white one. The background is a solid dark blue.

- Filter by title
- Development and administration
 - New and planned
 - > Get started
 - > Administration
 - > Development
 - > Security, privacy, and compliance
 - > Performance
 - Integration
 - Refactor integration management
 - > Web services
 - > Connect apps
 - > Integrating with external systems
 - > Integrating with Microsoft Dataverse
 - > Integrating with Microsoft Power Apps
 - > Integrating with Microsoft Power Automate
 - Integrating with Microsoft Power BI
 - Extract data from Business Central
 - Power BI dataset load performance
 - Add Power BI Report parts to pages
 - > Integrating with Microsoft Power Platform
 - > Integrating with Microsoft Teams

... / Developer / Integration / Integrating with Microsoft Power BI /



Add Power BI Report Parts to Pages

Article • 06/12/2023 • 3 contributors Feedback

In this article

- Power BI Report part framework
- Add a Power BI Report part
- Add a Power BI Report part that updates data based on selected record
- Add multiple Power BI Report parts
- Show 3 more

APPLIES TO: Business Central 2022 release wave (v21) and later. For earlier versions, see [Adding Power BI Report Parts to Pages \(Legacy\)](#).

Business Central integrates with Microsoft Power BI, enabling users to create Power BI reports based on Business Central data. Users can view the reports from their Power BI workspaces, but also from the Business Central client. For an overview about Power BI integration, see [Business Central and Power BI](#).

Displaying a Power BI report in a Business Central page requires the page includes a **Power BI Report** part. This part makes the connection to the Power BI Service, and lets users choose which report to display. Business Central comes equipped with several pages that already include the **Power BI Report** part. For a list of these pages, see [Power BI FAQ](#).

Additional resources

Training

Module
[Integrate Power Pages with web-based technologies - Training](#)
Learn how to integrate Power Pages with web-based technologies.

Documentation

[Configure API Templates - Business Central](#)
Describing the steps you must go through to configure API templates for Dynamics 365 Business Central.

[Handling Missing Option Values - Business Central](#)
Learn how to prevent full synchronization from failing because the options differ in mapped fields. This process requires help from a developer.

[Search for Specific Data - Business Central](#)
You can use search when you want to find a specific record.

Show 5 more

MICROSOFT LEARN FOR POWER BI

Microsoft Power BI

Learn how to connect to and visualize data, growing skills that help drive a data culture so that everyone can make better decisions based on data.

[Browse all Power BI learning paths](#)



COLLECTIONS

Design effective reports in Power BI

Learn the process to design and deliver compelling Power BI reports.

[Explore the collection](#)



COLLECTIONS

Become a Data Analyst

Data Analysts enable businesses to maximize the value of their data assets by using Microsoft Power BI. Learn the skills needed to become a Microsoft Certified Data Analyst.

[Explore the collection](#)



COLLECTIONS

Develop with the Power Platform

Learn how to develop with the Power Platform, Microsoft Dataverse, Power Apps, and the Power Apps Component Framework.

[Explore the collection](#)

Filter by title

Development and administration

New and planned

> Get started

> Administration

▾ Development

Development overview

> Get started

> Development environment

▾ AL language

A tour of the AL language

FAQ for AL developers

> Program building blocks

> Language elements

> Error handling

> Formatting values

> Tables and data

> Pages and user interfaces

▾ Developing reports

Overview

Report design overview

Report object

... / [Developer and Admin](#) / [Developer](#) / [Development](#) / [AL language](#) /

⊕ ✎ ⋮

Reports Overview

Article • 09/04/2023 • 6 contributors

👍 Feedback

In this article

[Creating reports](#)

[Getting started](#)

[See Also](#)

You can use reports to print or display information from a Business Central database. Use reports to structure and summarize information to print documents, such as invoices. For example, create a report that lists all customers and orders that have been added by each customer. Also, create a report that is automatically filled with the relevant information for an invoice.

