

# Local, timely, and actionable: A plan for democratizing education and workforce data

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NYU and RTI

With many thanks to Angie Tombari, Jessica Cunningham, Anna-Carolina Haensch, Jared Dubin, Xiangyu Ren, Jody Williams, Frauke Kreuter and many others

# Overview

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- Context
- Vision
- Approach
- Next steps

# Context

Administration Priorities The Record

## UPDATED FACT SHEET: Bipartisan Infrastructure Investment and Jobs Act

BRIEFING ROOM STATEMENTS AND RELEASES

On July 28, the President and the bipartisan group announced agreement on the details of a once-in-a-generation investment in our infrastructure, which was immediately taken up in the Senate for consideration. The legislation includes around \$550 billion in new federal investment in America's roads and bridges, water infrastructure, resilience, internet, and more. The bipartisan Infrastructure Investment and Jobs Act will grow the economy, enhance our competitiveness, create good jobs, and make our economy more sustainable, resilient, and just.

Administration Priorities The Record

AUGUST 02, 2022

## FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China

BRIEFING ROOM STATEMENTS AND RELEASES

In President Biden's first year in office, the Biden-Harris Administration has implemented an industrial strategy to revitalize domestic manufacturing, create good-paying American jobs, strengthen American supply chains, and accelerate the industries of the future. These policies have spurred an historic recovery in manufacturing, adding 642,000 manufacturing jobs since 2021. Companies are investing in America again, bringing good-paying manufacturing jobs back home. The construction of new manufacturing facilities has increased 110 percent over last year.

https://www.americanprogress.org/article/the-inflation-reduction-act-provides-pathways-to-

CAP National Security Climate Change Growing the Middle Class Racial Wealth

Issues Experts Events Press Take Action About U

REPORT SEP 14, 2022

## The Inflation Reduction Act Provides Pathways to High-Quality Jobs

Incorporating labor and workforce training standards into this historic climate policy will ensure that the transition to a clean energy economy is built with good jobs.

# B 6 job quality metrics every company should know

ESG

WORKER WELLBEING



**JOB QUALITY**  
Living wage  
Healthcare benefits

- Percentage of workers that earn a living wage and have healthcare
- Number of new good jobs created each year



**ECONOMIC MOBILITY**  
High rates of retention and both internal and external promotion

- Access to steppingstone jobs: percentage of workers that transition from earning low wages to high wages
- Percentage of workers that cross the one year mark in the company



**JOB EQUITY**  
Racial and gender equity in job transitions and at the top of the ladder

- Workforce demographic gaps in the company's high-wage occupations
- Gaps in wage mobility across demographic groups

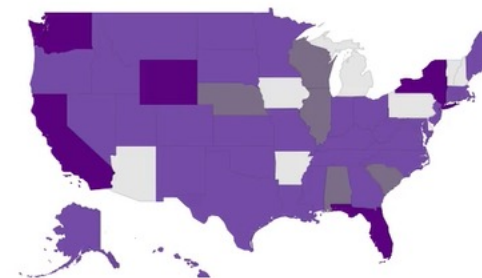
# Context

## State Postsecondary Data

SHEEO is the higher education community's primary source of information regarding the capacity and effective use of state postsecondary data systems.

 [EXPLORE SURVEY RESULTS](#)

### 45 Agencies in 42 States Currently Link or Plan to Link Postsecondary to Workforce Data



● Currently Links ● Plans to Link ● Multiple Agencies

FL	CA	WY	WA	NY
BOG	UCS	WYO	OPM	CUNY
DOE	CCC	WCCC	SBCTC	
	CSU		WSAC	

Select Question

What states can link postsecondary and workforce data?

What states can link postsecondary and K-12 data?

What states link to both K-12 and workforce data?

What state data systems contain financial aid information?

What states can link postsecondary and early childhood data?

What state data systems contain remedial course information?

