Upcoming ALMs

Tuesday, January 12, 2021	Location TBD
Tuesday, March 9, 2021	Location TBD

Search Updates

- Vice Chancellor and Dean for Division of Academic and Student Affairs

- Dean for the College of Humanities and Social Sciences

Spring Planning

- Housing

- Quarantine and Isolation

- Testing

Questions?

OIT is | Digitally Transforming NC State

Administrative Leadership Meeting November 10, 2020
Marc Hoit, PhD

I want to share what OIT is doing to help the University with the number one IT issue: digital transformation.

- Digital transformation is overtaking everything we do (as witnessed by the pandemic):
- Automation, AI, mobile, chatbots, sensors, smart homes, devices, etc
    - OIT in collaboration with all campus entities helps enable you to more effectively focus on and achieve your mission and goals
    - This effort includes "functional" people as well as all of the other many IT folks throughout the university (> OIT staff).
- Transformation requires a number of activities. Let me provide some details on our efforts.

Challenged

OIT is   Strategic

Collaborative

Security-Focused

Service-Oriented

Operationally Excellent

Challenged

Strategic

Collaborative

Connects vision,
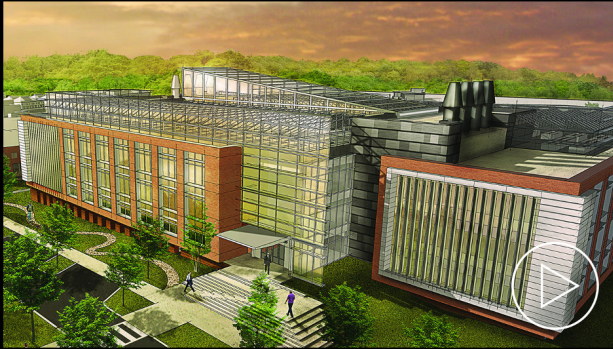ideas and action
to technology and
data solutions

Strategic

Strategic:

• Forward looking, helps connect vision, ideas and actions to technology and automation.
• Planning requires advanced project management and 3-5 year outlook.

Digital Strategy for Plant Sciences Initiative

Strategic

OIT has facilitated the development of a digital transformation strategy for PSI and helped plan the connectivity of the 26 research farms across NC.

- Research and Ag operations are moving to a digital prediction model that reduces experiments and testing
  - More use of data, drones, sensors, rural connectivity, analytics are huge growth areas - smart tractors, smart pesticide application and more
  - Collaboration with SAS & Microsoft for digital transformation of Ag to support modeling and predictions
  - AERPAW fiber and connections - provide a testbed and funding to connect parts of the Lake Wheeler farms and merge wireless and drones
- Extension as an outreach model for connectivity (people, resources and education)
  - Connection to other farms - Lake Wheeler fiber (as model)
  - Support for rural connectivity (Community center model)

Let's hear from Steve Briggs, Launch Director from PSI: https://vimeo.com/473433729/9d22da5e32

Research Computing
and data facilitation
service

Strategic

A new university-wide service to provide researchers the needed support for including digital technologies in their research and scholarship.

- Collaborations with Library, Stat consulting service, OIT and ORI - expanding as we gain experience
- It provides support including project management, visualization, planning, analytics and data architecture and "hardware and cloud architecture," help with data management plans
- Started with planning and grant development efforts working with ORI Proposal Development Office
  - Continued grant efforts require inclusion in grant budget
- Examples: AERPAW, Mid-scale Research Infrastructure-2 (MSRI-2), recent STEPS (Science & Tech Center) grants

Here is what Rudra Dutta (one of the AERPAW PIs) says about the support service:
https://vimeo.com/473433782/bd79b1012d

REPORTER: non-credit and required training registration system

Non-credit registration system being used campus-wide.

