

Bidding for Attention: using google trends to measure global interest in Olympic bidders

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Introduction

The Olympic Games is a truly global event. There were 206 different states who competed in the 2016 Summer Olympic Games in Rio, an event that was broadcast in 170 countries (Olympic.org, 2016). The hosting of the Olympic Games is viewed as a way for a city (or a nation) to promote itself on a global scale (Knott, Fyall, & Jones, 2015). However, this is an opportunity that is only available to a limited number of cities: of the 1,692 cities identified by the UN (2016), just 23 have hosted the Summer Games. The Olympic cycle of one host every four years naturally limits the number of hosts, but not every city has the capability of hosting (Tolzmann, 2014).

Smaller cities, however, may seek to use the Olympic bid process for global promotion. Cities who have bid for Summer Olympic Games since the turn of the century have been as diverse as Havana, San Juan, New York and Doha. Given the nature of some bidders, the legitimacy of these bids has been questioned. Rather, it is likely that the likes of Havana and San Juan are ‘utilitarian’ bidders who are seeking to use the bid process to further other objectives (Torres, 2012, p. 10). For example, the IOC Evaluation Committee assessed the quality and feasibility of Havana’s plan as 3.7 out of ten, where six is the IOC benchmark. The report even noted, “no detail is provided regarding the concept of the Olympic Village, its capacity or construction” (IOC, 2000, p. 34).

Despite this being a tactic utilised by bid cities, research into this strategy is still in its infancy. Kassens-Noor et al. (2019) utilised ‘big data’, conducting a Twitter analysis and found that bid cities receive far less attention than hosts. The present study complements the work of Kassens-Noor et al. (2019), through the use of Google Trends data to view the global interest in an Olympic bid, and, in particular, the stages of an

Olympic bid that garner the most attention, and crucially, the global regions where this attention originates.

Literature Review

Image Promotion and the Olympic Games

The hosting of sport mega-events has long bypassed being just about sport. Governments provide a myriad of legitimations for hosting, with economic, social and marketing objectives providing justification for the ever-increasing costs required (Bodet & Lacassagne, 2012). In recent years, the economic and social impacts of hosting have been questioned, with the negative impacts largely being viewed as eclipsing any positive benefits (Grix, Brannagan, Wood, & Wynne, 2017). However, the global interest in events such as the Olympic Games or the Football World Cup allows host cities, states and governments to promote an image to the world (Florek, Breitbarth, & Conejo, 2008; Braun, 2012)

The hosting of the Olympic Games provides an opportunity for hosts to use the Olympic brand to alter the image of a city, often through a transfer in image from the event to the host (Chalip, Green, & Hill, 2003; Xing & Chalip, 2006). More recently, there has been consideration as to the tactics and strategies that can be employed by a host to leverage image augmentation, or even change. Knott, et al. (2015; 2017) found that South Africa was able to use the 2010 FIFA World Cup to invest in infrastructural development in order to make the nation more appealing while using the global nature of such an event to project the new image. Similarly, Grix (2012) found that Germany was similarly able to leverage the hosting of the 2006 FIFA World Cup to change a poor global image and enhance its soft power.

However, image enhancement is not guaranteed; the work of Kenyon and Bodet (2018) supports the earlier findings of Smith (2005) that it is difficult for an Olympic host to move away from the prevailing view of the city. Further, the spotlight brought to a host can enhance a negative image; While Qatar sought to use the 2022 World Cup to enhance soft power, Brannagan and Giulianotti (2015) argue that being awarded the 2022 World Cup shone a light on the negative aspects of the nation, resulting in ‘soft-disempowerment’.

It is clear that hosts wish to use a mega-event to advance its global image (Florek, Breitbarth, & Conejo, 2008; Braun, 2012). More recently, there has been a question as to whether it is possible for a bidder to achieve similar goals. Indeed Torres (2012, p. 10) argues that not all bid cities seek to host the event, and instead wish to use the bid to advance other benefits, including to “globally advertise a city, region, or even country”. However, the nascent literature on has tended to focus on local ambitions, perhaps demonstrating that while hosting may bring with it global attention, a bid may have more of a domestic focus. Research has been conducted into domestic benefits, including the development of city infrastructure (Oliver, 2011; Lauer mann, 2015; 2016; Oliver & Lauer mann, 2017), sporting infrastructure (Alberts, 2009; Benneworth & Dauncey, 2010; Bilsel & Zelef, 2011), sport participation (van Dijk & Weitkamp, 2014; Sant & Mason, 2015), social benefits (Sant & Mason, 2015), and domestic politics (Cochrane, Peck, & Tickell, 1996; Benneworth & Dauncey, 2010).

Despite this domestic focus, there has been an assumption in the wider literature that bidding for an Olympic Games will bring attention to a city. For example, Agha et al. (2012, p. 133), Andranovic et al. (2001, p. 127), Cornelissen (2008, p. 484), Haugen (2005, p. 217) and Kassens-Noor (2016, p. 46) all mention this in their works. It is clear that bidders believe a bid can be leveraged to develop their global image, but there are

few studies considering the success of such a strategy. Bason and Grix's (2018) analysis of Candidature Files found that image development was one of the four primary objectives to be leveraged through the bid process. However, this research fails to recognise any nuances between the aims of these bidders. For example, the sample includes cities as diverse as Los Angeles and Almaty; it is unlikely that both of these cities would have similar aims from the bid.

The bid process itself provides places restrictions on a city's ability to market itself; the IOC place restrictions on the promotion that can be done during the bid process (Solberg & Preuss, 2007). Therefore, cities may use alternative vehicles for promotion, and in particular, the media with domestic media firms often supporting the bid (Booth & Tatz, 1994; Lenskyj, 1996; Gong, 2011; Mackay, 2012). Indeed, Gong (2011) describes extensive criticism of China's human rights record in Australian newspapers as Sydney and Beijing went head to head to host the 2000 Olympic Games.

However, the study of Gong (2011) is one of the few to view how bids are portrayed in the international media. Rather, the recent trend of citizen's protesting bids has resulted in bid teams working with domestic media organisations to foster domestic public support (Mackay, 2012), a consideration of the IOC when making the final decision (Maennig & du Plessis, 2009).

There is a formal opportunity for bidders to present their cities to the world, through the bid city presentation at the final IOC vote. This provides bid teams with an opportunity to influence another stakeholder group; the IOC members who ultimately make the decision (Preuss, 2006; Sant & Mason, 2015). Xing et al. (2008) considered the bid presentations of Beijing and London for the 2008 and 2012 Olympic Games. It was noted that both presentations focused on unique selling points (Beijing's history and London as a vibrant city) and in particular, the culture of the cities. However, as

with other studies, the work of Xing et al. focuses on how bidders can make themselves attractive to event owners, rather than on global promotion. Of course, for legitimate bidders, IOC voters (who decide who will host) will be the target audience. Indeed, even if the original plan for the bid was to generate global interest, if a city reaches the final IOC vote then the focus of the bid may change.

The development of 'big data' (to be discussed further in the next section) provides a new tool to measure media focus. Kassens-Noor et al. (2019) used Twitter analysis to measure public sentiment for four months in 2016. Unsurprisingly, the study found that bidders receive far less attention than hosts do, but even those bidders who ultimately withdrew due to a lack of public support received positive sentiments online. This suggests that that negative feelings towards the Olympic Games may be centralised within the bid city itself, rather than spreading globally (ibid). The findings suggest that the focus of legitimate bidders to appeal to locals, rather than an international audience is a sensible decision. This domestic focus is perhaps the reason for there being more studies describing how a bid has promoted a city domestically (Cochrane, Peck, & Tickell, 1996; Benneworth & Dauncey, 2010; Dauncey, 2010) than internationally (Law, 1994).

As is evident, the focus of the literature regarding bids for the Olympic Games has tended to use a city, rather than a nation as the unit of analysis. Studies considering the impact on a nation have largely been macroeconomic studies. Rose and Spiegel (2011) demonstrated that an Olympic bid signals to the rest of the world that the nation is one that can be traded with. However, Maennig and Richter (2012) dispute these findings, arguing that the nations used in Rose and Spiegel's (2011) sample are already leading exporters, and once this is taken into account, no benefits were found.

Using Google Trends Data

The use of big data, defined as “data sets and analytical techniques in applications that are so large (from terabytes to exabytes) and complex (from sensor to social media data) that they require advanced and unique data storage, management, analysis, and visualization technologies” (Chen, Chiang, & Storey, 2012, p. 1166) is becoming more prevalent to both organisations and researchers (Mayer-Schönberger & Cukier, 2013).

The use of internet search data as a data source is relatively new. In 2005, Ettredge, et al. (2005) used WordTracker’s weekly Top-50 Keyword Report to show that web searches could be used to predict unemployment data. This method has expanded in recent years thanks to Google making available its search data. Google is widely recognised as the world’s most used web search tool. In March 2019, NetMarketshare estimates that Google’s market share for desktop and laptop searches is 74.8%, with a further market share of 81% for mobile and tablet searches (NetMarketshare, 2019).

