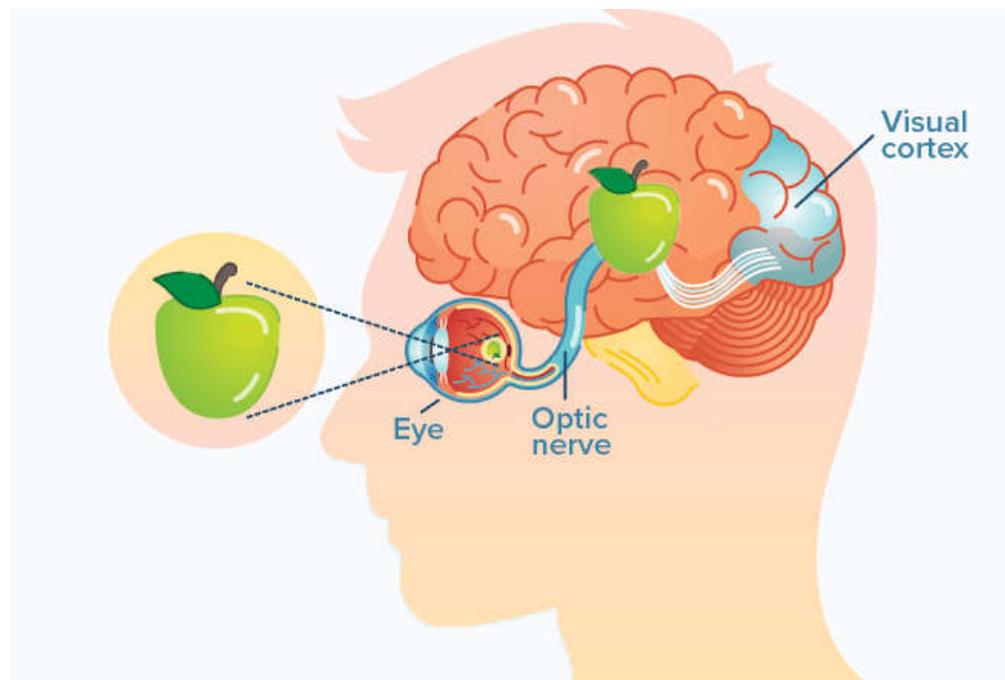


Introduction to Data Science

Preattentive Attributes

We see with our brains



Types of memory

- **Iconic memory** is super fast, happens unconsciously, and is stimulated when we look at the world around us.
 - It is tuned to a set of preattentive attributes.
- **Short-term memory** has limitations. Specifically, people can keep about **four** chunks of visual information in their short-term memory at a given time.
- **Long-term memory** is built up over a lifetime and is vitally important for pattern recognition and general cognitive processing.

Short-term Memory

756395068473
658663037576
860372658602
846589107830

Iconic Memory

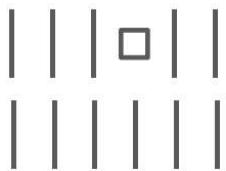
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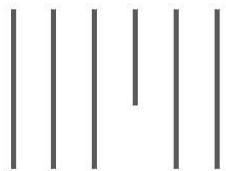
Preattentive Attributes



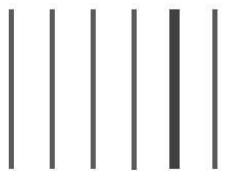
Orientation



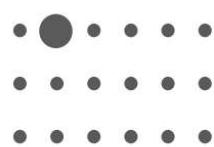
Shape



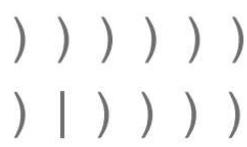
Line length



Line width



Size



Curvature



Added marks



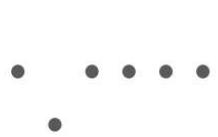
Enclosure



Hue



Intensity



Spatial position



Motion

Preattentive Attributes

- If we use preattentive attributes strategically, they can help us *enable our audience to see what we want them to see before they even know they're seeing it!*
- Preattentive attributes can:
 - direct your audience's attention to where you want
 - be used to create a visual hierarchy of elements

Preattentive Attributes in Text

No preattentive attributes

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Color

What are we doing well? Great Products. **These products are clearly the best in their class.** Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Bold

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Italics

What are we doing well? Great Products. These products are clearly the best in their class. *Replacement parts are shipped when needed.* You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Preattentive Attributes in Text

Size

What are we doing well? Great Products. These products are the best in their class. Replacement parts are shipped when needed. You sent gaskets

without me having to ask.

Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours. You have a great company – keep up the good work!

Outline (enclosure)

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

Separate spatially

What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask.

Problems are resolved promptly.

Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours. You have a great company – keep up the good work!

Underline (added marks)

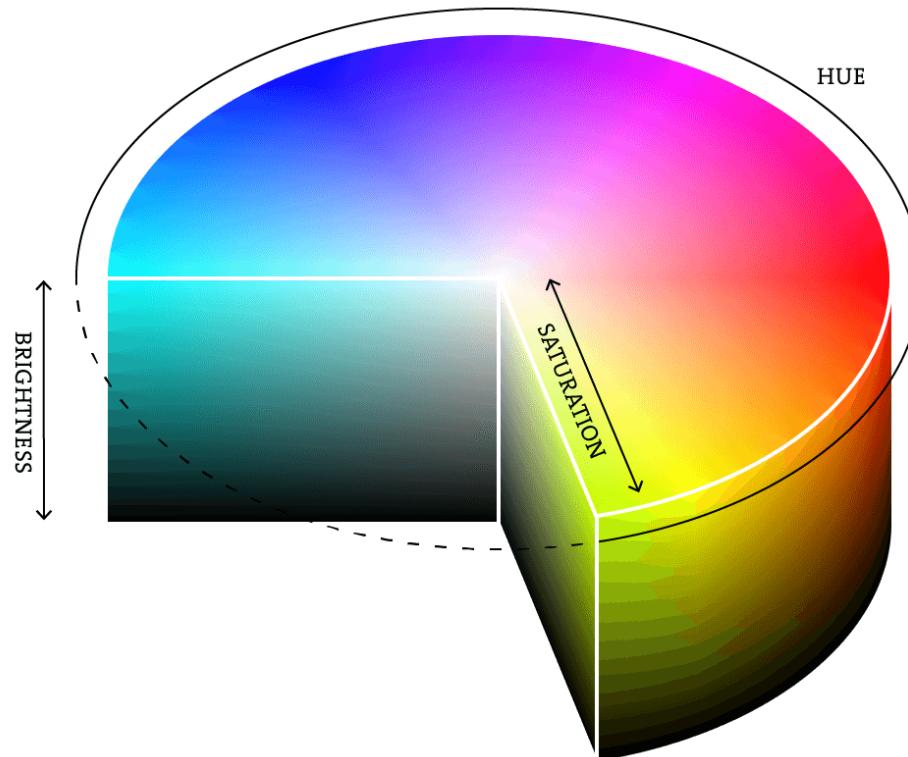
What are we doing well? Great Products. These products are clearly the best in their class. Replacement parts are shipped when needed. You sent me gaskets without me having to ask. Problems are resolved promptly. Bev in the billing office was quick to resolve a billing issue I had. General customer service exceeds expectations. The account manager even called to check in after normal business hours.

You have a great company – keep up the good work!

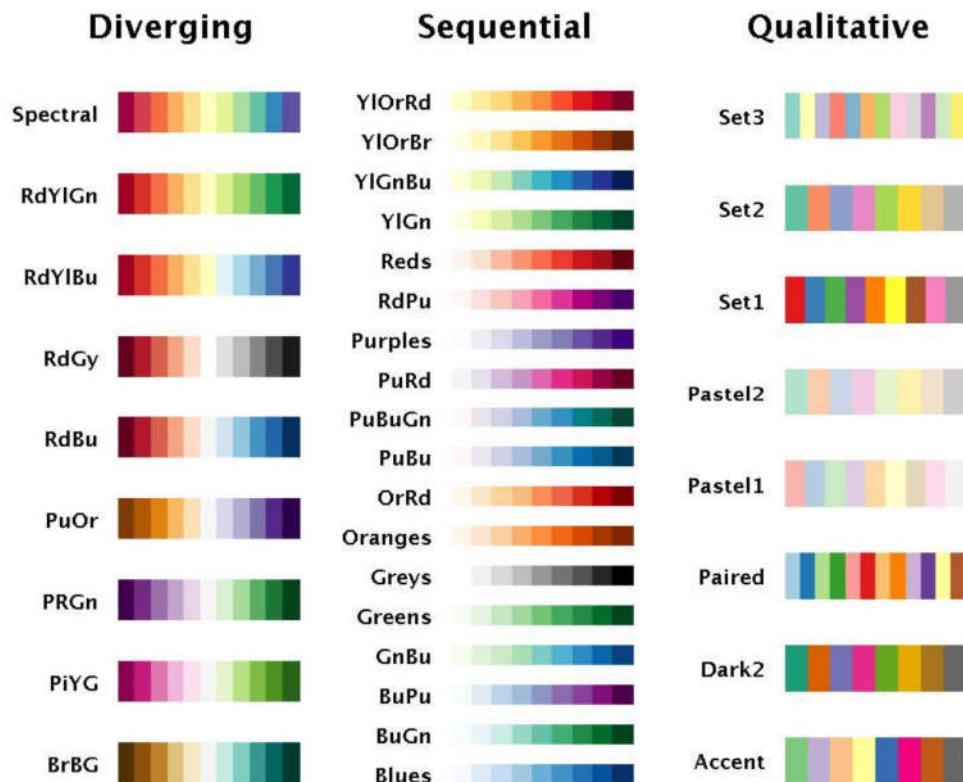
Color

- Color is one of the most powerful tools you have for drawing your audience's attention.
- Resist the urge to use color for the sake of being colorful.
- Leverage color selectively as a strategic tool to highlight the important parts of your visual.
- The use of color should always be an intentional decision.
 - Never let your tool make this important decision for you!

