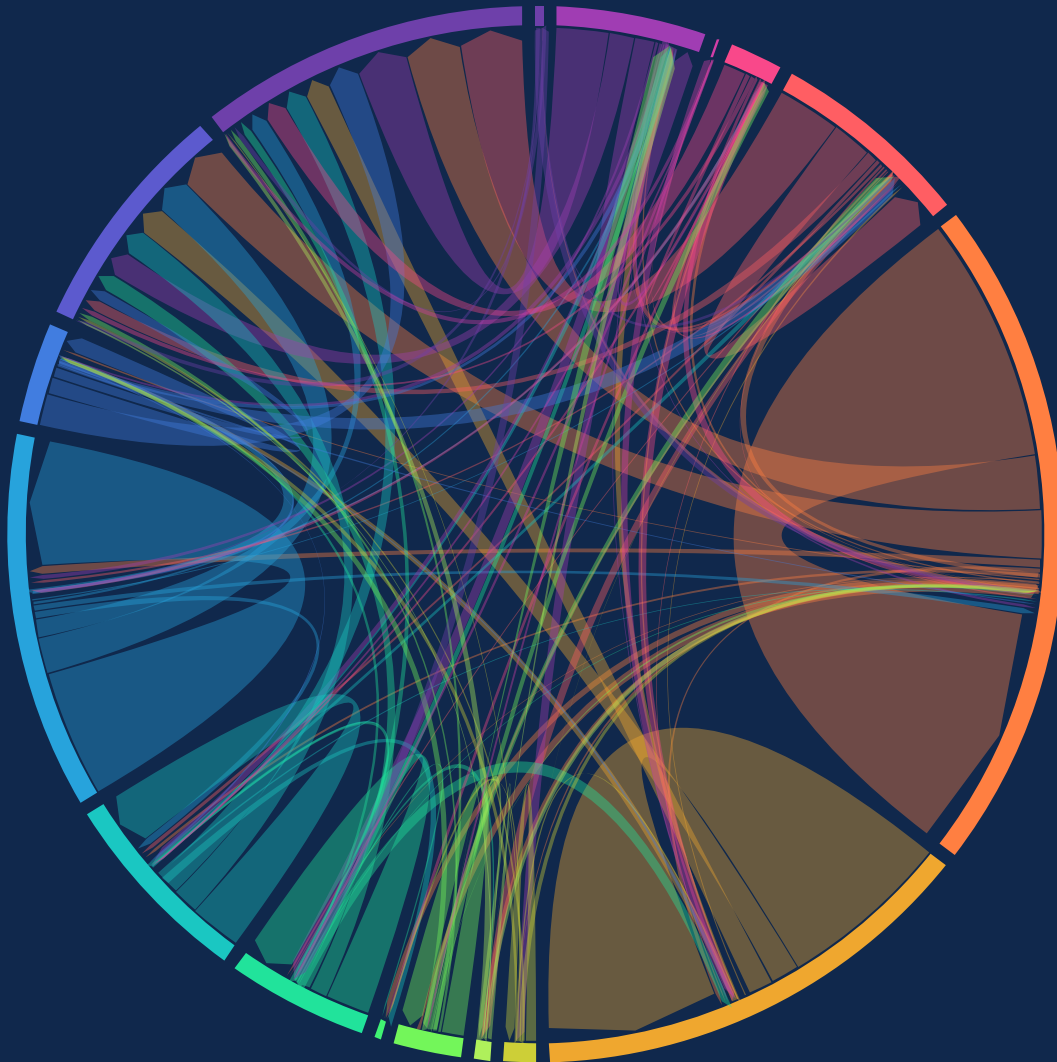




LB1130: NSWERS PROGRESS REPORT

PREPARED FOR:
**THE GOVERNOR
OF NEBRASKA &
THE NEBRASKA
LEGISLATURE**



20
22

DECEMBER 1

Front Cover: Postsecondary Persistence

The data visualization on the front cover comes from the NSWERS proof-of-concept data project. It depicts the location and flow of students from Nebraska's 2011 public high school student cohort enrolled in college as of January 2012 (about eight months after their expected high school graduation date) until January 2014 (two and a half years following expected high school graduation). Student origins and destinations are represented by the outside segments of the circle, each assigned a different color. The chords (or student pathways) are the same color as their destination. Chord width indicates the relative volume of students moving from one segment of the circle to another. The direction of the chord is shown by the arrowhead, where each chord points towards its destination.

To interact with the dynamic visualization, visit dataviz.nswers.org.

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INTRODUCTION

LETTER FROM THE EXECUTIVE DIRECTOR

THE NEBRASKA STATEWIDE WORKFORCE & EDUCATION REPORTING SYSTEM (NSWERS)



Friends,

The Nebraska Statewide Workforce & Educational Reporting System (NSWERS) has made significant progress toward the goals and objectives identified in our two-year Strategic Approach & Plan. To date, we have completed 59% of our key implementation tasks. We are on-track to accomplish the remaining tasks identified in our strategic plan by June 30, 2023.

The past year was marked by several important successes in the life of NSWERS. These include: establishing a revised network of data sharing agreements designed in consultation with the U.S. Department of Education, expanding and hardening our data storage and security systems, securing specialty contract support for the development of the insights+ web portal and specialty research processes, finalizing data specifications for version one of the NSWERS data system, collection of the first tranche of data (10 years of longitudinal data from each NSWERS partner), onboarding new staff members to the NSWERS team, and releasing our proof-of-concept data project. In short, we are moving in pursuit of our mission steadily and confidently.

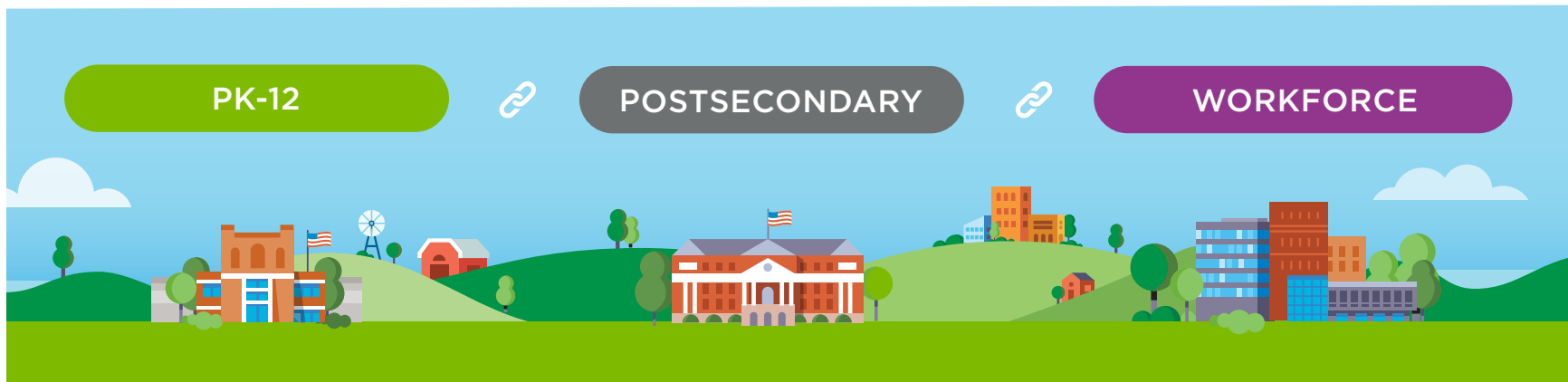
This report outlines in more detail the progress we have made to establish the system envisioned by the Nebraska Legislature (LB 1160) as “a comprehensive, sustainable, and robust lifelong learning and workforce longitudinal data system to allow for the targeting of resources, and focus data analysis on assessing workforce development and employment success in order to enable the training of tomorrow’s workforce.”

Matthew J. Hastings, Ph.D.
Executive Director

ONE NEBRASKA DATA SYSTEM

NSWERS is a comprehensive, sustainable, and robust lifelong learning and workforce longitudinal data system serving the needs of the people of Nebraska. Since the fall of 2020, NSWERS has been building a state-of-the-art data system to promote strong economic development policies, good jobs, growing business, and thriving communities. The NSWERS data system connects statewide information from PK-12 education, postsecondary education, and the workforce to better understand the state. This effort is not about traditional education-to-workforce reporting, but instead is designed to realize the vision of a data informed decision culture to support learning and earning in Nebraska.

Nebraska is a state of varied educational experiences and a breadth of workforce opportunities yet the pathways that individuals take are interconnected, an overlapping network of possibilities. For the first time ever, NSWERS allows these education and workforce pathways to be known and seen, all in one location. Using insights powered by NSWERS, partners—all six Nebraska Community Colleges, the Nebraska Department of Education, the Nebraska State College System, and the University of Nebraska System—can make informed decisions based on timely, tailored Nebraska data.



NSWERS ENABLES NEBRASKA TO ANSWER THE BOLD AND SALIENT QUESTIONS FACING THE STATE’S EDUCATION AND WORKFORCE DEVELOPMENT SYSTEMS, LIKE:

- Which Nebraska high schools are consistently highest performing in preparing students for additional school and work?
- How well are Nebraska education programs meeting local and regional workforce needs?
- Do early college, dual enrollment, and advanced placement programs in high school affect student success in college?
- Have students taken the coursework needed to prepare them for college and work—both in years of study and rigor of content?
- What impact does out migration, or brain drain, have on Nebraska’s economy?
- What is the impact of internship opportunities?

WITH ANSWERS LIKE THESE, NSWERS CAN HELP INFORM DECISION MAKING TO:

- Empower local communities to create and measure custom education and workforce development strategies.
- Catalyze business recruitment strategies with targeted workforce insights.

NSWERS SUPPORTS EDUCATION AND WORKFORCE JOURNEYS, ALL IN ONE LOCATION.

NSWERS’ analysis of partner data reveals programs that are working and thriving and those that may need some adjustment to be most successful. Without the NSWERS system, the decisions that Nebraska education and workforce leaders make are largely based on conjecture. NSWERS provides Nebraskans never-before-seen products to understand the talent pipeline and make changes to the Nebraska education system to best support workforce needs and fuel Nebraska’s economy.

