How the Rhode Island EOHHS Ecosystem Leverages Federal Funding to Support State Data Capacity
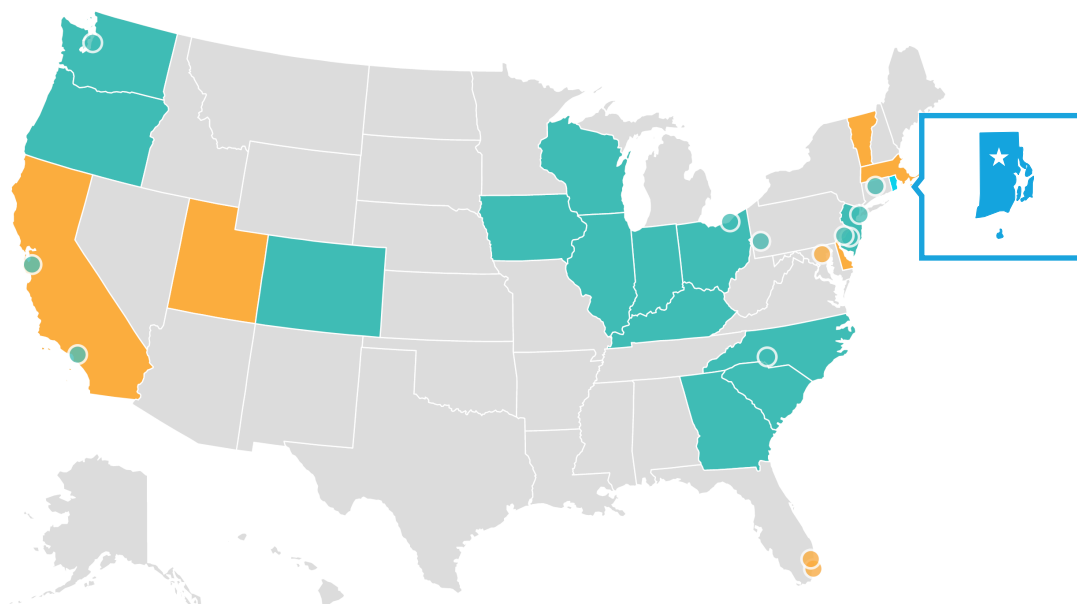
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:• Introduction

Investments in cross-agency data capacity and integration yield substantial returns by allowing governments to identify what works, coordinate to decrease duplication, and target resources to maximize impact. But despite clear fiscal benefits, the costs associated with starting and sustaining an integrated data system (IDS) may present barriers. In our recent report *Building + Sustaining State Data Integration Efforts: Legislation, Funding, and Strategies*, we describe a number of funding streams that can support data infrastructure, and we encourage states to diversify for sustainability.

The following case study describes how the state of Rhode Island has achieved this goal by leveraging a range of federal funding sources to support their data ecosystem infrastructure. We provide concrete examples throughout, highlighting the state's use of a State Opioid Response (SOR) Grant to support cross-agency action and their use of CARES Act dollars to support COVID-19 response, among others. While every context is unique, Rhode Island's experience offers lessons for other state (and local) governments seeking to build flexible capacity to integrate data for impact.

● Network Sites   ● Developing Sites

AISP Network Sites Map

Background

The Rhode Island Executive Office of Health and Human Services (RI EOHHS) Data Ecosystem integrates person-level data across 15+ programs and external data sources to improve program performance, inform policy decisions, and answer deep questions about what drives well-being.

The two figures below represent their theory of change.

