



Tableau + TPC-DS



Braulio Blanco
Gonçalo Moreira



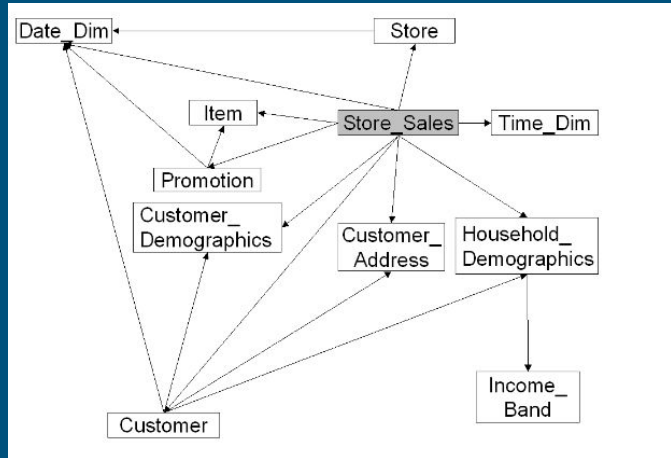


Figure 1. Magic Quadrant for Analytics and Business Intelligence Platforms



COMPLETENESS OF VISION

As of January 2019

© Gartner, Inc

Source: Gartner (February 2019)

Tableau suite

Tableau Product Suite





	Desktop		Reader	Server	Public	Online
	Personal	Professional				
Details	<ul style="list-style-type: none"> - Local client for building dashboards - Limited data sources, no ability to connect to Tableau Server 	<ul style="list-style-type: none"> - Local client for building dashboards - Full enterprise capabilities 	<ul style="list-style-type: none"> - Local client to view and interact with local files - Unable to modify workbooks or connect to server 	<ul style="list-style-type: none"> - Privately managed Tableau Server (may be on premise or service hosted) - Users may directly interact with dashboards via browser 	<ul style="list-style-type: none"> - Essentially a massive, public non-commercial Tableau server - All data published is public - Free client available to create dashboards 	<ul style="list-style-type: none"> - Private version of Tableau Public eliminates need for infrastructure - Live connections currently only possible with Google BigQuery and Amazon Redshift
OS					N/A	N/A
License	\$999	\$1,999	Free	Named User or Core Licensing	Free	\$500/user per year

