



# Information Technology (IT) Tactical Plan - May 2020

Version 1.0

## Introduction

In 1998 and again in 2009, Indiana University (IU) set forth both IT Strategic Plans that shaped and reshaped the role of Information Technology for the university.<sup>1</sup> Each of those aspirational plans matched a period in the evolution of the university and society.

In early 2020, the Office of the Vice President for Information Technology (OVPIT) and Chief Information Officer commenced an IT Services Planning exercise to map out tactical goals for evolving IT-enabled services at IU. As a tactical plan, the timeframe for the plan was set through December of 2021 and it already incorporates the Expenditure Review Committee (ERC) round #6 to reduce operational costs and reallocate resources to more pressing needs.<sup>2</sup>

By March of 2020, the U.S. and the state began navigating through the global pandemic caused by the rapidly spreading COVID-19 virus. In just a few weeks, it caused the university to shift to fully virtual instruction for the remaining weeks of the spring semester, shifted almost all IU work to virtual work from home, and led to the cancelation of over 400 planned IU events through the spring and summer.

This work is being completed in that evolving context, and likewise, it will continue to evolve with the dynamic context created by the pandemic. Unlike the strategic plans of prior decades, the work of this plan is to map out actionable items for implementation and completion in the timeframe of FY22 with many being completed before December of 2021.

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<sup>1</sup> IU Strategic Plans: [Architecture for the 21<sup>st</sup> Century](#) (1998), [Empowering People](#) (2009)

<sup>2</sup> OVPIT commenced Expenditure Review Committee (ERC) exercises in 1997. They set internal targets to cut operational funding and to reallocate it to higher priorities within OVPIT. Over time, the ERC exercises have reallocated \$100s of millions to emergent needs for providing IT services to IU. ERC #6 began in FY19 with a goal of a 20% internal cut of General Fund ("Base") to be achieved by FY23.

## Vice President for IT Key Priorities

### Platforms, Process Simplification, Cybersecurity

#### **Goal #1 IU will reduce its specialty product licensing and integration costs by making greater use of its large investments in integrated software platforms**

*Action Items:*

- A. Reduce reliance on and eliminate duplicative costs in products and services that can be effectively achieved within platform capabilities
- B. Continue to enable the pervasive use of no-cost Google G Suite for Education
- C. Increase pervasive use of the Microsoft platform
- D. Increase the pervasive adoption and skillful use of the Salesforce platform
- E. Increase the pervasive adoption and skillful use of the ServiceNow platform

#### **Goal #2 Implement the findings of the Consumer Software Taskforce to better align services and reduce duplicative services/costs**

*Action Items:*

- A. Complete the Box migration and retirement by June 2021
- B. Complete the migration from on-premises Exchange to Exchange Online
- C. Continue to assess personal productivity platforms as suitable replacements for various specialized communication and collaboration technologies

#### **Goal #3 Co-lead efforts with functional area partners to streamline business processes, reduce operating costs, simplify institutional policies, and enhance constituent satisfaction with IU services**

*Action Items*

- A. Co-lead efforts with the Office of the Vice President and Chief Financial Officer to achieve rapid outcomes in business process elimination, simplification, compliance enhancement, and cost reduction
- B. Co-lead efforts with the Office of the Vice President for Research and the Executive Vice Presidents to achieve more effective and efficient processes that better support faculty in their research and teaching roles
- C. Co-lead efforts with all areas that support students by simplifying and improving students' engagement with IU services

#### **Goal #4 Implement the findings of the SafelT Taskforce with regard to recent incidents at research universities<sup>3</sup>**

*Action Items:*

- A. Reduce privileged access to databases, except and only when necessary

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<sup>3</sup> <https://www.anu.edu.au/news/all-news/anu-releases-detailed-account-of-data-breach>

- B. Reassess IU's risk tolerance for institutional email forwarding to private accounts; consider limiting or removing it as a means to reduce data exposure as some research universities have done
- C. Evaluate the February 2020 submissions of departmental student data tools and develop a plan for securing applications with access to student data in light of the student GPA application exposure
- D. Document best practices across UITS in infrastructure, applications, and accounts via a clear and evolving matrix that makes these easy to understand and follow

## Goals and Action Items by Division of Responsibility

### Client Services and Support

#### **Goal #5 Simplify, innovate, and sustain UITS services (Leverage) provided to departments, schools, and campus (Edge) units in collaboration with the One IU IT Leadership Council (1IUITLC)<sup>4</sup>**

