

AB InBev FINAL PRESENTATION

Hong Gyu Ju I Chen Wu **Javier Lasa** Jenny Kim Kim Rabia Sehgal Sheng Ju Zexi Liu Zhengjia Xu

AGENDA



- Executive Summary
- Gantt Chart
- Project Journey
- Research & Data Analysis Findings
- Conclusions
- Q&A



EXECUTIVE SUMMARY



- We conducted a thorough business understanding and a deep-dive data analysis to come across with an appreciation for the behavior of competitors' brands and its implications on the market side.
- We approached the business problem from 3 different angles and produced the following insights:
 - Share of Voice Analysis
 - Broadcast TV continues to account for the majority of consumers' TV watching hours.
 - SoV for Seltzer drinks has seen a big increase from Mid-2019 onwards, reaching an average of 19.3%, which is huge, considering light beer had an average of 23.8%.
 - Mindful drinking has led to decrease in SOV for Malt and increase in SOV for Seltzer.

Top 5 Competitors Brands Overview

- Seasonality plays a big role in marketing ad spending.
- Group aging is a huge factor for TV consumption ratings and the numbers are expected to decrease in the future.
- Although drinking habits for some Americans may be on the verge of changing, alcoholic drinks are still among the top spenders in TV ads.

Seltzer Phenomena

- Stronger in social media as it emerged among younger people.
- Market saturated with different brands, which had an effect on growth forecasts.
- Seltzer bubble is not close to bursting yet.
- Investments into diversification of kombucha, coffee-infused and non-alcoholic beverages.

GANTT CHART



B II								
Predict Competitor GRP								
Business Team: I Chen Wu, Javier Lasa, Rabia Sehgal, Sheng Ju, Zexi Liu,	Zhengjia Xu							
Technical Team: Hong Gyu Ju, Jenny Kim Kim		Project Start:	Sat, 11/2	27/2021				
		Display Week:	1		Nov 22, 2021 Nov 29, 2021 Dec 6,	2021 Dec 13, 2021	Dec 20, 2021	Dec 27, 2021
		Display Week:		J	23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8	9 10 11 12 13 14 15 16 17 18 19	20 21 22 23 24 25 2	6 27 28 29 30 31 1 2
TASK	ASSIGNED TO	PROGRESS	START	END	T W T F S S M T W T F S S M T W	T F S S M T W T F S S	M T W T F S	S M T W T F S S
Top 5 well-known brands: Modelo, Corona, Heineken, Coors Light and Miller Lite.,								
Data segmentation and wrangling on these 5 brands	Technical Team	100%	11/27/21	12/1/21				
Predict GRPs of each brand	Technical Team	100%	11/27/21	12/1/21				
Overall market research on these 5 brands	Business Team	100%	11/27/21	12/1/21				
Research each brand's budget allocation method & strategy	Business Team	100%	11/27/21	12/1/21				
Seltzer phenomenon								
Data segmentation and wrangling on Seltzer brands	Technical Team	100%	11/27/21	12/7/21				
Observe the GRP on Seltzer brands and predict its future trend	Technical Team	100%	11/27/21	12/7/21				
Research on emerging and current trend on Seltzer	Business Team	100%	11/27/21	12/7/21				
What strategy each companies are using on their Seltzer brands	Business Team	100%	11/27/21	12/7/21				
SoV proportion in the market								
Data transformation	Technical Team	100%	11/28/21	12/22/21				
Categorize the dataset by month	Technical Team	100%	11/28/21	12/22/21				
Identify any attribution (pattern/trend/seasonality)	Technical Team	100%	11/28/21	12/22/21				
Research any strategy each company is using in their specific brands	Business Team	100%	11/28/21	12/22/21				
How the beer market use SoV currently and how effective it is	Business Team	100%	11/28/21	12/22/21				

PROJECT JOURNEY





Concept & Initiation Phase

- Overview of the market Data analysis graphs

Definition & Planning Phase

- Define Scope
- Reorganize Hypothesis

Launching & Execution Phase

- Facebook Prophet VS Auto Arima
- Incorporate Business Research

Performance & Control

- SOV prediction model
- Seltzer model
- Big swings, trends

Project Close

- Final presentation
- Insights & Conclusions

SHARE OF VOICE - GENERAL INSIGHTS



- TV Ad spending Broadcast TV still accounts for the majority of consumers' TV watching hours.
- Giant brands have increased TV Ads spend post-covid (2020).
- Spending is influenced by holidays, sporting events and time of year.
- Due to customers' shift into mindful drinking,
 SOV in Seltzer has been increasing.



BUSINESS RESEARCH



- Economic uncertainty
- Wide range of beer: from bitter to fruity taste & alcohol to non-alcohol.

