Leadership

UW-Madison CIO Office

A message from the Vice Provost for Information Technology and CIO

A role needs to be executed by an individual, so I felt it would be beneficial for senior leaders to be familiar with my approach to leadership. I am a mission-focused individual and in this context it means that I am driven to support and advance UW-Madison competitiveness in the teaching and learning, research, and service (Wisconsin Idea) missions. My career preparation of expertise in budget and financial services, student support services, and academic services is a foundation on which I am able to work. More importantly, my more than thirty years of experience working directly for eleven different Deans and five Provosts, gives me deep understanding and insight into the nature of academic culture, and how to work in a shared-governance system.

I am a first-generation college graduate and have bachelor’s degrees in Management Information Systems and Accounting. I grew up in rural Wisconsin and can effectively communicate with key governmental and business leaders who often have similar stories. I also have a Master’s degree in Administrative Leadership, I have served on the faculty, and have been a director of the EDUCAUSE Leadership Institute. I have received two NSF infrastructure grants in the last year, and serve on the External Relations Advisory Committee of Internet2. I am presently in the 2nd year of a 4-year seat on the Board of Directors for EDUCAUSE.

Bruce Maas

Context for the CIO Office

The Office of the Chief Information Officer at UW-Madison has been in transition through a succession of three permanent and two interim CIO’s over the last seven years. With each new hire, the Provost further empowered the CIO role from predominantly leading just the central IT organization (DoIT) to increasing empowerment to lead IT services for the campus.

A Chief Operating Officer (John Krogman) is responsible for leading and managing DoIT services, and reports directly to the Chief Information Officer (Bruce Maas) to ensure organization alignment with the CIO’s broader role.

The CIO is expected to lead a group of CIOs from UW System schools, colleges and divisions to align with campus strategic directions, and does so through influence, governance, and leadership development. The CIO has neither a solid nor dotted line reporting responsibility for the CIOs of the schools, colleges and divisions. This can be challenging when the perspectives and priorities of Deans and Division Heads diverge from the institutionally scalable approach to IT services that the CIO is expected to deliver.
IT at UW-Madison: Strategic Alignment

Accelerating UW Competitiveness
By Scaling IT Services

Mission Initiatives

Advanced Computing Infrastructure
Educational Innovation

Mission Strategies

Leadership Development Service Layers
Building relationships on campus and with the UW System, state, national, and private sectors
Building partnerships WIDMIR & center for high throughput computing, state/DOA

Strategic/ Tactical

Administrative Excellence (scaling where it makes sense)
Campus IT Strategic Plan

UW-Madison Campus IT Strategic Plan
We’re engaged in a campuswide process, to think of new ways the entire campus can embrace, to manage IT and determine how technology can support the mission of the University. Our goal is to think about the business of the University and how and where information technology can add the most value. Hundreds of faculty, staff and students have helped list and prioritize ways in which campus-provided technology can help them do their work more efficiently.

Mission & Vision
The mission of University of Wisconsin-Madison IT Services is to support the primary institutional missions of teaching, research and service with innovative and creative IT services.

The vision of University of Wisconsin-Madison IT Services is to pro-actively improve IT services and service provisioning. With an emphasis on providing visionary, scalable and sustainable services, IT staff, in delivery of these services, will be highly trained and educated – committed to the institutional mission and strategic initiatives, and sensitive to the diverse needs of the campus.

Guiding Principles

Participatory Culture
All stakeholders, including central IT, distributed IT, faculty, staff, and students who depend on IT services, will be welcome participants and we will strive to involve stakeholders where their expertise is needed.

Commitment to Transparency
We are committed as a community, and IT leadership in particular, to transparency in governance and decision-making and management of resources.

Shared Framework
We will utilize a “service-layers” approach as a framework for decision-making, where we will strive to scale services whenever there is critical mass, while allowing for local and small group innovations that further the institutional mission. We will select the most appropriate IT service delivery strategy for each need (enterprise, federated, local).

Commonly Accepted and Emerging Practices
We will adopt generally accepted practices in the higher education IT community whenever possible, and remain vigilant for emerging practices that will further our institutional mission.

How we Measure Our Financial Investments
Before implementing services, we will ensure that we understand and communicate the total cost of ownership of any services we recommend.

Stewardship
We will balance the requirements of our faculty, staff and students to provide services with sound stewardship practices that align to campus strategic priorities and use analytics for decision making.

Need for Ongoing Employee Development
We will commit to training and development as a priority in order to build and maintain skills across the IT community in a rapidly changing profession.

