



# Innovative Federal - Private Sector Partnership For Leveraging Data as a Strategic Asset

*Efficient Data Capabilities* ↔ *Effective Mission Outcomes*



## Saving Lives Through Malaria Prevention and Control

### Innovation Partners At a Glance

President's Malaria Initiative (PMI), U.S. Agency for International Development (USAID)

PMI is an \$770 million interagency initiative led by USAID, an agency that leads the U.S. Government's international development and humanitarian efforts to save lives, reduce poverty, strengthen democratic governance, and help people emerge from humanitarian crises and progress beyond assistance.

PMI's mission is to prevent and control malaria. Launched in 2005, PMI has helped save 7 million lives in the 27 focus countries in which PMI operates.



The U.S. Commerce Department's National Technical Information Service (NTIS) delivers a Fed-to-Fed framework for data science innovation through precedent-setting partnerships with industry, universities, and non-profits.

*USAID is committed to evidence-based and data-driven approaches that reduce malaria transmission, deaths and illnesses, leading to country-by-country eliminations and a world without malaria. While millions of lives have been saved since PMI's inception, USAID needed new capabilities to create innovative, breakthrough solutions to build USAID and USAID partners' capacity to leverage data in order to achieve the global target of malaria eradication by 2040 - 2050.*

*We leveraged the NTIS data innovation framework and gained access to tremendous private-sector partnerships. We now have an Agile-delivered application in a secure cloud-based platform – a data commons now called the Malaria Data Integration and Visualization for Eradication (M-DIVE) platform. These innovative capabilities located in one virtual space provided USAID with the ability to make more accurate monitoring and evaluation determinations, enabling USAID to improve malaria prevention, treatment, and control strategies.*

*Jay Mahanand  
Chief Information Officer, USAID*



## Challenge

Malaria infects some 220 million people and causes 400,000 deaths a year. As part of its support to the national malaria control programs of 27 countries in Africa and Asia, USAID PMI creates, obtains and uses loads of disparate malaria related data. These data include: 1) monthly malaria surveillance data from health facilities; 2) monthly supply chain data from health facilities; 3) country-level funding data from PMI and the Global Fund; 4) entomological monitoring data; 5) geospatial and weather data; and 6) demographic and health survey data.

The collected data were scattered among different systems, lacked metadata standards, and presented data quality issues. The siloed, messy nature of made it difficult to draw insight and make evidence-based policy decisions.

PMI needed assistance in developing a data commons platform to allow PMI to ingest, cleanse, aggregate, analyze, and visualize heterogeneous data, empowering accelerated data use, robust analysis, and efficient knowledge dissemination.

## Solution

Incubating innovation: As a trusted Fed-to-Fed advisor, NTIS guided PMI through the design thinking process, a merit review to select a joint venture partner, and Agile development to achieve USAID's mission outcomes.

Using flexible work cycles, NTIS, USAID, and the selected joint venture partner are collaborating on an M-DIVE platform data prototype that enabled a broad set of data capabilities, including allowing users the ability to:

- Search to locate repository-held data;
- Ingest these data into the PMI data commons (or request this action);
- Cleanse, validate, document, and process these data in a user-friendly manner;
- Merge these data with other sources in the PMI data commons (e.g., other USAID data or approved external data sources), and;
- Perform statistical analyses and create visualizations

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## Results

PMI's culture of data innovation involves a commitment to evidence-based decision making that improves development outcomes and advances USAID partner self-reliance.

### **Evidence-Based Decision Making:**

The data commons platform is meant to enable the triangulation of data to ensure robust results that enable understanding of malaria cases of distinct populations as well as local malaria vector species, population susceptibility to insecticides, the temporal and geospatial dimensions of cases, factors leading to the spread of the disease, the link between funding, interventions and results, and how human movement (e.g., migration of refugees) affects malaria rates.

### **Predictive Models:**

Risk models will soon allow PMI technical advisors to coordinate prevention and treatment needs. For example, M-DIVE platform allows for the investigation of whether prevalence / incidence is affected by factors such as climate and weather-related events (e.g., El Niño), urbanization,

economic development (e.g., electricity and improved housing), and population growth across multiple countries to gain better insights into factors affecting malaria prevalence and forecast prevention and treatment needs for multiple countries.

### **Extensibility and Scalability:**

The M-DIVE platform has the ability to incorporate new data sources and new analytical processes and tools, as these new data sources become available and relevant. The data commons supports variable demand, both predictable (e.g., seasonal, quarterly) and unpredictable (e.g., COVID-19 pandemic, natural disasters, rapidly emerging societal trends).

### **Data Governance:**

M-DIVE platform leverages a data governance framework that ensures proper data stewardship throughout the system's management of data and adherence to archiving, privacy, and security policies.



Screenshots of PMI's data commons

We're using data science innovation to further USAID PMI's mission goals to prevent and control malaria.

We're focused on novel solutions that provide USAID PMI and USAID PMI partners with robust, heterogeneous data and analytic tools in one virtual space.

These new capabilities allow us to save lives and make progress in the drive to eradicate malaria.

Jay Mahanand  
Chief Information Officer  
USAID

