Tableau Experience

Data Literacy in the 21st Century

Taresh Mulky

Manager, Customer Consulting

Tableau

Malaysia | 28 August 2018 | #TableauExperience

+ableau

Gartner®

2020

80%

“..of organizations will initiate deliberate competency development in the field of data literacy, acknowledging their extreme deficiency “

Impact of data

Grab

airbnb

We have seen this kind of impact before

GDP over the last 2000 years

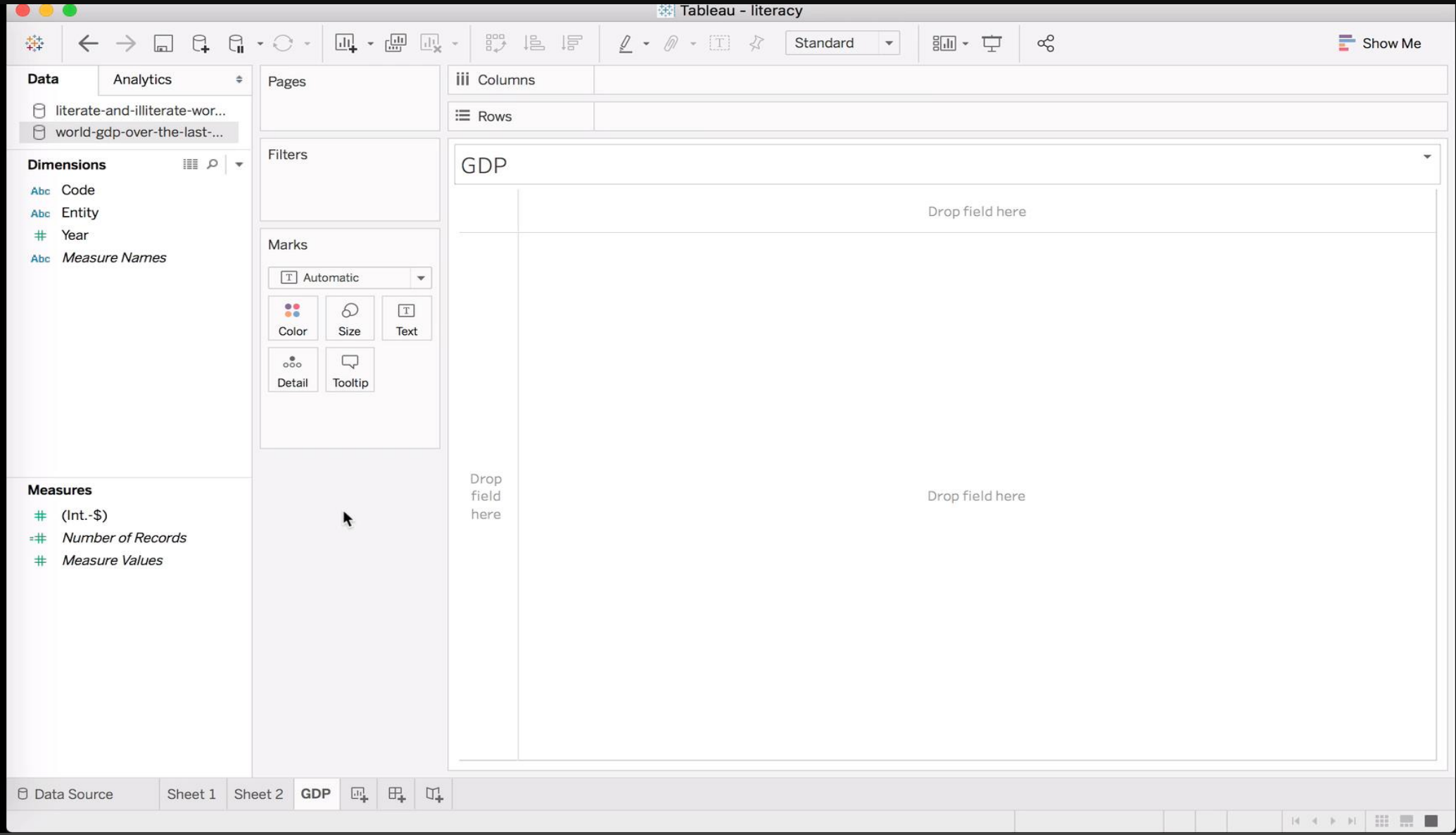
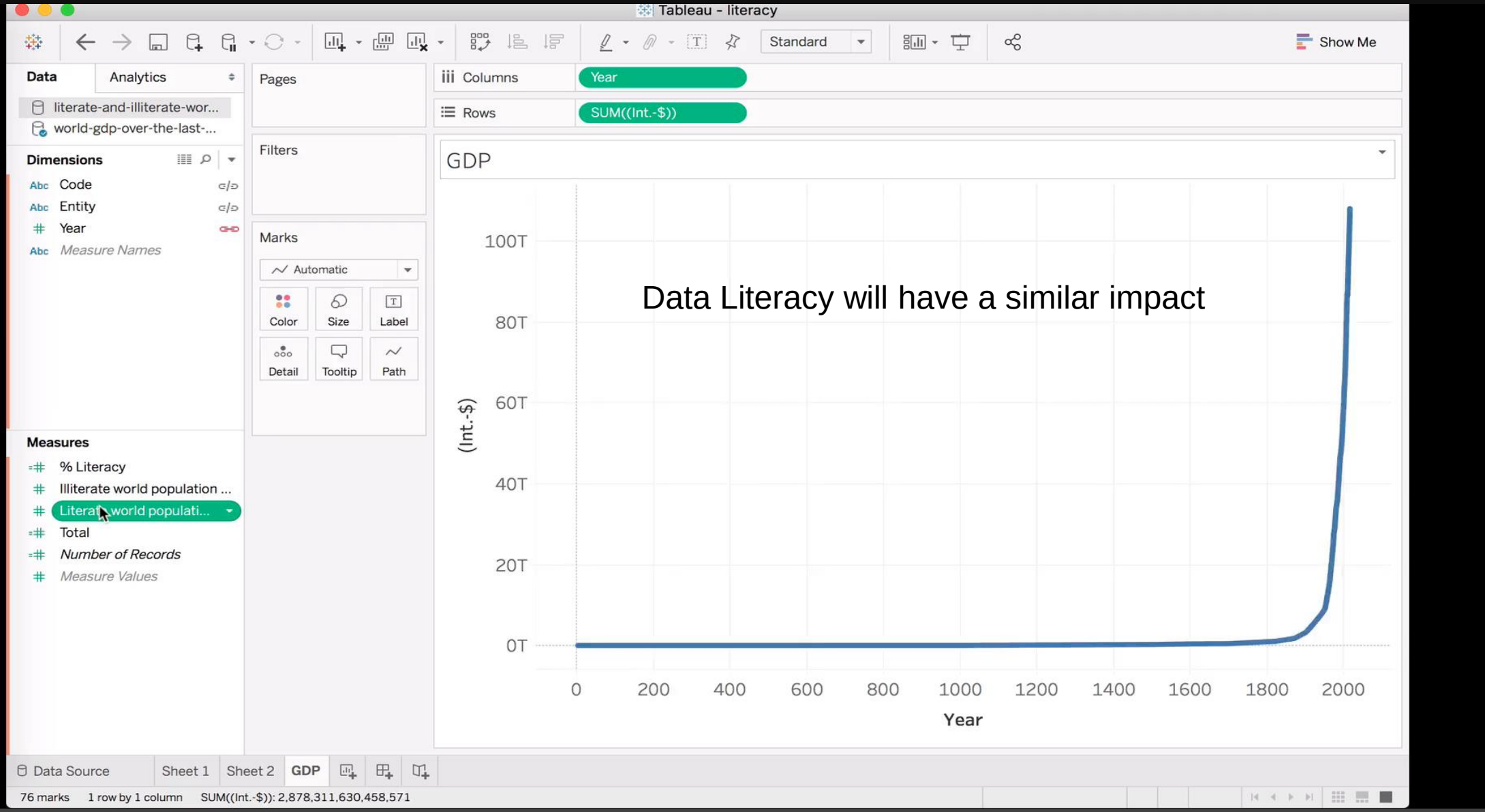


Tableau - literacy
Standard
Show Me
Data
Analytics
literate-and-illiterate-wor...
world-gdp-over-the-last-...
Dimensions
Abc Code
Abc Entity
Year
Abc Measure Names
Measures
(Int.-$)
Number of Records
Measure Values
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
GDP
Drop field here
Drop field here
Drop field here
Data Source
Sheet 1
Sheet 2
GDP

GDP & Literacy



Literacy

Ability to derive information from the written word

Data Literacy

Ability to derive meaningful information from data

What is data literacy & why does it matter ?

