

Curso de Data Analytics con Power BI

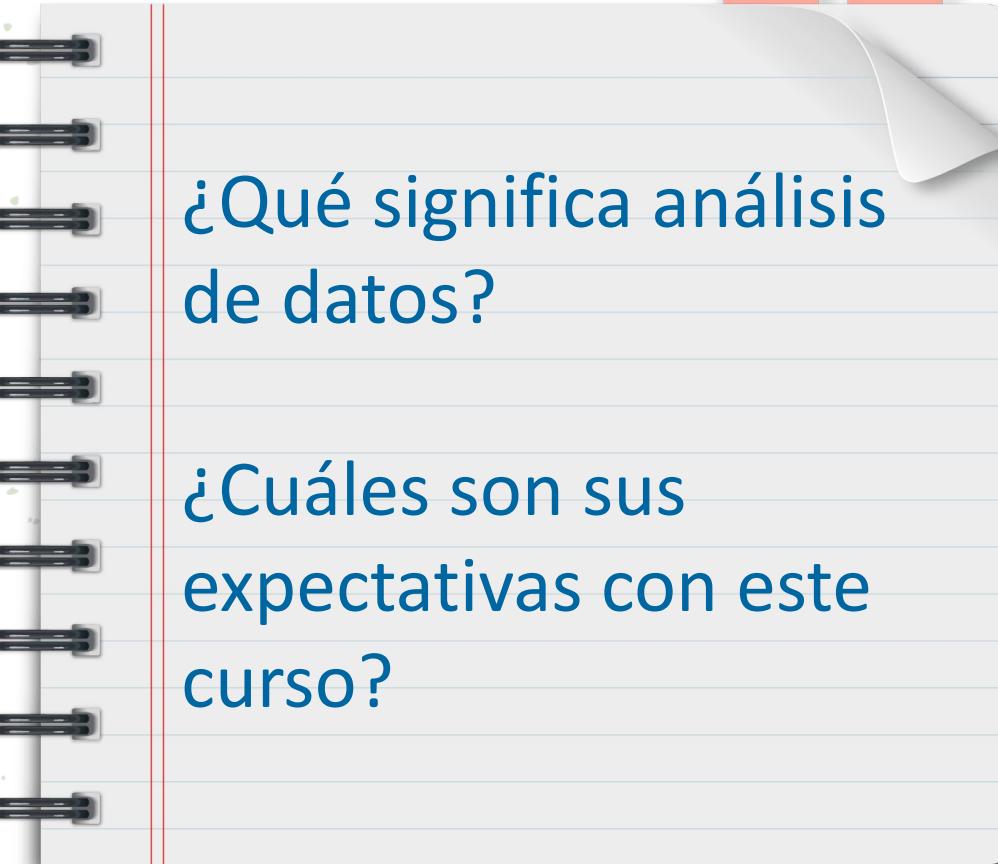
Primera Clase



Por IEEE WIE ITBA SB



connect. support. inspire.



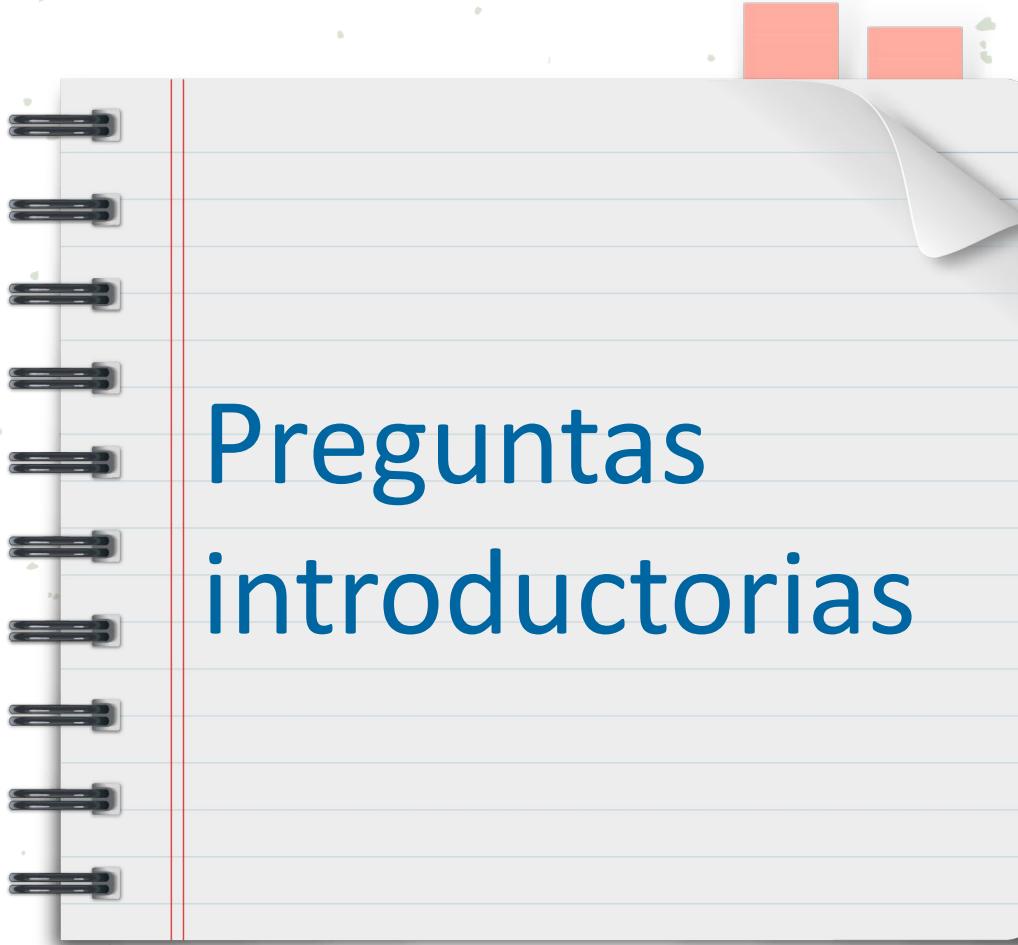
¿Qué significa análisis de datos?

¿Cuáles son sus expectativas con este curso?