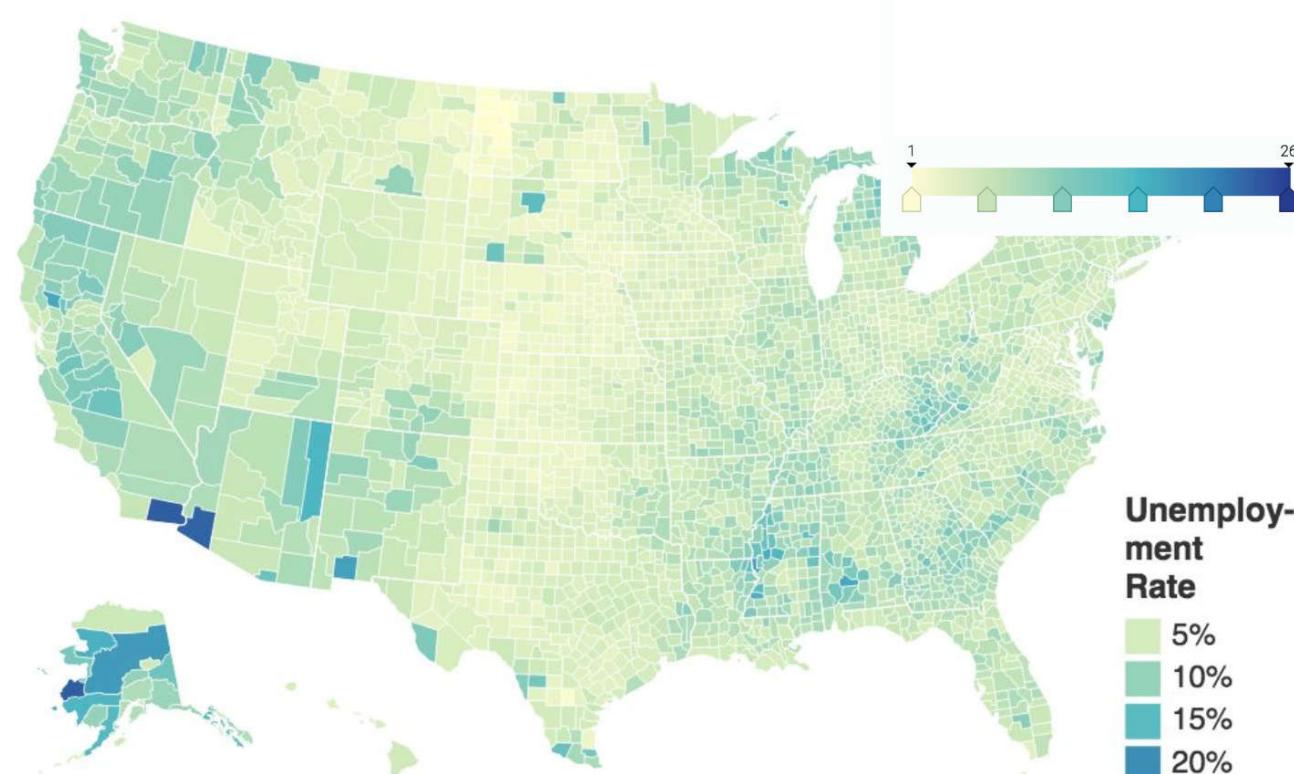
HSB Model



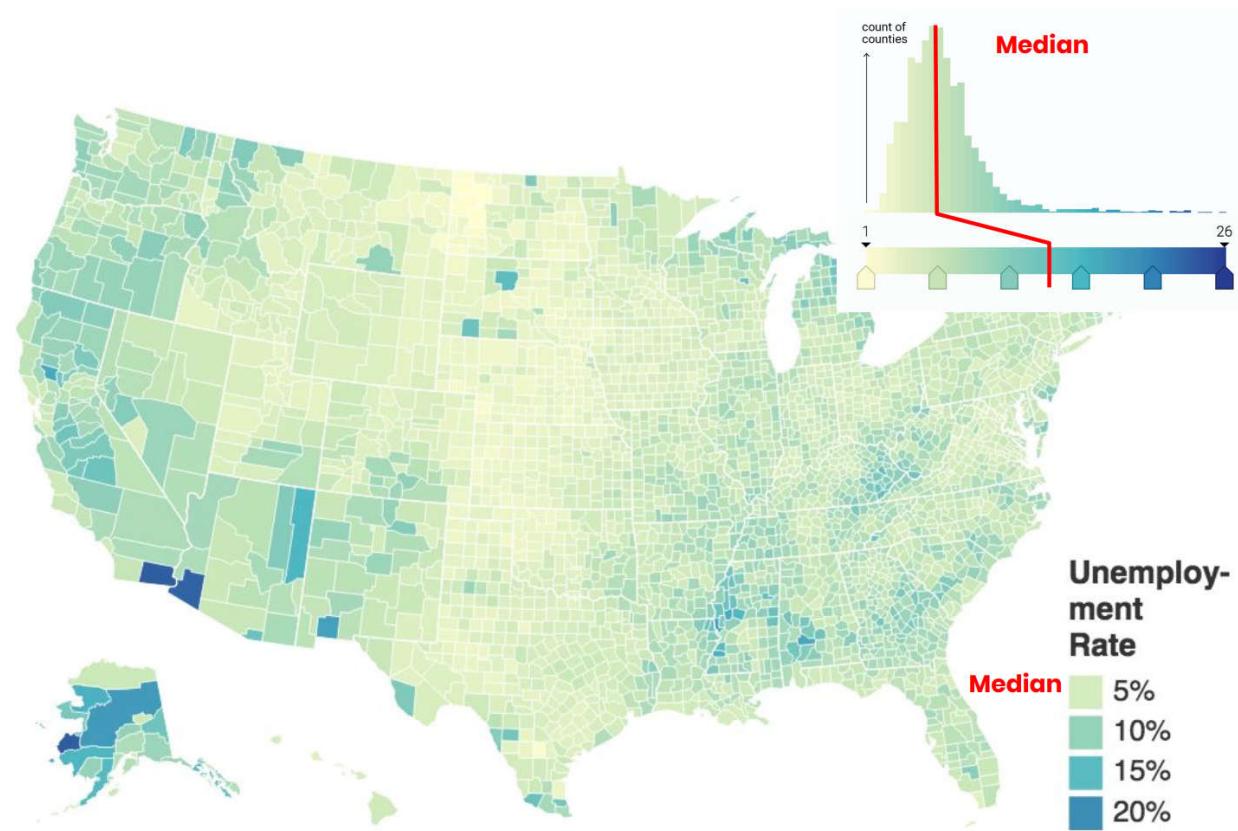
Color Scales (colorbrewer.org)



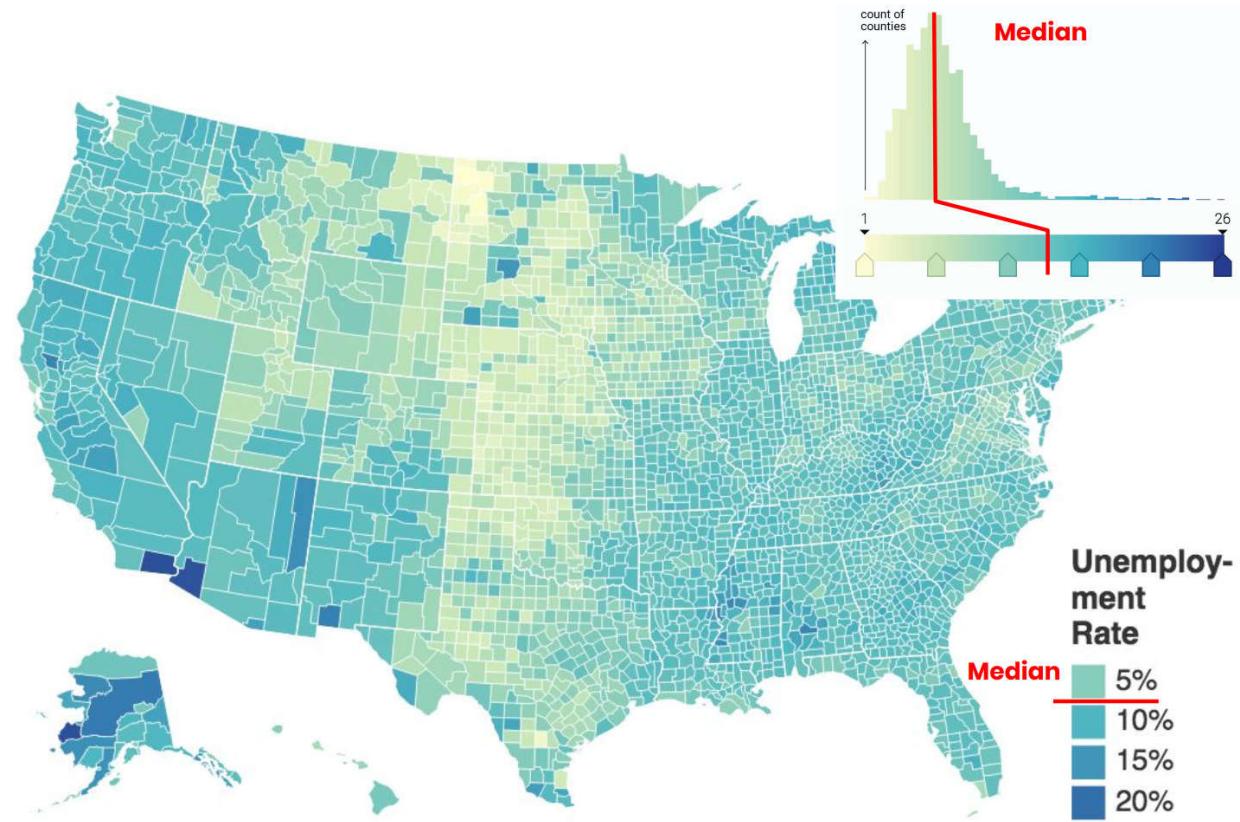
Mapping Color Scales



Mapping Color Scales



Mapping Color Scales



Use Color Sparingly

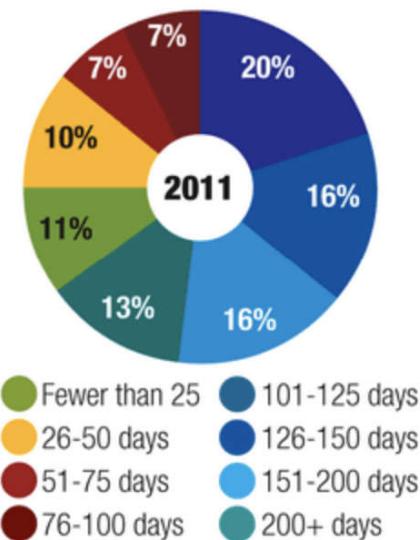
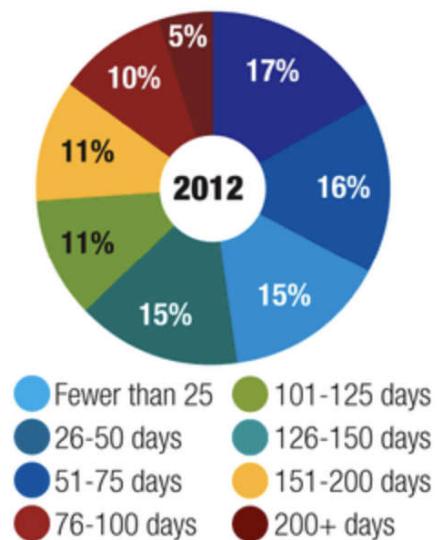
Country Level Sales Rank Top 5 Drugs

Rainbow distribution in color indicates sales rank in given country from #1 (red) to #10 or higher (dark purple)

Country	A	B	C	D	E
AUS	1	2	3	6	7
BRA	1	3	4	5	6
CAN	2	3	6	12	8
CHI	1	2	8	4	7
FRA	3	2	4	8	10
GER	3	1	6	5	4
IND	4	1	8	10	5
ITA	2	4	10	9	8
MEX	1	5	4	6	3
RUS	4	3	7	9	12
SPA	2	3	4	5	11
TUR	7	2	3	4	8
UK	1	2	3	6	7
US	1	2	4	3	5

Use Color Consistently

How many nights do you typically stay away from home due to work?



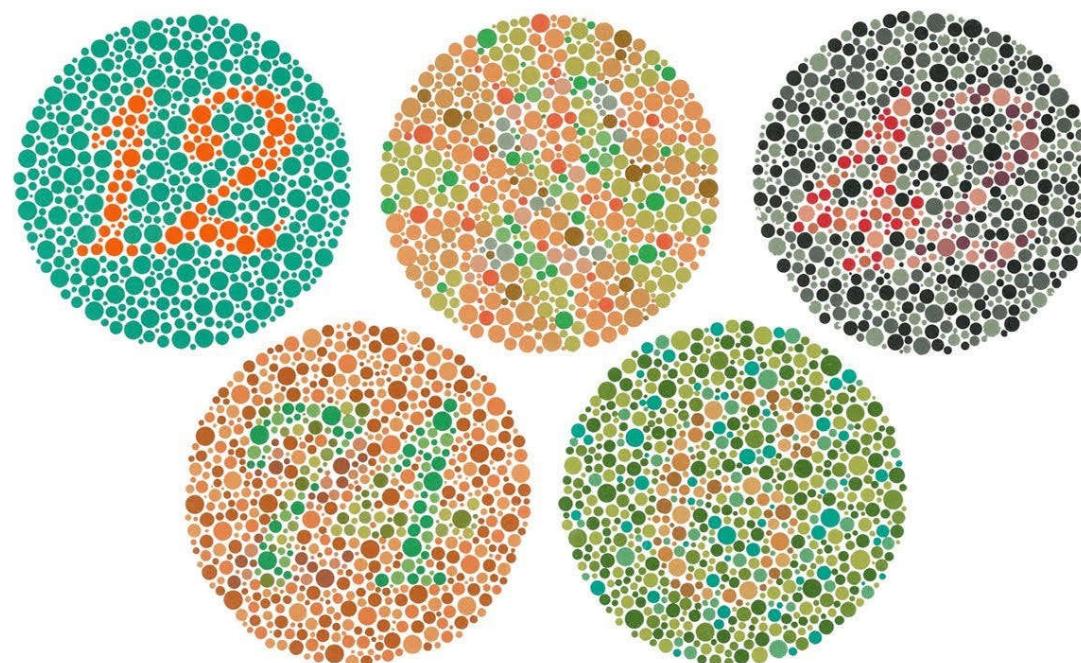
Who Took The Survey?

Overall, 170 consultants took our annual Best Places to Stay survey in the spring of 2012.

