Charges
The Committee's charges for FY2017 were;

Standing charges:

1. Monitor current and proposed policy concerning security of information, intellectual property rights and responsibilities, and other matters relating to information technology. Identify issues for which policy should be developed or revised. Report issues and any recommendations for action to SenEx. (ongoing)

Specific charges:

2. Continue to investigate the fiber cut that took down KU communication and computation. Determine how and why the cut occurred after a similar one 3 years ago, as well as ascertaining the total current and projected costs of remediation. Develop overall plans and methods for building redundant connections and systems into the KU IT infrastructure to prevent another total outage from occurring. Determine the approximate cost of these safeguards. Report to SenEx by December 1, 2016.

3. Continue to monitor IT efforts to determine varying needs of multiple user communities on campus, and recommend possible improvements.

4. Investigate best practices in training and providing the proper tools across campus to increase use of software.

5. Continue monitoring collaboration tool rollout--Office 365, Skype for Business including Voice-Over IP (Skype for Business phone service), etc.--and obtain or produce a cost-benefit analysis of each. Work with KU IT on ways to integrate third-party software (e.g., Dropbox, Google Docs) into its collaboration tool portfolio.

Meeting 2016-11-01
The agenda for this meeting was introductions, a review of the FY2017 charges, and a discussion of specific charge 1. Minutes for that meeting are available at:

https://kansas.sharepoint.com/teams/governance/ACEC/_layouts/15/guestaccess.aspx?guestaccesstoken=dfiUhCjgHRDDIfffaCw9p4HpJdX3Ktqwk6GVk8dza650%3d&folderid=2_07cdc743f155b4cdbc51e5565be1ba7ad&rev=1

Based on these discussions and following online work, the committee submitted a report on specific charge 1 on 2016-11-23. The committee's report on this charge is shown in Appendix 1 and is available in MyCommunity at:

https://kansas.sharepoint.com/teams/governance/ACEC/_layouts/15/guestaccess.aspx?guestaccesstoken=1fDX%2buME%2f4Bw8ZRz5A9Rl19HzScEPqDa8tyhoB9Sq8%3d&docid=2_0b5c94894295a46959f14e06a080786ac&rev=1
Meeting 2017-02-10
Given specific charge 5, the committee recorded minutes in OneNote on MyCommunity. We also asked Suzie Johannes to give the tutorial on MyCommunity in this second meeting. Suzie’s tutorial was excellent.

The committee submitted a report on this charge on 2017-03-15. It is shown in Appendix 2 and is available at:
https://kansas.sharepoint.com/teams/governance/ACEC/_layouts/15/guestaccess.aspx?guestaccesstoken=ZZwVH%2bas4bxaHick4bN7O1%2fj2t3cB6DD7fOKO3HMhQA%3d&docid=2_0e6611e470a5147189b0ca21a7bfee69a&rev=1

Meeting 2017-03-08
The committee met to finalize the report on specific charge 5 (referred to in the minutes as “specific charge 4” – we were referring to an earlier draft of the charges). We also discussed the new requirement for encryption on all university portable devices, and the specific charge regarding training.

Committee members felt that finding documents in MyCommunity was not intuitive and that some had experienced problems with saving documents or synchronization. Committee members felt that students seem to prefer using Dropbox or Google Drive. KUIT may be investigating relationships with these other vendors.

The committee discussed several issues related to travelling with encrypted devices. There is an information page at https://technology.ku.edu/international-travel-faq, but it is not clear if an unencrypted device will always be available to those travelling to places where encryption is banned. Even when travelling with encrypted devices there is a potential issue with being required to disclose a password when reentering the U.S..

We discussed specific charge 4 (“Investigate best practices in training...”) briefly. We agreed that the quality of training from KUIT trainers like Suzie is high. We also felt that for something a significant as the adoption of MyCommunity there is a need for much more proactive training, including online tutorials.

Specific charge 3 (…IT efforts to determine varying needs of multiple user communities...) The committee only touched on this charge indirectly. The need for clearer recommendations for how to manage confidential data when travelling for research is an example of a user community that has an unmet need and no clear way to have it addressed.
Recommendations

In the report on Specific charge 5, the committee noted concern about policy for level 1 data and MyCommunity, particularly in regard to the decommissioning of Hawk Drive. There is a need for more clarity about just what data may be stored on OneDrive.

“In response to a committee question about this KUIT responded that “The ‘no level one data’ is an old communication and no longer accurate. A more accurate list of excluded data is PCI, HIPAA, and PHI.”

There is still some degree of ambiguity here. Some level 1 data appear to be acceptable, and in fact, there are currently uses like summer salaries, which are being done in OneDrive. Clearer standards are needed, along with clear guidelines for usage for sensitive data (e.g. don’t share with links, and understand default permissions).”

There are also no clear recommendations or facilities as to how to manage confidential data when travelling internationally. This is an area for the Office of Research and the IRB to develop guidelines.

