

How **world events** effect organic search performance

An introduction to Anything is Possible's **Zeit** methodology:

A tool that proves, predicts and prevents the effects of world events on organic search performance.



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zeit

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Introduction

This report details the practical application of a new SEO methodology and forthcoming tool, Zeit.

Zeit proves, predicts and prevents the effects of world events on organic search performance. In this report, we detail the practical methodology developed for the tool, demonstrating its use through a case study with Anything is Possible's client BUNAC.

First, we'll examine the effects of the Russian invasion on Ukraine, testing the methodology standards this initial report is based on. We'll then move on to explore the methodology's predictive and preventive power with the World Cup, as an example of a recurrent event that can be forecasted.

For SEOs and marketers alike, this data is highly valuable in understanding the impact world events have on users' search behaviour. The method works retrospectively, looking at how and why an event can affect organic traffic. Used proactively, it allows SEOs to accurately assess and strategise further opportunities associated with upcoming mass events – anything from Red Nose Day to the World Cup. This enables SEOs to plan smarter, target efforts better – and always keep two steps ahead.

If you're interested in exploring Zeit, please go to aip.media to sign up for our waiting list. You'll be the first to access this exciting tool once it's launched.

Disclaimer: Zeit, developed by [Angelo Cosma Galluzzo](#) and [Rob Griffiths](#), is proprietary to Anything Is Possible Ltd.



Background and research

Using Google Trends data to inform predictions

Google Trends (GT) is an online tool which tracks search volume based on samples of user-specified queries searched on Google.

All publicly available GT data is anonymised (no one is personally identified), categorised (determining the topic for a search query) and aggregated (grouped together). Google Trends normalises these masses of collected data by assigning a relative search volume (RSV). RSVs are based on geographical and popularity results, ranking search queries against other queries and topics, on a scale from 0 to 100, based on the highest query share in the time series selected.

The data available on GT goes back to January 1, 2004. Due to its scale and universality, it is one of the world largest publicly-available repositories of primary data on users' online behaviour. What they search for, care about, and are interested in.

As such, Google Trends data has been used in different ways and within multiple sectors to inform forecasting and predictions. Examples span from epidemiology to economics and social sciences. Examples include Alicino et al. (2015)¹, who looked at the use of Trends data to plan communication strategies around Ebola; Varian et al. (2012)², who explored the use of search engine data to 'nowcast' the values of economic indicators; and Guzman (2011)³, who used GT data as a predictor of monetary inflation.

Big data analytics and SEO

For the purposes of this report, search engine optimization (SEO) refers to the process of optimising digital ecosystems to perform better in online searches. Big data analytics is the process of looking at a big dataset to uncover patterns or information. The real power of big data lies in its potential to discover things that weren't apparent or obvious before - uncovering exciting new perspectives, insights and opportunities.

¹ Alicino, C., Bragazzi, N. L., Faccio, V., Amicizia, D., Panatto, D., Gasparini, R., Icardi, G., & Orsi, A. (2015). Assessing Ebola-related web search behaviour: insights and implications from an analytical study of Google Trends-based query volumes. *Infectious diseases of poverty*, 4, 54. <https://doi.org/10.1186/s40249-015-0090-9>

² Varian, Hal R. and Choi, Hyunyoung, Predicting the Present with Google Trends (April 2, 2009). Available at SSRN: <https://ssrn.com/abstract=1659302> or <http://dx.doi.org/10.2139/ssrn.1659302>

³ Guzman, Giselle, Internet Search Behavior as an Economic Forecasting Tool: The Case of Inflation Expectations (November 29, 2011). *The Journal of Economic and Social Measurement*, Vol. 36, No. 3, December 2011, Available at SSRN: <https://ssrn.com/abstract=2004598>



While the amount of traffic a website receives is considered the major metric to assess the efficacy of SEO, recent developments have brought a qualitative shift for benchmarking organic search. Algorithms updates, such as a recent one from Google, ‘More content by people, for people in Search⁴’, are aimed at improving Google Search results to better match user intent. That means, while traffic can remain a good indicator of performance, SEO is switching its approach to tackle quality over quantity. This is anticipated to become ever-more important as AI tools are used to create more and more mainstream web content.

Big data holds huge potential to inform and humanise effective SEO strategies: addressing a more user-centric and intent-focused approach to structuring new web content effectively⁵.

