



Evolution of Fan Experience in FIFA World Cup Stadiums: Evidence from Google Reviews (2018–2026)

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ABSTRACT

The global sports market continues to expand, driven by increasing fan engagement and digital transformation. Mega-events such as the FIFA World Cup attract billions of viewers worldwide, with more than five billion people engaged during the FIFA World Cup Qatar 2022. As stadiums evolve into complex service environments, understanding fan experience has become increasingly important. This study adopts a big data approach to analyze fan experience using Google Maps reviews collected from World Cup stadiums associated with the 2018, 2022, and 2026 tournaments. A total of 19,244 online reviews were analyzed using text preprocessing, frequency analysis, semantic network analysis, and CONCOR (CONvergence of CORrelations) clustering. The results identify four major experience dimensions which are overall experience and satisfaction, service quality and operations, facilities and accessibility, and event and fan engagement. The findings reveal a clear evolution in fan experience. In 2018, evaluations were primarily centered on emotional and event-related aspects. In 2022, the focus expanded to include infrastructure and accessibility. By 2026, fan experience reflects a more integrated perspective combining emotional, operational, and service-related factors. These findings suggest that modern stadium experience is shaped by both experiential and functional elements. Service-related factors such as seating, cleanliness, food services, and crowd management have become critical determinants of overall satisfaction. The study provides practical insights for stadium operators and event organizers seeking to enhance fan experience in future mega-events.

1. Introduction

The sports industry represents a significant segment of the global entertainment market, driven by increasing commercialization, media expansion, and fan engagement. Recent market forecasts estimate that the global sports market will reach approximately USD 417 billion, reflecting its growing economic and cultural importance (Statista, 2025). Among global sporting events, the FIFA World Cup stands as one of the most influential mega-events, attracting billions of viewers and generating substantial economic and social impacts for host countries. According to official reports from the Fédération Internationale de Football Association, the FIFA World Cup Qatar 2022 engaged approximately five billion people worldwide, with over 3.4 million

spectators attending matches (FIFA, 2023). These figures highlight the scale and global significance of the event.

As the scale and complexity of mega sporting events increase, understanding fan experience has become a central concern for both researchers and practitioners. Stadiums are no longer viewed merely as venues for watching matches but as complex service environments where multiple factors, including atmosphere, accessibility, service quality, and facility conditions, jointly shape spectator perceptions. From a service scape perspective, stadiums can be understood as physical and social service environments in which spatial layout, seating, cleanliness, accessibility, signage, crowd movement, and service encounters influence spectators' satisfaction and behavioral intentions (Bitner, 1992; Wakefield & Blodgett, 1996; Urich & Benkenstein, 2012). Previous research suggests that sport consumption involves

both emotional and functional components, where environmental and service-related factors significantly influence spectators' evaluations (Funk et al., 2009; Wakefield & Blodgett, 1996; Uhrich & Benkenstein, 2012). Similarly, sport consumer behavior research explains that fan experience is shaped by emotional attachment, event atmosphere, social interaction, service quality, and functional convenience, which can influence satisfaction, revisit intention, and positive word-of-mouth (Funk et al., 2009; Yoshida & James, 2010; Biscaia et al., 2013; Theodorakis et al., 2013). This study positions stadium fan experience as a multidimensional service experience that combines emotional, functional, service scape, and host-context elements.

With the rapid growth of digital platforms, researchers are increasingly utilizing user-generated content (UGC), such as online reviews and social media data, to capture authentic fan perceptions. Compared to traditional survey methods, UGC provides spontaneous and experience-based feedback, allowing for a more nuanced understanding of consumer behavior (Xiang et al., 2017). Studies in tourism and service research have demonstrated that text mining and big data analytics can effectively extract key experience dimensions and uncover patterns in large-scale review data (Li et al., 2017; Mariani et al., 2016). In addition, network-based approaches, including semantic network analysis, enable researchers to identify relationships between experience attributes and reveal underlying thematic structures within textual data (Lee & Bradlow, 2011). CONCOR analysis further supports the identification of word clusters by grouping closely related terms into meaningful thematic structures, allowing researchers to interpret hidden experience dimensions in large-scale textual data (Cambria et al., 2013).

