

**UMB Information Technology Goals**  
**Alignment with the UMB Strategic Plan, 2022-2026**  
*December 2022 Status Report*

***Goal: Reduce the server hardware and data storage equipment footprint on campus to achieve cost savings, efficiencies, and benefits associated with cloud-based technologies.***

Status:

- As of January 1, 2022, the Center for Information Technology (CITS) had transitioned 88 of 492 existing on-premises servers (18%) to Cloud infrastructure environments (this does not include the deployment of new servers for new services that are hosted in Cloud infrastructures).
- By the end of calendar year 2022, CITS will have transitioned another 73 existing on-premises servers to Cloud infrastructures (Microsoft and Oracle), which will mean a 33% reduction in the number of on-premises servers.
- CITS will continue taking a Cloud-first approach in calendar year 2023, with all new servers being provisioned in Cloud infrastructures (Microsoft or Oracle) unless there is a compelling reason for why they need to be on-premises.
- The School of Medicine Office of Information Services has also focused on migrating servers to the Cloud. In 2022, the SOM IS provisioned all new servers in the Cloud, with now having 109 servers on-premises and 105 servers hosted in Microsoft Azure.
- In calendar year 2023, SOM IS planning to continue provisioning new servers in Azure.
- CITS, SOM, SSW, and potentially other UMB Schools/Depts. are actively combining and consolidating the remaining on-premises server infrastructure that will temporarily or possibly permanently remain on-campus for systems that are not “Cloud ready”. We are planning a May 2023 deployment of this collaborative platform.

***Goal: Leverage Microsoft’s computing infrastructure to develop and implement Azure Virtual Desktop (AVD).***

Status:

- The Azure Virtual Desktop project items that have been completed or will be completed by end of this month (December 2022) include:
  - Deploying a high-speed Internet ExpressRoute to establish dedicated, high-speed connectivity between UMB and the Microsoft’s Azure Cloud infrastructure. This high-speed express route network will be fully implemented and available for use by all UMB schools and departments.
  - Completing extensive IT staff education sessions with Microsoft experts.
  - Developing an AVD infrastructure framework with help from Microsoft engineers that supports UMB needs and serves as a template to speed the deployment of AVD.
  - Acquiring and completing the installation and setup of an AVD management system to automate tasks, provide expanded insights for better system administration, performance management, cost savings, and dashboard reporting on the usage of AVD.

- Identifying and having enrolled pilot groups of users for the AVD computer replacement part of the project.
  - Completing AVD pilot tests, which will allow for existing computers to be replaced with less expensive computers using Azure Virtual Desktop (AVD) in 2023.
- Project items that will be completed by the end of calendar year 2023 include:
  - Implementing the AVD management tool for use by all school and department IT teams.
  - Deploying a large number of less expensive computers in schools and central administrative departments that will be using AVD.
- Ongoing activity includes the work of the University-wide AVD Computer Working Group, which is evaluating new computing device options for future AVD deployments.
  - The Computer Working Group has met with several computer vendors and after reviewing device options, they have identified several types of computers as AVD supportable options.
  - These devices are currently being tested by a team of SOM and CITS IT professionals in preparation for AVD deployment.
  - These options for desktops and laptops are much less expensive than the current models of computers that have been purchased in UMB schools and departments in the past.
    - ✓ The new devices are ranging in cost from about \$400 for desktops and approximately \$700 for laptops.

***Goal: Support research programs and activities through the development and use of Microsoft cloud computing and cloud infrastructure solutions.***

Status:

- A Secure Research Environment (SRE) is being developed in the Microsoft Azure infrastructure and with the use of Azure Virtual Desktop (AVD).
  - There are several aspects of this project, including:
    - The implementation of TriNetX, which is a research project feasibility system. Faculty researchers can now use this system to review and explore de-identified clinical data for potential use in a research project.
    - Obtaining input and getting broad participation from numerous individuals, including from a working teams made up of individuals in CITS, UMMS IT, the ICTR, the Research Informatics Core, and in the School of Medicine.
    - Organizing teams into several workstreams. These workstreams include:
      - ✓ IT Infrastructure
      - ✓ Data Storage
      - ✓ Provisioning Accounts and Developing Software Images
      - ✓ Deploying the TriNetX system
      - ✓ Creating a SRE Request Form
      - ✓ And overall project planning and tracking tasks to completion.
    - Establishing a Steering Committee led by the Chair of the Department of Medicine in the School of Medicine, with the workstream groups being represented by a participating member(s) on the Steering Committee.

- Building the secure, virtual environment (the SRE) where research will be conducted, and having data intake and exit from this environment, which will be monitored by the Research Informatics Core.
- Using previously purchased software licenses and transitioning them to the SRE and using the AVD management system to create the virtual computer software images.
- Creating an SRE Request Form using Red Cap. The form will be further refined with the help of pilot user input.
- Having the group of 15 faculty who were the initial pilot testers for TriNetX be the group to review and test the SRE.
- Incorporating the SRE into the IRB, ORD, and Honest Broker processes.

