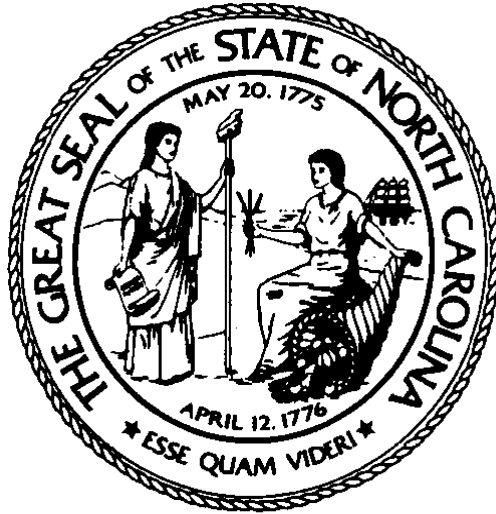


**N.C. Department of Information Technology
Government Data Analytics Center (GDAC) Annual Report**



**Report to the Chairs of the House of Representatives Appropriations
Senate Base Budget/Appropriations Committees
Joint Legislative Oversight Committee on Information Technology
Fiscal Research Division**

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Secretary and State Chief Information Officer**

August 1, 2021

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Legislative Request

The N.C. Department of Information Technology submits this report pursuant to S.L. 2015-241 §7A.(f) (N.C.G.S. 143B-1385(F)), which directs the State Chief Information Officer (CIO) to report annually on the activities of the Government Data Analytics Center (GDAC) as well as the following:

- a. the funding, expenditures, cost savings, cost avoidance, efficiency gains, process improvements, and major accomplishments
- b. the contribution of funds or resources by those private entities that are participating in public-private partnerships within the GDAC, including, but not limited to, knowledge transfer and education activities, software licensing, hardware and technical infrastructure resources, personnel resources, and such other resources as agreed upon by the State and said private entity.

The full text of the GDAC's enabling legislation is available in Appendix A.

Introduction

The N.C. Department of Information Technology's GDAC mission is to transform data into information to facilitate decision support, increase operational efficiencies, and improve outcomes for the citizens of North Carolina by integrating and sharing data assets.

This report details the GDAC's activities during the 2020 calendar year.

Accomplishments

The GDAC program integrates data and develops analytics to support business needs associated with criminal justice, child safety, fraud, compliance, health care and longitudinal and performance analysis.

The GDAC collaborates with numerous partners, including but not limited to, State agencies, local governments, and the health care community, to support data sharing and service development. To protect and secure the State's data, GDAC leverages a data governance model that ensures proper access and use of data. Each year, the GDAC continues to deliver new analytic solutions and provides increased data driven intelligence to agencies and partners. Appendix B provides a summary of calendar year 2020 and projected 2021 activities.

Criminal Justice and Public Safety

GDAC supports the criminal justice community by integrating and transforming data to improve public safety. A summary of the criminal justice application development follows.

HB511 "The North Carolina First Step Act." Data Study

Session Law 2020-47 (H511) directs the Department of Information Technology's Government Data Analytics Center to conduct a statewide study to identify criminal justice data elements currently collected through the courts, prisons and jails, as related to individuals charged with infractions or criminal offenses.

The purpose of the study is to (i) identify gaps in data for use by law enforcement, judicial officials, policymakers, and other stakeholders related to the processing, detention, and adjudication of individuals charged with infractions or criminal offenses and (ii) identify solutions for improving availability and accessibility of data available to policymakers to inform public policy regarding individuals who have been charged with infractions or criminal offenses.

Findings and recommendations shall be reported by December 1, 2021 and will include the identification of data collected or planned for collection through jails, prisons, courts and data collected related to criminal and infraction court records; will note the availability of the data, and identify associated gaps; and will outline the steps and costs associated with the collection and integration of the data and the availability of such data for use in an open format.

Planned Activities

COVID-19 related data and information has resulted in DIT redirecting resource availability to conduct a thorough review of the data supporting the criminal justice system and allowed for identification of data gaps. Planning is currently underway to:

- assess the current state of the data collection and availability;
- evaluate best practices from other states; and
- develop a recommendation and associated costs.

CJLEADS

The Criminal Justice Law Enforcement Automated Data Services (CJLEADS) is a foundational cornerstone of the GDAC. This application supports criminal justice professionals by providing access to criminal records on any device 24 x 7 x 365. With a user base exceeding 25 thousand, the CJLEADS application provides:

- a comprehensive view of an offender's records and photographic images;
- alerting capability notifying a user of an offender's change in status;
- access to real-time warrant information;
- access to real-time license and registration information associated with drivers, motor vehicles, hunting, fishing, and vessels;
- access to real-time pretrial release order information;
- access to federal data; and
- interconnection with the Federal data access, providing access to:
 - a. Person-related queries (wanted, missing persons, violent persons, foreign fugitives, immigration violations, gang, identity theft, transnational organized crime, protection orders, supervised release, and sex offenders)
 - b. Vehicle queries, including those which are stolen, involved in felonies, with stolen plates, and parts
 - c. Out-of-state DMV person and vehicle inquires including driver information, driver history and vehicle registration information for all 50 states

Completed Activities

- I. Integrated citation numbers in CJLEADS court summary
- II. Conducted a data and impact analysis to CJLEADS associated with planned upgrade of the Administrative Office of the Courts (AOC) e-warrants system and the AOC integrated case management system

Planned Activities

- I. Design, develop, test, and implement the integration of data associated with the AOC e-warrant system
- II. Design, develop, test, and implement the integration the new AOC integrated case management system data for 4 counties while maintaining the integrations of the 96 counties
- III. Develop a repeatable implementation process to streamline the rolling implementation plan for the AOC integrated case management system
- IV. Design and develop a user query tool to enable criminal justice self-service reporting capabilities utilizing the CJLEADS integrated data

NC Gun Purchasing Disqualifying Analytics

In partnership with the State Bureau of Investigation (SBI) and Administrative Office of the Courts (AOC), the GDAC developed the NC Gun Purchasing Disqualifying Analytics, which identifies and reports NC offenders who have a convicted offense disqualifying them from gun purchases. NC offenders with disqualifications are reported to the National Instant Criminal Background Check System (NICS) which alerts firearm sellers and Federal Firearm Licensees of a person's ineligibility to purchase. To date, approximately 72,052 NC offenders have been identified as being ineligible to make a firearm purchase, resulting in 494 gun purchase denials.

