Data Analysis and Visualization

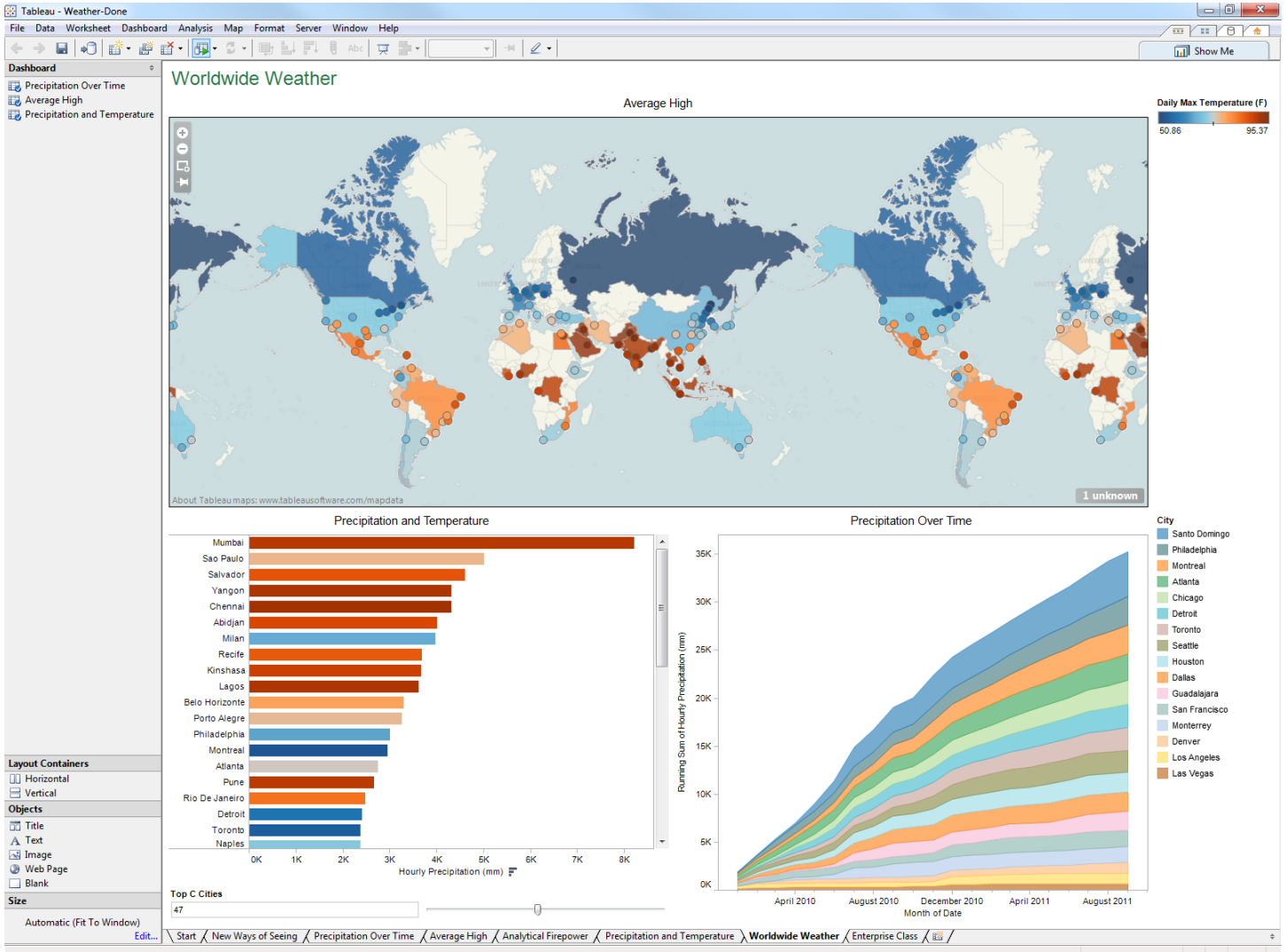
Universität Konstanz

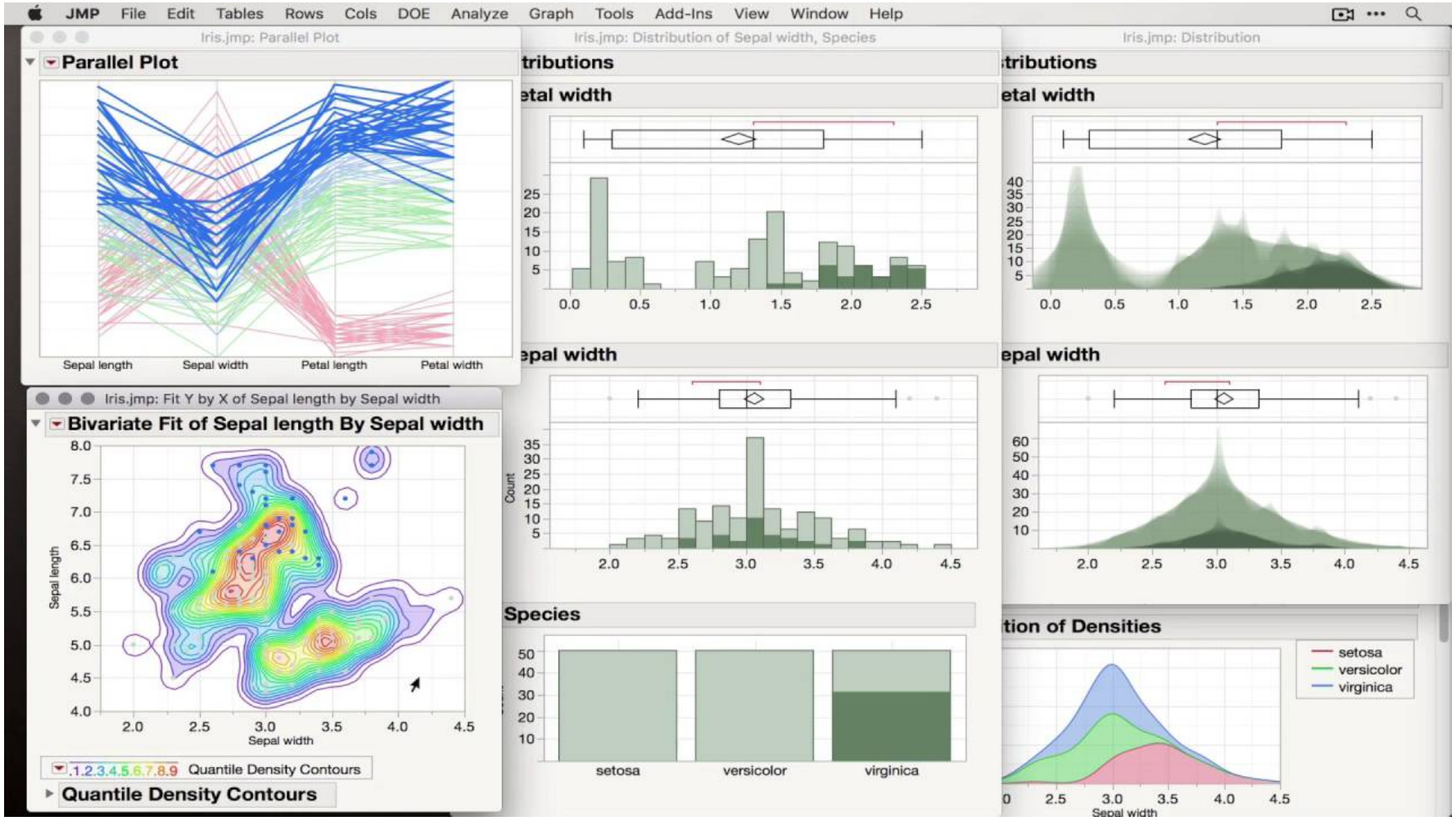
Information Visualization

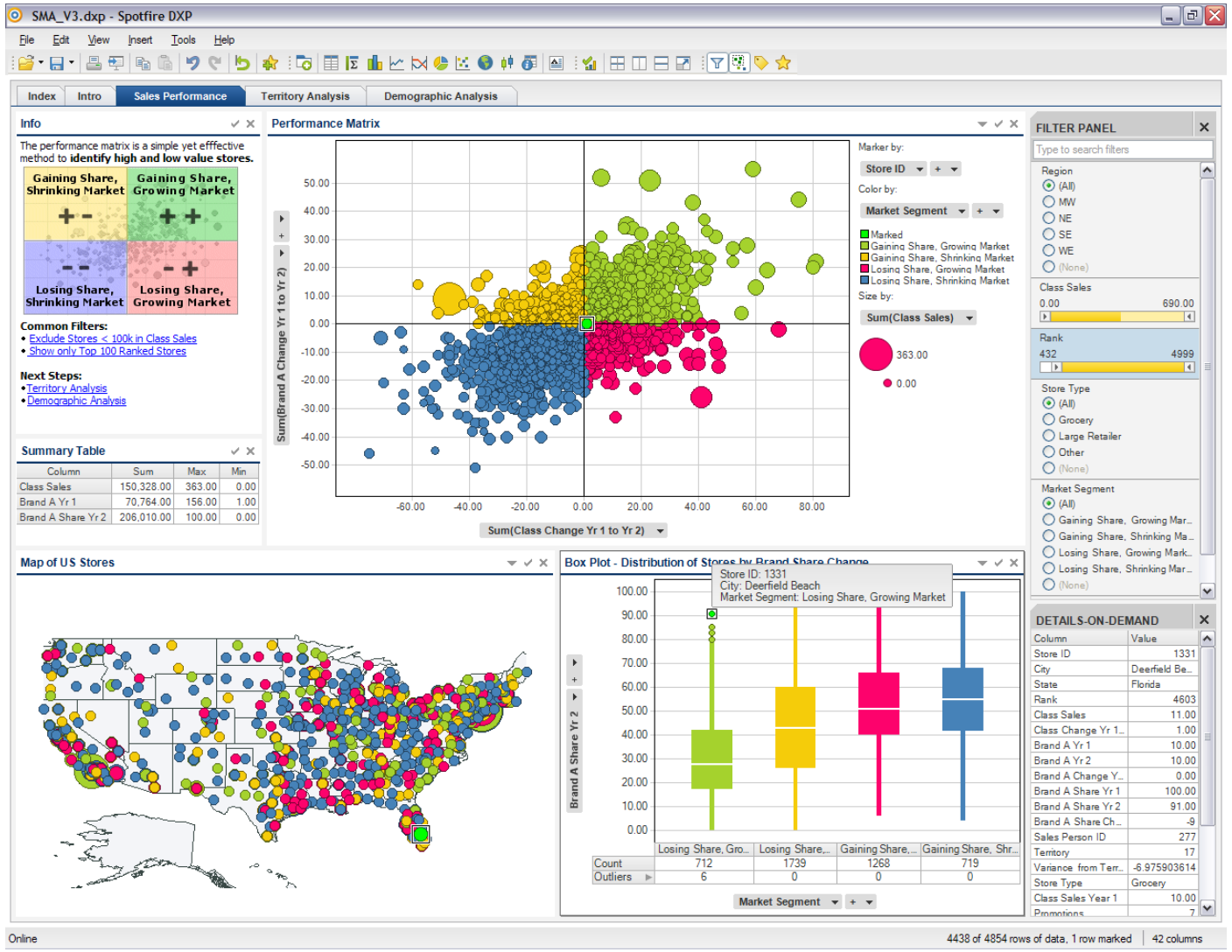
Conclusions



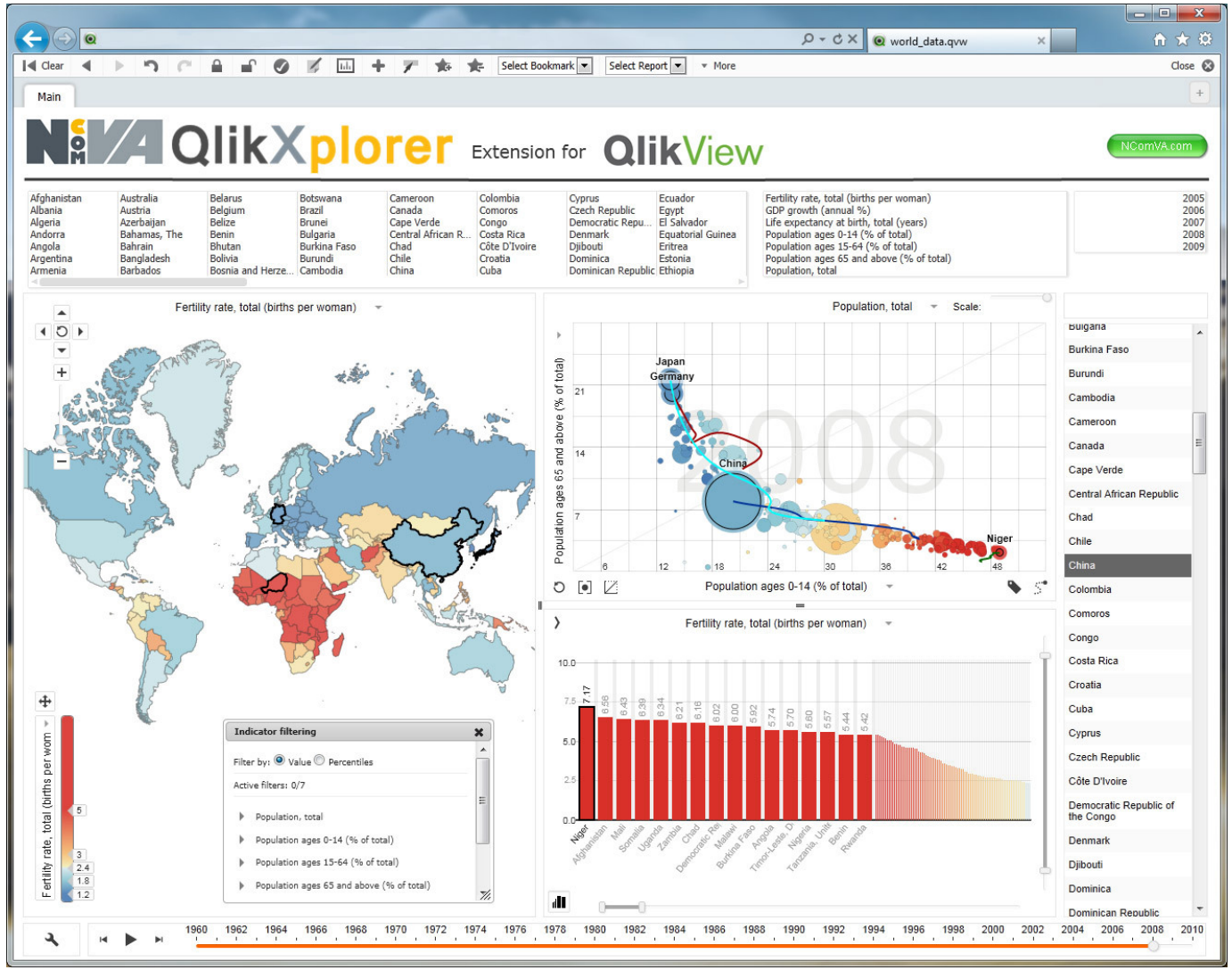
Dr. Johannes Fuchs


Tableau - Weather-Done
File Data Worksheet Dashboard Analysis Map Format Server Window Help
Show Me
Dashboard
Precipitation Over Time
Average High
Precipitation and Temperature
Worldwide Weather
Average High
Daily Max Temperature (F)
50.86
95.37
About Tableau maps: www.tableausoftware.com/mapdata
1 unknown
Precipitation and Temperature
Mumbai
Sao Paulo
Salvador
Yangon
Chennai
Abidjan
Milan
Recife
Kinshasa
Lagos
Belo Horizonte
Porto Alegre
Philadelphia
Montreal
Atlanta
Pune
Rio De Janeiro
Detroit
Toronto
Naples
0K 1K 2K 3K 4K 5K 6K 7K 8K
Hourly Precipitation (mm)
Precipitation Over Time
Running Sum of Hourly Precipitation (mm)
35K 30K 25K 20K 15K 10K 5K 0K
