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Heemakshi Sharma

ABSTRACT

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Understanding the impact of website usability on the performance of digital marketing efforts allows organisations to make informed decisions regarding website design and functionality to create good user experience that increases engagement and conversion.

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I. INTRODUCTION

The creation of websites for the internet or a private network is referred to as web development. Web development projects can range from simple static plain text sites to

complicated web apps like e-commerce development and social network services. Web engineering, web design, website development, client liaison, client-side/server-side scripting, web server and network security settings and e-commerce development are all part of this process of website development.

Website development often focuses on the non-design components of website creation, such as writing, markup and coding. CMSs (content management systems) can be used to make modifications to material easier and more accessible. Web development teams in larger organisations may contain numerous workers who use standard approaches such as Agile methodology. In contrast, smaller businesses may only need to hire one full-time or contracted developer or they might combine job roles such as having a single person handle both graphic design and data systems maintenance[1].

Web development can be a collaborative effort amongst departments, and there are three sorts of web developer specializations: front-end developer, back-end developer and a full-stack developer. Front-end developers work on the behaviour and graphics that appear in the user's browser while back-end developers work on the servers. Full-stack developers are the ones that cover both the front-end and back-end developer's part.

Personal networking and marketing have also been influenced by web development. Websites and no longer merely instruments for work or commerce, they are now platforms for communication and social networking. Social media such as Facebook and twitter provide people with a platform to communicate and a more personal and interactive manner to engage the public.

The notation of the worldwide web is inextricably tied with the Hypertext Markup Language (Html). Html is used to define web page components such as sections, paragraphs, headers, tables, lists and interactive forms. This term is employed to depict the arrangement or format of webpages. Html also enables for the incorporation of external resources such as photos, videos and other things into a webpage.

Modern web development practices emphasize structure and style separation, with HTML defining structure and CSS (Cascading Style Sheets) defining style. JavaScript is another language that is widely used in conjunction with HTML to provide interactivity and dynamism to web pages the emergence of web 2.2 necessitates the evolution of web languages in order to formalise already recognised best practices in online development. We examine the significant innovations in new web standards and protocols.

In this paper the emphasis is mostly on the new HTML version, its components and extensions and new CSS syntax possibilities. Also new JavaScript APIs that enable whole new ways of web development like browser-based databases, Geolocation and full duplex communication between a browser and a server have been used over here.

II. CONVENTIONAL TECHNOLOGIES IN WEB DEVELOPMENT

It is usual practice to categorise web technologies based on whether they are used on the client - side or server-side of online applications. Understanding the main categories of web technologies is critical for individuals who want to work in web development. As a result, below is the list of web development technologies organised by usage category:[2]

- Browsers
- HTML and CSS
- Programming Languages
- Frameworks
- Web servers
- Databases
- Protocols

2.1 Frontend Design Strategies

2.1.1 HTML (Hypertext Markup Language)

HTML or hypertext markup language is a computer language designed to make it easier to develop web pages that can be visited by anyone with Internet connection. It is a simple language to learn, and most individuals can understand the fundamentals in a single setting under the direction the organization responsible for establishing and maintaining the language. The language is regularly updated and enhanced to suit the expectations of the increasing Internet audience. Hypertext is used to build hyperlinks, which allows the user to navigate the web. HTML tags are used to mark up the text within them, marking it as a specific kind (for example italicised). HTML is classified as a markup language because it uses code words and syntax similar to markup languages.

HTML is made up of short codes that the website designer types into a text file, which is then saved as an HTML file and accessed by web browser such as Google Chrome, Mozilla Firefox or Internet Explorer. The browser scans the file and converts the text into an image. A simple text editor or a complex graphical editor can be used to build HTML pages. The language is written in the form of HTML elements, which are tags contained in a angular brackets such as HTML, within the text of a webpage. HTML tags are often used in pairs, with the first tag serving as the start tag and the second tag serving as the end tag (also known as the opening tag and closing tag). Text, tags and other elements can be added by web designers.

Web browser scan HTML documents and employ tags to interpret the content of the page and display it visually and vocally. HTML components are the basic building blocks of all web pages and web browsers may also use CSS to specify the appearance and layout of text and other content.

