**BridgeTableYear**

**Purpose**: Creates a consistent year table from 1996 to 2025 to link with all time-based fact tables.

* Ensures uniform year values
* Supports clean **one-to-many** relationships
* Improves filtering, DAX accuracy, and report performance

Code = let

StartYear = 1996,

EndYear = 2025,

YearList = List.Generate(

() => StartYear,

each \_ <= EndYear,

each \_ + 1

),

YearTable = Table.FromList(YearList, Splitter.SplitByNothing(), {"Year"})

in

YearTable

2. **QuarterTable**

**Purpose**: Generates combinations of Year and Quarter (e.g., 2018Q1) from 2018 to 2025.

* Enables seasonal analysis
* Links cleanly to quarterly GDP
* Avoids redundant year/quarter logic in reports

Code = let

StartYear = 2018,

EndYear = 2025,

Quarters = { "Q1", "Q2", "Q3", "Q4" },

YearQuarterList = List.Combine(

List.Transform(

{StartYear..EndYear},

each List.Transform(Quarters, (q) => Text.From(\_) & q)

)

),

YearQuarterTable = Table.FromList(YearQuarterList, Splitter.SplitByNothing(), {"YearQuarter"})

in

YearQuarterTable

3. **DimSector**

**Purpose**: Combines and cleans Sector columns from multiple fact tables to create a unified dimension.

* Resolves **many-to-many** issues with a **one-to-many** model
* Standardizes naming (trimming, casing)
* Enables consistent filtering and accurate DAX

Code = let

// Select and rename Sector columns for consistency

GDP\_Annual = Table.RenameColumns(Table.SelectColumns(#"Panama’s\_Annual\_GDP\_\_2018\_2023", {"Sector"}), {{"Sector", "Sector"}}),

GDP\_Quarterly = Table.RenameColumns(Table.SelectColumns(#"Panama’s\_Quarterly\_GDP\_\_2018\_2023", {"Sector"}), {{"Sector", "Sector"}}),

FDI = Table.RenameColumns(Table.SelectColumns(#"FDI\_\_by\_Economic\_Activity", {"Sector"}), {{"Sector", "Sector"}}),

GVA = Table.RenameColumns(Table.SelectColumns(#"Gross\_Value\_Added\_\_GVA\_\_by\_Economic\_Sector", {"Sector"}), {{"Sector", "Sector"}}),

GDP\_Historical = Table.RenameColumns(Table.SelectColumns(#"Panama’s GDP by Economic Activities", {"Sector"}), {{"Sector", "Sector"}}),

// Combine all sectors

AllSectors = Table.Combine({GDP\_Annual, GDP\_Quarterly, FDI, GVA, GDP\_Historical}),

// Clean: Trim whitespace, remove nulls/empty, and lowercase for standardization

CleanedSectors = Table.SelectRows(AllSectors, each [Sector] <> null and Text.Trim([Sector]) <> ""),

TrimmedSectors = Table.TransformColumns(CleanedSectors, {{"Sector", Text.Trim}}),

LowerCased = Table.TransformColumns(TrimmedSectors, {{"Sector", Text.Lower}}),

// Remove duplicates

UniqueSectors = Table.Distinct(LowerCased),

// Capitalize sector names again (optional)

Capitalized = Table.TransformColumns(UniqueSectors, {{"Sector", Text.Proper}}),

// Add SectorKey

AddKey = Table.AddIndexColumn(Capitalized, "SectorKey", 1, 1, Int64.Type)

in

AddKey

**DAX Calculations**

1. **FDI\_Economic\_Activity**

**DAX**

**Calculate Total FDI**

1. 1Total FDI = SUM('FDI\_Economic\_Activities'[FDI\_Value])

Use on

CARD VISUAL.

**1.** Total FDI 2018–2022 =

CALCULATE(

    [Total FDI],

    FILTER(

        ALL('BridgeTableYear'),

        'BridgeTableYear'[Year] >= 2018 && 'BridgeTableYear'[Year] <= 2022

    )

)

For sector comparison.

