

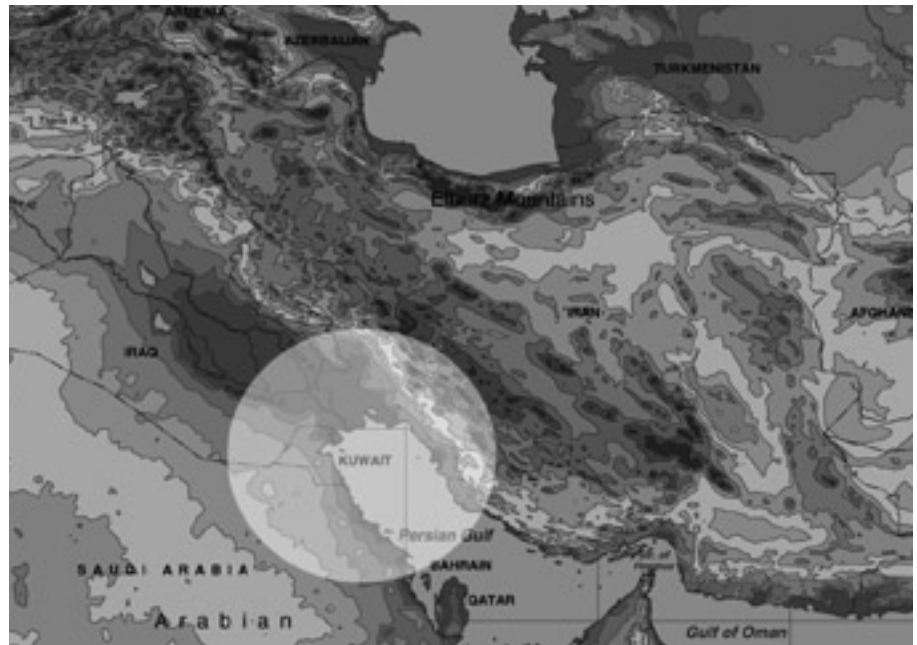
A Model of American Higher Education in the Middle East

The American University of Kuwait relies on its technology infrastructure to support and deliver the American model of higher education in the Middle East

By **Sean Dollman**

The American University of Kuwait (AUK) will soon begin its fourth year of instruction, welcoming approximately 1,600 students to a modern campus. The university has come a long way quickly—when I arrived as dean of admissions and registration in 2003, UAK had no faculty, no students, and no curriculum. The campus was little more than an architectural concept, allowing us to implement best practices and products in the university's technology infrastructure. The goal was to create a liberal arts institution that mirrors the American model. About 60 percent of the population in the Middle East is between the ages of 14 and 27, and the demand for an American-style education is so great that AUK raised its admissions standards to slow growth. The university expects to reach full capacity of 2,200 students by spring 2010.

AUK conducts classes and administrative business in English. The university and its curriculum reflect significant input from faculty and administrators at Dartmouth College, which has a cooperative affiliation with AUK. However, Dartmouth was not involved in AUK's technology planning and implementation. The technology project involved close collaboration between the AUK president, executive director of Finance and Administration, dean of the College of Arts and Sciences, dean of Admissions and Registration, and director of the IT department. During planning, all participants identified instructional sup-



port needs and considered anticipated technological advances.

Technology for Enabling Collaboration and Growth

As AUK's buildings rose from the sand, the university's administrators raced to construct the university's technology infrastructure and digital campus. IT planning began six months before the doors opened to students. All technology decisions were based on the following objectives:

- Providing a connected and collaborative environment
- Leapfrogging short-term options to invest in the best products and practices from the beginning
- Laying a solid technology foundation that would accommodate future growth

AUK made a strategic decision to implement wireless and voice over Internet Protocol (VoIP) technologies to create a versatile, interactive telecommunication system. We chose VoIP because it provides a variety of options not available with a digital phone network. Today, the technology is available across campus, from the kitchen to the president's office. Each administrative and faculty member has the latest features, including automated answering and call diverting, making AUK the first university in the Middle East or North Africa to have implemented VoIP on such a large scale. The VoIP infrastructure also gives us scalability if AUK opens another campus.

