Pennsylvania's STATE SYSTEM of Higher Education

SUMMARY: PENNSYLVANIA STATE SYSTEM'S GAP ANALYSIS REPORTS

The State System's Gap Analysis Project responds to the System's strategic plan, *Rising to the Challenge 2020.* It is a key component of the *Workforce Intelligence Toolkit* (see below), which comprises a set of resources designed to help State System universities increase their impact on Pennsylvania's economy, both individually and collectively.

The project sought to identify the occupational areas in which workforce gaps might arise in the future—where employer demand exceeds education supply. Three distinct sets of data-driven research reports were produced:

I. **Degrees of Value Report:** Demonstrates the increasing importance of bachelor's degree holders in Pennsylvania's workforce and highlights the significant role the State System plays in supporting the state's workforce;

II. **Workforce Characteristics Reports:** Provide insight about the economic and socio-demographic characteristics of Pennsylvania's workforce;

III. **Supply/Demand Reports:** Provide analyses of employer demand and higher education supply for Pennsylvania and its workforce regions in order to answer the following questions:[1]

- ***Job Forecast:*** *What is the outlook for skilled jobs?*[2]
- ***Industry Demand:*** *Which specific industries are driving growth?*
- ***Demand Gaps:*** *Where are workforce gaps expected in the future?*
- ***Education Supply:*** What is the education and talent supply?

The project is the result of a multi-organization collaboration. Throughout, the team engaged closely with senior representatives from each of the 14 State System universities, and with labor market intelligence and education program alignment experts. An advanced methodology was developed including:

- The development of broad sub-regions and university specific workforce regions (utilizing commuting patterns, economic production, and learner enrollment patterns) to analyze local gaps;
- The development of an education program to occupation classification crosswalk that better reflects employment destinations of Pennsylvania's post-secondary program completers;[3]
- The use of updated forecasts of occupation demand (2014-2024) to more accurately account for Pennsylvania's post-recession growth;
- The use of demand projections that reflect openings to replace those who leave the labor force (e.g. retire or move away) as well as new job growth;
- The factoring in of key economic behaviors such as people leaving the labor force and in and out migration.[4]

[1] Regions include 5 broad sub-regions based on Department of Community and Economic Development's PREP regions, 14 university specific workforce regions, and 2 university hubs (Dixon University Center and State System @ Center City, Philadelphia). Supply/demand reports were produced for each of these regions.
[2] Skilled occupations in the State System's Gap Analysis project are defined using terminology from the O*NET program. The O*NET program is the nation's primary source of occupational information. O*NET Job Zones range from 1 (lowest) to 5 (highest). Job Zones 3, 4, and 5 require some level of post-secondary education. To be considered skilled for the State System's Gap Analysis Project, an occupation must have an O*NET Job Zone code of 3, 4, and 5.
[3] Using data sources such as the National Center for Education Statistics, Pennsylvania's Department of Labor and Industry and US Census' American Communities Survey
[4] US Census data to more accurately reflect talent migration of students who leave Pennsylvania (or enter Pennsylvania) with post-secondary degrees.

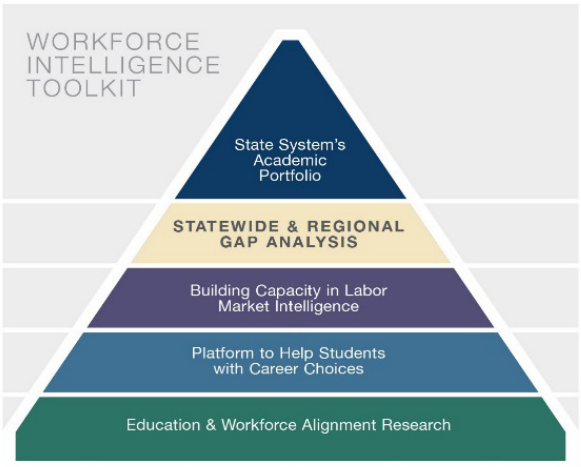
GAP ANALYSIS VALUE PROPOSITION

Makes 'Workforce Intelligence' a part of higher education data culture.

