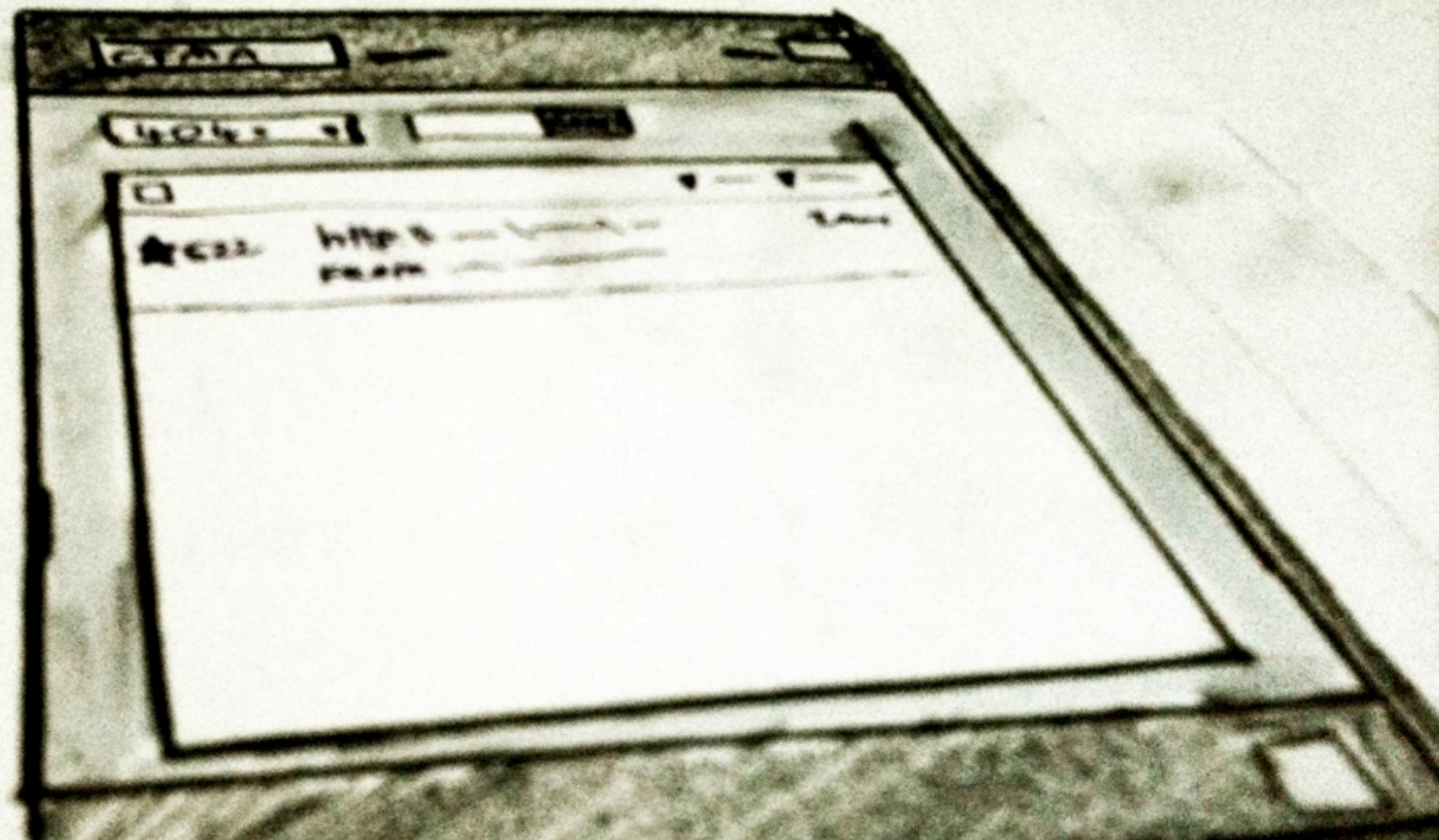


404's

- TYPE
- AMOUNT
- TIME
- URL
- ERROR



Data visualisations and Dashboard Design

Des Traynor

@destraynor,
COO of @intercom



TIME REMAINING

INTRO

KNOW YOUR AUDIENCE

KNOW YOUR DOMAIN

KNOW YOUR DATA

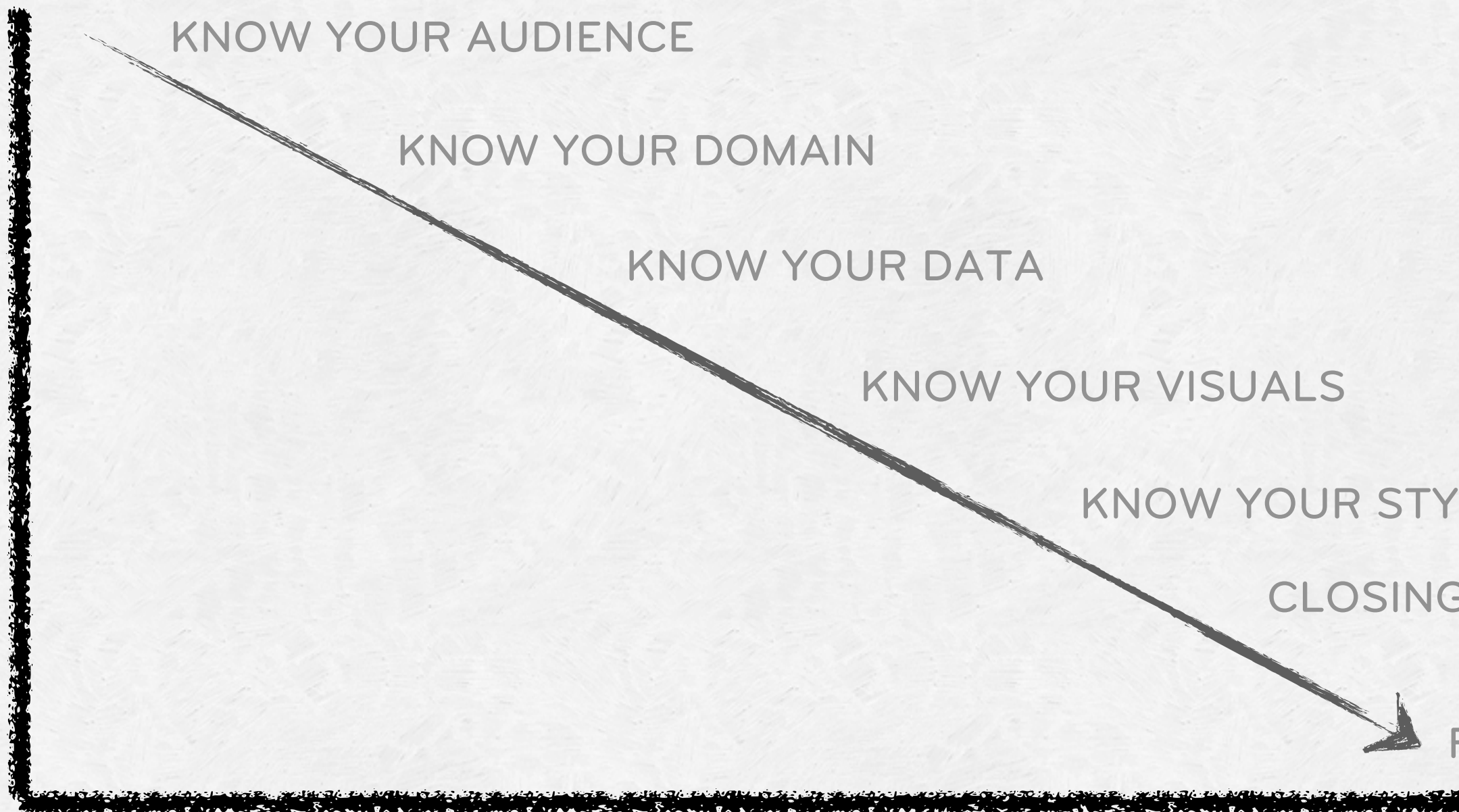
KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS

FIN

TOPIC





We are drowning in data.

Better than
text

Adaptable

IT'S HARD TO MAKE VISUALS

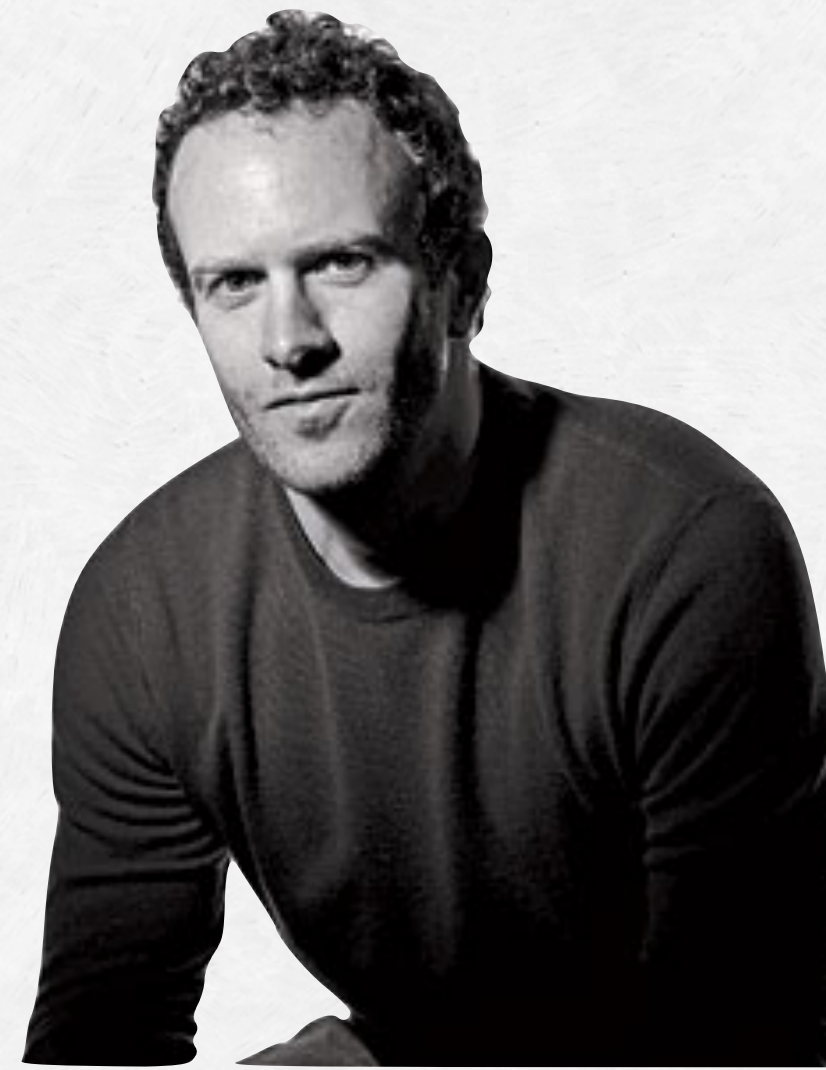
Useful

Meaningful

Readable

“Be **clear** first and **clever** second. If you have to throw one of those out, throw out **clever**.

— Jason Fried



VISUALS CAN CONFUSE

2012 PRESIDENTIAL RUN

GOP CANDIDATES



FOX

47°

SOURCE: OPINIONS

DYNAMIC

UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



2011

SOURCE: BUREAU OF LABOR STATISTICS

EAR WAR AND A TROOP WITHDRAWAL AT THE EI NAS FUT 2,292.50

UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



2011

SOURCE: BUREAU OF LABOR STATISTICS

EAR WAR AND A TROOP WITHDRAWAL AT THE EI NAS FUT 2,292.50

UNEMPLOYMENT RATE

UNDER PRESIDENT OBAMA



2011

SOURCE: BUREAU OF LABOR STATISTICS

EAR WAR AND A TROOP WITHDRAWAL AT THE EI NAS FUT 2,292.50

COST OF GAS

NATIONAL AVERAGE

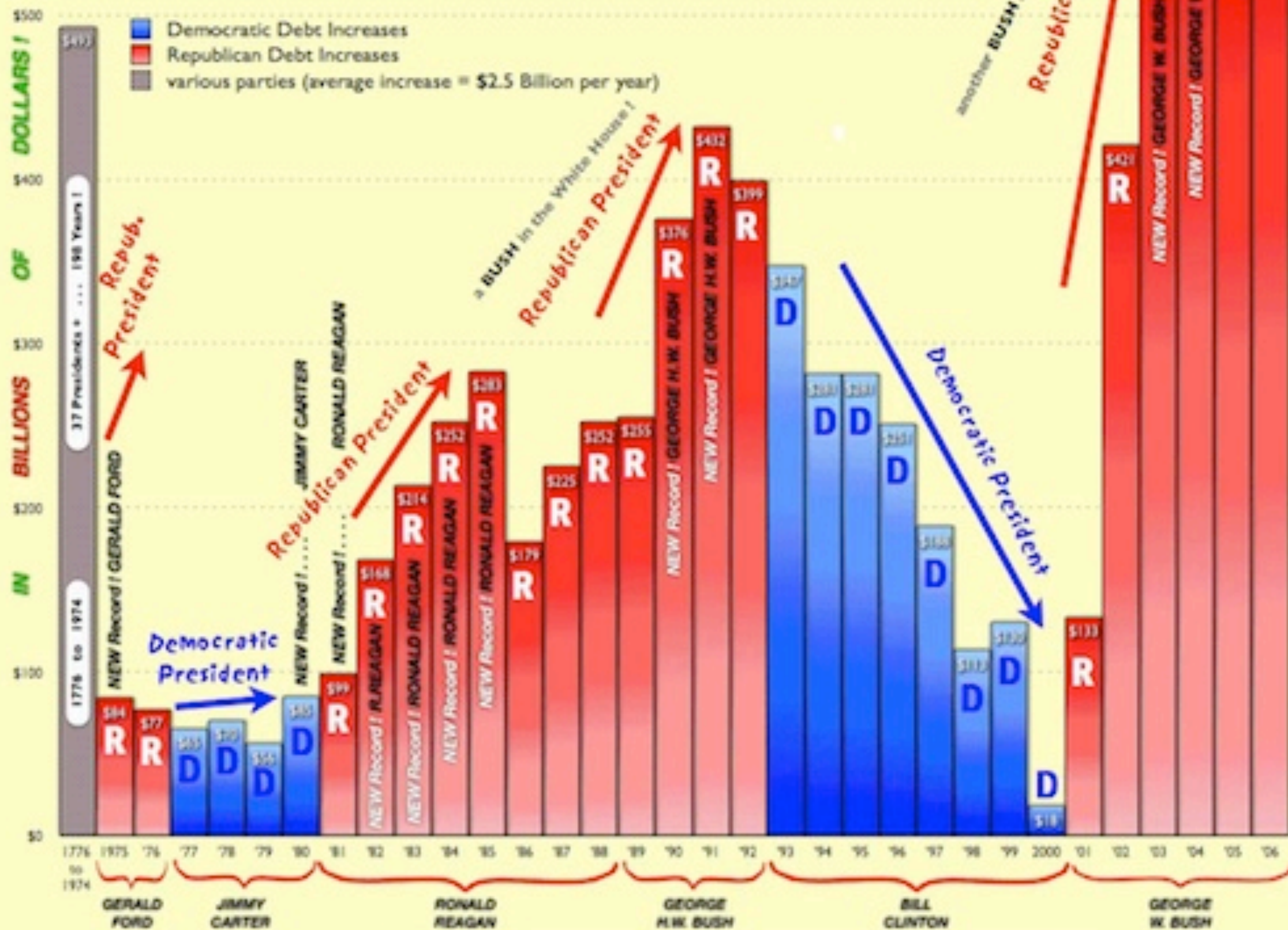


SOURCE: AAA FUEL GAUGE REPORT

PAY... THE STRIKE, WHICH BEGAN LAST WEEK, IS

DOW ▲ 45.79

INCREASES in the NATIONAL DEBT

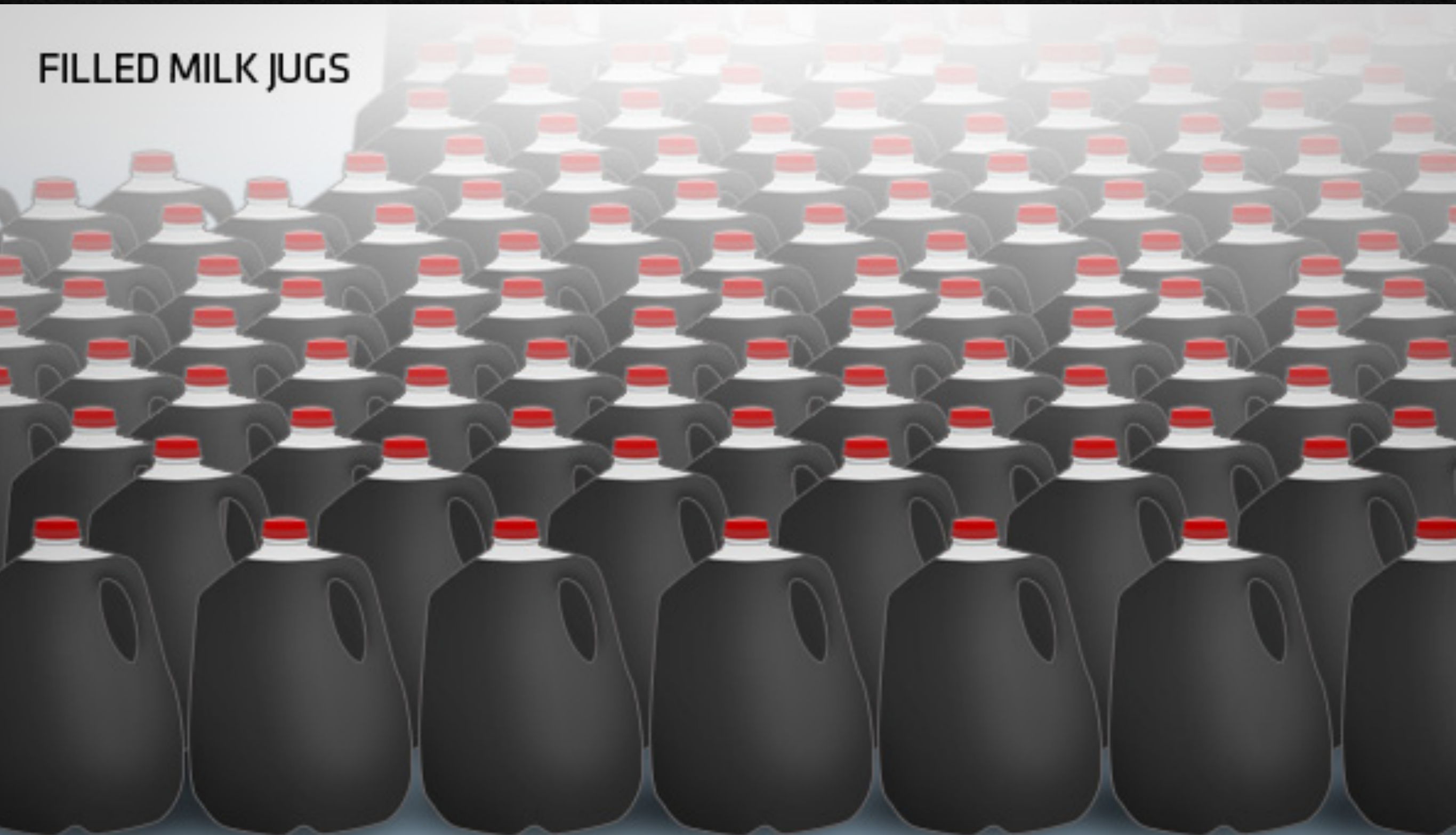


Gee, Maw! The news always says the Democrats are the big spenders!



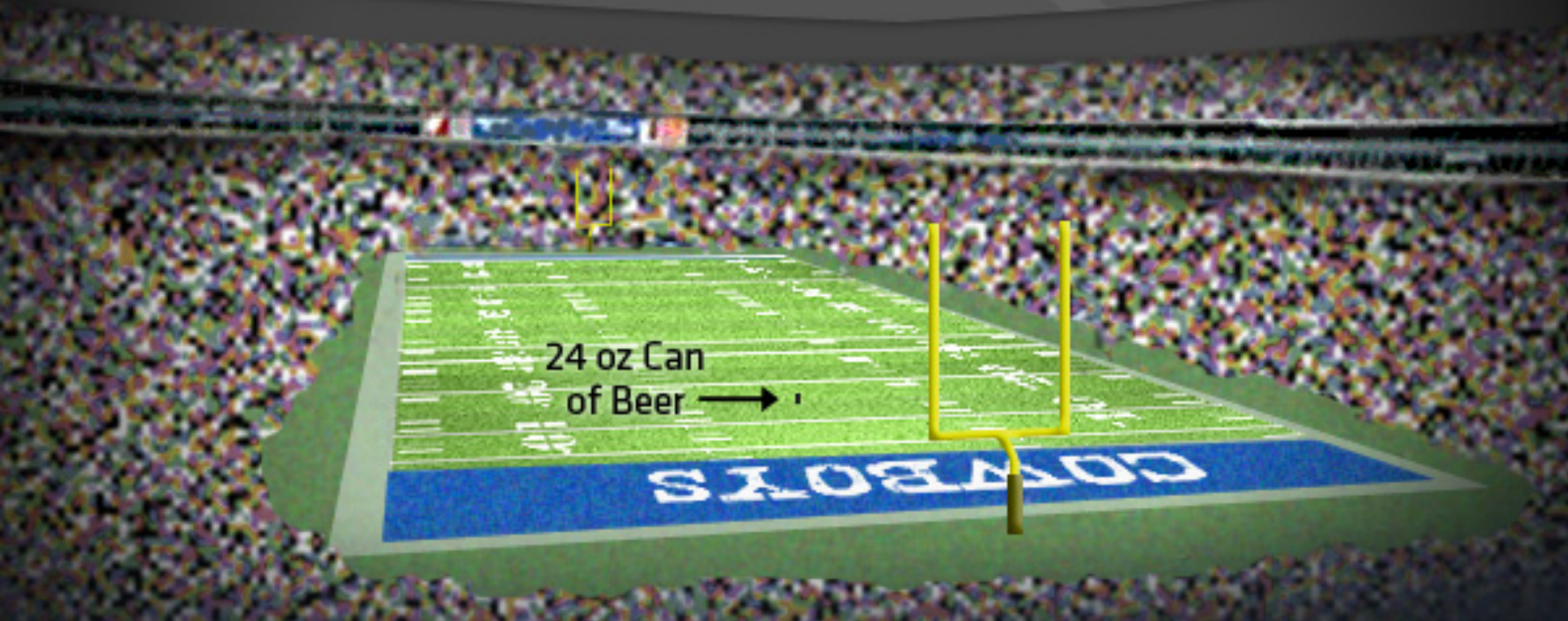
Visualising the Gulf Oil Spill...

FILLED MILK JUGS



184 Million Milk Jugs

IF THE GULF WAS A FOOTBALL STADIUM...



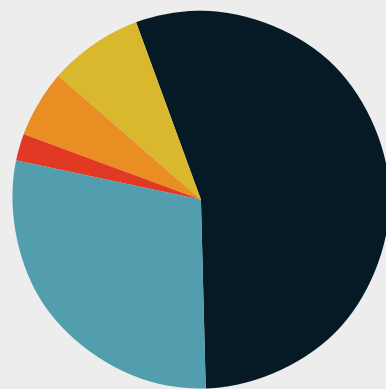
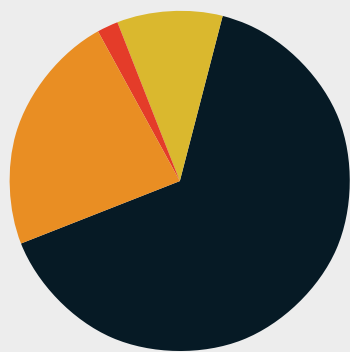
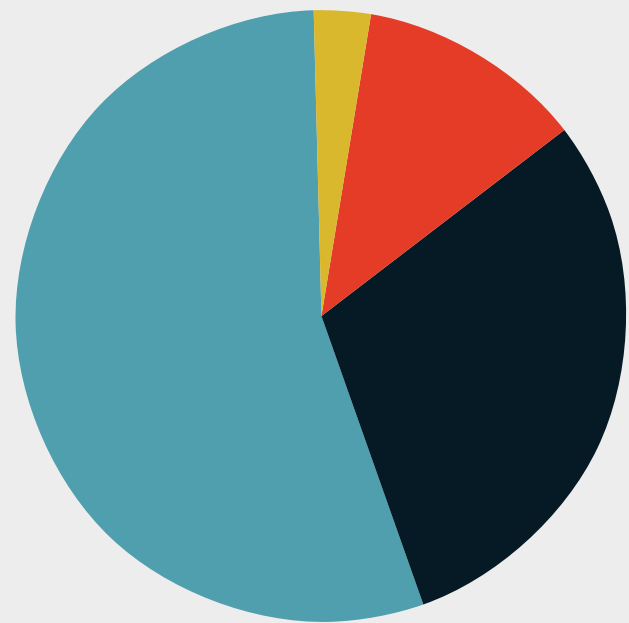
Okay, lets try with football...

If the Gulf of Mexico - the 7th largest body of water in the world, containing approximately 660 quadrillion gallons of water (that's 660 with 15 zeros) - was represented by Cowboys Stadium in Dallas - the largest domed stadium in the world - how would the spill stack up? In this example, the amount of oil spilled - if the Gulf of Mexico was the size of Cowboys Stadium - would be about the size of a 24 ounce can of beer. Cowboys stadium has an internal volume of approximately 104 million cubic feet, compared to the just over 50 cubic inches of volume in a 24-ounce can.

Just like the can, the spilled oil represents only .00000002788% of the liquid volume present in the Gulf of Mexico, although as the oil is dispersed, the amount of water affected becomes substantially greater.

If the Gulf of Mexico - the 7th largest body of water in the world, containing approximately 660 quadrillion gallons of water (that's 660 with 15 zeros) - was represented by Cowboys Stadium in Dallas - the largest domed stadium in the world - how would the spill stack up? In this example, the amount of oil spilled - if the Gulf of Mexico was the size of Cowboys Stadium - would be about the size of a 24 ounce can of beer. Cowboys stadium has an internal volume of approximately 104 million cubic feet, compared to the just over 50 cubic inches of volume in a 24-ounce can.

Just like the can, the spilled oil represents only .00000002788% of the liquid volume present in the Gulf of Mexico, although as the oil is dispersed, the amount of water affected becomes substantially greater.



The “anti-infographic movement”

No data was harmed in the making of these infographics



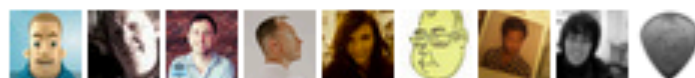
@destraynor

Des Traynor

Please consider the environment before creating another infographic.

2 Nov via [Twitter for Mac](#) ☆ Favorite ↩ Reply 🗑 Delete

Retweeted by [andrew_twit](#) and 9 others



TIME REMAINING

INTRO

KNOW YOUR AUDIENCE

KNOW YOUR DOMAIN

KNOW YOUR DATA

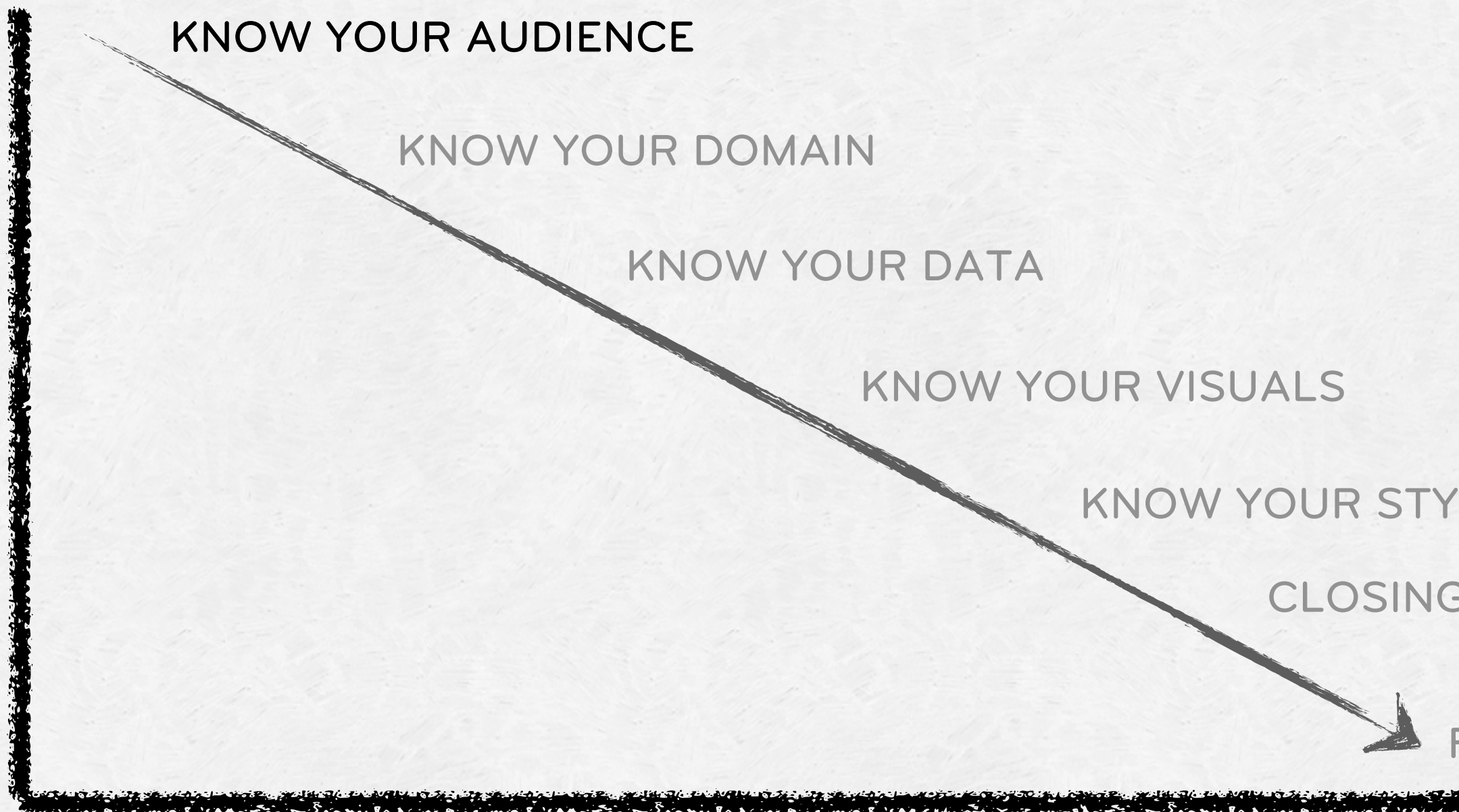
KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS

FIN

TOPIC



WHO ARE WE DESIGNING FOR?

WHAT ROLE?

The role defines the level of abstraction required.

CEO Level Detail

Strategic view

Focus on the long term

High level overview

Simple summary



Analyst role

Query driven analysis
Precision required
Emphasis on trends,
and correlations



A blue pen is pointing to the table below. The table contains numerical data organized in columns and rows, with some rows highlighted in light gray. The data appears to be financial or statistical in nature, showing trends and correlations.

243.37	1095.6	250.24	924.2	1176.3	0.42
250.08	1097.0	256.46	919.9	1178.0	0.42
256.28	1098.3	262.2	915.8	1179.6	0.42
	1099.5	267.7	911.9	1181.0	0.42
	1100.6	272.8	908.3	1182.4	0.42
	1101.6	277.6	904.8	1183.6	0.42
	1102.6	282.2	901.4	1184.8	0.42
	1103.5	286.6	898.2	1185.9	0.42
290.5	1104.3	290.8	895.1	1187.0	0.42
294.5	1105.0	294.8	892.1	1188.1	0.42
298.3	1105.8	298.6	889.2	1189.2	0.42
305.5	1107.1	305.9	883.7	1190.3	0.42
	1108.3	312.7	878.5	1191.4	0.42
312.3	1109.4	319.0	873.3	1192.5	0.42
318.6	1110.3	325.1	868.1	1193.6	0.42
324.6	1111.2	330.8	862.9	1194.7	0.42
330.2	1112.0	336.2	857.7	1195.8	0.42
335.6			852.5	1196.9	0.42

Operations/Logistics

Focus on current status
Issue & Event driven

e.g. Alerts, spikes, trouble



WHAT DEPARTMENT?

The department defines the domain knowledge

SALES DEPARTMENT

Leads, conversions, avg. value per sale, etc

MARKETING DEPARTMENT

Impressions, loyalty, awareness, share

NETWORK & IT

Issues, tickets, lead time, open cases, uptime

	SALES	MARKETING	CUSTOMER SUPPORT
MANAGEMENT			* Satisfaction Rating * Trend per quarter * Comparison with competitors
ANALYST	* My Active leads * Value per lead * Progress towards target		
OPERATIONS		* Active campaigns * Current CPM/CPC * Landing page	

Role + Department = Information needed

	SALES	MARKETING	CUSTOMER SUPPORT
MANAGEMENT			* Satisfaction Rating * Trend per quarter * Comparison with competitors
ANALYST	* My Active leads * Value per lead * Progress towards target		 1st Takeaway
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Role + Department = Information needed

TIME REMAINING

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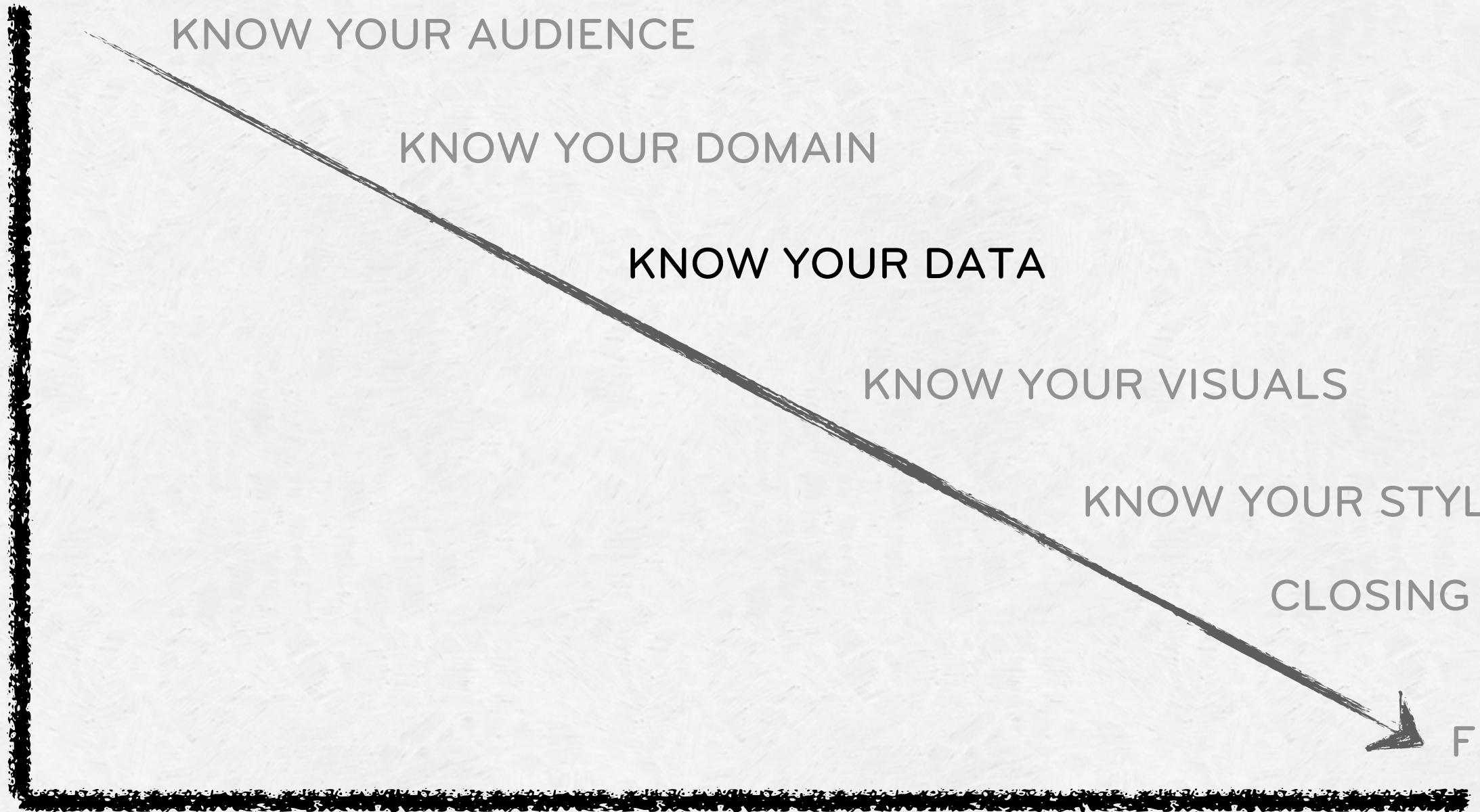
KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS

FIN

TOPIC



Unit sales

\$ Sales today

Avg \$ per sale

Us vs Competitor

WHICH OF THESE?

Avg. \$ per
customer

This period vs last
period

Total this
month

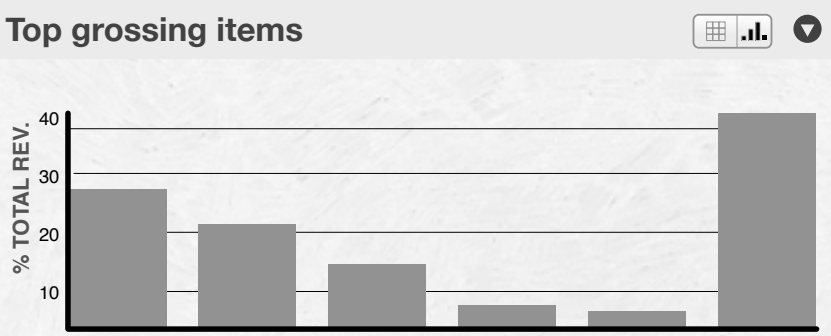
% Change
in sales

Popular
products

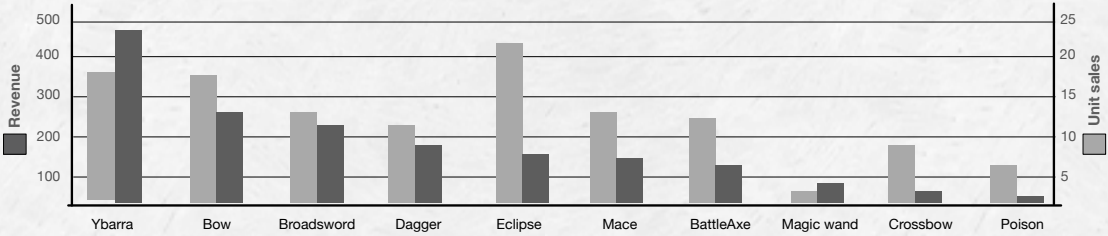
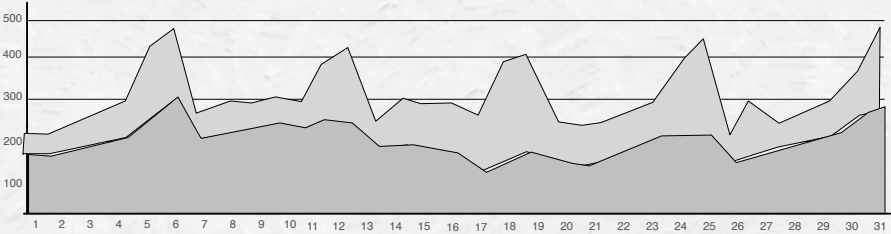


Top selling items

Item name	Unit sales	% of total	Change
Oak tree (special edition)	803	16%	11.52%
Pet Kitten	607	12%	100%
Skyscraper (high rise)	511	11%	1.52%
Sycamore tree	430	9%	5.23%
Dancing disco.	203	4%	1.20%
Other items	2495	52%	--



WHICH OF THESE?



6 THINGS TO COMMUNICATE

1. COMMUNICATE A SINGLE FIGURE

Used when context is obvious, precision is required, and past/future is irrelevant to user.

Examples:

AA clerk with a waiting list

Checking bank balance

Sys admin checking current status

Notes:

Single numbers can have states

BALANCE

\$23.00

BALANCE

\$11.32

BALANCE

\$11.32

2. SINGLE FIGURE WITH CONTEXT

"How are we doing lately? Any problems on horizon?"

Examples:

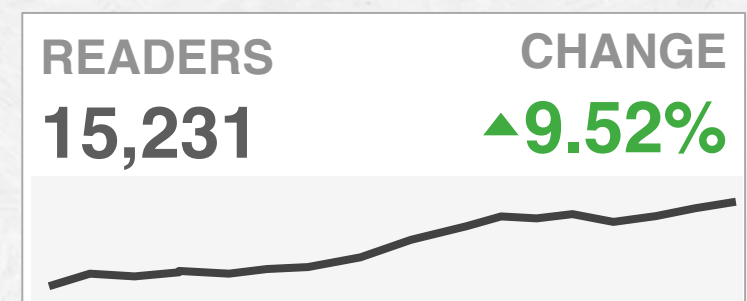
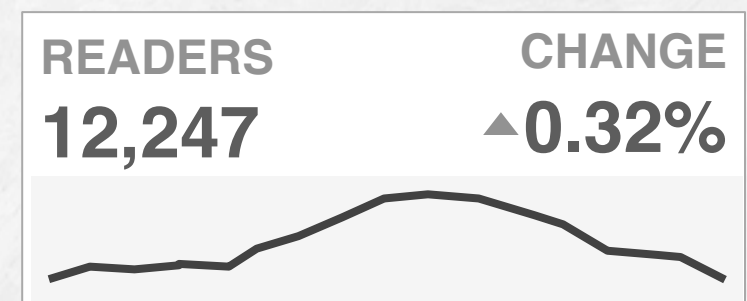
How were this months sales?

Is the network performing well?

Hows our user figures looking?