Reports can also be used to process data without printing or displaying content. For example, use a report to automate updating all prices in an item list. It can be easier to create a report to process data instead of a codeunit to do the same processing because you can use:

- Request page functionality to select options and filters for data items, which are available in a report but are difficult to add to a codeunit. For more information, see [Using request pages with reports](#).
- Report data items instead of writing code to open tables and retrieve records.
- Data modeling, which is available when you design reports.

Additional resources

📺 Training

Module

[Use the report design process in Dynamics 365 Business Central - Training](#)

Do you want to learn about the report design process for Microsoft Dynamics 365 Business Central? If so, this module will explain the different...

📖 Documentation

[Number Sequences - Business Central](#)

This topic describes how to create number sequences in AL code in Dynamics 365 Business Central.

[Simple Role Center Example - Business Central](#)

Provides AL code for a simple role center

[Defining Multiple Report Layouts - Business Central](#)

Describes how to define multiple layouts for one report in Business Central using AL.

[Show 5 more](#)

aka.ms/bc**excel**samples

Tips and tricks
for datasets
and layouts

Sample layouts
for existing
reports

Want to do
presentations
for events or
conferences?

FAQ + list of
community
blog posts

List of
community
videos

The screenshot shows the GitHub repository `microsoft / BCTech` at the `master` branch, specifically the `samples / Excel` directory. The repository has 51 issues, 2 pull requests, and 20 security alerts. The file list includes:

Name	Last commit message	Last commit date
..		
example		
guidelines		12 hours ago
images		5 months ago
layouts (ready to use)		last year
Excel-layouts.pptx		12 hours ago
FAQ.md		4 months ago
README.md		yesterday
VIDEOS.md		5 months ago


Callouts from the image point to the following items:



- `guidelines` (Folder)
- `layouts (ready to use)` (Folder)
- `Excel-layouts.pptx` (File)
- `FAQ.md` (File)
- `VIDEOS.md` (File)

What is Excel layouts for Business Central?

Business Central 2022 release wave 1 (version 20) introduced the feature *Excel layouts* as a way to layout and run reports using Excel.

aka.ms/bcpbisamples

 master [BCTech](#) / [samples](#) / [PowerBI](#) / [↑ Top](#)

README.md  

What is Power BI embed for Business Central?

Business Central has had support for embedding Power BI content for many years, initially mostly focusing on the end user experience, but since the 2022 release wave 1 (v21) also improving the developer experience.

See official documentation here: <https://learn.microsoft.com/en-us/dynamics365/business-central/dev-itpro/developer/devenv-power-bi-report-parts>

Read more about Power BI dataset load performance (as seen from the Business Central platform): <https://learn.microsoft.com/en-us/dynamics365/business-central/dev-itpro/webservices/web-service-pbi-performance>

What resources can I find in aka.ms/bcpbisamples?

This repo contains code samples that illustrate how you can embed Power BI into Business Central pages using AL.

Code sample	Description	Version
MultipleReportsOnRoleCenter		Code samples that illustrate how you can embed multiple Power BI reports in a Role Center at the same time.
PBI23samples	Code samples that illustrate the new capabilities to lock Power BI content from AL.	2023 Wave 2 (23.0) or later

AL code samples
for the new PBI
embed capabilities
in 2023w2

The world is changing (for AL developers)

Customer asks, "Can you build me a report?"

STOP asking "Sure. How should it be formatted?"

INSTEAD ask "What do you need to analyze and for what?"

THEN choose the tool of choice



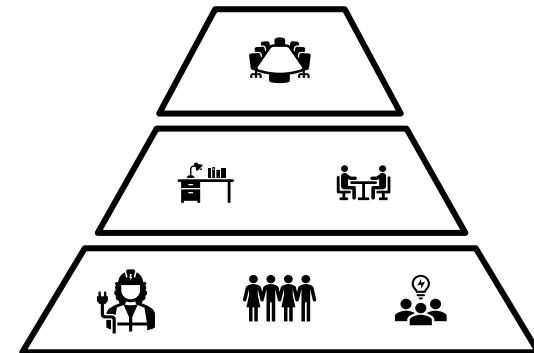
Power BI (and embed), or



Query/List page with Data Analysis, or



AL report with Excel layout



Go dos

Understand analytics requirements

Stop developing reports.
Start supporting analytics needs.