NSWERS Milestones

Since the spring of 2010, the NSWERS data system has made great efforts to promote strong economic development policies, good jobs, growing business, and thriving communities. Here are some of the major milestones on the NSWERS journey thus far.

April 14, 2010

**Legislative Bill 1071:
Student Data Sharing Agreement**

This bill directed the Board of Regents of the University of Nebraska, the Nebraska State Board of Education, the Board of Trustees of the Nebraska State Colleges, and the Board of Governors for each community college area (collectively, "NSWERS partners") to adopt a policy to share student data.

April 21, 2010

**Data Sharing Memorandum
of Understanding Signed**

As directed by LB 1071, an agreement to share student data related to public pre-K, elementary, secondary, and postsecondary education was signed by Nebraska's public education entities (PK-12 and higher education).

May 8, 2017

NSWERS Proposal to Nebraska Education Leaders

A proposal was provided to Nebraska's educational leaders as a roadmap for the organization and governance of NSWERS. The proposal outlined a sample organization and governance processes to manage the use, structure, support, and maintenance of the NSWERS data system to produce reports and research to inform policymakers and educators.

September 1, 2020

NSWERS Leadership

The founding Executive Director is hired to launch NSWERS. The Executive Director is tasked with establishing core operational capacities, building a team of dedicated NSWERS staff, and creating the procedural and technical structures necessary for the creation and maintenance of the NSWERS data system.

March 31, 2021

**Data Sharing Agreements
for Proof-of-Concept**

Data sharing agreements are signed to govern the exchange, maintenance, and disclosure of education information among NSWERS and its partners for the proof-of-concept data project.

Fall 2019

**Legal Formation as
an Interlocal Entity**

The NSWERS partners complete the legal formation of NSWERS as an interlocal public entity under the Nebraska Interlocal Cooperation Act for their mutual advantage regarding data initiatives.

August 10, 2020

**Legislative Bill 1160:
The NSWERS Act**

This bill provides legislative direction for the development of NSWERS as a comprehensive, sustainable, and robust lifelong learning and workforce longitudinal data system serving the needs of the people of Nebraska. The bill also directs the Nebraska Department of Labor (NDoL) to execute a memorandum of understanding with NSWERS to ensure the exchange of available data.

January 20, 2021

NSWERS-Dept. of Labor Data Exchange Agreement

As directed by LB 1160, an agreement to exchange data between the Nebraska Department of Labor and NSWERS is signed.

Spring-Fall 2021

NSWERS Staff

NSWERS develops and implements a two-tiered organization hiring plan for necessary skills. The first tier is complete with the hiring of four professionals to fill core staffing needs.

Winter-Spring 2022

NSWERS Data and Technology Committee

Data and Technology Committee members from NSWERS' partner institutions meet to provide input and feedback into the design and implementation of the NSWERS data elements and specifications.

April 19, 2022

Legislative Bill 1130: The NSWERS Annual Report

Signed into law by Governor Ricketts, this bill requires the filing of an annual report with the Clerk of the Legislature and the Governor, providing an overview of NSWERS' research and analysis, additional data needs for future analysis, and organizational structure needs.

May 4, 2022

Launch of NSWERS Advisory Committee

The purpose of the Advisory Committee is to make recommendations concerning the strategic direction of NSWERS, provide insight into the information agenda and related data products and services, and to contribute subject-matter expertise for NSWERS' analytic activities.

May 5, 2022

Release v1.0 Data File Specifications

NSWERS releases version 1 of its Data File Specs which define and describe the K-12, postsecondary, and workforce data elements collected by the NSWERS data system, and define validation rules for data quality.

May 26, 2022

NSWERS Information and Research Agenda

The Information and Research Agenda is developed to provide an overview of the information and research questions to be addressed by the NSWERS data system and how data elements will be used for analysis.

June 27, 2022

Enhanced Data Sharing Agreements

NSWERS secures signed data sharing agreements revised to accommodate v1.0 data collection from each NSWERS partner organization (no agreement with Central Community College).

April 26, 2021

NSWERS Strategic Approach and Plan

The NSWERS Executive Council adopts the two-year Strategic Approach and Plan, a comprehensive set of goals, objectives, strategies, and tactics designed to drive the successful launch of NSWERS.

October 27, 2021

Proof-of-Concept Data Viz Release

The Proof-of-Concept (POC) Data Viz presents results of a pilot project (using data from the 2011 Nebraska high school cohort). The project was designed to support the development of policies, processes, procedures, and technologies for data collection and data sharing among NSWERS, its partners, and affiliates.

June 30, 2022

NSWERS Data Collection, Version 1

This first official (non-POC) NSWERS data collection includes a 10-year tranche of historical student data from academic school years ending 2012-2021. Corresponding employment data for these students is matched (where available) back to 2009, in concert with the NDoL.

Fall 2022

NSWERS Work Groups

Members of two data work groups, the PK-12 Records Linking Work Group and the Workforce Data Work Group, convene to focus on closing the gap between Nebraska's education and workforce information needs and the availability of data.

PROGRESS

Goal 1:
Establish NSWERS
data system for
sustainable insights

DEVELOP & IMPLEMENT FOUNDATIONAL ELEMENTS

NSWERS Advisory Committee

The NSWERS Advisory Committee was established in 2022. The purpose of the committee is to make recommendations concerning the strategic direction of NSWERS, provide insight into the information agenda and related data products and services, and to contribute subject-matter expertise for NSWERS' analytic activities. At the inaugural meeting on May 4, the committee members prioritized NSWERS' eight outcomes (four education and four workforce) to support the mission and vision of NSWERS. Advisory Committee members represent education and workforce entities across the state and serve as ambassadors for NSWERS to their local community and business associates.



EIGHT OUTCOMES RANKED BY PRIORITY

1. College Going
2. Industry Placement
3. Employment Gap
4. Postsecondary Graduation
5. Industry Location
6. Postsecondary Persistence
7. High School Graduation
8. Time to Employment

ADVISORY COMMITTEE MEMBERS

Michael Baumgartner | Nebraska's Coordinating Commission for Postsecondary Education

Wendy Boyer | Peter Kiewit Foundation

Kristen Hasebrook | Nebraska State Chamber of Commerce

Cindy Johnson | Grand Island Chamber of Commerce

Rich Katt | Nebraska Department of Education (former)

Mike Lechtenberger | Mutual of Omaha

Joan Modrell | Nebraska Department of Labor (former)

Jason Mundorf | Kearney Public Schools

Sandra Reding | Aksarben Foundation

Additional committee members will be added as the need for supplemental subject matter expertise arises.

Data Sharing Agreements

In December 2020, data sharing agreements were signed with NSWERS partner institutions to allow for the initial proof-of-concept data collection. Following a thorough legal review and the enumeration of new data elements for version one of the NSWERS Data System, updated data sharing agreements were presented to the NSWERS partners in the summer of 2022. At the time of this report, 14 of the 15 partner institutions have signed agreements. To date, Central Community College and NSWERS have not reached agreement to share core postsecondary data elements.

Data Storage & Security

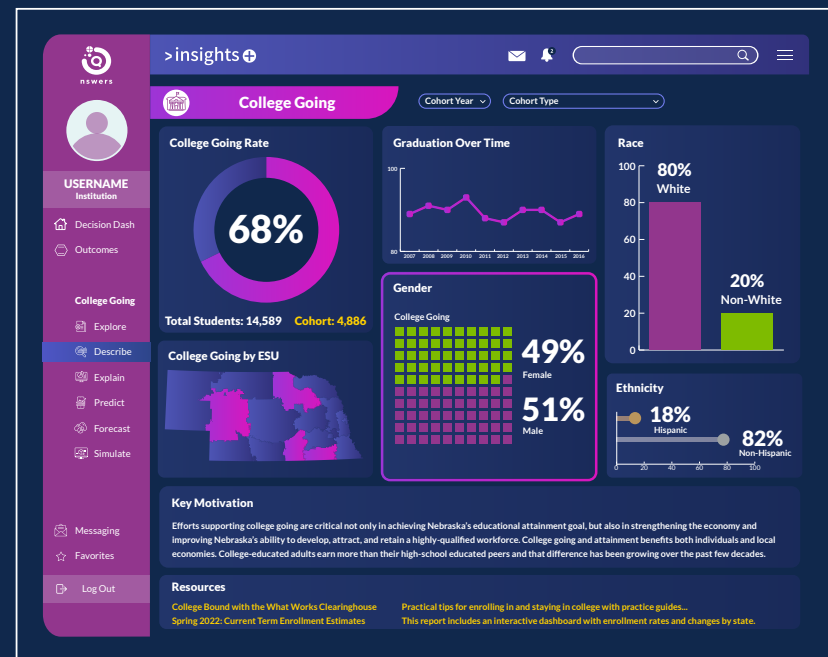
NSWERS maintains the highest security requirements for data collection activity by leveraging special data storage and security arrangements. All data are collected through a highly-restricted cloud infrastructure. The system was designed to fulfill the data security needs of federal contractors working with the U.S. Department of Defense, meeting strict cybersecurity and compliance requirements.

> insights +

Specialty Contract Support


DON'T PANIC LABS

On June 30, 2022, NSWERS began development work on their state-of-the-art secure web portal with Don't Panic Labs, a software development firm located in Lincoln, Nebraska. This web portal, known as insights+, will be the secure location where NSWERS' partners will conduct business with the NSWERS staff including data submissions, data requests, secure access to data products, and more.



MAGNOLIA RESEARCH CONSULTING

NSWERS contracted with Magnolia Research Consulting on June 17, 2022, to begin work on the Explore stage of NSWERS' six-stage research process. The data products under development for this stage of analysis include literature reviews, annotated bibliographies, executive summaries, and resource libraries built around NSWERS' eight outcomes. Once complete, the information will be made available to partners via insights+.