This new source of data has provided new routes of research for social and economic scholars, with web searches providing a relatively cheap and easy way to collect data on public sentiment or interest in a particular issue (Ripberger, 2011). Traditionally, this type of social research would use survey data which can be time-consuming and financially expensive to conduct. Scheitle (2011) argues that interest in a subject will lead to increased searches, and found a 0.92 correlation between the data provided from Google Trends and that collated by Gallup’s “most important issue” question.

Much of the scholarly activity using search engines has focused on measuring Google Trends as a predictor for activity. This relies on the assumption that people may search online for an issue before making a decision. Choi and Varian (2009, p. ii) note

that this is not useful for long-term forecasts and introduce the term ‘predicting the present’. While the short-termism of the data could be viewed as a limitation, it has been shown to be a useful predictor in politics (Reilly, Richey, & Taylor, 2012; Stephens-Davidowitz, 2014), the stock market (Da, Engelberg, & Gao, 2011; Joseph, Wintoki, & Zhang, 2011), healthcare (Ginsberg, et al., 2009; Araz, Bentley, & Muelleman, 2014), the economy (Askatas & Zimmermann, 2009; Smith G. P., 2012), house prices (Beracha & Wintoki, 2013), consumer purchasing (Choi & Varian, 2009), tourism (Dinis, Costa, & Pacheco, 2017; Dergiades, Mavragani, & Pan, 2018) and cinema admissions (Hand & Judge, 2012).

The above-cited works all find that data from Google Trends is a reliable predictor for a variety of issues. There have been fewer studies taking Google Trends data at face value, and use this as a single data source. One of the few sport based studies to utilise Google Trends data is by Kozman (2013) who measures interest in Tiger Woods, following his 2009 sex scandal. A similar methodology is employed by Baram-Tsabari and Segev (2011) who use Google Trends, Google Zeitgeist and Google Insights for Search (Google Zeitgeist and Google Insights for Search have since been incorporated into the Google Trends tool) to compare searches for science and pseudoscience over time. It is this methodological approach that this study takes, to be discussed further in the next section.

Methods

This research utilised Google Trends to identify the global interest in the Summer Olympic bid procedure. The available Google Trends data dates back to 2004 and thus the earliest bid process to be studied is the 2016 Summer Olympic Games. While the decision was made for the 2012 Olympic Games in 2005, the actual bid process started in 2003. Thus, the data was limited to the bid processes for the 2016, 2020 and 2024

Olympic Games. This sample only includes cities who formally submitted a bid for each Summer Games bid process. Therefore, cancelled bids, such as Boston 2024 who withdrew from the process on 27th July 2015, two months before the IOC announced the bidders, are not considered.

Using Google Trends (available at <https://trends.google.com/trends/>), each bid was searched for between the dates shown below in Table 1. Every city that submitted a bid for the 2016, 2020 or 2024 Olympic Games was selected. The inclusion of every bidder ensures that not just the larger cities who reach the Candidature Stage were reached. It is more likely that Torres' (2012) utilitarian bidders are smaller cities who may not reach the Candidature Stage.

Table 1: Stages in the Bid Process

	2016	2020	2024
IOC invites bids	16 May 2007	16 May 2011	15 January 2015
IOC Announces Bidders	14 September 2007	1 September 2011	16 September 2015
Applicant File Submission	14 January 2008	15 February 2012	-
Candidate File Part 1 Submission	-	-	17 February 2016
Candidate File Part 2 Submission	-	-	7 October 2016
Candidate File Part 3 Submission	-	-	3 February 2017
Candidate File Submission	11 February 2009	7 January 2013	
Olympic Games	Beijing: 8 – 24 August 2008	London: 27 July – 12 August 2012	Rio de Janeiro: 5 – 21 August 2016
IOC Evaluation teams visit bid sites	April-May 2009	Mar-April 2013	May 2017
IOC Evaluation report release	2 September 2009	25 June 2013	5 July 2017
Host Announcement	2 October 2009	8 September 2013	13 September 2017

Each bid was searched for using a Boolean search string, of three searches: 1) the name of the city followed by the year of the event, 2) the name of the city followed by Olympics and 3) the name of the city followed by Olympic Games. For example, the

Paris bid for the 2024 Olympic Games used the search term 'Paris 2024 + Paris Olympics + Paris Olympic Games'. There are restrictions regarding the number of searches conducted at the same time, and therefore each bid was searched for separately. The data was downloaded as a CSV file for analysis.

At this stage, it is important to clarify the data that Google Trends provides. Week by week data is provided, allowing the matching of Google searches to specific stages in the bid process. However, real search numbers are not provided. Rather, Google Trends provides an adjusted dataset. First, due to the vast number of searches conducted, the data provided is selected from a random sample. These search numbers are then indexed, with the date that provided the largest number of searches shown as 100. All other weeks are shown in proportion to this (Google Trends, 2018). This means that comparison of searches of actual bidders is problematic: even if the data shows that the IOC host decision for two different bidders is 100, this does not mean that both bid cities saw the same level of interest. Instead, it shows that for both of these bid processes, the host decision was the stage of the bid process that drew the most searches.

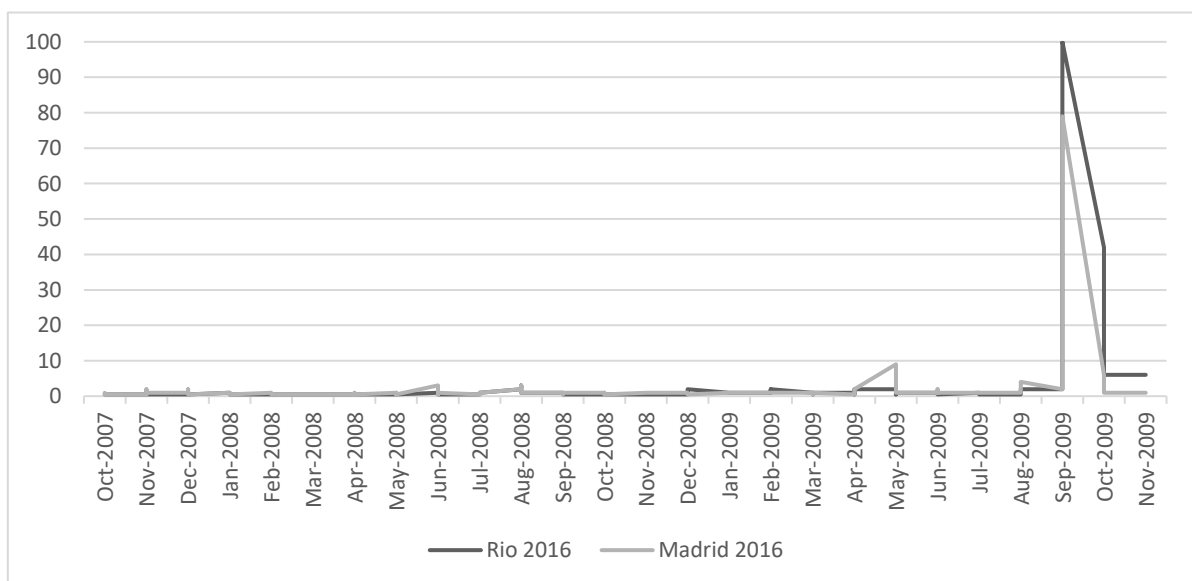
The data for each bid process was collated and compared to the key dates in each bid process (see Table 1). If a bid saw a spike in searches at a time that does not correspond to these key dates, Google News was searched to ascertain whether any events that pertained just to that bidder took place during that time. For example, Hamburg 2024 was most searched for during the week of 29th November 2015. This was not an official bid process date but was the week in which a referendum was held to determine if Hamburg's bid should continue.

Google Trends also provides further information, that of the countries that searched for this term the most. This data is adjusted to account for differing

populations, in order to ensure that it is not the largest countries that are always ranked the highest. This provides further information that is important to this research: if the majority of the searches are coming from within the country that is bidding, then this cannot be considered to be a global reach.

Finally, Google Trends also allows for up to five search terms at the same time. This adjusts all data on a scale of 1-100, with the most popular search term at a specific time given a ranking of 100. All other search terms are given adjusted rankings based on the most popular search term. The previous searches had provided Google search data on individual bids. By comparing multiple bids, it allows the research to consider whether different bids had different search volumes. As an example, figure 1 below shows a comparison of the searches for 'Rio 2016' and 'Madrid 2016' from 2nd September 2007 (when the IOC announced the bidders for 2016) until 2nd October 2009 when the host city election took place. The most searches were for 'Rio 2016' which took place during the week of the election, and so this is set to 100. All other searches are adjusted on a scale of 1-100.