##### *Action Items:*

- A. Simplify storage and file service offerings to support Edge units
- B. Standardize endpoint purchasing, imaging, inventory, etc.
- C. Re-imagine the Web Content Management Service environment
- D. Redesign the IU Print business model to ensure it is fiscally sustainable, attractive for partners and students, and incentivizes reduction in hardware
- E. Revise, simplify, and sustain a TechSelect rate structure for all IU partners

#### **Goal #6 Grow campus, school, and departmental engagement to rebalance the services and roles for Edge and Leveraged services across IU**

##### *Action Items:*

- A. Provide decision support models for staffing and operations including real-time data with detailed profiles of staff, constituents, services consumed, and security metrics
- B. Reimagine support responsibilities to focus on high-quality, unique, constituent-facing services in support of teaching, research, and business processes in Edge units while maximizing use and reliance on Leveraged IT services
- C. Develop scalable processes for coordinated, cross-unit management of Edge units where favorable to efficiency and effectiveness outcomes
- D. Enhance professional development training and opportunities for IT Professionals

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<sup>4</sup> Edge-Leverage-Trust is a philosophy for how the entire team of IT professionals at Indiana University dynamically evolves the *activities* that are best conducted in campuses, schools, and departments (Edge) and those that are best scaled to university-wide services (Leverage) through the process of mutual trust of all involved.

**Goal #7 Develop a front-line, consolidated concierge service for students and other IU constituents to improve effectiveness and efficiency**

*Action Items:*

- A. Assess and simplify student service interactions to improve constituent journeys and services
- B. Identify pilot administrative units that will benefit from unified, concierge-style frontline service with replicable, sustainable, and quality key performance indicators
- C. Leverage Ivy.ai support bot to achieve IU community-service efficiencies beyond technical support when content is ready in the Knowledge Base
- D. Partner with the CRM team to implement and prepare Contact Center for large-scale Incident Response capabilities

**Goal #8 Complete ServiceNow implementation to replace Footprints and unify service request processes at IU**

*Action Items:*

- A. Replace current Footprints ticketing environment with ServiceNow
- B. Delineate, publish, and update guidance for uses of Salesforce or ServiceNow for service requests
- C. Mercilessly avoid customizations and standardize workflow processes to maximize efficient use
- D. Define and implement a university-wide inventory tool to meet needs of UITS and IT Pro stakeholders; reduce duplicative entry for Disaster Recovery, Business Continuity Planning, audit, and support-based inventories

**Goal #9 Pilot and implement a technical support chatbot**

*Action Items:*

- A. Build bot using Ivy.ai technology, IU Knowledge Base information, and operational processes to track/move support tickets to live agent as needed
- B. Transition additional services to this model to gain further efficiencies in the Support Center and Contact Center
- C. Implement with pilot service queues; assess, refine, and scale up use

**Communications Office**

**Goal #10 Consolidate UITS websites and services database**

*Action Items:*

- A. Partner with the IU Studios to consolidate the structure and content of the UITS websites into a single site hierarchy within the IU framework
- B. Write and standardize reusable content for the services directory; reuse across all platforms

**Goal #11 Improve the quality of IT communications through advanced features of IU CRM tools**

*Action Items:*

- A. Implement a new generation of the *UITS Monitor* to leverage Salesforce capabilities to personalize for each recipient based on their role(s) within the university
- B. Partner with the IU Studios to employ Send Time Optimization to improve open rates
- C. Employ new tools to improve access to social media data and listening; enable content creators to quickly adapt social media strategy and content based on real-time current and prior metrics

**Goal #12 Assess virtual conference and remote event formats**

*Action Items:*

- A. Work with the IU Events Studio to assess virtual meeting formats for FY21, both for social distancing and cost-mitigation purposes
- B. Develop a set of recommendations and best practices for UITS/OVPIT units wanting to host their own virtual events during summer 2020

**Constituent Success and CRM**

**Goal #13 Enhance the student experience with greater use of CRM to support constituent journeys**

*Action Items:*

- A. Complete the Undergraduate Admissions Phase 3 project by June 2020 and assist with IU Bloomington adoption
- B. Initiate and complete second phase of graduate admission functionality
- C. Enable Salesforce capabilities to support the new IU mobile application
- D. Begin supporting journeys for enrolled students in June 2020 with incremental deployments including the enablement of dynamic data in Journey Builder

**Goal #14 Expand functionality and scope of CRM to meet university communication, marketing, and interaction requirements**

*Action Items:*

- A. Implement Phase 4 of IU Convergence Cloud to enable greater data integration with other systems
- B. Activate sophisticated digital marketing capabilities within CRM and Marketing Cloud to help achieve marketing goals for all units; complete IU Studios high-priority items
- C. Onboard additional units in the CRM through the base case management functionality provided by the Core Package
- D. Complete phase 1 rollout external organization in primary support for Office of Business Partnerships by May 2020 and implement additional phases of External Organization pillar

