



Sustainable Websites for Better Businesses

Most of us assume and expect that Information and Communication Technology (ICT) has made our lives 'greener' by making them more virtual, but this is not entirely true. According to the International Telecommunication Union¹, the ICT sector was estimated to contribute around 2-to-2.5% of global greenhouse gas (GHG) emissions in 2007, almost the same as the aviation industry. With the digital revolution, this number should nearly double by 2020, but at the same time offers the potential to cut the projected 2020 GHG emission by 15%². With websites being heavily used in all sectors, it is easy to understand that the impact can have a global scale.

Popular government sites like Whitehouse.gov, private sector sites like Weather.com and educational sites like uOttawa.ca are all built with the Drupal Content Management System. By being highly scalable, optimized for SEO and user experience, mobile-friendly and offering the flexibility that many organizations need, Drupal is an asset to create sustainable applications.

But having all the tools available does not mean they are implemented within an organization. This paper will list our recommendations for front-end, back-end, content and server-level optimization to make the best of your Drupal site.

¹ http://www.itu.int/en/action/climate/Pages/energy_efficiency.aspx

² http://www.smart2020.org/_assets/files/02_smart2020Report.pdf and <http://www.smart2020.org/publications/>

Drupal Optimization



Speed your pages up. With Google prioritizing speedy pages in their search rank¹, you should think about removing unnecessary HTML to help the page load faster, aggregate and compress your CSS and Javascript and disable unnecessary and unused modules.



Think mobile first. Mobile devices have lower bandwidth than desktop devices, so adapting your desktop design to it will drive performance. Deliver smaller images to your users and use SVG formats over PNGs where it will reduce the file size, use semantic HTML5 and modern CSS3.



Add white space. Today, LCD screens use the least energy using a lighter colour palette². If you still have an old Cathode Ray Tube (CRT) monitor, remember that it will use about 200% more energy than a comparable LCD screen. So when designing your site, think about the advantages of a bit more white space.

Content Optimization



Keep it simple. Don't use Flash scripts, partly because of problems with security and accessibility). Don't over-complicate functionalities and features. Ask yourself: Do I really need that slideshow?



Archive unused content. Users expect websites to contain fresh content and not to contain an active history of all pages that have ever been published. Fewer pages means that there are more quality pages for search engines to index and that it takes less energy to maintain them.



Use structured taxonomies. Content should be findable. Users will benefit from sites that have a well-considered navigational structure. Using structured taxonomies can also allow visitors to find related content.

¹ <http://googlewebmastercentral.blogspot.ca/2010/04/using-site-speed-in-web-search-ranking.html>

² <http://www.scientificamerican.com/article/fact-or-fiction-black-is/>

Server Optimization



Here are six simple steps to help optimize your server:

1. Enable page cache. Sites with changing content will perform much better. You may also choose to compress the cached pages.
2. Optimize your database on a regular basis.
3. Make sure you use a Content Delivery Network (CDN), like Google Hosted Libraries, for common JavaScript libraries.
4. Look into adopting HTTP/2¹ on your server
5. Having multiple servers can really help speed up busy sites.
6. Think about switching to a green hosting company. Look for a host that is using green energy and has a strong environmental policy. Your servers are running 24/7, so having a green host can have a significant impact on your CO2 output.

Evaluate Performance

Finally, when you've done all of your changes: Don't trust that enabling tools will do the work. Evaluate page optimization after making changes and on a regular basis (note that your performance on various pages may vary) and simulate how your website performs with a heavy page load.

In the end, it isn't difficult to take the time to look over the suggestions presented here and lower the impact of your web application(s) on the environment. Regardless of your technical expertise, there are improvements to be made at any level of web development. All you need to do is use the tools at your disposal.

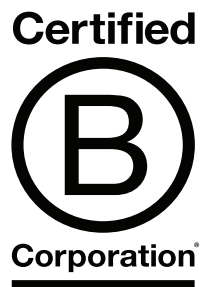
Further Reading:

- *Tips for a Sustainable Drupal 7 and 8 Website*, Mike Gifford, OpenConcept Consulting Inc.
- *15 Ways to Optimize Drupal for Sustainable Web Design*, Stephanie Daniels, Mightybytes
- *New Survey From Compuware Gomez Reveals Consumers Will Quickly Abandon Slow Websites*, Glob News Wire, September 07, 2010

¹ <https://en.wikipedia.org/wiki/HTTP/2>

OpenConcept is a Digital Development agency specializing in the Drupal software, with over 16 years of experience in developing and spearheading adoption of innovative, inclusive and sustainable solutions for non-profit organizations, government departments and educational institutions. Our expertise in Drupal development, systems architecture, online security and digital accessibility is recognized internationally in the Drupal and open-source communities.

As a B-Corporation, we strive to bring positive change through better transparency and accountability. We define ourselves a “not-only-for-profit” company that wants to use the Internet as a force for good.



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