Notes:

Spark-lines can save space, and



3. ANALYSIS OF A PERIOD

"Show me all the key moments this month"

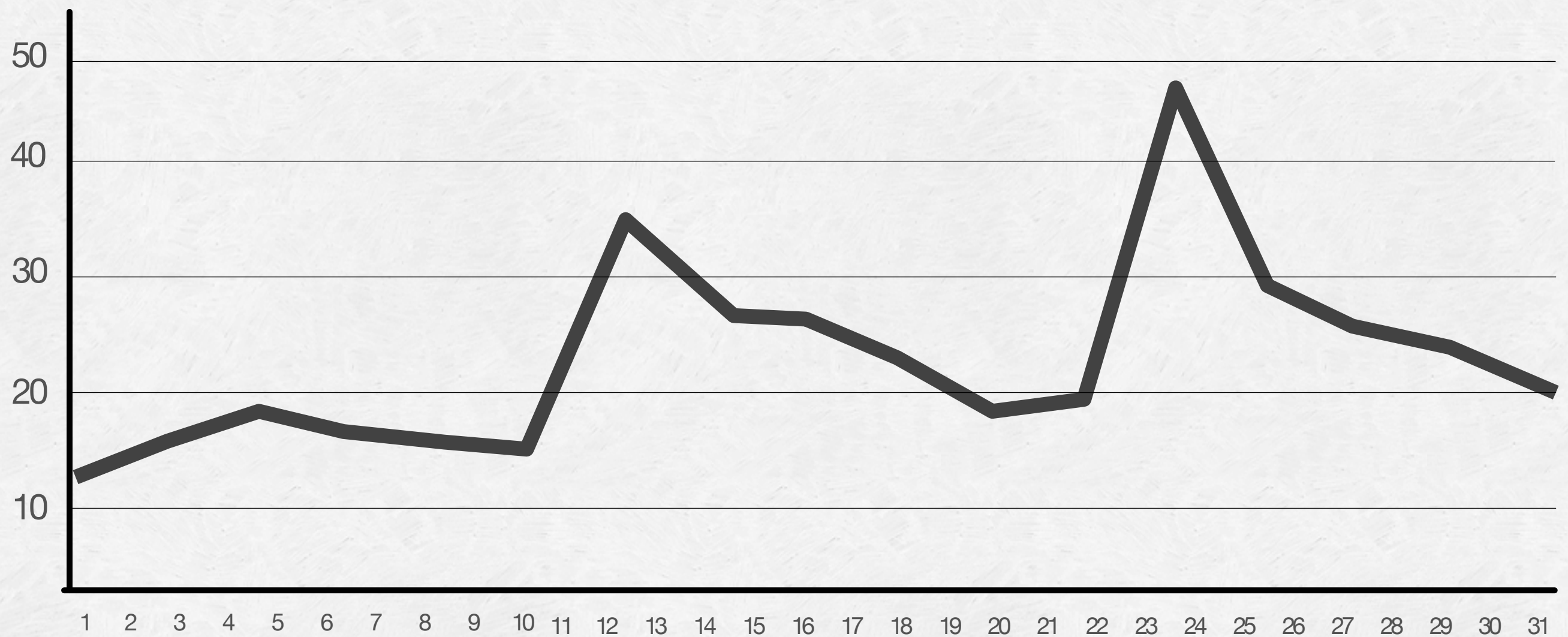
Examples:

Looking for patterns in longer data sets

Looking ahead based on current data

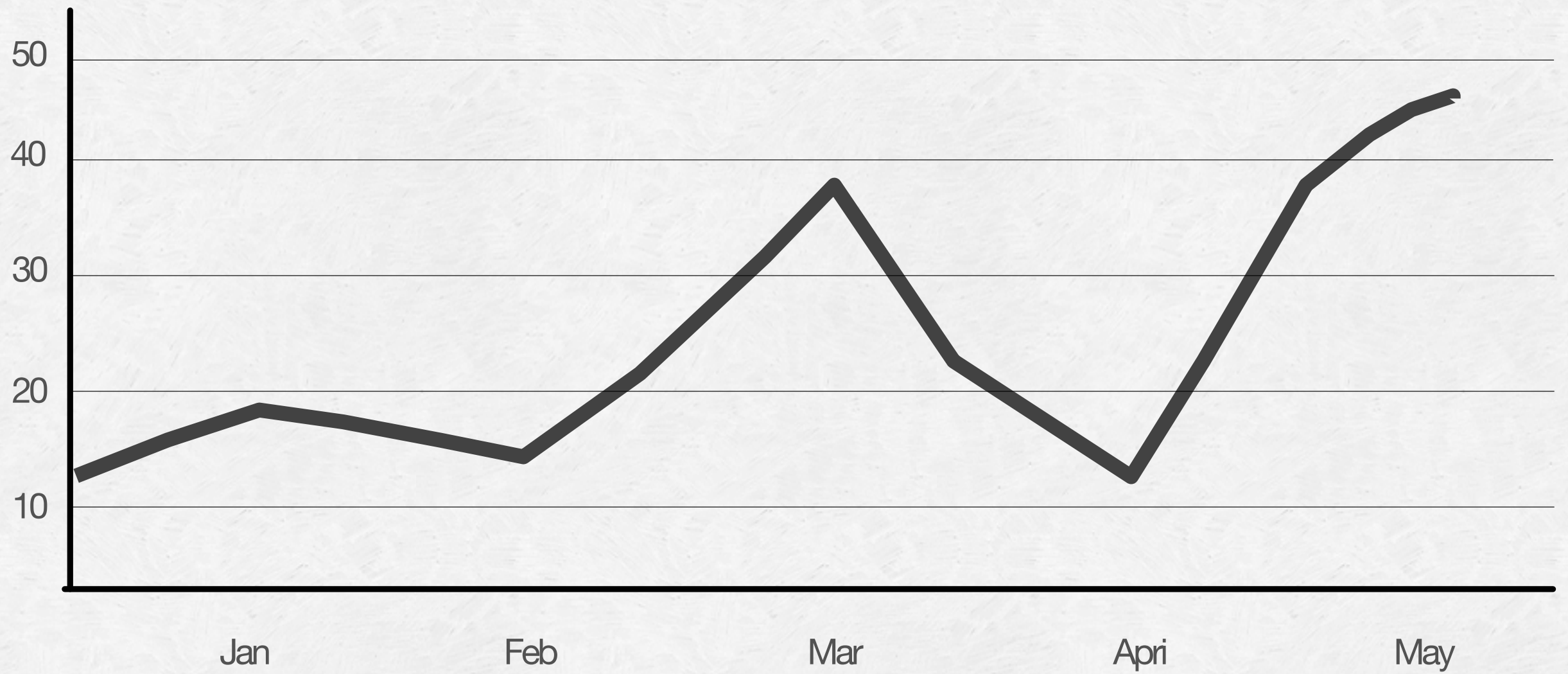
Comparison with previous period

GOOD LINE CHART

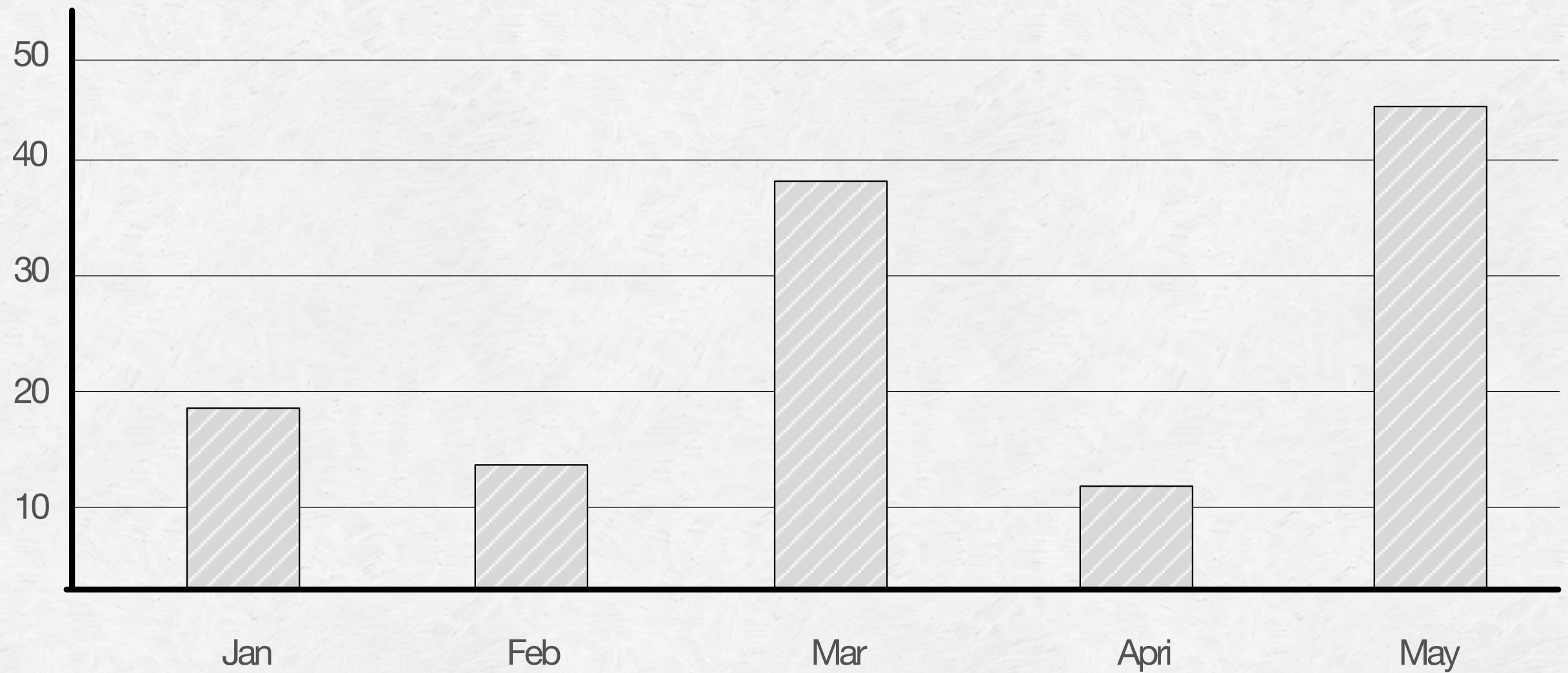


Work best with precise data (e.g. day to day)

BAD LINE CHART

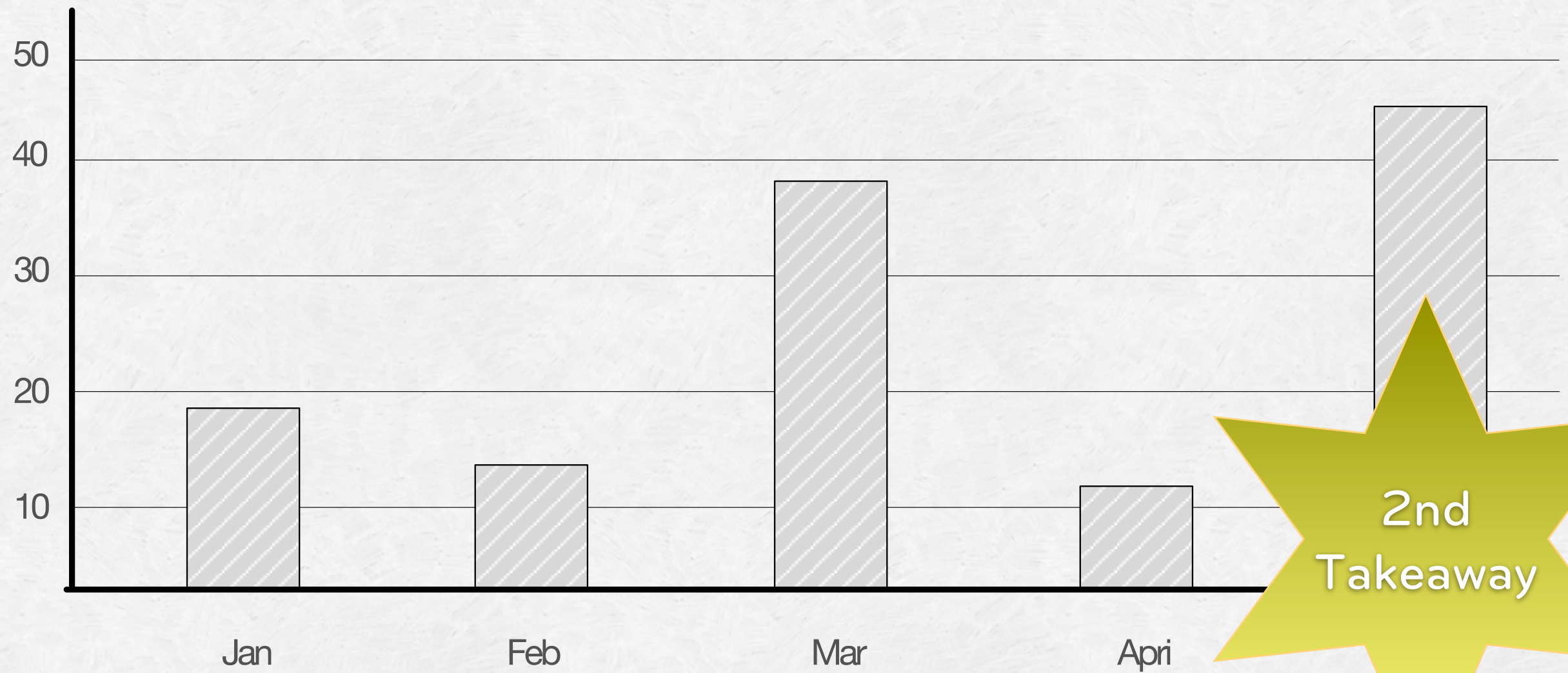


BAR CHART



Never imply precision you don't have.

BAR CHART



Never imply precision you don't have.

4. ANALYSIS OF PERIOD, WITH TARGET

Did we hit our sales figures?

Are we fulfilling our five nines quota?

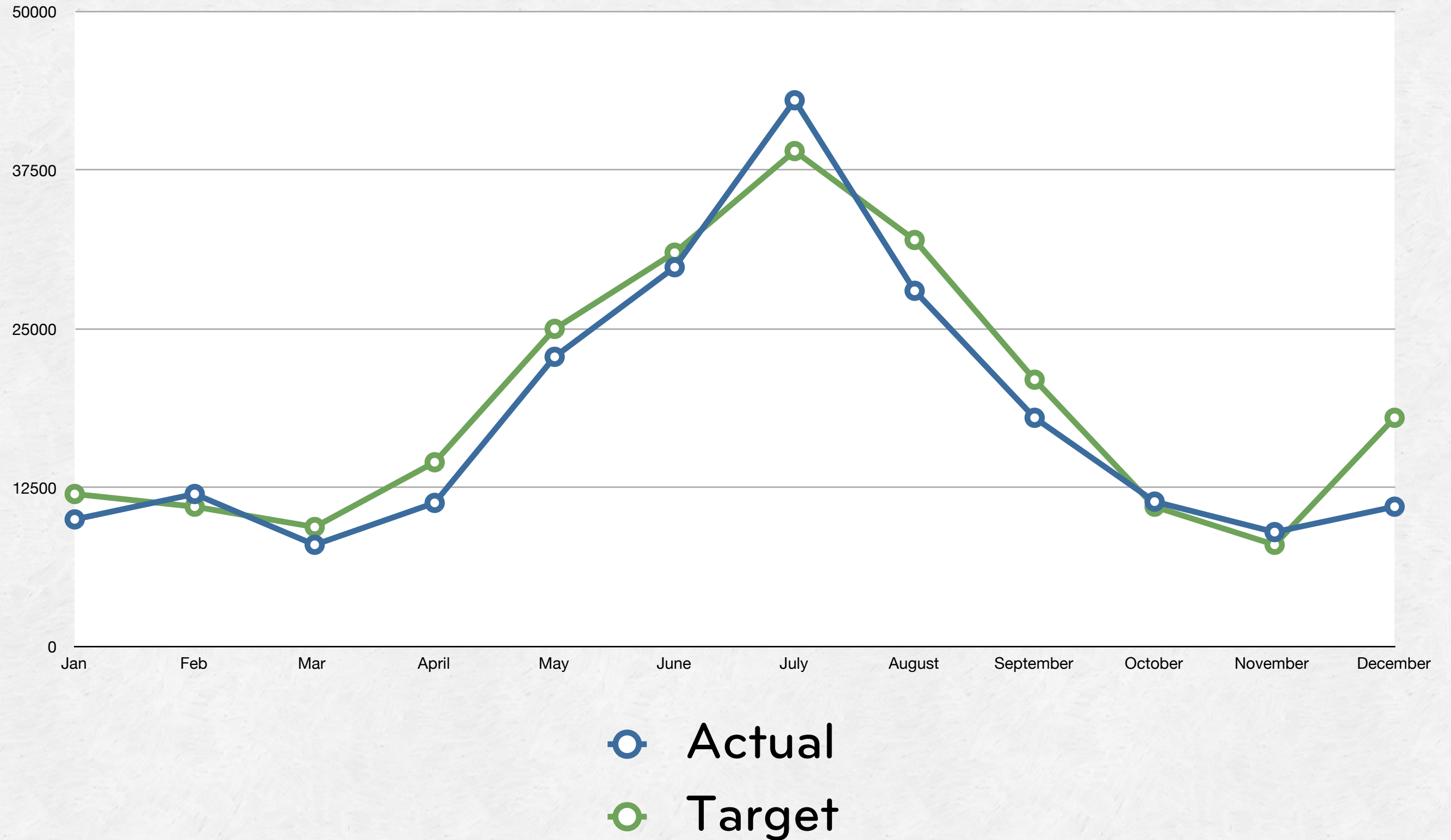
Examples:

Are sales where they should be?

Are all our employees performing okay?

Is our response time better than industry standard?

BAD LINE CHART



A common error in visualisation is leaving all the processing to the reader. At a glance it looks like we're doing okay here.

In this case, we're talking about a delta, but we're not showing the delta...

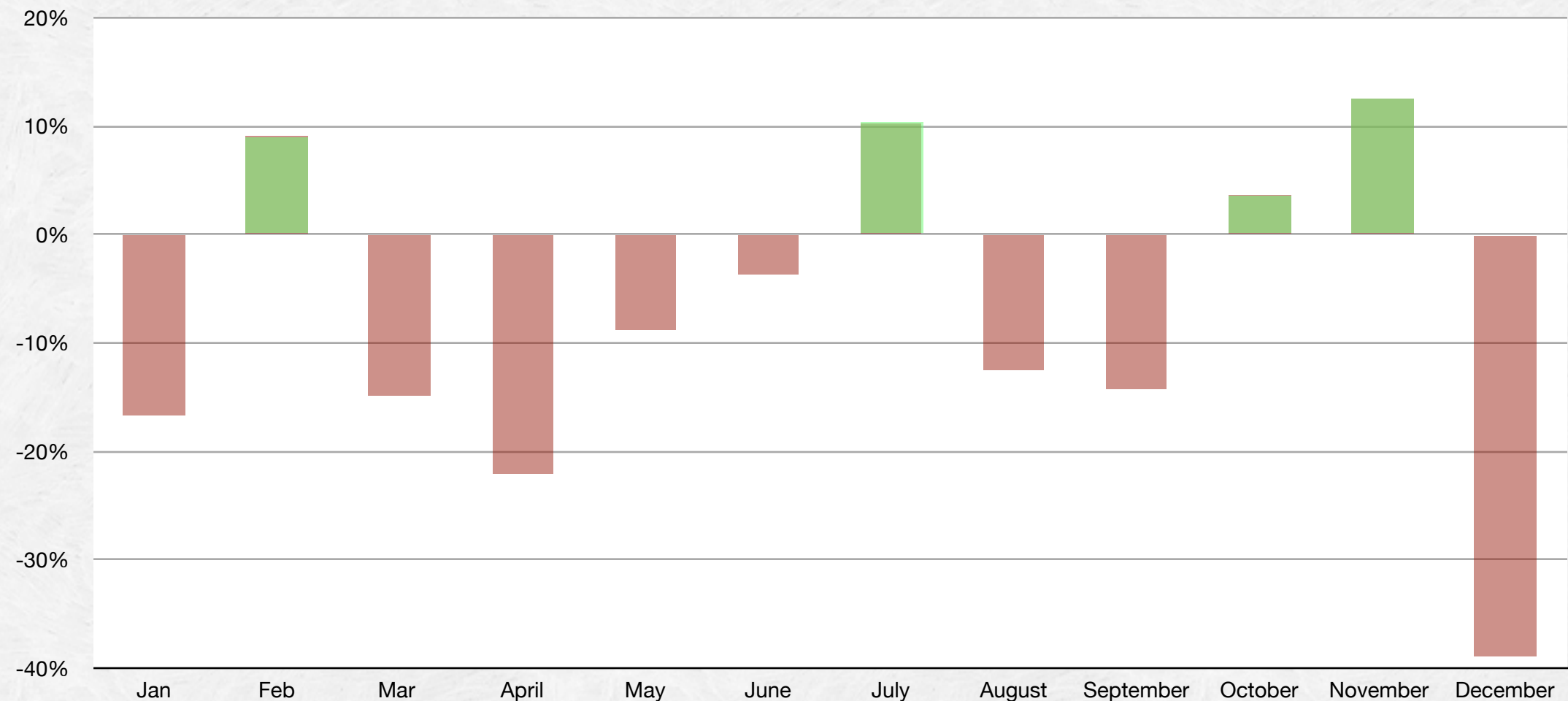
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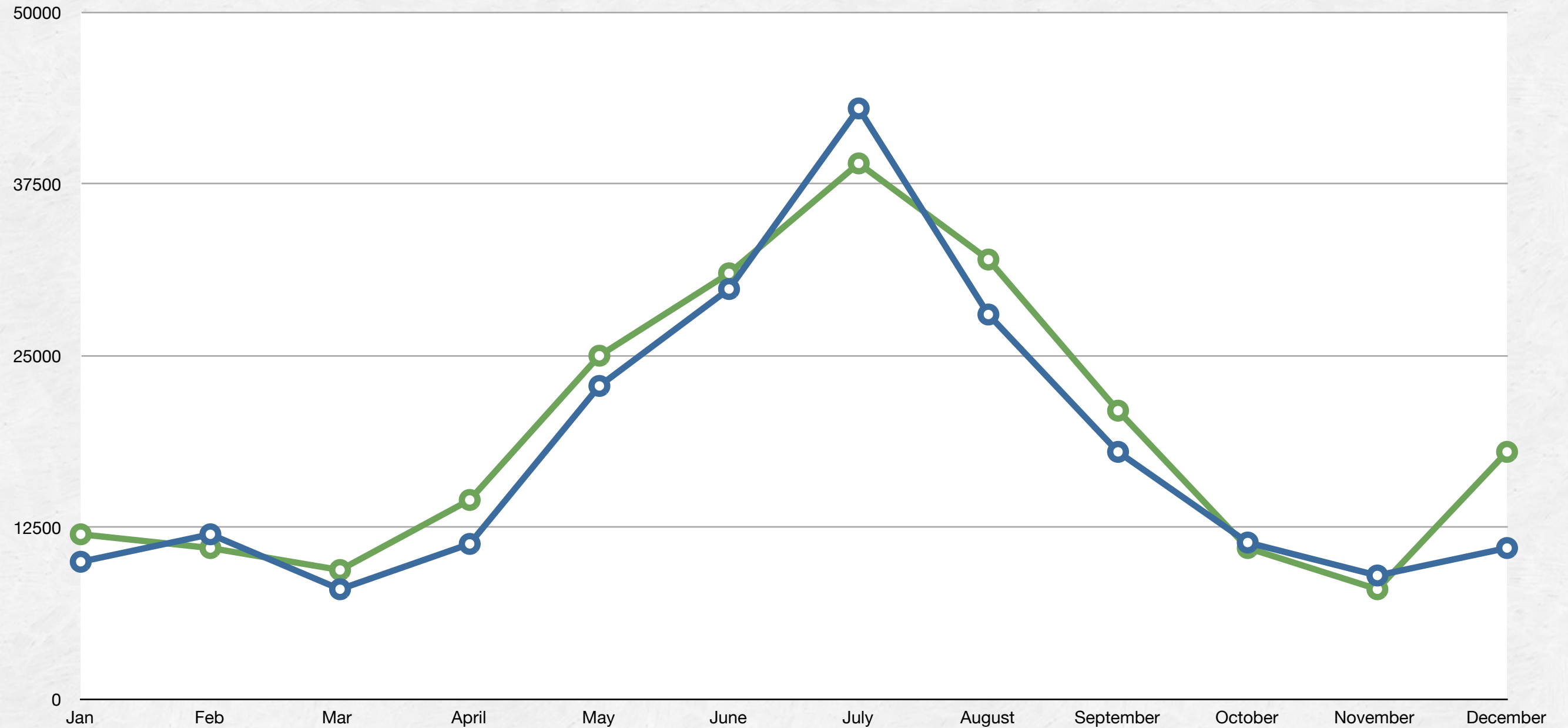
3rd
Takeaway

FOCUS ON THE DELTA



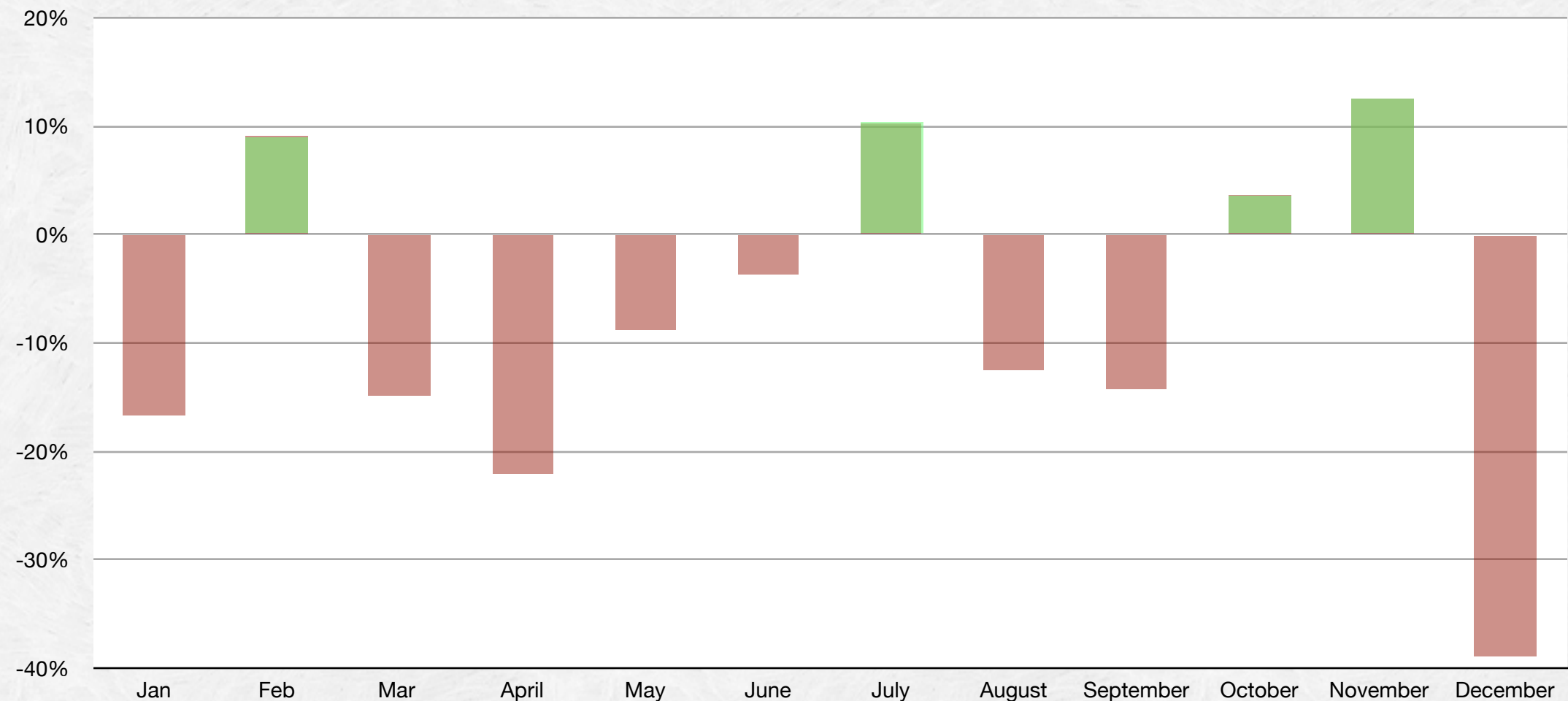
Same data, big difference

BAD LINE CHART



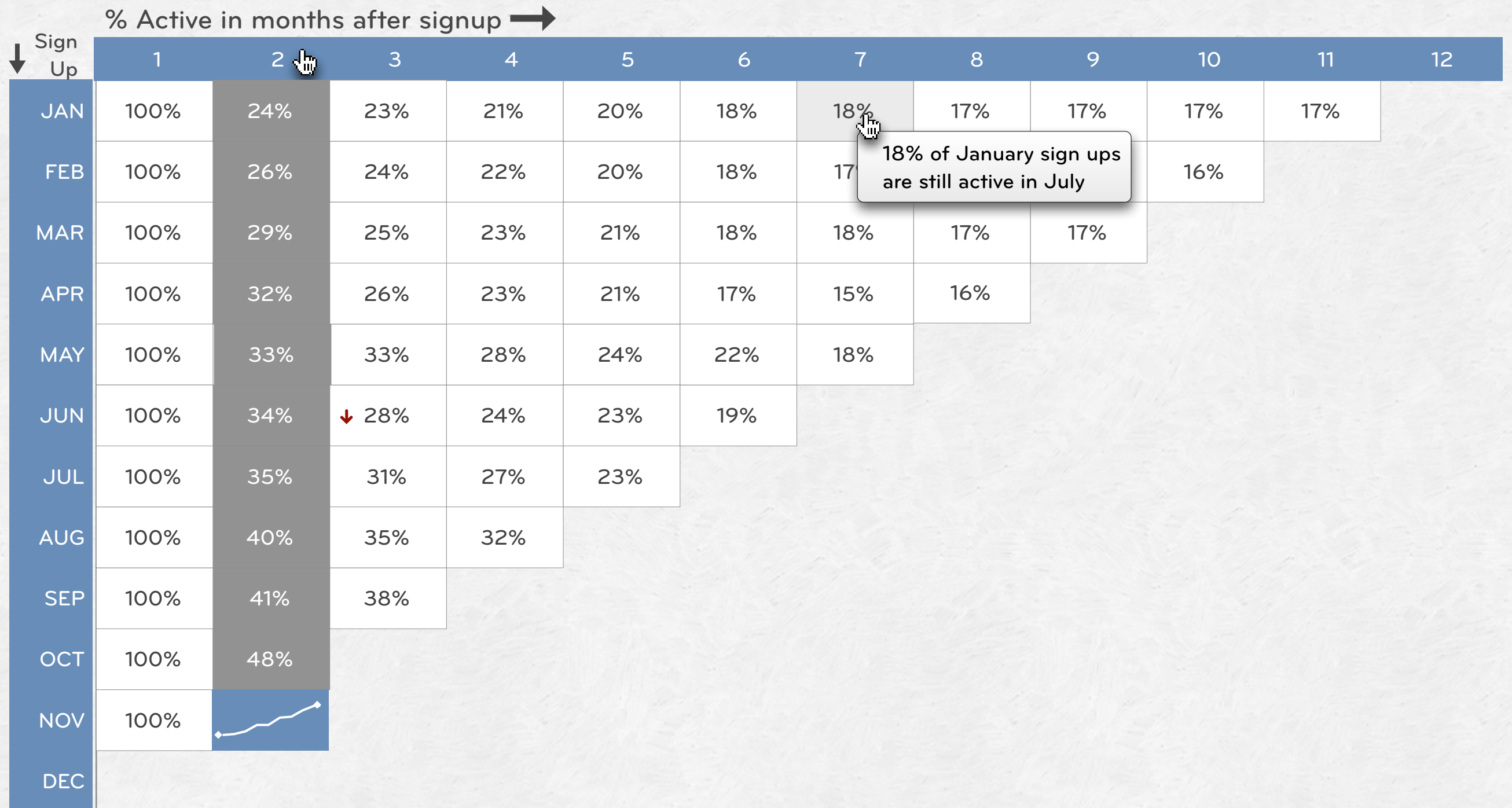
This guy is getting a bonus

FOCUS ON THE DELTA



This guy is getting fired.

A full cohort analysis



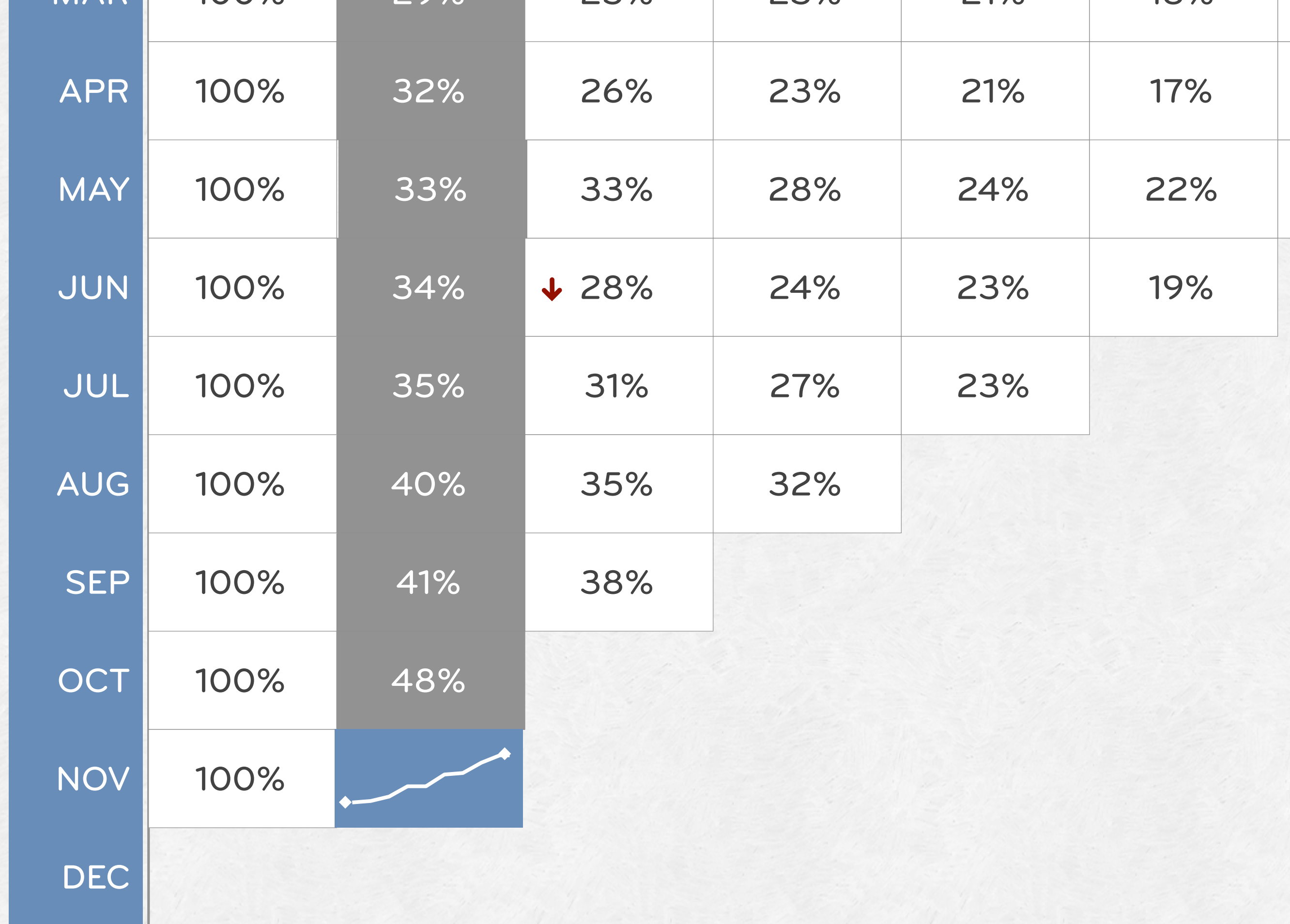
18% of January sign ups
are still active in July

Showing: ☒ % of total ☐ % of prev. month

↓ Highlight drops over: 5% ▼

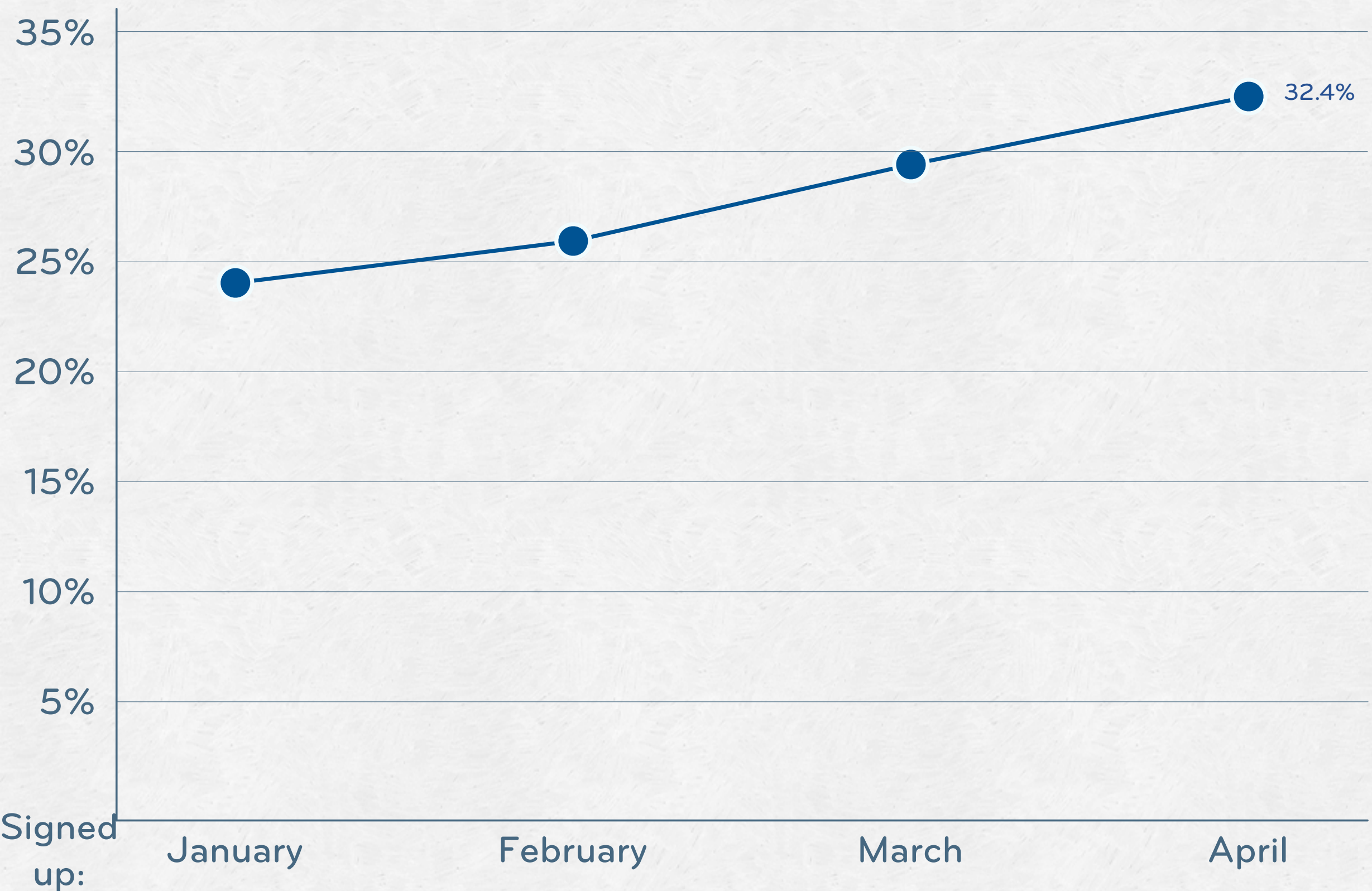
signup →

	4	5	6	7	8	9	10	11
	21%	20%	18%	18%	17%	17%	17%	17%
	22%	20%	18%	17%	18% of January sign ups are still active in July		16%	
	23%	21%	18%	18%	17%	17%		
	23%	21%	17%	15%	16%			
	28%	24%	22%	18%				
	24%	23%	19%					
	27%	23%						
	32%							

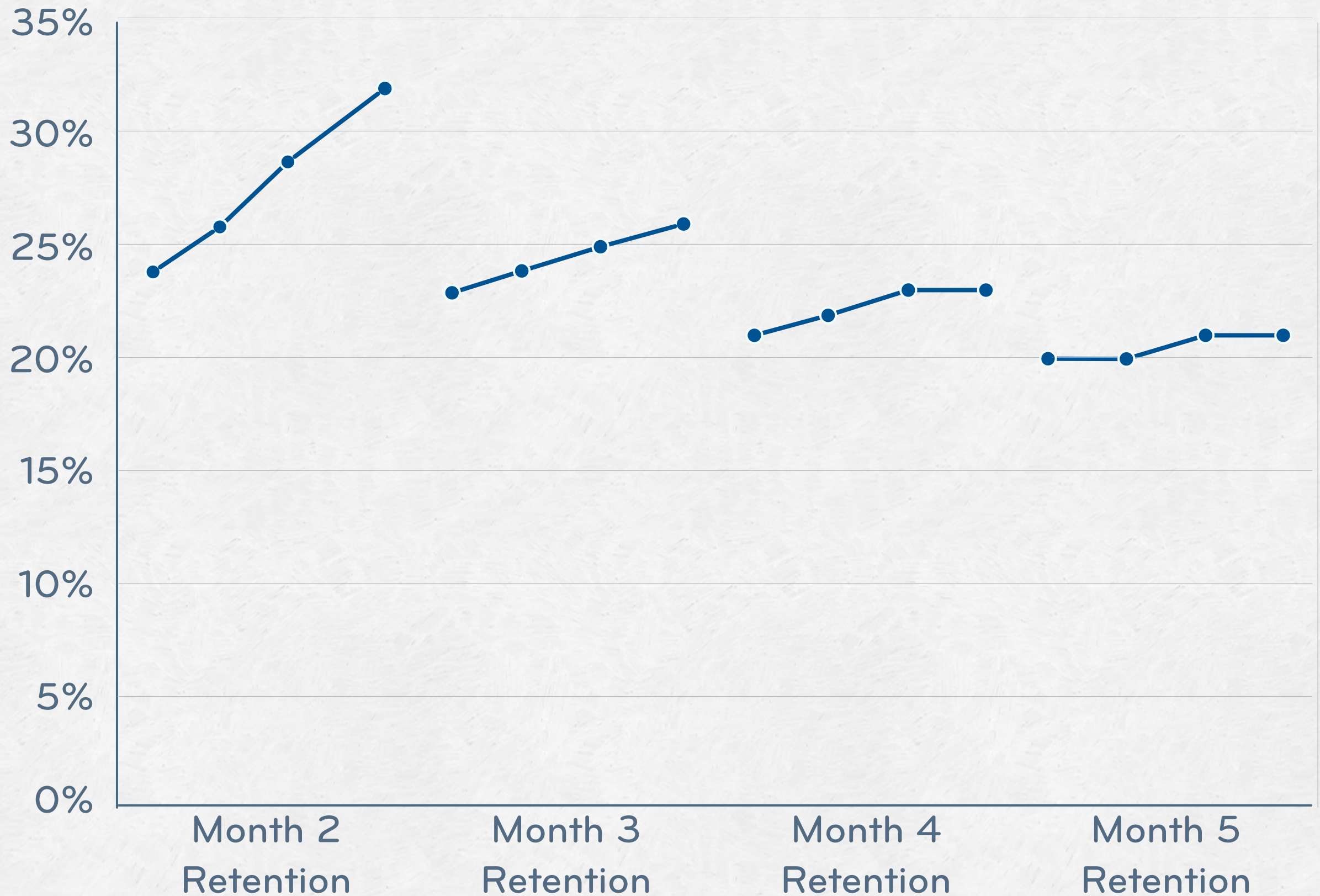


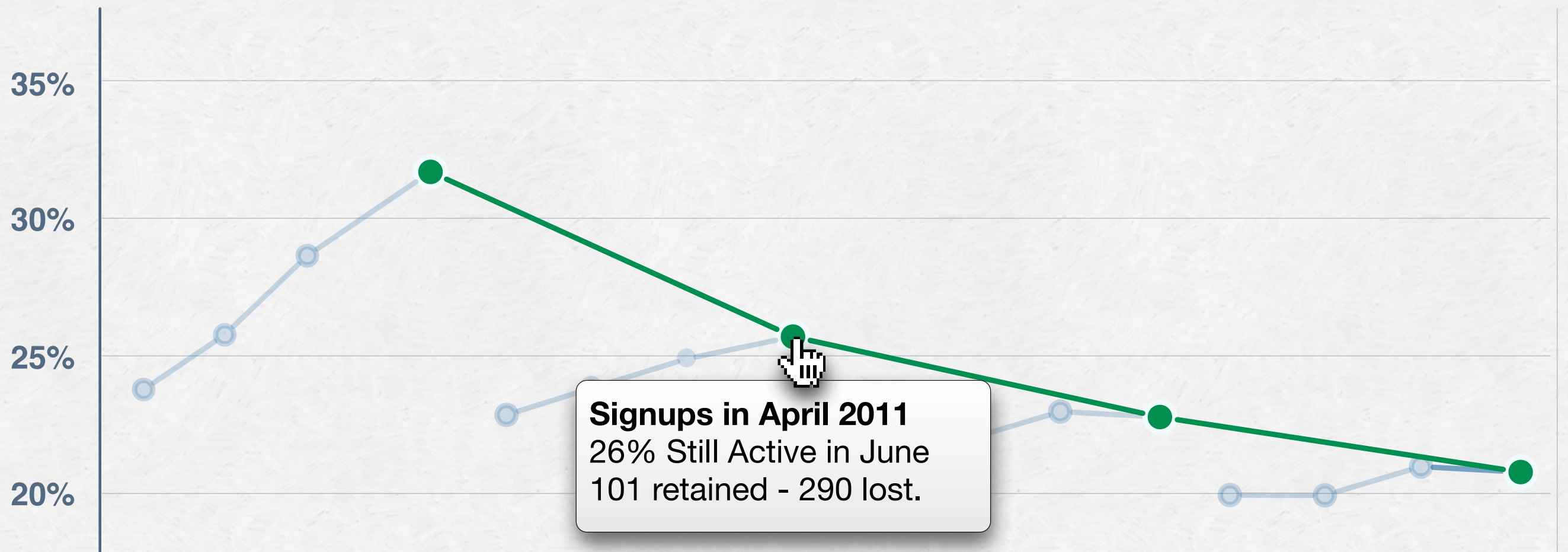
Showing: ☒ % of total ☐ % of prev. month

How many stick around for a second month?



Retention using a cycle plot





5. BREAKDOWN OF A VARIABLE

"What age groups are buying our stuff? What countries are we big in?"

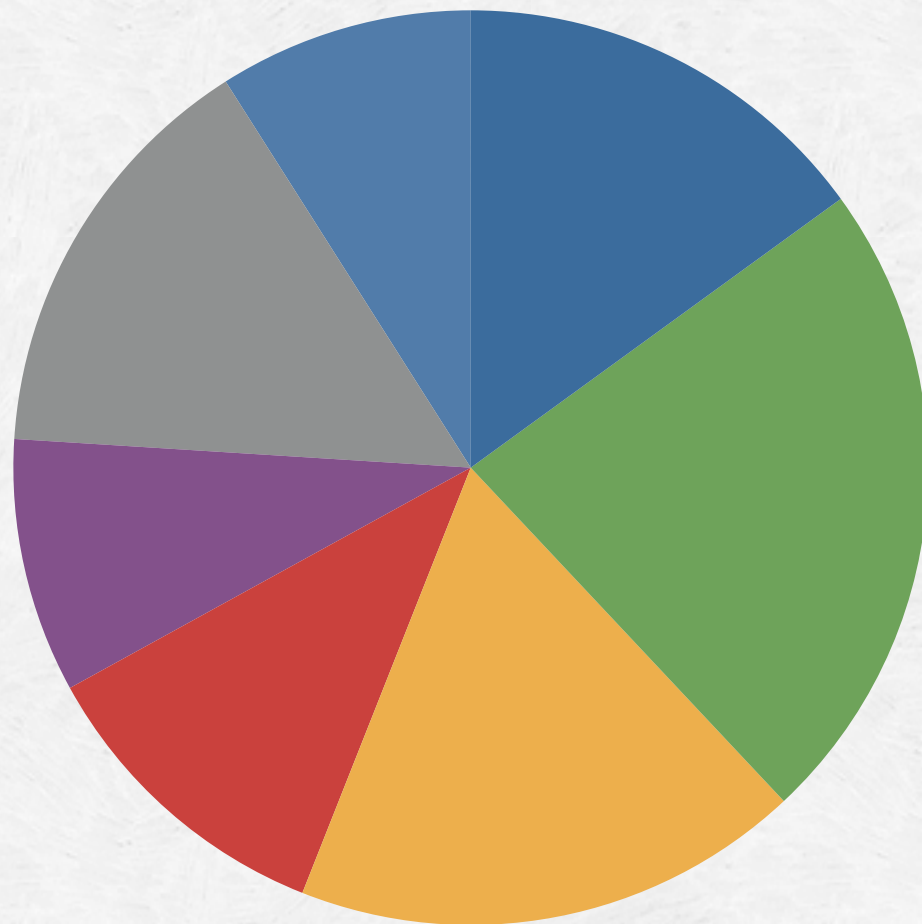
Examples:

Who are our customers?

Whats our awareness like in each demographic?

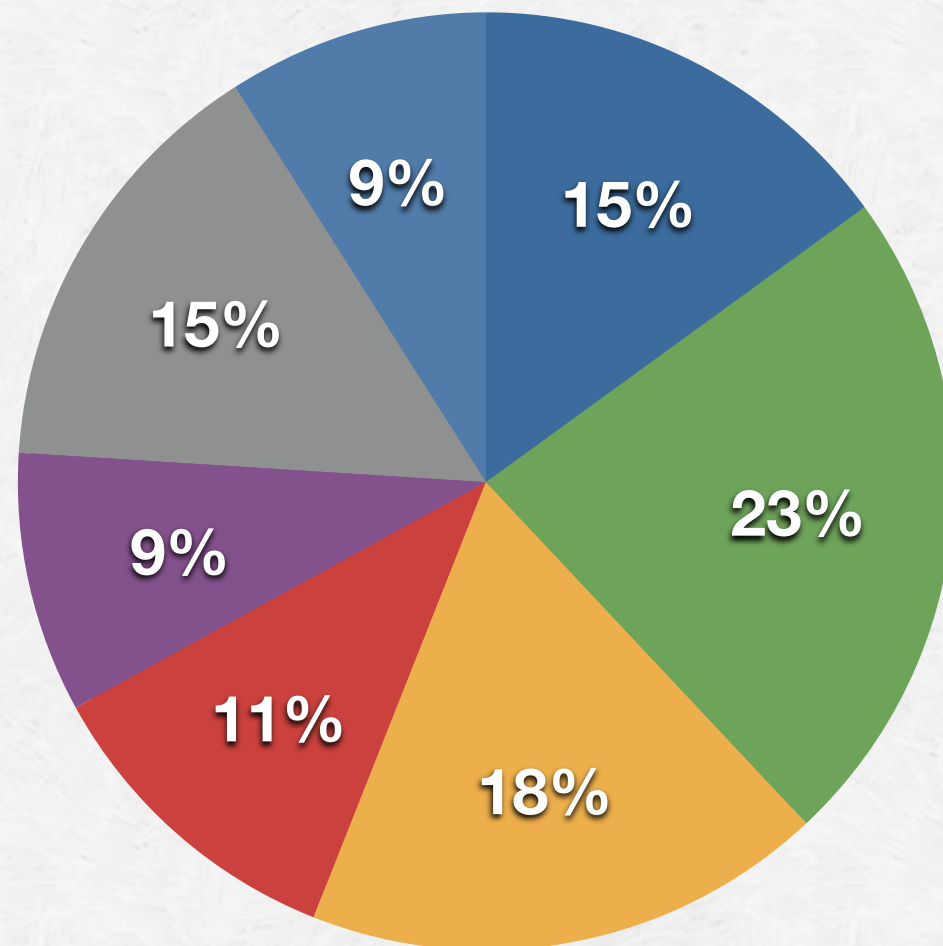
What browsers are people using these days?