## Cybersecurity Innovation

### **Goal #15 Implement the SecureMyResearch consulting support service for fall 2020**

#### *Action Items:*

- A. Establish the customer management mechanisms necessary to provide effective consulting including a ticketing system
- B. Implement a self-service, online knowledge base (“Cookbook”) that provides secure recipes for common research use cases
- C. Establish administrative workflows with key stakeholders such as the Office of Research Administration and Data Stewards
- D. Socialize the service to researchers, IT Pros, and other supporting communities

### **Goal #16 Grow IU research by leveraging OVPIT cybersecurity endeavors: OmniSOC partnership, IU cybersecurity operational expertise, Trusted CI, and the ResearchSOC**

#### *Action Items:*

- A. Develop an agreement amongst OmniSOC partners for controlled researcher access to OmniSOC data and infrastructure
- B. Demonstrate research support by OVPIT for broader cybersecurity research at IU and with partner institutions
- C. Create materials and outreach strategy to ensure IU faculty are aware of OVPIT's cybersecurity strengths
- D. Develop a strategic plan for the increased use of OVPIT cybersecurity (and relevant Research Technologies) infrastructure in IU's education and research missions

## Enterprise Systems

### **Goal #17 Implement system changes to support new financial controls and business processes across all financial systems to improve efficiency and effectiveness**

#### *Action Items:*

- A. Assess system changes necessary to support enhanced financial controls
- B. Partner with Procurement to review business processes and identify system changes needed to support efficiency gains
- C. Implement cost-effective system changes in support of new financial controls and business processes for financial systems

### **Goal #18 Assess departmental student systems to identify security risks and potential vulnerabilities**

#### *Action Items:*

- A. Evaluate the February 2020 departmental student system inventory to identify, prioritize, and work with partners to remediate high-risk scenarios

- B. Develop communication plan that includes policy guidelines, best practices, and community meetings
- C. Research long-term recommendations to reduce risks associated with departmental student systems
- D. Dramatically reduce the need for departmental systems that contain Restricted or Critical data by enabling robust reporting and analysis capabilities in university systems

**Goal #19 Improve process efficiencies and agility through the adoption of DevOps principles for the Enterprise Infrastructure processes**

*Action Items:*

- A. Implement Kubernetes container environment and migrate all existing container-based workloads to the new environment
- B. Conduct value stream mapping exercises for the most common infrastructure requests
- C. Utilize Site Reliability Engineering metrics to track productivity and response times to ensure process changes are having the intended impact
- D. Implement a central secrets management platform

**Goal #20 Develop a renewed cloud strategy to enable Enterprise Infrastructure to provide expert guidance for public cloud services**

*Action Items:*

- A. Collaborate with Networks and Security groups to establish standards and best practices for securing and integrating hybrid cloud and public cloud services
- B. Establish a model to easily and accurately compare costs between on-premises and public cloud options
- C. Develop a methodology to assess optimal sourcing strategies for uses of on-premise, public cloud, and hybrid resources

**Goal #21 Migrate all applications to new IU Login infrastructure while adding new user-centric authorization improvements**

*Action Items:*

- A. Complete migration to consolidated IU Login infrastructure
- B. Create a cloud-hybrid implementation plan for IU Login
- C. Replace aging identity management solutions by leveraging additional open source offerings from InCommon
- D. Enhance and implement Role-Based Authorization (and Access) (RBA) capabilities to support software applications; store roles and permissions within Grouper to enhance compliance

**Goal #22 Establish an Enterprise Systems standard of access management to enable future role-based access**

*Action Items:*

- A. Mandate use of Grouper for any new application and develop a low-cost conversion model for the migration of existing applications
- B. Inventory and create plan to convert existing applications to Grouper
- C. Explore data elements needed to enable role-based access and implement in Grouper

**Goal #23 Reduce IU's dependency on the legacy version of IU Information Environment (IUIE) in preparation for its future retirement**

*Action Items:*

- A. Create a comprehensive inventory of IUIE features and functions, identifying those that can be eliminated or are redundant with other IU services
- B. Complete Access Control Module (ACM) enhancements to enable the elimination of IUIE security mechanisms
- C. Dramatically reduce the number of IUIE objects through retirement or consolidation; migrate where necessary to alternative IU services
- D. Plan for the rationalized functionality requirements and resource needs for a full replacement of the IUIE

**Goal #24 Modernize the experience of the Student Information System by implementing HighPoint Campus Experience (HCX)**

