



BIG DATA PROGRAM

We work with Global Practices, Information Technology Solutions and the Development Economics Data Groups to enable big data solutions.

Putting Big Data into Action at the World Bank

The Big Data program is helping the World Bank re-imagine how to harness data from sources like satellites, mobile phones, sensors and social media to address global challenges. Putting data into practice has many complexities — and we are delivering technical assistance, knowledge and learning, and essential resources to operationalize big data solutions.

1. Essential Resources

-  **Cluster Computing:** Powerful computing infrastructure to process big data and sophisticated algorithms.
-  **Data Science Tooling:** Analytical products and software, like R, Github, and Python – to help economists, statisticians, and data scientists to collaborate, share & reuse analysis, tools, and code.
-  **Community of Practice:** Community that showcases big data solutions and offers networking, knowledge sharing, and learning opportunities.

2. Knowledge and Learning Activities

-  **Events:** Convene internal and external thought leaders in big data innovation to uncover ideas and opportunities, and to build community.
-  **Big Data Challenges:** Convene internal and external thought leaders in big data innovation to uncover ideas and opportunities, and to build community.
-  **Knowledge Products:** Work with practices to develop state of plays, primers, case studies and guidance notes for big data knowledge sharing.
-  **Big Data in Action Workshops:** Facilitated, dynamic learning environments for developing ideas, rough prototypes, and action plans.

3. Technical Assistance

-  **Operational Pilots:** In order to mainstream solutions, select pilots with transformational potential are actively supported by our data scientists and experts.

CLIENT ENGAGEMENT MODEL



We support operational pilots to demonstrate early value, overcome constraints, and feed back knowledge and learning.

BIG DATA IN ACTION

FEATURED PILOTS



BIG DATA IN ACTION FOR RURAL TRANSPORTATION

Harnessing smart phones to understand road conditions in Belarus

Challenge: Well-kept roads connect people to public amenities and reduce travel time, vehicle operation costs, and crash risks. In order to maintain road networks, government agencies must develop cost-effective asset management strategies, but many have only limited resources and poor understanding of road infrastructure conditions from road users' perspectives.

Innovation: The project developed a smartphone app called 'RoadLab,' which in effect harnesses moving vehicles as probes that detect real-time road conditions by using smartphone accelerometers to monitor and report the roughness of travel over stretches of road.

Path to Scale: This technology can be spread quickly, as an app, across the globe – and when coupled with recommendations on policy options and lessons learned on maintenance this is a very powerful tool globally.



BIG DATA IN ACTION FOR PROPERTY RIGHTS

Deploying Unmanned Aerial Vehicles to understand property rights in Kosovo

Challenge: Property rights are critical to economic growth and social stability, yet almost 75 percent of the world's population lacks access to formal systems to register land rights and secure ownership.

Innovation: Use UAVs, handheld and cloud computing to accelerate the register property rights in a fraction of the time of conventional survey approaches.

Path to Scale: Software tool, algorithms and guidance notes are open source for easy replication.



BIG DATA IN ACTION FOR AGRICULTURAL MEASUREMENT

Using satellite data to understand crop yield in Uganda

Challenge: Reliable data on crop productivity is essential for policy decisions that will improve agricultural yields and reduce poverty. Traditional approaches to measuring yields and productivity are resource-intensive and difficult to implement.

Innovation: High-resolution satellite imagery, handheld GPS device data, and machine learning for evidence policy to help improve the productivity of smallholder farmers.

Path to Scale: This approach is now planned for use in several Sub-Saharan African countries where similar lack of knowledge on yield is preventing effective policy and programs.



BIG DATA IN ACTION TO MONITOR ELECTRICITY ACCESS

Visualizing electrification to understand access in India

Challenge: In much of the world, access to electricity is uneven, irregular—undermining development and welfare. Understanding and improving rural electrification and lighting improvement projects are critical to poverty alleviation and shared prosperity.

Innovation: The Nightlights.io tool visualizes nighttime satellite data to understand electricity access and is particularly useful in regions characterized by low power loads, small numbers of dispersed users, limited infrastructure and erratic service.

Path to Scale: Data and approach is open source and will be used in other regions including Sub-Saharan Africa.

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