Despite these advancements, existing research has primarily focused on single events, specific leagues, or individual venues, limiting the ability to examine how fan experience evolves over time and across different contexts. The FIFA World Cup provides a unique setting for such analysis, as each tournament is hosted in different countries with distinct cultural, infrastructural, and organizational characteristics. Prior studies have shown that host destination image, infrastructure, and event organization significantly influence visitor experience in mega-events (Kaplanidou & Vogt, 2007; Preuss, 2007; Chalip, 2006). Still, limited research has integrated fan experience theory, servicescape theory, sport consumer behavior, and online review-based big data analysis to examine World Cup-related stadium experience across different host contexts. In particular, previous studies have not sufficiently explained how emotional atmosphere, facility quality, accessibility, service operations, and host-country characteristics appear together in fan-generated online reviews. This gap is important because stadium experience in mega-events is not shaped only by the match itself but also by broader service and destination

conditions, including transportation, crowd management, local infrastructure, cultural expectations, and event organization. Based on servicescape theory and sport consumer behavior theory, this study conceptualizes stadium fan experience as a multidimensional service experience shaped by the physical environment, emotional atmosphere, service encounters, accessibility, and host-context conditions (Bitner, 1992; Wakefield & Blodgett, 1996; Yoshida & James, 2010; Uhrich & Benkenstein, 2012). In this framework, stadium facilities, seating, cleanliness, transportation, and crowd management represent functional and servicescape-related attributes, while atmosphere, excitement, social interaction, and event identity represent emotional and experiential attributes (Funk et al., 2009; Biscaia et al., 2013; Theodorakis et al., 2013). By comparing review-based experience patterns across different World Cup host contexts, this study explains how stadium users' evaluations are formed through the interaction of emotional, functional, and contextual factors (Kaplanidou & Vogt, 2007; Preuss, 2007; Chalip, 2006).

To address this gap, this study adopts a longitudinal big data approach to analyze fan experience across three FIFA World Cup periods in 2018, 2022, and 2026. Specifically, this study collects and analyzes Google Maps review data from World Cup stadiums and applies text mining, semantic network analysis, and CONCOR analysis to identify key experience dimensions and compare review-based stadium experience patterns across different World Cup host contexts. Because the FIFA World Cup 2026 has not yet taken place, reviews of 2026 host stadiums are interpreted in this study as pre-event stadium experience and host stadium readiness rather than actual World Cup match-day fan experience. Thus, this study does not treat the 2026 data as direct evidence of World Cup visitor experience, but as evidence of how users evaluate stadiums selected for the upcoming tournament. This distinction is important because it helps maintain the validity of the comparison and avoids overstating the findings.

Accordingly, the comparison in this study is interpreted as a review-based comparison of World Cup related stadium experience patterns across different host contexts, rather than as a direct measurement of identical match-day fan experiences across all three tournaments. This study aims to answer the following research questions:

- Which terms appear most frequently in World Cup stadium reviews across different event periods?
- What key experience dimensions can be identified through semantic network and CONCOR analysis?
- How do review-based stadium experience patterns differ across the 2018, 2022, and 2026 World Cup related stadium contexts?
- What positive and negative factors shape spectator evaluations of stadium experience?

By addressing these questions, this study contributes to the literature by extending the application of big data analytics to the context of mega sporting events and providing a longitudinal perspective on fan experience. From a practical standpoint, the findings offer valuable insights for stadium managers and event organizers in aligning stadium operations with changing spectator needs.

2. Literature Review

2.1. Big Data

Big data refers to extremely large and complex datasets that cannot be effectively processed using traditional data management tools (Ban et al., 2019). It is commonly characterized by the “3Vs”: volume, velocity, and variety, which describe the size, speed, and diversity of data generated from digital sources such as social media, mobile devices, and online platforms (Gandomi & Haider, 2015; Jang et al., 2017). In tourism, hospitality, and sport service contexts, big data is useful because it captures large-scale user perceptions that are difficult to collect through traditional surveys alone (Xiang et al., 2017; Li et al., 2017). Online reviews are especially valuable because they contain spontaneous, experience-based, and consumer-generated evaluations of service environments, facilities, accessibility, and satisfaction (Lee & Bradlow, 2011; Bi et al., 2024).

In the hospitality industry, online reviews represent one of the most valuable forms of big data because they capture authentic customer experiences and perceptions. These evaluations offer thorough insights into important aspects of the services, including facilities, location, cleanliness, general satisfaction, and service quality. According to recent studies, researchers can better understand consumer expectations and experiences by using text analytics and machine learning approaches to identify relevant patterns from massive amounts of review data (Bi et al., 2024; Shin et al., 2024). Furthermore, online review mining has been extensively employed to determine the elements that impact customer satisfaction and dissatisfaction, thereby facilitating the development of more effective service management strategies (Wang et al., 2025). For stadiums and mega-event venues, online reviews can reveal how visitors evaluate not only the main event but also the surrounding service environment (Yoshida & James, 2010; Biscaia et al., 2013). Consequently, Google Maps reviews provide a suitable data source for examining review-based stadium experience because they reflect direct evaluations from stadium users across different locations and time periods (Xiang et al., 2017; Lee & Bradlow, 2011).

2.2. Online Review

In the hospitality and travel industries, online reviews have become known as a major information source that greatly influences consumer choice and quality evaluation. Travelers are depending more and more on internet evalua-

tions to evaluate hotels, services, and overall travel experiences before making reservations due to the quick growth of digital platforms. According to research, internet reviews play a crucial role in electronic word-of-mouth (eWOM), influencing consumer perceptions and lowering decision-making uncertainty (Kim, 2022). Online reviews have a substantial impact on hotel performance, including booking intention, occupancy rates, and total income, according to empirical research (El-Said, 2020).