April 2010 August 2010 December 2010 April 2011 August 2011
Month of Date
City
Santo Domingo
Philadelphia
Montreal
Atlanta
Chicago
Detroit
Toronto
Seattle
Houston
Dallas
Guadalajara
San Francisco
Monterrey
Denver
Los Angeles
Las Vegas
Top C Cities
47
Layout Containers
Horizontal
Vertical
Objects
Title
Text
Image
Web Page
Blank
Size
Automatic (Fit To Window)
Edit...
Start New Ways of Seeing Precipitation Over Time Average High Analytical Firepower Precipitation and Temperature Worldwide Weather Enterprise Class


JMP File Edit Tables Rows Cols DOE Analyze Graph Tools Add-Ins View Window Help
Iris.jmp: Parallel Plot
Parallel Plot
Sepal length
Sepal width
Petal length
Petal width
Iris.jmp: Distribution of Sepal width, Species
Iris.jmp: Distribution
Iris.jmp: Fit Y by X of Sepal length by Sepal width
Bivariate Fit of Sepal length By Sepal width
Sepal length
Sepal width
Quantile Density Contours
Species
setosa
versicolor
virginica
Count


SMA_V3.dxp - Spotfire DXP
File Edit View Insert Tools Help
Index Intro Sales Performance Territory Analysis Demographic Analysis
Info
The performance matrix is a simple yet efffective method to identify high and low value stores.
Gaining Share, Shrinking Market
Gaining Share, Growing Market
Losing Share, Shrinking Market
Losing Share, Growing Market
Common Filters:
Exclude Stores < 100k in Class Sales
Show only Top 100 Ranked Stores
Next Steps:
Territory Analysis
Demographic Analysis
Summary Table
Column Sum Max Min
Class Sales 150,328.00 363.00 0.00
Brand A Yr 1 70,764.00 156.00 1.00
Brand A Share Yr 2 206,010.00 100.00 0.00
Performance Matrix
Sum(Brand A Change Yr 1 to Yr 2)
Sum(Class Sales) Yr 1 to Yr 2)
Marker by: Store ID
Color by: Market Segment
Marked
Gaining Share, Growing Market
Gaining Share, Shrinking Market
Losing Share, Growing Market
Losing Share, Shrinking Market
Size by: Sum(Class Sales)
363.00
0.00
FILTER PANEL
Type to search filters
Region (All) MW NE SE WE (None)
Class Sales 0.00 690.00
Rank 432 4999
Store Type (All) Grocery Large Retailer Other (None)
Market Segment (All) Gaining Share, Growing Mar... Gaining Share, Shrinking Ma... Losing Share, Growing Mark... Losing Share, Shrinking Mar... (None)
Map of US Stores
Box Plot - Distribution of Stores by Brand Share Change
Store ID: 1331
City: Deerfield Beach
Market Segment: Losing Share, Growing Market
Brand A Share Yr 2
Losing Share, Gro... Losing Share,... Gaining Share,... Gaining Share, Shr...
Count 712 1739 1268 719
Outliers 6 0 0 0
Market Segment
DETAILS-ON-DEMAND
Column Value
Store ID 1331
City Deerfield Be...
State Florida
Rank 4603
Class Sales 11.00
Class Change Yr 1... 1.00
Brand A Yr 1 10.00
Brand A Yr 2 10.00
Brand A Change Y... 0.00
Brand A Share Yr 1 100.00
Brand A Share Yr 2 91.00
Brand A Share Ch... -9
Sales Person ID 277
Territory 17
Variance from Terr... -6.975903614
Store Type Grocery
Class Sales Year 1 10.00
Online
4438 of 4854 rows of data, 1 row marked
42 columns