What is data literacy & why does it matter ?

Increasing Data Literacy

GovInsider

CONNECTED **DIGITAL** INCLUSIVE INNOVATION SECURITY SMART EVENTS ABOUT

How to give Singaporeans data skills

If data is 'the new oil', then data analytics will be a crucial skill for tomorrow's workforce.

Singapore wants to be future-ready – and the first step is data skills.

In line with this national agenda, the country has a focus on a very important group: the next generation, who will one day enter a workforce that places great value on data analytics.

Tableau recently teamed up with the Info-communications Media Development Authority of Singapore to host a data stories competition which invited youths to delve deep into social and cultural issues, and find insights through the use of data.

Data analytics 101

Over 200 students, teachers and lecturers, joined workshops to build up data skill sets in the lead up to the finals held last month. This year, over 130 students participated in the challenge, and Tableau received more than 40% increase in entries compared to last year, shares JY Pook, Senior Vice President of Asia Pacific at Tableau.

Singapore to train 10,000 officials with data skills

Government must be 'early adopter' of new tech, Deputy Prime Minister says.

10,000 government officials in Singapore will be trained with digital and data skills over the next four years, it has been announced.

They will be trained in areas such as using data science and data analytics for policy making, service delivery and corporate services, as well as improving cyber security, Deputy Prime Minister Teo Chee Hean said at a budget debate yesterday.

Singapore Business Review

HOME SECTIONS EXCLUSIVES CONTACT US EVENTS AWARDS CONTRIBUTORS ADVERTISING

Singapore doubles-down on data literacy in Smart Nation drive

BY MARCUS LOH

Just as Singapore is benefiting from the invisible hand of technology, we have also ushered an era of data ubiquity where anyone – from the CEO to the intern, from professor to the student – can use that data for smarter decision-making.

Every day, new data and emergent technologies are presenting opportunities for institutions, enterprises and governments to learn about policy failures and successes and act on new knowledge about what works to improve the lives of students, workers and citizens.

Singapore is in a fortunate position where the country's state of technological advances and connectivity has permeated almost every facet of its citizen's daily life.

Increasing Data Literacy

Sunday, 26 August 2018, 12:14 PM

NEW STRAITS TIMES ESTABLISHED 1845

National Day Celebrat

#kitapunya #sayangimalaysiaku #kibarjalurge

NEWS BUSINESS LIFESTYLE SPORTS WORLD OPINION PROPERTY EDUCATION CARS BIKES TF

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5 minute read

Wan Azizah calls for relevant data from Statistics Dept to fulfil PH's manifesto

By Hashini Kavishtri Kannan - July 26, 2018 @ 9:22pm

CYBERJAYA: Deputy Prime Minister Datuk Seri Dr Wan Azizah Wan Ismail today urged th Department of Statistics to churn out relevant and sufficient with full integrity for all mini agencies.

This would enable the new government to fulfil their promises to the people based on the Harapan's manifesto, she said.

"With the data and statistics provided, we (Pakatan Harapan's) will carry out the promise either short term or long term period," she said at the "Statistics for the People's Wellbeir organised by the department earlier today.

She said this will also enable the government to make correct and accurate policy decisi with the 2030 Sustainable Development Goals (SDG).

"In our aspirations to build a New Malaysia and improve the wellbeing of the people, the government must take the right decisions based on facts and figures as it would impact country's 32 million population.

"We hope we can also achieve the country's goals based on SDG in 11 to 12 years from r based on the statistics provided by the department.

MDEC

NEWS & ANNOUNCEMENTS

/ NEWS / MALAYSIA TO ACCELERATE GROWTH OF DATA PROFESSIONALS

MALAYSIA TO ACCELERATE GROWTH OF DATA PROFESSIONALS

- Public and private sectors come together to raise the quality of talent in Big Data Analytics

02102017 258

Dr. Karl Ng Hou, Director of Data Economy, MDEC; Datuk Yasmin Mahmood, CEO of MDEC; Sharala

s through a unique Public-Private Partnership (PPP) initiative called Data Star programme - a data science who meet industries' demands. A joint-effort between ASEAN Data Analytics eXchange (ADAX), Malaysia me will help Malaysia achieve 20,000 data professionals by 2020; a goal set by the Government in 2015.

is marks the fifth Big Data Week Asia organised by MDEC and, each year, it continues to bring a bigger impact

a robust BDA ecosystem; in line with Malaysia's vision to position itself as a data driven nation. So far, the 20,000 high-quality data professionals by 2020. Unique initiatives like the Data Star programme will

DEPARTMENT OF STATISTICS MALAYSIA, OFFICIAL PORTAL

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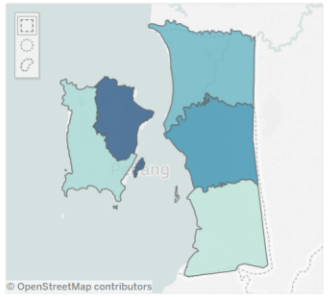
Sunday, 26 August 2018 | 14 Zulhijjah 1439 H

Population Statistics

Home » Statistics » Online Services » Interactive Visualisation » MyLocal Stats » Population Statistics

Introduction on Population Data | Population Statistics | How population data can help you? | Providing more effective, comprehensive and coordinated development plans at district level | Improving econor lifestyle

Please choose a State: PULAU PINANG ** Click on required District



Land Area (km2) 1,032

Total Population (in thousands) 1,746.7

881.4 865.3

Note: Population data are based on projection 2017

Age Group Composition (in thousands)

349.8 1,239.6 157.3

0 - 14 15 - 64 65+

Note:
1. Land Area are based on 2016.
2. Birth and Death are based on 2016.

Birth 22,242

11,529 10,713

Death 10,226

5,783 4,443

What is data literacy & why does it matter ?

<HOW TO BE/>
<Data-Driven/>

Data is everywhere, but it can be challenging to harness it to improve your performance. Use these **five principles** to better incorporate data into your everyday work life.

Data lets you see the world more clearly

<!---------"Be data-literate"--------->

Understand what you're measuring and make it meaningful. First, decide what type of metric you're using, and **give that data context** by establishing benchmarks with varying frames of reference. Then, **compare your subject to similar targets.** How these items relate to each other greatly enhances your understanding.

Process metrics
Measure how well the steps of the process are completed
(e.g., handwashing rates and nursing rounds)

Outcome metrics
Measure how well actions achieve their intended goal
(e.g., infection rates and patient satisfaction)

Benchmarks

<!--Generally higher standards--->
------->Zero-defect performance
------->All-industry performance
------>National performance
----->Like-cohort performance
---->System performance
--->Organizational performance
->Department history
<!---Generally lower standards--->

Data helps you prove your value

<!-------"Be skeptical"------->

If you are refining your own data-driven conclusions or looking at the conclusions of others, **ask these essential questions:** Does the data track the right metrics? Has it been collected and categorized accurately? Is the analysis sound? Is the data presented clearly?

IMPORTANT QUESTIONS

Have I drawn the right conclusions?
- Is this data shown objectively?
- Is the metric better represented as a percentage as opposed to an absolute number (or vice versa)?

Am I looking at these results correctly?
- Is the difference we've observed as big as it looks?
- Is the difference statistically significant?
- Have we accounted for a margin of error?

Are these good goals and benchmarks?
- Are our goals sufficiently ambitious?
- Are our goals sufficiently realistic?
- Are we comparing ourselves to the right peers?

Do I have the right metrics?
- Are we focused on the right outcomes?
- Does what we're measuring reflect those outcomes?
- Does what we're measuring help us understand the success of our tactics?

Is this data accurate?
- Is this data timely?
- Is this data reported honestly?
- Has this data been collected accurately?