In the hospitality industry, for example, the use of online reviews is frequently used to determine what influences customer happiness as well as to examine emotional expressions and reviews of service (Riswanto et al., 2023). While bad reviews can harm a hotel's reputation and lower demand if improperly handled, positive evaluations can improve a hotel's image and draw in more guests. Online reputation management is a crucial strategic concern for hotel operators as research indicates that tourists frequently rely significantly on review ratings and comments when choosing lodging (Chowdhury & Deshpande, 2020). Overall, Online reviews are an effective tool for scholars and professionals alike, providing insightful information on client happiness, experience, and decision-making in the hotel sector

2.3. Fan Experience in FIFA World Cup Stadiums

Fan experience in sports stadiums refers to the overall perception and emotional response of spectators during live sporting events. Unlike traditional service environments, stadium experiences are shaped not only by physical infrastructure but also by atmosphere, social interaction, and the excitement associated with the event. Previous research has identified several key determinants of fan experience, including accessibility, seating comfort, crowd management, safety, and food and beverage services (Yoshida & James, 2010; Biscaia et al., 2013). Sport consumer behavior literature further suggests that spectators' satisfaction and future behavioral intentions are influenced by both game-related and service-related experiences (Yoshida & James, 2010; Theodorakis et al., 2013). This means that fan experience should not be understood only through the match itself, but also through the broader stadium service system that supports the spectator journey before, during, and after the event (Wakefield & Blodgett, 1996; Biscaia et al., 2013).

In the context of mega sporting events such as the FIFA World Cup, fan experience becomes even more critical due to the large scale of the event and the diversity of international audiences. Studies suggest that emotional engagement, stadium atmosphere, and service quality play significant roles in shaping overall experience and future behavioral intentions, such as revisit intention and positive word-of-mouth (Theodorakis et al., 2013). International visitors may rate the same stadium experience differently depending on their cultural expectations, travel experience, service

standards, and familiarity with the host country (Kaplanidou & Vogt, 2007; Preuss, 2007). Therefore, examining fan experience in World Cup-related stadiums requires attention to both emotional event atmosphere and functional service quality.

2.4. *Mega Sporting Events and Stadium Experience*

Mega sporting events are characterized by large-scale infrastructure investment, global visibility, and heightened visitor expectations. Events such as the FIFA World Cup require host cities to deliver not only high-quality facilities but also seamless and memorable experiences for spectators. While modern stadiums often incorporate advanced architectural design and technology, challenges related to accessibility, congestion, and service delivery may negatively influence visitor perceptions (Kaplanidou & Karadakis, 2010).

However, comparisons across World Cup periods must be interpreted carefully because each tournament takes place in different national and cultural contexts. The 2018 World Cup was hosted in Russia, the 2022 World Cup was hosted in Qatar, and the 2026 World Cup will be hosted across stadiums in the United States, Canada, and Mexico. These host contexts differ in terms of stadium infrastructure, transportation systems, cultural expectations, event organization, and existing stadium usage patterns (Preuss, 2007; Kaplanidou & Vogt, 2007). Differences in Google Review patterns may reflect both changes in stadium user expectations and contextual differences among host countries and stadium environments (Chalip, 2006; Kaplanidou & Karadakis, 2010). This is especially important for the 2026 host stadiums because reviews of these stadiums represent pre-event stadium experience and host stadium readiness rather than actual World Cup match-day fan experience. Recognizing this distinction helps avoid overstating the findings as a direct temporal evolution of fan experience

2.5. *Text Mining and Semantic Network Analysis*

Text mining is widely used to analyze large volumes of online reviews and identify key patterns in unstructured data (Riswanto et al., 2025). In tourism and hospitality studies, text mining helps researchers extract important words, service attributes, and satisfaction-related themes from user-generated content (Xiang et al., 2017; Shin et al., 2024). Semantic network analysis extends this process by examining relationships among frequently occurring words and showing how key concepts are connected within review data (Lee & Bradlow, 2011). This method is useful for stadium experience research because it can show whether words related to emotion, facilities, accessibility, service quality, and host context appear together in fan-generated reviews (Lee & Bradlow, 2011; Cambria et al., 2013).

CONCOR analysis groups words with similar co-occurrence patterns into clusters, allowing researchers to

identify broader thematic structures within textual data (Cambria et al., 2013). In this study, CONCOR analysis is used to identify major stadium experience dimensions, such as event atmosphere, accessibility, service quality, facilities, crowd management, and overall satisfaction. Although text mining and semantic network analysis have been widely applied in tourism and hospitality research, their application to FIFA World Cup-related stadium experience remains limited (Li et al., 2017). This study addresses this gap by applying frequency analysis, semantic network analysis, and CONCOR analysis to Google Reviews of 2018 and 2022 World Cup stadiums and selected 2026 host stadiums, while interpreting the findings carefully in relation to host-country context and pre-event stadium readiness.