WELL-BEING IS A WEB OF INFLUENCES CONNECTED BY RELATIONSHIPS, SPACE, AND TIME
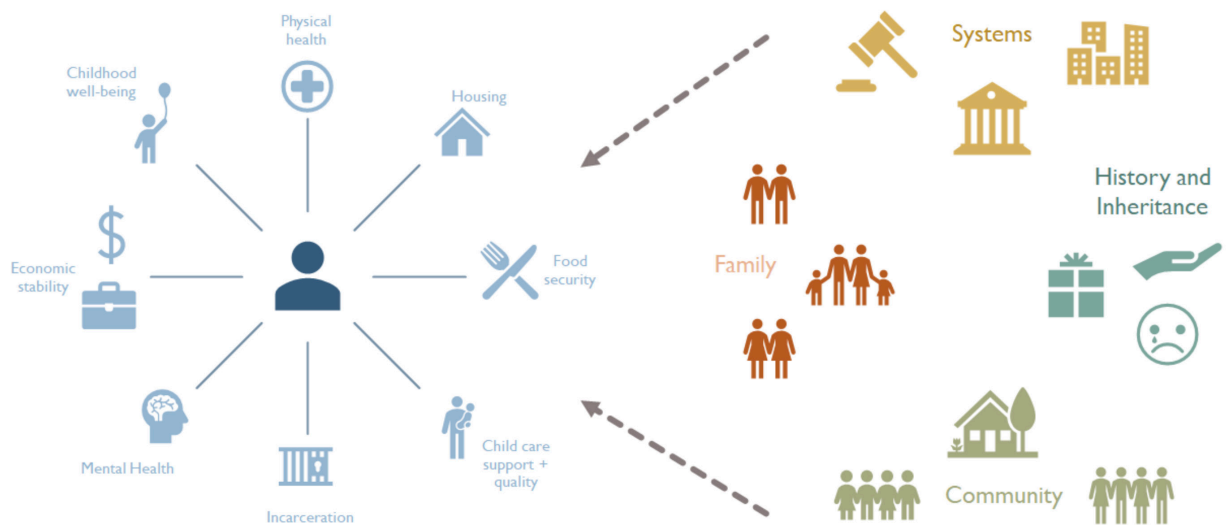
ECOSYSTEM ARCHITECTURE AND PROCESS HONOR DIMENSIONS OF COMPLEXITY + CONNECTEDNESS
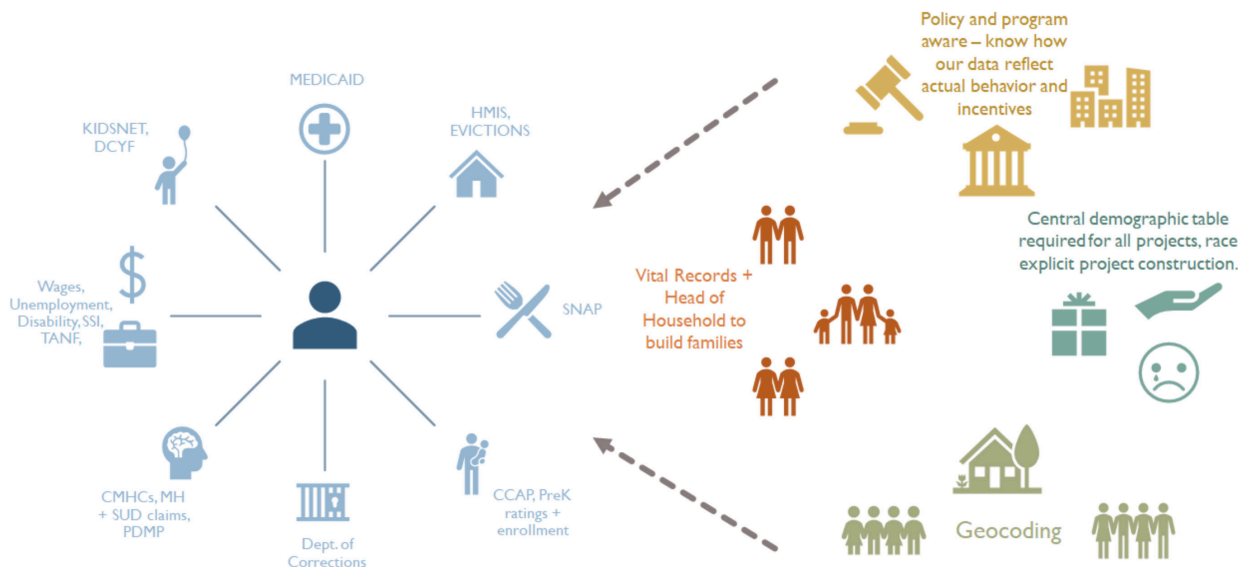
Governance & Legal Approach

The Ecosystem's learning agenda and inquiry projects are prioritized by an executive-level governance board and approved by all data contributors. An Interagency Memorandum of Understanding (I-MOU) documents the vision, mission, and governance process, while individual Data Sharing Agreements (DSAs) and Data Use Licenses (DULs) govern the particulars of each use case. This agency-led governance structure and tiered legal framework ensures data owners and stewards maintain control while allowing for routine integration and flexible data use.

