

So, you want to be a Data Vizard.

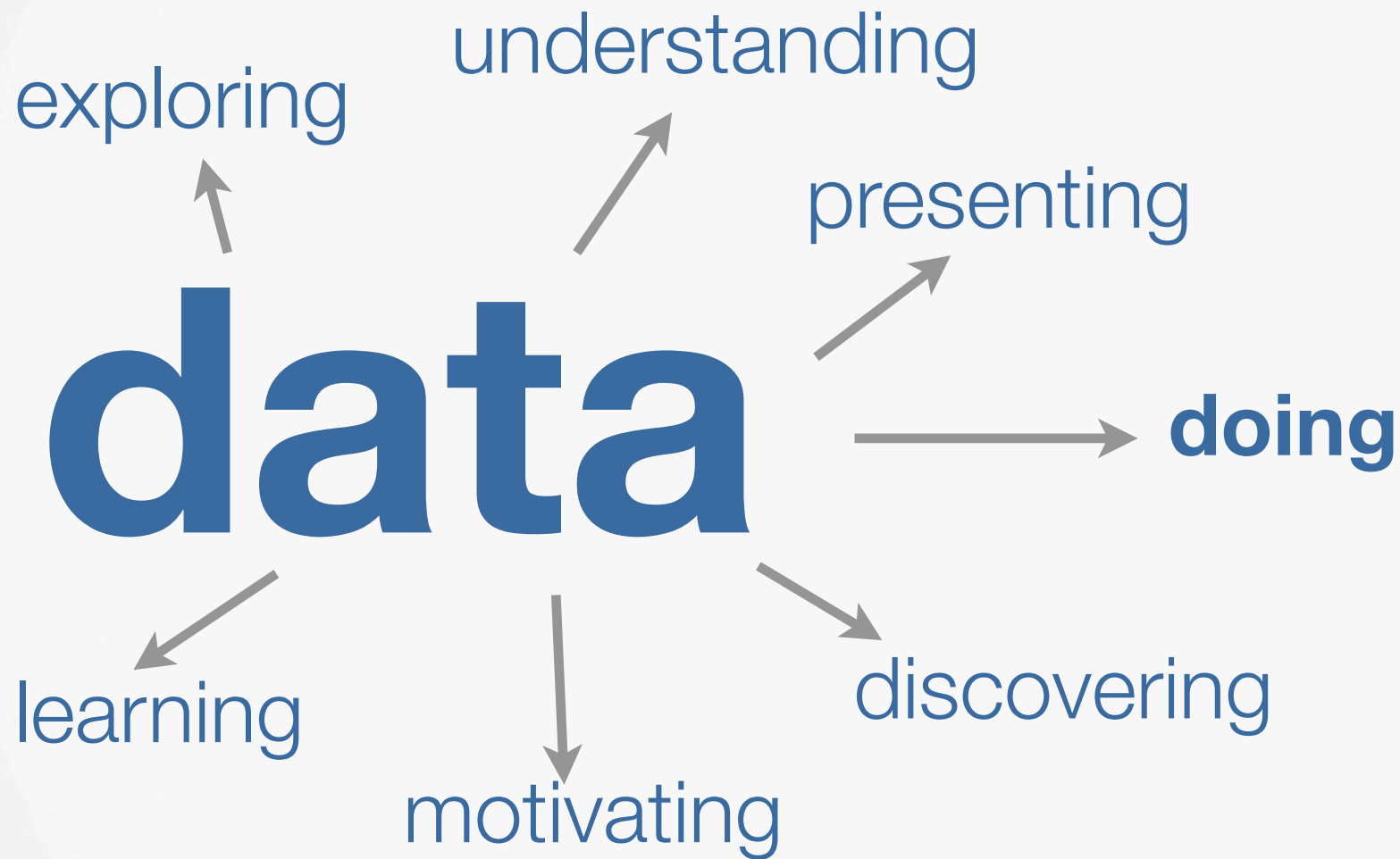
Zach Gemignani
CEO + founder
zach@juiceanalytics.com

Ken Hilburn
VP, Community Enablement
ken@juiceanalytics.com



we craft applications that make
using data enjoyable and rewarding

data



data → **doing**

data → **doing**



From data to doing

vizard fundamentals

Our tiny brains

How we see

Visual comprehension

Chart dejunking

Fonts

dashboard design

Needs + constraints

Principles

Structure + flow

Design Patterns

Wireframes

From data to doing

vizard fundamentals

Our tiny brains

How we see

Visual comprehension

Chart dejunking

Fonts

dashboard design

Needs + constraints

Principles

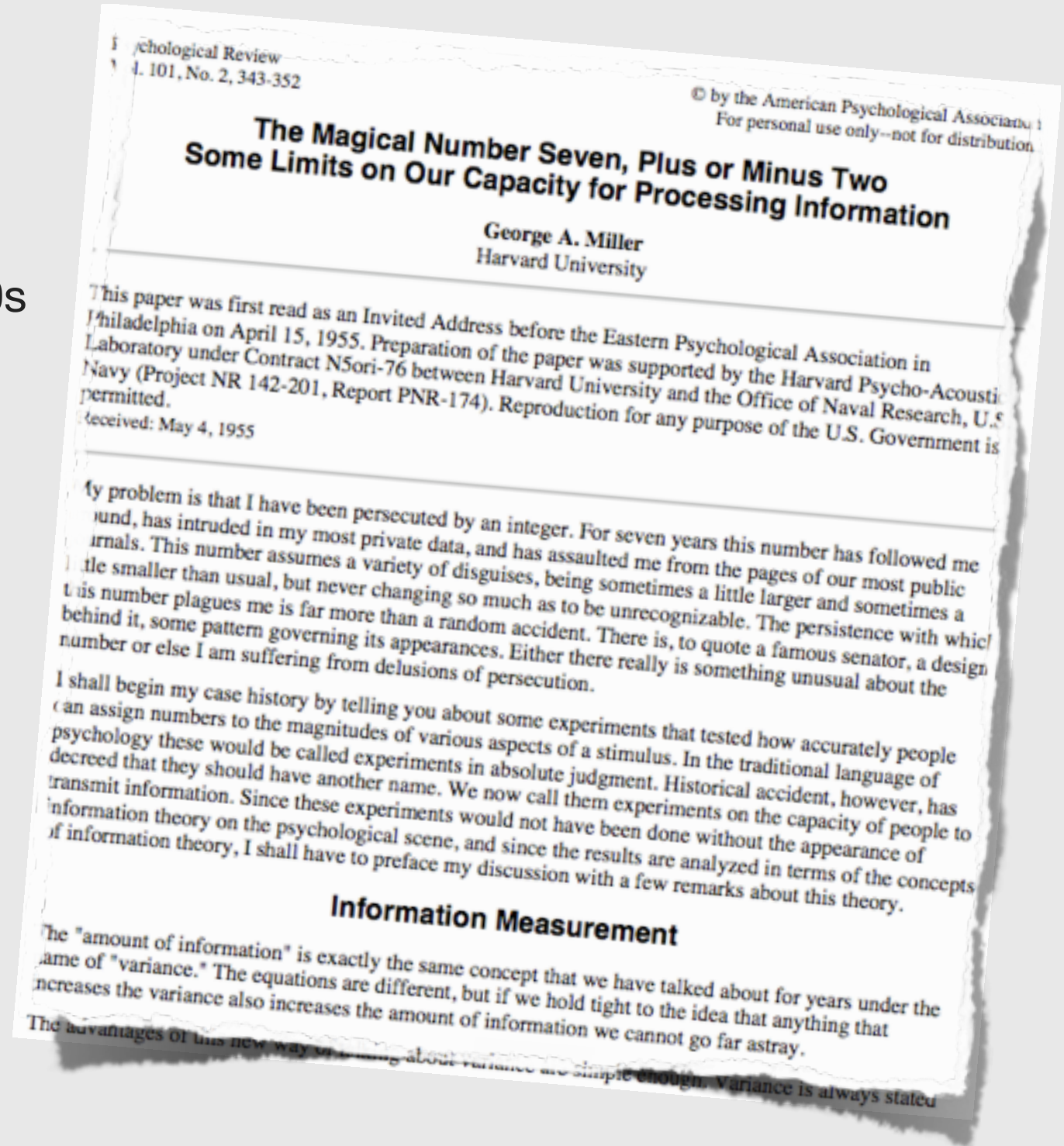
Structure + flow

Design Patterns

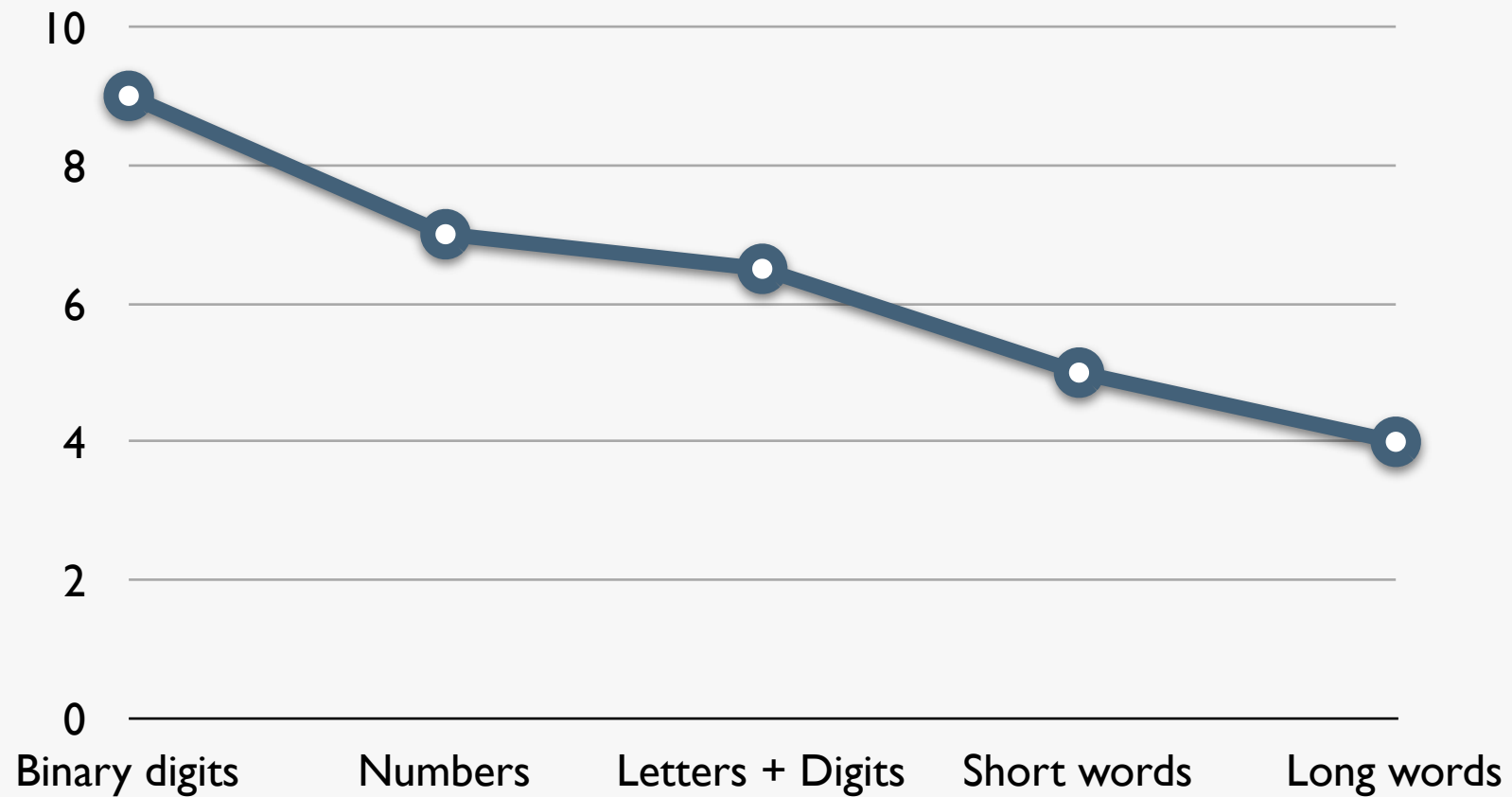
Wireframes

Surveying the results of psychological experiments in the 1950s

“My problem is that I have been persecuted by an integer.”



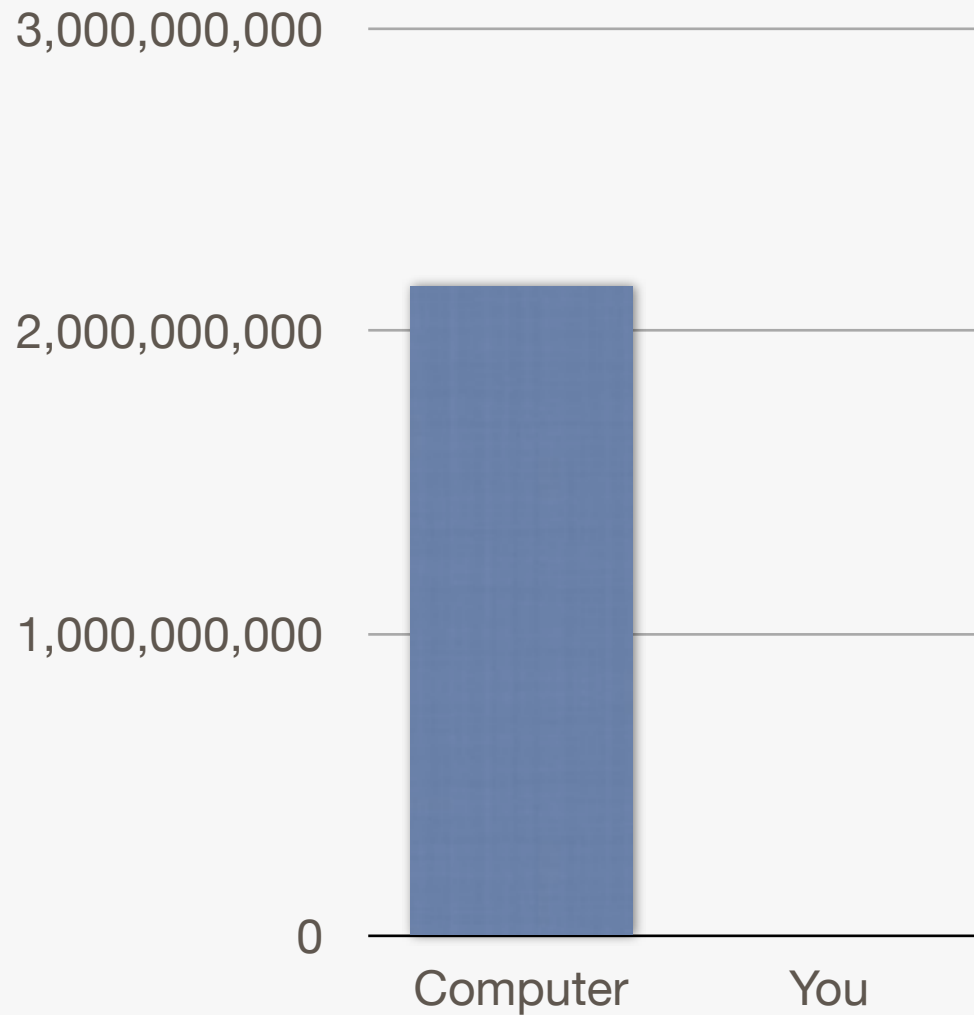
Number of items we can recall



2,147,483,648 bytes

7 digits
5 one syllable words
2 seconds audio
3 visual images

Working memory capacity



gimpY tame polish spade VI8 ZYETYFC
 join again flag canvas Kc 3/2 T
 porter mine horse sound jarruvat depuis
 jewel weight rice mark EX 1000 SDH
 longP round nserp cwin Kixhok FREE
 2LKN X3 6 G D V2 P N DMN SMT L
 5 2 B P XKM9 1 6 3 J TX 5 T 7 6 SW
 mu6 t 5 z d g j a y g 6 X 4 5 Q R
 9 R \$ 234417 6 9 9 9 T 593744 PihZZRL 2Xw!@p

Q61C25

How we judge amounts

People perceive...

