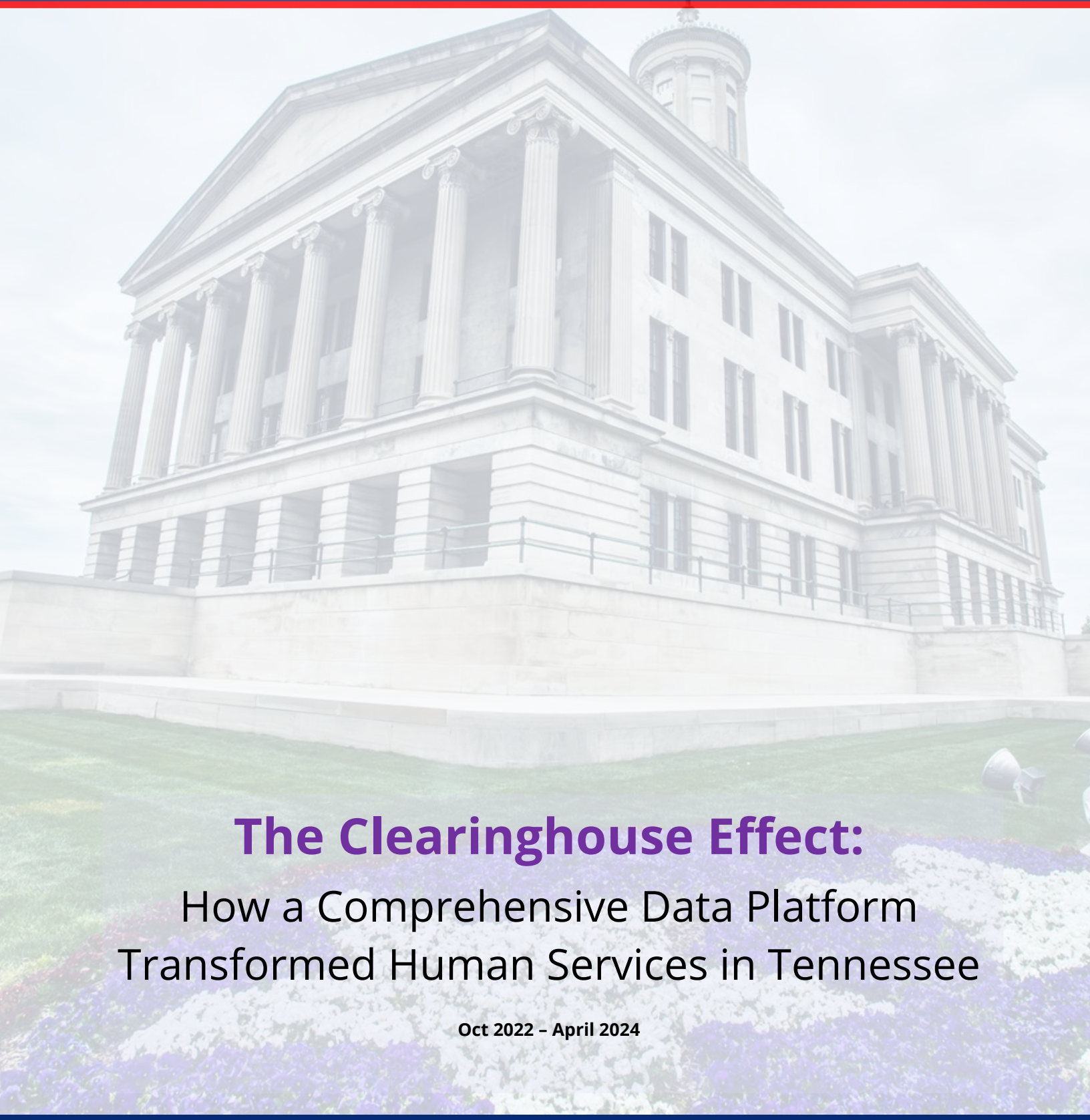

The Clearinghouse Effect:

How a Comprehensive Data Platform Transformed Human Services in Tennessee

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NASCIO Award Category: Data Management, Analytics & Visualizations

Submitting State: State of Tennessee

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Executive Summary

The Tennessee Department of Human Services (TDHS) Clearinghouse Modernization Project represents a landmark initiative in state government IT modernization, leveraging the comprehensive overhaul of a critical data management system to enable a foundational modern data platform to serve its future data and analytics needs. Clearinghouse, a mainframe application under the administration of TDHS, serves as a pivotal resource in capturing and disseminating a wide array of data from federal, state, and third-party entities. This data is vital for the administration and monitoring of eligibility requirements for a range of essential services, including family assistance and child support enforcement programs within the State of Tennessee.