Not just for data scientists
Not about technology

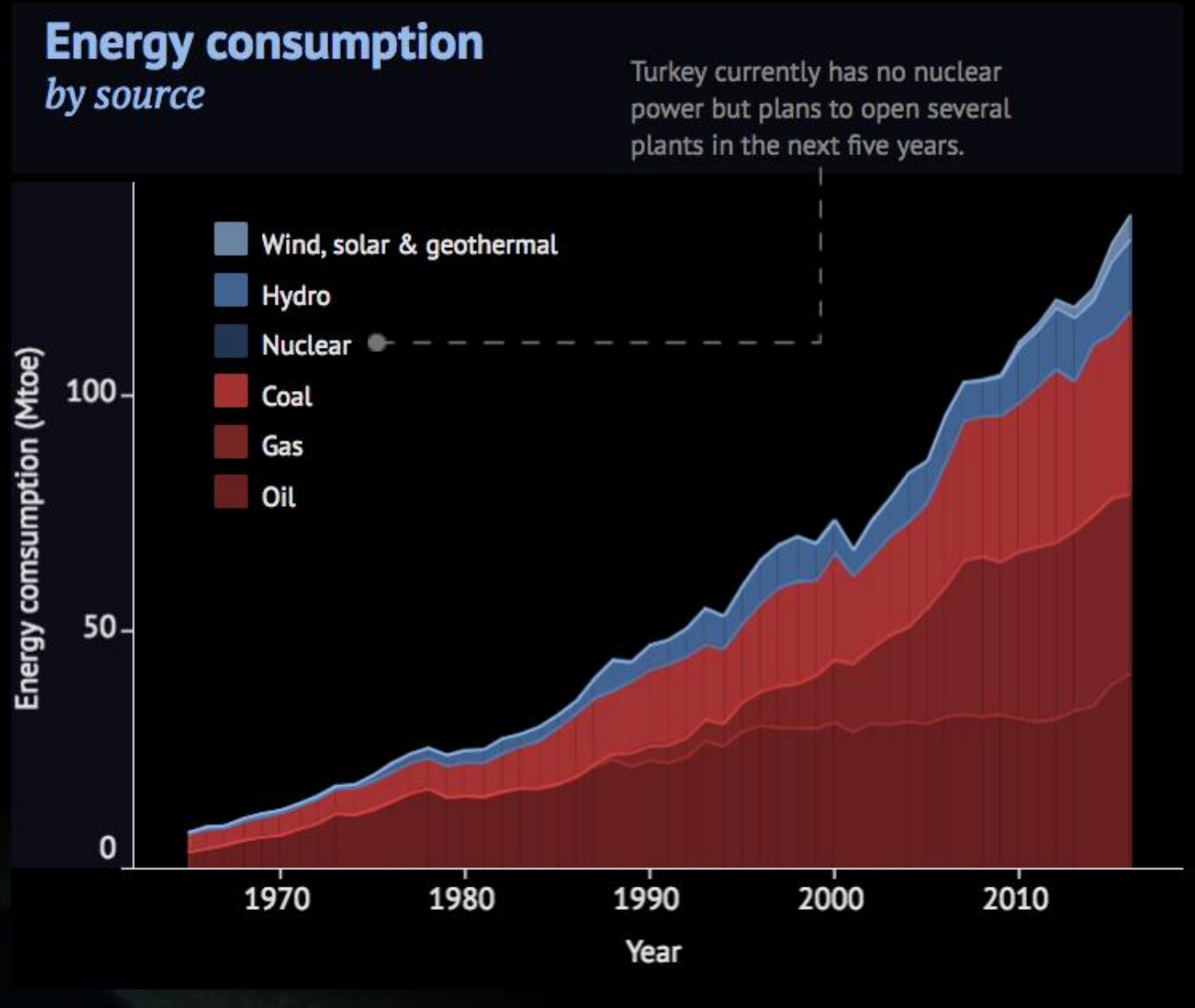
read, consume, view

CARBON BRIEF PROFILE

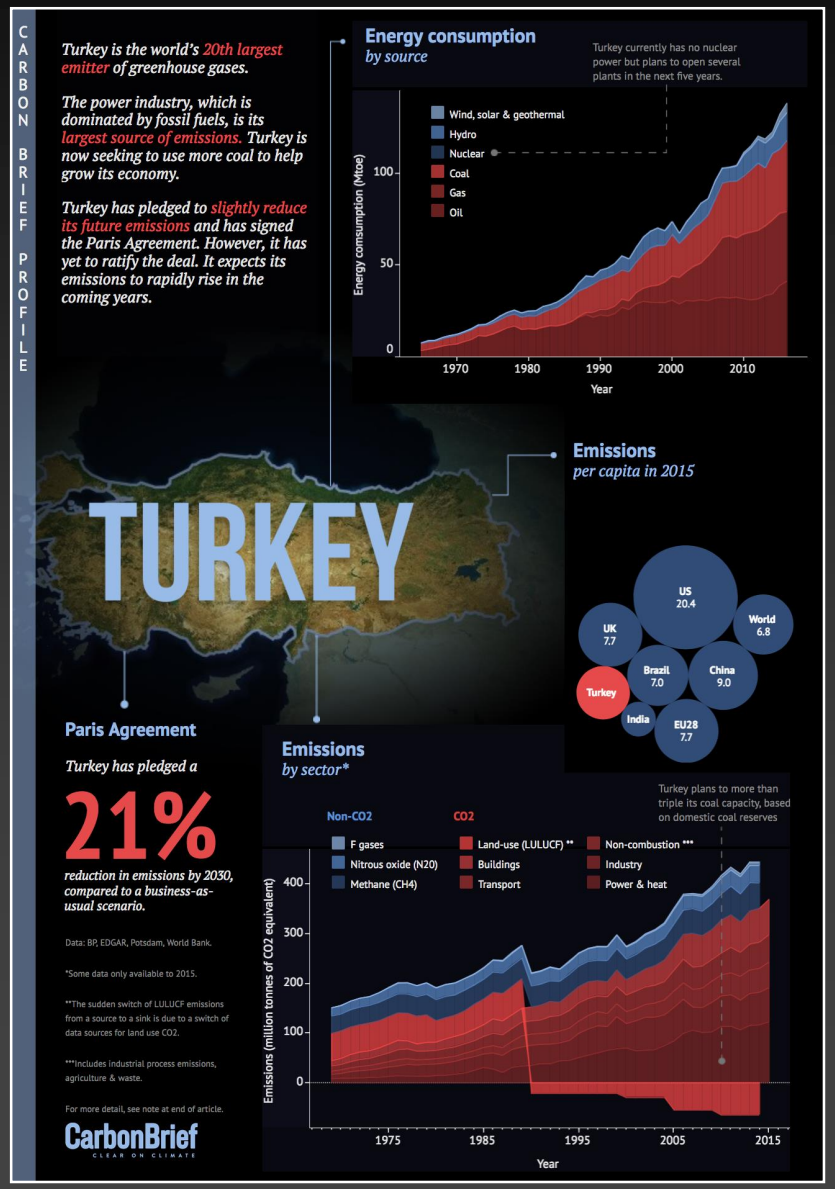
Turkey is the world's 20th largest emitter of greenhouse gases.

The power industry, which is dominated by fossil fuels, is its largest source of emissions. Turkey is now seeking to use more coal to help grow its economy.

Turkey has pledged to slightly reduce its future emissions and has signed the Paris Agreement. However, it has yet to ratify the deal. It expects its emissions to rapidly rise in the coming years.



read, consume, view



what data is

collected, analyzed, visualized

how data benefits your company

Easy, right ?

“Do you sell blank CDs?”

”Do you sell blank CDs?”

We are currently in the process of consolidating our product range to ensure that the products that we stock are indicative of our brand aspirations.

As part of our range consolidation we have also decided to revisit our supplier list and employ a more intelligent system for stock acquisition.

As a result of the above certain product lines are now unavailable through jungle.com, whilst potentially remaining available from more mainstream suppliers.

Plain English Campaign - Golden Bull Awards 2003

“Do you sell blank CDs?”

