



Big Data, Analytics and Technology Innovation in the Service of Development

Our experts develop innovations in technology, identify applications for them and forge strategic linkages with government, local communities and the private sector to use these innovations to solve pressing development challenges facing the U.S. and other countries. We design and implement comprehensive analyses and evaluations that enhance knowledge and practice across disciplines.

Connecting Research and Learning to Development Practice: For 30 years, the SUNY Center for International Development (SUNY/CID) has conducted projects on 5 continents, over 100 projects which transfer know-how, technology and innovation to developing countries in programs funded by USAID, DFID, the World Bank, Ford Foundation and others. Using approaches such as CLA, SUNY/CID draws on research and learning from SUNY and other world renowned experts, incorporating innovations and cutting edge technologies and approaches into our programs.

SUNY/CID creates monitoring and evaluation systems for integrated governance programs that measure outcomes across sectors and operating within complex political realities, to identify access points to maximize impacts on governance processes and improving service delivery outcomes. For example, SUNY/CID's LINKAGES project in Uganda was part of the Mission's pioneering CLA approach; our legislative capacity and legislative quality indexes, surveys and case studies have received USAID recognition as innovative best practice; and a recent paper on politically agile and responsive programming in Kenya has been shared across countries at USAID conferences and has been recognized as a comprehensive example of effective development practice in action.

The Center for Technology in Government (CTG), is a global leader in research that enhances governance and public service through innovations in technology, policy, and management. With rich partnership networks around the globe, CTG addresses the policy, management, and technology dimensions of information use in the public sector. CTG leads the US Government National Big Data Research and Development Initiative which aims to solve some of the nation's most pressing research and development challenges, including health care, energy, finance, urbanization, and education, pulling information from large, complex collections of digital data, also known as Big Data Massive.

CTG's advice to international governments using ICTs has included: Smart Cities Service Integration (Canada, US, Mexico, China), Performance Management in the Public Sector (Turkey), CTG-Microsoft School of Government Program in Africa, Executive management (West Indies) Electronic Records and Enterprise Content Management (UN Peacekeeping Operations, International Criminal Tribunal of the Former Yugoslavia and UN Secretariat), Social Media Policy (Moldova).

The Advanced Data Analytics Research Center uses computer data analytics, multimedia, and natural language processing to advance effective use of the increasing volume of available information. Their "Best-of-practice" teams enhance the commercialization potential of research in partnership with GE Global Research. They apply advanced computer vision techniques to develop new monitoring and surveillance technologies.

The Forensic Sciences and Cyber Security R&D Cluster at UAlbany has internationally recognized faculty who are developing novel analytical methodologies and digital forensic tools. The cluster has *forensic and cyber security core facilities partnerships with businesses and industry* to develop innovative analytical technologies that could transform crime scene investigations locally, nationally and globally.

The Atmospheric Sciences Research Center (ASRC), one of the world's leading research centers on atmospheric and climate study, is linked to weather and climate research labs globally. ASRC uses complex models to understand and predict climate change. The Center develops applications to improve extreme weather readiness, climate resilience decision-making and climate change prevention.

A recent \$4.5 million grant from the Partnerships in International Research and Education (PIRE) program funds the development of a U.S.-Taiwan consortium to advance research in early warning systems that will better predict the path and course of major storms, and will improve governments' ability to quantify trends in extreme weather to improve decision making processes for emergency managers and communities in the U.S. and East Asia.

The Rockefeller College of Public Affairs and Policy houses multiple policy research institutes that have developed ground breaking approaches to policy analysis and evaluation. These include **the Initiative for System Dynamics in the Public Sector** which developed *Dynamic Decision Making* tools. Using automated algorithms to detect dominant feedback structures in complex dynamic systems, the tools help policy makers solve problems related to energy, environment and health. The tools are used for the State's AIDS Free New York by 2020 initiative, social services administration, traffic safety and criminal justice administration. The **Center for Social and Demographic Analysis (CSDA)** focuses on the analysis of spatial inequalities, exploring urban and regional development and questions related to health policy, epidemiology, economics, education concerns for vulnerable populations. The **Center for Policy Research** conducts research in international affairs, political science, public administration, and public policy, and houses the international **Project on Violent Conflict (PVC)**. The PVC studies of all forms of political violence, including the study of terrorism, insurgency, rebellion, as well as intrastate and interstate war and develops research and policy options to better understand the predictors of conflict. The **Project on International Security, Commerce, and Economic Statecraft (PISCES)** researches the effects of proliferation of strategic and military technologies, border security, illicit trade, and the use of sanctions, strategic trade controls and foreign aid as tools of economic statecraft.

The College of Emergency Preparedness, Cybersecurity and Homeland Security. Their *Hot Spots of Hate and Violence: US County Level Analysis of Factors Related to Hate Crimes and Terrorism and the Big, Allied and Dangerous (BAAD)* use innovative analytical techniques and existing data sources to find the determinants of radicalization, violence and the trends in terrorism networks all over the world. In the wake of the Brussels airport bombings, SUNY experts monitored the situation, and identified the challenges facing law enforcement both in the U.S. and in Europe. Developed for the State Department, the Big Allied and Dangerous (BAAD) online platform contains vetted narratives, and relationship information and social network data on 150 of the most notorious terrorist organizations in the world.

The Institute of Global Education Policy Studies, serves as a global laboratory for innovative Education Policy. The **Comparative and International Education Policy Program (CIEPP)** builds capacity for policy development and analysis in education in the US and in many regions around the world, such as South Asia. CIEPP participates in *the Working Group on Standards and Evaluation and the Program to Promote Educational Reform in Latin America (PREAL)* also serving to advise on testing, standards, and educational indicators policies to NASA, the World Bank, the Inter-American Development Bank, and the US Agency for International Development – and to a number of ministries, foundations, school districts, non-governmental organizations, and research institutions throughout the Americas.

The Rockefeller Institute of Government (RIG) is a SUNY public policy research institute that conducts studies and projects on state, local and international government and finance.