



ANY PLACE, ANY TIME, ANY DEVICE

Building Websites for the Multi-Screen Consumer

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THE **RUNDOWN**

Today's consumers are ready to connect with your business on screens of all types and sizes. That's a huge new opportunity, but only if your website is designed to give customers what they need on smaller smartphone screens as well as tablets and desktops.

This white paper looks at the most typical structures for multi-screen websites, with tips on how to create a great user experience and avoid some of the more common mistakes.

INTRODUCTION

Consumers today are constantly connected, moving between devices — from tablet to laptop to desktop to smartphone — throughout their day.

The situation will only get more complex as new screens, from wearables to other connected devices, arrive in months and years to come.

This constant connectivity offers rich new opportunities for brands and businesses to reach consumers, if they can rise to the challenge of reaching every screen. Businesses need to create websites that fit the needs of customers on all screens, from desktop displays to handheld devices, in all the moments that matter.

For many businesses, mobile is the biggest missing piece in the multi-screen equation. This white paper will help you find the mobile approach that works best for your business.

We'll look at a variety of ways to create a mobile site that works seamlessly for your customers, and examine the pros, cons and impact of each.

We'll discuss how to:

- 1 Prepare** to go mobile
- 2 Choose** the technology that best suits your needs
- 3 Build** a great user experience and avoid common mistakes
- 4 Measure** your success across screens

Before we get to those points, let's take a deeper look at today's consumer and their expectations.

The Multi-Screen Consumer

For most people today, multiple screens aren't a revolution — they're everyday life. People use the device that's handiest for them at the moment, whether that means the desktop at lunchtime, the tablet at bedtime, or the smartphone at the mall.

Whatever screen they happen to be on, users want it to *just work*. They don't want to have to pinch, slide and struggle to get pages to load, fill out a form or make a purchase.

That's especially true on screens of 7" or less, where space is at a premium. They happen to be the fastest-growing device in the multi-screen space: there are now **1.5 billion mobile subscribers globally**, with an astonishing growth rate of **31%**¹. In the U.S., smartphone adoption has passed **61%**².

So a mobile-friendly site has to be part of your overall multi-screen plan. This takes planning, investment and the right tools. Mobile is its own experience, with a smaller screen and a touch interface, not a mouse. Smartphones have added capabilities for on-the-go users, like cameras, GPS and phones. And while desktop users stay at their desks, smartphone users may be anywhere at any time.

It's a real challenge for businesses to deliver a great experience for all these screens and contexts. And in truth, this is where today's marketers are the farthest behind their users. But a good multi-screen site is worth the effort, because it's a vital way to strengthen your brand, nurture lasting customer relationships and grow your business.

Let's look at how to make it happen...

¹KPCB 'Internet Trends', 2013.

²'Our Mobile Planet,' Google report, 2013.

Your multi-screen strategy should fit the needs of your customers and your business.
What goals do you want to accomplish on your site?
What do your customers expect?



Define your *value proposition* for users — the answer to the question, “Why should I visit your website and use your business?”

What you offer users, what they expect from you, and what they can achieve at your site should all fit together.

Understand what multi-screen users see and want on your current site. Use an analytics program (like Google Analytics) to see where your current mobile users come from, what actions they take, and how their behavior differs from desktop users (e.g. compare site search queries by device). If you’re an ecommerce site, check conversion rates and do a funnel analysis by device, too.

What you learn here will be the foundation of your new multi-screen blueprint. If your data shows that smartphone users visit one specific content area of your site, you may want to put it front and center on your mobile site. On the other hand, if parts of your site have high mobile bounce rates (users who arrive and then leave immediately), you’ll want to try to fix that in your new design.

Remember also that for an increasing number of people, mobile is the only screen. This is especially true in emerging markets and with younger people everywhere. So don’t treat mobile like an “extra” screen — make sure it has your full capabilities.

Here are some ways to focus on your value proposition while keeping all your multi-screen users happy

Create a familiar experience

People who are used to desktop screens want to find the same basic content and user experience on other screens, too. Your balancing act is to preserve those familiar functions while creating an experience that works on mobile screens and tablets.

If your desktop site has complex tools or elements that don't translate easily to mobile — for instance, an interactive car configuration tool — then you may want to offer a simpler mobile substitute, plus a link to your full desktop site for people who would prefer to use it. Let the user choose the experience that suits them best.