WHALES

- Iconic beers
- Well-know
- Cost advantage
- E.g. Lager & Ale

LEOPARDS

- Market growing/ seasonality trend
- E.g. Seltzer & Cider

POODLES

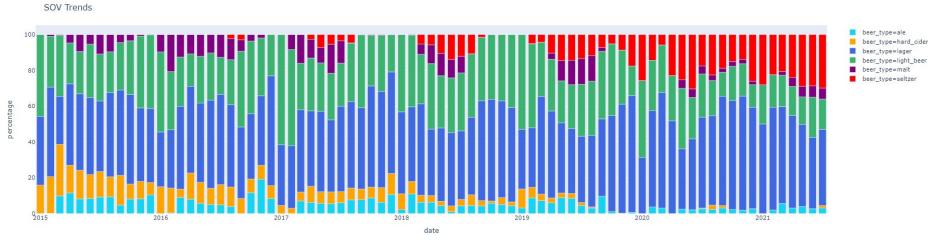
- Supported by a specific consumer
- E.g. Non-alcoholic

SWANS

- Innovative idea/Blue ocean
- E.g. Coffee infused
 & Cannabis infused



OVERVIEW OF SOV TRENDS

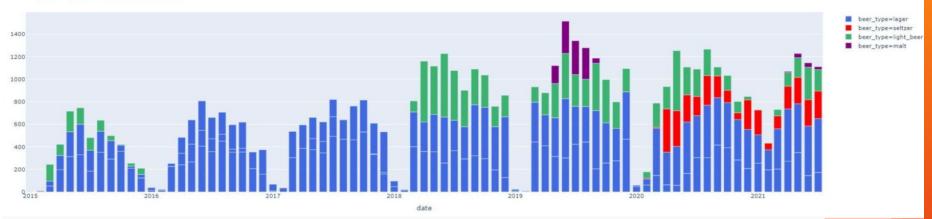


- Lager brands account for average of 45% Sov from Q1 2015 to Q2 2021
- ☐ Hard cider brands lose it's Sov from Q4 2020
- ☐ Light beer brands show strong performance in Sov in January
- Seltzer brands are gradually increasing their Sov from 2019

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SOV FINDINGS - CONSTELLATION

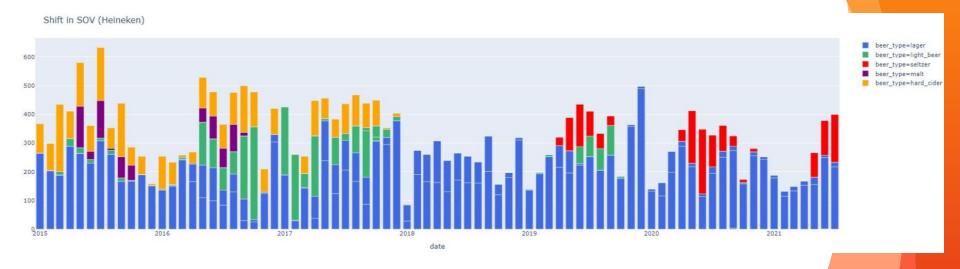




- Spike in 2019 with the launch of Corona Refresca. SoV was offset by a decrease in Corona Extra and Modelo Especial.
- After Corona Hard Seltzer's launch, SoV normalized. However we can observe higher SoV during summer time and the Holiday season.
- \blacksquare Corona Extra saw a significant increase in SoV in the last Q of 2020 and the trend carries on to 2021.
- ☐ Modelo Especial has positioned itself as the brand with the biggest SoV for the company with an average of 37%.
- Both Corona Extra and Modelo Especial are two of the best-selling brands.

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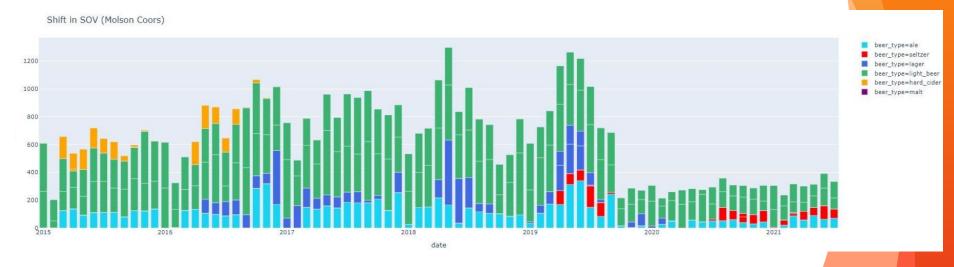
SOV FINDINGS - HEINEKEN



- ☐ Tecate Beer's SoV rises in February and March, and then drops sharply.
- Smirnoff Hard Seltzer seems to be a seasonal product. SoV increases between Spring and Summer, and then decreases. This increase is offset mainly by Heineken Beer.
- ☐ Heineken is the biggest brand from an SoV standpoint, followed by Dos Equis Beer.



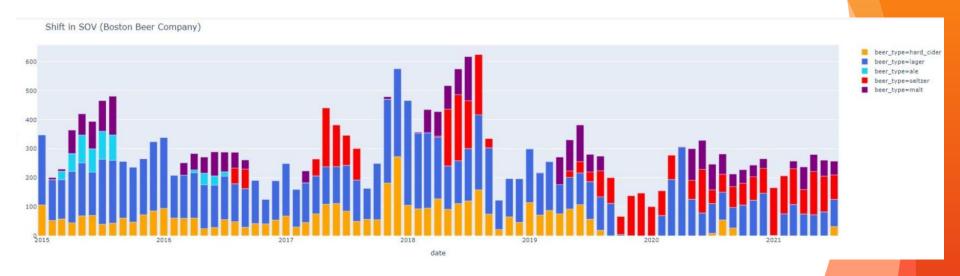
SOV FINDINGS - MOLSON COORS



- ☐ Vizzy Hard Seltzer seems to be a seasonal product. SoV rises in summer-time.
- Coors Hard Seltzer is being discontinued.
- □ SoV is mainly split between Coors Light and Miller Lite.