3. **Methodology**

3.1. *Data Collection*

This study adopts a big data approach to analyze fan-generated online reviews and extract meaningful experience-related themes in the context of mega sporting events. Consistent with prior studies in tourism and event experience research, user-generated content was utilized to capture authentic and diverse fan perceptions.

A total of 19,244 online reviews were collected from Google Maps for stadiums that hosted or will host the FIFA World Cup across 2018, 2022, and 2026, these three editions. Google maps was selected because it provides publicly available reviews from a diverse range of visitors and has been widely used in tourism and hospitality research. The data were collected using the Instant Data Scraper tool, which enables the extraction of publicly available review data from web pages.

For each World Cup, reviews were collected for all official stadiums, resulting in three separate datasets. Approximately 400–600 reviews were collected per stadium, ensuring a relatively balanced representation across venues. The collected data was organized into three Excel datasets corresponding to the 2018, 2022, and 2026 World Cups. In total, 36 stadiums and 19,244 reviews were included in the analysis (Table 1).

This study adopts a longitudinal comparative design. Rather than aggregating all reviews into a single dataset, the data was divided into three groups representing the 2018, 2022, and 2026 FIFA World Cups. This approach allows comparison of fan perceptions across different tournament periods while maintaining consistency in the analytical procedure.

3.2. *Data Pre-processing*

After data collection, the review data were cleaned and prepared for analysis. Because the selected stadiums were located across multiple countries, the collected reviews were written in various languages. To ensure consistency and comparability across datasets, non-English reviews

were translated into English using GOOGLETRANSLATE function prior to analysis. The translated English texts were then used for all subsequent text-mining and network-analysis procedures. Only review text was retained, while

irrelevant information such as reviewer profiles and metadata were excluded. Duplicate entries, empty reviews, and reviews containing only symbols or non-informative content were removed where applicable.

Table 1. Number of reviews

No.	Stadium Name	Year	Total Reviews	Reviews Collected
1	Luzhniki Stadium	2018	22314	746
2	Otkrytie Bank Arena (Spartak Stadium)	2018	15497	736
3	Gazprom Arena (St. Petersburg Stadium)	2018	34203	525
4	Stadion Fisht (Fisht Stadium)	2018	8151	506
5	Ak Bars Arena (Kazan Arena)	2018	10941	515
6	Samara Arena	2018	8599	505
7	Nizhny Novgorod Stadium	2018	7746	535
8	Rostov Arena	2018	13572	535
9	Volgograd Arena	2018	8020	516
10	Ekaterinburg Arena	2018	7552	506
11	Mordovia Arena	2018	4316	528
12	Rostec Arena (Kaliningrad Stadium)	2018	530	505
13	Lusail Iconic Stadium	2022	4734	505
14	Al Bayt Stadium	2022	4567	515
15	Al Janoub Stadium	2022	4986	513
16	Ahmad Bin Ali Stadium	2022	3410	505
17	Khalifa International Stadium	2022	7619	515
18	Education City Stadium	2022	2935	525
19	Stadium 974	2022	1126	515
20	Al Thumama Stadium	2022	1787	505
21	Banorte Stadium (Mexico City Stadium)	2026	83846	533
22	Akron Stadium (Estadio Guadalajara)	2026	35941	535
23	BMO Field (Toronto Stadium)	2026	8273	535
24	SoFi Stadium (Los Angeles Stadium)	2026	21918	505
25	Gillette Stadium (Boston Stadium)	2026	13405	505
26	BC Place Vancouver	2026	14052	515
27	Met Life Stadium (New York New Jersey Stadium)	2026	26594	515
28	Levi's Stadium (San Francisco Bay Area Stadium)	2026	13128	505
29	Lincoln Financial Field	2026	14032	505
30	NRG Stadium	2026	28516	535
31	AT&T Stadium	2026	45718	505
32	Estadio BBVA (Estadio Monterrey)	2026	29684	505
33	Hard Rock Stadium	2026	20014	505
34	Mercedes-Benz Stadium	2026	34939	535
35	Lumen Field	2026	18837	575
36	GEHA Field at Arrowhead Stadium	2026	15893	675
	Total		597395	19244

The textual data were then pre-processed using R and RStudio following standard text-mining procedures. Pre-processing included converting all text to lowercase, removing punctuation, numbers, special characters, and common stop words. These procedures were conducted to improve data consistency and reduce noise within the dataset. Following the cleaning process, word-document matrices were generated for each World Cup dataset. Frequently occurring keywords were identified through word frequency analysis and subsequently used for semantic network construction and CONCOR analysis.