COLLEGE GOING is key to growing Nebraska's economy.

As of 2020, 71% percent of Nebraska jobs were projected to require postsecondary education (Carnevale et al., 2013). However, Nebraska's 2- and 4-year postsecondary institutions have seen an 8.1% decrease in enrollment over the past 11 years, despite a 0.4% increase in college enrollment for the 2021-2022 school year (Nebraska's Coordinating Commission for Postsecondary Education, 2022). In response, the Nebraska legislature set a statewide goal to increase the percentage of Nebraskans aged 25 to 34 with a degree, certificate, diploma, or credential with economic value from 58% in 2022 to 70% by 2030 (Legislative Resolution 335).

Efforts supporting college going are critical not only in achieving Nebraska's educational attainment goal but also in strengthening the economy and improving Nebraska's ability to develop, attract, and retain a highly qualified workforce. College going and credential attainment benefit both individuals and local economies. College-educated adults earn more than their high-school-educated peers, and that difference has been growing over the past few decades (Webber, 2016; Oreopoulos & Petronijevic, 2013). There is also a benefit to local economies, given that the average degree holder contributes significantly more monetarily to local economies than the average high school graduate (Rothwell, 2015). Thus, increasing college-going rates is the first step in supporting long-term economic growth and workforce participation in Nebraska.

71%
of future Nebraska jobs will require postsecondary educational attainment.



nsowers
Nebraska Statewide Workforce & Educational Reporting System
901 N 17th, NH W 209
Lincoln, NE 68588-0524
nsowers.org

STATEWIDE GOAL:
Increase the percentage of Nebraskans ages 25-34 with postsecondary educational attainment from 58% to **70%** by 2030.

Increasing COLLEGE GOING is critical to Nebraska's growth.

As evidenced by the research literature, efforts to increase college-going rates have focused mainly on three areas: academic course taking, student support and coaching programs, and financial literacy and assistance programs.

ACADEMIC COURSE TAKING, including advanced math and dual enrollment, is positively associated with college enrollment. Taking Algebra I in middle school affords students the opportunity to take more advanced math courses through high school, thus increasing the likelihood that students will enroll in college (Spiekhegen, 2005). Students completing Algebra II are more likely to enroll in a 2-year or 4-year postsecondary institution than students who do not complete Algebra II (Byun et al., 2015). Dual enrollment courses allow high school students to earn college credits while still attending high school. Dual enrollment programs have a positive effect on college access and enrollment, according to a medium to large extent of evidence (What Works Clearinghouse, 2017).

STUDENT SUPPORT AND COACHING PROGRAMS can promote student self-efficacy and have positive effects on student college going. When counselors actively reach out to offer support to students about their college and career goals during summer counseling programs, students are more likely to enroll in college (What Works Clearinghouse, 2018). Coaching programs that pair high school students with a coach in their senior year, with continued support through college, also have a positive impact on college enrollment (What Works Clearinghouse, 2020).

FINANCIAL LITERACY AND ASSISTANCE PROGRAMS, such as those related to the Free Application for Federal Student Aid (FAFSA) process or college promise programs, are positively associated with student college enrollment. Promise programs offer place-based, guaranteed college scholarships to all students who graduate from a certain school or district while meeting the minimum thresholds of the program. Students receiving place-based scholarships through promise programs are more likely to enroll in college (Swanson et al., 2017). Programs related to the FAFSA typically provide support to students and families in completing the financial aid application (Swanson et al., 2017). When students and families receive FAFSA assistance and information, participating students are more likely to enroll in college for the fall semester following high school graduation and receive more financial aid than nonparticipants (Bettinger et al., 2012).

Bettinger, E. P., Long, B. T., Oreopoulos, P., & Sanbonmatsu, L. (2012). The role of financial assistance and information in college decisions: Results from the FAFSA Efficacy Experiment. *The Quarterly Journal of Economics*, 127(3), 1205-1242. <https://doi.org/10.1093/qje/qjz007>

Byun, S., Park, H., & Song, S. B. (2015). Advanced math course taking, SAT math achievement and college enrollment. *Journal of Experimental Education*, 55(4), 428-468. <https://doi.org/10.1080/00220272.2014.919120>

Carnevale, A. P., Smith, N., & Smith, J. (2013, June). *Recovery: Job growth and education requirements through 2020*. Georgetown Public Policy Institute. https://ghiaoc47f433m29z9u3ainwepwqinm6tdu-sel.com/wp-content/uploads/2014/06/13-15_JOB_GROWTH.pdf

Legislative Resolution 335, 307th Nebraska Legislature (2022) (adopted). <https://nebraskalegislature.gov/Proceedings/03/2022/Intro/0335.pdf>

Nebraska's Coordinating Commission for Postsecondary Education. (2022). *2022 Nebraska higher education progress report*. <https://www.nebraska.gov/highereducation/progress-report>

Oreopoulos, D., & Petronijevic, U. (2013). Making college worth it: A review of research on the return to higher education. *The Future of Children*, 23(3), 41-65. <http://www.ftr.org/ftr/article/23409408>

Rothwell, J. (2015). *What colleges do for local economies: A direct measure based on consumption*. <https://www.brookings.edu/research/what-colleges-do-for-local-economies-a-direct-measure-based-on-consumption/>

Spiekhegen, F. G. (2005). Closing the achievement gap in math: The long-term effects of eighth-grade algebra. *Journal of Advanced Academics*, 18(1), 34-59. <https://doi.org/10.4219/jaa-2005-344>

Swanson, E., Swanson, A., & Biller, E. (2017). *Promise: Evidence A systematic review of the impacts of college promise programs*. In L. Perna & E. Smith (Eds.), *Ensuring research-based knowledge of college promise programs* (pp. 25-68). American Educational Research Association.

Webber, D. (2016). *Are college costs worth it? How ability, major, and debt affect the returns to schooling*. *Economics of Education Review*, 53(3), 299-330. <https://www.elsevier.com/locate/econbase>

What Works Clearinghouse. (2007). *Intervention to college dual enrollment programs* (Intervention Report). U.S. Department of Education, Institute of Education Sciences. https://ies.ed.gov/iie/docs/interventionreports/iwrc_dual_enrollment_022807.pdf

What Works Clearinghouse. (2018, March). *Summer high school counseling* (Intervention Report). U.S. Department of Education, Institute of Education Sciences. https://ies.ed.gov/iie/docs/interventionreports/iwrc_summer_counseling_032718.pdf

What Works Clearinghouse. (2020, October). *Success Starter Coaching* (Intervention Report). U.S. Department of Education, Institute of Education Sciences. https://ies.ed.gov/iie/docs/interventionreports/iwrc_sscc_chapter_509.pdf

This is an NSWERS EXPLORE product, an overview and background of the current state of knowledge surrounding the factors that contribute to College Going in Nebraska.

DEFINE NSWERS DATA COLLECTION

Data Interoperability & Data Standard

Beginning in 2021, the NSWERS Data and Technology Committee (data experts from partner institutions) met to define the data to be collected by the NSWERS data system. This critically important series of meetings outlined the systems and services that would create, exchange, and consume data via a common set of exchange formats (interoperability). Committee discussions included identifying accepted data elements across all institutions, appropriate data formatting, and submission frequency.

The NSWERS data standard was developed as a direct result of the Data and Technology Committee meetings. In May 2022, data file specifications were finalized for K-12, two-year postsecondary, four-year postsecondary, and workforce. Partner institutions began submission to the NSWERS data system on June 30, 2022. As part of the initial upload, each agency or institution submits 10 years of data from 2012 through 2022. Moving forward, partners will regularly submit data based on the agreed-to data submission calendar (annually, triennial, or quarterly).



DESIGN & EXECUTE DATA ACQUISITION

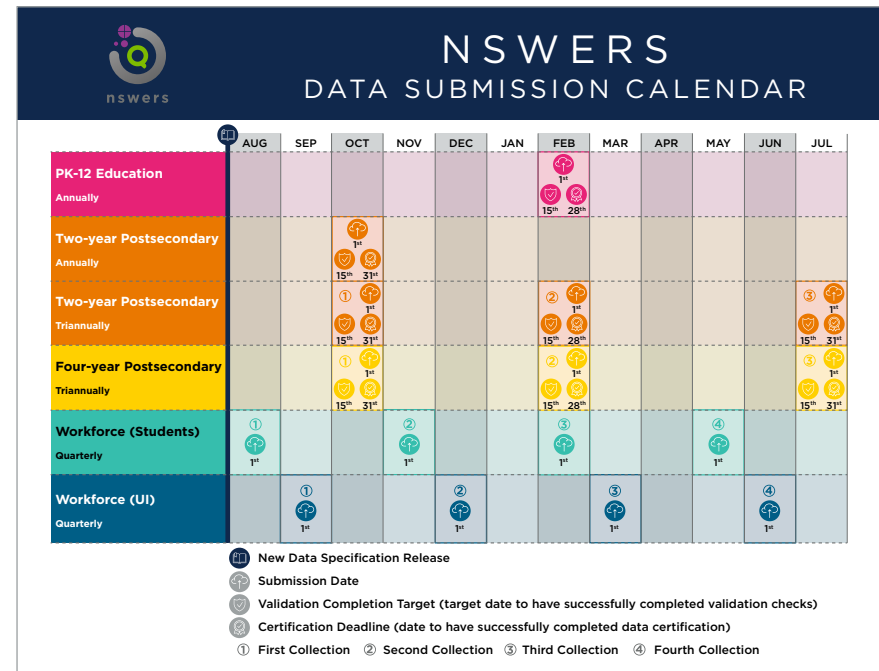
Verification, Validation, & Certification

NSWERS has stringent verification, validation, and certification requirements. Data submitted to NSWERS are encrypted and validated to ensure compliance with NSWERS data specifications. Feedback on non-compliant data elements is provided to partners for remediation and resubmission. An additional level of validation will be deployed in 2023 to verify new data submissions against data collected from previous years, further enhancing data quality. Post-verification, data are de-identified and a new unique identifier is created for each individual, named the NSWERS ID. The removed data are stored in a separate, highly encrypted database with additional access restrictions when matching records among different data systems.