Instalando PBI

- ★ Dirigirse a la [Microsoft Store](#)
- ★ Buscar [Power BI Desktop](#)
- ★ Click en Obtener/Instalar
- ★ Listo para usar





Qué es Data Analytics

Recolectar Datos

Buscar un conjunto de datos relevante



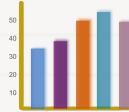
Limpiar Datos

Quedarse únicamente con la información que nos sirve para el objetivo buscado



Transformar Datos

Formular preguntas, realizar visualizaciones y gráficos



Toma de decisiones

Las conclusiones se convierten en acciones. Siempre se puede volver a cualquier otro paso

Por qué Power BI



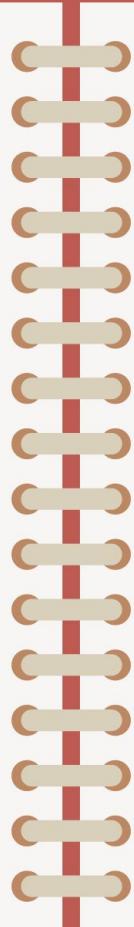
Simplicidad y rapidez

Los nuevos usuarios tardan poco tiempo en entenderlo



Es integral

Brinda la funcionalidad completa para el análisis de datos



Es de fácil personalización

Permite personalizar el origen de los datos, las visualizaciones, crear y obtener nuevos gráficos

Relevancia en el Mercado Laboral

Con el florecer de los analistas de datos, en las empresas quieren poder visualizar información fácilmente



Qué es un dataset

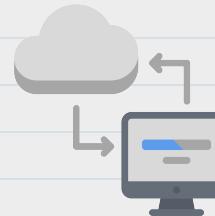


- ★ Una colección de datos
- ★ Tiene uno o más registros
- ★ Tiene un propósito
- ★ Ejemplo: compras del super

LISTA DE LA COMPRA DE PRIMAVERA		
FRUTA	LÁCTEOS	REFRIGERADO
<input type="radio"/> Fresas	<input type="radio"/> Leche	<input type="radio"/> Bebida vegetal
<input type="radio"/> Mandarinas	<input type="radio"/> Yogur	<input type="radio"/> Huéveros
<input type="radio"/> Nectarinas	<input type="radio"/> Queso	<input type="radio"/> Jamón cocido
<input type="radio"/> Nísperos	<input type="radio"/> Manteca	<input type="radio"/> Jamón serrano
<input type="radio"/> Cerezas	<input type="radio"/>	<input type="radio"/> Pavo
<input type="radio"/> Naranjas	<input type="radio"/>	<input type="radio"/> Hummus
<input type="radio"/> Plátanos	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
VERDURA	DESPENSA	CARNE Y PESCADO
<input type="radio"/> Puerros	<input type="radio"/> Lechoncillo	<input type="radio"/> Pollo
<input type="radio"/> Habas	<input type="radio"/> Arroz integral	<input type="radio"/> Pavo
<input type="radio"/> Esparragos	<input type="radio"/> Avena	<input type="radio"/> Ternera
<input type="radio"/> Brócoli	<input type="radio"/> Lentejas	<input type="radio"/> Cerdo
<input type="radio"/> Berenjenas	<input type="radio"/> Pasta integral	<input type="radio"/> Atún
<input type="radio"/> Calabacín	<input type="radio"/> Harina	<input type="radio"/> Riba
<input type="radio"/> Patata	<input type="radio"/> Frutos secos	<input type="radio"/> Boquerones
<input type="radio"/> Coliflor	<input type="radio"/> Sardinas	<input type="radio"/> Merluza
<input type="radio"/> Ajo	<input type="radio"/> Aceite / vinagre / sal	<input type="radio"/> Redondillo
<input type="radio"/> Ajos	<input type="radio"/> Especias	<input type="radio"/> Langostino
<input type="radio"/>	<input type="radio"/> Café / té / infusiones	<input type="radio"/>
<input type="radio"/>	<input type="radio"/> Conservas	<input type="radio"/>
<input type="radio"/>	<input type="radio"/> Chocolate	<input type="radio"/>
OTROS		

Qué es una API

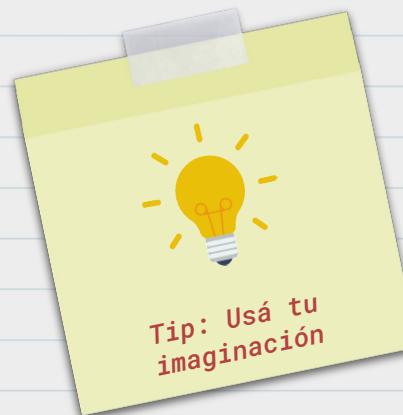
- ★ Es un programa intermediario
- ★ Corre en un servidor
- ★ Permite recibir y responder “preguntas”



Eligiendo un dataset

A la hora de elegir un dataset, recordá que:

- ❖ Pueden ser hobbies o actividades habituales
- ❖ Tenes que poder obtener esos datos
- ❖ Te deberías poder hacer preguntas sobre esos datos



Algunas ideas de datasets

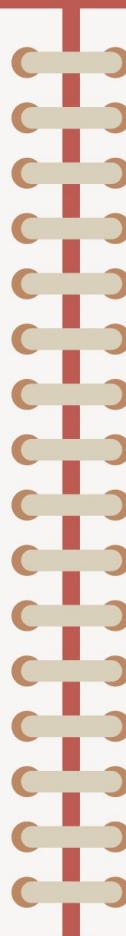
Actividades de Strava

Salidas a andar en bici por las ciudades que visito



Actividad de Netflix

Películas y series vistas en la plataforma, horas dedicadas.



Datos de Steam

Juegos que tengo, horas jugadas, logros por juego, etc

Materias de la facu

Listado de materias de la carrera, cant. créditos, aprobados, desaprobados, notas



Dates

05/04/2021 29/06/2021



12.23

Min Distance (km)

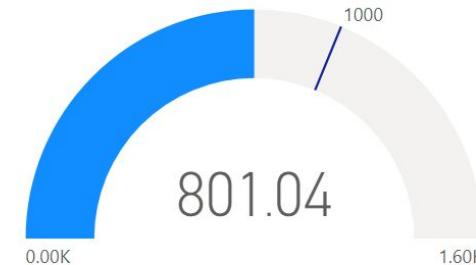
26.70

Average Distance per Ride (km)

69.23

Max Distance (km)

Aggregated distance over time (km)



Distance per day

Distance (km) 12.23 69.23





Nuestro primer Dataset

Datos de prueba de Microsoft:

[Financial Sample Excel](#)

Antes de comenzar...

financials	⋮
Σ Sales	⋮
Σ COGS	⋮
Country	⋮
Date	⋮
Discount Band	⋮
Σ Discounts	⋮
Σ Gross Sales	⋮
Σ Manufacturing Price	⋮
Month Name	⋮
Σ Month Number	⋮
Product	⋮
Σ Profit	⋮
Σ Sale Price	⋮
Segment	⋮
Σ Units Sold	⋮
Σ Year	⋮

- ★ Ver los nombres de las columnas para saber qué datos tenemos
- ★ ¿Hace falta algún dato más?
- ★ Vamos a generarnos preguntas sobre estos datos..

