

NASCIO Nominations 2023

ENABLING DATA-DRIVEN GOVERNMENT

DATA MANAGEMENT, ANALYTICS & VISUALIZATION

NC DEPARTMENT OF COMMERCE, DIVISION OF EMPLOYMENT SECURITY

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Raju Gadiraju
NCDES Chief Information Officer

984-236-5769
raju.gadiraju@commerce.nc.gov

EXECUTIVE SUMMARY

The COVID-19 pandemic exposed significant challenges for North Carolina's Division of Employment Security (NCDES) during 2020-2021. The surge in unemployment benefit claims overwhelmed NCDES, causing difficulties in efficiently processing and disbursing qualifying claims. This urgent situation necessitated the development and implementation of a comprehensive reporting system to track claims processing data and status across all functional units of the organization. The creation and implementation of this system was crucial for effective performance management and timely benefit disbursement.

Recognizing the need for enhanced operational data, NCDES management realized the importance of aligning their processes and decision-making with data and analytics. To provide timely service to North Carolinians under any economic circumstances, NCDES understood the necessity of undergoing a comprehensive transformation towards becoming a truly **data-driven organization**.

Starting October 2021, NCDES embarked on this transformative journey and has made incremental progress in becoming a data-driven organization. By leveraging analytics and utilizing the newly available data, NCDES has optimized decision-making, streamlined operations, improved fraud detection, and enhanced service delivery to citizens. One key advancement was the development of a data-driven governance system that effectively utilized the extensive data within the claims processing system.

The process of assembling this vast amount of information and data for the dashboard analytics revitalized NCDES's management and operational practices, driven by newfound visibility. This transformation enabled the organization to actively pursue performance standards by employing measurable benchmarks and data.

Our project narrative showcases how the widespread adoption of data analytics and metrics in agency governance has not only created optimization opportunities for NCDES but has also set a roadmap for other unemployment insurance agencies nationwide seeking to improve operational visualization.

IDEA

The guidance provided by the US Department of Labor (DOL) regarding the management and reporting of unemployment insurance (UI) program performance has assisted agencies in effectively administering the program. However, NCDES faced challenges in identifying operational bottlenecks and inefficiencies in real or near-real time due to a lack of tools and resources. This issue became evident during the pandemic when an overwhelming number of claims flooded in, surpassing the staff's previous experience and overwhelming existing systems and processes. In response, NCDES developed a **Data-Driven Governance** solution, incorporating operational dashboards throughout the organization. These dashboards effectively communicate relevant data in an easily understandable format, and they have been enthusiastically embraced by stakeholders in various business units.

The solution not only introduced technological advancements but also implemented necessary business processes to pivot operational decision-making based on data. Monthly metric review meetings were introduced, involving participants from all functional areas of the agency to discuss key performance indicators and address issues. This approach marks a paradigm shift towards data-centric governance.

The overarching goal of this program is to transition NCDES from relying on fragmented expert knowledge, inconsistent data queries, and subjective operational assessments to a system driven by reliable and well-defined data, guiding key business processes. The implemented solution provides high visibility into claims processing and the detailed operational status of different functional units. It offers three significant capabilities that were previously lacking.

1. Maximizing on-time payments of unemployment insurance benefits.

2. Optimizing claims processing workflows both between and within the agency's units.
3. Providing explicit quantitative visibility into key performance measures, with drill-down capabilities in areas such as claims status, claims resolution, payments made, and backlog tracking, facilitating timely decision-making.

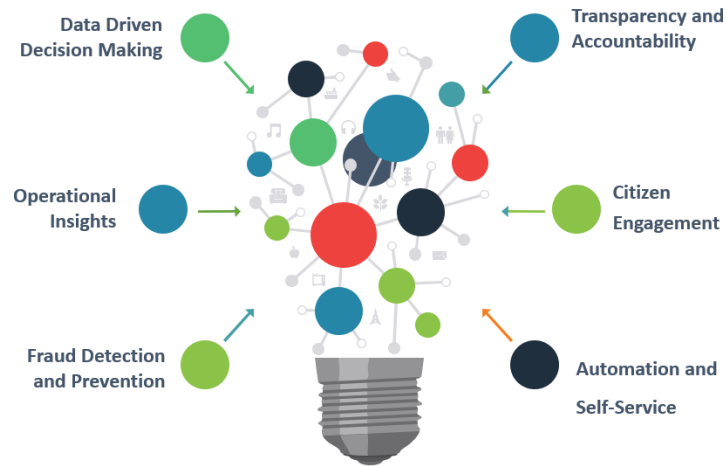


Fig 1 –Transformative Government through Data Analytics

The solution embraced a set of best practices designed to ensure long-term sustainability and relevance. These practices are as follows:

1. Establish a data-driven culture within the agency, placing significant emphasis on the role of analytics in decision-making processes.
2. Make strategic investments in infrastructure and technologies that enable efficient collection, storage, and analysis of relevant data.
3. Foster collaboration with other state and federal government agencies, industry partners, and subject matter experts to leverage and access additional sources of data.
4. Give priority to implementing robust data security and privacy measures to safeguard sensitive information.