Tableau Desktop

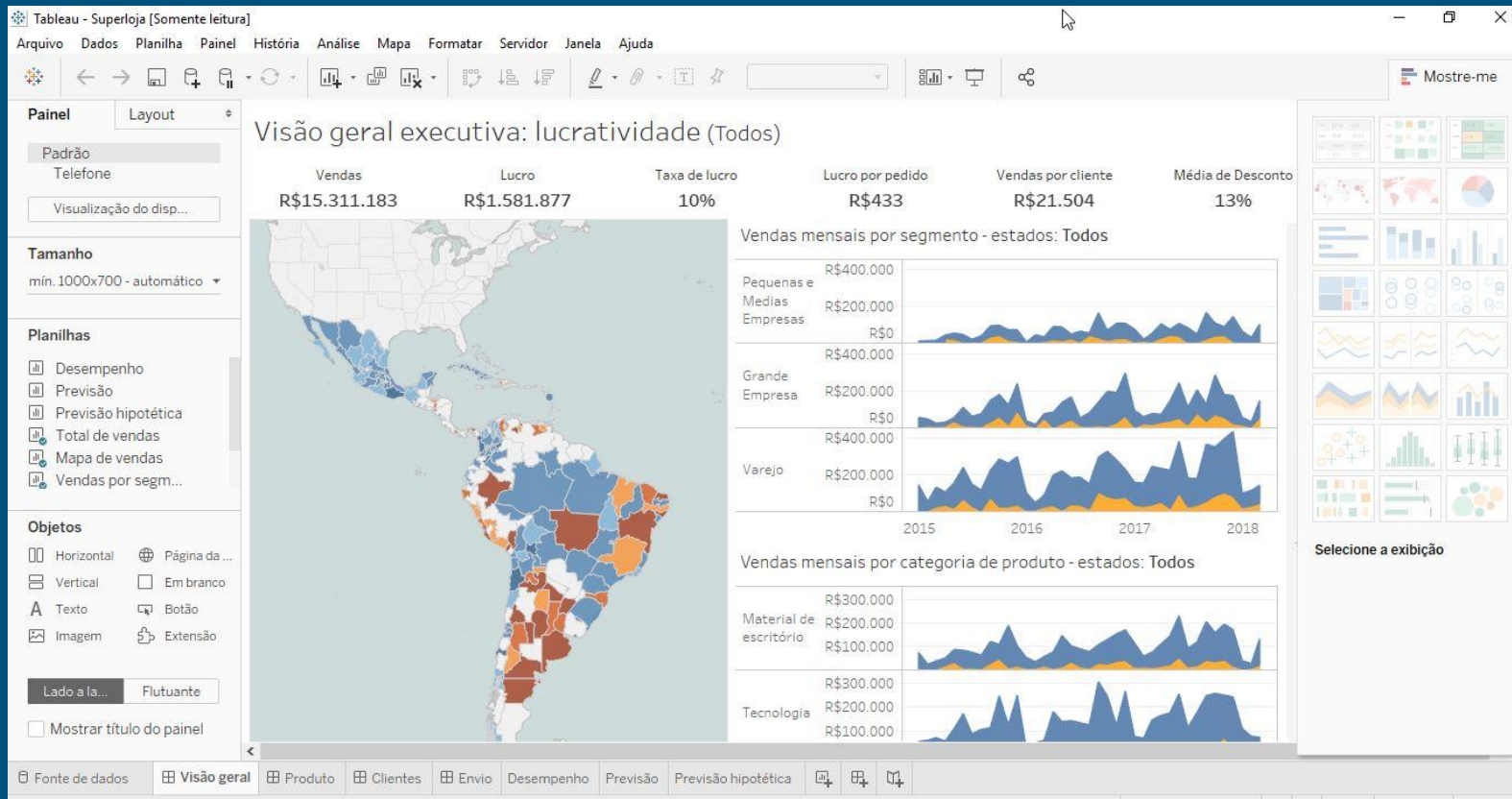


Tableau Prep Builder

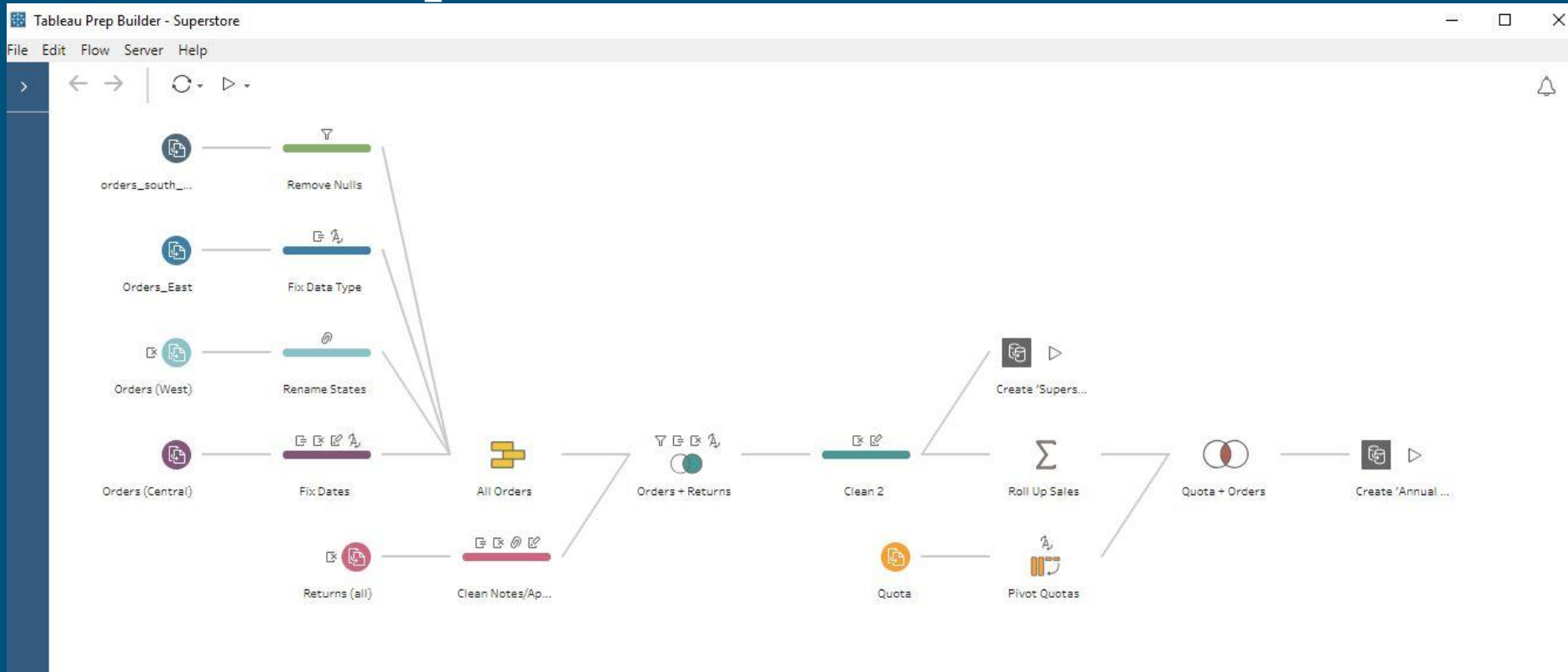
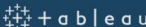












Tableau Server on cloud


 Conversion Metrics  **Content** Users Groups Schedules Tasks Status Settings     Martin Rodriguez ▾

