PWA

Progressive Web Application

The Revolution of Mobile Web

MageDelight

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PREFACE

Just like every other industry that keep on evolving, the web industry is a subject of constant evolution and improvised solutions. Lately, the usage of mobile devices has reached to the level where people spend twice the time on their mobile devices compared to that they spend on the web. In many countries, people have started using only mobile devices. Even in your website analysis, you might have noticed that a significant amount of traffic comes from the mobile devices.

> Mobile device usage has risen remarkably and continues to grow with the seamless experience that is offered.

The increasing usage of mobile devices brings in considerable expectations from customers. These rocketing expectations and competitive environment forces businesses to look out for highly innovative solutions and maintain equivalent experience on various devices. But this often comes with a whole lot of costs and a certain limitations.

The demand of equal experiences on both, native apps and mobile websites creates a need for designers and developers to build and manage native apps and websites for various operating systems. To solve all these issues altogether, the newly sprung and incredible technology, PWA (Progressive Web Applications) is introduced to change the way people interact with the websites. PWA is responsible for blurring the line between native apps and mobile websites.

> Let's explore this incredible technology

PWA-DEFINITION

It offers the **mobile websites** with incredible features like **responsive**, safe and streamlined experience. PWA is basically a hybrid of regular website and a mobile application that offers a new approach to the software development.

Most of the things done by native apps come under the feature-list of PWA, i.e. having an **offline mode**, accessing your camera and microphone if necessary, GPS and a lot more.

Talking about the inception of PWA, the term has been around since **2007**, when Steve Jobs introduced the visionary idea of web apps at the time of launch of the iPhone.
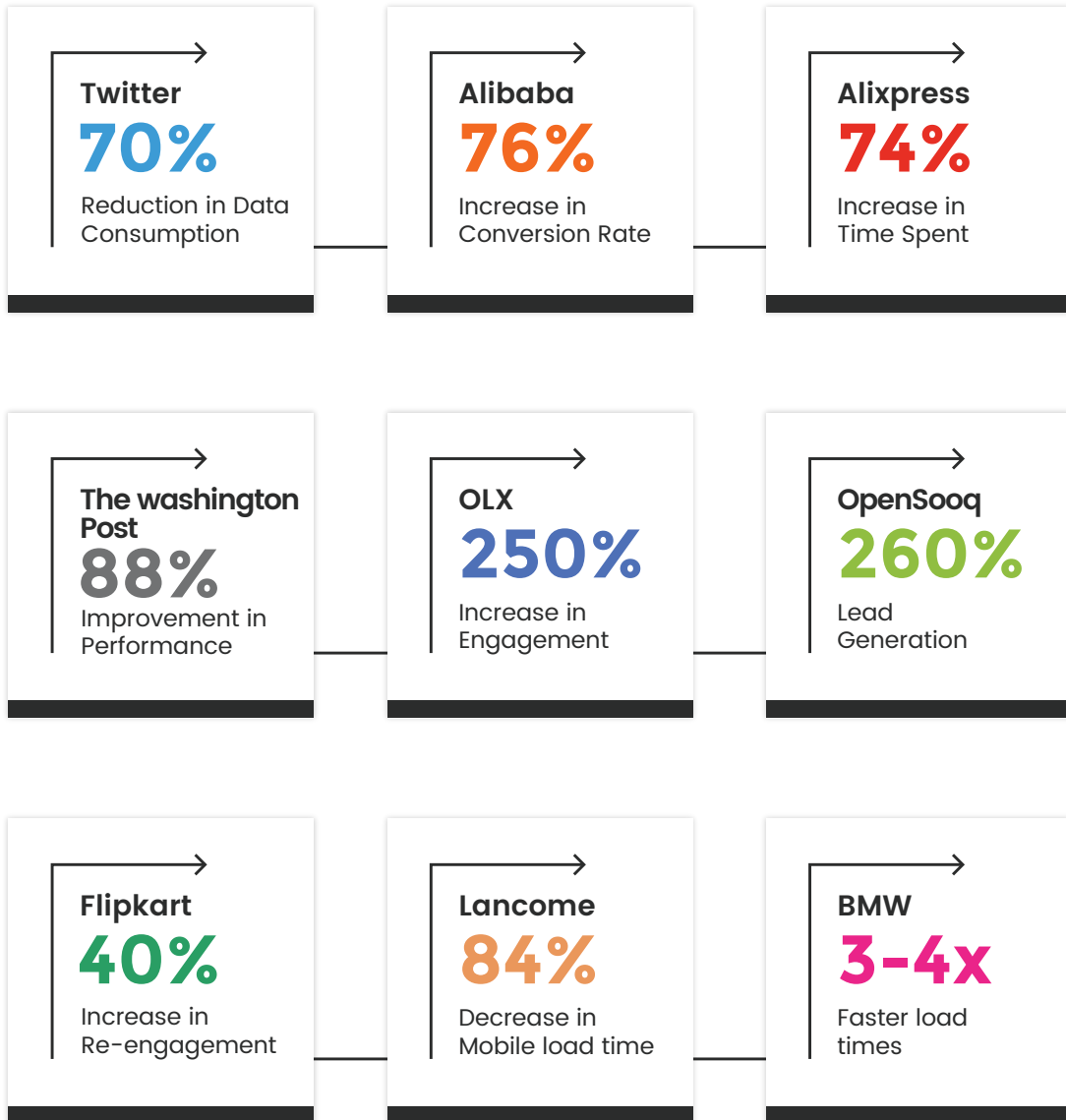
In 2015, the name 'Progressive Web Apps' was coined by Alex Russel (Google Chrome Developer) and a designer Frances Berriman. Since then, the industry's mobile-first approach and adoption of mobile usage made the companies look for a great opportunity of growth and started experiment with PWA.

