The Call of the User: Web Design, Accessibility, and Content Management Systems

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ABSTRACT

The organization of information is a multidisciplinary need that ensures the efficiency of different systems. With the increase of information due to the availability of the World Wide Web, it is necessary to ensure that information provided on websites is not only up to date through regular maintenance of sites, but also that it is accessible to most users. As users can range from individuals to organizations, tools for web development are also needed that can meet the needs of each project or enterprise. The advances in open source content management systems allows for a wide range of user needs to be met, whether for businesses and low technical skill possessing individuals, or for large corporations with web design knowledge who are combining technologies to improve upon delivery of information. This paper discusses the importance of information organization, an overview of accessibility standards, and use of content management systems, while pressing the importance of web maintenance and highlighting trends in web development. It concludes that the most important element joining each of these concepts is the user and their needs.

*Keywords*: accessibility, content management systems, information organization, web design, web development maintenance

# Introduction

The growth of the internet and exponential growth in information production has created a greater need for organization, access, and retrieval methodologies. A predominant means of communicating and organizing information today is through websites. Shifting user needs over time demand continually changing website development and maintenance. This paper will discuss the importance of information organization, web content accessibility guidelines, web development maintenance, and content management systems.

# Information Organization

Although being an easily definable term at its base, information organization requires substantial knowledge and awareness of needs in terms of information. While information organization is a concept largely highlighted in the library and information science fields, user needs and organization methods extend into many other disciplines. In a library, the critical importance of information may not be fully realized to the casual patron, but a glance at how information is used and needed in other fields reveals how dangerous situations can become if information is not usefully presented or efficiently accessible. In 2001, Air Transat Flight 236 underwent complications and the crew found themselves witnessing bizarre readings on their various gauges, which is discussed in a report by Degani, Barshi, and Shafto (2013). Emergency procedures were undertaken, and while everyone on board survived, it was concluded that many of the complications centered around failed information delivery. There were no issues with the actual technological equipment as every bit of information needed to determine emergency status was available to the systems, but the methods of display, or information organization, were not efficient to come to that conclusion and avoid the scenario altogether. Degani et al. concludes by stating that, “as a result of design choices concerning organization, display, and automation of information, the crew was unaware of the developing situation until a true emergency took place” (2013, p. 351). While websites and libraries have very little to do with automated flight systems, the importance of adequate display is shown very clearly within this scenario. User needs, in any situation, cannot always be met simply by having information available on some level. Consideration must be taken towards how information is presented and how accessible it is, given the situation it is needed in. Had the necessary readings been visually available to the crew, this event could have been avoided. Further research into these aspects of information can help to prevent future accidents, perhaps with more casualties, from occurring.

Information organization is not just relevant within engineering, library science or transportation situations. It is also important for health professionals, educators, and even law enforcement personnel. As more information is becoming accessible digitally, how students and professionals retrieve it must also maintain high levels of efficiency. Soares & Viveiros (2017) discuss the difficulty of information organization in terms of law enforcement organizations in Brazil, which can seemingly be applied to other law enforcement groups globally. The police forces being discussed in their analysis operate under different sectors, similar to how we would see local police departments as being separate from the FBI or the Department of Homeland Security. While they can all be involved in cases stemming from one location, they are each separate and operate with their own information systems. Sharing information between one organization and another has the potential to be a challenge, which could impact the safety of a nation’s population. Appropriate and efficient information organization and accessibility are needed in many fields, and the variety of information resources needed by the abovementioned groups, as well as countless others, emphasize the need for web design to be continually improved upon. While one individual may need to access engine readings, another may simply need citation guidelines, but websites and information systems need to be able to meet the needs of both effectively.

# Web Content Accessibility Guidelines

All users are not the same, in that every user has differing needs and search or use methods. In some cases, the user has disabilities, which website developers are considering when designing websites. One helpful resource is the Web Content Accessibility Guidelines (WCAG) presented by the World Wide Web Consortium (W3C) under their Web Accessibility Initiative (WAI). The current guideline at the time this paper is being written is WCAG 2.1, published in June of this year (2018). This guideline provides standards for websites to meet that should allow users with disabilities accessibility to the information on the site. W3C also provides supplemental materials such as technique guidelines to aid web designers in meeting the standards set forth by WCAG. Within the guidelines, 4 principles are presented: perceivable, operable, understandable, and robust. These principles outline the ability for various needs to be met, making every component presentable for all users, operable through means that do not limit certain users, comprehendible information and operation of the site, and the ability for the site to be interpreted widely and variably by all users. These standards are important because they reflect inclusivity and equal access to information. If adhered to, they should, in theory, allow many users, able or disabled, to consume information that meets the outlined parameters efficiently. Additionally, they ensure that web developers who try to follow and meet these standards become more aware of how their websites are designed at a user operating level that they may not have been aware of before. It also provides room for improvement and presses the need for maintenance, as new technologies and aids become available, which is crucial for lengthening the life span of a website and prolonging its’ relevance.

# Web Development Maintenance

As time passes and technologies improve, websites can begin to look outdated and some content elements can cease to function. Visual design of a page can greatly mark the difference between a website that has been stagnant since being created in the 1990s, and one that was created at the turn of the millennium but has continually maintained its content to be relevant and visually appealing to current users. Some websites can be like museum pieces in the field of web design, such as the largely untouched and archived Space Jam website, designed as a marketing tool for the 1996 film starring Bugs Bunny and Michael Jordan (Warner Bros., 1996); other websites simply become outdated and eventually replaced with more relevant results. A few clicks through the film’s site show the dangers of not maintaining websites. The games no longer function and some links, such as in the case of the Warner Bros. Studio Store icon, do not provide any further information, even though Warner Bros. still has an operating online store.