Preguntas sobre nuestro dataset

Cuántas son las **ventas por mes**?



Cuántas son las **ventas por país**?



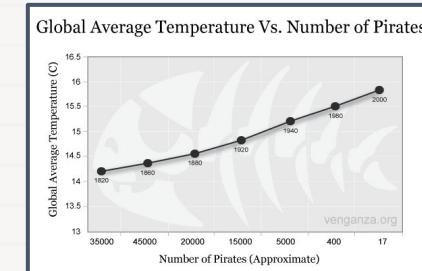
Cuál es el **total de unidades vendidas**?



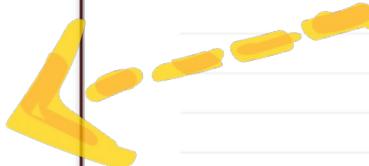
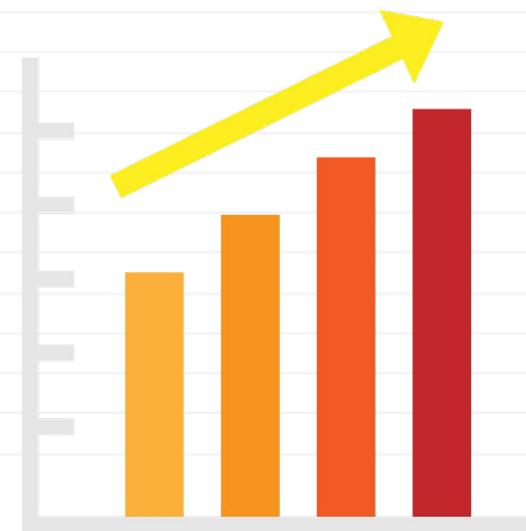
Cuál es el **país con mayores ventas y cuántas ventas logró**?



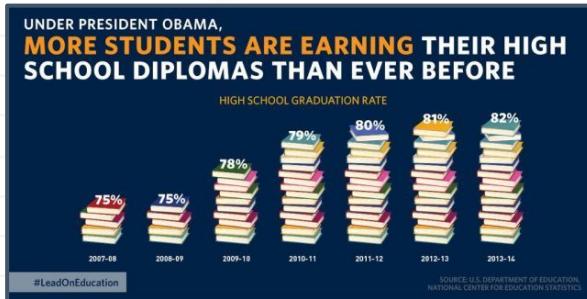
Cuál es la relación que hay entre cada **producto y los lobos marinos**?



Nuestro mejor amigo, el Bar Chart

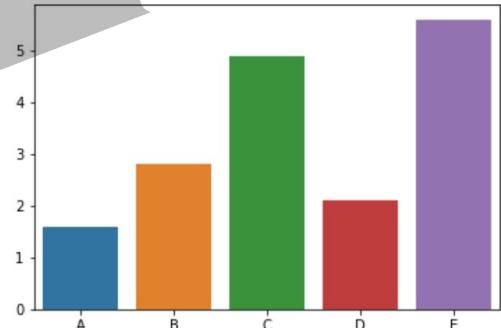


Sirven para comparar medidas en períodos o categorías.
Resaltan magnitudes con alturas proporcionales a los datos



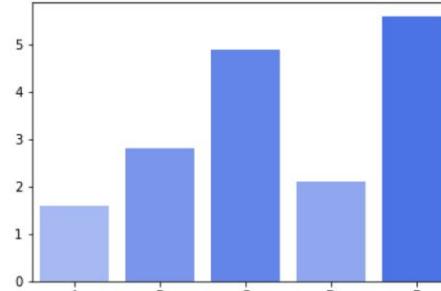
¡Tiene que ser a escala!

Colores (y cómo usarlos)



Los colores son importantes,
pero hay que ser prudente

Muchos colores sin un sentido ayudan a
desorientar al que ve el gráfico



En muchas ocasiones es bueno
usar un degradé

Los degradés sirven para resaltar la
diferencia de magnitudes o
intensidades

KPIs

Key Performance Indicator o Indicador Clave de Rendimiento



Es un indicador de estado, en simples palabras

Presentar datos a superiores en KPIs es recomendable para ser concisos y resumir la información clave

