

REPORT OF THE WEB STRATEGY PROJECT  
April 24, 2000

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The Web Strategy Group was originally appointed by Rice University President Malcolm Gillis in December 1999 and enlarged in January 2000 to include additional representatives from the campus. The agreed upon charge for the committee was to:

- Recommend how Rice should position itself with respect to its peers in the utilization of the worldwide web.
- Identify up to ten high priority objectives for the utilization of the web.
- Recommend the composition of a team of people to develop specific implementation strategies for realizing the priorities identified.

In a preliminary meeting of the original Web Strategy Group<sup>1</sup>, Nextera Interactive, a consulting firm working primarily with corporate clients on web strategy, was asked to facilitate (gratis) the discussion. They were later engaged formally to provide continuing advice and facilitation as the final Web Strategy Group<sup>2</sup> undertook its discussions. The most important outcome may have been in the process itself, rather than specific conclusions. For the first time, a group of senior Rice leaders—both administrative and academic—worked collectively on issues related to the use of the worldwide web. This group spent cumulatively more than two full working days together. All came away with a more comprehensive (albeit largely non-expert) understanding of web issues and opportunities at Rice. The journey from stated objectives for the group to recommended next steps was not as straightforward as anticipated, but the shared recognition of key issues will make the further development of Rice's web strategy more effective.

President Gillis had already expressed the opinion that Rice should develop a web strategy that is "one centimeter behind the leaders." Overall, the Web Strategy Group agreed with this position as a general statement of objective. However, there was also strong consensus that Rice should seek to be a leader in some selected areas where there was significant comparative advantage.

***Statement of Position.*** Overall Rice should strive to be just behind leading universities in web applications, but it should strive to lead in three applications areas: 1) two to three "flagship" educational applications, 2) in recruiting and retaining graduate students; and 3) in high impact administrative or outreach applications involving low risk and small investment.

Specifically, the Web Strategy Group had the following recommendations:

***Educational Applications:*** A group similar to the Web Strategy Group, but consisting largely of faculty, should be empanelled to address the issue of creating flagship educational applications. This group might well begin by taking a stab at answering the question: How should Rice's educational program be transformed in the next 10-20 years through the exploitation of technology?

<sup>1</sup>The original group consisted of Sidney Burrus, Tony Gorry, Eric Johnson, Mark Scheid, Terry Shepard, and Gil Whitaker, with Eric Johnson serving as convener.

<sup>2</sup> The group was enlarged to include additional executive level participants, as well as in-house web and infrastructure experts, a faculty member and a student. See Appendix 1 for the full list of participants.

**Graduate Recruitment:** Resources and leadership should be devoted to developing a graduate recruitment application now. The application is high priority, offers important leverage in a key area, and is sufficiently novel to justify making a determined effort to develop the best web application we can.

**High Impact, Low Risk, Low Cost Applications:** Where there are low risk, low investment applications that match the priorities articulated by the group and represent opportunities to lead, they should be encouraged and supported. Resource Development, for example, intends to move ahead to develop a leading alumni relations/development website using divisional resources.

**Resource Allocation:** We estimate that \$1.5-2.0 million would be required to upgrade the information technology infrastructure to create the environment needed, and another \$0.5-1.5 million for developing outstanding web applications. We recommend that for planning purposes, sufficient funds to cover these costs be built into budgets over the next 2-3 years.

We have not made specific recommendations on the composition of teams to carry forward the recommendations above. In part those recommendations would require additional discussion about specific objectives (e.g., the composition of a team to press forward on educational applications may depend on the domains to be approached) and should be guided by the new leadership for the information technology division at Rice. In other cases, the teams will be self selected as divisions pursue applications with their own resources.

