



CITEC

ASMP

TECHNICAL ARCHITECTURE

IMPLEMENTATION (TAI)

RECOMMENDATIONS REPORT



Table of Contents

I.Executive Summary	2
CITEC Charge.....	2
II.Community and Stakeholder Engagement.....	3
III.CITEC and ASMP Steering Committee’s Assessment and Review of ASMP TAI Services	3
Summary of ASMP TAI Recommendations.....	5
IV. CITEC Recommendations for ASMP TAI Services	6
1 Continuous Integration (Jenkins)	6
2 Database backup (Oracle ZFS).....	6
3 Development Environment Management (AWS).....	6
4 Document Generation (HP Exstream)	7
5 Document Management (Documentum).....	7
6 Electronic Document Signature (DocuSign).....	8
7 Enterprise Architecture (iServer).....	8
8 Enterprise Binary Repository (Artifactory).....	8
9 Enterprise Project and Issue Tracking (JIRA).....	9
10 Image capture (Kofax).....	9
11 Integration Services (ESB MuleSoft, RabbitMQ, API Registry*).....	9
12 Portal (MyUT).....	10
13 Process Management (Rational Method Composer).....	11
14 Requirements Management (JAMA).....	11
15 Software Developer Training Program Redesign.....	11
16 Standards and Methods	12
17 Testing tools (Jmeter, Selenium, Parasoft, SonarCube)	12
18 Training (Technical Architecture Infrastructure (TAI) Consumer Training).....	13
19 Version Control (GitHub)	13
20 Vulnerability Scanning (CheckMarx, CXSAST)	14
21 Workload Automation (Stonebranch).....	14
IV.Conclusion	15

I. Executive Summary

To help The University of Texas at Austin better align our long-term budgetary strategies in support of our research and educational mission, the Senior Vice President and Chief Financial Officer, Darrell Bazzell, named an advisory commission to conduct a thorough evaluation of the Information Technology Services (ITS) departmental budget. The Central IT Executive Commission (CITEC) is charged with providing a view to recommend an appropriate budget scale and scope within central IT and identify savings opportunities.

Co-chaired by Dr. Linda Hicke, dean of the College of Natural Sciences, and Dr. Dan Stanzone, executive director of the Texas Advanced Computing Center (TACC), the 14-member commission includes academic and administrative representatives from across the University.

CITEC Charge

CITEC will specifically endeavor to –

- Determine which IT services will be maintained by central IT (e.g., common good, service centers) and establish clear guidance for future IT services resulting from growth, evolution, etc.;
 - Develop standards around how service rates are established and communicated
 - Develop standards for federated IT operations
- Develop a sustainability model for central IT to ensure budget and resources exist to effectively support and operate all central IT service offerings
- Provide recommendations to strengthen the effectiveness of existing governance of central IT
- Identify immediate opportunities for savings in central IT service offerings

Beginning in late May, CITEC was tasked with reviewing the Administrative Systems Modernization Program (ASMP) Technology Architecture Implementation (TAI) service offerings that are in production and not yet in production, and included items that impact the ITS budget. This was in addition to the request of placing 25 of the more than 140 ITS service offerings on a “fast track.” [Note: A corresponding report – [CITEC Fast Track Recommendations Report](#) – with detailed data related to the fee-for-service offerings that needed validation by the fast-track deadline of July 31, 2017, is posted on the [CITEC website](#) (<https://citec.financials.utexas.edu/>)]

Acknowledging that ITS has been providing services at a deficit, CITEC has attempted to define a consistent role and mission for ITS. While identifying opportunities for savings and exploring all avenues for cost efficiencies is a priority, the committee’s role is not simply to cut costs, but to determine where ITS investment makes the most sense for the mission of the university. The commission also offered recommendations for subsidies to be utilized, where applicable, as a strategy for the university’s common good or to incentivize future behavior toward achieving security and efficiency as a foundational starting point.

To complement the commission’s fast-track report presented to executive leadership, this ASMP TAI Recommendation Report outlines the recommendations presented to CITEC by the ASMP Workday Steering Committee: As such, “(the) steering committee voted pursuant to the information received regarding

future immediate needs and uses. That rationale extended to both the items recommended for continuation and those for cessation.”