However, as it stands, big data methods for SEO purposes remain restricted due to issues of analysis, process and visualisation, resulting in a lack of understanding of the relationship between metrics and SEO success.

The methodology presented within this case study, and the development of Zeit, seeks to overcome this processual gap. In doing so, it offers a visualisation option for big data from Google Trends and Google Analytics, and unlocks a new way of seeing.

Google trends and methods of search behaviour research

As we’ve seen, data gathered from search queries, and, in particular, Google Trends, have become common methods and sources for academic research that use big data. Google Trends data is tested and proven to be reliable for analysis, nowcasting and forecasting across different research sectors. The broad portfolio of research available confirms that not only is Google Trends data useful in assessing trends in human behaviour, but it can also be employed to inform predictions of behavioural changes based on search⁶.

The majority of studies are limited to English queries, as Google Trends analysis holds limitations related to accents, spelling mistakes, cultural levels of internet penetration and freedom of speech. Mavragani et al.⁷ have reviewed the majority of papers based on Google Trends from 2006 to 2016 and identified a common pattern of methodology:

⁴ <https://blog.google/products/search/more-content-by-people-for-people-in-search/>

⁵ Drivas, Ioannis & Sakas, Damianos & Giannakopoulos, Georgios & Kyriaki-Manessi, Daphne. (2020). Big Data Analytics for Search Engine Optimization. Big Data and Cognitive Computing. 4. 10.3390/bdcc4020005.

⁶ Mavragani A, Ochoa G, Tsagarakis K Assessing the Methods, Tools, and Statistical Approaches in Google Trends Research: Systematic Review J Med Internet Res 2018;20(11):e270 URL: <https://www.jmir.org/2018/11/e270> DOI: 10.2196/jmir.9366

⁷ Ibid.



- 1. Measure the general Web-based interest.*
- 2. Detect any variations or seasonality of Web-based interest, and proceed with examining any relations between actual events or cases.*
- 3. Correlate Web-based search queries among them or with official or actual data and events.*
- 4. Predict, nowcast, and forecast health-related events, outbreaks, etc.*

In developing the Zeit methodology and tool, we have followed the same pattern, pulling from the research available on Google Trends.

From the results, we were able to analyse valuable new marketing data to prove, predict and prevent the effects of world events on organic performance.



Our methodology

In this section, we're going to explore the Zeit methodology. We will first address the way the data was collected and analysed. Then, we will explain how the data is visualised and automated.

Data collection

The data presented has been collected from the APIs of Google Trends and Google Analytics. An API (Application Programming Interface) acts as a go-between software that enables two applications to talk to each other. In this case study, we have used the programming language **R** to run and return query data on the Google Trends API.

We also collected sessions from the Google Analytics view of BUNAC (see below) using the Google Analytics API. **R** is specifically designed for use in data research, statistical computing and graphics, created by statisticians Ross Ihaka and Robert Gentleman.

For Google Trends, we specifically collected trend data for 'related queries' and 'related topics' relating to the initial input queries "war in ukraine" and 'world cup' – as available on the Google Trends API.

The date ranges considered are 01-01-2022 to 31-07-2022 for "war in ukraine" and 01-03-2018 to 31-12-2018 for 'world cup'. When related queries or topics were greater than 5, we restricted the data collection to the 5 top queries or topics, to standardise the method of analysis across different input queries.

For Google Analytics, we collected the organic sessions from <https://bunac.org/> during the specified date ranges, grouped by weeks. Due to the way Google Analytics is set up, sometimes limitations occur in comparing data and date ranges as the data tagging used can change over time.

Data analysis

The data is analysed both quantitatively and qualitatively. From a quantitative point of view, the data collected from Google Analytics was normalised and represented in an index from 0 to 100, relative to the highest number of sessions in each week, within the date range.



This was done to allow direct comparison with Google Trends data, aggregated and normalised in the same way⁸. The session data from Google Analytics is compared to the year-on-year (YoY) equivalent, to exclude seasonality trends from the analysis.

From a qualitative perspective, the data and its visualisation is analysed against the historical, cultural and contextual impact of the events. Qualitative analysis also accounts for algorithm updates and other SEO elements that cannot be considered automatically.