QlikView


world_data.qvw
Select Bookmark
Select Report
More
Close
Main
QlikXplorer Extension for QlikView
NComVA.com
Fertility rate, total (births per woman)
Population, total
Scale:
Japan
Germany
China
Niger
2008
Population ages 65 and above (% of total)
Population ages 0-14 (% of total)
Indicator filtering
Filter by: Value Percentiles
Active filters: 0/7
Population, total
Population ages 0-14 (% of total)
Population ages 15-64 (% of total)
Population ages 65 and above (% of total)
Afghanistan
Albania
Algeria
Andorra
Angola
Argentina
Armenia
Australia
Austria
Azerbaijan
Bahamas, The
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bhutan
Bolivia
Bosnia and Herze...
Botswana
Brazil
Brunei
Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Central African R...
Chad
Chile
China
Colombia
Comoros
Congo
Costa Rica
Côte D'Ivoire
Croatia
Cuba
Cyprus
Czech Republic
Democratic Repu...
Denmark
Djibouti
Dominica
Dominican Republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Eritrea
Estonia
Ethiopia
Fertility rate, total (births per woman)
GDP growth (annual %)
Life expectancy at birth, total (years)
Population ages 0-14 (% of total)
Population ages 15-64 (% of total)
Population ages 65 and above (% of total)
Population, total
2005
2006
2007
2008
2009
Burkina Faso
Burundi
Cambodia
Cameroon
Canada
Cape Verde
Central African Republic
Chad
Chile
China
Colombia
Comoros
Congo
Costa Rica
Croatia
Cuba
Cyprus
Czech Republic
Côte D'Ivoire
Democratic Republic of the Congo
Denmark
Djibouti
Dominica
Dominican Republic