- Handles both non-credit activities (McKimmon, college and department, summer programs) - as well as required training (IT security, Title IX, chemical safety)
- Allows each unit to manage their courses and registrations
- Credit card payments and unified data for reporting
- Working to integrate with Salesforce for CRM functionality (requires Salesforce subscription)
- Required training is no cost to use, programs that charge have small fee

Tamara Nagelberg in Industrial Expansion Services has this to say:
https://vimeo.com/473559594/3bf80e2ca7

SAS and Data Mart partnership success
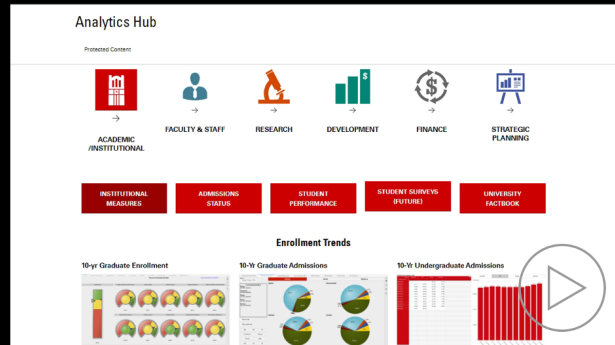
Strategic

Create a unified data repository and set of tools to allow campus to share data, distributed reporting to meet their needs and create custom dashboards and reports.

- Currently contains HR, Finance, SIS Data
- EMAS, grad school, HR, Purchasing, ISA all developed dashboards for following trends and making decisions
    - ORI is joining for research dashboards and reporting
- SAS, ISA, Provost office and OIT are working on predictive analytics for student retention and seats and sections
- System Office has three data marts: SIS, HR & Finance (went live in October) and is using HelioCampus to report on all 17 institutions
- Is used to compare reports from System Office and understand nuances of our data

Steven White shares how Enrollment Management uses the tool: https://vimeo.com/473433567/2e7b1c0cbc

Strategic

OIT is Collaborative

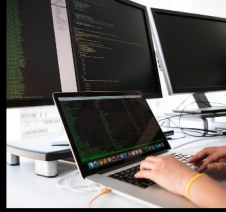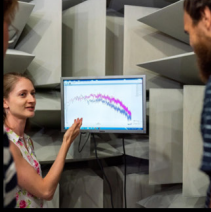Security-Focused

Service-Oriented

Operationally Excellent

Challenged

Strategic

Collaborative

Security-Focused

People, technologies and data
working together to achieve solutions

Collaborative

It is the collaboration of these three that drive solutions and answers to their business, research, outreach and educational goals as well as help achieve the university goals.

Student internship program in OIT

Collaborative

Developed internship program to hire junior and senior students from Poole College of Management (IT track) to get real-world experience in OIT projects. (Has expanded to students from several other colleges/departments)

- Have 45 student interns per semester - many working for two years.
- Interns are full team members
- Have onboarding program, interns help manage the program
- Work experience results in more job offers and significant increase in salary offers.

Here is one of our interns- Nicole Navaroli sharing her experience:
https://vimeo.com/473433686/c2030b8e5b

**Telephony partnerships beyond NC State**

Collaborative

NC State has a large and efficient phone operation.

- Manage the phone systems for four UNC schools
- Partnership provides additional personnel that deepen the OIT bench
- Benefits the system schools and NC State (it is an incremental cost and we can offer for less cost than they can purchase)
- Working with Department of Information Technology (State of NC) on their move to VOIP

But let's hear from Kevin, the Director of Infrastructure at UNC Pembroke on how this helps them:
https://vimeo.com/473558294/fdf1270430

Management system
for Research and
Scholarship
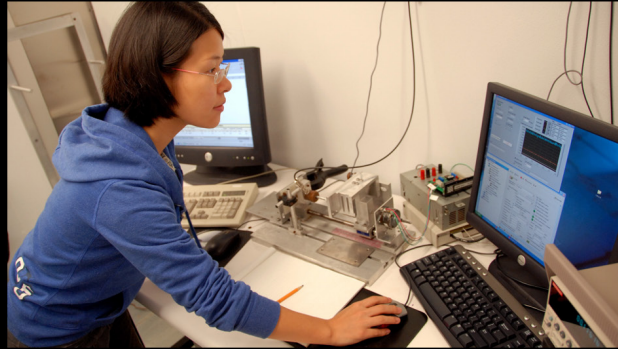
Collaborative

Partner with Fiscal and Research offices to implement a replacement research management system ("RED")

- Replaces a 25-year-old home-developed system (PINS, RADAR, etc.)
- Includes Conflict of interest, Animal Safety, IRB as well as Proposal Development, Proposal Tracking, Award Tracking and Financial Tracking
- Integrates the PS financial and HR system and SAS for reporting
- Improves transparency of submission process, supports interdisciplinary research, automates and significantly speeds up processes and supports electronic submissions
- We are also managing the Lab Management software (tracks, changes and schedules core lab work) for All Core labs