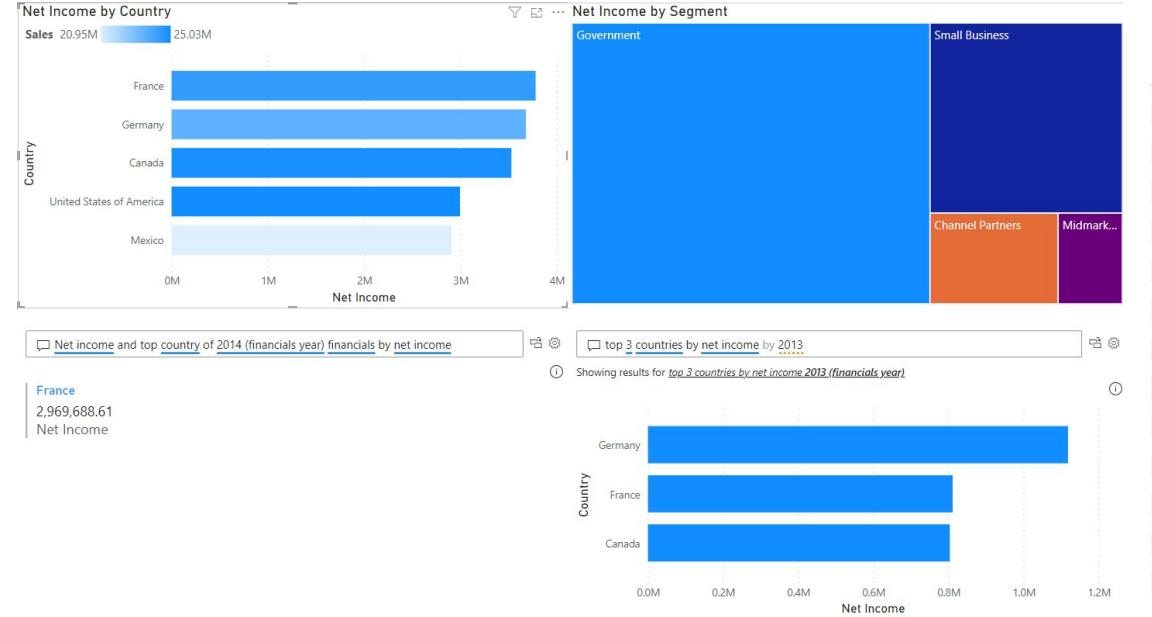
MISIÓN DE MCDONALDS



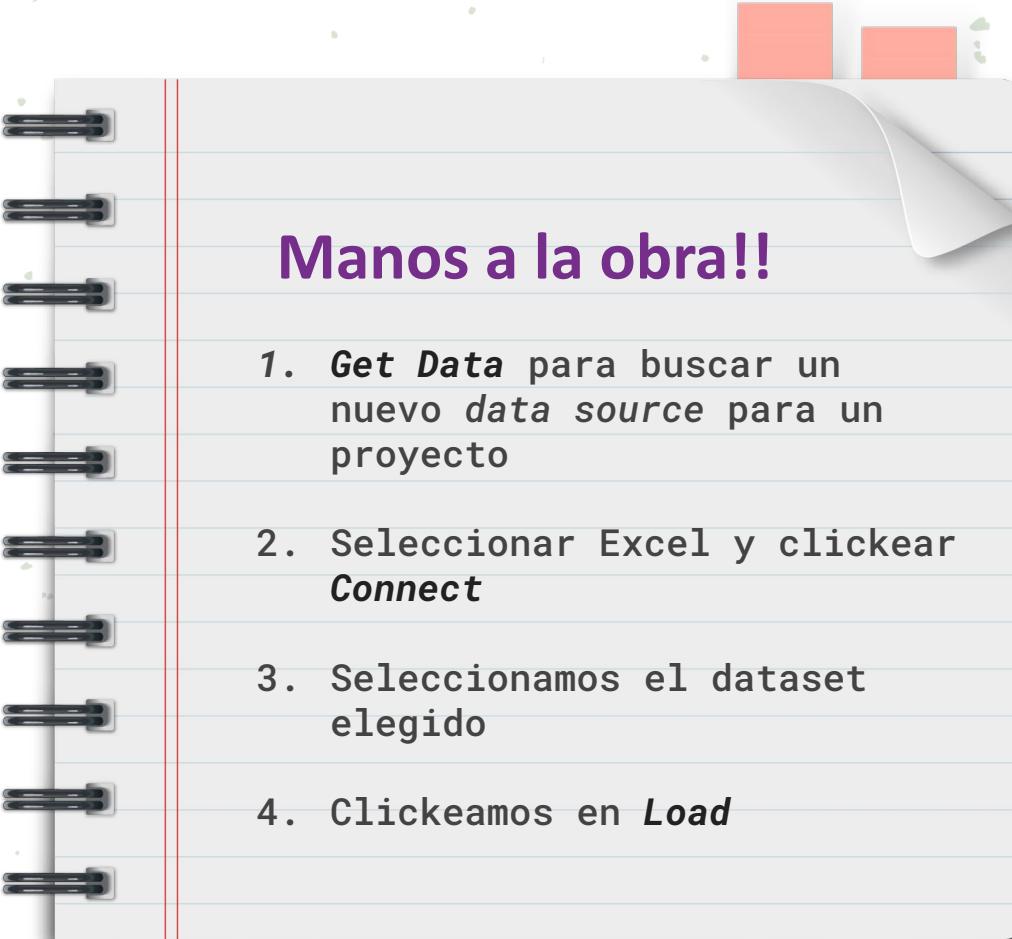
"Entregar gran sabor, comida de alta calidad a nuestros clientes y proveer una experiencia de clase mundial que los haga sentir bienvenidos y valorados."

Tener en mente el objetivo buscado

Al diseñar un KPI, es fundamental identificar métricas claras que reflejen objetivos estratégicos y permitan tomar decisiones informadas



Country	Market Segment	Product	Gross Sales Total	Gross Sales 2013	Gross Sales 2014	Increment of Gross Sales 2013 to 2014
Canada	Channel Partners	Amarilla	\$75,378	\$33,132	\$42,246	27.51% ▲
Canada	Channel Partners	Carretera	\$117,216	\$38,484	\$78,732	104.58% ▲
Canada	Channel Partners	Paseo	\$177,492	\$54,252	\$123,240	127.16% ▲
Canada	Enterprise	Carretera	\$394,812.5	\$302,000	\$92,812.5	-69.27% ▼
Canada	Enterprise	Montana	\$376,312.5	\$43,125	\$333,187.5	672.61% ▲
Canada	Enterprise	Velo	\$839,000	\$282,625	\$556,375	96.86% ▲
Canada	Enterprise	VTT	\$1,224,375	\$369,250	\$855,125	131.58% ▲
Canada	Government	Amarilla	\$2,784,503	\$1,052,100	\$1,732,403	64.66% ▲
Canada	Government	Carretera	\$1,395,930	\$19,957	\$1,375,973	6794.69% ▲
Canada	Government	Montana	\$958,079	\$31,234	\$926,845	2867.42% ▲
Canada	Government	Paseo	\$4,256,485	\$1,113,813	\$3,142,672	182.15% ▲
Canada	Government	Velo	\$1,541,599	\$67,564	\$1,474,035	2081.69% ▲
Canada	Government	VTT	\$708,761	\$304,530	\$404,231	32.74% ▲
Canada	Midmarket	Amarilla	\$50,602.5	\$26,145	\$24,457.5	-6.45% ▼
Canada	Midmarket	Carretera	\$140,895	\$23,400	\$117,495	402.12% ▲
Canada	Midmarket	Paseo	\$220,260	\$95,475	\$124,785	30.70% ▲
Canada	Small Business	Montana	\$1,525,650	\$384,900	\$1,140,750	196.38% ▲
Canada	Small Business	Paseo	\$2,506,500	\$421,200	\$2,085,300	395.09% ▲
Canada	Small Business	Velo	\$1,218,750	\$80,700	\$1,138,050	1310.22% ▲
Canada	Small Business	VTT	\$3,063,000	\$811,500	\$2,251,500	177.45% ▲
France	Channel Partners	Amarilla	\$50,088	\$3,672	\$46,416	1164.05% ▲
France	Channel Partners	Carretera	\$68,808	\$14,376	\$54,432	278.63% ▲
France	Channel Partners	Paseo	\$117,090	\$35,796	\$81,294	127.10% ▲
France	Channel Partners	VTT	\$78,870	\$26,808	\$52,062	94.20% ▲
France	Enterprise	Carretera	\$1,295,437.5	\$313,125	\$982,312.5	213.71% ▲
France	Enterprise	Montana	\$393,000	\$232,125	\$160,875	-30.69% ▼

