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What should your client choose: **PWA or AMP? A CHECKLIST** 



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# IMPORTANCE OF MOBILE-FIRST STRATEGY

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On the Mobile World Congress in 2010, Eric Schmidt, the CEO of Google, put forward that designers should follow the "mobile-first" rule in product design. "Mobile-first design" - What does it mean? Why is it important? How to make it?

The mobile-first approach exactly sounds as it is: designing for the smallest screen and working your way up. It is one of the best strategies to create either a responsive or adaptive design.

#### **PROGRESSIVE ENHANCEMENT**

It is the ideology that mobile design, as the hardest, should be done first. Once the mobile design questions are answered, designing for other devices will be easier. What it boils down to is that, the smallest of the designs will have only the essential features, so right away you have designed the heart of your UX.

#### **GRACEFUL DEGRATION**

The entire philosophy runs the risk of treating mobile design as more of an afterthought since you're "cutting down" the experience. The problem with graceful degradation is that when you build the allinclusive design right from the start, the core and supplementary elements merge and become harder to distinguish and separate.

#### **MOBILE FIRST = CONTENT FIRST**

If your website is mobile responsive, then it translates better to all devices. More important, though, is that a mobile-first approach is also a content-first approach. Mobile has the most limitations, screen size and bandwidth to name a few, and so designing within these parameters force you to prioritize content ruthlessly.

The mobile-first approach organically leads to a design that is more contentfocused, and therefore user-focused. The heart of the site is content — for which the users are there.

One caveat, though, is that mobile users sometimes require different content than desktop users. Device-specific content can be gauged by considering the context — which is, what in a given situation and a given environment will your user appreciate more. The best way to plan for these is by creating user scenarios.



Another advantage of the mobile-first approach is that the small-screen breakpoints can better fit around the content. Again, the alternative is worse: having to squeeze an already plump design into a tiny framework. But with the mobile-first approach, the breakpoints develop naturally around content, so one doesn't need any awkward edits.

# WHAT IS MOBILE WEB? HOW IS IT DIFFERENT FROM MOBILE APP?



### HOW ARE MOBILE APPS BUILT?

MOBILE APPS ARE MORE EXPENSIVE TO DEVELOP THAN WEB APPS, AND BECAUSE THEY ARE PLATFORM-SPECIFIC, LAUNCHING AN APP ACROSS DIFFERENT PLATFORMS PRETTY MUCH MEANS STARTING FROM SCRATCH IN TERMS OF DESIGN AND DEVELOPMENT. HOWEVER, THEY ARE MUCH FASTER AND TEND TO BE MORE ADVANCED IN TERMS OF FEATURES AND FUNCTIONALITY.

Native mobile apps are build using specific languages and Integrated Development Environments (IDE) depending on the intended platform. Apple devices run on the iOS native operating system, so Apple apps are build using either Objective-C or Swift and the Xcode IDE. Native apps for Android are written in Java and are build using the Android Studio or Eclipse IDE.

Apple and Google also provide their development tools, interface elements and software development kits (SDK) which developers can use to build native mobile apps.

#### **HOW ARE WEB APPS BUILT?**

Web apps tend to be using JavaScript, CSS and HTML5 during development. Unlike mobile apps, there is no standard software development kit for building web apps. However, developers do have access to templates. Compared to mobile apps, web apps are usually quicker and easier to develop — but they are much simpler in terms of features.

#### **PROGRESSIVE WEB APPS: THE BEST OF BOTH?**

In light of recent web development trends, it's also worth being aware of progressive web apps. While standard web apps lack some of the functionality that mobile apps can offer, progressive web apps fall somewhere in between.