Home >  Campaigns and Retention

 **Campaigns and Retention** ...
PROJECT

Workbooks 16 Views 17 Data Sources 0 Permissions Details

▼ 0 selected Sort by Views: All (Most-Least) ▾   



General Filters

Owner

▾

Tag

▾

Modified on or after

▾


Modified on or before

▾


☐ Only my favorites

☐ Only my recently viewed

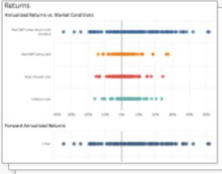
☐ Has an alert



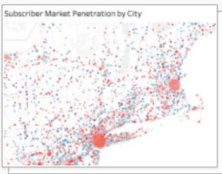
App Adoption Metrics
9,314 views ☆ 1



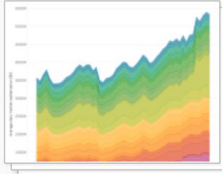
Retention Metrics
3,105 views ★ 2




Returns
3,771 views ☆ 1



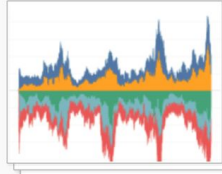
Subscribers
2,534 views ☆ 0



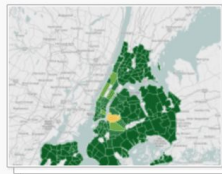
Historic Trends
3,558 views ★ 1



Web Performance
2,498 views ☆ 0

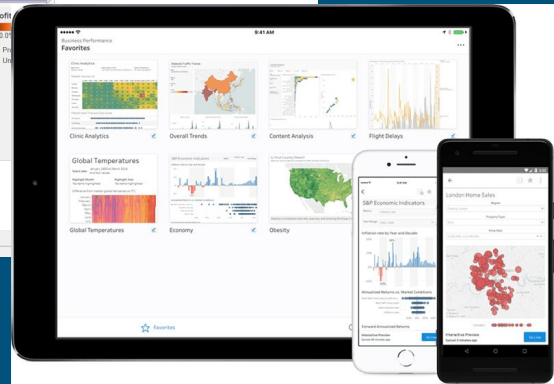
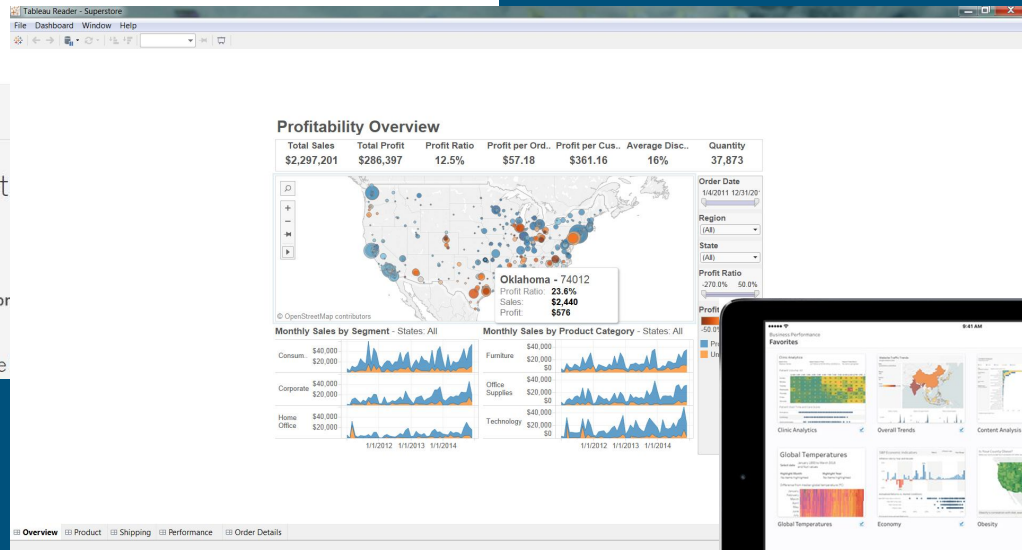
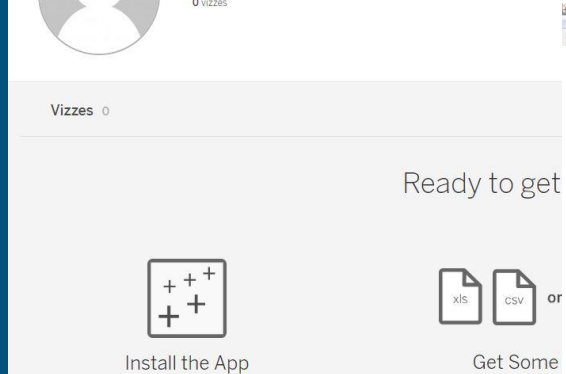
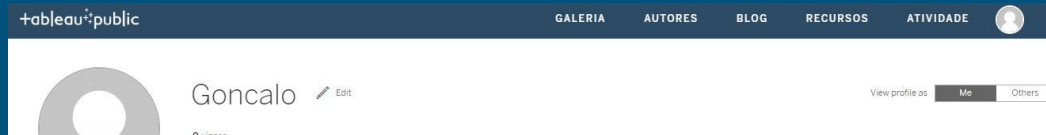


Major Orders
3,472 views ☆ 1



Metro Campaign
2,260 views ☆ 0

Tableau Public, Mobile and Reader



Data sources



Tableau Server	Google Cloud SQL	MySQL	Teradata
Action Matrix	Google Drive	OData	Teradata OLAP Connector
Action Vector	Planilhas Google	OneDrive	Virtualização de dados TIBCO
Amazon Athena	Hortonworks Hadoop Hive	Oracle	Vertica
Amazon Aurora	IBM BigInsights	Oracle Eloqua	Conector de dados da web
Amazon EMR Hadoop Hive	IBM DB2	Oracle Essbase	
Amazon Redshift	IBM PDA (Netezza)	Pivotal Greenplum Database	Outros bancos de dados (JDBC)
Anaplan	Intuit QuickBooks Online	PostgreSQL	Outros bancos de dados (ODBC)
Apache Drill	Intuit QuickBooks Online (9.3-2018.1)	Presto	
Banco de dados Aster	Kognitio	Progress OpenEdge	
Azure SQL Data Warehouse	MapR Hadoop Hive	Salesforce	
Box	MariaDB	SAP HANA	
Cloudera Hadoop	Marketo	SAP NetWeaver Business Warehouse	
Denodo	MarkLogic	SAP Sybase ASE	
Dropbox	MemSQL	SAP Sybase IQ	
Exasol	Microsoft Analysis Services	ServiceNow ITSM	
Firebird	Microsoft PowerPivot	Listas do SharePoint	
Google Ads	Microsoft SQL Server	Snowflake	
Google Analytics	MonetDB	Spark SQL	
Google BigQuery	Conector do MongoDB BI	Splunk	

