



## A pioneering predictor tool developed by the University of Sheffield will give scientists an alternative way to visualise the world and help to forecast the impact of climate change, population growth and energy use

### SCEnAT 4.0 AI & ML

SCEnAT 4.0 AI & ML is a prediction experienter powered by Microsoft AI on Azure. SCEnAT 4.0 provides a range of resource sustainability prediction capabilities using Microsoft Azure Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL) cognitive services. The benefit of machine learning are the predictions and the models that make predictions. We followed a five steps process for this analysis; Problem definition, Data preparation, Spot-check algorithms, ML model evaluation and Deployment of results.

Predictor tool developed by the University of Sheffield will help scientists forecast future impact of climate change, population growth and energy use

The Supply Chain Environmental Analysis Tool (SCEnAT) 4.0 uses large scale databases including from the World Bank and NASA Satellillite maps and embedded autonomous learning

Policy makers and industry leaders can use the predictor to have a deeper understanding of the implications of investment decisions and policy



GLOBAL INNOVATION SCORE



WBD POPULATION GROWTH %



SUSTAINABLE DEVELOPMENT GOALS

The new tool will be able to predict the relationship between climate change, political economy, innovation, life expectancy, population growth and energy use, on sustainable development and resources. With the flexible design of SCEnAT 4.0, any sustainability questions and any resources can be built.

The University of Sheffield, in collaboration with Microsoft, has been working for the past eight years to solve the global challenge of depleting resources. The new tool has been pioneered through the University's Advanced Resource Efficiency Centre (AREC) by Professor Lenny Koh.

*“ We are very proud of the long standing relationship between the University of Sheffield AREC and Microsoft. SCEnAT 4.0 is borne from this ongoing collaboration in the era of Industry 4.0; and the Cloud and AI economy. SCEnAT 4.0 AI capabilities fit strategically with the AI sector Deal announced by the UK Government. Globally, AI interests are on the rise especially in the USA, China and Europe, whilst the global revenues from the AI market is projected at circa 90 billion USD in 2025 in tune with the increasing global demand for more sustainable and resource efficient solutions. SCEnAT 4.0 framework and platform are well-positioned for such worldwide scale-up rapidly. ”*

**Professor Lenny Koh**  
Director of AREC

SCEnAT 4.0 has evolved from the original SCEnAT Cloud based tool, powered by Microsoft Azure, which has helped companies reduce the environmental impact of their supply chains.

The collaboration between the University of Sheffield and Microsoft progressed the tool into SCEnAT+ and SCEnATi – funded by the EU – which has the addition of big data analytics and benchmarking capabilities along with Power BI integration, a Microsoft business analytics service.

*“ Policy makers and industry leaders can exploit the prediction experienter from SCEnAT 4.0 to have a deeper understanding of the implications of policy and investment decisions. ”*

*We are excited by how the combination of Microsoft's Azure cloud and AI services are being used in the SCEnAT 4.0 platform to de-risk and visualise the relationship of economic, environmental and social impact from the way we produce and consume resources. ”*

**Anthony Bitar**  
Cloud Solution Architect, Microsoft UK

### Advanced Resource Efficiency Centre (AREC)

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AREC: [www.sheffield.ac.uk/arec](http://www.sheffield.ac.uk/arec)

Scenat 4.0: <http://scenat4.azurewebsites.net/>