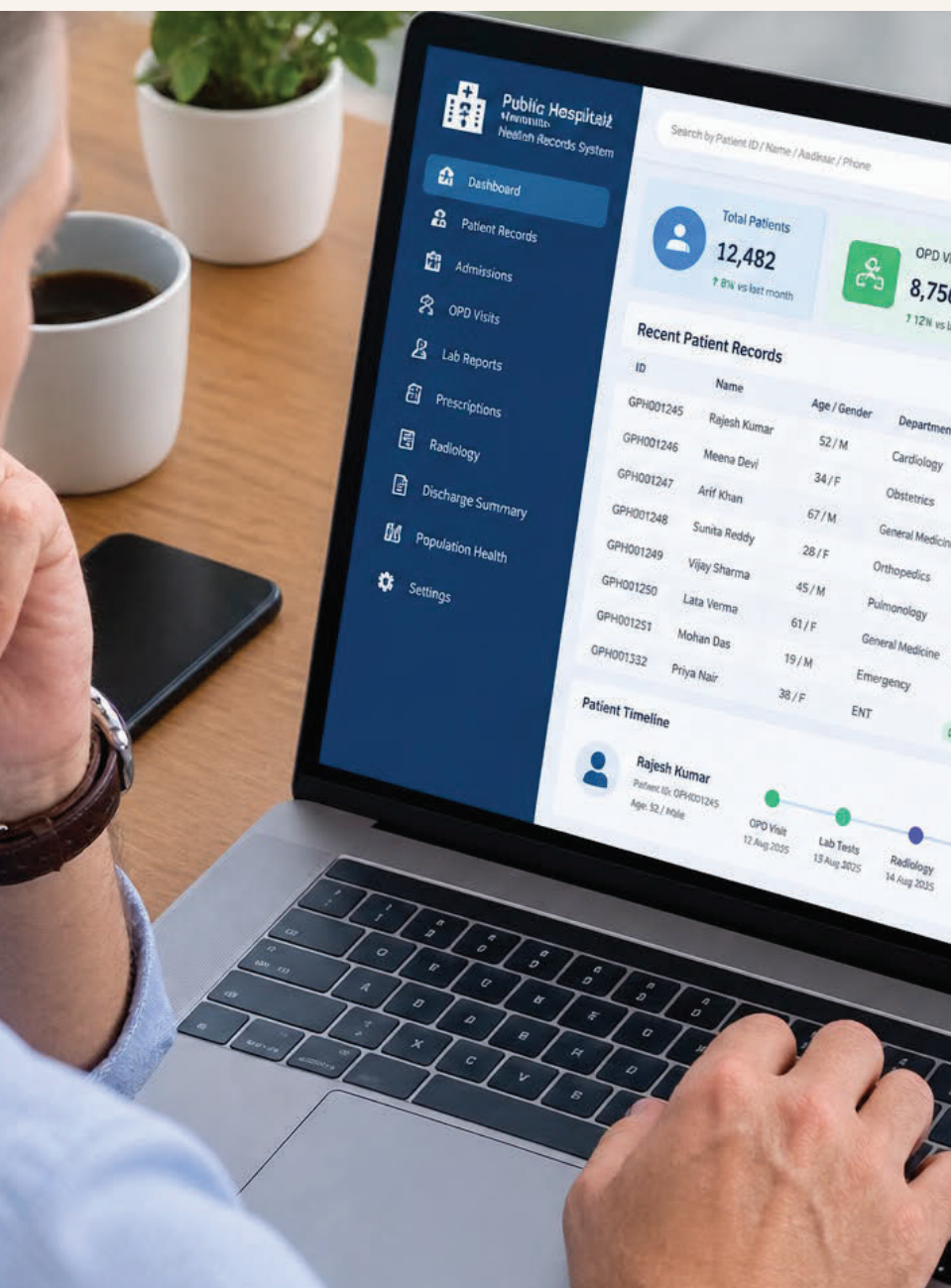


From Silos to Systems

What DHIS2, Digital Earth Africa, and ULIP Reveal About Unlocking Public Value at Scale



By:

People+ai,
EkStep Foundation

Introduction

Across sectors today, data is abundant and acts as a key enabler for innovation. Vast amounts of data are being generated today - Governments collect administrative records, satellites capture environmental information, hospitals generate health data, and businesses produce large volumes of operational data which doubles every two years.¹

IDC reports that around 90% of the data in the digital world is unstructured² as it remains fragmented, inaccessible, difficult to interpret, or locked within institutional boundaries. When data remains siloed or difficult to access, its potential to inform decisions and improve outcomes is limited.

The problem is not the absence of data but the absence of usable, shareable, decision-ready data. The World Bank's World Development Report 2021: Data for Better lives identifies incompatible data systems, misaligned incentives, and a fundamental lack of trust as the key barriers preventing data from generating the economic and social value it could deliver - particularly in low- and middle-income countries³. Only when data becomes usable across institutions and accessible to diverse actors does it begin to influence behaviour, policy, and outcomes.

What does “data unlock” mean?

Data unlock refers to the process of making data that already exists; accessible, usable, and connected so it can inform decisions, services, and outcomes it currently cannot reach.⁴

When this happens, researchers, developers, governments, and businesses can generate insights, build solutions, and improve decision-making across sectors.

Several platforms around the world illustrate how this works in practice.

Three examples that demonstrate the Value of data unlock

Each of the following platforms was built in a different sector, in a different part of the world. What they share is a common logic: the data already existed, and the value came from building the right mechanisms around it.