Unlike standard web apps (and more like native mobile apps), progressive web apps can work offline with fast instant loading feature. These are primarily down to advancements in the sophistication of the modern browser: thanks to the Application Cache feature, websites can now store large volumes of data offline. Progressive web apps can therefore be used without an internet connection, giving them some of the usual functionalities of the native mobile app such as push notifications, native video and audio capture, and native video playback. Just like standard web apps, progressive web apps don't require download or installation. In many ways, they seem to offer the best of both worlds. As Alex Russell, who invented the term, describes them: PWAs are "responsive, connectivity-independent, app-like, fresh, safe, discoverable, re-engageable, installable, linkable web experiences."





### **INCEPTION OF PWAs AND AMPs** PROGRESSIVE WEB APPLICATIONS

#### **Progressive Web Applications - The initiation**

In the year 2008, responsive web design came just after the launch of native apps to use web sites with a similar user experience as they have while using native apps. Responsive web design methodology renders the website on various devices such as mobile, laptop, tablet etc.

Unfortunately, RWD failed to deliver a similar experience like native apps due to the difference in looks and feel. Therefore, initiating the launch of the progressive web app to narrow down the gap between web development and native application.

Progressive web applications make a website acts like a native application. An imitation of a native app, PWA is a top of the line user experience to smooth out user interaction. It can run javascript without web pages open in the browser, thereby reducing the load time. Unlike RWD, it works offline also internet connection is not required to access the pages. It has additional functionalities like push notifications and device hardware access. The term 'progressive' is where these other features come together and work for all users irrespective of browsers. It enhances the website to contain native app-like capabilities such as:

- Local storage
- Notifications
- Background synchronisation through service workers
- Audio & video capture

With new capabilities such as:

- Geolocalization
- Offline functionality

#### ACCELERATED MOBILE PAGES

AMP is an open-source project that speeds up and enables web pages to operate at optimal speed. Google integrated AMP into search results on 24th February 2016. It came into notice that pages which take more than 3 seconds to load have usually faced with a higher bounce rate. Google found that an additional second taken to load a web page lowers the conversion rate by 20%.

AMP ensured that the web pages developed in the future must consistently improve in performance. Utilising AMP format to

create a web page also ensures instant page load due to the Google AMP cache. It also helped in amplifying web page that further creating an integrated user experience.

AMP mainly consists of 3 different parts:

• AMP HTML

Its usage is to restrict certain HTML tags to fit AMP specification and increase the performance.

• AMP JavaScript

To ensure fast page rendering across all device, AMP implements the JS library. It also helps in loading all external resources and provides with custom HTML tags.

• AMP CDN

Google AMP cache stores a cached version of AMP-enabled pages and helps in hosting web pages on multiple google servers for free.

# PROS OF PWAs

**Progressive:** They work for almost all users, irrespective of the browser chosen as PWA follows a principle of improvement principles.

**Responsive:** They adapt to the various screen sizes: desktop, mobile, tablet or dimensions that can later become available.

**App-like:** They behave with the user as if they were native apps, in terms of interaction and navigation.

**Updated:** Information is always up-to-date, thanks to the data update process offered by service workers.

**Secure:** Exposed over HTTPS protocol to prevent the connection from displaying information or altering the contents.

**Searchable:** They are identified as "applications" and are indexed by search engines due to its SEO content.

**Reactivable:** Make it easy to reactivate the application thanks to capabilities such as web notifications.

**Installable:** They allow the user to "save" the apps that he considers most useful with the corresponding icon on the screen of his mobile terminal (home screen) without having to face all the steps and problems related to the use of the app store.

**Linkable:** Easily shared via URL without complex installations.

**Offline:** It focuses on putting the user experience before everything, avoiding the usual error message in case of weak or no connection. The PWA relies on two particularities: first of all the 'skeleton' of the app, which recalls the page structure, even if its contents do not respond and its elements include the header, the page layout, as well as an illustration that signals that the page is loading.

# CONS OF PWAs

**Battery Consumption:** Reduces the screen time and saves battery.

**Multi-Device Support:** Not all devices support the full range of PWA features (same speech for iOS and Android operating systems);

**Re-engagement for iOS:** It is not possible to establish a stronger re-engagement for iOS users (URL scheme, standard web notifications).