Figure 1: Google Searches during the 2016 Olympic Bid Process



Limitations

A clear limitation of this study is that it only uses one data source – Google Trends. While other sources of data were considered, they are beyond the scope of this paper. For example, the aforementioned study by Kassens-Noor et al. (2019) analysed over 10 million tweets from a four-month period during one bid period. As the present study is considering three different bid processes, each of which lasts around four years, this sort of Twitter analysis would not be feasible. There are further limitations to the use of big data.

Askatas and Zimmerman (2015) argue that there is a distinct selection bias, in that not every nation has similar levels of internet adoption. A recent International Telecommunications Union report estimated that 48% of the world are using the internet, with just 21.8% of individuals in Africa using the internet compared to 82.9% in Europe (ITU, 2017). The same report also reveals that internet usage is more prevalent for males and those aged 15-24. This is an obvious limitation of the work and supports Kozman (2013) naming the data as a convenience sample rather than a random one.

While the reach of the internet, in general, is a limitation, so too is the scope of Google Trends itself. While Google may be the widest used search engine globally, this is not evenly distributed across all countries. Google, or elements of Google, have been blocked in nations such as China and so domestic search engines such as Baidu, Qihoo and Sohu make up 90% of the Chinese market (Mozur & Tadena, 2013; Yeo, 2016). As Google Trends only records searches using Google, this means that many nations are not included in the data. This is of particular importance for this research, given the prominence of China in the Olympic movement, with Beijing hosting the 2008 and 2022 Summer and Winter Games respectively.

While utilising multiple data sources may contribute to the validity of the study, it would also be problematic. The issues with Google not being used in China extends to other new-media sources. Further, the speed at which social media changes provides challenges. The data in this study range from 2007 – 2016, a period in which the social media landscape has changed significantly (van Dijk J. , 2013). Further, while collecting other media data in multiple languages, such as television and newspaper would help alleviate this issue, this data provides further constraints. The time and difficulty in collecting a relevant sample of global media across nine years of Olympic bidding mean that collecting this data is beyond the scope of the present study.

There are also questions regarding the data that can be collected. As Ripberger (2011) notes, Google does not provide information regarding the algorithm that is used to collate the data or the threshold number of searches to be included. (Scharkow & Vogelgesang, 2011). Further, if a low threshold is applied, it is possible that a single user searching for the same term on multiple occasions can influence the results. While repeated searches from the same person over a short period of time are eliminated from the data (Google Trends, 2018) it is possible that a bid team may regularly use Google search to access its own homepage over the three duration of the bid, distorting the results.

Results

Announcing the Bid

There are often two distinct times when a city's decision to bid will reach the news. The bid process starts when the IOC formally announces the cities that are in contention to host the Games, but a city may have told the world of its intention to bid prior to this. It was decided by the Japanese Olympic Committee that Tokyo would be bidding for the

2016 Games on 30th August 2006 (BBC Sport, 2006), more than one year before the IOC announced the seven bidders.

This is typically not a stage of the bid process that garners a large proportion of searches. This period did see the largest number of searches for Hamburg 2024 and Doha 2016. However, the majority of the searches for these terms originated in Germany and Qatar respectively. The only other bidder to receive a significant proportion of interest in the decision to bid was Los Angeles 2024. Interestingly, the USA was not where the majority of the search terms originated. Rather, there were a large number of searches originating in Argentina, while France (whose capital, Paris, had previously announced its own bid), Mexico and Spain all also feature.

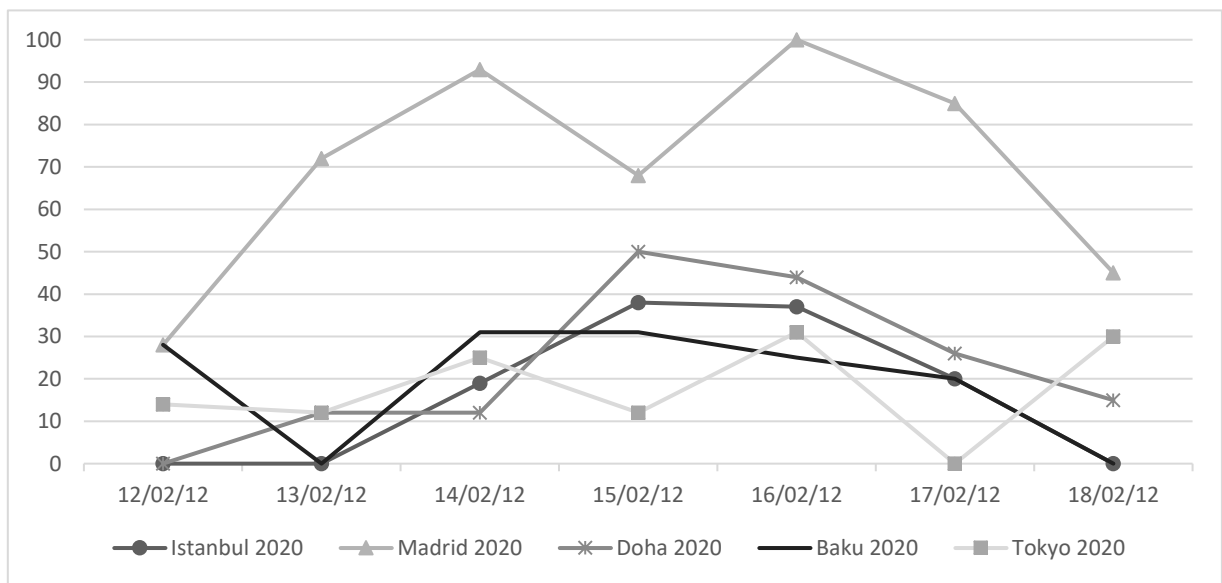
Submission of the Applicant File

The bid processes for the 2016 and 2020 Olympic Games were a two-stage process. First, cities submitted an Applicant File to the IOC. These were evaluated by the IOC and cities were either eliminated from the bid competition, or progressed to the Candidate Stage. For those cities who progressed to the Candidate Stage, the submission of the Applicant File saw a small proportion of the total searches. Contrastingly, the searches for Baku 2020 were maximised at this stage, while there were significant searches for Baku 2016, Doha 2016 and Doha 2020.

However, while the searches for Baku 2016, Doha 2016 and Prague 2016 were significant in terms of their own bid processes, the actual number of searches were similar to that of Chicago 2016, Tokyo 2016, Madrid 2016 and Rio 2016. The same occurred during the submission of the 2020 Applicant Files. Figure 2 shows the number of searches in the three days either side of the submission of the Applicant File on 15/02/2012. The number of searches for Madrid 2020 at this stage was not significant in terms of Madrid's bid, but still produced more searches than Doha 2020 or Baku 2020.

Typically, the Applicant Cities did not receive significant interest outside their borders at this stage. Bids from Doha and Baku saw the most searches from Qatar and Azerbaijan respectively. The Prague 2016 bid saw a large proportion of its searches at this stage from the USA; this is likely to be due to the fact that Chicago was a rival bidder.

Figure 2: Google Searches during the Applicant File Submission

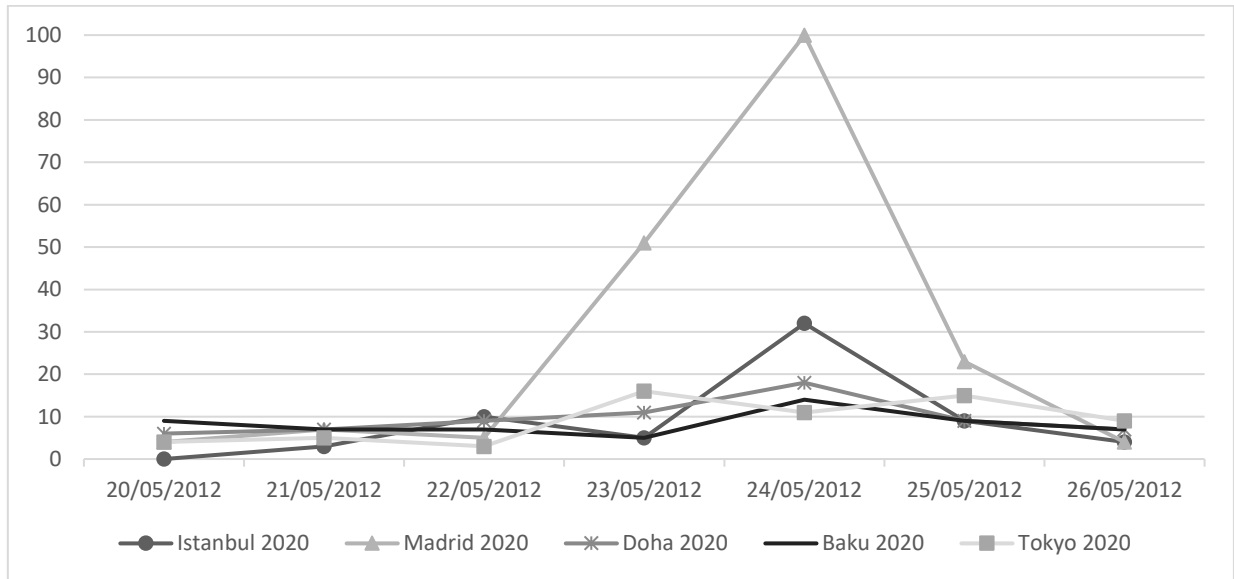


Announcement of Candidate Cities

Following the IOC evaluation of the Applicant Files, cities are either eliminated from the bid, or progress to become Candidate Cities. For those eliminated cities, this stage of the bid process leads to a large proportion of searches. Indeed, for Doha 2020, the announcement of its elimination from the bid process produced the maximum number of searches that the city received. However, the majority of these searches came from within the domestic borders, Doha 2020 and Baku 2020 received a comparatively small number of searches from Spain, who were still represented by Madrid in the competition. However, as with the Applicant File submission, the number of actual searches for the eliminated cities were actually less than Madrid and Istanbul, who

progressed to the Candidate Stage (see figure 3 below). This suggests that these search numbers are due to eliminated cities not progressing into the latter stages of the bid, which draw more attention, rather than the fact that being eliminated at this stage raises the profile.