Accurately

Length of a line

Position in 2D space

Semi-accurately

Area

Color intensity

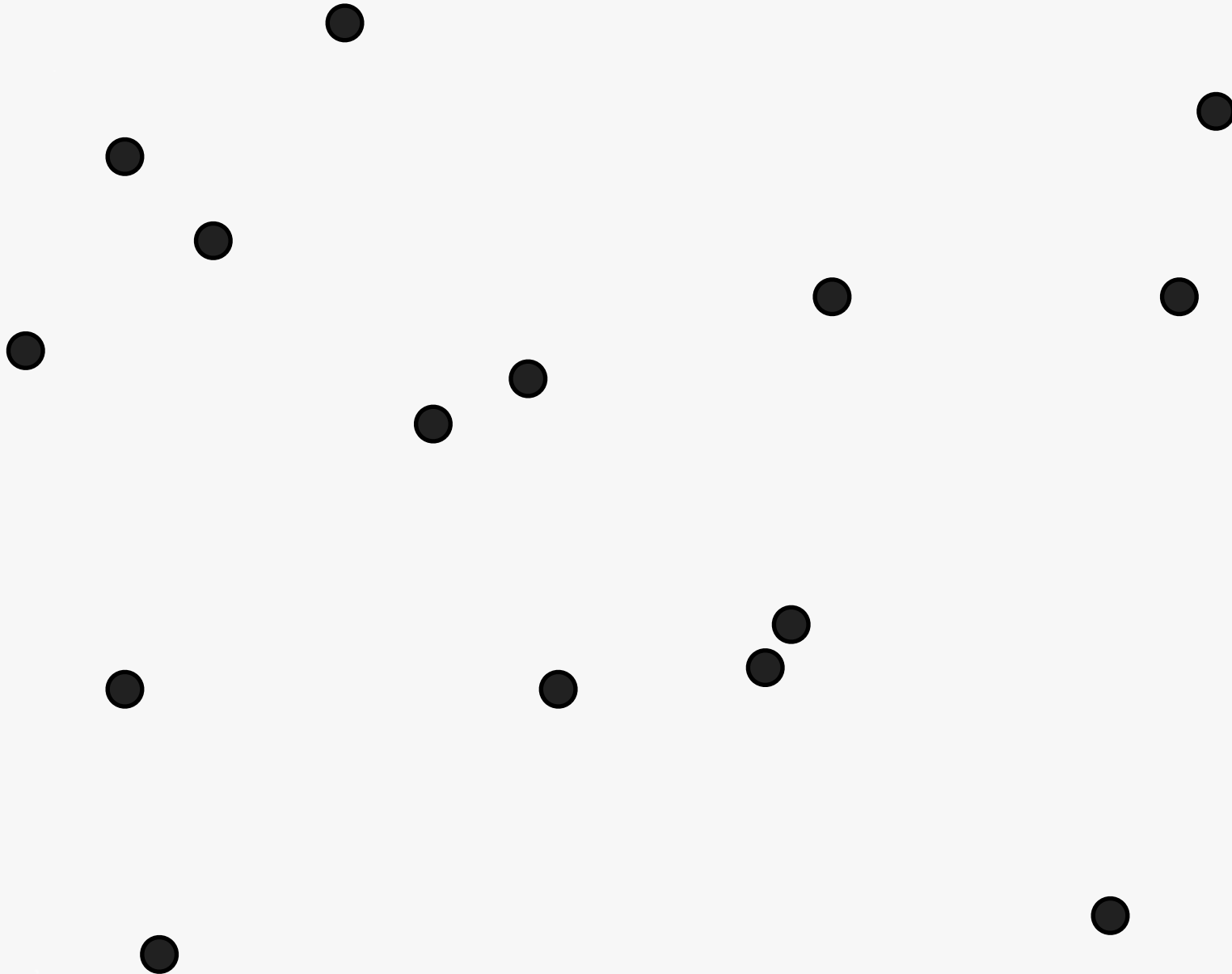
Radial distance

Position in 3D space

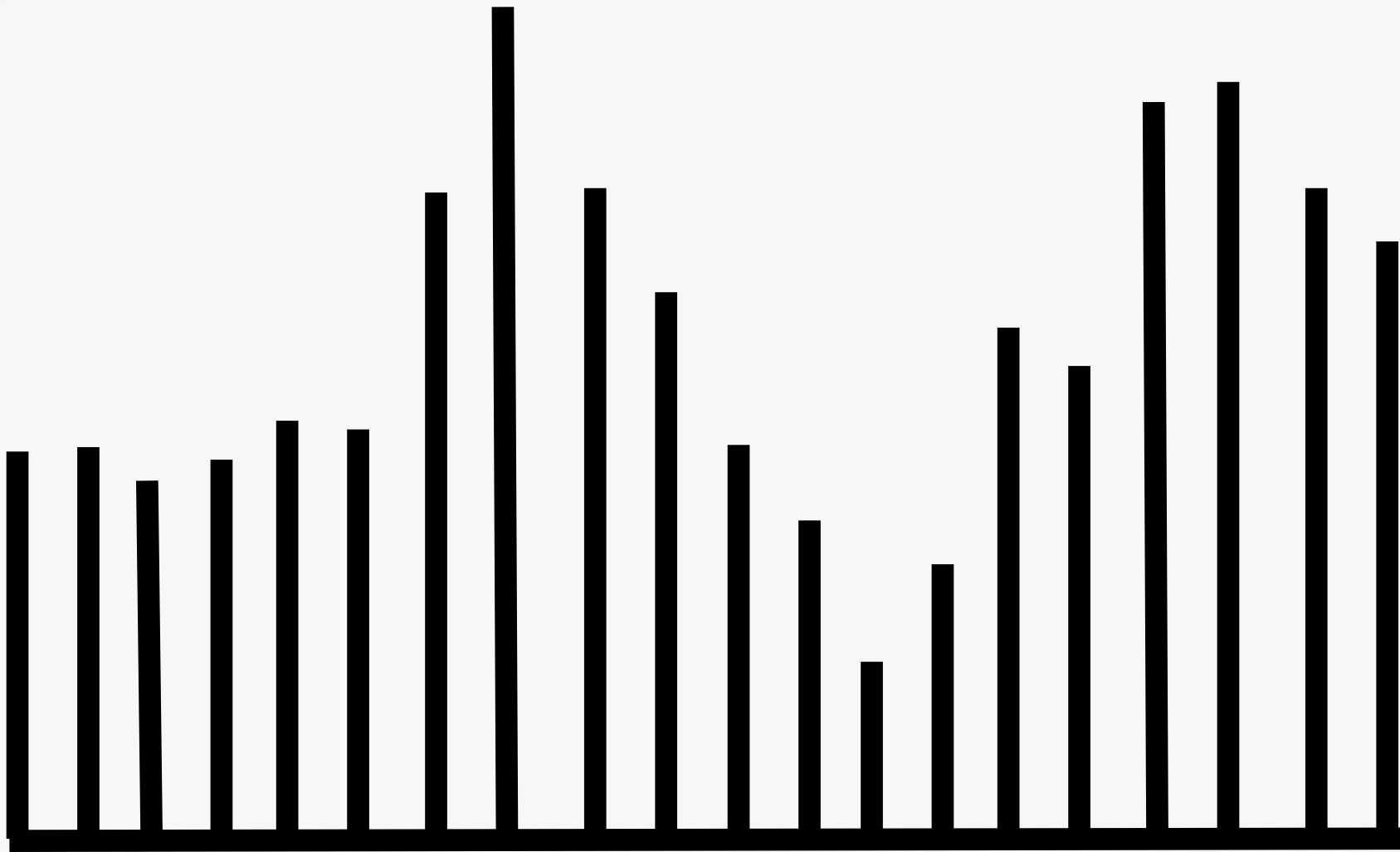
Not accurately at all

Odds of winning in Vegas

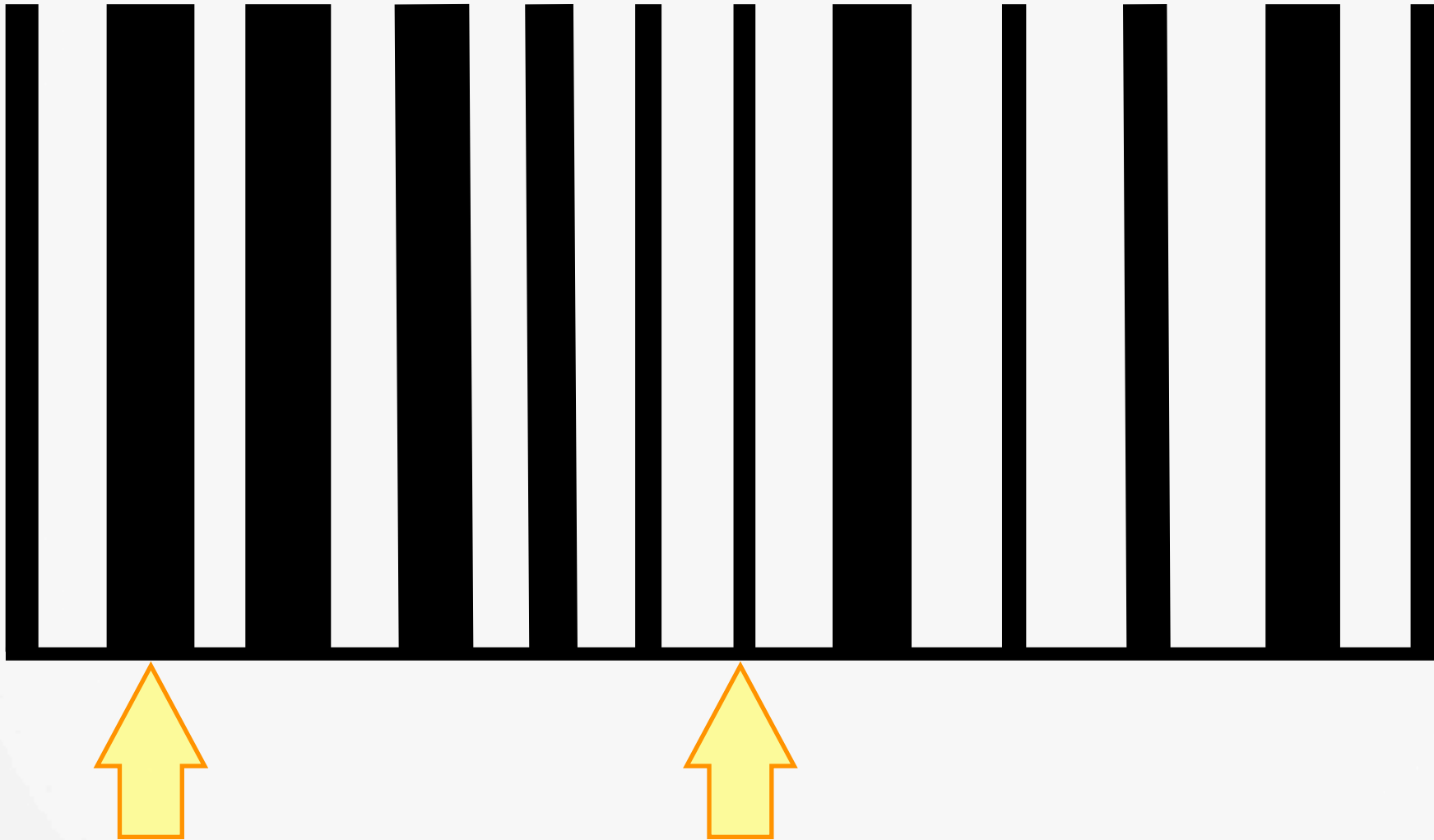
Accurately: Position in 2D space



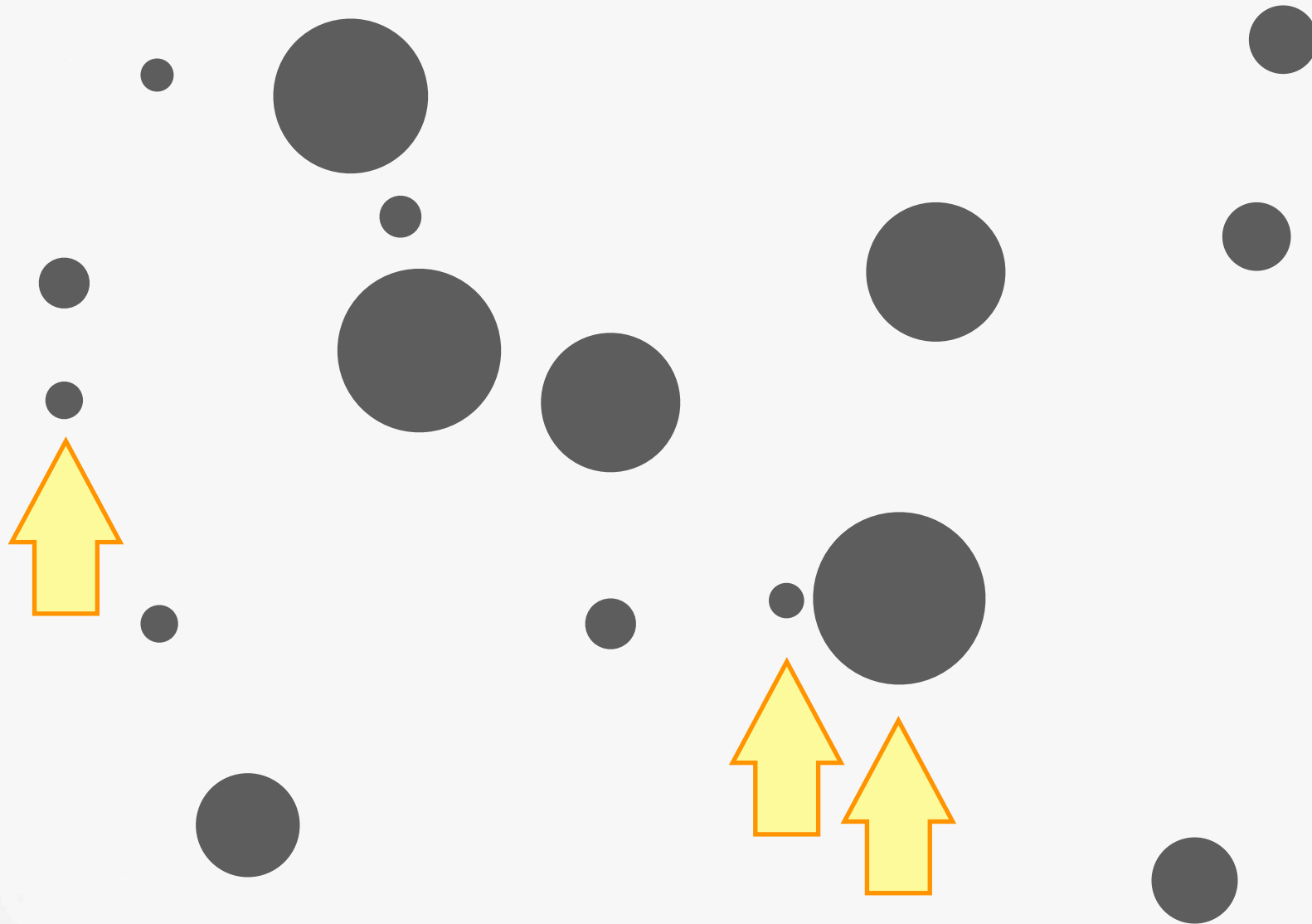
Accurately: 2D length



Semi-accurately: 2D area



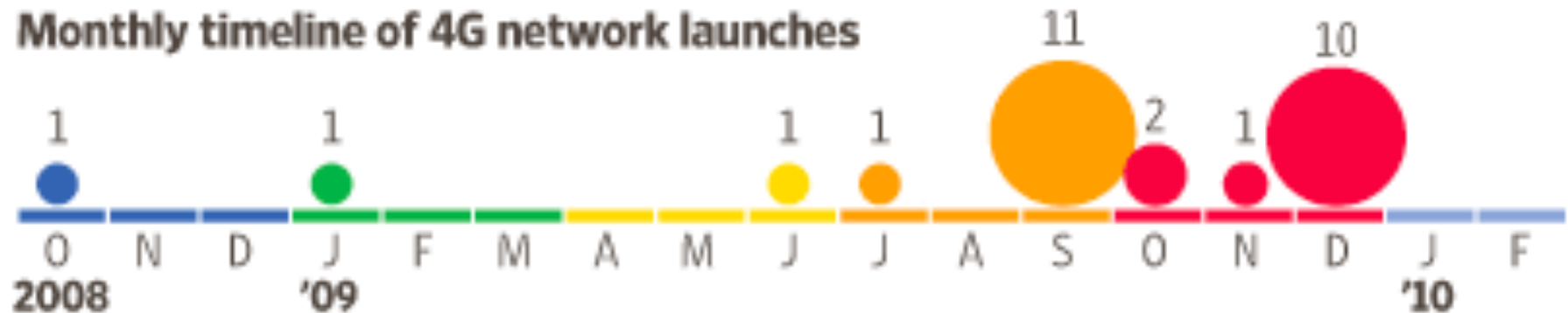
Semi-accurately: 2D area



An example

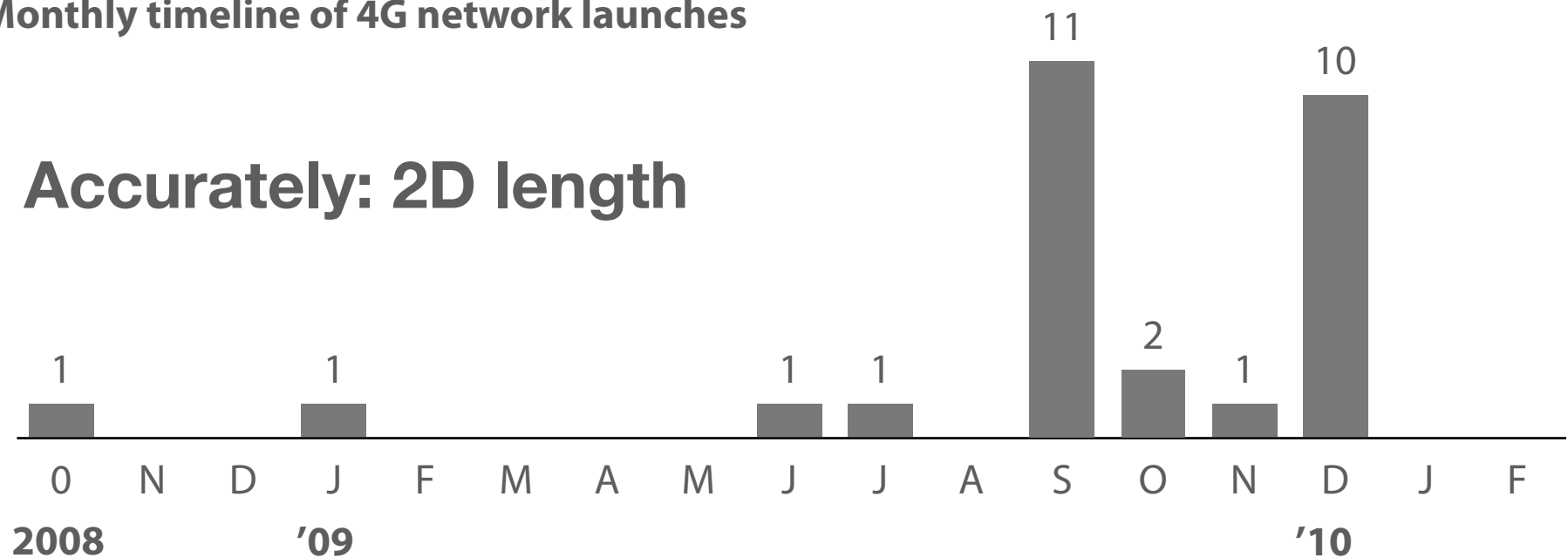
Semi-accurately: 2D area

Monthly timeline of 4G network launches



Monthly timeline of 4G network launches

Accurately: 2D length



People perceive...

Accurately

Length of a line

Position in 2D space

Semi-accurately

Area

Color intensity

Radial distance

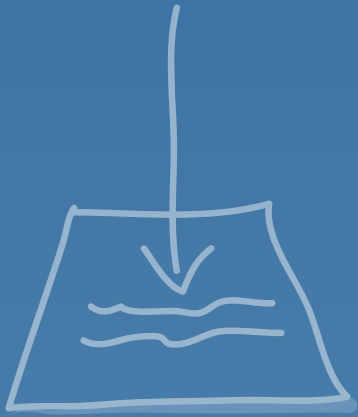
Position in 3D space

Not accurately at all

Odds of winning in Vegas



exercise

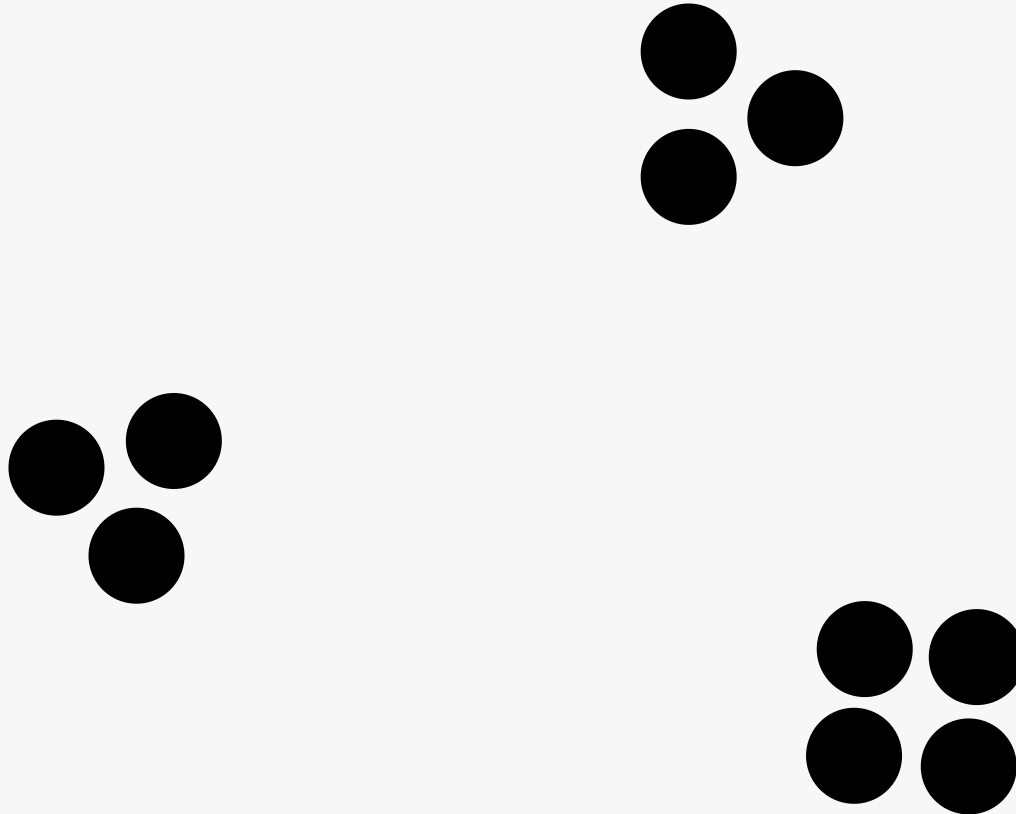


Mark components on your report that could be better displayed using *2D lengths* or *areas*.

6 principles of visual comprehension

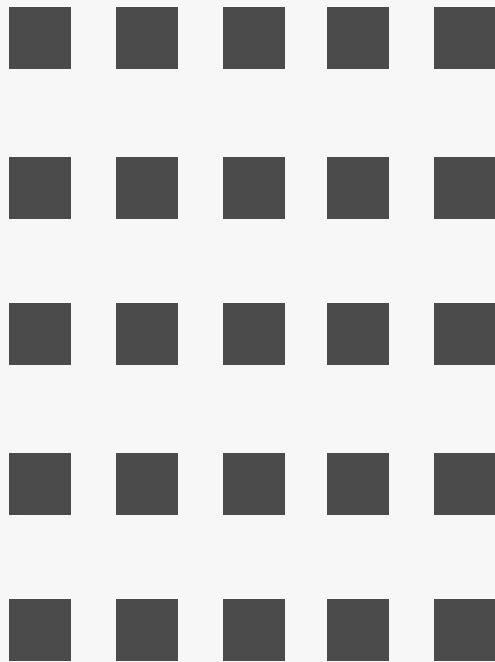
1) Principle of Proximity

Things that are spatially close belong to a group



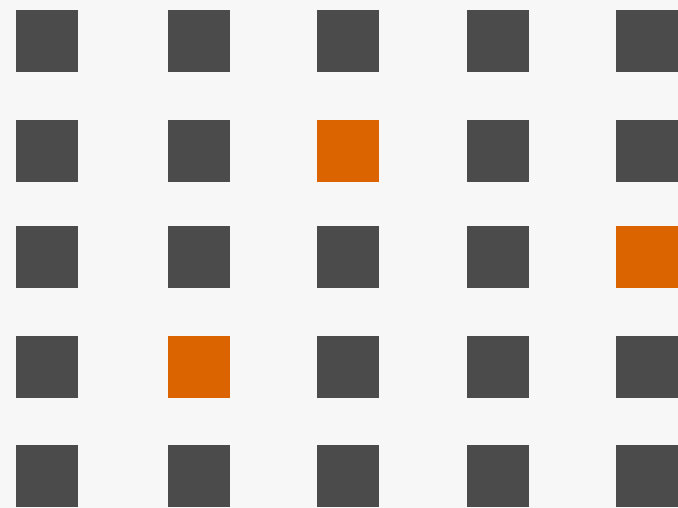
1) Principle of Proximity

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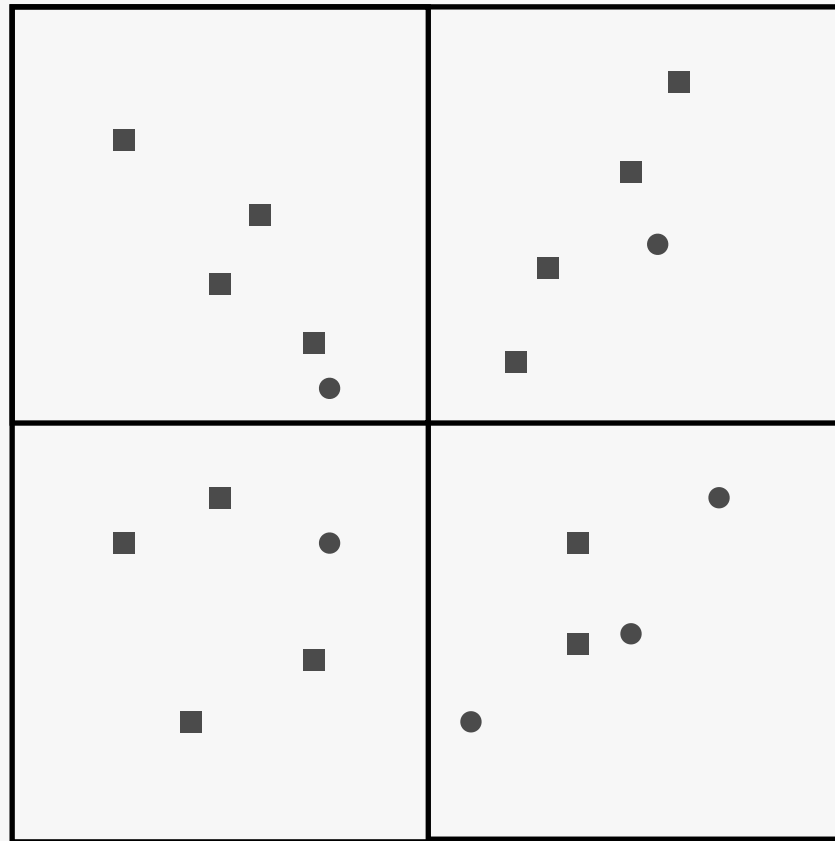
2) Principle of Similarity