Faced with the impending decommissioning of its mainframe environment in December 2023, TDHS embarked on an ambitious journey to not only modernize the Clearinghouse application but position it as a beacon of innovation, collaboration, and operational efficiency within the state's IT ecosystem. To accomplish this ambitious objective, TDHS collaborated with agency stakeholders and the State's central IT organization, Strategic Technology Solutions (STS), to conduct a comprehensive scoping and visioning assessment. This collaborative team reviewed functional and technical requirements, data flows, compliance requirements, and the development of a target state architecture and implementation roadmap. Business and IT working hand-in-hand was an essential component to this project's success.

The selection of the Snowflake Data Cloud platform at the core of the new data environment was a pivotal decision in the project's lifecycle. This choice was informed by the platform's robust capabilities to address and enhance the project's core objectives — Sharing & Collaboration, Productivity, and Cost Containment. Snowflake's cutting-edge technology promises to deliver tangible benefits in data sharing and collaboration with both internal and external partners, significantly improve operational efficiencies by consolidating data storage and processing and reduce the total cost of ownership through streamlined administration and the elimination of outdated licensing and maintenance models.

The Clearinghouse Modern Data Platform project is more than a simple IT modernization initiative. It is a strategic move towards redefining how the State of Tennessee manages and leverages data across its various Departments to better serve its citizens. By embracing and integrating a range of fit-for-use modern cloud technologies and data management practices, TDHS is not only ensuring the continued viability and effectiveness of critical state programs but has also establishing the data foundation for innovation, collaboration, and operational excellence in state government IT operations.

This project stands as a testament to the vision, dedication, and collaborative spirit of all parties involved, from the strategic guidance and technical expertise of STS, to the forward-thinking leadership within TDHS. It encapsulates the transformative potential of technology in public service, making it a deserving candidate for the NASCIO 2024 State IT Recognition Award in the Data Management, Analytics & Visualization category.

Project Description

IDEA

The Tennessee Department of Human Services (TDHS) Clearinghouse Project addresses a critical need for modernizing data management systems that are fundamental to the delivery of essential state services. The initiative solves a significant business problem by replacing an outdated mainframe application with a modern, cloud-based data platform, specifically the Snowflake Data Cloud on AWS. The mainframe system, once central to capturing and disseminating crucial data for family assistance, child support, and enforcement programs, was due for decommission in December 2023. The project thus not only averts the potential risks associated with the continued use of obsolete technology but capitalizes on the opportunity to enhance data sharing, productivity, and cost efficiencies across state government operations while establishing a comprehensive set of data capabilities needed to support future advanced analytics and AI use cases well beyond the original Clearinghouse application.

Why It Matters: The modernization of the Clearinghouse application is pivotal for several reasons. First, it directly improves the efficiency and reliability of state programs that depend on timely and secure access to data. By leveraging Snowflake's capabilities for data sharing and collaboration, the project ensures that internal and external partners, have better access to shared data in a more secure manner. Beyond simply satisfying the fundamental Clearinghouse use cases, the new data ecosystem transforms the way TDHS manages and utilizes its data by ensuring faster time to market for new data projects by enabling the rapid onboarding of new datasets, industrializing data quality monitoring and data governance capabilities, standardizing security and compliance processes, enabling ease of data access via Tableau dashboards and analytics, and introducing the foundation for more advanced Data Science and AI capabilities integrated with the Snowflake environment.

Business Rationale: The rationale behind this project is grounded in the necessity to improve operational efficiencies, reduce total cost of ownership (TCO), and ensure compliance with data protection and privacy standards, including compliance with a rigid SSA (Social Security Administration) compliance assessment. By consolidating data storage and processing into a single platform, the Clearinghouse project substantially reduces the manual burden associated with managing legacy systems and mitigates long-term costs related to subscription-based licensing and maintenance agreements while simultaneously providing a foundation that all future data and analytics projects can leverage to add value from its data to the agency and its citizens.

Relevant Data for Support: The migration from a legacy mainframe to Snowflake is anticipated to have significant implications in terms of cost savings, human resource optimization, and enhanced service delivery to a large constituent group reliant on Tennessee's family assistance and child support programs. Not addressing this need for modernization would result in increased operational costs, inefficiencies, and increased risks to data security and compliance.

