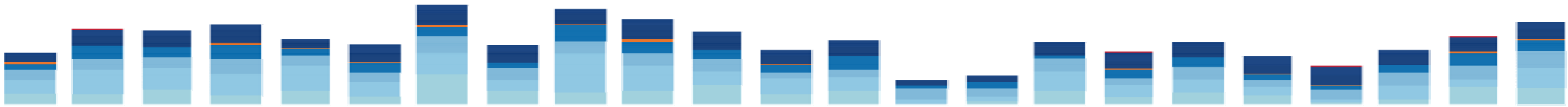
Teaching Data Analytics & Visualization with Tableau

March 24, 2017



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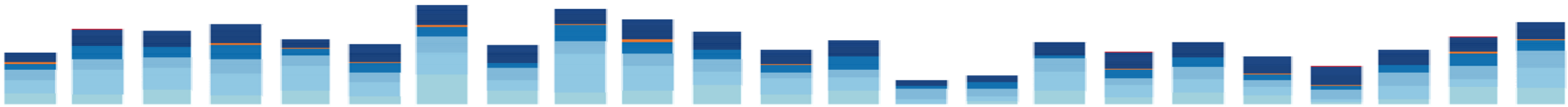
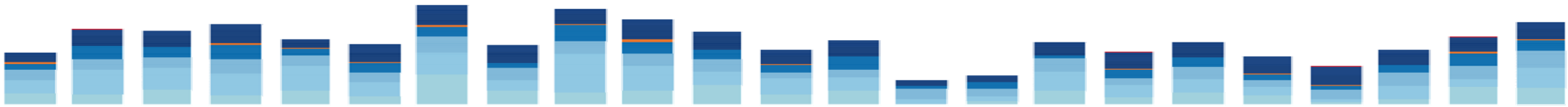


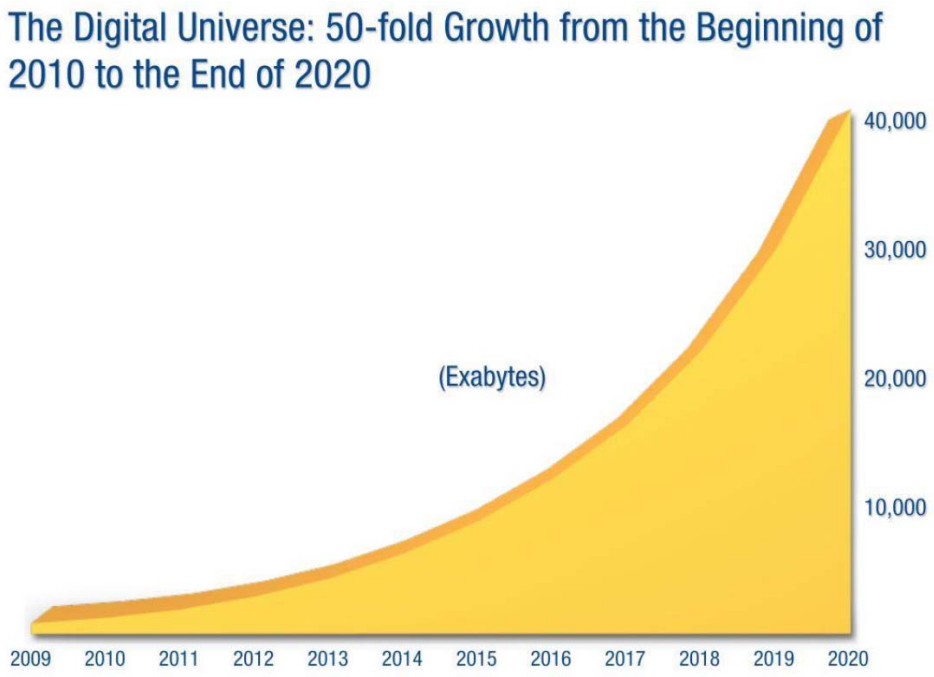
Overview

1. Tableau and Academic Programs overview
2. Tableau Desktop product demo
3. HUB of Analytics Education overview and instructor use-case
4. Q&A



The Data Opportunity

Businesses are struggling to unlock exploding and diverse data



Source: IDC's Digital Universe Study, sponsored by EMC, December 2012

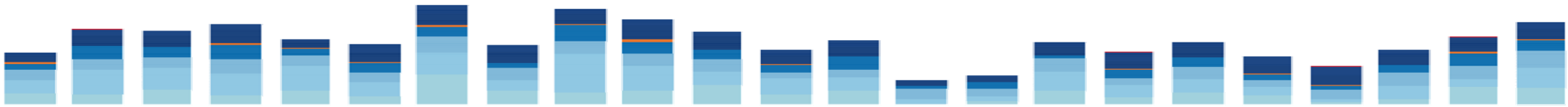
Data skills are in-demand

Technical Skills With The Biggest Increases In Demand:

1. Big Data (Information Technology): 3,977%

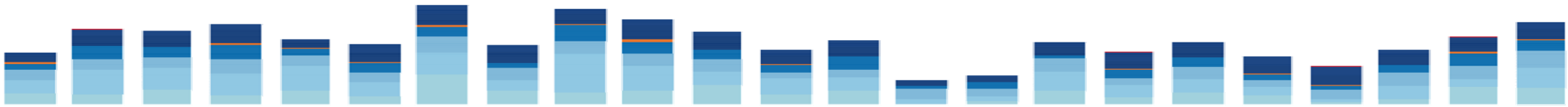
2. Node.js (Design): 2,493%

3. Tableau (Research and Analysis): 1,581%



“Accounting firms have all told us that they really want the accounting students to have [data analytics] skills.”