**To Track the performance of FDI in panama over the years**

1. Calculating year-over-year FDI Growth Rate (%).

FDI Growth Rate (%) =

VAR CurrentYear = SELECTEDVALUE(BridgeTableYear[Year])

VAR PrevYear = CurrentYear - 1

VAR IsInRange = CurrentYear >= 2017 && CurrentYear <= 2023

VAR PrevFDI =

CALCULATE(

SUM(.FDI\_By\_Economic\_Activity[FDI\_Value]),

FILTER(

ALL(BridgeTableYear),

BridgeTableYear[Year] = PrevYear

)

)

VAR CurrFDI =

CALCULATE(

SUM(.FDI\_By\_Economic\_Activity[FDI\_Value]),

FILTER(

ALL(BridgeTableYear),

BridgeTableYear[Year] = CurrentYear

)

)

RETURN

IF(

IsInRange && NOT ISBLANK(PrevFDI) && PrevFDI > 0,

DIVIDE(CurrFDI - PrevFDI, PrevFDI) \* 100,

BLANK()

)

Visual.

Line chart

**To Determin the Compound Annual growth rate.**

FDI 1CAGR (%) =

VAR StartYear = 2017

VAR EndYear = 2023

VAR NumYears = EndYear - StartYear

VAR StartValue =

    CALCULATE(

        [Total FDI],

        FILTER(

            ALL('BridgeTableYear'),

            'BridgeTableYear'[Year] = StartYear

        )

    )

VAR EndValue =

    CALCULATE(

        [Total FDI],

        FILTER(

            ALL('BridgeTableYear'),

            'BridgeTableYear'[Year] = EndYear

        )

    )

VAR CAGR =

    IF(

        NOT ISBLANK(StartValue) && StartValue > 0 && NOT ISBLANK(EndValue),

        (EndValue / StartValue) ^ (1 / NumYears) - 1,

        BLANK()

    )

RETURN

ROUND(CAGR \* 100, 1)

Visual

Table matrix

**2. FDI\_by\_top\_10\_Countres (Top partner countries)**

**Top Contributing Countries to Panama’s GDP**

**DAX:**

Total FDI Amount =

SUM (FDI\_by\_top\_10\_Countries [FDI\_Value])

CARD VISUAL.

**To track growth performance of** **FDI Year-over-Year Change (%)**.

FDI YoY Change % =

VAR CurrentYear = SELECTEDVALUE(BridgeTableYear[Year])

VAR PrevYear = CurrentYear - 1

VAR CurrentFDI =

CALCULATE(

[Total FDI Amount],

BridgeTableYear[Year] = CurrentYear

)

VAR PrevFDI =

CALCULATE(

[Total FDI Amount],

BridgeTableYear[Year] = PrevYear

)

RETURN

IF(

CurrentYear >= 2017 && CurrentYear <= 2023,

DIVIDE(CurrentFDI - PrevFDI, PrevFDI, 0),

BLANK()

)

Visual.

LINE CHART OR METRIX.

**3. Gross\_Value\_Added\_GVA\_by\_Economic\_Sector.**

**Dax:**

**Calculating the total gross value added**

Total GVA = SUM(Gross\_Value\_Added\_\_GVA\_\_by\_Economic\_Sector[GVA\_Value])

Visualize with card visual.

**To calculate the growth%**

measure for calculating **Growth % from 2018 to 2022**

Growth % 2018–2022 =

VAR GVA\_2018 =

CALCULATE(

[Total GVA],

FILTER(

ALL('BridgeTableYear'),

'BridgeTableYear'[Year] = 2018

)

)

VAR GVA\_2022 =

CALCULATE(

[Total GVA],

FILTER(

ALL('BridgeTableYear'),

'BridgeTableYear'[Year] = 2022

)

)

RETURN

IF(

GVA\_2018 > 0,

DIVIDE(GVA\_2022 - GVA\_2018, GVA\_2018),

BLANK()

)