Basic Architecture

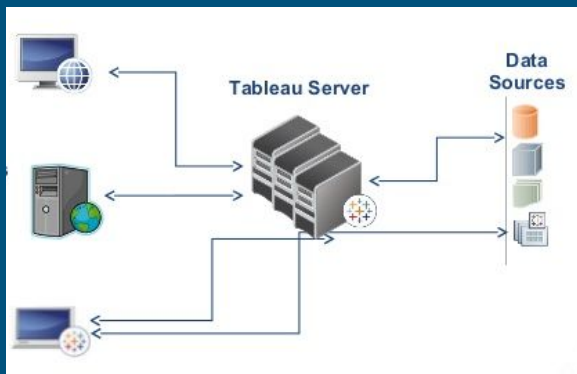
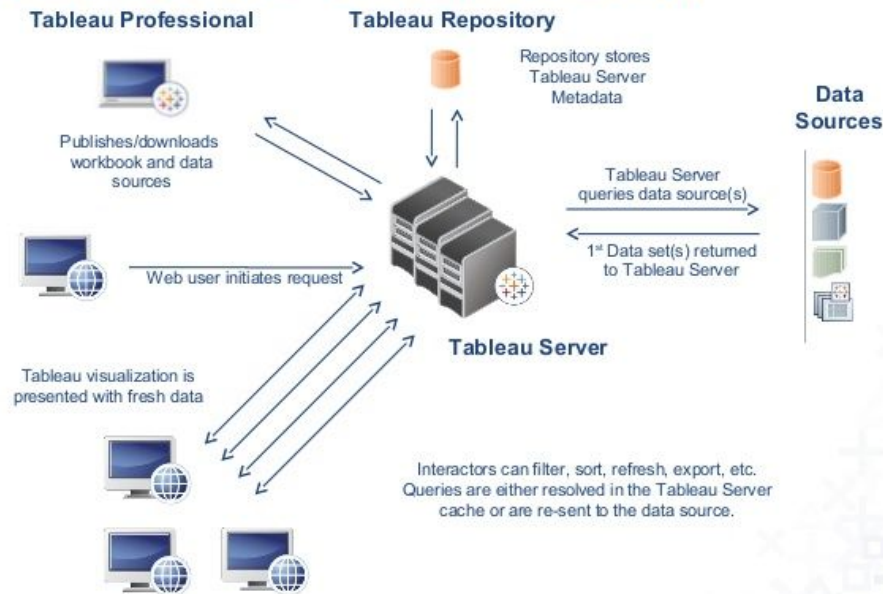
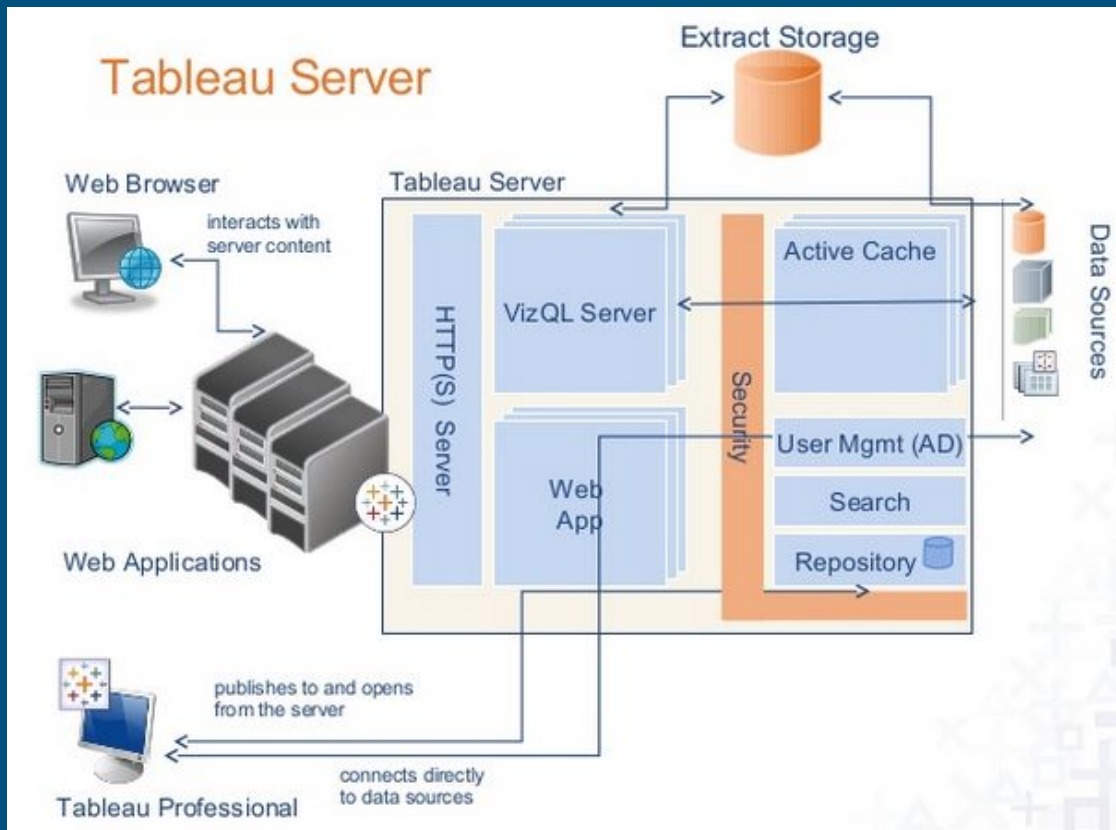


