

Brand Intelligence Analytics for the 2020 US Democratic Presidential Primaries

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ABSTRACT

We describe a new web application (SBS BI, <https://bi.semanticbrandscore.com>) designed to assess brand image and importance through the analysis of textual data. The App calculates the Semantic Brand Score (SBS) [1] as its main measure. It also contains modules to fetch online news and tweets. The fetching modules use the Twitter API¹ and the Event Registry API [2] in order to collect data. In addition, a dedicated option gives users the opportunity to connect to the Telpress² platform, for the collection of news. After uploading a csv file, users can set a number of parameters, such as the language and time intervals of the analysis, the word co-occurrence range, and the minimum co-occurrence threshold for network filtering. The last step consists of running the core module, which will calculate and display the SBS composite indicator and its three dimensions: prevalence, diversity and connectivity [1]. Prevalence represents the frequency with which the brand name appears in a set of text documents. Diversity is linked to the concept of lexical diversity and to the study of word co-occurrences [3] and it measures the heterogeneity of the words co-occurring with a brand. The third dimension, connectivity is operationalized through the betweenness centrality metric and explains how often a word (brand) serves as an indirect link between all the other pairs of words. The SBS can be calculated on any source of text, including emails, tweets and posts on social media. The goal is to take the expressions of people (e.g. journalists, consumers, CEOs, politicians, citizens) from the places where they normally appear.

To demonstrate the benefits of the SBS BI App, we study the case of the 2020 US Democratic Presidential Primaries, by mining 50,000 online news articles and combining methods and tools of social network analysis and text mining. Data collection was carried out in November 2019. For the purpose of this analysis, we selected the top four candidates that had a vote share higher than 5% in the last available national polling average: Joe Biden, Elizabeth Warren, Bernie Sanders and Pete Buttigieg.

The SBS measure has been used in previous studies to evaluate the positioning of competitors, to forecast elections from the analysis of online news, and to predict trends of museums visitors based on tourists' discourse on social media [4, 5]. In addition to the calculation of the SBS, the analysis we conduct is based on topic

modeling, sentiment analysis and the study of word co-occurrences – which help reveal patterns and trends in voters' perceptions, identifying positive, neutral or negative associations of political brands with other topics. Some examples of the app functionalities are provided in the following.

Biden's positioning is constantly higher than the others, which indicates a higher frequency with which the Biden name appears in the online news, but also a higher lexical diversity and connectivity. The textual association between political brands and other concepts indicates that the most frequently used words in the specific timeframe for Biden were Burisma, Hunter and investigation – while the topics associated to the other candidates are more diverse and refer directly to their specific agenda points (see Figure 1).



Figure 1: Textual Brand Associations

Figure 2 illustrates the Time Trends interactive graph, which shows how SBS trends for Buttigieg and Sanders are more intertwined, which might indicate that online news report stories about them that are highly associated. Whereas many other approaches and tools are available for text (and news) analysis, SBS BI is the first to use the Semantic Brand Score [1] – and among the few to combine text and social network analysis, applied to word co-occurrence networks. The SBS metric has been scientifically validated and, despite its novelty, proof of its usefulness has already been provided in several scientific studies. For example, our tool was

¹ <https://developer.twitter.com/en/docs/api-reference-index>

² <http://www.telpress.com/>

successfully used to predict election outcomes, achieving lower errors than polls in four electoral events [4]. Similarly the SBS of museum brands was used to anticipate trends in visitors [5]. Schlaile and colleagues [6] showed how the SBS can support the analysis of organizational culture and memetics.

The full functionalities of our app can be explored by accessing these websites: <https://semanticbrandscore.com> and <https://bi.semanticbrandscore.com>.

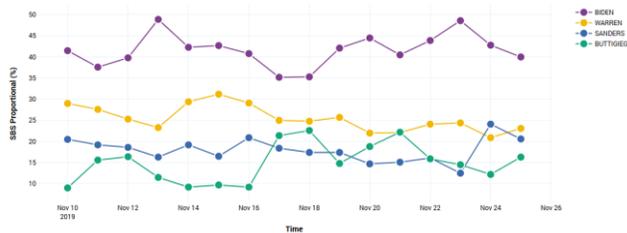


Fig. 2 SBS proportional time trends

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