BAD PIE CHART



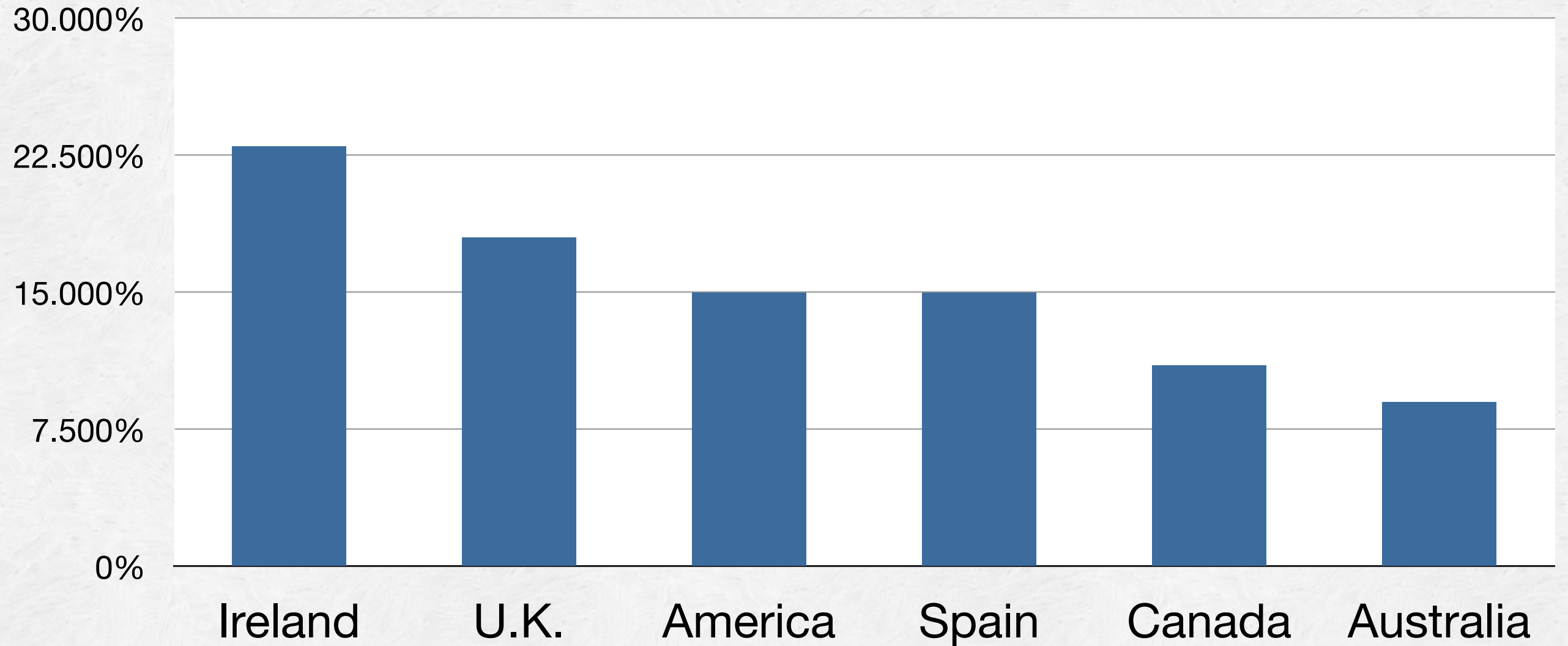
- America
- Ireland
- U.K.
- Canada
- Australia
- Spain
- France

YOU COULD ADD THE DATA...

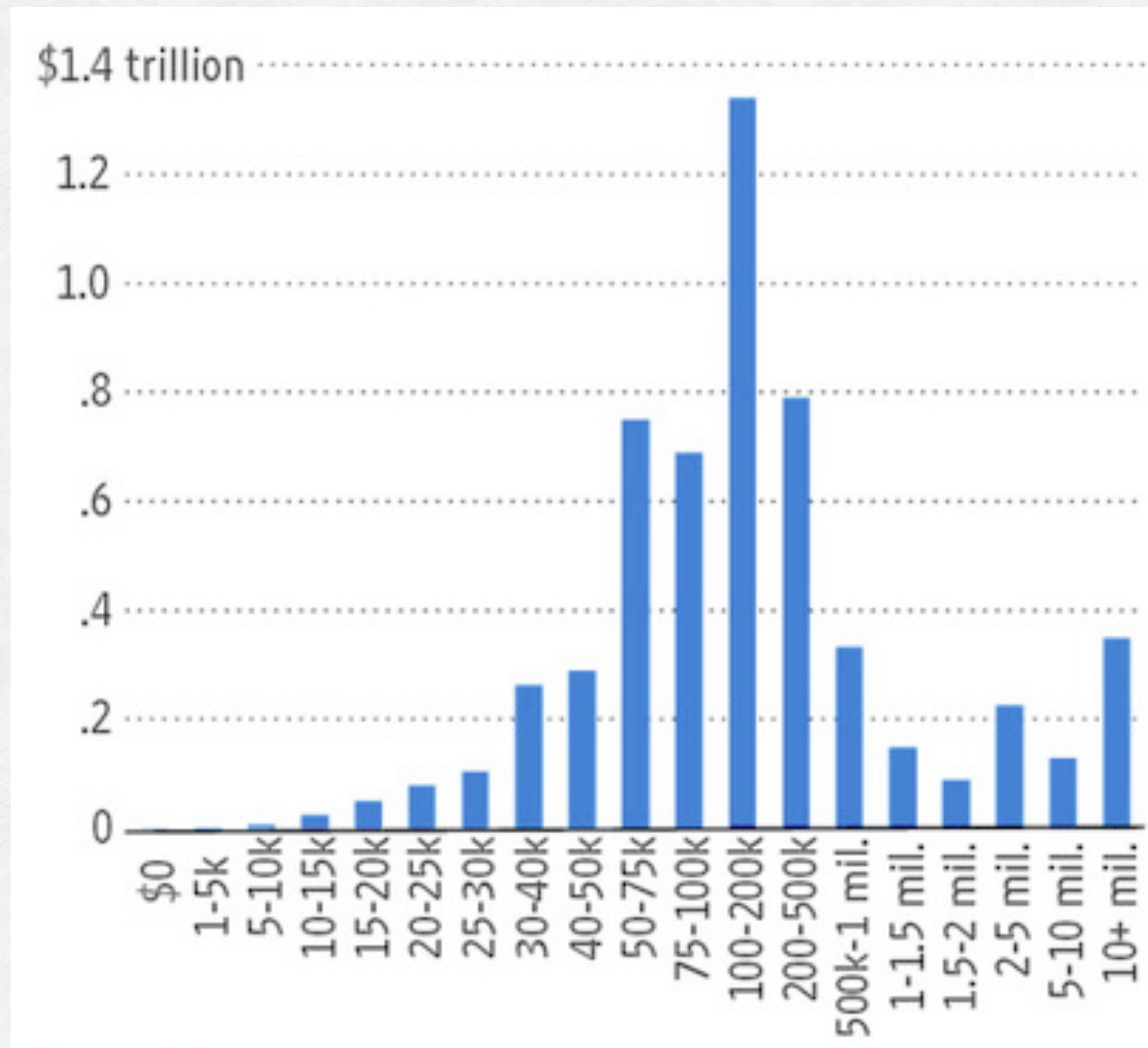


- America
- Ireland
- U.K.
- Canada
- Australia
- Spain
- France

SORTED BAR CHART

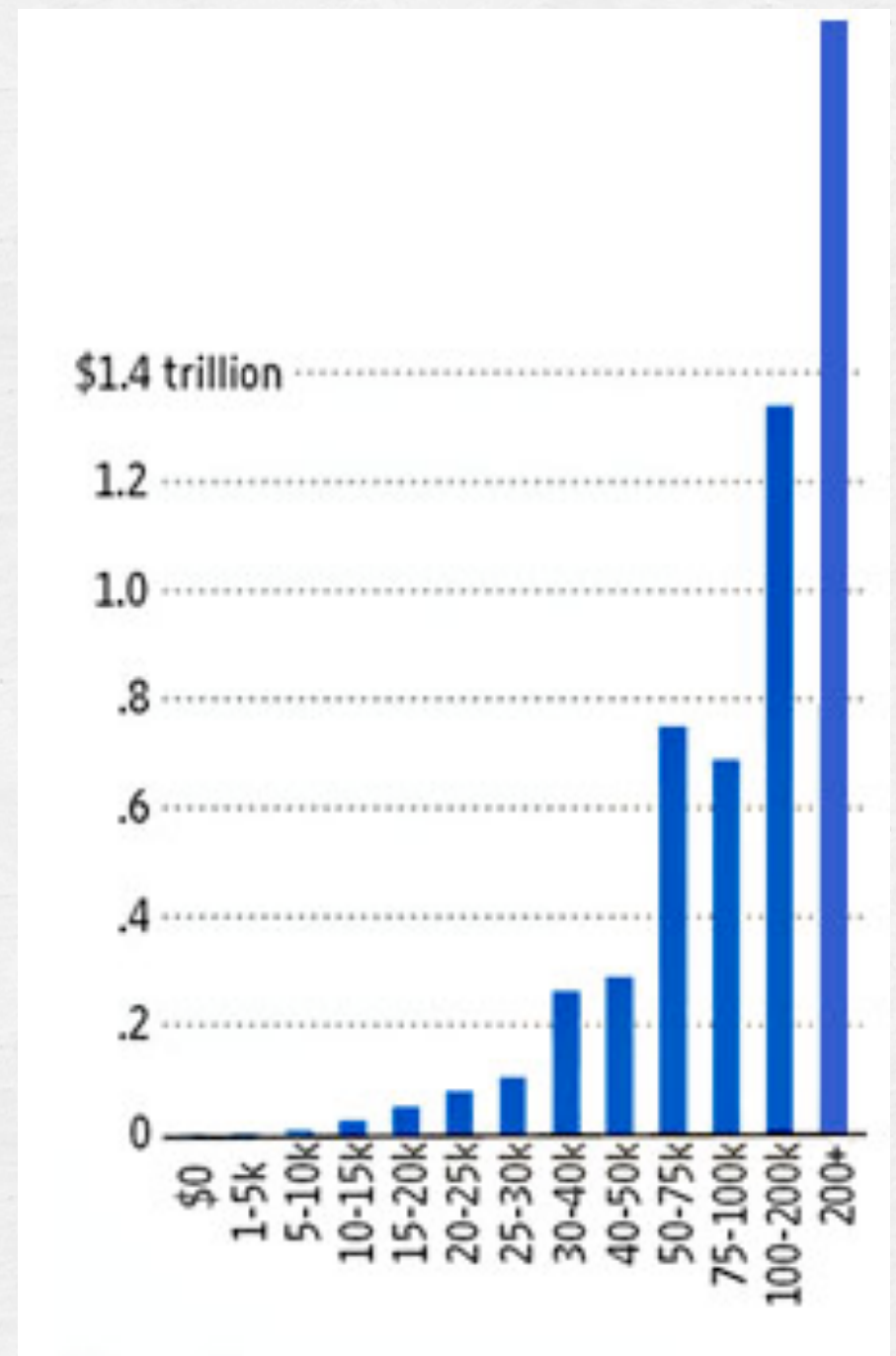
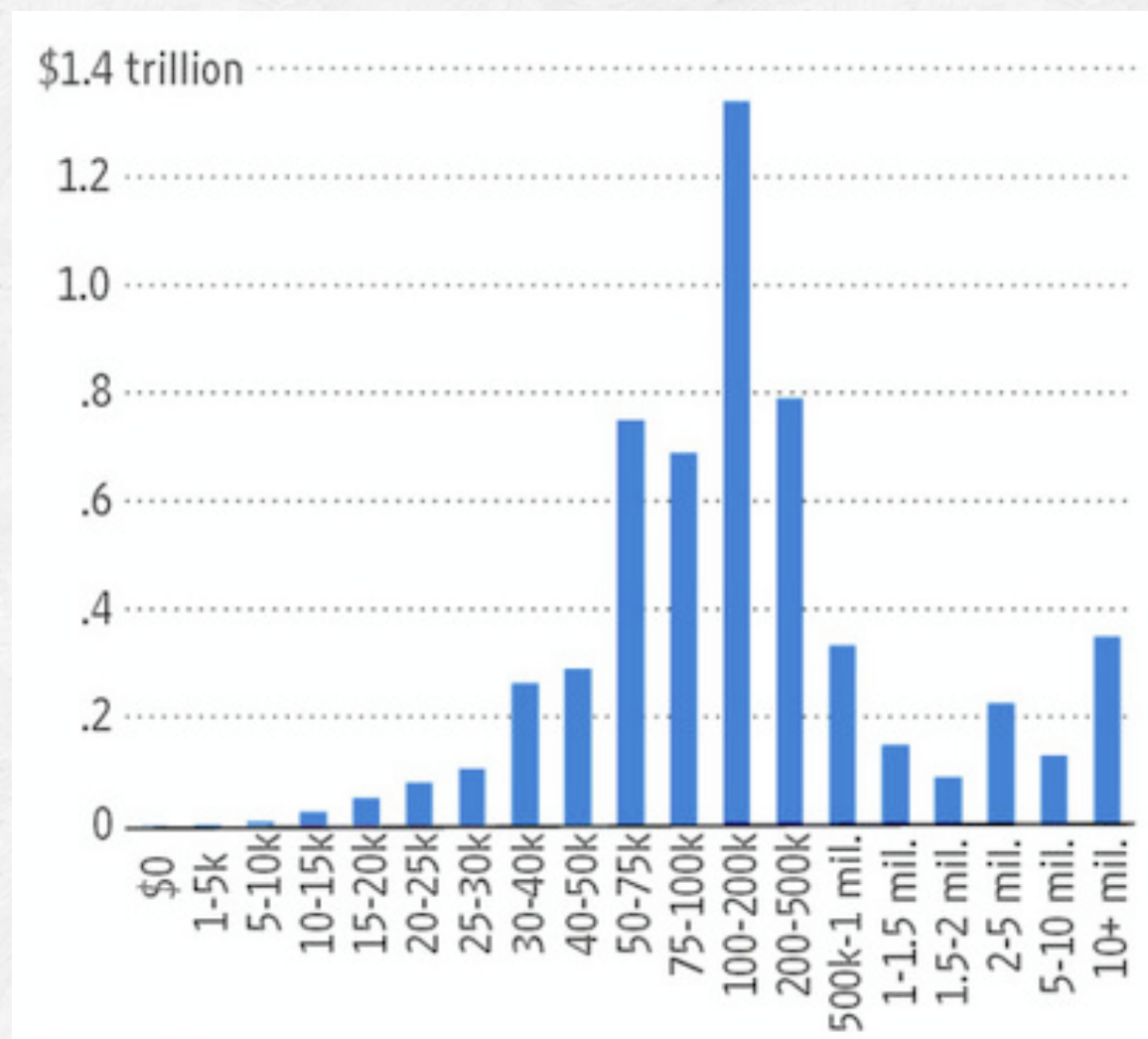


LYING WITH GROUPINGS



The 100K to 200k is where we need to tax!

LYING WITH GROUPINGS



Or maybe not...

LYING WITH GROUPINGS

Mother Jones

HOMEPOLITICSENVIRONMENTCULTUREPHOTO ESSAYSBLOGS

Must Reads: Disapproval of Tea Party Higher Than Ever | Org. Berries Grown With Poisons | Rise In Premiums Shows I

KEVIN DRUM

Fun With Charts: Making the Rich Look Poor

—By **Kevin Drum** | Thu May. 12, 2011 10:21 AM PDT

Like 1K

Jon Chait takes a closer look at a *Wall Street Journal* chart intended to suggest that the middle class has all the money:

The chart has been making the conservative blog rounds, from Powerline to Hoosierpundit to Reihan Salam to (not really conservative) Andrew Sullivan, who reproduces it under the headline "Where the Money Is." The chart most certainly does not demonstrate the *Journal's* point. It instead relies upon an optical illusion. Democrats have been arguing that their tax increases should solely affect income over \$250,00 a year. The *Journal* makes that pot of income appear small by divvying it up into seven different lines. See, the \$100,000-\$200,000 line is *tall*, and all the other lines to the right of it are *short*. That tall line must be where the money is!

As a public service, I've redrawn the chart for the *Journal*. On the left is the original. On the right is the chart that shows the actual amount of money earned by the tiny handful of people making over \$200,000. It's a lot.

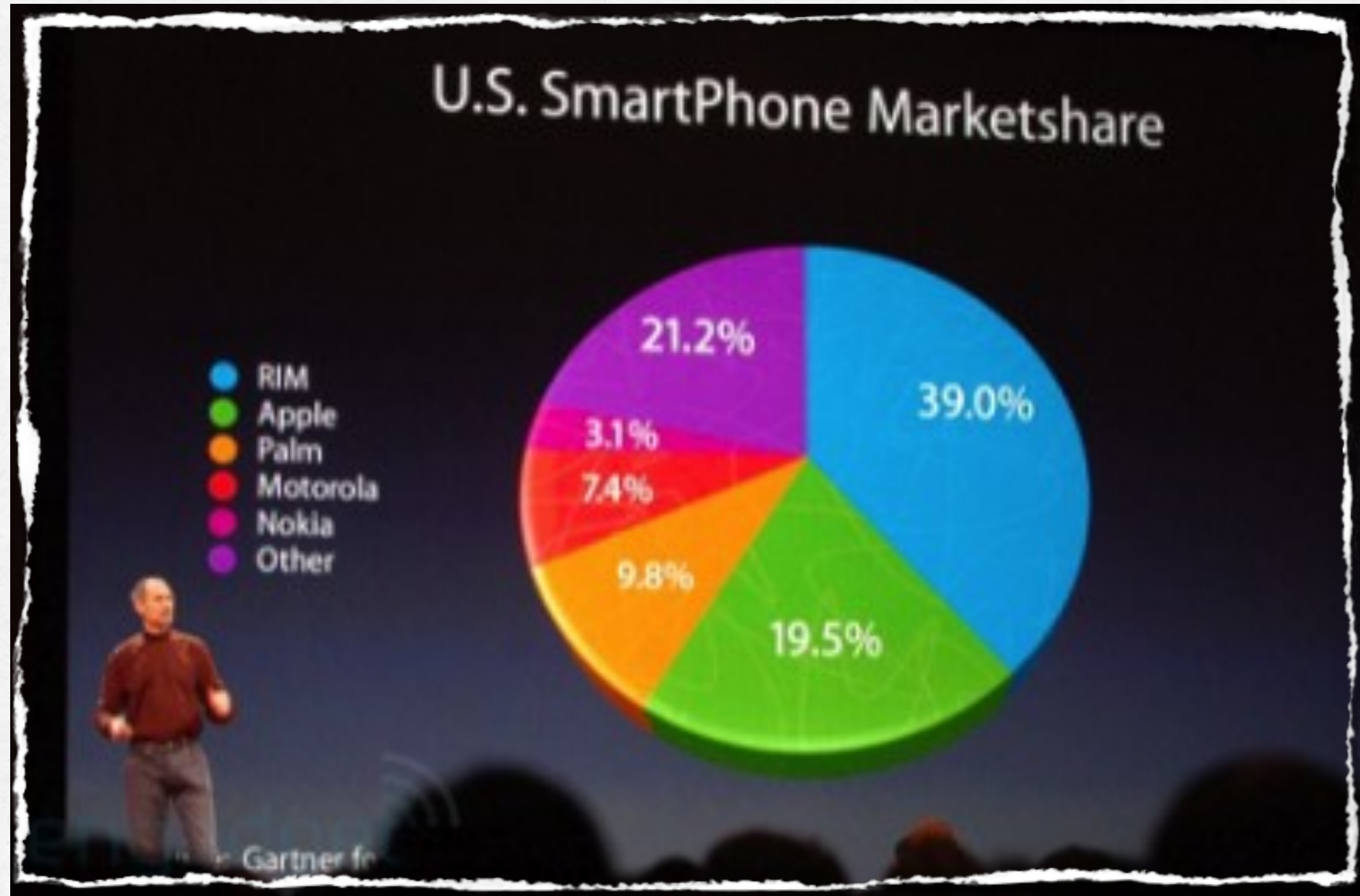
The Middle Class Tax Target

The amount of total taxable income (left scale) for all filers by adjusted gross income level for 2008

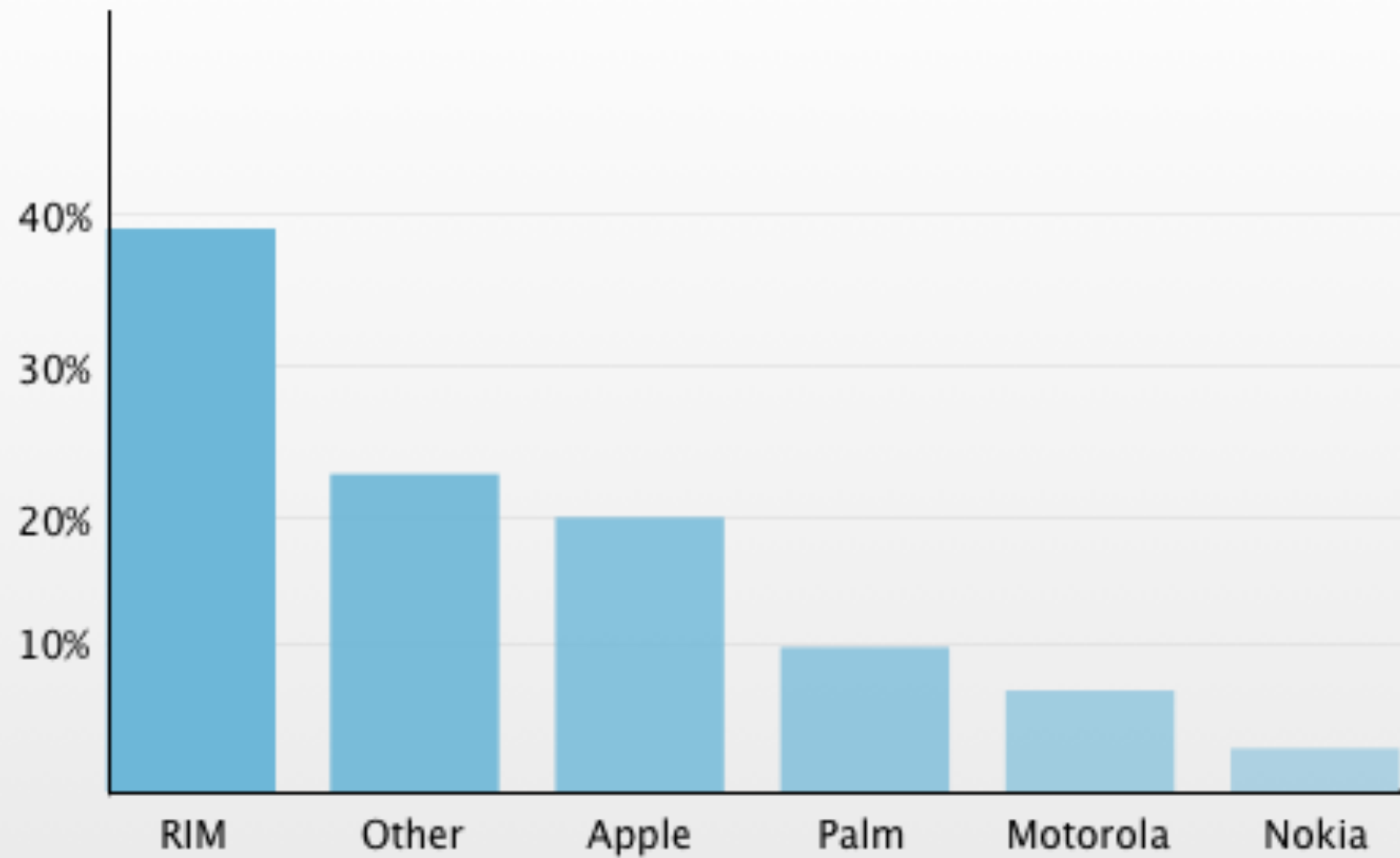


Income Category	Amount (Left Scale)	Amount (Right Scale)
\$0-\$10,000	~\$100 billion	~\$100 billion
\$10,000-\$20,000	~\$200 billion	~\$200 billion
\$20,000-\$30,000	~\$300 billion	~\$300 billion
\$30,000-\$40,000	~\$400 billion	~\$400 billion
\$40,000-\$50,000	~\$500 billion	~\$500 billion
\$50,000-\$100,000	~\$1,000 billion	~\$1,000 billion
\$100,000-\$200,000	~\$1,400 billion	~\$1,400 billion
\$200,000+	~\$1,400 billion	~\$1,400 billion

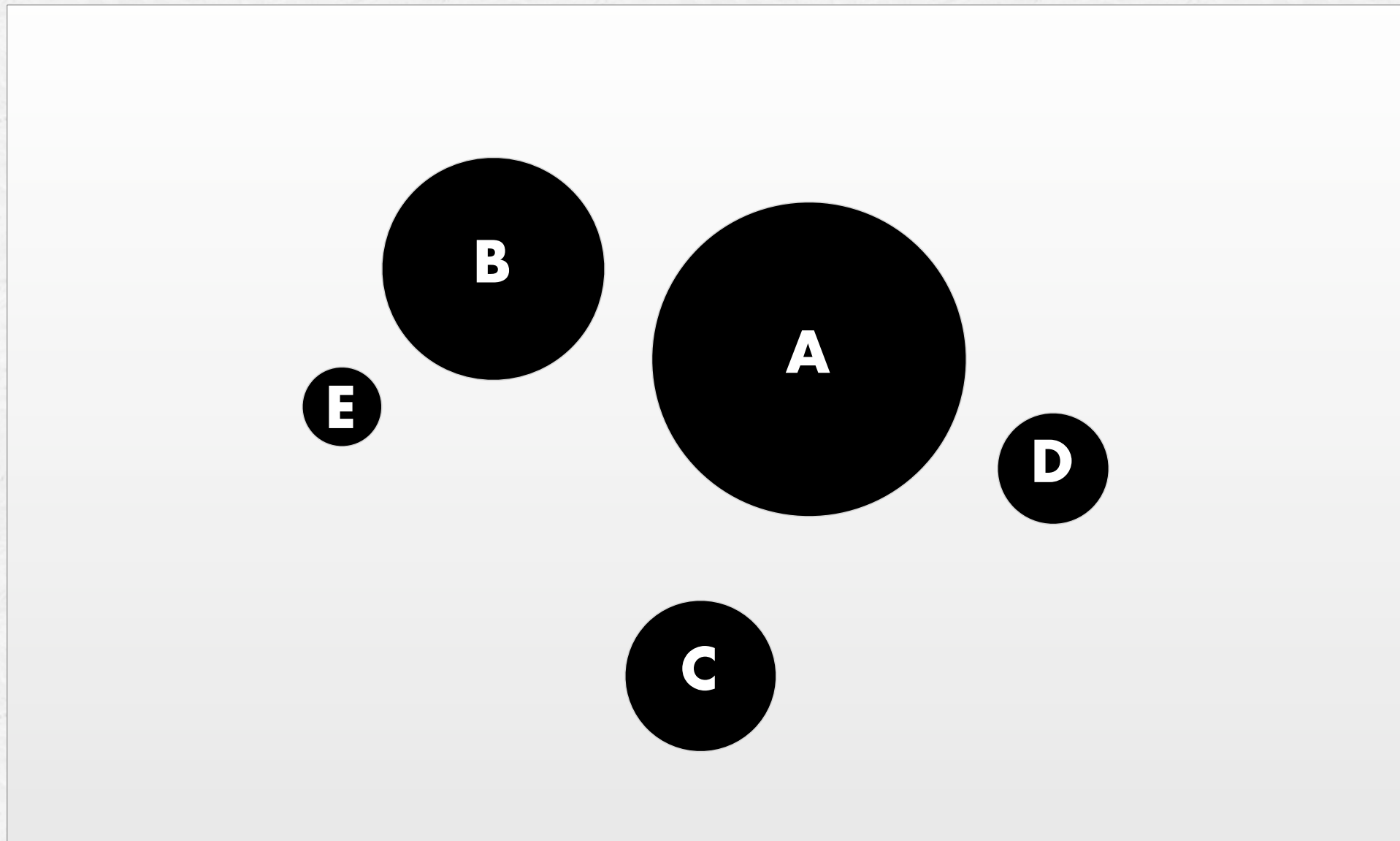
LYING WITH ROTATIONS



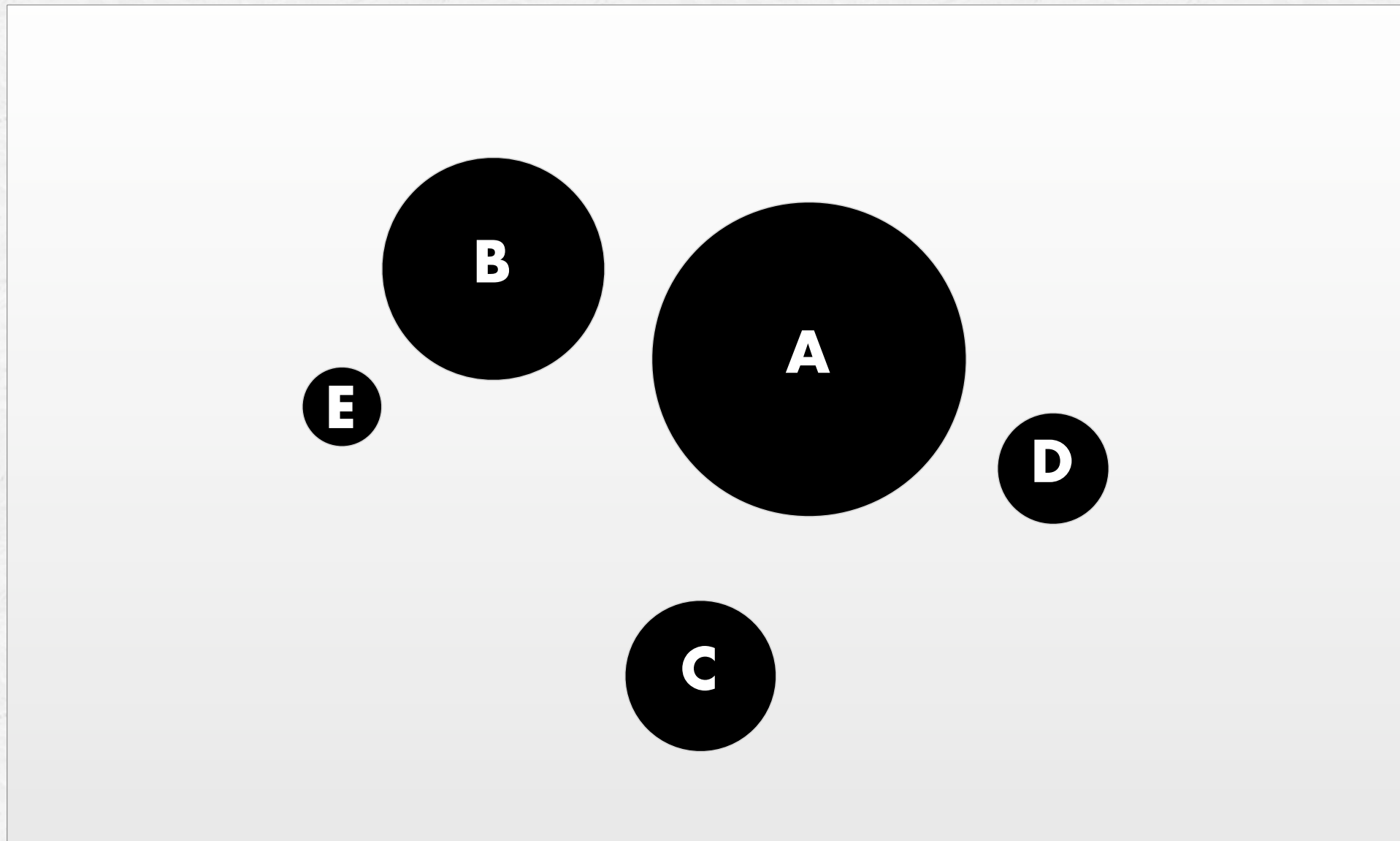
LYING WITH DIMENSIONS



BAD: AREA PLOT

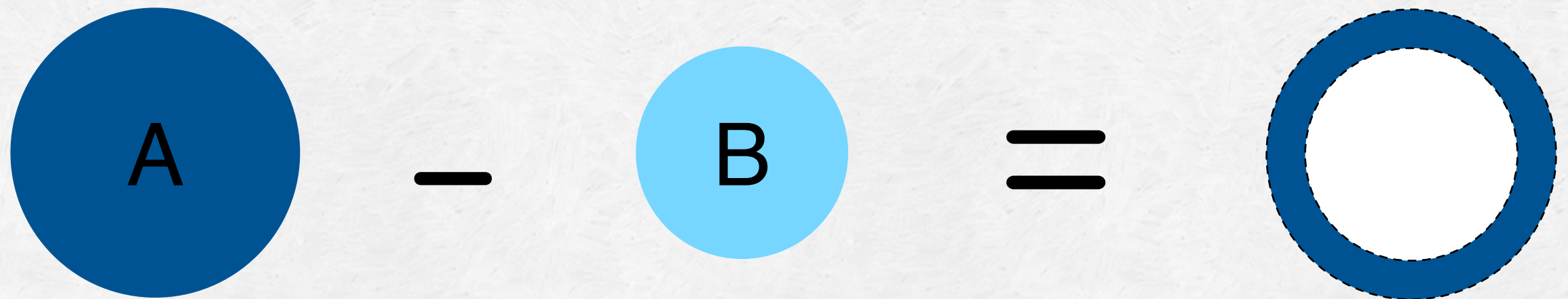


BAD: AREA PLOT



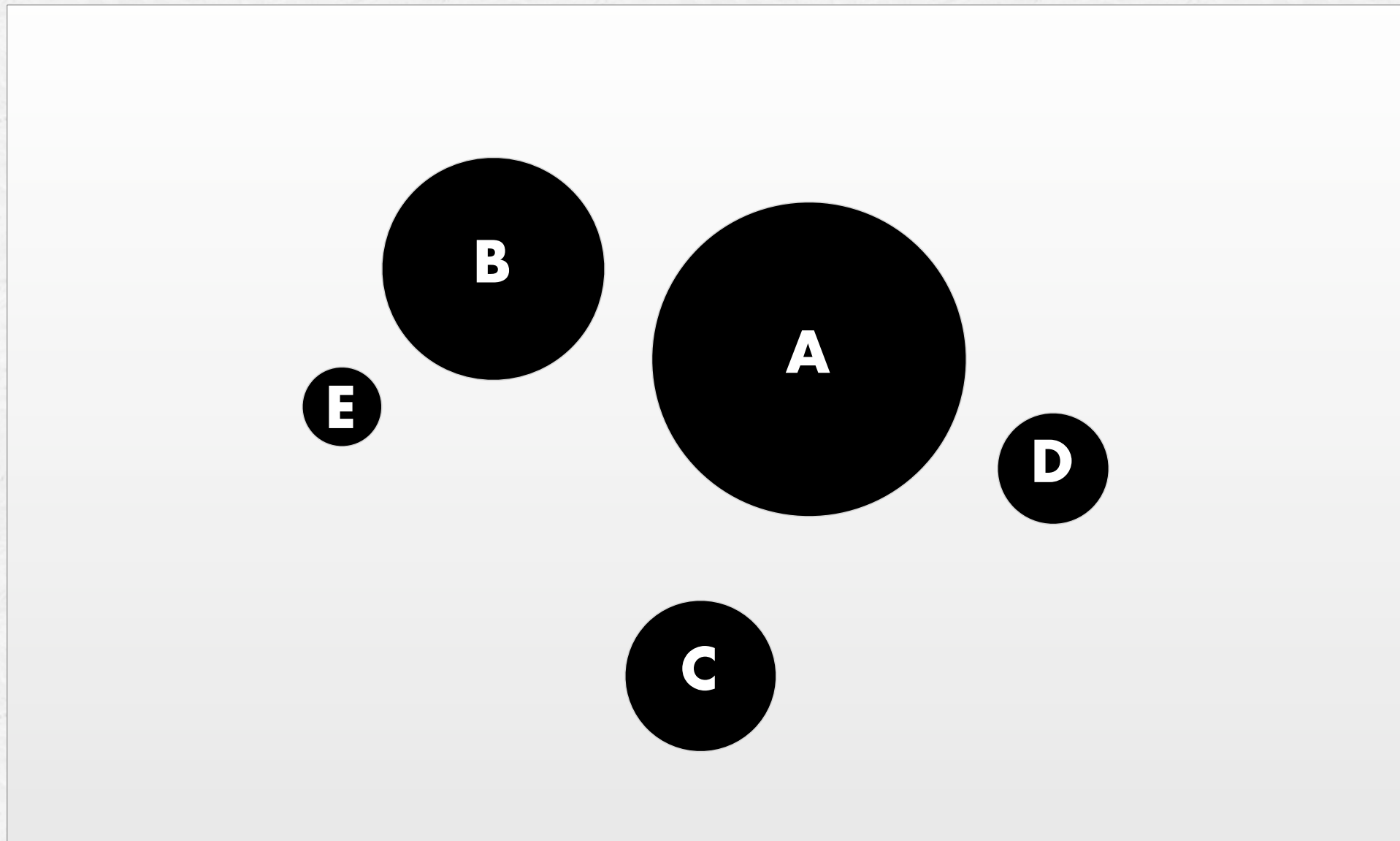
Which would you pick?

BAD: AREA PLOT

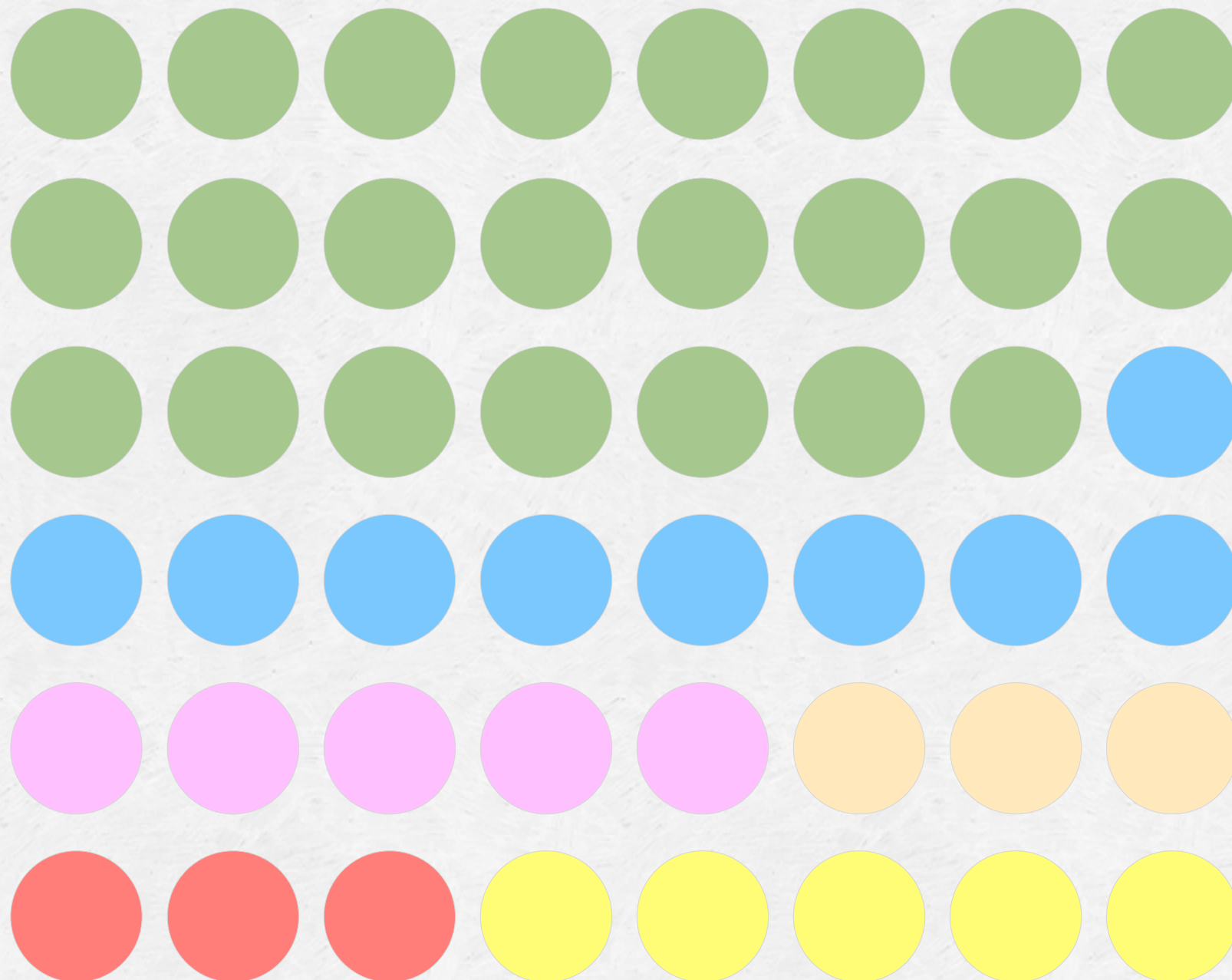


How "big" is this?