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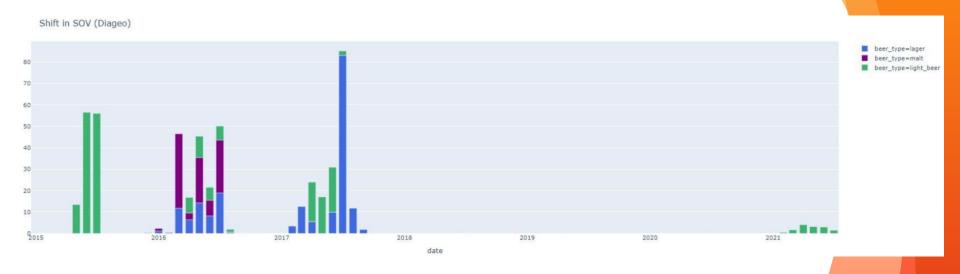
SOV FINDINGS - BOSTON BEER COMPANY



- Over the past two years, Truly had a higher SoV than Samuel Adams on average 48% vs 36% respectively.
- Twisted Tea spikes in summer-time, but decreases as we reach end of year until it gets to zero.
- \blacksquare Angry Orchard Hard Cider seems to have lost ground as it sharply dropped from Q3 2019 onwards.



SOV FINDINGS - DIAGEO



- Main brand is Guinness
- Q2 2021 has seen an increase in Seagrams Escapes following the new launch of the brand's tv ads called: "Sip Happiness"

TOP 5 BRANDS - GENERAL INSIGHTS

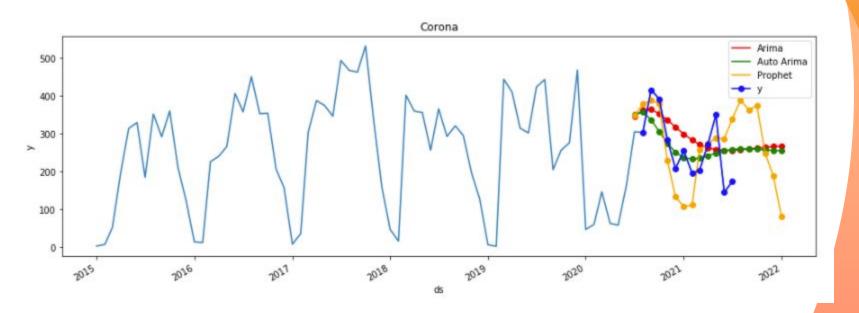


- Seasonality Holidays, sporting events and Summer TV have higher numbers of audience
- The majority of Americans are still spending their screen time watching network & cable TV
- American drinking habits Fewer Americans are drinking alcohol
- Sponsorships and Partnerships Mainly with sporting National Associations or Local teams



TOP 5 FINDINGS - CORONA EXTRA

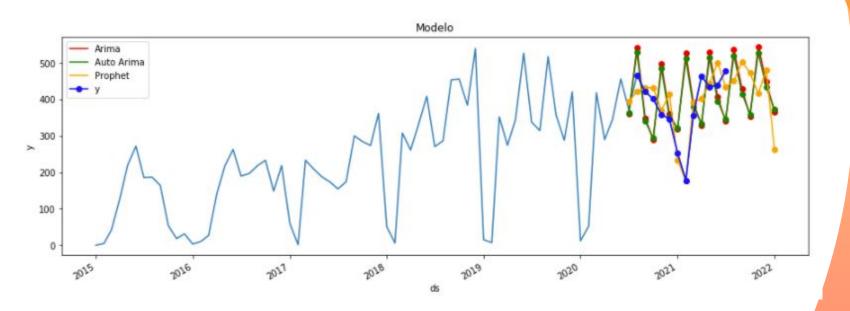




- 2020 Corona Extra negative brand impact
- ☐ Higher marketing spend in 2021 YoY
- □ 5% depletion volume growth increase by 2Q 2022 Fiscal Year

TOP 5 FINDINGS - MODELO ESPECIAL

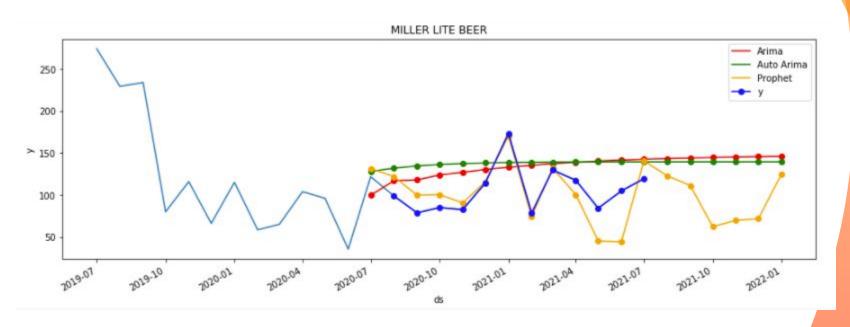




- Modelo is the sponsor of UFC championship and of the National College Footbal
- ☐ 16% depletion volume growth increase by 2Q 2022 Fiscal Year
- One of the best-selling beers in the USA, without falling under "light" or "lite" category