Tableau Server – Standard Data flow

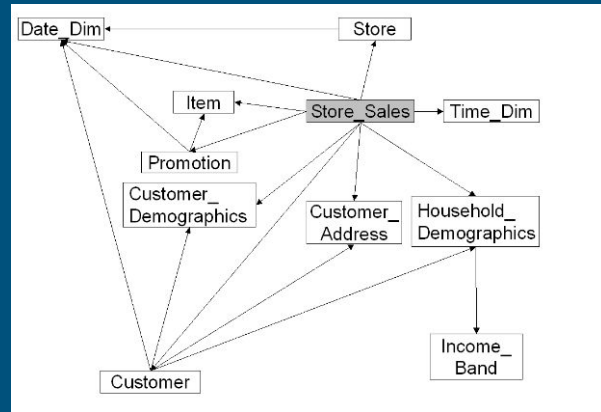


Basic Architecture



Practical case using TPC-DS

Table	Avr Row Size in bytes	Sample Row Counts. Number of rows are within 1/100th Percent of these numbers							
		1GB	100GB	300GB	1TB	3TB	10TB	30TB	100TB
call_center	305	6	30	36	42	48	54	60	60
catalog_page	139	6	30	36	42	48	54	60	60
catalog_returns	166	11,718	20,400	26,000	30,000	36,000	40,000	46,000	50,000
catalog_sales	226	144,067	14,404,374	43,193,472	143,996,756	432,018,033	1,440,033,112	4,319,925,093	14,400,509,482
customer	132	1,441,548	143,997,065	431,969,836	1,439,980,416	4,320,078,880	14,399,964,710	43,200,404,822	144,001,292,896
customer_address	110	100,000	2,000,000	5,000,000	12,000,000	30,000,000	65,000,000	80,000,000	100,000,000
customer_demographics	42	50,000	1,000,000	2,500,000	6,000,000	15,000,000	32,500,000	40,000,000	50,000,000
date_dim	141	1,920,800	1,920,800	1,920,800	1,920,800	1,920,800	1,920,800	1,920,800	1,920,800
household_demographics	21	73,049	73,049	73,049	73,049	73,049	73,049	73,049	73,049
income_band	16	7,200	7,200	7,200	7,200	7,200	7,200	7,200	7,200
inventory	16	20	20	20	20	20	20	20	20
item	281	11,745,000	399,330,000	585,684,000	783,000,000	1,033,560,000	1,311,525,000	1,627,857,000	1,965,337,830
promotions	124	18,000	204,000	264,000	300,000	360,000	402,000	462,000	502,000
reason	38	300	1,000	1,300	1,500	1,800	2,000	2,300	2,500
ship_mode	56	35	55	60	65	67	70	72	75
store	263	20	20	20	20	20	20	20	20
store_returns	134	12	402	804	1,002	1,350	1,500	1,704	1,902
store_sales	164	287,514	28,795,080	86,393,244	287,999,764	863,989,652	2,879,970,104	8,639,952,111	28,799,941,488
time_dim	59	2,880,404	287,997,024	864,001,869	2,879,987,999	8,639,936,081	28,799,983,563	86,399,341,874	287,998,696,432
warehouse	117	86,400	86,400	86,400	86,400	86,400	86,400	86,400	86,400
web_page	96	5	15	17	20	22	25	27	30
web_returns	162	60	2,040	2,604	3,000	3,600	4,002	4,602	5,004
web_sales	226	71,763	7,197,670	21,599,377	71,997,522	216,003,761	720,020,485	2,160,007,345	7,200,085,924
web_site	292	719,384	72,001,237	216,009,853	720,000,376	2,159,968,881	7,199,963,324	21,600,036,511	71,999,537,298



Using Tableau Desktop

PostgreSQL

Server: Port:

Database:

Enter information to sign in to the database:

Authentication:

Username and Password

Username:

Password:

☐ Require SSL

[Initial SQL...](#) [Sign In](#)

To a File

Microsoft Excel
Text file
JSON file
Microsoft Access
PDF file
Spatial file
Statistical file
More...

To a Server

Tableau Server
MySQL
Oracle
Amazon Redshift
PostgreSQL
More...