It is important to note here the ASMP Workday Steering Committee based its initial recommendations on feedback from more than 65 colleges, schools, and units (CSUs) in two surveys and several “town hall-style” meetings. Information from the surveys and group meetings were then summarized and reviewed by the steering committee and its subsequent recommendations were informed by what is outlined in this report.

This report solely outlines details about the ASMP TAI recommendations forwarded to CITEC, which was tasked to complete these ASMP TAI reviews by late July, as noted above. [NOTE: CFO Bazzell will review all recommendations before a decision and/or approval is determined by executive leadership. A final approval and/or decision will be shared with campus following these developments.]

II. Community and Stakeholder Engagement

Since May 2017, CITEC has engaged with various stakeholder groups across campus in various ways, to share their initial recommendations, including –

- **Town halls** to engage with a broad cross-section of the university community
- **Website feedback form** – <https://citec.financials.utexas.edu/share> – to receive specific input, such as concerns, input, and ideas from the university community

The goal has been to keep the university’s IT community informed of CITEC’s recommendations, share any perceived consequences of the recommendations and anticipated next steps, and listen to stakeholder input before finalizing recommendations. As noted above, the final decisions for these recommendations will be determined by the university’s executive leadership, including the CFO, Provost, and President.

III. CITEC and ASMP Steering Committee’s Assessment and Review of ASMP TAI Services

In its presentation to CITEC, members of the ASMP Workday Steering Committee emphasized that it recognized campus circumstances had changed since the strategy behind the selection of Technical Architecture Implementation (TAI) service offerings began at the university. The recommendations reflected a tactical decision to move forward with that strategy, but also limit the scope to the foundational services to create success and gain momentum through wider adoption. This would potentially provide campus some time to adapt before expansion into the remaining services. [Note: The ASMP Workday Steering Committee’s recommendations presented to CITEC for review reflect a point in time, and the steering committee supports that required services may be re-evaluated as the demands and evolution of IT modernization continues.]

The overall objective has been to maintain transparency, continue to inform the campus IT community, and reach a consensus agreement on a recommendation to continue or cease work as the service offering transitions out of the ASMP and to ITS.

The ASMP-Workday Steering Committee approved the ASMP-Workday Steering Committee recommendations in this report with the following modifications:

- The ASMP Workday Steering Committee did not evaluate whether the budget estimates associated with the approved products and services was appropriate. The committee encourages CITEC, ITS or another body to review the costs of the services, the funding model, the cost-to-value ratio and the potential cost savings/avoidance for implementing each service.
- The ASMP Workday Steering Committee recommends that a clear set of criteria be developed to determine when it will be necessary to create university-specific training to avoid duplicating vendor available training. Training should only be developed by the university when it provides a substantial custom need for campus.

CITEC was then asked to review and endorse the recommendations from the ASMP Workday Steering Committee. After extensive deliberation of the facts and data presented by this steering committee, here are the commission's recommendations for the ASMP TAI service offerings:

Summary of ASMP TAI Recommendations

NOTE: “Cease” in the recommendations listed in this report means to “cease central funding that would extend this service to the rest of campus. ***Essentially, to cease ASMP funding for developer community across campus.***” It does NOT mean to cease the service itself completely.

CITEC Recommendation Category	Service Offering
CITEC Recommendation: Cease Centrally Funded Offering to Units	
CEASE	Continuous Integrations (Jenkins)
	Database Backup (Oracle ZFS)
	Document Generation (HP Exstream)
	Enterprise Architecture (iServer)
	Enterprise Project and Issue Tracking (JIRA)
	Process Management (Rational Method Composer)
	Requirements Management (JAMA)
	Software Developer Training Program Redesign ¹
	Standards and Methods
	Testing tools (Jmeter, Selenium, Parasoft, SonarCube)
Vulnerability Scanning (CheckMax, CXSAST)	
CITEC Recommendation: Continue Offering Centrally Funded Offering to Units	
CONTINUE	Development Environment Management (AWS) ²
	Document Management (Documentum) ³
	Electronic Document Signature (DocuSign)
	Enterprise Binary Repository (Artifactory) ⁴
	Image capture (Kofax)
	Portal (MyUT)
	Version Control (GitHub) ⁴
CITEC Recommendation: Continue Offering Centrally Funded Offering to Units, Transition to Fee-For-Service. Units shall not pursue implementing alternative instances.⁵	
TRANSITION	Integration Services (ESB MuleSoft, RabbitMQ, API Registry ⁶)
	Workload Automation (Stonebranch)
CITEC Recommendation: Cease Entirely	
	Training (TAI Consumer Training)

¹ Consider alternate means to provide training.