Completed Activities

- I. On-going operations and maintenance

Planned Activities

- I. Modify the reporting system to account for the new AOC integrated case management system

Criminal Investigative Case Management (MEMEX)

Session Law 2015-241 §7A.2(c) directs the State CIO, through the GDAC, to manage and coordinate the deployment of an intelligence-based investigative case management system. Working with the SBI's NC Information Sharing and Analysis Center (ISSAC), the GDAC has completed the development of a system which provides:

- a scalable case management capability;
- the ability to incorporate and integrate data from existing investigations and sources;
- the ability to manage investigators and investigation documentation such as interviews, property and evidence, offenses, charges and court dispositions; and
- an integrated workflow to assist in guiding the user through the entire case management life cycle.

Completed Activities

- I. On-going operations and maintenance

Planned Activities

- I. Upgrade existing application into a new and modern platform providing enhanced case management and investigative capabilities

Crime Lab Analytics

GDAC is supporting the N.C. Department of Justice State Crime Lab to expand access to information to investigators, DNA scientists, prosecutors, and other criminal justice professionals for improved operational effectiveness and reduced costs.

Completed Activities

The following reports have been developed:

- I. Stop Work Reporting – the matching of active crime lab cases to AOC court records to identify crime lab cases that no longer require analysis and allow for the redirection of crime lab resources towards active investigations
- II. DNA on file flag – integration with CJLEADS to notify law enforcement that DNA has already been processed, reducing duplicate processing and associated costs
- III. DNA collection flag – integration with CJLEADS to notify law enforcement of offenders, who due to a previous conviction, are required to provide a DNA sample
- IV. Blood Destruction Reporting – the assessment of the current blood sample inventory and the identification of samples which no longer require storage
- V. FBI Combined DNA Index System (CODIS) Outcomes Report – reports CODIS matched records to NC criminal case records

Planned Activities

- I. On-going operations and maintenance
- II. Modify the crime lab reports to integrate the new AOC integrated case management system while continuing the maintenance and operations of the legacy county case data

Investigation Records Management

The North Carolina Department of Insurance's Criminal Investigations Division (CID) is charged with conducting criminal investigations and supporting prosecution of individuals and entities who commit insurance-related crimes. To support their investigative operations, the Division required a secure environment to support investigative case management functions which included advanced reporting and analytics, search capabilities, and built-in case activity monitoring and tracking.

Completed Activities

- I. Implementation of a secure case management system which supports criminal intelligence management, confidential information management, expungements, investigation case management, chain of custody, and prosecution

Planned Activities

- I. Develop a bail bonds complaints administration module to allow for intake, case workflow and investigation
- II. Implement an online fraud reporting portal
- III. Implement entity resolution
- IV. Enhance the case management workflow functionality
- V. Develop prosecution reporting capability to support the securely sharing case investigation records for prosecution.

Sex Offender Compliance Alerting Program

Partnering with NC SBI, the GDAC developed a Sex Offender Compliance and Alerting program to identify individuals who may be out of compliance with sex offender reporting. The program identifies data anomalies and generates alerts for individuals who are required to register and maintain their sex offender registration information in North Carolina and identifies out-of-state sex offenders who may be subject to registration due to their North Carolina presence. As of January 2021, this program is implemented across 39 county sheriffs' offices. To date, approximately 6,000 alerts have been generated for investigations.

Planned Activities

- I. On-going operations and maintenance

Adult Correction Reporting Environment

The North Carolina Department of Public Safety (DPS) Programs & Services Division reporting repository supports user-developed ad-hoc reports.

Completed Activities

- I. Implemented a secure data repository linked to query tools for DPS developed reporting

Planned Activities

- I. On-going operations and maintenance

Governor Crime Commission – Criminal Justice Analysis Reporting Warehouse

The North Carolina Department of Public Safety (DPS), Governor's Crime Commission Criminal Justice Analytics Center (CJAC), centralizes data sources across the criminal justice arena. This repository of data, combined with next generation SAS tools, will enable the CJAC to develop program measures and provide on-demand reporting and analytical support to NC Governor Crime Commission.

Completed Activities

- I. Implemented a secure data repository linked to query tools for CJAC developed reporting
- II. Integration of NC National Incident Based Reporting System (NIBRS) and NC Traffic Stop data

Planned Activities

- I. Integration of SBI NC Criminal History (NCCH) data
- II. Integration of DPS Adult Correction data

Child and Family Safety

The North Carolina Department of Public Safety's Division of Adult Corrections and Juvenile Justice (DACJJ) and DHHS's Division of Social Services (DSS) are working with the GDAC to integrate data to improve access to information for social services case workers and juvenile court counselors to assist in developing appropriate care plans.

Child Protective Services

Session Law 2014-100 §12C.1.(e) directs DHHS to coordinate with the GDAC to establish and implement a Child Protective Services Pilot Program to enhance coordination of services and information sharing, and appropriated a

sum of \$300,000 to assist in supporting the program's development and implementation. Session Law 2015-241 §12C.11.(a) (HB97) requires continued collaboration between DHHS and DIT to enhance the pilot to include:

- development of a dashboard linking the family to the child;
- development of a comprehensive profile of a child to include demographic and caretaker information and indicators or flags of other services, including but not limited to: prior assessments of the child, eligibility for food and 25 nutrition programs, Work First/TANF, Medicaid, and Subsidized Child Care;
- rebranding the Child Protective Service Pilot as the Child Welfare Accessing and Searching Sensitive Information through Technology (CW ASSIST) in Q4 of calendar year 2016; and
- the successful rolled out the Child Welfare ASSIST (CWA) application to the county and state child protective services staff in early 2017, currently accommodating approximately 2,700 active users.

Planned Activities

- I. Recognizing the value of the CW ASSIST, DHHS has requested the expansion of the user base to include Childcare Social Workers and Adult Aging investigators at both the State and county levels. In addition to expanding the user base, the GDAC will support DHHS with the integration of additional data sources and development of secure roles, ensuring proper access and data privacy.
- II. The planned expansion has been renamed from Child Welfare ASSIST, to Case Worker ASSIST moving forward.

Juvenile Justice

The DACJJ is committed to the reduction and prevention of juvenile delinquency by effectively intervening, educating, and treating youth, strengthening families, and improving public safety. The GDAC solutions supporting Juvenile Justice include:

- Recidivism Reporting Module - Integration of juvenile record data with adult criminal courts and probation records for the generation of various metrics associated with recidivism
- Service Directory Catalog - a service management and cataloging mechanism for service providers and the State
- Juvenile Justice Service Directory public portal <https://www.ncdps.gov/juvenile-justice/service-directory>
- Service Directory integration with CJLEADS

Completed Activities

- I. Developed "Results First" reporting metrics supporting the transformation of data to measure the cost and effectiveness of programs

Planned Activities

- I. Enhance and maintain the Service Directory and reports
- II. Enhance the Recidivism Reporting.