No

52% of C-Level executives dismiss data because they don’t understand it

CMMI Institute

* Capability Maturity Model Integration

52%

- Management still not yet data driven.
- Use experience & gut feeling

- Irrelevant data.
- Way data is presented & consumed is too complicated.

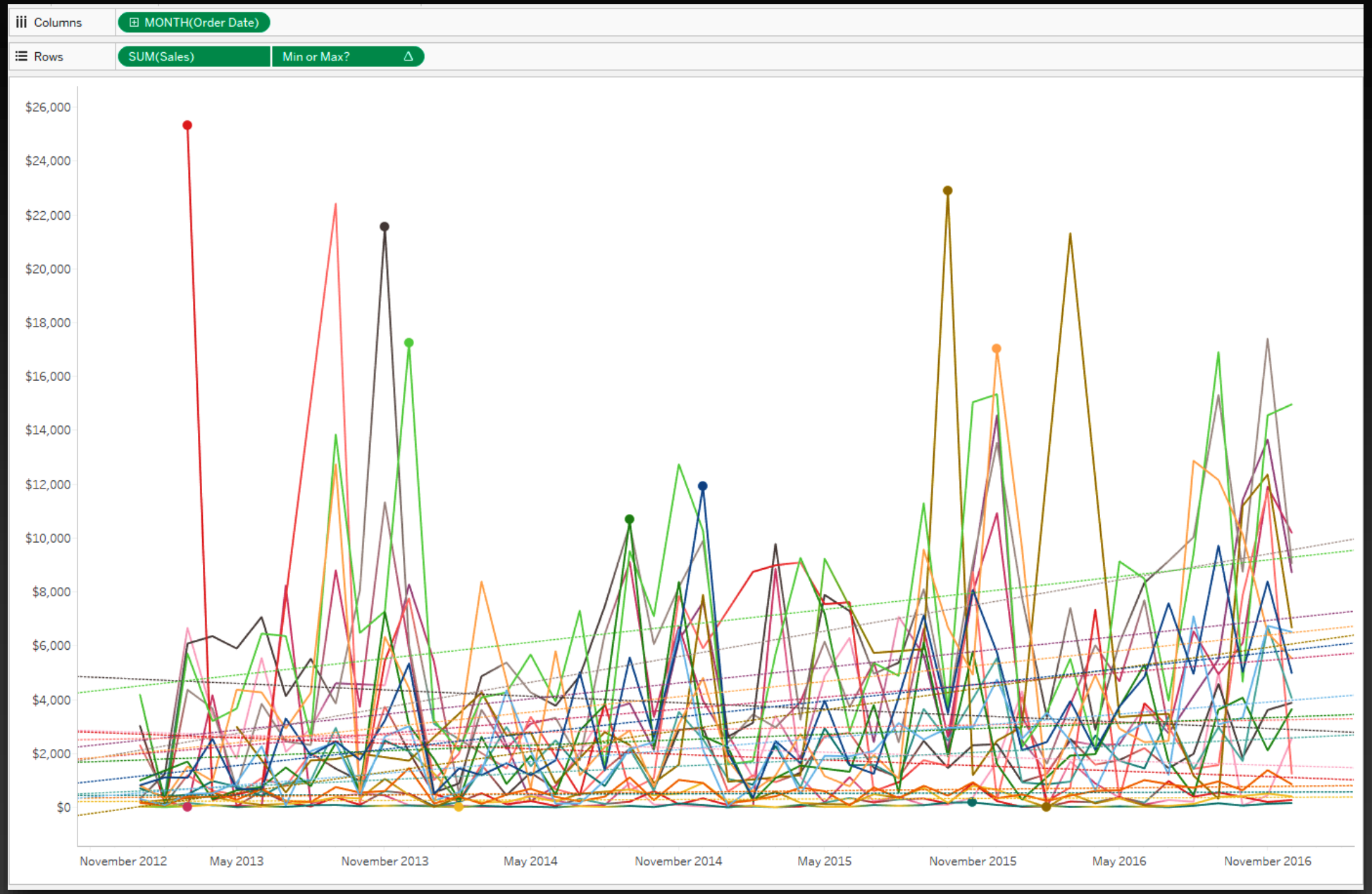
* Capability Maturity Model Integration

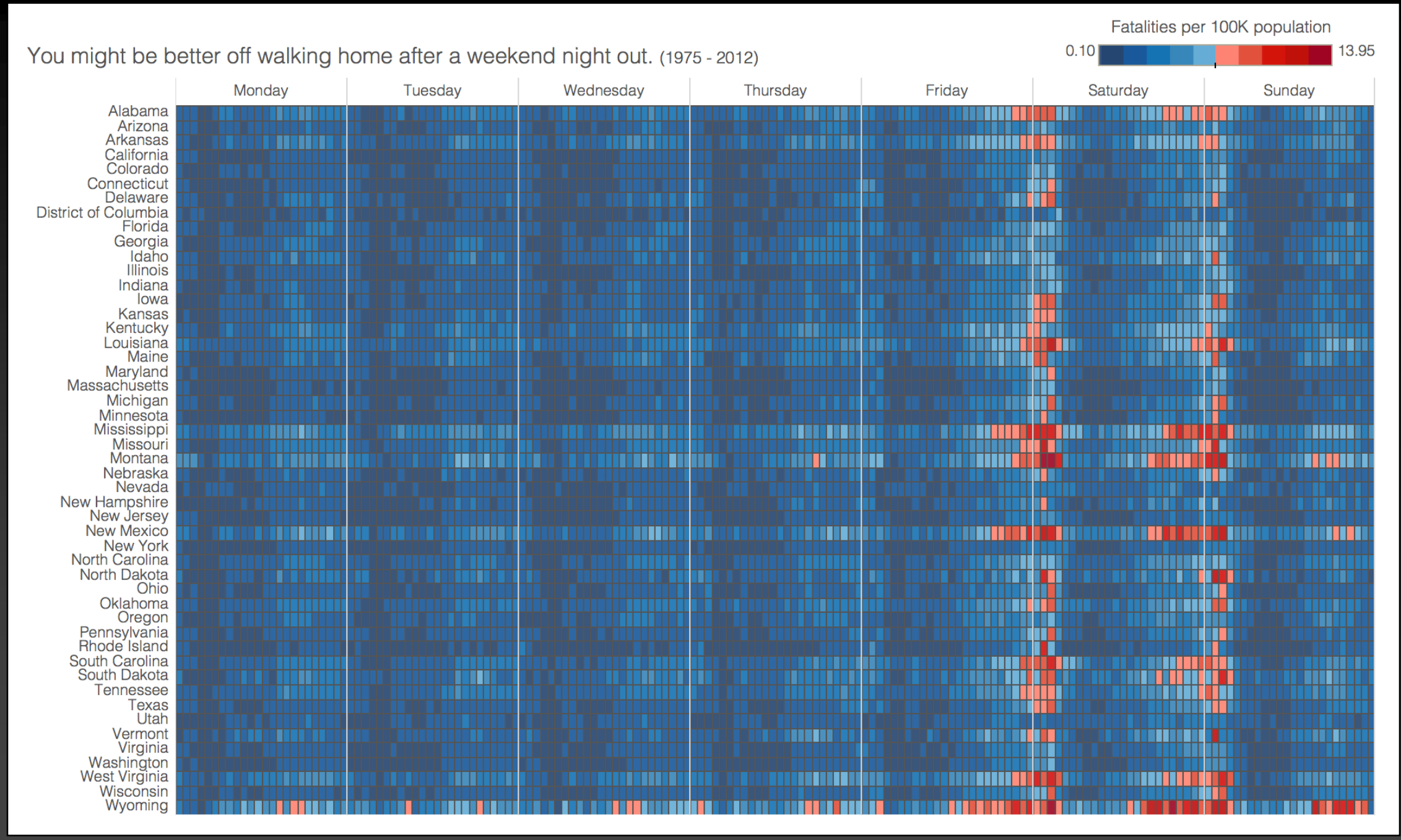
«Company Name»
Plan versus Actual Variance Report—Financial Services
«Date»

Data cell key
Data input cells
Formula cells: Totals are calculated and filled in automatically