3.3. Data Analysis

The cleaned datasets were analyzed using a combination of text-mining and network-analysis techniques. First, word frequency analysis was conducted to identify the most frequently occurring terms in fan reviews and to examine the dominant topics discussed by spectators. Followed by semantic network analysis to investigate relationships among frequently occurring keywords. Semantic network analysis enables the visualization of connections between words and identifies the structural importance of specific concepts within textual data. To visualize the semantic networks, UCINET and NetDraw were utilized. These tools allow the examination of co-occurrence relationships among keywords and provide a

visual representation of the underlying network structure (Handani et al., 2022).

Finally, CONCOR (CONvergence of CORrelations) analysis was applied to identify clusters of words that share similar co-occurrence patterns. Through this procedure, groups of related concepts were identified, allowing the extraction of broader experience dimensions reflected in fan reviews.

This study adopts an event-level analytical approach in which reviews were aggregated by FIFA World Cup edition (2018, 2022, and 2026) rather than by individual stadium. This aggregation strategy facilitates longitudinal comparison across tournament contexts and supports the identification of common experience dimensions reflected in fan-generated reviews.

4. Results

4.1. Word Frequency Analysis

Word frequency analysis was conducted to identify the most frequently mentioned terms in fan reviews across the three World Cup datasets (2018, 2022, and 2026). Table 2 presents the top 30 words for each year. Across all datasets, “stadium” consistently appears as the most dominant term, indicating that reviews are strongly centered on the overall venue experience. In the 2018 dataset, frequently occurring words such as “good,” “great,” “beautiful,” and “match” suggest that fan perceptions were primarily focused on the quality of the event and the visual appeal of the stadium. Event-related terms such as “football” and “cup” also appear prominently, indicating a strong emphasis on the sporting experience itself.

In the 2022 dataset, while general evaluative terms such as “good” and “great” remain important, new context-specific terms emerge, including “qatar,” “fifa,” and “metro.” Additionally, words such as “design” and “facility” suggest an increased focus on stadium infrastructure and organization. This reflects a shift toward a more contextual and facility-oriented evaluation of stadium experience.

In the 2026 dataset, there is a notable increase in the diversity of terms. Words such as “great,” “good,” and “game” dominate, alongside operational and service-related terms such as “food,” “seat,” “staff,” and “clean.” Additionally, experiential terms such as “experience” and “atmosphere” appear prominently, indicating a more comprehensive evaluation of both emotional and functional aspects of the stadium. Overall, the frequency analysis suggests a clear shift from an event-focused experience in 2018 to a more diversified and service-oriented evaluation in 2022 and 2026.

A comparison of the three datasets reveals both continuity and change in fan evaluations of World Cup stadiums. Across all three World Cups, positive evaluative terms such as “good,” “great,” “beautiful,” and “amazing” consistently appear among the most frequent words, indicating that spectators generally reported favorable stadium experiences regardless of host country. Similarly, words related to the sporting event itself, including “stadium,” “football,” “match,” and “game,” remain prominent throughout all periods, suggesting that the core event experience continues to be a central component of fan evaluation.

Yet, notable differences emerge across the three datasets. In 2018, fan reviews were dominated by words associated with aesthetics, atmosphere, and the excitement of the tournament, such as “beautiful,” “excellent,” “comfortable,” and “view.” This suggests that spectators primarily evaluated stadiums as venues for experiencing the event itself. In contrast, the 2022 dataset includes more references to infrastructure and accessibility, reflected in words such as “metro,” “design,” and “facility.” These findings may be associated with Qatar’s extensive investment in transportation systems and newly constructed World Cup venues.

The 2026 dataset demonstrates a further shift toward operational and service-related concerns. Terms such as “food,” “staff,” “clean,” “seat,” and “atmosphere” occur more frequently than in previous periods, indicating that spectators increasingly evaluate stadiums as comprehensive service environments rather than solely sporting venues. This pattern suggests that fan expectations have expanded beyond the match itself to include broader aspects of comfort, convenience, and service quality.

4.2. Semantic Network Analysis

Semantic network analysis was conducted to examine the relationships between frequently occurring words in each dataset. In 2018, the network is relatively concentrated around event-related terms such as “match,” “football,” and “cup,” which are closely connected to experiential terms such as “great,” “beautiful,” and “atmosphere.” This indicates that fan experience was primarily driven by the sporting event and emotional atmosphere.

In 2022, the network becomes more complex, with stronger connections between experience-related and infrastructure-related terms. Words such as “design,” “facility,” “metro,” and “park” are more integrated into the network, reflecting increased attention to stadium organization and accessibility.