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- **Vision**
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# Vision



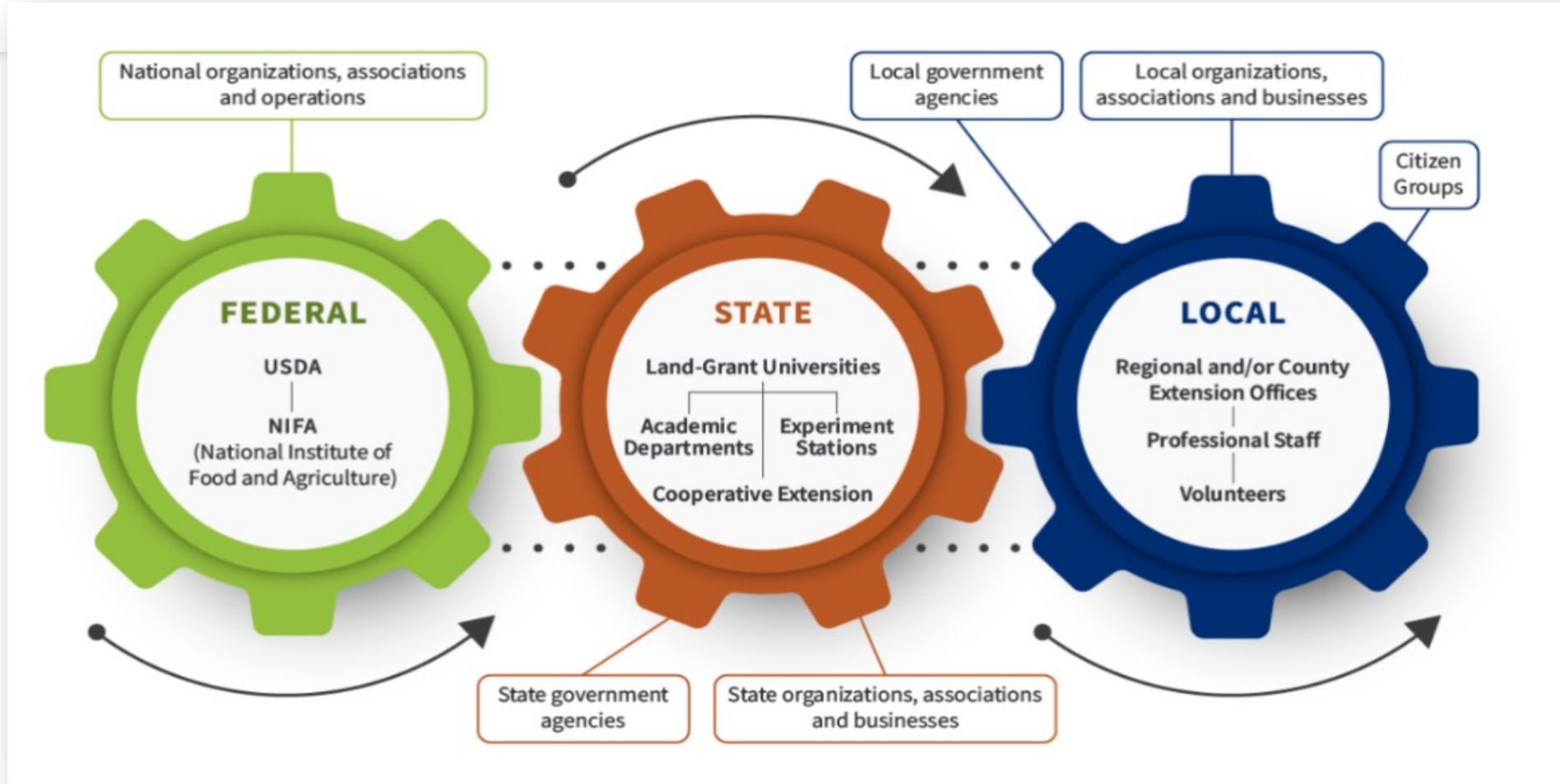
## Reimagining Labor Market Information

A NATIONAL COLLABORATIVE FOR  
LOCAL WORKFORCE INFORMATION

**Julia Lane**  
MARCH 2023

A M E R I C A N   E N T E R P R I S E   I N S T I T U T E

# Vision





# Overview








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# Build local, actionable measures