***Goal: Strengthen UMB's overall security posture by seeking and addressing vulnerabilities, assessing and mitigating risks, and heightening cybersecurity awareness.***

Status:

- The following IT security events are occurring daily:
  - Depending on the day and activity, the UMB IT security systems are currently recording between 850 million and 1.2 billion connection attempts per day. These are attempts to get access to UMB systems and data. Of those, between 250 million and 500 million connection attempts are being blocked because they are known security threats.
  - Also depending on the day and activity, the UMB Microsoft 365 email system receives between 550 thousand and 800 thousand emails. Microsoft security technology categorizes and blocks between 10 thousand to 15 thousand of those emails because they are known phishing attempts and between 50 and 300 emails because they contain malware.
  - The UMB multifactor authentication solution (DUO), manages approximately 25 thousand requests daily.
- In strengthening UMB's overall security posture, the CITS Security and Compliance team, in collaboration with the IT security teams in the School of Medicine and the UMMS, as well as contributions from IT professionals across all UMB schools, the following actions are occurring:
  - Monthly meetings of the Information Security Collaborative (there are approximately forty individuals in UMB schools, departments, FPI, MIEMMS, and in the UMMS attending these meetings) to provide a forum for gathering information and to have discussions regarding IT security vulnerabilities and solutions for mitigating them.
  - An electronic discussion forum is also being used to share information between the monthly ISC meetings. Activities and potential issues that occur between meetings are communicated to the members of the ISC to inform them and provide information solutions for mitigating any known issues.
- Security awareness training is being delivered annually, and simulated phishing attempts are generated and sent monthly to test individual user security awareness.
- A compliance management system (KnowBe4) is being implemented to support compliance with Federal and State IT privacy and security laws.

- October 2024 is the date when the new State of Maryland privacy law will take effect and this compliance management system will help ensure UMB compliance with that law.
- On November 14, 2022, an IT Security Tabletop Exercise was performed with assistance from a company called CampusGuard. The tabletop exercise was attended by approximately 40 IT staff from CITS and UMB schools and departments. Some of the objectives of the exercise were to:
  - Identify strengths and areas for improvement in current incident response processes;
  - Establish priorities for responding to a breach of critical processes or systems;
  - Identify critical environments and associated IT support resources;
  - Raise awareness about current level of threat activity and likely impacts of a targeted attack;
  - Assess coordination and communication with institution stakeholders and external partners.
- UMB has achieved compliance with the Payment Card Industry Data Security Standard (PCI DSS) with respect to accepting credit card payments at over 50 individual merchants located across the UMB campus.
  - UMB must attest annually that we are maintaining the security of our cardholder environment.
- An engagement with the Cybersecurity and Infrastructure Security Agency (CISA) will begin in early 2023 that will provide additional cyber hygiene services for UMB at no cost. UMB will take advantage of CISA’s extensive scanning capabilities and recommendations for mitigating any found security risks.

***Goal: Enhance and promote the UMB Data Analytics Program.***

Status:

- The expansion of the data analytics program has focused on building strategic reporting capabilities for two areas of institutional data:
  - First, efforts are underway to build out dashboards and reports for diversity, equity, and inclusion (DEI) metrics. The initial DEI reporting capabilities and dashboards are scheduled to be available this month (December 2022).
    - ✓ They will provide insights on personnel presence by various demographic factors (ethnicity, gender, job categories, etc.), hiring trends, promotions, and separations.
  - The second area of expansion is modernizing student reporting.
    - ✓ Fourteen reports for the Bursar’s office have been modernized and enhanced to streamline processes and provide information faster. These reports are enabling questions to be answered more efficiently regarding student billing and account balances.
    - ✓ Efforts are underway to improve student reporting for each school with an initial focus on replacing legacy student reports. Modernization efforts for identified reports have begun and at least 50 new student system reports, with contemporary technology and improved visual formatting, will be completed by the end of this month (December 2022).

- Other new data analytics and reporting work is occurring with the Office of Philanthropy and the Office of Research and Development, as well as ongoing work with enhancing Quantum Financials reports.
- In 2023, the implementation of the new HCM system will begin, and the data analytics component of this project will be significant. Data analytics staff as well as implementation consultants will be building a new analytics program for UMB HR data.

***Goal: Enhance education applications and systems for both in-classroom and remote teaching and learning.***

Status:

- Educational applications and systems have been enhanced by:
  - Providing close caption transcription for teaching video recordings via MediaSite.
  - Installing three additional Learning Transport Interfacing (LTI) protocols that expand the Blackboard functionality. Additional learning applications are integrated with the Blackboard Learning Management System as needed.
  - Implementing Blackboard Ally to assist instructors with the presentation of educational content to ensure that it is following ADA guidelines for the formatting and structure of presentations.
  - Migrating to the Cloud-based MediaSite application, which has newer functionality for capturing and recording lectures and other presentations.
  - Developing “huddle spaces” with technology for students, e.g., SON and the SOM.
  - Supporting the Leaders in Education: Academy of Presidential Scholars (LEAPS) by providing video conferencing assistance via MediaSite, Webex, Zoom, Microsoft Teams, Blackboard Collaborate, etc., and providing technical support.
  - Creating a University-wide Audio-Visual Working Group, comprised of participants from each UMB school and central administrative departments. The Group is meeting bi-weekly to meet the objectives of:
    - ✓ Sharing information regarding the current state of technology in classrooms and conference rooms;
    - ✓ Discussing needs, e.g., the technology needed for hybrid, hi-flex spaces, and video presentation studio(s);
    - ✓ Identifying where common technologies and configurations can be applied;
    - ✓ Leveraging collective buying power to reduce costs;
    - ✓ And, having the Working Group serve as a channel for members to communicate daily, if needed, regarding AV/IT questions, issues, needs, ideas, solutions, etc.

***Goal: Reimagine the future by implementing new and/or upgrading existing information systems and applications.***

Status:

- There are many information systems projects completed and/or underway, including:
  - The MyUMB Portal was successfully transitioned from an aging on-premises PeopleSoft application to a new, contemporary, Cloud-hosted campus Portal.

- A new Travel Expense System has been implemented using the Cloud-hosted SAP Concur application. The initial go-live in December 2022 was with a pilot group of UMB organizations, with a campus-wide go-live targeted for early 2023.
- The eUMB HR/Payroll application will be replaced as part of major Oracle HCM Cloud project initiative. The vision for this project is to deliver a modern, robust integrated application with new capabilities for people management including recruiting, learning and performance management, position management and payroll among others.
  - ✓ The Discovery portion of the project has been completed.
  - ✓ Pre-implementation activities to plan for organizational readiness, lay the foundation for organizational structure and service delivery models, and address some functionality gaps within the application are in progress and are expected to be complete by March 2023.
  - ✓ Implementation will commence in Spring 2023 with a target goal of an October 2024 campus go-live.
- Quantum Financial Systems continue to evolve as Quarterly enhancements are made to improve the application features and functions. Recent enhancements were made to sponsored projects functionality, and improved reporting capability for procurement and invoice payment processing.
- In the Student Systems area, enhancements were made by upgrading the Banner Self Service (SURFS) to the latest release with a greatly improved user interface. Additional initiatives include:
  - ✓ Updates and improvements to the Customer Relations Management and Degree Works applications, with additional school deployments of these applications occurring in early 2023.
  - ✓ A Student Data Analytics initiative is under way to replace the aging Crystal Reports with an interactive and dynamic reporting solution.

***Goal: Support the UMB Center for Global Engagement and global programs and initiatives via the availability and use of contemporary tools and technologies.***

Status:

- Great progress has been made with the development of a UMB Global Hub, which is a one-stop shop for personalized support with all international activities and engagement by UMB personnel and units. It includes the following features that went live this fall, 2022.
  - A web-based world map using mapped coordinates;
  - A database for each country where activity is occurring;
  - Interactivity to see content by hovering over links in the web-based Global Hub;
  - Color coding in the Global Hub to make it easier to navigate and find a country.
- A new feature that is being added this month (December 2022) is the ability to see additional information when clicking on a link for each country where projects are being performed. After clicking on the link to the country, the viewer will be able to click on a link to each project in that respective country and see the title of the award, the sponsor, the principal investigators name, and the description of the project.

***Goal: Support the UMB Community Engagement Center and local UMB community engagement activities in West Baltimore with technology resources.***

Status:

- The following assistance and support have been provided to the CEC during 2022:
  - The purchase and installation of additional printers and Wireless Access Points in the CEC building lobby and in the parking lot next to the building;
  - The purchase and installation of new computer workstations; and a new copier in the computer lab.
- A project is currently underway to establish wireless connectivity for the Community Engagement Center Tax Prep Services.

***Goal: Develop new communication and customer support mechanisms.***

Status:

- A UMB Help Desk Working Group is being formed to help strengthen customer support across the University. The group will be discussing opportunities for collectively strengthening processes, procedures, operations, communications, and support systems.
- A new Communication Plan and Procedures has been developed in CITS for better informing the campus of technology events (upgrades, changes, issues, etc.).

***Goal: Pursue additional opportunities for collaboration by acquiring, building, creating, and sharing technology in a collaborative way.***

Status:

- Extensive work is being performed leveraging Microsoft technologies. The use of technologies under the “umbrella” of UMB Microsoft licensed products and services is helping consolidate and reduce the number of tools, technologies and systems that effectively do the same thing.
- Other considerations for the future include reducing the number of communication and collaboration systems, e.g., video-conferencing systems.

***Goal: Encourage the development and promote the use of advanced and emerging technologies for academic success and administrative effectiveness.***

Status:

- The Microsoft Azure, Azure Virtual Desktop project is one example of a transformational IT project that UMB is currently undertaking. It will enhance IT security and the protection of data as well as provide UMB schools and departments the opportunity of buying less expensive computing devices.
- Other projects that will introduce artificial intelligence, chatbots, virtual assistants, etc. will include:
  - The new Human Capital Management system
  - A new campus Help Desk system