What Makes It Different and Universal: The Clearinghouse Data Modernization project stands out for its comprehensive approach to addressing data management challenges. Unlike other similar initiatives, it encompasses a near end-to-end overhaul, including data migration, archival capabilities, data integration, testing, reporting and analytics, and the development of a first in class data management strategy that aligns with leading practices in data governance, data quality, cybersecurity, accessibility, and privacy. The project's innovation lies in its use of Snowflake's Cloud Platform tightly integrated with other leading cloud capabilities including AWS data services and Tableau Cloud, which not only provides a scalable and extensible architecture but also ensures seamless integration with existing systems and adherence to stringent security compliance requirements.

The issues addressed by this project are universal to all states, touching on core aspects of data and information management defined by NASCIO's priorities. These include data architecture, data governance, and ensuring sustained data access and security to government and citizen data - an array of challenges that are central to the digital transformation efforts of state governments nationwide. By providing a blueprint for leveraging cloud technologies in public sector data management, the Clearinghouse project offers valuable insights into enhancing the role of data and information in improving state services.

IMPLEMENTATION

The roadmap for the completion of the Tennessee Department of Human Services (TDHS) Clearinghouse Data Platform Modernization Project were meticulously planned and executed, aligning with an overarching enterprise strategy aimed at modernizing the state's IT infrastructure to enhance service delivery. This comprehensive approach underscores the project's integration into the broader vision of leveraging technology to streamline state operations, improve data management, ensure the sustainability of critical services, and enable future data analytics. The project's management approach was characterized by a phased, collaborative, and agile methodology, emphasizing rigorous planning, continuous stakeholder engagement, and adaptability to ensure the project's objectives were met efficiently and effectively.

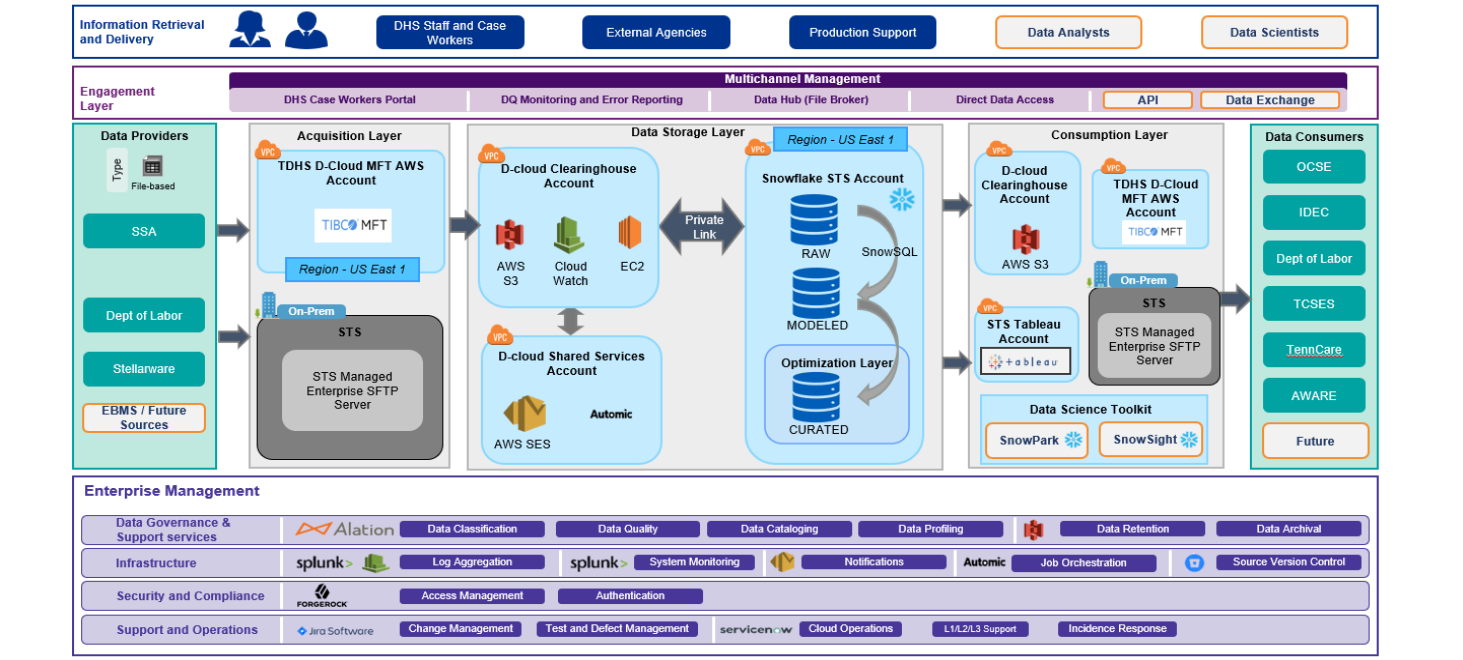
Project Management Approach: The project was initiated with a thorough scoping and visioning assessment to understand the existing infrastructure, requirements, and data flows. This foundational step paved the way for developing a comprehensive target state architecture, implementation plan, and resource estimates. The management approach was iterative, involving a proof of concept (POC), detailed scoping, design, and architecture planning culminating in the actual implementation. This approach ensured that every stage of the project was aligned with overall goals and objectives and allowed for adjustments to address challenges and opportunities as they arose.