Fraud and Compliance

North Carolina Financial Accountability and Compliance Technology System (NC FACTS) is an alerting and lead generation tool that prioritizes opportunities based on risk and recovery modeling. Currently, GDAC has partnered with the Department of Commerce (DOC), the Department of Insurance (DOI), the Industrial Commission, and the Department of Revenue (DOR) to assist in fraud identification and opportunities prioritization.

Unemployment Tax and Benefits Compliance

The DOC's Division of Employment Security (DES) fraud and compliance alerting supports both employer unemployment tax and individual unemployment benefit analysis.

- Unemployment Insurance (UI) Wage/Tax Analysis Alerts – supports the analysis of employers and their compliance with unemployment tax.
- Unemployment Insurance Claimant and Benefit Analysis and Alerts – supports the analysis of benefit claims data and identifying suspect claims associated with possible identity theft and eligibility compliance.

Since 2014, the GDAC has provided a utility that focused on the compliance, eligibility, and overpayment pieces. The Nation's response to COVID-19 impacted the economy and led to the introduction of new programs to support those impacted and in need of assistance. With the influx of claims and new program eligibility rules, advanced data analysis was implemented to support new and innovated approaches to manage the influx of generated alerts.

Completed Activities

- I. Developed/tuned alerting to support Pandemic Unemployment Assistance (PUA) claims
- II. Tuned deceased and incarceration alerting
- III. Developed 20 new analytic rules and fraud scoring model and risk indicators to support identity theft
- IV. Integrated GDAC entity integration modeling for anomaly detection and possible identity theft
- V. Developed a new Benefit Integrity Alerting (BIA) Tool to analyze similar claims in bulk format to reduce investigator resource time
- VI. Integrated a bulk dispositioning utility to notify DES claims system of suspect claims
- VII. Developed an investigator self- service query tool to assist with analysis of tips and leads
- VIII. Developed an Executive Dashboard to display key metrics associated with claimant alerts

Planned Activities

- I. Tuning and refinement of UI claimant benefits alerting
- II. Tuning of unemployment tax alerting to account for employer economic impact
- III. Implementation of a predictive model for identity theft fraud
- IV. Implementation of automatic dispositioning process to notify DES claims system of suspect claimants

North Carolina Department of Insurance - Industrial Commission

The North Carolina Industrial Commission (NCIC) leverages the data and analytics within the GDAC to identify businesses that have failed to maintain Workers' Compensation Insurance. Employers identified as being out of compliance are at risk of being served potential civil penalties and/or criminal charges.

Completed Activities

Compliance alerting is continuously tuned based on user feedback.

- I. Enhancements this period support the tuning of reports, the incorporation of NCIC Workers' Compensation claims data, and the integration of new alerts related to misclassification of employees by employers
- II. The development of a mechanism to track tips and leads received from external sources
- III. The implementation of additional data sources to help leverage the exist analytics

Planned Activities

- I. Align the analytics to support the new data available from the NCIC new case management system.

Employee Misclassification and Underground Economy

Underground Economy refers to businesses that utilize schemes to conceal or misrepresent (misclassify) their employee population to avoid one or more employer responsibilities related to wages, payroll taxes, insurance, licensing, safety, or other regulatory requirements. Underground Economy also encompasses other activities such as misclassifying employees as independent contractors or forcing employees to set up shell subcontractor entities.

The Underground Economy results in unfair competition in the marketplace, forces law-abiding businesses to pay greater direct costs, and indirectly subsidizes socialized benefits like health care, unemployment, workers' compensation for those companies and individuals who do not play by the rules. Businesses that participate in Underground Economy activities may negatively affect their employees by denying them access to workers' compensation benefits, unemployment insurance coverage, health care coverage, and social security eligibility. As a result, other employers and taxpayers are required to fund these liabilities in the form of workers' compensation or UI coverage, along with other state and federal subsidies.

Completed Activities

- I. Enhanced economic modeling to support the inclusion of the new Unemployment PUA claims
- II. Integrated DOR data to support a more comprehensive review of misclassified economy

Planned Activities

- I. Continue review and refinement based upon investigator analysis of alerting

Wage and Employer State Tax Revenue

The Department of Revenue's (NCDOR) partnership with the GDAC has resulted in several short-term and long-term projects. N.C.G.S. 105-259 precludes NCDOR from providing specific details regarding data and standards used to determine selection of audit candidates.

Improving both operational efficiency and return on investment is a shared project objective of both NCDOR and the GDAC. The GDAC projects continue to assist in the automation of manual functions, reducing time needed for business tax audits and ultimately increasing the State's return on investment. Additionally, advanced analytic models have been implemented to improve overall tax compliance within multiple tax schedules and enhance DOR's ability to determine identity theft prior to issuance of a refund check.

Completed Activities

- I. Enhancements and tuning of refund fraud analytics to support individual income return processing
- II. Upgrade of DOR's on-premises analytics environment through remote management
- III. Annual changes to tax form and Schedule C, E, F
- IV. Implementation of the ABC analytics and reporting
- V. Implementation of an internal Application Programming Interface (API) to allow e-File submissions of tax forms
- VI. Enhancements and tuning of eNC3 Information Reporting Portal

Planned Activities

- I. Continue enhancements and tuning of refund fraud analytics and eNC3 Information Reporting Portal
- II. Migration of eNC3 infrastructure to DOR and supporting through remote management
- III. Implement analytics to support collection and audit activities
- IV. Upgrade the analytics reporting to new Visual Analytics platform

Healthcare

The GDAC has a growing health care portfolio and supports several divisions within the Department of Health and Human Services in providing information to support the delivery of their services. Additionally, the North Carolina Health Information Exchange Authority (NC HIEA) is part of the GDAC and operates the State designated HIE, NC HealthConnex.

State Health Plan for Teachers and State Employees

The North Carolina Department of State Treasurer, State Health Plan for Teachers and State Employees (NCSHP) provides health care coverage to more than 685,000 teachers, state employees, retirees, current and former lawmakers, state university and community college personnel, and their dependents.

In 2014, NCSHP's data warehouse and reporting repository was migrated to the GDAC's technical environment.

Completed Activities

- I. Support NCSHP in the implementation of a health care data model and a robust reporting environment

Planned Activities

- I. Continue to support the NCSHP data warehouse operational needs
- II. Support SHP in the migration of the SHP data into the DST hosted infrastructure

Medicaid Analytics

The North Carolina Department of Health and Human Services (DHHS) manages the delivery of health and human-related services for all North Carolinians, especially the State's most vulnerable citizens – children, elderly, disabled and low-income families. In FY 2020 (July 1, 2019 - June 30, 2020), NC Medicaid provided 2.2 million people in North Carolina with health care coverage.