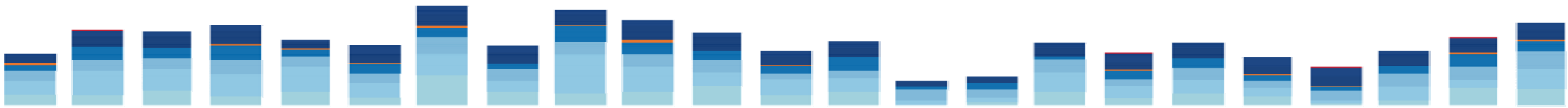
Margaret Christ, Professor, Accounting Information Systems, University of Georgia



We help people
see and understand
their data.
Traffic Trends
Country
All
Dates
4/1/12 to 12/30/12
Visits
Section
Blog
Community
Examples
Register
Search
Training
User-generated
Visits
565K
#tableauexperience

Data to the People

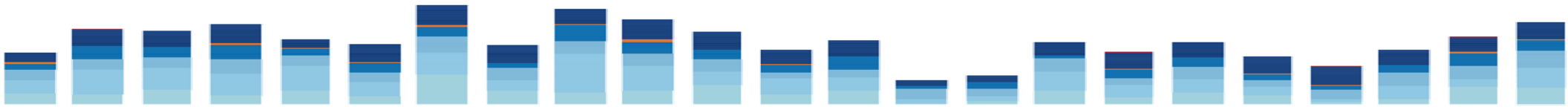
Who’s using Tableau?



