Website benchmarking: A comprehensive approach

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Abstract: *Website benchmarking approaches within service organisations continue to vary, and a majority of researchers use subjective techniques to obtain a result. Using subjective techniques introduces the vagaries of human opinion, along with a variety of acknowledged limitations. Hence, participant interpretation of various questions related to a website can create bias. To eliminate this subjectivity we introduce a quantitative website benchmarking approach. With this 'Website Marketing, Aesthetics, Technical Ratings or WebMATRs' benchmarking approach, we offer objective website ratings at the website, domain and function levels, and suggest at these website levels comparison between websites and competitors can be useful.*

Key words: Benchmarking, website, web site, WebMATRs, quantitative, rating

1.   Introduction

Organisations are part of an ever increasing competitive global economy, continually employing new innovative techniques to remain at the forefront of their industry (Yasin, 2002). Benchmarking is used by many organisations to identify areas or methods that may need improvement and better manage resources (Adebanjo, Abbas & Mann, 2010; Yasin, 2002). One such important resource is the organisation's website.

Website benchmarking is generally accomplished with a subjective technique such as, a Likert style survey (Zhao & Dholakia, 2009; Carlson & O'Cass, 2010), a modified WebQual (Fink & Nyaga, 2009), modified balanced scorecard (Lee & Morrison, 2010), or content analysis (Zhu, Basil & Hunter, 2009). These subjective techniques can have a variety of issues, the sample groups used may not be representative of all consumers and therefore not generalizable (Kim, Kim, & Kandampully, 2009; Featherman & Wells, 2010), 'learning effect' may occur when subjects visit more than one website for the survey (Green & Pearson, 2011), and answers may be biased when the survey participants answer what they think the researcher expects (Cao, Zhang, & Seydel, 2005).

Occasionally researchers use objective techniques, such as presence/absence of components, but include a subjective rating for each component (Boisvert & Caron, 2006; Brown, Rahman & Hacker, 2006). Gonzalez and Palacios (2004) use a qualitative evaluation of websites with factor weightings. These researchers acknowledge this technique introduces subjectivity into the results due to the 'human factor' in deciding the weightings. We demonstrate that it is possible to obtain meaningful results without introducing subjectivity into benchmarking of a website by using a quantitative technique.

2.   Consistency in Subjective Website Benchmarking Measures

Benchmarking criteria differs greatly between researchers, even when it appears they are benchmarking the same thing, such as the quality of a website.

2.1 Quality Measured Subjectively

Quality is a prominent topic in website research (Yoon and Kim, 2009) although measures are grouped differently. System quality, information quality, and service quality are used by several researchers. Yoon and Kim (2009) combine them with trust and loyalty to develop an 'online store

success model', Tsai, Chou and Leu (2011) group under e-quality with a combination of e-marketing (price, place, promotion, and product) for an evaluation model. System quality, information quality, and service quality are grouped by Cao, Zhang, and Seydel (2006) under e-commerce website quality to determine the effect on customers' perceptions, preferences and intentions towards a website. Aladwani (2006) uses differing quality groupings (technical quality, general content quality, specific content quality, and appearance quality) to determine attitudes to the website.

2.2 Interactivity Measured Subjectively

Dholakia and Zhao (2009) investigate the influence of interactivity on customer attitudes. Teo, Oh, Liu, and Wei (2003) use interactivity and monitor these effects on satisfaction, effectiveness and efficiency, and in turn, monitor their influence on value, and attitude towards the website.

2.3 Usability/Ease of Use Measured Subjectively

Usability/ease-of-use of a website appears a simple criterion. However, researchers incorporate differing measures as 'usability' (ease-of-use). Lee and Kozar (2011) focus on how usability influences customer behaviour, while Green and Pearson (2011) focus on usability's influence on customer acceptance of a website, and Cox and Dale (2002) consider it to be the ease-of-use of a website.

3. Categories for a Website Benchmarking Approach

The above approaches offer subjective evaluation of websites. Several researchers include subjectivity by adopting Evans and King's 1999 approaches on 'what constitutes a website assessment approach' (Gonzalez and Palacios, 2004; Chiou, Lin and Perng, 2010). Evans and King (1999) specify 'any assessment approach has five components: categories, factors, weights, ratings, and total score.'