Figure 3: Google Searches at Candidate Announcement



Submission of the Candidate File

To make the bid process for the 2024 Olympic Games more efficient, there was no applicant stage. Rather, all bidders submitted a three-part Candidature File in February 2016, October 2016 and February 2017 respectively. The submission of Part 1 of the Candidature File garnered a significant number of Google searches for submissions from Budapest, Los Angeles and Rome. The Part 2 submission received little attention, while the Budapest and Los Angeles submissions of the third part received some interest, but not to the level of the submission of Part 1. Hamburg had withdrawn its bid by the time of the submission for Part 1, while Rome withdrew between the submissions of Parts 2 and 3.

There appears to have been less interest in the submission of the Candidature Files by eventual winner Paris. Indeed, the launch of Paris 2024's website, logo and slogan drew more internet searches than the Candidature File submissions. However, for each of the cities, the majority of searches originated domestically. The global interest came from rival bidders. The three nations that registered searches for Rome 2024 were France, Italy and USA; Budapest 2024 registered searches from France and Germany, while Italy, France and USA all searched for Los Angeles 2024. There were far fewer searches from nations without runners in the competition. Budapest 2024 attracted some interest from Germany and Los Angeles 2024 saw numerous searches from Canada. The minimal interest in Paris 2024 was predominantly from within France, with further interest from Switzerland, Belgium, Canada and Portugal.

Olympic Games

The timelines involved ensured that each bid process covers an Olympic Games. This seems to raise the interest in Olympic Games generally, as the Baku 2016, Budapest 2024, Los Angeles 2024 and Rome 2024 bids all saw maximum interest during the second week of the 2008 and 2016 Olympic Games respectively. Prague 2016, Doha 2020 and Baku 2020 all received a large proportion of their total Google searches during the Olympic Games, despite the fact that these cities had already been eliminated from the bid process.

As with the prior stages, many of these searches originated in either the host country or the country of a competing nation. Baku 2016 saw searches which originated in Spain and USA, while there were similar American searches for Prague 2016. Similarly, there were searches from Spain for Doha 2020 and Baku 2020. As with the Candidature File submission, there was significant French interest in the 2024 bids from Los Angeles, Rome and Budapest, although again, the 2016 Olympic Games did not

lead to searches for Paris 2024. This suggests that bid cities may be able to lever the general rise in interest in the Olympic Games that occurs during the event to promote themselves on a global scale, particularly in rival nations.

Protests and Withdrawal of Bids

The bid processes included in the dataset have been hampered by protests against the ultimate hosting of the Games, with Budapest, Hamburg and Rome ultimately withdrawing their bids. Typically, mass demonstrations were timed to take place at the same time as other significant stages in the bid process, making it difficult to distinguish the searches engendered by protests. However, there were some demonstrations that took place away from official bid events; but these protests drew few searches. For example, No Games Chicago's 'No Games rally' in April 2009 drew a search index of just 3, with only USA, Canada and UK registering searches.

However, the withdrawal from the bid process led to significant Google searches. Hamburg's withdrawal was the event in Hamburg's bid that led to the most searches, while only the 2016 Olympic Games and the announcement of the bid led to more searches for Rome and Budapest respectively.

It would perhaps, therefore, seem to follow that entering a bid and subsequently withdrawing may lead to an increased global profile. However, when considering the regions in which these searches originated, this is not the case. The vast majority of searches for Hamburg and Budapest's bids were from Germany and Hungary respectively. Rome's withdrawal from the 2024 Olympic Games drew more global interest than Budapest or Hamburg respectively; there were more searches from USA, UK and Australia than from Italy. Again, it should be noted that USA was also in the same bid process, leading to greater engagement.

IOC Host Announcement

The final stage in the bid process is the IOC Session, where the IOC members vote on who will host the Olympic Games. This sees a large proportion of Google searches for all cities, even with cities who had not reached this stage being searched for. For all those remaining in the competition, aside from Los Angeles 2024, this stage of the bid process received the most Google searches. Even for Los Angeles, for whom Google searches were maximised during the 2016 Olympic Games, the IOC announcement was ranked as 84.

There is a clear difference between bidders: Rio, Tokyo, Paris and Los Angeles were all awarded Olympic Games. This provided a very different number of searches compared to the losing bidders. For those cities whose bids were unsuccessful, the searches continued to originate typically in countries from a similar geographic region. Table 2 below shows the regions searching for each lost bid. Of the bid cities who did not reach the host decision (through either being eliminated or withdrawal), Rome was the only bidder to generate enough searches for Google Trends to register the regions of the searches.

Table 2: Geographic Origins of Searches for Failed Olympic Bids¹

Bid City	Date of Decision	Regions with the most Google searches in descending order of searches
Baku 2016	02/10/09	Eliminated before the candidate stage: the searches do not have enough data to show regions
Chicago 2016	02/10/09	USA , Canada, Russia, <i>Brazil</i> , UK, France
Doha 2016	02/10/09	Eliminated before the candidate stage: the searches do not have enough data to show regions
Madrid 2016	02/10/09	Spain , Guatemala, Pakistan, Switzerland, Portugal, Chile, Mexico, Denmark, <i>Brazil</i> , Sweden, Venezuela, Colombia, Netherlands, Argentina, <i>USA</i> , Canada, France, Belgium, UK, Germany, Australia, Italy
Prague 2016	02/10/09	Eliminated at the candidate stage: the searches do not have enough data to show regions
Tokyo 2016	02/10/09	Singapore, Ireland, Australia, Thailand, Mexico, Japan , <i>USA</i> , India, Spain, Canada, <i>Brazil</i> , UK, France, Italy, Germany
Istanbul 2020	07/09/13	Turkey , Germany, France, UK, USA
Madrid 2020	07/09/13	Spain , Portugal, Belgium, Mexico, Argentina, Austria, Switzerland, Colombia, UK, France, Peru, Netherlands, Italy, Australia, Germany, Canada, USA, Brazil, India, Indonesia
Doha 2020	07/09/13	Eliminated before the candidate stage: the searches do not have enough data to show regions
Baku 2020	07/09/13	Eliminated before the candidate stage: the searches do not have enough data to show regions
Budapest 2024	13/09/17	Withdrew during the bid process: the searches do not have enough data to show regions
Hamburg 2024	13/09/17	Withdrew during the bid process: the searches do not have enough data to show regions
Rome 2024	13/09/17	Withdrew during the bid process: UK, USA

Comparatively, searches for winning bids were of a far more global nature to that of failed bids, as seen in Table 3. The number of searches still often originate in countries from a shared geographic area. Both Rio and Tokyo had searches from South America and East Asia respectively. There was not a formal bid process for the 2028 Olympic Games: It was only in July 2017 that the decision was made to announce the 2028 host at the same time as 2024. Therefore, only the host city election differentiates the 2028 bid process from that of 2024.

