

## Interim Report: IT Strategic Plan Implementation First-Round Initiatives

NC State unveiled *Partners in Innovation: A Strategic Plan for IT at NC State, 2014-2020* in the summer of 2014. This highly inclusive plan describes the [guiding principles](#) and broad [goals and strategies](#) to advance IT across campus. To bring the plan to life, an implementation team was charged with creating initiatives in support of the plan, and by late summer 2015, the team identified the following six initiatives and appointed workgroups for each:

- Develop Cyber Infrastructure Master Plan
- Create Service Catalog
- Redesign IT Governance
- Maximize ServiceNow
- Optimize Space Utilization with Technology
- Transform Data and Analytic Resources

Since then, progress has been made on all of the initiatives but to varying degrees. In particular, the teams realized that the four IT-led initiatives have pervasive interdependencies. Given this integration and faced with significant resource constraints, the oversight team consulted with CIO Marc Hoit and decided to focus on the IT governance initiative and the service catalog initiative while remaining cognizant of the tight integration with the ServiceNow and cyber infrastructure initiatives.

During the last year and a half, additional progress has been made on each of the six initiatives, and this report serves as a status update as we move into the second half of the timeframe encompassed by the strategic plan.

### First-Round Initiatives

#### 1. **Develop Cyber Infrastructure Master Plan**

– led by Greg Sparks

A core team gathered feedback via a dozen focus groups that included more than 80 stakeholders spanning a number of functional areas including research, financial services, human resources, student services, and compliance activities. The largest theme emerging from these groups was a desire by stakeholders for IT to “keep up” with technology. While many comments were positive, recurring areas of concern were around the lack of secure storage for researchers and saturation of wireless in areas with a high number of simultaneous users (e.g., classrooms).

The majority of this initiative meshes well with the creation of a service catalog in terms of inventorying, identifying and describing infrastructure services. Once infrastructure services are identified and cataloged, the next step will be to flesh out visions of future state for relevant services.

In the meantime, strategic decisions and directions related to infrastructure include:

- Identified funding and created a plan to provide [instructional wireless](#) in all 110 classrooms by the end of 2018.
- Created a research storage solution managed by OIT that provides 1 TB of storage per project or grant. Work is underway to allow for the purchase of space above the baseline allocation.
- Completed a feasibility study to construct a new data center to replace the original campus data center, which is no longer adequate in terms of space, power, and cooling. Results of that study led to a decision to pursue using an off-campus shared data center (known as colocation) as opposed to constructing a new data center. A target date of December 2019 has been set to vacate the existing campus data center known as DC1.
- Decided to move toward hyperconverged infrastructure (HCI) for appropriate workloads. ScaleIO's HCI offering will be utilized as the predominant platform in the colocation space.
- Created initial Secure University Research Environment (SURE) in support of NIST 800-171 compliance that leverages Amazon Web Services (AWS) to the extent practical. Further development of a longer-term solution is underway.
- Developed a new network architecture to provide high-speed (10 Gbps) networking to the desktop to support computationally intensive research needs.
- Conducted beacon focus groups with campus partners to stay abreast, and hopefully ahead, of beacon technology as it matures.

## 2. **Create Service Catalog**

– led by Susan West

OIT has been developing a service catalog that will provide information about its services and allow further integration of other key service management processes with its service portfolio. OIT's work in this area is also intended to provide the ability to support other campus IT providers in IT service management in the future.

- OIT has made several organizational changes to help provide dedicated staff support for oversight of IT Service Management (ITSM) processes.
- During the fall of 2017, OIT completed a service portfolio readiness assessment. The outcome of this assessment was a roadmap for the development of a catalog of OIT's services that will be integrated with other key ITSM processes (e.g., configuration management, change management, asset management) over the next one to two years.
- OIT will be completing a service catalog engagement from March through May 2018. The expected outcome is a framework for the development and maintenance of a campus IT service portfolio, documentation of a broad sample of OIT services across all OIT units, and staff training on key concepts of IT service management. ServiceNow will be used as the platform for the catalog, aligning with the Maximize ServiceNow Strategic Initiative.

Future phases will address integration of other ITSM processes with OIT's service portfolio as well as in other campus units that provide IT services.

### **3. Redesign IT Governance**

– led by Debbie Carraway

The IT Governance steering team completed the [design of a new IT governance structure](#). The new design aligns IT governance with the mission and business of the university rather than organizing by technology domains.

- A key change is the separation of governance functions from service advisory and service operations functions and a proposed framework for these non-governance functions.
- In addition, the team produced a [supplementary report clarifying the relationship of IT governance to information security governance](#).
- The next phase of the project will be the Mechanics phase led by a cross-section of the IT, research and academic communities. This phase will include:
  - Developing charters and membership for the IT governance committees and subcommittees
  - Completing work on a scorecard, which can be used by service owners and the campus community to determine when a project or policy should seek IT governance review
  - Developing the business and administrative processes needed to create a sustainable and successful IT governance process.

