

Investigating the Status of World Countries in Terms of having National Search Engines

Nikou Dehgannezhady¹, Mohsen Haji Zeinolabedini², Amir Reza Asnafi³

¹MSc Graduate in Information Management
Department of Information Science and Knowledge
Faculty of Education and Psychology, Shahid Beheshti University, Tehran, Iran
nikoudehgan@gmail.com

²Assistant Professor
Department of Information Science and Knowledge
Faculty of Education and Psychology, Shahid Beheshti University, Tehran, Iran
hzabedini@gmail.com

³Associate Professor
Department of Information Science and Knowledge
Faculty of Education and Psychology, Shahid Beheshti University
Tehran, Iran
aasnafi@gmail.com



ABSTRACT: Purpose: *This research aims to investigate the status of world countries in terms of having national search engines.*

Research method: *The research method is evaluative. The statistical population included six continents, countries of each continent, and search engines for each country. The researcher used a checklist to collect the data.*

Findings: *On average, the number of national search engines in the world belongs to Asia and Europe, but there is no national search engine in two continents such as Africa and South America. Despite being a leader in technology and information, only two countries have national search engines in the North American continent. In general, users of search engines use international search engines more than national search engines. For this reason, most countries have not paid attention to the design and construction of their country's national search engine.*

Conclusion: *Designers and developers of search engines in any country need to design a search engine according to the information needs of their country's users, as well as the culture, language, and needs of each country's users.*

Keywords: Search Engine, National Search Engine, International Search Engine

Received: 22 August 2024, Revised 26 August 2024, Accepted 12 September 2024

DOI: <https://doi.org/10.6025/stm/2024/5/61-65>

1. Introduction and Purpose

It is not possible to access information on the web without having the right tools. Therefore, there is a need for tools through which information can be accessed. The most important tool for accessing information on the web is the search engine (Jay, Choi, and Ryu, 2016). Search engines are a type of database on the web that automatically index the web through crawlers (Clarke, 2000). Search engines are created to retrieve information from the web environment daily. National (native) search engines have also been developed by some countries in the world to deal with the cultural and security influence of search engines as well as economic benefits, for example, Yandex in Russia, Naver in Korea, and Baidu in China. It is proof that in

some non-English speaking countries such as China, Japan, South Korea, Russia, and Germany, people's use of national search engines along with international search engines has been very significant (Ghavidel, 2017). According to the investigations, in Iran, we also have national search engines in the Persian language, which are designed based on the structures of international engines and by the standards of the Persian language and script.

Due to the different languages, script, and culture of each country, support for the national search engines of each country is felt and the implementation of this plan requires an examination of the situation of the countries of the world in terms of having a national search engine. Therefore, the current research tries to determine which countries have active national search engines in each continent and can be used to search the Internet, so that through this way arrangements can be made to support and design more national search engines along with International search engines. Therefore, the purpose of the current research is to investigate the status of countries in the world in terms of having a national search engine. So, the current research aims to answer these questions:

- 1- What is the share of each continent in terms of having a national search engine?
- 2- What is the share of each country in terms of having a national search engine?
- 3- What is the share of each country in terms of having an international search engine?

2. Literature Review

Regarding search engines, several researches have been conducted inside and outside of Iran, some of the most relevant ones are briefly mentioned below: Khaki Farrokhed (1400) in a research to comprehensively evaluate the thematic coverage of Iranian search engines in various topics and compare them with Google search engine using Dewey's decimal classification scheme, 98 subject keywords were randomly selected from Dewey's thematic headings and in three search engines. Parsijoo, Parseek, and Google were searched. The findings of the research showed that the three searches Parsijoo, Parseek, and Google had a significant difference in the topic coverage of different categories. In the discussion of homogeneity in the coverage of different subject categories, Google and Parseek search engines had similar performance, but this was not seen in the Parsijoo search engine and there was a significant difference between the subject coverage of different categories in this search engine. Behari Varzaneh (2018) has conducted research to compare the current performance and overlap of Google, Yahoo, and Bing search engines in information retrieval compared to 2018. According to the findings of this research, the accuracy of Google, Yahoo, and Bing has increased in three types of searches compared to the findings of Abbasi Dashtaki and Ghasemi Alvari. Google is still more accurate than Yahoo and Bing search engines. Google was more accurate in searching for a question, Yahoo and Bing in searching for a phrase than the other two types of search. In 2018, Google was more accurate in keyword search, Ya Hu in keyword and phrase search, and Bing in keyword search, and the overlap between these search engines has decreased compared to 2018. Wisam et al. (2010) aimed to evaluate 5 web search engines in the Arabic language, i.e. Arbay, Aina, Google, MSN, and Yahoo, and evaluated the special requirements of the web. This test was evaluated with 50 random questions from the top searches in Arabic search engines and the relevance of the results of ten cases was compared. Google outperformed other search engines most of the time and MSN ranked low. Jay (2016) also considers the development of an internal search engine with local characteristics to be the cause of the development of the global Internet in his survey research. Local search engines, because they are operated by the local language of the users, produce higher quality search results compared to global search engines. The survey research of Martinez and Sanchez (2016), which was conducted to evaluate the compatibility of web search engines as a proxy for discovering information from the web, has evaluated search engines as suitable for language research. As seen, in the research under review, search engines have been discussed from different aspects, including comparing them with each other in information retrieval, user interface criteria, and determining the level of accuracy. However, it seems that no research has been done on the status of countries in the world in terms of having a national search engine.