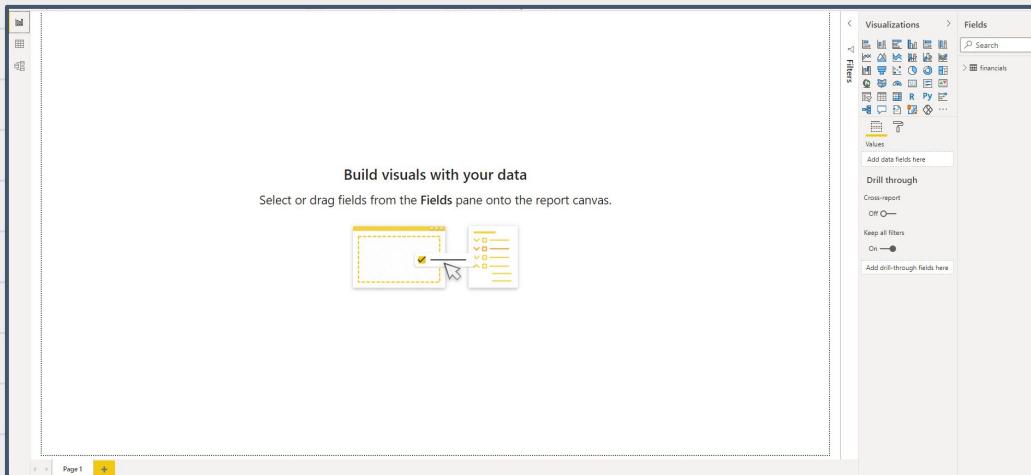


Manos a la obra!!

1. ***Get Data*** para buscar un nuevo *data source* para un proyecto
2. Seleccionar Excel y clickear ***Connect***
3. Seleccionamos el dataset elegido
4. Clickeamos en ***Load***

Vista: Report

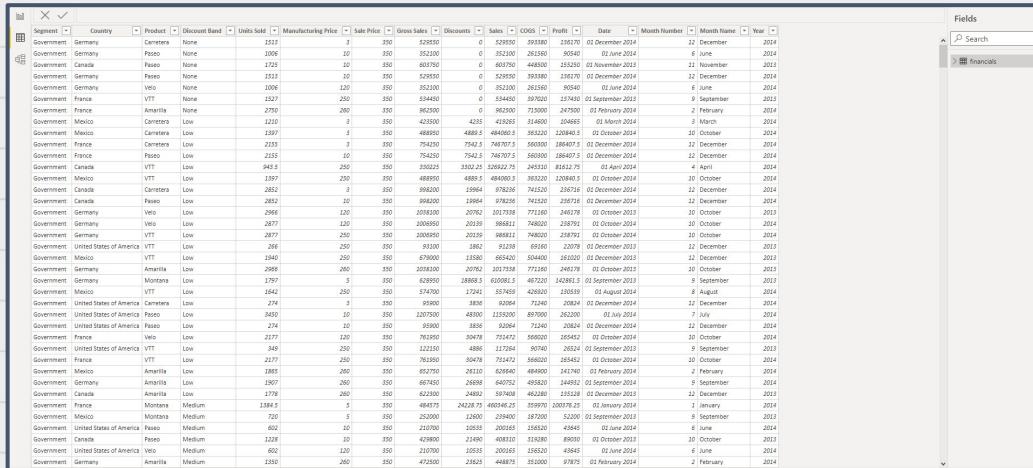
Acá van a estar todos los gráficos que hagamos.



Vista: Data

Son vistas de una tabla

Se pueden seleccionar las tablas a la derecha



The screenshot shows the Power BI ribbon with the 'Data View' tab selected. A red vertical bar on the left and a yellow arrow point to the 'Data View' tab. A second yellow arrow points to the 'Fields' pane on the right, which displays a list of tables: 'financials' (selected), 'Customer', 'Order', 'Product', 'Sales', and 'SalesLineItem'. The main area shows a data grid for the 'financials' table, which contains columns such as 'Segment', 'Country', 'Product', 'Discount Band', 'Units Sold', 'Manufacturing Price', 'Sale Price', 'Gross Sales', 'Discounts', 'Sales', 'COGS', 'Profit', 'Date', 'Month Number', 'Month Name', and 'Year'. The data in the grid represents sales data for various products across different countries and segments.

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date	Month Number	Month Name	Year	
Government	Germany	Cameras	None	1511	10	350	559500	0	330000	305180	158310	01 December 2014	12	December	2014	
Government	Germany	Peso	None	1006	10	350	352100	0	352100	261540	90540	01 June 2014	6	June	2014	
Government	Canada	Peso	None	1723	10	350	653750	0	603700	448500	155230	01 November 2013	11	November	2013	
Government	Germany	Peso	None	1511	10	350	529550	0	329500	395380	136170	01 December 2014	12	December	2014	
Government	Germany	VTT	None	1006	120	350	352100	0	352100	261580	90540	01 June 2014	6	June	2014	
Government	France	VTT	None	1217	250	350	354400	0	354400	270200	127590	01 September 2013	9	September	2013	
Government	France	America	None	2750	200	350	962500	0	534000	710000	271500	01 February 2014	2	February	2014	
Government	Mexico	Cameras	Low	1210	3	350	423500	423500	314000	104691	0	01 March 2014	3	March	2014	
Government	Mexico	Cameras	Low	1397	3	350	488950	488950	484000	5	365220	12004015	01 October 2014	10	October	2014
Government	France	Cameras	Low	2155	3	350	754250	754250	744707.5	560300	184697.5	01 December 2014	12	December	2014	
Government	France	Peso	Low	2155	10	350	754250	25421	744707.5	560300	184697.5	01 December 2014	12	December	2014	
Government	France	VTT	Low	1841.5	250	350	352250	352250	350250	188600	16250	01 September 2013	9	September	2013	
Government	Mexico	VTT	Low	1397	250	350	488950	488950	484000	5	365220	12004015	01 October 2014	10	October	2014
Government	Canada	Cameras	Low	2852	3	350	982000	198641	982000	745150	236710	01 December 2014	12	December	2014	
Government	Canada	Peso	Low	2852	10	350	982000	198641	982000	745150	236710	01 December 2014	12	December	2014	
Government	Germany	VTT	Low	2966	120	350	1098300	1098300	10701938	771160	2461970	01 October 2013	10	October	2013	
Government	Germany	VTT	Low	2877	120	350	1098300	1098300	10686112	771160	2461970	01 October 2013	10	October	2013	
Government	Germany	VTT	Low	2877	250	350	1098300	1098300	10686112	771160	2461970	01 October 2013	10	October	2013	
Government	United States of America	VTT	Low	298	250	350	93100	1862	91218	69160	20797	01 December 2013	12	December	2013	
Government	Mexico	VTT	Low	1940	250	350	679000	15380	656450	504400	156200	01 December 2013	12	December	2013	
Government	Germany	America	Low	298	250	350	1058300	107074	1017518	771160	2461970	01 October 2013	10	October	2013	
Government	Germany	Montana	Low	1797	5	350	620000	186000	610000	457000	142000	01 September 2013	9	September	2013	
Government	United States of America	America	Low	1642	250	350	754250	174470	754250	524000	188600	16250	01 September 2013	9	September	2013
Government	United States of America	Cameras	Low	274	3	350	819000	18380	819000	72140	20824	01 December 2014	12	December	2014	
Government	United States of America	Peso	Low	3450	10	350	1207500	48800	1155000	897000	262200	01 July 2014	7	July	2014	
Government	United States of America	Peso	Low	274	10	350	859000	3880	82064	72140	20824	01 December 2014	12	December	2014	
Government	France	VTT	Low	2177	120	350	763950	10478	71472	566200	155421	01 October 2014	10	October	2014	
Government	United States of America	VTT	Low	349	250	350	122120	4880	117200	71740	20740	01 September 2013	9	September	2013	
Government	France	VTT	Low	2177	250	350	763950	10478	71472	566200	155421	01 October 2014	10	October	2014	
Government	Mexico	America	Low	1885	250	350	652750	28110	659400	484990	147160	01 February 2014	2	February	2014	
Government	Germany	America	Low	1907	250	350	667450	26680	667450	460752	495820	14851	01 September 2014	9	September	2014
Government	Canada	America	Low	1778	250	350	622300	24882	597408	462280	235320	01 December 2013	12	December	2013	
Government	France	Montana	Medium	1384.5	5	350	484574	242287.5	460752	159500	200200	155421	01 January 2014	1	January	2014
Government	United States of America	Medium	Medium	740	3	350	250000	250000	250000	250000	0	01 September 2013	9	September	2013	
Government	United States of America	Peso	Medium	602	10	350	217300	10593	202155	156150	45464	01 June 2014	6	June	2014	
Government	Canada	Peso	Medium	1228	10	350	428000	21490	408510	315380	89010	01 October 2013	10	October	2013	
Government	United States of America	VTT	Medium	602	120	350	210700	10583	200265	156520	45464	01 June 2014	6	June	2014	
Government	Germany	America	Medium	1350	260	350	472500	23823	448475	351000	97875	01 February 2014	2	February	2014	