² Offer as a low cost pilot of \$77K and re-evaluate need in a year. Note this recommendation has been changed from the CITEC Fast Track Recommendations Report.

³ Conduct an analysis of alternatives.

⁴ Re-evaluate contracting the service off-premise to reduce cost (target \$5k/year) as the majority of the cost is in UTV instances.

⁵ Continue to fund centrally for one year, transition to fee-for-service. Scale the size of the implementation based on customer demand. Units shall not pursue implementing alternative instances due to security concerns. If there is substantial adoption under the fee-for-service model, consider centrally funding, if not, discontinue and re-evaluate when Workday has launched.

⁶ API Registry was reviewed only by the CITEC committee, not the ASMP Steering Committee.

IV. CITEC Recommendations for ASMP TAI Services

1 Continuous Integration (Jenkins)

Service Description	Jenkins is an application, referred to as “continuous integration and continuous delivery (CI/CD)”, which helps developers automate integration, testing, and deployment of software changes.
CITEC Recommendation	Cease offering centrally funded service to units.
CITEC Rationale	CITEC concurs with the ASMP Steering Committee’s rationale.
ASMP SC Recommendation	Cease being offered as an ITS centrally funded service. CSUs will continue to run separate instances.
ASMP SC Rationale	Broad-based feedback from CSUs indicated that this service would not have been as widely adopted because many thought the service, as described, was going to be too plain vanilla in its design and CSUs were going to need to operate their own instance in order to meet their complex needs. CSUs indicated that all this service could be, based on its design, was a “sandbox” which was of limited value to the university. The ASMP-Workday Steering Committee agreed.

2 Database backup (Oracle ZFS)

Service Description	Oracle Storage appliance that can be directly connected over the Exadata internal 40GB InfiniBand network to provide high performance storage for backups and auxiliary database storage.
CITEC Recommendation	Cease offering centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee’s rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease being offered as an ITS centrally funded service.
ASMP Rationale	ZFS is not necessary at this time. ITS storage infrastructure provides sufficient storage and backup capacity for campus database needs at this time. ZFS may become necessary when more applications are moved from the mainframe to Oracle.

3 Development Environment Management (AWS)

Service Description	Development Environment Management (DEM) allows programmers to develop, run, and scale applications without the overhead of provisioning and maintaining infrastructure to run those applications. The current on premise PyPE platform is limited to hosting applications written in Python. The future development platform will need to be able to support more than one programming language. In addition, it will establish a more modern platform that leverages cloud native capability that is co-located where other university data is stored, such as Workday and other solutions in AWS data centers.
CITEC Recommendation	Continue offering centrally offering service to units as a low cost pilot of \$77K and re-evaluate need in a year.
CITEC Rationale	ITS agrees with the ASMP Steering Committee’s rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease (ITS can continue with low cost pilot if they have support for continuing beyond pilot)

ASMP Rationale	Existing development environments. In addition, the ASMP-Workday Steering Committee recommended that this pilot project (note this was never a service recommendation) be funded by ITS instead of campus. Therefore, the recommendation was to cease ASMP-Workday paying for the pilot. It was discussed that if the pilot was successful, a full-scale campus review of whether this service would be adopted (and its total cost) should be evaluated prior to establishing this as a new service.
----------------	---

4 Document Generation (HP Exstream)

Service Description	HP Exstream is a document generation tool that fills a form letter with live data from multiple sources.
CITEC Recommendation	Cease offering centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee's rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	While this was identified as a need, the university has no current, complex, multi-system use cases to start using it immediately. It is expected to become more of a need as systems migrate off the mainframe.