The image shows a screenshot of the NYU Wagner website. The top navigation bar is purple with the NYU Wagner logo on the left, a search bar, and a globe icon labeled 'All NYU'. Below the navigation bar is a dark purple menu with links for 'MAKING AN IMPACT', 'OUR COMMUNITY', 'YOUR EDUCATION', 'CAREERS WITH MEANING', 'ADMISSIONS', and 'PORTALS'. The main content area has a light gray background with a 'Home' link. The central focus is a large, bold, black headline: 'NEW EXECUTIVE CERTIFICATE IN DATA LITERACY AND EVIDENCE BUILDING'. Below the headline are logos for NYU Wagner, Accenture, University of Maryland, KYSTATS, and Coleridge Initiative. A blue box on the right contains the text 'PROGRAM DETAILS' and 'Dates: September 6, 2023 to November 9, 2023'. The main text below the logos describes the program as a non-credit Executive Certificate in Data Literacy and Evidence Building, a first-of-its-kind program that draws on a decade of experience to train participants in working with synthesized real world data.

**NEW EXECUTIVE CERTIFICATE IN DATA LITERACY AND EVIDENCE BUILDING**

New York University's Robert F. Wagner Graduate School of Public Service, the University of Maryland's Social Data Science Center, and Accenture are delighted to announce a new non-credit Executive Certificate in Data Literacy and Evidence Building in conjunction with the Kentucky Center for Statistics and the Coleridge Initiative. The new first-of-its-kind Certificate draws on almost a decade's successful experience to train participants in how to work with synthesized real world data drawn from different sources to produce new insights and products.

**PROGRAM DETAILS**

Dates: September 6, 2023 to November 9, 2023

Lecture: 12:00-1:00pm ET

# That answer local questions

What are the earnings for graduates with nursing degrees from my local school?

How long does a typical first job for a business major last in this area?

What is the difference in earnings for someone who completes a STEM credential here vs. someone who doesn't?

How many people who start a two year degree in computer science at this community college complete in three years?

How many people in the community are just two or three credits short of a job-qualifying credential?





# Project – products – practice

This dashboard is powered by the Kentucky Center for Statistics. Those using screen readers may need to click the enter key to select options in filters. This dashboard is best viewed on a desktop computer. If you have any questions regarding accessibility, please contact [kystats@ky.gov](mailto:kystats@ky.gov).

Technical Documentation can be found in PDF form here: [https://bit.ly/msper\\_technical\\_notes](https://bit.ly/msper_technical_notes)

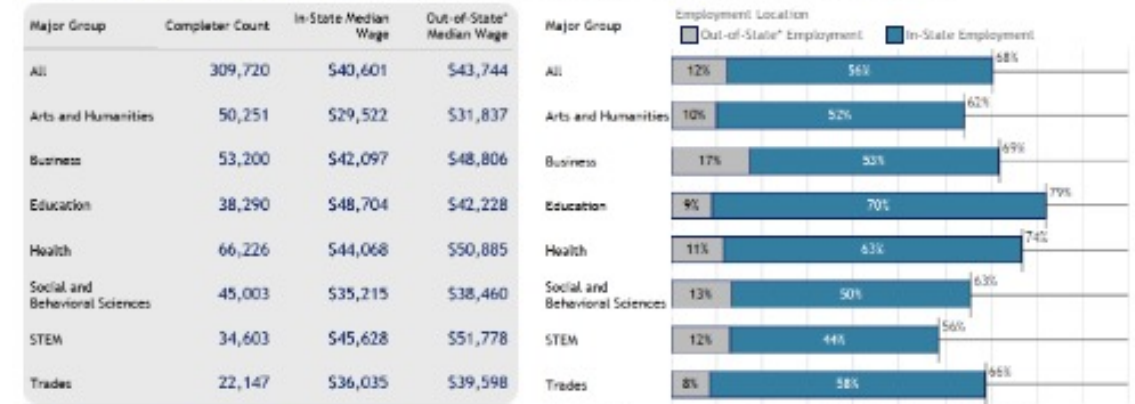
Filter Report by State ▼

This dashboard includes three sections: Employment Outcomes by Major Group, Credential, and Student Origin. Each of these sections are filterable by Institution and Years Post Completion. Wage information can be filtered by percentile group using the wage filter. Employment outcomes looks at Kentucky Postsecondary Completers across the 2007 through 2017 academic years (AY) followed to post completion qualifying employment in Indiana, Kentucky, Ohio, and Tennessee. Qualifying Employment Outcomes are workers with at least 2 quarters employed and at least \$3,000 dollars earned in a 4 quarter period. A double asterisk in a data table represents redacted values, blank data represents no data available.