3. Research Methods

The present research is evaluative. To find the national search engines of each country, from the phrase "the national search engine of the country..." and through two Websites <https://www.searchenginecolossus.com/> and <https://searchenginesoftheworld.com> and with the help of chatGPT artificial intelligence as much as possible, search engines of different countries were selected. The research community was all the countries of the world and the national search engines were related to each country. Information about each country was collected through a researcher-made list. To determine the validity of the researcher's list, the researcher's list was sent to several experts along with the objectives and questions of the research.

4. Findings

The findings revealed that 18 countries in Europe, 9 countries in Asia, 2 countries in North America, 2 countries in Oceania, and 1 country in Africa have national search engines. It should be noted that the share of the South American continent is zero.

The findings of the research showed that 18 countries have national search engines in the European continent, and the sum of the national search engines of these 18 countries reaches 28 national search engines. In the Asian continent, 9 countries have national search engines, and the total number of national search engines in the Asian continent is 34. In the two continents of North America and Oceania, two countries have national search engines, where there are 12 national search engines in North America and 2 national search engines in Oceania. On the African continent, only one country has a national search engine. On the South American continent, no country has a national search engine.

The first research question is: What is each continent's share of having a national exploration engine?

The findings of Chart 1 show that in these 204 countries, 18 countries in Europe, 9 countries in Asia, 2 countries in North America, 2 countries in Oceania, and 1 country in Africa have national search engines. It should be noted that the share of the South American continent is zero.

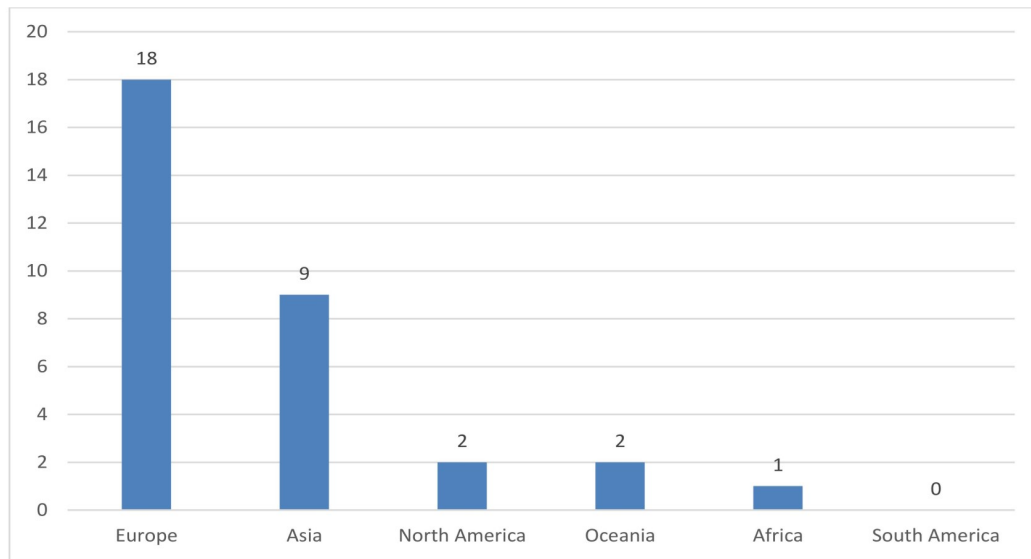


Chart 1. The number of countries with national search engines by continent

The second research question is: What is each country's share of having a national exploration engine?

FREQUENCY	COUNTRY	FLAG
4	Germany	
3	UK	
2	Bulgaria	
2	Portugal	
2	Zcechia	
2	Swiss	
2	Netherlands	
1	Slovenia	

According to the findings of Tables 1 to 5, in the European continent, 18 countries have national search engines, and the sum of the national search engines of these 18 countries reaches 28 national search engines. In the Asian continent, 9 countries have national search engines, which makes 34 national search engines in total. In the two continents of North America and Oceania, two countries have national exploration engines, where there are 12 national exploration engines in the North American continent and 2 national exploration engines in the Oceania continent. On the African continent, only one country has a national search engine. On the South American continent, no country has a national exploration engine.

The third research question: What is the state of the world's continents in terms of having an international exploration engine?

According to Table 6's findings, some search engines have gone beyond their national borders and have users worldwide. Table 6 is arranged according to the global ranking, according to which, out of 12 international search engines, 5 belong to the North American continent, 4 belong to the Asian continent, and 3 belong to the European continent.