5 Document Management (Documentum)

Service Description	An Enterprise Content Management solution that incorporates document and content capture, workflow, document repositories, retention and disposition functionalities, and processes used to track, store, and control documents. Documentum is an Enterprise Document Management tool that enforces consistent metadata and governance across document types for official records, with fully centralized storage, automated indexing and classification, security and logging features.
CITEC Recommendation	Continue offering centrally offered service to units. Conduct an analysis of alternatives.
CITEC Rationale	CITEC recognizes that document management, including retention, is a critical function for the university. However, the level of investment for Documentum appears higher than is necessary. CITEC recommends a document management service be centrally funded. The commission recommends an analysis of alternatives be conducted that includes reviewing applications currently being used that perform same function.
ASMP SC Recommendation	Continue centrally offering service to units.
ASMP Rationale	The collection of Document Management services (which includes Documentum DocuSign and Kofax) were supported by the ASMP-Workday Steering Committee as a result of the support it received from CSUs (adoption rates are from the IT Leadership) and discussions with business officers and owners who were very supportive of this toolset. This collection of services is the only one in TAI that was largely designed to address the business users directly and their support for the new tools was instrumental in the recommendation.

6 Electronic Document Signature (DocuSign)

Service Description	A cloud-based service (DocuSign) that provides the ability to electronically send and sign documents securely and legally.
CITEC Recommendation	Continue centrally offering service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee's rationale; thus CITEC concurs.
ASMP SC Recommendation	Continue centrally offering service to units.
ASMP Rationale	The collection of Document Management services (which includes Documentum DocuSign and Kofax) were supported by the ASMP-Workday Steering Committee as a result of the support it received from CSUs (adoption rates are from the IT Leadership) and discussions with business officers and owners who were very supportive of this toolset. This collection of services is the only one in TAI that was largely designed to address the business users directly and their support for the new tools was instrumental in the recommendation.

7 Enterprise Architecture (iServer)

Service Description	Enterprise Architecture tools enable organizations to document critical solutions and architecture in a consistent manner. Tools such as iServer, allow users to document and share solutions with other areas. The tool also provides support for strategic decision-making and impact analysis when evaluating changing components.
CITEC Recommendation	Cease offering centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee's rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	Excel and Visio are existing tools that can be used. Campus reaction to this service was that it was needed primarily for ITS and that it would not be of great value to the CSUs as they have their documentation in other sources. Given the above, the recommendation from the program that was approved by the ASMP-Workday Steering Committee was to cease this service and ITS could pursue funding it for its use as needed.

8 Enterprise Binary Repository (Artifactory)

Service Description	The Enterprise Binary Repository supports the university's IT community by providing a cloud-based software solution to store, manage, version, and distribute binaries. Examples of binaries include modules shared across applications and CSUs (such as the UT Direct templates), plug-ins for third-party software, and entire applications. Artifactory provides a platform that will enable backup/recovery, automate deployment to build environments, and support development operations for campus developers.
CITEC Recommendation	Continue centrally offering service to units. Re-evaluate contracting the service out off-premise to reduce cost (target \$5k/year) as the majority of the cost is in UTV instances.
CITEC Rationale	Costs could potentially be reduced with an off-premise version of the tool.
ASMP SC Recommendation	Continue centrally offering service to units.
ASMP Rationale	This service and GitHub were considered important building blocks to the CSUs as we transition off the mainframe and received over 30 percent support in our engagement surveys and group meetings.

9 Enterprise Project and Issue Tracking (JIRA)

Service Description	JIRA provides an enterprise solution that allows project managers, developers, and business analysts to manage, track, and assign projects and issues. The software also supports agile development approaches by way of user stories, backlogs, and sprints.
CITEC Recommendation	Cease offering centrally funded service to units.
CITEC Rationale	CITEC concurs with the ASMP Steering Committee's rationale.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units. CSUs will continue to run separate Jira instances. CSUs without Jira could join an existing instance.
ASMP Rationale	Broad-based feedback from CSUs indicated that this service would not have been adopted by many as most who need this tool are already using it and the maintenance costs for them are extremely low (less than \$10,000) per year. The cost for the individual units is far less, combined, than the cost to run an enterprise service. In addition, it is believed that most units are happy with their implementations and that this is not a period of time that transitioning to a central version that does not accommodate their needs would allow for the time to be spent on a transition. Finally, the needs the units have for administering their own instances and not being in a common instance that requires some requirements to be dropped is too great to consolidate (including the ability to use important plug-ins by area). This would then result in ITS running a service that would be cost more AND the units having their own versions.