Things that share color, size or shape belong to a group



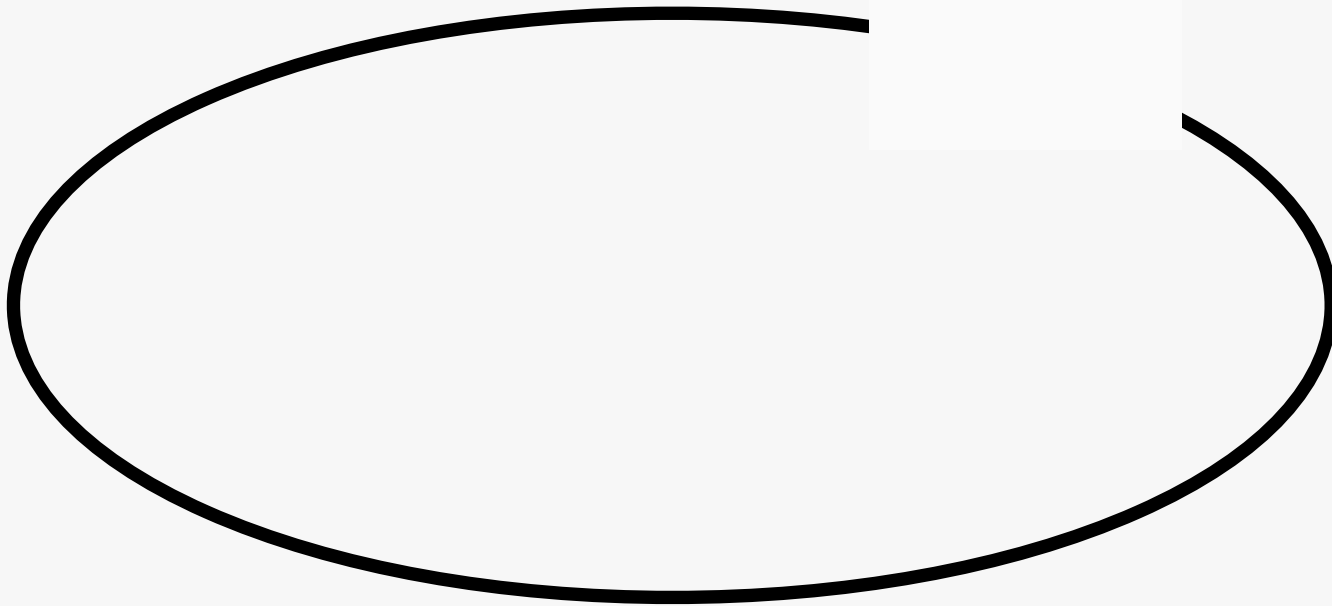
3) Principle of Enclosure

Objects that are enclosed by a shape will be seen as a group



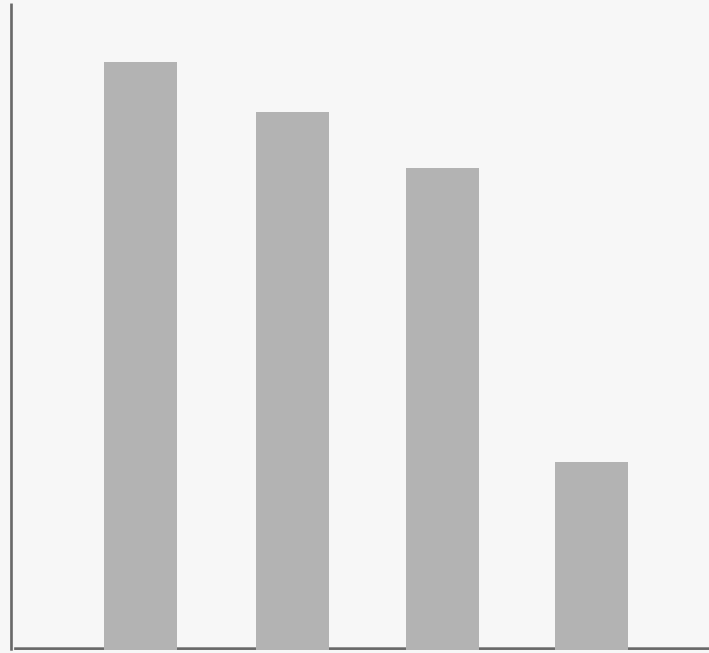
4) Principle of Closure

We strive to perceive shapes as complete



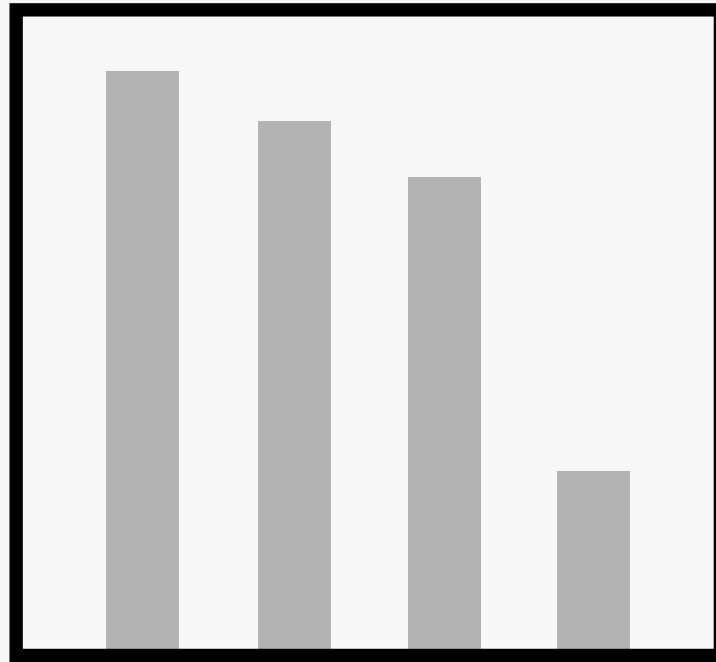
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4) Principle of Closure

We strive to perceive shapes as complete



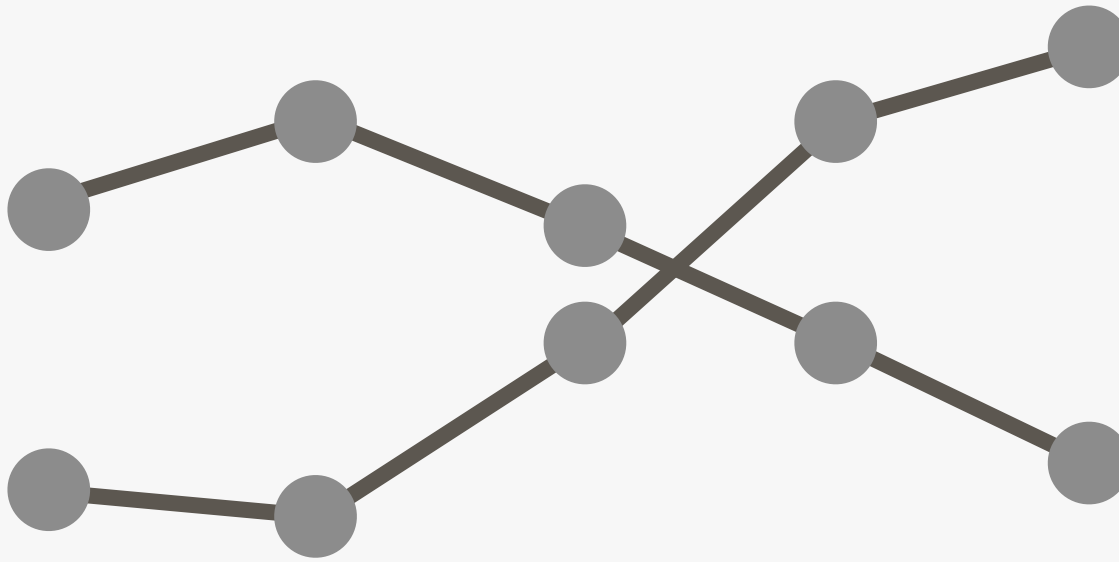
5) Principle of Continuity

Objects that are aligned are perceived as a group



6) Principle of Connection

Objects that are connected are part of the same group



Proximity

Things that are spatially close belong to a group

Similarity

Things that share color, size or shape belong to a group

Enclosure

Objects that are enclosed by a shape will be seen as a group

Closure

We strive to perceive shapes as complete

Continuity

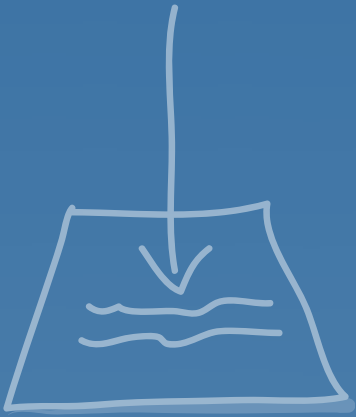
Objects that are aligned are perceived as a group

Connection

Objects that are connected are part of the same group



exercise



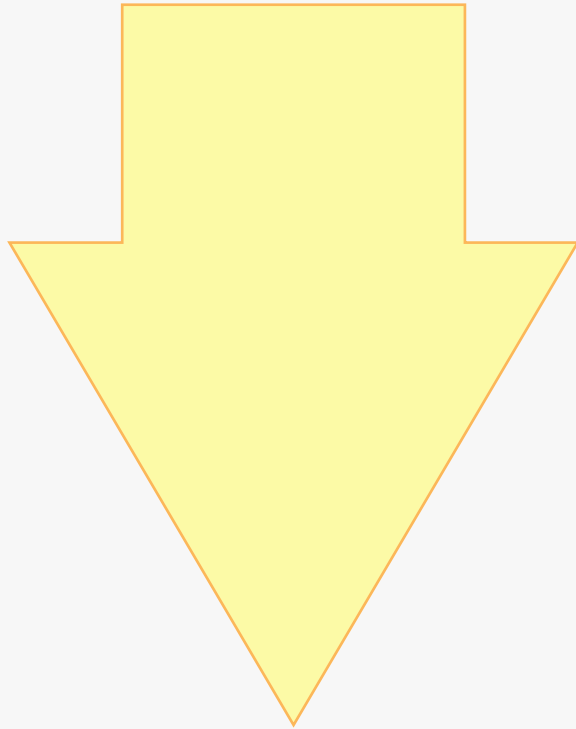
**Apply the 6 principles of
visual comprehension to your
report.**

Chart dejunking



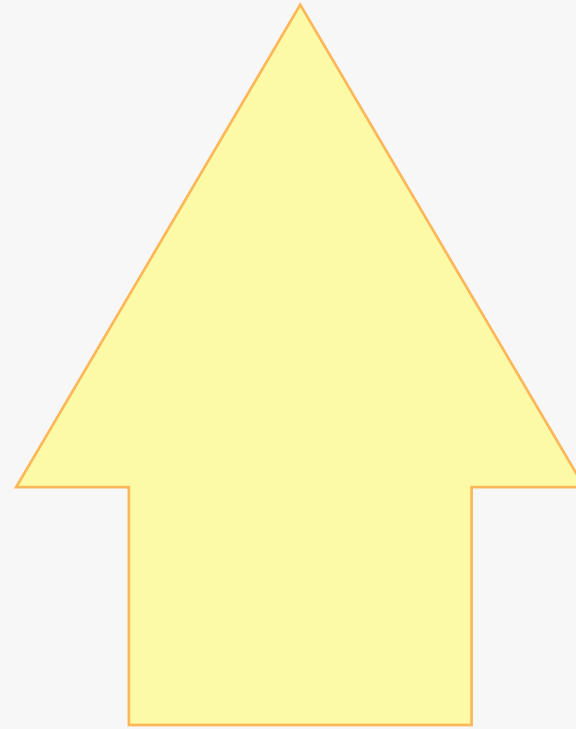
Monday, June 13, 2011

Fundamental rules of chart design



Reduce *chartjunk*

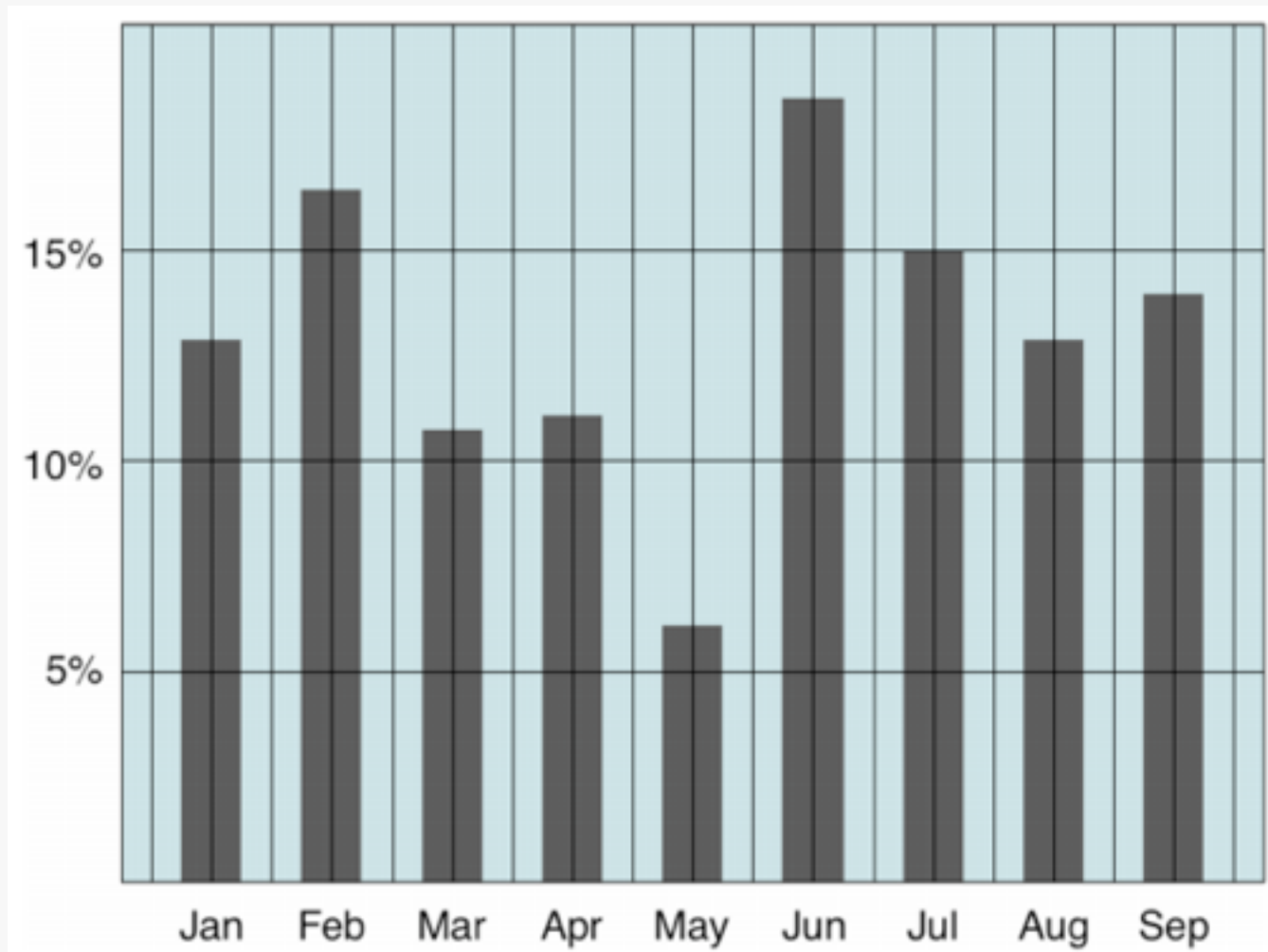
(remove chart elements that are decorative or ornamental)



Increase *data-ink* ratio

(make every pixel tell a story about your data)