*Action Items:*

- A. Replace the Student Center with HCX, including enrollment/registration
- B. Replace the Third-Party Access system with HCX integrated with IU Social Login
- C. Partner with HighPoint to create additional HCX functionality of value to IU (e.g., Transfer Credit Evaluation)

**Goal #25 Implement a Common Career Services software platform that provides the services needed for student career success**

*Action Items:*

- A. Collaborate with vendor and IU stakeholders to ensure a smooth transition and delivery of the new platform per established plans
- B. Participate in testing and quality assurance efforts in preparation for implementation
- C. Implement initial release in 2020 Q2 followed by a phased-in full transition by July 2021

## Finance

### **Goal #26 Base fund any commitment expected to require long-term funding**

#### *Action Items:*

- A. Identify and prioritize current and future cash commitments that require base funding and fund highest priority commitments as base funding becomes available

### **Goal #27 Work closely with Associate Vice Presidents, Officers, and UITS Divisions to implement Expenditure Review Committee (ERC) #6 goals (FY18-FY23)**

#### *Action items:*

- A. Achieve \$10M in ERC savings and reallocation to higher priorities

## Health Technology Services

### **Goal #28 Develop an automated employee off-boarding process, to the greatest extent feasible, that assures the security of data when individuals transition to different positions both outside and within the University**

#### *Action Items:*

- A. Implement automated processes to strip access when notified through normal HR processes and supplement with manual processes where necessary
- B. Implement error-checking processes by comparing HR data to the UberTool to identify situations where individuals have transitioned, HR has not properly notified IT, and automatically remove access
- C. Ensure that all automated processes can be easily and quickly reverted to immediately restore access when necessary via a manual back out or override process

### **Goal #29 Retire Health Technology Services hardware by moving on-premise SharePoint solutions to SharePoint Online, O365, and websites to SiteCore Managed Cloud Services**

#### *Action Items:*

- A. Migrate 4 major intranets (104 SharePoint sites) to IU SharePoint Online; separate the extranet content and host it on Sitecore
- B. Migrate Power BI on-premises to Power BI Online
- C. Migrate remaining 14 WordPress websites (including e-commerce site) to Sitecore
- D. Migrate 17 production .Net web applications from HTS Windows Infrastructure to UITS EWS Windows Environment

**Goal #30 Convert the entire Health Technology Services managed device fleet (10,000+) to a common operating system platform (Windows or Mac) enabling support across historic, arbitrary departmental and school lines, while improving staff cross training and backup**

*Action Items:*

- A. Move all devices to HTS SCCM or JAMF managed-device environment
- B. Rebuild or replace remaining Windows 7 machines with OTA Unified Image (Windows 10)
- C. Rebuild or replace newly aligned IU School of Medicine (IUSM) departmental machines with OTA Unified Image (Windows 10) or equivalent Apple image
- D. Rebuild or replace remaining legacy (CAITS, PEDS, MDEP) devices with OTA Unified Image (Windows 10) or equivalent Apple image

**Goal #31 Implement an accurate inventory of all 10,000+ devices (including servers and endpoint devices) supported collectively by Health Technology Services**

*Action Items:*

- A. Standardize inventory via Open Computer and Software (OCS) inventory tool, incorporating all IUSM Financial Org Codes and as necessary; complete a physical or walk-through inventory that ensures accounting of all devices, including devices not connected to the network (e.g., legacy systems with unsupported operating systems attached to laboratory equipment)
- B. Establish real-time reporting of inventories by School, Department, and Division that will be accessible via authenticated access as well as distributed monthly to HTS clients
- C. Cross-validate all core device management and support systems (e.g., OCS, SCCM, JAMF, Ansible, Airwatch, CrowdStrike) to ensure system stability, supportability, and availability

**Goal #32 Replace the IUSM's "Medical Students Application System" (MSAS) originally written 16 years ago with an efficient, modular, in-house set of applications capable of improving consistency of data by interfacing with other school systems, automating routine tasks, improving accuracy of information, and facilitating longitudinal reporting**

*Action Items:*

- A. Rewrite the financial aid module using Agile development best practices, Starter Pack, FireForms and other IU standard Microsoft .NetCore development tools
- B. Apply same process and approach to remaining MSAS modules moving forward

## Human Resources Office

### **Goal #33 Improve HR operations to provide higher levels of client service across UITS**

#### *Action Items:*

- A. Review operational practices and processes; implement changes to provide consistency and forward-looking processes for hiring and staffing
- B. Establish service metrics to drive service performance
- C. Clarify and communicate to staff the HR resources available to them and how they can best utilize

### **Goal #34 Explore pilot implementation of Salesforce CRM for the UITS HR Team to more effectively communicate and engage with prospective and current staff, management, faculty, and other key constituents**