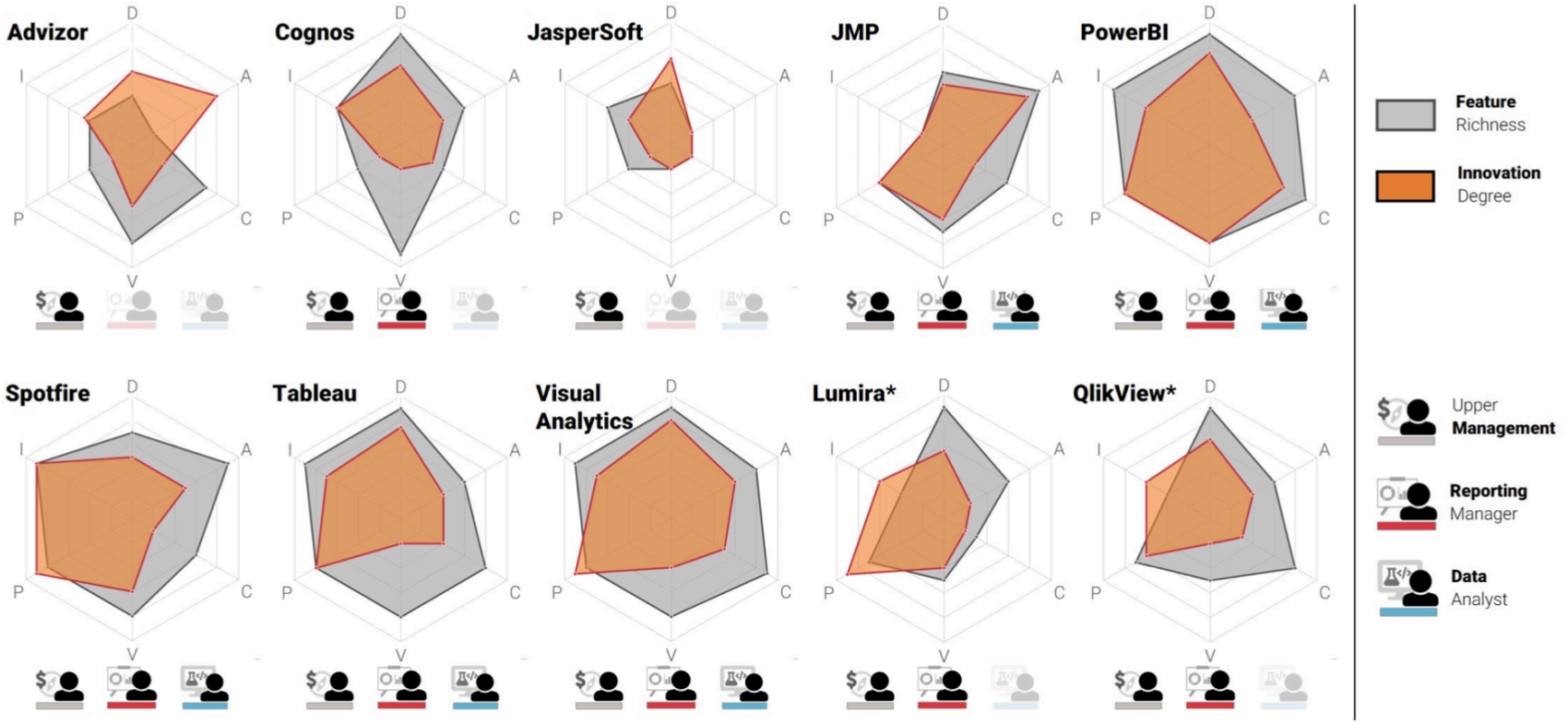


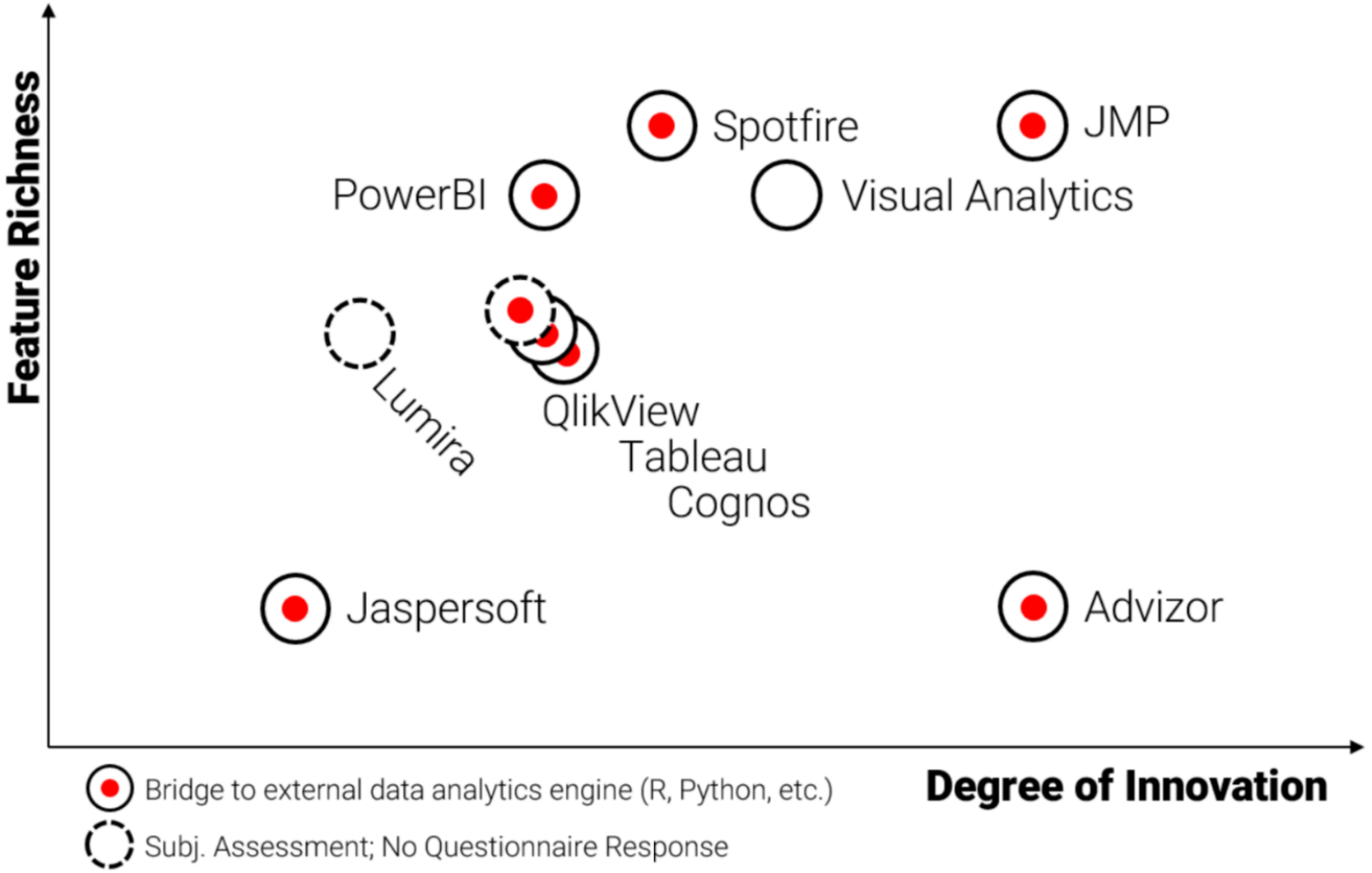
Fig. 2. Overview of the ten evaluated systems in this survey. Dimensions in the radar chart are: **D**=Data Handling and Management, **A**=Automatic Analysis, **C**=Complex Data Types, **V**=Visualization, **P**=User-Guidance, Perception, Cognition and **I**=Infrastructure. Commercial VA systems are designed for specific user groups with varying and overlapping skill sets and requirements w.r.t. data handling, analysis, and reporting.