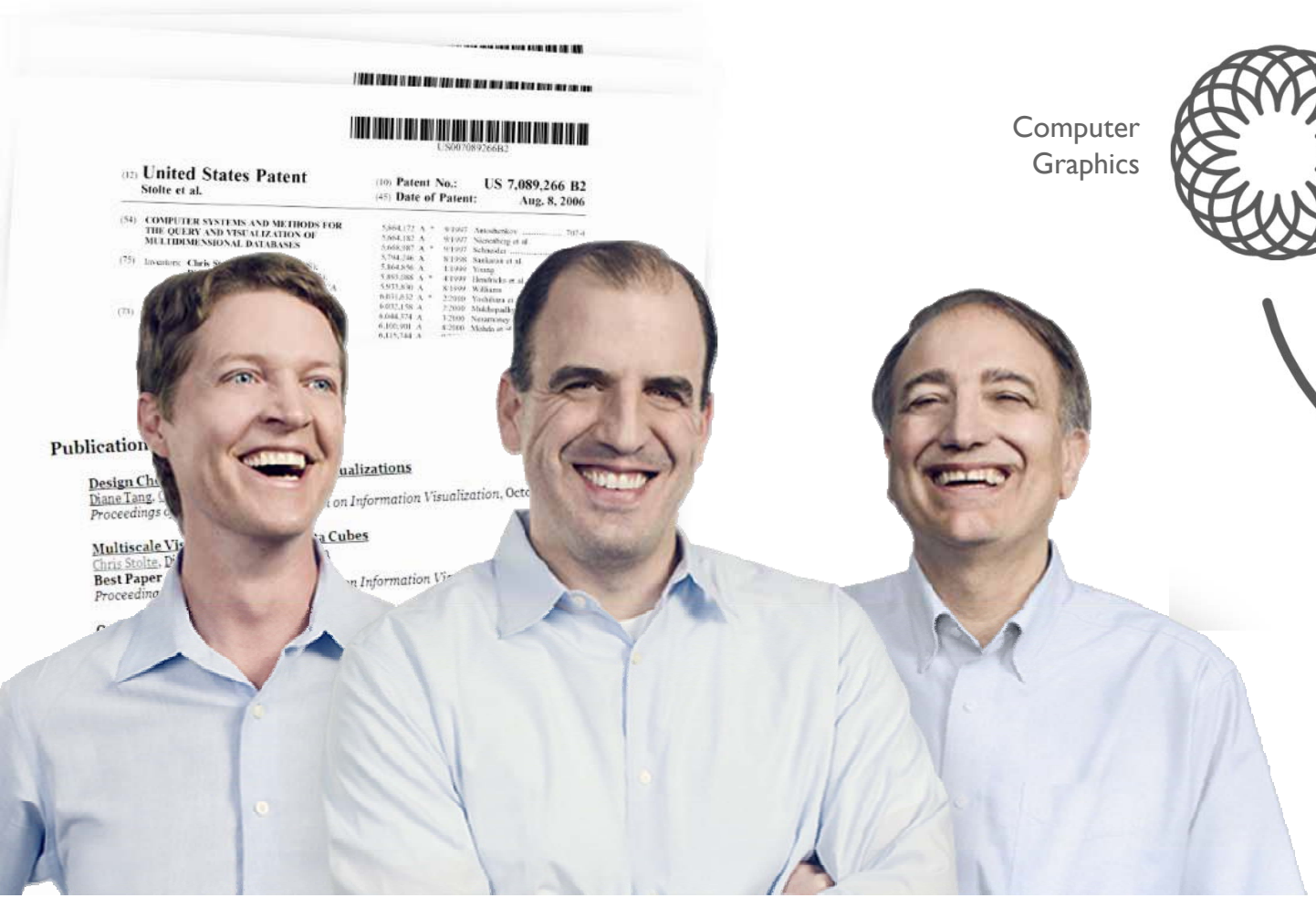
5 years a leader

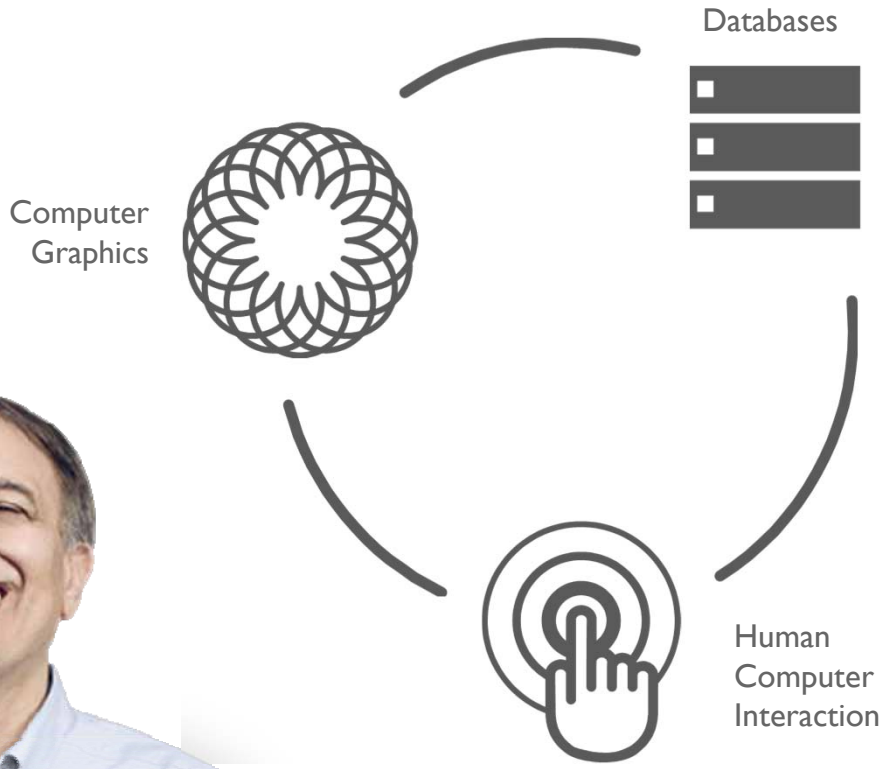
Figure 1. Magic Quadrant for Business Intelligence and Analytics Platforms

Source: Gartner (February 2017)



Breakthrough Innovation

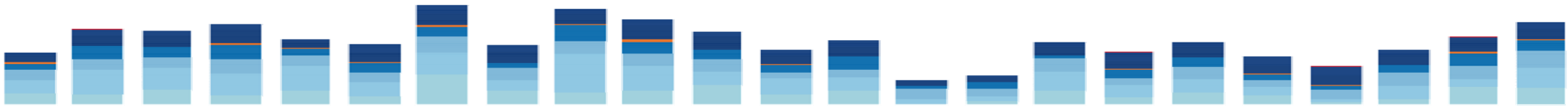




STANFORD
UNIVERSITY

How many nines are there?

4	7	7	5	5	2	7	4	7	1
4	9	2	5	7	7	2	6	1	7
1	7	6	9	3	4	7	5	1	2
5	1	6	3	3	8	4	8	6	6
6	5	6	4	9	3	8	9	1	9
3	8	1	5	2	2	3	6	3	9
4	6	4	5	6	3	7	7	9	1
9	1	3	3	6	1	3	3	1	8
8	1	1	8	7	5	8	1	7	4
3	6	9	2	8	9	3	7	5	7
4	4	4	2	8	2	2	9	2	8



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8	1	1	8	7	5	8	1	7	4
3	6	9	2	8	9	3	7	5	7
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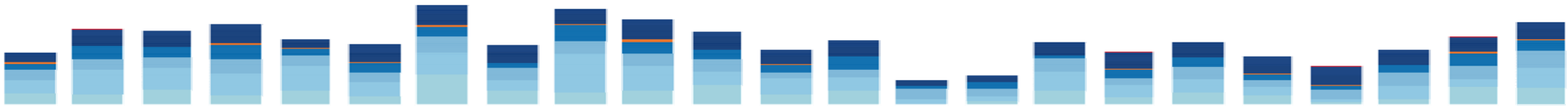
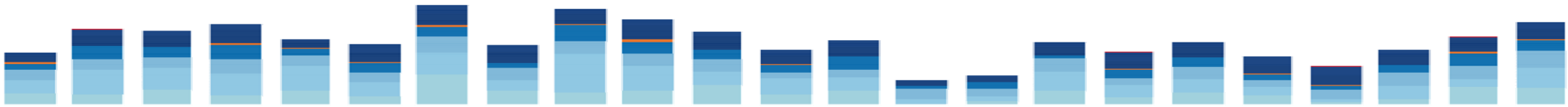


We're slow at comparing numbers

		Customer Segment			
Category	Sub-Category (group)	Consumer	Corporate	Home Office	Small Business
Furniture	Bookcases	-63.02	-9,305.76	-16,610.95	-7,602.40
	Chairs & Chairmats	42,942.97	39,370.10	41,686.28	25,650.38
	Office Furnishings	12,099.80	27,374.47	42,196.25	18,757.40
	Tables	-12,251.51	-35,430.73	-43,292.40	-8,087.89
Office Supplies	Appliances	15,501.48	50,095.94	25,343.06	6,217.58
	Binders and Binder Ac..	48,035.27	125,811.27	71,674.19	61,892.69
	Envelopes, Labels, Pa..	16,907.52	31,230.67	25,508.13	33,476.65
	Pens & Art Supplies	2,621.68	1,670.40	1,580.82	1,691.88
	Rubber Bands	271.85	-353.54	-93.12	72.14
	Scissors, Rulers and ..	-558.10	-3,330.62	-2,844.06	-1,066.47
	Storage & Organization	5,752.65	-2,086.83	-23.24	3,021.57
Technology	Computer Peripherals	14,152.79	45,092.93	17,771.05	17,270.71
	Copiers and Fax	41,310.35	28,654.48	29,283.14	68,113.50
	Office Machines	51,454.78	180,356.22	39,386.23	36,515.70
	Telephones and Com..	49,781.48	120,596.92	86,788.72	59,784.52