**Offline Execution:** Support for offline execution is however limited.

**Presence:** Cannot be downloaded or founded in the app stores, thus missing out the traffic from that channel.

**Body of Control:** There is no "body" of control (like the stores) and an approval process.

Accessibility: Limited access to some hardware components of the devices.

**Flexibility:** Little flexibility regarding "special" content for users (For Eg: loyalty programs, loyalty, etc.).

**Latest Version iOS:** iOS support from version 11.3 onwards

#### **Increased speed:**

AMPs drastically reduces the content loading time. The increased loading speed of AMP content comes with a host of benefits, including:

- Visitors are more likely to engage with content and make purchases on pages when they know the process will be quick and hassle-free.
- Shorter load times also mean that visitors are less likely to lose patience and navigate away from your content.

#### **Increased visibility:**

At the moment, using AMPs won't automatically increase your page or domain authority. However, AMPs are eligible to be displayed in Google's "Top Stories" carousel, which sits at or near the top of search results pages, depending on what you search. While Google's carousel mostly features news articles, if you create an AMP on a frequently searched or hot topic, your content can potentially "skip the line" and jump all the way to page one of a Google search.

#### **Increased visitor engagement:**

The evidence is beginning to show that visitors are more likely to engage with the content on AMPs compared to traditional mobile pages. The minimalist design of AMPs makes it easier for visitors to navigate through the content on your page.

Visitors will be more likely to leave comments, watch embedded videos and follow links when they aren't distracted by the clutter typically found on non-AMP pages.

# PROS OF AMPs

#### AMPs may not increase site traffic:

Because AMP content has a Google URL and resides in the Google servers, AMPs would not directly increase traffic to your website. Also. AMP removes any extra ads and opt-out from any pop-ups to enhance the speed performance of the page. Its restrictive framework will lose leads. Smart publishers have already developed an effective workaround though google has announced plans to rectify these problems in future.

For example, AMP publishers can add a comment button to the end of an article, but when the visitor clicks it, they arrive on an equivalent page on the publisher's site, which is where they'll leave the comment.

#### **Coordination problem:**

While the AMPs themselves may load quickly, any external content on the page is likely to lag. It is faced when it comes to hosting advertisements. Visitors prefer to scroll past an ad before it is loaded. Hence, it reduces the CTR. The potentiality of the conversion also decreases.

Google claims to be in the process of addressing this problem, but until it does, publishers need to take this variable into account.

#### Analytics leaves much to be desired:

Google usually sets the standard for quality analytics, but the analytics available for AMPs are pretty unsatisfying at the moment. Google Analytics uses various tags to collect data for analysis. Using different plugins to collect relevant data is timeconsuming that increases the complexity. Although you can keep track of basic metrics like visitors and engagement yet, you won't have much data to work with to improve your visitor's experience.

# CONS **OF AMPs**





#### **PROJECT LAYOUT DOCUMENTATION & DESIGN**

The complexity of the project enables the leaders to add or remove the team developers, graphic designers and etc. Based on the locations, developers have hourly rates.

## COST OF DEVELOPING PWAS



# TIME REQUIRED FOR DEVELOPMENT AND QA TESTING

Complexities of the project also estimates the time required for deploying the project. Complex projects takes longer time with higher cost.



#### **APPROACHES FOLLOWED IN DEVELOPING**

Costing is done on the choice between ready-made apps and developing custom PWA.



#### **DOCUMENTATION/ PILOT COST**

4% of the total cost is allocated on internal resources such as developers, designers etc.



#### TRAINING AND DEVELOPMENT COST

6% of total cost is levied on the training of internal resources to optimally utilising the features to make AMP web pages.



#### **MAINTENANCE COST**

23% of the total cost is levied to maintain the web pages and implement within the CMS.



#### PERFORMANCE TESTING AND REPORTING COST

67% of the cost is incurred on performance testing. Prioritising user experience, continuous measure against the KPI is important to enhance speed performance of the page.