Collaborative

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Service-Oriented

Operationally Excellent
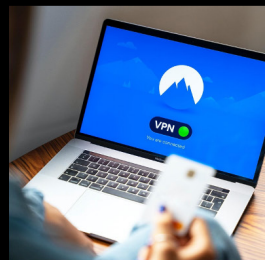
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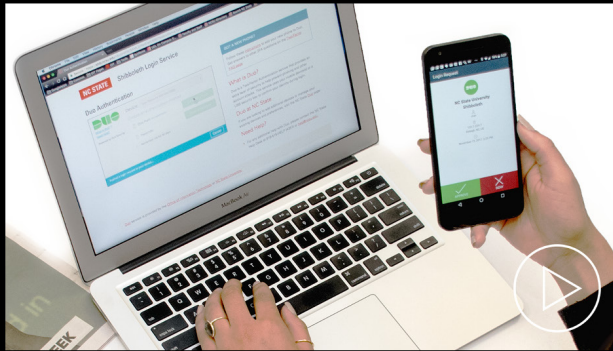
Service-Oriented

Security-Focused

Keeps us protected, compliant and educated

This focus keeps us better protected, compliant, and educated on the threats, vulnerabilities, protections and proper behavior to keep our information safe.

Culture of IT security

Security-Focused

IT security is a cultural effort, it needs to be everyone's responsibility. We need to educate folks on how to protect their data and provide good tools and controls to protect the university.

- There is a continual increase by all agencies to improve compliance and cybersecurity maturity level
  - PCI (to support credit cards and distributed business operations), HIPAA (athletics, health center), GLBA (fiscal services), NIST 800-171 (research efforts), ISO 27002 (the campus standard), UNC System policies and standards
- Student 2FA requirements - completing the roll out
  - Tool for lost phone or no wireless access (bypass codes available at go.ncsu.edu/get2fa)

Let's hear Rosanna Thompson, Senior Assistant Director, Scholarships and Financial Aid on how OIT helped secure Financial Aid documents: https://vimeo.com/473433597/d4974c6243

Culture of IT security

Data Security Training

Security-Focused

Additional efforts include:

- Required Data Security Training for everyone - you should have received notices starting in October from REPORTER
  - The weakest link in security is people – education is the best prevention
- Risk Assessment is driving priorities for our CyberSecurity Roadmap
  - Using risk calculation (likelihood x impact) to prioritize efforts. We will expand this methodology to all OIT efforts.
  - Data Inventory (key project) and security efforts to know where our sensitive data is stored and then what protections are needed on these systems
- A major function: supporting NIST data security requirements for research (which is expanding to all agencies by 2023)

Let's hear from Michael Kudenov on OIT's efforts with securing his research data:
https://vimeo.com/473566344/13c3ccd735

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Service-Oriented

Operationally Excellent

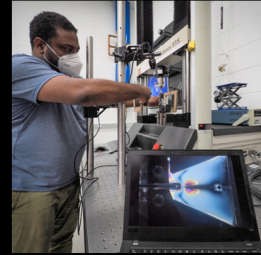Challenged

Strategic

Collaborative

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Service-Oriented

Operationally Excellent

Supports and maintains the technology needs of the university

Service-Oriented

OIT supports and enables the needs of researchers, university functions, staff and student support in order to enable the mission.

Service Management as a framework for support

Service-Oriented

Service management provides processes to improve, monitor and support all services: which results in better support, IT best practices/maturity, but also more secure environment.

It is about services customers understand and need, not what IT wants!

- Help Desk, Walk-in Center are using the new IT support portal – based on ServiceNow
- Working on a new - Unified FAQ for Covid19 - all units on campus
- Mature ITSM processes require excellent data collection and analytics to identify patterns and preemptively resolve issues
- Inventorying our sensitive data and using our Configuration Management DataBase to link data to machines
    - This is required to meet compliance and we need leaders and their staff to participate.
- Self-Service 2FA bypass tool (to generate your own 2FA codes)
    - Last 7 days:
        - 350 unique people made duo codes
        - 247 made Google codes
        - resulting in potentially 597 fewer calls to the Help Desk and less end-user frustration.