¹ Nations of the bid city are in bold, nations also competing in the bid process are in italics

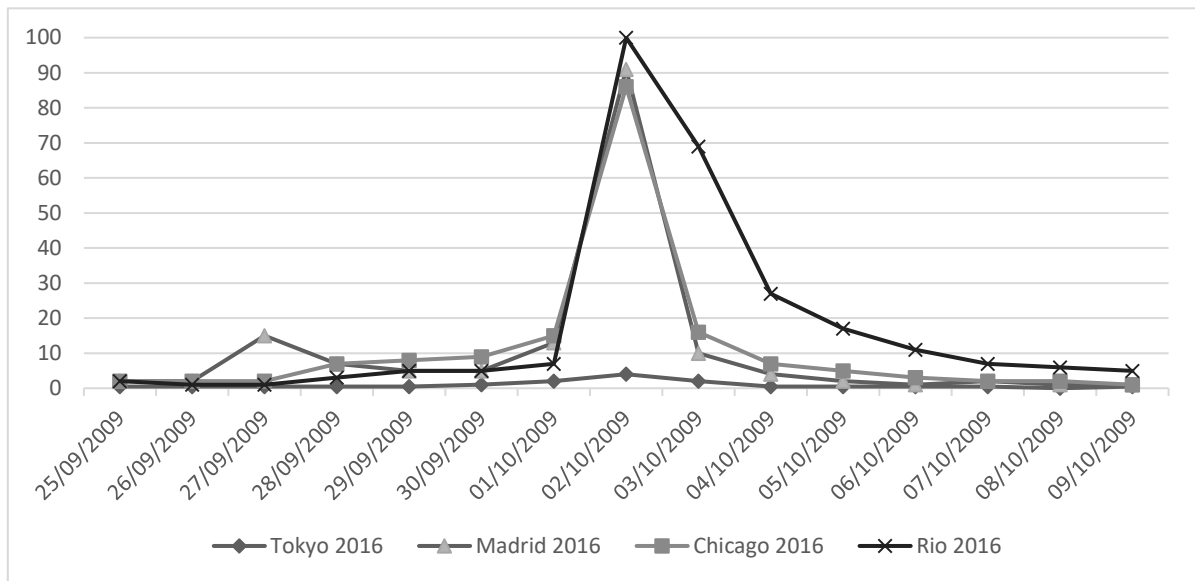
Table 3: Geographic Origins of Searches for Successful Olympic Bids²

Bid City	Date of Decision	Regions with the most Google searches in descending order of searches
Rio 2016	02/10/09	Brazil , Paraguay, <i>Spain</i> , Ecuador, Costa Rica, <i>USA</i> , Singapore, Algeria, Colombia, Mexico, Chile, Portugal, Hong Kong, UK, Germany, Czech Republic, Denmark, Canada, Argentina, Ireland, South Africa, Australia, Peru, Venezuela, UAE, Switzerland, Greece, New Zealand, India, Philippines, Ukraine, France, Sweden, Finland, Japan, Russia, Netherlands, Hungary, Austria, Belgium, Italy, Thailand, Poland, Turkey
Tokyo 2020	07/09/13	Hong Kong, Singapore, <i>Turkey</i> , <i>Spain</i> , UAE, New Zealand, UK, Japan , Australia, Canada, Greece, Philippines, Ireland, South Korea, Switzerland, Malaysia, USA, Taiwan, France, Italy, Austria, Romania, Israel, Thailand, Portugal, Norway, Belgium, Netherlands, Croatia, Mexico, Sweden, South Africa, Germany, Czech Republic, Hungary, Indonesia, Finland, Denmark, India, Vietnam, Poland, Brazil, Russia
Paris 2024	13/09/17	France , Switzerland, UK, Australia, Spain, Canada, <i>USA</i> , Germany, Brazil, India
Los Angeles 2028	13/09/17	USA , <i>France</i> , Australia, Canada, Spain, UK, Mexico, Italy, India

When comparing the number of searches across the bidders, successful bidders do not always receive the greatest number of searches. In the build-up to the election for the 2016 host, Madrid 2016 that received more Google searches than both Tokyo 2016 and Chicago 2016. However, as figure 4 shows below, the number of searches for Madrid fell away significantly the following day, whereas Rio 2016 continued to be searched for over the next two days, before declining.

² Nations of the bid city are in bold, nations also competing in the bid process are in italics

Figure 4: Google Searches at the 2016 Host City Announcement



The bids for the 2020 Olympic Games provided a more pronounced disparity between successful and unsuccessful bidders. In the build-up to the election, there were slightly more Google searches for Madrid 2020, but then four times as many searches on the day of the decision itself. Even in the week that followed, there were more searches for third-placed Madrid than either winner Tokyo 2020 or runner-up Istanbul 2020 until 12th September, six days after the host election, as can be seen in figure 5.

Figure 5: Google Searches at the 2020 Host City Announcement

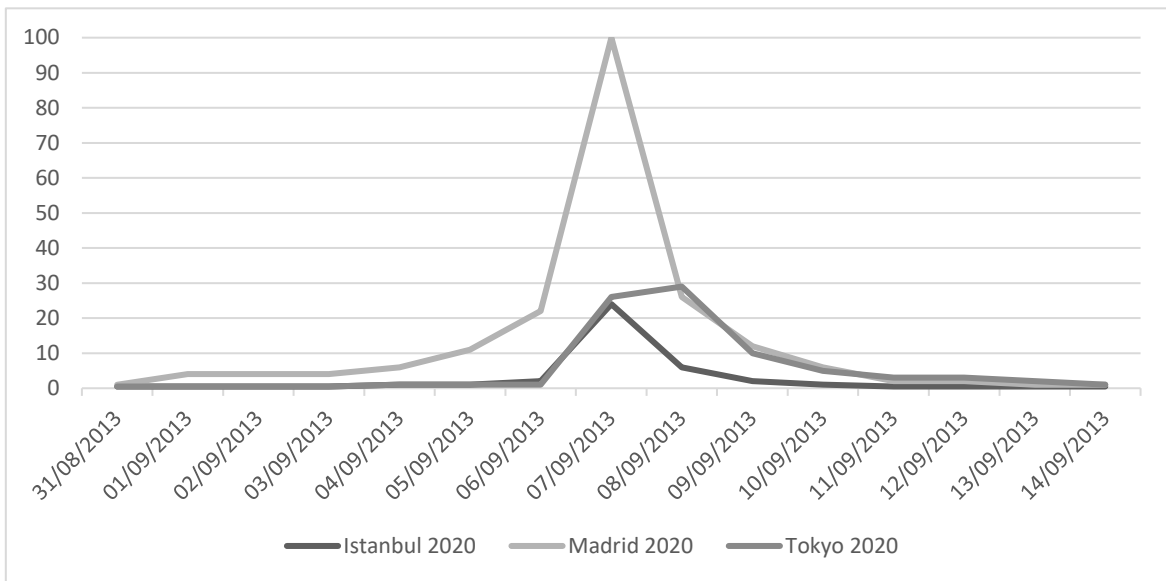
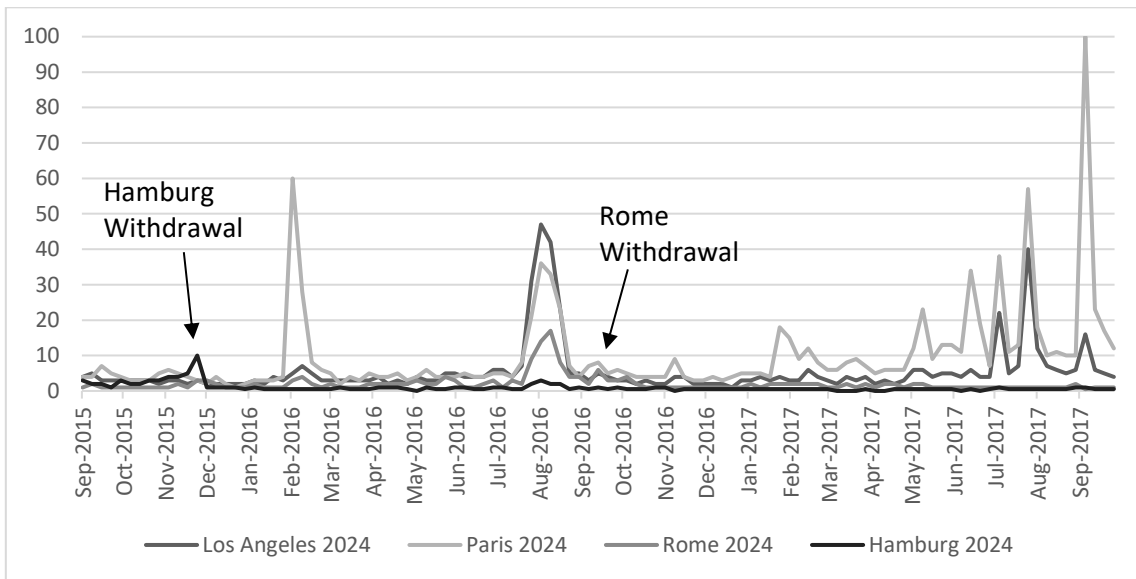


Figure 6 below shows an overview of the searches for the entire bid process of the 2024 Olympic Games. This supports the earlier contention that withdrawing from a bid process does not provoke worldwide interest. While Hamburg and Rome’s withdrawals may have seen the most searches for these terms, these are less than the searches for Paris 2024. Indeed, the spike in February 2016 for Paris 2024 coincides with the release of the Paris 2024 logo. Similarly, the increase in searches in August 2016 were due to the 2016 Rio Olympic Games. Both of these events produced far more searches for Los Angeles 2024 and Paris 2024 than Hamburg and Rome’s withdrawals led to searches for Hamburg 2024 and Paris 2024 respectively. As figure 6 demonstrates, no part of the bid process comes close to generating Google searches, compared to reaching the host city election.