Remove chart junk

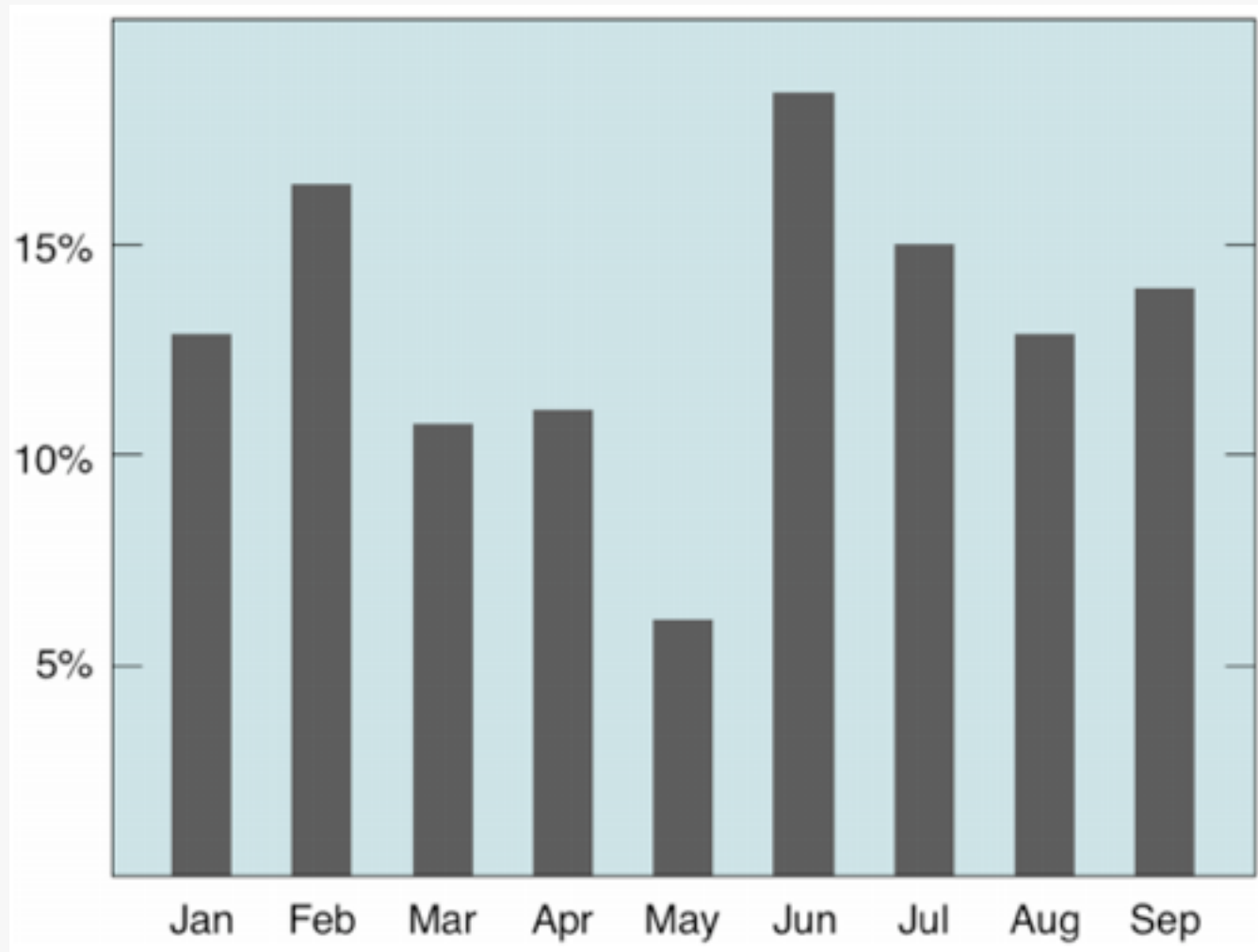


Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

Juice, Inc. ©2010



Remove chart junk

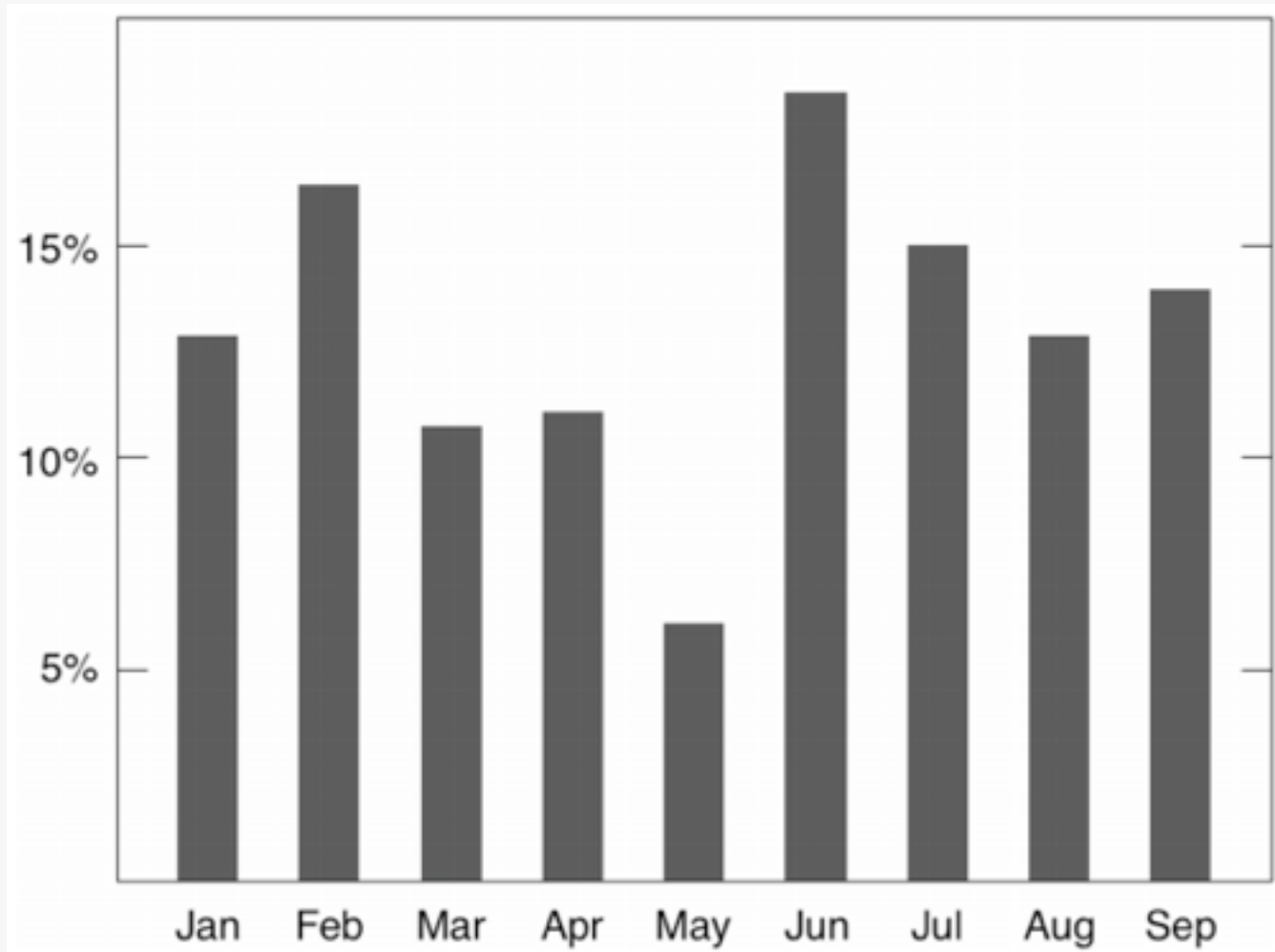


Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

Juice, Inc. ©2010



Increase data ink

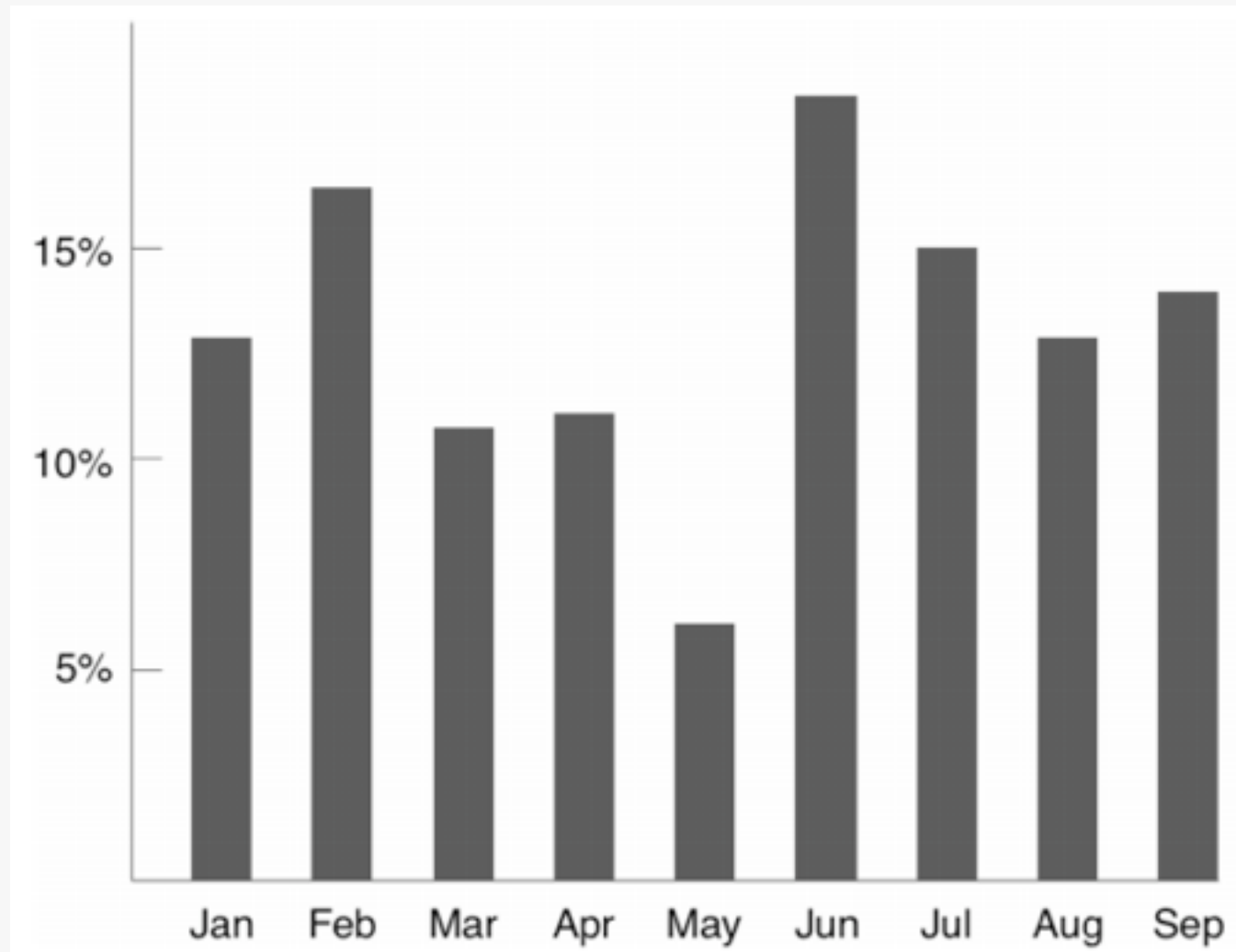


Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

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Increase data-to-ink ratio

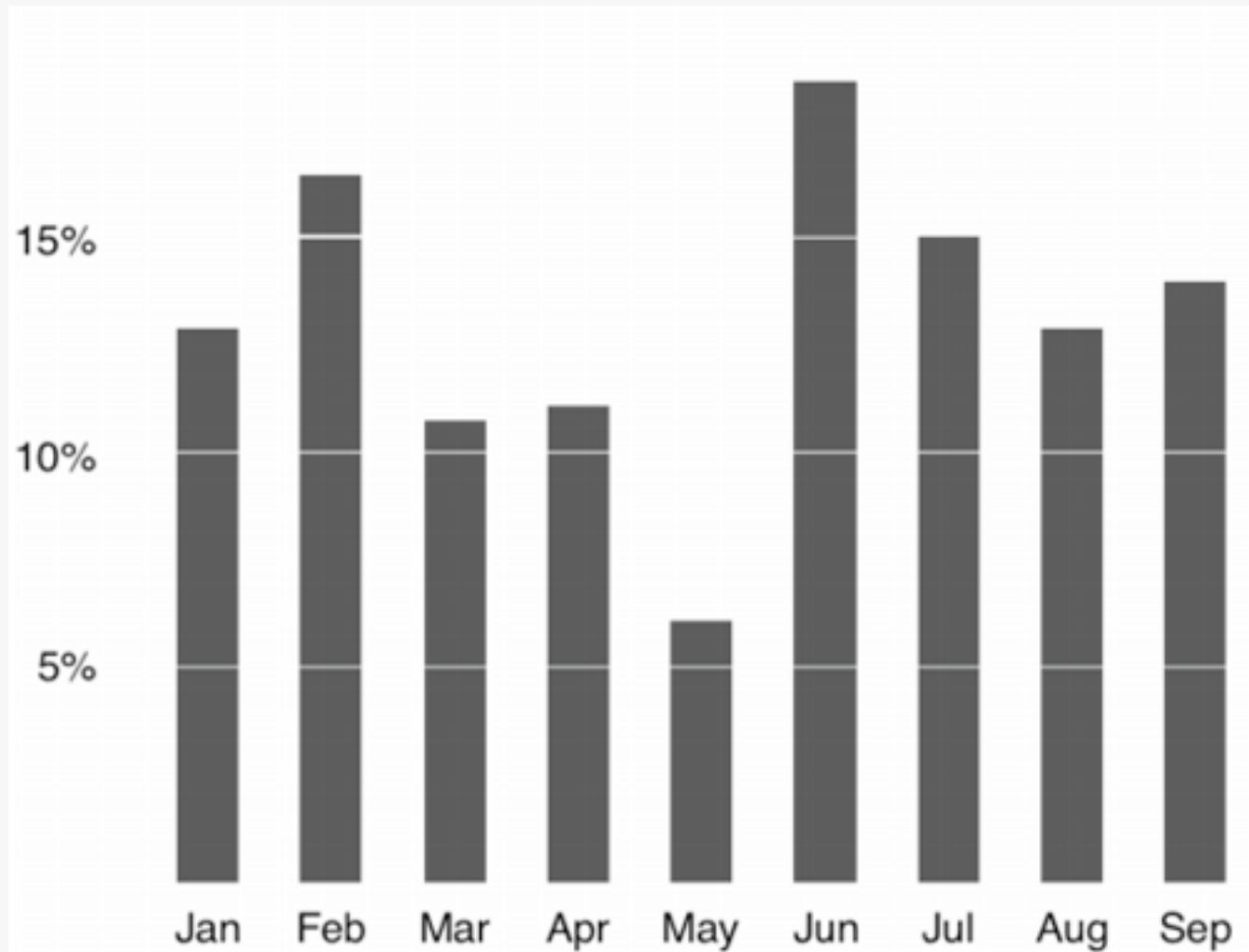


Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

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Increase data ink

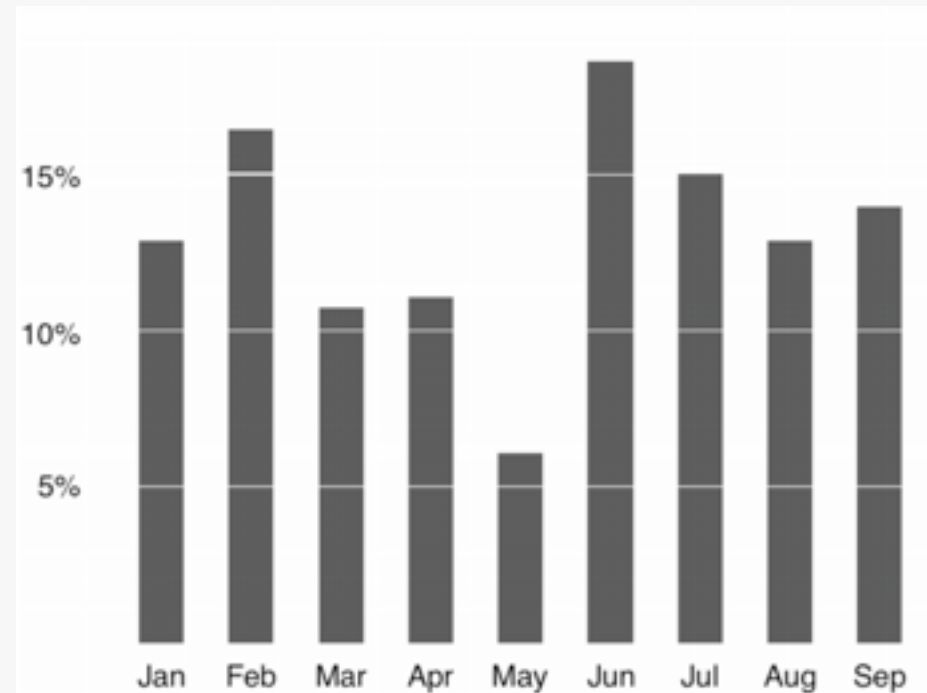
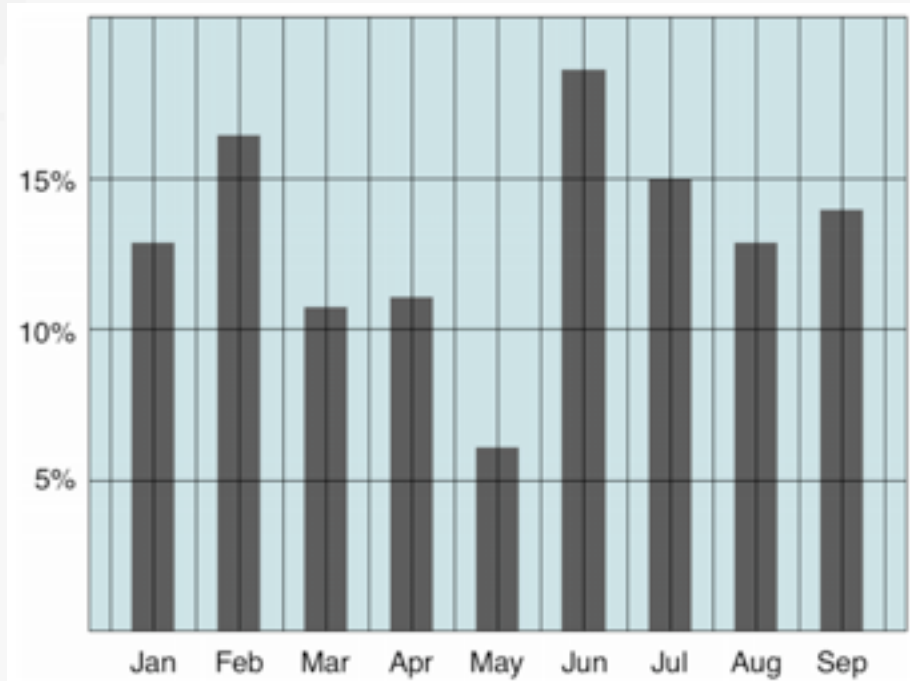


Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

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Use your brain's strengths

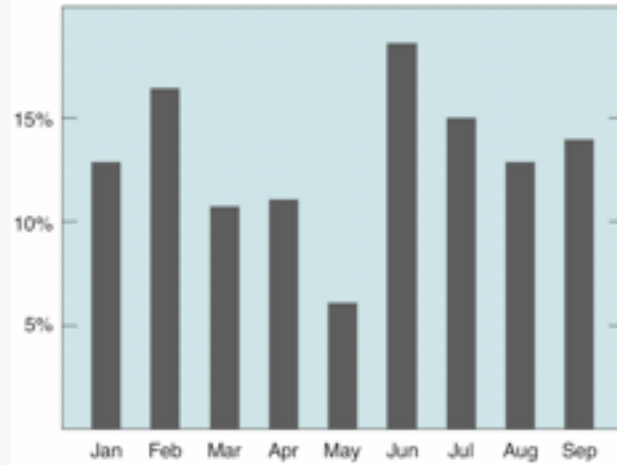
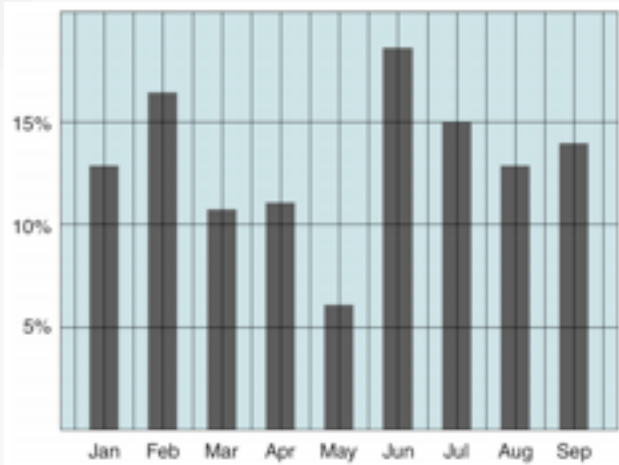


Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

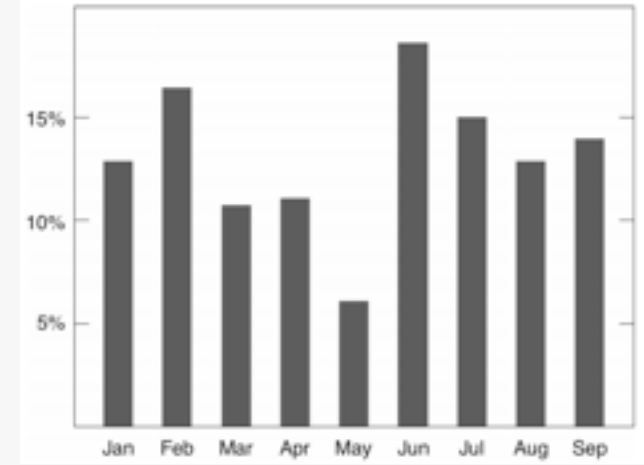
Juice, Inc. ©2010



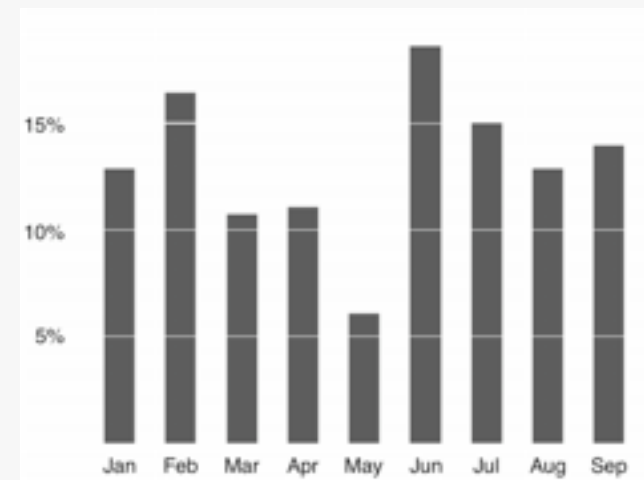
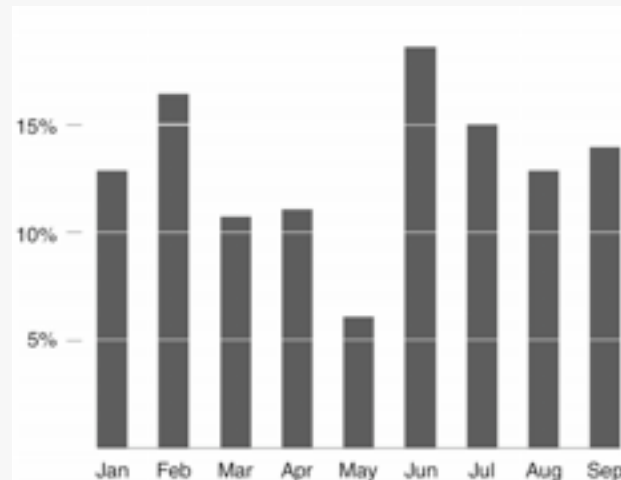
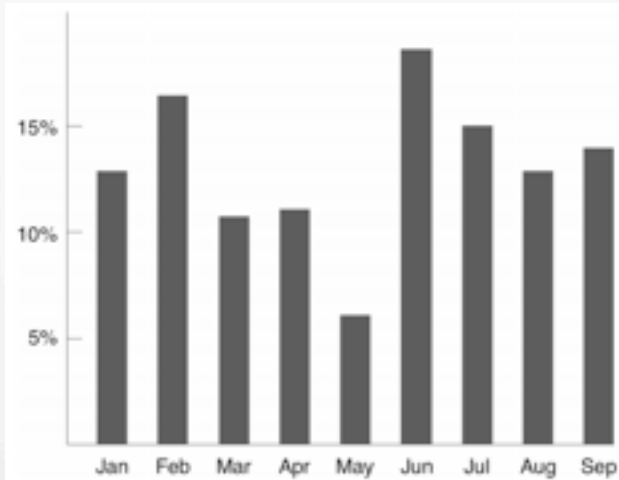
Remove chart-junk



Increase data-ink

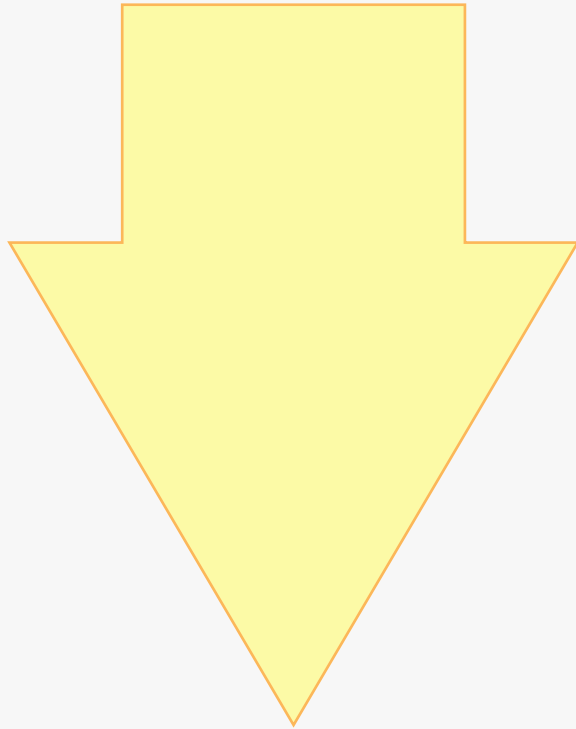


Increase data-ink



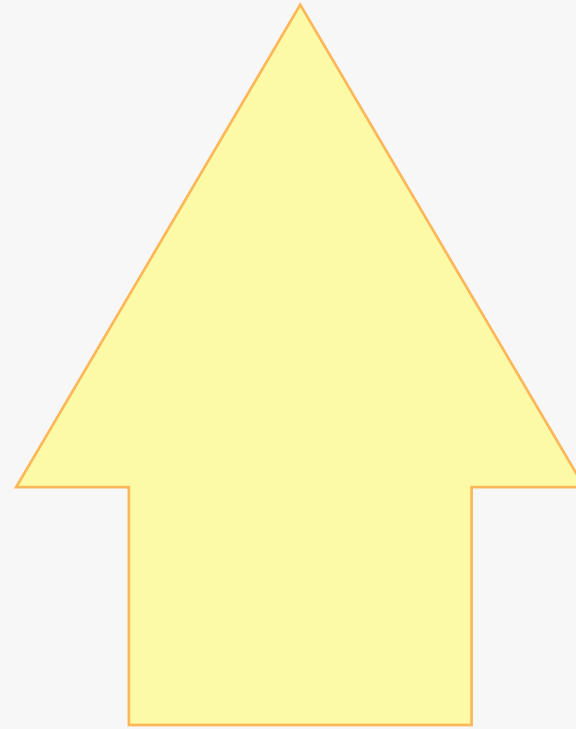
Images courtesy of Tim Bray: <http://www.tbray.org/ongoing/When/200x/2003/03/13/Data-Ink>

Fundamental rules of table design



**Reduce
*tablejunk***

(remove elements that are
decorative or ornamental)



Increase *data-ink ratio*

(make every character meaningful)