Data visualisation and automation

The data is visualised using ggplot2 – a data visualisation package developed for R language to create detailed graphics. The main visualisations are two graphs. The first compares organic performance (in sessions) to Google Trends related queries – relative to the input query. The second compares organic performance (in sessions) to Google Trends related topics – relative to the input query.

In both cases, sessions and trends are normalised on a scale from 0 to 100 and displayed on two y-axes. Sessions are always displayed on two lines on the right axis (continuous line: sessions. Dashed line: sessions YoY), while trends are displayed on 1 to 5 lines on the left axis. The x-axis always represents time. As data is aggregated by weeks, choosing a data range that starts or ends mid-week results in a rise (beginning) or a fall (end) in the visualisation charts.

With the launch of Zeit, this process will be automated and available to use through an online interface.

⁸ <https://support.google.com/trends/answer/4365533?hl=en>



Case study 1

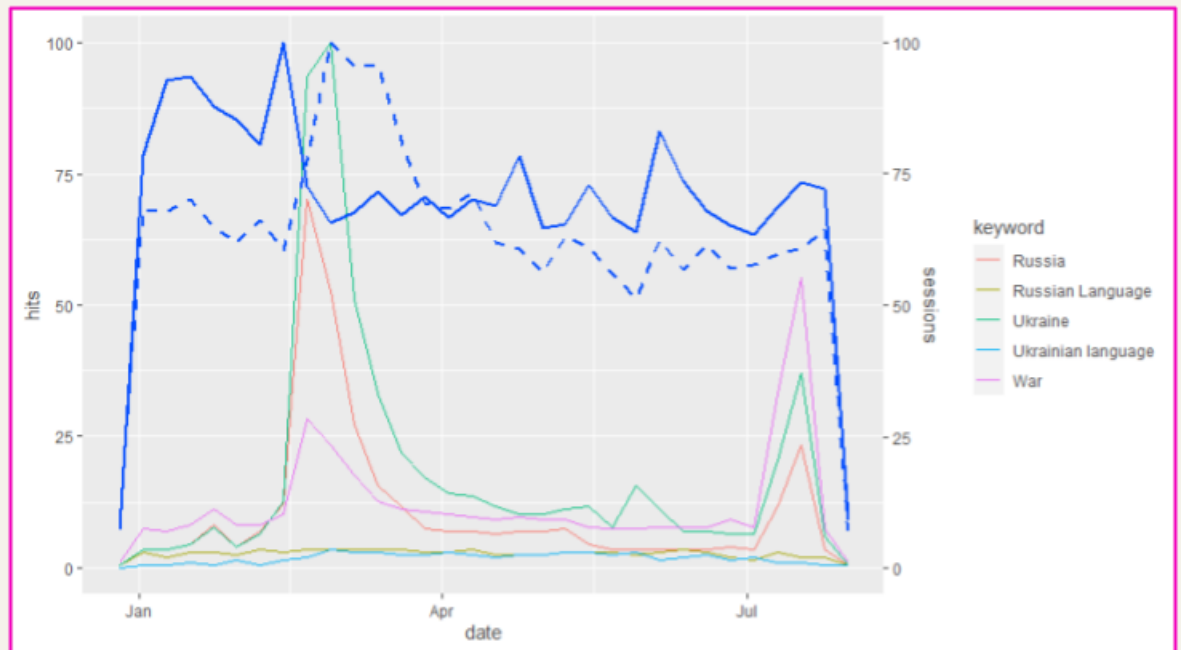
“war in ukraine”

For the first analysis, we will be looking at the impact of the Russo-Ukrainian War on BUNAC’s organic performance.

Following the methodology above, our tool extracted two sets of trend data: **Graph 1, which mapped sessions x related topics** for "war in ukraine" (within the selected period) – Where the top 5 related topics were: ‘Russia’. ‘Russian Language’, ‘Ukraine’, ‘Ukrainian Language’ and ‘War’;

Graph 2, which mapped sessions x related queries for "war in ukraine" (within the selected period) – where the top 5 related queries were: ‘russia’, ‘russia ukraine war’, ‘russia war’, ‘the war in ukraine’ and ‘ukraine russia’.