Commercial Visualization Tools

Behrisch et al., 2018

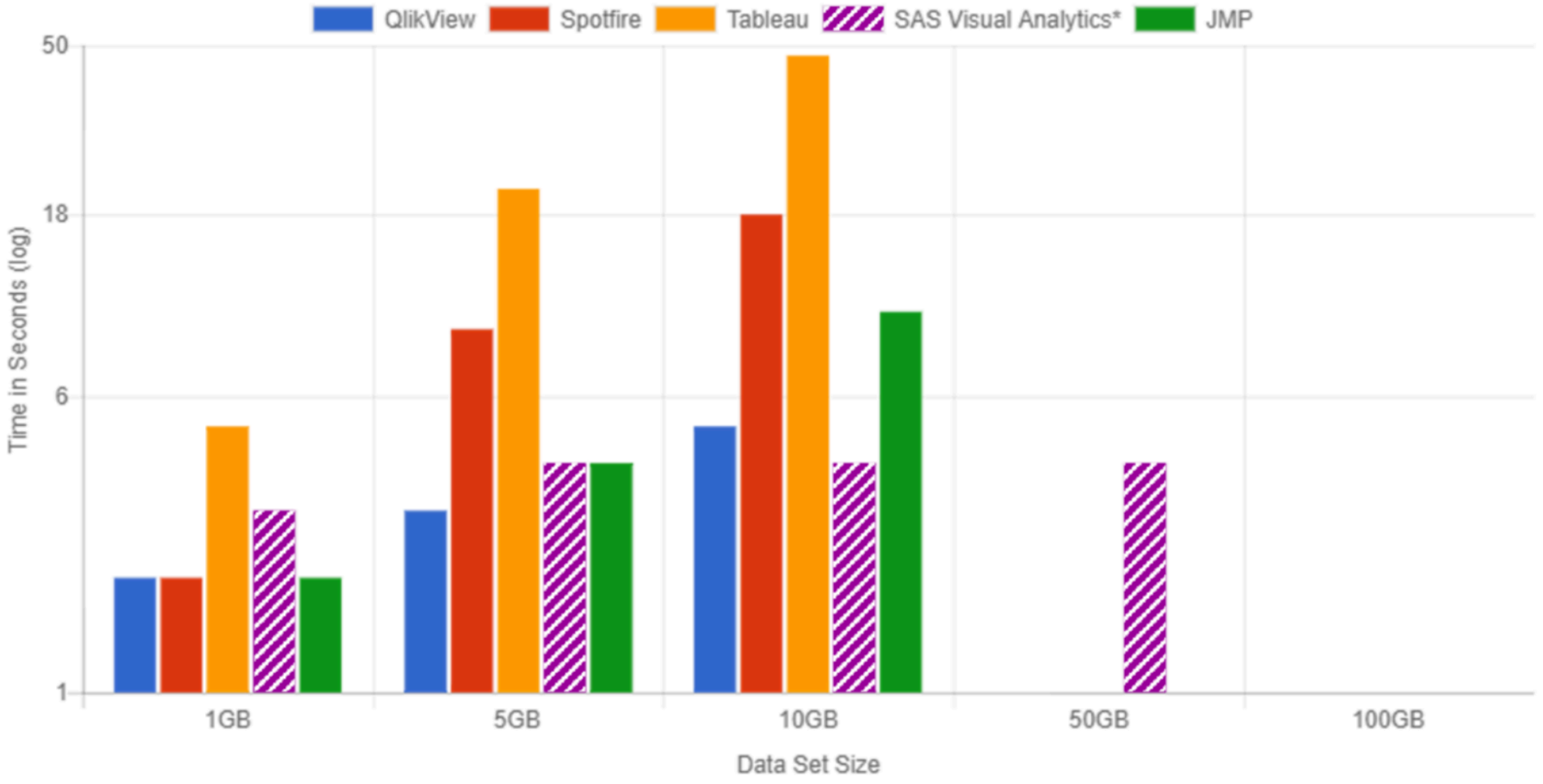
	Supported Data Types	Advizor	Cognos	Jaspersoft	JMP	PowerBI	Spotfire	Tableau	Visual Analytics	Lumira*	QlikView*
Data Types	Numeric with error				✓	✓	✓	✓	✓		
	Numeric intervals	✓			✓	✓	✓		✓		
	Complex time series	✓			✓	✓		✓	✓		✓
	Item Sets	✓	✓			✓		✓	✓		✓
	Relational/Networks	✓				✓		✓	✓		✓
	Geographic positions	✓	✓	✓	✓	✓	✓	✓	✓		✓
	Geographic traces					✓	✓	✓			✓
	Geographic areas	✓	✓			✓	✓	✓	✓	✓	✓
	Text	✓	✓	✓	✓	✓	✓	✓	✓		
	String-like (e.g. DNA)	✓				✓					
	Image		✓	✓	✓	✓	✓		✓		
	Video		✓								