Session Law 2015-241 §12A.17. (b) directs DHHS to coordinate with the GDAC to develop a pilot program that applies analytics to Medicaid data to maximize healthcare savings and efficiencies and optimize positive impacts on health outcomes. Further, Session Law 2015-241 §7A.2. (c) directs NCDHHS to share claims and encounter data with GDAC to support outcome-based analysis of services and programs and population health analytics associated with the Medicaid and LME/MCO patient population. Session Law 2016-94 § 12A.17. (b1) directs DHHS to coordinate with the GDAC to continue the phased development, implementation, and operationalization of the pilot program for Medicaid claims analytics and population health management. The scope of the program was expanded in 2019-2020 to include the following:

- Integrate new data sources, such as Medicaid beneficiary files, HEDIS quality measure data, and LME/MCO encounter data
- Automate on-going data feeds to support operational requirements
- Customized reporting and analytics capabilities

Completed Activities

- I. Development of geographical analysis to support Medicaid transformation and identify areas of the State where PHPs may not be able to meet network requirements
- II. Development of a COVID-19 dashboard using NC Medicaid eligibility data and clinical data in the health information exchange to provide insights on how demographic and geographic subgroups are experiencing the virus and the trajectory of the disease within the Medicaid population

Activities in Development

- I. Develop quality measure reporting to support Division of Health Benefits and Office of Rural Health; to include sending a data extract of relevant clinical data for the following measures: Diabetes, Hypertension, BMI, Depression, and Prenatal
- II. Develop analytics to support and align with DHHS strategy for Medicaid Transformation
- III. Continue to support and expand the Medicaid COVID dashboard

Planned Activities

- I. Operations and Support for Medicaid dashboards and measure reporting
- II. Participate in the NCQA Data Aggregator Validation program to support Medicaid Quality Reporting Program

Controlled Substance Reporting System

The DHHS, Division of Mental Health Developmental Disabilities and Substance Abuse Services manages the NC Controlled Substances Reporting System (CSRS). The CSRS collects information on dispensed controlled substance prescriptions and makes this information available to prescribers and dispensers. The system is used as a clinical tool to improve patient care and safety while avoiding potential drug interactions and helps identify individuals who may need a referral to substance use disorder services.

Session Law 2017-57, Section 11A.6 enabled the development and implementation of software for the performance of advanced analytics within the GDAC. The objectives outlined in law include the:

- Enhancement and automation of reports under G.S. 90-113.74
- Development and utilization of advanced analytics to achieve the purposes specified in G.S. 90-113.71
- Aggregation of relevant data sources including those available within the GDAC
- Enhancement of DHHS’s ability to deploy advanced analytics to improve opioid prescribing practices, identify unusual prescribing patterns, and detect behaviors indicative of misuse, addiction or criminal activity

Completed Activities

Data collected within the CSRS application is available within the GDAC for the development of advanced analytics.

Key features developed include:

- I. Developed internal dashboards to support CSRS STOP Act compliance requirements
- II. Integrated with the state designated HIE, NC HealthConnex using APIs
- III. Provided public health access to controlled substance data for population health purposes

Planned Activities

- I. Work in partnership with Division of Public Health for additional reporting
- II. Work in partnership with UNC/DUKE for deidentified reporting
- III. Define scope, prioritize, and implement Advanced Analytic reports
- IV. Enhancement of CSRS data model integrating additional data sources
- V. Continue operational support for the automated collection and transformation of data from CSRS to GDAC and internal dashboards

NC HealthConnex (North Carolina Health Information Exchange Authority)

The North Carolina Health Information Exchange Authority (NC HIEA) operates North Carolina’s State designated HIE, NC HealthConnex. NC HealthConnex is a secure, standardized electronic system through which providers can securely

share important patient health information such as labs, diagnostics, history, allergies, medications and more, helping create a more complete, longitudinal clinical patient record. This results in less duplicative testing, more efficient and accurate diagnoses, recommendations and treatment, and improved coordination across all levels of care. NC HealthConnex will bring added value to the healthcare conversations happening at all levels in the healthcare industry, help breakdown information silos between providers, provide greater healthcare outcomes for patients and create efficiencies in State-funded healthcare programs such as Medicaid and State Health Plan.

Historical Background

In 2015, the North Carolina General Assembly passed legislation establishing a State managed health information exchange authority to oversee and administer the statewide HIE (NCSL 2015-241 Section 12A.5, as amended by NCSL 2015-264). The North Carolina Health Information Exchange Authority (NC HIEA) was subsequently created within the NC Department of Information Technology's Government Data Analytics Center and assumed control of the statewide HIE in March 2016.

North Carolina law requires any healthcare provider who receives state funds for the provision of healthcare services (e.g. Medicaid, Health Choice, State Health Plan, etc.) to connect and submit patient clinical and demographic data by certain dates in 2018-2021 (dependent on provider type and technological readiness) in order to continue to receive payment for those services (NCGS § 90-414.4, as amended by NC Session Law 2018-41, Section 9.(a)). NCSL 2019-23 made additional changes to the HIE Act, including voluntary connection for certain service providers, amended connection deadlines for certain providers, and clarified that data that passes to or through NC HealthConnex is not public record. In response to the COVID-19 pandemic, the [COVID-19 Recovery Act \(NCSL 2020-3\)](#) addressed the connection requirement to NC HealthConnex, extending the June 1, 2020, connection deadline to October 1, 2021.

During 2020, the NC HIEA continued to build out statewide connectivity via inter- and intra-state data connections for the secure exchange of patient health information. Additionally, at the beginning of the COVID Pandemic, the NC HIEA and its Advisory Board distributed a call to action to expand data sharing to NC HealthConnex to support the State's public health response. Support from stakeholders and supporting legislation allowed the NC HIEA to partner with the Division of Public Health to enable bi-directional data exchange for COVID-19 activities. Section 1.1.(d)(53) of **S.L. 2020-80** appropriated \$2.6 million to NC HealthConnex to (a) build bidirectional data exchanges and patient-matching services between the HIE and the State's electronic disease surveillance systems; (b) develop public health dashboards; (c) provide test result delivery services; (d) provide clinical histories and identify at-risk patients; and (e) develop a pilot analytics project around identifying at-risk facilities, providing quality assurance assistance to state surveyors, and targeted public health interventions, funding opportunities, policies, and regulations related to infectious disease spread.

