



Indiana Career Council

Progress Report to the Indiana Legislative Council

December 1, 2013

Introduction

The Indiana Career Council is pleased to submit this progress report of its activities related to the fulfillment of its statutory duties found in I.C. 22-4.5-9. The progress report is broken into sections which are designed to provide the Legislative Council with insights into the structure of the council, a summary of its work to date, the strategic plan framework that it has developed, the recommendations of two taskforces it has established, and its plan moving forward as it completes its strategic plan.

Throughout its initial meetings, the Council has compiled a myriad of information and data, had robust discussions, and engaged numerous partners as it seeks to develop the comprehensive strategic plan for Indiana's education, job skills development, and career training system. This progress report contains numerous attachments and weblinks that seek to provide the Legislative Council more detail in the work that the Career Council has completed to date.

The Career Council believes that the work contained within this progress report indicates that it is well on its path towards accomplishing the comprehensive vision it has established:

The Career Council will act with urgency to direct coordinated efforts among the responsible state agencies and partners to improve the education and training of Indiana's current and emerging workforce in order to close the skills and knowledge gap. Concurrently, the Council will support the growth of Indiana's economy by cultivating development of industries in Indiana that will increase the demand for STEM and bachelor's-level job opportunities.

Overview of Indiana Career Council

The Indiana Career Council was established by I.C. 22-4.5-9, and imbued with specified responsibilities by the Indiana General Assembly. It was established to:

- Align and coordinate the activities conducted by groups within the state's education, job skills development, and career training system;
- Ensure that education and training provided by the system meets the existing and future needs of the state's job market;
- Provide administrative oversight of the Indiana Workforce Intelligence System (IWIS);
- Develop and maintain an inventory of current job and career training activities provided by members of the system, and submit to the legislative council an updated inventory by August 1st of each year; and
- Develop a comprehensive strategic plan to improve the state's education, job skills development, and career training system, and submit a plan to the legislature no later than July 1, 2014, with a progress report due on December 1, 2013. The strategic plan must include:

- Proposed changes to legislation to improve coordination, data sharing, and communication among members of the state’s education, job skills development, and career training system;
- Proposed changes to enhance Indiana’s science, technology, engineering, and math (STEM) employment opportunities; and
- Proposed changes to address the shortage of workers for current employment opportunities and the shortage of employment opportunities for individuals with a bachelors or advanced degree.

The law also specified that throughout its work, the Council should coordinate its work with the Indiana Education Roundtable and the Indiana Works Council, and to obtain input from the following:

- Indiana employers and employer organizations;
- Public and private institutions of higher education;
- Regional and local economic development organizations;
- Indiana labor organizations;
- Individuals with expertise in career and technical education;
- Military and veterans organizations; and
- Organizations representing women, African Americans, Latinos, and other significant minority populations and having an interest in issues of particular concern to these populations.

I.C. 22-4.5-9 established specific membership requirements of the Council, which is intended to comprise executive-level leadership from all parts of Indiana’s education, job skills development, and career training system. The Governor was charged with appointing members to the Council, as well as serving as the chair of the Council; and the Lieutenant Governor was designated as the vice chair. Following the establishment of I.C. 22-4.5-9, Governor Mike Pence appointed members to the Council, following the requirements within the law, and presided over the initial meeting of the Council on July 29, 2013.

A chart indicating the members of the Council, along with the role each member represents is included below.

Indiana Career Council Members	
Ellspermann, Lt. Governor Sue	Lieutenant Governor, State of Indiana
Hobbs, Gary	Representative - Business Community
Loughrey, Joe	Representative - Manufacturing Industry
Lubbers, Teresa	Commissioner, Indiana Commission for Higher Education
Minott, Debra	Secretary, Indiana Family Social Services Administration
Pence, Governor Mike	Governor, State of Indiana