## IMPORTANT OBSERVATIONS

The Web Strategy Group used the Nextera Interactive team to gather information about other universities' web strategies and web sites and to guide a discussion aimed at helping the team develop an understanding of the issues facing both industry and education with respect to the web, as well as benchmark Rice's position with respect to other universities. This effort included a half-day examination of MIT's approach to utilization of the web. We also used them to help collect information on the existing infrastructure and support for web utilization within Rice. The Nextera team facilitated two one-day workshops with the Web Strategy Group on February 1 and February 10. There were a number of key observations and lessons learned that should be taken into account as Rice develops a more comprehensive strategy for effective utilization of the web.

### ***Changing Models for Education Delivery***

While the Group believes that Rice will remain essentially a highly selective, residential university experience, the changes in education and the emergence of virtual universities<sup>3</sup> are likely to influence how residential university education will be delivered in the future.<sup>4</sup> This will require careful articulation of a vision for Rice's educational experience so that new technologies can be exploited in a strategic way. Professor James D. Bruce, Vice President for Information

<sup>3</sup> Such as Western Governors University (<http://www.wgu.edu>), Open University (<http://www.open.ac.uk>), Kentucky Commonwealth Virtual University (<http://www.kcvu.org>), University of Illinois (<http://www.online.uillinois.edu>) and for-profit educational institutions such as UNEXT (<http://www.unext.com/>).

<sup>4</sup> A recently published report by the National Center for Education Statistics entitled Distance Education at Postsecondary Education Institutions: 1997-98 (<http://www.nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000013>) does not suggest any sea change in the development of distance education. The conclusions indicate that most of the growth in distance education between 1997 and 1998 has been limited to post-secondary institutions that were already providing distance education in back in 1994-1995. Nonetheless, Rice needs to have a stronger awareness of the changes taking place in the delivery of education.

Systems & Professor of Electrical Engineering at MIT, remarked that MIT needed to articulate what kind of educational experience it wanted to deliver twenty years from now before it could define a specific strategy for its use of the Web. The same is no doubt true for Rice.

***Benchmarking***

While Rice is behind some of its competitors in exploiting the web, no other university appears to have a comprehensive strategy in place. For example, MIT, which is acknowledged to have a strong web presence, admits they have no comprehensive strategy. Notwithstanding, they are ahead of Rice in some applications and we found examples of specific applications (e.g., admissions and alumni relations) where other universities are leading.<sup>5</sup>

