



# Data-Driven Approaches to Education and Workforce Alignment

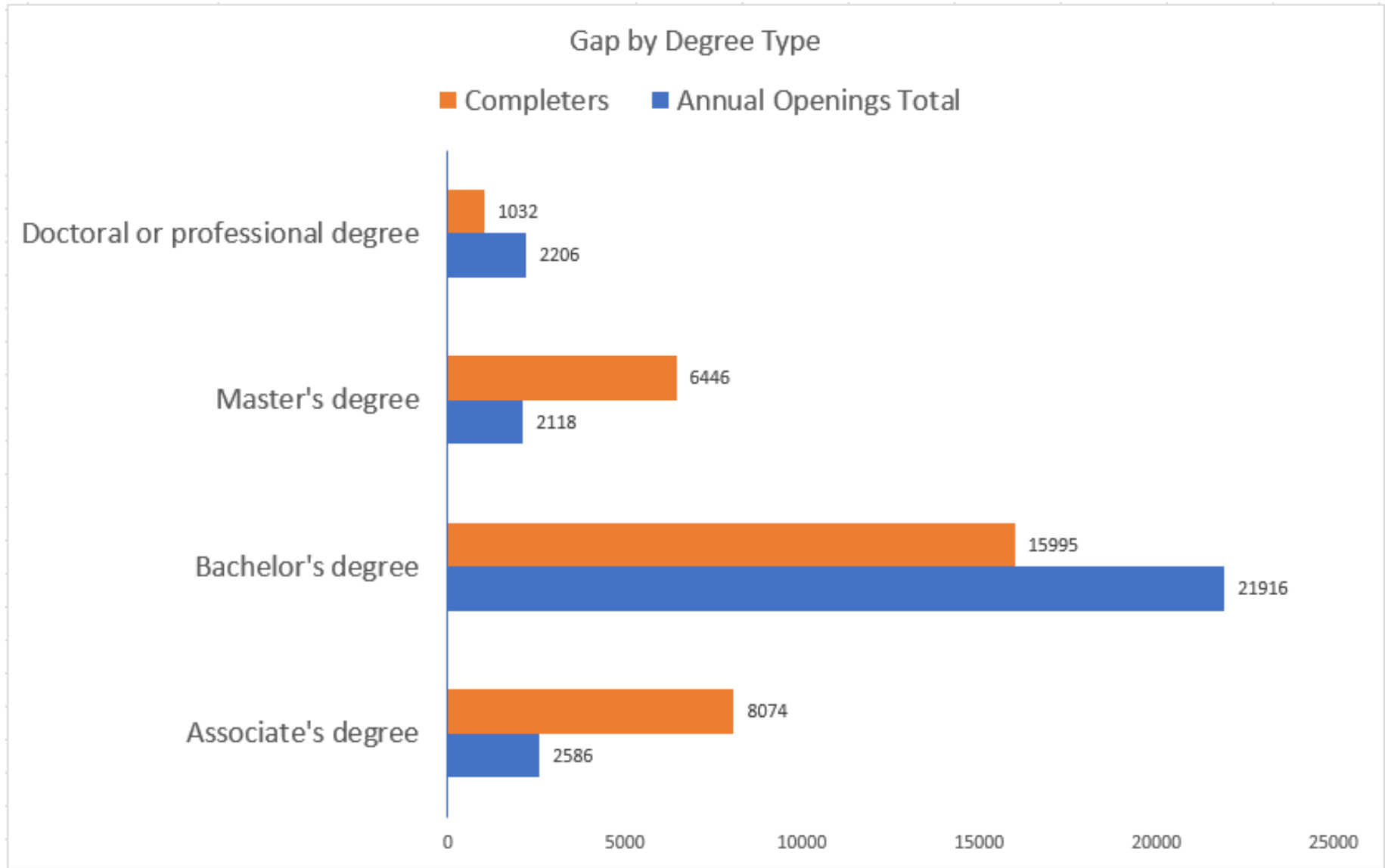
DEPARTMENT OF TRANSFORMATION AND SHARED SERVICES  
Division of Information Systems