Think about the user's context

Consider what customers will want from your site when they're on each kind of device. A user on the go with a smartphone may want a store locator or phone number.

Can they find one easily on your mobile site? Another user might even be in your store, looking for reviews on the lawnmower they're considering. Can you help them?

Use the full power of mobile

Ask your team: how can we support our value proposition with device-specific features? A movie theater chain may want to offer nearby locations and upcoming showtimes based on the GPS location of a user's smartphone. A pro sports team might want to help fans upload ballpark videos from camera phones direct to YouTube. Rethink your website and make the most of the power of mobile — your customers will appreciate it!



Don't be shy about looking for industry trends on your competitors' sites. You'll be able to see the current mobile web standards for your industry, and you may find features you'd like to adapt for your own site.

There are many ways to configure a website for all screens. Your best approach depends on the unique requirements of your brand and your business. Factors to think about include the cost, time to build, your available human resources and infrastructure, and the needs of your customers.

Whatever configuration you choose, as an underlying principle we strongly recommend that you **serve all your sites from a single domain**, like *example.com*

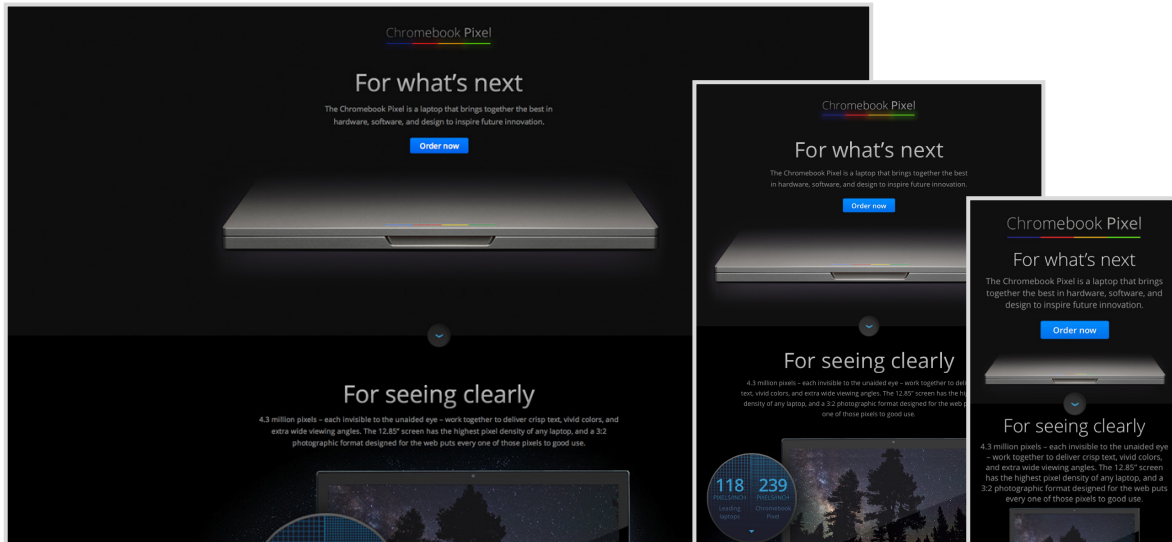
In particular, if your desktop site is hosted on *example.com*, don't put your mobile site on a separate domain, like *a.com/example*.

Third-party service providers often suggest this, but it will only lead to confusion with users. Running your mobile site on a sub-domain (e.g. *m.example.com*) is fine but see potential

impact on load times (p.11). Stay with a single domain and you'll build brand and URL equity with your users.

With that principle in mind, let's look at the three basic ways you can build a mobile-friendly website: **responsive design, dynamic serving**, and a **fully separate** mobile site.

Responsive Design



Here's how various screens look with responsive design. Note that as the screen shrinks, the same content is resized and moved for presentation on the available screen real estate.
google.com/chromebook/pixel

Responsive web design (RWD for short) is a clever design technique that uses a single HTML code base for all platforms.

That is, all viewing devices read from the same code on the same URL. The content resizes itself to fit the screen being used, based on pre-defined breakpoints and fluid grids.