### COST OF DEVELOPING AMP

# 01

#### CONVERSATIONAL INTERACTIONS

Apple, Amazon, Google and Microsoft have long since implemented this in their products but, many developers are not aware of this feature as can be implemented through the latest HTML5 framework also you can make use of the microphone of a mobile phone. So anything is theoretically possible! The great thing about conversational interactions is you can use your app without even touching the phone. Which could be beneficial in certain situations, this can be a handy safety feature - For Eg: while driving. But it can also merely offer an extra layer of usability. In the future, we expect to see these becoming a core part of the usability of an app.

### TRENDS SURROUNDING PWA

02

#### MULTI-CHANNEL PUSH MESSAGES

Up until now, the only way to utilise push notifications was to have a native app, but with a PWA you can make use of push notifications in your marketing activities when trying to reach your audience on mobile. It enables you to truly create cohesive marketing campaigns that reach your customer at multiple stages of their customer journey on whatever platform they might be on.



#### ACCESSING INFORMATION OFFLINE

Progressive Web Apps have opened the doors for offline installation with virtually no friction. It is possible due to the service workers that can be embedded into PWA's to enable the entirety of the app to work without an internet connection. Therefore, providing a frictionless offline experience. It is something that is going to be expected by users from many more web apps with each passing year.



#### **TOUCH GESTURES**

The user journey is delicate and, that is the one thing set to grow in popularity. It is essential to make the experience on mobile feel as similar to the native behaviour of the phone, making that transition from search to site as seamless as possible. Touch gestures are becoming a standard for how users should interact with content on the mobile web. It can change the way of experiencing the content. However, one needs to be sure to get them right to make it impactful.

### TRENDS SURROUNDING AMP



#### **AD DISPLAY**

One of the benefits of having accelerated mobile pages is that they have a clear and precise format for ad placements. In addition to the reduced page loadings, AMPs has ensured that ads also get loaded quickly.

Advertisements appear on the web pages with the content are the primary source of profit for the content marketers. With the help of AMPs, any extra elements are removed, thereby making the ads dominants and attracting more CTAs.

#### **ACCELERATED MOBILE PAGES SEO**

Efficiency, speed, and performance are important factors when it comes to retaining visitors. To drive traffics to the websites, search engine optimization plays a huge role. Google prefers AMP associated web pages because they are more SEO friendly. They are given high importance in SERP rankings for all devices. The rise of AMPs relies heavily on the growing mobile usage trends. Google gives much importance to the AMP project. In the year 2018, Google came up with a method called mobile-first indexing. Hence, letting users knowing about how user-friendly their websites are for mobile navigation.

#### **AMP FOR EMAILS**

Google has launched AMP for emails recently. Hence, making the emails much more engaging for the users. In the earlier times, only one CTA was allowed to carry out the task of directing the user to the link. With the introduction of AMPs, it has now become easier to interact and carry out different functions on the email. Users can now get more information, browse more, reply to the comments via emails, etc. With this advancement, the prevalence of AMP has increased even more.

# TRENDS AMP



# ADOPTION OF PWA



### Ways to leverage Key Benefits of PWA



#### **COST - EFFICIENCY**

PWA is expensive to be build but, once it is ready and deployed, the maintenance cost is lower than the maintenance of native applications, therefore, increasing the profitability over the long term.



#### AVOID APP STORE NORMS

Google and Apple are strict on their quality guidelines. Any unmet rules can pull out the app from the app store. Moreover, users are reluctant to download apps and are often forgotten. PWA only attracts the targeted audience who intentionally visits the web pages for the information. PWA keeps the app updated and is easily accessible by the user.



#### ORGANIC SEARCH PRESENCE

PWA is still a webpage that can be crawled and indexed by many search engines. Therefore, PWA focuses on making webpages SEO. Also, the web page's home screen icon on a mobile device makes accessibility easier and driving traffics all the time.