Line item	January	February	March	Q1	April	May	June	Q2	July	August	September	Q3	October	November	December	Q4	Annual	Variance analysis notes
INCOME STATEMENT																		
Interest income																		
Plan	$65,000	$75,000	$65,000	$205,000	$75,000	$80,000	$90,000	$245,000	$90,000	$100,000	$105,000	$295,000	$120,000	$130,000	$140,000	$390,000	$1,160,000	
Actual	$60,000	$70,000	$68,000	$218,000	$95,000	$65,000	$68,000	$248,000	$95,000	$110,000	$100,000	$305,000	$115,000	$120,000	$165,000	$400,000	$1,171,000	
Variance $ (Actual – Plan)	($5,000)	($5,000)	$3,000	($7,000)	$20,000	($15,000)	($2,000)	$3,000	$5,000	$10,000	($5,000)	$10,000	($5,000)	($10,000)	$25,000	$10,000	$11,000	
Variance %	-7.69%	-6.67%	3.53%	-3.11%	26.67%	-18.75%	-2.22%	1.22%	5.56%	10.00%	-4.76%	3.39%	-4.17%	-7.69%	13.79%	1.27%	0.95%	
Interest expense																		
Plan	$50,000	$55,000	$65,000	$170,000	$55,000	$60,000	$70,000	$185,000	$50,000	$55,000	$65,000	$170,000	$50,000	$55,000	$65,000	$170,000	$695,000	
Actual	$45,000	$58,000	$63,000	$163,000	$45,000	$55,000	$63,000	$163,000	$45,000	$58,000	$63,000	$163,000	$45,000	$55,000	$63,000	$163,000	$652,000	
Variance $ (Plan – Actual)	$5,000	$0	$2,000	$7,000	$10,000	$5,000	$7,000	$22,000	$5,000	$0	$2,000	$7,000	$5,000	$0	$2,000	$7,000	$43,000	
Variance %	10.00%	0.00%	3.08%	4.12%	18.18%	8.33%	10.00%	11.89%	10.00%	0.00%	3.08%	4.12%	10.00%	0.00%	3.08%	4.12%	6.19%	
Bad debt/credit losses																		
Plan	$8,000	$3,000	$4,000	$15,000	$6,000	$7,000	$8,000	$21,000	$7,500	$8,500	$9,000	$25,000	$8,000	$10,000	$6,500	$24,500	$85,500	
Actual	$10,000	$4,000	$3,000	$17,000	$5,000	$6,500	$7,500	$19,000	$8,000	$9,000	$8,500	$24,500	$9,000	$9,000	$4,500	$22,500	$83,000	
Variance $ (Plan – Actual)	($2,000)	($1,000)	$1,000	($2,000)	$1,000	$500	$500	$2,000	($500)	($500)	$500	$500	($1,000)	$1,000	$2,000	$2,000	$2,500	
Variance %	-25.00%	-33.33%	25.00%	-13.33%	16.67%	7.14%	6.25%	9.52%	-6.67%	-5.88%	5.56%	2.00%	-12.50%	10.00%	30.77%	8.16%	2.92%	
Noninterest income																		
Plan	$35,000	$40,000	$40,000	$115,000	$40,000	$40,000	$45,000	$125,000	$45,000	$45,000	$50,000	$140,000	$50,000	$55,000	$55,000	$160,000	$540,000	
Actual	$40,000	$41,000	$42,000	$123,000	$42,000	$43,000	$45,000	$130,000	$45,000	$47,000	$49,000	$141,000	$50,000	$56,000	$57,000	$162,000	$556,000	
Variance $ (Actual – Plan)	$5,000	$1,000	$2,000	$8,000	$2,000	$3,000	$0	$5,000	$0	$2,000	($1,000)	$1,000	$0	$1,000	$2,000	$2,000	$16,000	
Variance %	14.29%	2.50%	5.00%	6.96%	5.00%	7.50%	0.00%	4.00%	0.00%	4.44%	-2.00%	0.71%	0.00%	0.00%	3.64%	1.25%	2.96%	
Noninterest expense																		
Plan	$10,000	$10,000	$11,000	$31,000	$11,000	$12,000	$15,000	$38,000	$14,000	$15,000	$16,000	$45,000	$15,000	$18,000	$15,000	$48,000	$162,000	
Actual	$9,000	$10,000	$12,000	$31,000	$15,000	$13,000	$14,000	$42,000	$13,500	$14,500	$15,500	$43,500	$14,000	$22,000	$15,500	$51,500	$168,000	
Variance $ (Plan – Actual)	$1,000	$0	($1,000)	$0	($4,000)	($1,000)	$1,000	($4,000)	$500	$500	$500	$1,500	$1,000	($4,000)	($500)	($3,500)	($6,000)	
Variance %	10.00%	0.00%	-9.09%	0.00%	-36.36%	-8.33%	6.67%	-10.53%	3.57%	3.33%	3.13%	3.33%	6.67%	-22.22%	-3.33%	-7.29%	-3.70%	
Net income																		
Plan	$15,000	$15,000	$15,000	$45,000	$15,000	$15,000	$15,000	$45,000	$15,000	$15,000	$15,000	$45,000	$2,000	$20,000	$20,000	$42,000	$177,000	
Actual	$16,500	$15,000	$15,000	$48,500	$13,500	$17,000	$16,000	$46,500	$12,000	$16,000	$19,000	$48,000	$21,000	$25,000	$24,000	$70,000	$212,000	
Variance $ (Actual – Plan)	$1,500	$0	$0	$4,500	($1,500)	$2,000	$1,000	$1,500	($3,000)	$1,000	$5,000	$1,000	$19,000	$5,000	$4,000	$28,000	$35,000	
Variance %	10.00%	0.00%	0.00%	10.00%	-10.00%	13.33%	6.67%	3.33%	-20.00%	6.67%	26.00%	2.22%	950.00%	25.00%	20.00%	66.67%	19.77%	

