Preliminary Report
Review of the Office of Information Technology at the University of Tennessee
By Reviewers
Patrick J. Burns, VP for IT, Colorado State University
Darel Eschbach, Assistant VP for IT (ret.), Arizona State University

Theme: "IT should do everything practicable to render the faculty more productive, more effective, and more competitive in their endeavors."

Overview of the Review

The two reviewers met with Faye Muly, Interim Director of OIT on May 28, principals on the campus on the days of Tuesday, May 29 and Wednesday, May 30, 1997. The meeting schedule is provided as Appendix A.

The charge to the reviewers encompassed four primary foci: 1) internal operations and management within the Office of Information Technology (OIT), 2) balance between centralized and decentralized services at both the system and campus IT levels, 3) IT governance, feedback and interaction with constituents, and 4) strategic directions and decision making for IT. The reviewers were provided background information to review, and perused that information prior to their visit. At the end of the two days of meetings, a preliminary verbal report was delivered to Chancellor Crabtree. Two weeks thereafter, this formal written report will be delivered to Chancellor Crabtree.

Findings Pertaining to the Operational Environment

Budget and staffing are sufficient to meet the needs of both the System and the Knoxville Area campuses. It was not possible to assess the quality of the staff, but there were no indications during the review that the quality of the staff was a significant issue. Indeed, indicators were that the staff are highly capable, diligent and productive.

The reviewers agree that the Exchange project did not proceed as planned, and that immediate action is required in response to this situation. First, the project was not conducted in accordance with accepted practice. Appendix B provides some guidance as to how large IT projects should be conducted. However, there are other issues that require attention also, and we will have more to say about those later. Clearly, the current priority needs to be stabilizing the Exchange systems. Finally, although we believe that the technological issues associated with the project are being addressed, there still remain structural and communication problems that require attention.

Aside: EDUCAUSE is beginning to partition email into two categories: 1) institutional largely for the faculty and staff, and 2) individual, largely for the student population. Institutional services typically also encompass personal calendars, and other value added services, such as scheduling resources (rooms and equipment), and also position the institution for the future services such as synchronous and asynchronous collaboration. We believe that outsourcing student communication services to either Google (Google Apps for Education) or Microsoft (Live@edu) merits exploration. Either of these solutions will provide a better environment for communication and collaboration among students and faculty, and will allow the resources

currently devoted to these services on campus to be redirected to other, more strategic areas. This is especially germane in that there have been issues with the Exchange deployment.

Findings Pertaining to the Strategic/Academic Environment

The reviewers uncovered significant gaps in this area that require the highest level of attention at both the System and Knoxville Area campuses. In summary, these issues are:

1. A functioning IT governance structure was not apparent to us. The IT governance framework that appears in the "Road to IT Excellence" document appears too complex and unwieldy. A simple, effective, representative (in the constitutional sense) IT governance committee needs to be defined, implemented, and succored to succeed.
2. Decision making for IT seems unclear and non-transparent. Many decisions seem to have been made by OIT directors with good intentions, but without a clear direction from a strategic imperative. The decision making process for IT needs to be made by a streamlined IT governance structure (described below), in a transparent, inclusive fashion, and communicated widely throughout the system and the campus.
3. Communication within OIT appears good, but communication with the campus appears to have languished for a long period of time, and is an area in dire need of improvement. In the future, communication from IT needs to be elevated to be a primary function of all of the directors of OIT, and even key technical staff as appropriate. A cultural shift in this area is quintessential, and should be the responsibility of a new CIO, who needs to be hired and put into place.
4. The CIO should also be charged with constituting a group that is subordinate to the IT governance committee (see point 1 above). This group should pre-review all items before they are put before the decision makers, and have broad representation of IT staff from across campus. This group should also have a responsibility for two-way communications with the campus, and for devising technical solutions and policy recommendations (or discussions of pro and con positions) to present to the decision makers. The LAN Administrator Group constituted by Executive Director Pinkleton may be ideally suited for this purpose.
5. Several operational (computer system) problems have been experienced over the past year. These problems have been very disruptive to the campus, as some have occurred at very inopportune times. It was not clear to us that OIT has developed a comprehensive strategy for enhancing and hardening its core infrastructure, encompassing infrastructure, technological, and operational improvements, and communicated these, together with a timeline for addressing them, to the campus.
    a. This has resulted in a significantly reduced confidence in OIT's ability to meet operational needs, much less strategic imperatives. **It is not an exaggeration to discern that there is a widespread crisis of confidence now in OIT's ability to meet users' needs.** This problem is the highest priority and requires immediate attention and decisive action.
    b. This harkens back to the issue of effective, frank and timely communication with the campus.
6. Access to data, information, and reporting to inform decision making, both on the campuses and at the System, needs attention. While this problem is recognized, we observed no evidence that a bona fide project to address this is underway.