TOP 5 FINDINGS - MILLER LITE

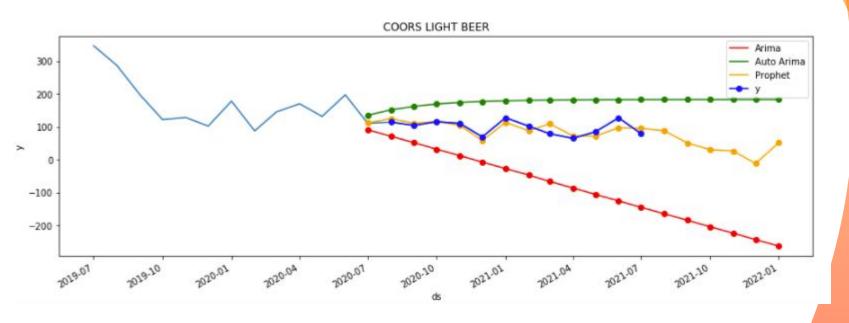




- ☐ Light beer has a winning SoV in the Molson Coors Brewery
- ☐ The company dramatically reduced GRP in Q4 2019
- ☐ Miller Light is expected to have decrease in GRP and sudden increase in January 2022

TOP 5 FINDINGS - COORS LITE

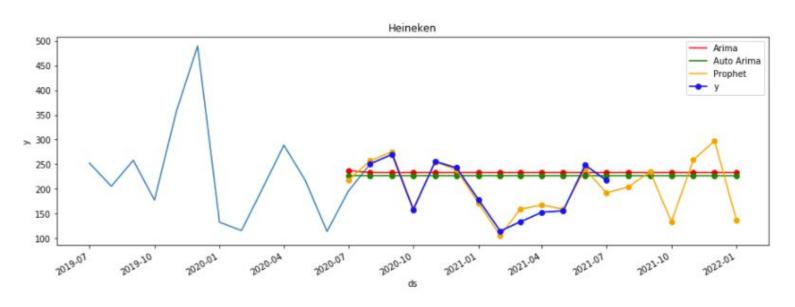




- ☐ Similar to Miller Lite, Coors Lite is main product line in the Molson Coors Brewery
- Coors Lite is expected to have a gradually decreasing GRP

TOP 5 FINDINGS - HEINEKEN BEER





- ☐ Heineken Beer has a winning SoV in the Heineken Brewery
- ☐ Heineken Beer is expected to have a stable GRP
- □ Sudden drop is expected in October 2021 and January 2022

SELTZER PHENOMENA - GENERAL INSIGHTS

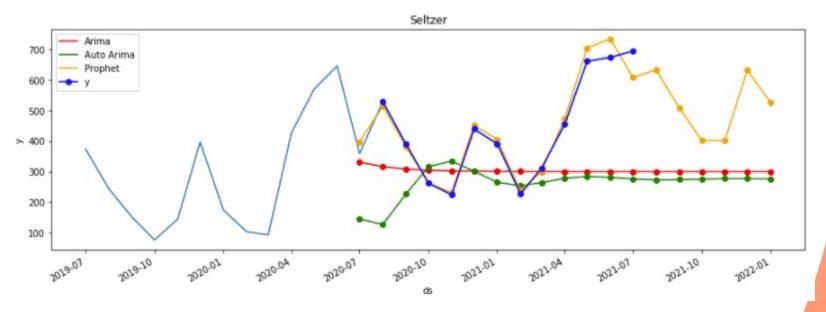


- Seltzer phenomenon really took off in 2019, although this type was already been made by other brands.
- Seltzer phenomena emerged mainly on social media.
- We looked at the last 2 years data for our analysis for seltzers, also in just two years between 2018 and 2020, hard seltzer jumped from \$500 million worth of sales to \$4 billion.
- Seltzer boom is not yet over, although expected growth is lower.
- Key success factors include healthier consumer trends and gender-neutral consumption.



FINDINGS - SELTZER PHENOMENA





- Up to 2021 July, GRP was increasing
- On prediction, the GRP is declining
- Companies: Mark Anthony Group, Molson Coors and Constellation
- 4% sales growth between mid June to mid July this year
- ☐ Molson Coors will discontinue Coors seltzer

CONCLUSIONS



- SoV distribution will depend on future beer market trend.
- Based on the categorization, we observe the overall trends.
- The Seltzer phenomenon doesn't seem to be over, despite the slower expected growth.
- Companies have already started investing in other non-alcoholic drinks to anticipate the next Seltzer disruption.
- The cannabis infused beer and coffee beer will be the next trend.



Thank You



APPENDIX

REFERENCE



- Seltzer:
 - https://www.bloomberg.com/news/articles/2021-07-23/america-s-taste-for-hard-selt zer-is-suddenly-starting-to-wane
- Seltzer:
 - https://www.businessinsider.com/hard-seltzer-craze-timeline-white-claw-truly-bud-lig ht-seltzer-2021-10
- Market Research:
- https://docs.google.com/document/d/1KfUfh6x rTAsgXmMzmkVNP7ZA7bVzrrpgmZ QPA1NHo/edit