Figure 6: Google Searches during the 2024 Bid Process



Overall Global Reach

Finally, the overall global reach is considered. Across the three bid periods, 71 different nations registered Google searches; the global spread of these bids can be seen in Figure 7. As can be seen, searches predominantly originated in developed nations, with few bids coming from Africa or the Middle East. While this may be due to a lack of internet users in these regions, it may also be because there were few bidders from these regions; Istanbul was the only bidder from these areas of the world to progress beyond the Applicant Stage. This is supported by the fact that if a similar Google Trends search is conducted for Morocco's 2026 World Cup bid, 14 African and 11 Middle Eastern states register searches.

Figure 7: Global Google Searches for the 2016, 2020 and 2024 Olympic Bid Processes

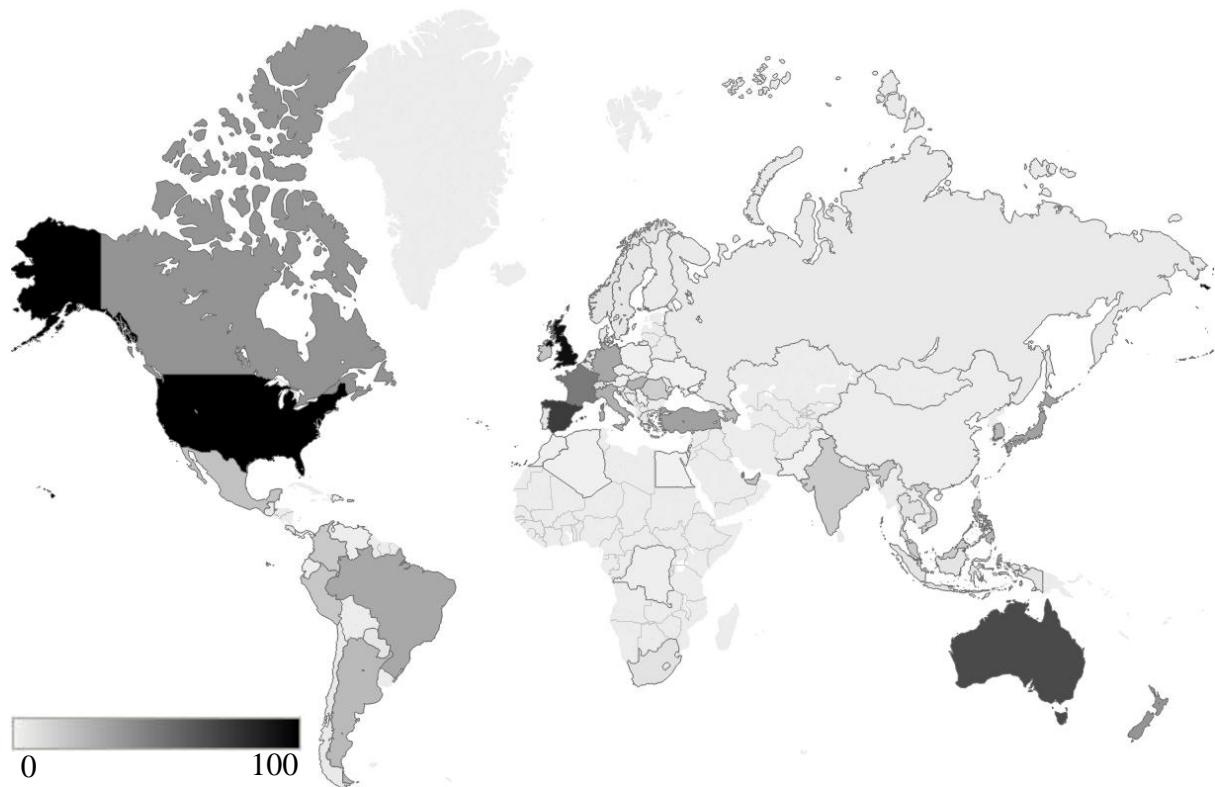


Table 4 shows the continents that registered Google Searches for each bidder during the bid period. This supports the earlier findings that those bid cities who exited the bid process in the earlier stage received less global attention than those who reached the final stage. None of Baku 2016, Doha 2016, Doha 2020, Budapest 2020 and Hamburg 2024 saw interest beyond the continent in which they reside. Rome 2024 was the only bidder not to reach the IOC vote who saw Google searches from four continents.

In comparison, Istanbul 2020 was the only bidder to reach the IOC vote who saw global interest reach fewer than three continents. This is not to say that reaching the IOC vote will see an increase in interest; those bidders who reach the final stages are already global cities (Tolzmann, 2014). However, it does raise questions as to the extent

to which entering the Olympic bidding process will raise the global interest in a city with a smaller global profile.

Table 4: Continents Registering Searches for each Bid

	Bid Result	Africa	Asia	Austra- lasia	Europe	North America	South America
Rio 2016	Winner	✓	✓	✓	✓	✓	✓
Madrid 2016	Second in IOC vote	✓	✓	✓	✓	✓	✓
Tokyo 2016	Third in IOC vote	✓	✓	✓	✓	✓	✓
Chicago 2016	Fourth in IOC vote		✓	✓	✓	✓	✓
Baku 2016	Eliminated Applicant				✓		
Doha 2016	Eliminated Applicant		✓				
Prague 2016	Eliminated Applicant				✓	✓	
Tokyo 2020	Winner	✓	✓	✓	✓	✓	✓
Istanbul 2020	Second in IOC Vote				✓	✓	
Madrid 2020	Third in IOC Vote	✓	✓	✓	✓	✓	✓
Doha 2020	Eliminated Applicant		✓		✓		
Baku 2020	Eliminated Applicant				✓	✓	
Paris 2024	Winner (2024)		✓	✓	✓	✓	✓
LA 2024	Winner (2028)		✓	✓	✓	✓	✓
Budapest 2024	Withdrew Bid				✓		
Hamburg 2024	Withdrew Bid				✓		
Rome 2024	Withdrew Bid		✓	✓	✓	✓	

Conclusions

This research has tentatively challenged the seemingly accepted belief that entering an Olympic bid process can raise the profile of a city, with Torres (2012) going so far as to argue that cities may bid for an Olympic Games just to raise their profile. Using Google Trends data as a proxy for global interest, this research has investigated the Olympic bid

process to view the stages that lead to Google searches for the bid, and crucially the regions in which the interest is generated.

The findings of the present study complement the work of Kassens-Noor et al. (2019), who used Twitter data to view public sentiment towards Olympic bids. Whereas Kassens-Noor et al. (2019) studied Twitter over a period of four months (May to September 2016), this study takes a longitudinal approach, using Google Trends data to consider three full bid processes.

The Google Trends data suggests that different bids will generate internet searches at different stages of the bid cycle. Those cities who did not reach the Candidate Stage for the 2016 or 2020 Olympic Games, received the majority of their Google searches at either the start or the end of their bid process. However, while these stages of the bid process produced the most searches for eliminated cities, they still received proportionately fewer bids than those cities who reached the Candidature Stage. Due to Google not disclosing actual search data, it is not possible to know the number of searches that actually take place at these stages.

Those cities who did reach the Candidature Stage received the majority of their Google searches at the end of their bid, whether that be withdrawal, losing the IOC vote or ultimately selected as host. Crucially here, cities who withdraw earlier in the process receive far fewer Google searches than those cities that reach the final IOC vote. These results suggest that the idea of a bid purely to raise global profile is problematic. That these searches tend to originate domestically adds weight to Kassens-Noor et al.'s (2019) findings that the majority of online sentiment to bids is positive, as criticism is likely to be restricted to a local level. This should not be surprising, after all the target audience for anti-Olympic coalitions during the bid stage are likely to be local politicians who make the decision as to whether the bid should continue.

Those cities who reach the IOC vote receive far more Google searches than those who do not. Therefore, if a city wishes to use an Olympic bid to raise its profile, the act of merely submitting an Olympic bid will have little impact. Rather, a city needs to pursue a legitimate bid and reach the final stages of the process.

The results also provided information regarding the nations who search for bids. While the methodology employed has an obvious limitation in that China has limited access to Google, it is apparent that Olympic bids do not necessarily have a global reach. The majority of the bids saw a large proportion of searches originate from within their own nation. When considering interest beyond borders, many of the nations who search for bidders are either in direct competition in the bid process (e.g. Turkish searches for Tokyo 2020), supporting the work of Booth and Tatz (1994), or are geographically close (e.g. Canadians searching for Chicago 2016). This, again, questions the use of an Olympic bid to generate global interest, if the majority of the searches come from nations that already have close links with the bidding city.