Saved Data Sources

Sample - EU Superstore
Sample - Superstore
World Indicators

Tableau Server

Action Matrix
Action Vector
Amazon Athena
Amazon Aurora
Amazon EMR Hadoop Hive
Amazon Redshift
Anaplan
Apache Drill
Aster Database
Azure SQL Data Warehouse
Box
Cloudera Hadoop
Denodo
Dropbox
Exasol
Firebird
Google Ads
Google Analytics
Google BigQuery
Google Cloud SQL
Google Drive
Google Sheets
Hortonworks Hadoop Hive
IBM BigInsights
IBM DB2

Creating data sources using Tableau Tools

Tableau - TableauDS [from EU-WEST-1A.ONLINE.TABLEAU.COM (BRAULIOBLANCOL)] - Tableau license expires in 9 days

File Data Server Window Help

Connections [Add](#)

localhost
PostgreSQL

Database
cc2019

Table
All 23 [Recommended](#)

Enter table name

- catalog_sales
- customer
- customer_address
- customer_demographics
- date_dim
- household_demographics
- income_band
- inventory
- item
- promotion
- New Custom SQL
- New Union

catalog_returns+ (cc2019)

Connection ☒ Live ☐ Extract

Filters 0 [Add](#) Recommended Data Sources 0

catalog_returns

catalog_sales

date_dim1

item1

Edit Data Source Filters

Filter Details

[Add...](#) [Edit...](#) [Remove](#) [OK](#)

Range of values

At least

At most

Special

Range of values

1,900 2,100

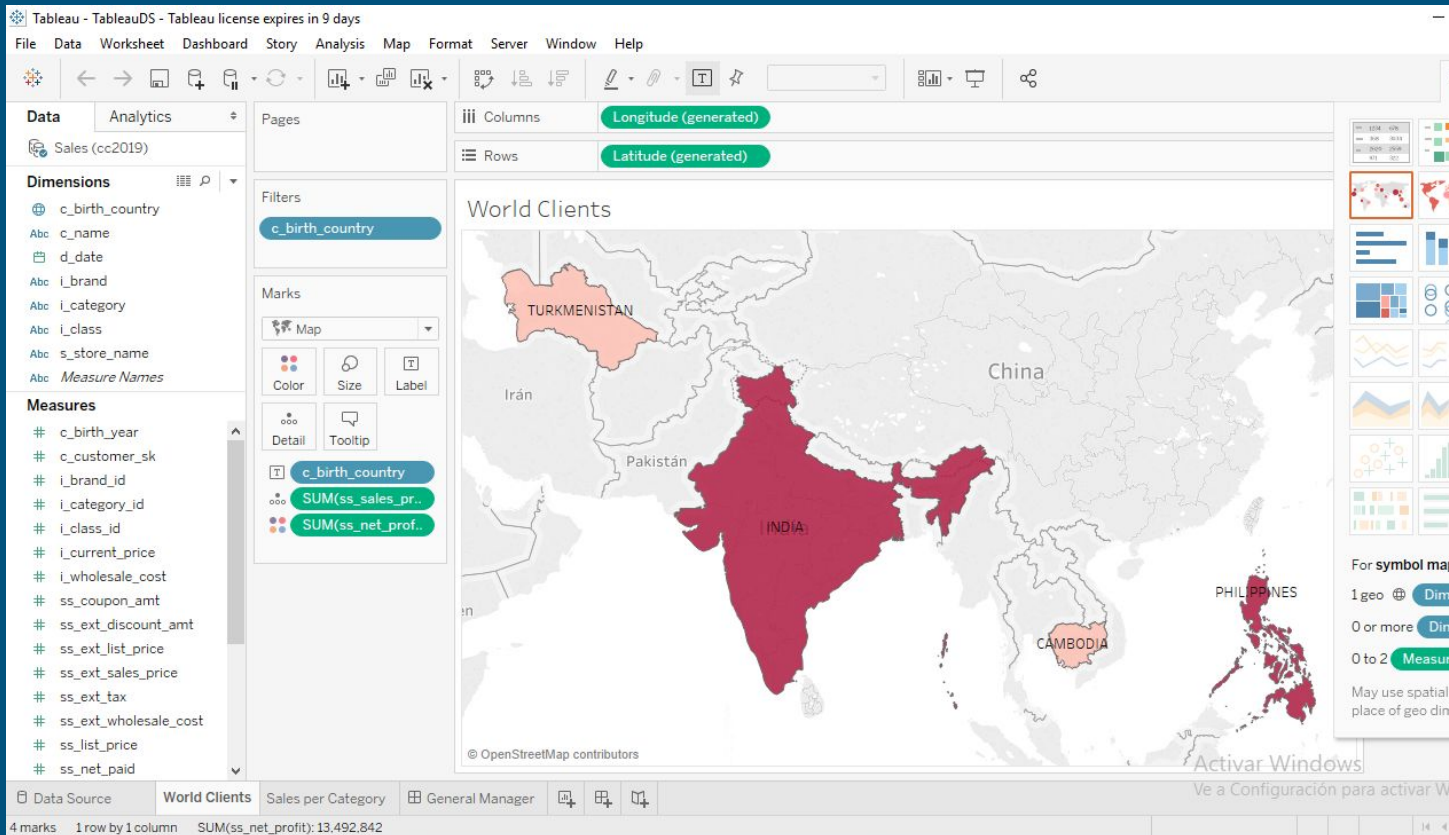
1900 2100

☐ Include Null Values

[Reset](#) [OK](#) [Cancel](#)