A certification report is provided to partners by the NSWERS research staff for each data file submitted (approximately 780 total files in the initial submission). This report is reviewed by partner institutions to ensure that the data processed are valid. Once reviewed, the data files are uploaded into the NSWERS Research Data Warehouse for analysis by NSWERS staff.

Establish Annual Calendar

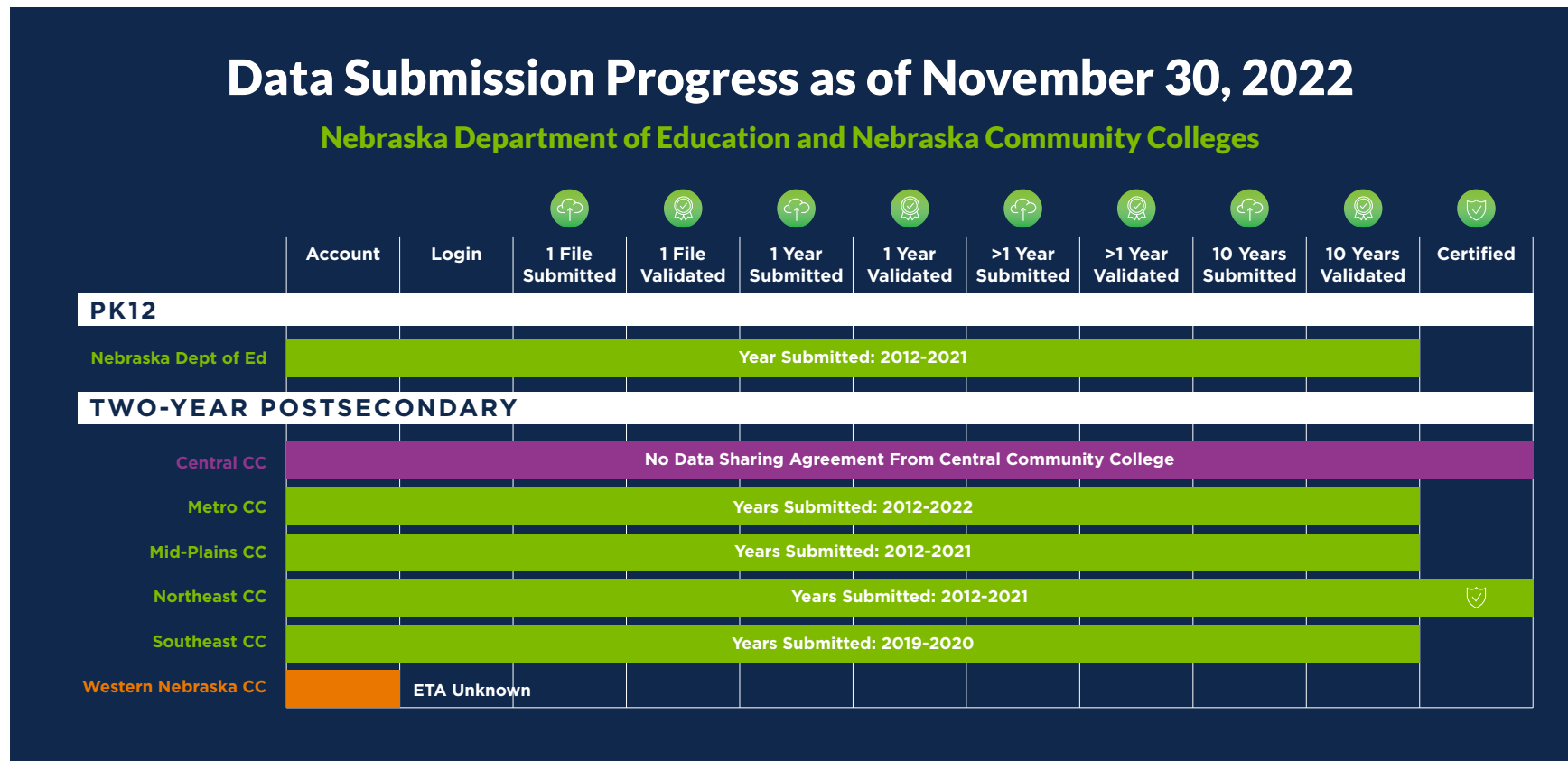
NSWERS established the dates and timelines necessary for data submission from the partners into the data system. For clarity, an annual calendar was created and published outlining submission, validation, and certification dates for PK-12 education, two- and four-year postsecondary education, and workforce.



Data Submission Progress

NSWERS partners began submitting version 1 data into the NSWERS Data System on June 30, 2022. To support data quality, the submission process utilizes an automated three-level validation routine. At the time of this report, 13 of the 15 education entities participating in the NSWERS data

submission process have submitted at least one file into the NSWERS data system. Overall, 685 files have been processed (or reprocessed), accounting for approximately 94% of anticipated file uploads for the first tranche (10 years) of data.



Data Submission Progress as of November 30, 2022

Nebraska State Colleges and University of Nebraska System

	Account	Login	1 File Submitted	1 File Validated	1 Year Submitted	1 Year Validated	>1 Year Submitted	>1 Year Validated	10 Years Submitted	10 Years Validated	Certified	
FOUR-YEAR POSTSECONDARY												
Chadron State College			Years Submitted: 2013-2022									
Peru State College			Years Submitted: 2013-2022									
Wayne State College			Years Submitted: 2013-2022									
UN at Kearney			Years Submitted: 2013-2022									
UN-Lincoln			Years Submitted: 2013-2022									
UNMC			Years Submitted: 2013-2022									
UN NCTA			Years Submitted: 2013-2022									
UN at Omaha			Years Submitted: 2013-2022									

Data Submission Progress as of November 30, 2022

Nebraska Department of Labor

	Account	Login	Test File Submitted	Test File Validated	Final File Submitted	Final File Validated	Final File Matched
LABOR							
NE Dept of Labor							

OPTIMIZE DATA PROCESSING & PROTECT DIGITAL ASSETS

Data & Network Security

At an operational level, NSWERS contracts with the University of Nebraska's (NU) Information Technology Services to provide technology support and access to their network infrastructure. All physical hardware (i.e., laptop and desktop computers) is provided through the NU Information Technology Services department, with fully encrypted hard drives and up to date patches and software on every device.

Additionally, since NSWERS is physically located within a building on NU's main campus, NSWERS staff connect to network systems maintained and secured by NU and adheres to their data and network policies and procedures. Physical office space remains locked 24 hours a day. Key cards are required for entry. Video surveillance is utilized on and around the premises.

Goal 2:

Evaluate the efficacy of
Nebraska's education
and workforce training
systems

CREATE NSWERS INFORMATION AGENDA

NSWERS Information & Research Agenda

NSWERS created and published the Information & Research Agenda to prioritize and codify high-value research topics and questions of interest. The agenda provides an overview of the information and research questions to be addressed by the NSWERS data system and how the data elements will be used for analysis. In the fourth quarter of 2022, methodologies will be explored to supplement NSWERS' administrative data with auxiliary data necessary to execute the agenda. NSWERS will continue to conduct exploratory research in support of the agenda.



ESTABLISH DATA ANALYSIS & PREDICTION OPERATIONS

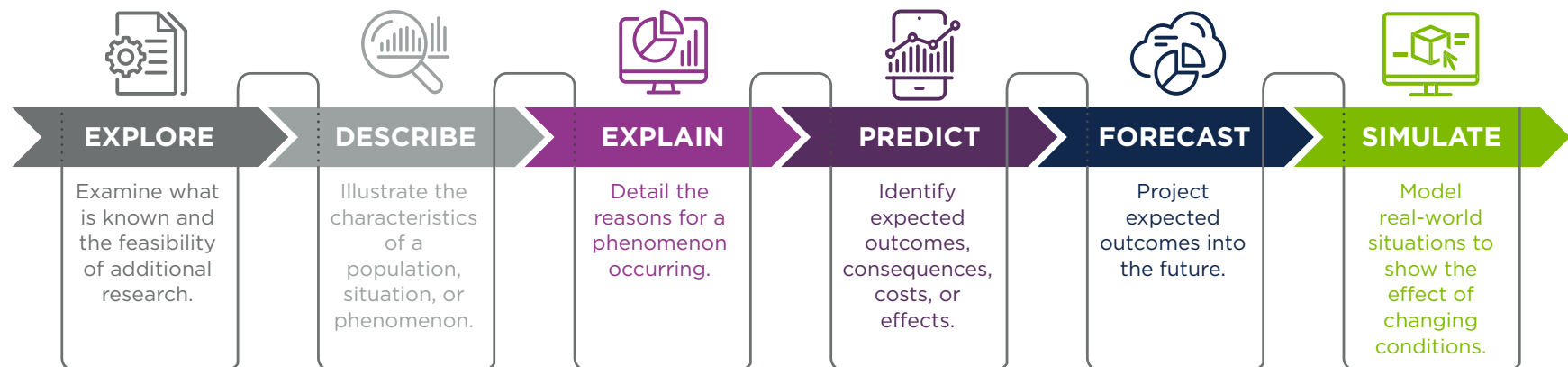
Implement a Modern, Flexible, & Scalable Analytics Unit

NSWERS created a six-stage research framework to analyze its eight outcomes. This framework — known as the NSWERS Stages of Analysis — is strategically designed to embody a modern, flexible, scalable approach to analytic activity. What's more, it seeks to focus work toward those research questions, methods, and approaches that best support decision making.

As one progresses through the stages, research activity is characterized by:

- increased complexity in the types of questions being asked;
- increased sophistication in analytic approach and research methodologies; and
- increased value provided to decision makers.