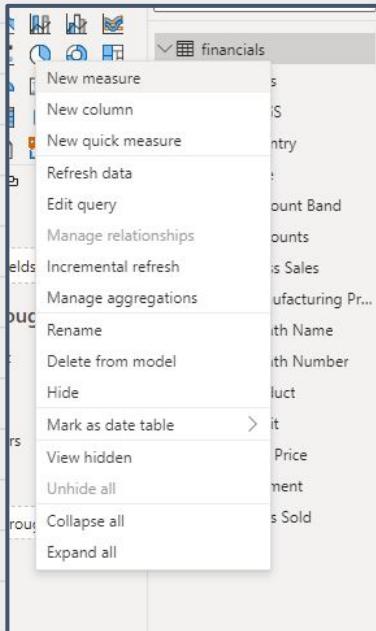
Vista: Model

Este es nuestro modelo de relaciones

Acá se hacen las relaciones entre datasets



Ingresos Netos



Measure

X ✓ 1 Net Income = **SUM(financials[Sales]) - SUM(financials[COGS])**

Funciones de agregación

1er Visualización: Ingreso Neto por País

The image shows the 'Build visual' interface in Power BI. A large green oval highlights the 'Financials' section of the visual builder. A blue circle highlights the 'Net Income' field in the 'Y-axis' dropdown. A red circle highlights the 'Country' field in the 'X-axis' dropdown. A red box labeled '1' highlights the 'Visual' icon in the top bar. A red box labeled '2' highlights the 'Format visual' icon in the top bar. A red box labeled '3' highlights the 'Format visual' dialog box.

Build visual

Search: financials

- Sales
- COGS
- Country
- Date
- Discount Band
- Discounts
- Gross Sales
- Manufacturing P...
- Month Name
- Month Number
- Net Income
- Product
- Profit
- Sale Price
- Segment
- Units Sold
- Year

Y-axis: Country

X-axis: Net Income

Legend: Add data fields here

Small multiples:

Format visual

Default color - Data colors

Format by: Color scale

Based on field: Sum of Sales

Summarization: Sum

Default formatting: As zero

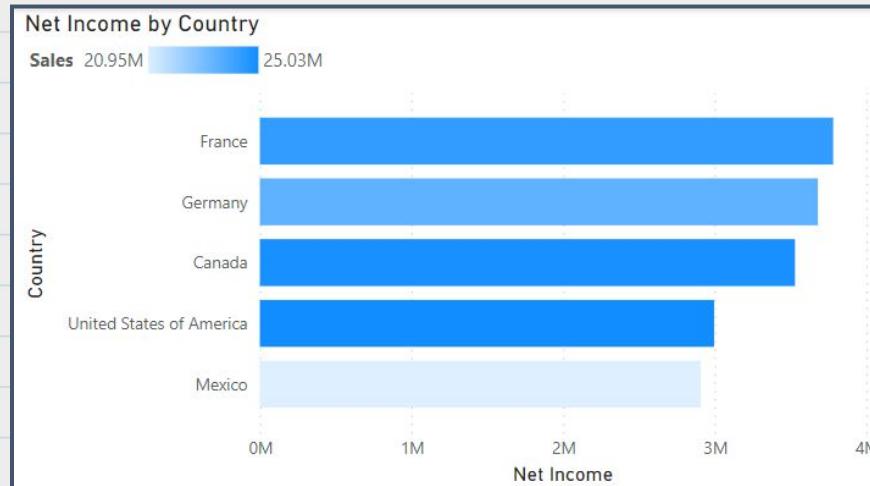
Minimum: Custom (0)

Maximum: Highest value (Enter a value)