10 Image capture (Kofax)

Service Description	Enterprise solution for Scanning and Capturing documents electronically using Kofax Total Agility.
CITEC Recommendation	Continue centrally offering service to units.
CITEC Rationale	CITEC concurs with the ASMP Steering Committee's rationale.
ASMP SC Recommendation	Continue centrally offering service to units.
ASMP Rationale	The collection of Document Management services (which includes Documentum DocuSign and Kofax) were supported by the ASMP-Workday Steering Committee as a result of the support it received from CSUs (adoption rates are from the IT Leadership) and discussions with business officers and owners who were very supportive of this toolset. This collection of services is the only one in TAI that was largely designed to address the business users directly and their support for the new tools was instrumental in the recommendation.

11 Integration Services (ESB MuleSoft, RabbitMQ, API Registry*)

Service Description	<p>Integration Services provide a suite of tools that allow CSUs to find and share integrations that connect applications.</p> <ul style="list-style-type: none"> ○ The Enterprise Service Bus (ESB) allows applications written in different languages and platforms to integrate with each other by transporting and transforming data. The approach also makes maintaining systems easier over time, where changes to one system are invisible to connected systems. For example, integrations could be built that provide student data in real time. When a new student system is installed and student data is no longer on the mainframe, the integration would be changed so CSUs would not have to change how they retrieve data. This will aid units who are getting off the mainframe earlier and make the installation of a new student system easier.
---------------------	--

	<ul style="list-style-type: none"> ○ RabbitMQ provides a messaging platform that allows users to send and receive messages programmatically in response to events. For example, if a student changes his name, a message could be sent to all systems that store names and have signed up for this particular message. They can then automatically make changes to their own data, in their own way, at their own time. ○ The API Registry provides a listing of the APIs (existing integrations) available on the ESB, along with documentation, contact, and usage information for each registered API.
CITEC Recommendation	Continue to fund centrally for one year, transition to fee-for-service. Scale the size of the implementation based on customer demand. Units shall not pursue implementing alternative instances due to security concerns. If there is substantial adoption under the fee-for-service model, consider centrally funding, if not, discontinue and re-evaluate when Workday has launched.
CITEC Rationale	When WorkDay was initially scheduled to launch, ITS performed their due diligence and prepared all other services needed to coincide with the launch. However, now that the Workday launch has been delayed, there is no obvious need for these services at their current costs. Thus the Committee recommends this service continue to be centrally funded among units for one year so budgetary planning can take place for the next fiscal year. To encourage buy-in and an opportunity to test units' interest among these tools, the committee recommends the model of re-launching of these services as fee-for-service. Should there be enough interest among units adopting the tool, the service can then transition to becoming centrally funded. This was the model used to launch Box at the University and was successful in eventually becoming centrally funded.
ASMP SC Recommendation	Continue centrally offering service (ESB Mulesoft and RabbitMQ) to units.
ASMP Rationale	These services (ESB Mulesoft and RabbitMQ) were considered important in bridging and integrating disparate systems as they provide standard protocols. This was seen as a way to limit point-to-point integrations and reduce the number of integrations.

*API registry was reviewed by CITEC only, and not by the ASMP Steering Committee.

12 Portal (MyUT)

Service Description	MyUT is the University's online experience (digital campus) portal currently in use by most UT students. It aggregates personalized financial and academic information from various sources such as Student Information Systems (SIS), What I Owe, and other administrative and academic systems. It also presents data in a user-friendly manner making it easier for students to consume, access, and act upon information in one place.
CITEC Recommendation	Continue centrally offering service to units.
CITEC Rationale	UT needs a mobile friendly point of entry for student services, and because this tool is already in production and sponsored by the Provost this service should continue. The Commission notes that while MyUT is effective as an interface for students, and could be used as an interface for faculty and staff, it in no way replaces the additional business functions of UT Direct (ie. hosting platform), which should be considered a separate service.
ASMP SC Recommendation	Continue centrally funding.
ASMP Rationale	Although there was a protracted discussion about whether the MyUT portal was cost-effective for the university, the ASMP-Workday Steering Committee voted to recommend MyUT continue as it was in use for Students in Production. It was further agreed that any expansion of this portal into other constituencies (faculty, staff, researchers) should be discussed by business owners before it proceeds.

13 Process Management (Rational Method Composer)

Service Description	Rational Method Composer tooling lets you create, edit, manage, and publish process descriptions.
CITEC Recommendation	Cease offering ITS centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee’s rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	This was an IBM-recommended tool, but the university did not see the value.

