Innovation Challenges

The World Bank launched the Big Data Innovation Challenge on September 22, 2016. As the world grows more connected--through mobile phones, social media, internet, satellites, ground sensors and machines—governments and economies need better ways to harness these data flows for insights toward targeted policies and actions that boost climate resilience, especially amongst the most vulnerable. To make this data more useful for development, we need more data innovations and innovative public-private arrangements for data collaboration. The World Bank Big Data Innovation Challenge invites innovators across the world to reimagine climate resilience through big data solutions that address the nexus areas of food security and nutrition, and forests and watersheds – high priority areas of the World Bank's Climate and Forest Action Plans and the UN Sustainable Development Goals. The Big Data Innovation Challenge is open to individuals, academics, entrepreneurs, businesses and nonprofits from member countries of the World Bank. Successful applicants will use big data approaches—including machine learning, predictive analytics, crowdsourcing applications, and dynamic visualizations—to improve the World Bank's ability to inform and take climate action within the focal areas.

Agriculture

Big Data Solutions: Innovative Approaches to Overcoming Agricultural Challenges in Developing Nations by Harnessing the Power of Analytics

The food system is fundamental for human life. It provides energy, nutrition, an income source for billions of people, and is the largest user of the world's natural resources. In response, improvements in agriculture operations have to be made at both the policy and individual farmer level in order to realize gains in efficiency and productivity. The recent worldwide diffusion of new technologies, combined with big data and analytics, is providing the opportunity for developing countries to leap frog some of the intermediate development phases providing farmer's in the developing world with greater access to timely, cost effective, and personally relevant information on best practices, markets, prices, inputs, weather, and news of impending disaster. In particular, the penetration of mobile phones, and the innovative applications of geospatial and sensing technologies are providing opportunities to use big data in support of agriculture initiatives, including the ones funded by the World Bank. This solution brief defines what big data is in the context of the developing world, presents a series of case studies on how big data has already been used to date, and identifies some lessons learned and potential opportunities for the use of big data in supporting the achievement of agricultural outcomes in the developing world.

Building Resilient, Equitable, and Livable Urban Spaces

Big Data and Thriving Cities: Innovations in Analytics to Build Sustainable, Resilient, Equitable and Livable Urban Spaces

The recent global diffusion of new technologies, combined with the use of big data analytics, can help policymakers promote the effective development of future cities that provide living and work environments in which citizens can thrive. In particular, innovative applications of geospatial and sensing technologies and the penetration of mobile phone technology are providing unprecedented data collection This data can be analyzed for many purposes, including tracking population and mobility, private sector investment, and transparency in federal and local government. To help development practitioners within and beyond the World Bank take advantage of these trends, this brief profiles a sample of big data applications to support improved urban development in low- and middle-income countries. It also cites potential opportunities for big data analytics to help developing nations achieve sustainable urban growth, while reducing the economic differential with high-income countries.

Disaster Risk

The Global Facility for Disaster Reduction and Recovery (GFDRR) is a leader in generating, piloting, and analyzing disaster risk management tools for the dynamic risk landscape created by climate change. Last year alone, GFDRR helped 60 countries create, manage, and use risk information, often leveraging this information into larger investments in resilience.

Through its Innovation Lab, GFDRR is developing new approaches to collecting, analyzing, and explaining risk data, such as risk visualization, open data, and crowdsourcing efforts. These innovations are helping development professionals be more effective than ever in addressing the risk environment presented by a changing climate.

Satellites have been providing spatial data for decades – data that track those record breaking storms, help project rainfall, monitor urban development, assess regional flood risk, and more. That data has been largely out of the reach of most, due to cost, a lack of accessible software, and low capacity in a lot of countries that need the data most. The Innovation Lab has been working to make this make this data accessible and useful by collaborating with partners like the Open Data for Resilience Initiative (OpenDRI). The partnership is working to power open source technology and geospatial data sharing platforms and has helped over 100 million people gain access to risk information.

The Innovation Lab also created Code for Resilience, connecting local technologists and disaster risk experts to create civic-minded digital and hardware solutions to identify and reduce the risk posed by natural disasters. Another program, the Challenge Fund, provides funding ranging from US$20,000 to $150,000 to support projects that have a disruptive impact in the space of risk assessment. It is currently supporting 15 creative approaches to understanding disaster risk in over 20 nations. One of those projects, Floodtags, collects data through Twitter for on-the-ground flood observations in the Philippines.

Soon the Innovation lab will launch ThinkHazard!, an innovative risk visualization tool that will help give decision makers information to make risk-informed choices. The first platform of its kind, ThinkHazard! allows users to quickly develop risk profiles on 8 different types of hazards. All information is open source and unrestricted by licenses which enables users to download all data freely. *ThinkHazard!* generates a non-technical interpretation of global hazards, empowering non-experts to determine the level of natural hazards in their locality and encouraging greater incorporation of risk management into project planning and design.

All of these programs and projects was showcased at the Understanding Risk Forum 2016 which opened in Venice, Italy. Over 500 delegates will gather to discuss the latest innovations and biggest challenges in managing disaster risk, with participation from insurance giants like FM Global, academic institutions such as Columbia University, media groups like the BBC Media Action, think tanks, civil society organizations, and more.