Usability News

January 1999, *Vol. 1 Issue 1*

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Usability News is a free web newsletter that is produced by the Software Usability Research Laboratory (SURL) at Wichita State University. The SURL team specializes in software/website user interface design, usability testing, and research in human-computer interaction.
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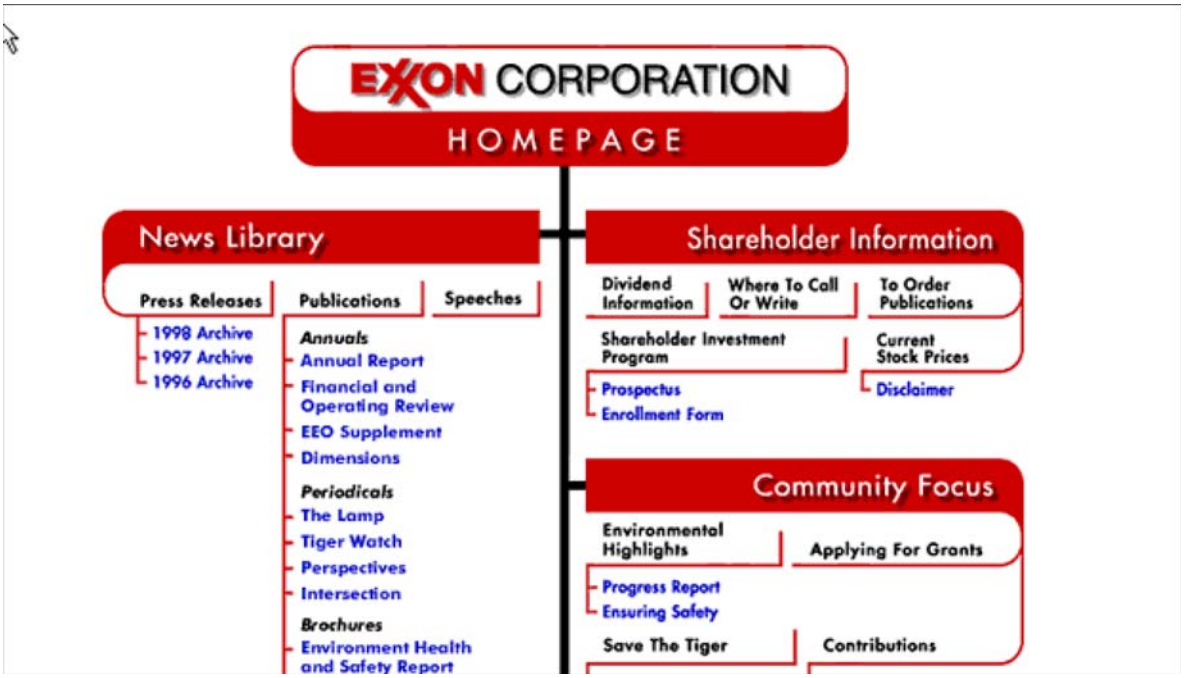
Preliminary Findings on the Use of Sitemaps