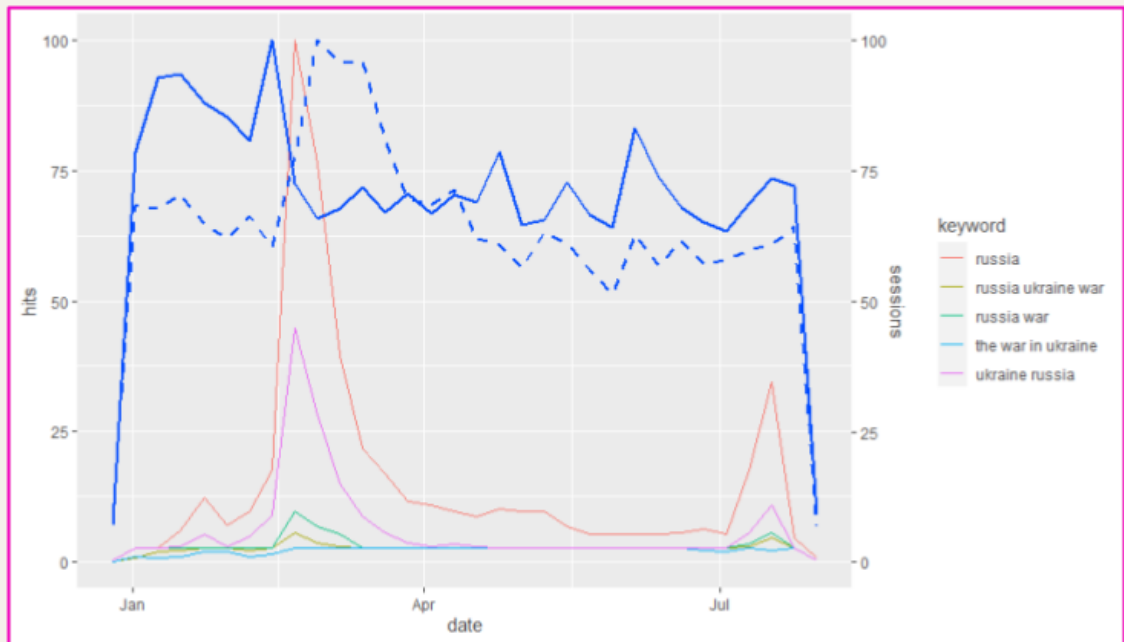
Search Trends x Organic Sessions



Graph 1 (Sessions x Related Topics for "war in ukraine" 01-01-2022 to 31-07-2022, view: 74990684)



Search Trends x Organic Sessions



Graph 2 (Sessions x Related Queries for "war in ukraine" 01-01-2022 to 31-07-2022, view: 74990684)

According to both data sets, the query or topic that peaked the most during the first days of the invasion was 'Russia'. Which scored an index of 100 in the week 20–26th of February 2022. As the invasion started on the 24th of February, we can assume that the search term trended on that day and onwards.

By **setting the same period on Google Analytics (Image 1)**, we can **see that the drop in organic sessions**, as reported in Graphs 1 and 2, started specifically on the 25th of February, 1 day after the start of the invasion.

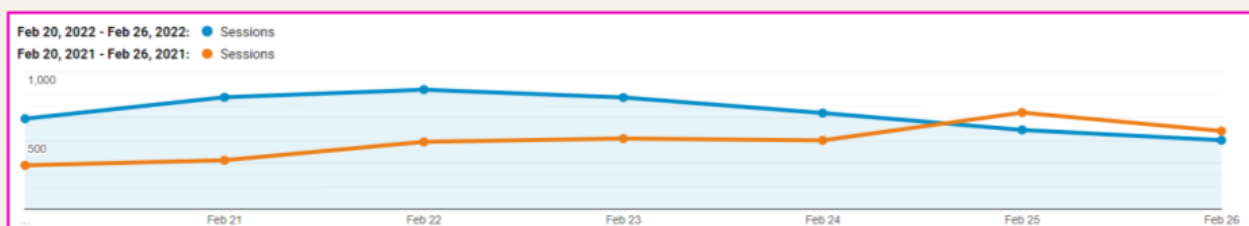


Image 1

By **expanding the period on Google Analytics** from January 2022 to April 2022, we can examine the impact on performance more closely. What becomes evident is that the **YoY comparison of sessions, on Graphs 1 and 2, is an index representation of a negative impact** that lasted from the 25th of February to the 19th of March 2022 (**Image 2**).