RWD requires solid up-front planning. Costs can be high at first, but once the device-specific strategy is set, maintenance can be less resource-intensive.

Pros:

- **One URL for all content.**

Using a single URL for a piece of content makes it easier for your users to interact with, share, and link to your content. It's also easier for search engines to discover and index your content.

- **A streamlined user experience.**

Presentation of all content is customized, and device-specific features can still be used.

- **Flexible orientation.**

RWD naturally allows for landscape or portrait device orientation changes by users.

- **No redirects.**

Load time is reduced and performance increased.

Cons:

- **Careful planning required.**

Since all HTML is shared here, careful planning is a must to develop a truly custom and robust experience with optimal performance for each device and user.

Common mistakes:

- **Data bloat.**

Don't let mobile users download full-size images meant for big screens and fast speeds. Try to reduce HTTP requests and minimize CSS and JavaScript. Load visible content first and defer everything else.

Who it's for:

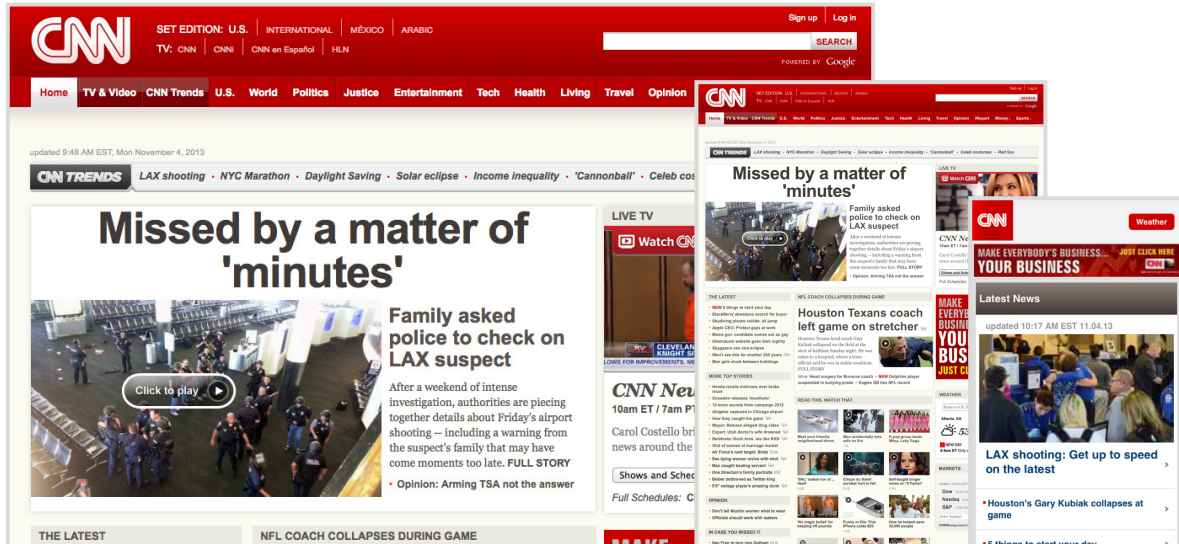
Businesses that are focused on offering a consistent experience and can plan holistically for all devices with a single web team.

(Starbucks.com, BostonGlobe.com and Time.com all use this approach.) RWD can be expanded to fit new devices as they emerge, and the single URL is good for linking and sharing articles without confusion or redirects.

**SEO Tip for Responsive Design**

For search engines to fully understand the responsive structure of your site and how content is presented for desktop and mobile we need full access to your CSS, JS and images files. Don't block your website assets for both Googlebot and Googlebot-Mobile.

Dynamic Serving



Here's how various screens can look with dynamic serving. CNN.com

In this method, the web server detects the type of device a visitor is using, then presents a custom page designed just for that device. Custom pages can be designed for any device type, from mobile phones & tablets to smart TVs.

Pros:

- **A custom user experience.**
Each user gets content and layout created just for their device.
- **Easier changes.**
Adjust content or layout for one screen size without having to touch other versions.
- **Faster loading.**
Your team can streamline content for optimal load times on each device.
- **Single URL.**
As with Responsive Design, Dynamic Serving keeps all your users on a single URL.

Cons:

- **Content forking.**
Multiple custom pages mean multiple sets of the same content. Unless you have a sophisticated CMS in place, keeping content up-to-date on all device-specific pages can be challenging.