- CEO/Managing Director
- Director/Senior Partner
- Partner/Vice President
- Manager/Senior Manager
- Consultant

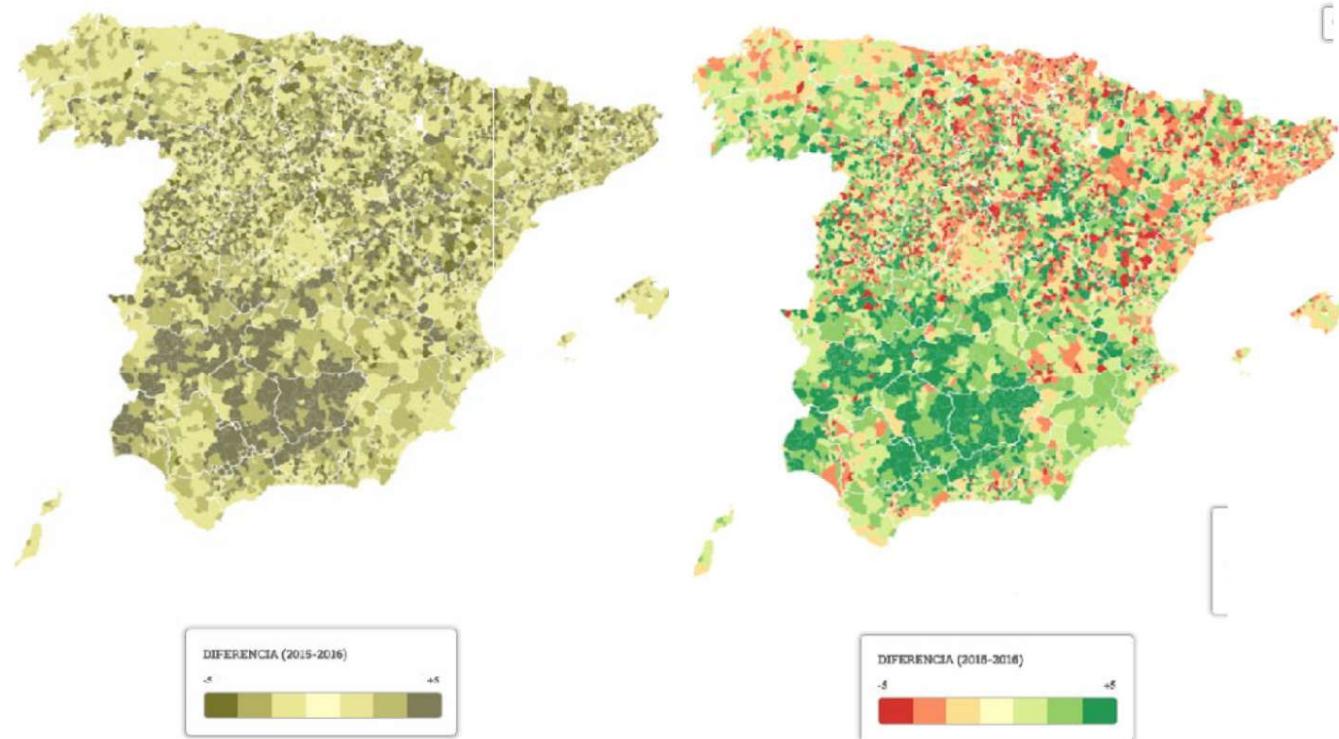


Design with colorblind in mind



vischeck.com

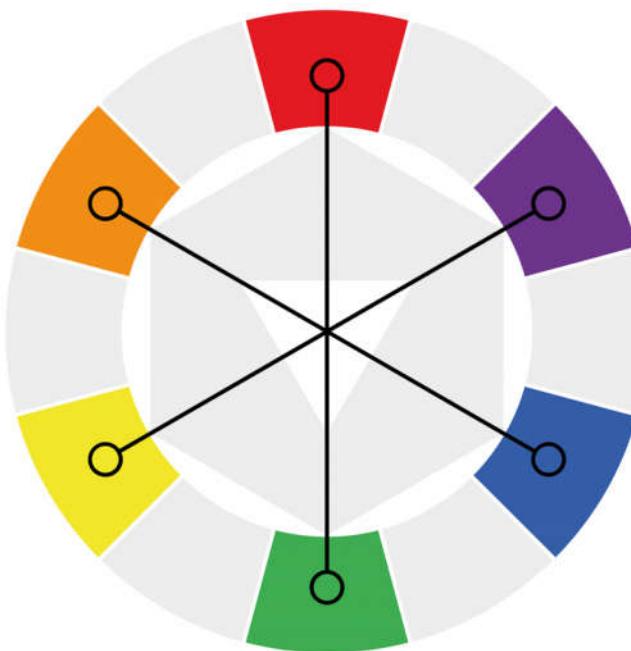
Design with colorblind in mind



Consider the tone color conveys

Red		Orange		Yellow		Green	
Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike
Power	Danger	Energy	Deceitful	Optimistic	Sickness	Health	Materialistic
Exciting	Anger	Enthusiastic	Anger	Exciting	Anxiety	Wealth	Greed
Strength	Rebellious	Creativity	Overpowering	Energy	Warning	Hope	Envy
Love	Violence	Friendliness	Warning	Happiness	Cowardice	Growth	Hazardous
Passion	Warning	Positivity		Positivity		Fresh	Sickness
Energy						Nurturing	
Blue		Purple		Pink		Brown	
Like	Dislike	Like	Dislike	Like	Dislike	Like	Dislike
Trust	Sadness	Luxury	Arrogance	Romance	Neediness	Earthiness	Boring
Loyalty	Loneliness	Spirituality	Superiority	Love	Immature	Comforting	Predictable
Peace	Rigidity	Quality	Moodiness	Nurturing	Naivety	Wholesome	Dull
Calm	Passiveness	Sophistication	Introversion	Sweetness		Approachable	Lack of humor
Stability	Coldness	Creative	Suppression			Stable	
Black		Grey		White			
Like	Dislike	Like	Dislike	Like	Dislike		
Sophistication	Depressing	Impartial	Indecisive	Innocence	Plain		
Elegant	Fear	Professional	Indifferent	Purity			
Power	Negative	Mature	Depressing	Cleanliness			
Mystery	Death	Classic	Negative	Freshness			
Strength	Evil	Stable	Isolation	Simplicity			
Seduction	Secretive	Elegant	Lack of energy	Isolation			
				Emptiness			
				Sterility			
				Distant			

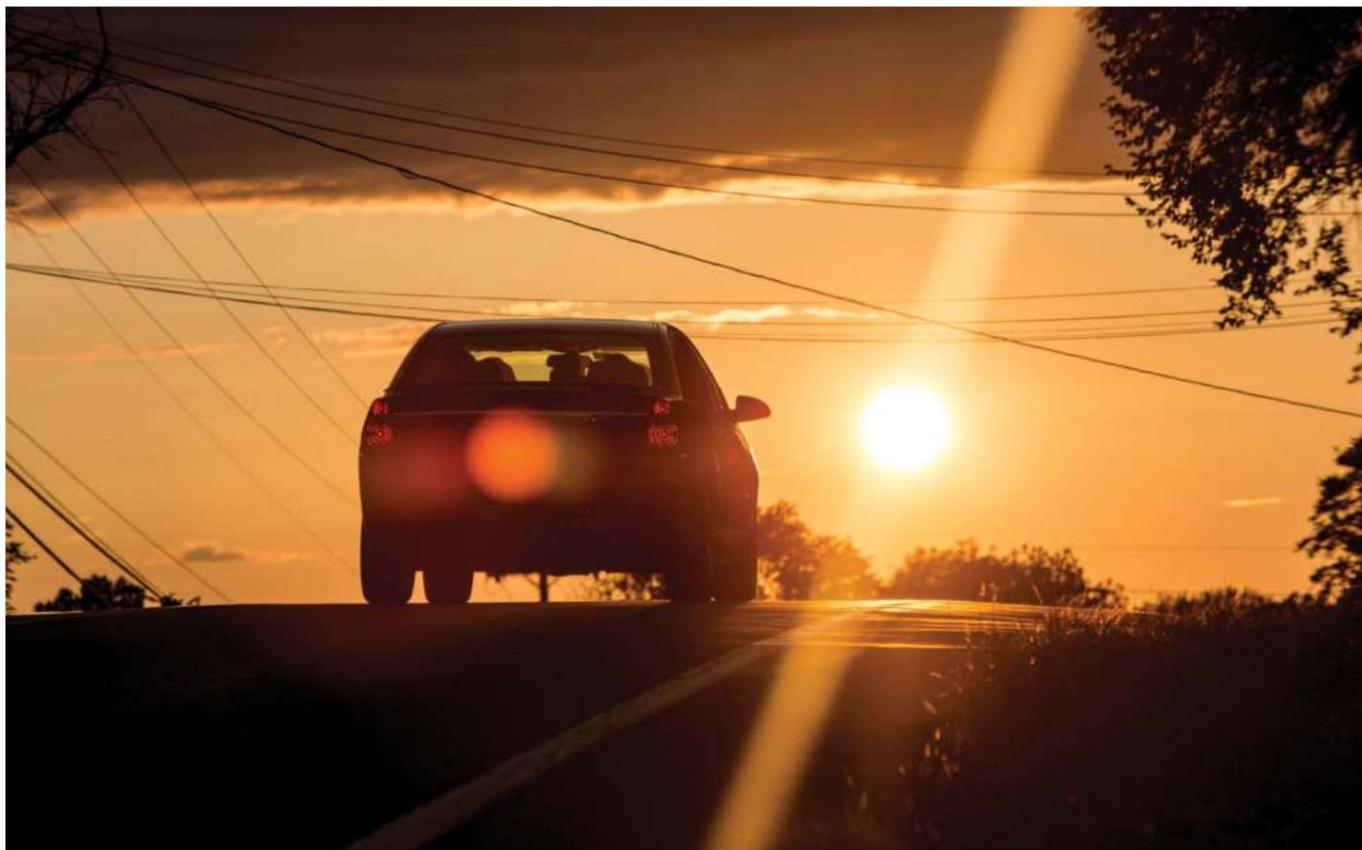
Complementary Colors



Where are your eyes drawn?



Where are your eyes drawn?



Where are your eyes drawn?



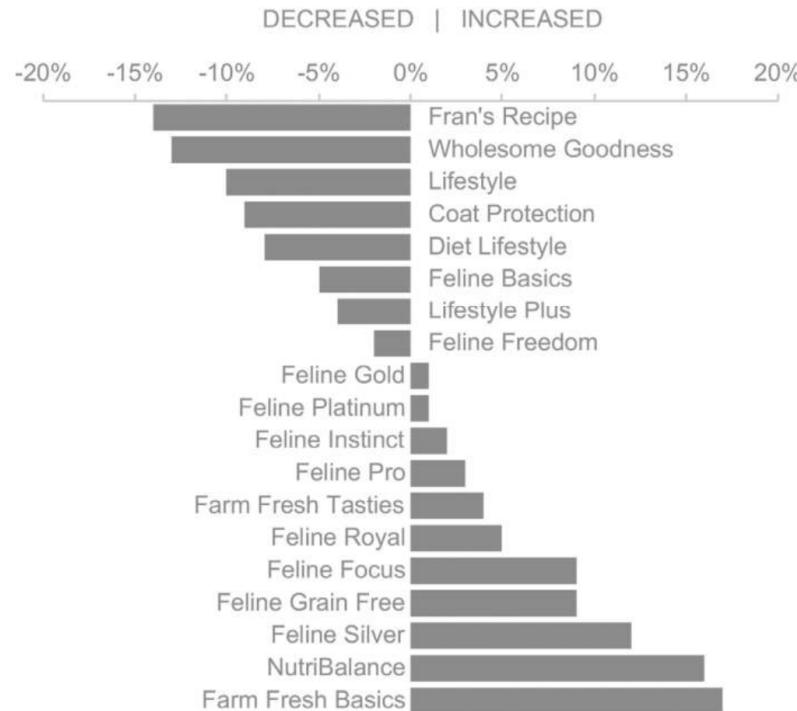
Where are your eyes drawn?



Focus Attention

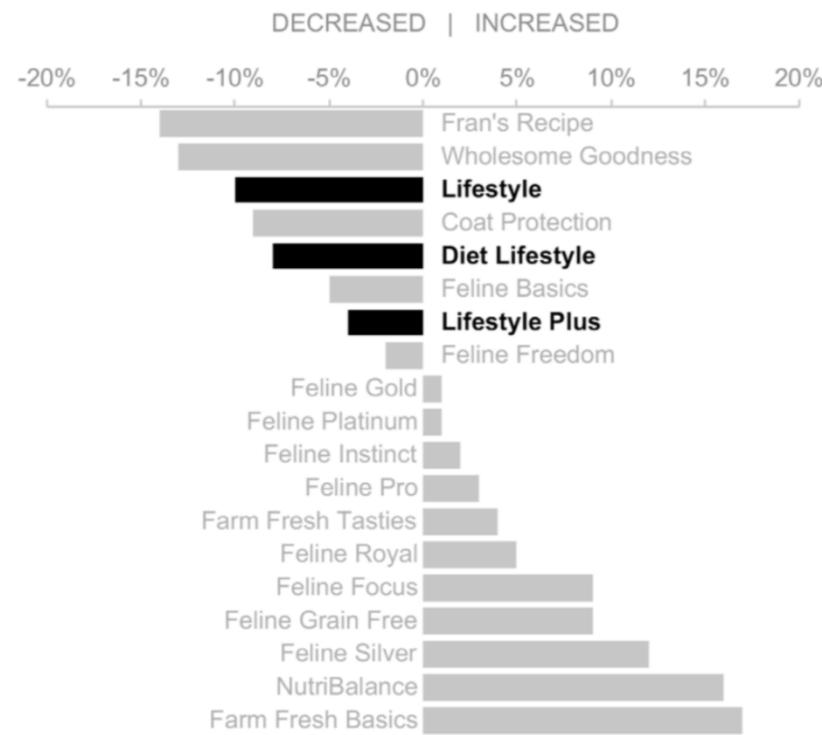
Cat food brands: YoY sales change

% CHANGE IN VOLUME (\$)



