UMB Information Technology Goals
Alignment with the UMB Strategic Plan, 2022-2026
September 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, SOM IS provisioned all new servers in the Cloud, with now having 109 servers on-premises and 105 servers hosted in Microsoft Azure. The SOM IS has also moved away from using off-site back-up tapes to a Cloud back-up storage solution provided by a company called Wasabi.
- In calendar year 2023, SOM IS planning to continue provisioning new servers in Azure.

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

Status:

- Azure Virtual Desktop project progression items include:
  - Deploying a high-speed Internet ExpressRoute to establish dedicated, high-speed connectivity between UMB and the Microsoft's Azure Cloud infrastructure.
  - Completing extensive IT staff education sessions with Microsoft experts.
  - Developing an AVD infrastructure framework with Microsoft for meeting UMB needs as a template to speed the deployment of AVD.
  - Acquiring an AVD management tool to automate many tasks and provide expanded insights from performance to cost savings opportunities.
- Items to be completed by end of calendar year 2022 include:
  - Completing of AVD pilot tests, with about 50 existing computers being replaced with less expensive computers using Azure Virtual Desktop (AVD).
  - Fulfilling VPN requests in the SOM with access to AVD.
  - Implementing the AVD management tool for use by all school and department IT teams.
- In calendar year 2023:

        - A larger deployment of less expensive computers using AVD will begin in Schools and Central Administrative departments.
    - An AVD Computer Working Group will continue the progress they have made evaluating computing device options for future AVD deployments.
        - After meeting with computer vendors and discussing options, the Computer Working Group has identified several devices as AVD supportable options.
        - These devices and management tools 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 $500-600 for desktops and between $600-700 for laptops.

<u>Goal</u>: 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, a research project feasibility system. Potential researchers can use this tool to request and review de-identified data to determine if there are data appropriate for a research project.
        - Establishing a secure, virtual environment for the research project to be conducted. Data intake and exit from this environment, which is being built in a secure Microsoft Azure environment, will be monitored by the Research Informatics Core.
        - This project has broad participation and input, including from a working team made up of individuals in CITS, UMMS IT, the ICTR, the Research Informatics Core, and the School of Medicine.
        - This team has organized the activities into several workstreams. These include:
            - ✓ IT Infrastructure
            - ✓ Data Storage Account Setup
            - ✓ Provisioning Accounts and Software Images
            - ✓ Deploying the TriNetX system, loading data and getting the system ready for the pilot testing
            - ✓ Creating a SRE Request Form
            - ✓ Overall project planning activities review and tracking to completion.
        - These workstreams have been governed by a Steering Committee led by the Chair of the Department of Medicine in the School of Medicine, with participating members of the Steering Committee representing all the working groups.
        - A group of pilot users are now using TriNetX. Feedback is being collected from the pilot group regarding their experiences. Appropriate modifications will be made based on their input and recommendations. The pilot currently consists of thirteen users and is expected to continue at least through the end of September.

- The AVD management system is helping automate the creation and maintenance of accounts in the Azure environment. This system will also be used to create the components of the virtual environment and the virtual computer software images.
- The SRE environment is targeted to be pilot-ready by October 2022.
- A SRE Request form has been created using Red Cap and is currently being refined for the pilot. The form will be further refined with the help of pilot user input.
- All these new components will be incorporated into technology and IT security, as well as in business and academic operations by integrating them 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:
  - The UMB IT security systems are currently logging approximately 1.2 billion connection attempts per day. These are attempts to get access to UMB systems and data. Of those, approximately 475 million connection attempts are being blocked because they are known security threats.
  - The UMB Microsoft 365 email system receives approximately 560,000 emails daily. Microsoft security technology categorizes and blocks approximately 15,000 of those emails because they are known phishing attempts and about 275 emails because they contain malware.
  - The UMB multifactor authentication solution (DUO), manages approximately 22,000 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 are being held (there are approximately 40 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 delivered annually, and simulated phishing attempts are generated and sent monthly to test campus 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.

<u>Goal</u>: 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 are scheduled to be available by the end of calendar year 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. Several reports for the Bursar's office are in the process of being modernized and enhanced to streamline various processes. These reports will enable questions to be answered more efficiently for 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 the identified reports will begin this October with the goal to complete as many as possible by the end of calendar year 2022. This effort should significantly increase awareness of the analytics program and associated capabilities.
- 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.

<u>Goal</u>: 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.
  - Installing three additional Learning Transport Interfacing (LTI) protocols that expand the Blackboard functionality.
  - Implementing Blackboard Ally to assist instructors with their presentations to ensure that they are following standard ADA guidelines for presentations formatting and structure.
  - Expanding lecture presentations recording functionality by migrating the MediaSite application to a new Cloud application and infrastructure.
  - Developing "huddle spaces" in schools, e.g., SON and the SOM.
  - Supporting the Leaders in Education: Academy of Presidential Scholars (LEAPS) by providing video conferencing assistance and personnel support.
  - An Audio-Visual Working Group, with participants from each of the UMB schools and central administrative departments, is in the process of being formed. The

objective of the group is to share information regarding the current state of affairs with classrooms and conference rooms; discuss needs, e.g., the technology needed for hybrid and flex spaces; identify where common technologies and configurations could be applied; and leverage collective buying power to reduce costs.

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

Status:

- There have been 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 project is currently underway to replace the Travel Expense System with the new Cloud-hosted SAP Concur application. Targeted go-live for a pilot group is December 2022. Campus go-live is 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 and Procurement portions of the project are slated to be complete by December 2022.
    - ✓ Implementation will commence in early 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. Recently added features include Multi-Year Encumbrances for Purchase Orders, PO Processing for bonds, Lease Management, and new Activity and Purpose reporting hierarchies.
    - ✓ Reporting capabilities continue to expand as more than 30 reports have been enhanced or introduced so far in 2022.
  - In the Student Systems area, enhancements were made by implementing Concurrent Curriculum functionality to allows students to have two active curriculums within the application.
    - ✓ eParchment was implemented to enable electronic request and distribution of student transcripts.
    - ✓ Updates and improvements have been made to the Customer Relations Management and Degree Works applications with additional campus rollouts planned for late 2022.
    - ✓ A Student Data Analytics initiative is under way to replace the aging Crystal Reports with an interactive and dynamic reporting solution. This transition is targeted for transition in early 2023.

***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:
  - 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 .

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

Status:

- In calendar year 2022, assistance and support were provided to the CEC through the purchase of additional printers and an additional wireless Access Points in the CEC building lobby.
- In addition, new computer workstations were purchased and installed in the CEC.

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

Status:

- A campus-wide computer support working group has been formed and is investigating options for new, less expensive computing devices when Azure Virtual Desktop becomes widely available.
- 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 do the same thing.
- Other considerations for the future include reducing the number of communication and collaboration systems, e.g., video-conferencing systems.

<u>Goal</u>: 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. include:
  - The new Human Capital Management system and a new campus Help Desk system.