Completed Activities

I. Data Connections

- 6,800-plus health care facilities live submitting data, including 120 hospitals
- 5,000-plus health care facilities in onboarding
- 120 million-plus continuity of care documents (CCDs) exchanged – 700k messages flowing daily
- 11 million-plus unique patient records
- 60,000-plus providers with contributed records
- 80+ electronic health record vendors live
- 22 border and interstate HIEs connected + the joint federal HIE (Veterans Administration and the Department of Defense)

- II. Continued to enhance the **NC*Notify event notification service** based on Admission, Discharge and Transfer (ADT) messages to assist NC HealthConnex participating providers in knowing where their patients touch the health care system outside of their organization's walls. In 2020 the service added real-time alerting and a user interface for participants to manage the alerts generated for their patients as well as COVID lab results.

As of March 31, 2021, the service is monitoring over three million patients and generating over one million alerts monthly.

- III. Developed **online training program** in partnership with the NC Area Health Education Centers (NC AHEC) on use of NC HealthConnex and its features within a provider's established workflow, including how to leverage NC HealthConnex for meeting quality program requirements for Medicaid and Medicare. In 2020, 91 onsite trainings and 167 virtual trainings were completed across the state. In one year, the partnership enabled the build out of a library virtual training modules for health care providers on various NC HealthConnex services.
- IV. Completed a **data quality roadmap** to support data initiatives across the state and help providers improve the quality and integrity of the data submitted to NC HealthConnex from electronic health records along with a detailed data target and onboarding packet.
- V. **CARES Act Deliverables to Support the State's COVID-19 Public Health Response**
 - **NC DETECT (statewide disease surveillance)** - The NC HIEA and the NC DPH teams partnered to enhance disease tracking and surveillance via the NC Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) to better monitor the ongoing impact of COVID-19 in North Carolina.
 - **COVID-19 Lab Result Routing via NC*Notify** – The NC HIEA has enhanced its NC*Notify event notification service to allow for distribution of COVID-19 lab results to participating health care providers for patient care. The lab result routing includes Positive results reported to DHHS electronically by all reference labs.
 - **Long Term Care Risk Analysis (pilot program)** - A risk model originally developed by SAS Institute for the Centers for Medicaid and Medicare Services (CMS) was tuned to county level inputs. Assists in containment of COVID-19 cases and prioritizing public health interventions. Report included key outputs from the model:
 - o Composite risk score for each long-term care facility (Skilled nursing); Probability of having breakout vs. not having
 - o Uses several public and NC specific data sets
 - County-level disease data
 - NC DHHS outbreak data
 - Regulatory data from CMS
 - CDC data for COVID and PPE
 - **Automate reporting to the Covid Vaccine Management System (CVMS)** – In late 2020, the NC HIEA began work with DHHS and vendor partners to build out automated reporting to the State's vaccine management system to reduce the burden on the health care community of dual entry of vaccines administered into the electronic health record (EHR) and the CVMS database. Since go-live in mid-February, over 550,000 vaccine records have been processed via these integrations.
- VI. **CSRS Integration to NC HealthConnex** - Per the Strengthen Opioid Misuse Prevention (STOP) Act of 2017 ([NCSL 2017-74](#)), health care providers in North Carolina who prescribe controlled substances must access a patient report from the CSRS to verify a patient's prescription-fill history of controlled substances prior to writing prescriptions for targeted controlled substances. The STOP Act also required an integration between the state's prescription drug monitoring program, called the Controlled Substance Monitoring System (CSRS), and the HIE, NC HealthConnex. The NC HIEA partnered with the N.C. Department of Health and Human Services Division of Mental Health to build a single sign-on leveraging an Application Programming Interface (API) from the NC HealthConnex clinical portal to the state's prescription-drug monitoring program, Controlled Substances Reporting System. This integration allows the end user already accessing the longitudinal NC HealthConnex clinical portal to view the CSRS report, along with the risk scores, without leaving the HIE portal.

Planned Activities

The NC HIEA remains focused largely on building technical connections to grow the patient data available to NC HealthConnex participants and help providers meet their state reporting requirements. In addition, work continues to improve and grow the list of NC HealthConnex features that add value to the provider community and partner agencies. Activities planned for 2021 include, but are not limited to:

- I. Expand enrollment in the NC*Notify notification service of Medicaid providers, PHPs and CINs to support Medicaid transformation
- II. Continue to enhance NC*Notify functionality and capacity, including additional data formats and delivery methods and inclusion of more HIE data and relevant health data from other state systems
- III. Begin planning the integration to connect all 55 state prisons (and five additional rehabilitative and other related correctional facilities using the same electronic system) to NC HealthConnex (pending technical readiness by the EHR vendor)
- IV. Continued onboarding to the CVMS system
- V. Provide patient linking services to DHHS for use in the BIDP advanced reporting environment for COVID-19 analysis
- VI. Plan for the development of stroke registry for population health use by the Division of Public Health;
- VII. Implement next iteration of the NC HealthConnex clinical viewer to include single sign on from health care participants EHRs
- VIII. Implementation of the 21st Century Cures Act requirements to include information blocking provisions, USCDI provisions and the CMS Conditions of Participation requirements for hospitals
- IX. Implement additional functionality and enhanced reporting capabilities with the HIEA analytic environment
- X. Develop a process to vet and approve research requests
- XI. Continued operational and production support of all NC HealthConnex services
- XII. Plan for and submit to Medicaid proposal for Medicaid Enterprise System federal funding support once HITECH funds sunset in September 2021
- XIII. Plan and build integrations to the statewide NCCare260 system
- XIV. Build an integration with the Office of Emergency Medical Services EMS system
- XV. Develop and pilot clinical data sharing leveraging FHIR-based APIs with participating health care providers and plans

Longitudinal and Performance

The GDAC has a growing longitudinal and performance portfolio which supports a multitude of educational institutions and State agencies by providing access to data and information for use in evidenced-base policy and performance management for programs and services provided to North Carolinians. This includes NC DHHS, NC Commerce, NC Department of Public Instruction (NC DPI), North Carolina Community College System (NCCCS), the University of North Carolina System (UNC System), North Carolina Independent Colleges and Universities (NCICU), North Carolina Office State Human Resources (NC OSHR), North Carolina Department of Military & Veterans Affairs (NC DMVA), North Carolina Pandemic Recovery Office (NC PRO), Governor's Office and the NC Golden LEAF.

NC Economic Recovery Dashboard

Section 1.1.(d)(49) of N.C. Session Law 2020-80 appropriated \$750,000 to the GDAC to develop a COVID-19 economic analytics and reporting tool to provide insight into how State and federal assistance is impacting North Carolina

businesses. The GDAC consulted with the NC PRO and Golden LEAF on development of this Economic Recovery Dashboard (ERD).