Assessment and Success Metrics: The project's success was assessed based on its ability to meet the outlined objectives of enhancing sharing and collaboration, productivity, and cost-efficiency through the modernization of the Clearinghouse application. Key performance indicators included the seamless migration to the Snowflake Data Cloud, improved data access and management capabilities, compliance with state and federal requirements, the realization of cost savings compared to the legacy system, and the enablement of advanced data capabilities to support future data needs. The project was successfully implemented within the initial budget and timelines, including in meeting deadlines for mainframe decommissioning.

Stakeholder Involvement: The project saw the collaboration of various stakeholders, including agency staff, legislators, business leadership, vendors, and Strategic Technology Solutions (STS) each playing a crucial role in its success. Legislators provided oversight and funding, vendors (notably KPMG and technology providers like Snowflake and Amazon Web Services (AWS)) were integral in the design and execution, agency staff contributed with insights and testing, and citizens, as the end beneficiaries, informed the project's focus on improving service delivery. Stakeholders buy-in was achieved through regular updates, demonstrations of the project's benefits, and active solicitation of feedback to ensure the project met the diverse needs of its stakeholders.

Resources Required: The modernization effort required substantial financial, human, and time resources. Financial investment was necessary for procuring the Snowflake platform and related technologies, while human resources were critical for project management, technical implementation, and ongoing support. The project timeline was carefully managed to meet the decommissioning schedule of the old mainframe system, ensuring a smooth transition without disrupting state services.

Technical Architecture Overview: The selection of the Snowflake Data Cloud platform on AWS as the technical foundation of the project was informed by Snowflake's alignment with cutting-edge practices in data management, offering scalability, security, and integration capabilities superior to the legacy system. The technical architecture emphasized the importance of a modern data environment that seamlessly integrates a wide range of fit-for-purpose data capabilities. These support enhanced data sharing, reduced data silos, provide comprehensive data governance capabilities to support data quality, profiling, and discoverability with the help of Alation Data Catalog, enable state of the art visualizations and dashboards via Tableau Cloud, and ensure compliance with rigorous security and privacy standards through ForgeRock access management and Splunk monitoring capabilities.



In summary, the Clearinghouse Data Modernization project was a strategic, well-planned initiative that successfully transitioned a critical state system to a modern, flexible, and more efficient platform. Through its phased approach, rigorous management, and engagement of key stakeholders, the project stands as a model for similar modernization efforts within the public sector, demonstrating the transformative power of technology in enhancing government operations and services.