Reduce tablejunk

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	\$61,184,250	\$72,346,275	\$72,505,825	\$77,893,950	\$80,657,500	\$60,521,550	\$58,348,000	\$56,943,475
Atlanta Braves	\$68,134,250	\$70,448,200	\$74,073,950	\$75,379,325	\$96,872,425	\$79,024,800	\$85,148,575	\$79,708,500
Baltimore Orioles	\$73,057,675	\$70,213,300	\$62,436,500	\$47,260,525	\$59,872,650	\$45,725,575	\$66,580,850	\$64,808,675
Boston Red Sox	\$55,142,125	\$64,950,275	\$85,592,900	\$90,305,050	\$89,473,775	\$104,340,450	\$108,314,225	\$111,204,200
Chicago White Sox	\$22,740,725	\$26,839,225	\$57,743,525	\$52,826,700	\$49,048,075	\$62,704,325	\$69,655,550	\$98,918,900
Chicago Cubs	\$51,889,225	\$50,449,450	\$61,553,675	\$67,581,100	\$72,092,250	\$78,535,925	\$77,866,900	\$84,679,625
Cincinnati Reds	\$28,588,575	\$43,395,550	\$43,488,350	\$37,542,000	\$50,874,800	\$38,453,450	\$49,715,225	\$53,115,200
Cleveland Indians	\$60,769,300	\$72,962,375	\$76,645,825	\$65,757,875	\$39,382,925	\$28,807,750	\$36,060,700	\$56,795,875
Colorado Rockies	\$53,716,200	\$54,563,575	\$65,803,700	\$52,639,850	\$55,818,050	\$57,670,000	\$41,197,425	\$34,277,500
Detroit Tigers	\$30,450,600	\$53,949,225	\$44,492,125	\$49,150,000	\$47,272,125	\$41,387,100	\$61,605,525	\$76,205,625
Florida Marlins	\$17,477,775	\$17,303,450	\$29,586,800	\$37,482,075	\$43,185,975	\$38,998,175	\$55,903,675	\$14,421,625
Houston Astros	\$49,643,275	\$47,489,925	\$55,909,875	\$58,748,525	\$67,778,700	\$74,666,300	\$73,825,975	\$88,991,825
Kansas City Royals	\$22,794,225	\$20,922,325	\$30,726,725	\$40,738,800	\$38,959,125	\$39,674,175	\$34,149,075	\$40,770,700
Los Angeles Dodgers	\$70,773,175	\$81,596,550	\$93,949,100	\$91,202,850	\$101,824,625	\$86,244,550	\$67,524,575	\$91,830,500
Anaheim/Los Angeles Angels	\$39,265,275	\$42,886,800	\$37,554,975	\$55,108,625	\$73,177,475	\$93,596,925	\$81,911,925	\$103,625,325
Milwaukee Brewers	\$38,329,400	\$28,519,800	\$39,897,525	\$43,351,575	\$35,023,275	\$27,518,500	\$40,234,825	\$56,790,000
Minnesota Twins	\$18,502,400	\$15,884,125	\$22,548,800	\$38,677,875	\$53,466,350	\$51,524,050	\$52,421,300	\$61,355,825
Montreal/Washington Nationals	\$14,977,325	\$30,006,750	\$28,978,750	\$34,527,225	\$49,950,950	\$35,997,925	\$40,484,575	\$52,722,925
New York Mets	\$57,824,475	\$79,509,775	\$83,191,450	\$90,993,850	\$100,748,800	\$96,758,950	\$97,009,400	\$97,020,275
New York Yankees	\$75,923,825	\$79,774,350	\$88,541,850	\$108,559,125	\$133,670,525	\$157,616,825	\$198,017,725	\$177,376,950
Oakland Athletics	\$22,340,700	\$29,603,075	\$31,306,250	\$36,740,500	\$48,423,875	\$55,393,675	\$53,720,450	\$62,322,050
Philadelphia Phillies	\$26,118,525	\$40,782,750	\$40,061,700	\$51,745,525	\$61,017,250	\$86,314,050	\$91,671,075	\$81,734,575
Pittsburgh Pirates	\$18,498,050	\$27,815,700	\$42,498,650	\$36,485,850	\$48,698,300	\$29,840,675	\$34,047,325	\$41,846,200
San Diego Padres	\$42,703,875	\$45,684,175	\$35,493,625	\$35,711,200	\$37,858,325	\$54,639,500	\$56,150,175	\$62,254,625
Seattle Mariners	\$48,041,825	\$56,649,050	\$67,546,875	\$80,282,675	\$80,726,400	\$72,807,000	\$67,096,350	\$84,927,400
San Francisco Giants	\$44,943,550	\$51,670,975	\$58,641,350	\$72,499,850	\$79,184,775	\$66,144,500	\$86,045,600	\$90,862,075
St. Louis Cardinals	\$42,313,275	\$56,901,725	\$66,612,800	\$71,248,325	\$67,057,175	\$75,633,525	\$89,730,625	\$85,039,625
Tampa Bay Rays	\$29,269,400	\$50,617,050	\$50,881,125	\$30,696,425	\$19,630,000	\$27,321,000	\$26,690,675	\$31,623,175
Texas Rangers	\$71,956,675	\$68,073,000	\$71,374,525	\$90,777,700	\$87,105,400	\$47,263,775	\$46,089,375	\$52,796,875
Toronto Blue Jays	\$42,797,425	\$44,459,925	\$67,677,225	\$66,262,350	\$47,480,550	\$48,093,275	\$43,621,625	\$66,587,975
Average	\$43,338,913	\$49,875,624	\$56,243,878	\$59,605,910	\$63,877,748	\$62,107,276	\$66,361,310	\$72,051,937

Reduce tablejunk

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	\$61,184,250	\$72,346,275	\$72,505,825	\$77,893,950	\$80,657,500	\$60,521,550	\$58,348,000	\$56,943,475
Atlanta Braves	\$68,134,250	\$70,448,200	\$74,073,950	\$75,379,325	\$96,872,425	\$79,024,800	\$85,148,575	\$79,708,500
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Cincinnati Reds	\$28,588,575	\$43,395,550	\$43,488,350	\$37,542,000	\$50,874,800	\$38,453,450	\$49,715,225	\$53,115,200
Cleveland Indians	\$60,769,300	\$72,962,375	\$76,645,825	\$65,757,875	\$39,382,925	\$28,807,750	\$36,060,700	\$56,795,875
Colorado Rockies	\$53,716,200	\$54,563,575	\$65,803,700	\$52,639,850	\$55,818,050	\$57,670,000	\$41,197,425	\$34,277,500
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Milwaukee Brewers	\$38,329,400	\$28,519,800	\$39,897,525	\$43,351,575	\$35,023,275	\$27,518,500	\$40,234,825	\$56,790,000
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New York Mets	\$57,824,475	\$79,509,775	\$83,191,450	\$90,993,850	\$100,748,800	\$96,758,950	\$97,009,400	\$97,020,275
New York Yankees	\$75,923,825	\$79,774,350	\$88,541,850	\$108,559,125	\$133,670,525	\$157,616,825	\$198,017,725	\$177,376,950
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San Diego Padres	\$42,703,875	\$45,684,175	\$35,493,625	\$35,711,200	\$37,858,325	\$54,639,500	\$56,150,175	\$62,254,625
Seattle Mariners	\$48,041,825	\$56,649,050	\$67,546,875	\$80,282,675	\$80,726,400	\$72,807,000	\$67,096,350	\$84,927,400
San Francisco Giants	\$44,943,550	\$51,670,975	\$58,641,350	\$72,499,850	\$79,184,775	\$66,144,500	\$86,045,600	\$90,862,075
St. Louis Cardinals	\$42,313,275	\$56,901,725	\$66,612,800	\$71,248,325	\$67,057,175	\$75,633,525	\$89,730,625	\$85,039,625
Tampa Bay Rays	\$29,269,400	\$50,617,050	\$50,881,125	\$30,696,425	\$19,630,000	\$27,321,000	\$26,690,675	\$31,623,175
Texas Rangers	\$71,956,675	\$68,073,000	\$71,374,525	\$90,777,700	\$87,105,400	\$47,263,775	\$46,089,375	\$52,796,875
Toronto Blue Jays	\$42,797,425	\$44,459,925	\$67,677,225	\$66,262,350	\$47,480,550	\$48,093,275	\$43,621,625	\$66,587,975
Average	\$43,338,913	\$49,875,624	\$56,243,878	\$59,605,910	\$63,877,748	\$62,107,276	\$66,361,310	\$72,051,937

Reduce tablejunk

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	\$61,184,250	\$72,346,275	\$72,505,825	\$77,893,950	\$80,657,500	\$60,521,550	\$58,348,000	\$56,943,475
Atlanta Braves	\$68,134,250	\$70,448,200	\$74,073,950	\$75,379,325	\$96,872,425	\$79,024,800	\$85,148,575	\$79,708,500
Baltimore Orioles	\$73,057,675	\$70,213,300	\$62,436,500	\$47,260,525	\$59,872,650	\$45,725,575	\$66,580,850	\$64,808,675
Boston Red Sox	\$55,142,125	\$64,950,275	\$85,592,900	\$90,305,050	\$89,473,775	\$104,340,450	\$108,314,225	\$111,204,200
Chicago White Sox	\$22,740,725	\$26,839,225	\$57,743,525	\$52,826,700	\$49,048,075	\$62,704,325	\$69,655,550	\$98,918,900
Chicago Cubs	\$51,889,225	\$50,449,450	\$61,553,675	\$67,581,100	\$72,092,250	\$78,535,925	\$77,866,900	\$84,679,625
Cincinnati Reds	\$28,588,575	\$43,395,550	\$43,488,350	\$37,542,000	\$50,874,800	\$38,453,450	\$49,715,225	\$53,115,200
Cleveland Indians	\$60,769,300	\$72,962,375	\$76,645,825	\$65,757,875	\$39,382,925	\$28,807,750	\$36,060,700	\$56,795,875
Colorado Rockies	\$53,716,200	\$54,563,575	\$65,803,700	\$52,639,850	\$55,818,050	\$57,670,000	\$41,197,425	\$34,277,500
Detroit Tigers	\$30,450,600	\$53,949,225	\$44,492,125	\$49,150,000	\$47,272,125	\$41,387,100	\$61,605,525	\$76,205,625
Florida Marlins	\$17,477,775	\$17,303,450	\$29,586,800	\$37,482,075	\$43,185,975	\$38,998,175	\$55,903,675	\$14,421,625
Houston Astros	\$49,643,275	\$47,489,925	\$55,909,875	\$58,748,525	\$67,778,700	\$74,666,300	\$73,825,975	\$88,991,825
Kansas City Royals	\$22,794,225	\$20,922,325	\$30,726,725	\$40,738,800	\$38,959,125	\$39,674,175	\$34,149,075	\$40,770,700
Los Angeles Dodgers	\$70,773,175	\$81,596,550	\$93,949,100	\$91,202,850	\$101,824,625	\$86,244,550	\$67,524,575	\$91,830,500
Anaheim/Los Angeles Angels	\$39,265,275	\$42,886,800	\$37,554,975	\$55,108,625	\$73,177,475	\$93,596,925	\$81,911,925	\$103,625,325
Milwaukee Brewers	\$38,329,400	\$28,519,800	\$39,897,525	\$43,351,575	\$35,023,275	\$27,518,500	\$40,234,825	\$56,790,000
Minnesota Twins	\$18,502,400	\$15,884,125	\$22,548,800	\$38,677,875	\$53,466,350	\$51,524,050	\$52,421,300	\$61,355,825
Montreal/Washington Nationals	\$14,977,325	\$30,006,750	\$28,978,750	\$34,527,225	\$49,950,950	\$35,997,925	\$40,484,575	\$52,722,925
New York Mets	\$57,824,475	\$79,509,775	\$83,191,450	\$90,993,850	\$100,748,800	\$96,758,950	\$97,009,400	\$97,020,275
New York Yankees	\$75,923,825	\$79,774,350	\$88,541,850	\$108,559,125	\$133,670,525	\$157,616,825	\$198,017,725	\$177,376,950
Oakland Athletics	\$22,340,700	\$29,603,075	\$31,306,250	\$36,740,500	\$48,423,875	\$55,393,675	\$53,720,450	\$62,322,050
Philadelphia Phillies	\$26,118,525	\$40,782,750	\$40,061,700	\$51,745,525	\$61,017,250	\$86,314,050	\$91,671,075	\$81,734,575
Pittsburgh Pirates	\$18,498,050	\$27,815,700	\$42,498,650	\$36,485,850	\$48,698,300	\$29,840,675	\$34,047,325	\$41,846,200
San Diego Padres	\$42,703,875	\$45,684,175	\$35,493,625	\$35,711,200	\$37,858,325	\$54,639,500	\$56,150,175	\$62,254,625
Seattle Mariners	\$48,041,825	\$56,649,050	\$67,546,875	\$80,282,675	\$80,726,400	\$72,807,000	\$67,096,350	\$84,927,400
San Francisco Giants	\$44,943,550	\$51,670,975	\$58,641,350	\$72,499,850	\$79,184,775	\$66,144,500	\$86,045,600	\$90,862,075
St. Louis Cardinals	\$42,313,275	\$56,901,725	\$66,612,800	\$71,248,325	\$67,057,175	\$75,633,525	\$89,730,625	\$85,039,625
Tampa Bay Rays	\$29,269,400	\$50,617,050	\$50,881,125	\$30,696,425	\$19,630,000	\$27,321,000	\$26,690,675	\$31,623,175
Texas Rangers	\$71,956,675	\$68,073,000	\$71,374,525	\$90,777,700	\$87,105,400	\$47,263,775	\$46,089,375	\$52,796,875
Toronto Blue Jays	\$42,797,425	\$44,459,925	\$67,677,225	\$66,262,350	\$47,480,550	\$48,093,275	\$43,621,625	\$66,587,975
Average	\$43,336,913	\$49,875,624	\$56,243,878	\$59,605,910	\$63,877,748	\$62,107,276	\$66,361,310	\$72,051,937

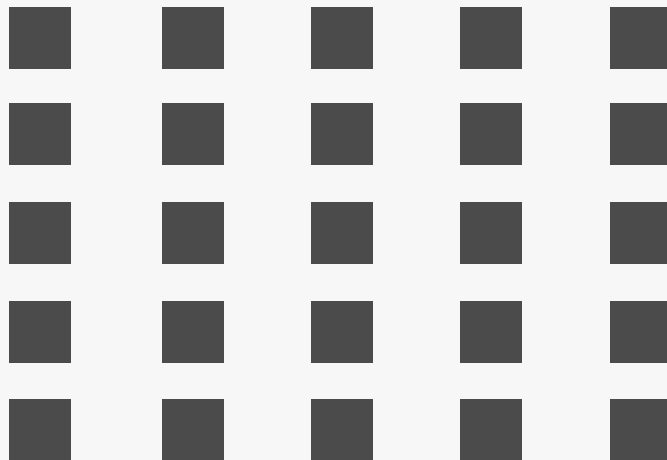
Principle of Continuity

Objects that are aligned are perceived as a group

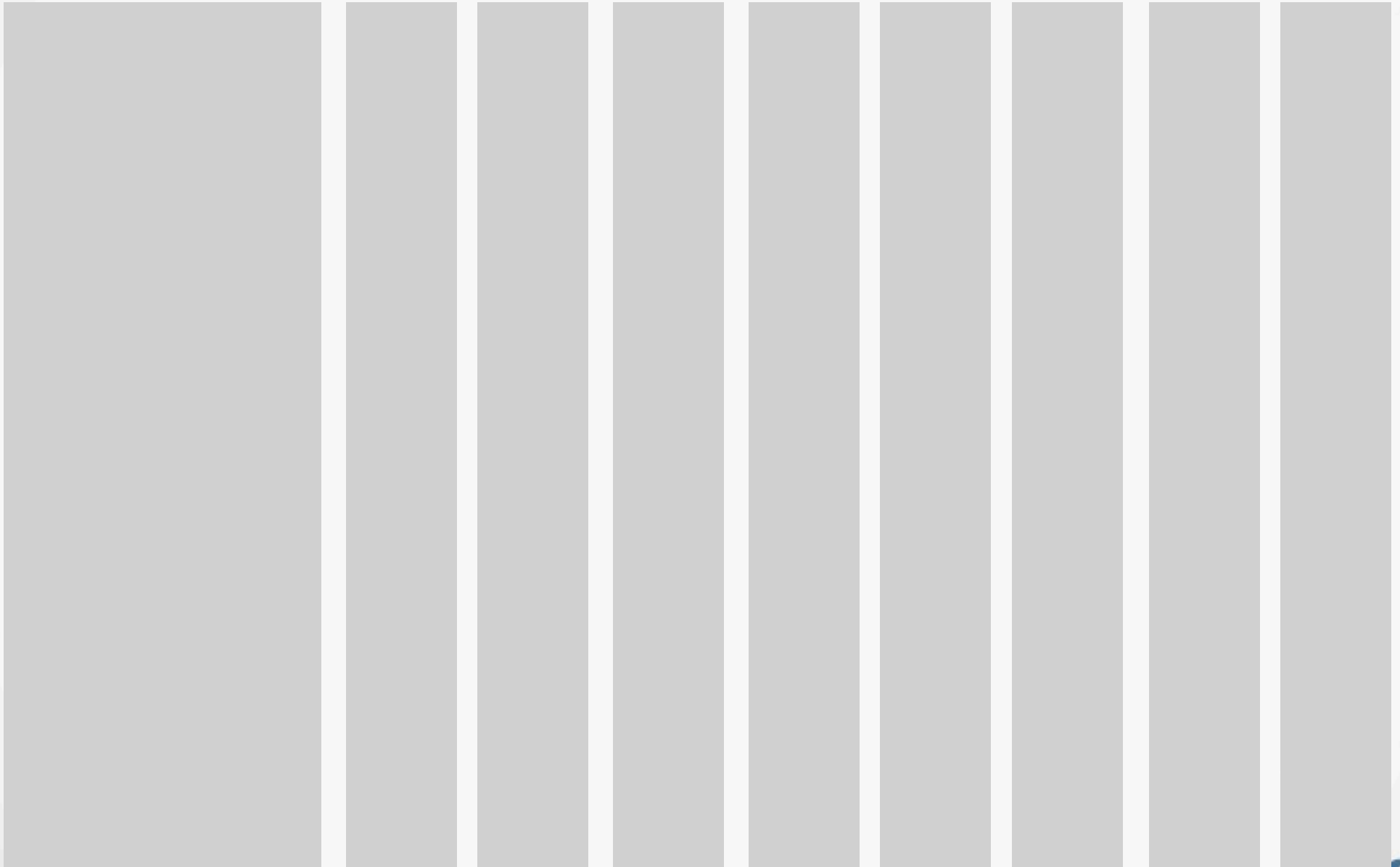


Principle of Proximity

Things that are spatially close belong to a group



Reduce tablejunk



Reduce tablejunk

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	61,184,250	72,346,275	72,505,825	77,893,950	80,657,500	60,521,550	58,348,000	56,943,475
Atlanta Braves	68,134,250	70,448,200	74,073,950	75,379,325	96,872,425	79,024,800	85,148,575	79,708,500
Baltimore Orioles	73,057,675	70,213,300	62,436,500	47,260,525	59,872,650	45,725,575	66,580,850	64,808,675
Boston Red Sox	55,142,125	64,950,275	85,592,900	90,305,050	89,473,775	104,340,450	108,314,225	111,204,200
Chicago White Sox	22,740,725	26,839,225	57,743,525	52,826,700	49,048,075	62,704,325	69,655,550	98,918,900
Chicago Cubs	51,889,225	50,449,450	61,553,675	67,581,100	72,092,250	78,535,925	77,866,900	84,679,625
Cincinnati Reds	28,588,575	43,395,550	43,488,350	37,542,000	50,874,800	38,453,450	49,715,225	53,115,200
Cleveland Indians	60,769,300	72,962,375	76,645,825	65,757,875	39,382,925	28,807,750	36,060,700	56,795,875
Colorado Rockies	53,716,200	54,563,575	65,803,700	52,639,850	55,818,050	57,670,000	41,197,425	34,277,500
Detroit Tigers	30,450,600	53,949,225	44,492,125	49,150,000	47,272,125	41,387,100	61,605,525	76,205,625
Florida Marlins	17,477,775	17,303,450	29,586,800	37,482,075	43,185,975	38,998,175	55,903,675	14,421,625
Houston Astros	49,643,275	47,489,925	55,909,875	58,748,525	67,778,700	74,666,300	73,825,975	88,991,825
Kansas City Royals	22,794,225	20,922,325	30,726,725	40,738,800	38,959,125	39,674,175	34,149,075	40,770,700
Los Angeles Dodgers	70,773,175	81,596,550	93,949,100	91,202,850	101,824,625	86,244,550	67,524,575	91,830,500
Anaheim/Los Angeles Angels	39,265,275	42,886,800	37,554,975	55,108,625	73,177,475	93,596,925	81,911,925	103,625,325
Milwaukee Brewers	38,329,400	28,519,800	39,897,525	43,351,575	35,023,275	27,518,500	40,234,825	56,790,000
Minnesota Twins	18,502,400	15,884,125	22,548,800	38,677,875	53,466,350	51,524,050	52,421,300	61,355,825
Montreal/Washington Nationals	14,977,325	30,006,750	28,978,750	34,527,225	49,950,950	35,997,925	40,484,575	52,722,925
New York Mets	57,824,475	79,509,775	83,191,450	90,993,850	100,748,800	96,758,950	97,009,400	97,020,275
New York Yankees	75,923,825	79,774,350	88,541,850	108,559,125	133,670,525	157,616,825	198,017,725	177,376,950
Oakland Athletics	22,340,700	29,603,075	31,306,250	36,740,500	48,423,875	55,393,675	53,720,450	62,322,050
Philadelphia Phillies	26,118,525	40,782,750	40,061,700	51,745,525	61,017,250	86,314,050	91,671,075	81,734,575
Pittsburgh Pirates	18,498,050	27,815,700	42,498,650	36,485,850	48,698,300	29,840,675	34,047,325	41,846,200
San Diego Padres	42,703,875	45,684,175	35,493,625	35,711,200	37,858,325	54,639,500	56,150,175	62,254,625
Seattle Mariners	48,041,825	56,649,050	67,546,875	80,282,675	80,726,400	72,807,000	67,096,350	84,927,400
San Francisco Giants	44,943,550	51,670,975	58,641,350	72,499,850	79,184,775	66,144,500	86,045,600	90,862,075
St. Louis Cardinals	42,313,275	56,901,725	66,612,800	71,248,325	67,057,175	75,633,525	89,730,625	85,039,625
Tampa Bay Rays	29,269,400	50,617,050	50,881,125	30,696,425	19,630,000	27,321,000	26,690,675	31,623,175
Texas Rangers	71,956,675	68,073,000	71,374,525	90,777,700	87,105,400	47,263,775	46,089,375	52,796,875
Toronto Blue Jays	42,797,425	44,459,925	67,677,225	66,262,350	47,480,550	48,093,275	43,621,625	66,587,975
Average Salary	43,338,913	49,875,624	56,243,878	59,605,910	63,877,748	62,107,276	66,361,310	72,051,937