Completed Activities

- I. Consulted with Golden LEAF and the NC PRO on the requirements for the ERD, which included a gap analysis of need for support as well as the progress of the economic recovery
- II. Executed MOAs with Golden LEAF, NC Commerce and DOA to obtain data on grant and loans made to NC businesses impacted by the pandemic
- III. Ingested 49 data economic, grant/loan and other related data sets to support the requirements identified
- IV. Created the dashboard which contains visualizations and reports that support the requirements identified
- V. Provided an analytical reporting environment as part of the ERD where users with appropriate access can create additional visualizations and reports from the 49 data tables available

Planned Activities

- I. Implement, update, and maintain visualizations
- II. Conduct a bootcamp for users which will provide insight on how to create new reports and visualizations

NC COVID-19 Governor’s Dashboard

The GDAC was tasked by the Governor’s office early in the pandemic to develop a consolidated dashboard that summarized individual NC Agency reports into a one stop location for daily operational updates.

Completed Activities

- I. Developed a Tableau dashboard which metrics associated with Personal Protection Equipment (PPE), Unemployment Claims, State Employees teleworking, Executive Order 124 (EO124) – Utility Services and meals provided to students
- II. Produced Daily PDF reports from the dashboard

Planned Activities

- I. Continue maintenance and operations of some of the dashboards and reports

NC LDS System

North Carolina General Statute 116E defines the NC Longitudinal Data System (NC LDS) as a State-wide data system supporting student and workforce data. The purpose of this system is to facilitate and enable the exchange of data among agencies and institutions within the State in support of analysis of educational programs and performance.

The GDAC is charged with developing an implementation plan and provides general oversight and direction of this enterprise system.

The following longitudinal data systems are included in the NC Longitudinal Data System:

- Early Childhood Integrated Data System (ECIDS) -provides integrated early childhood education, health, and social service data from participating agencies. This system is administered by North Carolina Division of Health and Human Services (DHHS).
- North Carolina School Works (NCSW) -provides access to data from early learning to workforce. This system is administered by the Department of Public Instruction (DPI).
- Common Follow-Up System (CFS)- is a repository of workforce and education data. This system is administered by Department of Commerce, Labor and Economic Analysis Division (LEAD).

The GDAC collaborated with Education Cabinet to form a NC LDS Work Group (the Work Group) to guide the mission and deliverables of the NC LDS Modernization Road Map for the NC LDS Study (the Study). The Study identified eight

priority recommendations which included the NC LDS be defined and set up as a “system of systems”. With the intent to integrate the three existing NC longitudinal data systems under an enterprise framework which efficiently enables longitudinal analysis supporting student and system outcomes across the education and workforce continuum.

Completed Activities

- I. Finalized and adopted Rules supporting the NC LDS Dec 2020. The Rules defined:
 - the ELDS and its components (i.e. “system of systems”)
 - the contributors to the system, requestors of the system, and a request
 - the minimum contents necessary in a contributor data sharing agreement (NC LDS MOU)
 - the petition an update to the rules
- II. Fully executed with all partners an NC LDS data contributor Memorandum of Understanding (MOU) to allow that data exchange between those partners;
- III. Publish recommendations from the *NC LDS Study (the Study)* which included:
 - Affirmation of the NCLDS vision of a “system of systems” that links data across agencies and over time to support evidence-based policy, performance management and continuous improvement
 - The renaming the NC ELDS to NC LDS to reflect the system of system that encompasses the functionality of the three existing systems
 - The develop of a stakeholder engagement strategy
 - The establishment of a NC LDS governance and organization structure
 - The prioritization of the NC LDS deliverables over a phased implementation
 - The development of a system architecture to support NC’s evaluation and research priorities
 - The development of an external research agenda to support the prioritization of data requests and the formation of research-practice partnerships
 - The development of an action plan to identify immediate next steps and secure sustainable funding for the NC LDS modernization, implementation, and operation

Planned Activities

- I. Based on the NC LDS Study recommendations, three actions were identified by the NC LDS Study Steering Work Group for immediate action and subsequently endorsed by the Ed Cabinet.
 - Establish the NC LDS Governance body.
 - GDAC to hire an NC LDS Executive Director to work with the Governance body to bring to fruition actions related to the Study recommendation in of support the System modernization
 - Work with the NC LDS Governance body to develop a phase implementation plan for a scalable infrastructure focused on meeting System requirements as well as a plan to secure sustainable funding sources
 - Develop data accessibility methods and best practices which support NC early childhood, education, and workforce evidence-base policy decisions, performance management and continuous improvement.
 - Support the development of a state research agenda for the Early Childhood, Education, and Workforce continuum

Common Follow-up System

The North Carolina General Statute 96-30 – 96-35 directs the Department of Commerce’s Labor and Economic Analysis Division (LEAD) with the operation of the Common Follow-up System (CFS). This system evaluates the performance and effectiveness of the State’s job training, education, and placement programs by measuring participant’s presence in the workforce.

Session Law 2014-100 directs the Department of Commerce to develop a plan for the transfer of the information and capabilities of the CFS to the GDAC. The objective of the migration and modernization of CFS was to improve access to

the State's longitudinal data providing flexibility and scalability, and advance data analysis capabilities associated with workforce and educational program operation and performance.

Completed Activities

- I. Integrated CFS data sources into the GDAC Enterprise Entity Resolution (EER) to standardize linkages across agency data

Planned Activities

- I. Continue the maintain and support of operational environment
- II. Partner with Commerce to modernize CFS as a component of the NC LDS
- III. Upgrade the current reporting platform to with the most current version of SAS Viya
- IV. Develop an enterprise service and governance model supporting access and use of CFS data

NC SchoolWorks (P20W) System

In June 2012, the U.S. Department of Education awarded a \$3.6 million grant to the North Carolina Department of Public Instruction (NCDPI) to undertake the P20-W System Statewide Longitudinal Data System project (SLDS Project), hereafter referred to as NC SchoolWorks. The objective of the NC SchoolWorks is to enable five statewide entities to partner and share data. The partnership includes the North Carolina Department of Public Instruction (NCDPI), the University of North Carolina (UNC), the North Carolina Community College System (NCCCS), North Carolina Independent Colleges and Universities, Inc. (NCICU), and the North Carolina Department of Employment Security (NCDES), currently known as the North Carolina Department of Commerce Division of Employment Security.