BAD: AREA PLOT

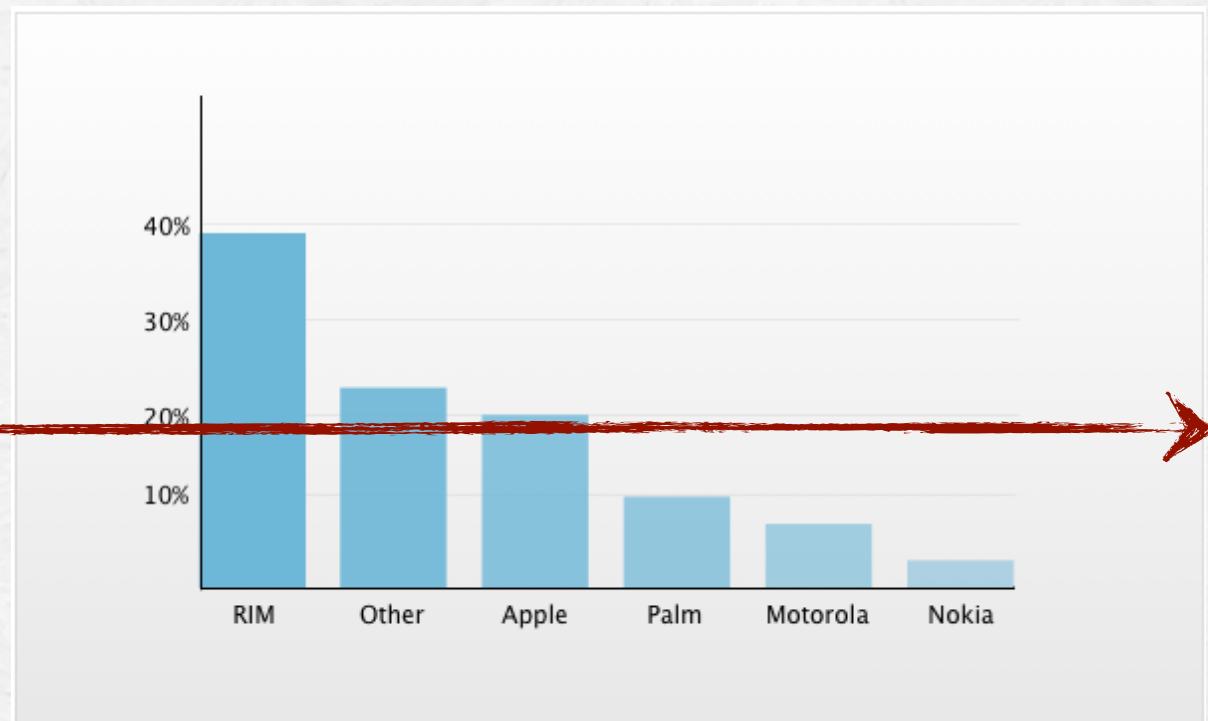


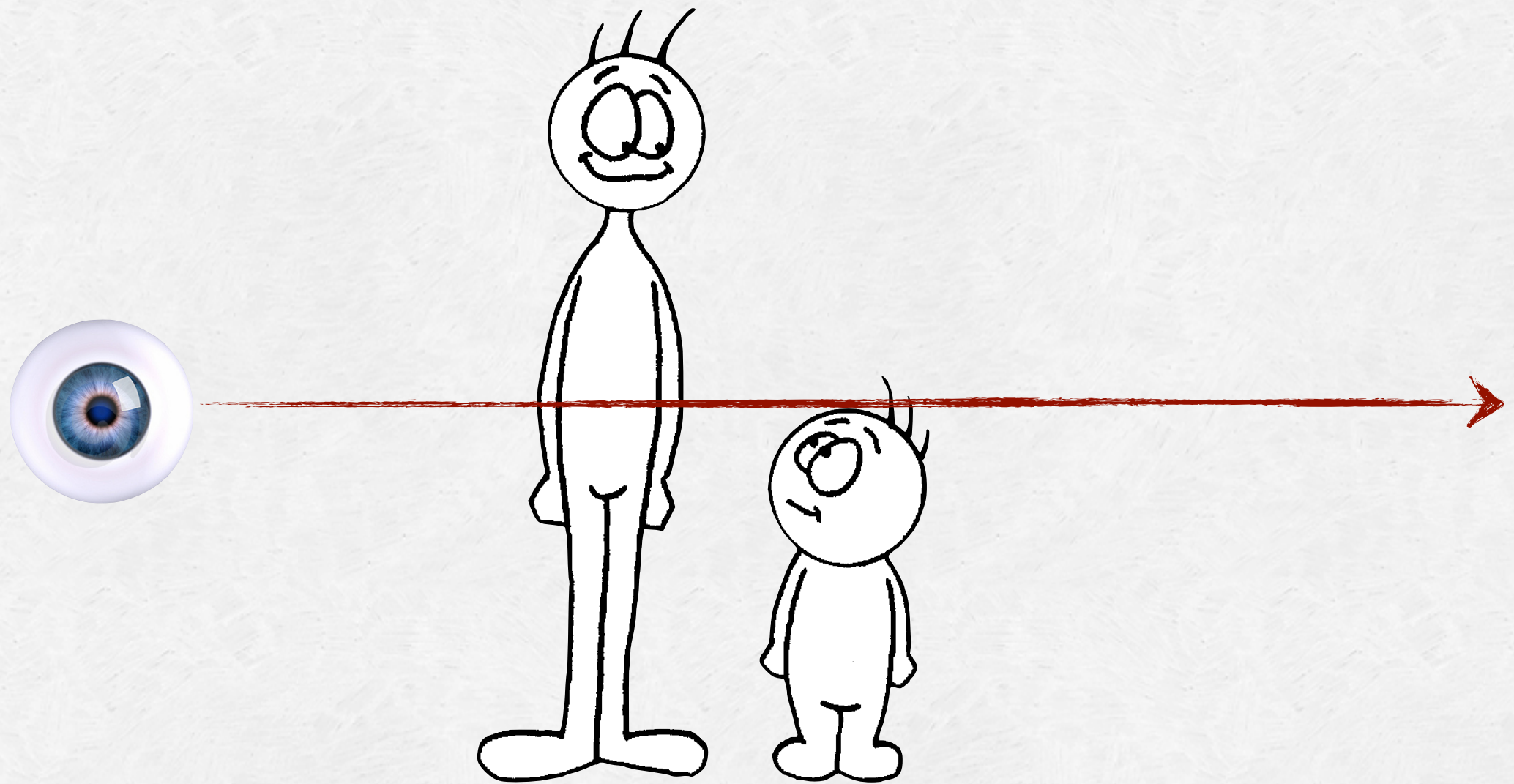
BAD UNIT PLOT



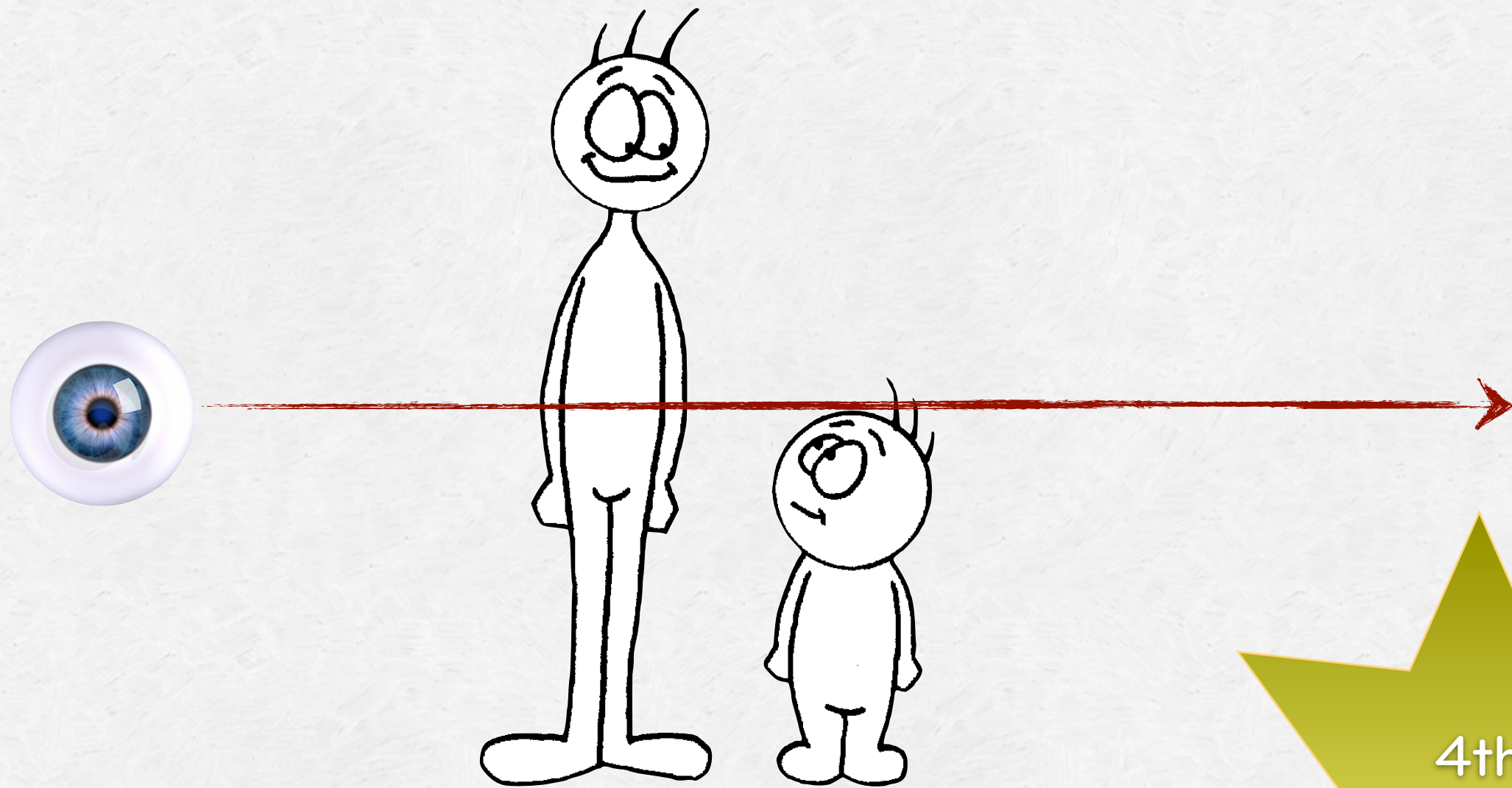
5. BREAKDOWN OF A VARIABLE

“Bar charts aren’t sexy, but they rely on an innate skill, following a line.”





If you had to fight one of them...



4th
Takeaway

If you had to fight one of them...

6. BREAKDOWN OVER TIME

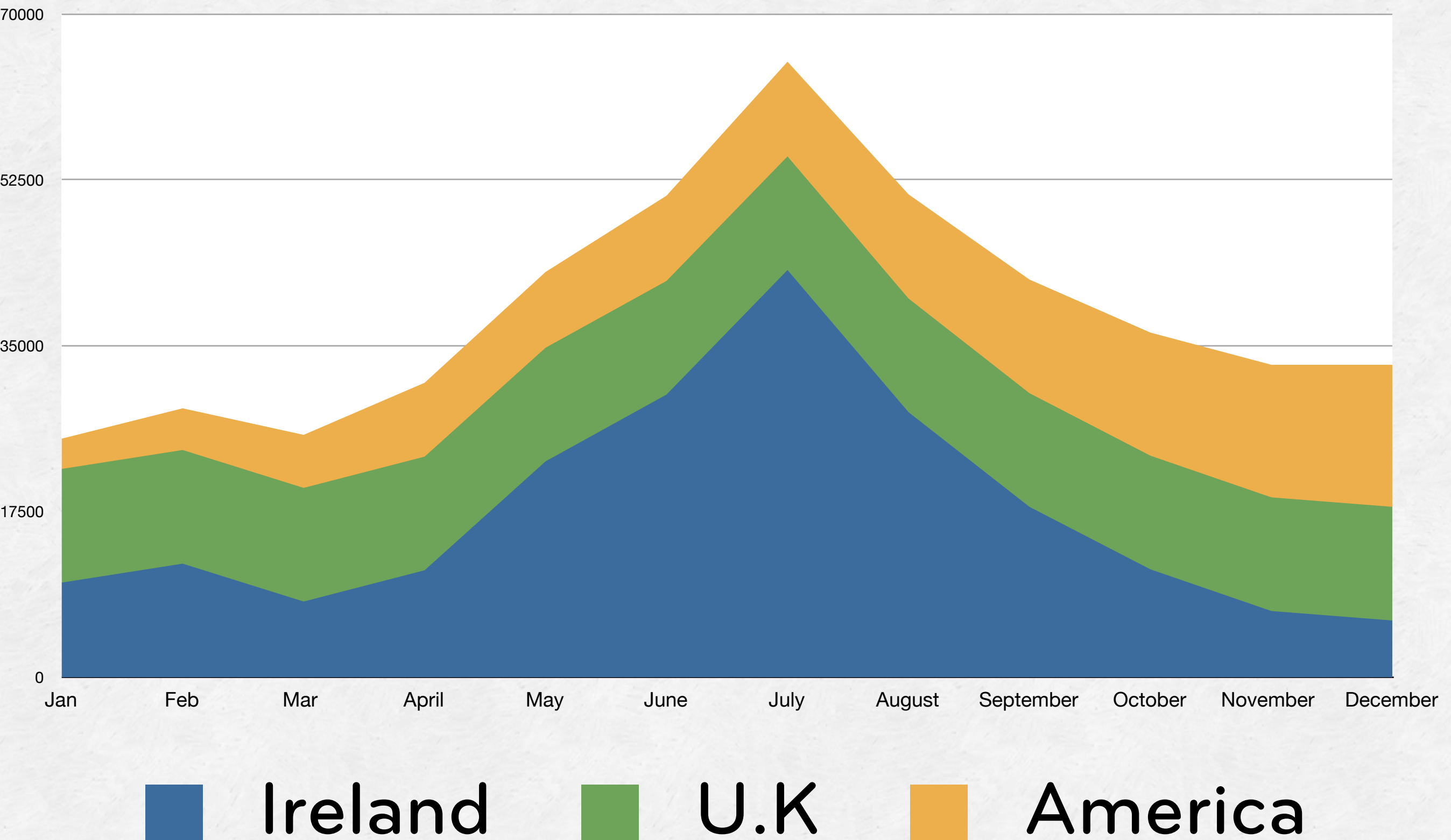
“How has the composition changed over the last year?”

Examples:

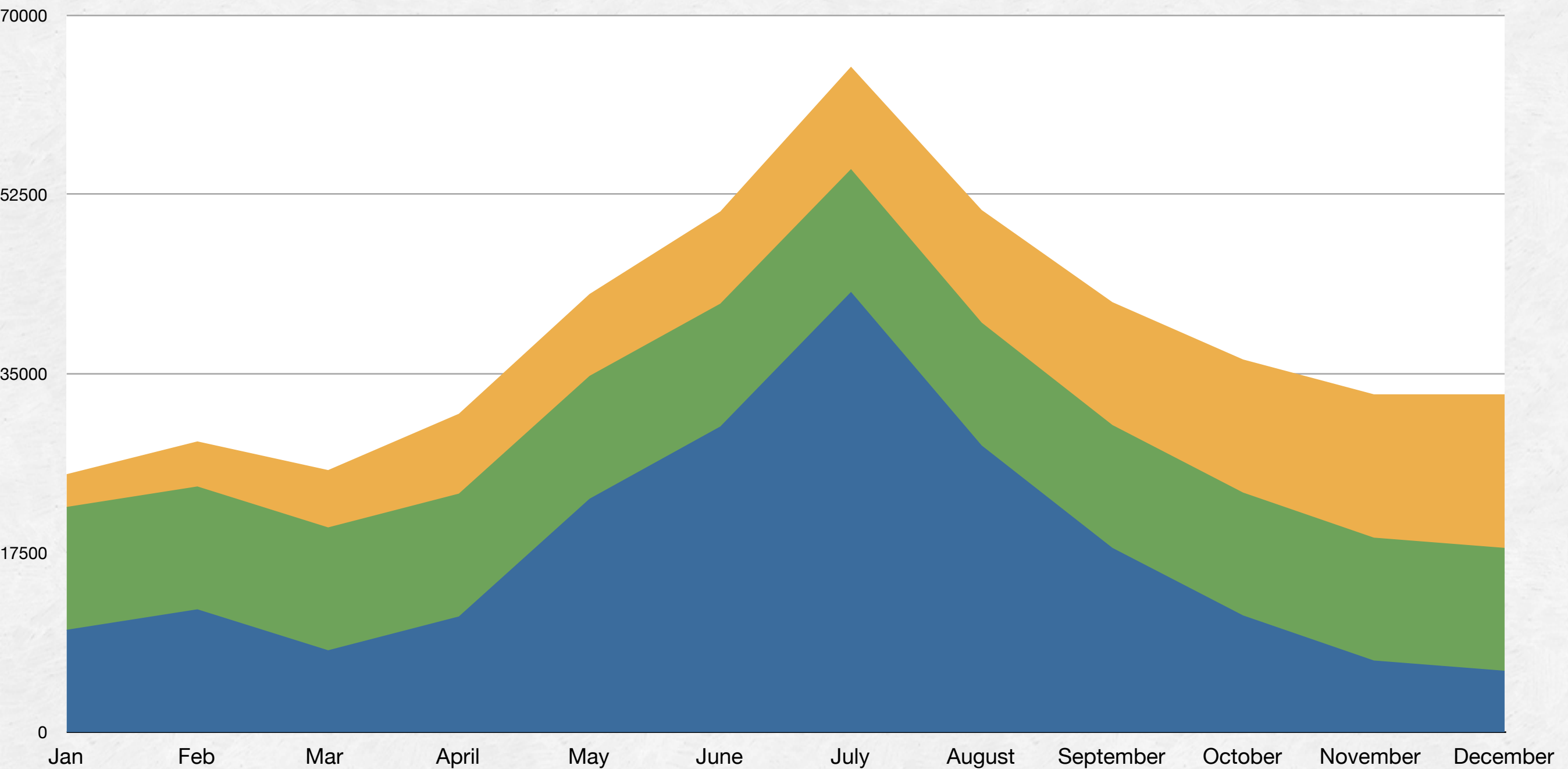
How has the browser market changed?

Has our revenue sources shifted recently?

STACKED BAR CHART

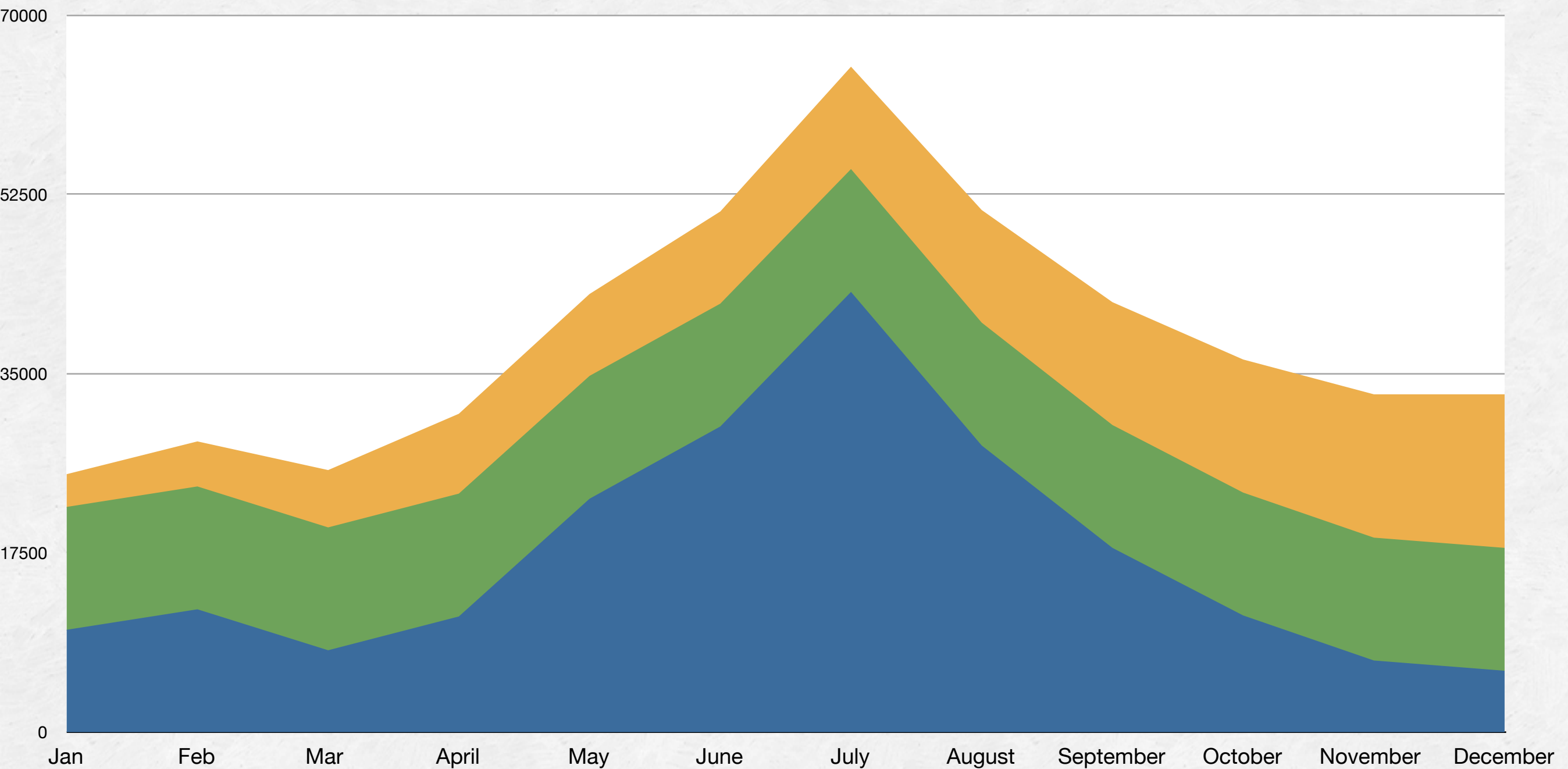


STACKED BAR CHART



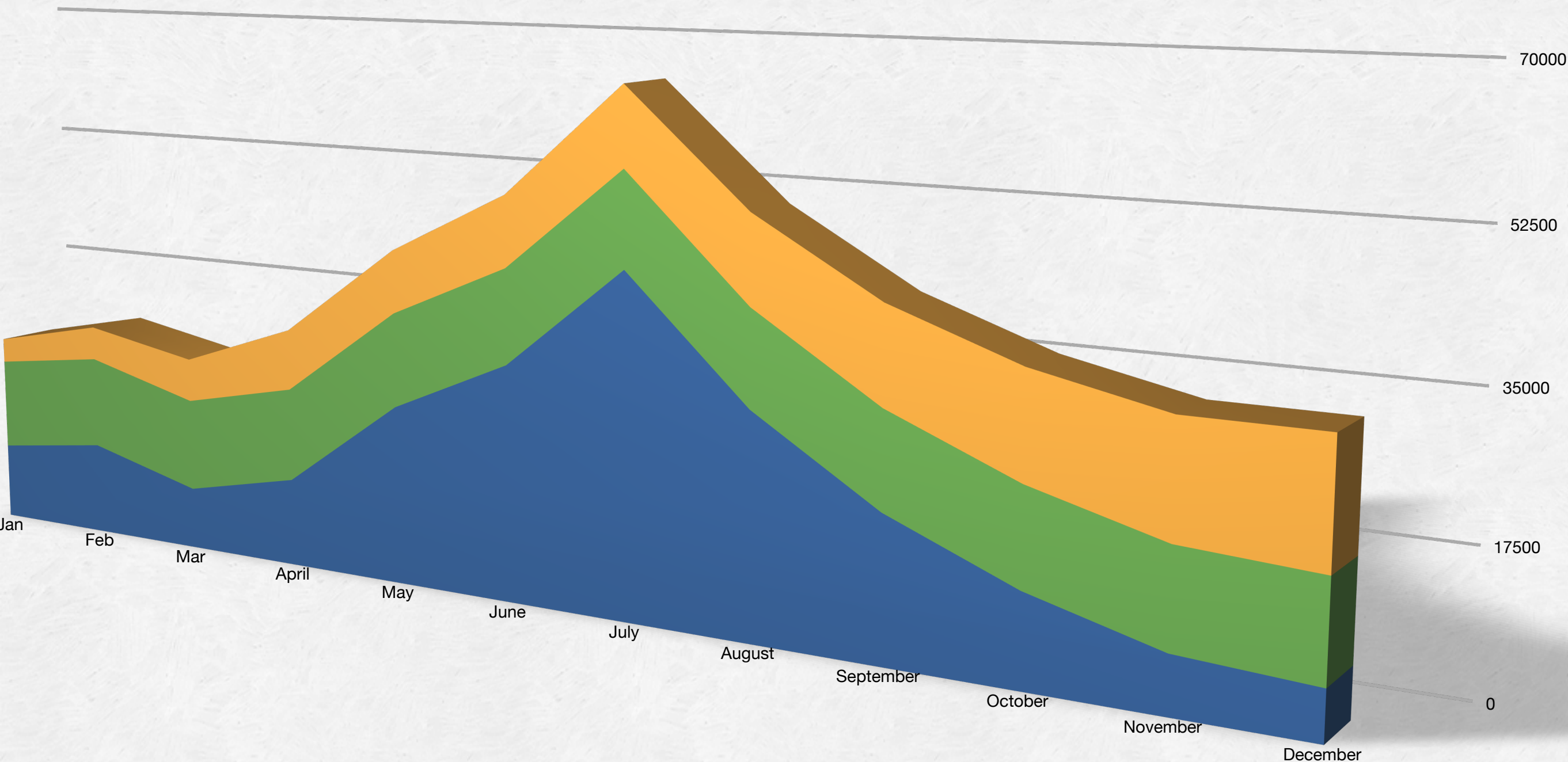
America peaked in July?

STACKED BAR CHART



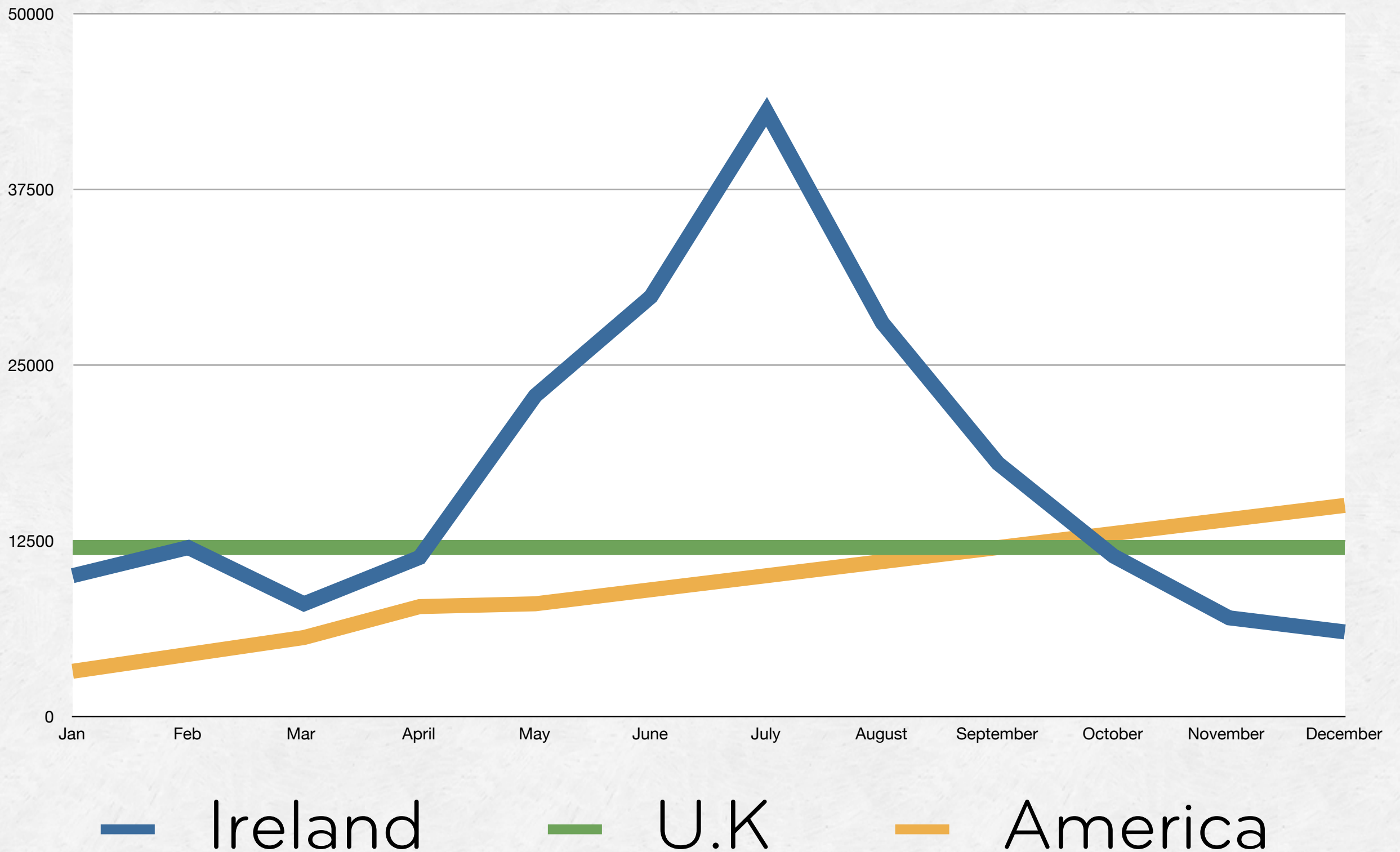
How has U.K. done?

LYING WITH DIMENSIONS

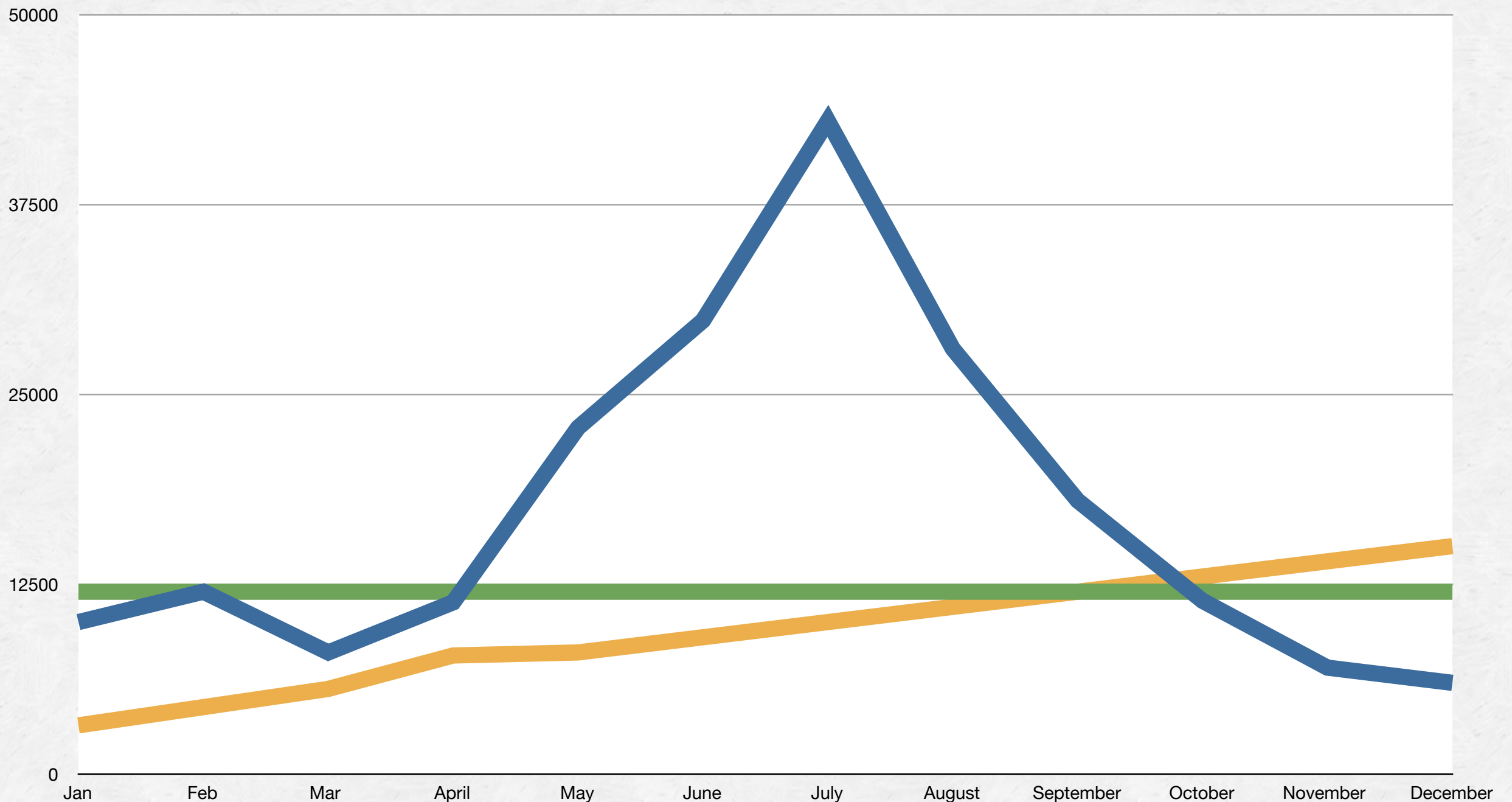


Lots more yellow pixels here now...

LET'S TRY A LINE CHART

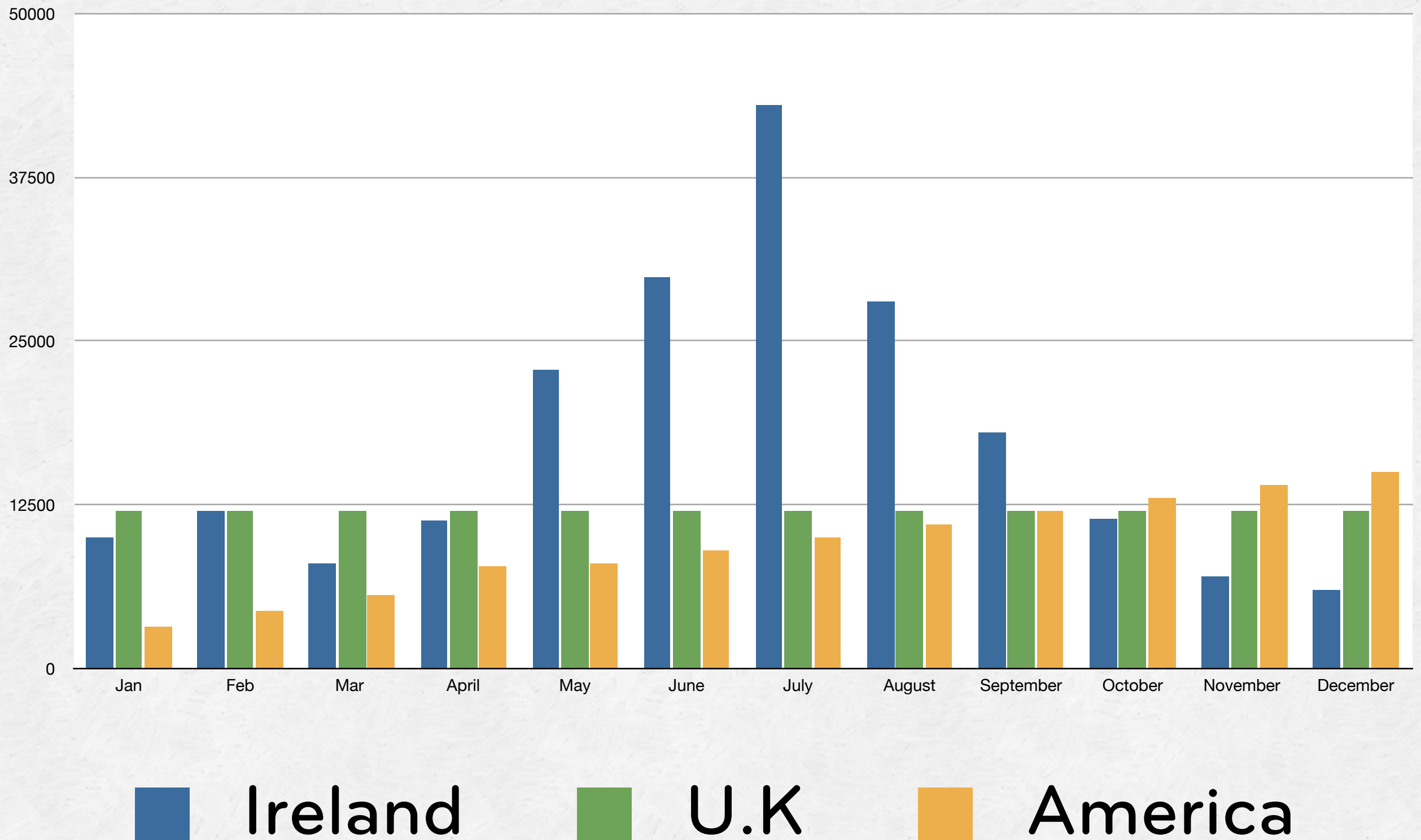


LINE CHART OF SAME DATA?

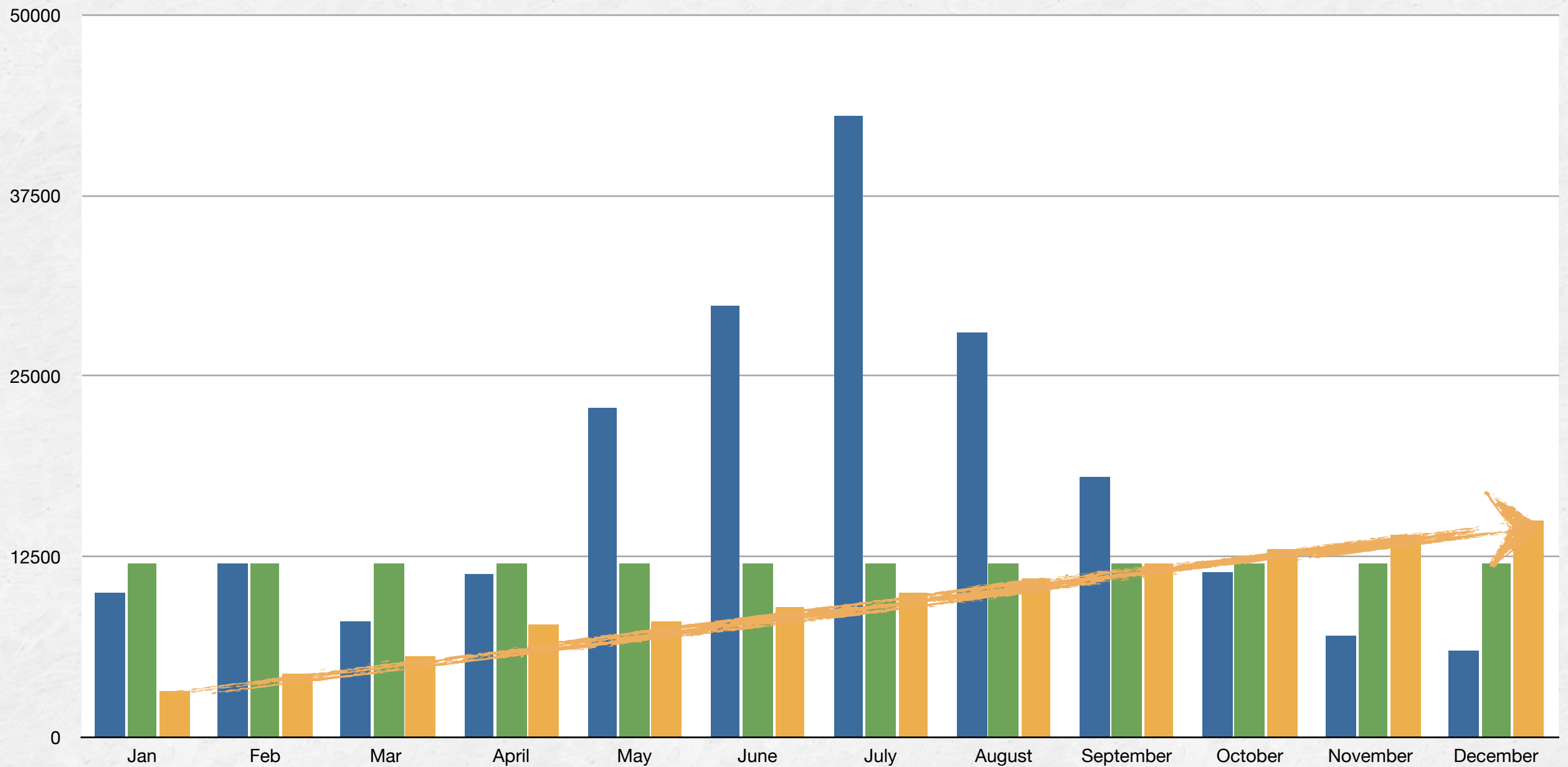


Same data. Different story.

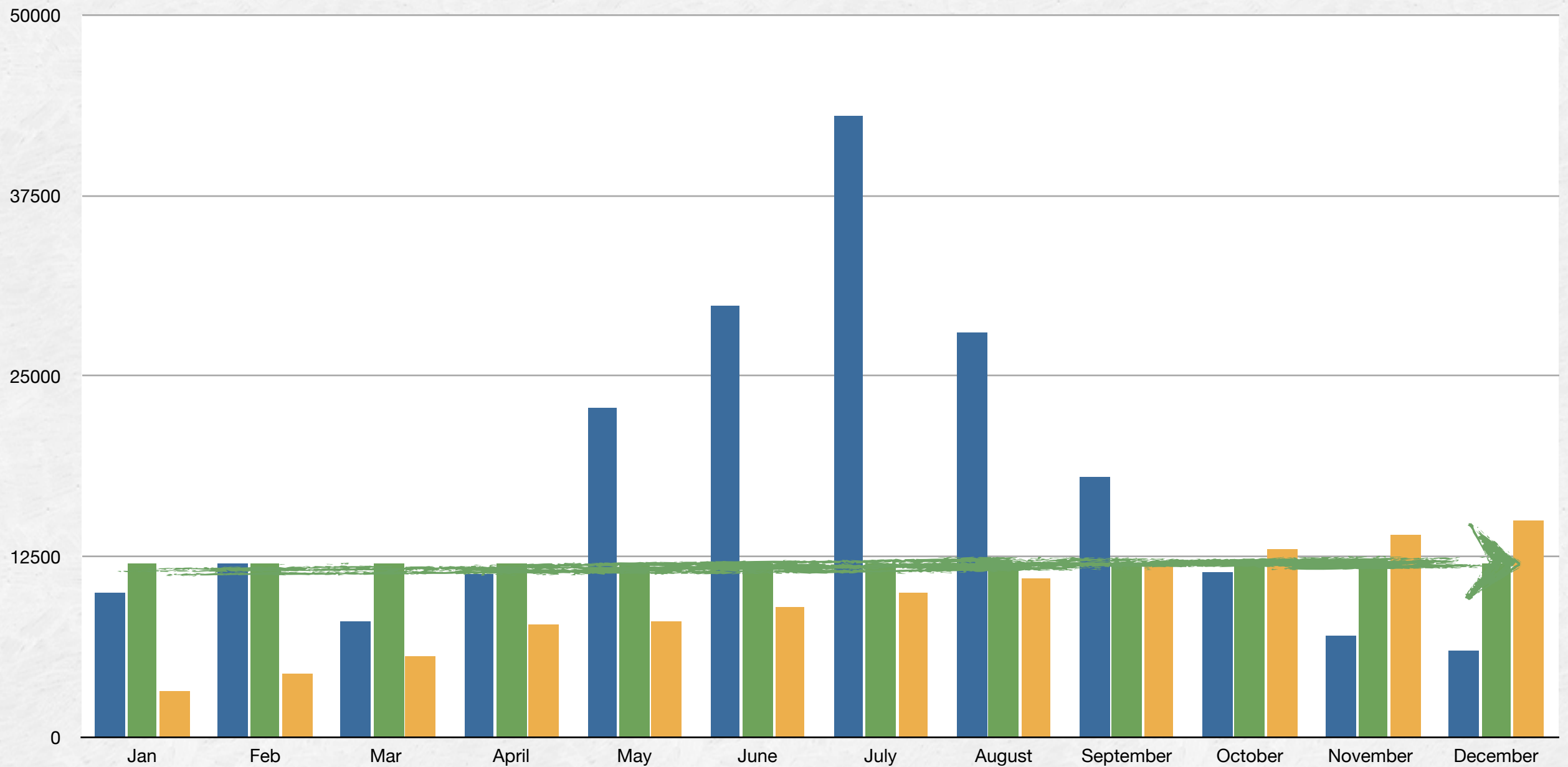
BAR CHARTS AGAIN?



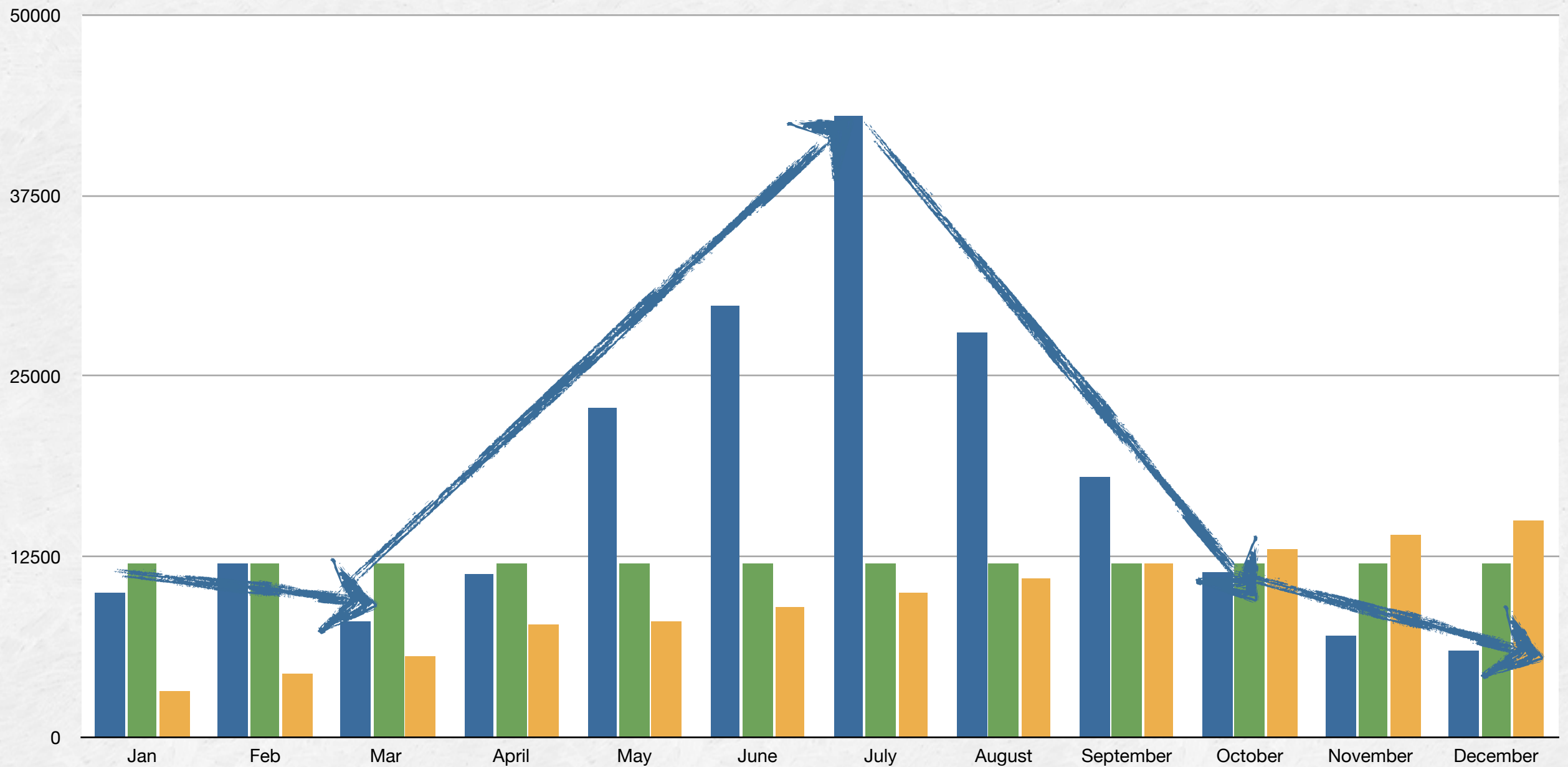
BAR CHARTS AGAIN?



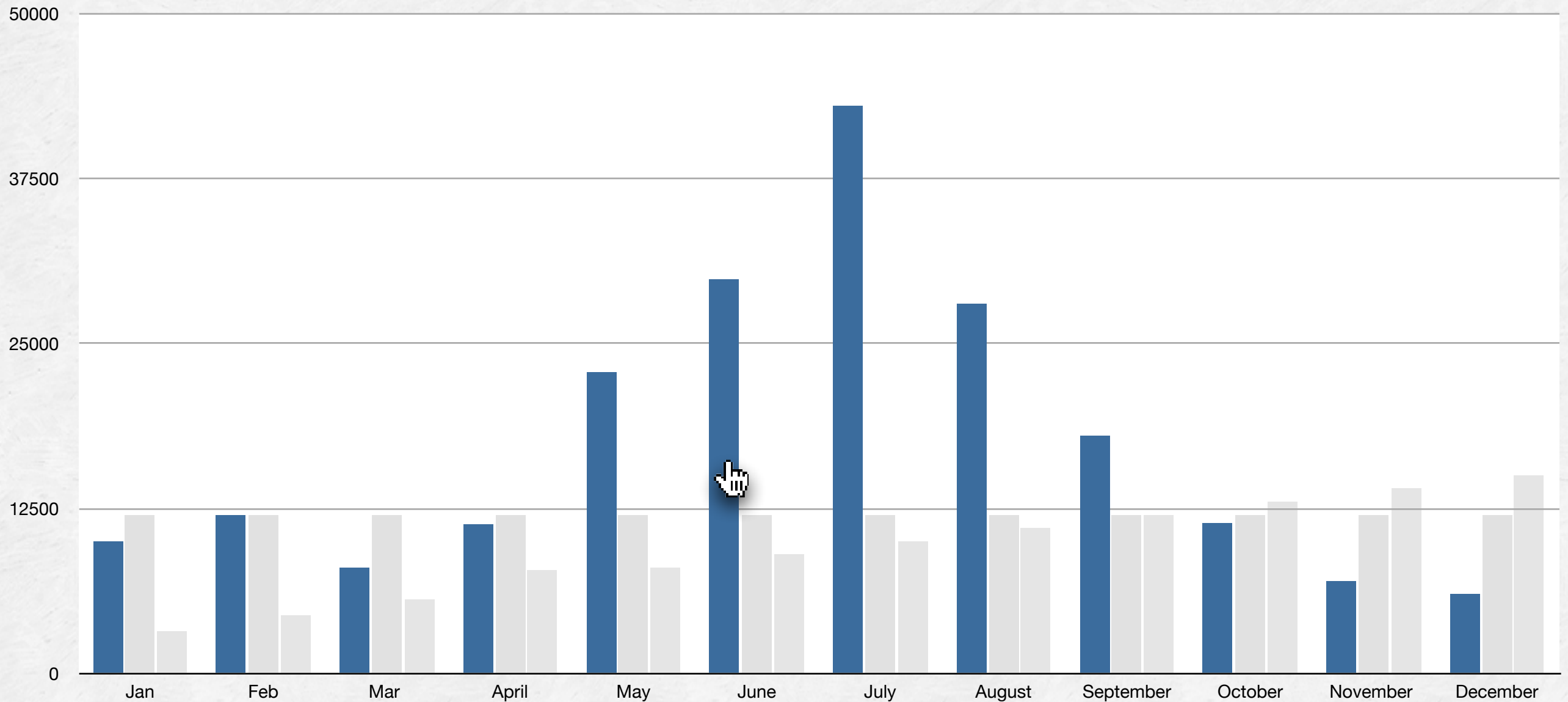
BAR CHARTS AGAIN?