#### *Action Items:*

- A. Activate the same portal platform as currently being used by IU HR and begin implementing platform
- B. Establish key terms mission critical for use within UITS; train UITS HR team on Salesforce application
- C. Redirect UITS HR emails to Salesforce

### **Goal #35 Re-establish policy and compliance training within UITS for managers with biannual recertification**

#### *Action Items:*

- A. Assess and recommend applicable training available via Legal Compliance Series with IU Human Resources
- B. Schedule sessions with availability for all IU campuses

## Information Security

### **Goal #36 Define requirements for data access and safeguards to be implemented in Office 365 OneDrive, Google Drive, and associated tools as part of the Box cloud storage retirement project**

#### *Action Items:*

- A. Gather use-case information from current configurations in the Box environment and through discussions with Data Stewards in each data domain; examples include requirements for Box Health Data Accounts (BHDA) and Box Entrusted Data Accounts (BEDA)
- B. Coordinate a working group to review the use-case information and identify the appropriate level of administrative safeguards for handling institutional data classified as Restricted and Critical

- C. Develop a request process and sustainable provisioning model that will provide the safeguards needed to manage the access and sharing of Restricted and Critical data
- D. Evaluate the tool options and determine best practices for mitigating risks associated with sharing institutional data classified as Critical
- E. Update all training and documentation for administrators and users of the services to ensure data handling guidance is integrated into the services and tools

**Goal #37 Rewrite the IT-12 Security Policy to provide more detailed guidance and to align with the National Institute of Standards and Technology's (NIST) cybersecurity standards**

*Action Items:*

- A. Survey peer institutions' security policies and review previously received internal stakeholders' comments and questions regarding this policy
- B. Compare this policy to other frameworks and standards to identify potential gaps; draft policy language and determine if changes will impact the content of the University's Information Security and Privacy Program
- C. Circulate and revise the draft policy per the IU Policy Revision procedures; iterate to publishing a new IT-12 policy

**Goal #38 Enhance cloud platform security practices in line with on-premise (or better)**

*Action Items:*

- A. Make training available to all IT staff on best security practices for major cloud platforms (Amazon Web Services, Microsoft Azure, and Google Cloud Platform)
- B. Complete technical configuration plans for major cloud platforms (already complete for Google Cloud Platform)
- C. Implement technical configuration plans (as approved by the Vice President for Information Technology and Chief Information Officer)
- D. Consolidate all enterprise Amazon Web Services, Microsoft Azure, and Google Cloud Platform workloads under the existing central contracts

**Goal #39 Improve IU's ability to identify and track Critical and Restricted data**

*Action Items:*

- A. Assess on-premise and cloud-native tools for detecting sensitive data
- B. If a tool is deemed appropriate, publish a standard describing how that tool should be configured and used
- C. Develop processes for users of an IT service to identify the classifications of data that it uses; enable service owners to track the classifications of data their services are storing or processing; integrate with the [Data Sharing and Handling \(DSH\)](#) tool if possible
- D. Launch an awareness campaign and publish documentation to promote proper use of the tool and process

**Goal #40 Grow OmniSOC capabilities with partners to enable an integrated Security Information and Event Management (SIEM) across the school-UIITS-OmniSOC levels as IU retires Splunk Log-ALERT**

*Action Items:*

- A. Continue on-boarding and enriching current Log-ALERT departments and data sources
- B. Develop and implement dashboards and visualizations for additional data sources
- C. Use role-based access to ensure only appropriate users and user access
- D. Retire Splunk once migration is complete
- E. Determine strategy and cost for expanding to non-security use cases

**Goal #41 Continue to develop a high-trust community among Research and Education Networks Information Sharing and Analysis Center (REN-ISAC) members through communities of interest**

*Action Items:*

- A. Acknowledge and grow the diversity of the REN-ISAC community with a focus on inclusion
- B. Develop and improve member outreach, orientation, and engagement for over 600 REN-ISAC member institutions and 2,600 member representatives
- C. Actively address and contribute to workforce development by establishing internship programs and by providing education opportunities for member representatives
- D. Develop and offer new and enhanced threat intelligence sharing and community-building tools for REN-ISAC member representatives

**Goal #42 Develop and deploy enhanced REN-ISAC tools and member services that address member priorities for risk mitigation**

*Action Items:*

- A. Develop a 5-year REN-ISAC Strategic Plan, in partnership with the REN-ISAC Advisory Council
- B. Secure new, external funding to support innovative projects; collaborate on grants with member institutions to drive innovation in ISAC effectiveness
- C. Develop and enhance services and tools to enable increased REN-ISAC member analysis, using artificial intelligence where feasible to streamline the analysis
- D. Update the Peer Assessment service portfolio to allow institutions to improve their cybersecurity posture while facilitating community sharing, such as complementary areas of focus, virtual assessments, and self-assessments