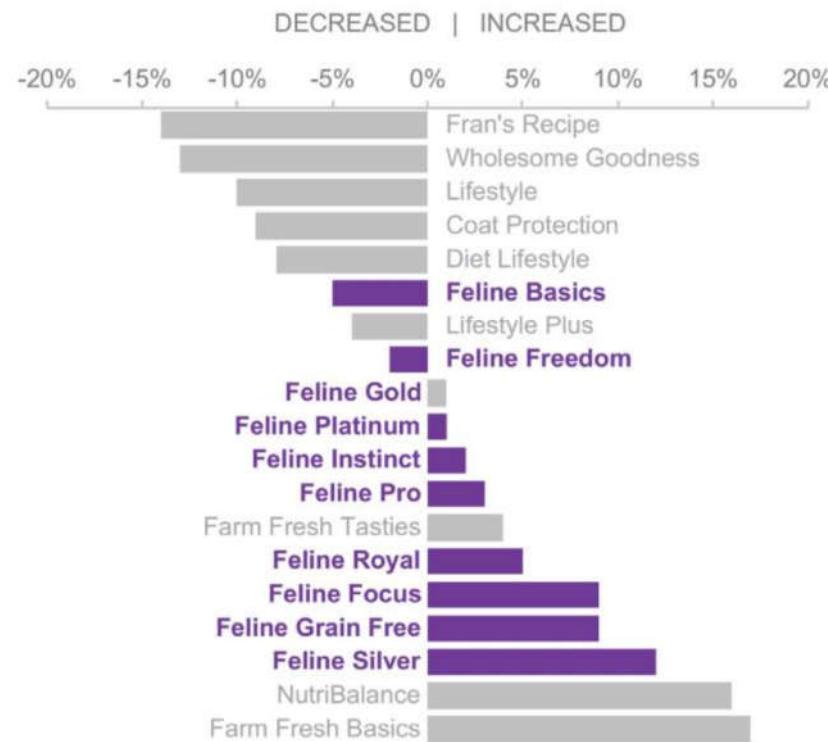
Focus Attention

Cat food brands: **Lifestyle line brands declined**
YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



Focus Attention

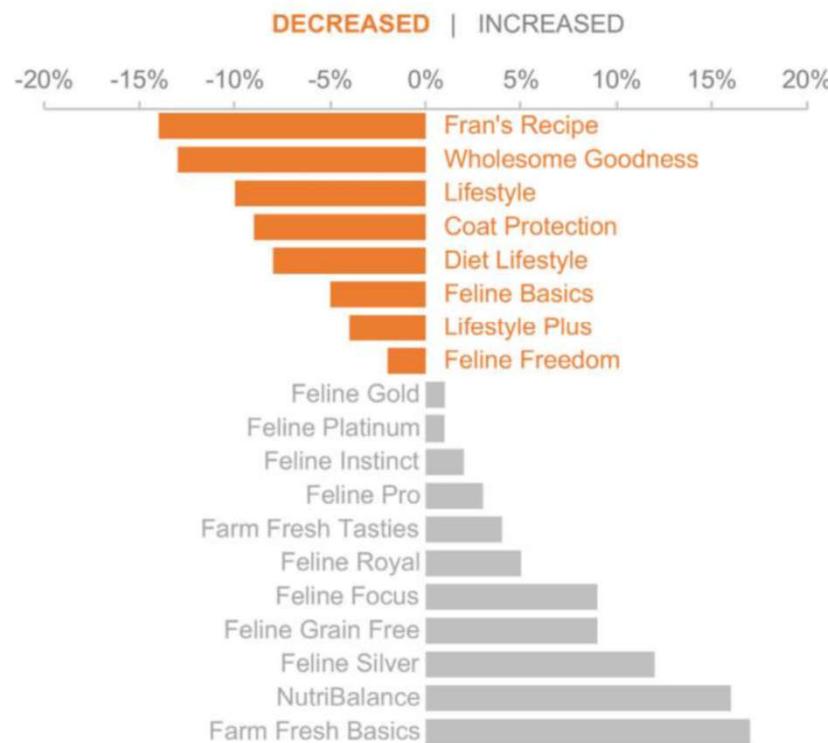
Cat food brands: **most in Feline line increased**
YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



Focus Attention

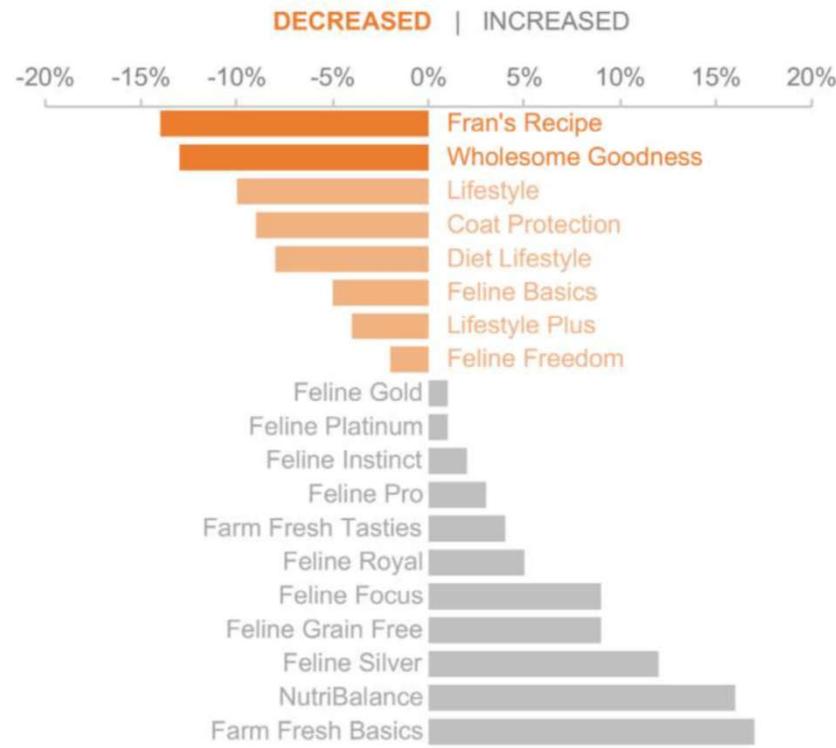
Cat food brands: **8 brands decreased in sales**

YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



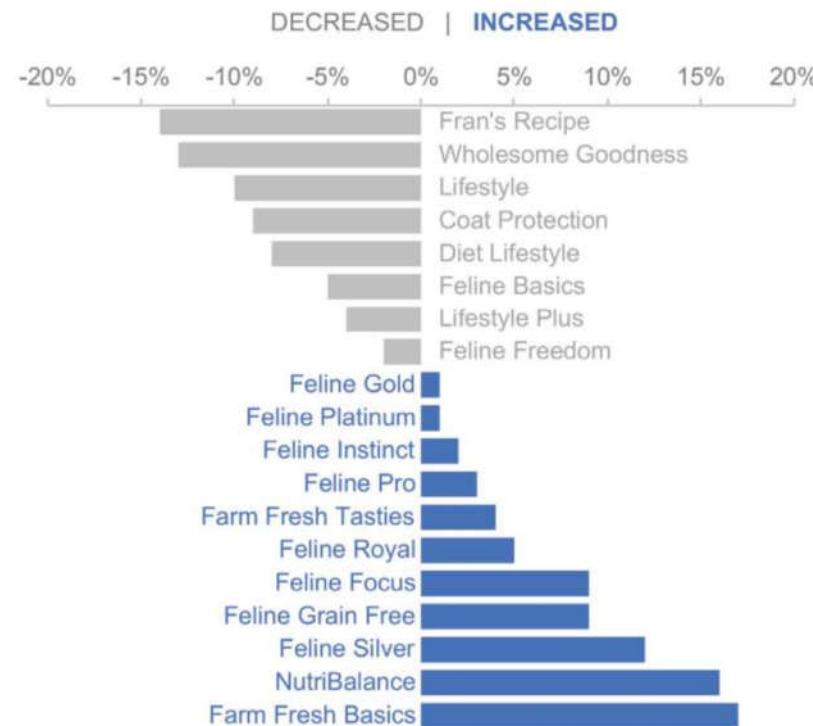
Focus Attention

Cat food brands: **2 brands decreased the most**
YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



Focus Attention

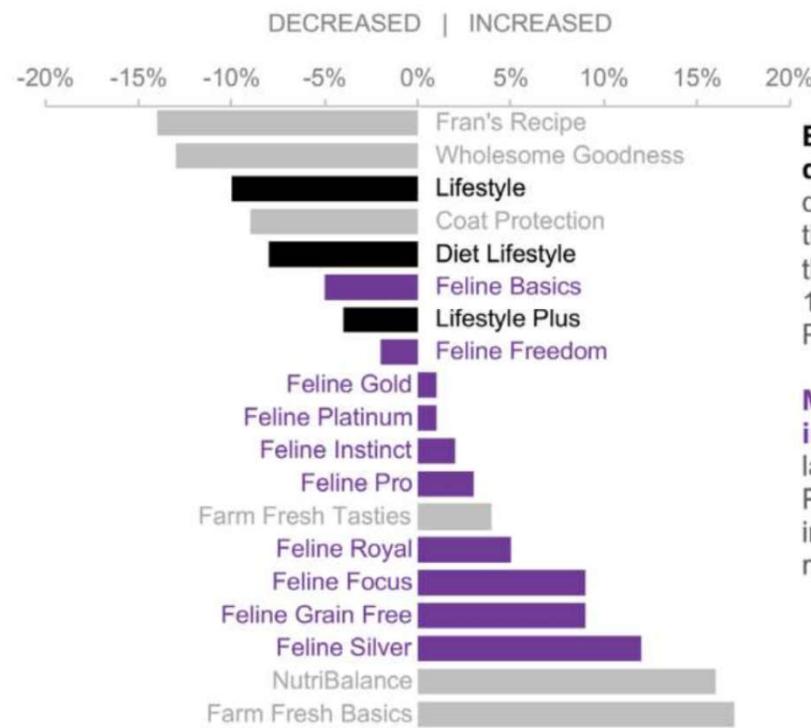
Cat food brands: **11 brands flat to increasing**
YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



Focus Attention

Cat food brands: mixed results in sales year-over-year

YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



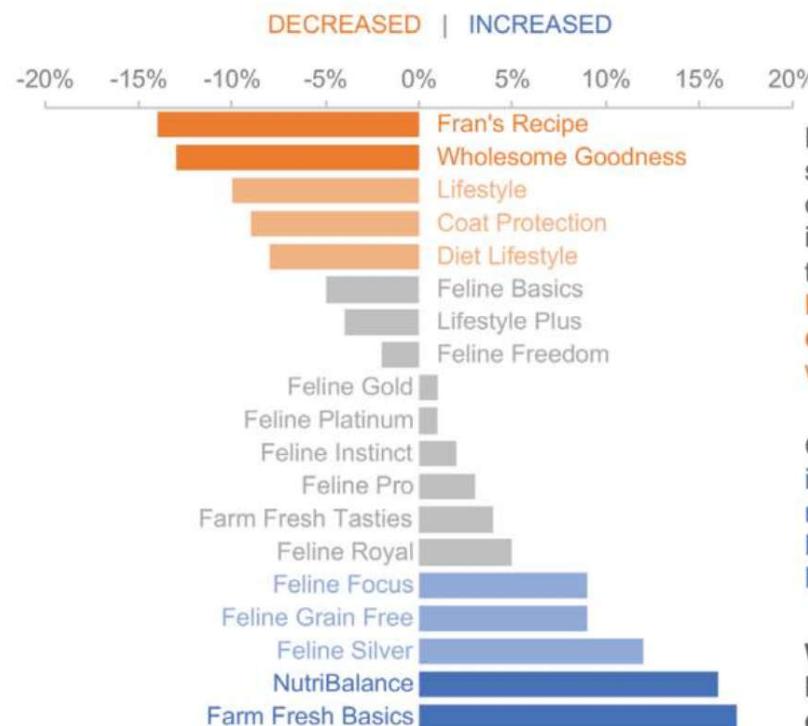
Brands in the Lifestyle line all decreased year-over-year, mainly due to a marketing shift away from these products. Classic Lifestyle had the biggest decrease in sales, down 10% year-over-year, while Lifestyle Plus had the smallest decrease (4%).

Most brands in the Feline line increased in sales year-over-year, largely due to the partnership with PetFriends retailers that we entered into mid-year. We anticipate continued momentum in the coming year.