Completed Activities

- I. Integrated access to NCDPI data formatted in Common Education Data Standards (CEDS) for 2018-2019

Planned Activities

- I. Maintain operations and maintenance of NC SchoolWorks
- II. Partner with NC DPI to modernize NC SchoolWorks as a component of the NC LDS
- III. Provide NC DPI developers the ability to implement additional CEDS updates and to make incremental system enhancements

North Carolina Early Childhood Integrated Data System (NC ECIDS)

DHHS, Division of Child Development and Early Education (DCDEE) partnered with the GDAC to develop a system to measure performance and improved outcomes. The NC ECIDS system integrates data from key participating agencies to provide metrics and outputs associated with programs and practices associated with early childhood education.

Completed Activities

- I. Created a data store in the GDAC environment for early childhood data reporting

Planned Activities

- I. Maintain and operate the existing NC ECIDS
- II. Partner with DHHS to modernize NC ECIDS as a component of the NC LDS
- III. Complete the development of NC ECIDS visualizations and reports utilization
- IV. Develop a modernize the research request process for the NC ECIDS application

Veteran Information Portal

The Department of Military and Veterans Affairs (DMVA), a newly formed agency within the NC Executive Branch, focuses on protecting North Carolina's military installations and works with the communities

around military bases to help military families and veterans get the support and services they need and assist in connecting veterans with jobs. The DMVA's goals are consistent with assisting military members, veterans, and their families and promoting economic opportunities for the State and its citizens.

The DMVA's objective is to improve upon efficiencies and accountability by using available data to develop evidence-based decision making. In partnership with GDAC, the DMVA will establish fundamental performance criteria with an agile reporting frequency, facilitating actionable information for strategic decision making.

Completed Activities

- I. Bi-directional integration with DMVA's CRM, implemented a report to identify veterans based on DMV license plate data

Planned Activities

- I. Continued maintenance and operations.

Human Asset Resource Platform (HARP)

The North Carolina Office of State Human Resources (NC OSHR) has a mission to provide a solid Human Resource Management foundation, responsible oversight, and creative solutions through a collaborative approach with agencies, universities, and local government to maximize the potential of State's greatest asset – employees. The GDAC continues to support OSHR executive leadership in the provisioning of an analytical infrastructure and reporting environment for improved decision making.

Completed Activities

- I. Updated NC Employee data to capture additional data attributes.

Planned Activities

- I. Provide access to the OSHR data stores to the OSHR team to support ad hoc reporting needs.

Financial Transparency Systems

The GDAC supports financial transparency through the development and expansion of the NC Open Budget and the Department of Public Instruction Business Systems Modernization initiatives.

Governmental Budgetary Transparency/Expenditures Online

Session Law 2015-241 §7.17 directs the state controller, the Office of State Budget and Management (OSBM), and the State Chief Information Officer (SCIO) to establish a state budget transparency internet web site to provide information on budget expenditures for each State agency for each fiscal year beginning 2015-2016.

Session Law 2017-257, Section 37.2.(c) directs the Department of Information Technology to fully implement the government transparency initiative, including the collection of all financial information from all State government agencies, public universities, community colleges, counties and local school administrative units, with the option for full government participation (with cities encouraged, but not required).

OpenBudget Portal is available to the public at <http://www.nc.gov/government/open-budget>. The following information is available utilizing the GDAC platform and SAS Visual Analytics:

- State Budget Detail
- State Grants Detail
- State Vendor Payments Detail
- Statewide and Agency Contracts
- State IT Contracts
- State Transportation Contracts
- State Bulk Budget Download

Completed Activities

- I. HUB (Historically Underutilized Businesses) spending reporting system platform is used by all State agencies to track and increase and/or improve opportunities for HUB participation and spending
- II. Reports associated with HUB reporting system is available in the OpenBudget reporting portal
- III. Upgraded to new reporting platform with enhanced user interface

Planned Activities

Continue to refine and operate OpenBudget and HUB reporting

E-Procurement

The replacement of the E-procurement system includes the development of an advance reporting environment to support the access to detailed historic and current procurement information.

Completed Activities

- I. Implemented an advanced reporting repository with proper data governance to allow for the query of historical purchasing system data including orders, receipts, attachments
- II. Integrated the new e-procurement system data to provide a comprehensive reporting capability

Planned Activities

- I. Continue to refine and operate

Department of Public Instruction Business System Modernization

Session Law 2017-57 §7.16(a-d) directs the Department of Public Instruction (DPI) through the GDAC to provide for a common reporting system and analytics system. The purpose of the project is to support the effort to modernize state and local education financial, human capital, and school information systems.

Completed Activities

- I. Integrated Operational Data Store (IODS)
 - o Aligned IODS data schema with Common Education Data Standards (CEDS) data
 - o Onboarding of two foundational data sources, Educational Directory and Demographic Information Exchange (EDDIE) and Student Information System (SIS)
 - o Maintenance of existing state operational data store (SODS)
- II. Maintenance of School Financial Dashboard (Public Reporting)
- III. School Report Card (Public Reporting)
 - o Migrated the School Report Card to GDAC environment
 - o Enhanced reporting to include state-level page [North Carolina School Report Card \(sas.com\)](http://sas.com)
- IV. Educator Preparedness Program (EPP) Dashboard (Public Reporting)
 - o Migrated the to the GDAC environment
 - o Enhanced reporting to improve user experience

Planned Activities

- I. Continue to refine and operate State Operational Data Store (SODS)
- II. Implement data refreshes (2018-19 and 2019-20) for School Finance Dashboard
- III. Continue enhancements and 2019-20 data refresh for School Report Card
- IV. Continue data onboarding into Integrated Operational Data Store (IODS)
- V. Maintenance of Educator Quality Dashboard

Enterprise Entity Resolution

This enterprise solution provides a standard protocol to match like records across entities for consistency and accuracy. Expanding upon lessons learned from the GDAC analytics, the enterprise solution improves efficiency in records matching across the multiple domain areas by matching the records once, for use in reporting and analytics. The goal of Enterprise Entity Resolution (EER) is to provide reusable crossmatch capability to standardize matching and improve data sharing across entities.

Completed Activities

- I. Developed an infrastructure with common inputs/outputs allowing for entity resolution across disparate data
 - o *Integrated twenty-one(21) within the EER platform resulting in 146 million records and 34 million clustered records*

Planned Activities

- I. Continue to add new data sources into the EER integration model
- II. Develop advanced analytics to learn and measure EER performance and tuning model to support the changing dynamics of the data quality and match rules
- III. Develop an API to enable the sharing of common keys for analytic use

GDAC Public Private Partnership

The State of North Carolina and the SAS Institute have a public-private partnership for the hosting, licensing, application development and services to support the GDAC program and infrastructure. For each contract period SAS has committed to contribute a minimum of \$5,000,000.

