# Brand wars in cyberspace: a GIS solution

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# VISUALIZATIONS

## Brand wars in cyberspace: a GIS solution

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In the first sight, it seems to be obvious that Nike, the well-known US sports equipment company, is predominant in Great Britain; however, the European (German) giant, Adidas also happens to be very popular in the country. The duel between the global first and second sportswear companies can be traced back to not just their sales numbers in a bid to gain larger market share, but also to soft factors, such as reputation. The only problem is that reputation can be at best measured by well-organized questionnaire data of population samples, which are sometimes difficult to administer. However, this issue can be also solved by capturing the presence of indirect knowledge about the brands, for example, from the geographically localizable content of cyberspace. The indirect application of digital footprints in scientific analyses has notable examples (Girardin et al. 2008; 2009; Järv 2012), in which the conclusions are based on the examination of digital data that have been generated as by-products of socio-economic phenomena.

Despite the fact that content on the Internet is placeless, there still lies the possibility of identifying web content geographically. The crawler and data mining methodology of collecting a large amount of content data that could be connected to addresses with known geographical position allows us to map the spatial occurrence of certain notions, phrases, words, or brand names, among others. Completely new aspects of regional inequalities of the information age appear because of analysing geocoded web content. The queries of keywords reflect that geocoded web content is not spatially random but follows certain geographical characteristics of the society. Contrarily, visual interpretations of results may reveal new inequality patterns and serve as an evidence of presumed, but not yet tested assumptions.

Our following example represents results of finding geolocated web contents in relation to the keywords 'Nike' and 'Adidas'. In our analysis, the postal addresses found on the websites have supported the determination of the spatial relevance of the web content. It was assumed that there is a good chance of the provided postal address to be connected with the published content. For example, if a company advertises its goods or services on a website, then we might also find the company's address on the page, and thereby interpret the content as attached to the company's geographical location. Certainly, the absence of address information on a website will not allow for geolocating the provided content, and the content would be attached to multiple geographical locations when multiple addresses are found.

The analysis was based on the 'G-Search' technology provided by ESRI Hungary Ltd., which applied a map-based crawler engine to collect and systematize web content automatically. Starting from an initial website database, the engine read all the found addresses and web links into a temporary database, from where – following the newly found links – further searches were made to collect as much data as possible. By the application of intelligent algorithms, the relevant texts were saved as an attachment to geographical addresses. This final database made it possible for us to run queries of keywords in order to find and determine the geographical location of the selected web content.

To explore the penetration of the brands Nike and Adidas in cyberspace, we queried the keywords in the collected UK-related database (since our postal address database was available for mainland UK, our analysis focussed only on that region), and then we mapped the location of the discovered addresses. The result maps demonstrated the spatiality of the published web content, namely the geographically identifiable places of web pages mentioning the selected keywords. Consequently, they are not (or not necessarily) figures denoting the location of shops selling those goods, but the figures of the location of cyberplaces (Batty 1997) mentioning them.

Concerning the first set of results obtained, we noticed that the number of geolocated websites referring to the keyword Nike was much larger and the density of address points was more consistent than the queries of the keyword Adidas (see top left and top right maps). The overall picture was obvious: Nike has won the brand war in the UK (if just those two companies are counted). However, it is also assumed that some localities could have the opposite outcomes, namely Adidas might overcome Nike in some areas of the country. Therefore, and in order to get a more detailed picture, we created a 10×10 km grid network over mainland UK and compared in each grid cells the number of Nike and Adidas hits to decide the local dominance proportions (see also Jakobi 2015). The new map reflected the geography of the Nike-Adidas duel in the UK cyberspace by depicting the locations where Nike has small or great advantage over Adidas, and the places where Adidas has higher penetration rates in cyberspace than Nike. Apparently, there are cells with equal counts of Adidas and Nike hits; in addition, the absence of coloured cells is

observable at places where none of the keywords has been found. It is also interesting that the map of the cyberspace duel is not spatially random but follows geographical characteristics. The density of hits is apparently higher in the urban areas, while smaller in the less populated peripheries. However, it is also evident that the dominance of Nike related websites is stronger in main urban agglomerations, e.g. around London, the Midlands, Manchester, or Liverpool, among others. The dominance of Adidas related websites are only noticeable in some cells located at the peripheries surrounding the urban areas or in Cornwall. It seems that Adidas has a chance to overcome Nike in cyberspace only when it is about a small number of local hits.