**Calculating CAGR (Compound Annual Growth Rate) for 2018–2022**

CAGR % 2018–2022 =

VAR StartYear = 2018

VAR EndYear = 2022

VAR NumPeriods = EndYear - StartYear

VAR GVA\_2018 =

CALCULATE(

[Total GVA],

FILTER(

ALL('BridgeTableYear'),

'BridgeTableYear'[Year] = StartYear

)

)

VAR GVA\_2022 =

CALCULATE(

[Total GVA],

FILTER(

ALL('BridgeTableYear'),

'BridgeTableYear'[Year] = EndYear

)

)

RETURN

IF(

NOT(ISBLANK(GVA\_2018)) && GVA\_2018 > 0,

POWER(GVA\_2022 / GVA\_2018, 1 / NumPeriods) - 1,

BLANK()

)

Visual.

line charts

**To Calculate Sector contribution by CAGR%**

**GVA CAGR % 2018–2022 =**

**VAR StartYear = 2018**

**VAR EndYear = 2022**

**VAR NumPeriods = EndYear - StartYear**

**VAR GVA\_2018 =**

**CALCULATE(**

**[Total GVA],**

**FILTER(**

**ALL('BridgeTableYear'),**

**'BridgeTableYear'[Yearly] = StartYear**

**)**

**)**

**VAR GVA\_2022 =**

**CALCULATE(**

**[Total GVA],**

**FILTER(**

**ALL('BridgeTableYear'),**

**'BridgeTableYear'[Yearly] = EndYear**

**)**

**)**

**RETURN**

**IF(**

**NOT ISBLANK(GVA\_2018) && GVA\_2018 > 0,**

**(POWER(GVA\_2022 / GVA\_2018, 1 / NumPeriods) - 1),**

**BLANK()**

**)**

Visual Bar Chart

**4.** **Panama’s GDP by Economic Activity (1996–2022)**

**Dax:**

Calculating Total GDP = SUM('GDP\_Economic\_Activity'[GDP\_Value])

**Tracking sectoral performance from 1996-2022**

**CAGR % 1996–2022 =**

**VAR StartYear = 1996**

**VAR EndYear = 2022**

**VAR NumPeriods = EndYear - StartYear**

**VAR GDP\_1996 =**

**CALCULATE(**

**[Total Sector GDP],**

**FILTER(**

**ALL('BridgeTableYear'),**

**'BridgeTableYear'[Yearly] = StartYear**

**)**

**)**

**VAR GDP\_2022 =**

**CALCULATE(**

**[Total Sector GDP],**

**FILTER(**

**ALL('BridgeTableYear'),**

**'BridgeTableYear'[Yearly] = EndYear**

**)**

**)**

**RETURN**

**IF(**

**NOT ISBLANK(GDP\_1996) && GDP\_1996 > 0,**

**POWER(GDP\_2022 / GDP\_1996, 1 / NumPeriods) - 1,**

**BLANK()**

**)**

Visual.

Stacked bar chart.

**Tracking sectoral performance from 2018-2022**

**1CAGR % 2018–2022 =**

**VAR StartYear = 2018**

**VAR EndYear = 2022**

**VAR NumPeriods = EndYear - StartYear**

**VAR GDP\_2018 =**

**CALCULATE(**

**[Total Sector GDP],**

**FILTER(**

**ALL('BridgeTableYear'),**

**'BridgeTableYear'[Yearly] = StartYear**

**)**

**)**

**VAR GDP\_2022 =**

**CALCULATE(**

**[Total Sector GDP],**

**FILTER(**

**ALL('BridgeTableYear'),**

**'BridgeTableYear'[Yearly] = EndYear**

**)**

**)**

**RETURN**

**IF(**

**NOT ISBLANK(GDP\_2018) && GDP\_2018 > 0,**

**(POWER(GDP\_2022 / GDP\_2018, 1 / NumPeriods) - 1) \* 100,**

**BLANK()**

**)**

**5. Panama’s\_Annual\_GDP\_\_2018\_2023:**

**Dax:**

**Calculating Total Annual GDP:**

Total GDP 2018-2023 =

CALCULATE(

SUM('Panama’s\_Annual\_GDP\_\_2018\_2023'[GDP\_Annual\_Value]),

FILTER(

'Panama’s\_Annual\_GDP\_\_2018\_2023',

'Panama’s\_Annual\_GDP\_\_2018\_2023'[Year] >= 2018 &&

'Panama’s\_Annual\_GDP\_\_2018\_2023'[Year] <= 2023

)