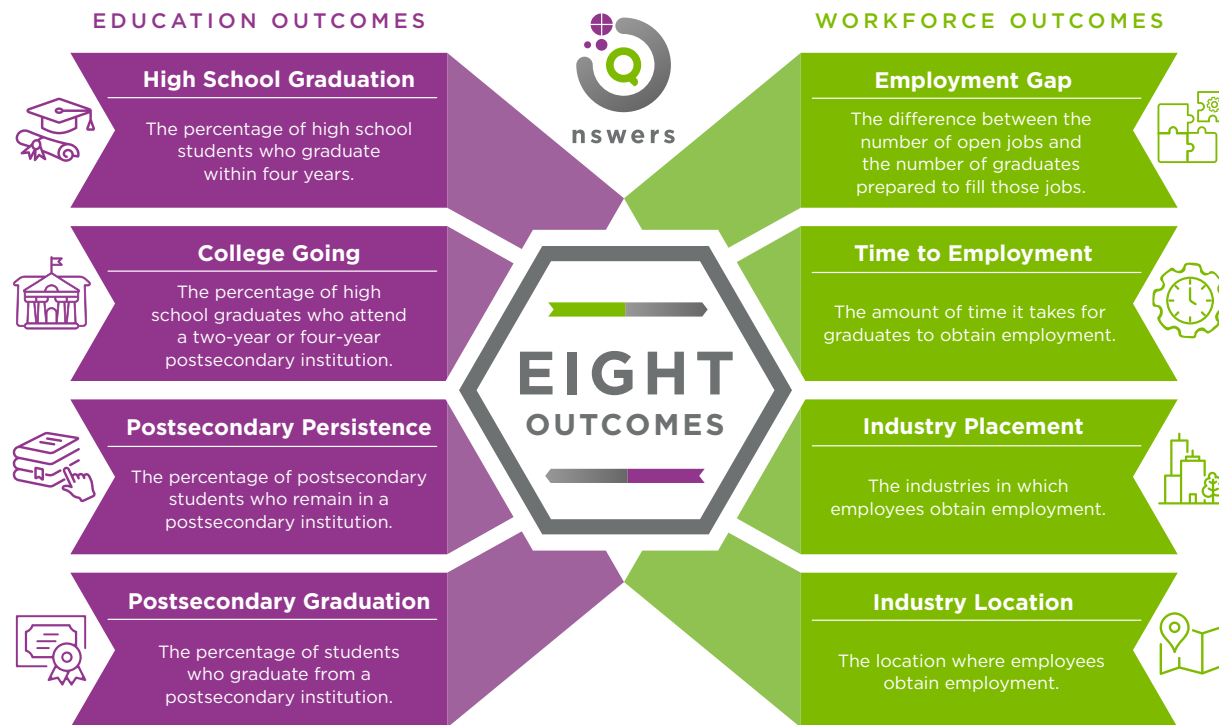
NSWERS SIX STAGES OF ANALYSIS



REPORT ON LONGITUDINAL OUTCOMES

Operationalize & Measure Education & Workforce Outcomes

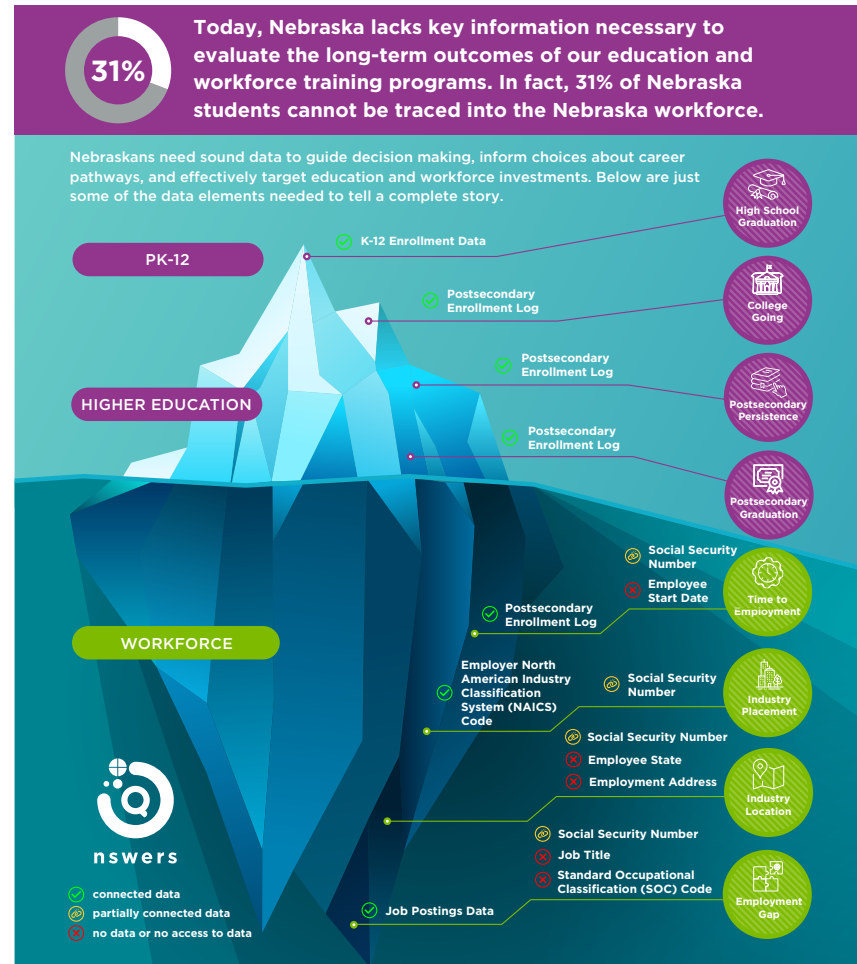
NSWERS is initially focused on eight key longitudinal outcomes - four related to education and four related to workforce. In the education space, NSWERS outcomes include measures of high school graduation, college going, postsecondary persistence, and postsecondary graduation. Additionally, NSWERS measures workforce outcomes for employment gap, time to employment, industry placement, and industry location.



RELEASE DATA & DISSEMINATE RESEARCH & EVALUATION FINDINGS

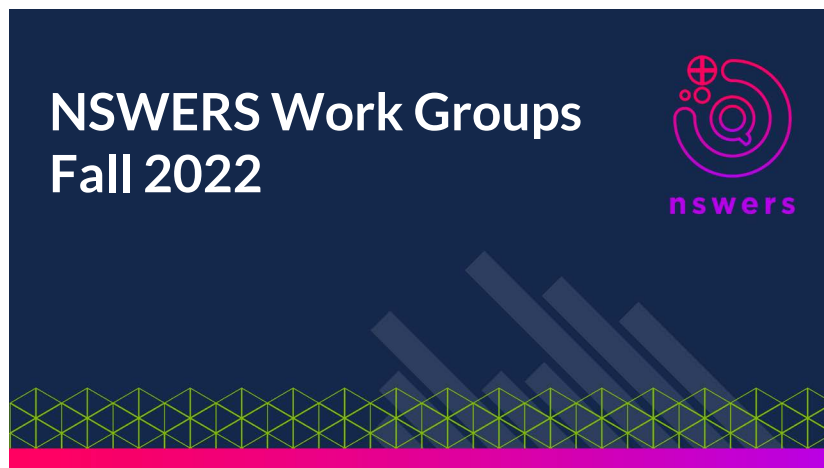
Connected Data to Support Decision Making

Nebraska needs sound and connected data to guide decision making, inform choices about career pathways, and effectively target education and workforce investments. Today, the state lacks some of the key information necessary to effectively evaluate the long-term outcomes of Nebraska's education and workforce development efforts. In fact, **31% of Nebraska students cannot be traced into the Nebraska workforce.** Important discoveries such as these help guide NSWERS in gathering additional data elements and evaluating its findings.



Data Work Groups

NSWERS staff and Advisory Committee members assembled two statewide work groups to help solve data gaps identified in research findings, in a way that works for businesses, state agencies, and NSWERS: a Workforce Data Work Group and a PK-12 Records Linking Work Group. This effort is led by Vivayic Co-Founder and Co-CEO Seth Derner and Vivayic Resource Manager Lorena Hernandez. Both work groups include leaders from education, business, and state agencies. The groups met twice so far in 2022 and will meet again in mid-December.



DATA WORK GROUP MEMBERS

Leah Barrett | Northeast Community College
Wendy Boyer | Peter Kiewit Foundation
Sarah Emery | Questco
Dean Folkers | Council of Chief State School Officers
Bob Hallstrom | Nebraska Bankers Association
Kristen Hassebrook | Nebraska State Chamber of Commerce
Cindy Johnson | Grand Island Chamber of Commerce
Jodi Kupper | Nebraska State College System
Tara Lea | Fremont Chamber of Commerce
Mike Lechtenberger | Mutual of Omaha
Sandra Reding | Aksarben Foundation
Katie Thurber | Nebraska Department of Labor
Paul Turman | Nebraska State College System
Nicole West | Black Hills Corp.
Kristin Yates | Nebraska Department of Education

Additional work group members may be added as the effort progresses.

Timely, Tailored Data

Early data analysis in the NSWERS system has focused on the validation of data submissions from NSWERS' partners. These analyses provide longitudinal trends of data elements such as degrees earned, grade point averages, and student attributes over time. For example, data certification reports have provided distinct counts of students, partitioned by demographic data, for each of the 10 years contained within the initial data submission. Additionally, these reports have provided averages of student academic performance and other outcomes over time.

To build for the future of NSWERS' reporting, meaningful student cohorts have been identified, which are used to define and calculate metrics for each of the eight outcomes. These cohorts allow comparing year over year performance with a standardized group of students. This work has allowed NSWERS to immediately provide data back to NSWERS partners as soon as data submissions are complete. NSWERS has determined priority for which studies and evaluations to conduct once the data have completed the submission/validation/certification process.