This research finds an unexpected opportunity for bid cities to utilise; that of the Olympic Games themselves. Every Olympic bid cycle encompasses a Summer Olympic Games (the bid process typically ends six months before the Winter Olympic Games take place), and this appears to spark an interest in current bid cities. This finding is also present in the work of Kassens-Noor et al. (2019). However, it is currently difficult for bid cities to utilise this opportunity further as the Candidate File submission date, and therefore the date from which cities can be globally marketed, is after the Olympic Games. Thus, it may be difficult for bid cities to truly exploit this opportunity.

This research has sought to investigate the periods of a bid process that generate interest in a bid city and identify the geographical spread of this interest. However, it is important to recognise that the use of Google Trends only measures the number of

Google searches for bid cities when compared to others, and their geographical spread. It does not provide data on the raw numbers of searches or the extent to which these searches lead to greater engagement.

Clearly, this area would benefit from future research, utilising other data sources such as social media, which are beyond the scope of this study. However, the use of new media would not circumvent the limitation that China uses bespoke social media that is different from many other nations, while developing states may be less likely to have access. Therefore, future research could consider other forms of media, such as newspapers and television, across multiple languages to further measure the global reach of a bid.

Bibliography

- Agha, N., Fairley, S., & Gibson, H. (2012). Considering legacy as a multi-dimensional construct: The legacy of the Olympic Games. *Sport Management Review, 15*(1), 125-139. doi:10.1016/j.smr.2011.08.004
- Alberts, H. C. (2009). Berlin's Failed Bid to Host the 2000 Summer Olympic Games: Urban Development and the Improvement of Sports Facilities. *International Journal of Urban and Regional Research, 33*(2), 502-516.
- Andranovich, G., Burbank, M. J., & Heying, C. H. (2001). Olympic Cities: Lessons Learned from Mega-Event Politics. *Journal of Urban Affairs, 23*(2), 113-131. doi:10.1111/0735-2166.00079
- Araz, O. M., Bentley, D., & Muelleman, R. L. (2014). Using Google Flu Trends Data in Forecasting Influenza-Like-Illness Related ED Visits in Omaha, Nebraska. *The American Journal of Emergency Medicine, 32*(9), 1016-1023. doi:10.1016/j.ajem.2014.05.052

- Askatas, N., & Zimmermann, K. F. (2009). *Google Econometrics and Unemployment Forecasting*. Bonn: Discussion Paper No. 4201, Institute for the Study of Labor.
- Askatas, N., & Zimmermann, K. F. (2015). The Internet as a Data Source for Advancement in Social Sciences. *International Journal of Manpower*, 36(1), 2-12. doi:10.1108/IJM-02-2015-0029
- Baram-Tsabari, A., & Segev, E. (2011). Exploring New Web-Based Tools to Identify Public Interest in Science. *Public Understanding of Science*, 20(1), 130-143. doi:10.1177/0963662509346496
- Bason, T., & Grix, J. (2018). Planning to fail? Leveraging the Olympic bid. *Marketing Intelligence & Planning*, 36(1), 138-151. doi:10.1108/MIP-06-2017-0106
- BBC Sport. (2006). *Japan Chooses Tokyo for 2016 Bid*. Retrieved July 2, 2018, from http://news.bbc.co.uk/sport1/hi/other_sports/5297882.stm
- Benneworth, P., & Dauncey, H. (2010). International Urban Festivals as a Catalyst for Governance Capacity Building. *Environment and Planning C: Government and Policy*, 28(6), 1083-1100.
- Beracha, E., & Wintoki, M. B. (2013). Forecasting Residential Real Estate Price Changes from Online Search Activity. *Journal of Real Estate Research*, 35(3), 283-312.
- Bilsel, C., & Zelef, H. (2011). Mega Events in Istanbul from Henri Prost's master plan of 1937 to the twenty-first-century Olympic bids. *Planning Perspectives*, 26(4), 621-634.
- Bodet, G., & Lacassagne, M.-F. (2012). International Place Branding Through Sporting Events: a British Perspective of the 2008 Beijing Olympics. *European Sport Management Quarterly*, 12(4), 357-374. doi:10.1080/16184742.2012.693114

- Booth, D., & Tatz, C. (1994). Swimming with the big boys? The politics of Sydney's 2000 Olympic bid. *Sporting Traditions*, 1(1), 3-23.
- Brannagan, P. M., & Giulianotti, R. (2015). Soft power and soft disempowerment: Qatar, global sport and football's 2022 World Cup finals. *Leisure Studies*, 34(6), 703-719.
- Braun, E. (2012). Putting City Branding into Practice. *Journal of Brand Management*, 19(4), 257-267.
- Chalip, L., Green, B. C., & Hill, B. (2003). Effects of Sport Event Media on Destination Image and Intention to Visit. *Journal of Sport Management*, 17(3), 214-234.
- Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business Intelligence and Analytics: From Big Data to Big Impact. *MIS Quarterly: Management Information Systems*, 36(4), 1165-1188.
- Choi, H., & Varian, H. (2009). *Predicting the Present with Google Trends (Technical Report)*. Google.
- Cochrane, A., Peck, J., & Tickell, A. (1996). Manchester Plays Games: Exploring the Local Politics of Globalisation. *Urban Studies*, 33(8), 1319-1336.
- Cornelissen, S. (2008). Scripting the nation: sport, mega-events, foreign policy and state-building in post-apartheid South Africa. *Sport in Society: Cultures, Commerce, Media, Politics*, 11(4), 481-493. doi:10.1080/17430430802019458
- Da, Z., Engelberg, J., & Gao, P. (2011). In Search of Attention. *The Journal of Finance*, 66(5), 1461-1499. doi:10.1111/j.1540-6261.2011.01679.x
- Dauncey, H. (2010). Lyon '68: The Games that weren't or the Intermediate Event-Zone of an Olympics. *Bulletin of Latin American Research*, 29(1), 63-77.

- Dergiades, T., Mavragani, E., & Pan, B. (2018). Google Trends and Tourists' Arrivals: Emerging Biases and Proposed Corrections. *Tourism Management*(66), 108-120. doi:10.1016/j.tourman.2017.10.014
- Dinis, G., Costa, C., & Pacheco, O. (2017). Similarities and Correlation Between Resident Tourist Overnights and Google Trends Information in Portugal and its Tourism Regions. *Tourism and Management Studies*, 13(3), 15-22.
- Ettredge, M., Gerdes, J., & Karuga, G. (2005). Using Web-Based Search Data to Predict Macroeconomic Statistics. *Communications of the ACM*, 48(11), 87-92. doi:10.1145/1096000.1096010
- Florek, M., Breitbarth, T., & Conejo, F. (2008). Mega Event = Mega Impact? Travelling Fans' Experience and Perceptions of the 2006 FIFA World Cup Host Nation. *Journal of Sport & Tourism*, 13(3), 199-219. doi:10.1080/14775080802310231
- Fourie, J., Siebrits, K., & Spronk, K. (2011). Tourist Displacement in Two South African Sport Mega-Events. *Development Southern Africa*, 28(3), 319-332. doi:10.1080/0376835X.2011.595991
- Gibson, H. J., Qi, C. X., & Zhang, J. J. (2008). Destination Image and Intent to Visit China and the 2008 Beijing Olympic Games. *Journal of Sport Management*(22), 427-450. doi:10.1123/jsm.22.4.427
- Ginsberg, J., Mohebbi, M. H., Patel, R. S., Brammer, L., Smolinski, M. S., & Brilliant, L. (2009). Detecting Influenza Epidemics Using Search Engine Query Data. *Nature: International Journal of Science*, 457, 1012-1014. doi:10.1038/nature07634
- Gong, L. (2011). Underlying Ideologies and Shifting Strategies. *Journal of International Communication*, 17(2), 139-162. doi:10.1080/13216597.2011.589362

- Google Trends. (2018). *How Trends Data is Adjusted*. Retrieved July 3, 2018, from https://support.google.com/trends/answer/4365533?hl=en&ref_topic=6248052&visit_id=1-636695143510975869-3696325081&rd=1
- Grix, J. (2012). 'Image' Leveraging and Sports Mega-Events: Germany and the 2006 FIFA World Cup. *Journal of Sport & Tourism*, 17(4), 489-312.
- Grix, J., Brannagan, P. M., Wood, H., & Wynne, C. (2017). State Strategies for Leveraging Sports Mega-Events: Unpacking the Concept of 'Legacy'. *International Journal of Sport Policy and Politics*, 203-218.
doi:10.1080/19406940.2017.1316761
- Hand, C., & Judge, G. (2012). Searching for the Picture: Forecasting UK Cinema Admissions using Google Trends Data. *Applied Economics Letters*, 19(11), 1051-1055. doi:10.1080/13504851.2011.613744
- Haugen, H. Ø. (2005). Time and Space in Beijing's Olympic Bid. *Norwegian Journal of Geography*, 59(3), 217-227. doi:10.1080/00291950500228238
- IOC. (2000). *Report by the IOC Candidature Acceptance Working Group to the Executive Board of the International Olympic Committee*. Lausanne: IOC.
- IOC. (2015). *Candidature Process Olympic Games 2024*. Lausanne: IOC.
- ITU. (2017). *ICT Facts and Figures 2017*. Geneva: ICT Data and Statistics Division.
- Joseph, K., Wintoki, M. B., & Zhang, Z. (2011). Forecasting Abnormal Stock Returns and Trading Volume Using Investor Sentiment: Evidence from Online Search. *International Journal of Forecasting*, 27(4), 1116-1127.
doi:10.1016/j.ijforecast.2010.11.001
- Kassens-Noor, E. (2016). From Ephemeral Planning to Permanent Urbanism: An Urban Planning Theory of Mega-Events. *Urban Planning*, 1(1), 41-54.
doi:10.17645/up.v1i1.532