Pickett, Neil	Representative - Life Sciences Industry
Ritz, Superintendent Glenda	Superintendent of Public Instruction, State of Indiana
Sanders, Scott	Commissioner, Indiana Department of Workforce Development
Smith, Victor	Secretary, Indiana Department of Commerce
Snyder, Tom	President, Ivy Tech Community College of Indiana
Waldrop, Dan	Representative - Organized Labor
Advisory Members	
Braun, Representative Steve	Indiana House of Representatives
Brinegar, Kevin	Indiana Chamber of Commerce
Gaylor, J.R.	Associated Builders and Contractors
Hale, Representative Christina	Indiana House of Representatives
Kiely, Pat	Indiana Manufacturers Association
Mrvan, Senator Frank	Indiana Senate
Smith, Senator Jim	Indiana Senate

In order to accomplish its enumerated functions and to conduct business, the Council established a plan of meeting on a monthly basis, and to-date, meetings have been held in July, August, September, October, and November. All meetings have been open to the public, with meeting notices, agendas, approved minutes, and other meeting documents made available to all interested parties at the Center for Education and Career Innovation’s website: www.in.gov/ceci.

Summary of Work

Throughout its five initial meetings, the Council organized its work about a number of activities that further developed its understanding of the current status and success of Indiana’s education, job skills development, and career training system, analyzing challenges facing the system, and identifying opportunities for improving the system. These activities also ensured that the Council was able to complete its statutory responsibilities, while also developing the initial framework for its strategic plan. The activities conducted by the Council consisted of:

- Reviewing and approving the contents of the inventory of current job and career training activities provided by the system, as required by I.C. 22-4.5-9-4;
- Investigating and analyzing the existence of so-called “skill gaps” between the needs of Indiana’s employers and the skills available among Indiana’s workforce;
- Developing an asset map of publicly-funded education, job skills development, and career training programs offered by state agencies represented on the Career Council;

- Establishing a taskforce to develop a plan for the effective oversight of the Indiana Workforce Intelligence System;
- Establishing a taskforce to investigate best practices among community colleges throughout the United States that lead to greater post-secondary educational attainment and closer connections to employment sectors; and
- Developing a greater understanding of Career Pathways and Sector Strategies as methods to align and integrate the activities of the multiple partners in Indiana’s education, job skills development, and career training system.

A brief discussion of each of these activities follows:

Inventory of Job and Career Training Activities

At its inaugural meeting, the Council reviewed an inventory of job and career training activities that were conducted by state and local agencies through the usage of state and federal funding. This inventory, assembled by the Department of Workforce Development, contained education and training information, data, and outcomes from the Department of Education, Department of Workforce Development, the Commission for Higher Education, the Indiana Economic Development Corporation, the Division of Family Resources, and Trade Adjustment Assistance Community College and Career Training grants provided to Ivy Tech Community College and Vincennes University. Following review, the Career Council approved its submission to the legislative council. A copy of this inventory, as submitted to the legislative council on August 1, 2013 may be found at:

<http://www.in.gov/gov/files/CareerCouncil/Career%20Council%20Report.pdf>.

In addition, the Council agreed to submit an updated inventory that provides a more integrated, comprehensive view on the programs of education and training that are being pursued by constituents of Indiana’s system, and the outcomes that are achieved through the usage of the programs. To assist in the development of this inventory, at its August 19, 2013 meeting, the Council unanimously passed a resolution in which members of the Council committed their agencies to collecting and reporting the information needed for a comprehensive, integrated inventory of job and career training activities. This resolution may be found at <http://www.in.gov/icc/2343.htm>.

The Council was presented with an updated inventory at its November 2013 meeting. Instructions for understanding the updated inventory, as well as weblinks to the inventory contents have been appended as an attachment to this report.

Skill Gap Review

In order to develop a common understanding of the gap between the needs of Indiana’s employers and the skills and education of the state’s workforce, the Council identified existing research that had been conducted around these gaps. As part of this process, staff of the Council identified over twenty reports and studies that had been developed to this end. A listing of the reports and studies considered by the Council is appended to this report as an attachment.