Focus Attention

Cat food brands: mixed results in sales year-over-year

YEAR-OVER-YEAR % CHANGE IN SALES VOLUME (\$)



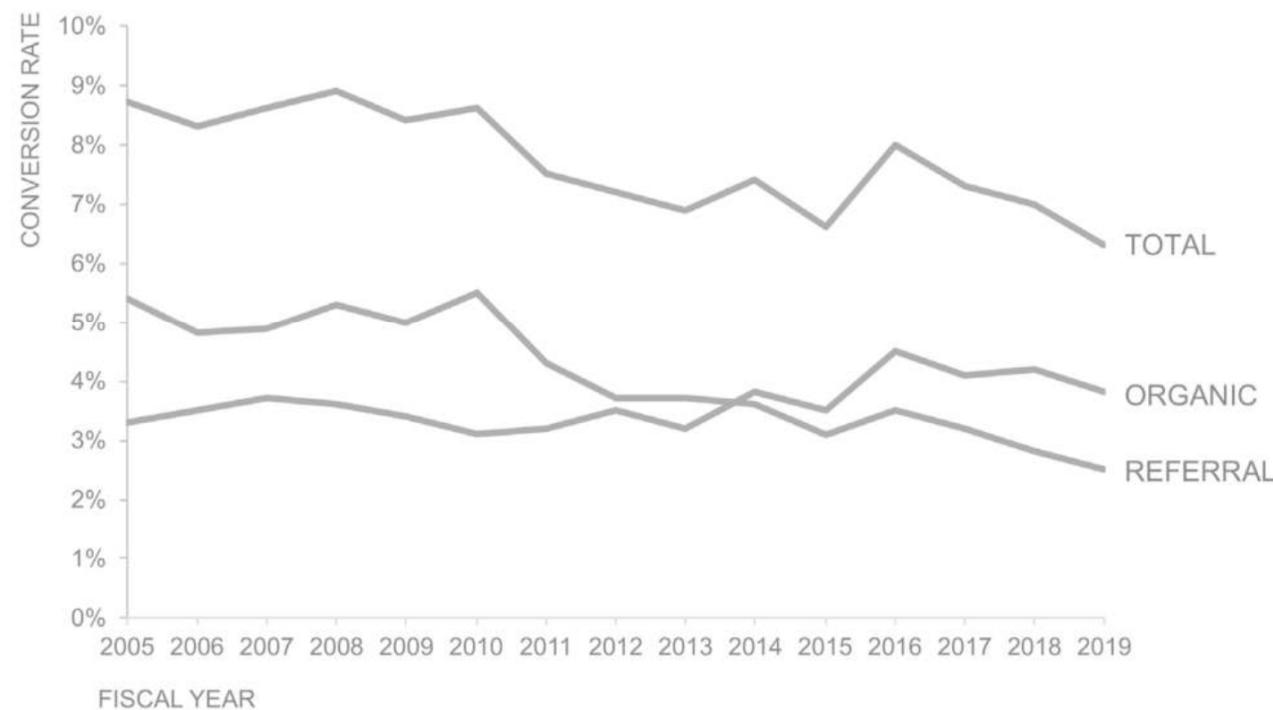
Eight key cat food brands declined in sales year-over-year, with five brands decreasing 7%+. This was expected in some cases due to focus shift toward higher margin brands. **Fran's Recipe and Wholesome Goodness each declined by more than 13%**, which was more than expected.

On the positive side, five brands increased 8%+ year-over-year, with **marked 16%+ increases for NutriBalance and Farm Fresh Basics**.

What can we learn from increasing brands that we can apply elsewhere? Let's discuss next steps.