By Michael Bernard

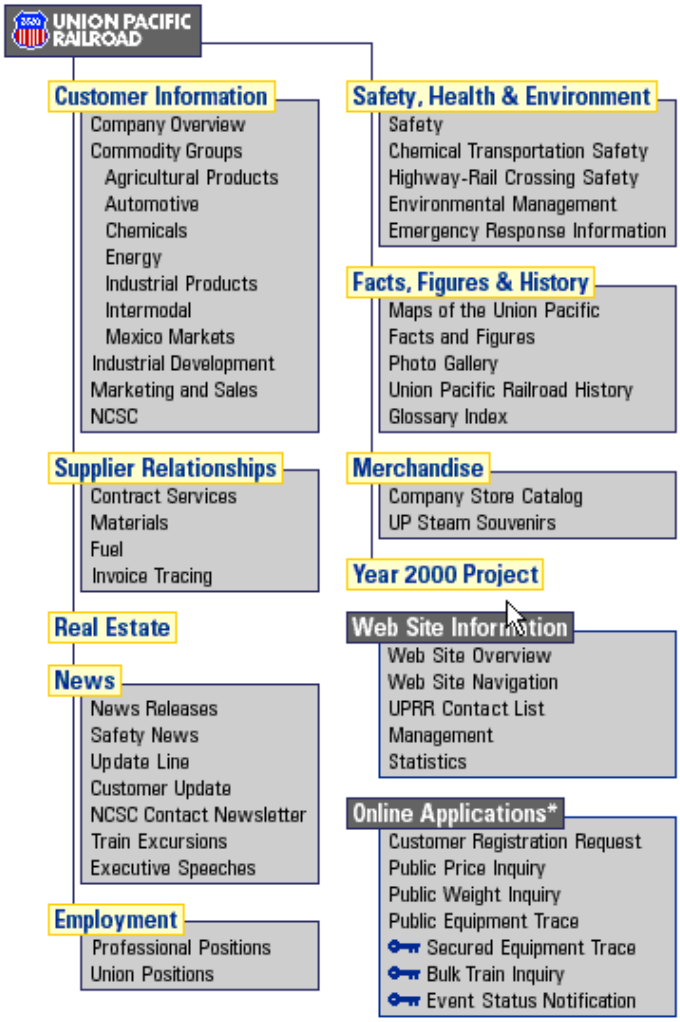
Users often become lost when navigating on the World Wide Web. In fact, one study found that users fail to find specific information 58% of the time (GVU, 1989) due to navigational errors. This can be attributed, in many respects, to users becoming overwhelmed by the countless directions they may take within the site, resulting in a sense of disorientation or "lostness" within this site. This can even occur in relatively small sites (see Smith, 1996).

One recommended method has been the use of navigational sitemaps within medium and large web sites. Sitemaps, which attempt to present a structural representation of a web site, are believed to assist users in conceptualizing the framework of a site, thus enabling them to organize the information within the site. As a result, cognitive workload is reduced allowing the user to concentrate on finding desired information instead of figuring out the site's navigational structure.

We are currently investigating the usefulness of sitemaps. Preliminary results from our research indicate that sitemaps may indeed be beneficial in reducing lostness. We asked users to find specific information in a web site by starting from one of two pages—the site's home page or its sitemap. We studied two different web sites— Exxon Corporation (www.exxon.com) and the Union Pacific Rail Road Corporation (www.uprr.com). (These two sites were chosen because of their similarity in size and organization &emdash; both sites displayed hierarchical sitemaps.)



Exxon's sitemap



Union Pacific Rail Road's sitemap

Users started by familiarizing themselves with the sitemap or home page for five minutes. After this, they were instructed to search for answers to six questions that pertained to that site, examining any link they wanted until they found the appropriate information. After each question they returned to the beginning page, which was either the home page or the sitemap page, and began the next question. For each question, the number of nodes it took to complete the task was recorded. After answering all six questions, they answered a satisfaction questionnaire pertaining to that site. After the first site was completed, users repeated this procedure with the other site, starting from the sitemap if they originally started from the home page or the home page if they originally started from the sitemap.

To compare the two groups (those who started from the home page and those who started at the sitemap) difference scores were computed. The number of nodes it took to complete the task correctly (optimal path) was subtracted from the number of nodes it took the user to find the correct answer. The results for the Exxon site showed that the number of total extra nodes traversed when beginning at the sitemap was lower than when starting at the home page ($M = 14.33$ and $M = 20.14$ respectively) across all tasks. Similar results were shown for the Union Pacific site ($M = 7.78$ and $M = 14.22$ respectively). This outcome (marginally significant in the case of UPRR) leans toward the notion that using a sitemap for navigation may allow the user to traverse the site more readily. In addition, subjective comments by the users also favored the use of the sitemap.

Though preliminary, these results show that the use of sitemaps may help users reduce their sense of lostness. Styles of sitemaps vary, however, from simple indexes to elaborate graphical representations. In a survey of over 400 sites, we found almost half (46%) did not have any sitemap at all. Of the half that did have a sitemap, 89% used a hierarchical textual representation (such as Exxon and UPRR) and 11% displayed a graphical depiction of the site. We are currently investigating the usefulness of these different styles.

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