Innovation
Innovators will have the capacity to innovate at the “edge” and explore new ways of better scaling high quality teaching and learning modes or tools and technologies.
DoIT Overview

Chief Operating Officer, Deputy CIO
John Krogman

Highlights
• 600 staff and 200 student employees
• $97+ million annual budget
• Represents about 40% of campus IT
• Array of central, federated and edge services
• Enterprise services to campus, UW System and region

Sampling of Services

UW System Enterprise Services
• Statewide and Regional Network Connectivity (currently with WiscNet)
• Human Resource System (HRS)
• Financial System (SFS)
• Course Management System (D2L and Learn@UW)
• Budget System

Campus Enterprise Systems
• Student Administration System (ISIS)
• Application and Web Hosting

Academic Services
• Application Development for Library, Research, Teaching & Learning
• Campus Portal (My UW)
• Technology Skill Development
  • Organizational Readiness Consultations
  • Self-Paced Online Software Training
  • Student Software Training and Online Course Support
  • Student, Staff, & Faculty Technical Training
• Enhance Teaching and Learning
  • Enterprise System Consulting and Integration
  • Online Content, Courses, and Training
  • Teaching with Technology Consultations
  • Evaluation, Design and Analysis
  • Digital Media Services
• Research Data Services
• Video Production

Retail Services
• Tech Store
• Software (WISC) Sales
• Repair and Departmental Support
• Digital Publishing & Printing Services

General IT Services
• Architecture
• Access Management and Directory Services
• Project Management and Business Analysis
• General Access Computer Labs (InfoLabs) and Kiosks
• Help Desk with Online KnowledgeBase
• Laptop and Equipment Checkout and Rental
• Security
• Software and Load Testing
• Accessibility
• Streaming Media
• Web Conferencing

Outreach
• Information Technology Academy (High School Students)
• Information Technology Career Academy (Unemployed Adults)
DoIT Service and Activity Based Funding Model

Organization Structure
• DoIT was formed by merging three previously competing organizations
• DoIT is organized by areas of expertise which improves the depth of knowledge and experience
• Result: an organizational matrix is required for service delivery

Funding Model
• Campus funding (GPR and Student Technology fee) earmarked for specific services
• Resale services which pass through of Cost of Goods Sold
• Fee for service (Includes $21 million in services for UW System)

Financial Model
• As a Campus Auxiliary, DoIT uses accrual accounting methods for financial reporting
• DoIT manages by activities (ABM): Product, Services, Special Projects, etc.
• DoIT uses activity based costing (ABC) and has over 150 cost/activity centers
• This allows DoIT to budget and report by activity (ABB)

Management Uses Full Cost of Activities/Services
• To set prices for chargeback of billable products and services.
• To request funding for centrally (Campus) funded activities.
• To evaluate value of activity
• To reduce cost drivers
• To shift funding to new priorities
• To propose funding models for new or significantly modified products and services

DoIT Revenue Sources Overview

<table>
<thead>
<tr>
<th></th>
<th>Funding*</th>
<th>Salary Costs*</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campus Funding</td>
<td>30.44</td>
<td>18.04</td>
<td>242</td>
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<tr>
<td>Resale</td>
<td>28.79</td>
<td>4.18</td>
<td>72</td>
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<tr>
<td>Fee for Service UW-Madison</td>
<td>17.21</td>
<td>9.07</td>
<td>113</td>
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<tr>
<td>Fee for Service UW System Admin</td>
<td>20.95</td>
<td>11.04</td>
<td>137</td>
</tr>
<tr>
<td>Total</td>
<td>97.39</td>
<td>42.33</td>
<td>564</td>
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*In Millions
Mission
Research computing is a universal amplifier for enabling discovery across all campus academic disciplines. ACI represents the first step toward creating research computing infrastructure led by our scholarly community. It builds on existing strengths of the campus and works to address gaps to provide our faculty a competitive edge. These efforts are driven by strategic need rather than pursuing objectives simply because others are pursuing them.

Partnership
The creation of ACI was driven by needs seen by the faculty, and is led by a faculty committee with representation from across the campus. ACI is a partnership of the Office of the CIO, The Center for High Throughput Computing (CHTC), the Division of Information Technology, and the Wisconsin Institutes for Discovery. Together, these groups provide strategic leadership and the ability to operate services at institutional scale. Campus researchers lead the faculty committee which is governing the initiative and in a strong position to provide a means by which faculty manage and allocate the funds and resources invested by senior university leaders and researchers.

Resources for 21st Century Discovery
As the ACI identifies, develops and coordinates needed service offerings, the CHTC delivers these resources to campus. These services are made available to researchers from all disciplines on campus at no cost supported by ongoing campus investments. ACI also provides shared infrastructure to allow researchers to pool funds to build scalable, cost-effective computing resources. ACI is actively exploring the need for additional computational resources in order to reduce the redundancy of supporting many smaller systems for individual research groups.

The Human Touch
More than raw computer power, modern discovery requires interconnected services and infrastructure to move, store, manage, and analyze data. Personnel to support these services are as important as the underlying technology. Key to this relationship is the development of the role of the Research Computing Facilitator. These individuals bridge the gap between scholarship and the computing resources required to accelerate discovery.

The CHTC and the UW-led Open Science Grid provided the computational power that supported the international collaboration that led to the discovery of the Higgs boson.