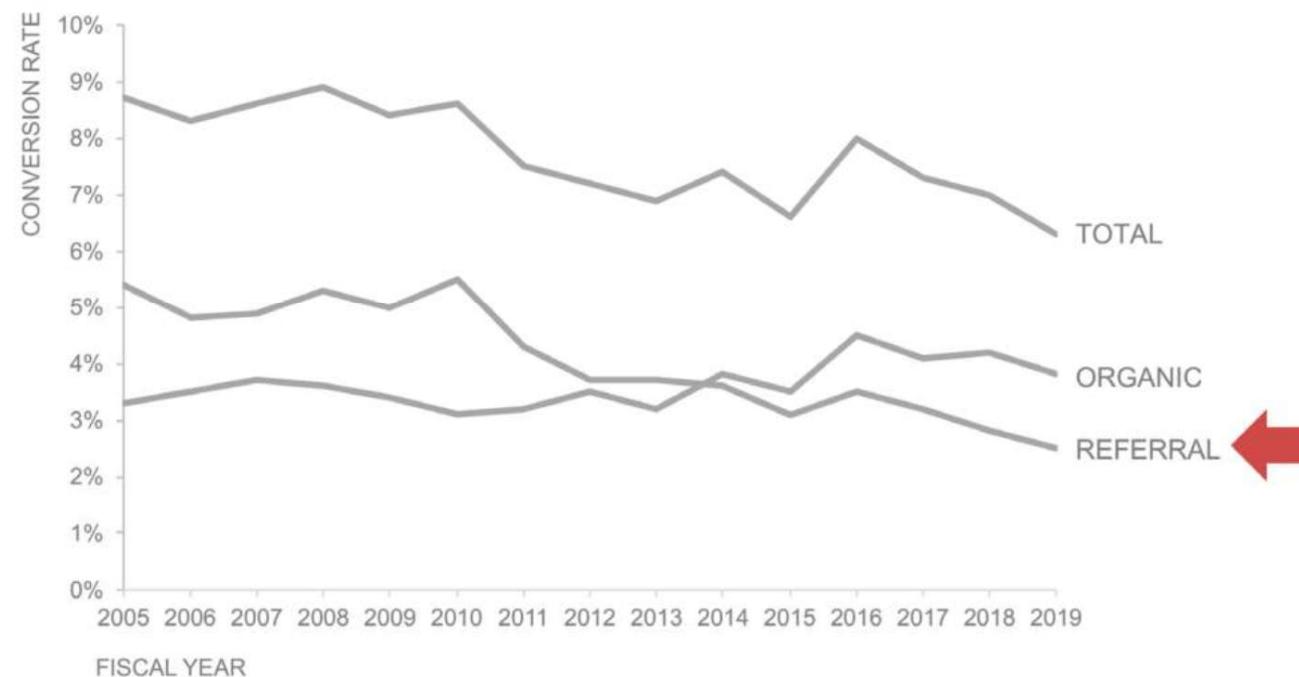
Direct Attention to the Referral line

Conversion rate over time



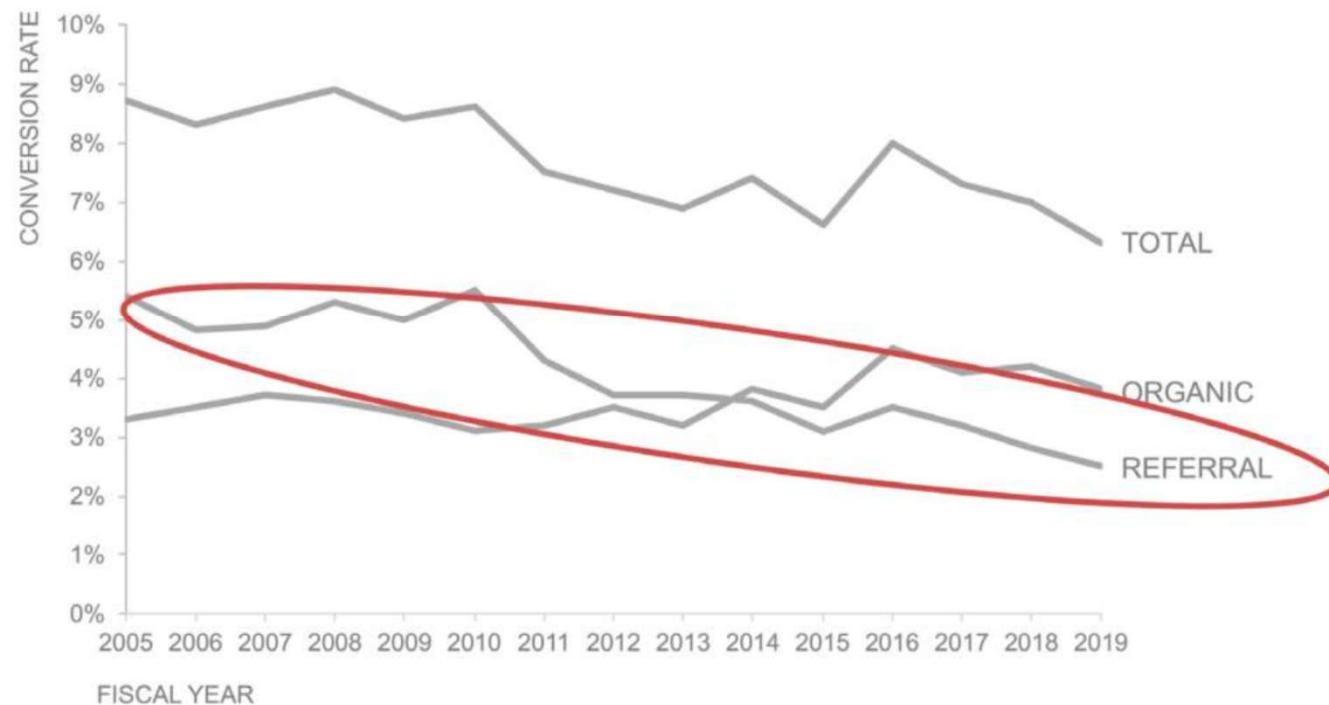
Direct Attention to the Referral line

Conversion rate over time



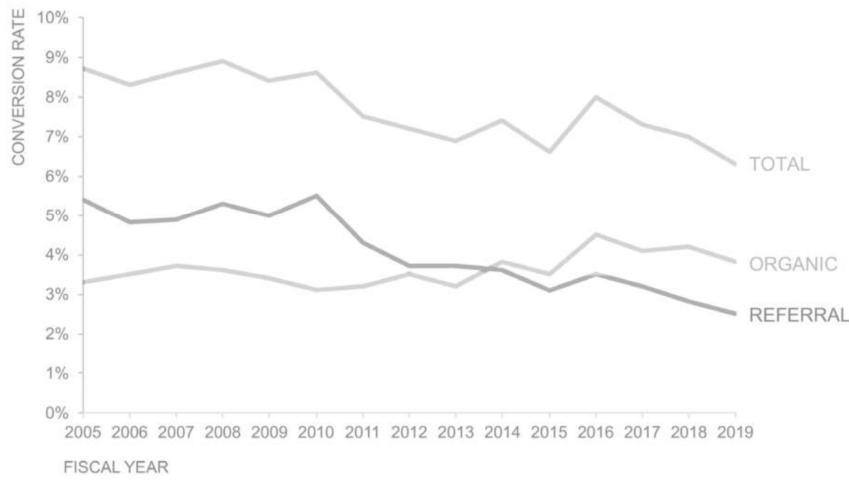
Direct Attention to the Referral line

Conversion rate over time

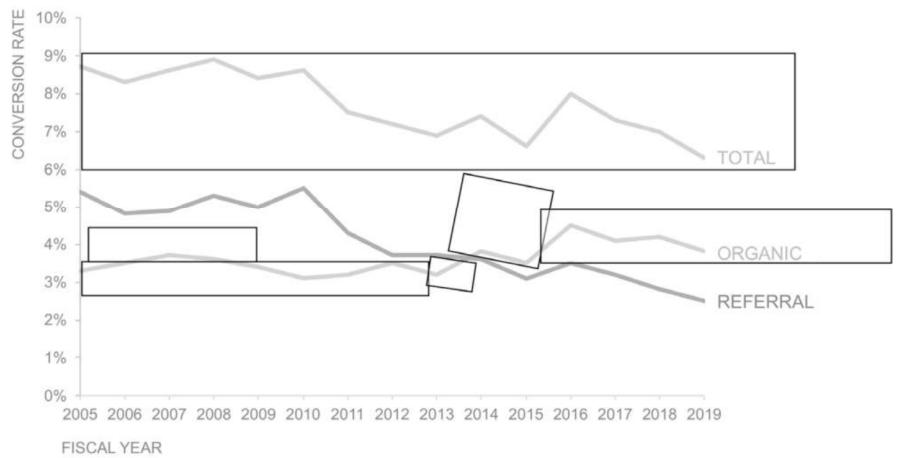


Direct Attention to the Referral line

Conversion rate over time

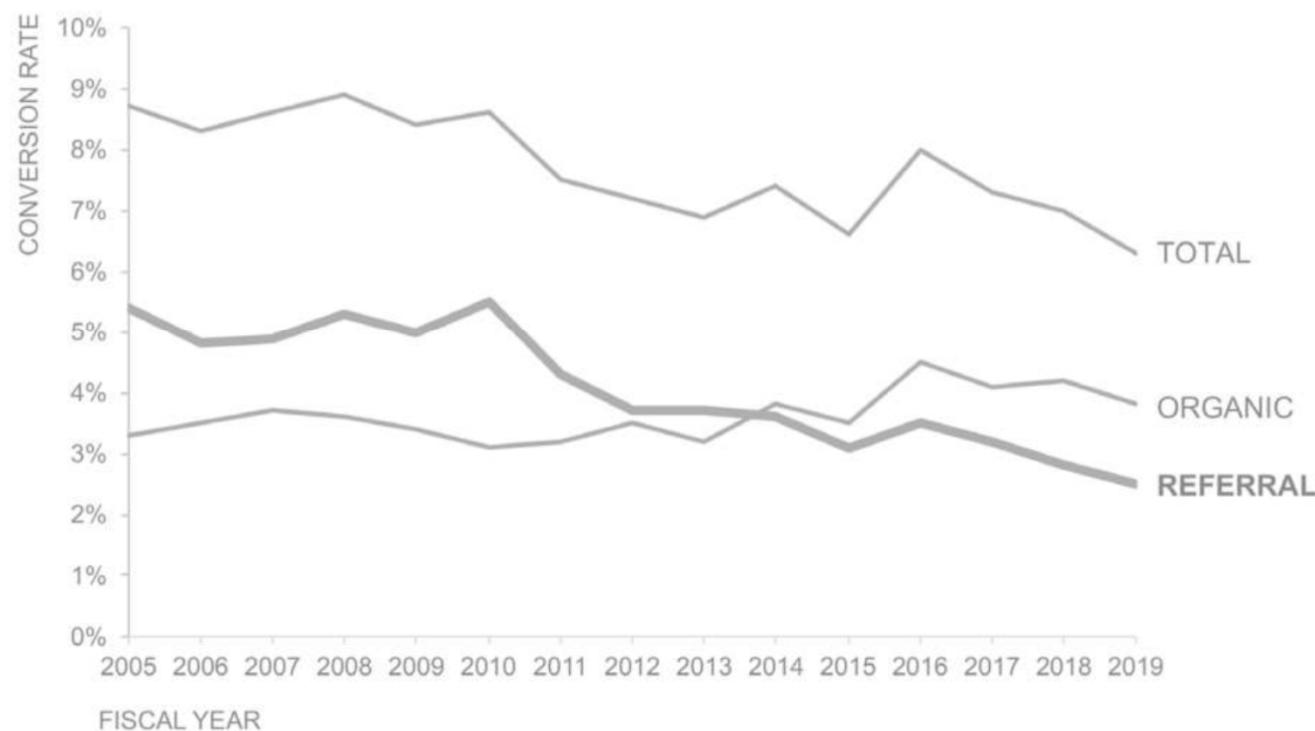


Conversion rate over time



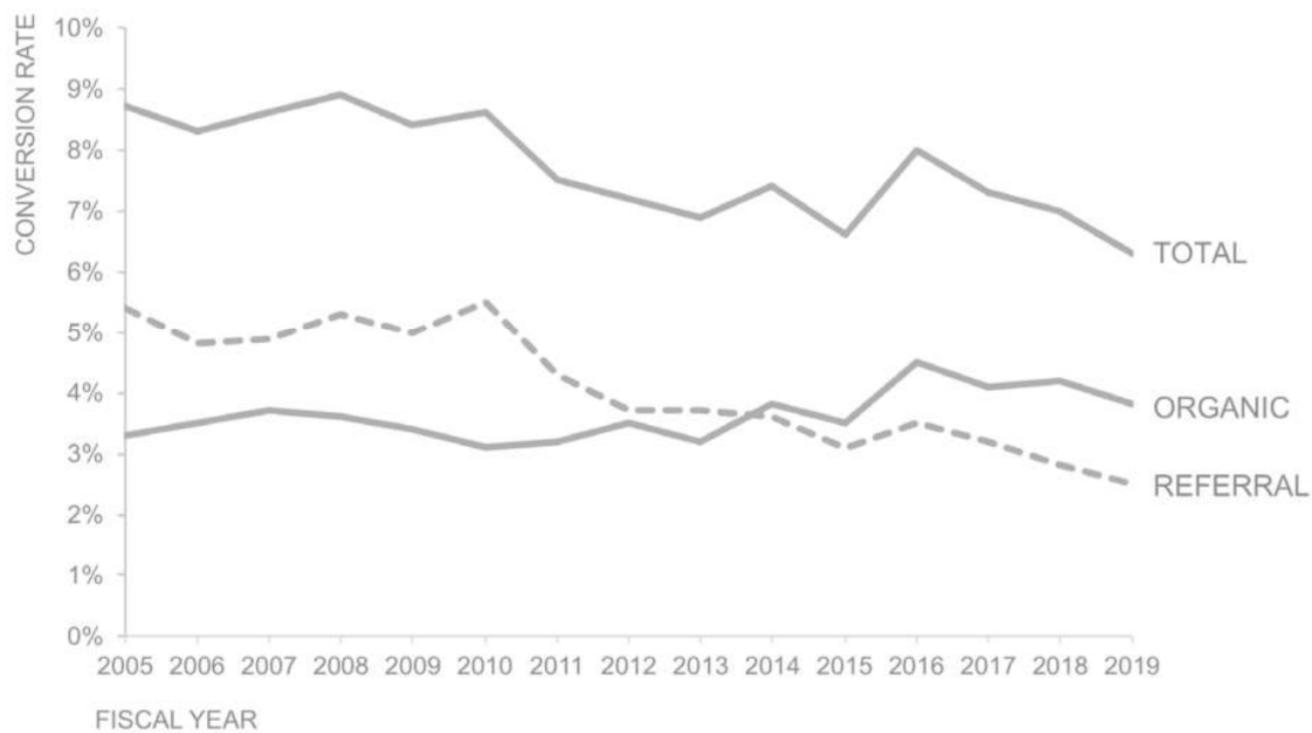
Direct Attention to the Referral line

Conversion rate over time



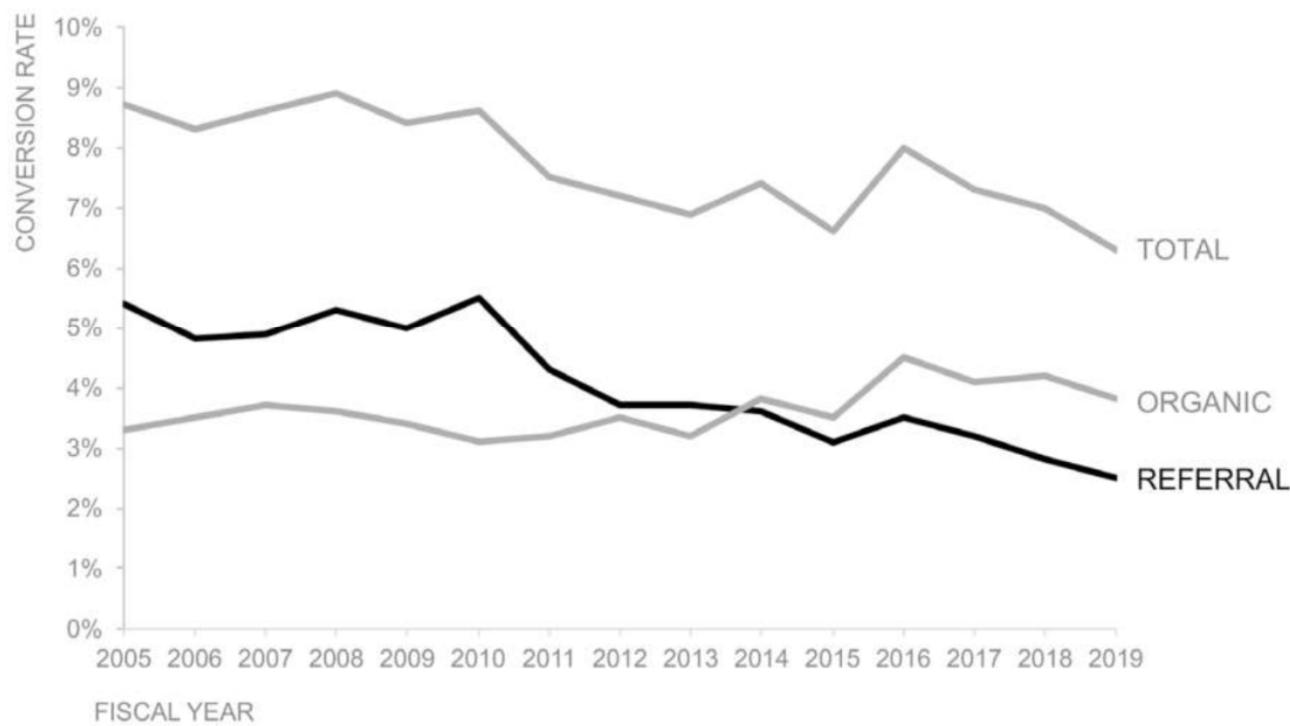
Direct Attention to the Referral line