Filter the Dashboard by Institution ▼   
 Filter the Dashboard by Years Post Completion ▼   
 Filter Wages by Percentile ▼

## Employment Outcomes by Major Group

This section provides qualifying employment outcomes for each major group. Major groups are categories that each contain several majors.



\*Out-of-State employment outcomes are limited to Indiana, Ohio, or Tennessee.

## Employment Outcomes by Credential

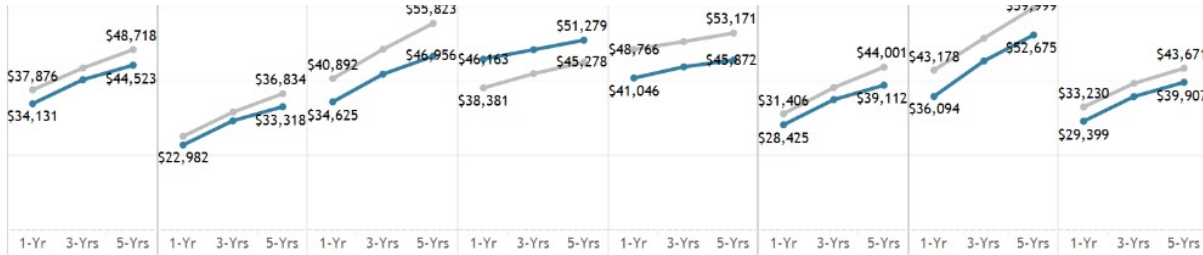
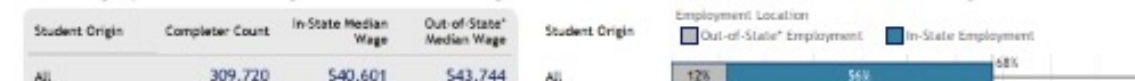
This section provides qualifying employment outcomes for each credential level.



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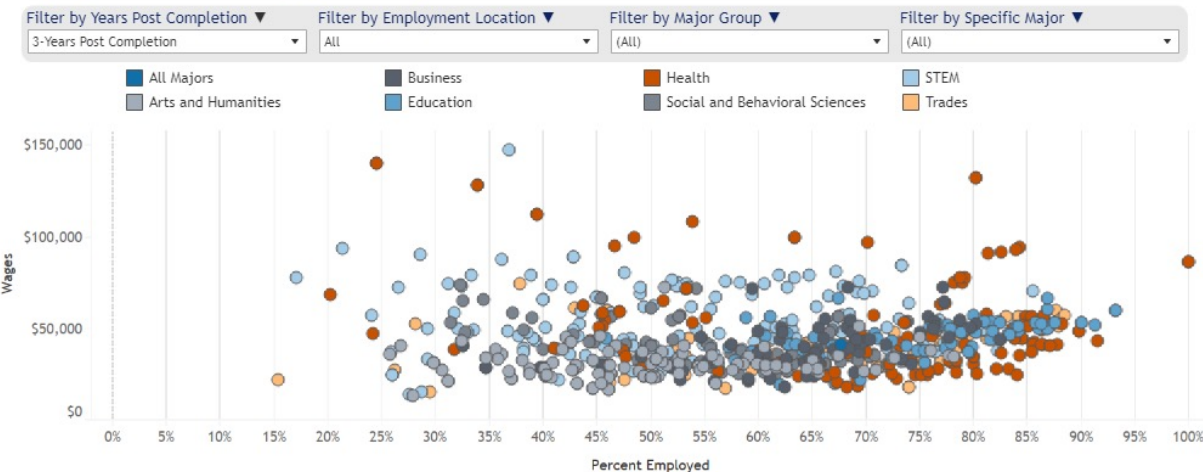
## Employment Outcomes by Student Origin

This section provides qualifying employment outcomes for student origin groupings. Student origin is based on residency information as reported to the state's higher education agency. When the state or origin matches the state of the higher education institution, the individual is considered of "In-State" origin.