IMPLEMENTATION

The objective of this initiative was to establish a coordinated framework that consolidates, unifies, and disseminates accurate information based on consistent data definitions. The initiative commenced in October 2021 and has been delivered in multiple phases to facilitate ongoing adoption by respective business units. We continue to iterate the deliverables and enhancements with target completion of second quarter of 2023. Capgemini played a collaborative role in implementing this project, utilizing an agile delivery model.

At the core of this endeavor was the close collaboration between technical teams and business units. Their joint efforts ensured that the design and functionalities of the dashboards aligned with daily operational needs and DOL reporting requirements. This collaborative approach has exceeded initial expectations by expanding the dynamics of the dashboards and enhancing the system's utilization capacity. To achieve the desired outcomes of the dashboard system, the project team followed fundamental steps:

1. **Requirements Elicitation and Analysis:** Conducted meetings to gather business requirements, analyzed and documented business needs, processes, and workflows. This enabled a better understanding of operational gaps and areas for improvement in current processes.

2. **Solution Assessment and Validation:** Assessed proposed solutions against business requirements, performed impact analysis, conducted end-user testing, and validated the outcomes of the solution. Extensive data validation was conducted by the technical staff to ensure the integrity of the displayed information.
3. **Change Management:** Identified and assessed the impacts of proposed changes on business operations, developed change management strategies and plans, and ensured successful adoption of the solutions.

Key Themes Applied

- Simplified the platform for hassle-free and scalable future analytics.
- Identified simple, clear, and relevant Key Performance Indicators (KPIs) that impact all levels of governance.
- All visualizations and dashboards are interactive, incorporating drill-down features.
- Enabled near real-time data, providing a timely and transparent view of the true story.

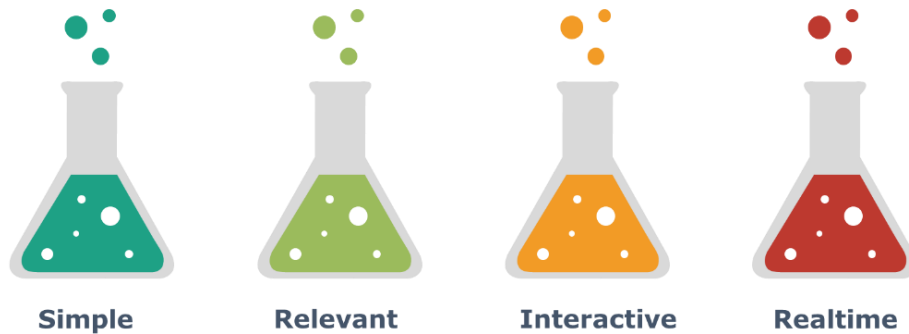


Fig 2.1 - Implementation Themes

Key Categories and Scope

The project encompassed the creation of dashboards and reports in the following categories, in addition to the required DOL standard reports:

1. **Operations Reporting:** This category provides functional supervisors with a comprehensive view of their unit and staff's status, enabling effective daily management of operations. It includes crucial information on factors such as output, backlogs, backlog components, pending actions' aging, productivity, and other relevant metrics.
2. **NCDES Performance Reporting:** These reports serve as management tools, offering organizational leaders a clear view of the agency's performance and the factors driving that performance. They provide visibility to answer questions regarding the agency's performance, the drivers behind it, and the actions and resources required to sustain or enhance that performance.
3. **Historical Data:** This category is available in both the Operations and NCDES Performance reporting sets. It serves as a valuable resource, offering a historical perspective within specified time frames. This allows for inquiries about past conditions and agency performance and aids in the planning of future operations.
4. **Public and Fraud Reporting:** This category supports the Government and Public Relations (GPR) business unit by providing data for external dissemination. It also presents information on established fraud numbers and ongoing investigations.

The project's scope included the development of a range of dashboards with drill-down capabilities. These dashboards provide access to near real-time data across different functional areas.

NCDES Operations Reporting Landing Pages – Consists of two different landing pages presenting the state of operations with 69 metrics.

NCDES Operations Reporting Dashboards – Consists of 9 different detailed dashboards capturing 81 metrics.

DOL Performance Landing Page – The DOL performance summary page with 12 key metrics displayed.