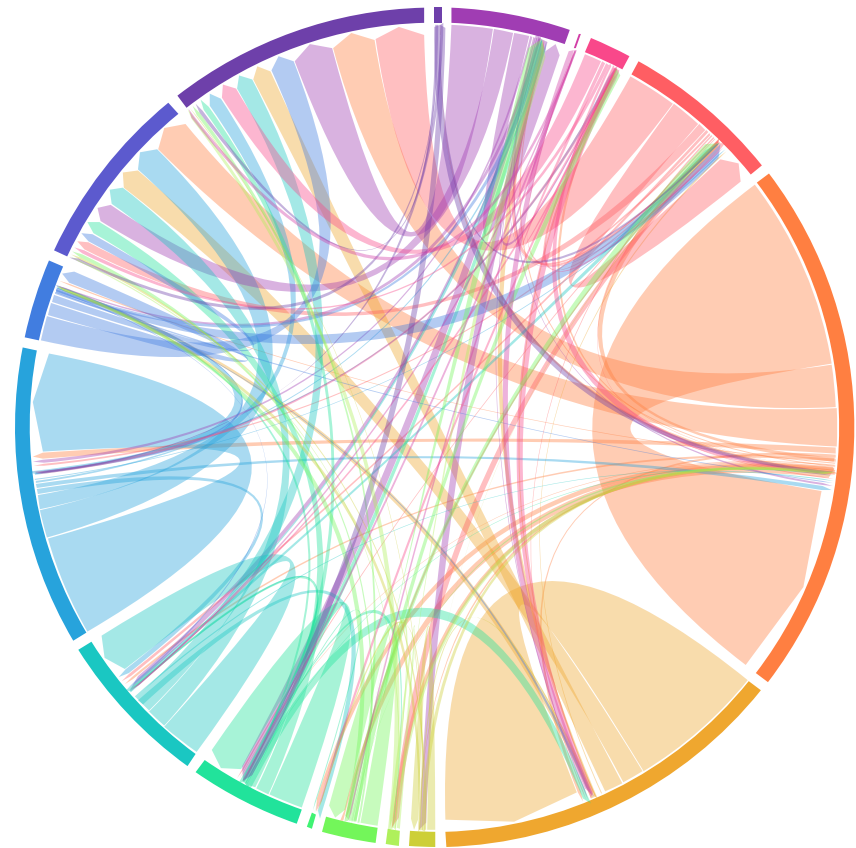
**RESEARCH
& ANALYSIS**

PROOF-OF-CONCEPT

Data Visualization Project

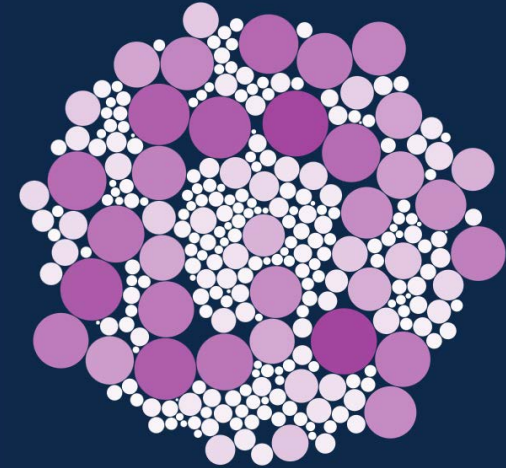
The NSWERS Proof-of-Concept Data Project began in the summer of 2021 with the goal of identifying and examining policies, processes, and procedures for data collection and data sharing across partner organizations. The outcome is a data product that provides knowledge about Nebraska's pathways of learning and earning. The analysis highlights the contribution of one group of Nebraska youth to Nebraska business and industry. It traces the education and employment pathways of Nebraska's 2011 public high school student cohort over more than a decade - from high school into college, to and from two-year and four-year postsecondary institutions, and into the workforce. The data product was presented to the NSWERS Executive Council on October 27, 2021 and continues to provide insights to Nebraskans in the education and workforce areas.

Select data analyses from the Proof-of-Concept are described in the following pages. To interact with the dynamic visualization, visit dataviz.nswers.org.



STUDENTS

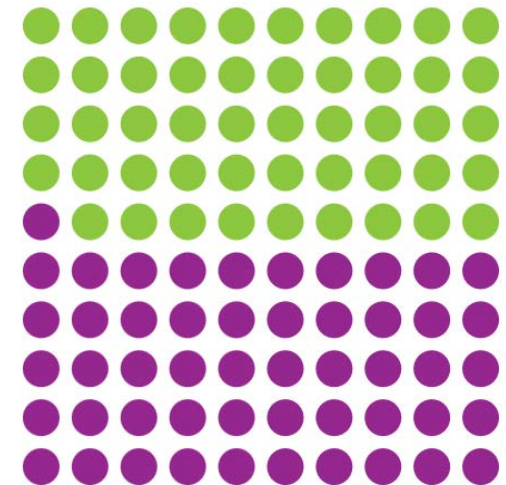
The data visualization at right depicts Nebraska's 2011 public high school cohort. At a glance, this figure shows the distribution of 22,541 students across 286 public high schools. Each circle represents a unique public high school where circle size is proportional to the number of students - the larger the circle, the greater the share of students from the cohort at the school.



22,541 STUDENTS

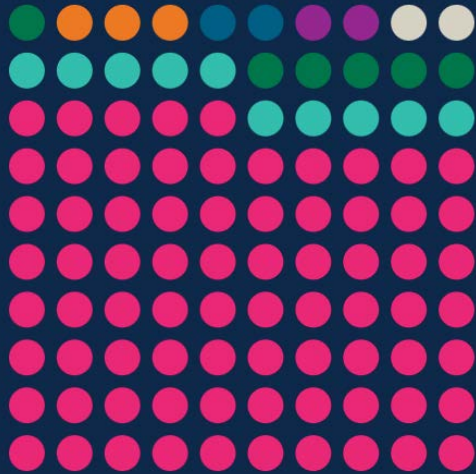
GENDER

In this visualization we present a waffle plot displaying proportions of the 2011 cohort separated by gender. Here, each dot represents approximately 225 students. The cohort is largely balanced with approximately 49% female and 51% male students.



49% FEMALE

51% MALE



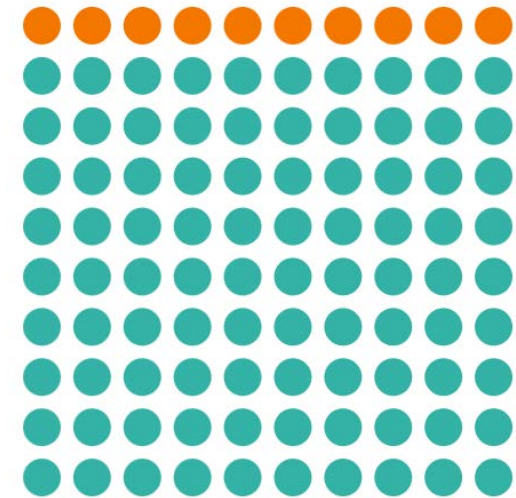
RACE/ETHNICITY

Again, using the waffle plot, at left we display the racial/ethnic makeup of the 2011 cohort. Each dot represents about 225 students. White (non-Hispanic) students make up the majority of the cohort (75%) as shown by the magenta-colored dots; Hispanic students, represented by the sea green-colored dots, make up 10% of the cohort; followed by Black (non-Hispanic) students (6%) in green; students of more than one race (3%) in orange; and Native Hawaiian/Pacific Islander students colored blue, Asian students in purple, and American Indian/Alaska Native students in ivory each making up about 2% of the cohort, respectively.

2%	AMERICAN INDIAN/ ALASKA NATIVE
2%	ASIAN
2%	NATIVE HAWAIIAN/ PACIFIC ISLANDER
3%	MORE THAN ONE RACE
6%	BLACK
10%	HISPANIC
75%	WHITE

HIGH SCHOOL GRADUATION

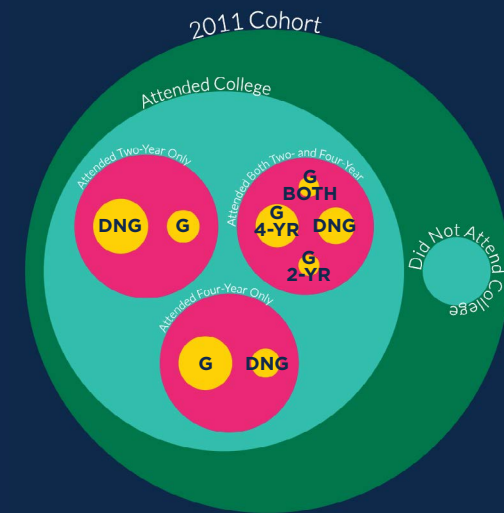
Ultimately, 90% of students from the 2011 cohort graduated from a Nebraska public high school. These proportions are presented in the plot at right where, again, each dot represents approximately 225 students – teal dots representing those students who graduated from high school, and orange dots the non-graduates.

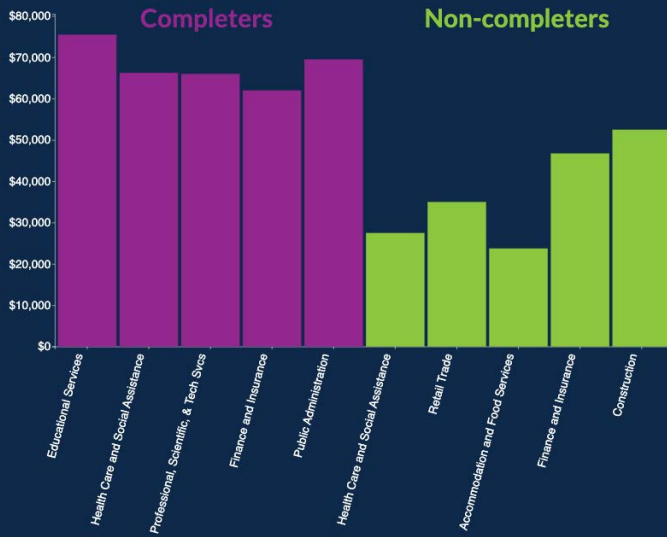


10% DID NOT GRADUATE
90% GRADUATED

POSTSECONDARY OUTCOMES

This data visualization highlights postsecondary education outcomes. The green outer circle represents the entire 2011 cohort - more than twenty-two thousand Nebraska students. Inside are two blue circles depicting the proportion of students from the cohort that “Attended College” and the proportion that “Did Not Attend College.” Within the “Attended College” circle are three magenta circles of students that “Attended Two-Year Only,” “Attended Four-Year Only,” or “Attended Both Two- and Four-Year” institutions, along with the corresponding graduation outcomes.

