

**Space Management: Maximizing accessibility of on-Grounds facilities and instructional spaces at the University of Virginia**

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## **Abstract**

*At the University of Virginia, a team was formed to examine a wide range of student programming issues and envision an environment supporting student participation in extracurricular activities. One recommendation streamlined a method for faculty, staff and students to request space for events. Over the course of four years, and utilizing the National Association of University Business Officers (NACUBO) Business Process Redesign (BPR) methodology, three teams were successful in implementing an on-line space reservation system.*

*The delivered product increased opportunities for extracurricular activities for students and created an efficient reservation process across Grounds. At the time of implementation, students, faculty, and staff could reserve any of the 753 spaces. Recent statistics showed the number of events scheduled increased 73% and instructional space, previously not accessible for event functions, is now available for reservation by academic and student council organizations.*

*Additional benefits realized during and after implementation were the approach and management of team facilitation. Recommendations included the need for structured team building activities, the need for clearly defined roles with each team and sub-group and the need to document strategies, outcomes and results during each phase of the project.*

## **Organization**

The University of Virginia (U.Va.) is located in Charlottesville, Virginia, in the foothills of Virginia's Blue Ridge Mountains. It is home to over 40,000 residents with a metropolitan population nearing 200,000. This public institution was founded in 1819 by Thomas Jefferson with the first class entering U.Va. in 1825, and the first degree was conferred in 1828. Currently the University has eleven schools and a medical center offering 199 degree programs. In the fall of 2007, there were 20,834 students including 13,636 undergraduates. The operating budget for 2008-2009 fiscal year was \$2.2 billion.

The University overall has consistently held high rankings, often leading the list among public schools. University faculty, staff and students are consistently committed to serving both the local and national community. The university makes a real difference in the world, through its invaluable research, a hospital ranked among the nation's finest, and graduates who have consistently been among the forefront of our nation's shapers. At the University, our bright future is the direct result of our great history.

## **Problem/Initiative**

In 2001, a team was formed to examine a wide range of student programming issues and charged with envisioning an environment supporting student participation in extracurricular activities or events; thereby enriching students' lives. In December 2001, this team recommended thirty solutions for improving student programming; one being to streamline the management of space utilization around Grounds.

The struggle to find reserveable space on Grounds for meetings, rehearsals, storage, events, and performances was challenging and confusing; many of the University's finest spaces proved exceptionally difficult to reserve. The reservation process was decentralized, lacked a

comprehensive list of spaces and schedulers, and had varied in policies and procedures throughout the University. Additionally, the option to search for a space via the Internet did not exist and room and equipment fees barred many from reserving spaces. Realizing a need to provide easy access to reserveable spaces, thereby providing an opportunity for student driven extracurricular activities, an on-line reservations system was recommended and approved.

## **Design**

Throughout the project, the Office of Process Simplification (PS)—the formal process improvement unit at U.Va., facilitated many teams; the Student Organizations and Programming Team (SOP); the University Space Utilization System Team (USUS); and the Resource 25 Team (R25 Team). Using the National Association of University Business Officers (NACUBO) Business Process Redesign (BPR) methodology each team was responsible for completing one phase of the project. This three phased approach encompasses the following: 1) *Discover*--laying the foundation for change and identifying/prioritizing opportunities to improve a process and create a business case for change; 2) *Redesign*--analyzing selected solutions in detail and identifying solutions to enable change, innovate, redesign and develop implementation plans; and, 3) *Realize*--finalizing plans, implementing processes—including changes in policies, organization, work procedures, staff assignments, training and technology; and finally sustaining the solution (Dougherty, Kidwell, Knight, Hubbell, & Rush, 1994).

The project, in its entirety, spanned four years starting with the formation of SOP and concluding with the implementation of an on-line space reservation system in the summer of 2005. Over the four year project, 52 faculty and staff members were engaged on a part time basis. Resources overlapped between projects and sub-committees--including the Information

Technology and Communication (ITC) development staff and 22 schedulers were trained throughout Grounds to manage reservations requests for go-live of R25. At the time of implementation, 37 employees were designated as system administrators or schedulers of R25; and all faculty, staff, and students could request a space reservation.

Development fees from ITC were absorbed within the department and therefore no extraneous expenses were applied to project costs. Initial and first year costs equaled \$136,277 including training. Additional support fees for the following four years were expected to be less than \$50,000. Additional staff was added to the University Registrar's office (UREG) and totaled one full-time system administrator/programmer.