DOL Dashboards and Drill-Down Reports – Consists of 50 reports that include various DOL Data Validation and ETA reports with standard and enhanced metrics/data elements.

NCDES Productivity Landing Page – The NCDES productivity summary landing page with 16 key metrics displayed.

NCDES Workflow and Productivity Reports – Consists of 8 reports with 60 metrics.

Implementation Approach:

We embarked on a transformative journey, following these key steps:

1. **Data Collection and Integration:** We consolidated data from diverse sources such as claim applications, employment records, and demographic information. This integration of disparate datasets created a comprehensive foundation of data for analytics purposes.
2. **Establishing Analytical Capabilities:** We formed a dedicated analytics team comprising data scientists, statisticians, and domain experts. This team took charge of developing analytical models, implementing data-driven strategies, designing data visualization formats, and ensuring compliance with governance standards.
3. **Advanced Analytics Techniques:** Through the application of statistical modeling, machine learning algorithms, and predictive analytics, we gained insights into various areas, including patterns of fraudulent claims, claimant behavior, and demand forecasting. These techniques proved instrumental in identifying high-risk claims and optimizing resource allocation.
4. **Real-time Monitoring and Reporting:** To provide near real-time visibility into key performance indicators, claim processing times, and fraud detection rates, we implemented a dashboard-driven reporting system. This enabled managers to monitor operations, identify bottlenecks, and make timely data-driven decisions.

These steps collectively facilitated our analytics-driven transformation journey, empowering us to leverage data for informed decision-making and operational enhancements.

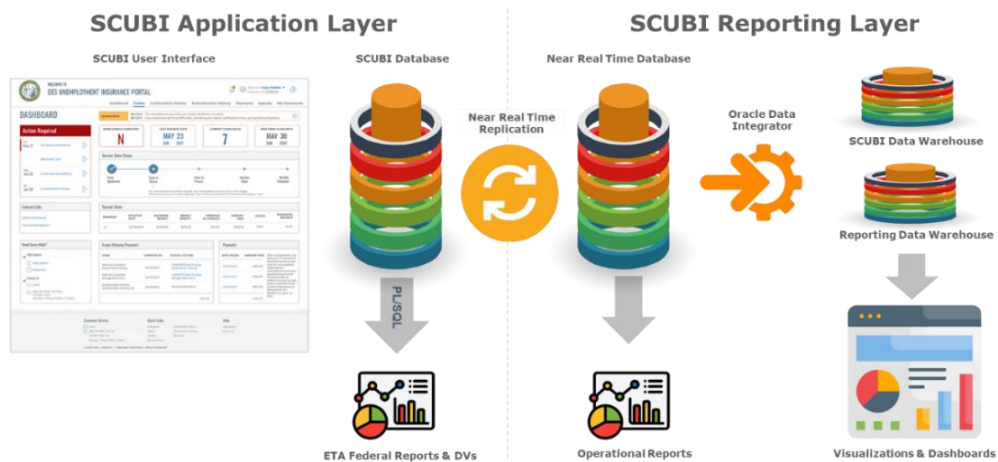


Fig 2.2 – Digital Dashboard Platform Architecture

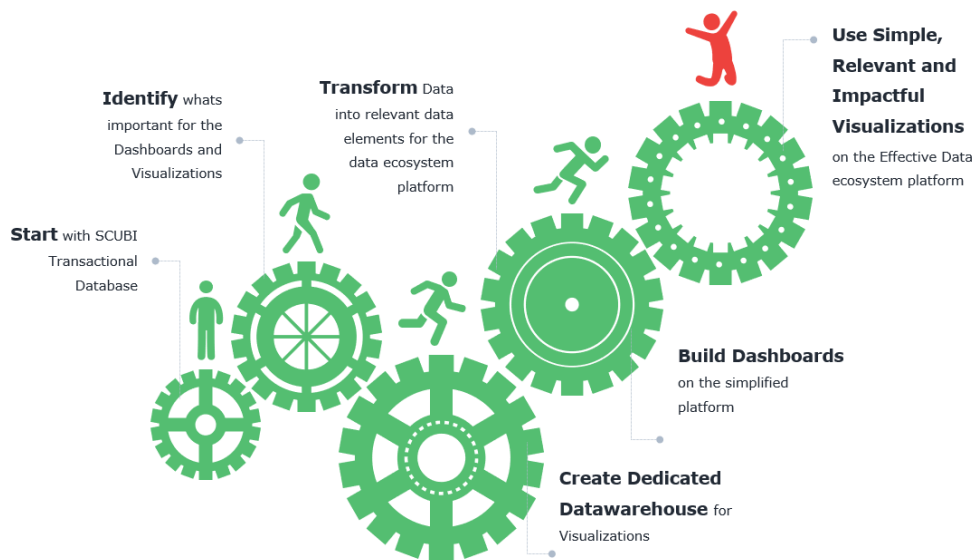


Fig 2.3 – Transformation of Transactional Data into a Simple Data Platform

IMPACT

Our utilization of data analytics and visualization has significantly strengthened our capacity to comprehend, analyze, and effectively communicate complex information. This, in turn, has supported evidence-based decision-making, fostered transparency, and encouraged public engagement. However, our ambitions extend beyond the confines of these achievements.