We're faster when we can "see" data

		Customer Segment			
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	Office Furnishings	12,099.80	27,374.47	42,196.25	18,757.40
	Tables	-12,251.51	-35,430.73	-43,292.40	-8,087.89
Office Supplies	Appliances	15,501.48	50,095.94	25,343.06	6,217.58
	Binders and Binder Ac..	48,035.27	125,811.27	71,674.19	61,892.69
	Envelopes	6,731.55	15,082.58	10,848.34	15,520.13
	Labels	1,349.23	5,608.87	3,073.87	3,645.20
	Paper	8,826.74	10,539.22	11,585.92	14,311.32
	Pens & Art Supplies	2,621.68	1,670.40	1,580.82	1,691.88
	Rubber Bands	271.85	-353.54	-93.12	72.14
	Scissors, Rulers and ..	-558.10	-3,330.62	-2,844.06	-1,066.47
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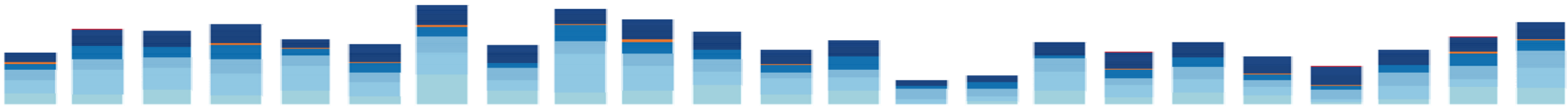
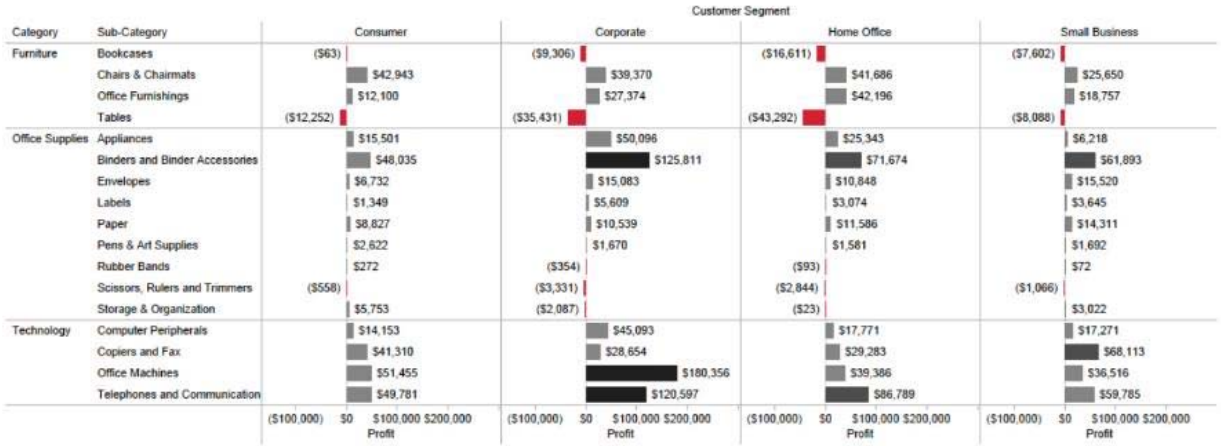


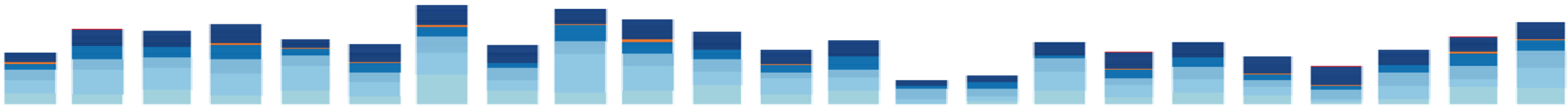
We're quickly able to gain insights visually