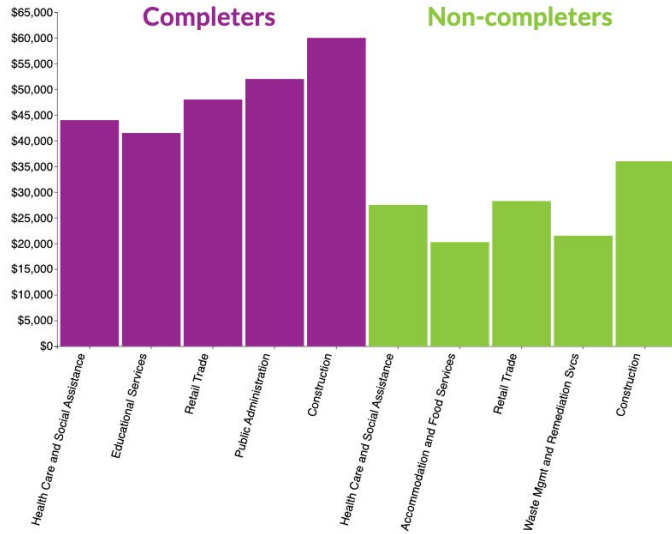




EARNINGS (FOUR-YEAR GRADUATES)

Five years after expected degree completion, the average (median) four-year degree completer from the 2011 cohort makes about \$17,000 more annually than those students who did not complete a four-year degree.

Top 5 Industries for Four-Year Degree Completers (+ 2020 Median Wage):	Top 5 Industries for Four-Year Non-completers (+ 2020 Median Wage):
1. Educational Services (\$75,500)	1. Health Care and Social Assistance (\$27,500)
2. Health Care and Social Assistance (\$66,250)	2. Retail Trade (\$35,000)
3. Professional, Scientific, and Technical Services (\$66,000)	3. Accommodation and Food Services (\$23,750)
4. Finance and Insurance (\$62,000)	4. Finance and Insurance (\$46,750)
5. Public Administration (\$69,500)	5. Construction (\$52,500)



EARNINGS (TWO-YEAR GRADUATES)

Five years after expected degree completion, the average (median) two-year degree completer from the 2011 cohort makes about \$15,000 more annually than those students who started a two-year degree but did not complete (\$39,700 vs. \$25,250).

Degree Attainment Post Two-Year Degree

Of those that completed a two-year degree, 22% went on to complete a degree at a four-year institution, most of which were at public colleges and universities in Nebraska.

Top 5 Industries for Two-Year Degree Completer (+ Median Wage):	Top 5 Industries for Two-Year Non-completers (+ Median Wage):
1. Health Care and Social Assistance (\$44,000)	1. Health Care and Social Assistance (\$27,500)
2. Educational Services (\$41,500)	2. Accommodation and Food Services (\$20,250)
3. Retail Trade (\$48,000)	3. Retail Trade (\$28,250)
4. Public Administration (\$52,000)	4. Waste Management and Remediation Services (\$21,500)
5. Construction (\$60,000)	5. Construction (\$36,000)

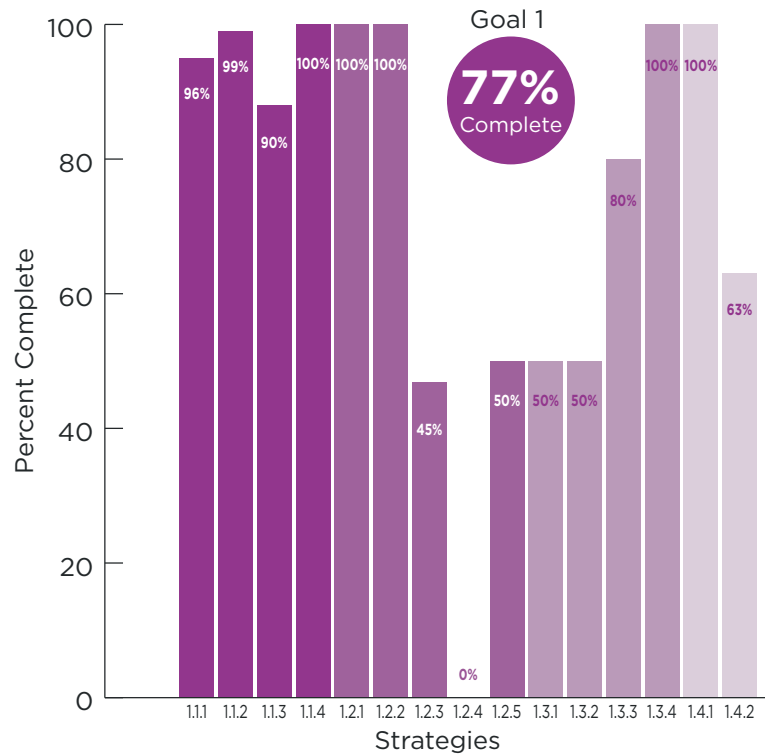
GOALS & MEASURES

OVERALL PROGRESS

59%

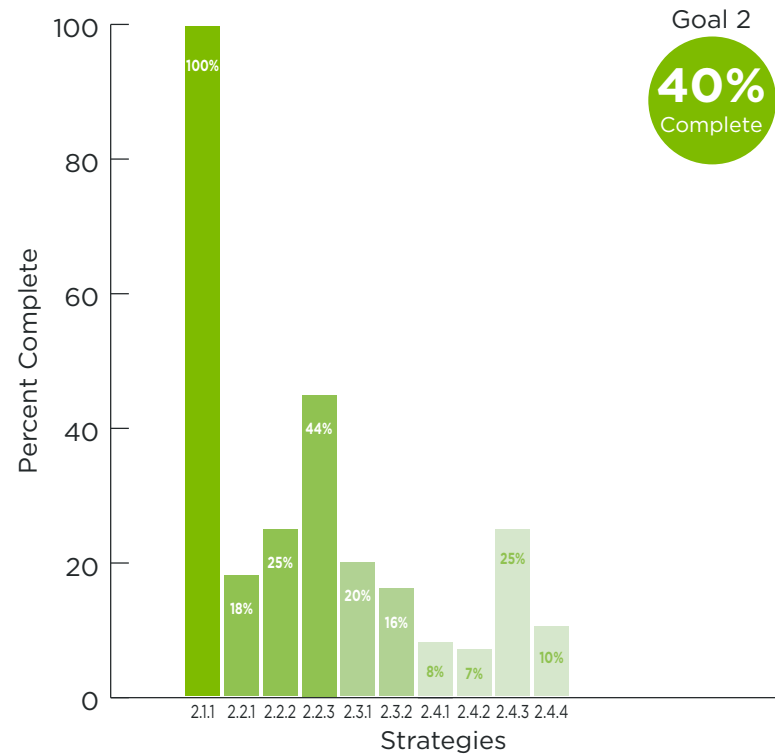
Goal 1: Establish Data System

Establish NSWERS data system for sustainable insights.


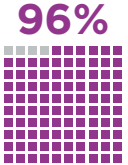






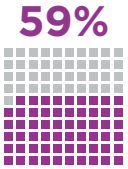





Goal 2: Evaluate Efficacy

Evaluate the efficacy of Nebraska's education and workforce training systems.

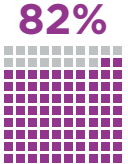




Goal 1: Establish NSWERS Data System



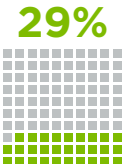


Percent Complete	Type	ID	Title	Description
	Goal	1	Establish NSWERS Data System	Establish NSWERS data system for sustainable insights
	Objective	1.1	Develop & Implement Foundational Elements	Develop the human capacity, technical infrastructures, policies, and procedures necessary for operational success
	Strategy	1.1.1	Define Organizational Strategies	Define core approach to accomplishing organizational goals via codified strategies and plans
	Strategy	1.1.2	Establish Organizational Structures	Establish structures to situate and coordinate work for efficient and effective operations
	Strategy	1.1.3	Create and Implement Organizational System	Create and implement systems and processes that add value to the organization
	Strategy	1.1.4	Acquire and Maintain Organizational Skills	Acquire the capabilities and skills required for organizational success


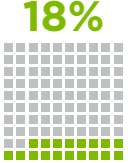


Percent Complete	Type	ID	Title	Description
 <p>59%</p>	Objective	1.2	Define NSWERS Data Collection	Define NSWERS data collection to support research objectives and organizational goals
 <p>100%</p>	Strategy	1.2.1	Ensure the Interoperability of NSWERS Data	Ensure NSWERS systems and services to create, exchange and consume data via a common set of exchange formats
 <p>100%</p>	Strategy	1.2.2	Leverage Nebraska Person ID System	Leverage the Nebraska Person ID System for cross-partner matching efforts
 <p>45%</p>	Strategy	1.2.3	Pursue Value-Add Partner Support Activities	Pursue value-add data collection opportunities for partner support
 <p>0%</p>	Strategy	1.2.4	Leverage Public Domain Data Repositories	Leverage data from the public domain to supplement NSWERS administrative data
 <p>50%</p>	Strategy	1.2.5	Explore Methodologies for Auxiliary Data Collection	Explore methodologies to supplement NSWERS' administrative data with auxiliary data necessary to execute on information agenda