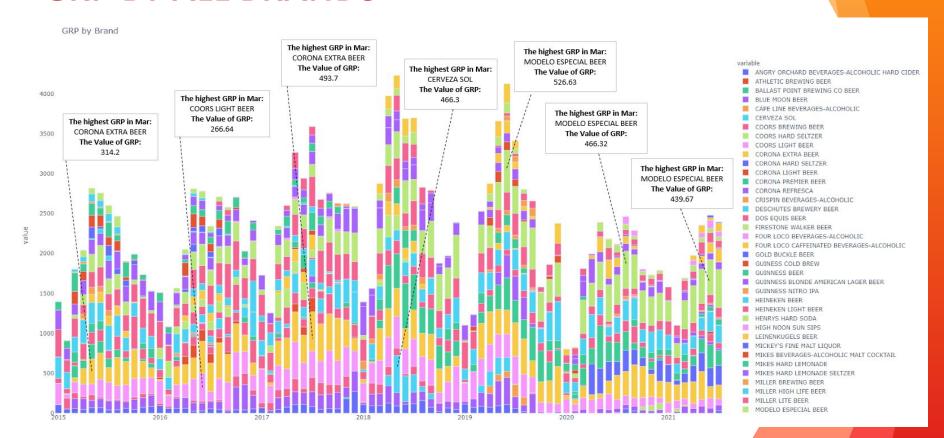
PROJECT SUMMARY



	Key Achievements so far	Upcoming Plans
1 Descriptive (Data Analysis)	 Overall EDA using time series analysis Data categorization by brand and beer type Emerging GRP observed on Seltzer phenomenon Trends and seasonality analysis for all competitor brands 	 Data Segmenting & Wrangling based on project tasks Deep dive on Seltzer Phenomenon Identify the high, median and low spenders on GRP
2 Diagnostic	 SWOT and industry analysis on AB InBev Business research on U.S. beer market Global beer and Seltzer's trends and brands' popularity Reserached big companies in the market which have higher GRP 	 Deep dive on cannabis-infused beer as the next big trend/beer type Determine historically who won SOV for most significant periods Look intobig trends, high standard deviations for Seltzer
3 Predictive (Modelling)	 Predictive model for Corona Extra Beer using Fbprophet with RMSE of 93.7 Predictive linear model to predict Seltzer's GRP using share of voice analysis with 84% accuracy 	 Predictive model for Top5 brands to predict the 1 year GRP from 2021 to 2022 Predictive models to predict the seltzer GRPs Improve the accuracy of model Apply Bayesian Hierarchical Model for prediction if applicable
4 Prescriptive	 Top 5 competitor brands strategy Research for each brand's strategy & spend allocation Research the Seltzer's phenomenon 	 Research and recommendations for Seltzer's growth Research any strategy each company is using in their specific brands How the beer market use SoV currently and how effective it is

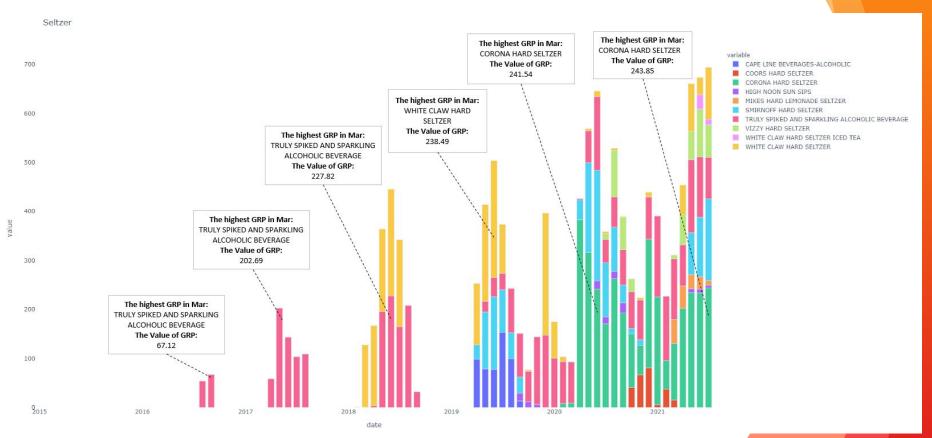
GRP BY ALL BRANDS





SELTZER GRP





PREDICTIVE MODELING - 0



- X variable = internal_prop, external_prop, z_score, mean, std, count
- Y variable = seltzer

Random forest

Train set = 0.7

Test set = 0.3

Result

84% Accuracy of positive predictions.

Linear regression

Train set = 0.7

Test set = 0.3

Result

Intercept: 0.19449

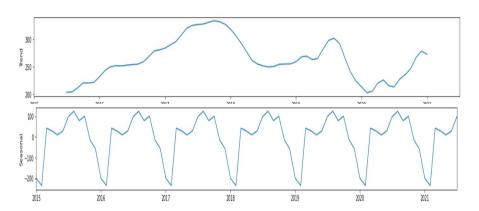
Coefficients: [0.08254952,-0.62478

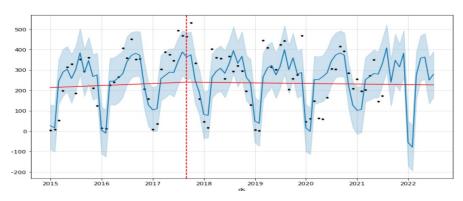
-0.30423451, 0.27065072, 0.0891,

-0.01496658]