We do not give weights to our website categories (functions) or our factors (components) and we propose all have value, and without ratings we consider all to be of equal importance. We therefore use a numerical approach and build a total website score - and thus deem this our 'website rating'. Hence, our website benchmark approach is, by default, objective, and not influenced by subjective limitations as identified in the literature.
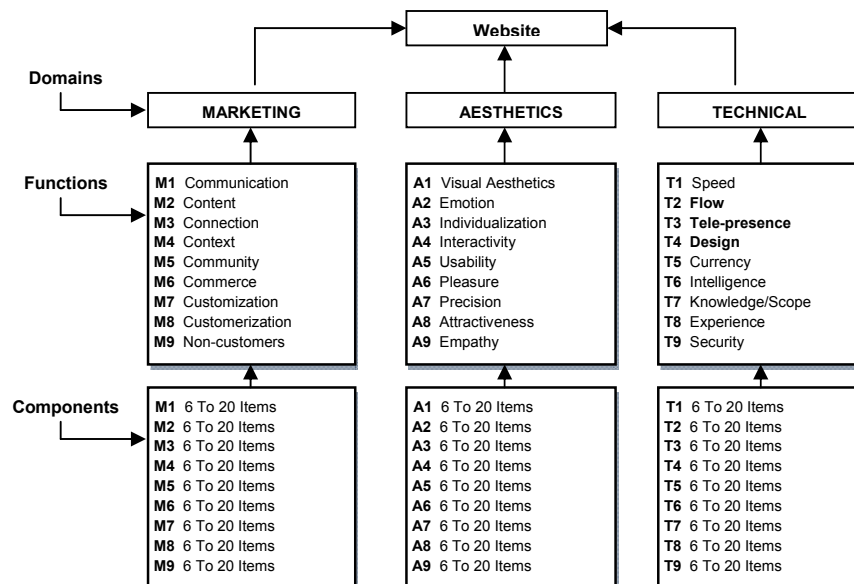

Figure 1: Website Marketing, Aesthetics, Technical Ratings (WebMATRs) approach

In constructing our approach we have identified over 250 empirically developed measures in the literature (Cassidy & Hamilton, 2011a; Cassidy & Hamilton, 2011b). These measures we group into three domains (marketing, aesthetic, and technical). Within each domain is our mutually exclusive set of website functions (Figure 1), and within each of these functions are its constituent and mutually exclusive components (Figure 1).

Boisvert and Caron (2006) specify 'a component is related to a function if it contributes to that function' (and similarly, a company phone number contributes to communication). The components making up each function, give each functions a degree of solidity. For example, the components of a communication function could be: the phone number, the company name, company email contacts, a company physical address, feedback forms, etc (Boisvert & Caron, 2006).

Our objective website benchmarking approach - termed 'WebMATRs' checks a website to verify if components are present or absent (1 or 0). This method gives a score of 'present components' for each function, which in turn gives a rating for the relevant domain, and then the scores for each domain are totalled – delivering a rating for each website.

4. Hypothesis

Each domain's rating is calculated independently of any other domain. If the functions and the components reside in one domain - such as marketing, they do not appear in technical or aesthetic domains. Similar components fit logically into only one function, and similar functions fit logically into only one domain. As can be seen in Figure 1 each domain has a set of functions that are unique to that domain, and so represents a mutually exclusive section (similar to a factor in statistics). Here, each domain rates a different area of a website, and each domain may not necessarily yield the same rating.

Retail/sales websites, such as 'Harvey Norman,' 'Amazon,' and 'Ebay' each want a high marketing domain rating. 'Android market' and 'iTunes' offer technical assistance applications, and so require high technical domain ratings. An information site such as 'Emergency Management Queensland' or the 'Australian Government' website has lower marketing domain rating expectations compared to retail/sales sites. Gaming websites - such as 'World of Warcraft' and dating websites like 'eHarmony,' target high ratings in aesthetics, technology and marketing. We therefore use 'rating' as our dependant variable for website benchmarking, and suggest this dependant variable is altered by combinations of aesthetics, technology and marketing sum-scores for the website(s) being considered.

We now present our first two hypotheses:

  H1   Each of the three domains (marketing, aesthetics, and technical) contributes towards the website's rating.

  H_2 An organisation's service-type influences a domain's rating.

The components within each function are also mutually exclusive to each other. However not all functions have the same number of components. For this reason, and to equilibrate comparisons between functions, a score out of 10 is calculated for each function. If the technical function, speed, scored '5 present components' out of a possible '8 components,' the score calculates as 6.25 out of 10 (equation 1). If a function has more than 10 components a score out of 10 is still calculated – as shown in equation 2.

$$\frac{5}{8} \times \frac{10}{1} = 6.25 \quad (1)$$

$$\frac{12}{15} \times \frac{10}{1} = 8 \quad (2)$$

We now present our third and fourth hypotheses:

  H_3 Each function of a domain within a website is of equal importance to its domain.