Line item	January	February	March	Q1	April	May	June	Q2	July	August	September	Q3	October	November	December	Q4	Annual	Variance analysis notes
BALANCE SHEET																		
Cash and cash equivalents																		
Plan	$45,000	$45,000	$40,000	$43,333	$40,000	$42,000	$45,000	$42,333	$48,000	$52,000	$55,000	$51,667	$60,000	$65,000	$70,000	$65,000	$70,000	
Actual	$43,000	$42,000	$41,000	$42,000	$38,000	$40,000	$41,000	$39,667	$45,000	$49,000	$53,000	$49,667	$58,000	$66,000	$72,000	$65,333	$72,000	
Variance $ (Actual – Plan)	($2,000)	($3,000)	$1,000	($1,333)	($2,000)	($2,000)	($4,000)	($2,667)	($3,000)	($3,000)	($2,000)	($2,667)	($2,000)	$1,000	$2,000	$333	$2,000	
Variance %	-4.44%	-6.67%	2.50%	-3.08%	-5.00%	-4.76%	-8.89%	-6.30%	-6.25%	-7.69%	-3.64%	-5.81%	-3.33%	1.54%	2.86%	0.51%	2.86%	
Investment securities																		
Plan	$100,000	$105,000	$110,000	$105,000	$115,000	$120,000	$125,000	$120,000	$125,000	$125,000	$120,000	$123,333	$115,000	$110,000	$100,000	$108,333	$100,000	
Actual	$95,000	$100,000	$105,000	$100,000	$105,000	$112,000	$116,000	$111,667	$122,000	$125,000	$121,000	$122,667	$116,000	$108,000	$102,000	$108,667	$102,000	
Variance $ (Actual – Plan)	($5,000)	($5,000)	($5,000)	($5,000)	($10,000)	($8,000)	($7,000)	($8,333)	($3,000)	$0	$1,000	($667)	$1,000	($2,000)	$2,000	$333	$2,000	
Variance %	-5.00%	-4.76%	-4.55%	-4.76%	-8.70%	-6.67%	-5.60%	-6.94%	-2.40%	0.00%	0.83%	-0.54%	0.87%	-1.82%	2.00%	0.31%	2.00%	
Loans																		
Plan	$325,000	$330,000	$335,000	$330,000	$325,000	$330,000	$335,000	$330,000	$325,000	$330,000	$335,000	$330,000	$325,000	$330,000	$335,000	$330,000	$330,000	
Actual	$338,000	$340,000	$342,000	$340,000	$338,000	$340,000	$342,000	$340,000	$338,000	$340,000	$342,000	$340,000	$339,000	$340,000	$342,000	$340,000	$342,000	
Variance $ (Actual – Plan)	$13,000	$10,000	$7,000	$10,000	$13,000	$10,000	$7,000	$10,000	$13,000	$10,000	$7,000	$10,000	$13,000	$10,000	$7,000	$10,000	$7,000	
Variance %	4.00%	3.03%	2.09%	3.03%	4.00%	3.03%	2.09%	3.03%	4.00%	3.03%	2.09%	3.03%	4.00%	3.03%	2.09%	3.03%	2.09%	
Accounts payable																		
Plan	$25,000	$28,000	$32,000	$28,333	$34,000	$35,000	$36,000	$35,000	$35,000	$34,000	$33,000	$34,000	$32,000	$31,000	$30,000	$31,000	$30,000	
Actual	$26,000	$30,000	$34,000	$30,000	$35,000	$35,500	$36,500	$35,667	$35,000	$34,000	$32,500	$33,833	$31,000	$30,000	$29,500	$30,167	$29,500	
Variance $ (Actual – Plan)	$1,000	$2,000	$2,000	$1,667	$1,000	$500	$500	$667	$0	$0	($500)	($167)	($1,000)	($1,000)	($500)	($833)	($500)	
Variance %	4.00%	7.14%	6.25%	5.88%	2.94%	1.43%	1.39%	1.90%	0.00%	0.00%	-1.52%	-0.49%	-3.13%	-3.23%	-1.67%	-2.68%	-1.67%	
Deposits																		
Plan	$125,000	$48,000	$50,000	$74,333	$55,000	$55,000	$54,000	$54,667	$53,000	$52,000	$51,000	$52,000	$50,000	$50,000	$50,000	$50,000	$50,000	
Actual	$125,000	$45,000	$49,000	$74,000	$51,000	$53,000	$54,000	$52,667	$50,000	$54,000	$53,000	$54,000	$51,000	$50,000	$49,000	$50,167	$48,500	
Variance $ (Actual – Plan)	$0	$0	($1,000)	($333)	($4,000)	($2,000)	$0	($2,000)	$2,000	$2,000	$2,000	$2,000	$1,000	$0	($500)	$167	($500)	
Variance %	0.00%	0.00%	-2.00%	-0.45%	-7.27%	-3.64%	0.00%	-3.66%	3.77%	3.85%	3.92%	3.85%	2.00%	0.00%	-1.00%	0.33%	-1.00%	


Columns
MONTH(Order Date)
Rows
SUM(Sales)
Min or Max?
$26,000
$24,000
$22,000
$20,000
$18,000
$16,000
$14,000
$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$0
November 2012
May 2013
November 2013
May 2014
November 2014
May 2015
November 2015
May 2016
November 2016


You might be better off walking home after a weekend night out. (1975 - 2012)
Fatalities per 100K population
0.10
13.95
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Alabama
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

write, create, explore

ask and answer real-world questions

clean, analyze, visualize, critique and interpret data

communicate stories from data

Urbanizing China

China's ambitious goal | Urban growth rate comparison | Urban population of China's largest cities | New initiative or current trend? | Forced land takings by the state | The result

China plans to move almost 250 million rural residents into cities over the next 12-15 years

Use the slider below to gain perspective on the number of equivalent major cities that represents

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

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Use the slider below to gain perspective on the number of equivalent major cities that represents

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

data literacy culture

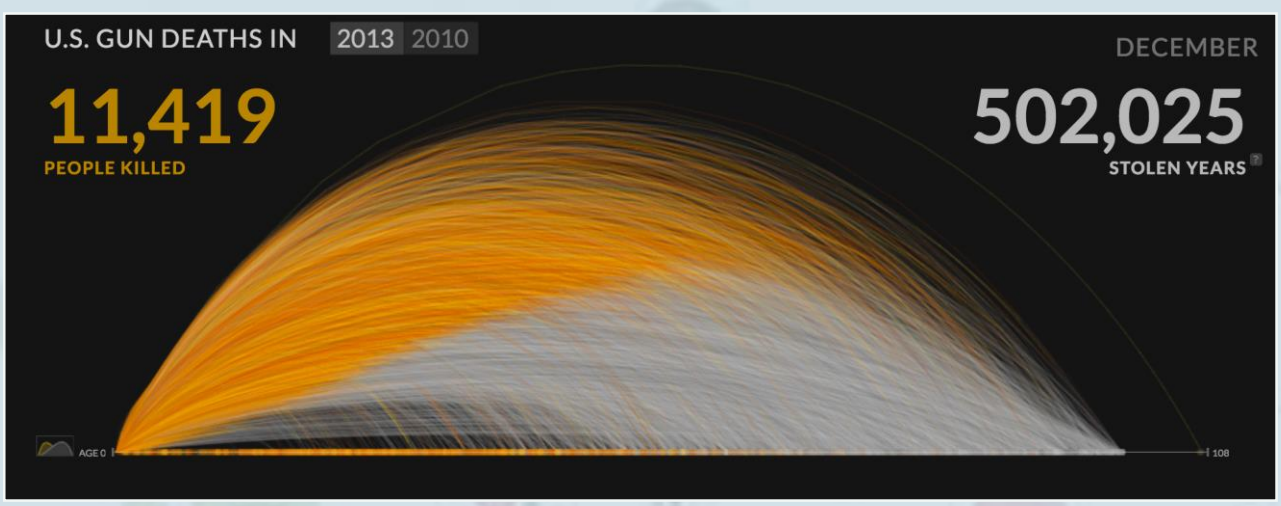
curiosity
creativity
critical thinking

think in data

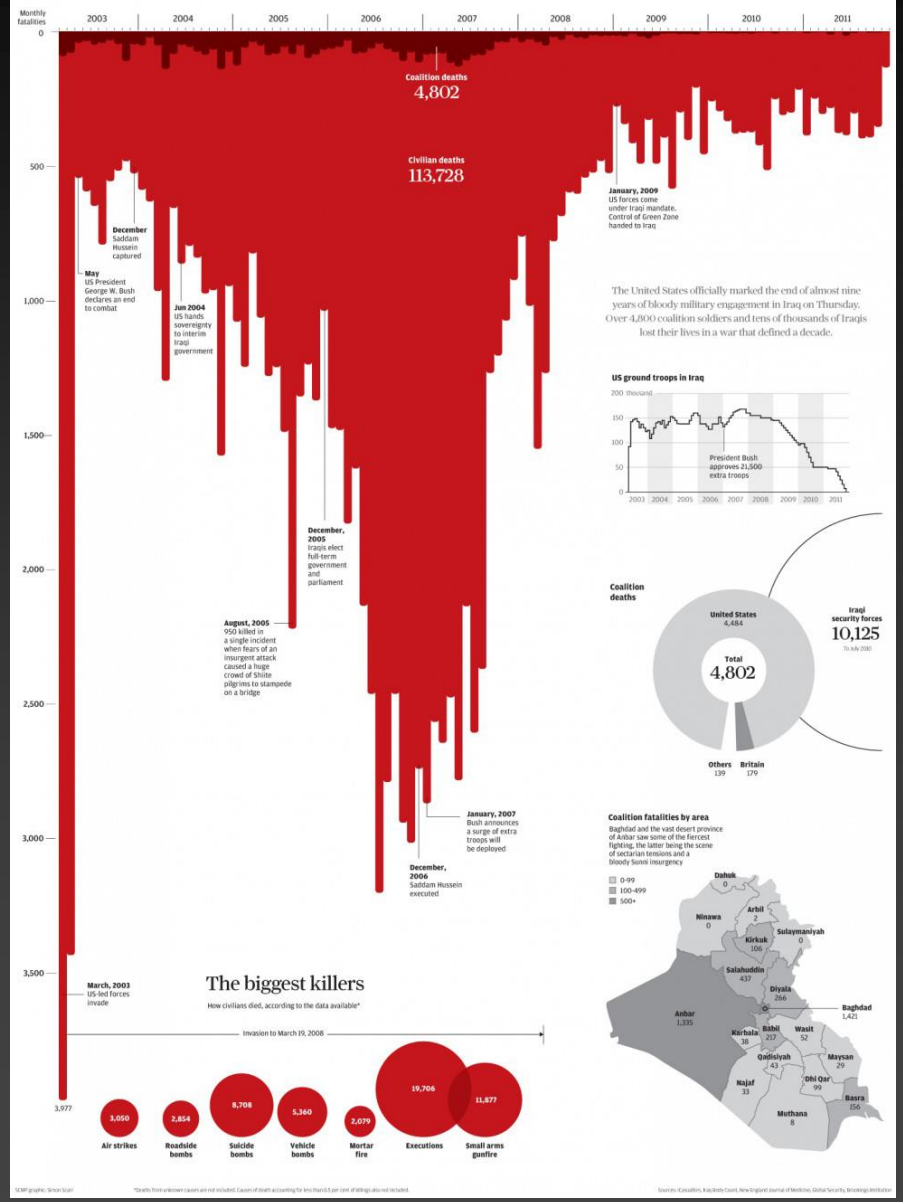
argue with data

“Data visualisation is a language. It’s a means to convey an opinion, an argument.”