BAR CHARTS AGAIN?

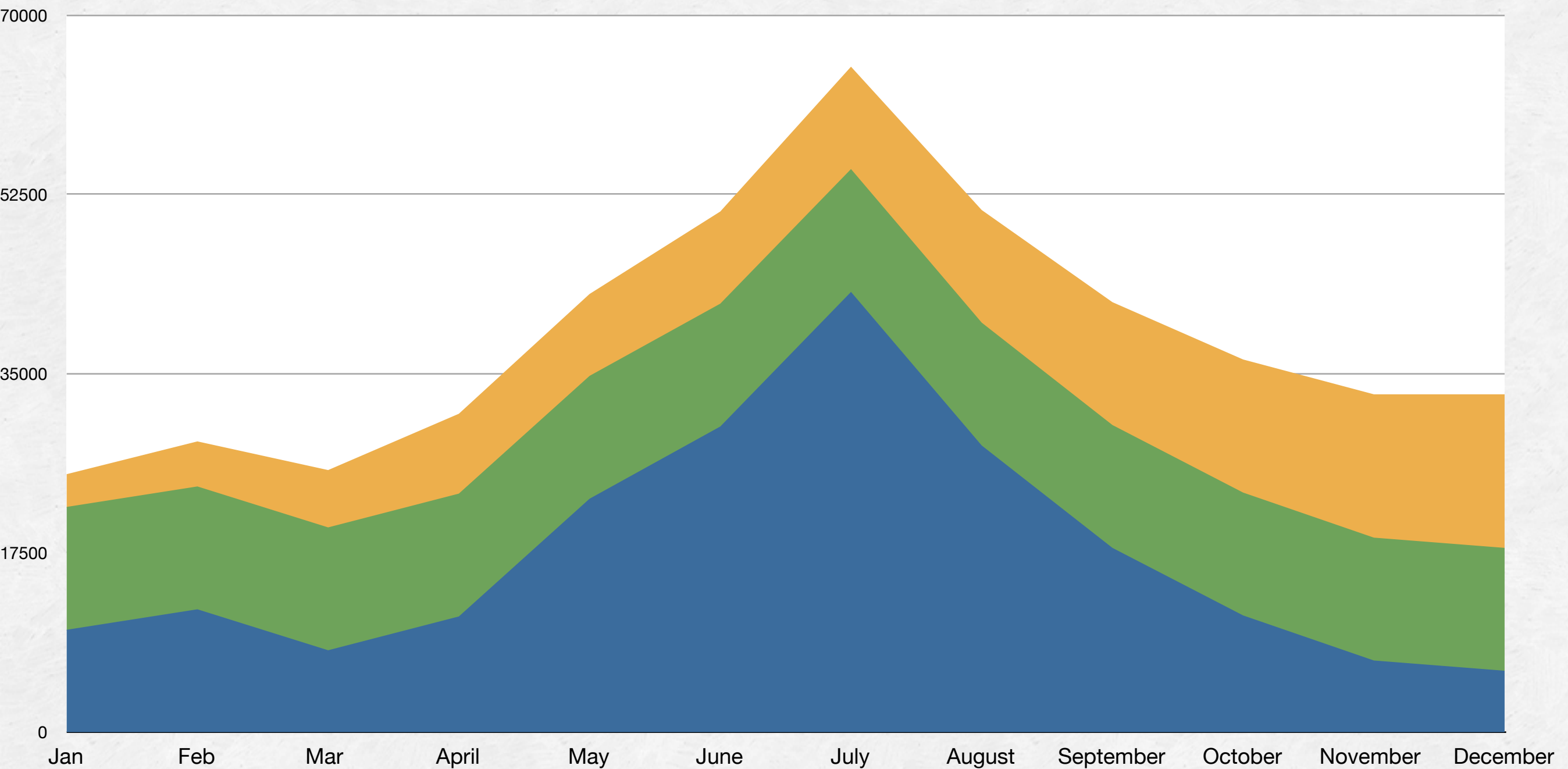


INTERACTIVE, REMEMBER?



You can adapt based on Interactions

STACKED BAR CHART

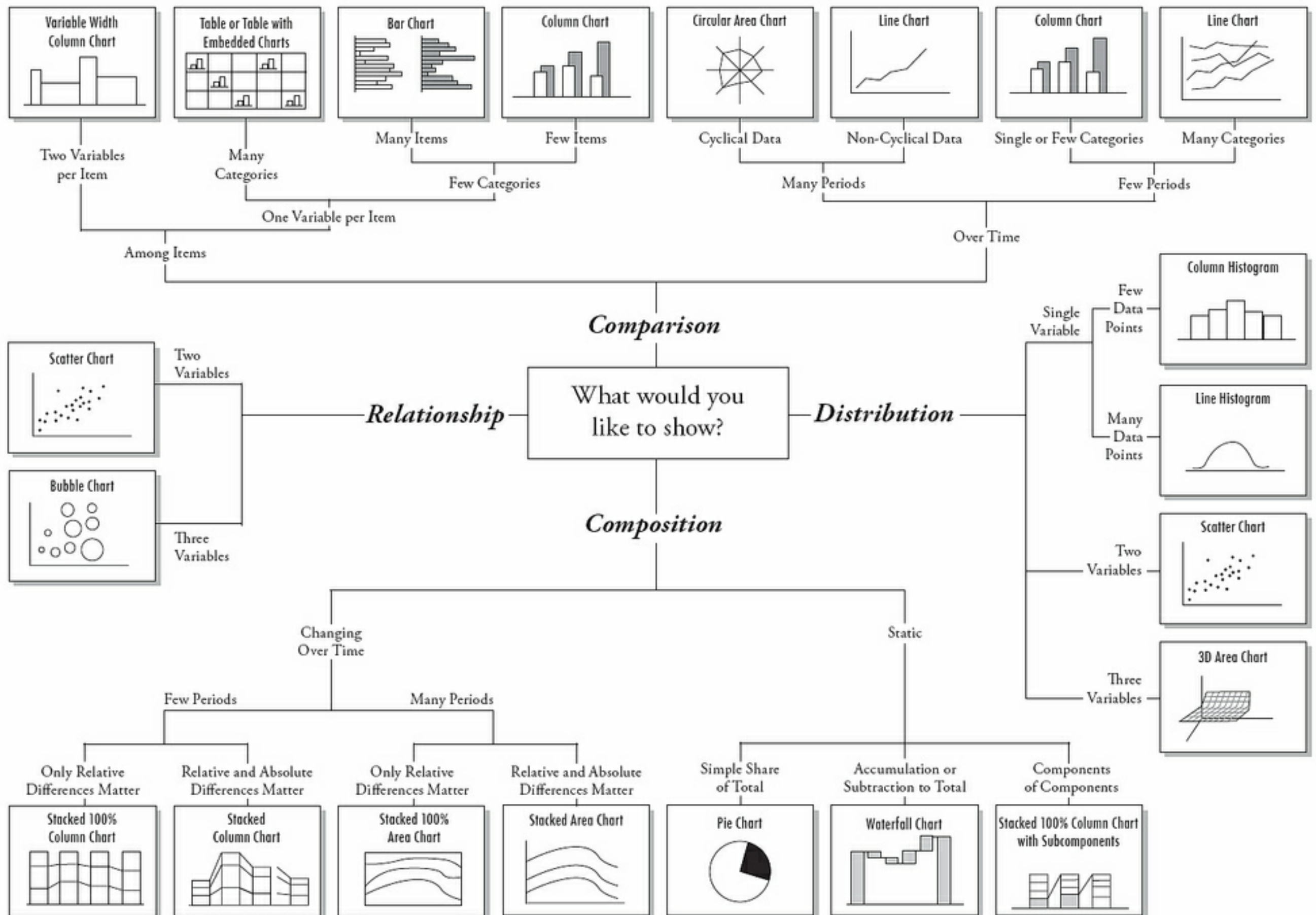


Why is it so hard to follow the U.K here?



If it was easy, we'd all be great at billiards

Chart Suggestions—A Thought-Starter



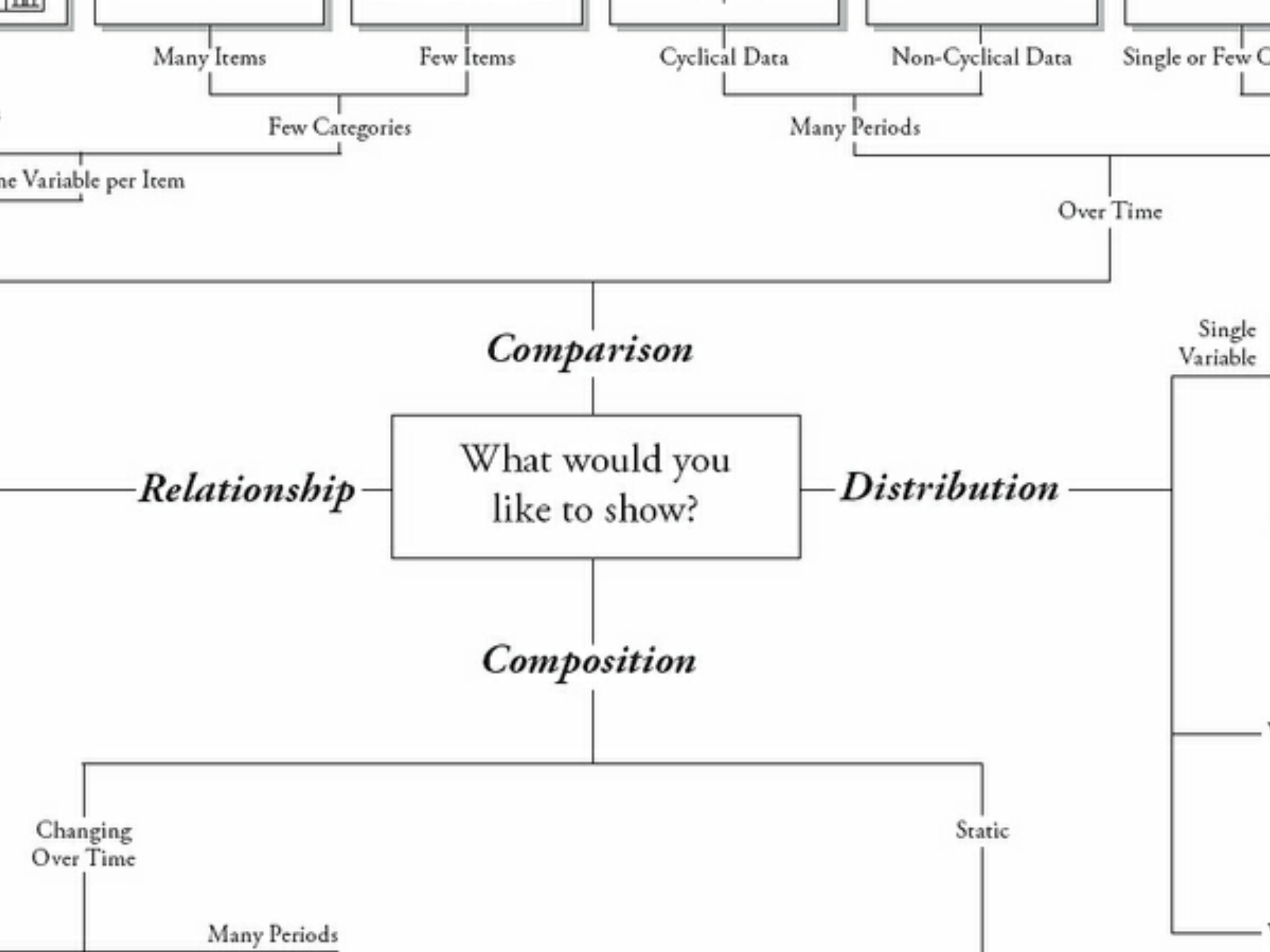
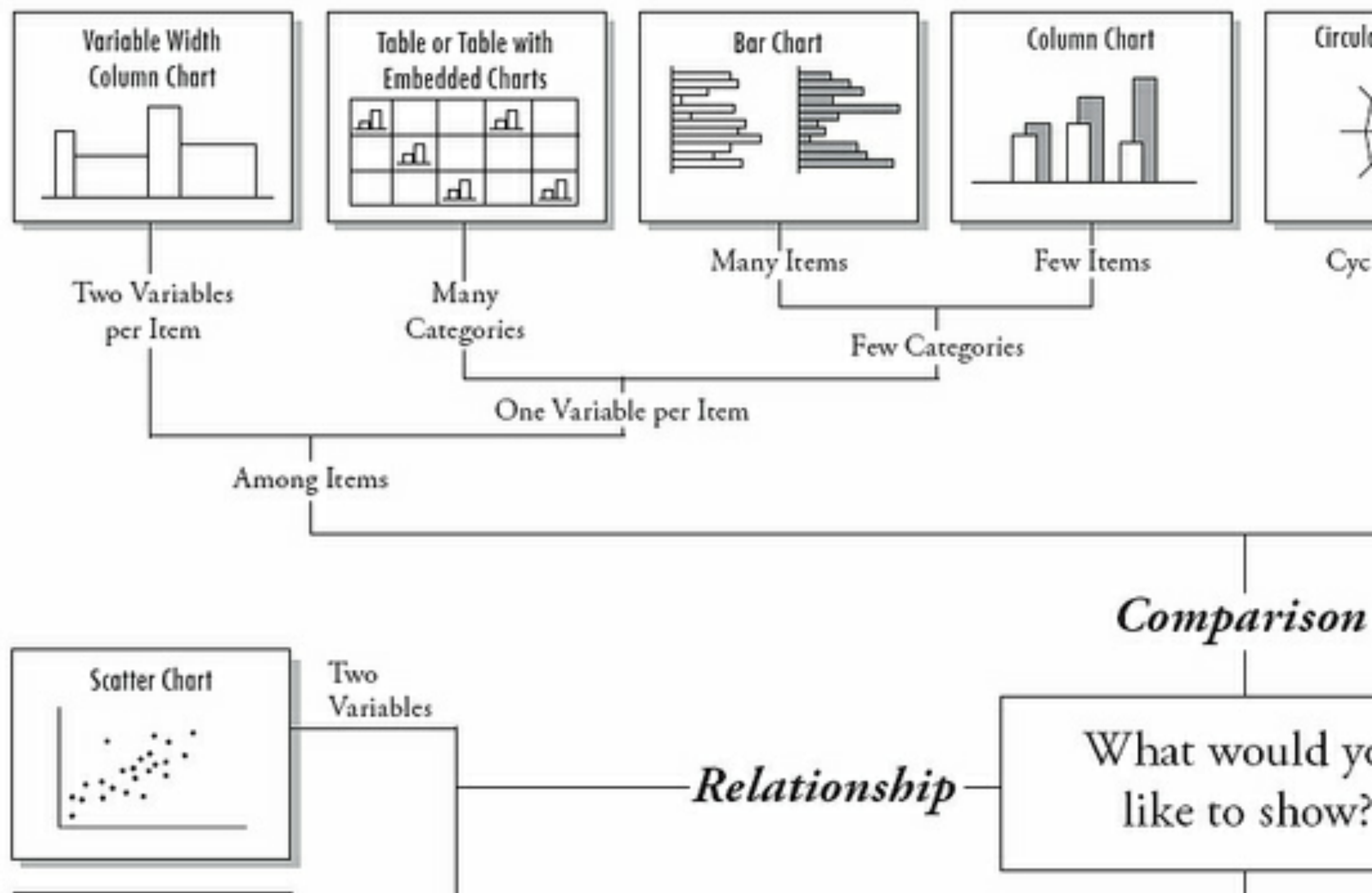
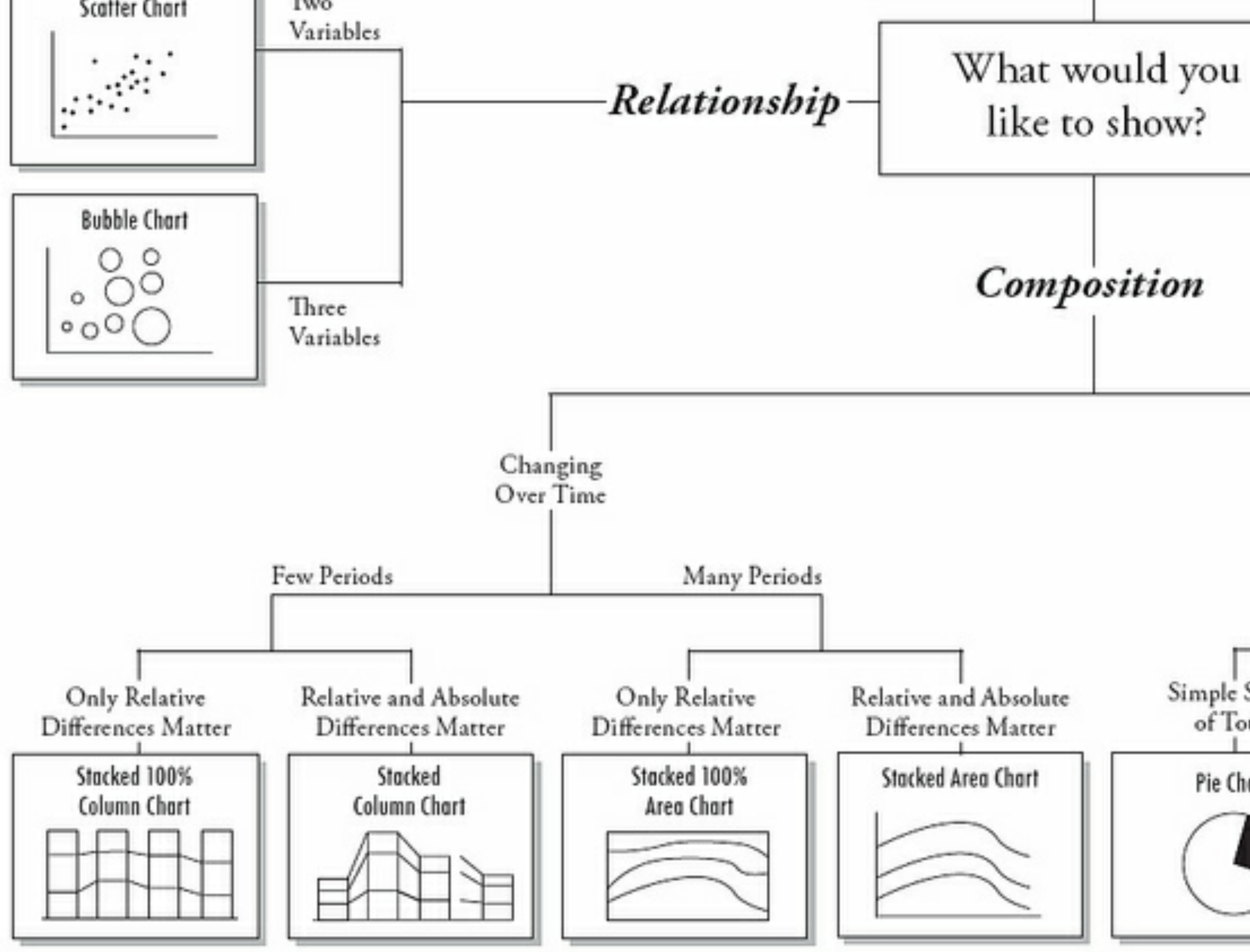


Chart Suggestions—A





TIME REMAINING

INTRO

KNOW YOUR AUDIENCE

KNOW YOUR DOMAIN

KNOW YOUR DATA

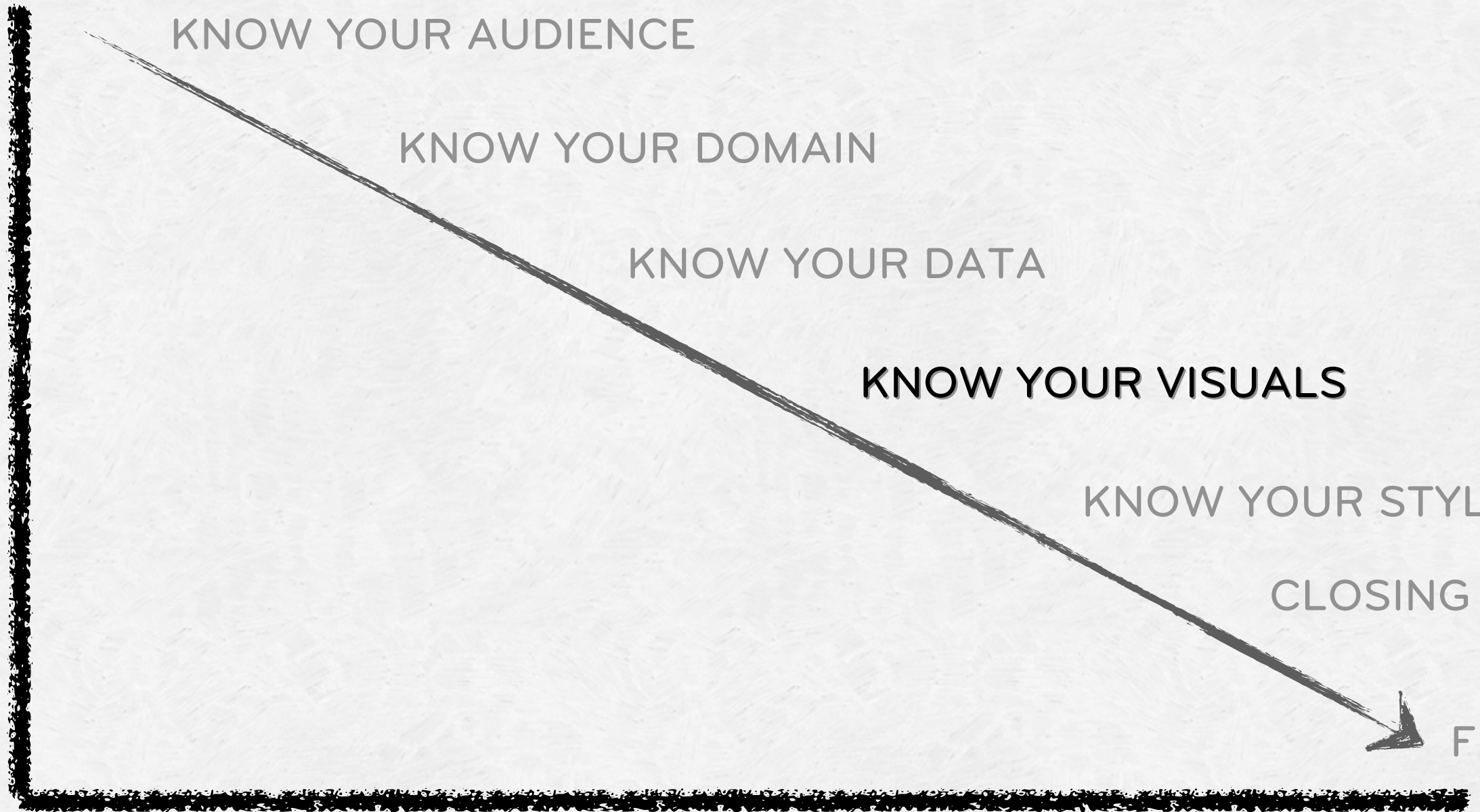
KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS

FIN

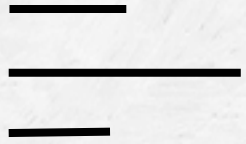
TOPIC



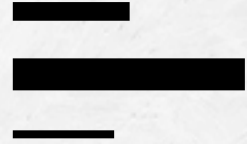
Visuals communicate 2 things.

Category

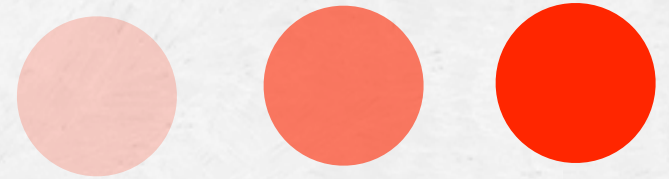
Quantity



Line length



Line width



Colour intensity

WAYS TO VISUALISE QUANTITY



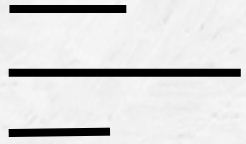
Size



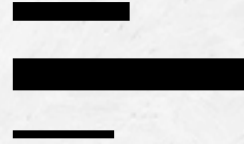
Quantity



Speed



Line length



Line width



Colour intensity

WAYS TO VISUALISE QUANTITY

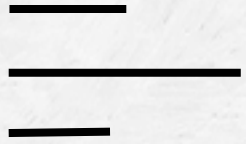


Size

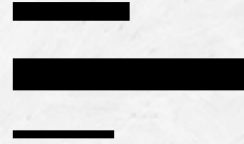


Quantity

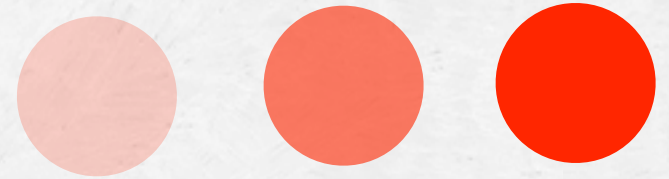
Speed



Line length



Line width



Colour intensity

WAYS TO VISUALISE QUANTITY



Size



Quantity



Sp

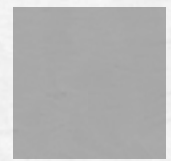
5th
Takeaway



Line type



Colour



Shape

HOW TO VISUALISE CATEGORY



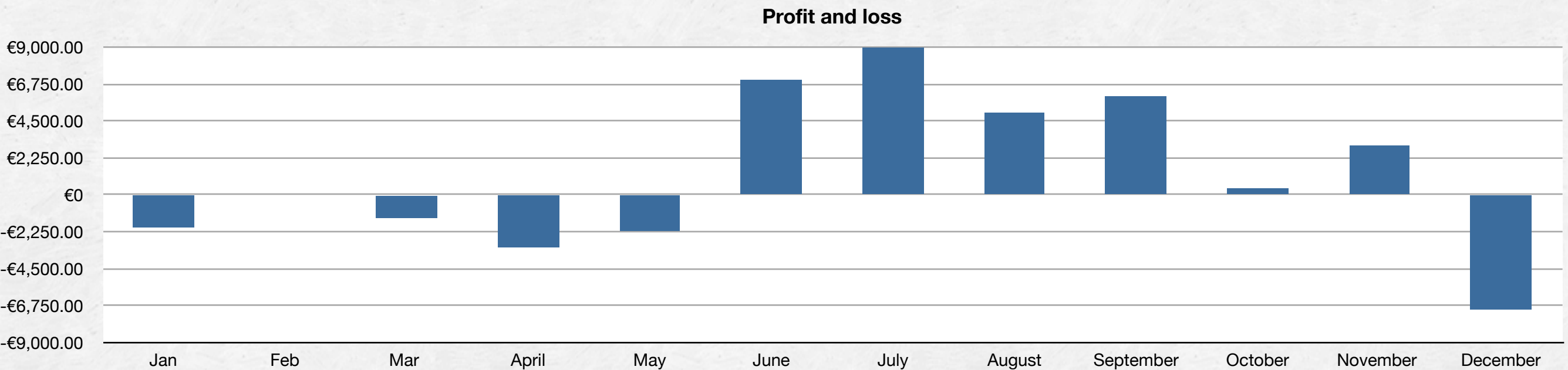
Location

HOW TO USE ALL THIS?

You've just taken over a hotel. You're handed the accounts. Excel hell. Where do we start?

Q: Are we making any money?

Profit is the delta between costs and revenue. Let's see that for the year.



Q: What makes us money?

Let's compare the percentage of revenue generated by each category.



Q: What sort of prices do we charge per room?

Let's look at the price range the median value



Design to support analyst queries...

MIDWEST HOTELZ

REPORT	TYPE	ROOM TYPE	PERIOD	GUEST TYPE
REVENUE ▼	ROOMS & EXTRAS	KING SUITES	LAST YEAR	ALL GUESTS

- PROFIT
- LOYALTY
- INCIDENTALS
- GUEST REPORT
- WEDDINGS
- CONFERENCES

Another example.

What the hell is going on in Europe?

It's All Connected: A Spectator's Guide to the Euro Crisis

Charting the web of debt exposure among sagging economies.

THE global financial system is highly interconnected. So problems in one part of the world can reverberate almost everywhere else — risking a cascade of default, contagion, contracting credit and collapsing economic activity. Exhibit A now is Europe.

European Union leaders are meeting this week to at last deal with a debt crisis rattling investors worldwide who once thought lending to euro zone countries was virtually risk-free. The graphic here helps you see the intertwined complexities.

1 It Starts With The Euro ...

In 1999, most countries in the European Union adopted the euro as a common currency. This union allowed poorer countries like Portugal, Italy, Ireland, Spain and Greece to borrow money at the same low interest rates as rich and financially prudent Germany, even though their inflation rates were higher. That gave them a strong incentive to borrow.

2 ... And Goes Bad In Greece ...

Greece financed a large public-welfare state and built up huge debt for its size that it has scant hope of repaying now. In 2000, European financial institutions began bailing out Greece (later Ireland and Portugal, too); lenders were prodded to agree to modest, voluntary debt write-downs, or "haircuts."

But Greece still needs money. And its credit bill grows ever larger as lenders charge more and demand government cutbacks, which in turn have provoked civil unrest. After years of propping up the spendthrift Greeks, the Germans are fed up.

The problem is, a chaotic Greek default could hurt all European banks and pension funds that have extended Greece credit down the years, and maybe cause a wider bank panic. So bailouts continue — for now, at least:

BEST CASE Bailouts in the form of new European credit eventually work. Greece pays down its hefty debts with a combination of growth and continued domestic austerity for years to come.

HOW TO READ THIS CHART

Arrows show imbalances of debt exposure between countries. Arrows point from debtors to their bank creditors; arrow widths are proportional to the balance of money owed. (Figures, released last week, are from June 2011, in billions of dollars.)

For example, French borrowers owe Italian banks \$50.6 billion; Italian borrowers owe French banks \$416.4 billion. The difference — their imbalance — shows France's banking system more exposed to Italian debtors by about \$365.8 billion.

There is no complete accounting of debt between countries. The Bank for International Settlements compiles the most detailed data, listing amounts that banks based in one country are exposed to by debtors in other countries, both government and private.

THE COLOR OF TROUBLE

The risk to countries' debts and economies is indicated by color:

More worrisome →

COMPARISON OF ECONOMIES Circle sizes indicate the scale of each country's gross domestic product, in dollars.

SCALE OF GOVERNMENT INDEBTEDNESS Each country's gross government debt as a percentage of its G.D.P., as tallied by the International Monetary Fund.

Spain
G.D.P. \$1.4 TRILLION

56%

5 ... And Reach American Shores ...

American lenders and money-market funds are already moving their money out of European banks, which are balking at lending to one another, writes the economist Laurence Kotlikoff. "This is exactly what happened before the bankruptcy of Lehman Brothers Holdings Inc. in 2008," he adds.

American banks are heavily exposed to Spain, Ireland and Italy. (American banks' exposure to Greece is smaller and less direct.) On top of this, American exports to the European Union — collectively the biggest American trading partner — could suffer if the crisis slowed European growth and caused the euro to depreciate against the dollar.

6 ... Unless Bailouts Are Big Enough ...

The troubled euro zone could, by some estimates, require about \$1.3 trillion to \$2.06 trillion in bailouts — an amount perhaps bigger than the Spanish G.D.P. or more than half the size of the German economy.

The bailout fund set up last year by euro zone countries goes by the ungainly title of European Financial Stability Facility. The fund has only about \$460 billion on hand. Here are total European bank exposures to the five most distressed economies, according to the Bank for International Settlements, compared with the size of each economy:

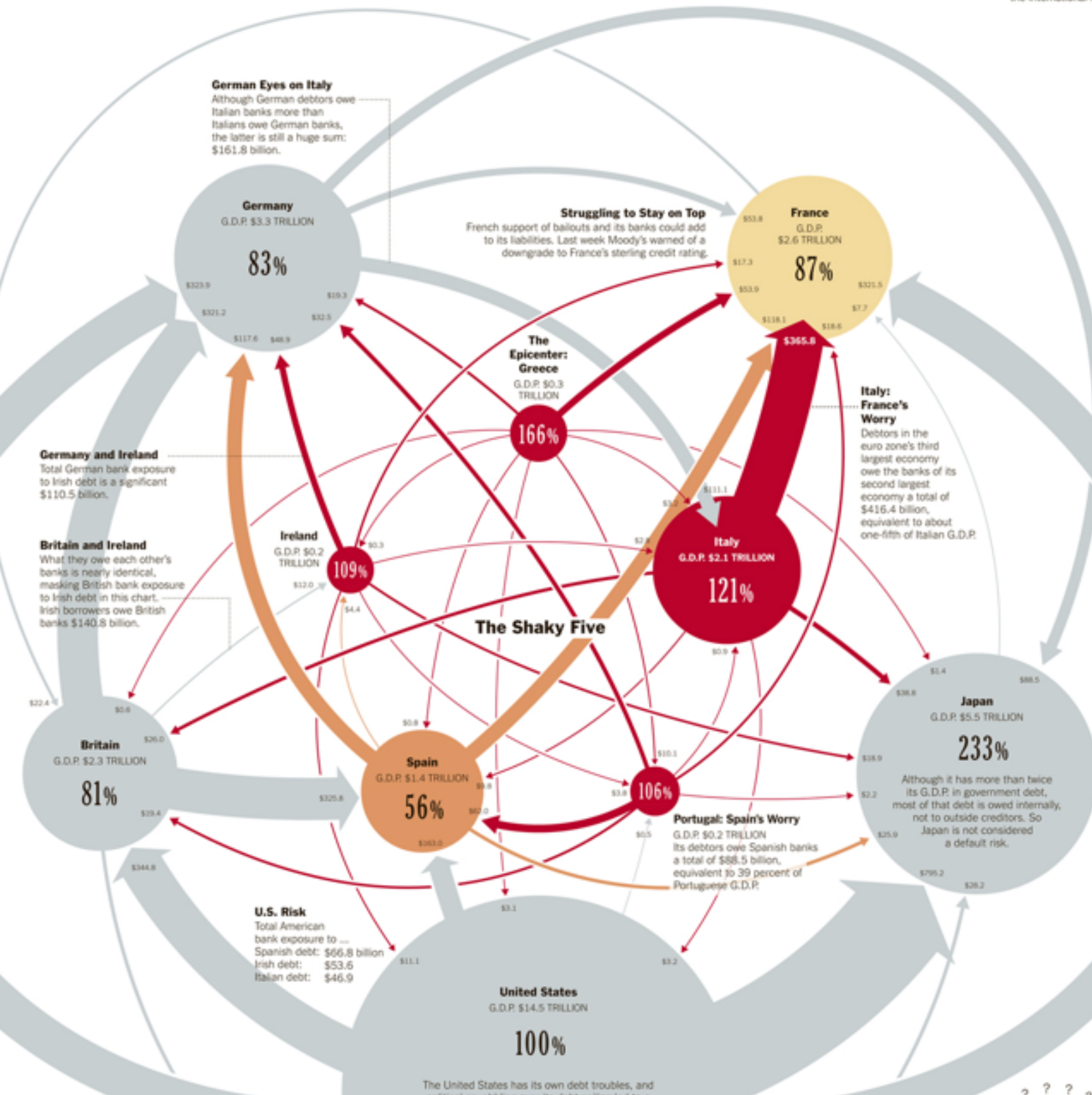
		EQUIVALENT PERCENT OF EACH COUNTRY'S G.D.P.
Italy	\$837.5 BILLION	41%
Spain	\$643.2	46%
Ireland	\$380.1	184%
Portugal	\$196.7	86%
Greece	\$120.8	40%
TOTAL	\$2.178 TRILLION	

7 ... One of Many Crisis Unknowns

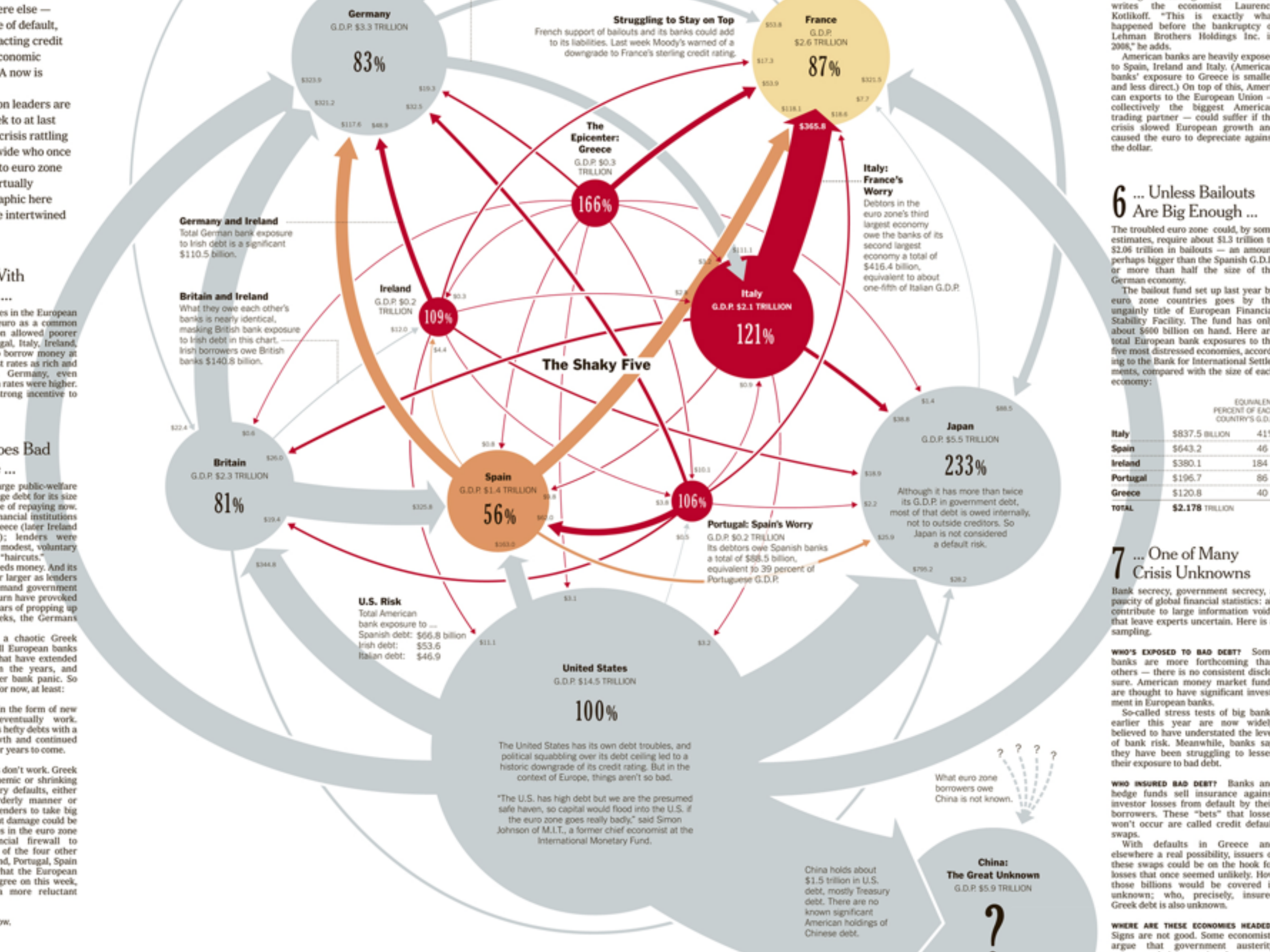
Bank secrecy, government secrecy, a paucity of global financial statistics: all contribute to large information voids that leave experts uncertain. Here is a sampling.

WHO'S EXPOSED TO BAD DEBT? Some banks are more forthcoming than others — there is no consistent disclosure. American money market funds are thought to have significant investment in European banks.

So-called stress tests of big banks earlier this year are now widely believed to have understated the level of bank risk. Meanwhile, banks say they have been struggling to lessen



The United States has its own debt troubles, and national savannahs over its debt ceiling led to a



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The bailout fund set up last year by euro zone countries goes by the ungainly title of European Financial Stability Facility. The fund has only about \$600 billion on hand. Here are total European bank exposures to the five most distressed economies, according to the Bank for International Settlements, compared with the size of each economy:

		EQUIVALENT PERCENT OF EACH COUNTRY'S G.D.P.
Italy	\$837.5 BILLION	41%
Spain	\$643.2	46%
Ireland	\$380.1	18%
Portugal	\$196.7	86%
Greece	\$120.8	40%
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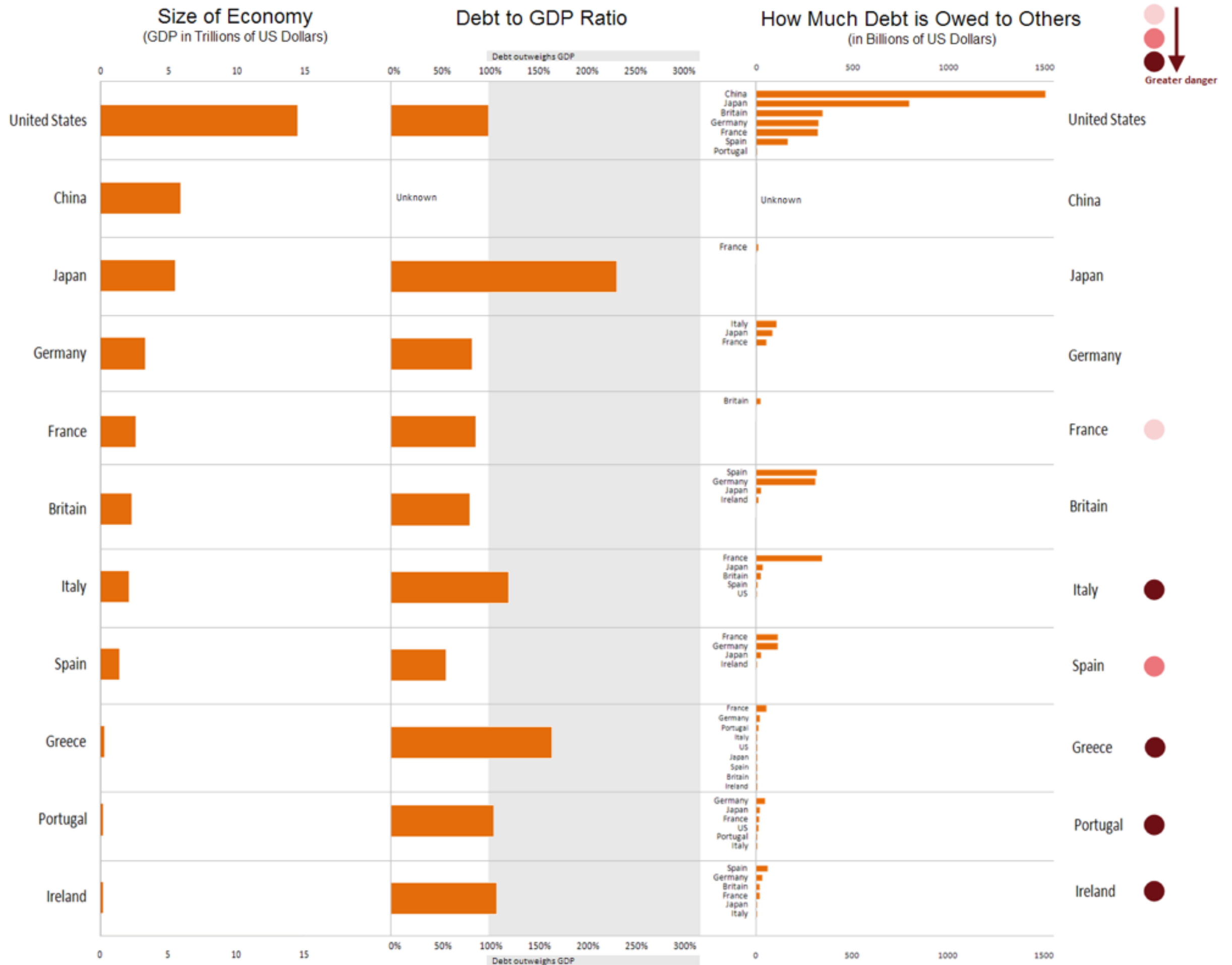
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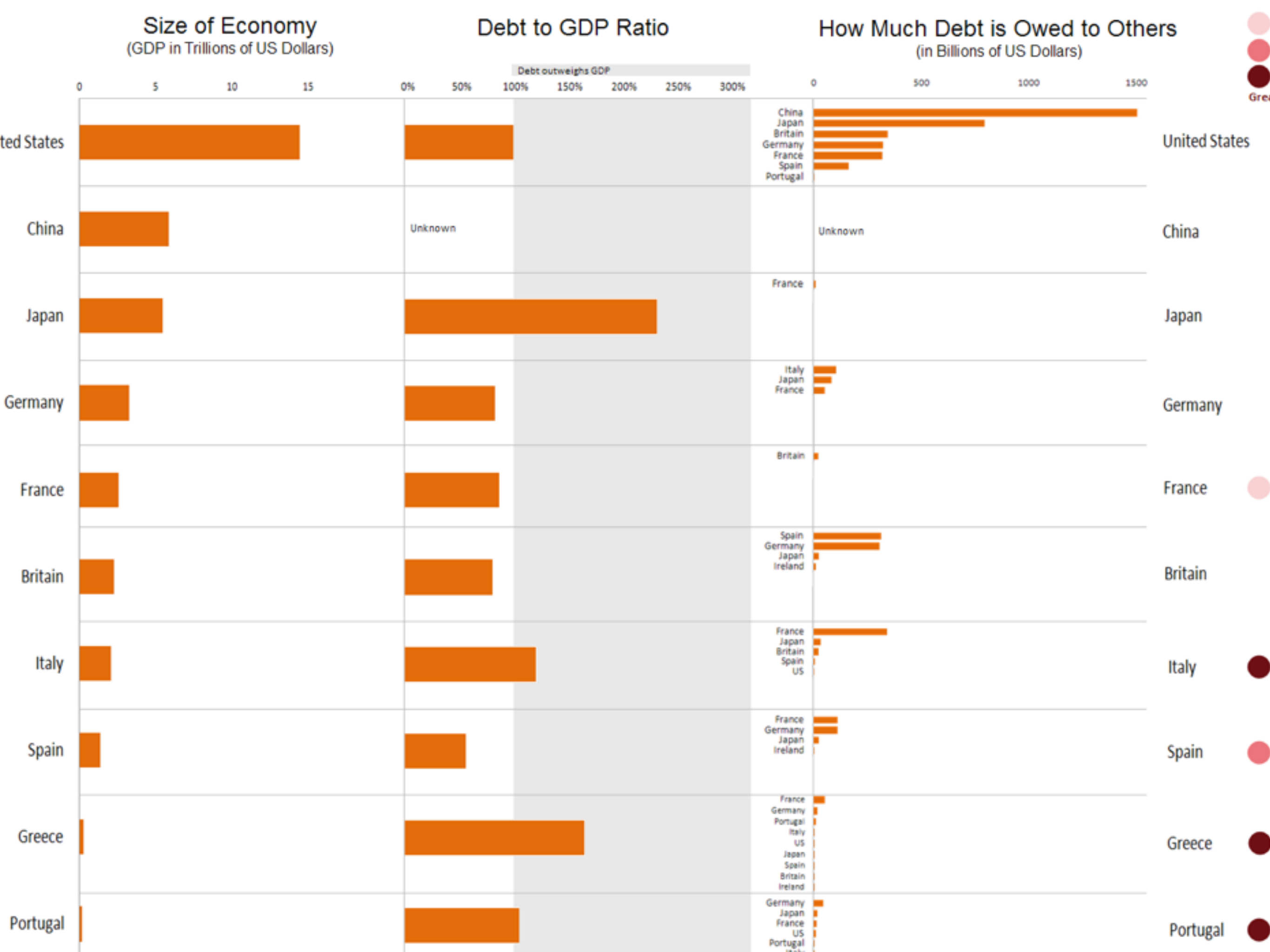
So-called stress tests of big banks earlier this year are now widely believed to have understated the level of bank risk. Meanwhile, banks say they have been struggling to lessen their exposure to bad debt.

