

SPECIAL REPORT

A land without Google?

A survey by *Nature* reveals how Chinese scientists could be affected by the stand-off between their government and the search-engine giant. **Jane Qiu** reports.

"Research without Google would be like life without electricity," says Xiong Zhenqin, an ecologist at Nanjing Agricultural University in Jiangsu province.

Xiong is not alone in thinking that Google is indispensable. Its search engine is a powerful tool for helping scientists to find academic papers and details of conferences or identify potential collaborators. And for most researchers around the world, access to Google — and all its related products, including the literature search Google Scholar — is as unfettered as their access to heat or light.

But that's not the case for China's roughly 380 million Internet users. Results from Google's main search engine, Google.com, are censored by the Chinese government, and the local Chinese site Google.cn is voluntarily filtered by Google itself.

Researchers' access to Google was threatened further when, on 12 January, Google's senior vice-president and chief legal officer David Drummond said that the company may pull out of China altogether. He explained that after a spate of cyber attacks on Google Mail, believed to come from within China, the company was no longer willing to censor results from Google.cn. He added that the company would discuss with the Chinese government "the basis on which we could operate an unfiltered search engine within the law, if at all", and that "we recognize that this may well mean having to shut down Google.cn".

If Google — or the Chinese government — acts on this threat, how would scientists in China be affected? To find out, *Nature* surveyed Chinese researchers about how they use Google's products, and how integral it is to their research. Of the 784 scientists who responded, more than three-quarters said they use Google as the primary search engine for their research.

More than 80% use the search engine to find academic papers; close to 60% use it to get information about scientific discoveries or other scientists' research programmes; and one-third use it to find science-policy and funding news (see 'What do you use your search engine for?'). They also rely heavily on other Google products: more than half use Google Scholar, for example, and Google's mapping and e-mail applications are also popular (see 'Which



Many in China are already mourning the potential loss of their favourite search engine.

Google products do you use?').

"The findings are very typical of most countries in the world," says David Bousfield, London-based vice-president and lead analyst of Outsell, an information and publishing consultancy. "Google and Google

Scholar have become indispensable tools for scientists."

Science in China would not come to a halt without Google, adds David Nicholas, an Internet researcher at University College London. But Google "has transformed information-seeking behaviours in academic communities", and losing such an important research tool would significantly compromise scientists' efficiency, he says.

Don't be evil

Operating through a server in mainland China, Google.cn was launched in January 2006 amid intense international criticism.

Its agreement to censor search results that were considered politically sensitive by the Chinese government was seen as contradicting the company's 'Don't be evil' motto.

One of the motivations for creating Google.cn was that although Google.com is accessible in China, it is at the mercy of the mighty Chinese firewalls, which block many overseas websites.

If Google.cn is shut down, many fear that the

HOW MUCH WOULD YOUR RESEARCH BE HAMPERED IF YOU LOST ACCESS TO GOOGLE ?





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Chinese government may periodically block Google.com itself — as it did before 2006 — or even shut off access to the website completely, if that were deemed politically necessary. Indeed, after a major riot in the Xinjiang Uyghur Autonomous Region last July, the government closed down the Internet in the entire province for most of the rest of the year.

Similar restrictions already apply to websites such as Facebook, YouTube and Twitter. Immensely popular in other parts of the world, they “are irrelevant in China because they are blocked early and thoroughly”, says Gong Li, chairman and chief executive of Mozilla Online, the Beijing-based subsidiary of the Mozilla Corporation, which has its headquarters in Mountain View, California.

This is already hampering the growing number of scientists who use social networking sites to maintain relationships with collaborators. As one survey respondent wrote, the lack of these sites “has a negative impact on my contact with colleagues all over the world”.

For Chinese scientists seeking out academic papers, there are other options. According to one respondent: “It doesn’t matter whether we have Google for science — we have PubMed.”

PubMed, provided by the US National Library of Medicine, is one of many services for searching content in academic databases; others include the Web of Science from Thomson Reuters and Scopus and ScienceDirect, both run by Elsevier. However, “many researchers prefer Google as their primary search tool because they can get a large amount and a large variety of information indexed by Google which they can’t get easily from any other sources”, says Bousfield.

When ScienceDirect opened its content to Google in March 2007, for example, the proportion of traffic channelled from Google rose to more than 40% in the space of a few months,

says Nicholas. “We live in an information era and Google is the key to the door of the global village,” he says. “Not having Google would be a huge disadvantage, especially for young academics.”

Indeed, 84% of the scientists who responded to *Nature’s* survey say that losing Google would “somewhat or significantly” hamper their research (see ‘How much would your research be hampered if you lost access to Google?’); 78% say that international collaborations would be affected to the same degree. Scientists in the 25–34-year age range were most likely to say that losing Google would “significantly” — rather than “somewhat” — hamper their research.

Nearly half of the survey respondents say that if they lost access to Google’s search engine, they would switch to Baidu, a domestic search engine. Many non-scientists in China are happy with Baidu and don’t really care whether Google stays or goes. “Google has little advantage over Baidu on search algorithms for Chinese-language content,” says Guo Liang, an Internet researcher at the Chinese Academy of Social Sciences in Beijing. But it is much less useful for academics doing English-language searches for materials outside China. Guo’s research shows that, despite Baidu’s dominance in China, Google is much more popular among academics and other highly educated people. *Nature’s* survey also found that only 17% of the respondents use Baidu as their primary search engine.

Searching for answers

Since Drummond’s announcement, both Google China and the Chinese government have remained largely silent on the search engine’s future in China, and both declined to provide comment for this article. As *Nature*

went to press, *The Wall Street Journal* reported that discussions would resume this week between Google representatives and Chinese officials, but that any resolution would be weeks away.

Opinions in the Chinese media range from assertions that the row will blow over, to suggestions that Google will be forced out because the government would never allow an unfiltered search engine to operate in China.

Some scientists in *Nature’s* survey think the government would be justified in shutting down Google. “I don’t like the Internet policy of our country,” wrote one respondent, “but the sovereignty and authority of our country are more important to

me. Google must obey the laws of China if they want to do business in China.”

Others, including Gong, think that Google will be the one to pull the plug on its Chinese search engine, because the limited profit from the Chinese market is simply not worth jeopardizing its reputation as a trustworthy and ethical corporation.

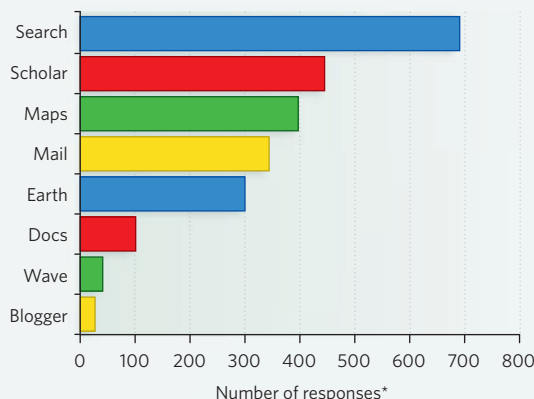
But Guobin Yang, an Internet researcher at Barnard College in New York City, argues that Google.cn has a responsibility to stay. “People have been largely focusing on how the filtered content has limited access to certain information,” he says. “But Google’s presence has also helped the development of civil society in China” because it equips citizens with the information they need to be more politically active.

As one of the survey respondents put it: “If I lose Google, it will [be] just like a man without his eyes.”

The survey work was aided by Sara Grimme.

For full survey results, see go.nature.com/FJ6QTm

WHICH GOOGLE PRODUCTS DO YOU USE?



WHAT DO YOU USE YOUR SEARCH ENGINE FOR?