Common mistakes:

- **Faulty device detection.**
Your servers will need to run scripts to recognize all available devices. If these scripts fall out of date, it can result in problems like the server sending a mobile-optimized site to tablet users. Another common mistake is that the server assumes a device orientation, most commonly portrait, but the user may be holding the device in a different orientation (ie landscape).
- **Changing experiences.**
Users will be confused if you have multiple sites and they appear radically different. While it's important to customize for each screen size, your brand look and feel should be recognizable in all formats.

Who it's for:

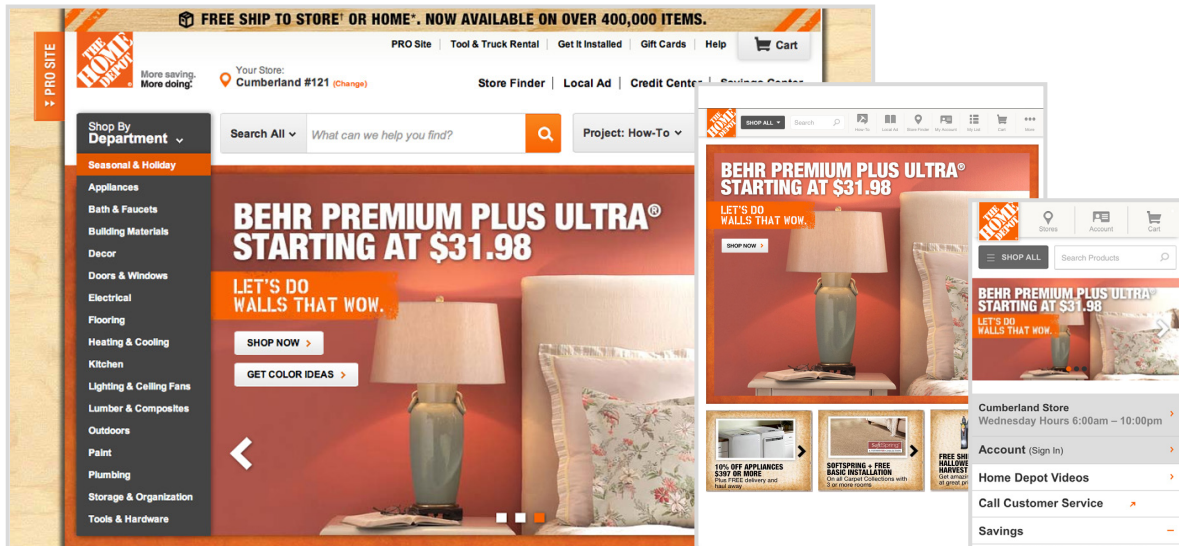
Dynamic serving is a resource-intensive solution for companies that make frequent changes to their website, and who often need to adjust display for one device, such as tweaking only their mobile site.

A capable IT staff (or vendor) is a must to manage the different and possibly complex sets of website code required.

**SEO Tip for Dynamic Serving**

For Googlebot, it is not immediately obvious that a site dynamically serves HTML based on User Agent. Use standard HTTP header method to indicate that server response can vary based on user agent. Ensure Googlebot and Googlebot-Mobile can access all of the page's CSS, JS and image files.

A Separate Mobile Site



Here's how the various screens can look with an entirely separate mobile and tablet site. homedepot.com

A third option is to simply create a mobile site that's separate from your original desktop site.

Your system detects mobile visitors and redirects them to your mobile-optimized site (often using a sub-domain like *m.yourname.com*).

Only mobile users will see the separate mobile site. Users of tablets, Web-enabled TVs or other devices will still see your original desktop site.

Pros:

- **A custom user experience.**

This gives you the most freedom to create a separate mobile site that is designed only for mobile users.

- **Easier changes.**

Content or design changes can be limited to the mobile version of the site, with no effect on other devices.

Cons:

- **Multiple URLs.**

Sharing a web page requires careful redirects and integration between your mobile and non-mobile sites. Redirects also lead to longer page load times.

- **Content forking.**

Keeping two different sets of content can make data management more complex.

Common mistakes:

- **Faulty redirects.**

When a mobile user lands on a deep desktop page, make sure they aren't redirected to your generic mobile homepage. Also important: avoid smartphone only errors, where a desktop URL redirects to a non-existent mobile URL.