This seems to highlight that the impact the invasion of Ukraine had on Google search **affected BUNAC's performance negatively reversing an otherwise positive YoY trend** – which recovered at the end of March 2022. The Google Analytics data also reveals that the impact was major on the first 8 days, with a 3.22% decrease in sessions YoY, **reversing gradually to coincide with the week** where the term 'Russia' scored a trend index lower than 20 (20–26 Mar 2022).

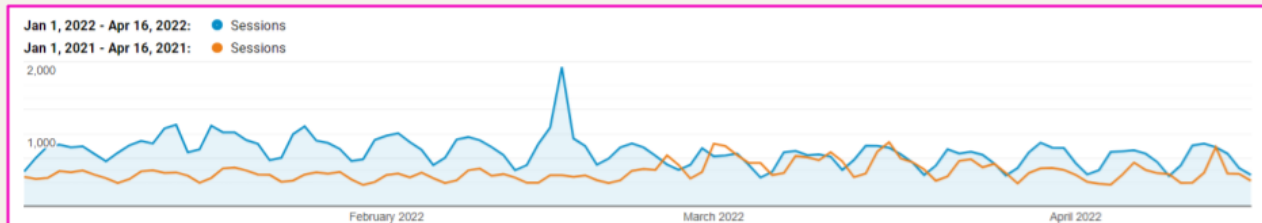


Image 2

Excluding factors

We have taken into consideration additional factors that may have also impacted organic performance during the period.

In terms of algorithm updates, Google [carried out a page experience update](#) from January 2022 to March 2022. This update was first rolled out on mobile and then on desktop by the end of February 2022.

While this update could have had an impact on rankings in March 2022, we've excluded it as a skew to our analysis, because the impact described above was seen both on mobile and desktop equally. If the update had an impact, we would expect it to be higher on desktop in March and higher on mobile in February.

While the update was rolled out on desktop from the 22nd of February 2022, the impact described above seems to align more closely to the trend index scores of the queries and topics related to the Russo-Ukrainian war.

By comparing these complementary search data sets we were able to track a clear correlation on sensitive search terms relating to the war in Ukraine and the performance drops in the BUNAC website. This was an initial confirmation of our approach and methodology.

But could we extend the methodology to other terms, and turn it from an explanatory, to a predictive tool?



Case study 2

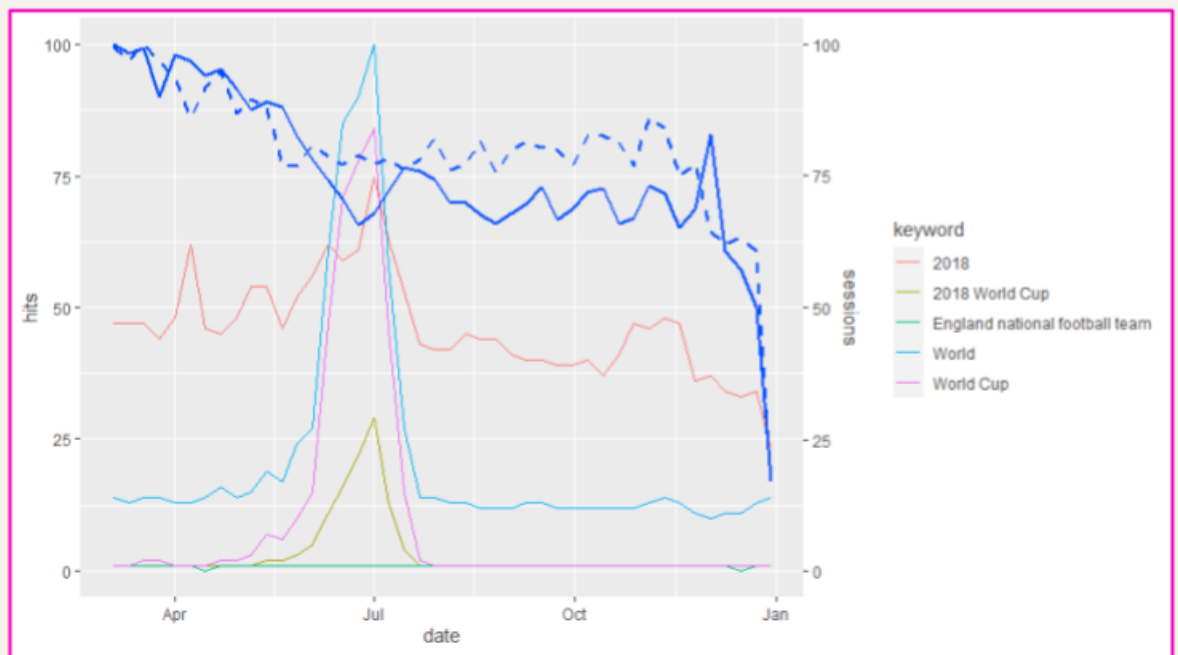
“world cup”

For the second analysis, we will be examining the impact that the World Cup had on BUNAC’s organic performance. Looking this time, at a predictable recurrent event – not a random and unrepeatable one.

