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RESPONSIVE WEB DESIGN PRACTICES IN SAUDI ARABIAN COMPANIES

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ABSTRACT In recent years, Responsive Web Design (RWD) has created waves across the web industry. A Responsive Web design approach makes the web pages to mould themselves depending on which the device they are rendered. Since there is an increased usage of mobile devices like smart phones and tablets for accessing websites, the business organizations are geared up to transform their traditional design websites to responsive design websites in order to give the end users a better viewing experience. This paper aims to outline the concepts of Responsive Web Designing and examine the presence of Responsive Web Designing in Saudi Arabian companies i.e. to check whether they switched their website from traditional web design to a responsive web design.

KEYWORDS : Responsive Web Design, RWD, Saudi Arabia, website design.

INTRODUCTION

In today's digital era, people are spending most of their time browsing Internet and since a couple of years there is a rapid increase in the adoption of mobile devices like smartphones and tablets for accessing the Internet. According to IDC research report[1], the worldwide smartphone market will reach a total of 1.4 billion units shipped in 2015, up 10.4% from the 1.3 billion units shipped in 2014. From there, shipments will reach 1.9 billion units in 2019. The increased usage of mobile browsing has led to the popularity of Responsive web design.

RESPONSIVE WEB DESIGN – WHAT AND HOW

In 2010, Ethan Marcotte [2] introduced the technique "Responsive Web design" in which the same website is rendered on the devices of various screen size by adapting themselves to fit into the screen. According to byte9 [3], Responsive design is a web design and development technique that optimises a user's browsing experience by creating a flexible and responsive web page, optimized for the device that is accessing it. Responsive Web design is "the approach that suggests that design and development should respond to the user's behavior and environment ¬based on screen size, platform and orientation"[4].

Responsive design websites are developed and designed in such a way that it automatically identifies the devices' screen size and adapts it accordingly by changing its layout. Responsive web designers try to make the browser do all the hard work instead of requiring readers to resize, pan and scroll as they go along.

FEATURES OF RESPONSIVE WEBSITE DESIGN

The three key ingredients of a responsive website are – a flexible, grid-based layout, flexible images and media queries.[5] Therefore in order to make a website responsive, one requires using fluid grid layouts, flexible images and CSS media queries.

• Fluid grid layouts

In fluid grid layouts, the dimensions of elements are defined in relative units' i.e. percentage-based dimensions and not unlike the fixed grids where the element's dimensions are defined in fixed units' i.e. pixel-based dimensions. In fixed grid elements, width and height are to be adjusted manually in certain device viewports but the fluid grid elements flow naturally within the dimensions of its parent container thereby it requires limited adjustments for various screen sizes.

• Flexible Images

Just like the fluid grid elements flow naturally within the container, the images should also be rendered according to the various screen resolutions. The flexible images in a responsive website are achieved by setting its max-width property value to 100%. This prevents the images from exceeding the width of container, the img element will render at whatever size it wants, as long as it's narrower than its containing element. [2] However browsers like Internet Explorer doesn't support the max-width property.

• Media Queries

Media queries are 1/3 of the recipe for responsive design and it is the key ingredient that allows specified CSS to be applied depending on the device and whether it matches the media query criteria. [7]. CSS media queries allow us to create different styles for various screen dimensions and devices and on that way, the web page is displayed using the style which is best adapted to the users screen dimensions.[8]Media queries are a CSS3 module and play a key role in designing the responsive websites. It allows setting the different CSS style rules according to the device screen size.

WHY RESPONSIVE WEB DESIGN

Webydo [6] have identified the four key reasons for why is responsive web design an important feature that can be added to a website. They are – Supporting the multi-device user, one site to rule them all, improved search engine rankings, future scalability. The implementation of responsive web design can be fruitful to different user categories like webmasters, developers and end users [10].

The key reasons to have the implementation of RWD are – increased mobile device usage, Single URL maintenance, end user friendly, less maintenance, search engine optimization. Google recommends going with the responsive web design when possible [11]. Maintaining the two separate websites for desktop and mobile will also have to run separate SEO campaigns [12], so it is easier to manage one responsive website and one SEO campaign. The web designer doesn't have to design and maintain separate desktop and mobile websites but instead can design a single responsive website and maintain single URL which serves the same website for all devices. Potential end users will ignore the websites if they are not satisfied with the website design and flexibility and will search for a better user-friendly website and the websites designed with responsive web design approach gives them a better user experience.