5. Discussion and Conclusion

Search engine users need engines with three characteristics, including providing relevant results, a simple-to-read interface, and useful options to expand or narrow the search. According to the findings of this research, Europe is the most focused on the development of national search engines due to its advanced technology infrastructure and supportive policies. Asian countries have also made significant progress in this field due to their large population and the need for local services. The two continents of Africa and South America need more investment and development in the field of national search engines to benefit from the benefits of this technology. In the two continents of Oceania and North America, despite the efforts made in these areas, there is a need for more strengthening and development so that they can take a larger share of this market. This analysis shows that the development of national search engines is highly dependent on the infrastructure, needs and policies of each continent and country, and more efforts are needed to distribute this technology more equitably around the world.

In general, societies in both developing and developed countries are facing major changes today. These changes are especially observed in economic, social, and political fields. In the late 20th century, information and technology were recognized as the main driving forces of changes in these fields.

One key aspect of these changes is the development and use of national search engines. A national search engine is a tool that can help different countries control and manage internal information and reduce dependence on foreign search engines. This issue is significant for maintaining information sovereignty and national security. National search engines can be designed according to the local needs of each country, thus improving access to domestic information and being more culturally and linguistically appropriate.

In addition, the development of new technologies, such as search engines, is highly dependent on the existing infrastructure, specific needs, and policies of each country. For countries with advanced infrastructure and appropriate support policies, there is the ability to be more effectively present in competitive global markets. By providing the right environment for the growth and development of technology, these countries can leverage their competitive advantages and implement more innovations.

Instead, countries with various constraints—such as a lack of financial resources, weak infrastructure, or inappropriate support policies—face more challenges. These countries need more support and investment to progress in the field of new technologies and gradually achieve a suitable competitive level.

In general, building a national search engine can be a key tool to strengthen national sovereignty and create appropriate infrastructure for economic, social, and political growth in any country. Success in technology development and its effective role in societies highly depends on these factors: existing infrastructure, government support policies, and countries' investment and innovation capabilities. Finally, more powerful countries with these prerequisites will be able to gain a greater share of the world market and be effectively influential in various economic, social, and political arenas.

References

- [1] Aggarwal, C. C., Aggarwal, C. C. (2018). Information retrieval and search engines. *Machine Learning for Text*, 259–304.
- [2] Kobayashi, M., Takeda, K. (2000). Information retrieval on the web. *ACM Computing Surveys (CSUR)*, 32(2), 144–173.
- [3] Lewandowski, D. (2005). Web searching, search engines and information retrieval. *Information Services & Use*, 25(3–4),

137–147.

- [4] Zhang, Y. (2000). Using the internet for survey research: A case study. *Journal of the American Society for Information Science*, 51(1), 57–68.
- [5] Martínez-Sanahuja, L., Sánchez, D. (2016). Evaluating the suitability of web search engines as proxies for knowledge discovery from the web. *ScienceDirect*, 96, 169–178.
- [6] Abbasi Dashtaki, N., Cheshme Sohrabi, M. (2018). The performance of Google, Yahoo, and Bing search engines in retrieving Persian information based on fuzzy and classical evaluation approaches. *National Library and Information Organization Studies*, 30(2), 96–111.
- [7] Behari Varzaneh, H. (2021). A comparative study of the current performance and overlap (year 1400) of Google, Yahoo, and Bing search engines compared to 2018. *Information Management and Science*, 8(1), 73–83.
- [8] Ghavidel, S., Needy, M., Khaleghi, N. (2017). Iranian users' use of national and international search engines: Opportunities and challenges. *Information Management Sciences and Techniques*, 4(1), 67–91.
- [9] Khaki Farrokhd, M. S. (2021). Evaluating the topic coverage of Iranian search engines compared to Google search engine using Dewey's decimal classification scheme. *Master's thesis*. Department of Information Science and Epistemology, Ferdowsi University of Mashhad.
- [10] Aghaei, M. A., Mirghaibi, M., Karbala Aghaei, K. (2013). Evaluation of the user interface of Persian search engines: The viewpoint of the master's students of Al-Zahra University. *National Library and Information Organization Studies Quarterly*, 25(4), 101–113.
- [11] Bakhshipour, M. (2016). Use of native search engine in government organizations. *Mehr News*. Retrieved April 17, 2016, from <https://mehrnews.com/news/3943840/>
- [12] Rajabi, M., Norouzi, Y. (2014). Persian search engines: Evaluation of search facilities, information retrieval, degree of comprehensiveness, hindrance, and determination of overlap between them. *Quarterly Journal of National Library Studies and Information Organization*, 26(3), 133–150.
- [13] Fazel, M. (2019). Evaluating and comparing the performance of web search engines in answering Farsi and English questions. *Master's thesis*. Department of Information Science and Epistemology, Faculty of Educational Sciences and Psychology, University of Isfahan, Isfahan.