Kim Rees – Founding Partner, Periscopic



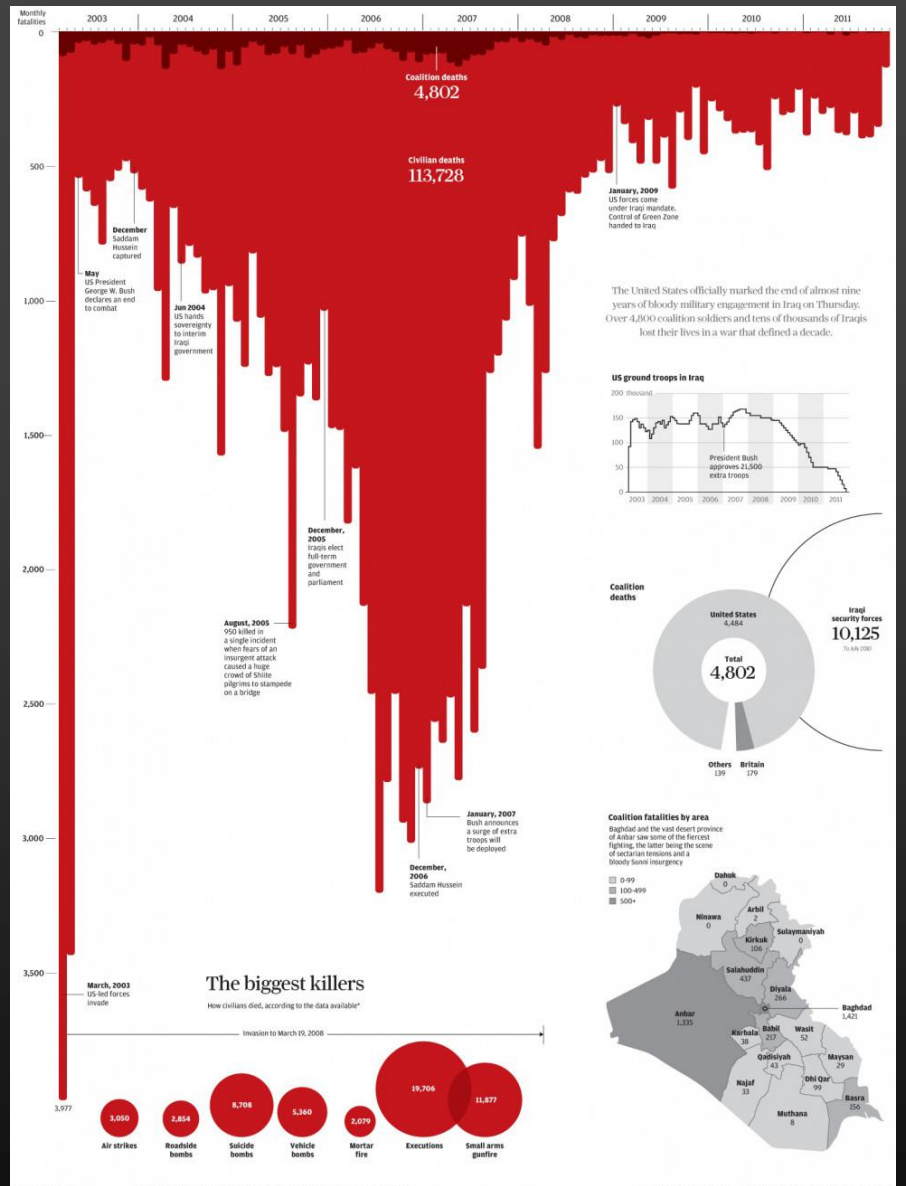
Iraq's bloody toll



SCMP graphic: Simon Scarr

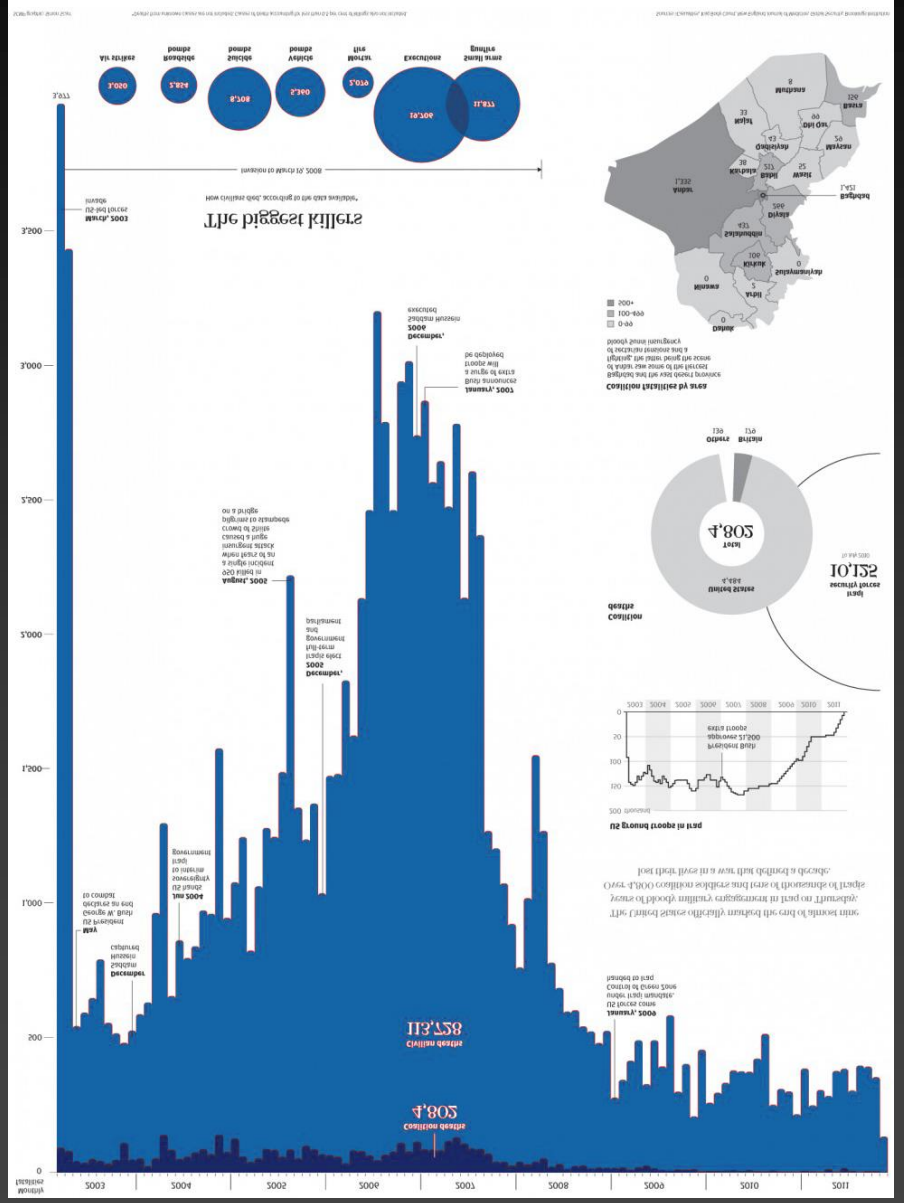
*Deaths from unknown causes are not included. Causes of death accounting for less than 0.5 per cent of killings also not included.