## **Implementation**

Adhering to NACUBO's three phased approach, the *Discover* phase, included research and recommendations provided by the SOP team originally formed to examine student programming issues across the University. The team charge encompassed the following: 1) to explore ways in which technology can streamline and improve support; 2) to improve the quality and exchange of information concerning programming and student organizations; 3) to recommend priorities for funding of programming; 4) to create a formalized, integrated assessment of programming; 5) to revise or create University policies governing programming in response to evolving student demographics and philosophies of student services; and, 6) to consider a system of student program advising.

Over a year period, the team finalized their research into a cumulative list of thirty recommendations covering all components listed above—one being a need for an on-line space reservation system. A sub-committee was formed to identify important attributes and to research

potential solutions for this recommendation. Attributes deemed critical were the following: 1) the system should be web-based and accessible from any computer; 2) the system should be searchable; and 3) it should be customizable both by users and owners. Systems reviewed were, Resource 25 (R25), the upgraded form of 25E/Schedule 25, used by the UREG for classroom reservations; EMS' Enterprise system, the upgraded version of the system used by various departments of the University; and Corporate Time, used by many staff and faculty around Grounds.

While conducting this research, it was discovered Schedule 25E was to be retired; an interim home-grown solution was being developed called the Catalog of Meeting Places and Student Spaces (*COMPASS*) by the Information Technology & Communication (ITC) however, *COMPASS*, was not expected to meet the needs of the University long-term and did not have an on-line component. Thus, another critical attribute was identified: the new system would have to be implemented in a fairly short time-frame. At conclusion, R25 was the recommended solution. Research into the usability, compatibility with existing University systems, and opportunities for customization was further needed and was completed during the next phase of the project.

The *Redesign* phase initiated the development of the USUS team charged with: 1) completing further research of the recommended solution, R25; 2) benchmarking other universities using R25; and, 3) conduct a high-level cost analysis associated with purchasing and implementing the potential solution.

Benchmarking provided highly divergent examples in the use of R25; the University of Richmond centralized all activities reservations through a single office, and Emory University had over 100 space administrators. Overall, external benchmarking results were positive for R25, proving ease of use and accessibility. The following institutions providing models and best

practices for the implementation of R25 including: Stanford, Princeton, University of Wisconsin at Madison, Emory University, Kansas State University, Maine, University of Vermont, the College of William & Mary, James Madison University, and University of Richmond.

Internal benchmarking was conducted throughout U.Va. In addition, CollegeNet provided documentation on system configuration and a sample project plan; allowing the team to further evaluate requirements for integration and use of R25. Benchmarking identified potential risks for the implementation phase and included: a lack of a dedicated resource to lead the implementation process; potential lack of funding support; buy-in from existing schedulers across Grounds; a 3-year vendor recommended timeline to implement; potential issues associated with creating an interface with the current student management system, ISIS; and lack of after-hours support for room maintenance.

Analysis proved R25 offered a campus-wide, web-based, class and space management software, unifying all users (faculty, staff and students) through a single database. Customizations were needed to meet University needs and were acceptable by CollegeNet the vendor of R25. Risks identified during benchmarking were not considered insurmountable and funding was approved for R25. This system was to be the long-term solution for the University, maximizing use of on-Grounds facilities and classroom spaces. The R25 customized system at U.VA. would be known around Grounds as the System of University Reservations and Calendar of Events (SOURCE).

The USUS team was disbanded in November 2003 and a new team was created to implement the system; the R25 Team initiated the *Realize* phase of the project and was charged with: 1) providing a single point of contact for space reservation requests; 2) maximizing space usage; 3) creating a strategic concentration of events into a core group of buildings, maximizing

efforts of the University's security and housekeeping staff; 4) allowing more access to space for reservations of faculty, staff and students; 5) creating a single interface with ISIS to schedule academic classes; and 6) updating space reservation policies. Team members represented three of the University's major space schedulers, UREG, Newcomb Hall, and Intramural Recreational Sports. A representative from ITC contributed vital technical expertise.

Initial software training for team members was provided by the vendor, CollegeNet. Team members participated in a four-day training session in Portland, Oregon to learn about system configuration and set up options. CollegeNet provided a choice of three levels of implementation; the team opted to pursue the most advanced level of deployment, which involved all possible features and capabilities (including a web feature and academic class assignment system). Although the vendor recommended a three-year timetable for this level of implementation, the R25 Team completed the project in a just over a year; the most expedited implementation according CollegeNet at that time.

From August through October 2004, the team reviewed common policies, work flows, technical specifications, and system requirements for system deployment. Additionally, a gap analysis was conducted to determine necessary customizations for the R25 software. Several subgroups were established to more effectively manage the specifications for the system. These subgroups focused on security; ISIS interfaces; testing; web interface; reporting; pricing; training for schedulers; documentation; technical; and marketing/promotions.