14 Requirements Management (JAMA)

Service Description	Jama is a cloud application for managing features, requirements, and specifications. Used by business analysts and project managers, Jama integrates with issue-tracking software, such as JIRA, to support requirements traceability from project inception to completion.
CITEC Recommendation	Cease offering ITS centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee’s rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	Jama has a creator license charge of ~\$1,500 for personnel who create requirements; There is no charge for contributor or reviewer licenses. When CSUs were surveyed, the demand for Jama fell from 35 licenses to five. The free alternative is to manually document requirements and maintain traceability using the ITS “Requirements Traceability Matrix” Excel spreadsheet.

15 Software Developer Training Program Redesign

Service Description	Working with cross-community input, this offering defines the future approach to campus training on new technical components, legacy mainframe and Python/Django applications, and software project best practices. This effort will reshape the SDTP entry-level training (Bootcamp), continuing education, and knowledge sharing on technical and project management topics. The new program will replace the current SDTP.
CITEC Recommendation	Cease offering ITS centrally funded service to units. Consider alternate means to provide training.
CITEC Rationale	CITEC recognizes and agrees with the decision to retire the Software Developer Training Program. The commission observes that while this program needs to be retired, training developers in the enterprise infrastructure and application framework used by the university is a valuable and essential function to ensure consistent and effective use of enterprise services. ITS may wish to investigate alternate means to provide training to the UT enterprise developer community, perhaps including online or contracted resources.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
Rationale	While there was a general agreement that the university needs a software developer training program, there remains significant differences of opinion for what, if anything, should be redesigned. Concerns raised by members of the campus IT leadership community, including funding structure and governance for a centralized training program, need to be addressed before any additional budget is allocated or work proceeds. Common ground needs to be agreed upon regarding the problems that should be addressed by a redesign. The IT community is not close to resolving these issues.

16 Standards and Methods

Service Description	ASMP has published governance-endorsed standards for future administrative systems projects of different sizes and a tool for estimating project size, and is working with a campus-representative user group to publish recommended methods tailored to different project sizes and types. The standards-methods framework, once completed, will meet requirements of state regulations (TAC Chapter 216 Subchapter C).
CITEC Recommendation	Cease offering ITS centrally funded service to units.
CITEC Rationale	CITEC concurs with the ASMP Steering Committee's rationale.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	The overall feedback was the existing standard and methods documentation should be kept available to the CSUs, but there was general agreement that it was not important to pursue development of the remaining areas at this time. On average, 45 percent of respondents rated development of the remaining topics as somewhat or very important. However, when asked if this should continue, the percentage of respondents who said "yes" was very low.

17 Testing tools (Jmeter, Selenium, Parasoft, SonarCube)

Service Description	The testing service offering includes tools that support application development and will improve both the quality of the code and the performance. <ul style="list-style-type: none"> ○ Code quality solutions evaluate the overall health of application code by analyzing the source code to identify weaknesses and areas for improvement. ○ Load and Performance Testing Solutions in this space add value by simulating user interactions, or load, in a test environment prior to production.
CITEC Recommendation	Cease offering ITS centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee's rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	CSUs have existing tools and processes to mitigate issues. Broad-based feedback from CSUs indicated that this service would not have been adopted by many of the CSUs because they already have pre-existing tools and strategies for testing, and they felt this mitigated the risk of not having centrally provided tools. In addition, the per seat licensing costs to the units were cost prohibitive and would have caused many CSUs to continue with their existing strategies instead of spending additional money at this time on a new tool. Note: The CSUs believe this should be reviewed again as the environment becomes more complex in the future.

18 Training (Technical Architecture Infrastructure (TAI) Consumer Training)

Service Description	<p>Defines, develops, evaluates, procures, and administers technical training for IT employees across CSUs.</p> <p>This includes:</p> <ul style="list-style-type: none"> ○ Developing online modules in multiple formats that show how to use tools in the UT environment. ○ Procuring, scheduling, and coordinating training from vendors ○ Facilitates communication and adoption of new services ○ Leading the development of an online “cookbook” of architecture patterns that teaches IT personnel across campus how new services can solve common business and integration challenges.
CITEC Recommendation	Cease entirely.
CITEC Rationale	Discontinue this program due to no obvious need, as the recommendation is to cease or slow down growth of other ASMP services.
ASMP SC Recommendation	Continue with reduced scope. Only to develop training custom to the university environment.
ASMP Rationale	Given that the only justification(s) for creating training content would be the implementation of new TAI services that did not have adequate vendor-provided training (either because the implementation had university-specific aspects or the vendors don't provide training), it was recommended that only the services in production, or that are approved by CITEC, should be funded. There was concern that we were not taking advantage of vendor-provided training to the degree we needed to and were instead creating content that would need to be updated frequently and unnecessarily.