### **Goal #43 Implement a sustainable operational model for the Assistive Technology and Accessibility Centers (ATAC) for all IU campuses and learning centers**

#### *Action Items:*

- A. Create a sustainable funding model for the ATAC commensurate with demand
- B. Evaluate, select, and pilot solutions that examine course materials and provide self-help remediation capabilities for use by ATAC staff and faculty
- C. Collaborate with university partners to remove barriers that prevent or impede students with documented accommodations from timely registering for courses
- D. Collaborate with university partners to develop a communication strategy to raise faculty awareness of—and compliance with—policies regarding timely identification of required course materials to aid essential accommodation work

### **Goal #44 Increase research utilization of the Unizin Data Platform (UDP)**

#### *Action Items:*

- A. Develop a flexible process for local researchers to request and receive Restricted data from the UDP
- B. Repurpose data sets and analysis directly into actionable integrations with Canvas for faculty and students
- C. Spearhead research grant proposals with collaborators within IU and across Unizin institutions
- D. Produce documentation, workshops, training materials, tools, template protocols, and analysis scripts to lower barriers for researchers to understand and use the UDP

### **Goal #45 Continue developing active learning classrooms, supporting faculty who teach in those classrooms, and disseminating new best practices for teaching and learning**

#### *Action Items:*

- A. Standardize the criteria for a Mosaic Classroom Certification and conduct a certification process for all general inventory classrooms across IU
- B. Host the inaugural “Mosaic Conference” at IUPUI
- C. Continue to expand the Mosaic Faculty Fellows program
- D. Implement new classroom designs and smart technologies through partnerships with vendors

**Goal #46 Develop new resources to empower IU faculty in their pursuit of teaching excellence for synchronous, asynchronous, in-person, virtual, and blended courses**

*Action Items:*

- A. Continue to develop new Teaching for Student Success (TSS) modules and promote the use of TSS for all new faculty across IU
- B. Expand resources and support to promote excellence in teaching for all modalities
- C. Collaborate with FACET to redesign teaching.iu.edu as a vibrant, faculty-focused resource for collaboration and outreach
- D. Evolve IT Training's new agile model of delivering innovative materials and events in direct support of UITS' and university-wide priorities

**Goal #47 Develop and implement a plan to support students' current needs within a variety of physical and virtual informal learning spaces**

*Action Items:*

- A. Examine current informal spaces for effectiveness and discontinue spaces no longer necessary
- B. Explore and deploy new models to offer a fully secure and unified experience with student mobile technology
- C. Collaborate with schools and the Advanced Visualization Labs to increase opportunities for "hands-on" immersive experiences for students

**Goal #48 Increase awareness and adoption of affordable teaching content by IU faculty**

*Action Items:*

- A. Accelerate efforts to achieve an IU eTexts revenue goal of \$10M for FY21
- B. Support Unizin in developing a new, user-friendly eText catalog that supports custom searches outside fall and spring order windows
- C. Continue to develop and present novel live events to raise faculty awareness and adoption of affordable content
- D. Partner with IU libraries to develop and implement a new outreach initiative to increase faculty awareness and use of IU eTexts/digital courseware, Open Educational Resources (OER), and library content

**Networks**

**Goal #49 Continue implementing the IU Telecommunications Network Master Plan including life-cycle hardware upgrades for all network components over a 10-year period (2018-2027)**

*Action Items:*

- A. Upgrade edge switches and wireless hardware
- B. Installation of vended Internet Protocol Access Management (IPAM) Solution

- C. Complete core network upgrade
- D. Implement network access control system
- E. Plan to complete IUPUI fiber upgrades (Aug. 2025)

**Goal #50 Continue to be the partner of choice for advanced Research and Education Networking for the state, nation, and international opportunities**

*Action Items:*

- A. Grow and continue to provide excellent services and value to Internet2, the National Oceanic and Atmospheric Administration (NOAA), and state or area-based Regional Optical Networks including the Big Ten Academic Alliance’s OmniPoP
- B. Provide services and community for the I-Light network member institutions
- C. Pursue and partner for federal and international contract and grant opportunities

**Goal #51 Renew and improve operational capabilities for all aspects of the Networks organization as technologies, expectations, and operational models continue to evolve**

*Action Items:*

- A. Implement the GlobalNOC Renewal Program including the GlobalNOC OS
- B. Continue to purposefully grow the careers and talent pipeline for Network Engineers and staff