Staff Capacity

The Ecosystem is staffed using a unique public-private partnership model. An eight-person operations team is responsible for leadership, management, technical, and operational oversight of the Ecosystem. Most of the day-to-day data and analytic work is staffed by full-time embedded contractors provided through Freedman Healthcare, a healthcare data and strategy consulting firm. This distinctive staffing model arose by necessity in response to statewide caps on agency staffing, but it has proven successful over time as the state has benefited from the ability to quickly respond to funding opportunities.

Technology & Impact

The Ecosystem was first developed using federal funding from the Medicaid State Innovation Models (SIM) initiative and thus relies on a base, population-level dataset of Medicaid records with which it can link other individual-level information from across data partners. The Ecosystem now hosts its data in a cloud-based data warehouse, having outgrown the storage, computing, and security capacity of its original on-premise servers.

Data are linked using a custom-built, in-house matching algorithm and master person index, and most visualizations and interactive data tools live in PowerBI. The team uses a variety of analytic resources, including R and Python, for exploratory data work.

Rhode Island's focus on keeping data secure while making it easily accessible for self-service business analytics has helped make the use of integrated data for decision-making more routine and has quickly built trust and value for partners.

Each of these subsections—governance and legal approach, staff capacity, technology and impact—reflect core components highlighted in AISP's Quality Framework for IDS. Learn more about these quality components, as well as steps you can take to strengthen your data sharing practice, on our website: aisp.upenn.edu

Early progress on Rhode Island's cross-agency data governance, legal framework, and integration approach were supported by AISP's Learning Community, which provided training and technical assistance from 2017–2019. The Ecosystem has since grown to include 15+ data sources, many of which go back decades and are refreshed on a monthly basis.

Ecosystem Data Assets

With careful governance and deidentification as a backbone, the Ecosystem team builds user-friendly data tools to support inquiries, research, and operational data needs. Some of the data sources in the Ecosystem include:

- Rhode Island Medicaid claims, encounters, and enrollment

- Department of Human Services programs including: TANF, SNAP, CCAP, and SSI

- Wages, income insurance, and job training from the Department of Labor and Training

- Child screening, immunization, and outreach program referral from the Rhode Island Department of Health

- Birth and death records

- Housing insecurity and homelessness data

- COVID testing, case, and vaccine information

- Developmental disabilities case management data from the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities, and Hospitals

- Rhode Island Courts data

- Additional standalone data sources (not linked to other sources): Medical and Pharmacy claims and enrollment data from the Rhode Island All Payer Claims Database (HealthFacts RI)

These data assets support the Ecosystem's Learning Agenda and priority research areas: Factors of Economic Opportunity; Healthcare Access and Outcomes; and Childhood: Equitable Access, Well Being, and Opportunity.

> **" We are not slices of data. We are whole human beings, raised in families, rooted in communities, carrying our history."**
>
> —Kim Paull, Director of Analytics, Rhode Island EOHHS

:·. Funding Sources

Today, Rhode Island's EOHHS Ecosystem infrastructure and learning agenda are sustained by a diverse blend of funding sources, primarily drawing on a range of federal health and human services programs, as well as data license fees and local philanthropic and university support.

So how did Rhode Island build this diverse funding model, and what can other states learn from their experience?

We explore their funding journey, with a particular focus on the following federal funding streams and the ways in which the Ecosystem pivoted to address emerging information needs brought about by the COVID-19 pandemic.

- Medicaid State Innovation Models (SIM) Initiative

- Enhanced CMS Federal Financial Participation (aka Medicaid Match)

- Health Information Technology for Economic and Clinical Health (HITECH) Act funds

- Substance Abuse and Mental Health Services Administration (SAMHSA) funding, including State Opioid Response (SOR) Grants

- Preschool Development Grants (PDG)

- COVID-19 stimulus and recovery funds, including funding from the Coronavirus Aid, Relief, and Economic Security (CARES) Act and American Rescue Plan (ARP)

The Medicaid State Innovation Models (SIM) Initiative from the Centers for Medicare & Medicaid Services (CMS) was designed to help states to advance multi-payer health care payment and delivery system reform models, improve quality of care and reduce costs. State governments selected through a competitive process were provided with financial and technical support to develop more coordinated health care models and information exchange systems to support these models. Rhode Island received both a model "design" award and "test" grant which provided the startup funding used to create the Rhode Island Ecosystem in 2017. Activities included technical procurement, development, and modernization, as well as hiring and staffing the Ecosystem to develop strong governance for data integration and use. Importantly, using Medicaid records as the backbone of the Ecosystem required that the state meet Medicaid Information Technology Architecture (MITA) standards that promote the use of timely, accurate, usable, and accessible data. Meeting these quality and performance standards has also opened Rhode Island up to more federal funding opportunities.