With unwavering focus, we have embarked on a transformative journey that transcends traditional boundaries. We wholeheartedly embraced the immense potential of analytics in governing the agency. Through the strategic utilization of data-driven insights and the implementation of advanced analytical tools, we have achieved remarkable outcomes. These include the enhancement of operational efficiencies, the strengthening of fraud detection and prevention measures within the UI domain, the optimization of operational workflows, the improvement of core performance metrics, and the elevation of our overall decision-making processes. NCDES stands as a testament to the profound impact that analytics can have on empowering unemployment insurance agencies to better serve their constituents. We remain dedicated to upholding the principles of data-driven governance, as we continue to pioneer and innovate new frontiers in our field.



Fig 3.1 – Transformational Journey to Data Driven Organization

The agency experienced transformative changes by implementing data-driven solutions and processes, which encompassed the following key areas:

Data-Driven Decision Making: By leveraging this solution, we empowered business units to make informed decisions based on insights into expected timeliness outcomes. The integration of near real-time data facilitated the swift identification of performance constraints and assessment of demand indicators, enabling prompt decision-making. Utilizing data analytics and machine learning technologies, we implemented dynamic fraud rules and heuristics to predict fraud indicators, allowing for timely actions.

Operational Insights: Through data analytics and visualization, we identified inefficiencies and areas in need of improvement. Performance metrics such as response times, service delivery, backlog queues, and resource utilization enabled us to quickly pinpoint bottlenecks and allocate resources more effectively to address backlogs. This streamlined our processes, improved resource allocation, and enhanced overall service delivery.

Fraud Detection and Prevention: The pandemic brought about more sophisticated fraud schemes, necessitating enhanced measures to combat fraud in our unemployment benefits system. To address this, we implemented a multi-layered technology solution incorporating advanced data cross-matching, a predictive model rules-engine based on machine learning, and data analytics. These advanced analytics facilitated the identification of suspicious patterns and anomalous behavior, resulting in a significant reduction in fraudulent claims. Real-time monitoring allowed for proactive intervention and prevention of potentially fraudulent activities.

Transparency and Accountability: Our digital dashboards promoted transparency in government operations by providing consistent, accurate, and timely access to relevant information for key stakeholders. Through this initiative, we presented data in an easily understandable format, offering insights into operational workflows, service delivery, performance metrics, and other relevant information. Utilizing charts, graphs, and maps within interactive dashboards, we provided valuable insights to policymakers, government officials, and the public.

Citizen Engagement: Recognizing the expectations of citizens for efficient and personalized services, we invested in automation, self-service, and chatbot capabilities. These investments allowed us to efficiently manage citizen engagement processes. We implemented technology solutions to promptly resolve a growing volume of complex cases, introduced self-service capabilities across multiple channels (IVR, Mobile App, Chatbot, Web) to provide granular updates on claim status and reduce call volume. Additionally, we focused on ensuring data security, privacy, and confidentiality.

Automation and Self-Service: We implemented an auto-adjudication module for claim processing and continued to refine the rules engine. Additionally, we explored the adoption of newer AI technologies towards a zero-touch model where applicable. Multiple self-service modules were deployed for claim status inquiries through IVR, Mobile App, Chatbot, and Web platforms, offering detailed updates to expedite the claim process and reduce the need for human intervention and phone calls. We implemented user-friendly journeys, developed mobile applications for Android and Apple platforms, and are currently working on implementing a conversational-style contextual chatbot to minimize errors during claims intake.

These transformative changes demonstrate our commitment to harnessing the power of data and technology to drive operational efficiency, fraud prevention, transparency, and improved customer experiences.

Conclusion

The implementation of data-driven governance has proven instrumental in streamlining NCDES's business operations, enabling timely decision-making, minimizing fraudulent payments, and optimizing resource allocation. As a result, the organization has achieved significant cost savings. Recognizing the importance of continuous improvement, NCDES remains dedicated to regularly evaluating and enhancing data practices, analytical models, and policies in light of new insights and evolving circumstances. This iterative process ensures that data-driven decision-making remains effective and adaptable in the long term.