**Pervasive Technology Institute**

**Goal #52 Expand Pervasive Technology Institute (PTI) engagement with and value delivered to the IU research community**

*Action Items:*

- A. Obtain certification of PTI as a university-level institute by the Office of the Vice President for Research; increase awareness of PTI via VPR’s imprimatur at IU
- B. Expand awareness and use of services provided by PTI-affiliated centers throughout IU; use of Hathi Trust Research Center text analysis tools by humanists and scientists; use of services of National Center for Genome Analysis Support by biomedical researchers, biologists, and bioinformaticians
- C. Expand use of Science Gateways at IU through publicizing discipline-specific software tools now available through dozens of existing Science Gateways and aiding IU researchers in developing and deploying new software tools in a Science Gateway
- D. Continue education, training, and outreach efforts; grow the online publication *Science Node* ([www.sciencenode.org](http://www.sciencenode.org)) as a public good and as a mechanism for expanding IU competitiveness for federal grant funding

**Goal #53 Continue and expand PTI’s role in promoting collaboration among faculty, staff, librarians, and students to address emerging and evolving state and national needs**

*Action Items:*

- A. Working with faculty of the Luddy School, the College, the IU School of Medicine, IU’s two schools of Public Health, the O’Neill School, and other academic units as appropriate, continue facilitating and obtaining funding for computationally intensive research related to COVID-19 and related high-relevance research domains including pandemics epidemiology, virology, e-health research, and infrastructure
- B. Expand grant funding for the Crisis Technologies Innovation Lab and eLearning and Discovery Lab
- C. Within the bounds of IU policy, pursue defense-related funding from the Department of Defense and Department of Energy, particularly related to defense against use of hypersonic technology
- D. Working with faculty of the Luddy School, the College, and the IU School of Medicine, continue facilitating and obtaining funding for AI-based research in medicine and science
- E. Continue and expand success in pursuit of federal and industry funding for national and local cyberinfrastructure ecosystem support, including facilitation of cloud computing for research, distributed computing, and analysis of Return on Investment for university and federal government spending on advanced-computing facilities

**Regional Campuses**

**Goal #54 Consolidate regional inventory systems into ServiceNow as an early adopter**

*Action Items:*

- A. Validate the accuracy of each campus’ inventory system
- B. Map consistent data points for tracking devices
- C. Define data migration paths for each regional campus inventory database
- D. Continue or start monthly sample testing at each regional campus

**Goal #55 Review Student data (Restricted and Critical) stored in regional campus databases and spreadsheets**

*Action Items:*

- A. Determine needs for common software platforms and storage standards
- B. Where appropriate, identify partnerships to implement solutions

## **Goal #56 Develop consistent annual communications/messaging across the regionals**

### *Action Items:*

- A. Produce an Annual Regional Communications Calendar
- B. Determine standard communications channel and methods
- C. Produce (with ITCO) monthly signage and supporting copy for communications

## **Goal #57 Align regional network and telecom infrastructure**

### *Action Items:*

- A. Work through regional network master plans to determine current mismatches and create projects to align campuses
- B. Collaborate with Telecommunications Infrastructure unit to begin standardizing installs
- C. Retire all regional telephone Primary Rate Interfaces (PRIs) and migrate to Session Initiation Protocol (SIP) Trunking

## **Research Technologies**

## **Goal #58 Innovate on successful virtualized desktop service to support remote teaching and learning**

### *Action Items:*

- A. Collaborate with Learning Technologies to evaluate cost-efficient and effective uses of virtualized services to support teaching and learning
- B. Collaborate with specific groups to refine virtualized services in support of remote work, e.g., 1IUITLC to support remote work for IT Pros
- C. Partner with Enterprise Systems to establish advanced integration of infrastructure support for virtualized services

## **Goal #59 Innovate with RT systems for scaling up university-wide data management**

### *Action Items:*

- A. Collaborate across UITS to evaluate backup and archive requirements with regard to RT's massive storage/archive infrastructure
- B. Collaborate with the Edge partners to evaluate backup and archive requirements with regard to RT's massive storage/archive infrastructure
- C. Evaluate and implement a true Hierarchical Storage Management environment to encompass backup, archive, cold, warm, hot, and nuclear data storage
- D. Engage more purposefully with the Data Stewards to encourage quality work on IU data management plans that leverage central resources

**Goal #60 Implement the Secure Research Desktop (SRD) supporting IU's potential to secure grants/contracts with strict/restrictive regulatory compliance requirements**