Special efforts were made to provide additional system features to assist service providers with their work. These efforts included: 1) an internal website for Intramural Recreational Sports staff to schedule internal programming and maintenance of spaces; 2) customized real-time reports for the University Police Department's Ground Security to facilitate the

locking/unlocking of spaces and to inform the service division about events on grounds; 3) a review of the space availability features with Facilities Management so that they can utilize the system to determine appropriate times for service, repair, and housekeeping.

In the spring of 2005, the production environment was configured, workflows were loaded, historical data were migrated to the new system, and testing began. Concurrently, training was conducted for the 20 academic schedulers who would approve reservation requests through the SOURCE. In the final stages before the system went live, the team attended a CollegeNet user's conference to finalize technical details, make contacts for post implementation technical support and maintenance, and obtain ideas on how to conduct testing.

The system officially went live on July 27, 2005 providing students, faculty, and staff the ability to go to one website and enter a reservation request. Additionally, requestors could see availability of specific spaces before placing a request and have the flexibility to request a specific space or search for a space that fulfilled their event needs. In order to sustain the solution, the R25 Team remained intact for an additional three months to troubleshoot issues and further stabilize the system.

## **Benefits**

At the time of implementation, students, faculty, and staff could request a reservation for any of the 753 spaces, including 453 general reserveable spaces (i.e. Newcomb Hall, Intramural Recreational Sports' facilities, and centrally scheduled academic spaces), and 300 locally controlled spaces (i.e. some specific Intramural Recreational Sports' spaces and academic department scheduled spaces).

At go-live, the number of events in the SOURCE equaled 29,339; the number of users equaled 2,210; the number of “hits” to the website equaled 4.5 million; the number of academic and student council organizations who could make reservations equaled 1,429. Recent system statistics showed the following increases: 50,771 events in SOURCE (73.0% increase); 3,471 users (57.1% increase); 9.5 million hits (111.1% increase); and, 3,471 organizations had access to make reservations (8.9% increase). Additionally, instructional spaces—rooms usually dedicated for classroom instruction—were now available for event scheduling if no other location was available and only after academic classes were concluded. As a result, the University was able to accommodate an additional 1,282 events between March 2006 and May 2007 in spaces not formerly available for scheduling prior to implementation of R25. These percentages continue to increase each year.

## **Retrospect**

Several strategies were employed to collect feedback on system performance and its impact on the scheduling process. All of the academic schedulers and service providers were contacted in September 2005 to obtain feedback on their experience with system functionality. In January 2006, a survey was administered to a sample of faculty and student space reservation requestors to collect data about requestors' satisfaction with the system. In summary, 95% of respondents indicated the SOURCE was either sometimes effective or effective most of the time when requesting a specific space; 74% of respondents indicated their event needs (space capacity, resources, etc.) are met by utilizing the SOURCE most of the time. These results were considered successful on system usage and accessibility. UREG continues to improve the system adding access and spaces as identified.

An additional strategy utilized a qualitative interview process to collect detailed insights and inner perspectives from project participants. Each team member was asked a set of standard, open-ended questions addressing the topics of project initiation, leadership, team development, workload, and project obstacles and outcomes. While each respondent was asked the same questions, interviewers had flexibility to follow-up on responses. Each team member participated in a confidential, one-on-one interview. The interviewer scribed detailed notes at each interview session. Content analysis of the interview data resulted in grouping responses to each question by common themes. These themes were further analyzed and interpreted to draw conclusions. Recommendations for future projects included:

1. Participate in structured team building activities prior to the launch of the project to facilitate interpersonal relationships and build a foundation for productive team dynamics.
2. Clearly define roles of the project owners, team members, team leaders and PS staff from the onset of the project. (If new members join the team after the project has been initiated, provide an appropriate orientation.)
3. Document and discuss the project charge and goals as well as the of team decision-making abilities.
4. Revisit project progress and reconsider timelines throughout the project as needed.
5. Team leaders should have meeting agendas and structured meetings to encourage regular member attendance and participation.
6. Team leaders should consider a variety of ways to facilitate project work, including the creation of subgroups and a means to share information, such as a web portal.
7. Project owners and PS staff should continue to establish cross functional teams, with the appropriate mix of technical expertise and subject matter knowledge.

These recommendations have strengthened the way projects are facilitated and managed by PS. Recommendations with the highest impact to PS include the use of a project lead and sub-committees for larger broader projects; team members have clearly defined roles and

responsibilities; and when conflicts can't be resolved quickly, team building exercises are introduced.

### **Reference**

Dougherty, J.D., Kidwell, J.J., Knight, D.M., Hubbell, L.L., & Rush, S.C. (1994). Business process redesign for higher education. Washington, D.C.: NACUBO