### HOME SCREEN

PWA can also be directly downloaded on the home screen of the mobile device. "Add to home" shortcut gives native applike functionality where users can have a similar experience. Also, businesses can customize the appearances of the web apps giving an immersive experience to the users.



#### REAL TIME UPDATE

Information is constantly updated; users can be instantly updated on the businesses' new products and services. This helps in gaining new leads.

### **PWA Benefiting Businesses by:**



#### **BOOST BRAND AWARENESS**

PWA is also an SEO webpage that is crawled by search engines and indexed. This removes the time of finding the brand on the app store and increasing brand visibility by providing an "Add to home" shortcut. Moreover, a native app-like experience creates an immersive user experience, which also boosts brand awareness.



#### **INCREASE ENGAGEMENT WITH USERS**

PWA provides a "Push Notification" feature like native applications. Push notifications provide real-time updates n any new products and services, making the users glued to the content. This enhances engagement.



PWA reduces network dependency and has a faster load time. This progressive nature and the device level caching helps in avoiding huge data transmission enhancing user experience. The deep user data, such as several pages visit and their locations, gives valuable insight to the businesses. This lead refining process helps in keeping the pipeline full.

#### **GENERATE NEW LEAD**

### **Practical use case scenarios: Twitter PWA Case Study**

Twitter wanted to find a solution for its low traffic and low download rate of the native applications from the app store. It came to notice that people are reluctant to download because of the low availability of storage space, and also the network is pretty much slow.

Eventually, Twitter decided to develop a PWA named Twitter Lite, taking full advantage of the mixed features of a web page and native application.

20% Decrease in **Bounce Rate** 

65% Rise in Pages Per Session

75% Increase in Tweet Sent

### **Practical use case scenarios:** Twitter PWA Case Study

The features of PWA such as:

- Faster loading
- Add to Home screen
- No network Dependency

Impacted twitter's data hugely.

- Push notification
- Lower data consumption



### **Checklist for Developing, Testing & Deployment**



Offline loading URL: Check for the visibility of some of the contents in offline mode.

### Connectivity Testing:

Check the performance speed in the slow network connection scenario.

#### **Cross Browser Testing:**

Check the navigation, loading speed, and performance of PWA on different mobile browsers.

**Loading Speed:** Check its performance for every operating system.

**Responsive:** Contents and features are usable and fit at every viewport.

### Searchable:

PWA should be search engine optimized so that it can be crawled and indexed.

#### **Push Notification:**

Check for the API asking permission before triggering.





# **ADOPTION OF AMP**

### Ways to Leverage Key Benefits Of AMP



#### SPEED

There is the same direction correlation between speed and engagement rate—a site that downloads fast increases the potentiality to engage more. AMP makes the web pages light and improves the loading speed. AMP web pages are downloaded instantly on mobile devices. This amplifies the user experience.



#### REDUCE BOUNCE RATE

Google says that if a page loading takes more than three seconds, it will likely have more bounce rate. A more bounce rate means you are losing out prospects more. AMP and its fast loading feature lowers the bounce rate and increases the onsite experiences. AMP plugins rank the page higher! Make the pages by using AMP manual coding than AMP automatic plugin to load faster.



#### **MOBILE RANKING**

The speed of the page and conversion always goes together! AMP pages have started getting listed by Google in its organic listing. This attracts more CTR. Moreover, AMP pages are likely to get higher ranking in mobile search results than non-AMP pages..



#### RELIABLE AD PLATFORM

AMP HTML is used to make the ads load faster in your AMP pages. After validating the AMP HTML, it is being delivered. This checks on the malware as well as increases the viewability by creating immersive, engaging content.



#### **VISITOR ANALYTICS**

Google AMP Cache makes the pages load faster than usual by lowering the latency rate. Two tags, such as amp-analytics and ampiframe, help businesses with the data of visit counts, new vs. returning visitors, marketing cloud integrations, video, and link tracking.