2.1.2 CSS (Cascading Style Sheets)

CSS is the language used to specify the appearance in formatting of a page produced in a markup language, the most common of which

being HTML. Its primary objective is to isolate documents information from its presentation features including layouts, fonts and colours. The split allows for More control over display qualities, enhances accessibility, former simplifies, formatting uniformity across numerous pages and lower structural content complexity. CSS may also be used to apply different styles depending on the rendering technology such as on screen of Braille based devices or different screen sizes. CSS is classified into 3 types: inline, internal or embedded and external. CSS benefits include time savings through the reuse of style sheets, quicker website loading times easier maintenance through global updates, the potential to build superior styles compared to HTML, interoperability with many platforms and adherence to worldwide web standards.

2.1.3 JavaScript

JavaScript is a computer language that developers all over the globe used to produce dynamic and interactive online content. It is a lightweight, interpreted language that together with HTML and CSS is a key component of the world wide web. JavaScript scripts are embedded in or included from html text as a client - side programming language and execute directly in the user's browser. One of the JavaScript's key advantages is its speed, since it can be executed directly within the client - side browser without the need for network calls to a backend server. It is also an easy language to learn and use and it is extensively used and popular. JavaScript also has high compatibility with other languages making it ideal for a wide range of applications including the creation of rich interfaces.

It also decreases the strain on website servers because it is client - side. However, because the code operates on the user's computer, it may occasionally be abused for nefarious reasons, which is why some users disable it. Furthermore, JavaScript is sometimes interpreted differently by different browsers, making cross browser programming challenging to build.

2.2 Backend Design Strategies

2.2.1 PHP (Hypertext Preprocessor)

PHP is a popular server -side programming language for web development. It was initially intended for the creation of dynamic web pages, but it is now mostly used for server-side scripting, command line scripting and the development of desktop programs. PHP is an open source, free to use programming languages which has grown to the one of the most popular for web development. It is often used with web content management system (CMS) like WordPress and Joomla as well as popular frameworks such as Symphony. PHP is compatible with wide range of web servers including Apache and can interface with databases such as MySQL, Oracle. PHP files are normally stored with .PHP suffix.

Typically, dynamic content is generated on the server before being delivered to the client's web browser allowing for dynamic content development based on users input or database queries.

2.2.2 Java

Java is a general-purpose object-oriented programming language with the large number of implementation requirements. It is an object-oriented programming language with as minimal implementation dependencies as feasible. It is commonly used to create a wide range of applications functional on desktops, mobiles and online. It was created in the mid-1990s by James Gosling and his colleagues at Sun Microsystems and is now owned by Oracle Corporation. Java is well known for its "write once run anywhere" principle with states that Java code may be written on one platform and run on any other platform that supports java virtual machine (JVM). The JVM is an essential component of java since it allows java applications to run on any platform. Java is also well known for its powerful memory management, security features and extensive API library making it a popular choice for developing robust and scalable applications.

III. GRAPHICAL USER INTERFACE (GUI) TECHNOLOGIES

3.1 Conversational Artificial Intelligence

3.1.1 Digital Assistants

“SIRI” is the most well-known iPhone application, while “Google Voice assistant” is the most well-known Android software application and Alexa is the most well-known Amazon product. These programs, all have one thing in common: they are speech-based assistants that respond to voice instructions. Voice-based assistants have become the featured alternative for completing monotonous courses as speech-to-text technologies and gadget processing capacity have advanced.

When a result, when individuals began utilising voice assistants to search the Internet there has been a rise in speech-based searches. This has had an influence on the usual method of looking for the text in the browser search engine, which in turn has an impact on the search results provided by search engines. The content individuals obtained changes as search engine processing involves.

This modification has an impact on the digital marketing tactics used by the websites to generate traffic and promote their business and increase the productivity. Many people feel that the rise of voice-based search will benefit digital marketing.

3.1.2 Impact of Voice Assistants on Marketing

Let us take a look at how speech technology is being used in marketing:

- A new firm has already gained a footing in the voice industry by providing customers with interesting, interactive experiences (Business2 Community)
- According to Capgemini, 24% of Internet users would rather contact with a firm via personal assistant than through its website.
- According to Bright Edge, just 3.1% of marketers included voice search into their content marketing strategy in 2017.
- According to Digi Day 43% of companies have already invested in speech technology for marketing purposes.