NC GDAC Portfolio (excluding HIE)

During the 2020 calendar year, in support of all GDAC/SAS hosted activities (non- Health Information Exchange) the state invested \$20,867,530 with an estimated SAS investment of approximately \$15,420,794.

NC GDAC Project Contribution by SAS	Cumulative Contract Total (12/23/2019 – 12/22/2020)
Knowledge transfer and education activities	\$0.00
Software licensing [1]	\$9,216,920
Hosting operations [2]	\$4,443,388
Personnel resources	\$22,628,017
Other Agreed /Resources	\$0.00
Total Value for Period	\$36,288,324
State Payments	\$20,867,530
SAS Investment	\$15,420,794

[1] The 2020 Non-discounted software licensing fees have been audited for standard, limited use software fees and use of SAS Fraud Framework modules for all other GDAC analytic initiatives.

[2] Includes hardware and IT personnel required to support the NC GDAC environments and solutions.

NC GDAC Portfolio (HIE, NC HealthConnex)

During the 2020 calendar year, in support of all the SAS-hosted activities supporting the Health Information Exchange Network the state invested \$10,922,190.00 with an estimated SAS investment of approximately \$9,200,519.50.

It is important to note that the federal government invested \$3,746,600.00 in payments for the build of live data feeds between health care facilities and NC HealthConnex and development of the NC*Notify service in partnership with the N.C. Department of Health and Human Services Division of Health Benefits (NC Medicaid) per 90/10 Health Information Technology for Economic and Clinical Health (HITECH) Act funding for HIEs. The State’s funding request for this work was approved by the Centers for Medicare and Medicaid Services (CMS) on June 1, 2017, with updates approved October 2020.

NC HIE Project Contribution by SAS	Cumulative Contract Total (12/23/2019 – 12/22/2020)
Knowledge transfer and education activities	\$0.00
Software licensing [1]	\$7,211,202.00
Hosting operations [2]	\$4,664,553.00
Personnel resources	\$11,447,674.50
Other Agreed /Resources [3]	\$545,880.00
Total Value for Period	\$23,869,309.50
State Payments	\$10,922,190.00
IAPD Funding	\$3,746,600.00
SAS Investment	\$9,200,519.50

[1] Non-discounted software licensing fees for unlimited enterprise usage of SAS and unlimited enterprise usage for all other GDAC - HIE analytic initiatives.

[2] Includes hardware and IT personnel required to support the NC GDAC - HIE environments and solutions.

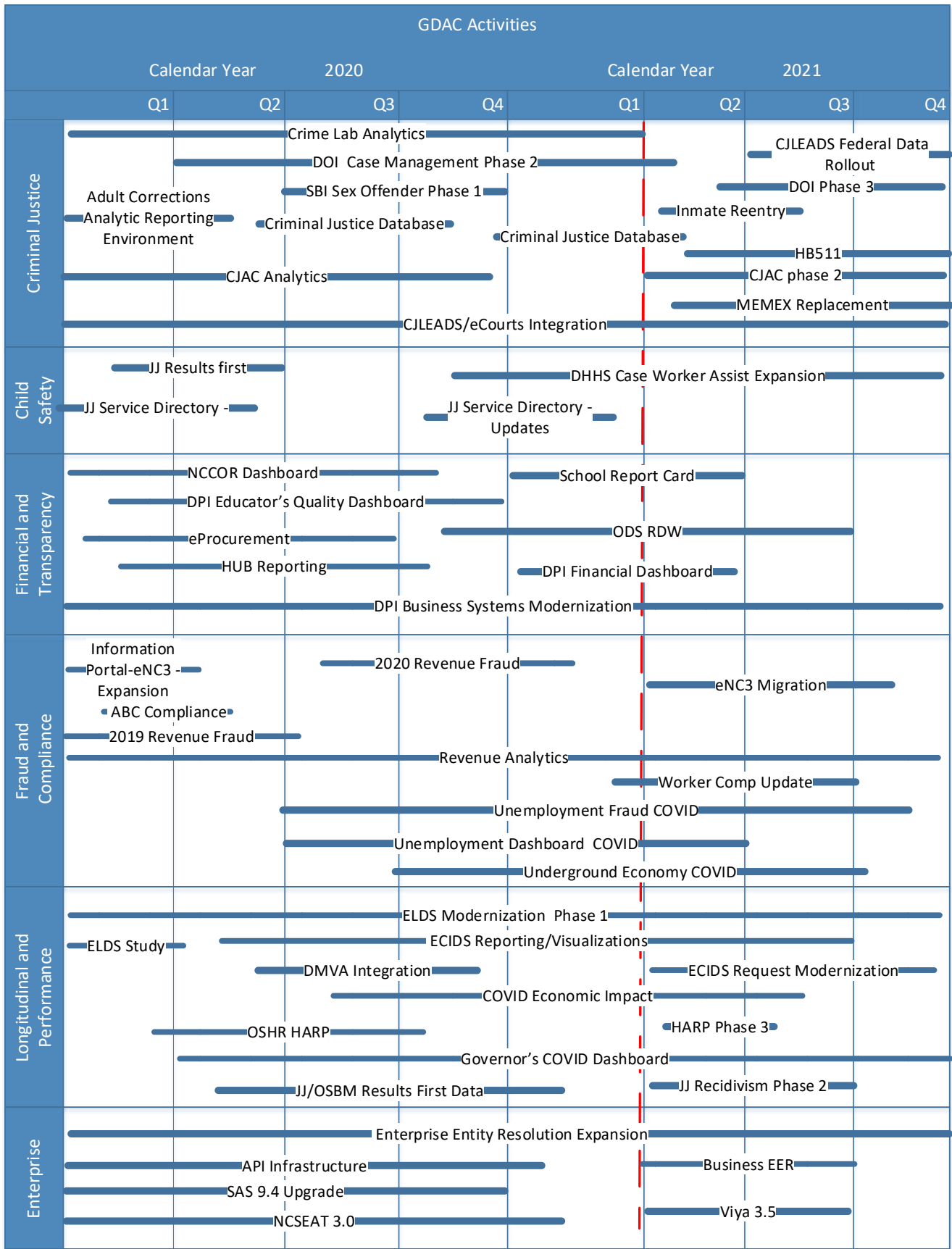
[3] Other Agreed/Resources include resources leveraged on the project, such as industry consultants and subject matter experts, who do not bill hours against the project.

Appendix A - Legislation

The full text of N.C.G.S. 143B-1385 can be found here:

http://www.ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_143B/GS_143B-1385.pdf

Appendix B - GDAC Portfolio



March 2021

GDAC Health Portfolio