Following the same methodology as above, our tool extracted two sets of trend data related to the World Cup: **Graph 3, which mapped sessions x related topics for ‘world cup’** between 01-03-2018 to 31-12-2018 – pulling in top ranking topics: ‘2018’, ‘2018 World Cup’, ‘England national football team’, ‘World’ and ‘World Cup’;

Graph 4, which mapped sessions x related queries for ‘world cup’ between 01-03-2018 to 31-12-2018 – pulling in top queries; ‘2018’, ‘world cup 2018’, ‘world cup england’, ‘world cup fixtures’ and ‘world cup football’ (**Graph 4**).

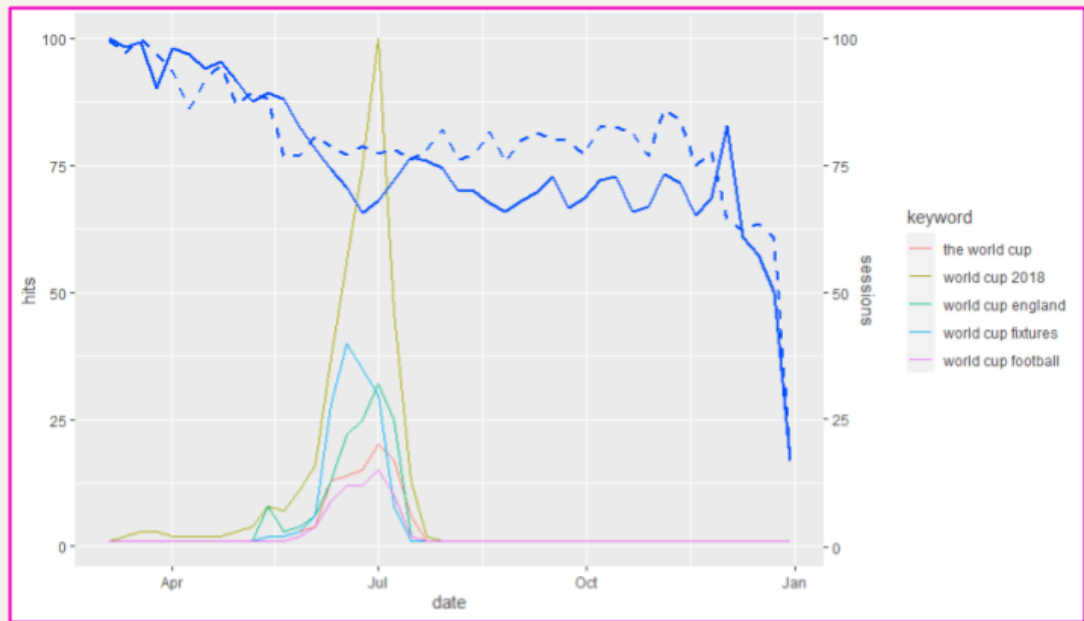
Search Trends x Organic Sessions



Graph 3 (Sessions x Related Topics for ‘world cup’ 01-03-2018 to 31-12-2018, view: 74990684)



Search Trends x Organic Sessions



Graph 4 (Sessions x Related Queries for 'world cup' 01-03-2018 to 31-12-2018, view: 74990684)

Cross-referencing both datasets, we can see that **the topic 'World Cup' and the query 'world cup fixtures'** started hitting trend scores higher than 20 in the week of 17-23 Jun 2018. This is particularly relevant to our analysis, as the **drop in organic performance for BUNAC seems to have followed the trend peak of the query 'world cup fixtures'**, which reached a score of 100 1 week before the broader query 'world cup'. Due to its peak time, we can assume that the query 'world cup fixtures' captured an early interest in the games as people gathered awareness and information.