Medicaid Match funding is available through CMS to perform activities related to the enhancement of Medicaid Management Information System (MMIS). States can apply for match dollars using **Implementation Advanced Planning Documents (IAPDs)**, which detail the process for how funds will be applied to advancing MMIS infrastructure and functionality. When funding is designated for design, development, and implementation of new enterprise technology modules, states can receive up to 90% of funding through the federal government by putting up 10% in state funding. Once a project moves into the Maintenance and Operations phase, the federal "match" drops down to 75%. RI EOHHS took advantage of the enhanced federal match rate to expand their MMIS by integrating additional health and human services datasets into the Ecosystem, adding onto the existing backbone of Medicaid beneficiary enrollment and claims data.

The Health Information Technology for Economic and Clinical Health (HITECH) Act was enacted as part of the American Recovery and Reinvestment Act of 2009 to support meaningful use of health information technology. Administrative funds were available for some state health information exchange (HIE) activities—including data warehouses—through the Medicaid Electronic Health Records (EHR) Incentive Program. Additionally, HITECH offers a 90/10 federal matching fund that can be used to update existing health technology infrastructure, align infrastructure with federal standards, and onboard staff who will work with a state Medicaid agency or directly with health information technology systems. Both HITECH funding opportunities enabled RI EOHHS to further develop their governance, integration, and data release process for the State's Prescription Drug Monitoring Program (PDMP) database. This invaluable data asset supports efforts by the State and state partners to better understand the current epidemic, root causes, and meaningful intervention points.

Substance Abuse and Mental Health Services Administration (SAMHSA) grant funding can cover a range of services related to the federal administration's core aims (e.g., reducing drug and alcohol use, improving access to mental health treatment). Many states have received **State Opioid Response (SOR) Grants** through SAMHSA in order to advance data sharing and integration, reduce deaths, and improve treatment pathways." In Rhode Island, SAMHSA funding and SOR grants have enabled numerous cross-state agency efforts to monitor the state's overdose epidemic, understand different pathways to services, and identify addressable barriers to engagement in medication-assisted treatment (MAT), with the goal of better connecting folks with opioid use disorder (OUD) to appropriate and available supports. These projects, which kicked off with SAMHSA dollars in 2019, are ongoing as new findings and data models enable a growing body of work.

Preschool Development Grants (PDG) support the development and delivery of high-quality early learning programs for children from birth to age five. PDG funds can also be used to increase coordination across various early childhood, two-generation, and child health programs, which in turn requires data sharing and integration. Despite a primary focus on health, the Ecosystem was a natural partner to help make the state a competitive recipient of PDG funding starting in 2019. RI EOHHS has since used PDG funds to expand their early care and education data assets and user base, and answer questions about children's early learning needs, experiences, and outcomes more holistically. They have also developed new resources, including a suite of data dashboards to track and monitor how children in Rhode Island interact with state-funded pre-k, federal Head Start, subsidized childcare programs, and Early Intervention. The data dashboards provide a novel way to understand both service utilization and the drivers that impact child development. The more comprehensive view of children's experiences provided through the Ecosystem has also fostered a shift in thinking towards a more whole-child approach. The Ecosystem is now well-positioned to support the State in its next phase of PDG implementation, which may include testing changes in service delivery and the adoption of actionable cross-program metrics for assessing both short- and long-term child outcomes.

> **COVID-19 stimulus and recovery funds** have also been integral to the Ecosystem's growing contribution and impact in Rhode Island.

The Coronavirus Aid, Relief, and Economic Security (CARES) Act was first enacted in 2020 to provide aid to support individuals, businesses, and governments during the pandemic. Among the many CARES Act provisions is the Coronavirus Relief Fund, which established $150 billion dollars for payments to governments (local, state, Tribal) navigating the pandemic's impacts. A second wave of funding was distributed through the Consolidated Appropriations Act in December 2020, which included roughly $900 billion in Coronavirus response and relief stimulus to supplement the initial aid package. Over the course of the pandemic, the EOHHS Ecosystem proved reliable and necessary in an emergency, stepping in to support the information needs of both policymakers and the public. CARES funding has fueled a monumental number of data sharing and analytic projects across Rhode Island agencies in the past year, and the Ecosystem was uniquely positioned to manage these projects given its strong relationships, legal framework, and data governance, as well as staff experience and expertise. They have used CARES Act dollars to monitor and track the impacts of COVID-19 within the state, including the uptake of telehealth services, and to continue building a longer-term plan to address residual impacts of the pandemic.