The wireless infrastructure supports easy access to resources and information,

with all 65 instructional classrooms having a wireless access point. Wireless access has also been provided in all auditoriums, multipurpose facilities, meeting and conference rooms, and the AUK diner and coffee shops. We also established 38 access points around campus, both inside buildings and outside. As a result, students and faculty can access the university intranet from anywhere on campus.

The wireless infrastructure also supports handheld VoIP. This allows the university to push information in XML format to students, faculty, and others on their mobile/cell phones. Students, faculty, and staff also can access CNN, weather services, and other online resources from anywhere on campus using their phones. A local ISP provides the university's Internet connectivity, including security features and compliance with government filtering requirements.

All eight campus buildings are connected through a fiber-optic network. The fiber-optic cables connect to distribution switches, then to normal switches hooked up to 1,656 data points. One fiber pair of cables handles Internet bandwidth, one fiber pair carries VoIP, and another pair backs up Internet access. Six more pairs are available for future growth. This focus on future growth was prevalent throughout the IT planning. AUK has from 30 percent to 60 percent additional capacity in all areas of the infrastructure.

For the data center, we constructed a state-of-the-art storage area network (SAN) that hooks up to the main controllers. For back-up and security, we use two redundant main controllers, redundant firewalls, a wireless access controller for all access points, and a controller for authentication.

Fostering a Rich Learning Environment

In addition to a wireless access point, each classroom has a podium, PC, printer, and digital projector. Faculty do not need to bring their laptops or USB devices with them to classes; they can simply log in to the computer provided for them, pull down their shared folders from the network, and begin teaching. In addition, 19 classrooms each provide

28 computers for instructional use, and printers are available.

Many faculty use PowerPoint presentations to deliver their course content. Faculty and students share access to a common network drive to post course documentation, syllabi, and assignments. Additionally, some classes require specialized software:

- Computer science and information systems (CSIS) classes use software applications such as JDK 6/Java 1.6 (<http://java.sun.com>), BlueJ (<http://Bluej.org>), Alice (<http://alice.org>), Textpad, UML, Perl, CGI, XML, Oracle, and others.
- Graphic design and communication classes use software applications including Adobe Suite (Photoshop, Illustrator, Premiere) and Dreamweaver. We are currently installing a Mac lab so students can learn multimedia software on both Mac and PC platforms.
- Statistics and research classes use SPSS (a statistical package) and other software.
- Instructors use Turnitin software for online plagiarism detection. Other software applications are added on an as-needed basis.

The recently inaugurated Liberal Arts Building is a "smart building" supported by 2,200 data points. All classrooms in this building have videoconferencing capabilities, and the auditorium has a state-of-the-art sound and video system, including two 52-inch plasma screens. An open lab provides students with 52 computers for use at any time.

Concurrent with building the physical facilities and IT infrastructure, we also needed to implement a campus-wide administrative system. With no students enrolled, we considered licensing a temporary solution for student administration. We wanted an established system that could scale to meet future growth and would provide administrative and academic services in support of learning. We chose the Banner administrative system from SunGard Higher Education. Along with the Luminis Platform, also from SunGard, Banner supports a long-term vision for a unified digital campus.

Given the short implementation timelines and limited staffing resources, AUK

developed a staggered implementation strategy focusing on installing, testing, and rolling out essential Banner Student, Finance, and Human Resources modules in the near term. Less essential services are being introduced incrementally over 36 months after the initial go-live date, along with installation, testing, and go live of the MyAUK portal.

Initially, we were uncertain about meeting the implementation timeline because Kuwait does not have the quality consultants readily available in the United States, although some vendors have local distributors. Fortunately, SunGard Higher Education opened an office in nearby Dubai, United Arab Emirates, shortly after we licensed Banner. The Banner consultants helped us set up and configure all three service modules. The only other time we engaged consultants was to set up our Exchange server.