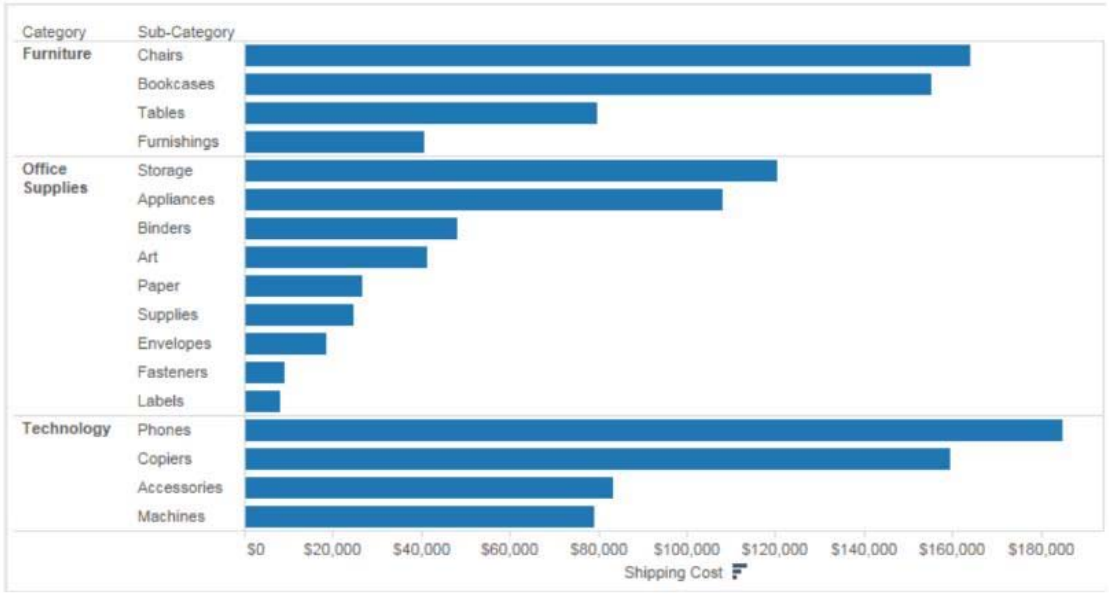
Customer Segment

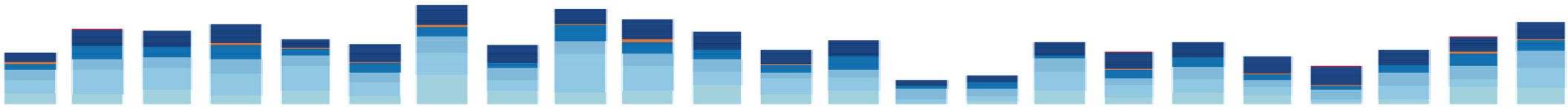
Category	Sub-Category	Consumer	Corporate	Home Office	Small Business
Furniture	Bookcases	($63)	($9,306)	($16,611)	($7,602)
	Chairs & Chairmats	$42,943	$39,370	$41,686	$25,650
	Office Furnishings	$12,100	$27,374	$42,196	$18,757
	Tables	($12,252)	($35,431)	($43,292)	($8,088)
Office Supplies	Appliances	$15,501	$50,096	$25,343	$6,218
	Binders and Binder Accessories	$48,035	$125,811	$71,674	$61,893
	Envelopes	$6,732	$15,083	$10,848	$15,520
	Labels	$1,349	$5,609	$3,074	$3,645
	Paper	$8,827	$10,539	$11,586	$14,311
	Pens & Art Supplies	$2,622	$1,670	$1,581	$1,692
	Rubber Bands	$272	($354)	($93)	$72
	Scissors, Rulers and Trimmers	($558)	($3,331)	($2,844)	($1,066)
	Storage & Organization	$5,753	($2,087)	($23)	$3,022
Technology	Computer Peripherals	$14,153	$45,093	$17,771	$17,271
	Copiers and Fax	$41,310	$28,654	$29,283	$68,113
	Office Machines	$51,455	$180,356	$39,386	$36,516
	Telephones and Communication	$49,781	$120,597	$86,789	$59,785