Among the many impactful data integration projects developed using CARES Act dollars was an innovative study designed to look at COVID-19's role in the state's rapidly worsening overdose crisis and identify specific interventions that could save lives. For more on this and other use cases, see our companion document "SPOTLIGHT: Rhode Island's Cross-agency Analysis on the Overdose and Addiction Crisis."
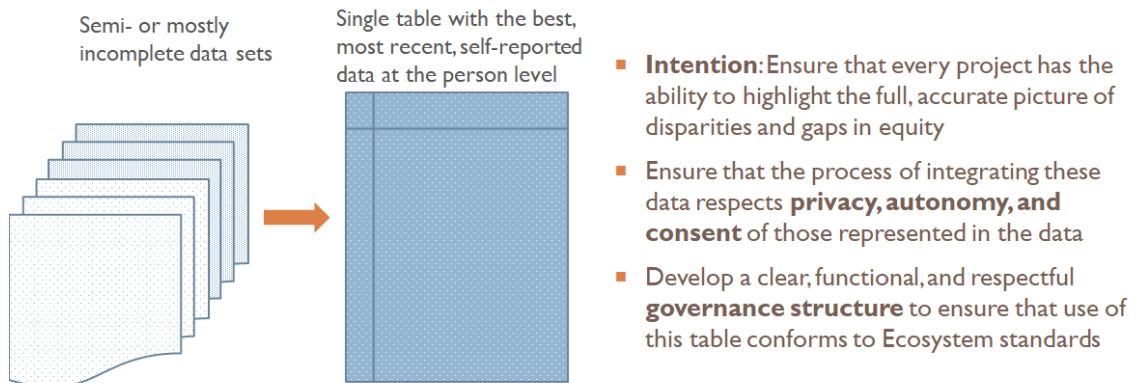
Now, like many states and localities, Rhode Island is continuing to fund their data-driven COVID-19 response with American Rescue Plan (ARP) funds, which provides $350 billion dollars for resources intended to stabilize communities and prepare for recovery. So far ARP and other COVID-19 stimulus and recovery dollars have helped fuel a number of data products, including:

- Daily COVID-19 dashboards and reports for the Governor's Office, Senate Policy Office, Medicaid, and other state agencies;

- Public products, such as the RI Department of Health COVID-19 Response Data Hub and HealthFactsRI COVID-19 Dashboards

CDC Health Disparities Grant

In 2021, Rhode Island received **funding** from the CDC to build out more accurate and complete data on race and ethnicity in order to promote health equity in COVID-19 response and beyond. The Ecosystem team has worked with community leaders and members to build a new Central Demographic table, which draws on the most accurate, recent, self-reported race and ethnicity data across all data sources. This effort has shifted the Ecosystem's role as a passive recipient of incomplete race and ethnicity data to actively building better data to illuminate and mitigate disparities.

The funding helps the Ecosystem live its commitment to racial justice through integrated data.

Semi- or mostly incomplete data sets

Single table with the best, most recent, self-reported data at the person level

- **Intention**: Ensure that every project has the ability to highlight the full, accurate picture of disparities and gaps in equity

- Ensure that the process of integrating these data respects **privacy, autonomy, and consent** of those represented in the data

- Develop a clear, functional, and respectful **governance structure** to ensure that use of this table conforms to Ecosystem standards

FEDERAL FUNDS IN ACTION:

Cross-agency Analysis on Medication-Assisted Treatment for Opioid Use

In 2019, with funding from SAMHSA, the Ecosystem and their partners set out to better understand opioid treatment in two stages: first, by evaluating the effectiveness of Medication-Assisted Treatment (MAT), and second, by understanding why folks who might benefit from treatment weren't enrolling.

In the first phase, the data integration and analysis revealed that:

- MAT initiation was correlated with an immediate drop in emergency room and inpatient psychiatric stays. Effects were most pronounced among those who stayed on MAT for the recommended length of treatment.

- Participation in MAT contributed to a recovery and increase in wages.

- Receiving MAT was correlated with a lower risk of child maltreatment for parents by who had opioid use disorder.

In the second phase, the team used integrated data to study what differentiated people who enrolled in treatment within six months of their first opioid use disorder diagnosis or overdose and those who did not. They linked MAT enrollment data from Medicaid claims to data on fatalities, wages, child welfare, corrections, human services, and other outcomes. Highlights from the study, which were later published in the Journal of Drug and Alcohol Dependence, included:

- The majority (58%) did not enroll in MAT within 6 months.