Florian [14] observed that responsive designs would not always benefit all website owners and investing extra in this feature does

not make sense in all cases. However, certain business owners can greatly improve the browsing experience of their users providing them with an easier way to access the content and it could lead to higher profits.

Despite the key reasons to switch to the responsive web design approach, some businesses may not consider switching to responsive web design approach keeping in view of what they achieve. There are some drawbacks to the RWD approach like – Existing websites can't be converted to Responsive website but it has to be rebuilt from the scratch, responsive web design projects takes more development time and is more costlier to develop. And the technical drawbacks are - Some mobile device web browsers are not compatible to the responsive websites, slow webpage loading. All the content is downloaded irrespective of its client usage [13]. Responsive web pages downloads all the content including the full-size images, later resized to fit the device, thereby taking more time to load. However small-size images can be used to smaller screens.

RESEARCH METHODOLOGY

This study examines the presence of responsiveness in some sample websites of different companies of various sectors in Saudi Arabia like government universities, banks, online newspapers, telecom companies, supermarkets, airlines, vehicle insurance companies, government organizations.

Tool used for Identification of RWD-There are multiple tools available online for testing whether the webpage is responsive. These tools add up a toolbar on the webpage which allows the user to test how the webpage will look and behave on different devices. Some of the tools are responsive.victorcoulon.fr, Screenfly, AmIResponsive etc. Popular browsers like Google Chrome, Mozilla Firefox have developed their own add-on tools to test the website responsiveness.

Also there are tools for the developers to test the level of responsiveness of their developed responsive websites. DevelopersFeed.com[9] has suggested the top ten responsive web design testing tools for the developer to make sure the website is responsive. Some of them are – Froont, Screenqueries, Viewport Resizer, Opera Mobile Emulator, Review.js, Jetstrap etc.

The Google Chrome extension-"Responsive Web Design Tester" are used for survey to test the responsiveness of the website.

RESULTS AND FINDINGS:

A survey conducted on a total of 130 websites in various sectors is presented in the Table1.

Table 1 shows that almost all of the businesses in various sectors in Saudi Arabia have switched to responsive approach to improve the customer browser experience and satisfaction thereby yielding higher profits. It is observed that telecom companies, retail sector companies (including supermarkets, clothing stores, online shopping), which mainly focuses on their customers' satisfaction, have chosen to develop responsive websites despite its high expense to develop.

Banking sector and Airlines sector have not completely moved to responsiveness. However some companies in banking sector and airlines sector have maintained a separate mobile website along with a traditional adaptive website. Mobile websites also have a better viewing experience but is not good as a responsive website. Some companies feel that building the responsive site from the scratch can be more expensive, it may not help in some cases, and thus they end up maintaining a separate mobile website to achieve the customer satisfaction.

TABLE – 1 VARIOUS SECTORS IN SAUDI ARABIA

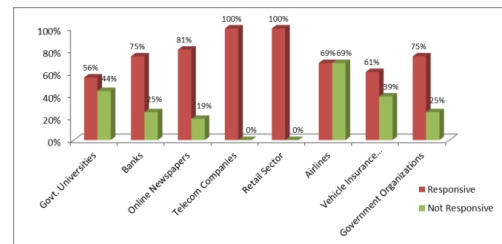| Sector	No. of websites	Responsive	Non-Responsive
Govt. Universities	18	10 (56%)	8 (44%)
Banks	12	9 (75%)	3 (25 %)
Online Newspapers	16	13 (81%)	3 (19%)
Telecom Companies	5	5 (100%)	0 (0%)
Retail Sector	18	18 (100 %)	0 (0%)
Airlines	13	9 (69%)	4 (31%)
Vehicle Insurance Companies	28	17 (61%)	11 (39%)
Government Organizations	20	15 (75%)	5 (25 %)
Total	130	96 (74%)	34 (26%)

Figure 1: Bar Graph representing the RWD presence in various sectors across Saudi Arabia

CONCLUSIONS

With the increased popularity of mobile browsing, the demand for responsive websites has increased. To get higher customer attention and gain high profits, it is important for a business website to be responsive for better viewing experience. However the development of a responsive website from the scratch is complex and is little costlier than a normal website, some businesses end up in maintaining separate mobile website for its mobile users.

This study reveals that almost all of the businesses in various sectors across Saudi Arabia have implemented the responsive web design approach in building their websites. It can be concluded that the responsiveness of a website is a necessary requirement.

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