Conversion rate over time



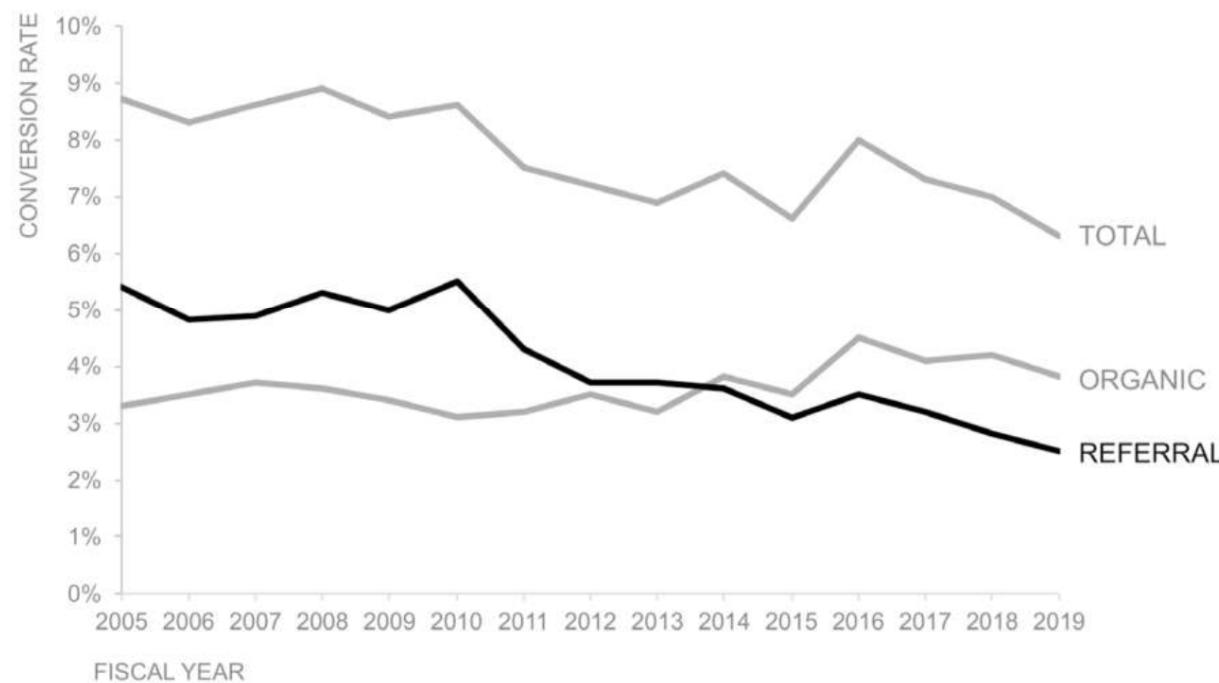
Direct Attention to the Referral line

Conversion rate over time



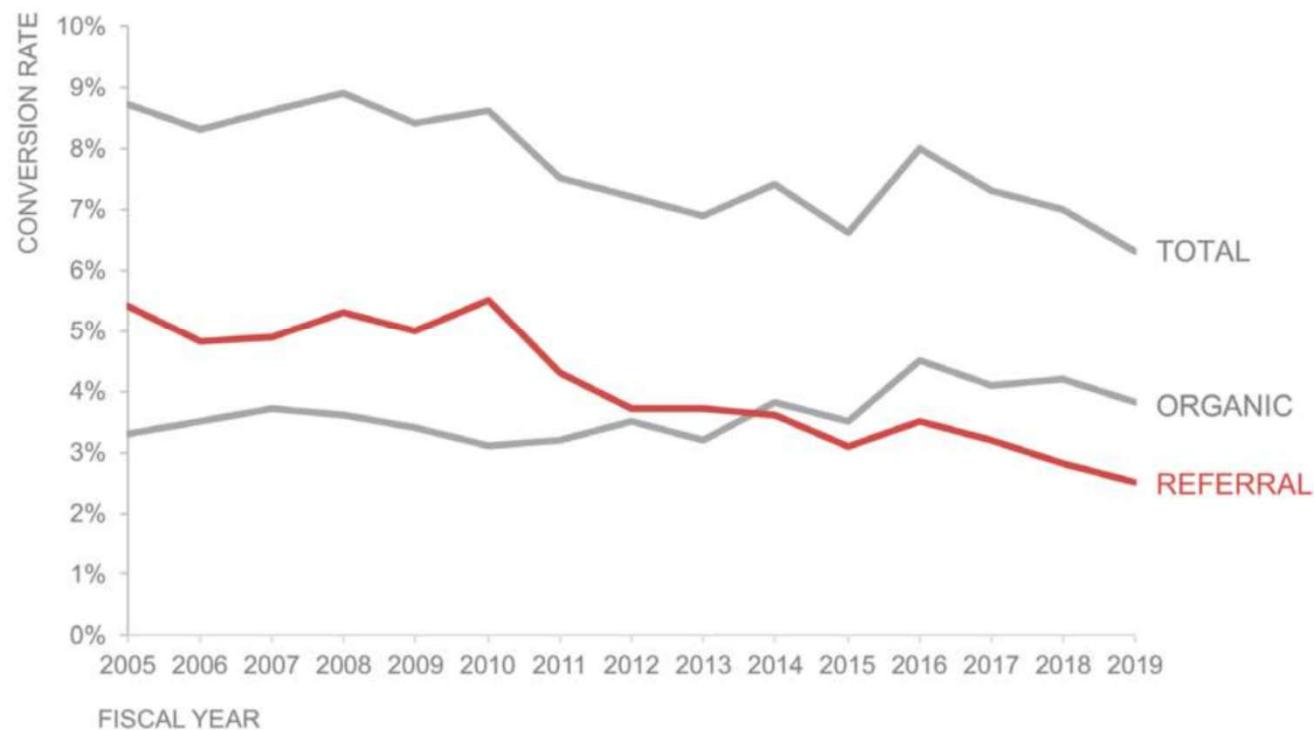
Direct Attention to the Referral line

Conversion rate over time



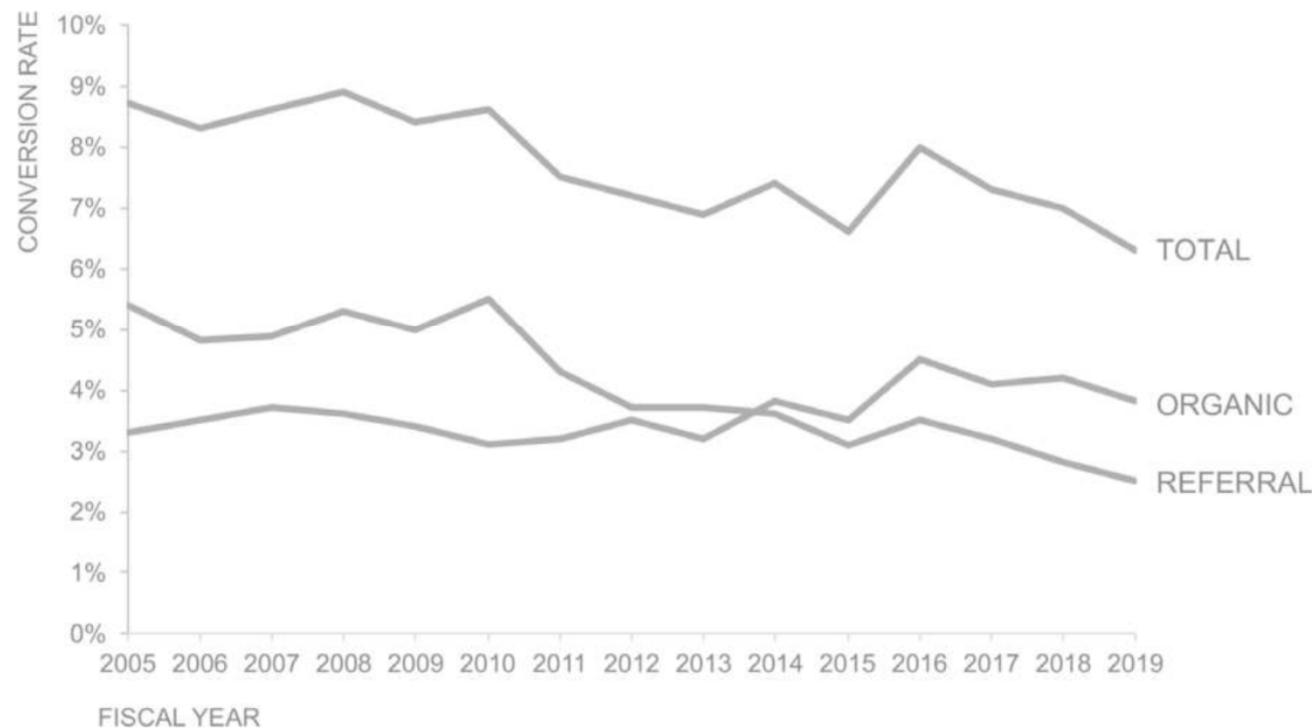
Direct Attention to the Referral line

Conversion rate over time



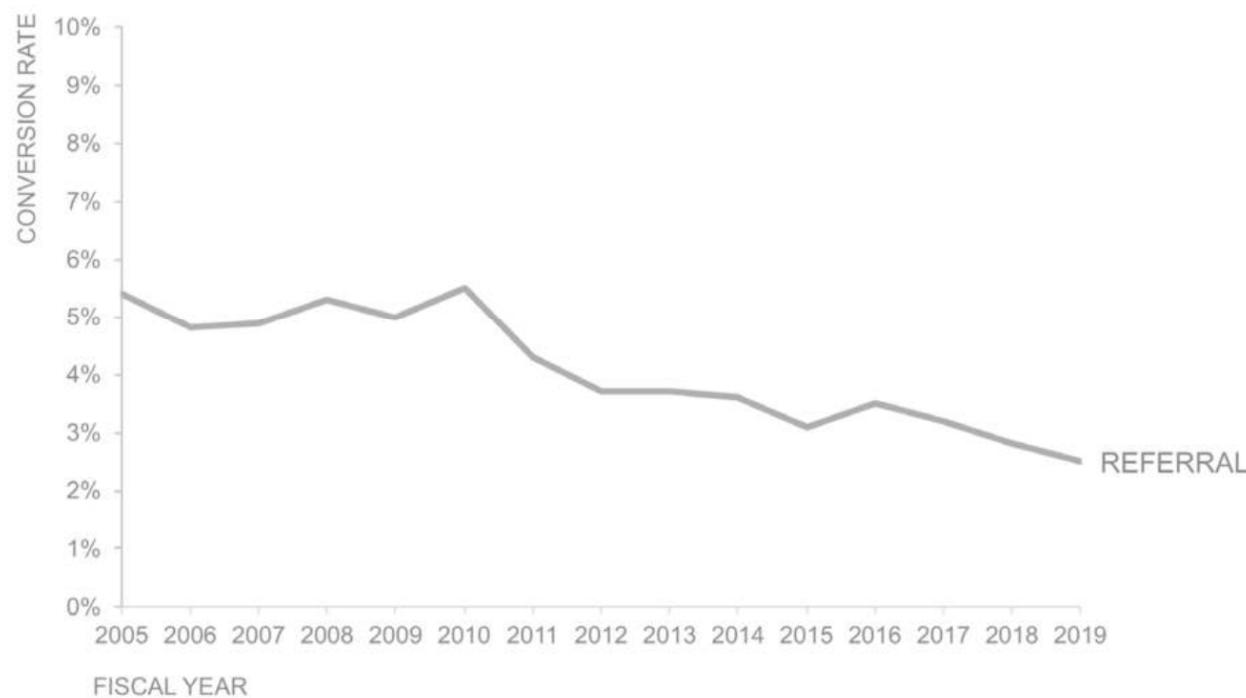
Direct Attention to the Referral line

Conversion rate over time: Referral decreasing markedly since 2010



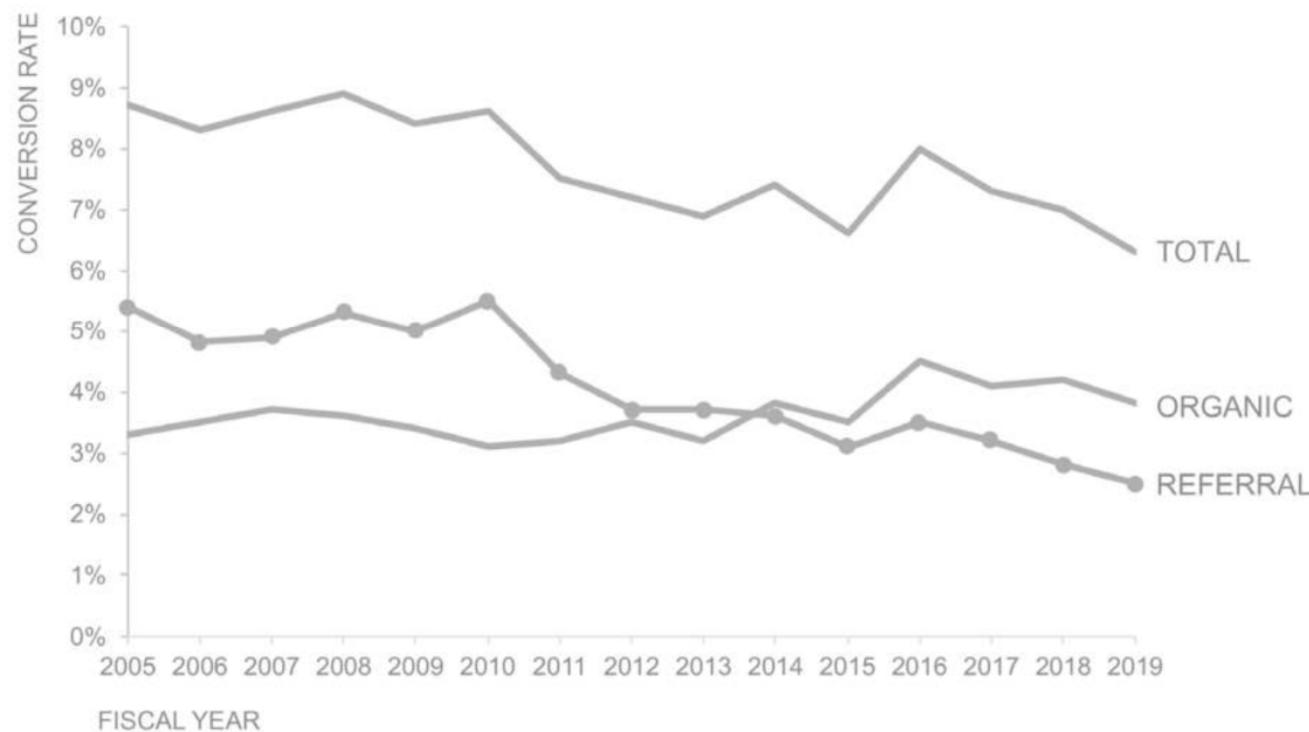
Direct Attention to the Referral line

Conversion rate over time



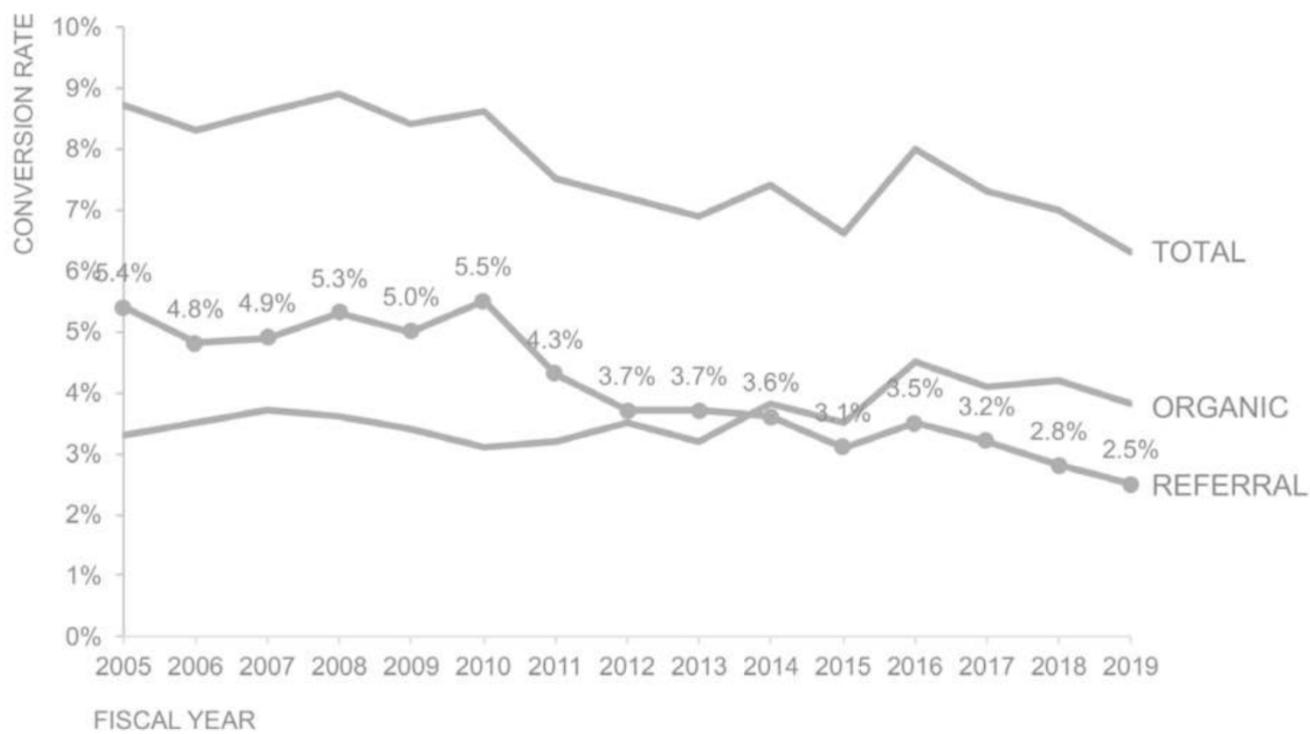
Direct Attention to the Referral line