# Education Through Workforce Analysis



- Multi-agency design thinking workshop in April
- Identified need for data resources to assess skills gaps and support alignment of academic programs with workforce needs
- Identified need to match academic programs with needs in a specific region

# High-Level Gap Analysis



# Gap Analysis in Other States

- Some states produce more detailed, actionable supply/demand gap analysis reporting at the program (CIP) or occupation (SOC) level.
- Pennsylvania: <https://data.pa.gov/widgets/n3sx-ckrr>
- Texas: <https://texaslaboranalysis.com/GapAnalysis>

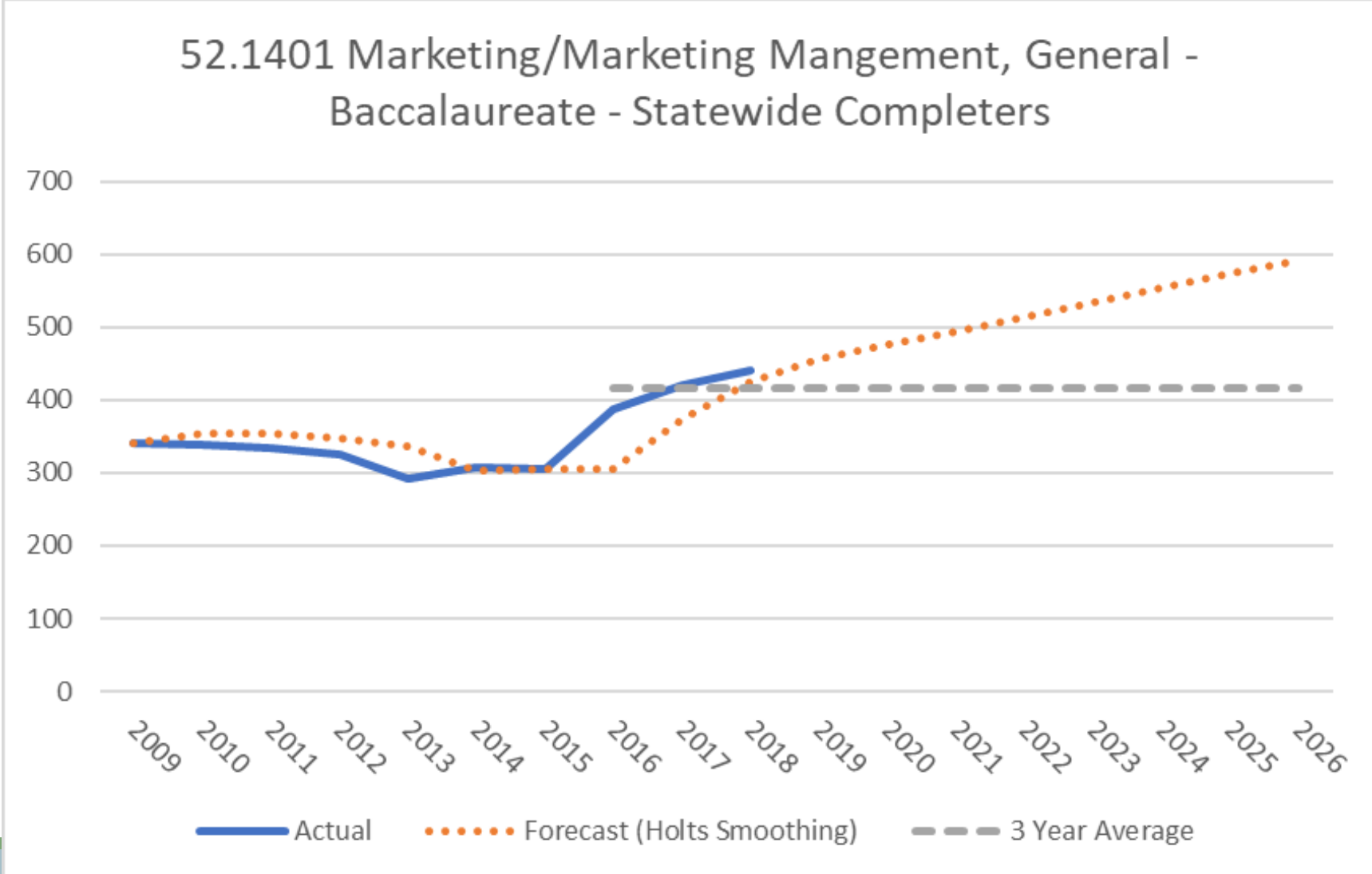
Occupation Title	Job Zone	Average Annual Demand	Average Annual Supply	Total Gap	S/D Ratio
Registered Nurses	3	5,211	4,587	624	0.88
Accountants and Auditors	4	2,350	1,856	494	0.79
Sales Representatives, Services, All Other	4	1,110	671	439	0.60
Computer Systems Analysts	4	1,132	747	385	0.66
Maintenance and Repair Workers, General	3	392	28	364	0.07
Computer Programmers	4	891	543	348	0.61
Licensed Practical and Licensed Vocational Nurses	3	450	104	346	0.23
Software Developers, Applications	4	1,081	811	270	0.75
Dental Hygienists	3	455	191	264	0.42
Market Research Analysts and Marketing Specialists	4	1,127	896	231	0.80