- Kassens-Noor, E., Vertalka, J., & Wilson, M. (2019). Good games, bad host? Using big data to measure public attention and imagery of the Olympic Games. *Cities*, *90*, 229-236.
- Kenyon, J. A., & Bodet, G. (2018). Exploring the domestic relationship between mega-events and domestic image: The image impact of hosting the 2012 Olympic Games for the city of London. *Sport Management Review*, *21*(3), 232-249.
- Knott, B., Fyall, A., & Jones, I. (2015). The nation branding opportunities provided by a sport mega-event: South Africa and the 2010 FIFA World Cup. *Journal of Destination Marketing & Management*, *4*(1), 45-56.
doi:10.1016/j.jdmm.2014.09.001
- Knott, B., Fyall, A., & Jones, I. (2017). Sport Mega-Events and Nation Branding. *International Journal of Contemporary Hospitality Management*, *29*(3), 900-923.
- Kozman, C. (2013). The Tiger Woods Scandal in the Media: Measuring Attribute Effects on the Public. *International Journal of Sport Communication*, *6*(2), 214-233. doi:10.1123/ijsc.6.2.214
- Lauermann, J. (2015). Temporary Projects, Durable Outcomes: Urban Development through Failed Olympic Bids? *Urban Studies*, *53*(9), 1885-1901.
- Lauermann, J. (2016). "The City" as Developmental Justification: Claimsmaking on the Urban through Strategic Planning. *Urban Geography*, *37*(1), 77-95.
- Law, C. (1994). Manchester's Bid for the Millennium Olympic Games. *Geography*, *79*(3), 222-231.
- Lenskyj, H. J. (1996). When Winners are Losers: Toronto and Sydney Bids for the Summer Olympics. *Journal of Sport and Social Issues*, *20*(4), 392-410.
doi:10.1177/019372396020004003

- Mackay, C. (2012). "Back the Bid": The London Olympic Bid Committee and the Sun Newspaper. *Journal of Sport and Social Issues*, 36(4), 410-421.
doi:10.1177/0193723512455922
- Maennig, W., & du Plessis, S. (2009). Sport Stadia, Sporting Events and Urban Development: International Experience and the Ambitions of Durban. *Urban Forum*, 20(1), 61-76.
- Maennig, W., & Richter, F. (2012). Exports and Olympic games: Is there a signal effect? *Journal of Sports Economics*, 13(6), 635-641.
doi:10.1177/1527002512454663
- Mayer-Schönberger, V., & Cukier, K. (2013). *Big Data: The Essential Guide to Work, Life and Learning in the Age of Insight*. London: John Murray (Publishers).
- Mozur, P., & Tadena, N. (2013). *Baidu's Profit Rises, but Concerns Remain*. Retrieved August 26, 2018, from <https://www.wsj.com/articles/SB10001424127887324445904578284923371824716>
- NetMarketshare. (2019). *Search Engine Market Share*. Retrieved April 03, 2019, from <https://netmarketshare.com/search-engine-market-share.aspx>
- Oliver, R. (2011). Toronto's Olympic Aspirations: A Bid for the Waterfront. *Urban Geography*, 32(6), 767-787.
- Oliver, R., & Lauermann, J. (2017). *Failed Olympic Bids and the Transformation of Urban Space: Lasting Legacies?* London: Palgrave Macmillan UK.
- Olympic.org. (2016). *Rio 2016 Olympic Broadcasters*. Retrieved April 24, 2018, from Olympic.org: <https://www.olympic.org/rio-2016/broadcasters>
- Preuss, H. (2006). Signaling Growth: China's Major Benefit from Staging the Olympics in Beijing 2008. *Harvard Asia Pacific Review*, 9(1), 41-45.

- Reilly, S., Richey, S., & Taylor, J. B. (2012). Using Google Search Data for State Politics Research: An Empirical Validity Test Using Roll-Off Data. *State Politics & Policy Quarterly*, 12(2), 146-159. doi:10.1177/1532440012438889
- Reuters. (2016). *New Mayor Kills Off Rome's Bid for 2024 Olympics*. Retrieved July 2, 2018, from <https://www.reuters.com/article/us-italy-olympics-rome-decision/new-mayor-kills-off-romes-bid-for-2024-olympics-idUSKCN11R1WB>
- Ripberger, J. T. (2011). Capturing Curiosity: Using Internet Search Trends to Measure Public Attentiveness. *Policy Studies Journal*, 39(2), 239-259. doi:10.1111/j.1541-0072.2011.00406.x
- Rose, A. K., & Spiegel, M. M. (2011). The Olympic Effect. *The Economic Journal*, 121, 652-677. doi:10.1111/j.1468-0297.2010.02407.x
- Sant, S.-L., & Mason, D. S. (2015). Framing Event Legacy in a Prospective Host City: Managing Vancouver's Olympic Bid. *Journal of Sport Management*, 29(1), 42-65. doi:10.1123/JSM.2013-0294
- Scharkow, M., & Vogelgesang, J. (2011). Measuring the Public Agenda using Search Engine Queries. *International Journal of Public Opinion Research*, 23(1), 104-113. doi::10.1093/ijpor/edq048
- Scheitle, C. P. (2011). Google's Insights for Search: A Note Evaluating the Use of Search Engine Data in Social Research. *Social Science Quarterly*, 92(1), 285-295. doi:10.1111/j.1540-6237.2011.00768.x
- Scheu, A., & Preuss, H. (2018). Residents' Perceptions of Mega Sport Event Legacies and Impacts: The Case of the Hamburg 2024 Olympic Bid. *German Journal of Exercise and Sport Research*, 48(3), 376-386. doi:10.1007%2Fs12662-018-0499-y

- Smith, A. (2005). Reimagining the City: The Value of Sport Initiatives. *Annals of Tourism Research*, 32(1), 217-236.
- Smith, G. P. (2012). Google Internet Search Activity and Volatility Prediction in the Market for Foreign Currency. *Finance Research Letters*, 9(2), 103-110.
doi:10.1016/j.frl.2012.03.003
- Solberg, H., & Preuss, H. (2007). Major Sport Events and Long-Term Tourism Impacts. *Journal of Sport Management*, 21, 213-234. doi:10.1123/jism.21.2.213
- Stephens-Davidowitz, S. (2014). The Cost of Racial Animus on a Black Candidate: Evidence Using Google Search Data. *Journal of Public Economics*, 118, 26-40.
doi:10.1016/j.jpubeco.2014.04.010
- Tolzmann, M. C. (2014). Global localities: Olympic bidding as a case study in globalization. *Sport in Societ: Cultures, Commerce, Media, Politics*, 17(5), 593-608. doi:10.1080/17430437.2013.834626
- Torres, C. R. (2012). *On the Merit of the Legacy of Failed Olympic Bids*. The College at Brockport: State University of New York. New York: Kinesiology, Sport Studies and Physical Education Presentations and Papers.
- United Nations. (2016). *The World's Cities in 2016: Data Booklet*. Geneva: United Nations.
- van Dijk, J. (2013). *The Culture of Connectivity: A Critical History of Social Media*. Oxford: Oxford University Press.
- van Dijk, T., & Weitkamp, G. (2014). Power in Dreams? The Spatial Effects of Chicago's Failed Olympic Bid. *International Planning Studies*, 19(2), 111-132.
- Xing, X., & Chalip, L. (2006). Effects of Hosting a Sport Event on Destination Brand: A Test of Co-branding and Match-up Models. *Sport Management Review*, 9(1), 49-78.

Xing, X., Church, A. G., O'Reilly, N., Pegoraro, A., Nadeau, J., Schweinbenz, A., . . .

Séguin, B. (2008). Olympic Games host and bid city marketing: exploring issue management in the relationships among event stakeholder groups. *International Journal of Sports Marketing & Sponsorship*, 9(4), 321-336.

Yeo, S. (2016). Geopolitics of Search: Google Versus China. *Media, Culture & Society*, 38(4), 591-605. doi:10.1177/0163443716643014