- **Missing annotations.**

The two-way (“bidirectional”) annotation helps Googlebot discover your content and helps our algorithms understand the relationship between your desktop and mobile pages and treat them correctly.

- **Inconsistent user experience.**

People who look at your smartphone site should recognize it as the same business they see on your desktop site. This prevents confusion and a bad overall user experience.

Who it's for:

Businesses that for any reason need to manage their mobile site independently. For instance, some businesses may want to use a different vendor for mobile, or may want a mobile structure that simply wouldn't be possible with RWD.

Since setup is relatively easy and can be quite cost-effective, a separate mobile site can be good for small businesses with more basic site needs.

**SEO Tip for Separate Mobile Sites**

Help search engines understand the relationship between equivalent desktop and mobile pages. Bidirectional annotations indicate that search engines should treat separate URLs as a single entity. And of course ensure Googlebot and Googlebot-Mobile can access all your website and their CSS, JS and image files.

All three approaches — RWD, dynamic serving, and separate mobile site — have their pros and cons. To find the one that's best for your business, you'll want to talk with all the teams that will be affected, from marketing and sales to finance, business, and of course your technical department. This should be a truly consolidated business decision.

Beyond basic setup and configuration, a great mobile user experience has three parts: layout, content & speed. The best way to engage and keep your users is to make sure all three legs of this tripod are sturdy.

Layout



Be touch-friendly.

For the human finger, 48 dp (density independent pixels) is the minimum recommended touch target, with at least 8 dp between targets. Too-small targets, and the click mistakes that result, are a fast way to turn off a mobile user.

Pick the right font.

Your minimum font size should be 12 pixels; anything smaller and users will be squinting. Be sure to choose a typeface that is clean and easy to read. If possible, avoid use of image-based text.

Set the right width.

Most web users are used to scrolling vertically up and down a page, but being forced to scroll sideways makes for a bad user experience. Your users will think your site wasn't built to help them on the smaller screen.

Avoid mouse-overs.

On a desktop screen, the mouse-over is a great way to uncover hidden content. But mouseovers require a mouse. On touch screens like tablets or smartphones, users' fingers can't hover like a mouse. So avoid the mouse-overs. Instead, use buttons that users can tap to display deeper menus.

Don't use pop-ups.

They're irritating on desktop sites, and they're just as irritating on mobile sites. Also, instead of using interstitials to drive app downloads, embed the prompt into your site.

Do use descriptive buttons.

Don't make customers guess where a click will take them. Label your buttons clearly, then use bread crumbs and clear category names (such as "Step 2: Payment") to help them as they navigate.

Content



Don't overload users.

On mobile, more isn't necessarily better. Avoid the urge to squeeze in every last bit of your desktop

page, only smaller. But...

Customize, don't cut.

Mobile and tablet users expect the same core functionality you offer desktop users, whether that means being able to watch videos or buy office supplies. Instead of cutting core content, restructure it to fit the mobile screen.

Don't hide key actions.

Be sure to give users quick access to all the key functions they'll expect on your site. If you're a retailer, that means things like product search and the shopping cart (and mobile-friendly tools like a store locator) should be front and center.

Include a link to your full site for mobile users who simply prefer that experience.

Double-check media files.

Flash video, for instance, won't play on many mobile devices. Make sure that the media files on your multi-screen sites will really work on the screens they're meant for.

Simplify checkout.

It's hard to fill out lengthy forms on mobile, thumb-typing full addresses and other data over multiple steps. To increase your conversion rates, simplify the payment process however you can. Enable Google Wallet Instant Buy or other services that allow customers to check out quickly with payment and shipping details auto-generated from the cloud.

Speed



There's really one thing to say here: speed it up. Optimizing your site speed is a sure way to improve user experience —

especially on mobile, where users are on the go and data networks can be slow. Speed typically boosts visitor engagement, retention and conversions.

Not only is it a ranking signal for Google Search, but many businesses who invested in page speed improvements saw a positive effect directly on their bottom line. Here are three common mistakes to avoid

Too many HTTP requests.

While mobile users may try to do the same things as desktop users, their processing power is limited. Their bandwidth may be unreliable. To help them go faster, cut down the on-page elements that drive extra HTTP requests.