  H_4 Each function of a domain within a website contributes to its domain.

5.   Methodology

This research is designed to find a method of benchmarking websites that is not subjective. The first step, reviewing the literature, identifies 250 empirically developed measures. After studying the literature three domains emerge for classification of the measures; Marketing, Aesthetics, and Technical. Each domain is then divided into 9 functions, and within each function, between 6 and 20 components (or measures) exists. We consider 4 to be the lowest number of components acceptable – in a similar vein to that of solid factor analysis.

Data collection emanates from ten different service industry websites. From our literature determined domain functions we deploy an 'expert' website analysis team – each with a specific area of expertise relating to websites. We include experts from: information systems, information technology, design, business management, marketing and information management (CIO) in this website' analysis team. The analysis by each expert of the set of ten websites provides a domain level rating, and an overall rating for each website. These ratings enable the ten websites to be compared against each other. We can also rate each website against a fully featured website to see what is lacking, and then investigate adding selected components, again checking the new benchmark score against perceived changes.

Consider two marketing websites X and Y with strong functional contributions to marketing domain and weaker functional contributions the other two domains. The organisation owning website X wants to rate their website against website Y - as website Y appears to be more popular. Figure 2 demonstrates that although website X is not a poor website, and rates well in its marketing domain, website Y still shows a higher rating for its marketing domain. Website X's owners now recognise they have a competitive target (website Y), and may now choose to change/improve their website by adding missing marketing components in-line with those of website Y, or they may choose to differentiate adding alternative marketing functions to those of website Y. Hence website X is repositioned into a different competitive marketspace.
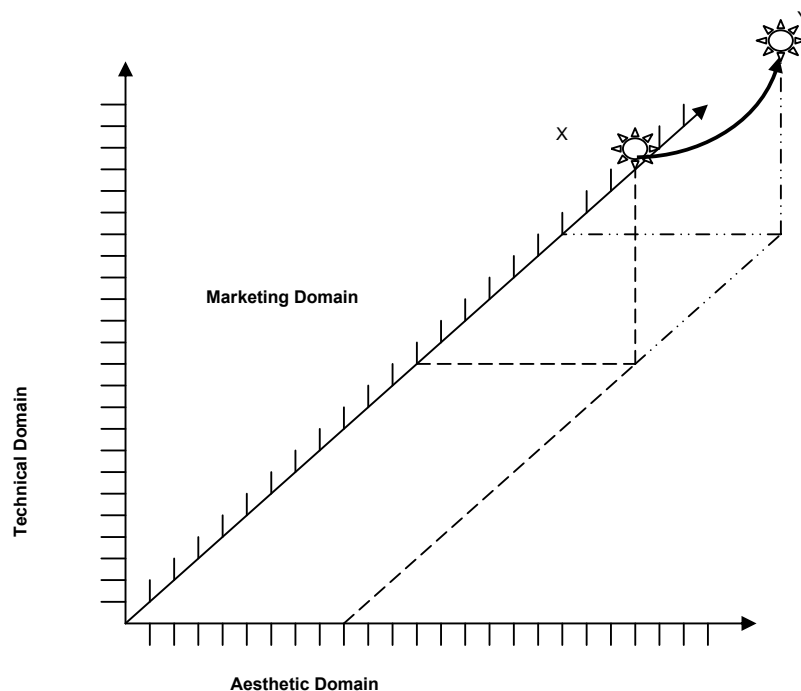

Figure 2: Website ratings graphed

7. Conclusion

We have demonstrated that it is possible to develop a website benchmarking approach that is quantitative. This removes human subjectivity and human bias when assessing websites. We show that measures identified in the literature can be collated into three separate domains (marketing, aesthetics, technical), and that each domain may contribute differently to the website's rating. We explain how the focus of different organisations can influence the rating of each domain, and we show in Figure 1 how each function contributes to its domain. We also demonstrate, and discuss, the mutual exclusivity of each domain's components and functions. WebMATRs offers a website benchmarking approach that allows organisations to, extensively, and quantitatively, rate their website across all three website domains. This approach also allows comparisons to be made at the website, domain and functional levels within service industries (Figure 2), and possibly between different service industries.

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