Reduce tablejunk

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	61,184,250	72,346,275	72,505,825	77,893,950	80,657,500	60,521,550	58,348,000	56,943,475
Atlanta Braves	68,134,250	70,448,200	74,073,950	75,379,325	96,872,425	79,024,800	85,148,575	79,708,500
Baltimore Orioles	73,057,675	70,213,300	62,436,500	47,260,525	59,872,650	45,725,575	66,580,850	64,808,675
Boston Red Sox	55,142,125	64,950,275	85,592,900	90,305,050	89,473,775	104,340,450	108,314,225	111,204,200
Chicago White Sox	22,740,725	26,839,225	57,743,525	52,826,700	49,048,075	62,704,325	69,655,550	98,918,900
Chicago Cubs	51,889,225	50,449,450	61,553,675	67,581,100	72,092,250	78,535,925	77,866,900	84,679,625
Cincinnati Reds	28,588,575	43,395,550	43,488,350	37,542,000	50,874,800	38,453,450	49,715,225	53,115,200
Cleveland Indians	60,769,300	72,962,375	76,645,825	65,757,875	39,382,925	28,807,750	36,060,700	56,795,875
Colorado Rockies	53,716,200	54,563,575	65,803,700	52,639,850	55,818,050	57,670,000	41,197,425	34,277,500
Detroit Tigers	30,450,600	53,949,225	44,492,125	49,150,000	47,272,125	41,387,100	61,605,525	76,205,625
Florida Marlins	17,477,775	17,303,450	29,586,800	37,482,075	43,185,975	38,998,175	55,903,675	14,421,625
Houston Astros	49,643,275	47,489,925	55,909,875	58,748,525	67,778,700	74,666,300	73,825,975	88,991,825
Kansas City Royals	22,794,225	20,922,325	30,726,725	40,738,800	38,959,125	39,674,175	34,149,075	40,770,700
Los Angeles Dodgers	70,773,175	81,596,550	93,949,100	91,202,850	101,824,625	86,244,550	67,524,575	91,830,500
Anaheim/Los Angeles Angels	39,265,275	42,886,800	37,554,975	55,108,625	73,177,475	93,596,925	81,911,925	103,625,325
Milwaukee Brewers	38,329,400	28,519,800	39,897,525	43,351,575	35,023,275	27,518,500	40,234,825	56,790,000
Minnesota Twins	18,502,400	15,884,125	22,548,800	38,677,875	53,466,350	51,524,050	52,421,300	61,355,825
Montreal/Washington Nationals	14,977,325	30,006,750	28,978,750	34,527,225	49,950,950	35,997,925	40,484,575	52,722,925
New York Mets	57,824,475	79,509,775	83,191,450	90,993,850	100,748,800	96,758,950	97,009,400	97,020,275
New York Yankees	75,923,825	79,774,350	88,541,850	108,559,125	133,670,525	157,616,825	198,017,725	177,376,950
Oakland Athletics	22,340,700	29,603,075	31,306,250	36,740,500	48,423,875	55,393,675	53,720,450	62,322,050
Philadelphia Phillies	26,118,525	40,782,750	40,061,700	51,745,525	61,017,250	86,314,050	91,671,075	81,734,575
Pittsburgh Pirates	18,498,050	27,815,700	42,498,650	36,485,850	48,698,300	29,840,675	34,047,325	41,846,200
San Diego Padres	42,703,875	45,684,175	35,493,625	35,711,200	37,858,325	54,639,500	56,150,175	62,254,625
Seattle Mariners	48,041,825	56,649,050	67,546,875	80,282,675	80,726,400	72,807,000	67,096,350	84,927,400
San Francisco Giants	44,943,550	51,670,975	58,641,350	72,499,850	79,184,775	66,144,500	86,045,600	90,862,075
St. Louis Cardinals	42,313,275	56,901,725	66,612,800	71,248,325	67,057,175	75,633,525	89,730,625	85,039,625
Tampa Bay Rays	29,269,400	50,617,050	50,881,125	30,696,425	19,630,000	27,321,000	26,690,675	31,623,175
Texas Rangers	71,956,675	68,073,000	71,374,525	90,777,700	87,105,400	47,263,775	46,089,375	52,796,875
Toronto Blue Jays	42,797,425	44,459,925	67,677,225	66,262,350	47,480,550	48,093,275	43,621,625	66,587,975
Average Salary	43,338,913	49,875,624	56,243,878	59,605,910	63,877,748	62,107,276	66,361,310	72,051,937

Increase data-ink ratio

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	61,184,250	72,346,275	72,505,825	77,893,950	80,657,500	60,521,550	58,348,000	56,943,475
Atlanta Braves	68,134,250	70,448,200	74,073,950	75,379,325	96,872,425	79,024,800	85,148,575	79,708,500
Baltimore Orioles	73,057,675	70,213,300	62,436,500	47,260,525	59,872,650	45,725,575	66,580,850	64,808,675
Boston Red Sox	55,142,125	64,950,275	85,592,900	90,305,050	89,473,775	104,340,450	108,314,225	111,204,200
Chicago White Sox	22,740,725	26,839,225	57,743,525	52,826,700	49,048,075	62,704,325	69,655,550	98,918,900
Chicago Cubs	51,889,225	50,449,450	61,553,675	67,581,100	72,092,250	78,535,925	77,866,900	84,679,625
Cincinnati Reds	28,588,575	43,395,550	43,488,350	37,542,000	50,874,800	38,453,450	49,715,225	53,115,200
Cleveland Indians	60,769,300	72,962,375	76,645,825	65,757,875	39,382,925	28,807,750	36,060,700	56,795,875
Colorado Rockies	53,716,200	54,563,575	65,803,700	52,639,850	55,818,050	57,670,000	41,197,425	34,277,500
Detroit Tigers	30,450,600	53,949,225	44,492,125	49,150,000	47,272,125	41,387,100	61,605,525	76,205,625
Florida Marlins	17,477,775	17,303,450	29,586,800	37,482,075	43,185,975	38,998,175	55,903,675	14,421,625
Houston Astros	49,643,275	47,489,925	55,909,875	58,748,525	67,778,700	74,666,300	73,825,975	88,991,825
Kansas City Royals	22,794,225	20,922,325	30,726,725	40,738,800	38,959,125	39,674,175	34,149,075	40,770,700
Los Angeles Dodgers	70,773,175	81,596,550	93,949,100	91,202,850	101,824,625	86,244,550	67,524,575	91,830,500
Anaheim/Los Angeles Angels	39,265,275	42,886,800	37,554,975	55,108,625	73,177,475	93,596,925	81,911,925	103,625,325
Milwaukee Brewers	38,329,400	28,519,800	39,897,525	43,351,575	35,023,275	27,518,500	40,234,825	56,790,000
Minnesota Twins	18,502,400	15,884,125	22,548,800	38,677,875	53,466,350	51,524,050	52,421,300	61,355,825
Montreal/Washington Nationals	14,977,325	30,006,750	28,978,750	34,527,225	49,950,950	35,997,925	40,484,575	52,722,925
New York Mets	57,824,475	79,509,775	83,191,450	90,993,850	100,748,800	96,758,950	97,009,400	97,020,275
New York Yankees	75,923,825	79,774,350	88,541,850	108,559,125	133,670,525	157,616,825	198,017,725	177,376,950
Oakland Athletics	22,340,700	29,603,075	31,306,250	36,740,500	48,423,875	55,393,675	53,720,450	62,322,050
Philadelphia Phillies	26,118,525	40,782,750	40,061,700	51,745,525	61,017,250	86,314,050	91,671,075	81,734,575
Pittsburgh Pirates	18,498,050	27,815,700	42,498,650	36,485,850	48,698,300	29,840,675	34,047,325	41,846,200
San Diego Padres	42,703,875	45,684,175	35,493,625	35,711,200	37,858,325	54,639,500	56,150,175	62,254,625
Seattle Mariners	48,041,825	56,649,050	67,546,875	80,282,675	80,726,400	72,807,000	67,096,350	84,927,400
San Francisco Giants	44,943,550	51,670,975	58,641,350	72,499,850	79,184,775	66,144,500	86,045,600	90,862,075
St. Louis Cardinals	42,313,275	56,901,725	66,612,800	71,248,325	67,057,175	75,633,525	89,730,625	85,039,625
Tampa Bay Rays	29,269,400	50,617,050	50,881,125	30,696,425	19,630,000	27,321,000	26,690,675	31,623,175
Texas Rangers	71,956,675	68,073,000	71,374,525	90,777,700	87,105,400	47,263,775	46,089,375	52,796,875
Toronto Blue Jays	42,797,425	44,459,925	67,677,225	66,262,350	47,480,550	48,093,275	43,621,625	66,587,975
Average Salary	43,338,913	49,875,624	56,243,878	59,605,910	63,877,748	62,107,276	66,361,310	72,051,937

Increase data-ink ratio

Team	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	61,184,250	72,346,275	72,505,825	77,893,950	80,657,500	60,521,550	58,348,000	56,943,475
Atlanta Braves	68,134,250	70,448,200	74,073,950	75,379,325	96,872,425	79,024,800	85,148,575	79,708,500
Baltimore Orioles	73,057,675	70,213,300	62,436,500	47,260,525	59,872,650	45,725,575	66,580,850	64,808,675
Boston Red Sox	55,142,125	64,950,275	85,592,900	90,305,050	89,473,775	104,340,450	108,314,225	111,204,200
Chicago White Sox	22,740,725	26,839,225	57,743,525	52,826,700	49,048,075	62,704,325	69,655,550	98,918,900
Chicago Cubs	51,889,225	50,449,450	61,553,675	67,581,100	72,092,250	78,535,925	77,866,900	84,679,625
Cincinnati Reds	28,588,575	43,395,550	43,488,350	37,542,000	50,874,800	38,453,450	49,715,225	53,115,200
Cleveland Indians	60,769,300	72,962,375	76,645,825	65,757,875	39,382,925	28,807,750	36,060,700	56,795,875
Colorado Rockies	53,716,200	54,563,575	65,803,700	52,639,850	55,818,050	57,670,000	41,197,425	34,277,500
Detroit Tigers	30,450,600	53,949,225	44,492,125	49,150,000	47,272,125	41,387,100	61,605,525	76,205,625
Florida Marlins	17,477,775	17,303,450	29,586,800	37,482,075	43,185,975	38,998,175	55,903,675	14,421,625
Houston Astros	49,643,275	47,489,925	55,909,875	58,748,525	67,778,700	74,666,300	73,825,975	88,991,825
Kansas City Royals	22,794,225	20,922,325	30,726,725	40,738,800	38,959,125	39,674,175	34,149,075	40,770,700
Los Angeles Dodgers	70,773,175	81,596,550	93,949,100	91,202,850	101,824,625	86,244,550	67,524,575	91,830,500
Anaheim/Los Angeles Angels	39,265,275	42,886,800	37,554,975	55,108,625	73,177,475	93,596,925	81,911,925	103,625,325
Milwaukee Brewers	38,329,400	28,519,800	39,897,525	43,351,575	35,023,275	27,518,500	40,234,825	56,790,000
Minnesota Twins	18,502,400	15,884,125	22,548,800	38,677,875	53,466,350	51,524,050	52,421,300	61,355,825
Montreal/Washington Nationals	14,977,325	30,006,750	28,978,750	34,527,225	49,950,950	35,997,925	40,484,575	52,722,925
New York Mets	57,824,475	79,509,775	83,191,450	90,993,850	100,748,800	96,758,950	97,009,400	97,020,275
New York Yankees	75,923,825	79,774,350	88,541,850	108,559,125	133,670,525	157,616,825	198,017,725	177,376,950
Oakland Athletics	22,340,700	29,603,075	31,306,250	36,740,500	48,423,875	55,393,675	53,720,450	62,322,050
Philadelphia Phillies	26,118,525	40,782,750	40,061,700	51,745,525	61,017,250	86,314,050	91,671,075	81,734,575
Pittsburgh Pirates	18,498,050	27,815,700	42,498,650	36,485,850	48,698,300	29,840,675	34,047,325	41,846,200
San Diego Padres	42,703,875	45,684,175	35,493,625	35,711,200	37,858,325	54,639,500	56,150,175	62,254,625
Seattle Mariners	48,041,825	56,649,050	67,546,875	80,282,675	80,726,400	72,807,000	67,096,350	84,927,400
San Francisco Giants	44,943,550	51,670,975	58,641,350	72,499,850	79,184,775	66,144,500	86,045,600	90,862,075
St. Louis Cardinals	42,313,275	56,901,725	66,612,800	71,248,325	67,057,175	75,633,525	89,730,625	85,039,625
Tampa Bay Rays	29,269,400	50,617,050	50,881,125	30,696,425	19,630,000	27,321,000	26,690,675	31,623,175
Texas Rangers	71,956,675	68,073,000	71,374,525	90,777,700	87,105,400	47,263,775	46,089,375	52,796,875
Toronto Blue Jays	42,797,425	44,459,925	67,677,225	66,262,350	47,480,550	48,093,275	43,621,625	66,587,975
Average Salary	43,338,913	49,875,624	56,243,878	59,605,910	63,877,748	62,107,276	66,361,310	72,051,937

Increase data-ink ratio

Team	Average Salary (\$ millions)		2001	2002	2003	2004	2005	2006
	1999	2000						
Arizona Diamondbacks	61.2	72.3	72.5	77.9	80.7	60.5	58.3	56.9
Atlanta Braves	68.1	70.4	74.1	75.4	96.9	79.0	85.1	79.7
Baltimore Orioles	73.1	70.2	62.4	47.3	59.9	45.7	66.6	64.8
Boston Red Sox	55.1	65.0	85.6	90.3	89.5	104.3	108.3	111.2
Chicago White Sox	22.7	26.8	57.7	52.8	49.0	62.7	69.7	98.9
Chicago Cubs	51.9	50.4	61.6	67.6	72.1	78.5	77.9	84.7
Cincinnati Reds	28.6	43.4	43.5	37.5	50.9	38.5	49.7	53.1
Cleveland Indians	60.8	73.0	76.6	65.8	39.4	28.8	36.1	56.8
Colorado Rockies	53.7	54.6	65.8	52.6	55.8	57.7	41.2	34.3
Detroit Tigers	30.5	53.9	44.5	49.2	47.3	41.4	61.6	76.2
Florida Marlins	17.5	17.3	29.6	37.5	43.2	39.0	55.9	14.4
Houston Astros	49.6	47.5	55.9	58.7	67.8	74.7	73.8	89.0
Kansas City Royals	22.8	20.9	30.7	40.7	39.0	39.7	34.1	40.8
Los Angeles Dodgers	70.8	81.6	93.9	91.2	101.8	86.2	67.5	91.8
Anaheim/Los Angeles Angels	39.3	42.9	37.6	55.1	73.2	93.6	81.9	103.6
Milwaukee Brewers	38.3	28.5	39.9	43.4	35.0	27.5	40.2	56.8
Minnesota Twins	18.5	15.9	22.5	38.7	53.5	51.5	52.4	61.4
Montreal/Washington Nationals	15.0	30.0	29.0	34.5	50.0	36.0	40.5	52.7
New York Mets	57.8	79.5	83.2	91.0	100.7	96.8	97.0	97.0
New York Yankees	75.9	79.8	88.5	108.6	133.7	157.6	198.0	177.4
Oakland Athletics	22.3	29.6	31.3	36.7	48.4	55.4	53.7	62.3
Philadelphia Phillies	26.1	40.8	40.1	51.7	61.0	86.3	91.7	81.7
Pittsburgh Pirates	18.5	27.8	42.5	36.5	48.7	29.8	34.0	41.8
San Diego Padres	42.7	45.7	35.5	35.7	37.9	54.6	56.2	62.3
Seattle Mariners	48.0	56.6	67.5	80.3	80.7	72.8	67.1	84.9
San Francisco Giants	44.9	51.7	58.6	72.5	79.2	66.1	86.0	90.9
St. Louis Cardinals	42.3	56.9	66.6	71.2	67.1	75.6	89.7	85.0
Tampa Bay Rays	29.3	50.6	50.9	30.7	19.6	27.3	26.7	31.6
Texas Rangers	72.0	68.1	71.4	90.8	87.1	47.3	46.1	52.8
Toronto Blue Jays	42.8	44.5	67.7	66.3	47.5	48.1	43.6	66.6
Average Salary	43.3	49.9	56.2	59.6	63.9	62.1	66.4	72.1

Increase data-ink ratio

Team	Average Salary (\$ millions)							
	1999	2000	2001	2002	2003	2004	2005	2006
Arizona Diamondbacks	61.2	72.3	72.5	77.9	80.7	60.5	58.3	56.9
Atlanta Braves	68.1	70.4	74.1	75.4	96.9	79.0	85.1	79.7
Baltimore Orioles	73.1	70.2	62.4	47.3	59.9	45.7	66.6	64.8
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Chicago Cubs	51.9	50.4	61.6	67.6	72.1	78.5	77.9	84.7
Cincinnati Reds	28.6	43.4	43.5	37.5	50.9	38.5	49.7	53.1
Cleveland Indians	60.8	73.0	76.6	65.8	39.4	28.8	36.1	56.8
Colorado Rockies	53.7	54.6	65.8	52.6	55.8	57.7	41.2	34.3
Detroit Tigers	30.5	53.9	44.5	49.2	47.3	41.4	61.6	76.2
Florida Marlins	17.5	17.3	29.6	37.5	43.2	39.0	55.9	14.4
Houston Astros	49.6	47.5	55.9	58.7	67.8	74.7	73.8	89.0
Kansas City Royals	22.8	20.9	30.7	40.7	39.0	39.7	34.1	40.8
Los Angeles Dodgers	70.8	81.6	93.9	91.2	101.8	86.2	67.5	91.8
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Milwaukee Brewers	38.3	28.5	39.9	43.4	35.0	27.5	40.2	56.8
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San Diego Padres	42.7	45.7	35.5	35.7	37.9	54.6	56.2	62.3
Seattle Mariners	48.0	56.6	67.5	80.3	80.7	72.8	67.1	84.9
San Francisco Giants	44.9	51.7	58.6	72.5	79.2	66.1	86.0	90.9
St. Louis Cardinals	42.3	56.9	66.6	71.2	67.1	75.6	89.7	85.0
Tampa Bay Rays	29.3	50.6	50.9	30.7	19.6	27.3	26.7	31.6
Texas Rangers	72.0	68.1	71.4	90.8	87.1	47.3	46.1	52.8
Toronto Blue Jays	42.8	44.5	67.7	66.3	47.5	48.1	43.6	66.6
Average Salary	43.3	49.9	56.2	59.6	63.9	62.1	66.4	72.1

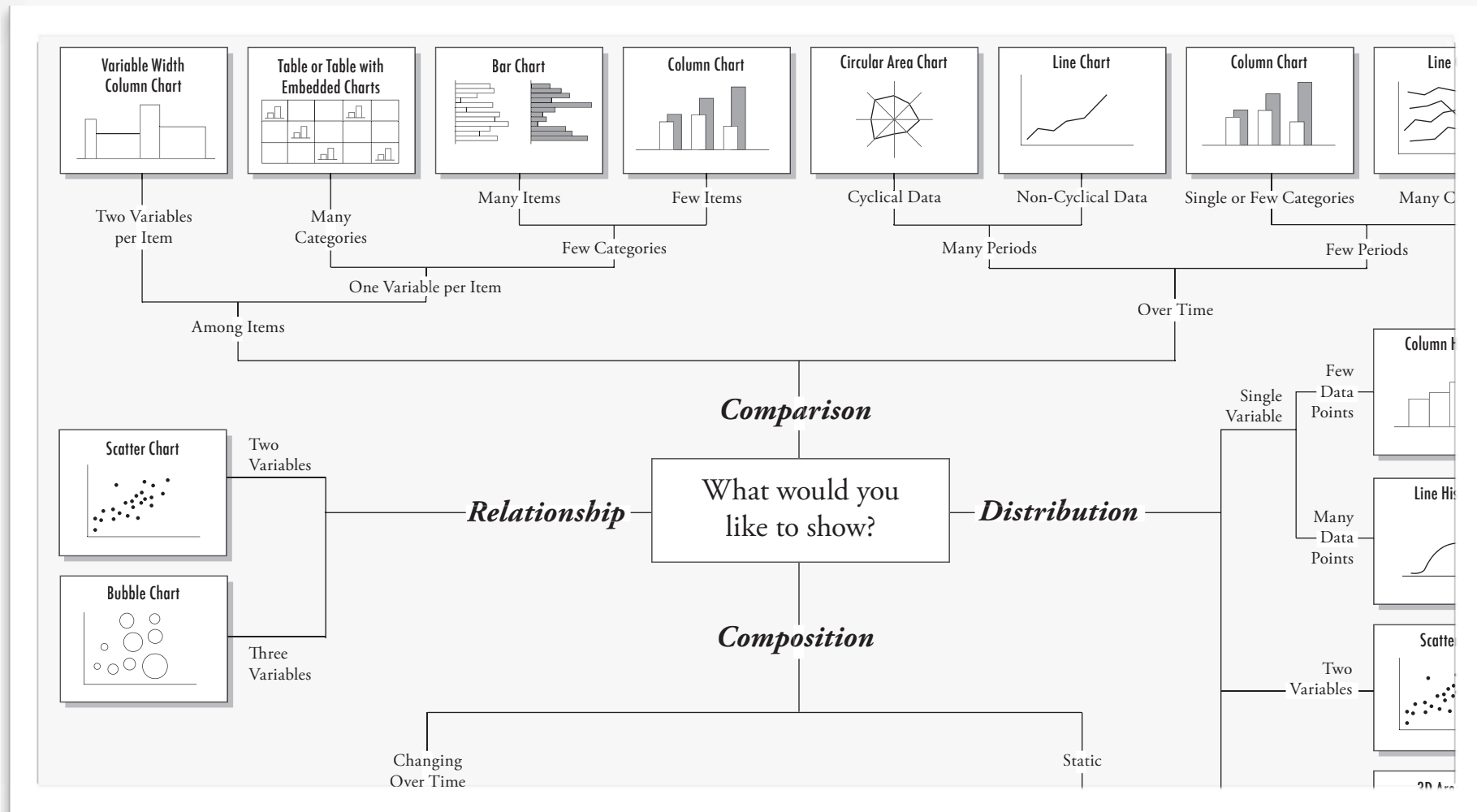
Tables

Remove **gridlines** to eliminate clutter

Use **lines** or **whitespace** to separate areas that are conceptually different

Display the **smallest number of digits** that you can to support the needs of the table