The potential for voice technology in marketing look to be quite bright! Companies are utilising digital assistants for internal functions:

Salesforce, a cloud software giant has entered the digital assistant discussion with the launch of Einstein voice, an expansion of its Einstein AI platform. Sales managers may use this technology to handle cloud services and narrate notes without touching the screen or inputting anything.

Einstein voice may also be combined with comparable technology to send team pipeline updates, calendar appointments and other essential priorities to the team in a more effective manner. Einstein voice bots, another fascinating offering enabling clients to create their own voice-activated assistant and branded, engaging the end user on any smart speaker[4].

3.1.3 Incorporating Voice-Activated Technology into Marketing Can be Challenging

Including speech technology in the user's marketing approach needs significant thought and planning. The user should consider if the user's target audience is likely to interact with the user's brand using speech technology and whether the user's content can provide value through this platform. Before investing into technology, user should evaluate the odds of success[8]. If user is still unclear about any of these considerations it could be preferable to wait and see how other companies are utilising voice technology before making a decision. Investigating how user's rivals use voice technologies might also give useful information[7].

3.2 Google Maps Marketing

Integrating Google Maps into user's website can provide the user's business with increased visibility and accessibility to potential customers who use the service to find local businesses for it allows customers to easily find directions, location information and learn about the services the business provides. Google Maps integration can improve user experience by helping visitors find information quickly and easily, especially for mobile users. It can also provide valuable data on customer behaviour, engagement levels and store

visits, allowing businesses to make informed marketing decisions. In today's world, integrating Google Maps into the user's website is essential for business that wants to remain competitive and succeed in their respective industries.

Google Maps has the potential to direct more traffic to the user's website which is a desirable outcome for any business. Moreover, it can amplify the impact of customer reviews, functioning as a digital form of word-of-mouth marketing that can reach a wider audience. Optimising Google Maps for voice search can be a wise move as it enables potential customers to find the business easily by simply asking Google instead of typing in a search query[11].

Creating a Google business profile can significantly improve user's local search engine rankings, increase lead generation and attract potential customers. With this profile user's business will be visible on all Google products and services including search, maps and YouTube. By optimising the profile with photos detailed descriptions of the products, services, customer reviews, contact details and operating hours user can showcase their unique offerings and stand out from their competitors. Moreover, tracking metrics such as impressions, clicks and views can help them better understand their online presence and make informed decisions to improve their marketing strategy and product offerings.

3.3 Conversational Marketing with Chatbots

Many business owners are apprehensive about utilising chatbots to improve their operations. It might be uncomfortable to rely on robots to complete duties that were previously performed by humans; chatbots on the other hand are not intended to replace humans rather they are intended to simplify the human work. User can revolutionise their company's digital marketing techniques by adopting chatbots. These AI solutions are designed to respond to incoming communications in real time former giving standard or customised answers and even responding to new information through machine learning. They can be sent via a variety of sources including websites, SMS and social media

platforms such as Twitter and Facebook. Although chatbots have only recently acquired mainstream appeal their uses are fast developing. Chatbots may help user's sell things by engaging visitors and generating sales[3].

If the user is still unsure about incorporating them into their marketing strategy, here are some tips to consider when adding them into their marketing approach:

- Communicate with website visitors in a conversational tone to address frequently requested questions.
- Qualify leads by asking questions in the chatbot to establish a customer's position in the sales funnel.
- Organise the team to manage its marketing program through continual communication by utilising chatbots.
- Conduct research using chatbots which can give important information about the target population.
- Personalise the user experience by asking a series of questions or using already collected data from the past encounters[5].

IV. ADAPTIVE WEB DESIGN

4.1 Adoption of Device-Independent Web Design

The shift from desktop computers to mobile devices like smartphones and tablets has been a growing trend and with the introduction of more devices this trend is likely to continue. This means that web developers need to make sure that their websites are adaptable to different devices and not just limited to one. Additionally, since many of these devices rely on wireless connections, website performance is crucial to provide users with the seamless experience.

Responsive web design is a technique that allows web developers to design and develop web pages that can adjust to different devices using flexible grid layouts, images, media and media queries. By incorporating performance techniques along with responsive web design, websites can improve their loading speed and overall user experience. These factors together can have a significant impact on website's success.

4.2 Upsides of Responsive Web Design

Responsive web design has numerous benefits. One of the main advantages is that it is content - focused and allows web pages to be independent of any device. This approach is cost effective and easier to maintain in the long run, providing a better and more consistent user experience.