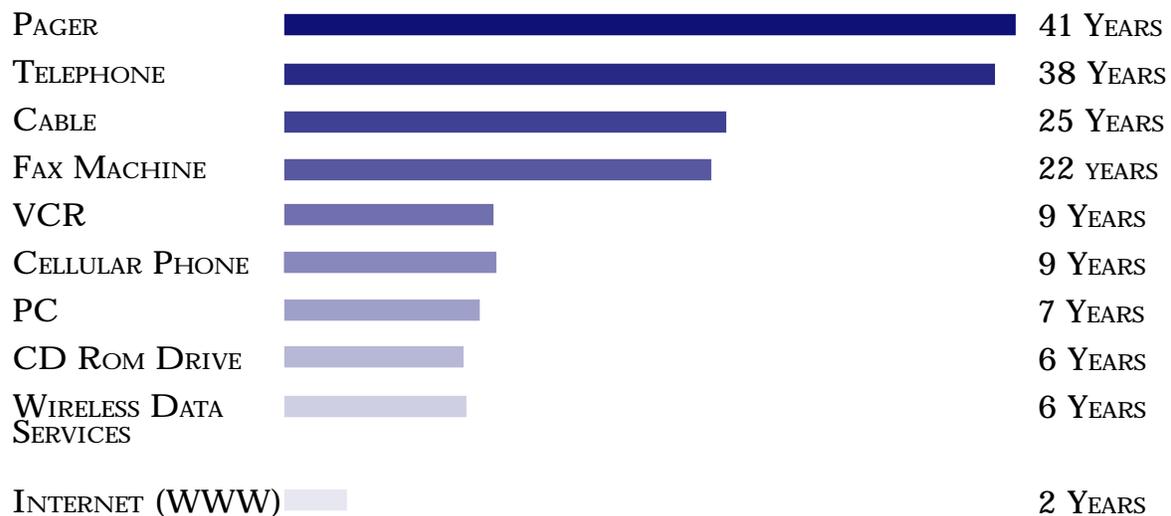
***Evolution of the Web***

The worldwide web as a technology is evolving very rapidly, and many of its most effective applications—even educational applications—are evolving outside of academia. This is in contrast to the past when the forces driving change in the delivery of education have developed largely inside the academy (*see figure 1*). This suggests that Rice needs to move quickly with help and expertise drawn from both the university and business. It also suggests that we may need to acquire internal leadership talent with experience that supplements what we now have, and rely more heavily than normally on outside assistance.

*figure 1*

TIME TO REACH 10 MILLION CUSTOMERS  
AFTER INTRODUCTION INTO MASS MARKET

*Source: Kathleen Earley, AT&T*



***Information Infrastructure***

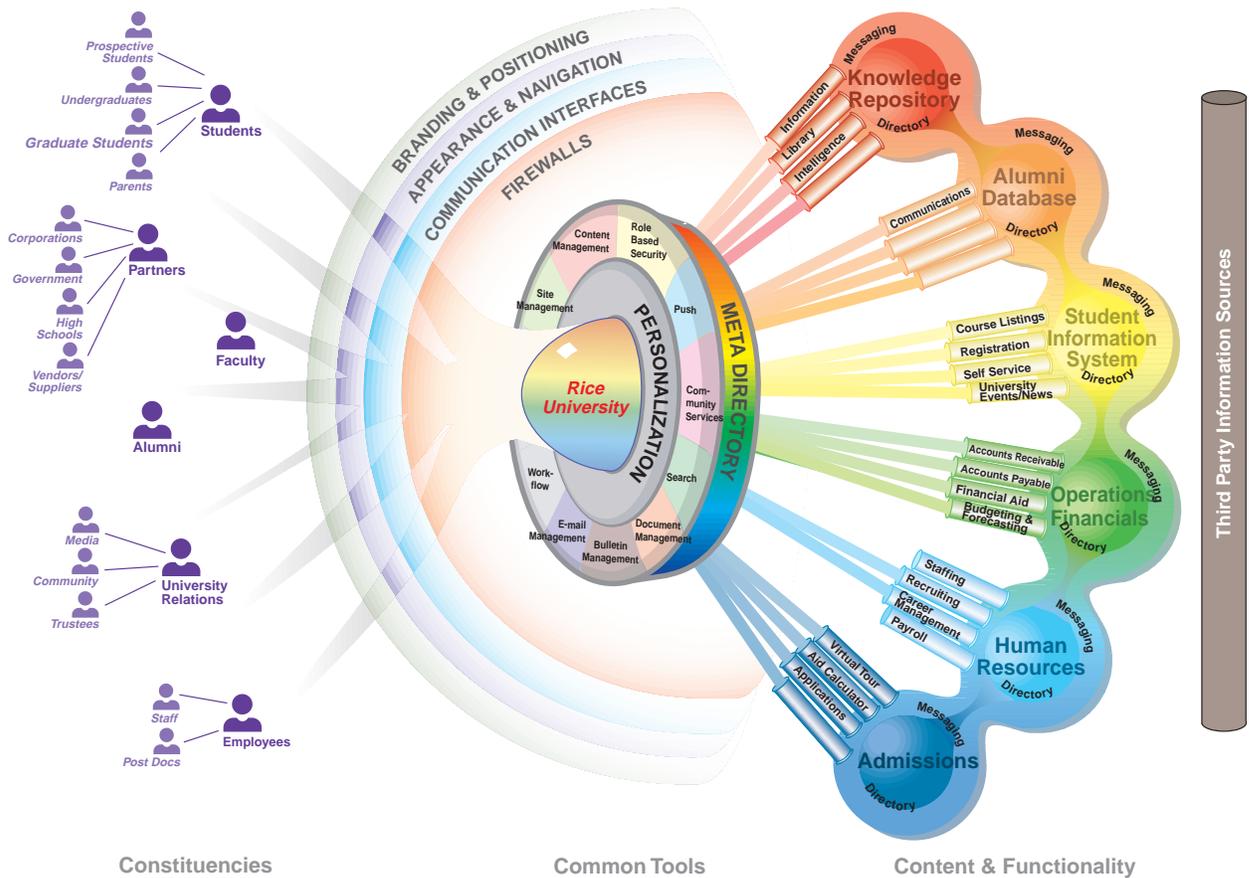
The successful exploitation of the worldwide web depends mightily on having an information infrastructure that is capable of exploiting the key opportunities presented by the web. In this regard, the Web Strategy Group did not have as strong an understanding of the capabilities and limitations of Rice’s infrastructure as it probably needed, although a preliminary audit of the infrastructure was undertaken as part of the closing efforts of the Group. That audit suggests that additional investments in the infrastructure are needed.