Image overload.

As smartphone displays get better, it's tempting to serve the largest possible image and let the device downsize it to fit. Bad choice! This wastes time and processing power. Serve the right image sizes to each device.

File overload.

Consider if the JavaScript snippets and CSS styles are helpful for mobile users. Too much JavaScript or CSS may cause the page to slow down. Minify / compress your code where possible and consider reorganizing your CSS altogether. Make sure assets are being cached by the browser so that the visitors don't have to re-fetch them on every page load.

For more details, and for tools that can help you optimize your site's performance, visit Google's "Make the Web Faster" page here: developers.google.com/speed

As with desktop sites, it's a good idea to keep testing, analyzing and adjusting your mobile site to match new devices and new user viewing habits.

It's important to track analytics reports and run A/B tests on your content and flow. Both will help you answer questions like these about your site and your strategy:

Who are your mobile visitors?

A mobile report will tell you.

What are they looking for?

Check the content they visit and site search queries.

Are they having trouble finding it?

See bounce rates and average time on page.

Are some ad campaigns or pages better for mobile users?

Check mobile vs. desktop conversions.

Is your site structure mobile-friendly?

Run reports on site search, goal flow, page depth and site speed.

Does your site load fast enough to keep users from bouncing?

Test site speed.

Is your site easy to navigate on a hand-held device?

Try the landing page bounce rate.

Do your desktop calls-to-action work on mobile?

Check mobile vs. desktop conversions and try responsive click tracking.

Conclusion

A multi-screen strategy is a must to succeed with today's constantly-connected consumers. But one size doesn't fit all when it comes to creating the perfect configuration. Many factors come into play, and you know your own business needs best.

As you design your site, it's important to build in time and resources to experiment, analyze, and then keep tweaking your content and layout. What works for others may not work for your business, and vice-versa.

There is one true constant: All of today's mobile users expect a great, trouble-free experience. Now is the time to gather your team, plan your strategy, and build the sites that will engage and delight them.

CONCLUSION | A Recap

	Responsive Design	Dynamic Serving	Separate Mobile Site
Complexity	Moderate. Should be built from the ground up, using fluid grids that change with screen size. For basic sites, many open-source templates exist. Sophisticated RWD sites with added programming require more time to build.	Moderate to high, depending on site sophistication and the number of individual code bases you need to create. Dynamic serving can be time-consuming and requires server-side programming.	Simple to moderate. A stand-alone site can be developed fairly quickly. Small businesses will find many automated options that generate mobile sites nearly instantly.
Performance	High. No redirects are necessary, but thorough planning is required to offer optimized performance. Data bloat is the most common mistake.	High. Can be streamlined to device-optimized content for optimal performance.	Moderate. While images and other website content can be optimized easily for smaller screens, site redirects often lead to latency issues.
Maintenance	Low. Once created, updates flow to all devices and maintenance is minimal.	Resource-intensive if maintained manually. Many sites use a CMS to avoid the problem and publish on all templates automatically.	Moderate to high. Updates to a main site also must be done separately on this site.
Costs	High at first, lower later. Heavy resources are needed for initial planning and ensuring optimal performance. But maintenance costs are typically low.	Moderate to high. If managed manually, it requires coding of each site and template. CMS development and licenses also require resources.	Low to moderate. Options range from low-cost SMB solutions (such as SAAS) with monthly fees, to developer hours for building a stand-alone site.
Devices	Consistent user experience on all devices. (Some device-specific options can be added with server-side programs.)	Separate files and server-side code (which run on your server before delivering a page to the user) can offer a device-specific experience.	Site can be optimized specifically for customers on the go.
Sharing	Fully optimized. The single URL renders in optimal layout for each screen size.	Offers a great user experience if set up correctly. The single URL will send back device-specific markup.	Error-prone. Requires you to redirect every URL from your desktop site to the mobile site, and vice-versa.
Expandable to new platforms?	Yes. Defined break points and fluid grids allow for easy expansion to new platforms and devices.	Yes. Templates for specific devices (such as smart TVs) can be created easily and served via a single URL.	No. This is a separate mobile site for smartphones only. New platforms are not easily integrated into the existing structure.

For more information visit: google.com/think/multiscreen