Compared to fixed web pages, responsive web designs use single URL and the same HTML, making it simpler to change the content. Sharing the web pages URL on social networks is also more user friendly since the link takes users to the right version of the page, regardless of the device they use. Responsive web design maintains flexibility and enhances the user experience, insuring consistency across different devices.

With increasing number of devices and platforms for web browsing, adopting responsive web design can attract more loyal customers, improve the company's market share. Additionally, Google recommends using responsive web design as a best practice for the industry.

4.3 Constraints of Responsive Web Design

Responsive web design comes with some limitations that should be taken into account. One of the main disadvantages is that creating a responsive website requires more time and resources, making it up to 10 to 20% more expensive than a regular website. In addition, older web browsers in mobile devices may not support the latest HTML and CSS techniques used in responsive design, which may cause compatibility issues. Another issue is that responsive design can make it harder to place advertisements on the web page, which can be a problem for websites relying mostly on advertising revenue.

However, despite these limitations, the benefits of responsive web design still make it a valuable investment for most organisations. Responsive design provides improved results in long term savings and the minimalistic design can enhance the user experience by making the website more accessible on call devices. While there are some unsolvable problems with the responsive design such as responsive images there have been

attempts to find solutions and establish web standards through organizations. Overall, responsive web design is necessary adaptation for the modern web and its benefits outweigh the challenges[12].

V. SEO AND ONLINE CUSTOMER BEHAVIOUR

5.1 Effects of Voice Search on SEO Strategies

Some industry insiders believe that the advent of voice - based search may spell the end of SEO as we know it. The influence of voice - based search and digital marketing in strategies is apparent weather favourable on negative. One reason for its shift in approaches is that the voice in tech searches is fundamentally different.

Conversational languages used in voice searches is essential. Because conversational language is the foundation of voice – based, search material must be more natural sounding and answer inquiries quickly and accurately in order to rank for highly snippets[9]. It is critical to provide useful and authoritative content that Google picks to achieve this coveted place. Simply repeating terms without context is no longer sufficient. If the content is well created, it may be used to market a company[6].

5.2 Leveraging Google Maps to enhance Local SEO

If user wants to increase their local SEO, Google Maps could be a game changer Google Maps may help them enhance their exposure in search engine results by offering accurate information about the user's business such as its location, contact information and directions. User can improve their local SEO and bring more visitors to the business by using Google Maps. They can help the user increase their visibility in search engine results by integrating maps into their website and optimising their listings to attract more customers. Using these tactics, user can boost their local SEO and drive more traffic to the business. Integration of Google Maps into the website can benefit SEO by providing higher quality localised content and detailed directions which can lead to increased organic traffic.

Optimising Google Maps listing helps improve local SEO leading to a better search ranking for the website and optimised Google Maps listing can create a strong social media presence for foster relationships with potential customers[10].

VI. CONCLUSION

In conclusion, website usability plays a crucial role in digital marketing. A website that is easy to use, navigable, and provides a good user experience is more likely to attract and retain visitors. This can lead to increased engagement, improved conversion rates, and ultimately, higher revenue for businesses. Additionally, usability can also contribute to search engine optimization (SEO) efforts, as search engines like Google prioritize websites that are user-friendly and provide a positive experience for their users.

Therefore, businesses should prioritize usability when designing and optimizing their websites to ensure they provide the best possible experience for their users and to achieve their marketing goals[13].

Future Scope

Looking to the future, the importance of website usability in digital marketing is likely to continue to grow. With the increasing use of mobile devices and the shift towards voice search, businesses will need to focus even more on creating websites that are optimized for these platforms. In the future, it will be important for businesses to ensure that their websites are optimized for all devices and provide a user experience that is consistent and smooth across different platforms.

Additionally, advances in technology such as virtual and augmented reality may also impact website usability in the future. Websites that incorporate these technologies will need to ensure they are intuitive and easy to use to provide a positive user experience.

Finally, as the digital landscape continues to evolve, businesses will need to stay up-to-date with the latest trends and technologies to remain competitive. This will require ongoing testing and optimization of website usability to ensure it continues to meet the needs and expectations of users.

Overall, the future scope for the importance of website usability in digital marketing is vast, and businesses that prioritize usability will be better positioned to succeed in the digital world.

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