<sup>5</sup> Examples include: Admissions at Carnegie-Mellon (<http://www.cmu.edu/enrollment/admission/>), Alumni relations at Harvard (<http://www.haa.harvard.edu/>) and MIT (<http://ans.mit.edu/>), Wharton Business School (<http://www.wharton.upenn.edu/>) and Marketing & Brand Development at Stanford (<http://www.stanford.edu/>)

**What should Rice's position be vis-à-vis the Web?**

Conceptually, the development of Rice's internet or web strategy can be summarized best in a visual representation developed by Nextera Interactive, entitled "Strategies for Creating the Rice University Internet Portal" (see figure 2). It is not, itself, a roadmap, but illustrates conceptually the relationship between potential constituencies, the content and functionality of the web sites, and the common tools to interconnect them.

figure 2



**Educational Applications**

The Group concluded early on that Rice should seek to develop 2-3 outstanding educational applications of the web; applications where Rice could lead its peers. These were generally interpreted to mean applications that could be used by Rice (and perhaps eventually offered to others) to enrich the educational experience of our residential students. These did not exclude possible "distance learning applications" offered to students outside the university, although distance learning was not the focus of the statement of objective.

While we had an extended discussion about educational applications, the group recognized that we did not have the right academic representation in the Group to permit further development of this recommendation.

### ***Other Applications***

In some administrative or outreach applications, the Group agreed that Rice should take a leadership position, either because an application offered considerable comparative advantage for Rice, or because there were low cost/low risk applications with relatively high impact associated with being a leader. For example, one of the highest priorities identified (see below) was to effectively utilize the web to attract and retain better graduate students. We were aware of no other university that has focused on this objective, and attracting better graduate students for Rice is one of the greatest leverage points for improving the quality of the university.

If there are high priority or high impact web applications that require low investment and incur low risk, it was felt that these applications should be pursued by the appropriate divisions, and that these divisions should be encouraged to develop the best possible applications. For example, developing the “best” alumni and development website may be within our reach, at relatively low cost and low risk and within divisional resources. If such applications are achievable while developing a more comprehensive web strategy for the university, they should be encouraged and pursued.

## **WHAT ARE THE TOP PRIORITIES FOR RICE?**

This topic occupied most of the discussion at both the February 1 and February 10 meetings, as well as sub-group meetings between these full day sessions. In the second half of the February 1 meeting, we brainstormed ideas for the top priority issues. Nearly 40 specific issues/priorities came out of the brainstorming session, which were cataloged into five broad categories: External Relations, Internal Relations, Infrastructure, Quality, E-Commerce, and Graduate Students. We agreed in this session that the first three categories were the highest priority. (To a great extent, we decided that the issues of Quality—e.g., keeping websites up-to-date and tracking, profiling and reporting results of web traffic—were implicitly imbedded in anything we do.) Subcommittees for External Relations, Internal Relations and Infrastructure were charged with processing the set of topics and coming back to the February 10 meeting with specific recommendations. At the February 10 meeting, we identified specific priorities arising from each of these three groups.