### **AMP Benefiting Businesses by:**



#### **ENGAGING CONTENT**

Contents that loads faster and ranks higher are the first that attracts potential prospects. Speed lowers the bounce rate, and SEO content creates a compelling effect on the



#### **INCREASE ROI**

AMP provides a cost advantage by distributing AMP HTML across diverse platforms. Therefore, it is not required to



AMP's easy viewability makes the user stay on the page longer than the traditional pages. AMP carousel shown above the top-ranked



#### AHEAD OF COMPETITION

### **Practical use case scenarios: Complex Networks AMP Case Study**

A global lifestyle brand and media company, Complex networks decided to adopt the AMP framework to leverage the key benefits of the AMP and increase its :

- User Experience
- Ad ROI
- Reach

Complex Networks deployed AMP to 90% of the web pages. The features of AMP:

- AMP carousel
- AMP HTML

Backed up with other tech stack impacted hugely.

90%+ in YOY AMP sessions



### **Checklist for Developing, Testing & Deployment**



**Right Analytics:** Correct metrics should be utilized to collect the data for analytics.

AMP HTML Specification:

Websites and every AMP webpages must follow AMP HTML specification guidelines.

#### Validate AMP pages:

AMP validator must be used to check for the error; otherwise, it won't be indexed by AMP caches.

#### Discoverable AMP files:

To ensure that they are indexed, they need to be discoverable and for that, ensure that all AMP first pages link to themselves and AMP pages are paired with other non AMP pages and linked together.

#### **Test Cached Pages:**

Use browser developer's tools to check whether all external resources are downloaded or not to the AMP cache when extra AMP pages are added.





# **MOBILE APPS**

### **PWA vs AMP vs Native App**

FEATURES	PWA	NATIVE APP	FEATURES	PWA
Required Download	×	~	Performance	Relativel first deliv
Push Notification Capability	~	~	Engagement	Relativel
Home Screen icon	~	~	Accessibility	Homesc
Consume Very Less Data	~	×	Security	Required
One Place to Enter Content	~	×	Cost	Relativel Cheaper Native a

#### AMP

at Relatively faster at every page loading

Relatively Low

Browser

No Need

Relatively cheaper than PWA

**PWA and AMP both have** come a long way. Choosing anyone over the other is difficult. Both are consistently improving as per the trends and the global requirements. Let us delve into the major differences where they vary hugely and other features where they deliver very closely.



# OUR TAKE ON PWA AND AMP





#### PERFORMANCE

When we first come to the landing page of both, we will experience AMP loading faster than PWA due to its URL cache feature. Though PWA relatively takes a longer time at initial loading, it will load faster once you come back in a future visit.



#### INTERACTIVITY

PWA holds the upper hand in this case. The push notification feature is available in PWA, which is similar to the native apps. Push notifications help a user with a real time update. Which, in the case of AMP, is not available. This is where AMP is falling short.



#### **USE CASE**

PWA is mostly because we want a site with faster loading ability but, at the same time, will work as an app. We can also avoid downloading the app from an app store similar to the native app. In the case of AMP, it benefits the businesses that are looking to monetize ads. In that case, faster loading of ads is important.

### WHICH ONE IS THE BEST FOR YOUR BUSINESS?

BOTH AMP & PWA HAVE THEIR OWN SETS OF BENEFITS & FEATURES. DEPENDING UPON THE INDUSTRIES, **BUSINESS TYPES & OTHER FACTORS, YOU NEED TO CHOOSE THE RIGHT ONE.** 



Suitable for E-Commerce Sites Dynamic Elements Similar to the Mobile Apps.

Best for Static Contents like News Sites, Blogging Sites & many other Heavy Content Sites.

It is often better to have an app confluence of both PWA and AMP. PWA can provide native app like features and cache the non-AMP source contents by using service workers, and AMP can cache the first-page view. Using both can take businesses to the next level!











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