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Software: ArcGIS

**Local dominance of Nike and Adidas related websites in 10×10 km grid cells in mainland UK (centre), and the density of geolocated websites referring to Nike (top left) and Adidas keywords (top right)**
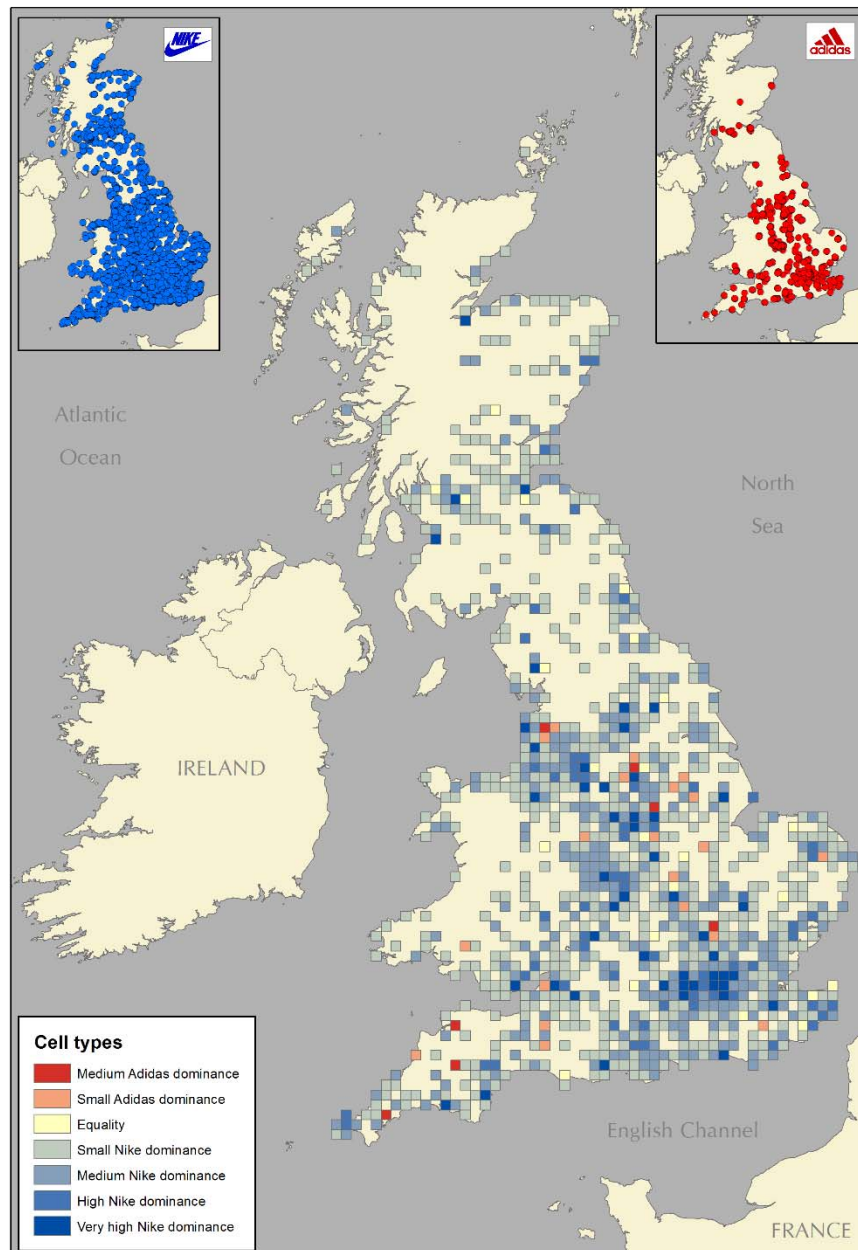


*Source:* Own construction of the authors, base map from DIVA-GIS.