TOP 5 FINDINGS - CORONA EXTRA

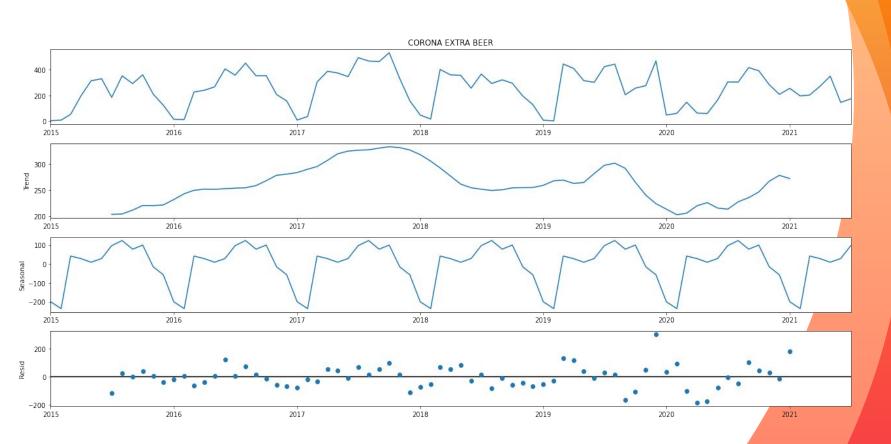






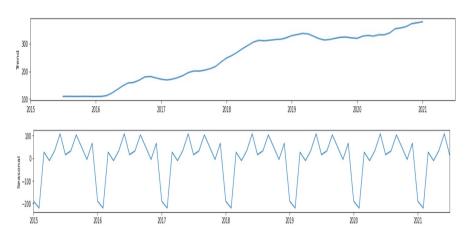
- → 2020 Corona Extra negative brand impact
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- → 5% depletion volume growth increase by 2Q 2022 Fiscal Year

Time Series Decomposition - Corona Extra Beer



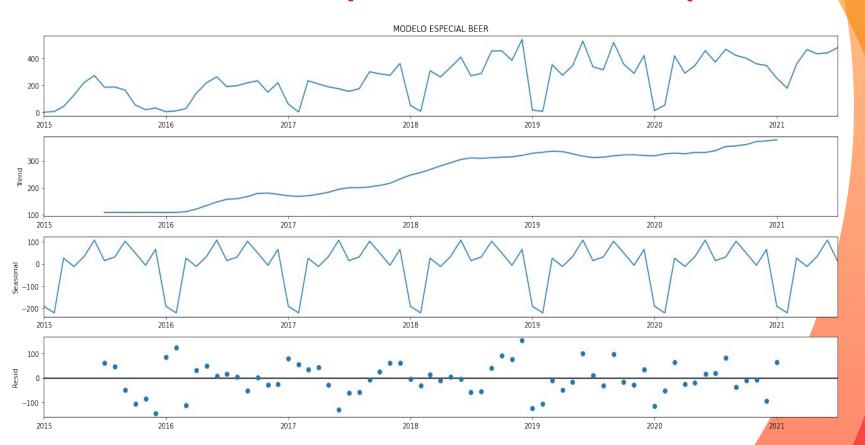
TOP 5 FINDINGS - MODELO ESPECIAL





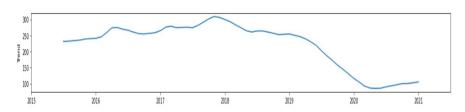
- → Modelo is the sponsor of UFC championship and of the National College Footbal
- → 16% depletion volume growth increase by 2Q 2022 Fiscal Year
- → One of the best-selling beers in the USA, without falling under "light" or "lite" category

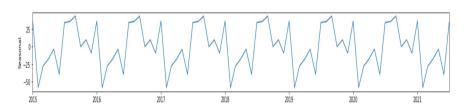
Time Series Decomposition - Modelo Especial Beer

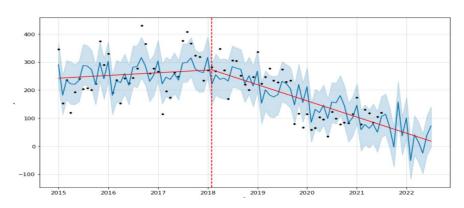


TOP 5 FINDINGS - MILLER LITE



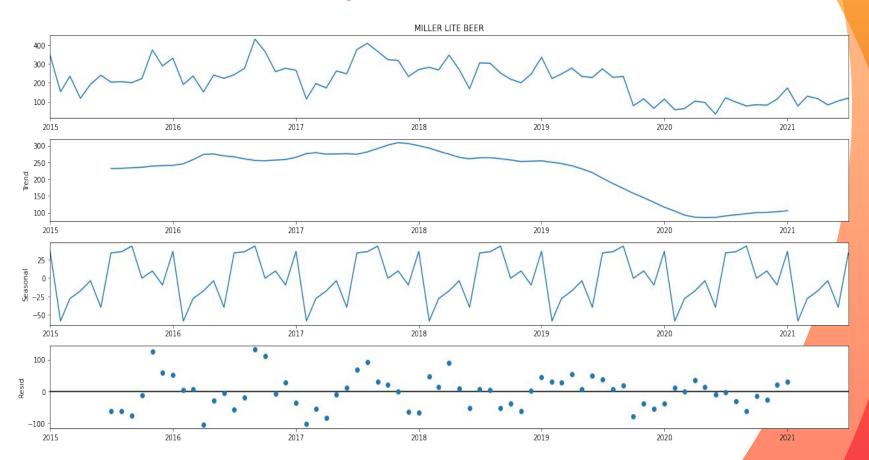






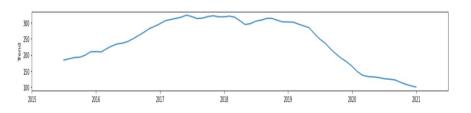
- → Revitalization plan retire under-performing brands, focus on core brands, premium brands and hard seltzers
- → With the return to on-premise and bars, volumes are growing

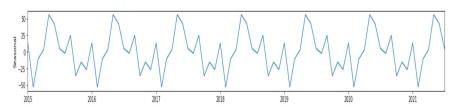
Time Series Decomposition - Miller Lite Beer