($100,000) $0 $100,000 $200,000 Profit

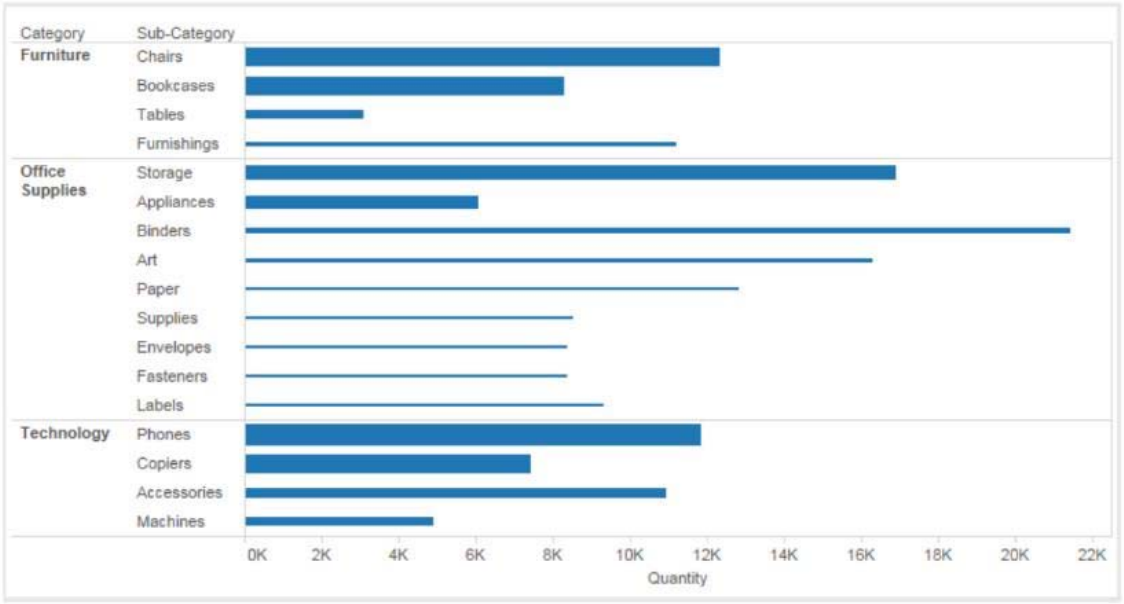


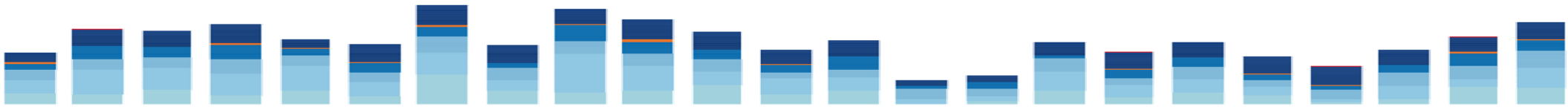
Pre-attentive visual attributes: length



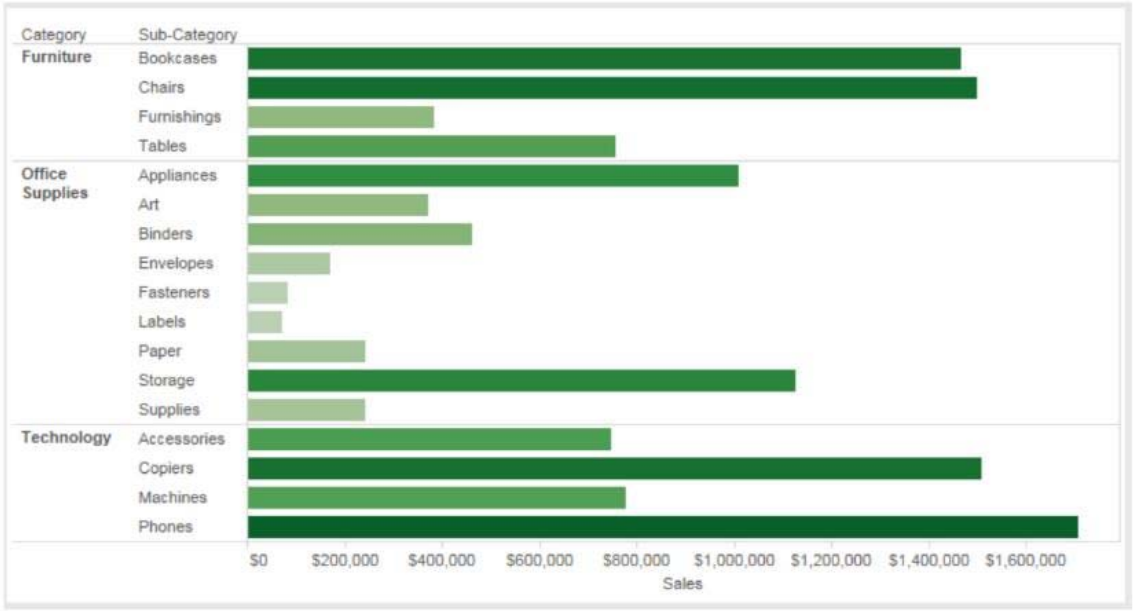


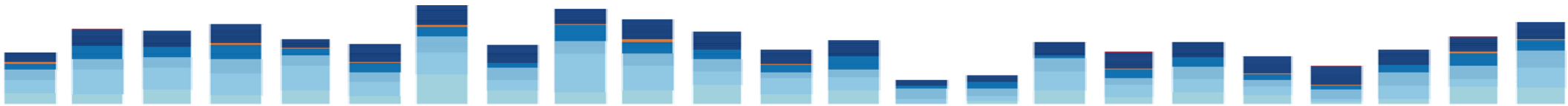
Pre-attentive visual attributes: width



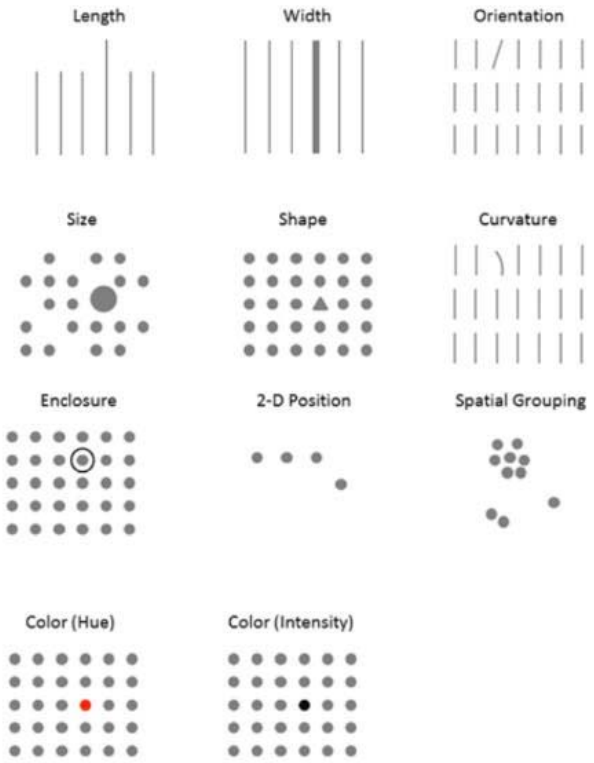


Pre-attentive visual attributes: color





Pre-attentive visual attributes



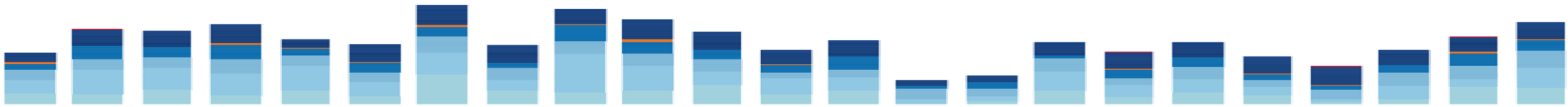
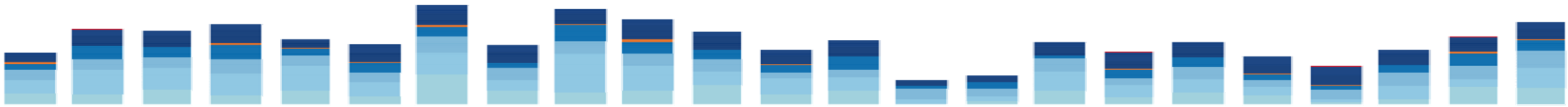


Tableau Desktop

Author dashboards, analyze data



Academic Programs

Tableau for Teaching

- One-year individual license
- Bulk student and lab licenses
- Tableau for Teaching User Community
- Ready-made curriculum materials

Learn more: tableau.com/teaching

Tableau for Students

- One-year individual license

Learn more: tableau.com/students

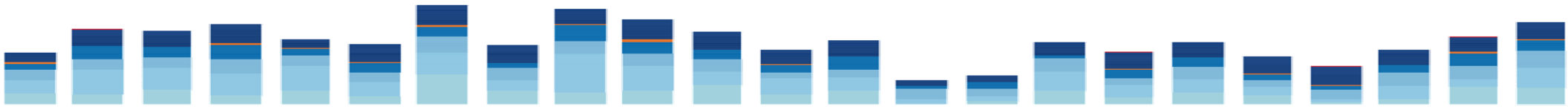
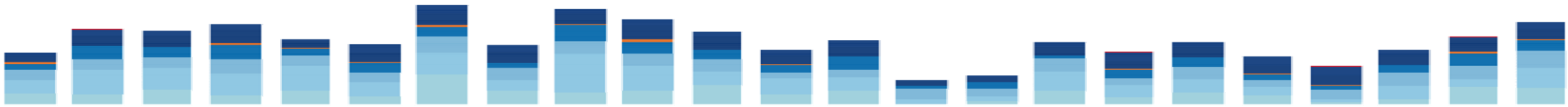