# Methodology



# Educational Supply

Currently using average of completers from 3 most recent academic years.





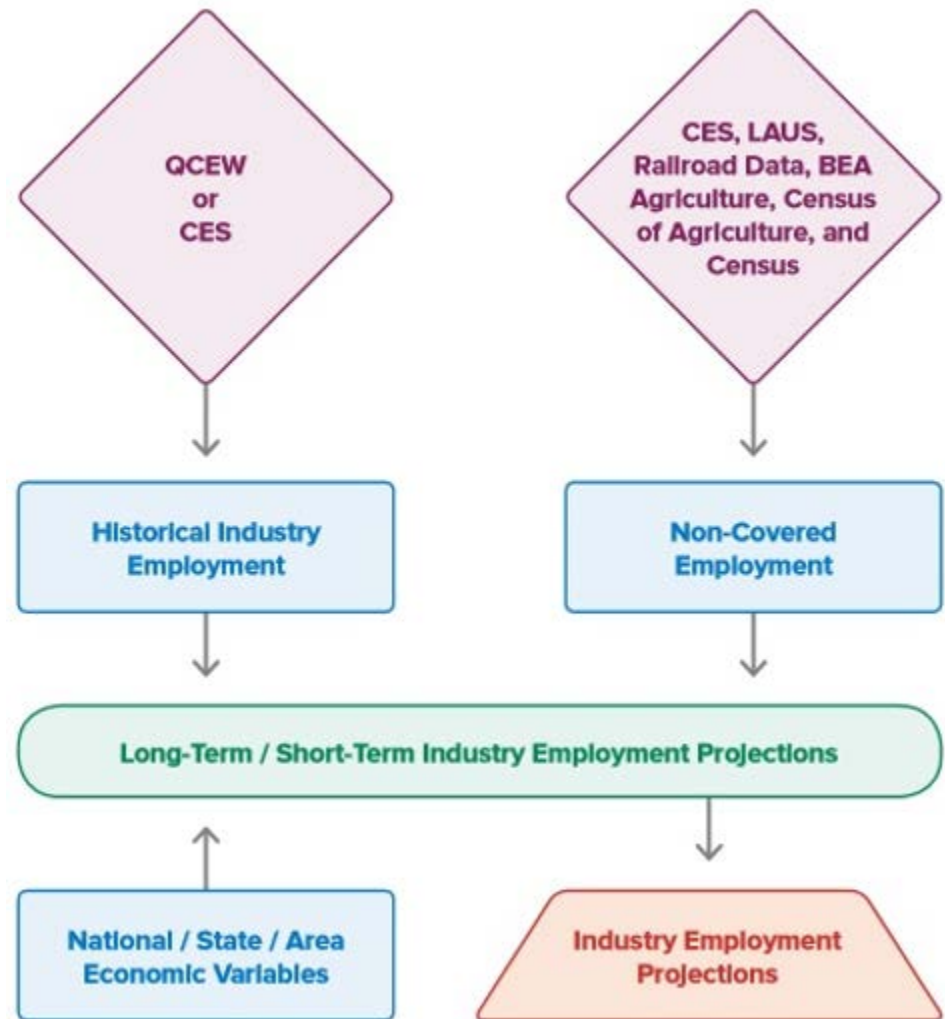
# Occupational Demand

- Long term occupational demand projections produced by Bureau of Labor Statistics and Arkansas Division of Workforce Services
- <https://www.bls.gov/emp/>
- <http://www.discover.arkansas.gov/>

## Arkansas-Statewide Long-Term Industry and Occupational Projections



2016-2026



# Aligning Students with Jobs

- Relationships from NCES and NRCCTE crosswalks
- Many-to-many relationships require deduplication
- Filtering on strong matches only
- Must meet or exceed required degree type
- Demand allocated by related completers

SOC Code	SOC Title	Annual Openings Total	CIP Code	CIP Title	SOC to CIP Allocation Weight	Annual Demand
11-1021	General and Operations Managers	2,083	52.0101	Business/Commerce, General.	16.33%	340
			52.0201	Business Administration and Management, General.	68.23%	1,421
			52.0212	Retail Management.	0.48%	10
			52.0701	Entrepreneurship/Entrepreneurial Studies.	0.95%	20
			52.1101	International Business/Trade/Commerce.	5.34%	111
			52.1301	Management Science.	8.67%	181