19 Version Control (GitHub)

Service Description	Source code version control system that provides a common location for storing source code, along with tools used to track changes, back out changes, backup code, and collaborate in software development projects. Analogous to what SharePoint and Google Drive provide for online documentation, version control systems have been employed on campus for decades and are a key component of software development.
CITEC Recommendation	Continue centrally offering service to units. Re-evaluate contracting the service out off-premise to reduce cost (target \$5k/year) as the majority of the cost is in UTV instances.
CITEC Rationale	Costs could potentially be reduced with an off-premise version of the tool.
ASMP SC Recommendation	Continue centrally offering service to units.
ASMP Rationale	This service and Artifactory were considered important building blocks to the CSUs as we transition off the mainframe and received over 30 percent support in our engagement surveys and group meetings.

20 Vulnerability Scanning (CheckMarx, CXSAST)

Service Description	Vulnerability scanning identifies sections of code that are vulnerable to attacks and suggests the best way to remediate the problem or security risk. CheckMarx scans source code written in all major languages, including Python, Java, PHP, Javascript, C++, SQL, HTML5, Ruby, Perl, and ASP.
CITEC Recommendation	Cease offering ITS centrally funded service to units.
CITEC Rationale	ITS agrees with the ASMP Steering Committee's rationale; thus CITEC concurs.
ASMP SC Recommendation	Cease offering ITS centrally funded service to units.
ASMP Rationale	Broad-based feedback from CSUs indicated that this service would not have been adopted. The reasoning is that CSUs already have pre-existing tools and strategies for scanning that they felt mitigated the risk of not having centrally provided tools.

21 Workload Automation (Stonebranch)

Service Description	Stonebranch provides a highly secure IT workload automation platform to simplify mission-critical IT business processes and deliver business-originated job scheduling. It allows the university to automate, coordinate, manage and track complex IT processes and tasks across multiple systems and services at UT from a single centralized service.
CITEC Recommendation	Continue to fund centrally for one year, transition to fee-for-service. Scale the size of the implementation based on customer demand. Units shall not pursue implementing alternative instances due to security concerns. If there is substantial adoption under the fee-for-service model, consider centrally funding, if not, discontinue and re-evaluate when Workday has launched.
CITEC Rationale	When WorkDay was initially scheduled to launch, ITS performed their due diligence and prepared all other services needed to coincide with the launch. However, now that the Workday launch has been delayed, there is no obvious need for these services at their current costs. Thus the Committee recommends this service continue to be centrally funded among units for one year so budgetary planning can take place for the next fiscal year. To encourage buy-in and an opportunity to test units' interest among these tools, the committee recommends the model of re-launching of these services as fee-for-service. Should there be enough interest among units adopting the tool, the service can then transition to becoming centrally funded. This was the model used to launch Box at the University and was successful in eventually becoming centrally funded.
ASMP SC Recommendation	Continue centrally offering service to units.
ASMP Rationale	As this service was going to be adopted by 31 percent of CSUs, it was already in production when the ASMP-Workday Steering Committee approved it. And, it is replacing a core mainframe function.

IV. Conclusion

Throughout the process, CITEC and the ASMP-Workday Steering Committee worked their way through extensive, detailed background information for each service offering. This information was received from a variety of sources, including service owners, accounting, peer data, stakeholder engagement, and feedback. Thus, the 14-member CITEC commission has agreed on the recommendations as stated in this report. CITEC is grateful for the opportunity to provide its services to the university and extends its appreciation to the campus IT community and executive leadership for its guidance, diverse input, and for the trust placed in the commission that all avenues were considered and conducted in a thoughtful and professional manner. And, as noted throughout this report, the final decisions for these recommendations will be determined by the university's executive leadership, including the President, Senior VP/CFO, and Provost.