After our final meeting one committee member noted that several other universities seem to be moving away from Blackboard. Investigating this trend and its implications for KU might be included as a charge for ACEC for FY2018.
Appendix 1 - Report on Specific Charge 1

ACEC FY2017 Report to SenEx Specific Charge 1

Continue to investigate the fiber cut that took down KU communication and computation.

In the November 1, 2016 committee meeting, Eric Freeze provided the committee an update on the fiber cut and current remediation efforts.

The ACEC2016 final report (https://governance.ku.edu/sites/governance.ku.edu/files/docs/FY2016ACECFR.pdf) contained the following information about the event:

- "A contractor told the fiber was unused and thus cut through it intentionally
- There were 3000 strands of fiber and 2000 copper pairs cut that required patching
- Some communication was moved to spare fibers and restored quickly in a degraded state
- By 10pm the day of the cut, KU IT restored most campus communication to full capacity, however significant buildings including the Learned complex and Green Hall were offline significantly longer
- Apogee and other campus companies were also impacted by the cut making connectivity unavailable to student housing
- KU IT estimated a 1.5 to 2 week remediation time for the cut
- KU IT estimated a 7 digit cost just to restore fiber
- Remediation to avoid future mistakes:
  - Site sign-off before digging near any underground utility (complete)
  - Diverse and redundant links to campus leveraging KU/City optical fiber (in-progress)
  - Install a second KanREN node (complete)

Eric gave some additional details about how the miscommunication about the fiber bundle’s status occurred.

The March 29 cable cut severed the link between Ellsworth Annex (ELLS), which is the current location of the campus link to KanREN, and the Price Computing Center (PCC), which is the location of many central computing facilities -- probably the worst place on campus for a fiber cut. There are still legal proceedings ongoing so not all details are yet public.

The 2016 committee also made the following recommendations (shown in bold below). The current status of each is detailed.
Funding must be secured to allow KU IT to complete its plan for redundant connections to all KU data center facilities. This is a basic best practice telecommunications principle.

KU IT is currently negotiating a cooperative arrangement involving no direct costs to KU with a vendor which will provide a link to the KU/City fiber along 23rd street along with a link between the KU/City fiber and KanREN (see yellow lines in Figure 2). The cost to KU of installing this link without this cooperative arrangement would be in the neighborhood of $200,000. Prior to the KU/City Fiber project this would have been in the neighborhood of $1.3 million. The 23rd street fibers and associated equipment are deeply buried, lowering the likelihood of an accidental cut. The KU/City fiber is also on the other side of 23rd from the current fiber linking KU to KanREN, making a single excavation less likely to cut both fibers.

This additional link to 23rd and Louisiana will allow a diverse and redundant path between Ellsworth Annex (ELLS) and the Price Computing Center (PCC), the location of the March 29 cut and a current single point of failure. The new fiber will also enter PCC on a different side of the building. A link from the KU/City fiber to KanREN would provide redundancy to KU’s connection to the rest of the world.

Centralized resources must be redundant. KU Edwards should not lose its identity management because KU Lawrence goes down. Student logins, VLANS, license servers and other services must be made redundant so a single failure can be tolerated

The four remediation steps listed in the ACEC FY2016 report have all been undertaken or implemented.

KU IT has implemented new practices involving multiple level approval sign-offs for work like digging near the network infrastructure.

The tie-in to city fiber is in the works and this will provide a second link to campus.

There is now a second KanREN node.

KU and KU IT should engage network and resiliency expertise on campus to assist in evaluating new designs and the causes and impacts of the current incident.

The committee discussion focused on physical fiber infrastructure. Vulnerability analysis should also consider the potential for other kinds of disruptions like the recent DDoS attack on Dyn.

Before continuing centralization, KU must minimize the risk that centralized resources are made unavailable campus-wide due to a single system failure.

Committee members briefly discussed other centralized resources that could have campus-wide impact.

The switch to Enterprise Voice (Skype for Business) from the current telephone system merges two previously separate facilities. At the same time, the infrastructure for the traditional telephone system was aging and that presented a vulnerability in itself.
The migration of PeopleSoft Financials to Oracle in the Cloud may present new vulnerabilities. It also underscores the need for redundant connections to KanREN and beyond as well as the potential for other types of intentional disruptions like DDoS attacks.

Figure 1- Current Network Connectivity
Appendix 2 – Report on Specific Charge 5

ACEC FY 2017 Report on Specific Charge 5

The ACEC was charged with:

"Continue monitoring collaboration tool rollout--Office 365, Skype for Business including Voice-Over IP (Skype for Business phone service), etc.--and obtain or produce a cost-benefit analysis of each. Work with KU IT on ways to integrate third-party software (e.g., Dropbox, Google Docs) into its collaboration tool portfolio."

Skype for Business phone service
The Skype for Business phone service continues to be rolled out. KUIT considered the cost of repairing the traditional telephone infrastructure with the cost of the voice over Internet Protocol (VOIP) solution when making the choice to move to VOIP. The Skype for Business solution was determined to be most cost-effective.