#	catalog_returns	catalog_returns	catalog_returns	catalog_returns
	Cr Returned Date ...	Cr Returned Time ...	Cr Item Sk	Cr Refunded Cust...
	2,451,426.000	65,883.00	6,874.00	64,932.00
	2,451,520.000	25,193.00	4,957.00	64,932.00
	2,451,426.000	65,883.00	6,874.00	64,932.00
	2,451,520.000	25,193.00	4,957.00	64,932.00
	2,451,426.000	65,883.00	6,874.00	64,932.00

Creating worksheets



Show Me



For symbol map

1 geo

0 or more

0 to 2

May use spatial

place of geo dim

For packed bubbles try

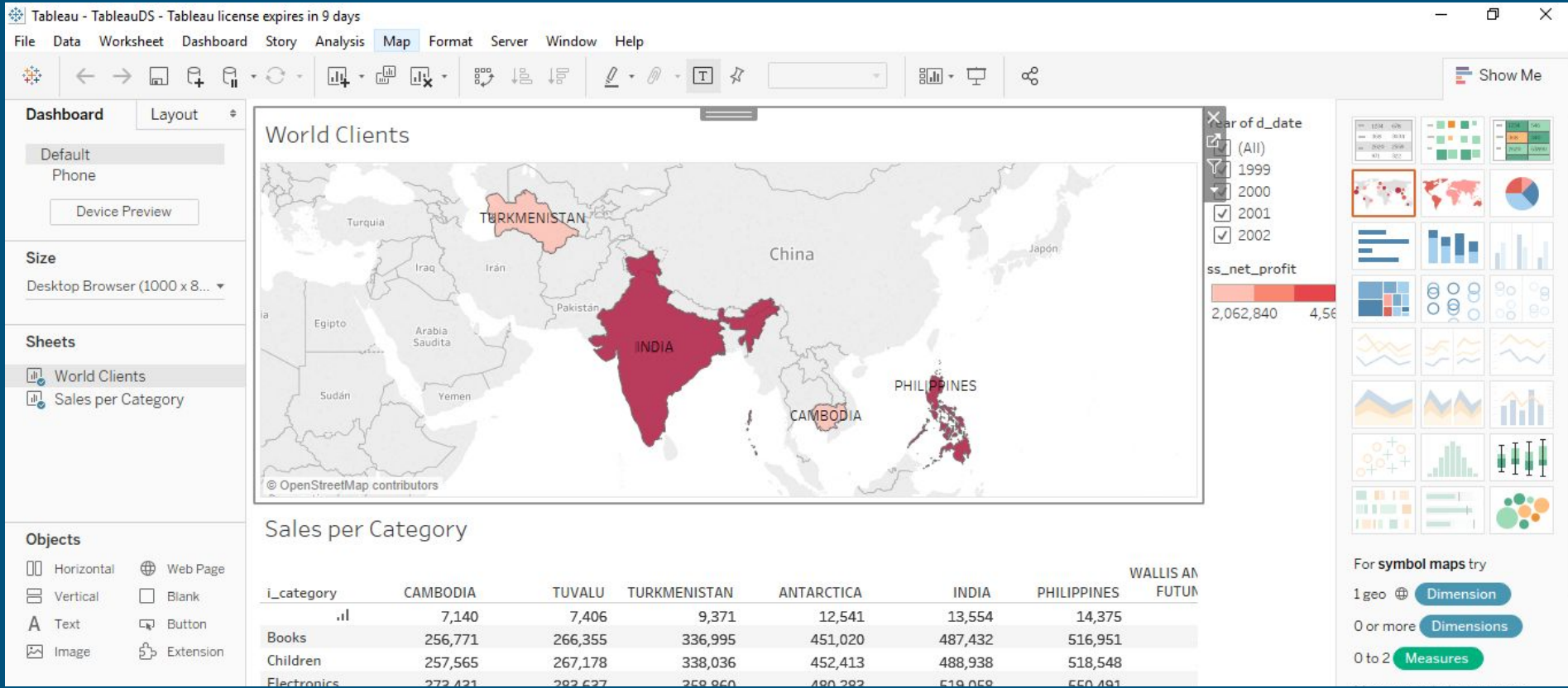
1 or more

Dimensions

1 or 2

Measures

Creating dashboards



Publishing to the cloud

← → ↻ 🔒 https://eu-west-1a.online.tableau.com/#/site/braulioiblanco/workbooks/101173/views



Contenido

Usuarios

Grupos

Programas

Tareas

Estado

Configuración



BB

Explorar / default / TableauDS



TableauDS



Propietario Braulio Blanco

Modificado 26 de abril de 2019, 1:29 p. m.

Última actualización 26 de abril de 2019, 1:29 p. m.

Editar libro de trabajo

Vistas 5

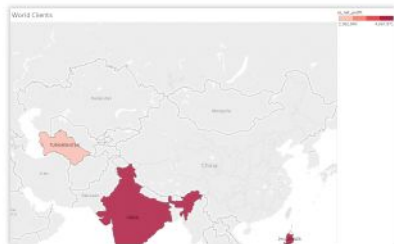
Fuentes de datos 2

Actualizaciones de la extracción 0

Suscripciones 0

Seleccionar todo

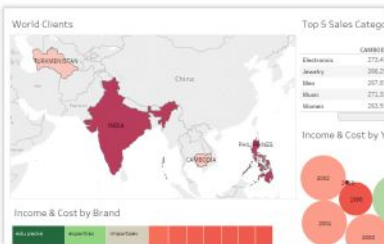
Ordenar por: Hoja (primera-última) ↑ ▢ ▾



World Clients



Top 5 Sales Categories



General Manager



Income & Cost by Brand



Security: Authentication and Authorization

Permisos

Edite los permisos de la vista "General Manager".