Based upon our interviews, we saw that no one with whom we met, with the exception of the students who seem reasonably satisfied with OIT's management of their technology fees, seemed to be satisfied with the current situation, neither the representatives from faculty council, nor the campus administration, nor the representatives from the Library, nor OIT, nor even the system office administration. A wide variety of needs are not being addressed. Problems at this level of severity require immediate and comprehensive attention at the highest levels. A significant cultural realignment is mandated.

Recommendations

In this light, we consider the charge given to us. The recommendations we tender below derive from our experience in our own IT environments, our knowledge of accepted best practices for management and operations of IT environments in higher education, and our best judgment developed over years of experience participating in IT governance activities. It is from this informed perspective that we proffer the following:

1) Internal operations and management within OIT – OIT is staffed at adequate levels. Staff are dedicated, capable, competent, and "right minded." However, a CIO should be put in place to direct the staff, to interact with both the campus and the system, to ensure that proper communications, dialogue, interaction and accountability occur, and that users' needs are being met. An effective CIO is essential to engender the cultural change that is required.
2) Balance between system and campus services (here, we have redefined the charge to focus specifically on the issue) – Fundamentally, we believe that a solid perspective of responding to users' needs should drive the organizational structure of IT. Indeed, we believe in a unified OIT, with one or two possible exceptions as we will note below. A split reporting structure for OIT will most likely obfuscate even further the issues identified previously, be counterproductive operationally, and have to be "unraveled" in the future. We foresee all areas of IT as interacting, inter-dependent, and inter-reliant, and this will only become more so in the future. The problems identified above are claimant, have been persistent, are perceived as a "crisis" by the campus, and although the problems are being addressed by OIT, we did not see a definite plan for remediation that has been communicated to and accepted by the campus. In our considered opinion, IT is "broken," and needs to be "fixed;" ergo, it is time to consider a change in reporting structure – status quo is not advised. **We recommend that the reporting structure of OIT be changed to the Knoxville campus, and aligned with supporting users' needs, and be responsible and accountable.** Derivative recommendations are:
    a. OIT needs to be responsible and accountable to both the campus and the system, and support the system IT needs via strong and "real" service level agreements based upon performance objectives.
    b. We support the designation of IT security as a system activity. It may be that networking could be extended to be system-wide in scope, as well, and this merits further study.
    c. The other campuses are very different from the Knoxville campus, in a wide variety of respects. Because of this, it is our belief that forcing IT solutions upon the campuses as a System directive would be counterproductive, without first implementing solid governance structures at all individual campuses, and then attempting to align the IT priorities and needs across the campuses. IT Security

can function effectively at the System level because it is largely an "overlay" onto the distinctive IT environments at the campuses.

d. Because of the differences in campus environments, we support that implementation on Banner as separate instances, each with different sets of business rules aligning with the different needs of the different campuses. Investigating whether the three separate instances of Banner could be operated and managed centrally (whether on a single architecture or multiple architectures), that would result in efficiencies and facilitate data aggregation and reporting, should be investigated.

e. Again, because of the differences in campus environments, we advocate that a common data warehouse be developed at the system level, and fed by data warehouses from the different systems on the campuses. This will be far easier to accomplish, less expensive, and ultimately more effective than running common systems. This also ensures that each campus will have access to the data it needs to manage its environment.