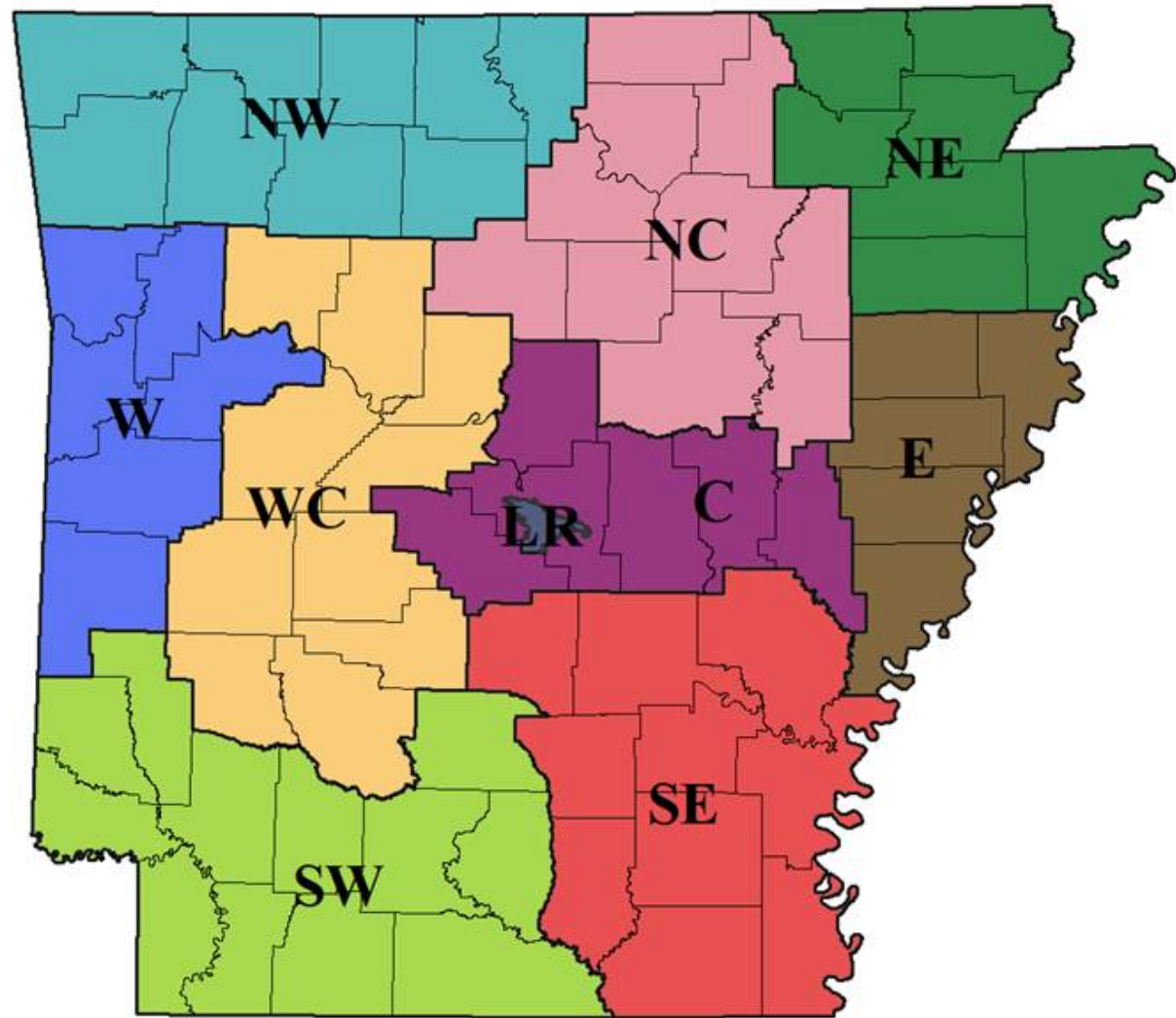
# Sample Output

CIP Code	CIP Title	Annual Demand	Completers	Demand Gap	S/D Ratio
52.0201	Business Administration and Management, General.	2,800	1,297	1,503	46%
52.1401	Marketing/Marketing Management, General.	923	416	507	45%
52.0801	Finance, General.	862	424	438	49%
44.0701	Social Work.	803	388	415	48%

CIP Code	CIP Title	Annual Demand	Completers	Demand Gap	S/D Ratio
51.3818	Nursing Practice.	288	38	250	13%
51.3801	Registered Nursing/Registered Nurse.	1,520	1,304	216	86%
51.3808	Nursing Science.	150	129	21	86%
51.3802	Nursing Administration.	17	5	12	29%
51.3804	Nurse Anesthetist.	23	37	(14)	-161%

# Regional Analysis

- Occupational demand available by Local Workforce Development Area (LWDA)
- LDWAs are groups of counties except for LR (Little Rock city limits)
- Assigning each college and university to the LWDA in which it is located
- Supports regional demand analysis
- Longitudinal wage data identifies regions where completers for each program typically work



# Additional Considerations

- Best practice is to identify potential undersupply and then validate
- No strong mapping available for some CIPs and SOC
- Does not account for labor market mobility
- May benefit from Arkansas taxonomy of CIPs for clarity
- Incorporation of CIP 2020 and SOC 2018
- Texas moving to skills-based matching

An illustration showing several hands in business suits reaching towards a central area filled with various data visualization elements. These include a bar chart, a line graph with a red arrow pointing upwards, a pie chart, a magnifying glass, a calculator displaying '561', a ruler, and a tablet with a bar chart. The background is a dark teal color.

# Questions?

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