Shared computational resources of the CHTC allowed Professor Edgar Spalding (Botany) transition from hand measurements to automated measurement of root growth that has transformed his research program.
Services Delivered
More than 210 million compute hours were delivered by the CHTC to more than 120 campus research groups in the past three years, a value equivalent to a single CPU desktop working for more than 24,000 years. More than 100 million of these hours were delivered in the past year alone. Eighteen-million of these hours came from off campus resources through the open science grid. These computing resources are distributed across the campus and nationally (see below), serving a broad range of campus users distributed across the colleges. While the majority of research groups fall into traditional STEM disciplines, these resources have also been used in non-STEM research by users in the departments of Business, Educational Psychology, Economics, and others.

Creating a Research Computing Culture

Workshops
In the past year, ACI has offered two multi-day workshops on software development practices for researchers. These events supported 71 faculty, staff, post-docs, and graduate students. Instructors come from across the campus, and students from the past events are volunteering to support the later and future events.

Community Development
ACI serves as a nucleus for research computing communities by providing support for computational research methods. Groups that ACI is engaging with include Markov-chain simulation users, geographic information systems, bioinformatics, and digital humanities.

Beyond the Campus
ACI is engaged with colleagues across the CIC to identify opportunities to leverage the cooperation within information technology services. Most recently, we submitted a collaborative proposal to encourage NSF investment at the campus level with 14 research institutions, including Harvard, Stanford, University of Washington, and Clemson University, to establish a community of shared expertise and resources.

Compute-hours delivered in 1 year by college

<table>
<thead>
<tr>
<th>College</th>
<th>Compute-hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letters &amp; Science</td>
<td>60,542,626</td>
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<tr>
<td>Engineering</td>
<td>13,652,015</td>
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<tr>
<td>Ag &amp; Life Sciences</td>
<td>10,023,525</td>
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<tr>
<td>Medicine &amp; Public Health</td>
<td>8,087,115</td>
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<tr>
<td>Graduate School</td>
<td>5,190,831</td>
</tr>
<tr>
<td>Other</td>
<td>3,498,088</td>
</tr>
<tr>
<td>Business</td>
<td>480,697</td>
</tr>
<tr>
<td>Education</td>
<td>30,252</td>
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</table>

With support coordinated by ACI, CHTC now offers a shared high performance computing resource that allowed new Assistant Professor Elena D’Onghia (Astronomy) to jump-start her research program, providing the computational power for a 100 million-particle simulation of the evolution of the Milky Way galaxy.
Educational Innovation Mission
University of Wisconsin – Madison's Educational Innovation (EI) effort empowers faculty, staff and students to be change agents in enhancing student learning and generating new resources.

Building Partnerships and EI Culture
For the past two years, through the leadership of the CIO office, DoIT leaders have met weekly as part of the EI Core Leadership team and engaged with campus governance and leadership groups to promote a sustainable and scalable EI culture. In addition team members have taken leadership, in partnership with colleagues from the Vice Provost for the Teaching and Learning Office, Division of Continuing Studies, Libraries, Academic Planning and Institutional Research, Enrollment Management, IRB, and numerous schools and colleges, to move EI efforts forward.

Delivering High Tech and High Touch Services
DoIT's academic technologists (83 professionals) provide a suite of twenty-three services. For fiscal year 2013, eleven of these 'high-touch' services served 2,076 unique clients across campus: over 80% of these contacts were with faculty, instructional staff or future faculty (the top 5 academic departments served, in order, were Medicine/Public Health, Letters & Science, CALS, Engineering, School of Education).

Since November 2012 DoIT's flexible, matrix organization has allowed it to refocus eight of its academic services to support eight new EI projects.

Refocusing High Touch / High Tech Services for EI Support

- Technical Training
- Instructional Design and Consultation
- Developing Faculty, Staff & Students
- Media and Online Course Production
- Software Development
- Campus and System Tech Infrastructure
Delivering Scholarly and Outcomes-Based Results
DoIT’s academic services take both a scholarly and results driven approach to EI projects. We ground our consultations in learning science. Consultants bring a wealth of course and instructional design, project management, and online course production methodologies to projects. We collect data to evaluate projects, provide educational technology research design and data collection and analysis support for EI projects so faculty can publish in scholarly journals, and consult with faculty on learning assessment techniques in new learning environments such as MOOCs.

Connecting Beyond the Campus
DoIT’s team members have engaged with colleagues across the CIC, nation, and world to spark new EI ideas, build on other’s successes as we pilot projects, and share our expertise and results with others. For example, we participated in a campus “European MOOCs in Global Context Workshop (19-20 June 2013).” In addition we submitted a NSF proposal and were selected to participate in an upcoming IDEA Lab on learning analytics. We also regularly submit presentations for international conferences such as EDUCAUSE, EDUCAUSE Learning Initiative, and SLOAN-C.

DoIT Support for Educational Innovation Projects
(Since November 2012 - Worked with 116 Faculty)

| MOOCs (10 Faculty) | Online Learning (12 Faculty) | Blended Learning (94 Faculty) |