The new administrative system has guided staff in executing the day-to-day tasks that are critical to running an institution. Aside from me, no one on my staff had ever worked in higher education. I oversee the offices of admissions and the registrar and am responsible for institutional data and for managing the relationship between AUK and SunGard Higher Education. My staff are all local hires, including nationals from Kuwait, the Arabian Gulf countries, the broader Middle East, India, and Pakistan. I had to show the registrar how to be a registrar and the admissions staff how to enroll students. The best practices embedded in Banner supported staff in executing the necessary processes. Also, because AUK is an active member of a growing network of SunGard Higher Education clients in the Middle East, staff can network with and learn from others.

In fall 2007, AUK will go live with the portal environment enabled by the Luminis platform, completing the foundation of the AUK digital campus. MyAUK will provide students and other users with easy access to a wide range of administrative services and resources from any Internet connection. When integration is complete, all users will have single sign-on access to e-mail, class registration, the library's Horizon services, and other materials and resources through the

portal. When students log in, they will be presented with their personal calendars, the university calendar, upcoming events, available discussion groups, and tools to collaborate with their professors. Also, users will be able to customize their portal views with other resources.

Already, the AUK e-mail system is integrated into the Banner platform so that all user names and passwords from the LDAP are automatically populated. For authentication purposes, we implemented a Microsoft active directory with our Banner student administration system. Admitted students click one button and enter their user names and passwords to be granted access to the resources and services that they need, without contacting IT for support.

AUK has no hard data about our students' computer literacy, although they seem to be mostly computer literate, if negligent in matters such as password maintenance and mailbox management. A number of students bring their laptops to AUK. The IT staff supports these students when possible, but does not formally support personal systems.

Although the IT department emphasizes serving the needs of students, IT staff also are committed to meeting the requirements of faculty and administrative staff.¹ Faculty already have basic skills in using IT applications, but during faculty orientation, Academic Affairs conducted introductory training on the use of Webmail, understanding and navigating the AUK shared drives structure, and using AUK's self-service options to check personal information and students' academic records, enter grades, advise students, and run degree-audit and what-if scenarios, among other applications. This training also is provided to new hires and adjuncts. In the future, the IT staff hope to provide faculty workshops on different software applications such as Office automation, Word, Excel, Access, and PowerPoint. However, our lean IT staff has not had the time to provide this training yet.

AUK considered licensing learning management software, such as WebCT or Blackboard, but the idea was tabled because of budgetary limitations. In the meantime, Dr. Shereef Abu-Al-Maati, head of the Division of Sciences, is supervising

a project led by CSIS majors and assisted by the AUK IT department to implement Moodle, a free open source course management system.

Managing Technology with a Lean IT Staff

AUK's technology infrastructure and applications are supported by a lean IT staff of nine (eight staff and the director) serving the university population of 1,500 users. Three of the staff positions focus on system development and five on technical operations and support.

Looking back, AUK made two strategic errors in regard to IT staffing. First was underestimating the number of IT staff required to support the university's infrastructure. As a university, we purposely tend to be cautious and add staff based on demonstrated rather than anticipated need. Given the time and effort required to recruit qualified, competent, and affordable IT staff,² the developing nature of the IT area, and the rapid growth and development of the university, the IT department seems to be continually short-staffed. This has meant that major projects such as installing Banner or implementing the network infrastructure have gone forward without dedicated IT staff and support, which has sometimes led to delays and unforeseen problems. In addition, we are wrestling with issues of organization and accountability. In hindsight, we realize that expenditures for IT staff need to be considered an investment, not an expense, particularly for a young institution in the formative stages of growth and development.

Second was underestimating the depth of experience required of IT staff. Due to the timing of the initial Banner and associated IT support system implementations, as well as the other ongoing and mission-critical functions, we were consistently unable to dedicate sufficient resources to the implementations. Although attending to daily operating matters is important, so is system development.