Choosing the right chart



Andrew Abela

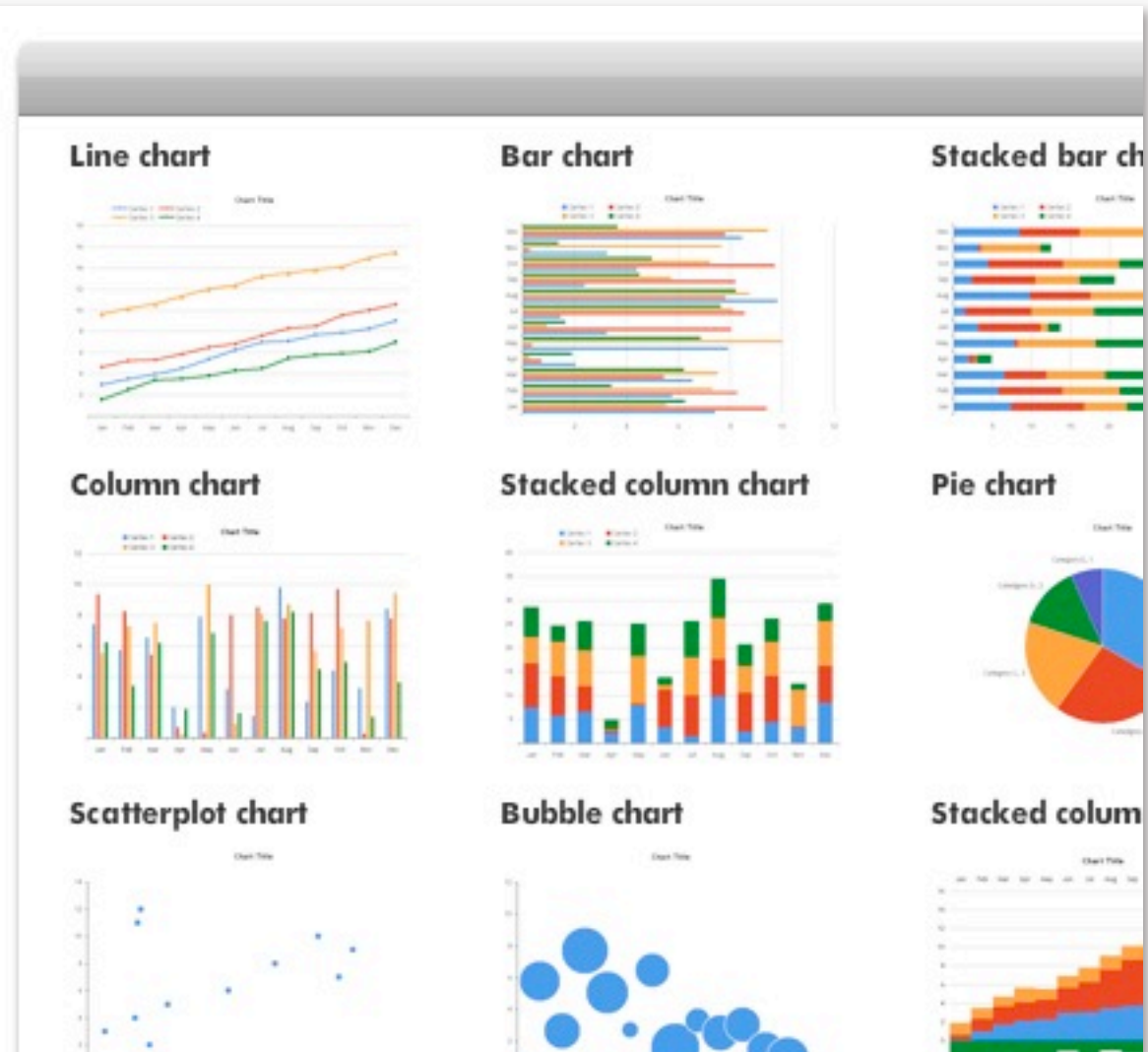
http://extremepresentation.typepad.com/blog/2006/09/choosing_a_good.html

Chart Chooser

Welcome to the Chart Chooser

Use the filters to find the right chart type for your needs. Then download as Excel or PowerPoint templates and insert your data.

- ☐ Comparison
- ☐ Distribution
- ☐ Compositior
- ☐ Trend
- ☐ Relationship
- ☐ Table

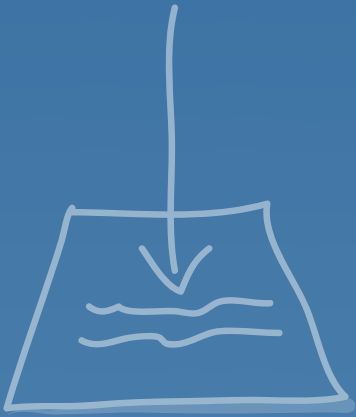


<http://www.chartchooser.com/>



exercise

De-junk your report!



Fonts *Wine*

Reds

Hearty, earthy, jammy,
rustic

Whites

Tart, sophisticated, citrusy,
light



Serif

Hearty, rustic, somber,
dignified

Sans-serif

Light, modern, smooth,
simple



Reds

Merlot, Shiraz, Cabernet
Sauvignon, Pinot Noir

Whites

Chardonnay, Sauvignon
Blanc, Riesling



Serif

Georgia

Palatino

Times New Roman

Sans-serif

Arial / Helvetica

Trebuchet

Verdana / Tahoma



Fonts - Simple rules

History of Medicine

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Body Text

Clean readable text,
50-80% of your text
will look like this.

- 10-16pt
- Arial or Georgia

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Header

Use to separate and name sections

- 150%-200% of body

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Notes

Additional things
a user should be
aware of

- 85% of body
- Lower contrast

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Emphasis

Draw the eye
to key points

- Same size as body
- High-impact color/bold/italic

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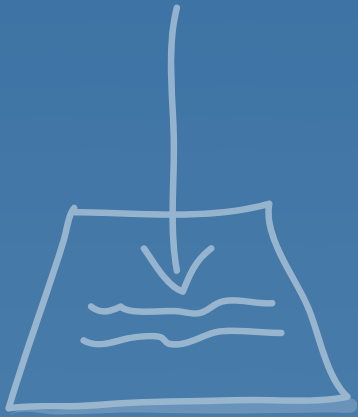
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exercise



Apply the Juice Simple Font Framework™ to your report.

From data to doing

vizard fundamentals

Our tiny brains

How we see

Visual comprehension

Chart dejunking

Fonts

dashboard design

Needs + constraints

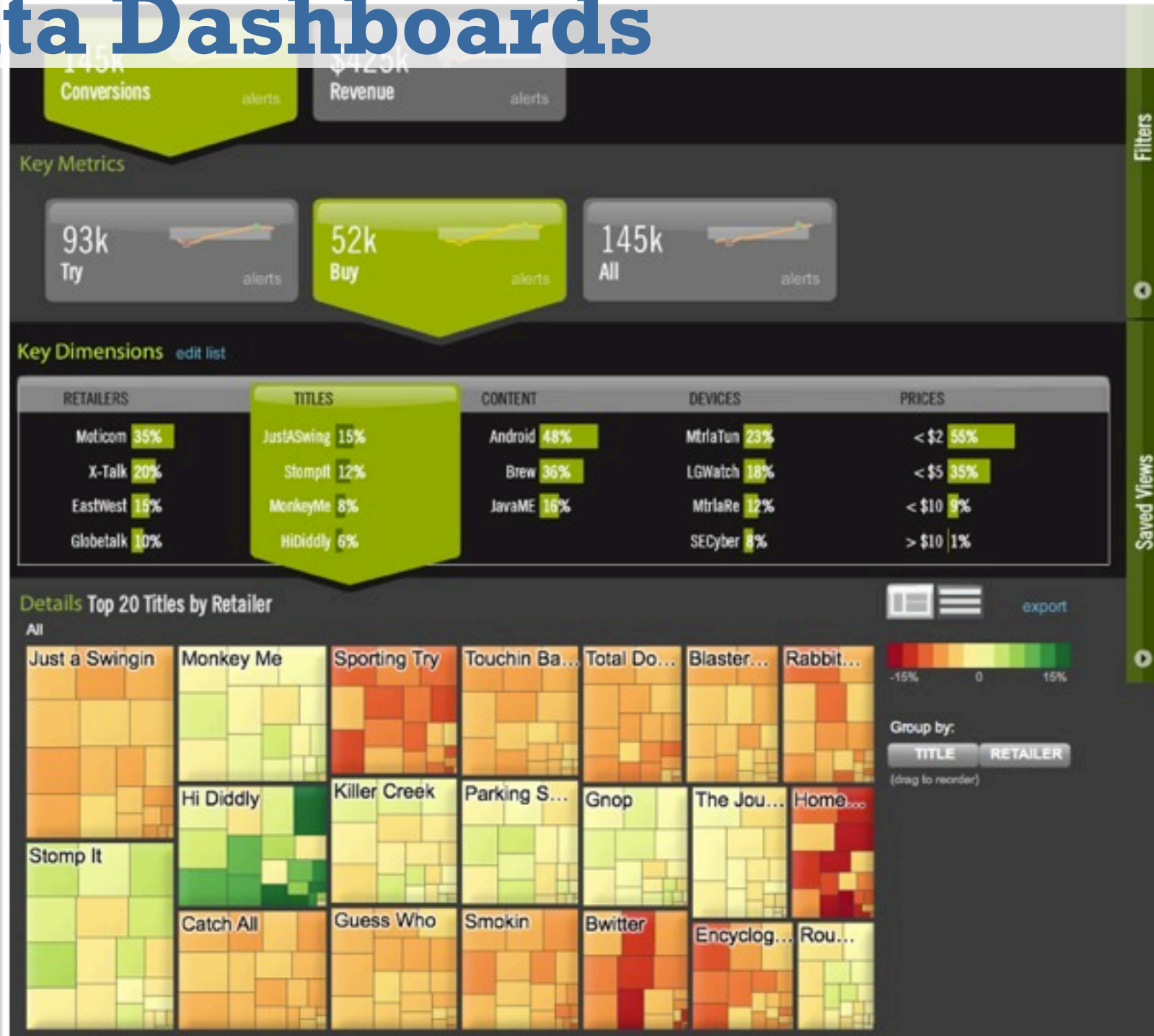
Principles

Structure + flow

Design Patterns

Wireframes

Data Dashboards



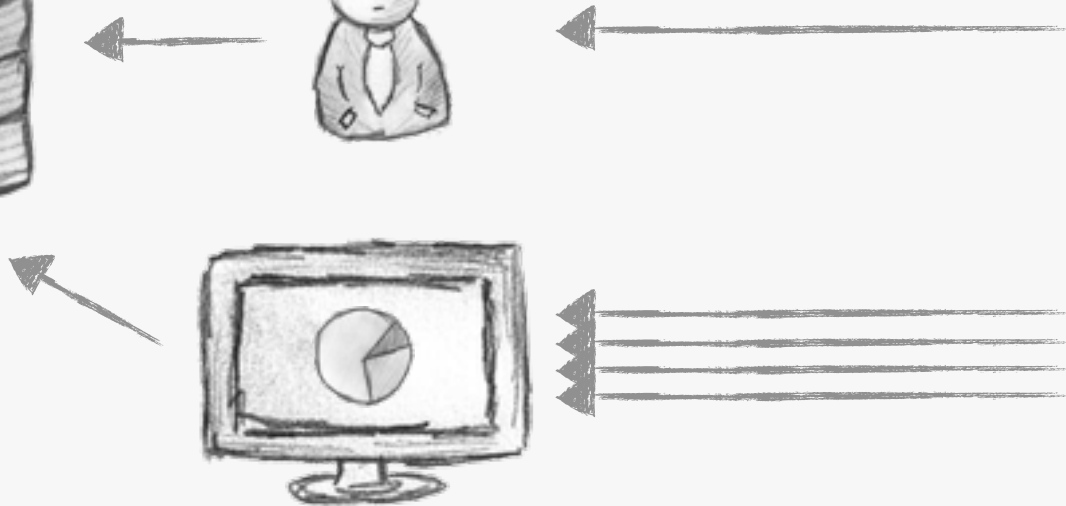
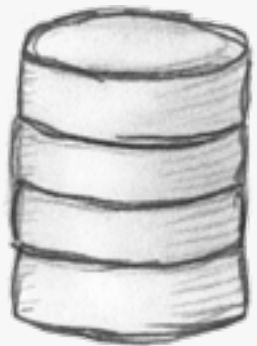
**Why are dashboards
important?**

**What process will help me
design a good dashboard?**

Big pile of valuable,
lonely **data**

analyst, the
reluctant
gatekeeper

info-hungry **front-line** folks
who can add context and
meaning to the data

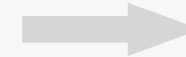


Dashboard acts as a bridge
to front-lines and multiplies the
value of the data

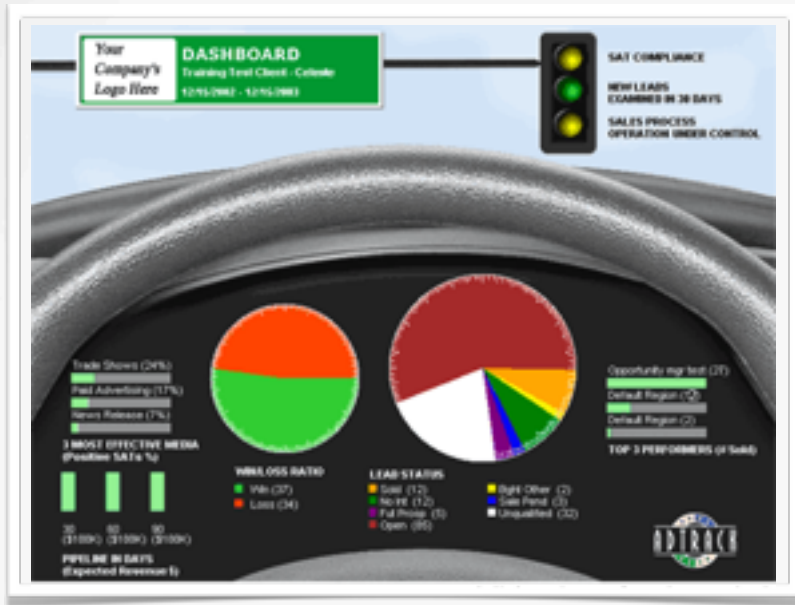
early



evolution



late



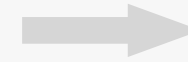
One screen
Information density
Few options
Simple interaction

Many views
Information comprehension
Exploration
Highly interactive

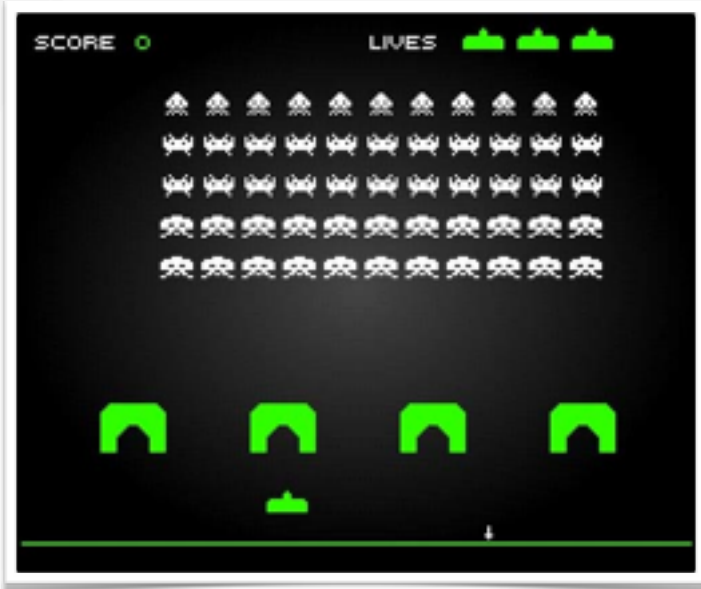
early



evolution



late



- One screen
- Information density
- Few options
- Simple interaction

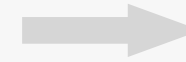


- Many views
- Information comprehension
- Exploration
- Highly interactive

early



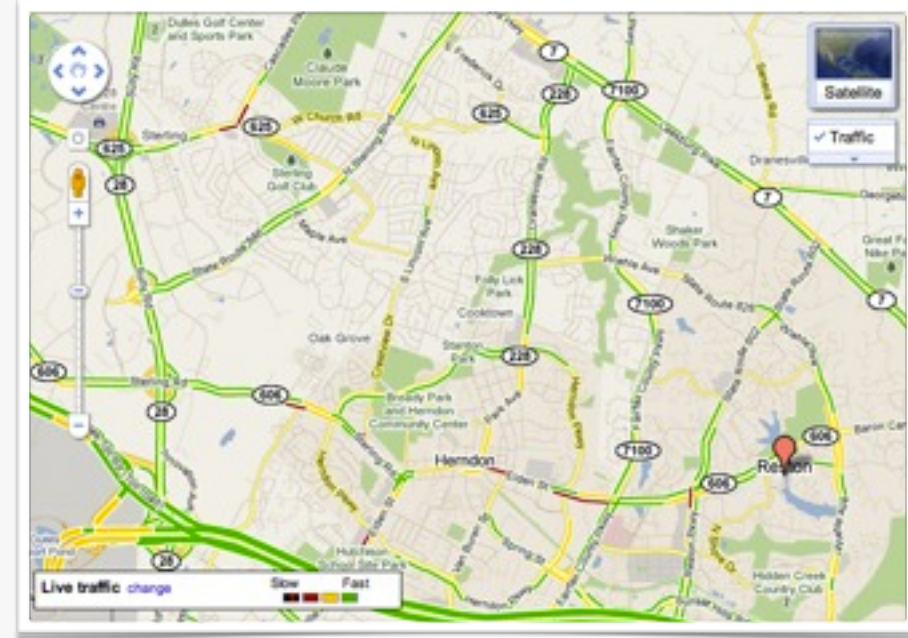
evolution



late



One screen
Information density
Few options
Simple interaction



Many views
Information comprehension
Exploration
Highly interactive

data visualization

+

interface design

Breadth and depth of data



User workflows and guidance

Connections and interaction between visuals

Flexibility and configuration

The background is a detailed architectural drawing of a two-story brick residence. It includes four main elevation views: West, North, East, and South. The drawing shows a symmetrical front facade with a central entrance, multiple windows with shutters, and a gabled roof with chimneys. A central title bar, consisting of five blue chevron-shaped boxes pointing to the right, is overlaid on the drawing. The text in the boxes reads: 'needs & constraints', 'principles & objectives', 'structure & flow', 'patterns', and 'wireframes'.

**needs &
constraints**

**principles &
objectives**

**structure &
flow**

patterns

wireframes

Inputs to design



Technology

Screen resolution
Data refresh rate

Business goals

Cost savings
Find opportunities

Data

Measures
Dimensions



data

the gap



decision-makers

Users

Executive
Analyst

Required features

Export data
Mobile access

Workflow

Processes
Other data sources

Principles of dashboard design



Thou shalt...

- **Guide users** along the journey to find answers
- **Focus on actions** that can be executed in the user's role
- **Pursue simplicity** by minimizing distracting information and design elements



Objective:

What should I be able to accomplish by using the dashboard?



New York Times

Is It Better to Buy or Rent?

Whether renting is better than buying depends on many factors, particularly how fast prices and rents rise and how long you stay in your home. Compare the costs of buying and renting a home in the calculator below. Click the **ADVANCED SETTINGS** button to change inputs such as your rate of return on investments, condo/common fees and your tax bracket.

YOUR INFORMATION

Monthly rent

1,100

Home price

172,000

Down payment (%) \$34,400

20.0

Mortgage rate (%) \$781

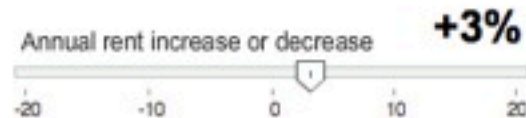
5.50

Annual property taxes (%) \$2,322

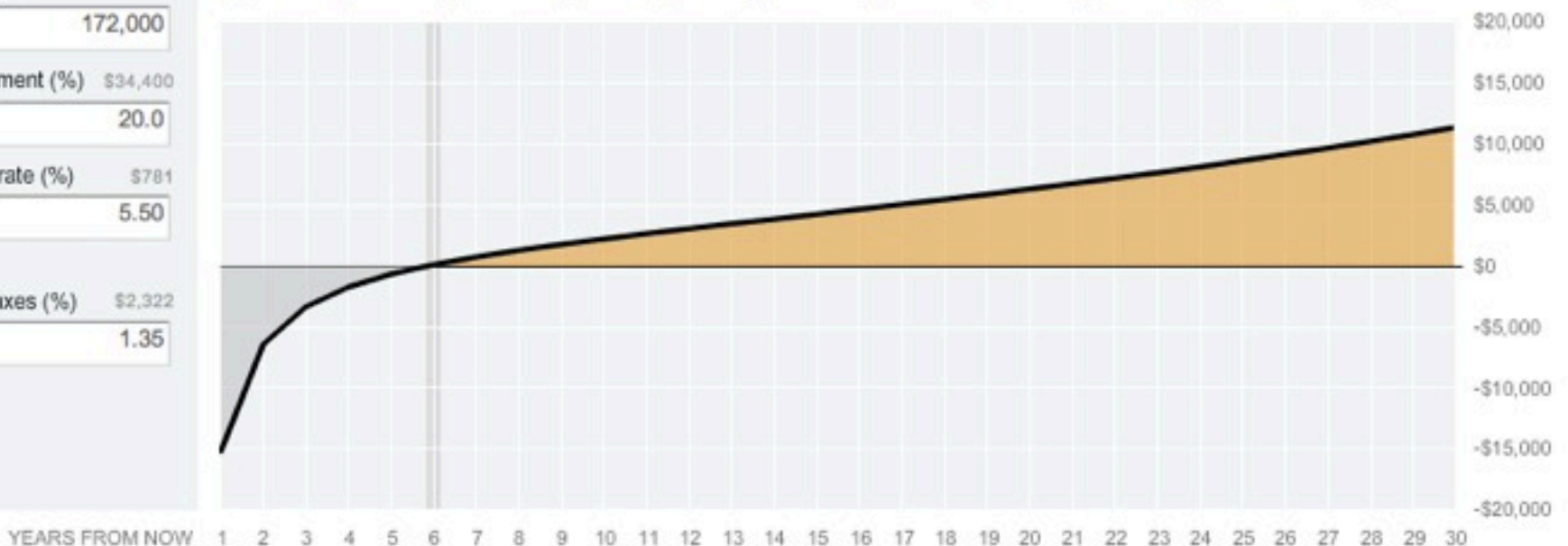
1.35

Buying is better than renting after 6 years.

