PIXEL FRIDGE

OUR CHECKLIST FOR

Sustainable website design

The internet is responsible for up to 5% of global emissions, more than the airline industry. As creators, it's our responsibility to minimise the environmental impact of our work.

Sustainable practice is no longer a nice to have. Consumers are becoming mindful of the carbon footprint left by their device usage, and this awareness is only set to increase. Organisations must respond by providing greener solutions that put people and planet first.

In 2023 the WC3 launched their Web Sustainability Guidelines. These provide measurable benchmarks, and hold website owners to account if they fail to be compliant. It is a matter of course before website sustainability becomes legally mandated by government policy. Website owners must start preparing right now.

At Pixel Fridge, we want to make a difference. This checklist outlines the considerations we make during the process, to ensure our work is sustainable and responsible.

Certified B Corporation

Discovery and planning

Start talking about sustainability from the outset, and goals that hold the entire team to account.

Set a performance budget

WHY?

If we want to fully commit to our sites having a low environmental impact, we may wish to agree to a 'performance budget' in the initial stages of discovery. The budget sets a limit on the total size of each page. This may not be feasible for every site, but it can be a good way to curb the excessive use of resource-intensive assets.

HOW?

In our early discovery sessions we'll agree a maximum page size with the client. This 'budget' will be based on the project requirements, the content, and a competitor audit. Having a budget ensures we are mindful of our impact when making design and build decisions. If we seem to be tracking above the budget, we should have conversations at the earliest opportunity about reducing the number of weighty assets, or utilising other performance enhancing techniques.

Optimise the information architecture to support 'three click journeys'

WHY?

By making information easier to find, we reduce the amount of time visitors spend on their devices. It means they'll load fewer pages, and require fewer server calls.

HOW?

Website navigation should be planned in the early stages, and then tested with a tool like Optimal Workshop to ensure key information is easy to find. In most cases, the site structure should be no more than three levels deep. On larger sites, features such as dropdown menus, free text search and cross-linking can support users in finding content more easily.

Implement an SEO strategy

WHY?

A large number of website visitors find our sites using search engines. If they are searching for something specific, it's preferable that we take them directly to the most relevant page. This way users can get directly to the information they were looking for and avoid additional page loads.

HOW?

We should aim to conduct SEO keyword research during our discovery phase. When planning the site structure, each page should be assigned target keywords. These should be included in the page titles, headings and copy where possible to improve rankings for those keywords.

UX & UI design

Remain mindful of how design decisions can impact website performance.

Create a UI design system for the project

WHY?

Rather than introducing new styles on every page, the reuse of cached design assets for common features and actions will make our pages faster to load, and improve the efficiency of our build process. It also makes sites easier to maintain and scale, preventing unnecessary rework later.

HOW?

As part of our design process, we should have global UI and element styles separately documented in Figma (or equivalent tool). Likewise, any functional components (or rows) should be documented and set up as master components for reuse in the wider page design. This approach encourages consistency and reuse.

Avoid 'one-off' styles and UX patterns

WHY?

Our pages should strive to utilise shared templates and components wherever possible. This avoids redundancy, and prevents users from having to load styles that are only used on small sections of the site, that they may not even interact with.

HOW?

Page designs should be assembled from the reusable components defined in the UI design system. The number of components should be streamlined and kept to a reasonable minimum. Unique styles outside of the reusable components may sometimes be called for, but these exceptions should be subject to a cost-benefit discussion with the client. Custom fonts should also be avoided where possible.

Use high-resolution images sparingly

WHY?

Images often make up the largest part of a web page's overall size. Large, high-resolution photography on home and landing pages in particular can present a significant sustainability cost in terms of file size and storage.

HOW?

Be selective when using large images. Rather than deferring immediately to photography, consider vector graphics for decorations, which can be much less resource intensive. When using photography avoid carousels, and ensure that web-friendly formats and compression are applied where possible.

Avoid video / audio that plays automatically

WHY?

A popular design trend is to display full-width, looping background videos in the background of home and landing pages. These can be particularly resource intensive, as forcing all website visitors to download a video by default gives the site an excessively high carbon footprint.

HOW?

Video and audio should be started by the user on demand, rather than playing automatically. If we must use background videos make sure they are kept as brief as possible, with loops of no more than 6-8 seconds. By using filters and overlays in our design, we may also be able to increase video compression without impacting style.

Subscribe to the 'less is more' principal

WHY?