We learned that it is critical for an IT team to include experienced people who can lead the institution through an installation, whether institution staff or external consultants. Without this, the technical team, the end-user leads, and the project

managers all end up paying a high personal price, and the institution runs the risk of undoing and redoing the installation—a frustrating, time-consuming, and expensive proposition. We have come to appreciate the importance of doing it right the first time and realize that trying to save costs on IT staffing can ultimately lead to higher costs and longer installation timelines.

Because the university is new, we are still developing policies and procedures to govern all aspects of IT, including internal processes, interdepartmental processes, security policies, and user privileges, among others. Also, we are still developing a maintenance plan. At this point, we are considering an "evergreen plan" whereby we would recycle and subsequently replace old or older PCs, printers, and other office equipment. We hope to have a maintenance plan in place for next year's budget.

Future IT initiatives include adding additional storage and backup solutions. We also are considering acquiring a help desk solution and a software deployment solution; however, we do not have firm timelines for these acquisitions. On the network side, we are considering the addition of intrusion prevention systems, network and network traffic monitoring in addition to load balancing, a cache server, and additional firewalls. On the database side, our goal is to implement Real Application Clustering before fully migrating to Banner 7.3.³

The IT department is consulted before the acquisition of new software to determine whether the staff possess the expertise to support a given application and to advise whether the campus PCs have the required minimum system configuration. IT has an unwritten policy of installing new software applications only at the onset of a semester. We do have some proliferation of software but are working on inventorying software applications in all classrooms and labs.

The IT staff supports all hardware and most software on campus to some extent. However, we rely on vendors for major repairs, routine maintenance, and some configuration updates of network components. Major consultancy is still required from SunGard for the Banner implementation.

The motto of the small IT staff is “help us help you.” They routinely solicit feedback on the phone system, online services, and other technology applications in an effort to make improvements. Also, the entire IT staff is authorized and expected to resolve any IT-related issue. For example, if an IT staff person comes across a faculty member having problems with a keyboard or mouse, he or she is expected to take care of the problem, including replacing the hardware if necessary.

The IT staff also strives to share information routinely. Staff members are encouraged to learn a new skill each semester and share it with the rest of the group. The ongoing learning keeps the staff energized.

Promoting IT in Higher Education in the Middle East

We have been fortunate in receiving approval on all requests submitted to the budget committee for technology-related funding, as long as we could demonstrate

that it would benefit students and faculty. Overall, the design and implementation of our infrastructure and IT solutions was no more difficult than achieving a similar feat in the United States. Most major suppliers were willing to come to us and to synchronize their efforts and deliverables with our timeline. One outstanding issue, however, is the lack of established programs with vendors to provide educational discounts to our students and faculty for items like laptops.

Creating the university from the ground up gave us the opportunity to take all the experiences and challenges that institutions face in the United States and address them with best practices. The leading-edge technology infrastructure and applications that we implemented support our mission of providing a high-quality education to more people in the Middle East.⁴ *e*

Endnotes

1. The AUK executive staff all have extensive experience in North American insti-

tutions, while many mid-management and entry-level staff positions are filled by local hires. AUK faculty earned their degrees from American universities and have teaching experience in North America and beyond.

2. AUK advertises available IT positions in regional and U.S.-based professional publications.
3. These solutions should be deployed between October and December 2007; the AUK fiscal year runs from September through August.
4. Among other firsts, a woman was elected president of the AUK student government association. The event attracted almost as much media attention as when women recently voted in Kuwait's parliamentary elections for the first time. Also, AUK is offering admission to the nearly 40 percent of Kuwait's population who are not Kuwaiti nationals, a group that historically has had little access to public institutions of higher education in Kuwait.

Sean Dollman (sdollman@auk.edu.kw) is Dean of Admissions and Registration, American University of Kuwait.