Learn how to Power BI

Business Intelligence (BI) is closely related to ERP.

Power BI is here to stay and is the suggested platform for BI on Business Central data.

Learn how to write AL queries

AL queries are not only for performance tuning anymore.

Queries are a powerful tool to implement data mashups for self-service data analysis.

“Build me a report” might just mean “Build me a query.”

Learn how to design AL for Excel layouts

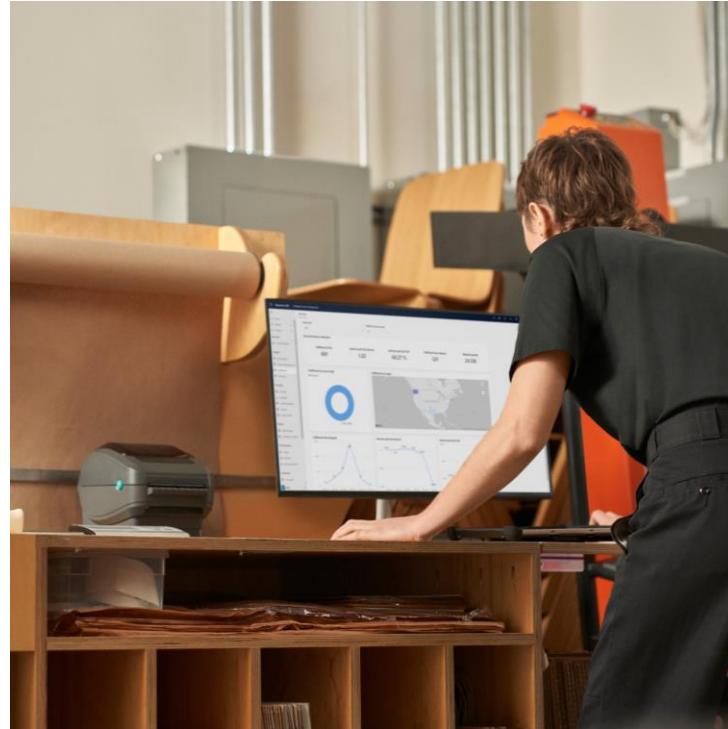
Your job as an AL report developer is changing. In many cases, a good report dataset is enough to unblock the customer.

“Build me a report” might just mean “Build me a report dataset.”

Watch other relevant launch event sessions



What's new in developer tools



What's new in integration with Power Automate and in approval scenarios



Introducing: Analyze data on lists and queries

General Business Central resources, **learn more!**

Join the
conversation

[twitter.com/
MSDyn365BC](https://twitter.com/MSDyn365BC)



Have a
question?

aka.ms/BCYammer



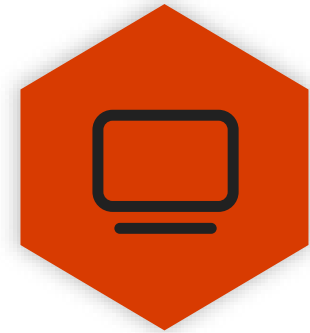
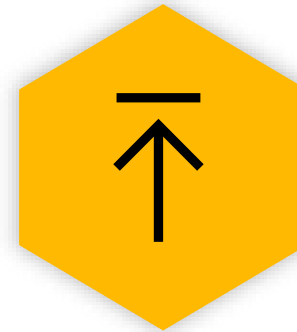
Submit
your ideas

aka.ms/BCIdeas



Looking for
resources?

aka.ms/BCAll



Join the office
hours

aka.ms/BCOfficeHours

Thank you