Buscar un usuario para ver sus permisos

Usuario o grupo	Permisos	Vista	Interactuar/...	Ed...
Todos los usuarios (...)	Ninguno			
goncalo.tcm@gmail...	Denegado			
Braulio Blanco	Interaccionador			
Juan Perez	Observador			

+ Añadir una regla de usuario o grupo

Permisos de usuario Juan Perez

Juan Perez	Observador								
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TableauDS: Vistas - Tableau Online

https://eu-west-1a.online.tableau.com/#/site/braulioblancol/workbooks/101173/views

Tableau

Buscar

TableauDS

Propietario Braulio Blanco Modificado 26 de abril de 2019, 1:29 p. m. Última actualización 26 de abril de 2019, 1:29 p. m.

1 Fuentes de datos 2 Actualizaciones de la extracción 0 Suscripciones 0

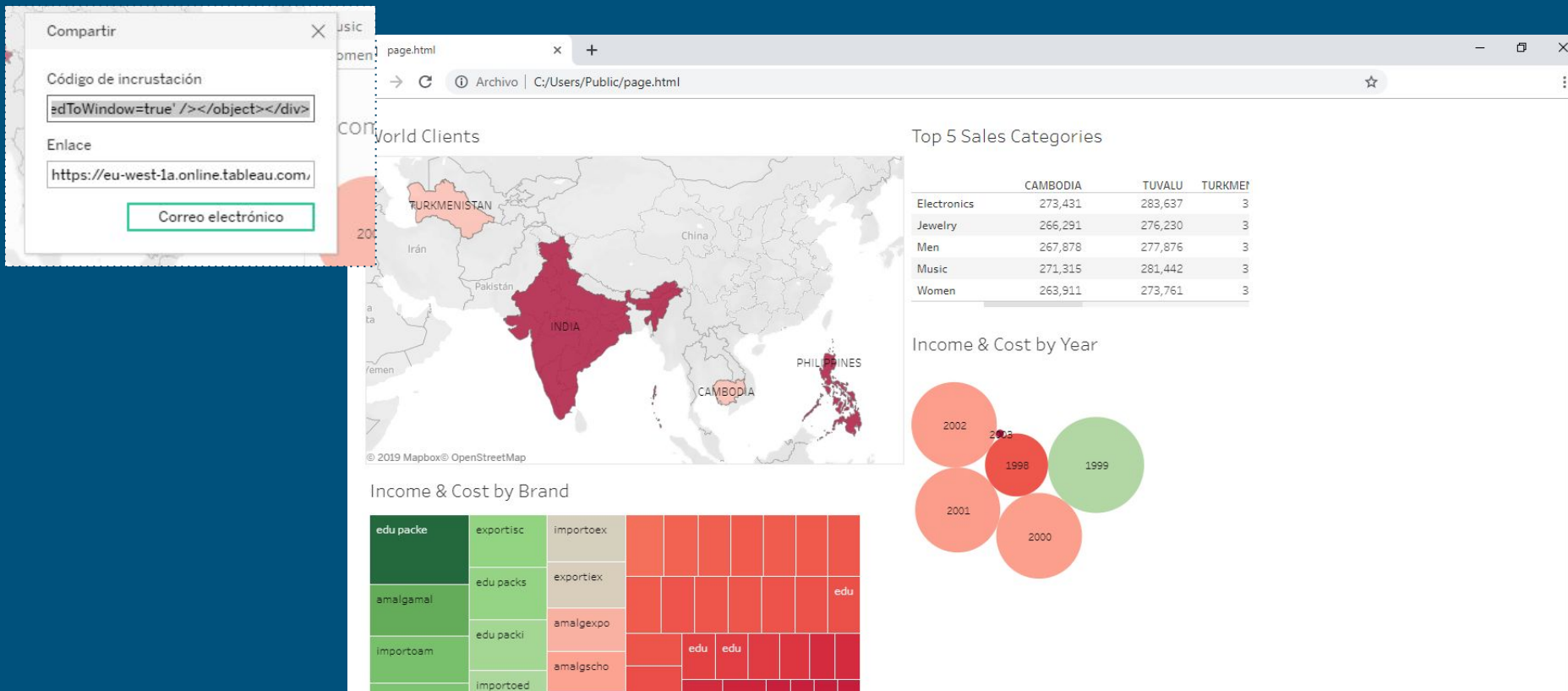
ccionar todo

Top 5 Sales Categories

Income & Cost by Brand

General Manager

Integration



CONCLUSIONS

- Tableau has designer tools that are very intuitive even for final users with low support of IT, this could allow the companies to obtain a direct participation of the business users in the Business Intelligence project development process.
- The architecture of Tableau is quite simple but allows to configure a basic distributed architecture and the disconnected data using the extract feature allow improve the performance.
- The integration feature can be useful if Single Sign On is implemented and the size of the charts are not heavy to be passed through the network.

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- [YouTube channel](#)
- [Classroom training](#) (in-person + virtual)
- Tableau [Architecture](#)