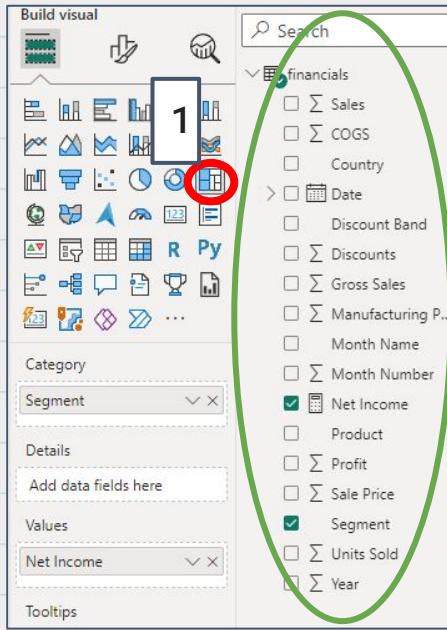
Learn more

OK Cancel

1er Visualización: Ingreso Neto por País



2da Visualización: Ingreso neto por segmento

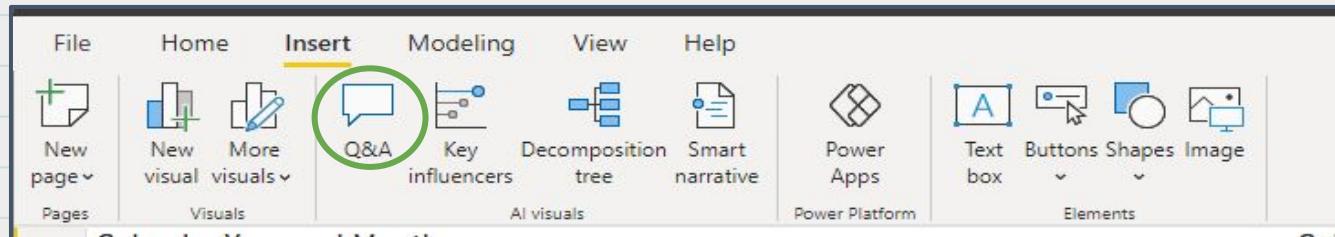


The screenshot shows the 'Build visual' pane in Power BI. At the top, there are icons for various visual types, with the 'Treemap' icon highlighted by a red circle and the number '1'. Below this is a search bar and a list of data fields categorized under 'financials'. The 'Net Income' field is checked and highlighted with a green oval. To the right, there are dropdown menus for 'Category' (set to 'Segment') and 'Values' (set to 'Net Income'). A 'Details' section allows adding data fields here, and a 'Toolips' section is at the bottom.

El siguiente es un treemap, y sirve para marcar rápidamente las proporciones de todo



3ra y 4ta Visualización: “Ask a Question”



The screenshot shows the Microsoft Power BI ribbon. The 'Insert' tab is highlighted with a yellow background. A green circle highlights the 'Q&A' icon, which is a speech bubble with a question mark. Other icons in the ribbon include 'File', 'Home', 'Modeling', 'View', and 'Help'. Below the ribbon, there are sections for 'Pages', 'Visuals', 'AI visuals', 'Power Platform', and 'Elements'. The 'Visuals' section contains icons for 'Text box', 'Buttons', 'Shapes', and 'Image'. The 'AI visuals' section contains icons for 'Key influencers', 'Decomposition tree', and 'Smart narrative'. The 'Power Platform' section contains an icon for 'Power Apps'. The 'Elements' section contains icons for 'Text box', 'Buttons', 'Shapes', and 'Image'.

Ask a question about your data

Try one of these to get started

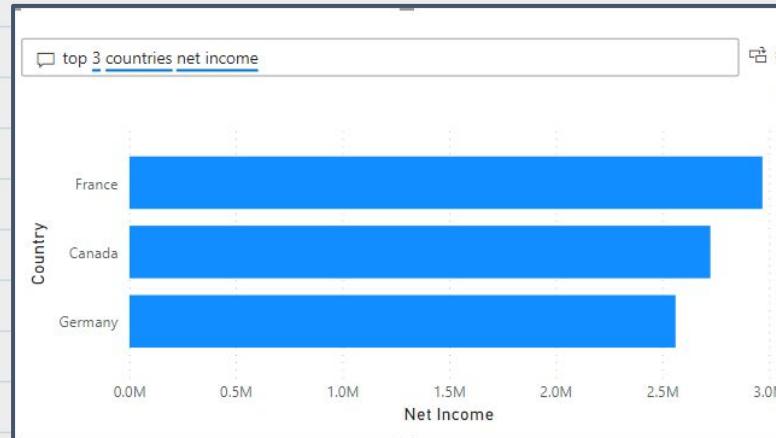
top countries by net income what is the net income by country top segments by net income

Show all suggestions

3ra y 4ta Visualización: “Ask a Question”

Net income and top country of 2014 (financials year) financials by net income

France
2,057,078.23
Net Income

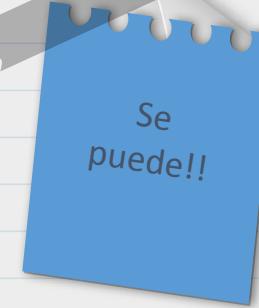


Highlights



¿Y si quiero cruzar
preguntas?

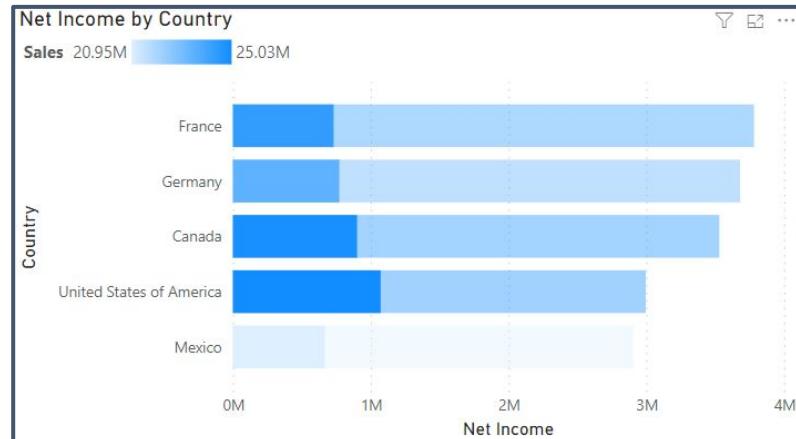
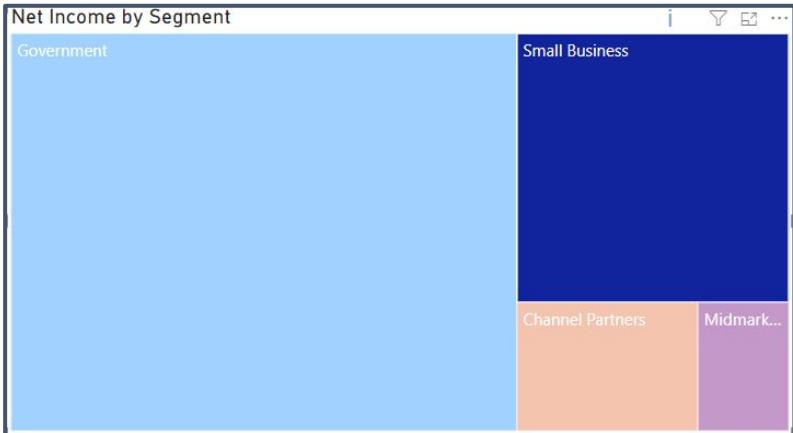
¿Puedo preguntar cuál es el
ingreso neto de un segmento
por país, únicamente con
los datos ya conseguidos?