Table 2. Top 30 frequency words for each year

2018			2022			2026		
No.	Word	Frequency	No.	Word	Frequency	No.	Word	Frequency
1	stadium	3532	1	stadium	2913	1	stadium	5048
2	good	1183	2	good	1139	2	great	3268
3	great	1016	3	cup	747	3	good	2640
4	beautiful	817	4	world	738	4	game	2596
5	world	648	5	qatar	706	5	time	1564
6	match	639	6	amaze	508	6	get	1554
7	cup	633	7	beautiful	489	7	experience	1541
8	place	540	8	nice	482	8	food	1510
9	arena	478	9	place	474	9	seat	1432
10	excellent	461	10	match	428	10	park	1302
11	like	411	11	fifa	390	11	place	1228
12	nice	375	12	great	380	12	see	1180
13	football	360	13	park	374	13	amaze	1095
14	park	344	14	experience	345	14	fan	1019
15	seat	338	15	design	281	15	concert	934
16	view	319	16	football	280	16	nice	836
17	modern	306	17	watch	242	17	lot	816
18	comfortable	283	18	walk	229	18	staff	801
19	area	281	19	visit	206	19	venue	766
20	walk	279	20	seat	197	20	first	758
21	amaze	277	21	metro	179	21	love	720
22	new	268	22	area	172	22	watch	687
23	game	252	23	facility	167	23	clean	631
24	stand	245	24	love	158	24	one	615
25	people	239	25	big	158	25	atmosphere	598
26	time	233	26	game	155	26	awesome	595
27	visit	229	27	inside	154	27	football	591
28	city	226	28	like	152	28	view	589
29	around	220	29	wonderful	150	29	easy	586
30	watch	218	30	awesome	149	30	beautiful	580

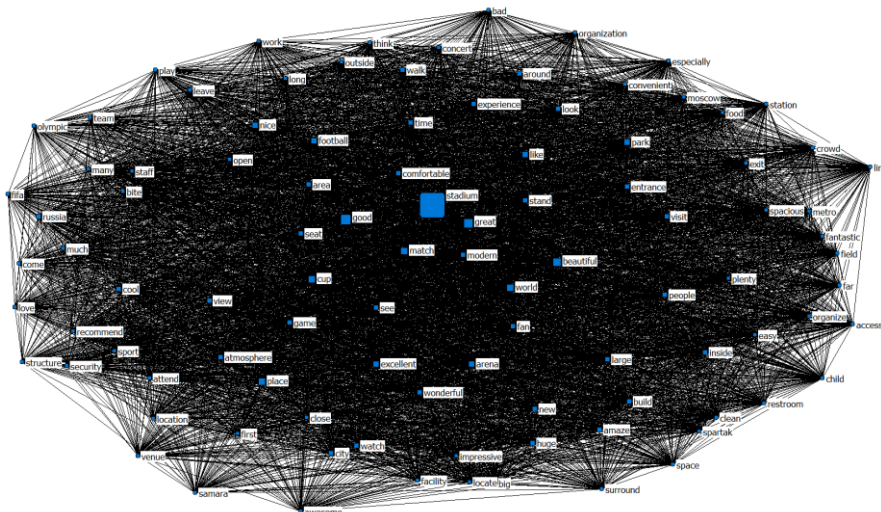


Figure 1. Visualization of semantic network analysis (2018).

In 2026, the network shows a more balanced and interconnected structure. Experience-related terms such as

“great,” “experience,” and “atmosphere” are closely linked with operational aspects such as “seat,” “food,”

CONCOR analysis was conducted to identify clusters of co-occurring words within each dataset. In 2018, the results reveal clusters centered around event-related experience, aesthetic and emotional factors, and accessibility-related aspects. This indicates that fan experience during this period was primarily shaped by the core sporting event and overall atmosphere, with relatively less emphasis on operational factors.

In 2022, the clustering structure becomes more diverse, with the emergence of clusters related to infrastructure, accessibility, and general experience evaluation. This suggests that fan perceptions expanded beyond the event itself to include broader aspects of stadium design and organization.