3) IT governance, feedback and interaction with constituents – A bona fide governance structure needs to be: 1) defined and implemented, 2) streamlined, and driven by decision makers, 3) aligned with the mission of the University and the Knoxville Area campus, 4) support the strategic directions of the University, especially in academic and research areas, and 5) be driven by user input. We have more to recommend on this in response to the next point below.

4) Strategic directions and decision making for IT – Strategic directions should be aligned with the strategic directions of the Knoxville Area campuses, and be the responsibility of the IT governance committee, as described in the previous point. OIT should not have a separate strategic plan, but rather OIT should support the strategic plan of the Knoxville Area campuses. These strategic directions should be communicated to OIT staff, the system office, and the campus. Further, we recommend a composition of an IT governance committee to represent IT users to be approximately as follows:

   a. UTK Provost (chair)
   b. System VP for Finance
   c. Communications
   d. CIO
   e. Chair of faculty council
   f. Chair of faculty council committee on technology
   g. Two representatives from the council of deans
   h. Libraries
   i. Legal
   j. Two representatives from administrative departments
   k. One student representative appointed by graduate student government
   l. One student representative appointed by undergraduate student government

5) OIT should modify their approach so as to conduct significant IT projects more formally and more interactively (refer to Appendix B). Projects should include communication, training and transition plans, in addition to technical plans and budgets, and be endorsed by the IT governance and the subordinate committees who should ensure that faculty and staff attend training where significant impact upon users exists (e.g. the Exchange project). Users should be engaged via regular, direct and simple communications and

trained face to face (face-to-face interaction is extremely important, and can not be overemphasized). Project management should be as simple as possible, and not overly burdensome. For example, while Clarity might be used for the Banner project that is extremely complex, it is probably unwise to introduce this level of administration on projects such as Exchange.

6) Finally, we believe that the reporting structure for OIT should be stabilized, changed to align with the campus and remain constant for at least five years. OIT has experienced numerous changes in its reporting structure, and we believe this has had a negative affect upon its ability to deliver services. Long-term stability is important to ensure that OIT moves in appropriate directions for future endeavors.

Summary

To summarize, we believe there is a crisis of confidence in OIT at the UTK campus that requires urgent and immediate attention. The issues have to do largely with governance, direction, communications and accountability. There is significant opportunity to address these issues, embodied in our recommendations above. We sincerely believe that these changes, implemented expeditiously and affectively, will position both the UTK campus and the System well for the future, and are needed to serve the strategic imperatives that will become even more important in the future.

Appendix A
Review Schedule

Reviewers: Patrick J. Burns, VP for IT at Colorado State University
Darel Eschbach, Assistant VP for IT (ret.), Arizona State University

Goal: To assess the degree to which the IT environment is aligned with the priorities of the campus, and operating efficiently and effectively in this regard.

Statement of work: The review will have four primary foci: 1) internal operations and management within the Office of Information Technology, 2) balance between centralized and decentralized services at both the system and campus IT levels, and 3) IT governance, feedback and interaction with constituents, and 4) strategic directions and decision making for IT. The reviewers will peruse the information provided to them, and, based upon that information, prepare questions to be forwarded to the University of Tennessee. They will then travel to the University of Tennessee to meet face to face with principals associated with IT. One and one-half days of meetings are proposed. At the end of the meetings, a preliminary verbal report will be delivered. Two weeks thereafter, a formal written report will be delivered to the University of Tennessee.

Monday May 28

3:00 PM	Faye Muly, Interim Chief Information Officer - airport pickup, dinner and transport to hotel