### ***Educational Applications***

As discussed above, developing educational applications of the web was the top priority of the group. However, the group also recognized that it was not of the right composition to go much beyond this recommendation. It will require a group of faculty and other experts to develop this part of Rice’s web strategy.

#### ***Educational Applications Priorities:***

- Rice should develop 2-3 key educational applications of the web in which it can achieve a leadership position with respect to its peers.

### ***External Relations***

Although Graduate Recruitment had been first identified as a stand-alone issue that was not identified as a critical priority in the February 1 meeting, *graduate recruiting emerged as the top priority* of the External Relations sub-group between the February 1 and February 10 meetings. Sidney Burrus effectively argued that recruiting and retaining better graduate students offered by far the most leverage in improving Rice. He understood and agreed that recruiting outstanding

undergraduate students was very important, but the quality of these students is already so high that there was not as much leverage as there is with graduate students. Furthermore, to our knowledge, no other university has made recruiting graduate students a specific focus of their web strategy. Additionally, a graduate recruiting strategy might have a significant impact on our reputation among faculty in other universities.

After graduate student recruitment, the External Relations sub-group identified three other audiences as key: other academics (principally faculty at other institutions), prospective undergraduates, and alumni.<sup>6</sup> *Customized portals for these external audiences emerged as the second priority* of the External Relations sub-group. The sub-group also recognized that some audiences might be reachable through low cost, low risk investments (e.g., alumni) that are likely to develop anyway, and that the category of other academics might be reached by an effective graduate recruiting web strategy.

*External Relations Priorities:*

- Graduate recruiting
- Customized portals for other audiences: other academics, prospective undergraduate students, and alumni.

***Internal Relations***

Among the issues that the Internal Relations sub-group evaluated were impressions created by Rice's web presence and the dissemination of information for students, faculty and staff via the web. Although this sub-group focused on internal audiences, there was an inevitable overlap with some external audiences, particularly prospective students.

Printed material is still being distributed to prospective students. Approximately 80% of interested high school students are seeking information about their prospective university on the web. Therefore the web is regarded as the major source for students and parents seeking information about universities and fast and organized presentation of content is essential. In an environment where top students are receiving copious amount of mailings from many universities, students and their parents were looking for reasons to eliminate certain schools. It was felt that a bad web experience could provide a reason to eliminate Rice as the school of choice for top students. Among some of Rice's competitors, Princeton has pioneered with a financial aid calculation page that has attracted lots of attention; MIT was perceived as providing superior site navigation.<sup>7</sup> Next to facilitating the extraction of information via speed and navigation, the group felt the site-visitors' expectations of new and current content had to be met. An online student newspaper would be a good source of information about a campus, provided the content is current.<sup>8</sup> When students look at a cluster of school web sites, they are looking for ease of navigation, consistent appearance and breaking news.

The group suggested that once students have decided upon a school, they are aware of what they will be studying and they look for the syllabi to provide answers to questions. Currently Rice University's syllabi offering on the web appears sketchy.

<sup>6</sup> Of these, other academics (faculty at other universities) were the top priority due to the importance of faculty recruitment and university rating polls which are conducted by faculty. In these polls perception is very important. The sub-group also recognized that an effective graduate recruiting effort would provide considerable overlap with faculty.

The sub-group identified the volume and targeting of information via email to be problematic within the Rice community. The accumulated good use of an increasing number of legitimate mailing lists could become self-defeating as overwhelming amounts of information are distributed. In filtering email it becomes important to determine which crucial information passes through the barriers. Also, a wider use of web calendars was suggested to improve the dissemination of information.