A look at sessions on Google Analytics for the same period does not display an evident drop, if not for the YoY comparison on July the 4th (**Image 3**). However, looking at the broader time range of May-July 2018 (**Image 4**) highlights that the visualisations of the drop in sessions in Graphs 3 and 4 are due to a deeper indent in performance in the week 24-30th Jun and the first week of July 2022.

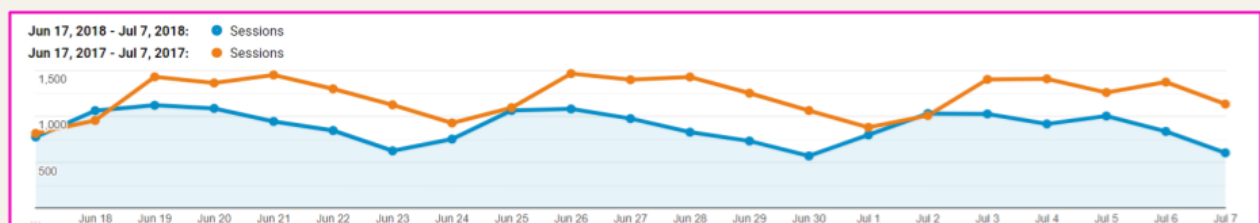


Image 3

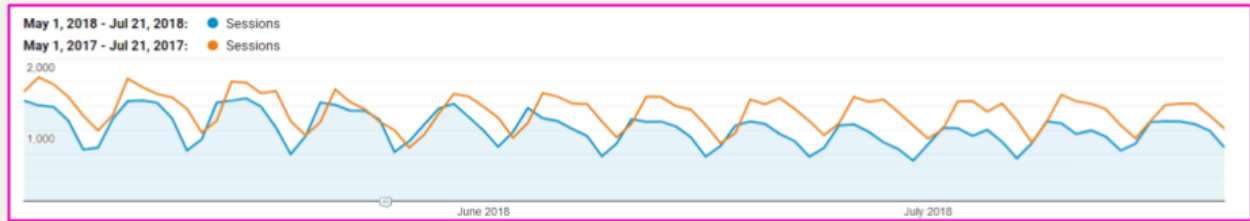


Image 4

The data seems to suggest that the account recovered from the negative impact from week 8–14th July 2018 and its organic performance cannot be related to search trends of the query ‘world cup’ beyond the search query ‘world cup fixtures’.

We hypothesise that the impact of this query in particular might be correlated to the fact that game fixtures include country names. This could have created **competition with queries targeted by BUNAC as a travel provider whose pages often include country names.**

Excluding Factors

We have taken into consideration factors that might have impacted organic performance during the period considered and negated our findings.

On June 14th 2018, Google moved videos from organic-like results with thumbnails into a dedicated video carousel, causing a shake-up in results that were previously tracked as organic. We estimate **this would not have impacted BUNAC’s site negatively as this update mostly benefited those sites with ranking videos already.**

On July 9th 2018, Google rolled out the mobile page speed update, making page speed a ranking factor for mobile results. We estimate this **did not impact our analysis as we have not observed impacts after its rollout date.** Moreover, no major ranking changes were generally observed as a result of this update.



Conclusion (so far)

This case study has analysed the impact of queries and topics related to the Russo-Ukrainian war and the 2018 World Cup on the organic performance of BUNAC's website.

As covered in this report, we have assessed that the organic performance of Bunac has been impacted negatively by the influence of the Russo-Ukrainian war on Google's search algorithm from the 25th of February to the 19th of March 2022. Similarly, we estimated that the BUNAC site's organic performance was impacted negatively by the trend in search of 2018 World Cup fixtures in the weeks of 17 Jun-7 Jul 2018. However, the analysis has sustained that the account was not impacted by the impact of the broader queries related to the 2018 World Cup in the following weeks.

We hope that you've found this report useful. The value we've discovered through developing this novel methodology and our forthcoming tool Zeit has helped to influence and improve many areas of our business at Anything is Possible. We know it can do the same for yours.

If you're interested in exploring Zeit, sign up for our waiting list. You'll be the first to access this game-changing tool once it's launched. In the meantime, if you've got any questions or ideas, please get in touch with Angelo.. We'd love to chat and help you discover the power of Zeit to transform your SEO.

Zeit is about bringing peoples' search behaviour, data and insight together. Together we can do amazing things.

Anything is Possible.