

Supercars Fans on Twitter: What Are They Talking About?

Group 6

Introduction

- Dataset: live tweets data and live television rating of Supercars Championship throughout the year
- Project scope:
 - Q1: For each event, what is the most popular topic?
 - Q2: Is there any correlation between sentiment score and popularity of each game?
 - Q3: How does eWOM communications impact TV rating and online engagements?
 - Q3(1): How does eWOM communications impact TV viewers in different locations?
 - Q3(2): How does eWOM communications impact online engagements on different race weekends?

Q 1: For each event, what is the most popular topic?

- Add extra stopwords;
 - ◆ Website keywords, like 'http' and 'amp'
 - ◆ Twitter keywords, like 't', 'rt', and 'co'
 - ◆ Common keywords that do not recognize any specific topics, like 'v8sc', 'v8supercar', and 'v8supercars'
- Rewrite all characters in lower case;
- Tokenize and Lemmatize.

Popular Topics Overall

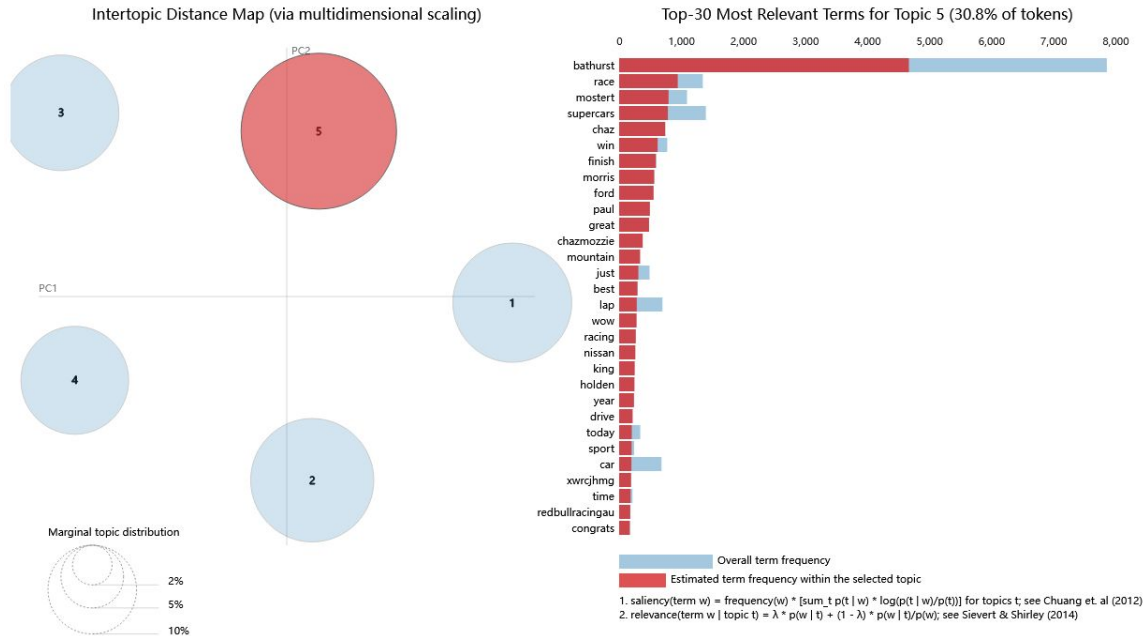
LDA Model:

- Topic 1: ['tas', 'whincup', 'bathurst', 'amazing', 'bag', 'jamie', 'new', 'final', 'going', 'fuel']
- Topic 2: ['bathurst', 'supercars', 'whincup', 'lowndes', 'fpr', 'car', 'australia', 'race', 'mostert', 'moffat']
- Topic 3: ['adelaide', 'tonight', 'home', 'check', 'just', 'dog', 'melbourne', 'photo', 'want', 'male']
- Topic 4: ['bathurst', 'winston', 'day', 'won', 'like', 'come', 'right', 'don', 'hour', 'big']
- Topic 5: ['bathurst', 'race', 'mostert', 'supercars', 'chaz', 'win', 'finish', 'morris', 'ford', 'paul']

Topic Mapping

Take Topic 5 from the LDA model as an example.

