TPAC Discussion of Trends in the Technology Strategic Planning Process

I. Student Needs

Although many student needs overlap with faculty teaching needs, some student needs are distinct.

- **Studying around the clock:** Students have highly variable schedules, and competing demands on their time that require them to study at all hours of the day. As faculty rely more on technological tools, move to online resources, and reduce their use of hard copies of assignments and readings, student success becomes intimately linked to uptime for servers, and technical support at off hours.

  Strategic trends that pertain to this need include non-traditional support, OER, self service, online learning, and personalization.
- **Small screens:** Laptop computers are common, but smart phones or tablets are nearly universal. Student ability to use their smart phones or tablets to access class materials, and to manage their digital lives (e.g. accessing records, enrolling in classes, paying registration fees) is important to their success.

  Strategic trends that pertain to this need include mobile first perspective, non-traditional support, self-service, and personalization.
- **Access to classes:** To make progress to their degree, students need enough sections of required classes, offered when they are able to take them. Projecting student demand for classes requires data analysis and modeling. Offering classes when students can take them can include operating at off hours, and on weekends.

  Strategic trends that pertain to this need include data analysis and decision making, online learning and experiences, and non-traditional support.
- **Keeping college affordable:** Having classes available only helps if students can afford to take them. Technology can help minimize costs to students in a variety of ways, including providing access to scholarly materials that are behind paywalls, providing access to software through university site licensing, providing digital copies of materials, and by facilitating use of low-cost educational materials.

  Strategic trends that pertain to this need include online learning and experiences, self service, personalization, and digitalization.
- **Advising:** A student's success at CSUSM and beyond is facilitated by access to effective guidance. Student academic and career advising can be augmented by online materials, tutorials, and guides.

- **Assessment of student knowledge of and competency with technology**: Survey the technology knowledge among incoming students to provide an important input for analysis of technology needs and areas in which to offer training.

- **Training** in support of technological adoption among students: Incoming students often have gaps in their experience with the technology applications that are essential for their coursework. This necessitates increased support and training for students.

II. Supporting Faculty Research

Faculty require technological support for their research. Research needs are highly variable among faculty, ranging from basic file storage and backup to access to high-performance computing.

- **File storage and backup:** Faculty need a stable platform for file storage. Regardless of their field, all faculty use computers for tasks such as writing manuscripts, note-taking, and other basic office functions. Safe storage and backup of their work is essential. Migration to new, better services can cause disruption, and requires training.

  Strategic trends that pertain to this need include supporting research, hybrid and cloud computing, focus on customer service, self service, and IT training.
- **Career evolution:** Over the course of their careers, faculty research develops and changes. New research interests may entail use of new technologies. CSUSM needs to have the flexibility to support faculty at all stages of their career evolution.

  Strategic trends that pertain to this need include supporting research, focus on customer service, self service, personalization, and IT training.
- **New faculty bring new IT needs:** as CSUSM grows, new faculty are hired to help us expand programs. New faculty bring research programs with different IT needs. CSUSM needs to have the flexibility to accommodate new, unanticipated needs on relatively short time scales so that new faculty can establish their research programs promptly.

  Strategic trends that pertain to this need include supporting research, hybrid and cloud computing, and focus on customer service.
- **Collaboration:** Research is often a collaborative activity, which may require interaction with researchers from around the world. CSUSM should be able to facilitate this collaboration, through file sharing, and by hosting platforms used by teams that include both on-campus and off-campus collaborators.

  Strategic trends that pertain to this need include supporting research, hybrid and cloud computing, focus on customer service, self service, unified communications platform, digitalization, and IT training.
- **Communication of research:** Dissemination of research today often includes non-traditional platforms, such as blogs and personal web sites. CSUSM could support this mode of communication by hosting personal faculty research sites.

III. Faculty - Pedagogy

There are many technological changes integrated into pedagogy, but ultimately the adoption of technology should enhance the delivery of learning and the assessment of learning. It is also vitally important that the adoption of a technology for teaching receive sufficient resources such as hardware, software and training.

- **Resources for technical support of classrooms with technology:** IITS has extensively upgraded many classrooms across campus in recent months, but inevitably faculty encounter problems with the technology of a hardware and/or software nature. These technological "breakdowns" can either stop delivery of materials or at a minimum reduce the amount of material covered in a class. If faculty call IITs during "office hours" the issue can frequently be resolved promptly, but outside office hours the instructor is unable to resolve the problem and in the worst case scenario may have to end class early. As the scheduling challenges facing the university have necessitated more classes offered outside office hours IITS should extend the hours for technical support. As instructors are increasingly using technology in the delivery of instruction, the reliability of the technology to perform its function has become paramount. IITS should increase routine inspections of classrooms for technical maintenance needs. The technology should be "invisible" in the delivery of instruction.

- **Assessment of faculty knowledge of and competency with technology:** Regular surveys of technology adoption would provide an important input for analysis of technology needs and capacity for technology in pedagogy.

- **Communication and training of technological adoption to faculty:** Faculty cannot adopt new and/or effective technologies if they are not aware of the technology. IITS should expand communication channels to faculty as a whole, disciplines and individuals. Suggestions made include communication at all-faculty events and presentations/liaisons with individual departments/disciplines. Increased awareness and adoption of technology will result in a need for further training of faculty. As we recruit younger faculty the University more faculty will utilize Cougar Courses and software supporting the online course management systems. This will necessitate increased support and training for faculty.

- **Consideration of externalities of adopting technology:** The large-scale adoption of technology for cost, availability and/or desire to keep with current trends often has externalities that are disruptive and stressful for faculty. Consideration of the externalities may require different adoption strategies, targeted communication of benefits to faculty, longer lead-times and/or actions to counter the negative externalities of the technological adoption. Adoption of technology can depersonalize the interaction between individuals providing services and individuals receiving the services – for example, doctor-patient interaction in digitalized medical records environment. On the other hand, the adoption of technology can automate tasks freeing up providers to allocate time to other tasks – for example, automation of EKGs, allowing

nurses to devote more time to care/treatment of the patient. In an environment of digitalized pedagogy faculty have observed less interaction with students; this educed interaction presents challenges for advising and mentoring relationships in particular. Identification of externalities and approaches to addressing them necessitates the involvement of faculty in the planning and implementation of new technology.

- **Deployment of technology based on discipline specific technology needs:** The need for and adoption of technology varies between disciplines. Some disciplines such as sciences and business may require students to receive instruction on current innovations in technology, whereas other disciplines such as the humanities may not require the latest technology in their classrooms. IITS periodically updates classrooms with new technology in a comprehensive and often uniform approach. Not all classes may require updates to continue to meet the needs of faculty's teaching. The resources could be better utilized by upgrades to a limited number of classrooms - more rooms attached to specific disciplines through analysis of past scheduling of "puzzled" rooms. Some disciplines may need classrooms with more technology in terms of quantity and sophistication, while others need a basic technological environment.

- **Standardization of computer/technology laboratories:** The growth in cloud-based software has raised questions regarding the continuing need for standardized computer laboratories; students would bring their own laptop technology to the classroom to access the software. Faculty experiences of this alternative computer-based instruction raise significant concerns of inequitable access to computer technology and inadequate software performance. These concerns may become insignificant as cloud-based software improves and a "terminal" approach to mobile technology matures.

- **Community Sites for Department Majors**: having a community site where students majoring in the same program may go for information and interaction would help students to work together and create a more intimate space for majors in the same program.