Tuesday May 29

7:30 AM	Loren Crabtree, Chancellor (30 min)
8:00 AM	David Millhorn, Executive Vice President and Gary Rogers, Vice President for Finance
9:00 AM	Stan Pinkleton, Executive Director Customer Technology Support, OIT
10:00 AM	Louis Gross and David Patterson, President and President Elect of Faculty Senate
11:00 AM	Bob Hillhouse, Director of Engineering Services, OIT
11:30 AM	Mike McNeil, Executive Director Computing System Services, OIT
12:00 PM	Directors and Executive Directors of OIT
2:00 PM	Steve Keys, Executive Director of Infrastructure, OIT
2:30 PM	Robert Ridenour, Executive Director of Information Security, OIT
3:00 PM	Denise Barlow, Vice Chancellor for Finance
3:30 PM	Break
4:00 PM	Joel Reeves, Executive Director Administrative Applications & Web Services, OIT
4:30 PM	Bob Holub, Provost and Vice Chancellor

Wednesday May 30

9:00 AM	Lee Schuelke, TAB Grad Student; and John Rader, SGA President
10:00 AM	Tom Milligan, Vice Chancellor for Communications
10:30 AM	Library Professor Bill Britten, & Rita Smith, Professor and Head Reference & Instr. Svcs.
11:00 AM	Break
11:45 AM	Lunch with SIS Project Manager Linda Painter and Faye Muly
1:30 PM	Wrap-up with Chancellor Crabtree

Appendix B
Guidelines for Project Management

IT projects that are complex and/or cause change to a significant number of users require to be managed as projects. In general, the more significant the project, the more significant should be the effort expended to manage the project. Also, complex IT projects benefit from outside consulting. While this has not been an approach traditionally, it is becoming increasingly needed due to the complexity inherent in IT projects. Very large projects, such as implementation of a new SIS, require detailed project management, using a project management tool such as Microsoft Project or Clarity. Significant IT projects, such as implementation of a new email/calendaring system do not require this level of complexity, yet still email/calendaring system do not require this level of complexity, yet still warrant project management. This latter type of project should have appropriate elements form the following list:

1. Approval of the project by the IT governance committee, including:
    a. Support from and analysis of the IT Operations Committee
    b. The rationale for the project (i.e. benefits to the users)
    c. A budget
    d. A timeline
    e. Technical approach
    f. Support plan
    g. Communication plan
2. Technical plan, consisting of
    a. Design/architecture – diagram and explanation of interrelationships, including network requirements
    b. Implementation plan – system installation, testing, acceptance and cut-over or "open for business" – include load testing as appropriate
    c. Budget – detailed by line item
    d. Operations plan – how the system elements will be operated and staffed
    e. Management plan – how the system elements will be managed for robustness, effectiveness and growth
    f. An internal communications plan – how the different units within OIT, including the help desk, will communicate and cooperate to ensure the project is successful
3. Support plan, consisting of
    a. Help desk training and support – how the help desk will be integrated into the project and trained to support the new systems, how the help desk will provide ongoing support, and-off to higher tiers of support, periodic assessment of effectiveness of the help desk support and need for additional training
    b. User transition – how users will be supported during the transition
    c. Training plan – how users will be trained
4. Communications plan, consisting of
    a. Executive level advocacy and communications
    b. "Kick-off" meeting
    c. "Road show" meetings with colleges/departments
    d. Plan for periodic updates, including face-to-face meetings, email communications and web communications

e. Feedback – plan for collecting feedback from users, especially during training and the pilot project

5. Opportunity for feedback and correction during a pilot
    a. A broad spectrum of users should be engaged in the pilot, and trained and supported according to the parameters above
    b. Feedback should result in changes and communications as per the above
    c. If the pilot project goes poorly, then an additional pilot project should be conducted

Consultants

IT projects are becoming sufficiently complex so that engagement of a knowledgeable consultant may be advisable. Consultants need to be carefully managed, especially in regards to their time, productivity, scope and billings. If feasible, the vendor should be contacted to verify the quality of the consultant.

Training

IT projects should be conducted with a view towards improving users' productivity, efficiency, effectiveness and competitiveness. Adequate face-to-face, hands-on training is crucial to the success of any significant IT project. IT should endeavor to minimize and manage complexity when viewed from a users standpoint.

Communication

Communication of the goals and benefits of the project, from a user's perspective, is also critical to the success of any significant IT project. Faculty, especially, need to be engaged face-to-face insofar as possible, and given the opportunity to analyze, discuss and provide feedback during the "kick-off" meeting.