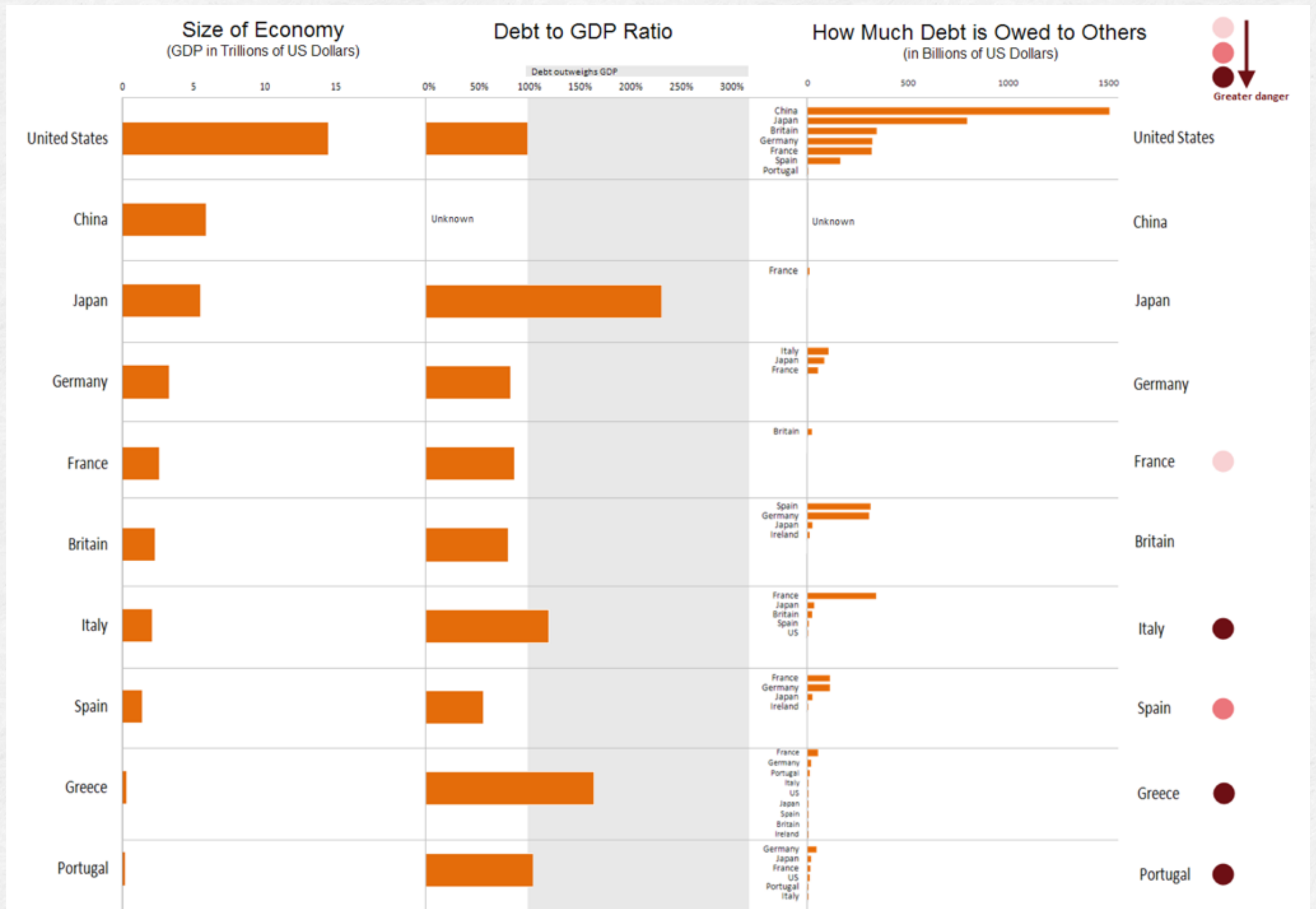
WHO INSURED BAD DEBT? Banks and hedge funds sell insurance against investor losses from default by their borrowers. These "bets" that losses won't occur are called credit default swaps.

With defaults in Greece and elsewhere a real possibility, issuers of these swaps could be on the hook for losses that once seemed unlikely. How those billions would be covered is unknown; who, precisely, insured Greek debt is also unknown.

WHERE ARE THESE ECONOMIES HEADED? Signs are not good. Some economists argue that government austerity







Credit: S. Few & Tom Watkins

TIME REMAINING

INTRO

KNOW YOUR AUDIENCE

KNOW YOUR DOMAIN

KNOW YOUR DATA

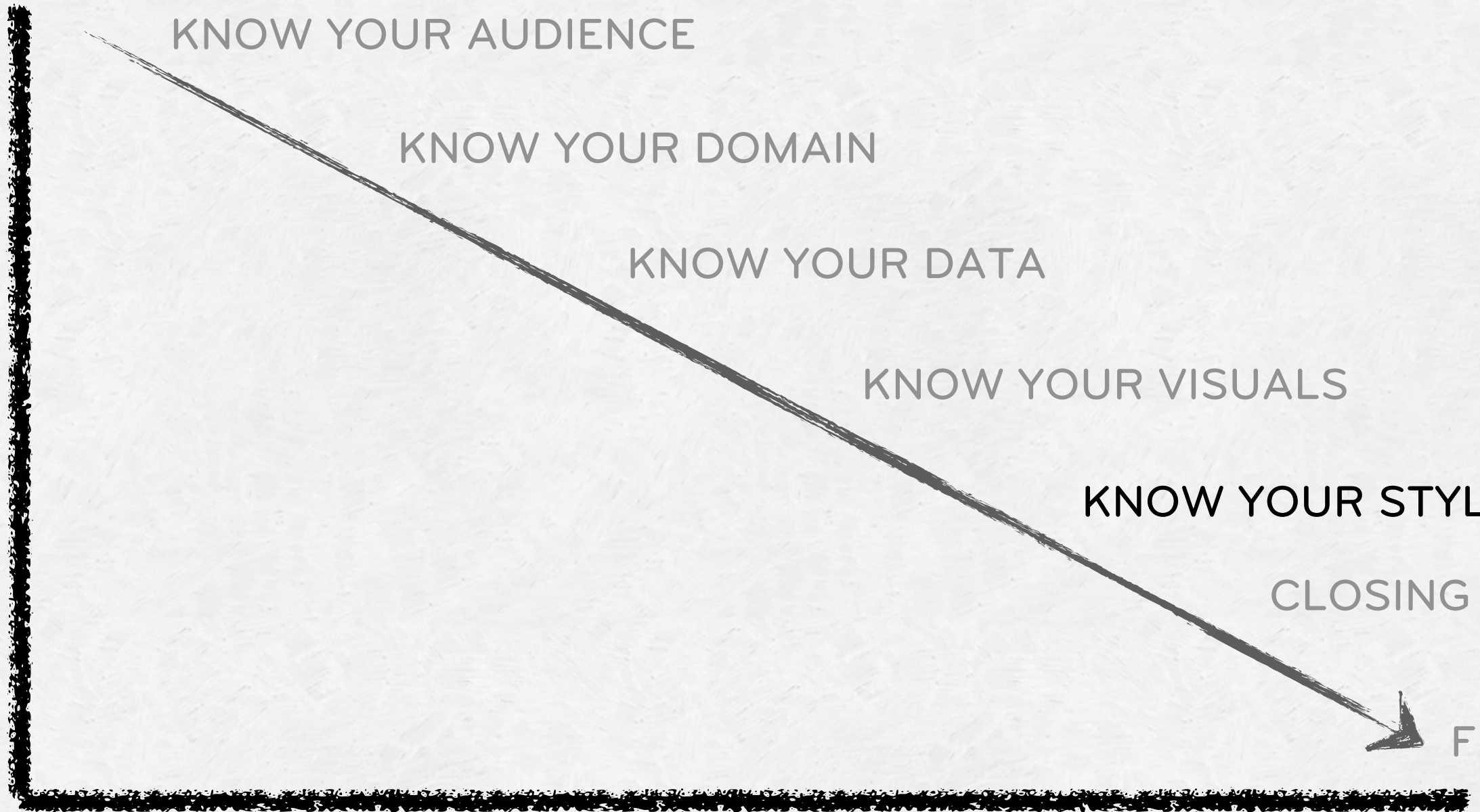
KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS

FIN

TOPIC



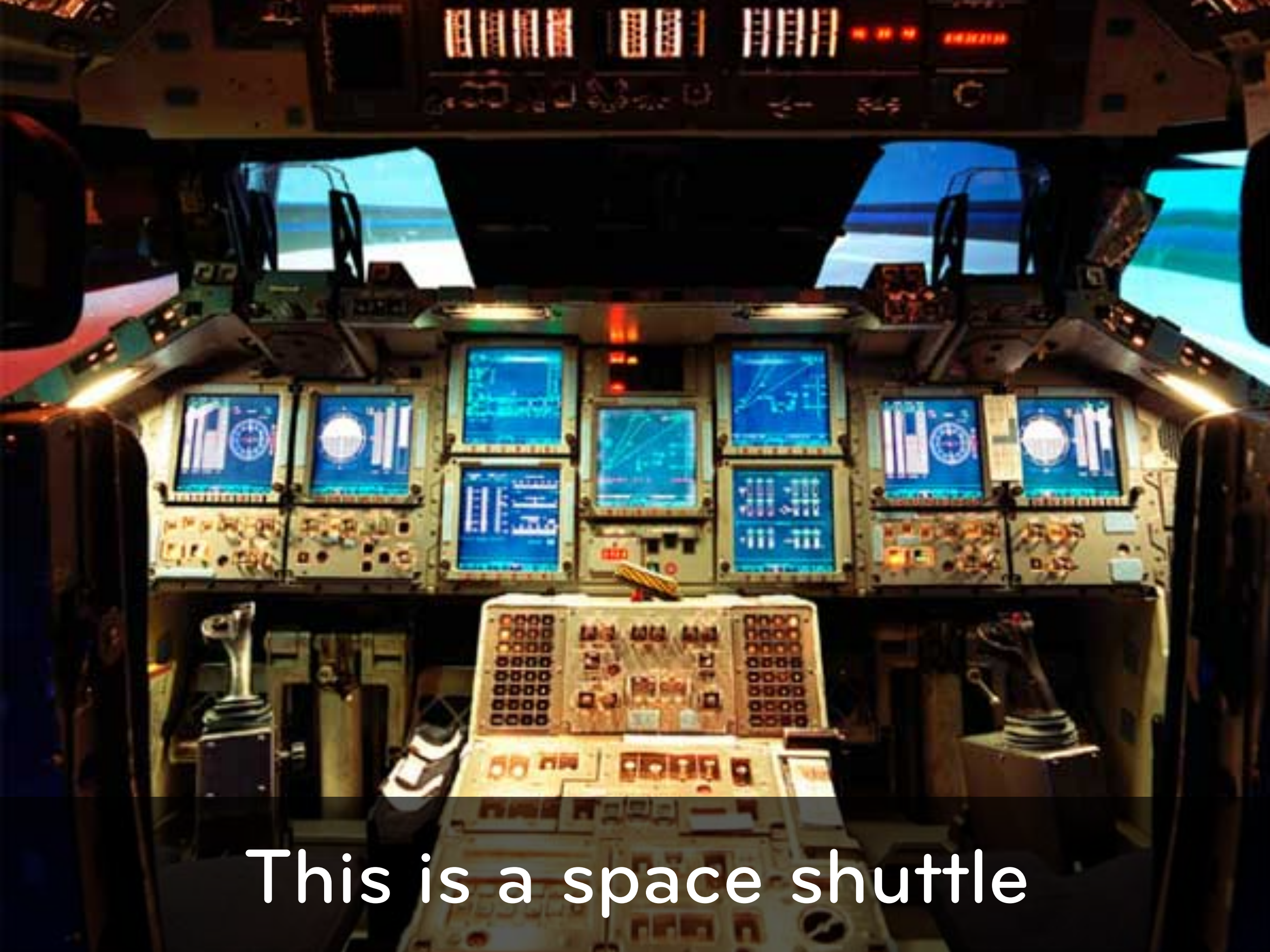
A WORD ON CONTEXT



This is a car.



This is a Nuclear power station.



This is a space shuttle



This is none of those things...



Chances are this is where your user is

The point is, we're not
always fighting for
attention.

Sales Report Jan 2012

ORDERS
12,247

CHANGE
▲ 0.32%



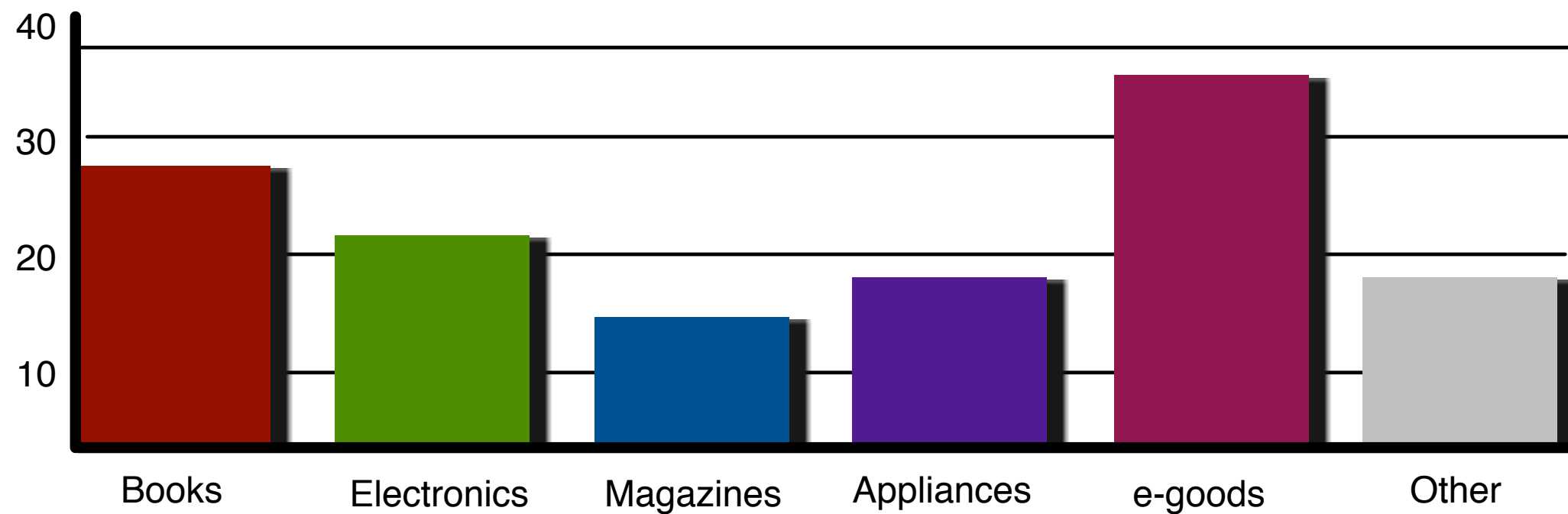
ACCOUNTS
7,343

CHANGE
▲ 4.32%



- SITE LIVE
- PAYMENT LIVE
- FULFILLMENT ON

Revenue per product



Top products

Product	Orders	\$ Revenue
---------	--------	------------

Sales Report Jan 2012

ORDERS
12,247

CHANGE
▲ 0.32%



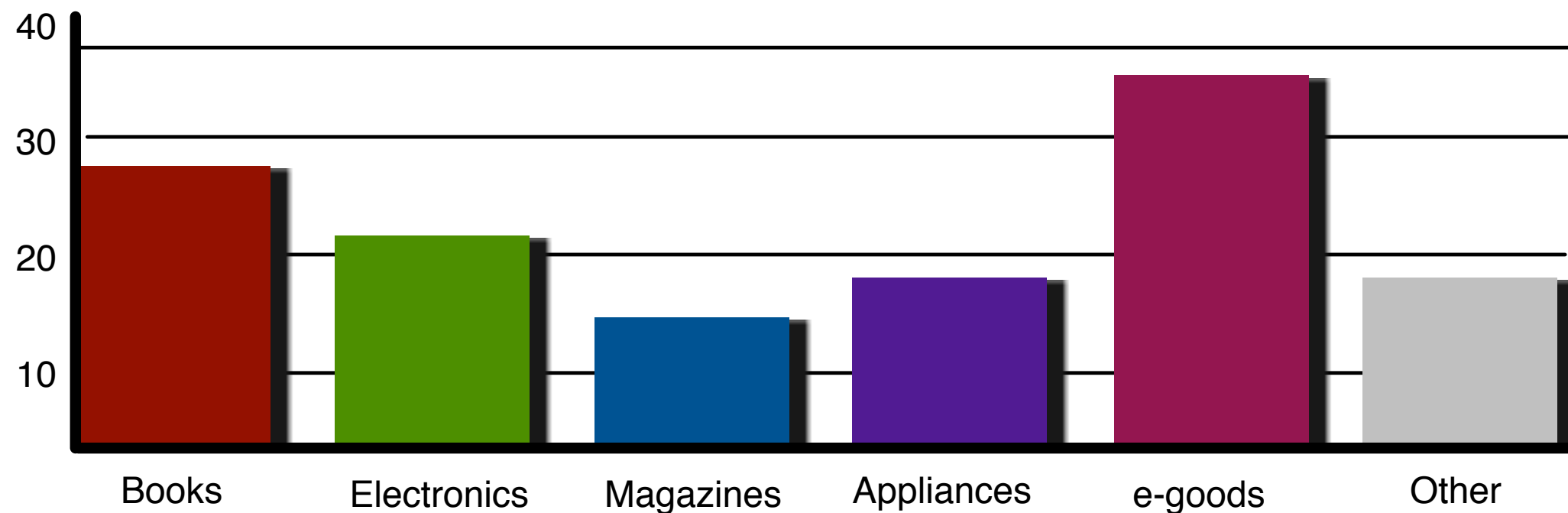
ACCOUNTS
7,343

CHANGE
▲ 4.32%



- SITE LIVE
- PAYMENT LIVE
- FULFILLMENT ON

Revenue per product



Let's use this strawman

Let's take 3 points from Tufte



Chart junk: the stuff that doesn't change when the data changes



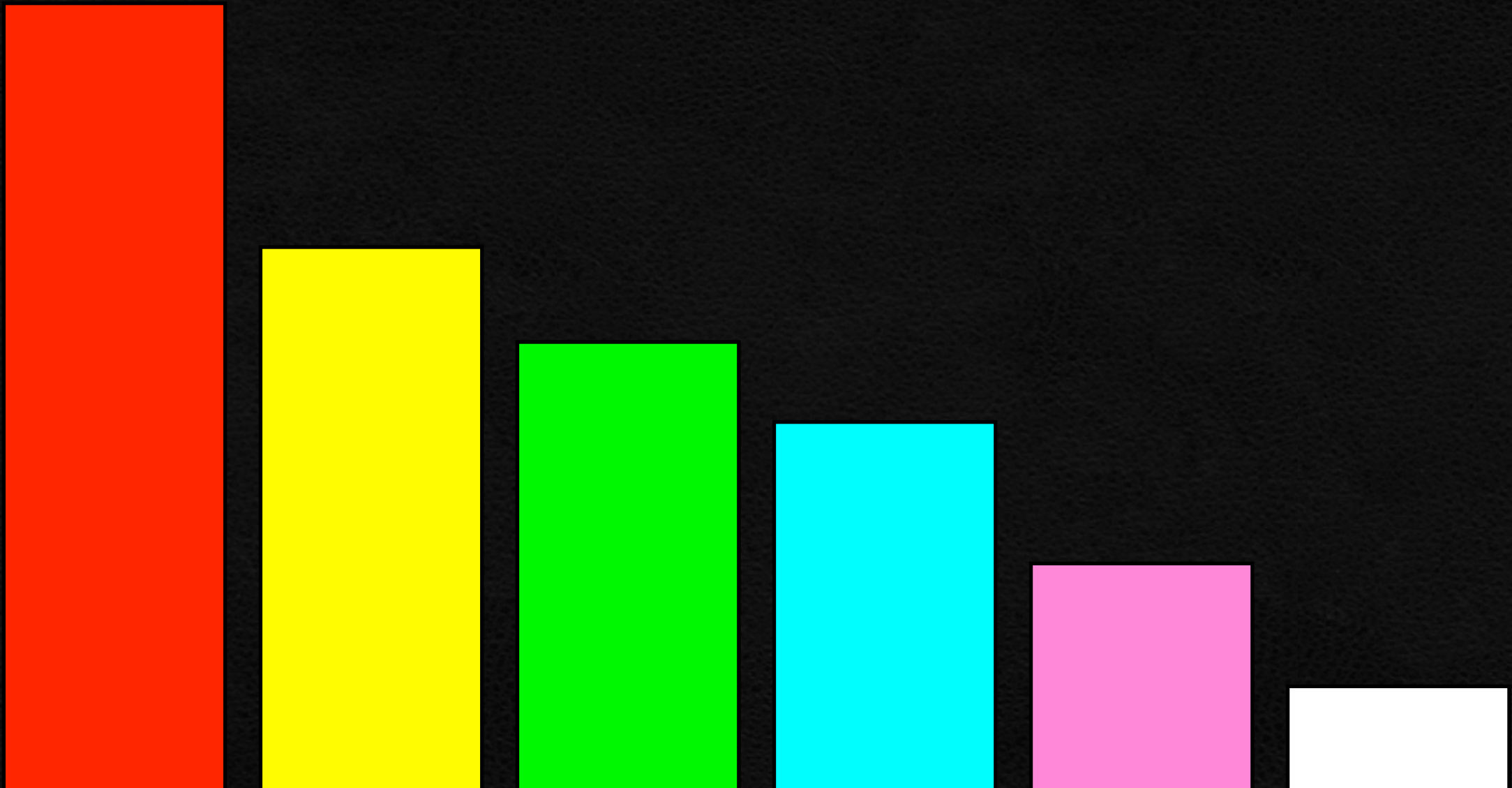
Data Ink Ratio: what percentage of your ink shows data



Smallest Effective Difference: the least you can do to highlight

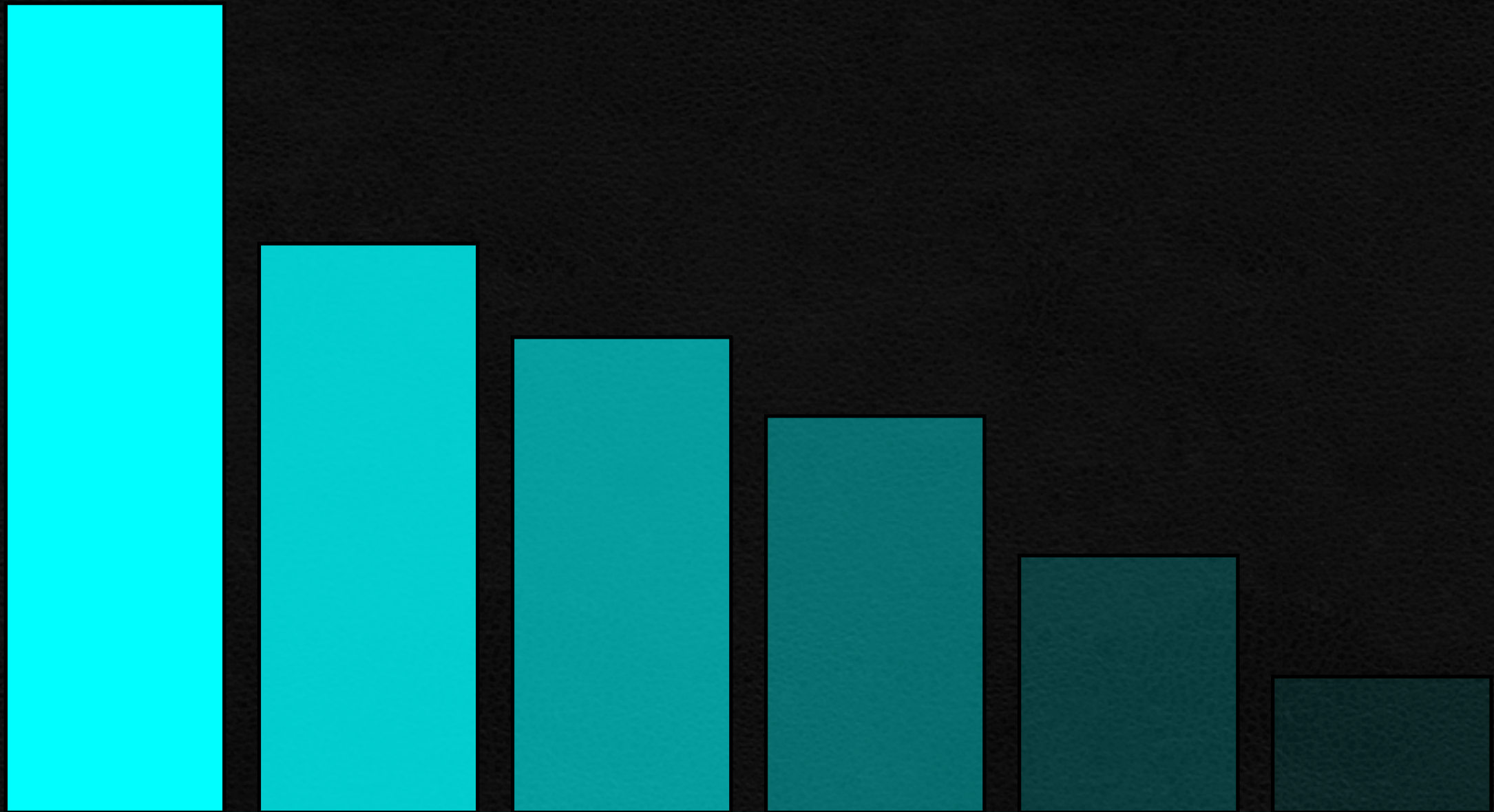


Smallest Effective Difference: the least you can do to highlight



These colours would get very loud. Unnecessarily so.

Smallest Effective Difference: the least you
can do to highlight



These are far quieter.

Sales Report Jan 2012

ORDERS

12,247

CHANGE

▲ 0.32%



ACCOUNTS

7,343

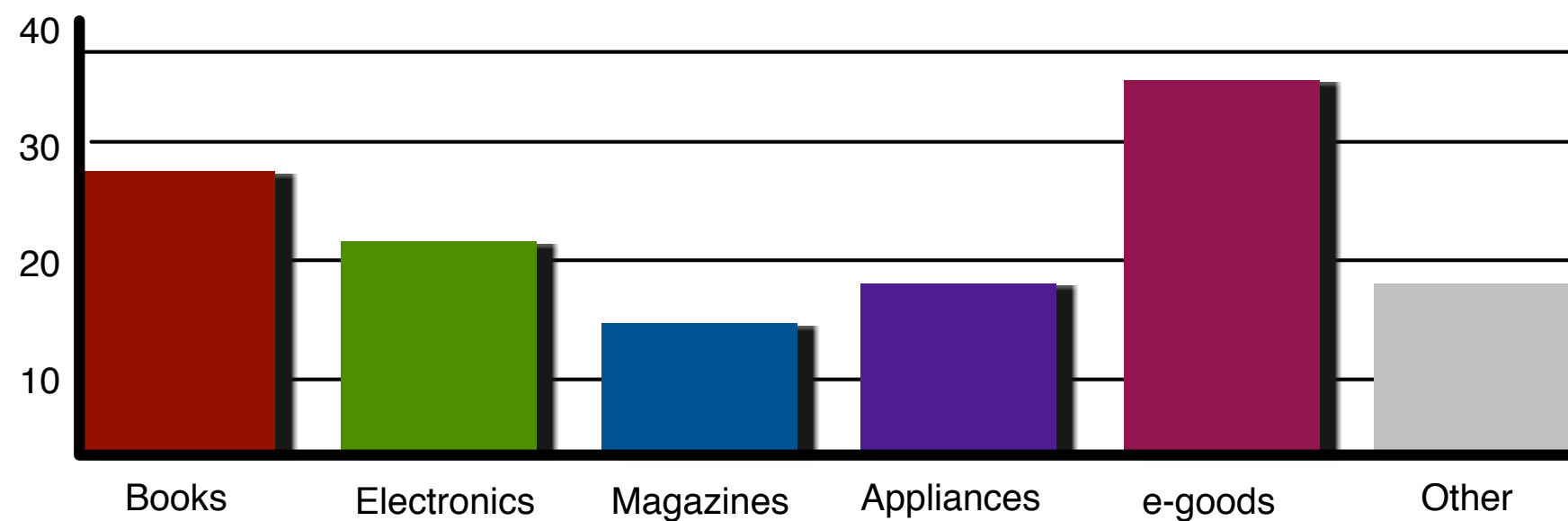
CHANGE

▲ 4.32%



- SITE LIVE
- PAYMENT LIVE
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Revenue per product



Top products

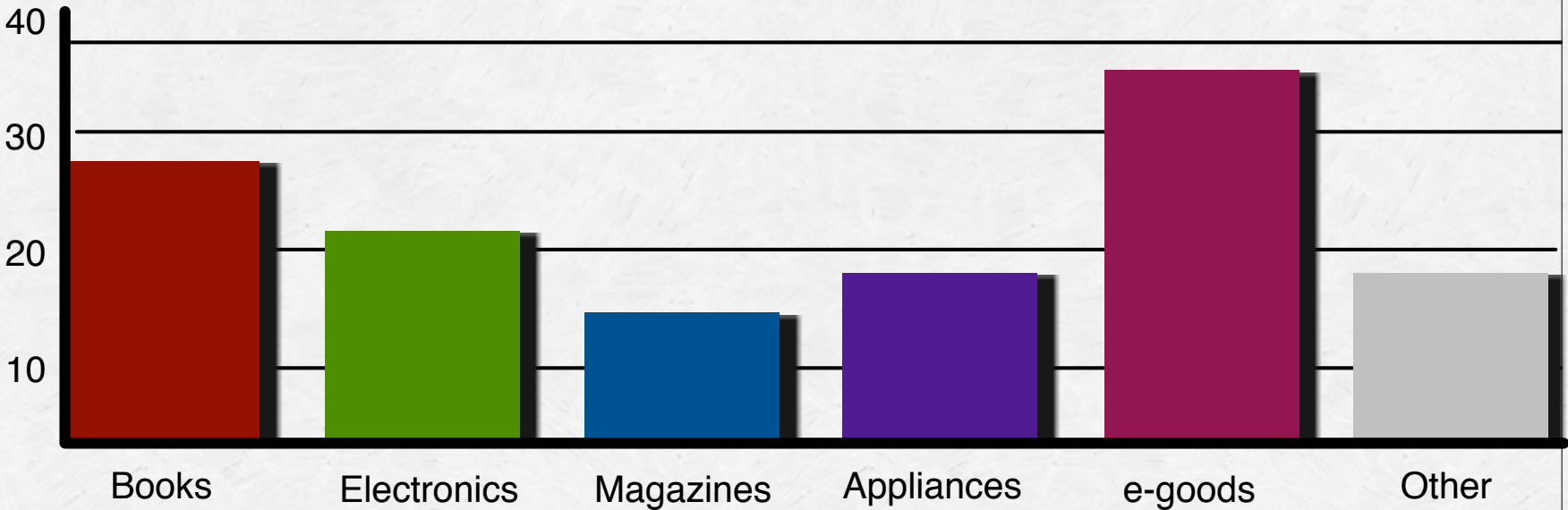
Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

Gradients, shadows, colors, gridlines. All non-content

Sales Report Jan 2012



Revenue per product



Top products

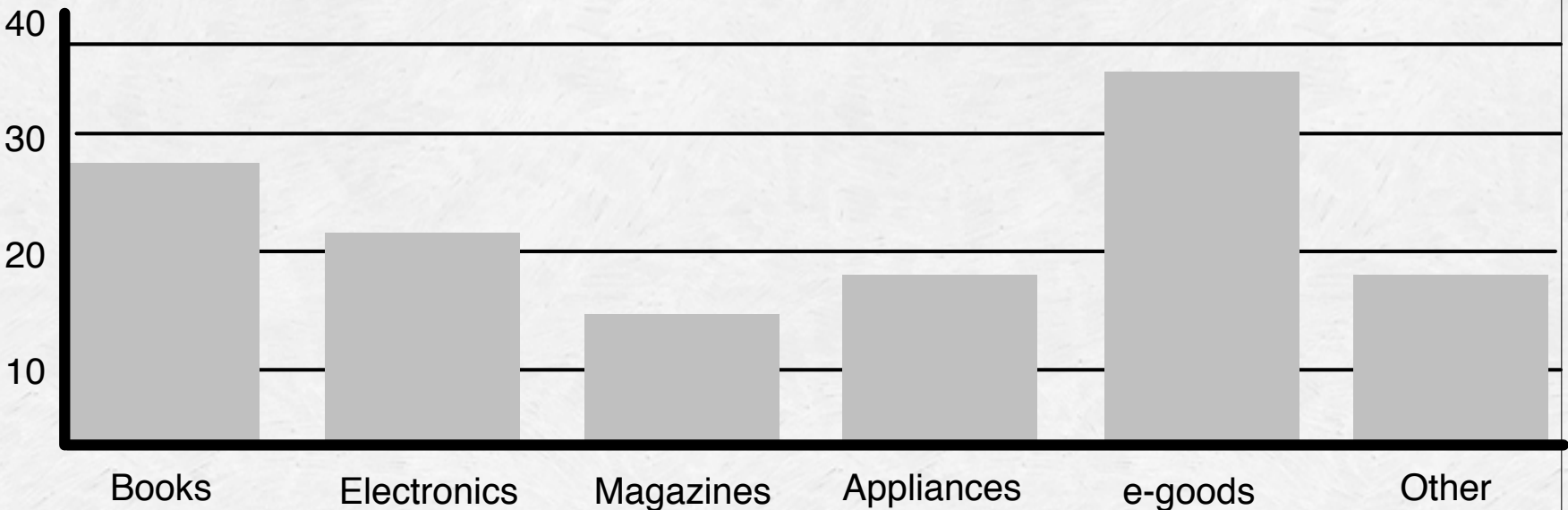
Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

Let's kill the gradients

Sales Report Jan 2012



Revenue per product



Top products

Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

Let's kill the colours



HTML has a
tag but no
<weak> tag.

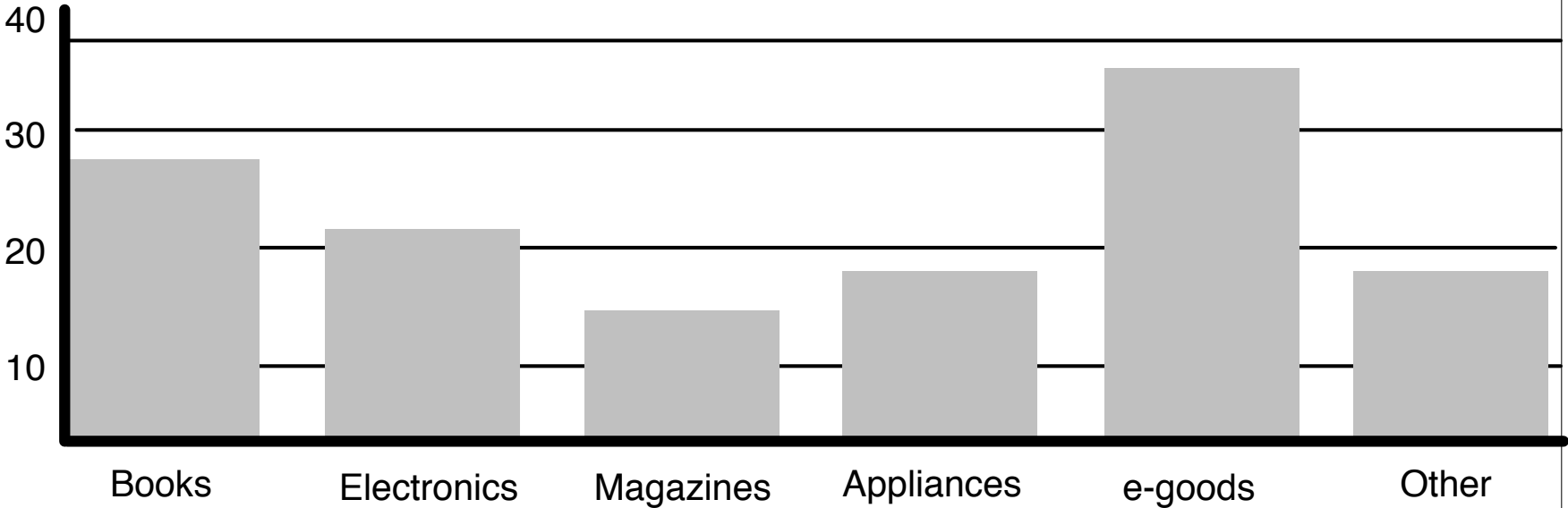
As a result, we
forget to think
about what's **less
important** on the
screen.

— Ryan Singer

Sales Report Jan 2012



Revenue per product



Top products

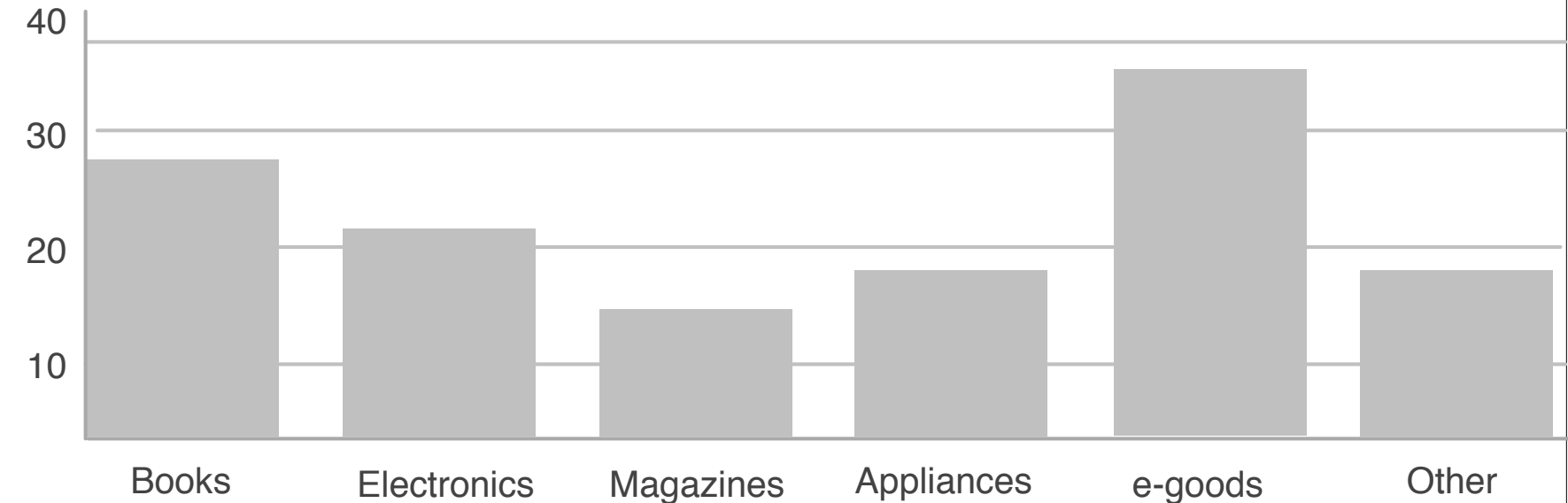
Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

Let's adjust the shading.