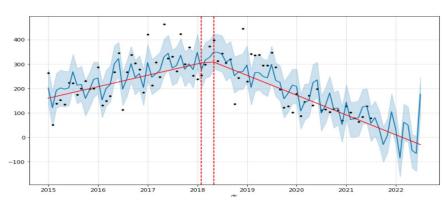


TOP 5 FINDINGS - COORS LITE



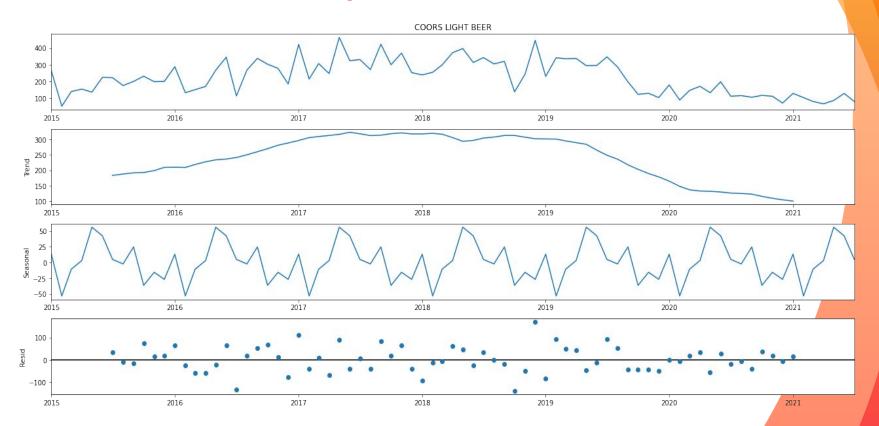






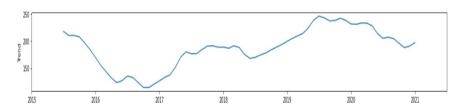
- → Similar to Miller Lite, currently going through company portfolio reshaping
- → With the return to on-premise and bars, volumes are growing

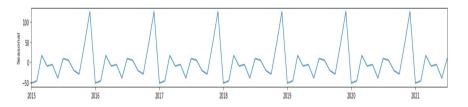
Time Series Decomposition - Coors Lite Beer





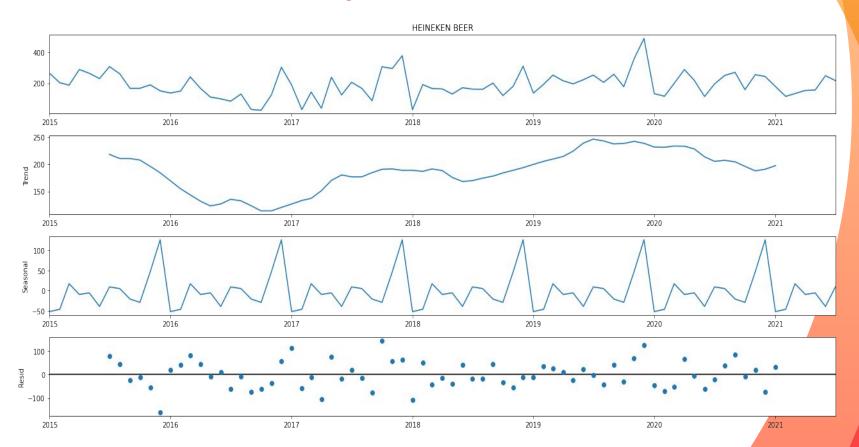






- → Strong partnership with MLS
- → Sponsorship agreement with UBS Arena in New York, future home of the New York Islanders

Time Series Decomposition - Hieneken Beer

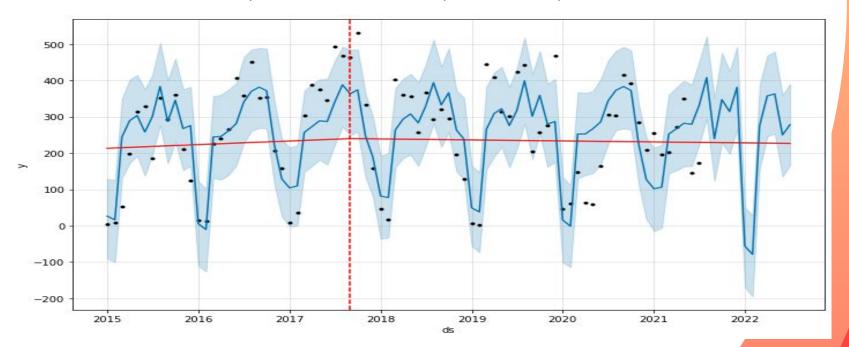


PREDICTIVE MODELING - 1



Modelling using Fbprophet - Corona Extra beer

- Prediction of 1 year period GRP for high median GRP Brands (Top5)
- Prediction & accuracy measures Trend in the predictions is upward for 2021 to 2022



DIAGNOSTICS & PERFORMANCE

	ds	yhat	yhat_lower	yhat_upper	у	cutoff		horizon	mse	rmse	mae	mape	mdape	coverage
0	2017-02-01	117.409959	115.770582	119.778472	36.42	2017-01-18	0	42 days	10489.232400	102.416954	82.424403	4.234116	0.367961	0.444444
1	2017-03-01	240.895004	234.470109	249.341061	304.30	2017-01-18	1	46 days	9696.769293	98.472175	77.178157	3.944136	0.355549	0.444444
2	2017-04-01	311.841758	298.371057	328.058628	387.74	2017-01-18	2	47 days	11319.118365	106.391345	88.065294	3.972218	0.355549	0.333333
3	2017-05-01	382.539634	360.286322	408.926524	374.70	2017-01-18	3	51 days	11872.315037	108.960153	90.267136	3.246460	0.355549	0.333333
4	2017-06-01	480.171754	449.463785	516.754954	346.43	2017-01-18	4	52 days	10817.483941	104.007134	87.719112	3.212490	0.355549	0.333333