Sources: iCasualties, IraqBody Count, New England Journal of Medicine, Global Security, Brookings Institution

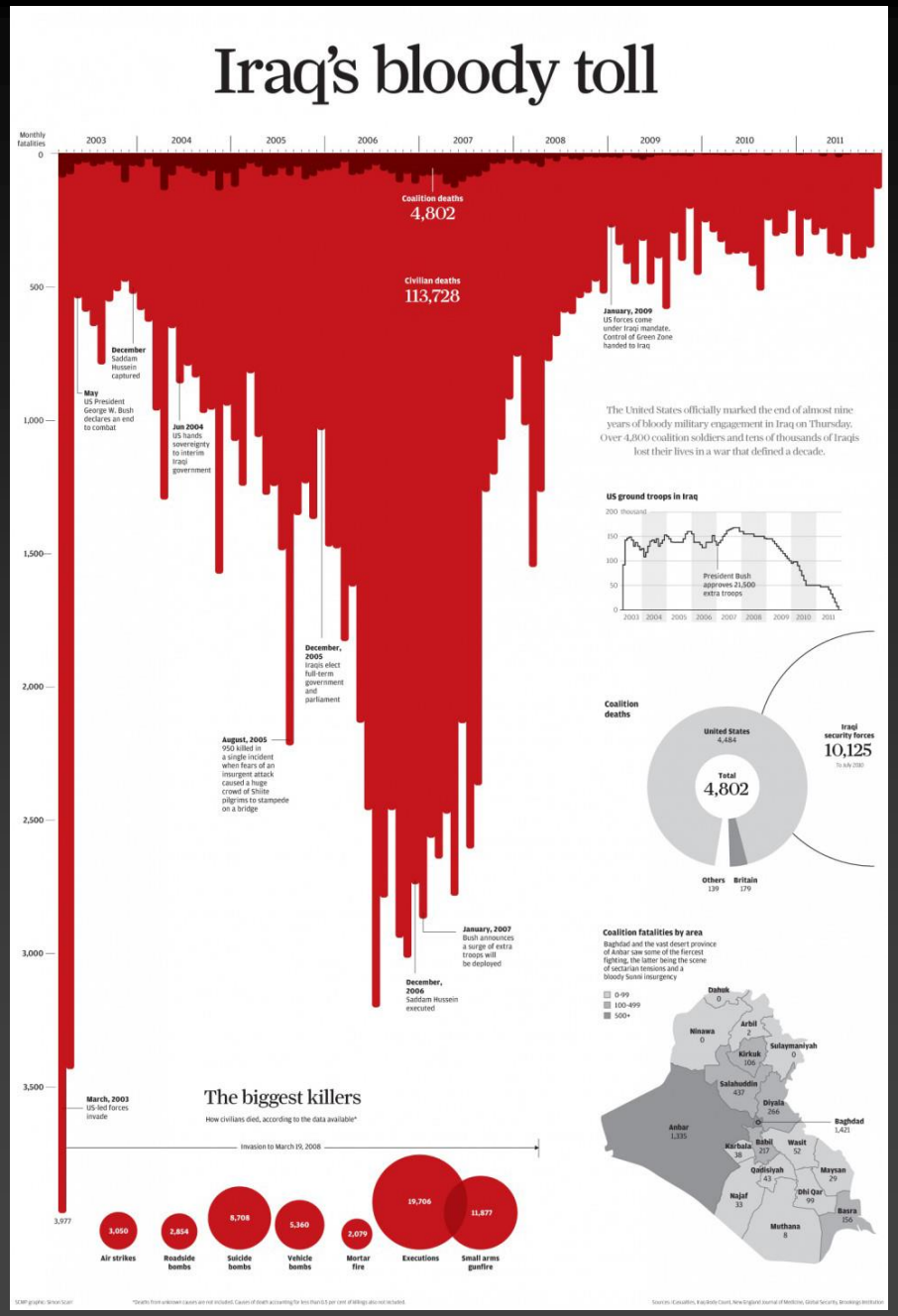


Iraq's bloody toll

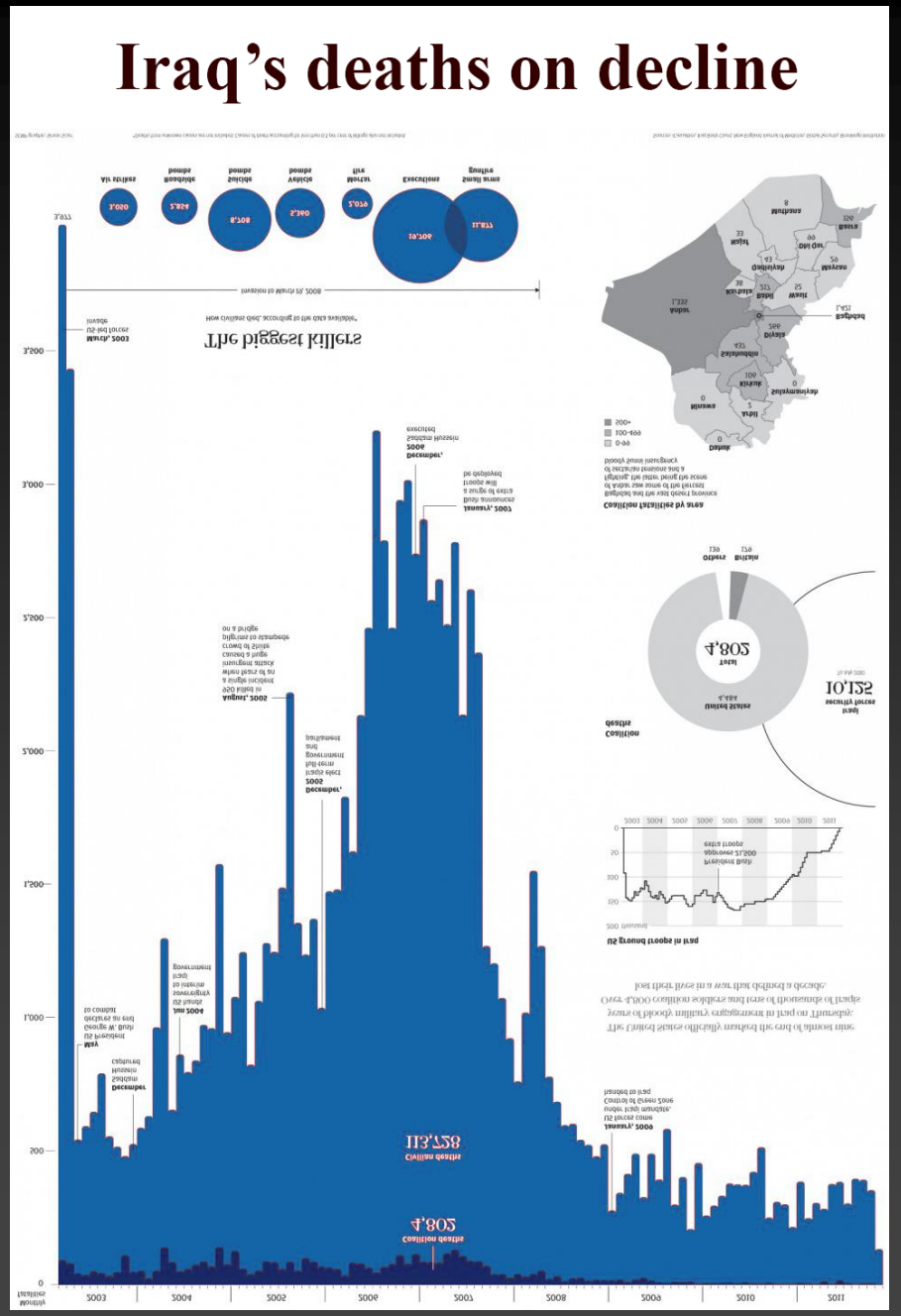
Iraq's deaths on decline



Iraq's bloody toll



Iraq's deaths on decline



train the brain

Thank You