Provides another perspective for strategic planning, program alignment, marketing, enrollment, career advisement, etc.

Helps close the information gap that exists around the regional skills gap.

Helps universities to be regional stewards by providing critical information that aids regional engagement and economic development strategies.



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GAP ANALYSIS HIGHLIGHTS

963,100
skilled job openings to 2024

15.6%
growth in STEM-H jobs to 2024

2,000+
annual gap in healthcare occupations

2,000+
annual gap in business and finance occupations

1,300+
annual gap in computer and mathematical occupations

1,500+
annual gap in middle skills occupations

KEY FINDINGS:

PENNSYLVANIA STATE SYSTEM'S GAP ANALYSIS

Pennsylvania will see strong growth in demand for skilled workers through 2024.

- Some 536,200 skilled and low-skilled new jobs are projected for Pennsylvania—a growth rate of 9.5% to 2024.
- Skilled jobs are growing at a faster level at 10.9%—303,800 new jobs to 2024.
- Low-skilled jobs are growing more slowly at 8.1%.
- STEM-H jobs (a subset of skilled jobs) show growth of 15.6%.
- When combined with demand to replace those who retire or leave the labor force, skilled jobs openings to 2024 will be 963,100.
- Skilled occupations that show particularly high demand from employers include: accountants and auditors, registered nurses, computer systems analysts, and general and operations managers.

Pennsylvania generates a substantial amount of talent for the labor market every year.

- More than 400 post-secondary institutions[5] enroll over 800,000 students annually.
- Around 166,000 students graduate annually with an associate's degree or higher.[6]
- About 100 institutions offer associate's programs, conferring more than 29,000 associate's degrees (State System universities averaged 414 awards annually).
- Over 150 institutions offer bachelor's programs, awarding over 91,000 bachelor's degrees annually (State System universities averaged 19,200 bachelor's degrees).
- Over 100 institutions offer graduate degree programs, awarding almost 46,000 graduate degrees annually (State System universities averaged 5,700 graduate degrees).

Notable gaps exist between the kinds of skilled workers PA employers demand and the skills that universities in the state are producing.

- The gap analysis **evaluated 445 skilled occupations** in Pennsylvania to identify occupational categories where employer demand at the state level will exceed what universities are likely to provide over the years to 2024.
- **Substantial gaps are projected** for registered nurses, accountants and auditors, computer systems analysts, maintenance and repair workers, computer programmers, licensed practical and vocational nurses, software developers, dental hygienists, sales representatives, and market research analysts.
- Fourteen occupations in the **healthcare practitioners and technical category** indicate an average annual gap of over 2,000 annual openings to 2024, including: nurses, dental hygienists, medical and clinical laboratory technicians, and veterinarians.
- Twenty occupations in **business and financial operations** show an average annual excess demand gap of 2,000, including: accountants and auditors, market research analysts, and claims adjustors.
- Ten occupations in **computer and mathematical occupations** have excess employer demand totalling 1,300 annually, including computer systems analysts, information security analysts, computer programmers, and software developers.
- An average annual demand gap of over 1,500 is projected in **middle skill jobs.** The highest demand gaps include: maintenance and repair workers; industrial machinery mechanics, computer-controlled machine tool operators, and machinists.
- **STEM-H** was a significant driving force of job growth, demand, and gaps, including jobs in healthcare practitioner roles, business and finance, computing and mathematics.

The gap analysis is only one component of a larger resource base that the State System and universities can use for program development, strategic planning, engagement with businesses, and support for current and prospective students. Other factors, not included in this analysis that could also influence decision-making in these areas, include higher education trends, student aspirations, university goals, live data analysis, and direct employer input. These should be considered together with the gap analysis results.

[5] Including branch campuses. [6] Using annual average of supply from 2011 to 2013.