Progressive Web Application, abbreviated as PWA are the websites that makes use of modern technologies & create mobile web experiences similar to those offered by native apps.

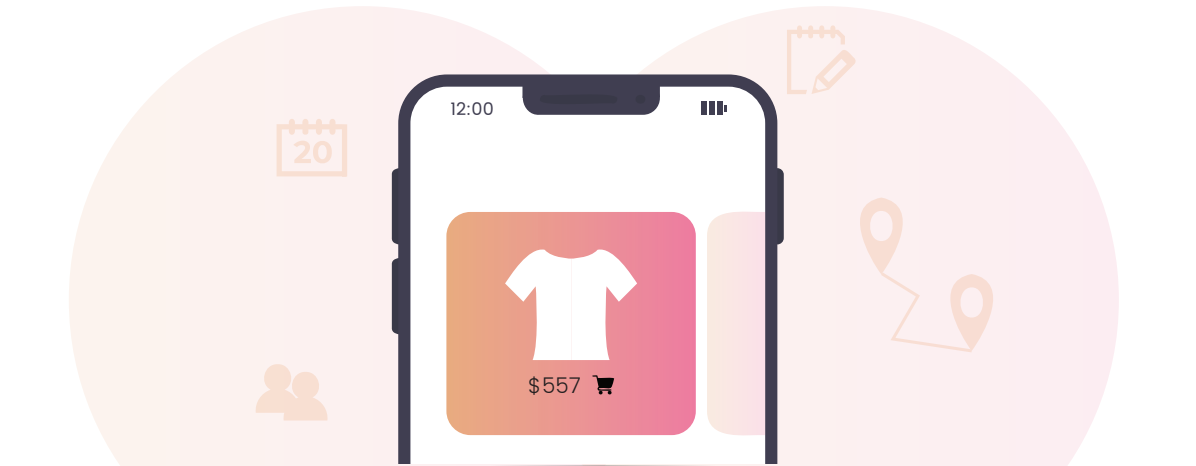**P** Progressive

W Web

A Apps

Who were the first ones to adopt and implement PWA technology?
The industry leaders like Alibaba, Forbes, Twitter, etc.
Did they succeed? Obviously!

LET US HAVE A LOOK AT THEIR SUCCESS RATE:

Twitter
70%
Reduction in Data Consumption

Alibaba
76%
Increase in Conversion Rate

Alixpress
74%
Increase in Time Spent

The washington Post
88%
Improvement in Performance

OLX
250%
Increase in Engagement

OpenSooq
260%
Lead Generation

Flipkart
40%
Increase in Re-engagement

Lancome
84%
Decrease in Mobile load time

BMW
3-4x
Faster load times

PWA FOR E-COMMERCE

According to eMarketer, mobile eCommerce sales are expected to account for 54% of total eCommerce sales by 2021.t

A native app or a responsive design, ecommerce store owners mainly aim at luring the customers to their stores through certain engaging tactics.

Hence, PWA is basically a customer engagement tactic for store owners that comes with numerous bonus features. Building a PWA for an ecommerce store can now be considered as a necessity to stay ahead in the fierce competition.

LIST DOWN THE BENEFITS? SURE

✓ **Push Notifications** are better than an email with increase in CTR(Click-Through-Rate)

✓ '**Add to home screen**' instead of installing the app to provide accessibility right from the browser

✓ **Full-screen mode** works best in offering seamless user experience

✓ **Usability of app** to be discovered before downloading it from the App Store

✓ **Faster loading pages** comes with smoother user interactions

✓ **Increase mobile user** engagement with native app-like mobile-first approach

✓ The HTTPS protocol **ensures security** of the digital assets

✓ The Pre-catching technique **helps improvise** the offline connectivity

FEATURES

QUICK LOADING SPEED

The Client Side Rendering approach used by PWA helps in rendering the content in client's browser using JavaScript. Therefore, instead of sending an entire HTML document from the server, the user only receives a tiny string of data with JavaScript file which will request and render only the required parts of the page in client's browser. This entire process results in a considerable increase in the page speed.