Topic 5: ['bathurst', 'race', 'mostert', 'supercars', 'chaz', 'win', 'finish', 'morris', 'ford', 'paul']



Word Cloud Visualization

- Competitions: bathurst 1000;
- Racers: Paul Morris;
- Locations: Adelaide;
- Great race, final lap, safety car



Event-based Topic Modeling

→ Process:

- ◆ Divide the texts into 14 subsets according to their corresponding event;
- ◆ Use LDA model on each subset;
- ◆ Conclude top five topics for each event.

→ Findings:

- ◆ Common topics shared between events;
- ◆ Unique topics during each event;
- ◆ Similarity in the most popular topics.

→ Recommendations:

- ◆ The promotion campaigns in the future shall focus on racers, since racers are the most popular amongst all components in each topic;
- ◆ Customized promo for each event based on unique topics.

Q2: Is there any correlation between sentiment score and popularity of each game?

→ Variable selection:

◆ Popularity:

- Number of tv viewer
- Number of tweet of each game(independent variables)

◆ Sentiment score:

- Average sentiment score during each game
- Average of absolute value of sentiment score during each game

Methodology

- Sentiment analysis
- Reorganize the data frame of tweet and tv data
- Correlation

Insights

→ There is correlation among:

	number_of_tweet	number_of_tv_viewer	senti_ab_mean	senti_mean
number_of_tweet	1.000000	0.968909	0.721953	0.280913
number_of_tv_viewer	0.968909	1.000000	0.786485	0.404227
senti_ab_mean	0.721953	0.786485	1.000000	0.584623
senti_mean	0.280913	0.404227	0.584623	1.000000

→ During the more popular event, people get into higher engagement and contribute to higher sentiment score (evaluated by absolute value)

Recommendation

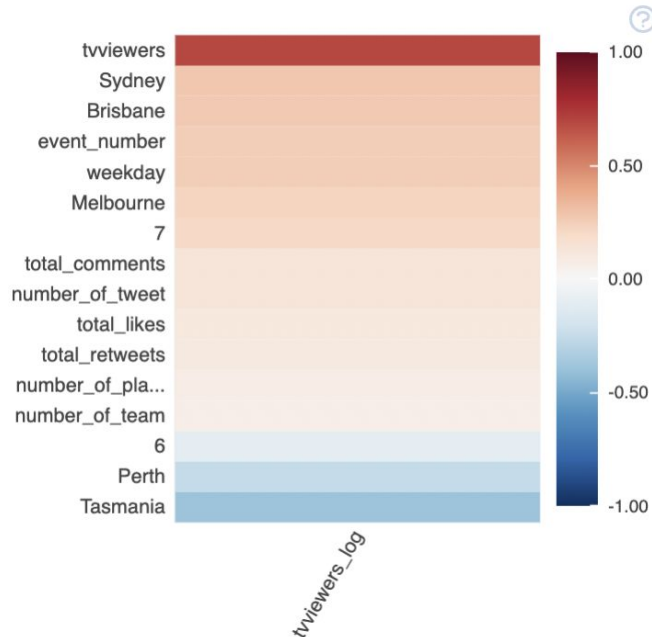
- Evaluate and predict which game would be a hit
- Be well prepared and lead the way on social media
- Run a profitable marketing campaign on social media during popular event

Q3: How does eWOM communications impact TV viewership and online engagement?

- Q3(1) How does eWOM communications impact TV viewers in different locations?
- Q3(2) How does eWOM communications impact online engagements on different race weekends?
- Preprocessing: grouping, merge data, and feature engineering (dummy variables and log transformation)
- Variable selection:
 - ◆ Criteria: $p\text{-values} < 0.05$
 - ◆ Correlation between independent and target variable

Q3(1) How does eWOM communications impact TV viewers in different locations?