Se
puede!!

Highlights

Cuáles son los ingresos netos de los pequeños negocios por país, comparados con los demás segmentos?



5ta Visualización: KPI personalizado

```
Gross Sales 2013 = CALCULATE(SUM(financials[Gross Sales]), financials[Year] = 2013)
```

```
Gross Sales 2014 = CALCULATE(SUM(financials[Gross Sales]), financials[Year] = 2014)
```

```
Increment of Gross Sales 2013 to 2014 = ([Gross Sales 2014] - [Gross Sales 2013])/[Gross Sales 2013]
```

```
KPI = IF([Increment of Gross Sales 2013 to 2014] > 0, UNICHAR(9650), IF([Increment of Gross Sales 2013 to 2014] = 0, UNICHAR(2010), UNICHAR(9660)))
```

```
KPI Color = IF([Increment of Gross Sales 2013 to 2014] >= 0, "Green", "Red")
```

5ta Visualización: KPI personalizado

Visualizations >> Data >>

Build visual

Search:

Financials:

- Σ COGS
- Country
- Σ Date
- Σ Discounts
- Σ Gross Sales
- Gross Sales 2013
- Gross Sales 2014
- Increment of Gr...
- KPI
- Σ KPI Color
- Σ Manufacturing P...
- Market Segment
- Month
- Σ Month Number
- Product
- Σ Sales
- Σ Sales Price
- Σ Units Sold
- Σ Year

Columns:

- Country
- Market Segment
- Product
- Gross Sales Total
- Gross Sales 2013
- Gross Sales 2014
- Increment of Gross Sa...
- KPI

Drill through:

- Cross-report OFF ON
- Keep all filters On
- Add drill-through fields here

Country Market Segment Product Gross Sales Total Gross Sales 2013 Gross Sales 2014 Increment of Gross Sa... 2013 to 2014

Country	Market Segment	Product	Gross Sales Total	Gross Sales 2013	Gross Sales 2014	Increment of Gross Sa... 2013 to 2014
Canada	Channel Partners	Amarilla	\$75,378	\$33,132	\$42,246	27.51%
Canada	Channel Partners	Carretera	\$117,216	\$38,484	\$78,732	104.58%
Canada	Channel Partners	Paseo	\$177,492	\$54,252	\$123,240	127.16%
Canada	Enterprise	Carretera	\$394,812.5	\$302,000	\$92,812.5	-69.27%
Canada	Enterprise	Montana	\$376,312.5	\$43,125	\$333,187.5	672.61%
Canada	Enterprise	Velo	\$839,000	\$282,625	\$556,375	96.86%
Canada	Enterprise	VTT	\$1,224,375	\$369,250	\$855,125	131.58%
Canada	Government	Amarilla	\$2,784,503	\$1,052,100	\$1,732,403	64.66%
Canada	Government	Carretera	\$1,395,930	\$19,957	\$1,375,973	6794.69%
Canada	Government	Montana	\$958,079	\$31,234	\$926,845	2867.42%
Canada	Government	Paseo	\$4,256,485	\$1,113,813	\$3,142,672	182.15%
Canada	Government	Velo	\$1,541,599	\$67,564	\$1,474,035	2081.69%
Canada	Government	VTT	\$708,761	\$304,530	\$404,231	32.74%
Canada	Midmarket	Amarilla	\$50,602.5	\$26,145	\$24,457.5	-6.45%
Canada	Midmarket	Carretera	\$140,895	\$23,400	\$117,495	402.12%
Canada	Midmarket	Paseo	\$220,260	\$95,475	\$124,785	30.70%
Canada	Small Business	Montana	\$1,525,650	\$384,900	\$1,140,750	196.38%
Canada	Small Business	Paseo	\$2,506,500	\$421,200	\$2,085,300	395.09%
Canada	Small Business	Velo	\$1,218,750	\$80,700	\$1,138,050	1310.22%
Canada	Small Business	VTT	\$3,063,000	\$811,500	\$2,251,500	177.45%
France	Channel Partners	Amarilla	\$50,088	\$3,672	\$46,416	1164.05%
France	Channel Partners	Carretera	\$68,808	\$14,376	\$54,432	278.63%
France	Channel Partners	Paseo	\$117,090	\$35,796	\$81,294	127.10%
France	Channel Partners	VTT	\$78,870	\$26,808	\$52,062	94.20%
France	Enterprise	Carretera	\$1,295,437.5	\$313,125	\$982,312.5	213.71%
France	Enterprise	Montana	\$393,000	\$232,125	\$160,875	-30.69%

La próxima clase vamos a introducir..

Slicers

Limpieza de datos

Personalización de gráficos

Mapas y tipos de mapa

Relaciones entre tablas

Links y bibliografía adicional

Links a cursos de Power BI:

- [Curso introductorio de DAX](#) - SQLBI
- [Curso más avanzado de Power BI](#) - Linkedin

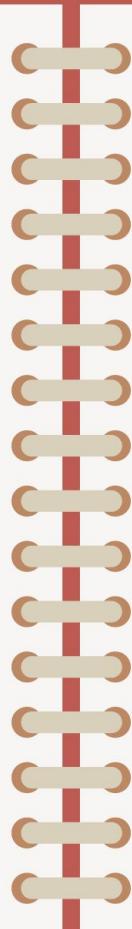
Datasets (gratuitos):

- [OpenData - Reddit](#)
- [Datos Argentina](#)
- [Datos CABA](#)
- [Datos España](#)
- [Google Public Data](#)
- [Awesomedata Github Repository](#)
- [Google Trends](#)
- [World Health Organization \(WHO\)](#)
- [AWS OpenData](#)
- [DataBank](#)

Bibliografía adicional:

- [Data Visualization keynote with Alberto Cairo](#) - Charla de Youtube
- [The Functional Art: An Introduction to Information Graphics and Visualization](#) - Alberto Cairo
- [The Functional Art: Data, Charts and Maps for Communication](#) - Alberto Cairo
- [Cartas DAX](#) - Documentación de funciones más utilizadas en DAX
- [Visualization Universe](#) - Cuándo utilizar cada visualización

Final de la Clase!!



*Si querés hacer recomendaciones
sobre la clase o el curso en general,
contactar al mail:*

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o

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