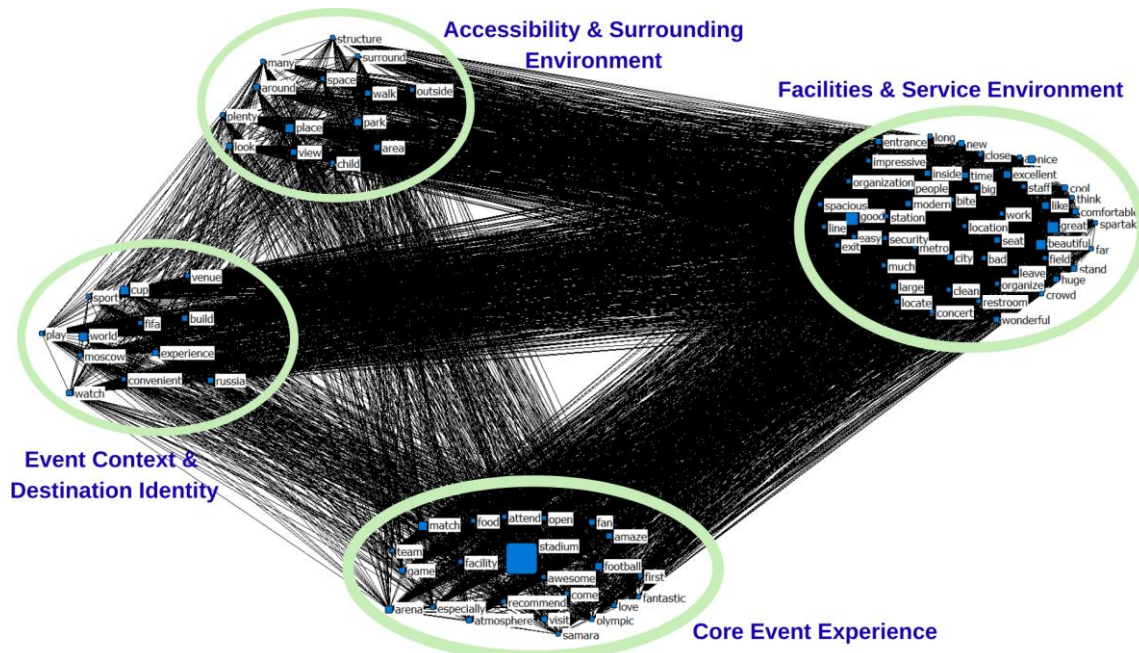


Figure 4. Visualization of CONCOR analysis (2018).

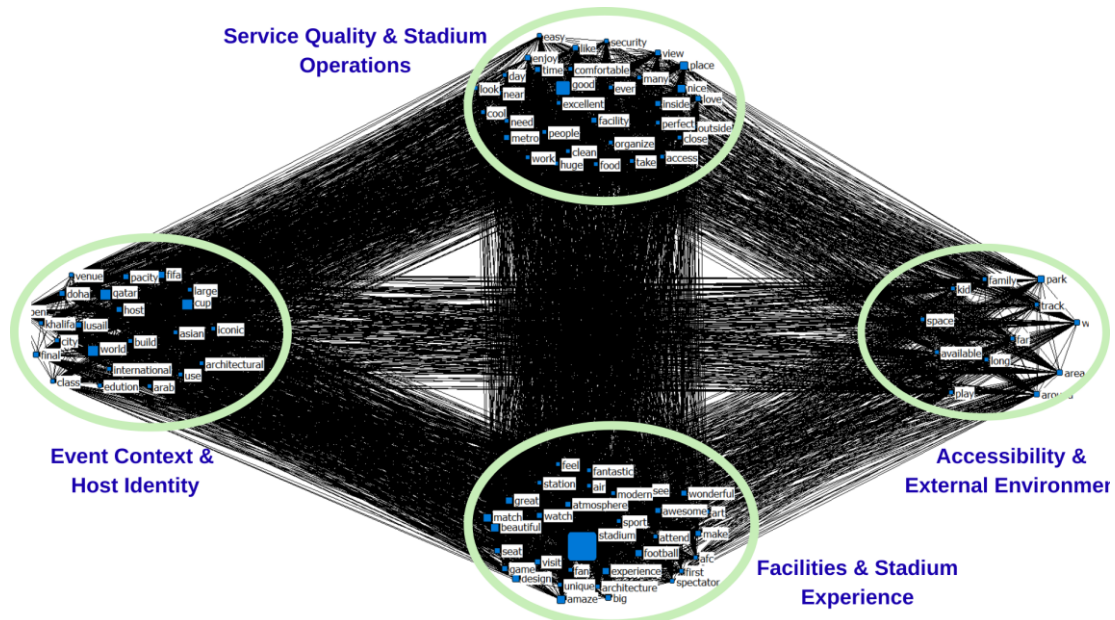


Figure 5. Visualization of CONCOR analysis (2022).

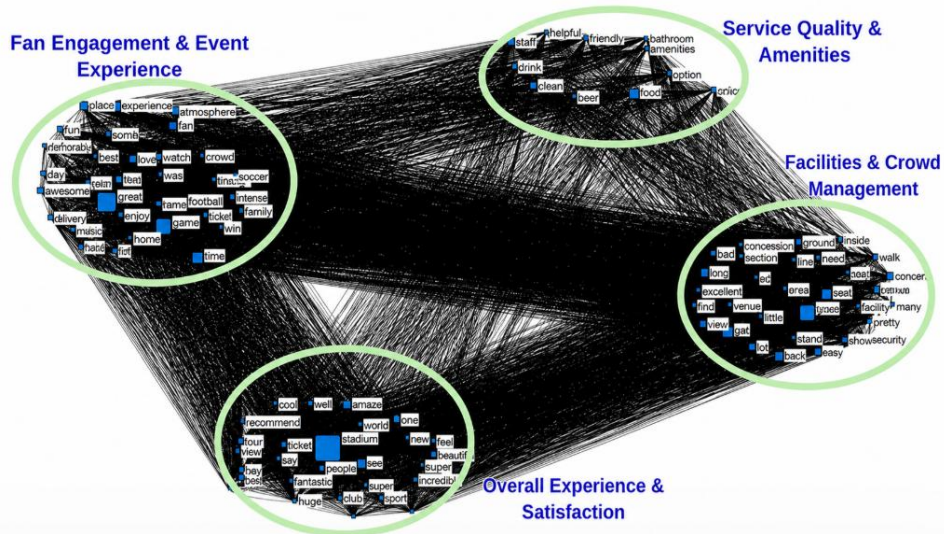


Figure 6. Visualization of CONCOR analysis (2026).