\*Out-of-State employment outcomes are limited to Indiana, Ohio, or Tennessee.

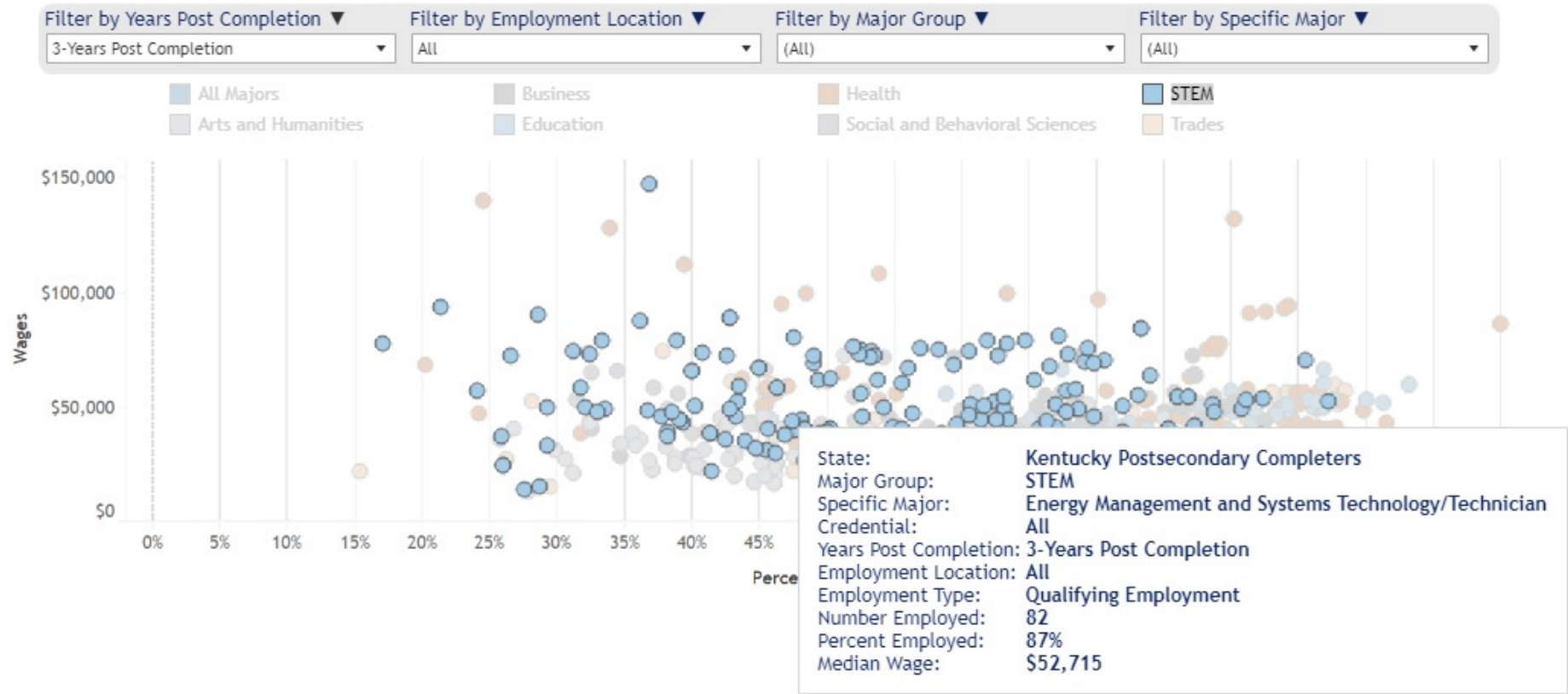
## Employment Outcomes by Specific Major



# Project – products – practice

\*Out-of-State employment outcomes are limited to Indiana, Ohio, or Tennessee.