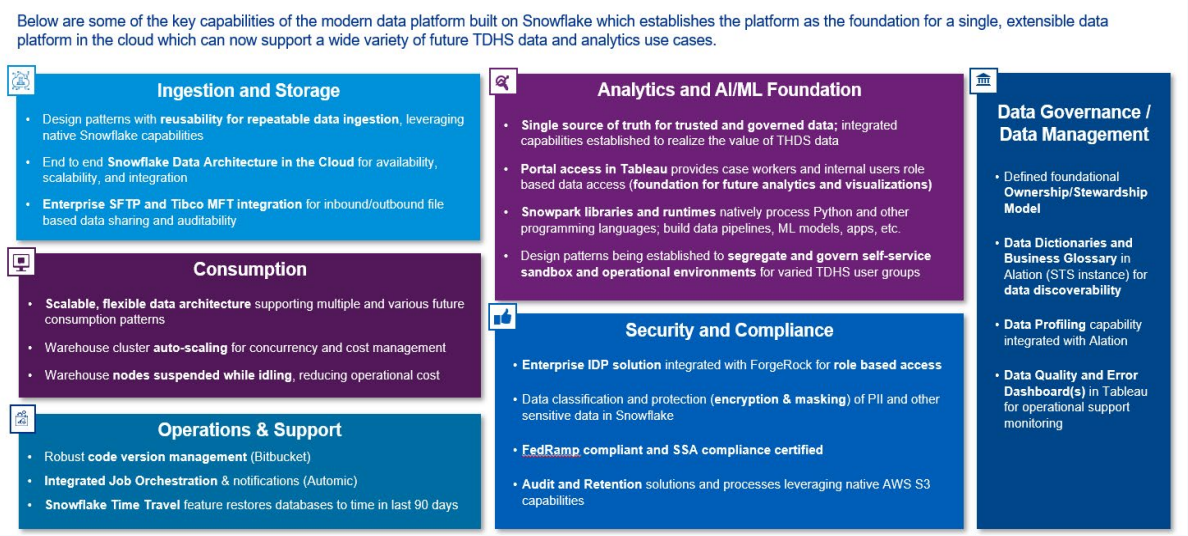
IMPACT

The Tennessee Department of Human Services (TDHS) Clearinghouse Project significantly enhanced the state's ability to manage and disseminate critical data for family assistance, child support, and enforcement programs. By transitioning from an outdated mainframe system to the modern Snowflake Data Cloud platform, the project fundamentally transformed the agency's data environment, yielding substantial improvements in data sharing and collaboration, productivity, cost-efficiency, and significantly improves the ability of TDHS to expand on the platform's capabilities to realize the value of its data with future advanced analytics and AI data driven insights.

Why the Project Matters: The modernization of the Clearinghouse application effectively addressed the pressing need to decommission the mainframe environment by December 2023 while establishing a first in class foundational modern data platform. This objective was grounded in the business rationale of improving operational efficiencies, enhancing data access and management, and reducing the total cost of ownership (TCO) for TDHS. The project's broader significance, however, is highlighted by its contribution to more a streamlined, effective, and secure services for Tennessee's citizens, particularly those reliant on the state's family assistance and child support programs, in conjunction with the enablement of a comprehensive set of modern data capabilities to effectively and efficiently meet TDHS's future data needs.

Before and After Comparison: Before the project's implementation, TDHS relied on a legacy mainframe application that was expensive to maintain, less flexible, cumbersome to expand and access, and posed risks regarding compliance with security and privacy standards. The transition to the Snowflake Data Cloud has revolutionized the agency's data management capabilities.

With Snowflake, integrated with a range of cutting-edge data capabilities, data is now more accessible and easier to share with internal and external partners through secure and efficient means, and future data projects will be able to leverage its capabilities to harness the transformative power of TDHS data more seamlessly and efficiently.



"The new system has drastically reduced the time it takes to access and analyze data, enabling us to make faster and more informed decisions that directly benefit the families we serve."

– TDHS Careworker

Benefits and Impact: The Clearinghouse Data Modernization project delivered tangible and intangible benefits, including:

- Enhanced data sharing and collaboration capabilities, enabling secure and efficient data exchanges
- Improved productivity through the consolidation of data storage and processing
- Reduced costs, with lower TCO based on the outcomes of prior TDHS Snowflake proof of concept (POC) engagement and industry narratives
- Faster speed to market of new TDHS data initiatives
- Improved data quality and discoverability of data
- Vastly improved data accessibility, including integration of advanced analytics and AI capabilities with Snowflake

Quantitative and qualitative data supporting these achievements include feedback from TDHS caseworkers on the ease of accessing data through pre-built Tableau dashboards, which has expedited decision-making processes and improved service delivery to citizens. Additionally, the project has ensured compliance with federal Social Security Administration requirements, addressing a critical compliance challenge.

NEXT STEPS

Longer-term Plan:

The Clearinghouse project is not seen as a one-time effort but as a foundation for continuous improvement in data management at TDHS. The longer-term plan involves ongoing support and maintenance of the Snowflake platform with a robust Operational Support model now in place, regular updates and enhancements to the data management strategy, and further integration with other state systems to enhance service delivery. This sustainable approach ensures that the project remains agile and responsive to future data needs and challenges, and many future use cases are already being explored and initiated, including as an example, additional data onboarding and support for investigations and fraud analytics use cases.

Project's Worthiness of Investment:

The Clearinghouse Data Modernization project represents a wise investment in Tennessee's future, delivering immediate benefits in terms of operational efficiency, cost savings, and enhanced service delivery. The project's alignment with best practices in data management and compliance standards and its enablement of modern data capabilities and leading practices makes it a model for similar initiatives across other state agencies, underscoring its worthiness for the initial and ongoing investment.