Sales Report Jan 2012



Revenue per product



Top products

Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

Let's add the necessary differences

Sales Report Jan 2012

ORDERS
12,247

CHANGE
0.32%



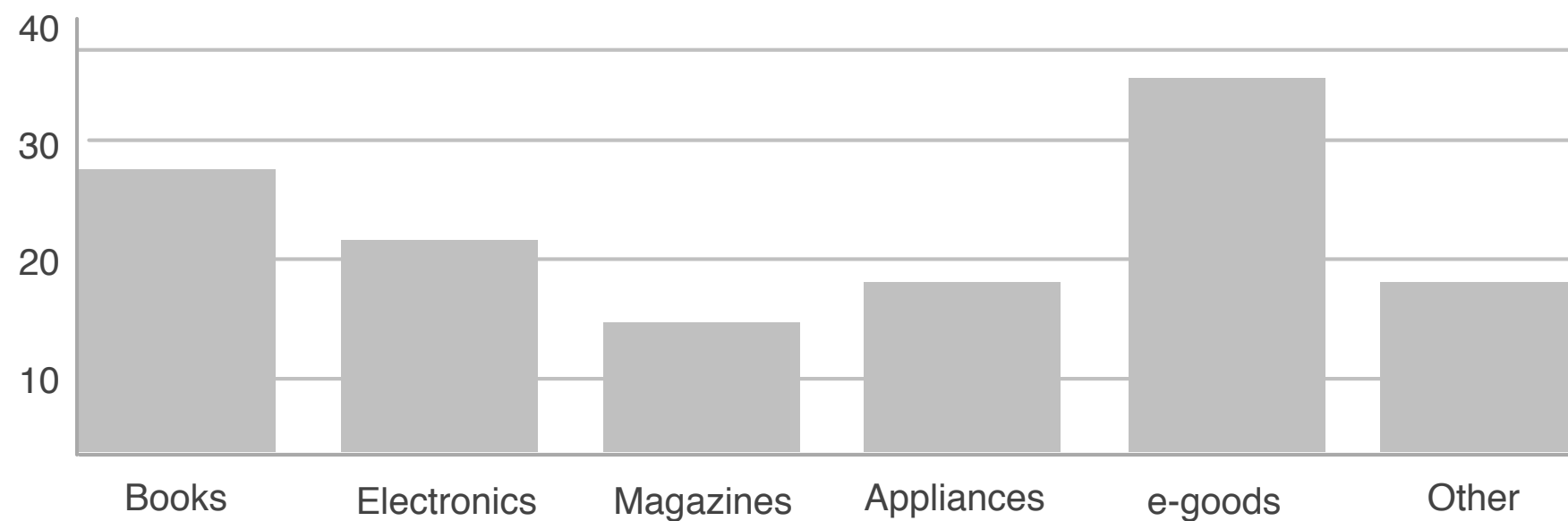
ACCOUNTS
7,343

CHANGE
4.32%



- SITE LIVE
- PAYMENT LIVE
- FULFILLMENT ON

Revenue per product



Top products

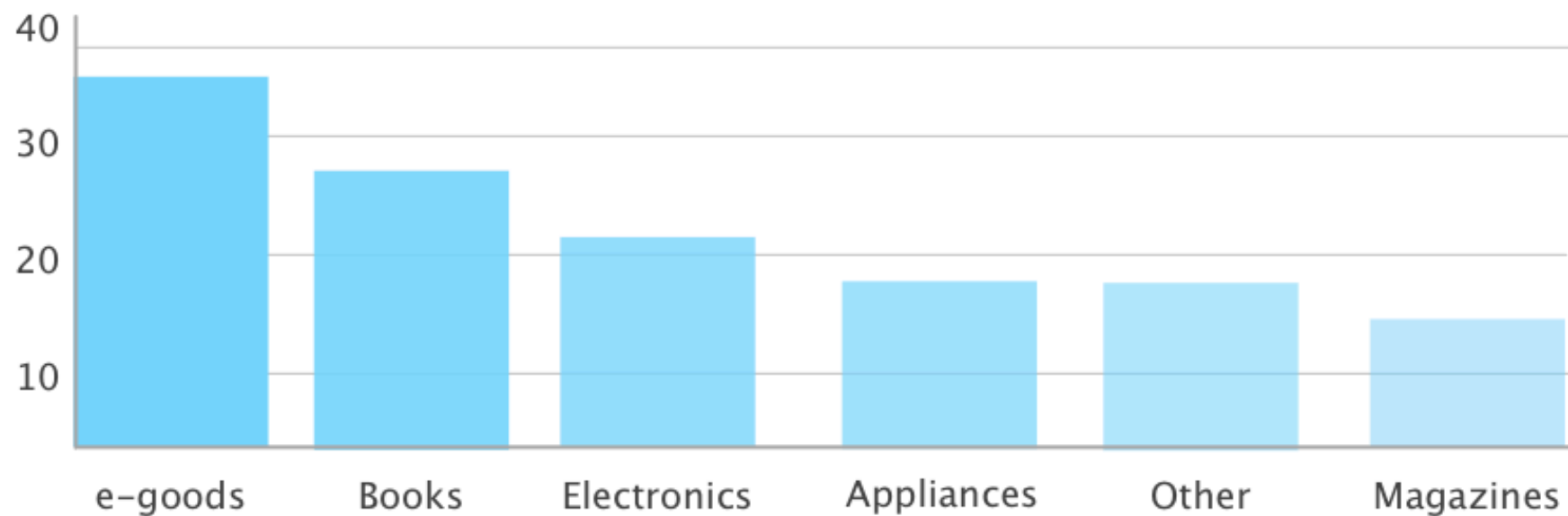
Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	89.50

From here we could begin to style

Sales Report Jan 2012



Revenue per product



Top products

Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

This isn't about visual design

SALES REPORT MAY 2012

ORDERS

12,247 ▲ 0.4%



ACCOUNTS

2,323 ▼ 1.4%

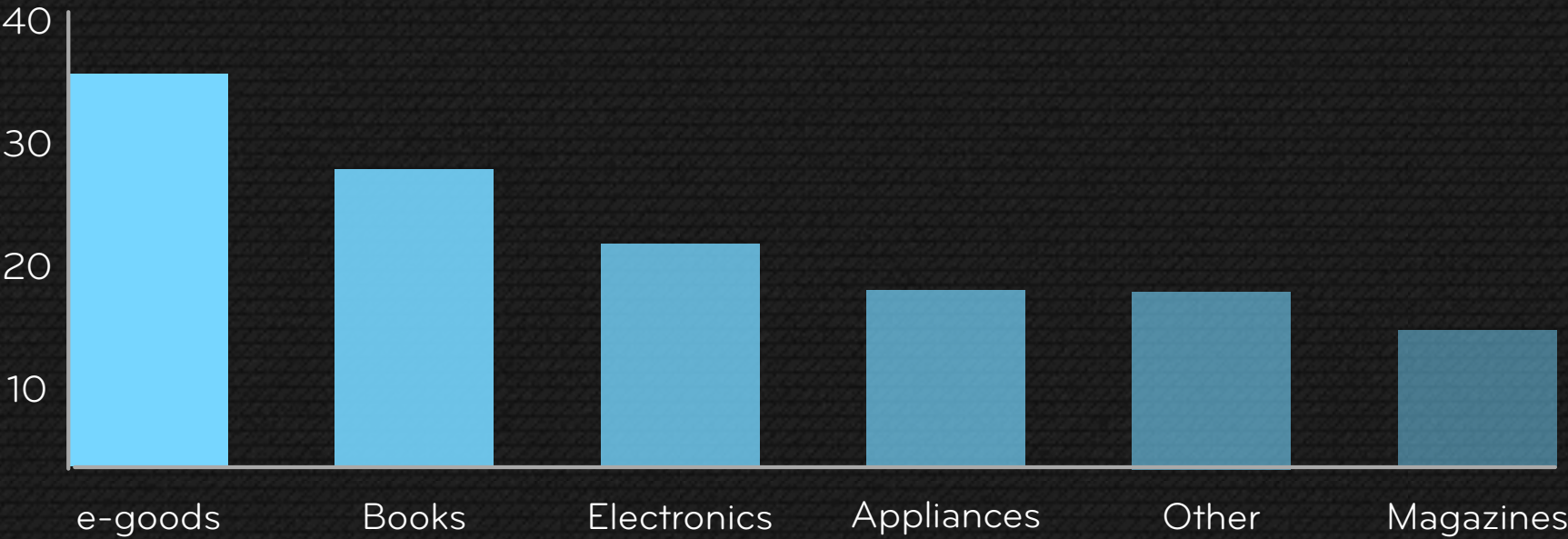


SITE

PAYMENT

FULFILLMENT

Revenue per product



Top products

Product	Orders	\$ Revenue
The girl with the dragon tattoo	11	88.50

SALES REPORT MAY 2012

ORDERS

12,247 ▲ 0.4%



ACCOUNTS

2,323 ▼ 1.4%



PAY

FULFIL

Revenue per product



4 Points on Visual Design

1. Remove Chart Junk
2. Maximise your data ink ratio
3. Use the “least effective difference” to highlight
4. Remember to quieten down less important parts.

4 Points on Visual Design

1. Remove Chart Junk
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6th
Takeaway

TIME REMAINING

INTRO

KNOW YOUR AUDIENCE

KNOW YOUR DOMAIN

KNOW YOUR DATA

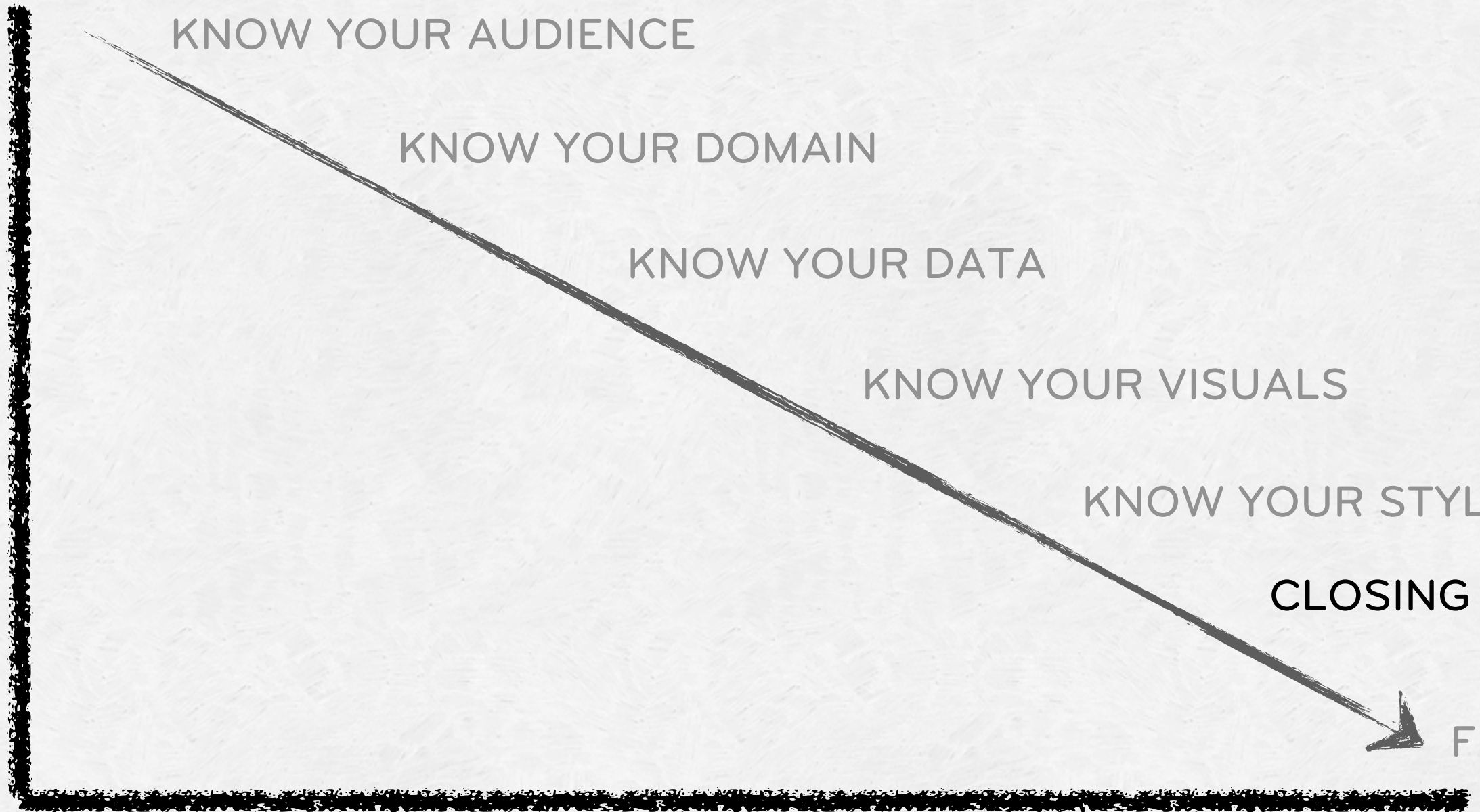
KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS

FIN

TOPIC



1. VISUALS SHOULD SAY SOMETHING

The worst visualisations are the ones you look at just think "Heh."

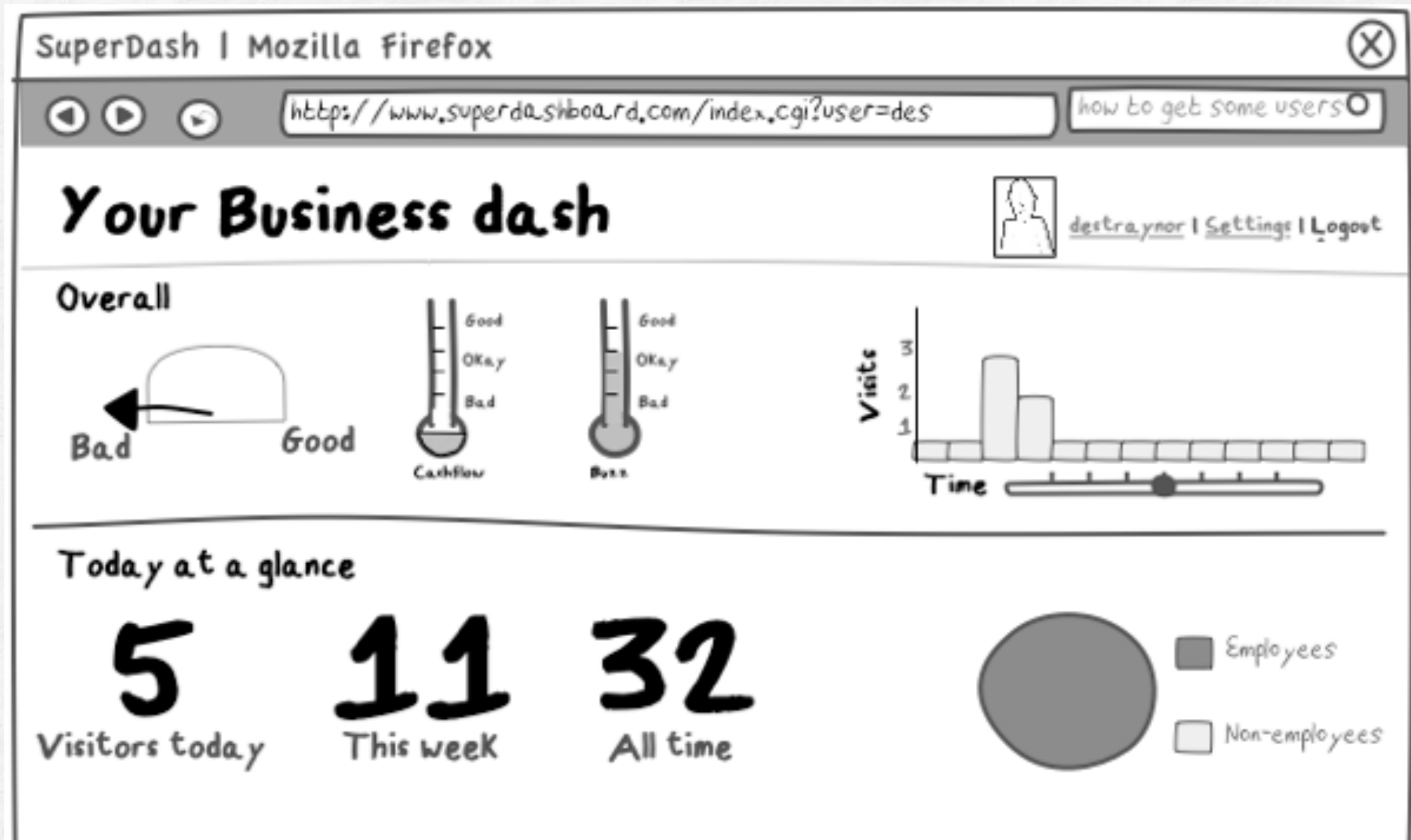


Looks great, but makes very little sense.

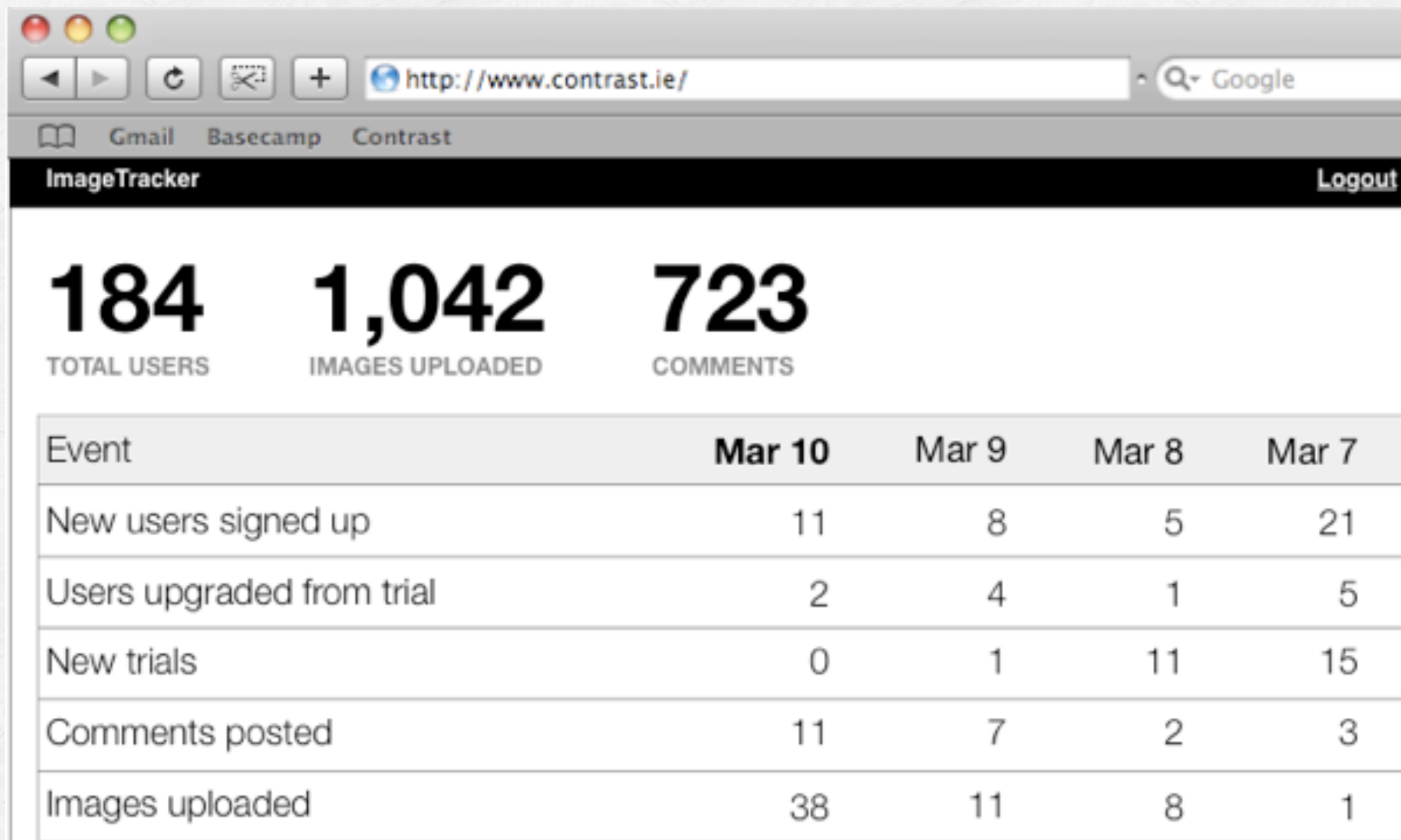
2. DASHBOARDS & VISUALS EVOLVE

Revisit them as your data increases

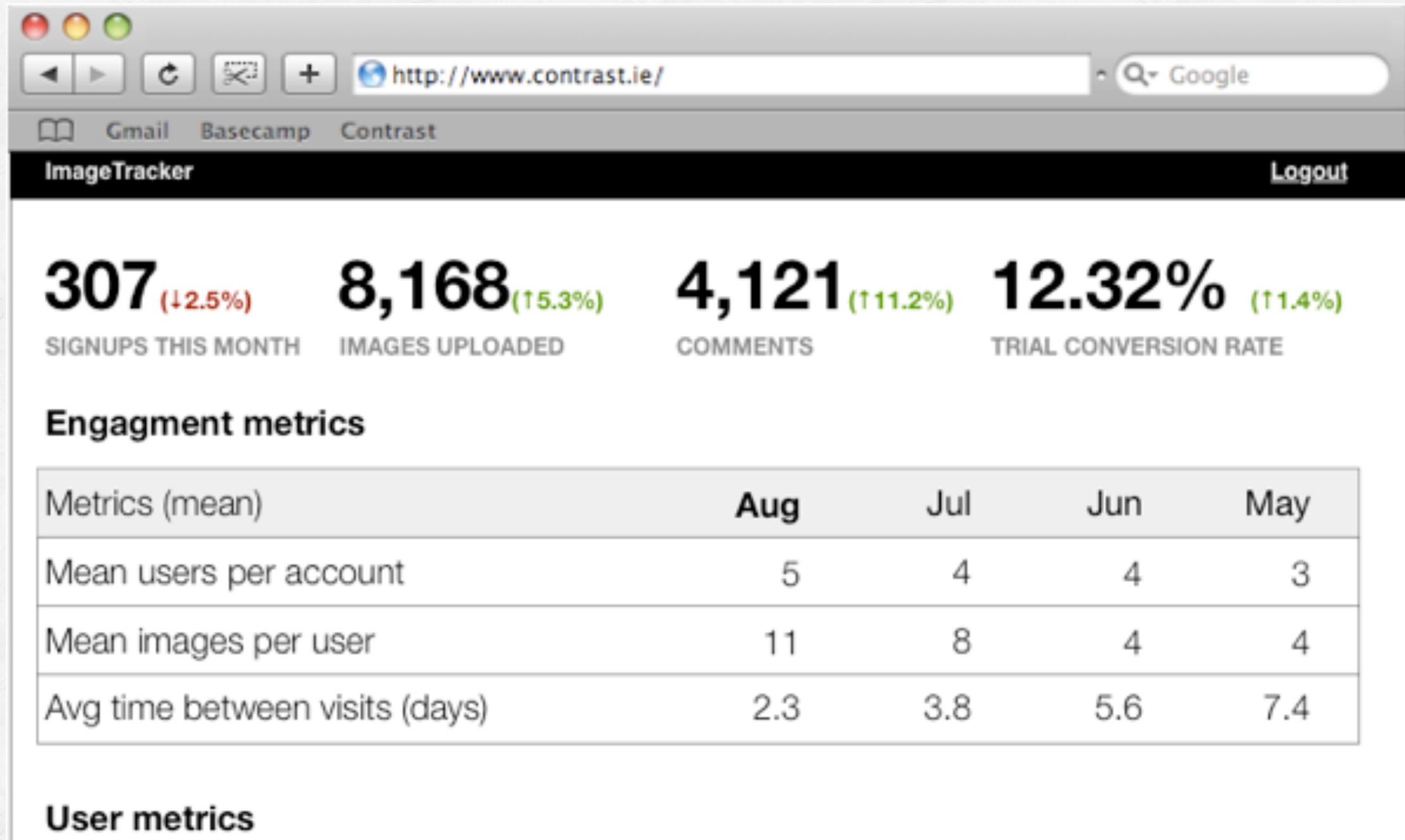
VANITY DASHBOARDS



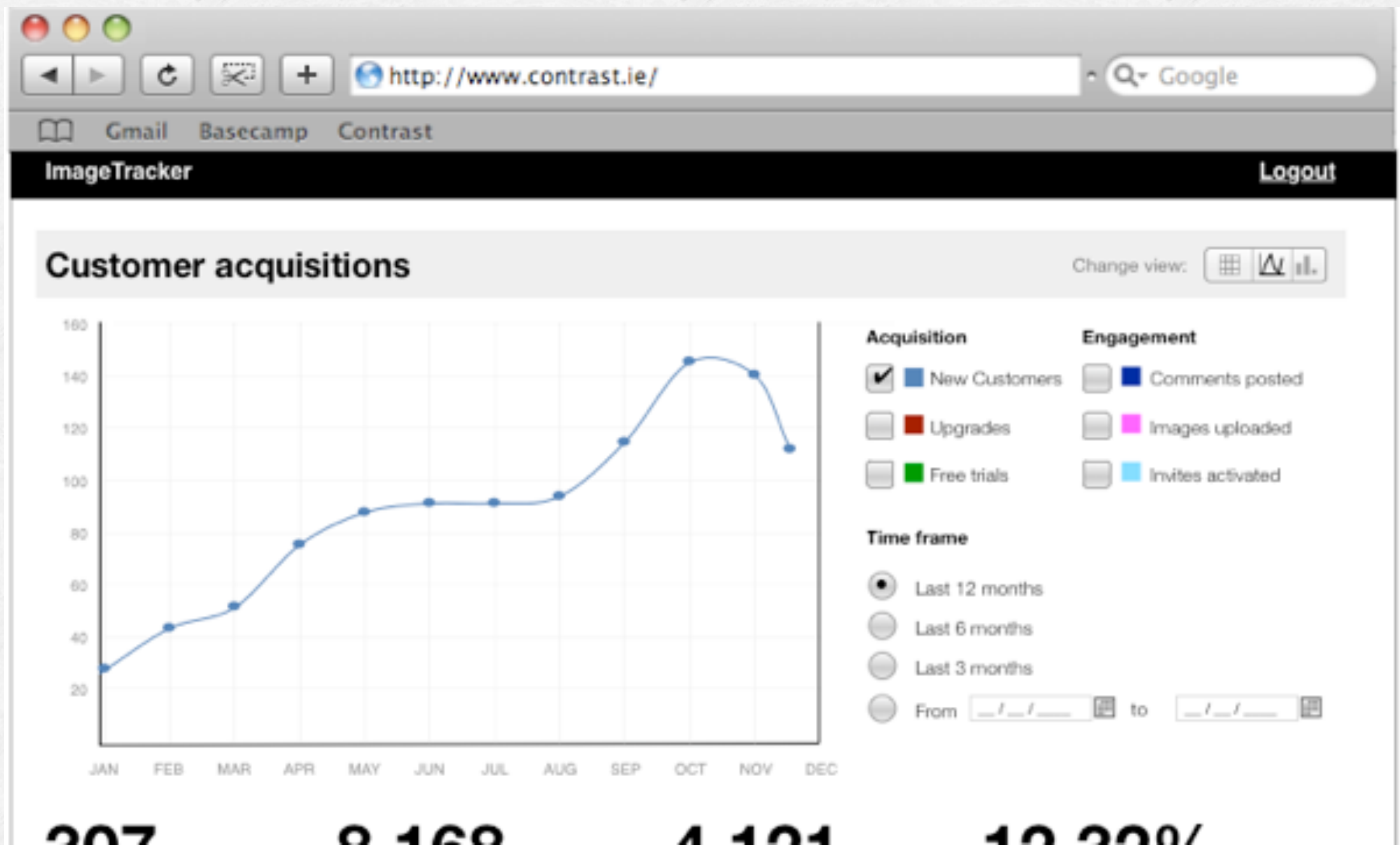
START WITH THE BASICS



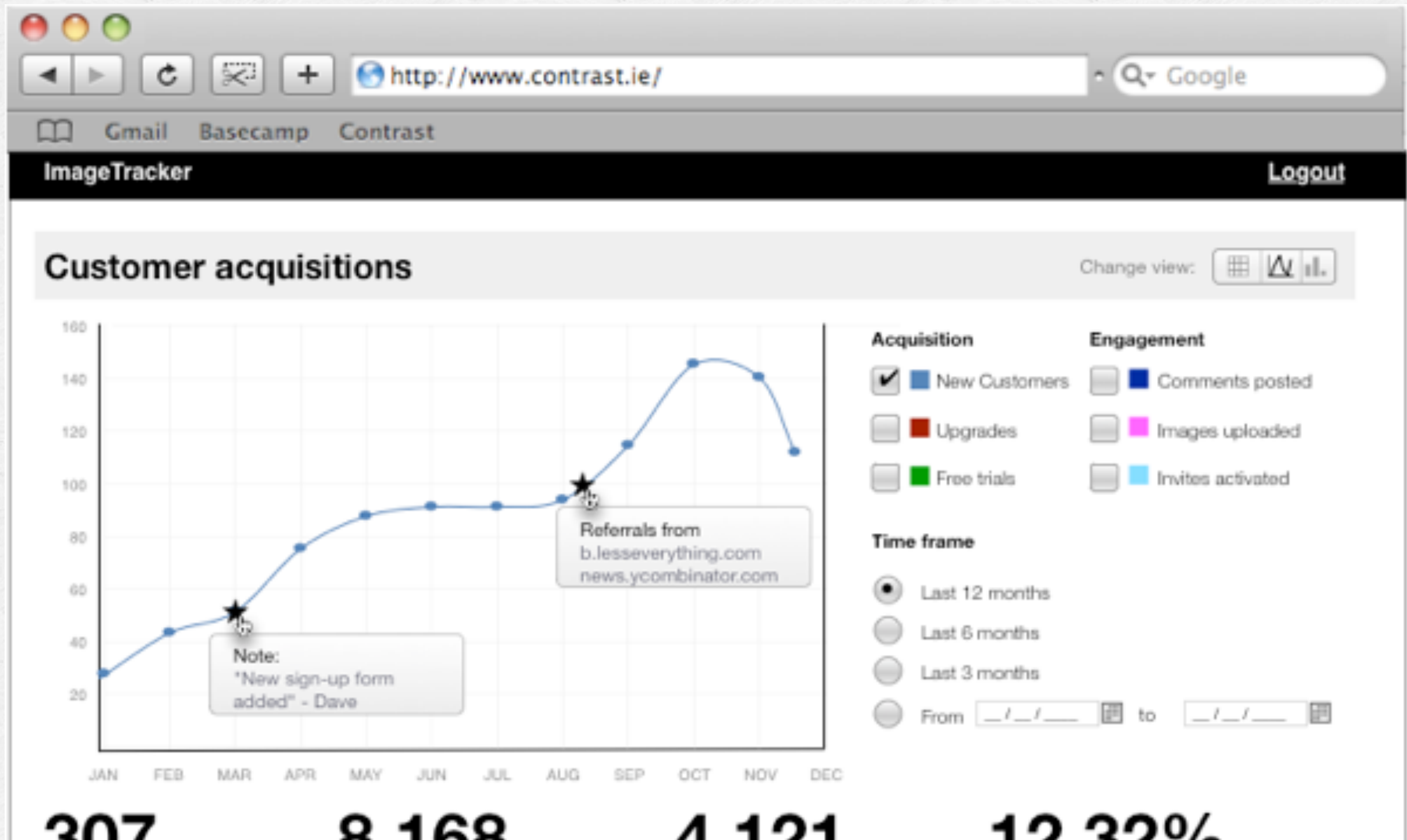
ADD INSIGHT AS YOU NEED IT



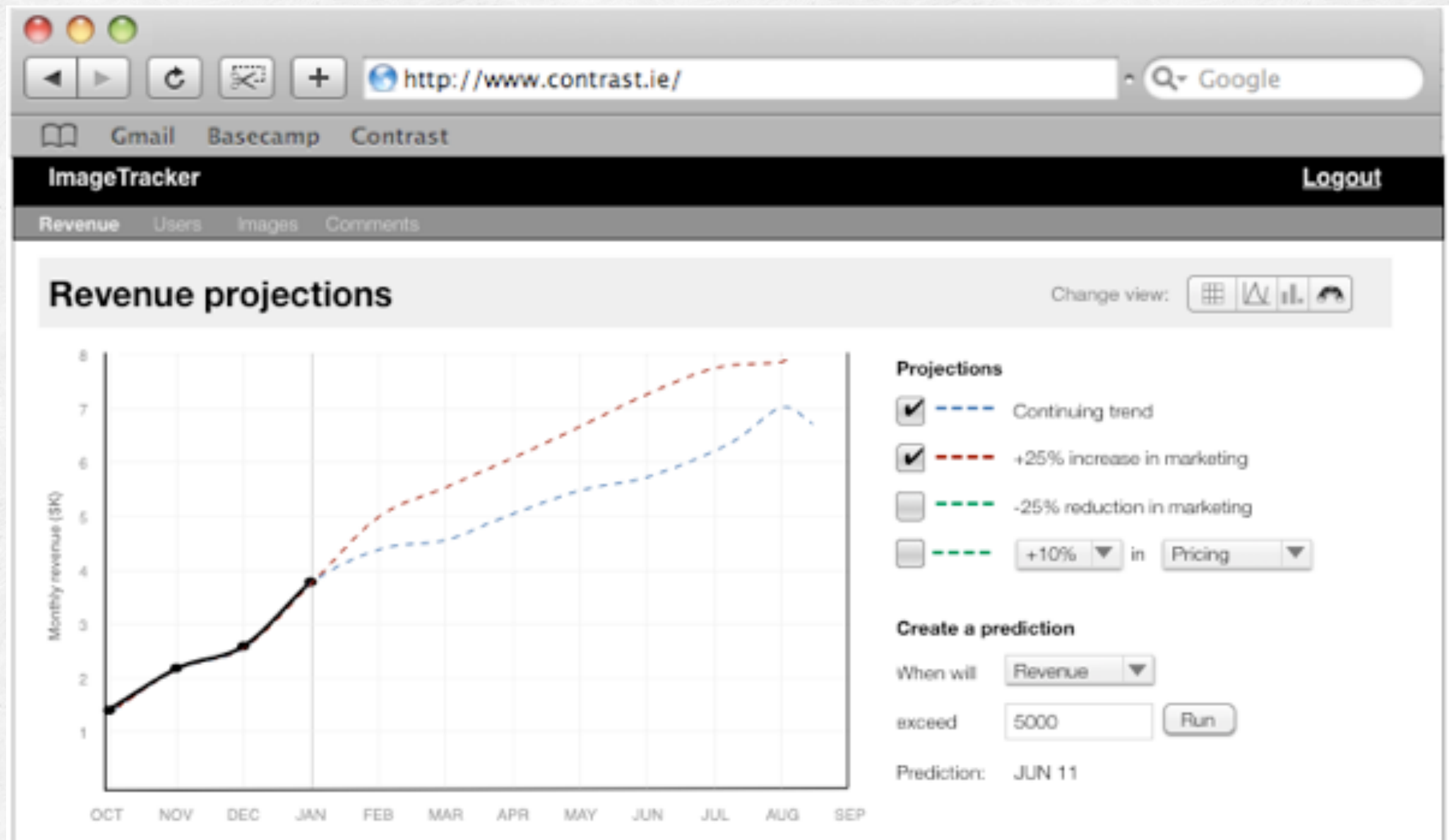
ADD A YEARLY VIEW, AFTER A YEAR



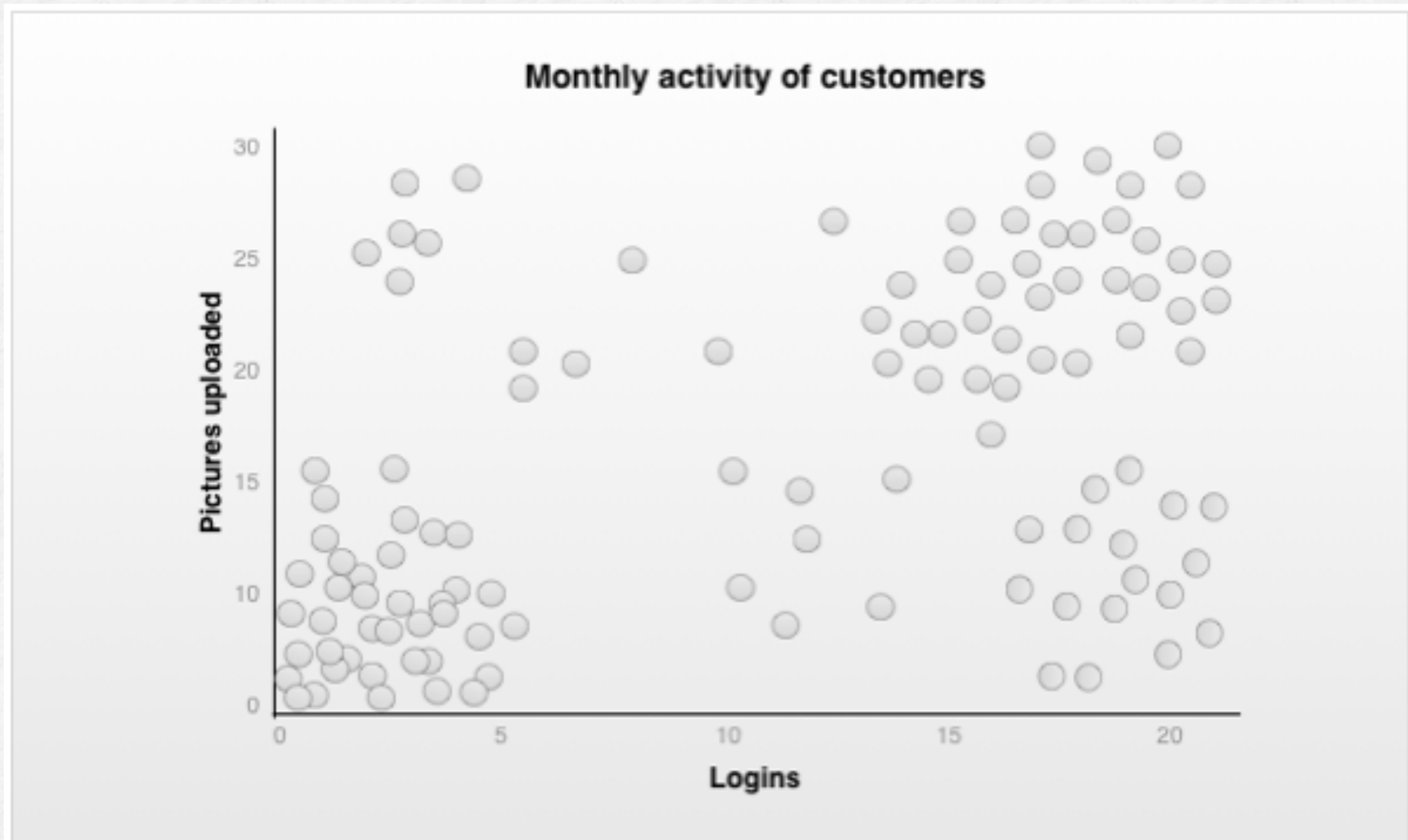
INCLUDE INSIGHTS & ACTIONS



CONSIDER ADDING PROJECTIONS

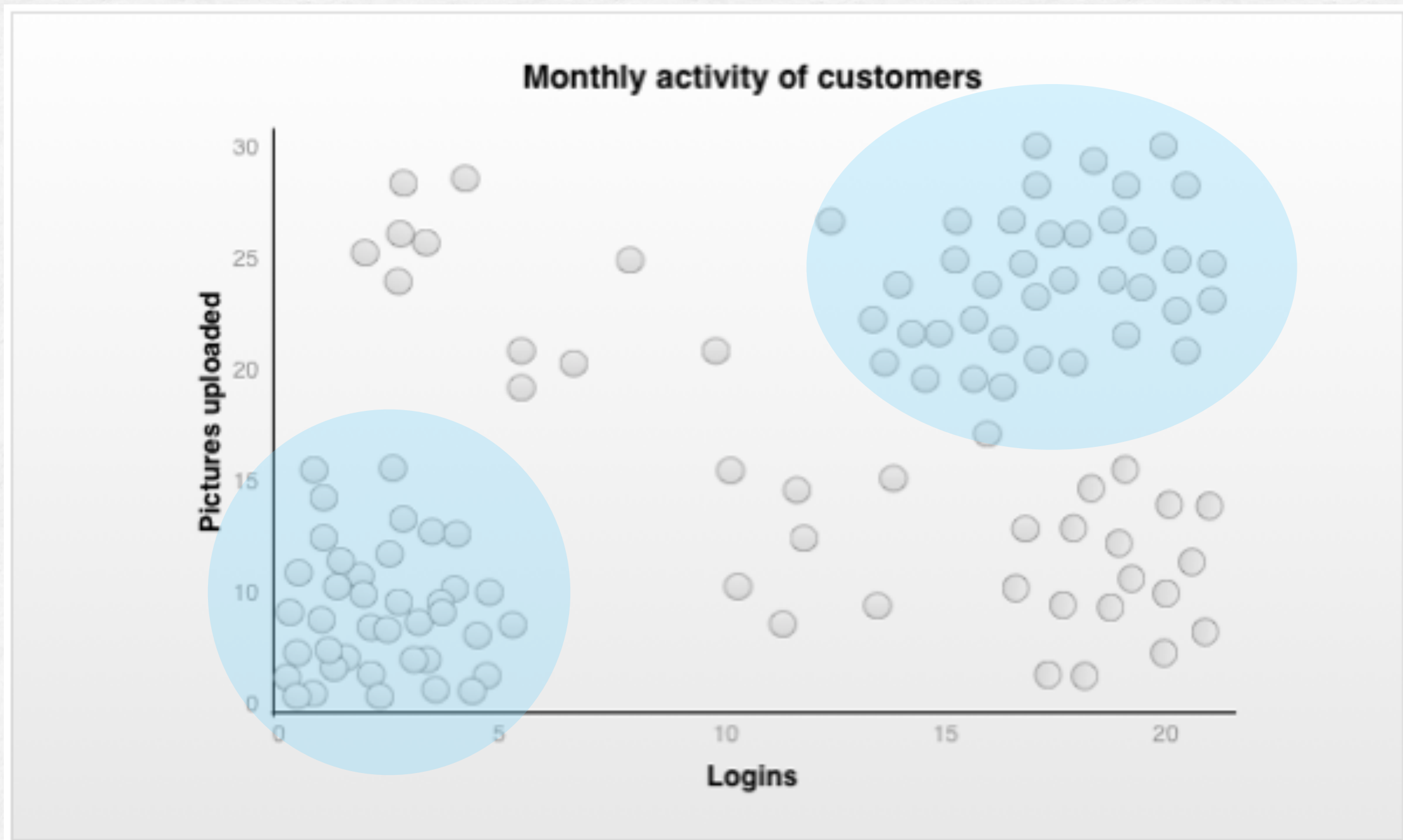


GET INSIGHTS INTO ENGAGEMENT



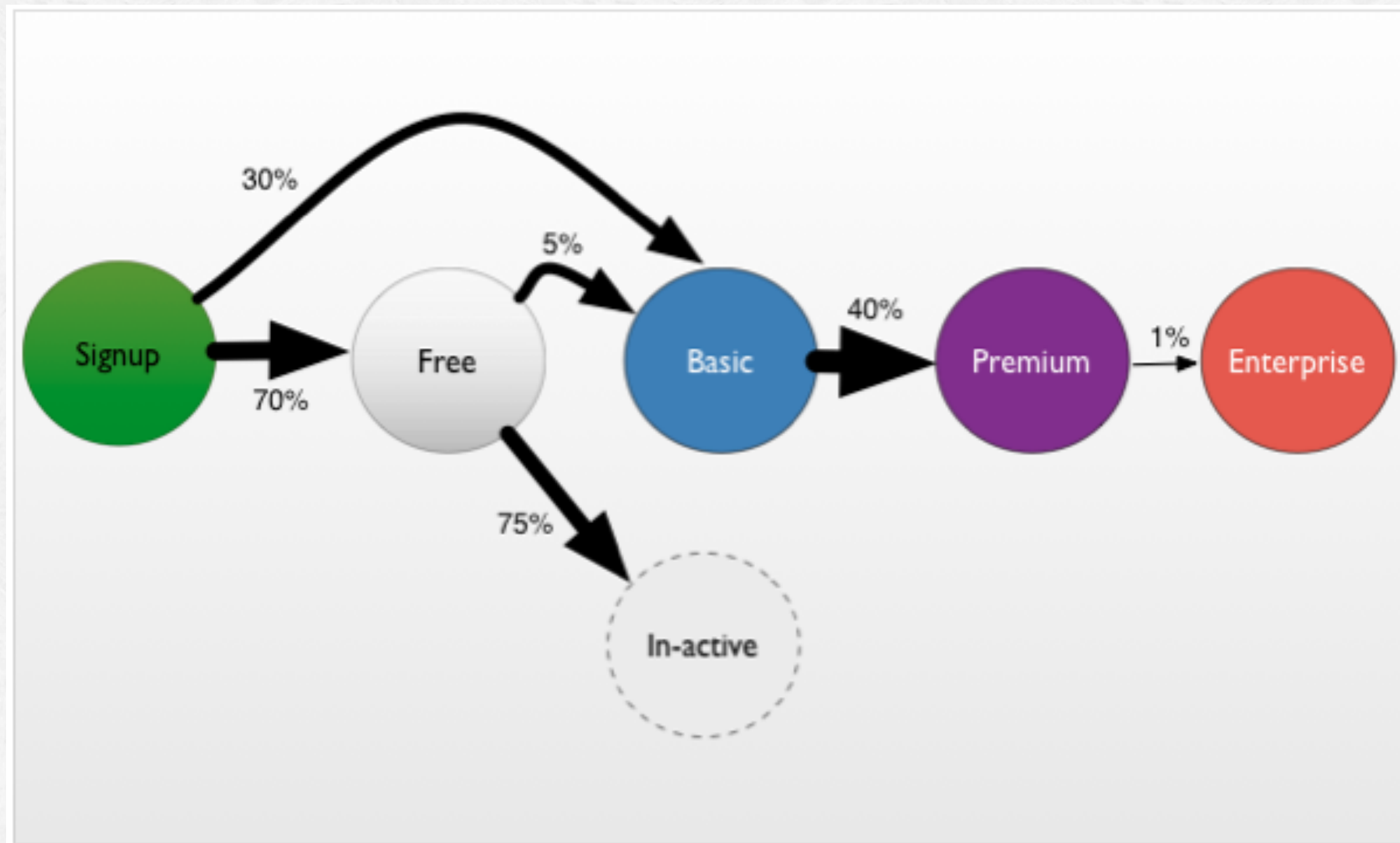
What types of users do we have?

INSIGHTS INTO ENGAGEMENT



2 main clusters it appears.

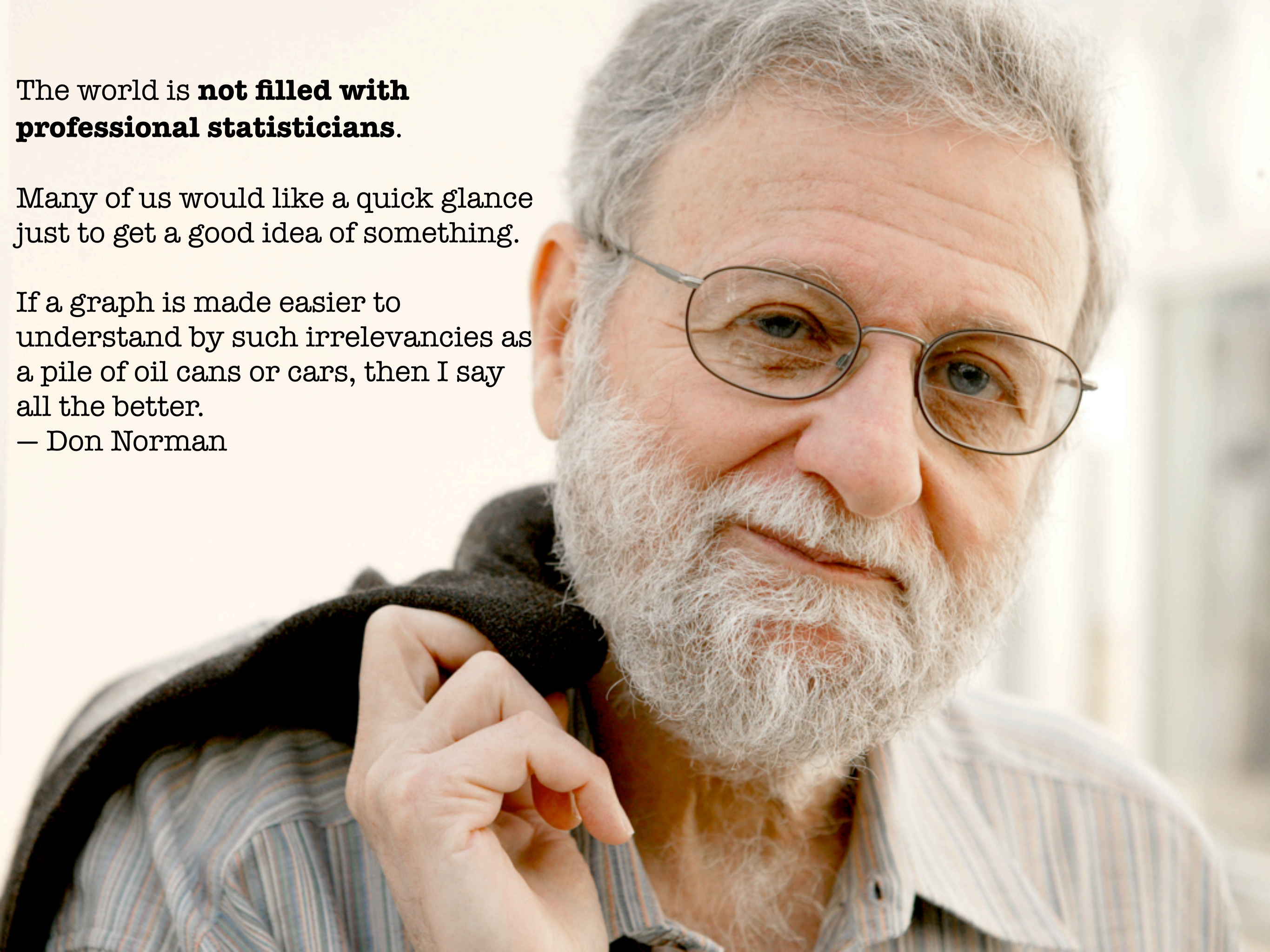
INSIGHTS INTO BUSINESS MODELS



How's that Freemium model working out for us?