In 2026, the clusters become more integrated, combining experiential, operational, and facility-related elements. This reflects a more comprehensive and multidimensional evaluation of stadium experience, where both emotional and functional aspects are closely interconnected.

The CONCOR analysis identified four distinct clusters in each dataset, representing key dimensions of fan experience. A comparison of the CONCOR results further highlights changes in how fan experience is structured across the three datasets. In 2018, the identified clusters were primarily associated with event experience, atmosphere, aesthetics, and basic accessibility. These clusters indicate that spectators largely focused on the excitement of the tournament and the visual appeal of the stadium environment.

In 2022, the clustering structure became more diverse and included infrastructure, transportation, and facility-related dimensions. This suggests that fan evaluations expanded beyond the event itself to incorporate broader aspects of stadium functionality and organization. The emergence of these themes may reflect both changing visitor expectations and the infrastructural characteristics of the host nation.

The 2026 clusters place greater emphasis on venue operations and visitor support functions, with themes related to seating, food services, staff interactions, and facility maintenance appearing as distinct dimensions. This finding suggests that modern fan experience is increasingly multidimensional. Spectators no longer evaluate stadiums solely on the basis of atmosphere or event quality but also consider practical service elements that influence comfort and convenience throughout their visit.

These differences should not be interpreted exclusively as evidence of temporal evolution. Because each

World Cup was hosted in distinct national and cultural contexts, part of the observed variation may also reflect differences in infrastructure quality, transportation systems, stadium design philosophies, and event management practices. The findings likely represent a combination of evolving spectator expectations and contextual differences across host countries.

5. Conclusion

5.1. Theoretical Implications

This study contributes to the literature in several ways. First, it extends fan experience research by demonstrating that stadium experience is a multidimensional construct that includes emotional, functional, and operational dimensions. While previous studies have primarily emphasized atmosphere, excitement, and service quality as determinants of spectator satisfaction (Yoshida & James, 2010; Biscaia et al., 2013), the present findings suggest that fan evaluations increasingly incorporate accessibility, facility management, and operational services. Second, this study contributes to the growing body of big data research in sports management by applying text mining, semantic network analysis, and CONCOR analysis to a large-scale dataset of online reviews. Unlike traditional survey-based studies, this approach captures spontaneous and experience-based fan perceptions, providing a broader understanding of how spectators evaluate stadium environments.

Finally, the findings suggest that differences in fan experience may be influenced not only by changing spectator expectations but also by variations in host-country context. This highlights the importance of incorporating cultural, infrastructural, and organizational factors into future studies of fan experience and mega-event management.

5.2. Practical Implications

The findings provide several practical implications for FIFA, stadium managers, and future host destinations. The increase of terms such as food, seating, staff, cleanliness, and accessibility indicates that spectators evaluate stadiums as integrated service environments rather than solely as venues for sporting events. Thus, future World Cup organizers should assign resources not only to stadium construction but also to supporting services that influence overall visitor satisfaction.

For stadium managers, particular attention should be given to seating comfort, food and beverage quality, facility cleanliness, and staff responsiveness, as these elements emerged as important components of fan experience in the 2026 dataset. This is consistent with prior hospitality research showing that service-related attributes can significantly influence customer satisfaction (Choi et al., 2022). In addition, transportation connectivity and crowd-flow management should remain priorities, given the prominence of accessibility-related terms in the 2022 dataset. For FIFA and host cities, the results suggest that tournament success increasingly depends on the integration of emotional engagement and operational excellence. Investments in transportation systems, visitor services, and stadium operations may be as important as investments in the sporting spectacle itself in shaping positive fan perceptions.

5.3. Limitations and Future Research

Several limitations should be acknowledged. First, the study relies on Google Maps reviews, which may not fully represent all spectator groups and may be subject to self-selection bias. Second, the analysis aggregates reviews across multiple stadiums and host countries, potentially masking venue-specific and regional differences. Third, the 2026 dataset reflects general stadium experiences prior to the tournament rather than actual World Cup match-day experiences.

Future studies may conduct stadium-level or host-country comparisons to better isolate contextual effects. As the 2026 dataset does not include World Cup experience, future studies could integrate reviews collected after the mega event to compare regular stadium experiences with actual World Cup experiences. In addition, sentiment analysis and comparative analyses across different mega sporting events may provide deeper insights into fan experience and spectator behavior.

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