- Prior overdose, alcohol use disorder, and back problems made people less likely to enroll in MAT.

- Emergency department and primary care provider visits above the 75th percentile were associated with timely enrollment.

Together, these findings provided Rhode Island policymakers with rigorous local evidence that MAT was effective and actionable avenues for mitigating barriers to enrollment and getting people into care. For more details about these and other high-impact use cases of integrated data, see our companion document "SPOTLIGHT: Rhode Island's Cross-agency Analysis on the Overdose and Addiction Crisis."

⠶ Lessons Learned

Rhode Island's EOHHS Ecosystem makes cross-sector data available and actionable at an enterprise level to improve health equity and well-being of residents. Sustained and diverse investments in cross-agency capacity and coordination have been key to their success.

Below, we outline lessons learned from the Rhode Island approach that may be applicable in other state and local contexts.

- **Start with one use case to demonstrate value.** The Rhode Island Ecosystem's data assets and role in state government have grown over time as they established trust and demonstrated value. The Ecosystem first leveraged federal SIM dollars and focused on state goals, like reducing Medicaid duplicates and identifying drivers of child deaths in Medicaid families without prior child welfare system contact. Once the team demonstrated the feasibility and power of cross-agency collaboration, they worked to onboard new partners and link a growing number of datasets to their backbone of Medicaid data. This developmental approach to infrastructure building is often more successful than taking an "all-the-data" approach, which is costly and unlikely to succeed without widespread buy-in. Learn more about Rhode Island's response to the overdose and addiction crisis in the companion document, "SPOTLIGHT: Rhode Island's Cross-agency Analysis on the Overdose and Addiction Crisis." Explore other examples of high-impact use cases that have helped grow data sharing efforts from the AISP Network.

- **Focus on data governance.** Rhode Island's ability to take advantage of new funding opportunities is owed in part to their strong cross-agency governance structure. Because they regularly convene a group of executive leaders to prioritize projects and oversee operations, they have a natural venue for strategy discussions about what to pursue next. They've also built a culture of trust among partners, a streamlined framework for executing legal agreements, and secure and efficient technical tools for data sharing and use. This solid foundation means that they are well-positioned to apply for competitive opportunities and onboard new data partners quickly. For more on best practices for cross-agency data governance, explore AISP's Quality Framework for Integrated Data Systems.

- **Seek diverse funding and explore matching potential.** Rhode Island works every year to further diversify their funding sources to maximize what they can draw down on their federal Medicaid match. While this requires a lot of work up front, once the wheels are in motion and credibility is built, the effort notably decreases. Rhode Island has also found that philanthropic funders appreciate the opportunity to contribute, knowing that the impact of their investments will be multiplied. For more on how other AISP network members blend funding from federal, state, and philanthropic sources, see pages 6–9 of our report *Building + Sustaining State Data Integration Efforts: Legislation, Funding, and Strategies.*

- **Build creative partnerships to increase capacity.** Rhode Island's staffing partnership with Freedman Healthcare is a unique model that arose in response to local constraints. However, it has allowed them to staff up and down with flexibility and increased their capacity to respond to opportunities. Too often, data sharing efforts are short-staffed and the time-consuming but essential job of identifying and applying for grants is considered "other duties as assigned." Partnerships with universities, non-profits, and consulting groups can help navigate these challenges but should always be built in service of public-sector information needs, and with strong governance. Currently, Rhode Island is also working closely with the Rhode Island Policy Lab at Brown University to increase the use of cross-sector data for research and build evaluation components into grant development, implementation, and reporting. For more on productive partnerships and approaches to staffing core IDS activities, explore the management models and examples on our website.

While many social programs remain deeply siloed—creating barriers to mobility and well-being for communities—data sharing and integration offers a tool to bridge these silos. By developing trust among partners, state and local governments can build capacity and infrastructure guided by a commitment to see and serve the "whole person." In this context, a variety of funding streams can support data integration capacity. Rhode Island's experience demonstrates that it takes sustained effort to build the trust and capacity to take advantage of funding opportunities. It also clearly demonstrates the value of high-quality person-level data integration to support well-being. We hope documenting their funding journey will help other data integration efforts working to build the governance, legal frameworks, technology, and human capacity to responsibly use data for impact.

To learn more about how governments can use data to improve lives, visit the AISP website. And for guidance on how to responsibly build and scale IDS, view our Quality Framework for Integrated Data Systems.