# Academic Research


**Academic research is at the core of every leading higher education institution. New research paradigms, which embrace cloud computing, empower the research community to accelerate breakthroughs, letting 'researchers be researchers'.**

## Empower all researchers with the compute they need when they need it

Seamlessly and securely sharing research across institutions makes meaningful collaborations with commercial leaders and government agencies possible, bringing additional expertise, resources and opportunities to the university.

Cloud-based resources deployed in simple and easy-to-use templates of functionality are repeatable and scalable, reduce overhead, and increase the time available for actual research.

Enabling high performance computing (HPC), machine learning, and artificial intelligence (AI) at scale means more researchers in more fields can accelerate the pace of research and shorten the time to publication.

Providing researchers with the compute they need in a cloud-based environment that meets university policies, security and governance models reduces institutional risk.

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**Education Transformation Framework for Higher Education.** Practical advice to help develop a holistic digital transformation strategy, based on your vision and desired outcomes.

## KEY CHALLENGES

Constraints on computing resources limiting research findings and publications

Limited ability to disseminate research and manage data

Increasing need to engage in collaborative research with an extended research community

- Do you feel that you are effectively meeting the technology and computing needs of your researchers today?
- Is your institution facing external or internal pressures to provide better service and resources for researchers?
- Are there roadblocks your researchers are facing preventing them from focusing on their research?
- Are you experiencing issues with managing data in research projects?

# Achieve more in Academic Research

For digital transformation to be effective, an institution must carefully analyze, design, develop, implement, and evaluate their plan for change. Assess your current state in order to decide what your success looks like and build your strategic plan for deployment and adoption.

| | Entry | Emerging | Advanced | Transformative* |
|---|---|---|---|---|
| **High Performance Computing** | A small amount of IT systems and services are available on-premises, hosted on local servers and lack the necessary computing power for research workloads. | Hybrid architecture for IT systems with limited services automation. Many IT systems hosted on-premises that are unable to scale to meet fluctuating compute demand. | Cloud-based architecture with scalable and secure HPC computing, leveraging the latest technology and services available on demand. Cloud based services are billed by consumption, offering efficiencies in procurement, operation, and deployment. | Fully cloud-based environment with scalable and secure HPC computing using the latest in machine learning and artificial intelligence (AI) technology. |
| | | Azure Compute Stack | Azure Compute Stack, Azure HPC, Azure Storage, Azure SQL Database, Azure Container, Azure Cosmos Database | Azure Compute Stack, Azure HPC, Azure Storage, Azure SQL Database, Azure Container, Azure Cosmos Database, Azure IoT, Azure Machine Learning |
| **Data Automation, Analysis and Visualization** | On-premises siloed data sets stored on local workstations and servers using flat file data syncing. | Beginning to aggregate data, pulling from multiple on-premises data sources with simple report authoring. | All institutional data aggregated in the cloud with the ability to generate modern data visualizations with mobile and automated workflows. | Fully connected systems across the institution collecting data in the cloud using data lake aggregation and IoT data collection. Leveraging the latest in machine learning, artificial intelligence (AI) technology and predictive analytics. |
| | | Power BI | Power BI, Azure SQL Database, Azure Batch, Azure Cosmos database, Dynamics 365 | Power BI, Azure SQL Database, Azure Batch, Azure Cosmos database, Dynamics 365, Azure Data Lake, Azure IoT, Azure Machine Learning |
| **Collaboration Tools** | No digital sharing of research findings between researchers at the institution or in the research community. Ad-hoc, distributed manually over email or hard copy. | Some digital sharing of research findings within the institution, delivered ad-hoc over email or other internal business applications. | Fast and seamless sharing of research data and findings for collaboration between researchers at the institution and across the research community. | Visibility to the latest data trends and continuous access to experts in the field to accelerate research breakthroughs. |
| | | Office Pro Plus | Microsoft 365 (Teams, etc.) | Microsoft 365 (Teams, etc.), Microsoft Partner solutions |

* Examples include (list not exhaustive). For more information on the Microsoft Education Journey and to take a full assessment, visit: Edujourney.Microsoft.com or contact your Microsoft Sales Representative.

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