Pearson Correlation Matrix



Regression Model

$$\begin{aligned} \text{Log(TV Viewership)} = & 3.16 + 0.01 \text{ Number of Tweet} - 0.05 \text{ Number of Players} + 1.12 \text{Brisbane} \\ & 0.98 \text{ Melbourne} - 0.22 \text{ Perth} + 1.14 \text{Sydney} - 0.78 \text{Tasmania} + 0.04 \text{ Number of Comments} \end{aligned}$$

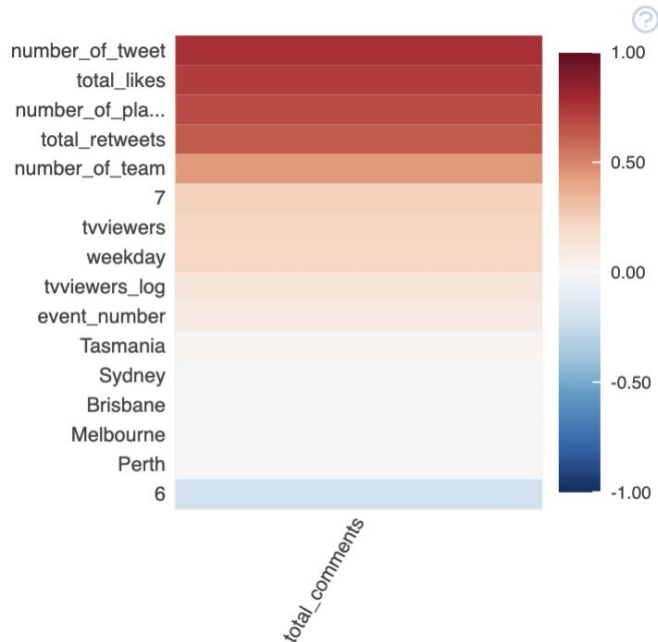
- Tweets that contain mention of players negatively impact tv viewership.
- Tweets with comments has 4% more odds to increase TV viewership than no comments.
- Live broadcasts in **Brisbane, Melbourne, and Sydney** are more likely to generate higher TV viewership than Adelaide. On the other hand, live broadcasts in **Perth and Tasmania** are more likely to have lower TV viewership compared to Adelaide.

Recommendation

- More engagement with Supercars' Fans on Twitter by replying/commenting on their tweets.
- Leverage on persuasive and informative effect (Bae & Hye-Jin, 2020) of eWOM increase TV viewership of Supercars Championship.
- Increase Supercars' Fans participation particularly in **Perth** and **Tasmania** with Supercars' e-series (Colter, 2020).

Q3(2) How does eWOM communications impact online engagements on different race weekends?

Pearson Correlation Matrix



Regression Model

$$\text{Total Comments} = -0.48 + 0.07 \text{ Number of Tweets} + 0.16 \text{ Number of Players} - 0.32 \text{ Number of Teams} + 0.21 \text{ weekday 6} + 0.28 \text{ weekday 7} + 0.02 \text{ Total Retweets} + 0.05 \text{ Total Likes}$$

- Tweets that contain mention of players positively impact total comments.
- Tweets that contain mention of teams negatively impact total comments.
- Tweets on **weekday 6 and 7** on average are associated with 0.21 and 0.28 increase of total comments respectively compared to weekday 5.

Recommendation

- Live updates on Supercars Championship from the Supercar official account mentioning specific team player to promote online engagements.
- Enhance Supercars' Fans sense of belonging by facilitating online discussion on Twitter (Kasavana et al., 2020, Torres, 2017, as cited in Kharouf, et al., 2020) during the last two days of each Supercars event.

References

- Bae, G., & Hye-Jin, K. (2020). Relation between early e-WOM and average TV ratings. *Asia Pacific Journal of Marketing and Logistics*, 32(1), 135-148. <https://doi.org/10.1108/APJML-10-2018-0402>
- Colter, C. (2020, April 16). Supercars is showing how to win with fans and advertisers during COVID-19. *Mumbrella*.
<https://mumbrella.com.au/supercars-is-showing-how-to-win-with-fans-and-advertisers-during-covid-19-624654>
- Kharouf, H., Biscaia, R., Garcia-Perez, A., & Hickman, E. (2020). Understanding online event experience: The importance of communication, engagement and interaction. *Journal of Business Research*, 121, 735-746. <https://doi.org/10.1016/j.jbusres.2019.12.037>