ADVANCED SETTINGS >



Buying is better
Renting is better



<http://www.nytimes.com/interactive/business/buy-rent-calculator.html>



Periscopic: VoteEasy

<http://works.periscopic.com/voteeasy/#>

Structure & flow



<http://emmanuellibrary.files.wordpress.com/2010/10/barrel-rider.jpg>

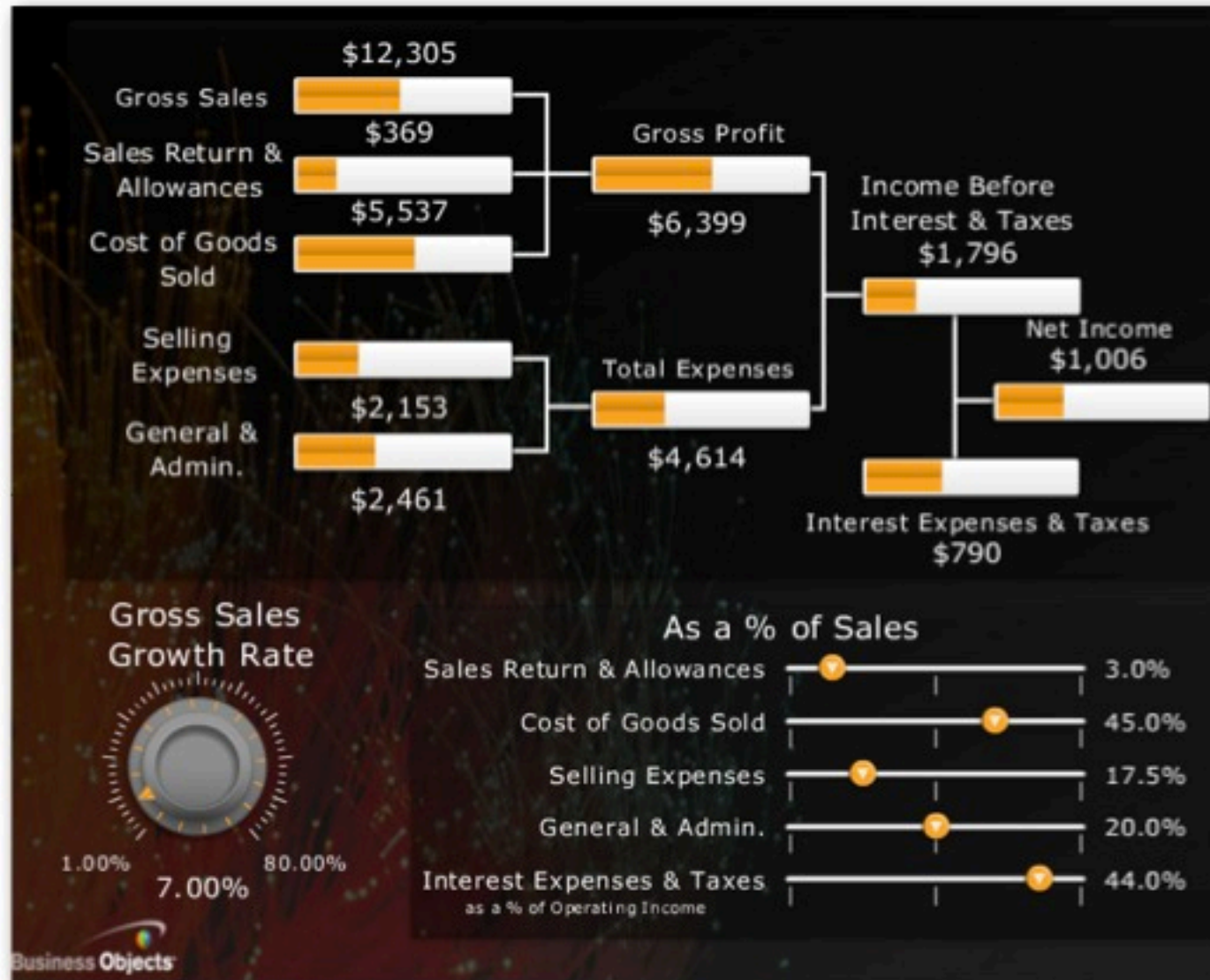
What does this tell me?



Process

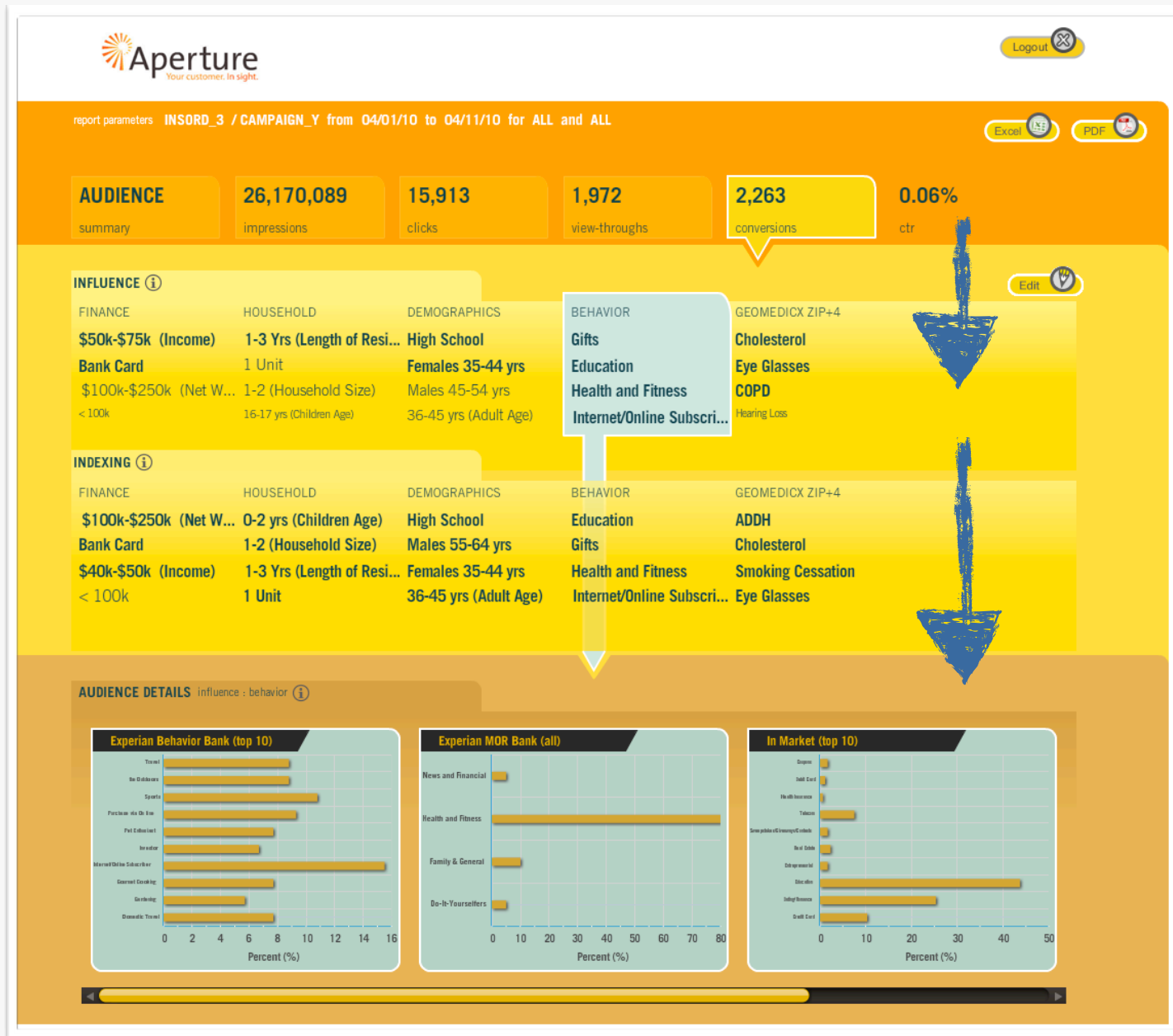


Relationships



Business Objects

Drill-down workflow



Features, visualizations, layouts, & design approaches for constructing your dashboard

A comprehensive 100-piece home repair tool kit is shown, housed in a black plastic carrying case with orange handles. The tools are neatly organized in their respective slots within the case. The top section contains various hand tools including pliers, wrenches, screwdrivers, and a saw. The bottom section features a large set of drill bits, a level, and other essential tools. The kit is presented on a red carpeted surface.

Monday, June 13, 2011

Global filters



wefeelfine.org

allow user to define overall scope of the dashboard

Feeling	Gender	Age	Weather	Location	Date
All Feelings	Both Genders	All Ages	All Weather	All Locations	All Dates

Feeling (A-Z): abandoned, able, abnormal, abroad, absent, absolute, absorbed, abstract, absurd, abused, academic, acceptable, accepted, accepting, accomplished, according, accountable, accurate, ace, aching, achy, acid, acknowledged, across, acting

Gender: Female (selected), Both Genders

Age: 30 - 39 (selected), All Ages

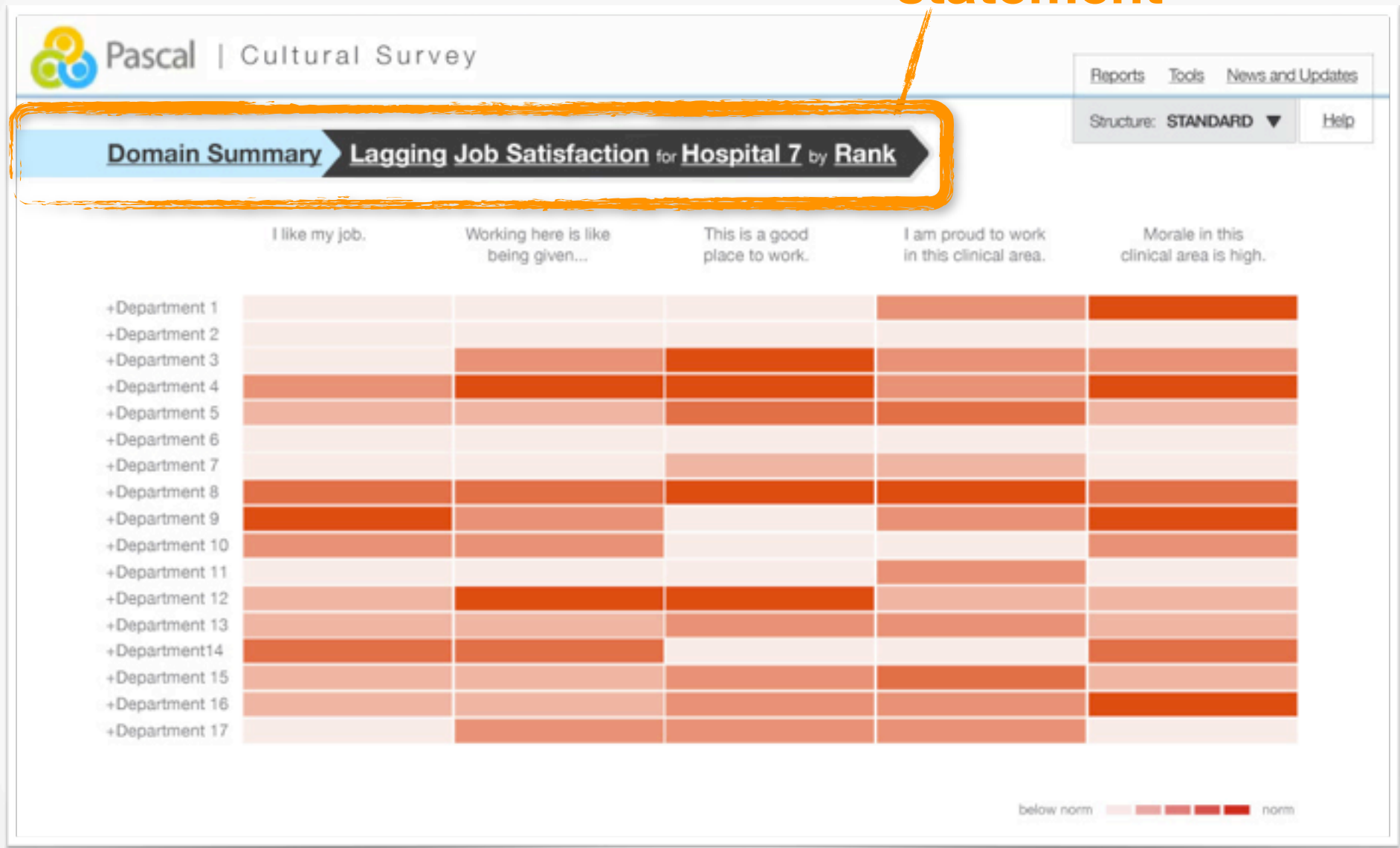
Weather: Sunny (selected), All Weather

Location: All (selected), Choose Country

Date: 2010 (selected), 2006 Feb, 2007 Mar, 2008 Apr, 2009 May, 2010 Jun, 2011 Jul, Aug, Sep, Oct, Nov, Dec

Configurable title

User constructs the view with a summary statement



Leaderboard



THE WORLD'S BEST COUNTRIES

A Newsweek study of health, education, economy, and politics ranks the globe's true national champions.

COUNTRY GROUPS

Select a group...

INCOME GROUPS

Low

Middle

High

POPULATION GROUPS

Small

Medium

Large

COUNTRY LIST

Sort by: **Rank** Country

4 Australia
7 Canada
9 Japan
11 United States
12 Germany
14 United Kingdom
15 Korea, South
16 France
21 Spain
23 Italy
29 Poland
37 Malaysia
39 Romania
42 Peru
45 Mexico
46 Argentina
48 Brazil
49 Ukraine
51 Russia

SCORES & RANK BY CATEGORY

EDUCATION

HEALTH

QUALITY OF LIFE

ECONOMIC DYNAMISM

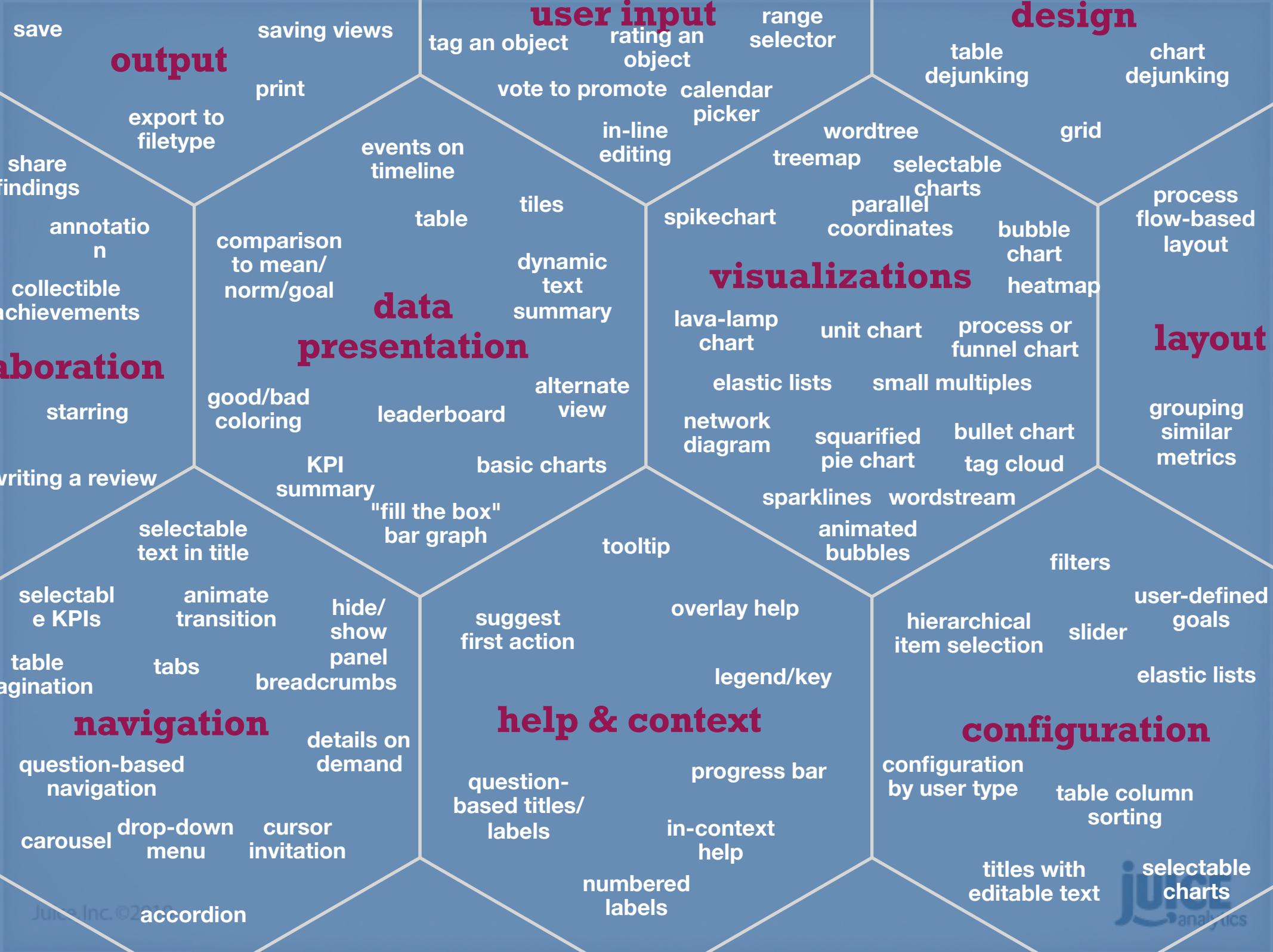
Answer the common question: what is the best & worse performing?

47 Chile: 69.47

COUNTRY DETAILS

How to use this interactive

- Use the **COUNTRY LIST**, far left, to browse the World's best 100 countries. Select a country to see its score and rank in each of the five categories: Education, Health, Quality of Life, Economic Dynamism and Political Environment.
- Dots in the middle columns represent countries plotted by rank (horizontal) and score (vertical).
- Detailed metrics for each country across the five categories will appear in the column to the far right, and enable quick comparisons between any two countries.
- Use the buttons along the top - **INCOME** and **POPULATION GROUPS** - to view and compare countries in the same income and population groups.



Inventario



Prod 1



Prod 2

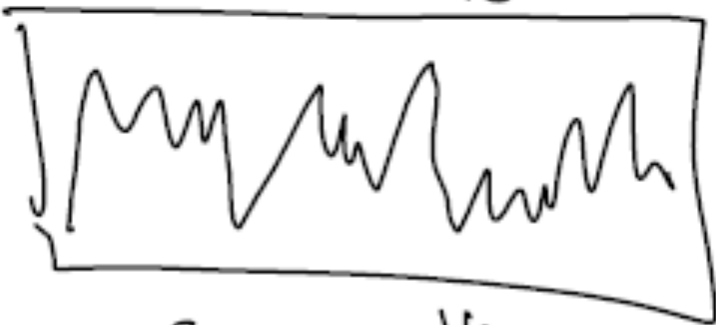


Prod 3



Prod 4

Ventas
Run Rate



Mes en Curso



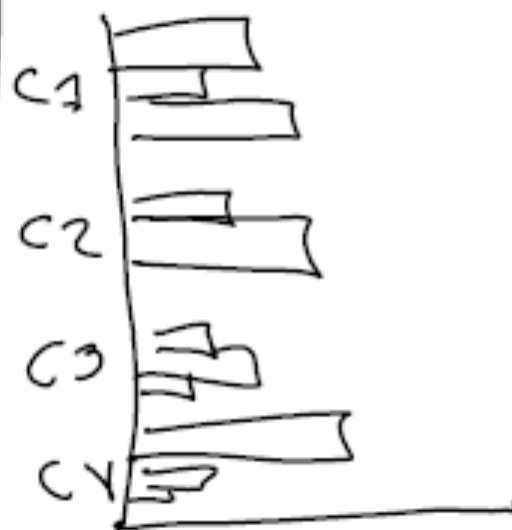
Ventas BSF

Ventas x Vendedor

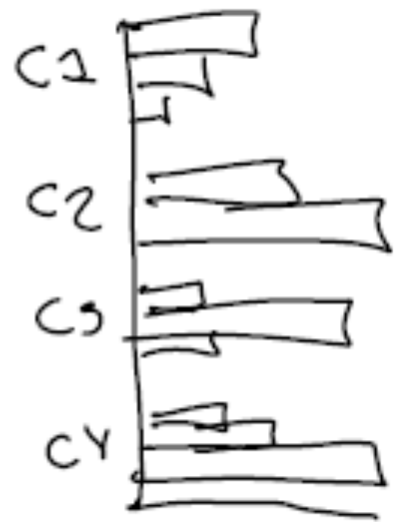


Contabilidad

Cuentas por Cobrar



Cuentas por Pagar



Wireframes



Focus on...

Layout

Realistic data
structure and size

Visible features

Don't sweat...

Look & feel

Realistic data

Invisible features (business
logic, database)

Examples of effective dashboards

Qualcomm

TrendView

AppliedBroadband

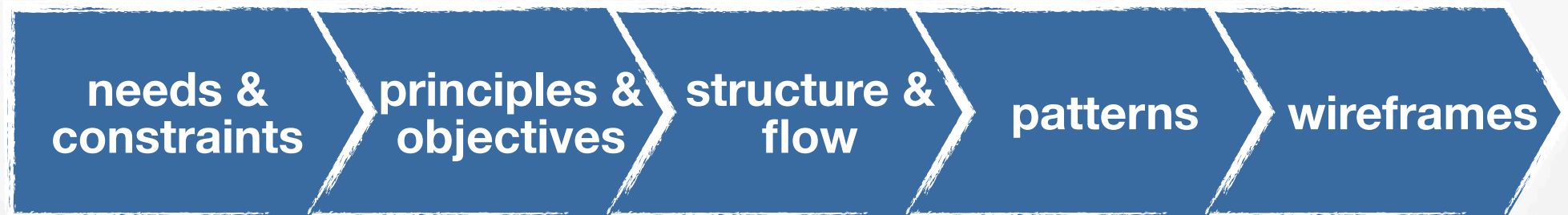
Why are dashboards important?

Tools for guiding users to answers and action

Persuade and empower a broad audience

Require new skills beyond data visualization

What process will help me design a good dashboard?





we craft applications that make
using data enjoyable and rewarding

Download these slides later:

Workshop: <http://www.bit.ly/AEAJuiceWS>

Keynote: <http://www.bit.ly/AEAJuiceKN>