Empower Higher Education: AWS for Sustainable Campus Innovation

Amazon Web Services (AWS) customers and education industry experts highlighted student demand for comprehensive sustainability strategies as the key factor driving sustainability within higher education in the "Innovation drivers in higher education" report. It's clear that universities around the world have the unique opportunity to drive sustainability improvements through research and thought leadership while leveraging student and faculty passion.

How is your higher education institution incorporating sustainability into cross-institutional strategies, differentiating curricula and research funding proposals, and innovating in support of your community and wider society?

TD SYNNEX Public Sector and AWS support universities' sustainability efforts and helping campus leaders identify their use cases. Let's look at some examples of how other higher education institutions are leveraging on-campus passion and the cloud to make progress towards sustainability.

Sustainability as an institutional and campus priority

George Mason University (Mason), the largest public research university in Virginia, has adopted a clear focus on on-campus innovation to achieve carbon neutrality by 2040. Student and faculty interest in sustainability has shaped institutional investment in curricular and research learning opportunities. Its efforts have been recognized by the Association for the Advancement of Sustainability in Higher Education (AASHE), which awarded Mason the first Gold rating in the state of Virginia. Mason is implementing campus initiatives such as banning the use of single-use plastic, establishing the Greenhouse and Gardens program, and diverting an increasing proportion of its waste to recycling and composting facilities. Upcoming campus expansion plans now include the Fuse building, which will serve as the home to faculty and students working with the school's Institute for Digital InnovAtion (IDIA). When completed, the Fuse will be net-zero-ready and LEED Platinum rated, with features such as a green roof for energy-efficient heating and cooling.

Amplifying innovation in the community and beyond

Higher education institutions are utilizing digital technology and cross-industry collaboration to accelerate and amplify sustainable innovation. California Polytechnic State University (Cal Poly) created the Cal Poly Digital Transformation Hub (DxHub) powered by AWS, which provides students real-world experiential learning to solve challenging problems facing public sector institutions and communities in innovative ways. As part of the DxHub program, students, innovation staff and faculty collaborate leveraging the Amazon Working Backwards process and AWS technology expertise to deliver impactful projects for local communities.

Students have created a positive environmental impact through a digitally-powered solution prototype for the San Bernardino County municipal government. The prototype counters illegal dumping with a four-part system consisting of analyzing high-altitude imagery; collecting low-altitude drone data; deployable, ground-based cameras; and a citizen-reporting application. All the collected data feeds into a cloud-based hub to record, verify, rank and schedule mitigation efforts.

The DxHub team also developed an application for the State of California's Central Coast Regional Water Quality Control Board to improve the efficiency and accuracy of processing and reporting on pollution data. They also prototyped a web portal and biodiversity data analytics suite for NatureServe to help protect endangered species through faster data access enabling decision makers to plan conservation actions.

Accelerating sustainability utilizing cloud technology in research

Research and innovation typically go hand-in-hand. Cal Poly's DxHub demonstrates this through its collaboration with the Monterey Bay Aquarium Research Institute, which measures the impact of offshore wind energy production on the deep-water ocean ecosystem. The project team used several technology services from AWS such as AWS Elastic Beanstalk, to write and upload code into a cloud environment to run and scale their application. Amazon Elastic Compute Cloud (Amazon EC2) instances are running the Node.JS code and for storage, the team utilized Amazon Relational Database Service (Amazon RDS) for label and training information and Amazon Simple Storage Service (Amazon S3) for images and raw video.

Ready To Become More Sustainable?

As a university you are uniquely positioned to help find resolutions to the sustainability challenges the human population faces. From thought leadership and research to innovation and management of your campus' carbon footprint, higher education institutions can play a major role.

Find out more about Amazon Sustainability Data Initiative (ASDI) and contact **TD SYNNEX Public Sector** today to help identify your higher education institute's sustainability use case.