Cluttered interfaces full of non-essential information and assets can overwhelm users. Overabundance not only slows down page performance, it also hampers the user's progress, causing them to spend longer than is necessary using the site.

HOW?

Aim for simplicity in our designs through the thoughtful reduction of unnecessary elements. Embrace white space in designs, and keep the number of choices presented to users at any given time to a minimum. When technical information is needed, consider moving it to a secondary page or state that the user opts to see.

Development

The way we build our websites can have the biggest environmental impact.

Create clean, efficient and minified code

WHY?

Through refining and optimising our code, we can often produce the same outcomes with less processing time. The act of 'minifying' (removing unnecessary characters from code) also reduces the work that our users' machines need to do to render our websites.

HOW?

During our development process, we should ensure time is given for quality assurance and peer review of our website code, to ensure it has been written efficiently. In some cases, we may wish to bundle and minify JavaScript and CSS files using tools like Webpack or Vite.

Avoid overusing JavaScript libraries in production code

WHY?

Front-end frameworks and libraries can be a helpful way to speed up the development process, but often come with performance overheads. A well-written 'native' JavaScript solution will generally be more efficient than using libraries, and save the additional download time of the library itself.

HOW?

Although frameworks can often be crucial in our ways of working, we should always aim to do more with plain JavaScript where possible in the interest of performance. We keep our use of frameworks to a minimum, used only when the project requirements call for them.

Use semantically correct HTML and structured data

WHY?

Well structured HTML is a key requirement for good SEO. Structured data helps pages get indexed effectively, and helps users understand what our content is all about. Good SEO goes hand-in-hand with sustainability, as getting people directly to the information they are looking for will prevent unnecessary page loads and device usage.

HOW?

Use suitable, semantic HTML tags that define the meaning of the content they contain, with headings being nested in a logical way. Semantic elements are especially important when it comes to text heavy article content. Tools such as WAVE and Semrush's On-Page SEO Checker can be used to validate the semantic quality of a page.

Use lazy-loads for index pages and feeds

WHY?

Lazy loading content ensures that content is only downloaded after the visitor requests it. We can use this on long index pages, galleries or feeds. Compared to more traditional pagination, the lazy load also prevents the need to load an entirely new page load.

HOW?

When designing index pages or galleries, show only the first 5-10 items by default. A 'load more' button should then be presented, allowing the user to load the next set of results. When using carousels, the subsequent items should only be downloaded after they are requested.

Implement a browser caching strategy

WHY?

Browser caching means that website assets utilised across multiple pages don't need to be redownloaded for consecutive page loads. In certain situations, it even allows for pages to be viewed offline. This results in fewer server requests in a session, reducing data usage and processing time.

HOW?

We should always implement a caching solution. This will allow static assets to be saved in the user's browser for up to one year, and help our websites feel much quicker.

Eliminate render-blocking resources

WHY?

Render-blocking resources prevent the loading of a webpage until they have finished being processed. They can be anything from JavaScript files to API calls. The more render-blocking resources we have, the longer it will take for users to begin using the site. By eliminating these we make the site feel faster, improving UX and search engine optimisation.

HOW?

When testing our websites, run page speed checks using tools like Google's PageSpeed Insights, which highlight render-blocking resources. We can then opt to defer any non-critical resources by moving them lower in the coding order, or by using asynchronous loading.

Use an icon font or SVGs for icons

WHY?

Icons are a common feature of our designs. We'll often use several on a single page, to make lists more visual. Forcing the user to download each as an individual image involves many unnecessary server calls, increasing page load times.

HOW?

Icon fonts are typefaces that use tiny images rather than letters. We should guide clients towards using an established set like FontAwesome or FlatIcon. Otherwise, SVGs should always be used for icons as a lighter-weight and more scalable solution.

Content creation

Take a sustainable approach to the preparation of text and images.

Optimise and compress all images

WHY?

Unnecessarily large images can be one of the biggest contributors to poor website performance. By using compression and optimisation techniques we can make them significantly smaller, without looking perceptively different to the user.

HOW?

Ensure that all images added to the website are saved to the correct formats and dimensions. Modern image formats like WEBP and AVIF also provide high levels of compression without degrading image quality. Compression services like TinyPNG can also be used prior to uploading content to the CMS. If necessary we can also implement plugins like Imagify in order to do some of this work automatically.

Write descriptive page title, descriptions and alt-text

WHY?