## Employment Outcomes by Specific Major



# DATA LITERACY & EVIDENCE BUILDING

NYU Wagner | Accenture | University Of Maryland | KYStats | Coleridge Initiative

PROGRAM OVERVIEW

COURSE CONTENT

APPLY HERE

CLASS CALENDAR

CONTACT US



HOME

WEEK 0



BACKGROUND ▾

WEEK 1



DATA MANAGEMENT

WEEK 2



DATA LINKAGE

WEEK 3



MEASUREMENT

WEEK 4



VISUALIZATION

WEEK 5



ANALYTICS

WEEK 6



INFERENCE

WEEK 7



BIAS & ETHICS

## Class content

Class participants will develop the key data analytics skill sets necessary to scope a real world project using real world data, as well as develop an analytical product and apply that product to practice. It trains analysts how to recognize and deal with some of the common pitfalls in terms of making sense of data, identifying and minimizing bias, and communicating clear operational information to elected or appointed officials and other policy-makers. It is explicitly designed to respond to the recommendations of the [Commission on Evidence-based Policymaking](#), the [Foundations of Evidence-based Policymaking Act of 2018](#), and the recommendations of the [Advisory Committee on Data for Evidence Building](#).





Jupyter 01 Data Exploration \_JL Last Checkpoint: 07/28/2023 (autosaved) Python 3 (ipykernel) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

Run Stop Refresh Restart Markdown

The goal of this notebook is to provide you with the code to produce summary statistics for different cohorts of students in the Syntucky dataset. The results will be an overview of how many people have jobs and the associated earnings in a particular cohort, including a count the number of missing observations.

We will take a look at the number of the following descriptive statistics:

- count: the total number of non-null entries in each column.
- mean: the average of all entries in each column.
- std: the standard deviation of each column, which is a measure of the spread of values.
- min: the smallest value in each column.
- 25% (also known as the first quartile or Q1): the value below
- 50% (also known as the second quartile, median or Q2): the mic
- 75% (also known as the third quartile or Q3): the value below
- max: the largest value in each colum

## Coding tools

This notebook also identifies some tools that will make our journey smoother and analysis: Pandas and NumPy.

Pandas: Pandas is a Python library specializing in making data manipulation and filter data from various file formats easily, using a table-like format called DataFra

NumPy: NumPy is a bit like a high-powered calculator for Python. It's another libr; you need to perform mathematical operations on a lot of numbers simultaneously

```
In [ ]: import pandas as pd
```

Jupyter 04 Measurement \_JL Last Checkpoint: 07/28/2023 (autosaved) Python 3 (ipykernel) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

Run Stop Refresh Restart Markdown

## Measurement

**Note: The "Syntucky" data, which is synthetic in nature, is exclusively designed for training exercises. It is not intended to derive meaningful insights or make determinations about real-world populations.**

The focus in this notebook is the heart of data analysis: accurate measurement.

The primary goal of this notebook is to explore methods for identifying and categorizing individuals in the dataset based on their educational attainment. Three distinct categories will be defined in this notebook: 'completers,' 'non-completers,' and 'degree pursuers.'

The secondary goal is to measure the employment outcomes of individuals in each group - particularly focussing on the quality of their jobs.

## Import Packages

As before, we will again use the numpy package and pandas packages:

```
In [ ]: import pandas as pd
import numpy as np
```

## Import Data

Today, we will use the 2015 employment data

# Ed/workforce agency staff – build their own

## Choose the degree of interest

- Nursing
- Education,
- Computer Science
- Business Majors.....

## Choose the population of interest

- Completers
- Non completers
- Degree pursuers

## Construct the job measure of interest

- Any job
- Earnings above threshold  $y$ ,
- Earnings in at least 2, 3, or 4 quarters;
- Earnings growth

## Choose how to visualize

- Comparison by economic status
- Trends over time
- Map

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# Project – products – practice

## Focus

1. Critical thinking in the context of the underlying data structure (schemas)
2. The opportunities (structuring cohorts, and generating measures of duration)
3. Pitfalls (missing values and systematic coverage challenges)

Enrollments: 52 in class – TX, NJ, AR, OH, PA, KY, VA, MI, UT, MO, CO

Build their own dashboard!