Updating content not only allows for continued relevance, it also ensures that other needs are being met, such as those of disabled users through WCAG as discussed in the last section. Additionally, with increasing focus on copyright law and privacy policies, it is becoming more important for web developers to provide up to date information and stay within the legal boundaries that are in place. Lazaris (2009) discusses other areas of a website that should be maintained. He lists legal components including those mentioned above, repairs involving broken links and plug-ins, checking browser compatibility, web standard compliance through improved code, and increasing accessibility. A current trend amongst web site development maintenance includes the increasing use of mobile sites. A rise in mobile devices has called for a demand in website usability when using smaller screens with a desire for faster load time. Additionally, user needs are constantly changing and being evaluated, so an awareness of the need for maintenance to maintain contemporary operating standard is critical to allow for continued flexibility and adaptation.

# Content Management Systems

Content Management Systems (CMS) facilitate creation and alteration of information. Some notable Content Management Systems include Drupal, Joomla!, WordPress, and OpenCMS (“Content Management,” 2008). CMS can be made using different programming languages, such as Java, PHP, Perl, and many others, which will impact their capabilities. These are servers that run on browsers, most of which allow changes to be made to sites so long as the page owner or editor has internet access. CMS such as WordPress do not require an in-depth knowledge of coding and various programming languages, allowing non-coders to create their own websites with relative ease. However, web developers and organizations, can combine a CMS with other programs and tools to create more complex websites that fit their needs. For example, as discussed by Rojas-Sola, Castro-García, and Carranza-Cañadas (2011), some museums have created virtual museums that hold materials to create a digital collection. These museums can employ image-based-modeling tools to create virtual objects in a Virtual Heritage System that is then combined with a CMS that accepts components of a virtual museum (p.77). One such system is MMBase, which is a Java based Open Source CMS developed by a Dutch association designed with an emphasis on multimedia management (MMBase Foundation, n.a.). While it has not had an update since 2012, MMBase helps to showcase the variety of open source CMS tools that have been developed. CMS tools are often considered blogging tools, such as WordPress and Blogger, however, each CMS has strengths and weaknesses for different purposes. Some bloggers consider WordPress to be the lead tool for blogging while a tool like Drupal is said to be better for larger websites (Johnston, 2014). Considerations to make when choosing a CMS seem to include cost, update style (real time update versus website unavailable during updates), needs of the project a CMS will be used for (blogging versus business), and operations involving search engine optimization. In the field of library science, it has been noted that the number of libraries that are employing open source CMS has increased, according to Comeaux (2016, p. 11). Using CMS has the potential to cut down on professional outsourcing, while allowing potentially inexperienced personnel to “easily enable new features, often with little or no coding required” (p. 11). CMS are providing organizations and individuals with new tools that are increasing their potential outreach.

# CONCLUSION

Information is critical to successful communication, execution of complex tasks, and education. Organizing information requires many considerations, such as user needs. Many users are not able to interact with a website at its simplest iteration and meeting their need can entail taking additional measures to ensure that they can access and comprehend the information despite their disabilities. These considerations are part of a current trend to increase accessibility. This reinforces the need for web development maintenance for websites to ensure that they are up to date in appearance and function. Content management systems can be very beneficial in maintaining up to date websites for organizations and individuals who may lack the technical knowledge to design a site themselves, or for organizations who will benefit from infrastructures special to certain CMS. There are a variety of open source CMS tools available, so users should try to find one that best fits their needs. Mobile access is becoming increasingly important, so it will be necessary to create and maintain systems and sites that allow for easy updating and access on the go, for able and disabled users.

# Reference

Comeaux, D. J. (2017). Web design trends in academic libraries – A longitudinal study. *Journal of Web Librarianship, 11*(1), pp. 1-15. doi: 10.1080/19322909.2016.1230031

Content management systems in website design. (2008, September). *Journal of Visual Communication in Medicine, 31*(3), p. 120-121. doi: 10.1080/17453050802398629

Degani, A., Barshi, I., & Shafto, M. G. (2013). Information organization in the airline cockpit: Lessons from Flight 236. *Journal of Cognitive Engineering and Decision Making, 7*(4), p. 330-352. [https://doi.org/10.1177/1555343413492983](https://libproxy.library.unt.edu:2147/10.1177/1555343413492983)

Johnston, M. (2014). Top 5 content management systems for bloggers. *CMS Critic.* Retrieved from <https://www.cmscritic.com/top-5-content-management-systems-for-bloggers/>

Lazaris, L. (2009, Nov. 4). Website maintenance tips for front-end developers*. Smashing Magazine.* Retrieved from <https://www.smashingmagazine.com/2009/11/website-maintenance-tips-for-front-end-developers/>

MMBase Foundation (n.a.) *MMBase*. Retrieved from <http://www.mmbase.org/>

Rojas-Sola, J. I., Castro-García, M., & Carranza-Cañadas, M. (2011). Content management system incorporated in a virtual museum hosting. *Journal of Cultural Heritage, 12*(1), pp. 74-81. <https://doi.org/10.1016/j.culher.2010.10.004>

Soares, R. R. & Viveiros, I. (2017). Organization and information in the fight against crime: The integration of police forces in the state of Minas Gerais, Brazil. *Economia; Washington, 17*(2), p. 29-63. Retrieved from <https://www.brookings.edu/book/economia-spring-2017/>

Warner Bros. (1996). *SpaceJam.* Retrieved from <https://www.warnerbros.com/archive/spacejam/movie/jam.htm>

World Wide Web Consortium. (2018). *Introduction to understanding WCAG 2.1*. Retrieved from <https://www.w3.org/WAI/WCAG21/Understanding/intro>