MyCommunity - OneDrive (SharePoint) and Office 365
MyCommunity was launched to the whole KU community in the early spring of 2016. This gives everyone 1TB of OneDrive (SharePoint) storage along with a personal mySite. Team sites are also available. Kathy Reed has set up a team site for the ACEC committee which we are using as part of this evaluation. ACEC minutes were kept in OneNote and reports were written in Word Online as part of our test.

The committee also asked Suzie Johannes of KU IT to give an overview tutorial in its February 2017 meeting.

Cost-Benefit
The University has had an enterprise contract with Microsoft for several years. This covers the Exchange email system as well as providing the Office suite to campus users. Microsoft included Office 365 and SharePoint in this contract at no extra cost. SharePoint, a cloud storage system, substantially expands the storage available to university community members. Office365 offers a number of features that can replace those of Hawkdrive at a lower cost. It also adds a few features which were not previously available.

However, we believe that it would be beneficial if KU IT were to conduct a comprehensive cost-benefit analysis of this system, ultimately resulting in the development of a strategic plan for prioritized roll-out for the entire campus community with comprehensive support of all functions. For example, a number of even enthusiastic early adopters – including academic and administrative units and student groups –
have encountered difficulties when attempting to (a) integrate new and ongoing systems and functionalities, (b) make use of new system capabilities, and (c) enlist and sustain use by students, staff, and faculty in the face of a lack of intuitiveness for access and use, especially for periodic or other infrequent users, and a general lack of training or support. As a result, we are concerned that KU stakeholders are relying on other solutions, including those outside the control of KU.

Case Study
One department attempted to use MyCommunity as a project management tool. Although they went through the initial training and set up the site, it was quickly abandoned because of the extensive amount of time needed to manage the site and the many layers that it took to get into the system, find what you needed, and manage the calendar. The editing tools are not always consistent in how they work, and users became frustrated in determining if edits were actually being accepted. They quickly abandoned the experiment and returned to shared server drives and Outlook calendars. There appears to be great functionality, though unless one is a power user, it seems likely that the general user with not much system experience would also become frustrated with this application.

Sharing with non-KU collaborators
Like Hawkdrive, OneDrive allows for the sharing of documents with off-campus collaborators. This can be done through a link, or can require a login. The former, while convenient, is not appropriate for sensitive content.

Simultaneous editing
Office 365 allows for browser based simultaneous editing of Word documents and OneNote notebooks. This is a collaboration feature not available in any of the other KU centrally provided facilities.

Access from tablets and mobile phones
Office 365, including Word, Excel, PowerPoint, and Skype for Business, can be used from IOS and Android devices as well as from Windows and Mac computers. Office apps also add capabilities for touch screens, like ink to math. We did find that the interface on IOS was not always completely transparent.

Individual storage vs. team sites
As with email accounts, access to OneDrive storage is terminated 210 days after a student or staff member leaves the University. Thirty days after that the files are deleted. This should be kept in mind for group projects. Team sites outlast the tenure of an individual and should be used where appropriate.

Data for which the University is responsible e.g. from funded research
Preservation of some data may be the responsibility of the University and not just an individual. For funded research, the KU Office of Research has responsibility for project requirements like archiving data. Given that individual sites can disappear when the individual is no longer at the University, team sites should be used for these data.
Comparison to Dropbox and Google Drive

The cloud storage and collaboration features of MyCommunity are available in alternatives like Dropbox and the Google Drive/Docs suite. We do, however, have the enterprise agreement with Microsoft which has certain provisions as to how our data is managed. We don’t currently have such agreements with Dropbox or Google. The latter would undoubtedly incur extra costs. Putting sensitive data in the cloud carries risk without such agreements.

In response to a query about the status of Dropbox and other cloud storage providers, a KU IT member replied that KU IT "is continuously evaluating these products and has been in communication with them". Evaluation criteria include: "total cost of ownership/price, user/data management, control and security requirements".

Storage of sensitive data on OneDrive

The KUIT information page on MyCommunity (OneDrive) http://technology.ku.edu/services/mycommunity, as of February 21, 2017, states:

“Most data classified as "Level 1 - Confidential Information" by the KU Data Classification & Handling Policy, including information protected by HIPPA (health info), GLB (financials) and PCI (e-commerce), cannot be stored in myCommunity or on KU group file storage or personal file storage, including OneDrive for Business. For a complete list of data classified as "Level 1" please see the KU Data Classification & Handling Policy: Appendix 1. Please contact your Technology Support Staff regarding the special permissions and processes required to store Level 1 data.”

In response to a committee question about this KUIT responded that “The ‘no level one data’ is an old communication and no longer accurate. A more accurate list of excluded data is PCI, HIPAA, and PHI.”

There is still some degree of ambiguity here. Some level 1 data appear to be acceptable, and in fact, there are currently uses like summer salaries, which are being done in OneDrive. Clearer standards are needed, along with clear guidelines for usage for sensitive data (e.g. don’t share with links, and understand default permissions).