*Action Items:*

- A. Pilot the new Windows SRD with the mature Linux SRD to key stakeholders; stakeholders will have the flavor of Department of Defense and National Institutes of Health for starters
- B. Grow partnership with the Center for Applied Cybersecurity Research and Information Security as a joint team
- C. Develop customized SRDs for specific groups or requirements

**Goal #61 Accept, benchmark, test, and put into production Big Red 200's CPU and GPU capabilities**

*Action Items:*

- A. Partner with Cray/HPE for refining the Shasta OS environment through collaboration; complete benchmarking and Top500
- B. Use IU's "first" adopter status to solidify and create new Shasta working groups at the national level

**Goal #62 Support and enable AI at IU with relationships, computational assets, and collaboration with RT domain experts**

*Action Items:*

- A. Create stronger relationships with the Luddy School's and other AI/ML faculty
- B. Develop higher trust relationships with key AI faculty and research projects by demonstrating how RT can contribute to strengthening grant proposals

**Goal #63 Develop future capabilities for 3-D digitization for research collections, art collections, and physical items that are historically important to IU**

*Action Items:*

- A. Continue development of digitization capabilities using CT scanners for scanning many items at once in supporting larger scale collections; evolve use of LIDAR technologies in scanning larger physical items as well as increasing efficiencies in workflows
- B. Strengthen active collaborations with IU Research Collections and the Eskenazi Museum of Art
- C. Collaborate with MDPI for workflow efficiencies and potential future opportunities based on MDPI model

**Goal #64 Replace Karst as IU's only non-Cray Linux High-throughput Cluster (HTC)**

*Action Items:*

- A. Craft an aggressive RFP targeted at a non-Cray system for High Throughput Computational workloads
- B. Migrate Karst users to new system

## **Goal #65 Expand RT overall grant success with diverse funding sources**

### *Action Items:*

- A. Continue to develop collaborations with the Luddy School and AI Center to lead or co-lead grants across diverse funding sources (NIH, NSF, DOD, DOE, DHS/FEMA, and Microsoft)
- B. Grow partnerships with other PTI centers to increase grant funding; continue important outreach and grant initiatives to support future proposals

## **User Experience Office (in partnership with Digital Campus in VPCM)**

## **Goal #66 Release and refine a single mobile application for IU students**

### *Action Items:*

- A. Release public v1.0 in Spring 2020 as a mostly utilitarian app, handling tasks like searching, way finding, and bus schedules; begin planning and design for how the mobile app can play a role in new student recruiting
- B. Release updates to application to include recruiting and onboarding modules for new undergraduate students

## **Goal #67 Release the next version of Rivet, expanding IU's Design System to include marketing, website, and email components**

### *Action Items:*

- A. Complete the Request for Comment (RFC) process, actively soliciting feedback and input from the university's web and software developers on technical and experience elements within Rivet 2.0
- B. Release Rivet v2.0 alpha to key partners in late spring, debug and refine based on real-world use cases; release Rivet v2.0 for full university use in summer 2020
- C. Communicate the end of life for Rivet v1.0 on January 1, 2022

## **Goal #68 Gather qualitative and quantitative research data on IU's digital campus, including desktop and mobile experiences**

### *Action Items:*

- A. Conduct user testing of desktop navigation and findability concepts for a unified IU.edu and mobile experience
- B. Conduct user focus groups with students from all campuses, including online to better understand current and prospective student expectations for and challenges with our digital campus
- C. Test an informed prototype of IU.edu desktop experience and a mobile app for recruiting and retention concepts, based on student focus groups and user testing from actions (a) and (b)

- D. Gather high-level feedback from students via a survey and guerilla, in-the-wild user testing of prototypes
- E. Assess industry (web in general and higher education) benchmarks and other research on digital expectations/performance

**Goal #69 Gather quantitative data on digital campus maintenance**

*Action Items:*

- A. Gather and assess benchmark data from the industry (web in general and higher education)
- B. Gather baseline data for IU's digital campus maintenance today (how many websites have server-side scripting, how often are they updated, how many sites is each web developer responsible for on average, etc.)
- C. Complete a finalized inventory of all IU's websites and software applications
- D. Determine how many web staff are at IU
- E. Work with IU Internal Audit to assess accessibility risks on websites in follow up to IU's practice to comply with WCAG 2.0 AA standards

**Special Initiatives: Media Digitization and Preservation Initiative**

**Goal #70 Complete the Bicentennial Media Digitization and Preservation Initiative and transition to ongoing operation and support**

*Action Items:*

- A. Define the ongoing operation and management structure beyond 2020
- B. By July 2021, transition all ongoing responsibilities to the management team—update accounts and permissions, change web site, inform all external parties such as Memnon and third-party storage, complete post-project audit, and close budgets