)

**calculate the GDP Growth Rate (%).**

GDP Growth Rate (%)2 =

VAR CurrentYear = SELECTEDVALUE(BridgeTableYear[Year])

VAR CurrentGDP =

CALCULATE(

SUM('Panama’s\_Annual\_GDP\_\_2018\_2023'[GDP\_Annual\_Value]),

FILTER(

ALL('Panama’s\_Annual\_GDP\_\_2018\_2023'),

'Panama’s\_Annual\_GDP\_\_2018\_2023'[Year] = CurrentYear

)

)

VAR PreviousGDP =

CALCULATE(

SUM('Panama’s\_Annual\_GDP\_\_2018\_2023'[GDP\_Annual\_Value]),

FILTER(

ALL('Panama’s\_Annual\_GDP\_\_2018\_2023'),

'Panama’s\_Annual\_GDP\_\_2018\_2023'[Year] = CurrentYear - 1

)

)

RETURN

IF(

NOT(ISBLANK(CurrentGDP)) && NOT(ISBLANK(PreviousGDP)) && PreviousGDP <> 0,

DIVIDE(CurrentGDP - PreviousGDP, PreviousGDP),

BLANK()

)

Visual.

line chart

**6 Panama Provincial\_GDP\_2018–2023:**

**Dax:**

**Calculating Top panama’s Provinces by Total GDP**.

Total\_GDP\_By\_province = SUM('Provincial\_GDP'[GDP\_Value]).

**Province GDP by Year over Year Growth**.

GDP\_YoY =

VAR CurrentYear = MAX('BridgeTableYear'[Year])

VAR PrevYear = CurrentYear - 1

VAR CurrGDP =

CALCULATE(

[Total\_GDP],

'BridgeTableYear'[Year] = CurrentYear

)

VAR PrevGDP =

CALCULATE(

[Total\_GDP],

'BridgeTableYear'[Year] = PrevYear

)

RETURN

DIVIDE(CurrGDP - PrevGDP, PrevGDP)

Visual.

Map of panama

**7. Panama’s\_Quarterly\_GDP\_2018–2023.**

**DAX:**

**Caculating the Average GDP By Quarter**

Avg\_GDP\_By\_Quarter =

AVERAGEX(

    VALUES(BridgeTableQuarter[Quarters]),

    CALCULATE(SUM('Panama’s\_Quarterly\_GDP\_\_2018\_2023'[Quarter\_GDP\_Value]))

)

Visual.

Line chart.

**Tracking Quarter growth**

Quarterly\_GDP\_Growth\_% =

VAR CurrentQ = SELECTEDVALUE(BridgeTableQuarter[Quarters])

VAR IsInRange =

    CurrentQ >= "2018Q1" && CurrentQ <= "2024Q3"

VAR PrevQ =

    CALCULATE(

        MAX(BridgeTableQuarter[Quarters]),

        FILTER(

            ALL(BridgeTableQuarter),

            BridgeTableQuarter[Quarters] < CurrentQ

        )

    )

VAR CurrGDP =

    CALCULATE(

        SUM('Panama’s\_Quarterly\_GDP\_\_2018\_2023'[Quarter\_GDP\_Value]),

        TREATAS({CurrentQ}, 'BridgeTableQuarter'[Quarters])

    )

VAR PrevGDP =

    CALCULATE(

        SUM('Panama’s\_Quarterly\_GDP\_\_2018\_2023'[Quarter\_GDP\_Value]),

        TREATAS({PrevQ}, 'BridgeTableQuarter'[Quarters])

    )

RETURN

IF(

    IsInRange && NOT ISBLANK(PrevGDP),

    DIVIDE(CurrGDP - PrevGDP, PrevGDP),

    BLANK()

)

visual

Table matrix