It is important to remember that the Rice “brand” is very important, and the web strategy needs to communicate the positives of that brand. Among other things, this means a strong commitment to a consistent image across the web applications we can control.

*Internal Relations Priorities:*

- Standardized web page design/navigation
- Course syllabi on the web
- Maintenance and updating of web content
- Controlling volume of email

*Infrastructure:*

The priorities for the information technology infrastructure proved more difficult to define. Within the Web Strategy Group there was not a comprehensive understanding of the current status of Rice’s information infrastructure, and perhaps even less understanding of just how that infrastructure affected the priorities the Group identified in areas like educational applications, external relations and internal applications. Additionally, there were potential interrelationships among various possible priorities for utilization of the web that might impact the information technology needs, or at least the timing of the investments.

Consequently, the Infrastructure sub-group was asked to develop a more comprehensive description of: 1) the status of Rice’s infrastructure today with respect to the demands of educational, external and internal web applications; 2) where Rice can be in two years, taking into account the priorities the Web Strategy Group had identified and the interrelationships of those priorities; and finally, 3) what they would see as the “ideal state” of the information technology infrastructure at Rice. The sub-group was also charged with providing some ideas about the investments required to reach at least the state they defined as possible within two years.

Because these descriptions were developed within a very short time, they should be viewed as a guide and estimate of the order of magnitude of expenditures needed, not a well-defined road map. (See Appendix 2) Although some applications can be developed and implemented with minimal investment, it is also clear that in order to provide the infrastructure needed to achieve a position “one centimeter behind the leaders” will probably require an investment over a period of 2-3 years of \$1.5-2 million, if their overall estimates are correct. In addition, another \$0.5-1.5 million would need to be invested in the design of high quality web sites for administrative and outreach applications. We were unable to estimate the cost of developing educational applications, but it is probably fair to assume that with a strong information technology infrastructure, the additional costs associated with leading educational applications could be raised from foundations, NSF and others.

<sup>7</sup> Princeton’s Estimator ([https://web.princeton.edu/cgi-bin/FinAid/finaid\\_form.pl](https://web.princeton.edu/cgi-bin/FinAid/finaid_form.pl)), MIT (<http://www.mit.edu>)

<sup>8</sup> See, for example, the Harvard Crimson (<http://www.thecrimson.harvard.edu>).

### ***Conclusions***

Because of the pending changes in the leadership for the information technology activities at Rice, this report should be viewed primarily as context for the new leadership—representing the assessment of priorities and opportunities as defined by the Web Strategy Group. It postulates some principles on how this group believes Rice should position itself for exploitation of the Web, and it has identified some priorities based on the limited discussions of the group. Rice University should focus immediately on leadership in two or three educational applications, graduate student recruitment and a few high-impact, low-cost web applications. To develop these and other highly recommended applications will require an investment in the information technology infrastructure at Rice, as well as an investment in the recommended web applications. We estimate this effort will require \$2.0-3.5 million over the next 2-3 years and will demand budget considerations for on-going support and renewal costs to update content, incorporate new technologies, and administer the infrastructure for the web applications.

## APPENDIX 1

### Members of Web Strategy Group:

Sidney Burrus  
*Dean of Brown School of Engineering*

Dean Currie  
*Vice President for Finance and Administration*

William Deigaard  
*Director of New Media & Student Computing*

Tony Gorry  
*Vice President for Information Technology*

Eric Johnson  
*Vice President for Resource Development*

Merritt McAlister  
*Sophomore at Hanszen College*

Dale Sawyer  
*Professor Geology and Geophysics  
Master, Will Rice College*

Mark Scheid  
*Assistant to the President*

Terry Shepard  
*Vice President for Public Affairs*

Alan Thornhill  
*Executive Director of Data Applications Center (DACnet)*

Gil Whitaker  
*Dean of Jones Graduate School of Management*

Ann Wright  
*Vice President for Enrollment*

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**APPENDIX 2**

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**APPENDIX 2**