# NASPAA presentation – Oct 12-13 Pittsburgh

*Data Literacy and Evidence Building for the public sector.*

Panelists

Sherry Glied, Dean, Public Policy, NYU

Keith Marzullo, Dean, Information Studies, UMD

Josh Hawley, Director, Ohio Education Research Center, OSU

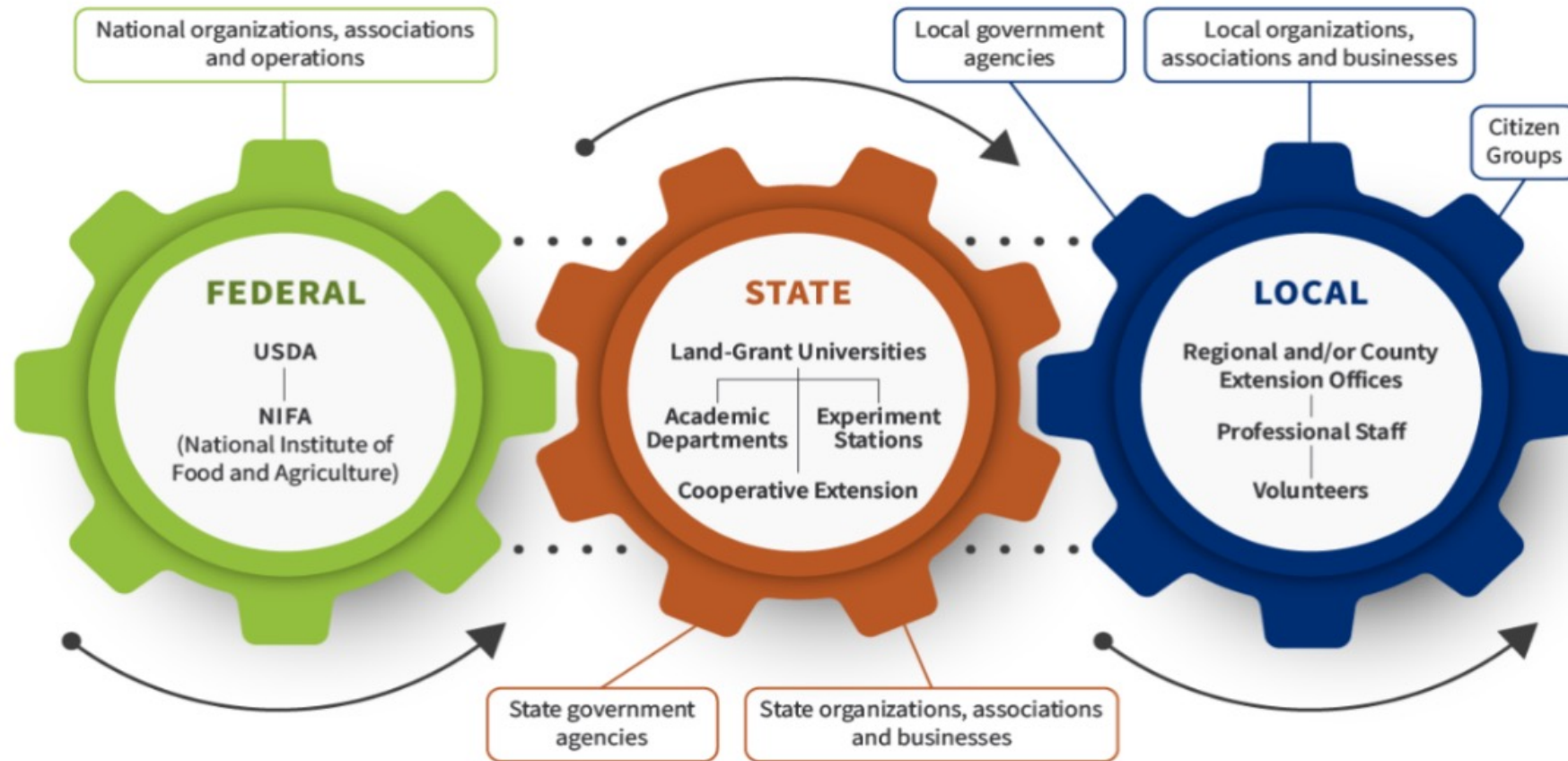
Adam Leonard, Chief Analytics Officer, Texas Workforce Commission

Matt Berry, Director, KY Stats

Christina Whitfield, Senior VP, SHEEO

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# Your role – reach out to your state institutions



Questions?