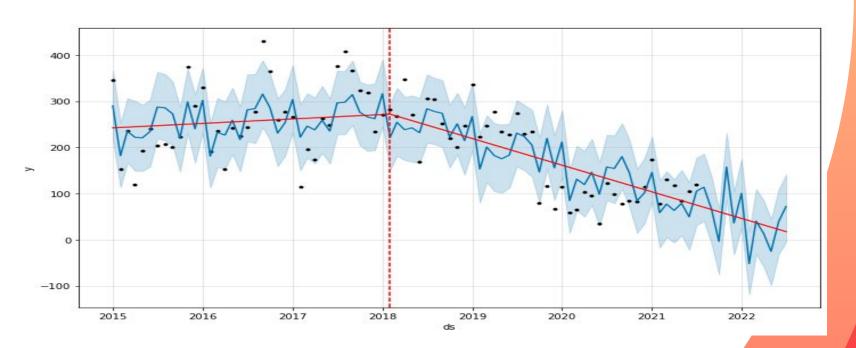
- Default parameters with number of periods as 12, yearly seasonality and changepoint prior scale - 0.1
- Diagnostics with initial training period as 730 days and horizon as 365 days
- Performance metrics RMSE is high for this model
- Adjusted seasonality prior scale and changepoint prior scale post hyperparameter tuning to reduce RMSF further

PREDICTIVE MODELING - 1



Modelling using Fbprophet - Miller Lite Beer

- Prediction of 1 year period GRP for high median GRP Brands (Top5)
- Prediction & accuracy measures Trend in the predictions is downward for 2021 to 2022



DIAGNOSTICS & PERFORMANCE

	ds	yhat	yhat_lower	yhat_upper	у	cutoff		horizon	mse	rmse	mae	mape	mdape	coverage
0	2017-02-01	410.317382	386.272840	436.405910	114.96	2017-01-18	0	42 days	16220.565085	127.359982	101.021247	0.664433	0.473006	0.44444
1	2017-03-01	294.920205	270.590671	319.702053	195.94	2017-01-18	1	46 days	6528.351837	80.798217	68.477374	0.379712	0.347725	0.55555
2	2017-04-01	198.307285	173.351768	223.678141	173.57	2017-01-18	2	47 days	4348.318456	65.941781	55.250978	0.350566	0.333672	0.66666
3	2017-05-01	280.137373	253.824051	305.671419	262.55	2017-01-18	3	51 days	4431.127020	66.566711	55.682142	0.356736	0.389200	0.66666
4	2017-06-01	283.039183	258.287355	309.884972	248.32	2017-01-18	4	52 days	4244.442290	65.149384	52.334649	0.346772	0.389200	0.66666

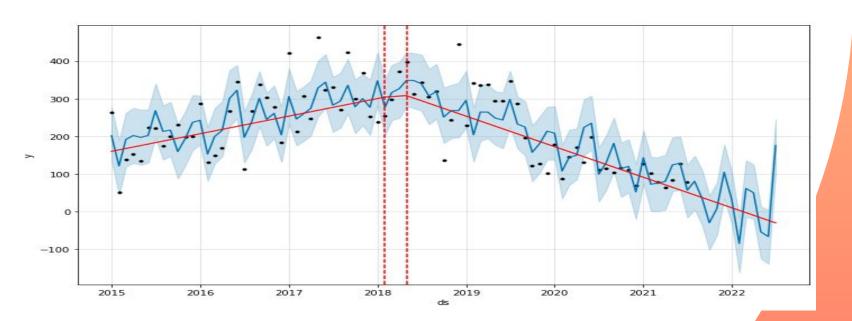
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PREDICTIVE MODELING - 1



Modelling using Fbprophet - Coors Lite Beer

- Prediction of 1 year period GRP for high median GRP Brands (Top5)
- Prediction & accuracy measures Trend in the predictions is downward for 2021 to 2022



DIAGNOSTICS & PERFORMANCE

	ds	yhat	yhat_lower	yhat_upper	у	cutoff
0	2017-02-01	187.147150	181.141743	192.916786	213.24	2017-01-18
1	2017-03-01	234.033380	228.391540	240.217772	306.33	2017-01-18
2	2017-04-01	253.143722	247.106957	259.496811	246.57	2017-01-18
3	2017-05-01	311.779217	305.546309	317.736934	463.42	2017-01-18
4	2017-06-01	392.038665	385.903438	398.377951	323.82	2017-01-18

	horizon	mse	rmse	mae	mape	mdape	coverage
0	42 days	4493.857697	67.036242	58.186387	0.311952	0.236009	0.444444
1	46 days	4434.092633	66.588983	56.615651	0.301502	0.236009	0.555556
2	47 days	3696.188557	60.796287	49.819494	0.275466	0.152042	0.666667
3	51 days	4711.687350	68.641732	60.049543	0.307163	0.236009	0.555556
4	52 days	4545.578767	67.420907	57.553388	0.298220	0.236009	0.555556

- Default parameters with number of periods as 12, yearly seasonality and changepoint prior scale - 0.1
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OVERVIEW