Ensuring all of our pages and assets are search-engine discoverable is important, as many sessions start from a user's search engine query. Helping users to arrive directly on the page they are searching for reduces the time they need to spend on the site, and the number of page loads.

HOW?

As part of the content upload process for our websites, we should ensure that every page has a descriptively written title tag and meta description using keywords from our initial SEO research. Likewise, all images added to the CMS media library should have descriptive alt text.

Deployment and support

Sustainability should always be an ongoing priority in our operations.

Conduct cross-browser testing

WHY?

Incompatible websites and applications encourage people to purchase new devices at a faster rate. By ensuring a reasonable level of device compatibility we can help to slow the upgrade cycle within our industry. Cross-browser testing also ensures that our sites are free of any bugs that may impact performance.

HOW?

We maintain a browser compatibility list that ensures all major browsers and devices are compatible up to two major versions back. Any website we release should be tested extensively using a tool like Browserstack, to ensure that the experience remains compatible and bug-free.

Choose a green hosting provider

WHY?

Where our websites are hosted can have a big environmental impact. Green hosting providers tend to run their servers on renewable electricity. They also put measures in place to prevent an overconsumption of energy, and ensure a more responsible carbon footprint.

HOW?

We will ensure to regularly review and audit potential hosting providers based on their green credentials. Our evaluation criteria should consider the balance of performance, security and sustainability. Clients have varying demands and uptime requirements. Aim to be flexible, but always prioritise the most sustainable solution given the circumstances.

Put a support and performance review program in place

WHY?

Website sustainability is a long-term goal. The web is always evolving, and we need to ensure that our websites stay up to date. We prefer to work with clients on an ongoing basis, and proactively iterate to fine tune performance, SEO and user experience.

HOW?

An ongoing support agreement gives us time to ensure CMS and plugins versions are kept up-to-date, secure and performing effectively. We should regularly check the sites we look after using the Website Carbon Calculator This tool helps us to regularly benchmark ourselves against competitors, and set goals for future improvements.

Useful tools

Tools and resources referenced in this checklist. We currently use these as part of our process.

W3C Web Sustainability Guidelines

With with 93 guidelines and 232 success criteria, these are the most thoroughly documented rules for best practice in web sustainability.

https://w3c.github.io/sustyweb/

Website Carbon Calculator

Provides any website with an immediate carbon rating. The calculator scores on a scale from A+ to F, making it easy to see how energy-intensive a website is.

https://www.websitecarbon.com/

Google PagesSpeed Insights

Measures the page load speed on both mobile and desktop devices, and provides suggestions on how things might be improved.

https://pagespeed.web.dev/

SEMRush

Search Engine Optimisation tools that we use for keyword research and content optimisation. By improving our SEO, we can help get users to the right information more easily.

https://www.optimalworkshop.com/

Optimal Workshop

A suite of tools we use to test and measure the effectiveness of website structures. The assists in the creation of more intuitive and streamlined user journeys.

https://www.optimalworkshop.com/

Figma

Our current design tool of choice. Figma lends itself to the creation of design systems and pattern libraries. This creates efficiencies in both our design / build process and website performance.

https://www.figma.com/

Webpack

An open source tool that we use to bundle out JavaScript, HTML and CSS files. Doing this helps improve load times.

https://webpack.js.org/

SpinupWP

An all-in-one cloud control panel used for hosting and deploying our websites. Designed specifically for WordPress, it offering caching features that ensure our sites perform efficiently.

https://spinupwp.com/

FontAwesome

Our preferred icon font library. It offers thousands of icons an an extremely small performance overhead. The icons are also available to download and use in our designs.

https://fontawesome.com/

FlatIcon

An online database containing thousands of free SVG and font-based icons. Because of the wide range of icon styles, it's likely we can find a set to suit most projects.

https://fontawesome.com/

TinyPNG

A great online image compression tool. We often upload images here before adding them to our sites

https://tinypng.com/

Imagify

A handy image optimisation plugin for WordPress. Helpful for large sites, where we can't manually resize every image that gets uploaded.

https://imagify.io/wordpress/

A BIT ABOUT PIXEL FRIDGE

Purposeful experiences

We're an independent digital agency, based in London and Devon. We believe that technology has the potential to do social and environmental good. Our approach puts people and planet first, all whilst making beautifully intuitive websites and applications.

Need help creating your website or app? We'd love to talk.

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