Conversion rate over time



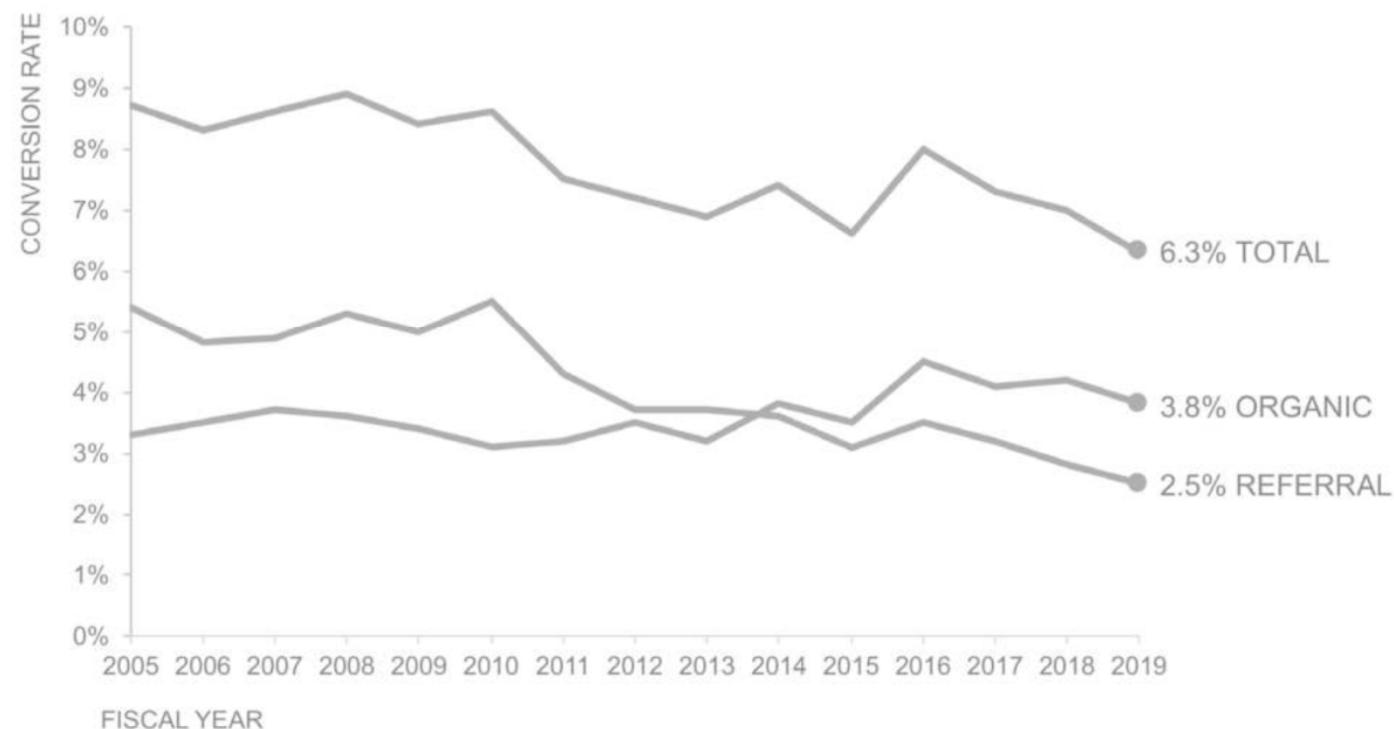
Direct Attention to the Referral line

Conversion rate over time



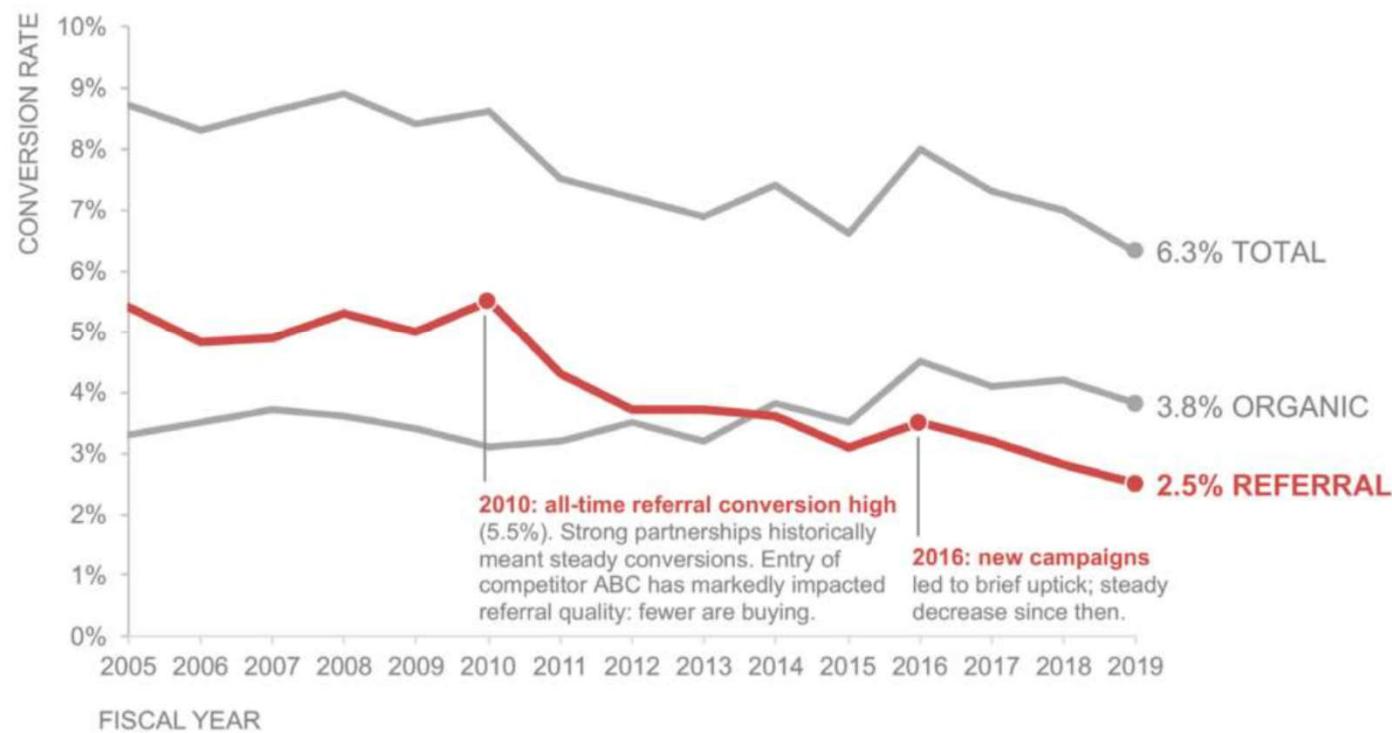
Direct Attention to the Referral line

Conversion rate over time

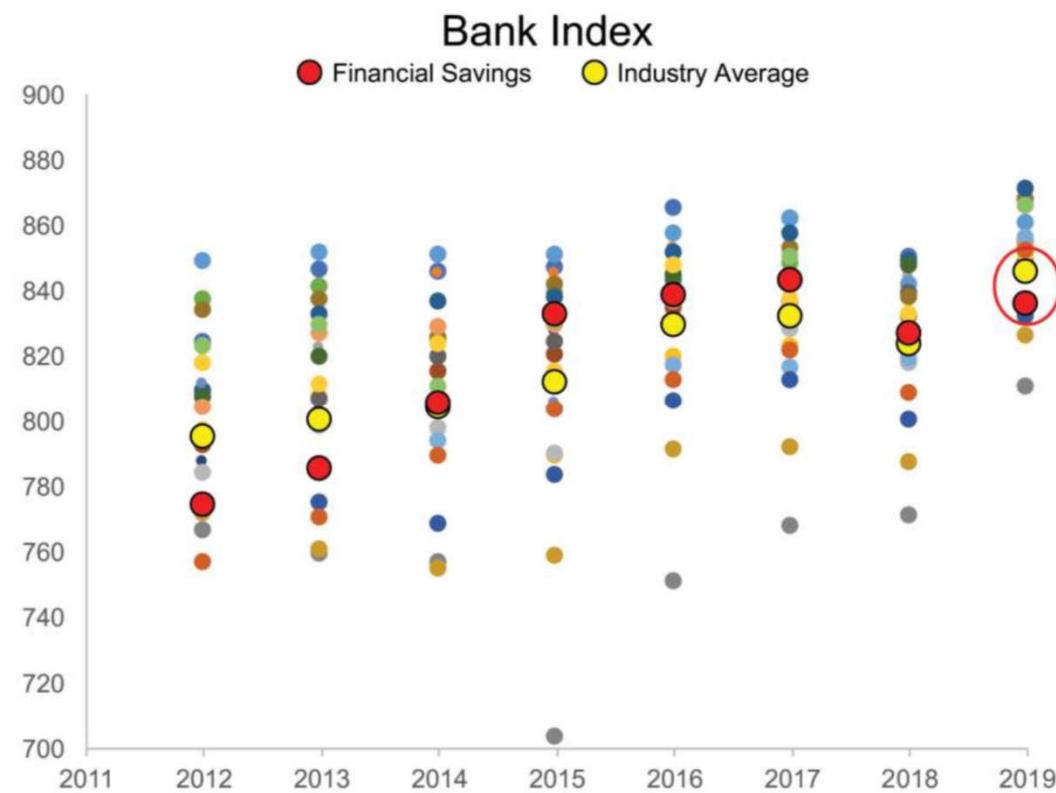


Direct Attention to the Referral line

Conversion rate over time: **referral decreasing markedly since 2010**



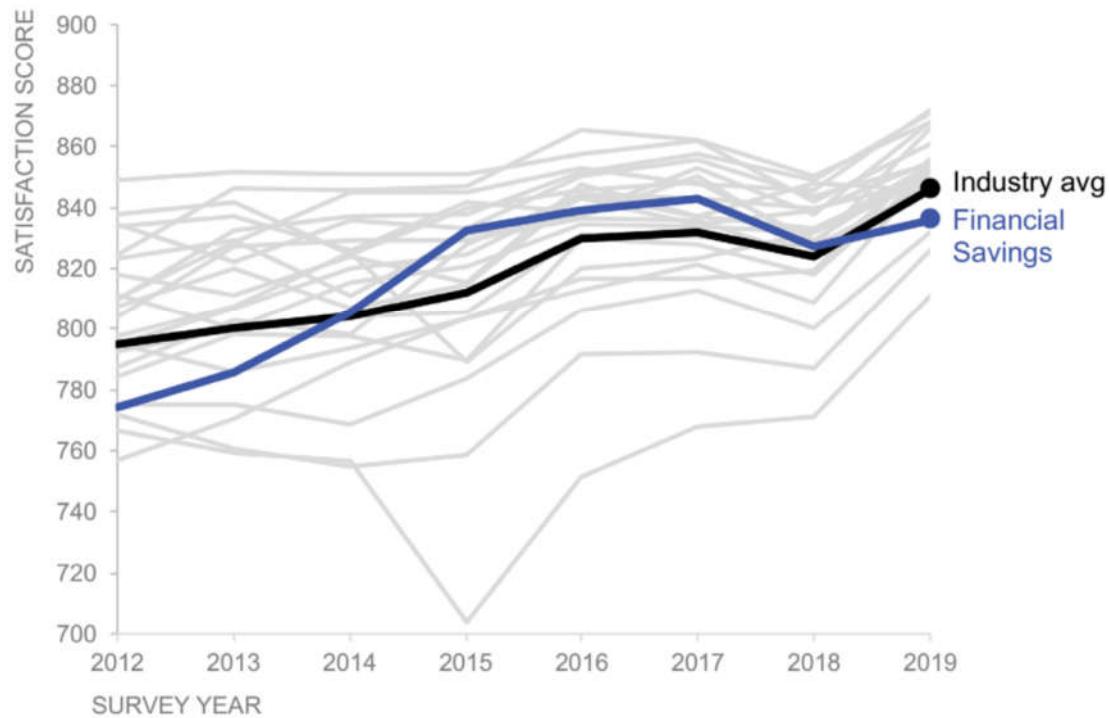
Visualize All the Data



Visualize All the Data

BRANCH SATISFACTION

Financial Savings below **industry** for first time in 5 years



Visualize All the Data

BRANCH SATISFACTION

Financial Savings below **industry** for first time in 5 years