Percent Complete	Type	ID	Title	Description
 <p>70%</p>	Objective	1.3	Design and Execute Data Acquisition	Create the technical and procedural processes necessary for acquiring quality data from NSWERS partners and affiliates
 <p>50%</p>	Strategy	1.3.1	Develop and Implement a Secure, Web-Based Portal	Develop a one-stop, web-based portal for NSWERS partners, affiliates, and authorized users to communicate key tasks and needs
 <p>50%</p>	Strategy	1.3.2	Leverage Industry-Standard Data Exchange Technologies	Leverage industry-standard data exchange technologies to facilitate secure data transfer to and from NSWERS
 <p>80%</p>	Strategy	1.3.3	Develop and Implement Quality Control Processes	Develop and implement quality control processes to ensure NSWERS data fitness of use
 <p>100%</p>	Strategy	1.3.4	Establish Annual Calendar	Establish dates and timelines necessary for the submission of data to NSWERS

Percent Complete	Type	ID	Title	Description
 <p>82%</p>	Objective	1.4	Optimize Data Processing and Protect Digital Assets	Ensure informational protection, privacy safeguards, and cybersecurity
 <p>100%</p>	Strategy	1.4.1	Establish and Maintain a Robust Data Security Program	Protect the technical aspects of how NSWERS data are collected, stored, and transferred through the information technology infrastructure
 <p>63%</p>	Strategy	1.4.2	Implement a Comprehensive Program of Data Governance	Implement a comprehensive program of data governance to ensure the overall availability, usability, integrity, quality, privacy, and security of NSWERS data

Goal 2: Evaluate Efficacy

Percent Complete	Type	ID	Title	Description
	Goal	2	Evaluate Efficacy	Evaluate the efficacy of Nebraska's education and workforce training systems
	Objective	2.1	Create NSWERS Information Agenda	Create and publish an information agenda to prioritize and codify high-value research/decision topics and questions of interest
	Strategy	2.1.1	Adopt Solutions for Timeliness, Relevance and Accuracy	Adopt solutions that anticipate questions for a timely response, support decision making with decision-relevant information, and motivate accuracy
	Objective	2.2	Establish Data Analysis and Prediction Operations	Establish NSWERS data analysis and prediction operations for the study of Nebraska's education and workforce training systems
	Strategy	2.2.1	Implement a Modern, Flexible and Scalable Analytics Unit	Implement a modern, flexible, and scalable analytics environment designed to leverage the latest analytic tools and research methodologies for rapid-response and in-depth services
	Strategy	2.2.2	Establish Collaboration Opportunities and Cultivate Funding	Establish collaboration opportunities and cultivate funding streams that enable education-workforce program evaluation and project scale-up review

Percent Complete	Type	ID	Title	Description
	Strategy	2.2.3	Leverage the Capacity of NSWERS Partners and Affiliates	Leverage the capacity of NSWERS partners and affiliates to engage faculty and staff, students and parents, and communities and regions across Nebraska
	Objective	2.3	Report on Longitudinal Outcomes	Assess Nebraska's education and workforce training systems against an outcome framework informed by nationwide standards
	Strategy	2.3.1	Operationalize and Measure Education Outcomes	Track education outcomes by school and institution based on job placement - location (in-state/out-of-state), region (rural/urban), field of study/field of position, skills required, etc.
	Strategy	2.3.2	Operationalize and Measure Workforce Outcomes	Track workforce outcomes by school and institution based on job placement - location (in-state/out-of-state), region (rural/urban), field of study/field of position, skills required, etc.

Percent Complete	Type	ID	Title	Description
 <p>13%</p>	Objective	2.4	Release Data and Disseminate Research and Evaluation Findings	Provide machine-readable data and disseminate research and evaluation findings to inform decision making
 <p>8%</p>	Strategy	2.4.1	Establish and Maintain a Data Clearinghouse to Facilitate Data as a Product (DaaP) Enterprise	Establish and maintain an education-workforce information repository to disseminate NSWERS information, data, and metadata to partners, affiliates, and beyond
 <p>7%</p>	Strategy	2.4.2	Establish and Maintain Data as a Service (DaaS) Enterprise	Establish and maintain education/workforce information services to enhance data value with NSWERS partners, affiliates, and beyond
 <p>25%</p>	Strategy	2.4.3	Create or Acquire Communications Methods and Platforms	Create or acquire methods and platforms to communicate and deliver data through both public and secure channels
 <p>10%</p>	Strategy	2.4.4	Strengthen Awareness, Facilitate Collaborations and Drive System Improvements	Utilize NSWERS data and information to highlight and motivate decisions to spur education and workforce system improvements

This report is based on the NSWERS Strategic Plan, the roadmap of objectives, strategies, and tactics required to achieve our strategic goals. Completion statistics as of July 31, 2022. To view the Strategic Plan in its entirety, visit nswers.org/progress.

**LESSONS
LEARNED &
CHALLENGES**

LESSONS LEARNED

Collaboration

The NSWERS data system is successful through the collaboration of NSWERS staff, partners, and stakeholders. Work with data owners/partners in decisions about the mechanics of data exchange, processing, reporting results, changes in requirements, changes in technology, and problem areas continues as data collection progresses. Through this learning process, NSWERS is better able to anticipate roles the system will play in analysis and evaluation.

Data Integrity

A focus on data integrity is critical to the success of the NSWERS data system. By implementing extensive data validation and certification routines, NSWERS ensures that all data are accurately categorized and stored to enhance computing efficiency and to mitigate cyber risks. NSWERS staff will continue to keep data exchange agreements current and up to date to preserve the accuracy, completeness, and consistency of all data being processed.

Continuous Improvement

Development of a statewide longitudinal data system is an iterative process. It requires a dedication to continuous improvement. In the early stages of development, NSWERS is working to establish and communicate an understanding of data system resources and requirements. In so doing, NSWERS is learning about the intricacies, functionalities, and limitations of partner systems. As a result, business rules and technical solutions are revised and enhanced as understanding and conditions change.

CHALLENGES

NSWERS continues to quickly identify and address challenges as they present themselves. Many of the challenges that developed this year were during the data collection process.

Data System Maturity

The first tranche of data submission from partners spanning ten years, from 2012 through 2022, is nearly complete. This process revealed a range of data system maturity among partners, requiring unique solutions for the system to work in full. Data are often stored in multiple locations and can come from multiple departments, even within single partner institutions. In some cases, data are located within antiquated databases that cannot be programmed for ease of use in the future. Further, data can be uncoordinated and often require problematic data matching. NSWERS staff are currently working with NSWERS partner institutions to rectify errors in data, fill in gaps, and assist in programming efforts to ensure that quality data are collected for analysis.

Data Designed or Collected for Different Uses

Because the majority of NSWERS partners do not regularly share data with external entities, data definitions often differ among agencies and institutions. In addition, the data currently measured by partner institutions may not be exactly what is desired for decision making. NSWERS staff worked with the Data and Technology Committee to create common definitions for elements through the creation of data file specifications. NSWERS also determined the elements that would be appropriate to make sound decisions for all eight outcomes.

Data Obligations

Data collection is complex, and NSWERS staff know firsthand that requirements for internal processes may be different for each data source. Partners have many obligations; legal, ethical, and proprietary, just to name a few. As such, data sharing processes are guided by best practices from the Privacy and Technical Assistance Center (PTAC) and NSWERS' legal counsel.

Data Resources

The strength of the NSWERS system of linked data sets is determined by the weakest of data resources. Therefore, NSWERS staff provide technical support to partners who need it. The result of these support sessions — consistent, high-quality data — lead to the strength and integrity of the entire data system.

Data Lag

As with all data systems, the collected data lag actual performance. This can be problematic when trying to make education and workforce decisions in real time. NSWERS strives to find newer and quicker methods to gather data and disseminate findings. Additionally, NSWERS will project expected outcomes and simulate real-world situations to aid in timely decision making.

ORGANIZATIONAL NEEDS

DATA NEEDS

Additional Data Elements

Through the efforts of the Advisory Committee's two statewide work groups, two data issues are currently being defined and addressed; workforce data collection and PK-12 record linking. As of right now, in order for proper data matching to occur for students moving directly into the workforce from PK-12 education, five additional data elements are being recommended for collection by the Nebraska Department of Labor, as part of the Unemployment Insurance Quarterly Wage Record System.

These elements are:

- Job Title and/or SOC Code
- Employment Location
- Start Date
- Pay Rate
- Date of Birth

As the process continues, the work groups will continue to refine their thinking and determine a final recommendation for the full slate of data elements needed for the NSWERS system to fully operate.

In order to solve the record linking challenge from PK-12 into the workforce, the work group has thus far narrowed the options down to two approaches. One recommendation is for K-12 education to collect the social security number for all public school students in Nebraska. A second recommendation is for the Nebraska Department of Labor to add date of birth to the Unemployment Insurance Quarterly Wage Record System and use this date, in addition to a student's name, as a record matching strategy. The work group will continue to discuss the preferred approach in upcoming meetings.

FINANCIAL NEEDS

Request for Funding

In accordance with the recommendations provided in the LB 1160 Report, NSWERS is working with partners to make a joint request for funding from the Nebraska Legislature. NSWERS is targeting the 2023 legislative session to update the Unicameral on the capabilities and importance of the NSWERS system and to build legislative awareness for our work. The Proof-of-Concept (POC) has provided a preliminary snapshot of the capacity for the NSWERS system. Additionally, as NSWERS continues to build upon the resources available in insights+ and version 2 of the NSWERS Data System, a stronger foundation can be established for the long-term benefits of serving the state's education and workforce needs. In the following year (2024), NSWERS aims to make a deficit request for funding.

PEOPLE

NSWERS STAFF

Two-tiered Plan

NSWERS has completed a two-tiered hiring plan for expert staff with the unique skills necessary to successfully execute on our strategic plan. The first tier was completed in November 2021 with the hiring of four professionals to fill core staffing needs: the assistant director of database/ETL development, the assistant director of research and evaluation, the assistant director of IT applications development, and the communications director. The second tier of hiring was completed in November 2022 and included three additional professionals: the engagement specialist and two data scientists.



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Executive Director



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Communications
Director



ALEX BRODERSEN

Assistant Director,
Research & Evaluation



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Data Scientist



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SARA SIMONSEN

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