1. DHIS2: Open-Source Health Data at Global Scale

In the health sector, large volumes of data are generated every day by clinics, hospitals, and public health programs. However, without integrated systems, this data can remain scattered across facilities and administrative layers.⁵

DHIS2 (District Health Information Software 2) is a free and open source software platform developed by Health Information Systems Program (HISP) and supported by the University of Oslo. It functions as a multi-sector data platform, widely used for integrated health information, disease surveillance, climate, logistics, education and governance.

Used by ministries of health in more than 80 low- and middle-income countries.

Today, roughly 3.2 billion people - around 40% of the global population live in countries where DHIS2 forms the backbone of national health data infrastructure.⁶

During the COVID-19 pandemic, 55 countries used DHIS2 to manage case reporting, contact tracing, and vaccination tracking, often adapting their systems within days. In Togo, this platform integrates rainfall data with malaria case reports to identify high-risk districts and optimize the timing of seasonal malaria prevention campaigns, helping health authorities target interventions more effectively.⁷

Jamaica leveraged the system to support cancer surveillance by integrating reporting from hospitals and clinics, helping authorities track cancer incidence and improve national health planning. DHIS2 is a proof point that when open, interoperable infrastructure is built with long-term public value in mind, the benefits compound across decades.⁸

2. Digital Earth Africa: Turning Satellite Data into Decision-Ready Insights

The space sector is rapidly evolving with Earth observation (EO) data projected to generate up to \$3.8 trillion in global economic value by 2030.⁹ Yet the expertise and computing infrastructure required to process raw satellite imagery poses difficulty particularly across Africa, where governments, researchers, and local institutions often lack the resources to work with it directly. The bottleneck was never the data itself, but the infrastructure to access and act on it.

Digital Earth Africa (DE Africa) was built to close that gap. Using the Open Data Cube (ODC) - an open-source platform that simplifies how satellite data is stored and analysed, DE Africa runs the world's largest ODC infrastructure on cloud servers in Cape Town. Data is stored in analysis-ready formats, accessible through a browser without specialist hardware or advanced coding skills.¹⁰

The platform has built a growing ecosystem of users, including governments, researchers, and environmental agencies. By lowering technical barriers and enabling access to processed satellite data, DE Africa allows decision-makers to use environmental information for climate adaptation, land management, and sustainable development planning.

3. India's ULIP: Single Interface for Integrating Logistics Data

India's logistics sector has long been hampered by fragmentation. Data on cargo movement, regulatory clearances, port status, and transport capacity was siloed across dozens of government ministries and private operators, making end-to-end visibility virtually impossible.¹¹

The Unified Logistics Interface Platform - ULIP was introduced by NITI Aayog and launched in 2022 to address this challenge. It functions as a single integration layer connecting 43 systems across 11 ministries - road transport, railways, ports, shipping, civil aviation, and more through 129 APIs covering over 1,800 data fields.

The platform democratises access to this data: over 1,300 companies have registered, more than 350 agreements have been signed, and the platform has now processed over 100 crore API transactions.

Major manufacturers including Tata Steel, Asian Paints, and Prism Johnson use this single interface to automate transporter verification and streamline supply chains.¹²

Logistics providers use it for real-time cargo tracking across road, rail, and sea. Some companies are even using ULIP data to identify greener transport alternatives, aligning logistics decisions with sustainability goals.

ULIP illustrates a model that many economies are still struggling to build: a neutral, government-operated data exchange layer that unlocks the value trapped in siloed public systems and puts it to work for private sector efficiency and national competitiveness.

Lessons from data unlock in practice

The three platforms operate in different sectors and countries, but they share a consistent pattern. In each case, the underlying data already existed. The value came from building the right mechanisms around it.

Some principles emerge:

- First, all three are built on open standards and interoperability: The International Open Data Charter identifies interoperability as the ability for data to be available in globally standardised formats. This is a core principle of effective open data practice. All three platforms embody this: DHIS2 is open-source with country-owned instances, DE Africa uses the Open Data Cube on open cloud infrastructure, and ULIP operates as a neutral API layer. None are intended to restrict access; but are designed to enable the seamless movement of data.
- Second, reducing barriers to use: The governments' role does not end with releasing data - they must actively support its effective reuse and ensure that citizens, civil society, and the private sector have both the data they need and the tools to understand and use it.¹³
- Third, each platform is anchored to a clear objective of translating raw information into data-driven insights that support decision-making. It could be better health outcomes, evidence-based environmental decisions and lower logistics costs.¹⁴

These principles are built on open data and digital public infrastructure. The ultimate value of data lies not in its existence, but in its ability to inform real-world actions, whether helping farmers manage crops, enabling governments to track disease outbreaks, supporting environmental monitoring, or improving supply chain efficiency.

Looking ahead: unlocking the next wave of Value from data

As digital systems continue to expand globally, the volume of data being generated will only grow. However, simply collecting more data will not automatically lead to better outcomes.

The examples above show that impact comes from the mechanisms built around data - the platforms that integrate it, the standards that make it interoperable, and the tools that convert it into decisions people can act on. For

every DHIS2, there are dozens of national health data systems that remain disconnected. For every ULIP, there are logistics ecosystems where data sits in silos because no one has yet built the integration layer.

Closing that gap requires deliberate investment - in infrastructure, interoperability, and the analytical platforms that turn data into utility - supported by collaboration across public institutions, private actors, academia, and civil society. When those mechanisms are in place, data stops being a collection of isolated datasets and becomes a foundation for better services, more informed decisions, and broader public value.

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