Tableau Public

Share, embed, view other authors



Getting started

- Instructor resource page
  - Free learning resources
  - Tableau for Teaching User Community & ready-made curriculum resources
- HUB of Analytics Education
- Ernst & Young Academic Resource Center (EYARC)
- Tableau Public
- Webinar: Teaching with Tableau Public
- Webinar: Tableau on Tableau – Finance Analytics

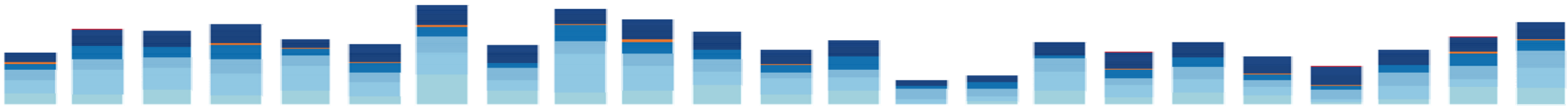
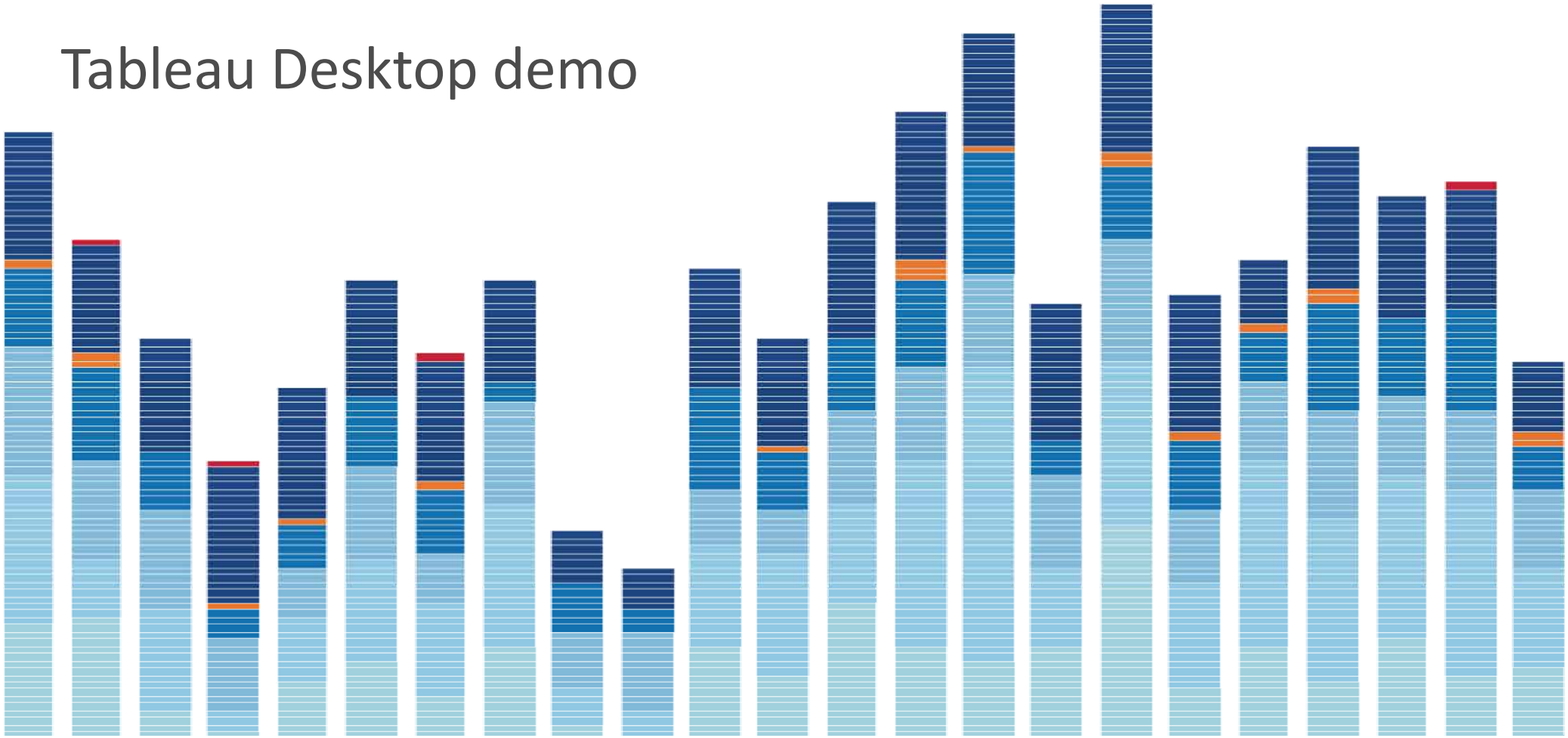


Tableau Desktop demo



School of Business
D'Amore-McKim
Northeastern University

# of ANALYTICS EDUCATION

Preparing students for the future, millions of records at a time!

http://hae.damore-mckim.northeastern.edu/

How do we operate the HUB?

Why does the HUB exist?

Charlie Gardner
Bill Gardner
Bill Goldenhardt

Data Analytics Education

BIBITOR, LLC

15 Million Records

Flat Files or Netsuite.com

Sales & Purchases Flowcharts

D'Amore-McKim Northeastern University of ANALYTICS EDUCATION

Data Analytics Education

BIBITOR, LLC

$441 M Sales

Retail Liquor Chain

79 Retail Locations

Open Educational Resource (OER)

10,000 Brands

- Data Analysis Tools
  - ACL and IDEA for Accountants and Auditors
  - Tableau for Everyone
  - Coming Soon – Watson Analytics
- Exercises and Cases Using Data Analysis Tools
  - Audit Tests
  - Sales Analysis, Product Analysis, CVP Analysis

- Incorporating into Accounting Courses
  - Student Experience/Inexperience in the classroom
  - Focus on developing questions
  - Using BI Tools and Visualization Tools to develop the answer
  - Communicating to decision makers

- EXAMPLE - Sales Analysis Case Using Tableau
  - What is the total **Sales Dollars** and percentage breakdown of wine and spirits?
  - What is the most popular **Size** for wine and for spirits based on **Sales Dollars** and **Quantity?**
  - Who is the most popular **Vendor** for wine and for spirits based on **Sales Dollars** and **Quantity?**
  - Which **Months** have the highest and lowest **Sales** ?