OFFLINE BROWSING

Offline mode doesn't mean you can have fully native experience, but with the PWA, the service worker can override the standard cache management with custom rules and caching management with customized rules. Here, cache storage is independent of the remote server. With this, when the connection drops, browsing can be done through the service worker. Here is an example: You are browsing something and suddenly the network goes off and you press back, now with PWA, you ain't redirected to 404. Instead, the service worker will deliver the cached page with the previously retrieved data. In an ecommerce store, customers can checkout in an offline mode, but the order will be processed after the connection is reestablished.

PUSH NOTIFICATIONS

This is one of the most important factors to help you engage new customer and re-engage the ones that abandoned their cart on your store. PWAs support push notification feature. The right utilization of this feature can also help motivate the customers to make a purchase and increase the conversions of the store. You can send notifications at various instances such as launching marketing campaigns, informing about order progress, news. Push notification is a unique communication channel to help your brand become a part of your user's every day life.
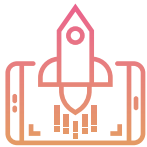
READY FOR APP & PLAY STORES

Getting your app listed on the app stores is like an achievement. This is exactly why most of the businesses spend a lot in developing distinct applications for iOS and Android. With PWAs it is possible to have one single application for all the platforms. PWA is entirely ready for app store as well as play store. There is a single code base as the native app is partially a web view.

LIGHTWEIGHT

PWAs are well-crafted especially to offer best experience to the mobile device users. Along with these extraordinary features, PWA is very lightweight and facilitates the user to work even in low band-width networks.

SAVE ON HOMESCREEN

PWAs are highly quick to deploy as they can be directly added to customer's home screen offering one click access to the customers. With PWA, customers do not need to bookmark a website as a web page and there is no need to stroll in the play store to find the app. All that your customer needs to do is open the app in a browser and add it on he home-screen, after that, you won't even need a browser.

NO REQUIREMENT OF UPDATES

Updates are a necessity and responsibility for everyone, customers as well as the developers. Well, PWAs are the robots who actively update themselves in real-time, requiring for no effort from the developer.

LINKABILITY

Just like any other website, Progressive Web Apps also has URLs. These URLs can be crawled and indexed by the search engines. They can also be found directly from the SERPs. Additionally, the faster loading time of PWAs keep the search engines satisfied and users happy.

PWA & SEO

Okay,
PWA seems very
beneficial, but how does
it work for Search Engine
Optimization?

Well, it is one of the highly concentrated discussion around PWA.

SEO has always been a highly misunderstood topics, and with PWA, there are even more challenges. When it comes to SEO, PWAs are a bit different from the traditional HTML websites, a little bit more challenging than HTML websites.

As PWAs are JavaScript-based websites, the rendering process is different from the HTML-based websites. The convention method of HTML websites included the Server-side Rendering or SSR method to pre-boot everything the server side. But with PWA, the CSR or Customer-side Rendering or CSR method has been used for these processes.

With SSR, when the user requests a page, the website sends a rendered version from the server to the user's browser.

This specific approach has always been ruling the internet but also comes with a few downsides. The first paint of the website will be loaded very quickly, but it also requires a lot of time to load the entire HTML when the user switches the page. This gets difficult when the user is operating on a bad internet connection.

While with CSR, content is rendered in the client's browser with the help of JavaScript. So, instead of sending the entire HTML document from the server every time a user switches a page, the user will only receive a tiny string of data with JavaScript. Meaning, it will request and render the necessary parts of the page in client's browser. This results in a considerable increase in the page load speed.

But then Why haven't All of 'em Switched to CSR Already?