Commercial Visualization Tools – Data Types



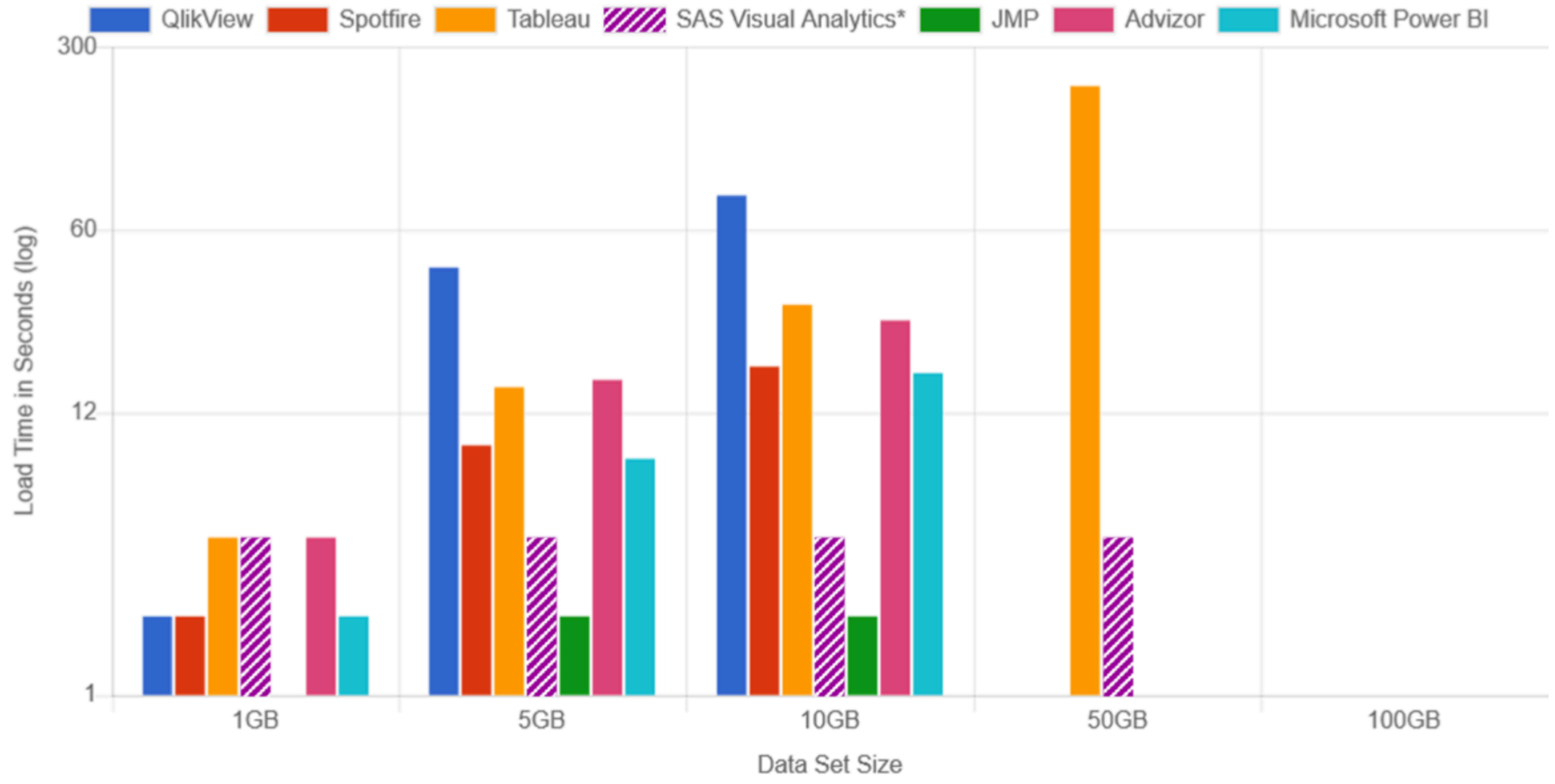
Commercial Visualization Tools – Automatic Analysis

Perform the rank correlation coefficient



Commercial Visualization Tools – Benchmark

Visualize a Scatterplot



Commercial Visualization Tools – Benchmark



Commercial Visualization Tools – Target Groups

https://vega.github.io/voyager2/

http://www.data-illustrator.com/

(Free) Online Visualization Tools