It may be possible to reorganize the structure of a WAP site to obtain a desired usage pattern by motivating the appropriate behaviors.

value of a page is negative, it may be worthwhile to proceed if there is some likelihood that a collection of high-value pages may be found later. If the value is sufficiently negative, however, the risk associated with continuing to surf may rise to an unacceptable level; that is, when `VL` falls below some threshold value, it is optimal for the person surfing the Web to stop.

The number of links a user follows before the page value reaches the stopping threshold is a random variable `L`. For a random walk of Equation 1 the probability distribution of first passage times to a threshold is given asymptotically by the two-part inverse Gaussian distribution [9], as in with mean `E(L)` = μ and variance `Var(L)` = $\mu 3/\lambda$

$$P(L) := \sqrt{\frac{\lambda}{2\pi \cdot L^3}} \cdot \exp\left[\frac{-(\lambda \cdot (L-\mu))^2}{2\mu^2 \cdot L}\right] \tag{2}$$

where λ is a scale parameter. This distribution has two characteristics worth stressing in the context of surfing patterns. First, it has a very long tail, extending much farther than that of a normal distribution with comparable mean and variance. It implies a finite probability for events that would be unlikely if described by a normal distribution. Consequently, large deviations from the average number of user clicks computed in a session will be observed. Second, because of the asymmetry of the distribution function, the typical behavior of users will not be the same as the average behavior. Thus, because the mode is lower than the mean, care must be exercised with available data on the average number of clicks, as the average overestimates the typical depth surfed. This distribution was shown in [7] to accurately characterize Web surfing patterns, producing the so-called Universal Law of Web Surfing.

To test the generality of Equation 2 we applied it to our corpus of mobile Web surfing sessions. This data corresponds to four weeks of browsing activity—during September 2002—for the almost 421,000 unique European users across more than 3.75 million sessions in the portal. In the analysis, we discarded all sessions of length one, because they were not representative of a true browsing session.[1] This reduced our sample to 3,006,385 sessions by 350,635 users. A measured cumulative distribution frequency (CDF) of depth `L` for the four weeks is outlined in Figure 1; superimposed on the plot is the predicted function from the inverse Gaussian distribution. Using the chi-squared-goodness-of-fit test, we found a fit of 0.99, accounting for 99% of the data.

Performing a similar experiment in 1998, [7] found similar distributions for users surfing a variety of Web sites, as well as for users surfing within a large Web site. In each case, the fit between the CDF and the inverse Gaussian distribution was found to be significant. As distributions of user hits on the regular Web and on the mobile Web are almost identical, we found that, despite the device and other differences, users surf in similar ways in either context. Each community tends to favor short regular browsing sessions.

An interesting implication of this surfing law is

[1] Sessions of length 1 correspond to a user opening a browser, then closing it (accounting for 76.73% of such sessions) or to a user visiting bookmarked pages (accounting for the other 23.27% of such sessions). These sessions tell us little about surfing behavior. This lack of information also means that for the remainder of our calculations a session said to have contained t clicks actually contains t + 1 clicks.