### **4. Maximize ServiceNow**

– led by Susan West

OIT rolled out ServiceNow to campus in March 2015 to provide a more robust IT service management platform. This application is now being expanded beyond its initial implementation of incident tracking and knowledge management.

OIT has recently reallocated resources to create two additional ServiceNow developer positions — a lead developer and an entry-level developer. These positions will be key in the growth of NC State's use of the ServiceNow platform and will help grow our application development capacity.

- OIT is working to develop key service management processes in ServiceNow, such as Service Portfolio, Service Catalog and Configuration Management.
- Key campus projects that are using ServiceNow include:
  - Facilities Modification (FacMod) process
  - Get2FA tool to support two-factor authentication for Google generic accounts

- Help desk functions in DELTA including the development of an extensive knowledgebase
- New Student Services site for DELTA and Enrollment Management (EMAS)
- Business unit applications used by the CALS Business Office, Campus Enterprises and others
- Pre-award research support application for the College of Natural Resources
- OIT Walk-in Center and ClassTech support applications

## **5. Optimize Space Utilization with Technology**

– led by Lisa Keel

Facilities formed a committee in mid-2016 with staff from Capital Project Management and IT groups to identify various public spaces that need connections to technology and to develop construction standards modeled after the Facilities' Design & Construction Guidelines.

- The committee is writing the Baseline Design & Construction Guidelines, for use by in-house and consultant designers.
- The guidelines being reviewed by this committee incorporate links to existing campus standards for ClassTech, ComTech, DELTA, and DASA.
- Spaces that need technology connections include Common Spaces, Offices, Residence Halls, Labs, Classrooms, Libraries, Dining Spaces, Athletic/Gym facilities, etc.

Based on the new baseline standards, the committee will facilitate efforts to identify which aspects of the new standards should be incorporated into new building or renovation requirements and whether they're required or optional.

In parallel, identify funding required to bring various categories of spaces to the new baseline standards and determine the process for prioritizing funding requests to maximize strategic benefit.

## **6. Transform Data and Analytic Resources**

– led by Mary Lelik

In FY 2016, OIRP undertook a partnership with OIT and SAS to establish an institution-wide reporting database accessible by all university software platforms and users. The team organized a Data Architecture Group to identify the best storage mechanisms and organizational structure for the data needed to conduct effective analytics and produce useful, actionable information. Subsequent work undertaken in FY 2017 and continuing into FY 2018 includes:

- Creation of a new language agnostic Oracle based enterprise reporting database to allow access from all university software platforms

- Definition of database policies and conventions for ease of use and management across campus units and audiences
- Identification of commonalities in data requests to continually refine data storage and database organization
- Documentation of data tables, security policies, usage guidelines, and best practices
- Work with internal stakeholders to properly link data management procedures and analytic information needs

The pilot project focused on the existing well-defined catalog of student information developed to comply with the UNC system Student Data Mart requirements as the logical starting point. The initial product roll-out includes new online tools with a consistent graphical presentation layer of summary reports and drill-down capability.

Building on the above platform, OIRP—in partnership with OIT, Enrollment Management (EMAS) and the Graduate School—is in the final stages of implementing an institution-wide online admissions status reporting (ASR) system.

- The new reporting environment will replace the static summaries of undergraduate and graduate recruitment cycle progress and tie them to ongoing long-range and biennial enrollment planning processes.
- The new ASR—slated for go-live in spring 2018—will provide colleges and departments with a comprehensive enrollment management dashboard for just-in-time unit-level admissions status updates.
- A second concurrent project is underway to develop and deliver optimal enrollment forecasting methods for incorporation with the ASR and offer “what-if” analysis capabilities to enrollment planners.

Building on the framework of the Data Architecture Group process and its student information pilot project, a second data validation effort has begun with a focus on NC State Human Resources information needs. This new effort is comprised of two elements: a **Data Review Group** to assess the adequacy of current data resources to meet institutional reporting needs and a **Process & Policy Group** charged with identifying enterprise goals for faculty/staff data reporting at NC State and providing guidance to the Data Review Group on high-priority data questions or investigations. Like the student data initiative, the HR data project includes representation from a core cross-functional team including HR, OIRP, and OIT, as well as other campus stakeholders engaged in employee data maintenance, validation and reporting activities.

Concomitant goals of the Human Resources Data Validation Project are to:

- Improve documentation of faculty/staff reporting items including an internal data dictionary to complement the UNC System HRDM data dictionary;
- Provide consistency in the way employee data are maintained in enterprise data systems and portrayed across the institution; and
- Increase stakeholder confidence in the accuracy of faculty/staff reporting used for decision-making.