Well, it is because everyone is not sure if the Google bot and search engine crawlers can see their website content.
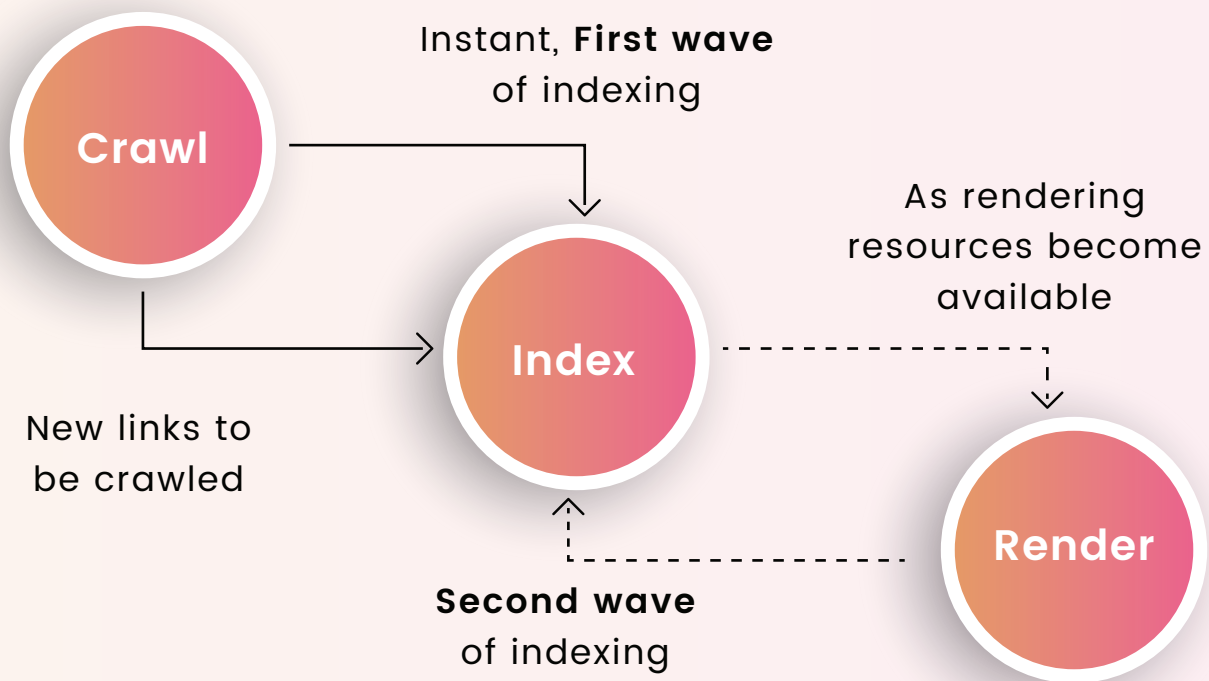
In the traditional website, the content can be clearly seen in the code, but in JavaScript based website, it is all depended on the ability of the search engines to process JavaScript and collect all the information required to be indexed by search engines. This is exactly the reason behind the myth 'PWAs can't be indexed'. But it is not true all the times, Googlebot is one of the best option for processing a Client-side rendered JavaScript.

While Googlebot successfully processes JavaScript, not all the search engine crawlers are able to process JS immediately. To make sure that the JavaScript based page is properly scrawled, the process requires an extra stage compared to the long-established HTML websites. The process of indexing consists of two waves;

During the first wave, Googlebot crawls the source code of your page and indexes all the visible content. But in JavaScript, there is no visible content, Google can not index anything in the first wave. This is where the extra stage called Rendering Stage is required.

So, in this additional stage, Googlebot comes back to your page to process the JavaScript code, now receives the real page content of your page available for index and adds it to index.

Instant, **First wave** of indexing

Crawl

New links to be crawled

Index

As rendering resources become available

Render

Second wave of indexing

Even after all these, there is no surety of content getting indexed all the time, immediately. Hence, merchants need to balance between enhanced user experience and ensuring successful job of Search Engines.

Is there any way out?

Well, Dynamic Rendering seems to be a solution. It requires the web server to figure out the source of the request and serve different versions of content to different sources.

OR

Simply Prioritize your Content and User Experience

A simple and beautiful way around this issue is you can always prioritize the content. You can identify the most important part of the page that you obviously want to pass to search engines and you can serve this content using Server-side Rendering. With this method, you can be sure of that search engines will pick up required information immediately. During this, rest of the information will be processed via Client-Side Rendering in the second wave and will be added to the index.

THE PRE-EMINENT SEO PRACTICES

As now we all know that PWA isn't a ranking factor, all the SEO practices remain just the same. Now, here are some of the SEO aspects to be taken into consideration if you are migrating to PWA.

✓ Execute the self-referring canonicals for the unique pages. Canonicalize duplicates or set meta robots to "noindex, nofollow"

✓ Make sure every page contains unique URL

✓ Ensure the access of hidden content in tabs or infinite scroll etc.

✓ Make use of Schema.org markup to help crawlers understand the content of the page

✓ Ensure that your page passes the Google Mobile-Friendly Test

✓ Audit pages for its speed on Google PageSpeed Insights

ADDENDUM

Here you are, now you know why I call it the Revolution of mobile web. When we recognized the potential of PWA in technology, we began crafting and building feature-rich PWA solutions for Magento. With which we aim at developing a trendsetting solution for our customers. Contact us and upscale your ecommerce store with the open-source Magento PWA and make the most out of your Magento 2 store.

CONTACT US

MageDelight

Harness Our High-end Magento Deliverables to Stay
Abreast the Latest Trends Following eCommerce.

**Our team of experts will be
happy to assist you.**

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