Informed
Change Management

Service-Oriented

A campus-wide change structure to ensure communication, address audit issues, partner all integrated systems (internal and external).

- Ensures system owners are aware of changes, upgrades and downtime since our systems are increasingly integrated
- Starting in OIT, but expanding to include all campus IT systems
- Focus on end user services and notification of outages
- Provides audit trail for system changes

Service-Oriented

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Ensures connectivity, maintenance
and resiliency of critical systems
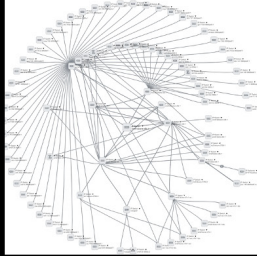
Operationally Excellent

Operations are ~80% of our effort - upgrading systems, patching security needs, 24/7 systems, monitoring systems, ensuring connectivity and that critical systems are operational.

Impact of the pandemic

Operationally Excellent

(Like everyone on campus) Things OIT did to keep campus running!

- Support being done by **all** of campus IT to support this (not just OIT staff) – e.g. partnership with Libraries to deploy laptop computers
- Work from home increases need for data security vigilance at home
- Tools to allow/support working remotely
    - Jabber softphone
    - VPN (to access secure resources)
    - Help Desk: remote desktop support - LogMeIn
    - OnBase/Sharebase for electronic routing, secure data sharing
- Along with so many other units, the summer push to prepare for fall
    - Partnership with DELTA on ClassTech upgrades – added recorders in all 110 classrooms - security of Zoom
    - Partnership with EMAS and Facilities for classroom space planning
- Increased demand for accessible materials - captioning grants
- **Reality:** first year/transfer survey results
    - Almost 9% of incoming students report they have weak, unstable, or no internet connectivity at their permanent homes.

Moved Data Center I to
State of NC
Eastern Data Center

Operationally Excellent

Effort to reduce infrastructure costs and partner with the state.

- Needed a $6M investment to upgrade DC I. (cooling, power, battery/generators). Annualized cost reduced by 50%
- Renting space from State IT department (EDC) - half the cost
- Move happened over 24 months, with no loss of service.
    - The prototype rack was up and running in August '18 and the move finished October 2020.
- Moved: ~800 VMs, 500ish physical devices, 115TB of network storage.
    - Bulk of the moves were over 4 months
    - Majority of the move was in less than 6 months DURING THE PANDEMIC

59,613 admissions applications processed

99.999% network backbone uptime maintained

2,500 NC State Help Desk phone calls received per month

52,358 active Go Links supported

120,000 registrations in more than 4,000 class sections managed in REPORTER

40% of 745 IT-related positions are in OIT

78 units at 11 UNC schools used Apple device management suite (JamfPro), co-managed by OIT

4.1 million jobs processed by High Performance Computing cluster

26,000 Lab Management System reservations across 30 research labs in four facilities

1,774 campus users were assisted with compromised accounts

322,196 electronic identities managed for the university community, with 29,000+ new user accounts

108,466 web pages assessed for accessibility using Pope Tech

356 people enrolled in the "Accessibility in the Classroom" course, with 160 from NC State

Operationally Excellent

A few of the stats we have tracked and included in the the 2019-20 annual report. View the full annual report: https://reports.oit.ncsu.edu/resilient-2020/

During 2019-20...
- 59,613 admissions applications processed
- 99.999% network backbone uptime maintained
- 2,500 NC State Help Desk phone calls received per month
- 52,358 active Go Links supported
- 120,000 registrations in more than 4,000 class sections managed in REPORTER
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Balancing demand, budget and expectations to meet priorities

Challenged

We have many competing demands.

- Software/vendor continual cost increases (companies are being purchased and tripling their rates as well as some that grow based on our use)
  - E.g. Adobe, Microsoft, PeopleSoft
  - We will need to make hard decisions on what to stop supporting.
- Competing for staff hires and equity retention, especially in specialized IT roles. (like the rest of campus)
- Exponential growth in data security requirements (protection of data)
  - Complexity of keeping systems and data secure with patching, addressing vulnerabilities, etc.
- Significant growth in requests to automate or move online campus processes (resulting from budget constraints and remote work across campus).

OIT is committed to continue being strategic, collaborative, security-focused, service-oriented and operationally excellent to support the university mission.