3. PRESENTING AN ARGUMENT

It's okay to add visuals if your goal is more than
the factual presentation of information

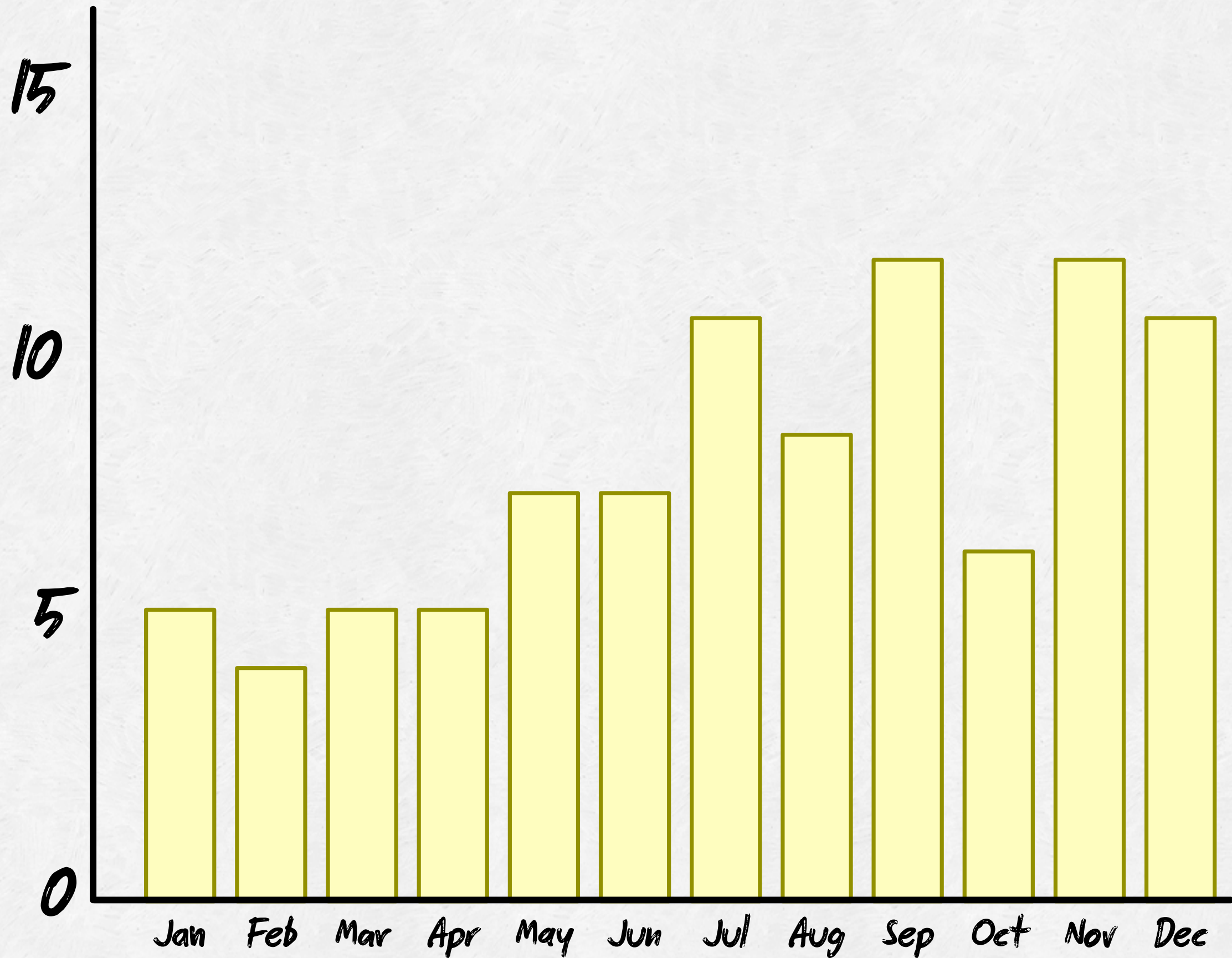


The world is **not filled with professional statisticians.**

Many of us would like a quick glance just to get a good idea of something.

If a graph is made easier to understand by such irrelevancies as a pile of oil cans or cars, then I say all the better.

— Don Norman



Get your data first.

FRENCH FRY CONSUMPTION BY MONTH IN 2010

15

10

5

0



JAN

FEB

MAR

APR

MAY

JUN

JUL

AUG

SEP

OCT

NOV

DEC

FRENCH FRY CONSUMPTION BY MONTH

IN 2010

15

10

5

0



Bring the fancy shit afterwards.



Usability is **not everything**. If usability engineers designed a nightclub, it would be clean, quiet, brightly lit, with lots of places to sit down, plenty of bartenders, menus written in 18-point sans-serif, and easy-to-find bathrooms. **But nobody would be there.** They would all be down the street at Coyote Ugly pouring beer on each other.

— Joel Spolsky

4. THEY'RE NOT ALL FIRST TIMERS

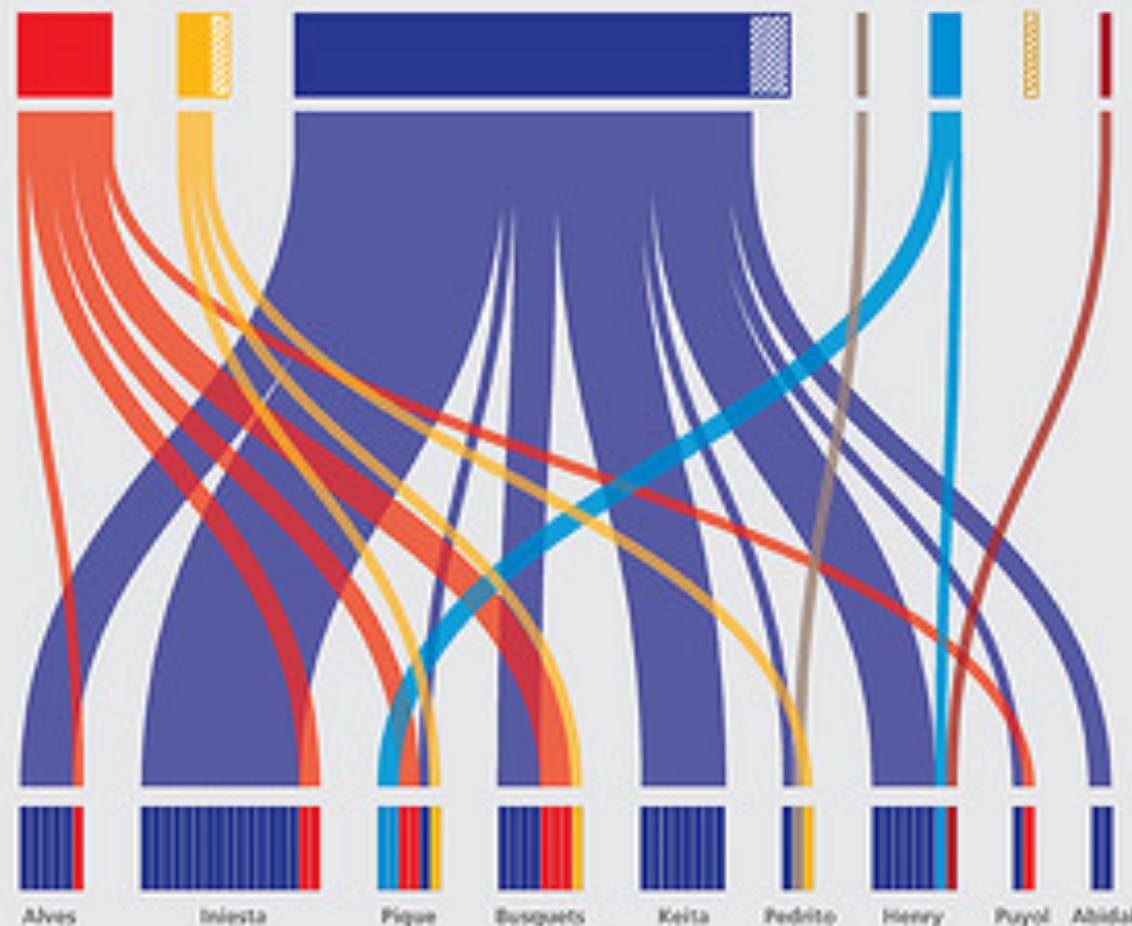
Like chess players understand chessboards,
people can learn to understand visualisations

Champions League
24.11.09

BARCELONA vs INTER. 1st half

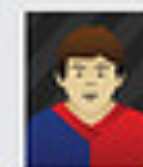
VisualSport 
www.visualsport.com

PASSES
TOTAL **67**



PASSES
BY PLAYERS

PASSES
BY TIME



**HERNÁNDEZ
XAVI [6]**

PASSES PERFORMANCE

Passes legend

- cross
- cross corner taken
- free kick taken
- chip
- open play
- through ball
- lay off



© 2007-2009 VISUP srl

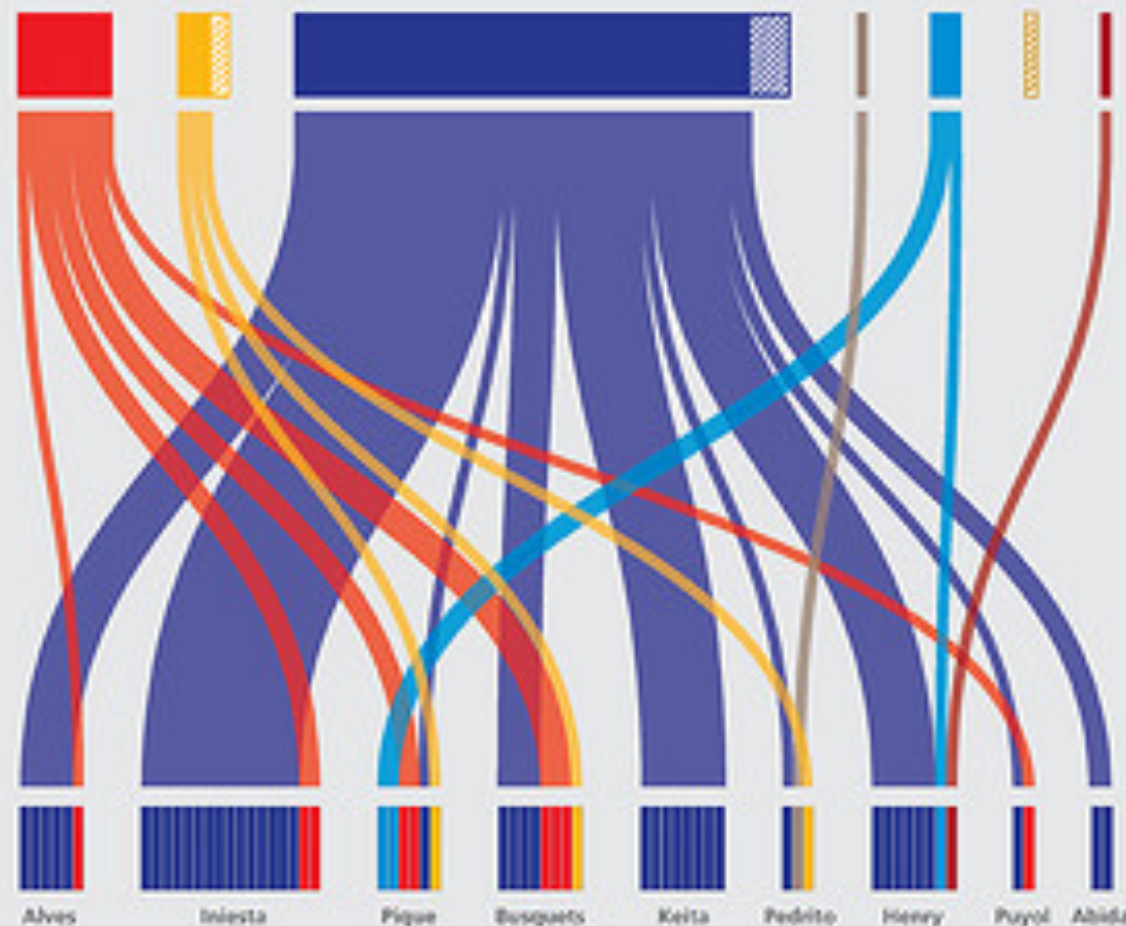
This isn't immediately understandable for everyone.

Champions League
24.11.09

BARCELONA vs INTER. 1st half

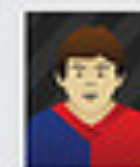
VisualSport 
www.visualsport.com

PASSES
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PASSES
BY PLAYERS

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BY TIME



**HERNÁNDEZ
XAVI [6]**

PASSES PERFORMANCE

Passes legend

- cross
- cross corner taken
- free kick taken
- chip
- open play
- through ball
- lay off



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For those used to it, it's perfect.

LATEST TWEET

Is [#Ronaldinho](#) stronger than [#Alonso](#)? Let's see on [#visualsport](#) [#soccer](#) [#football](#) [#championsleague](#) <http://flic.kr/p/7d5sL1> about 1 hours ago

[twitter](#)
follow us

Champions League comparison 09-10 08-09

Serie A comparison 09-10 08-09

Choose a player

Batista Libano Edinaldo C

[advanced search](#)

[random select](#)

Grafite VS **Kanouté F.**

From matchday 1 to matchday 6

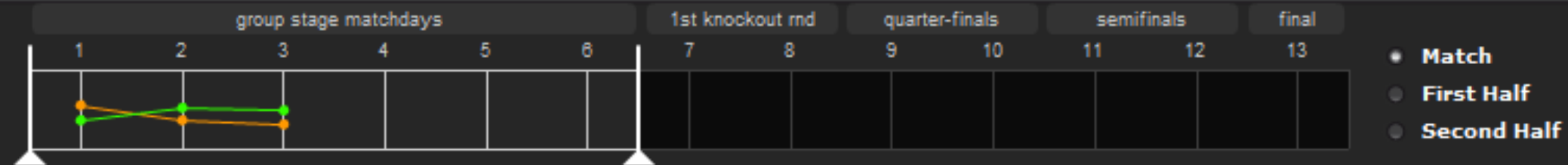
Choose a player

Frederic Kanouté

[advanced search](#)

[random select](#)

TOURNAMENT TRENDS



Grafite



Forward

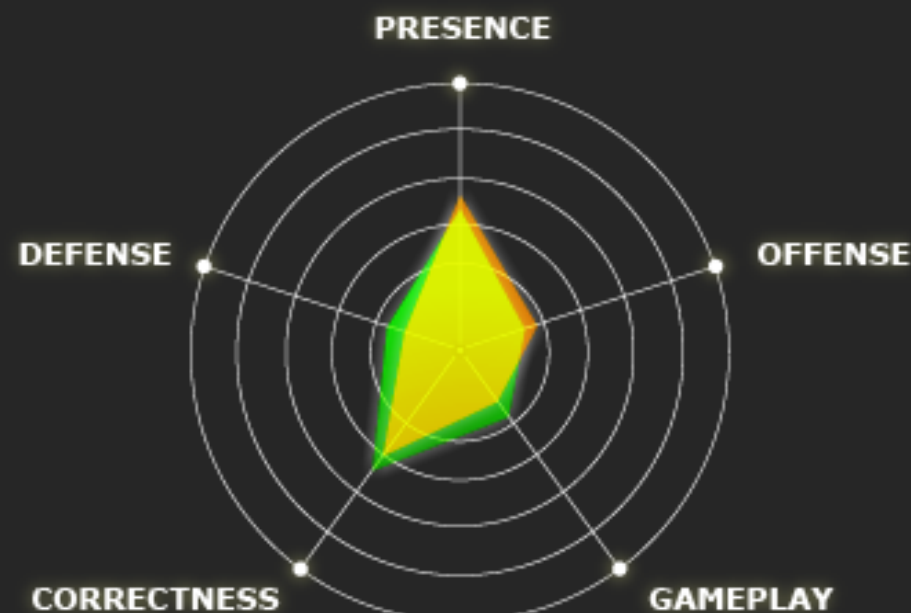
23

VfL Wolfsburg

PERFORMANCE COMPARISON

★★★★★

★★★★★



Kanouté F.



Forward

12

Siviglia

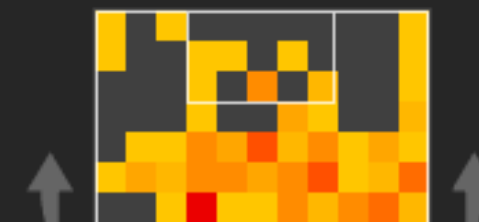
PITCH STATS

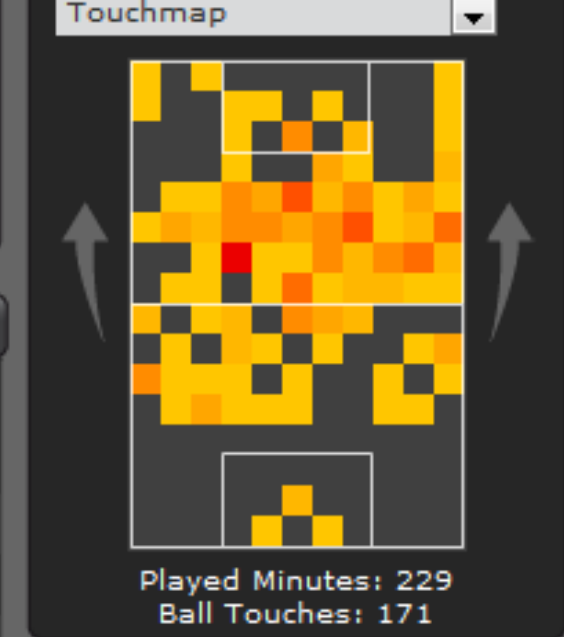
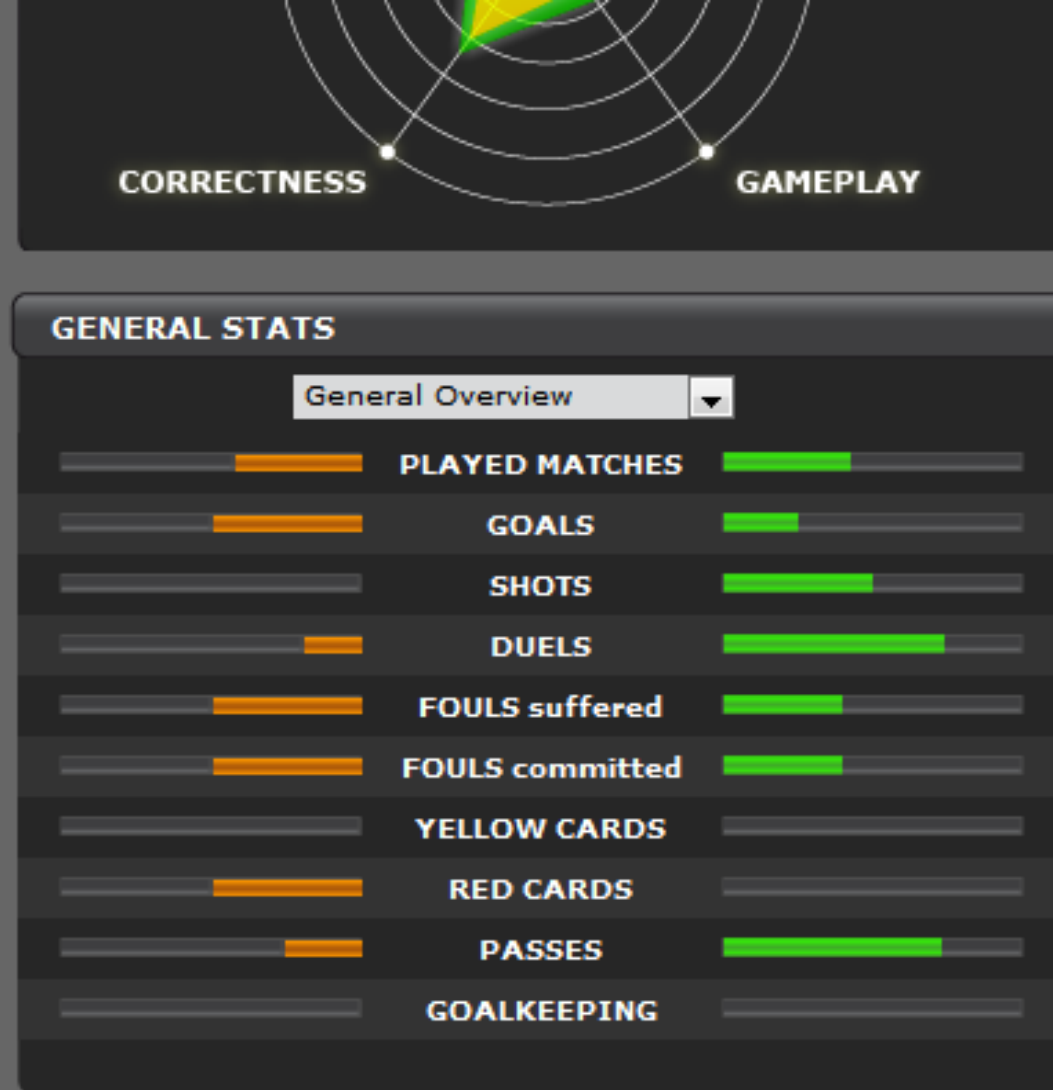
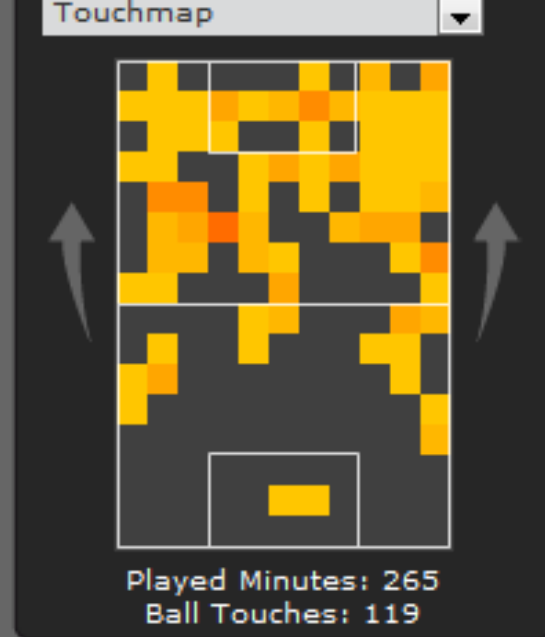
Touchmap



PITCH STATS

Touchmap





data source by [Opta Sportsdata](#)

5. IMPLEMENTATION TOOLS

HTML for the win.

Highcharts Demo Gallery

[« Go to the Highcharts home page](#)

Default

Grid

Skies

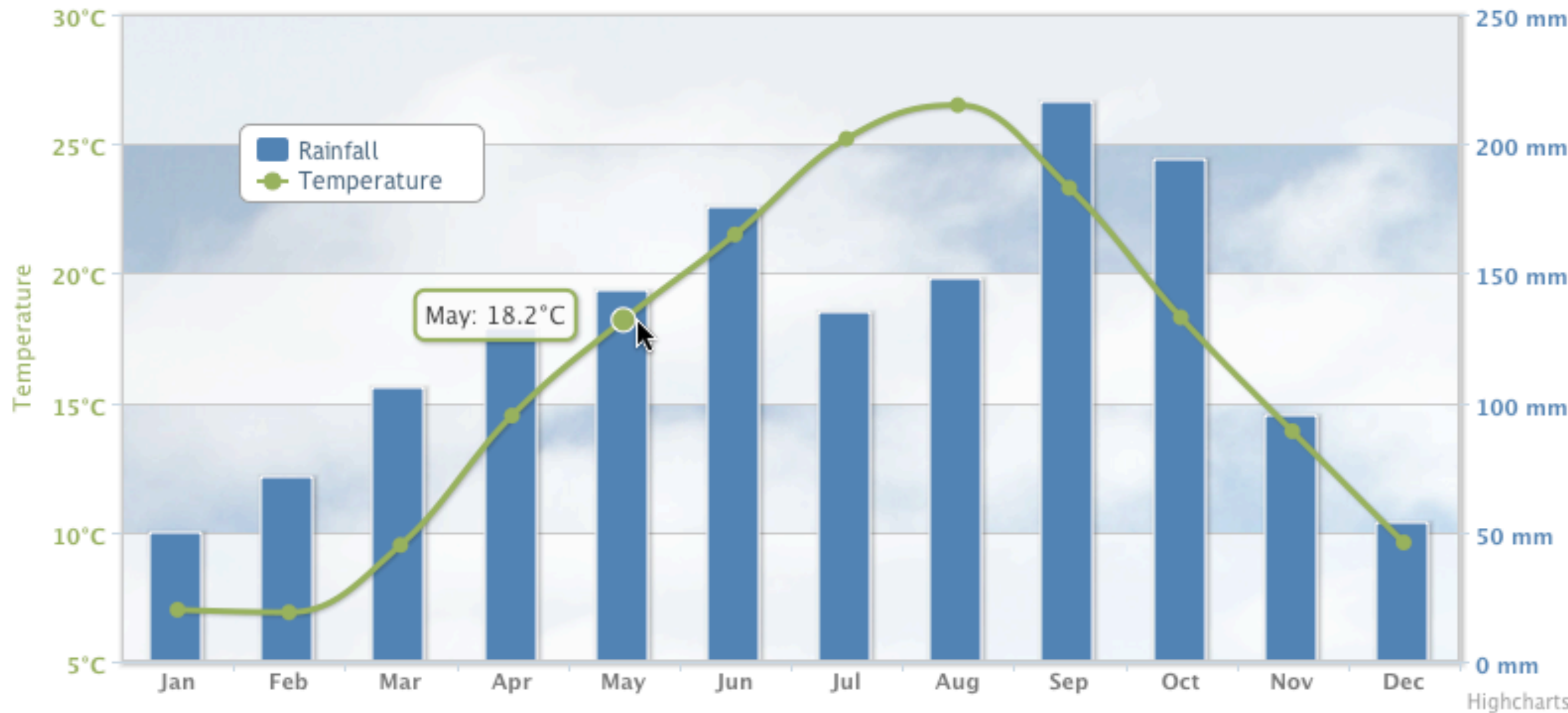
Gray

Dark blue

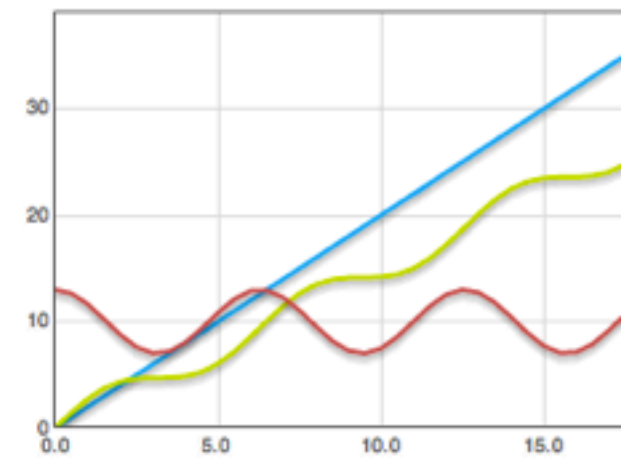
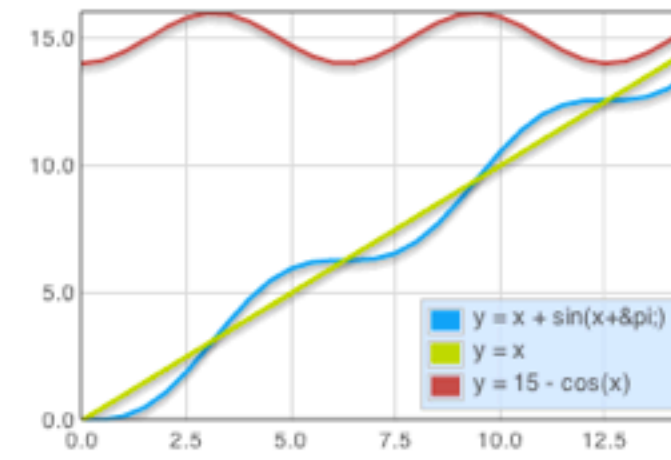
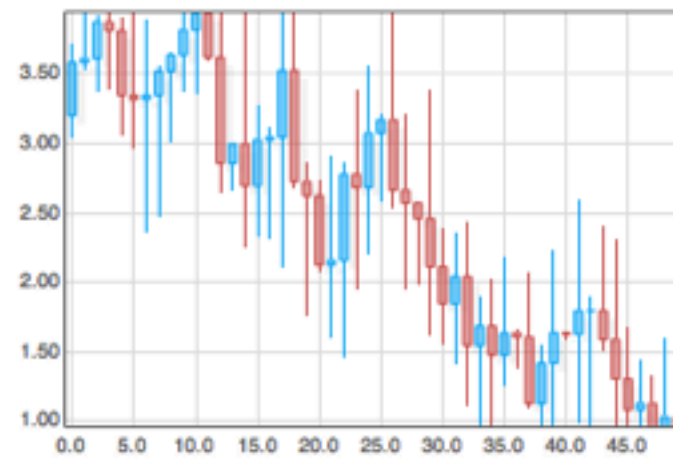
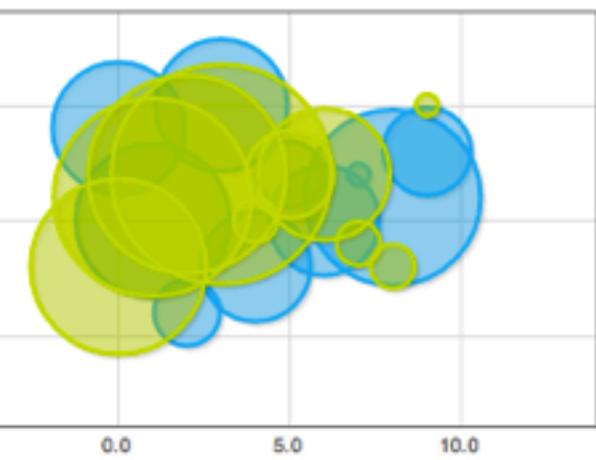
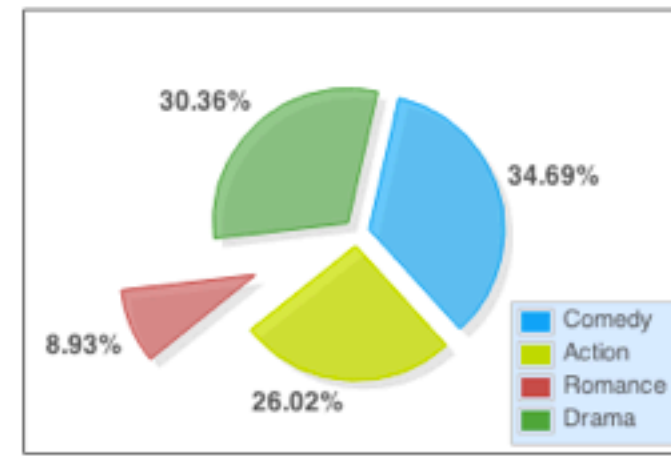
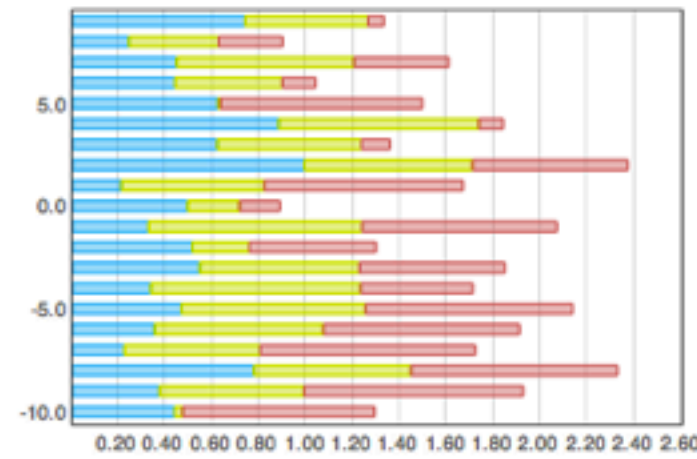
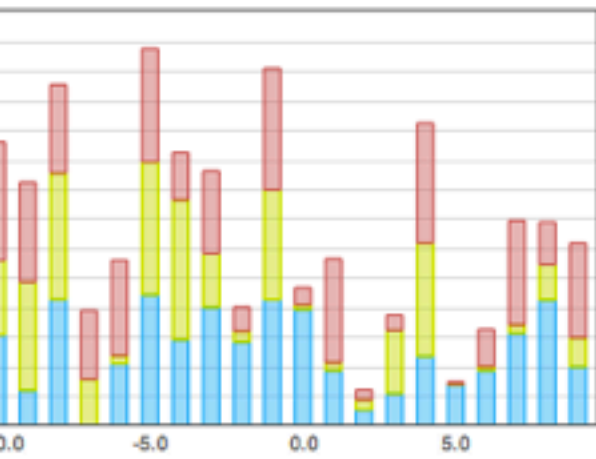
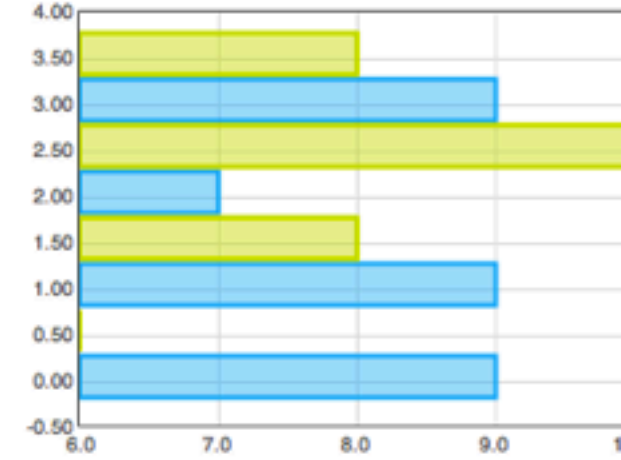
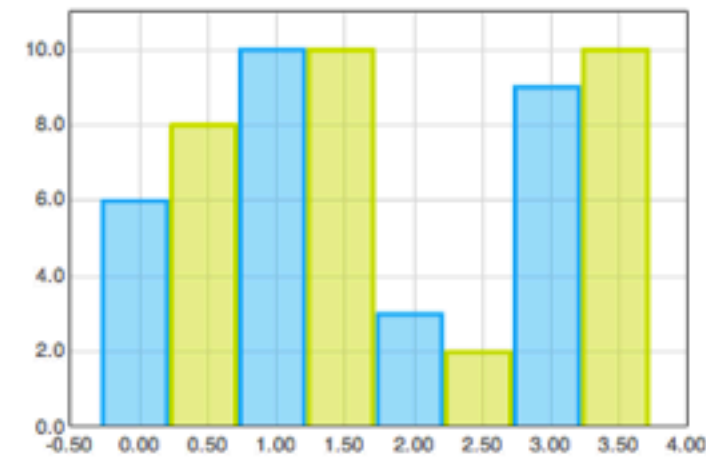
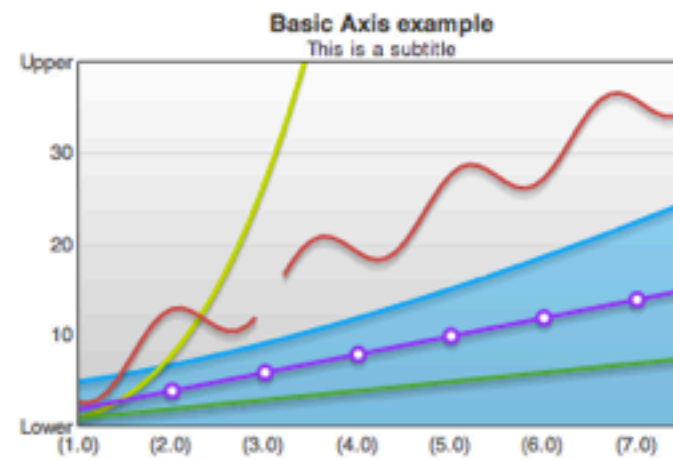
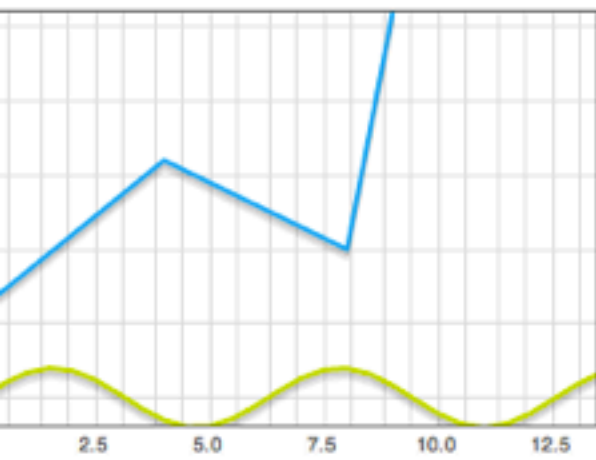
Dark green

Average Monthly Temperature and Rainfall in Tokyo

Source: WorldClimate.com



Highcharts is excellent and worth the money



Mouse Zoom

Mouse Drag

Time

Negative Values

Flotr2 is new, but popular

PUBLIC

mbostock / d3

Watch

5,814

Fork

649

Code

Network

Pull Requests 20

Issues 109

Wiki 46

Graphs

Home

Pages

Wiki History

Git Access

Gallery

New Page

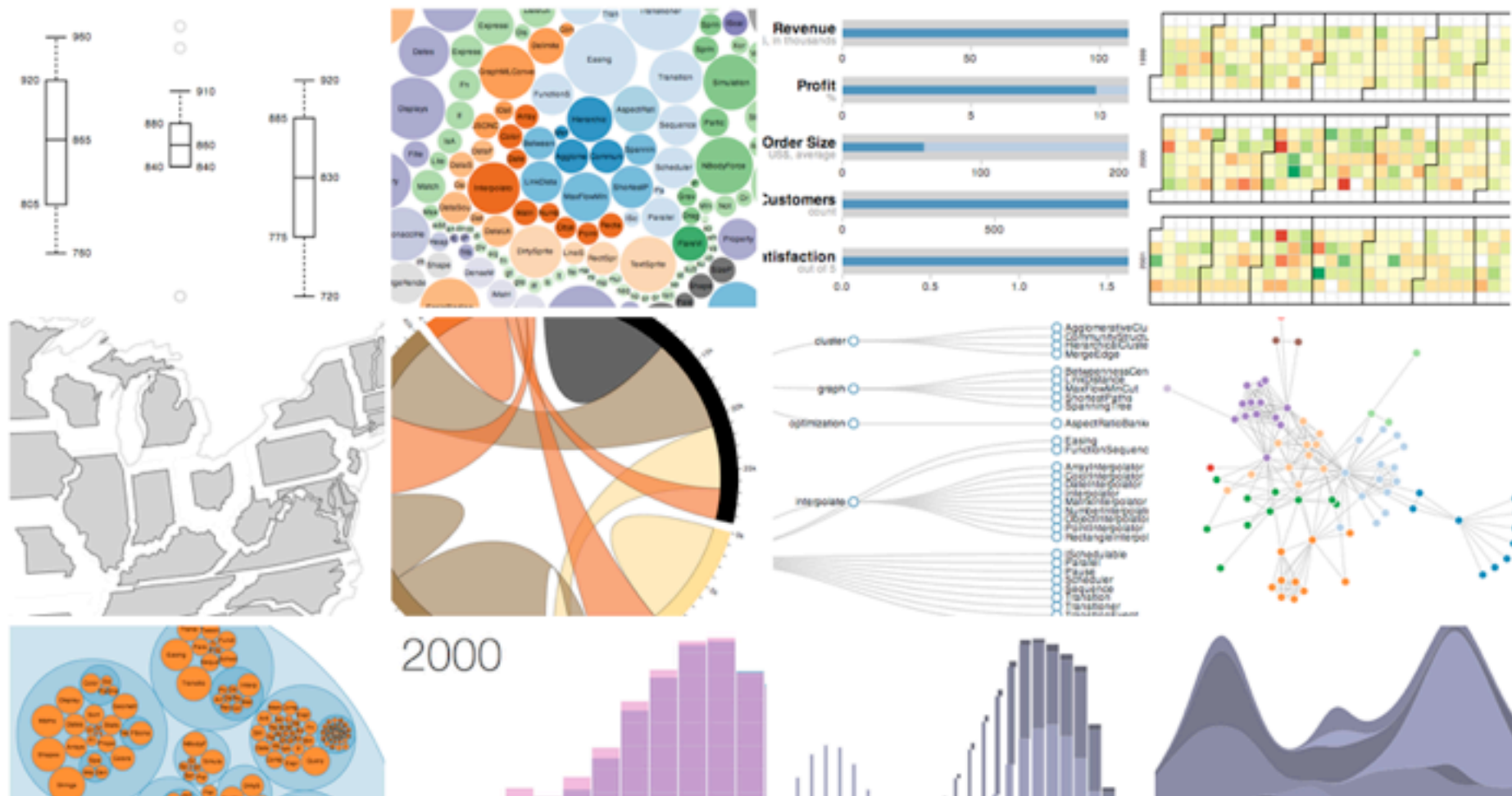
Edit Page

Page History

[Wiki](#) > Gallery

Welcome to the **D3 gallery**. Feel free to add links to your work! More examples are available in the [D3 repository](#). If you want to share an example and don't have your own hosting, consider using [Gist](#) and [bl.ocks](#).

Visual Index



D3 is Immense.



Last edited by benjchristensen, a day ago
[Delete this Page](#)



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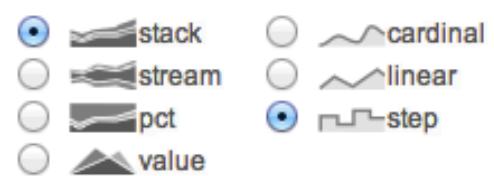


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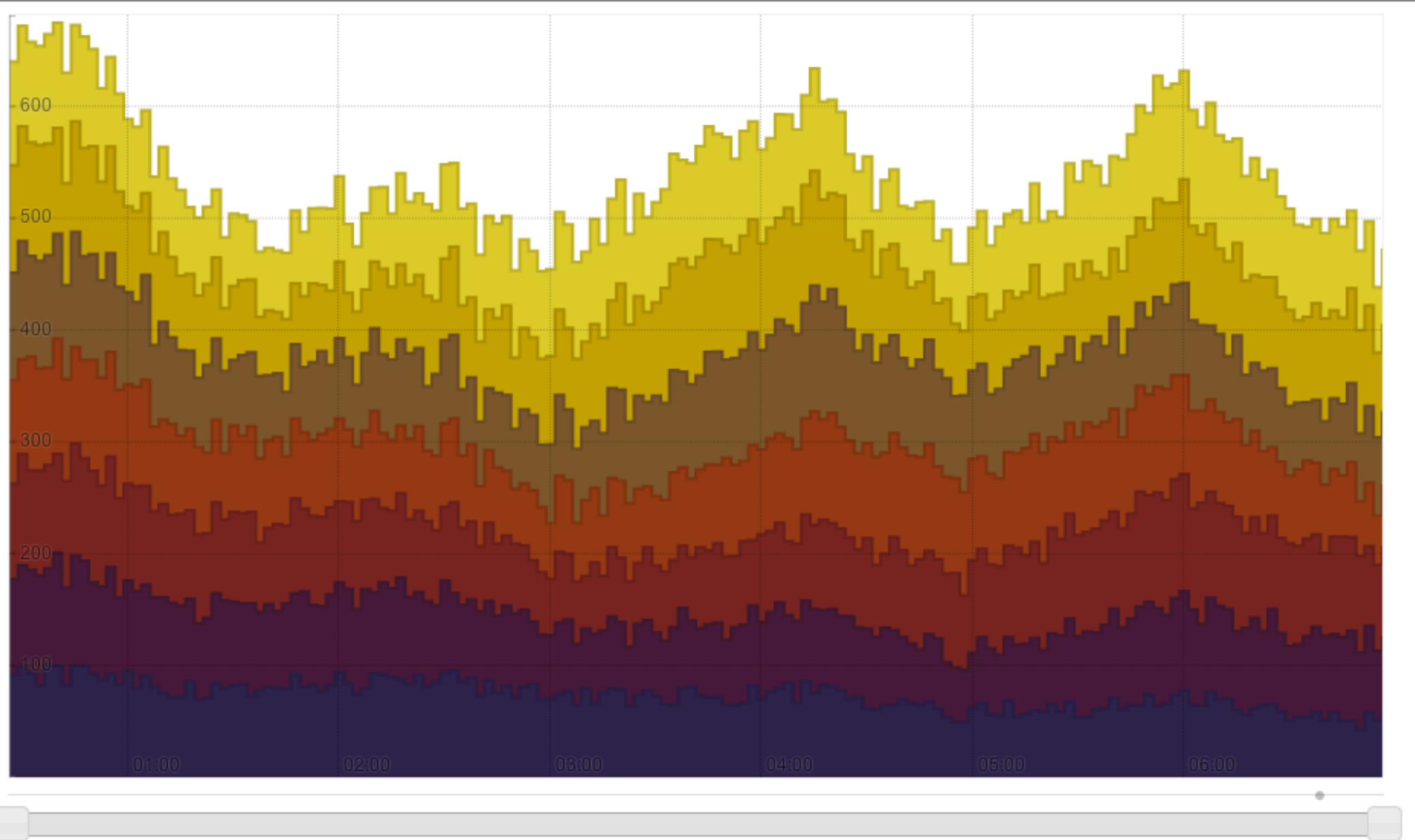
D3 is Immense.

Random Data in the Future

- ✓ New York
- ✓ London
- ✓ Tokyo
- ✓ Paris
- ✓ Amsterdam
- ✓ Shanghai
- ✓ Moscow



Smoothing



Rickshaw (based on D3) is powerful

HTML Charting Libraries

1. Highcharts
2. D3
3. Rickshaw
4. Flotr 2

HTML Charting Libraries

1. Highcharts
2. D3
3. Rickshaw
4. Flotr 2



7th
Takeaway

6. REFERENCES

Where can I read more?

Books

Stephen Few - "Dashboard Design" & "Now you see it"

Brian Suda - "Designing with Data"

Edward Tufte - The first two.

Blogs

Stephen Few -> <http://perceptualedge.com>

Intercom (me) -> <http://blog.intercom.io>

TIME REMAINING

INTRO

KNOW YOUR AUDIENCE

KNOW YOUR DOMAIN

KNOW YOUR DATA

KNOW YOUR VISUALS

KNOW YOUR STYLE

CLOSING POINTS



FIN

TOPIC





Thanks everyone! – @destraynor