- Student Feedback
  - "In speaking with my incoming manager last week, she mentioned made me stand out…was my experience working with Tableau and making sense of such large volumes of data. She and others that I interviewed with were impressed to see a college student engaged with such a relevant tool at such a young age, and I believe that I owe a fair amount of my success in securing the job offer to this opportunity to work with you both on the Bibitor cases."

    -Matthew Atherton (D'Amore-McKim School of Business, 2016), Financial Planning Analyst, Alaska Airlines

- Instructor Feedback
  - *"I used the Sales Analysis case in an Accounting Information Systems class to introduce the idea of how to use Tableau and how to prepare data visualizations. The data set was great and the different scenarios were helpful to allow students to understand why and how we would create the visualization. The YouTube videos were great for students who may have missed class the day I introduced Tableau.*
    -Professor Jennifer Johnson, University of Texas – Dallas

  - *"I used the Inventory tie-out case for my Masters course, 'Data Analytics for Accountants'. I was very happy to see the cases provided on HUB as they relate to what is being done in the Accounting profession I know the materials are used by faculty around the country and around the world. Your efforts are greatly appreciated!"*
    -Professor Lorrie Metzger, University at Buffalo

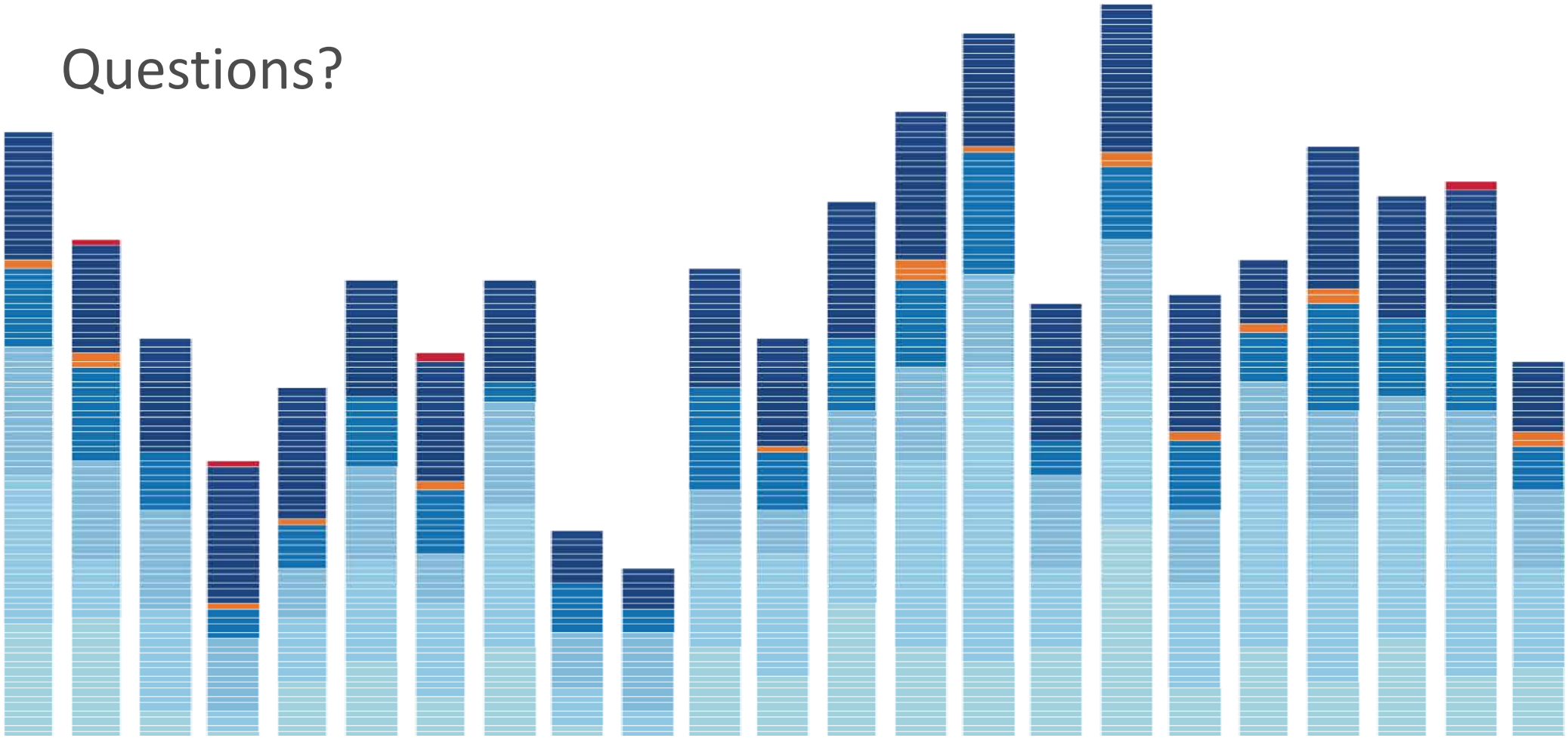
- Challenges
  - Operating Systems Issues
  - Load data times (first time)
    - Blending/Joining data
  - Sharing workbooks due to the size of files
    - Not currently running on servers

- Next Steps
  - Publish more cases and exercises across disciplines
  - Inform users across 2 year and 4 year institutions the power of new analytics tools.
    - Understanding of coding helps but is NOT required.

THANK YOU

http://hae.damore-mckim.northeastern.edu/

Questions?



tableau®