The Council enlisted the assistance of the Indiana Business Research Center (IBRC) to conduct a thorough review of these existing skill gap reports and to provide a summary of the conclusion of the reports, identifying common themes and recommendations, to the Council. IBRC presented a written report of its findings to the Council at its September 2013 meeting. The findings of IBRC's study included the following:

- Many employers report difficulty in filling positions with qualified candidates. This is a widespread phenomenon, especially in rapidly growing technical fields requiring college degrees. It is also very common, and with greater numbers, for "middle skill" jobs, the ones that require an associate degree or post-secondary vocational certification. Two-thirds of the U.S. job openings in this decade will require such credentials.
- Many employers no longer expect to provide substantial on-the-job training to new hires. They have come to rely on educational institutions to prepare students for the working world. But most educational institutions do not offer programs of student well-suited to filling this need.
- Technical skills are among those in shortest supply. One survey reported that 35 percent of manufacturers expected a shortage of scientists and engineers, but twice as many expect a shortage of technicians and skilled production workers.
- "Soft" skills are often cited as hard-to-find. These refer to traits such as flexibility and adaptability, interpersonal skills, critical thinking, problem-solving, and professionalism.
- The Indiana (and, largely, U.S.) educational system generally has downplayed the role of preparing workers for vocational and technical occupations. Career and Technical Education curricula typically do not offer many options that lead to well-paid work, and these curricula are often viewed as less desirable than academic curricula designed to prepare students for college. But many college students lack insight into how their studies can lead to productive, well-paid careers that will be in-demand.

IBRC also indicated that the reports contained numerous recommendations for narrowing the skills gap, including:

- Ensuring close partnerships between industry, educators, and students at all levels;
- Involving the business community throughout the talent-development pipeline;
- Placing an earlier emphasis on career options;
- Providing dual tracks of career readiness and college readiness, while retaining the flexibility for students to pursue both;
- Implementing and/or enhancing three-year CTE programs, where students spend two years of high school and one year in post-secondary, culminating in an industry-recognized credential;
- Integrating basic skills instruction within occupational training/education;
- Enhancing/expanding the use of prior learning assessments, competency-based models, and open courseware to accelerate degree attainment;
- Expanding eligibility to financial aid for sub-baccalaureate degree and part-time students;
- Expanding federal on-the-job training (OJT) programs;

- Establishing statewide lifelong learning accounts via payroll withholding for continuing education; and
- Ensuring that longitudinal data is used at all levels to better understand and serve working learners.

A copy of IBRC's report, entitled, *The Skills Gap Issue: Insights from the Literature*, has been appended as an attachment to this report.

Development of Asset Map

To aid in the development of its strategic plan, the Council assembled an asset map, listing the funding streams and programs state agencies currently offer for the education, training, and career development of Indiana's emerging and existing workforce. The asset map, which may be found at the following weblink: http://www.in.gov/icc/files/Career_Council-Asset_Mapping-Combined.pdf, includes the following:

- Name of program of funding stream;
- A brief description of the funding stream or program;
- The state agency or organization that oversees the program;
- The funding source and any guiding laws or regulations for the program;
- An estimate of the annualized amount of funding and a duration or timeframe in which the funding is available;
- A brief description of the clients served by the program;
- The performance metrics that used for the program; and
- Key limitations and other information about the program.

In the development of the asset map, the Council has identified 30 programs/funding streams that are overseen by the Department of Workforce Development, the Commission for Higher Education, the Department of Education, the Family and Social Services Administration; and the Indiana Economic Development Corporation, and collectively represent over \$650 million in public funding allocated annually to education, training, and career development programs in Indiana. As the Council continues the development of its strategic plan, it will be using this asset map to identify what resources are available, and how they can be better aligned.

Establishment of IWIS Taskforce

One of the Council's statutory duties, as established in I.C. 22-4.5-10-3, is to provide administrative oversight of the Indiana Workforce Intelligence System (IWIS). This data system is meant to contain longitudinal educational and workforce data that can be used to improve the effect of the State's educational delivery system on the economic opportunities of Hoosiers, and to guide state and local decision makers.

To assist the Council in better understanding of what IWIS is and its potential uses, Department of Workforce Development Commissioner and Council member, Scott Sanders, provided an overview of

IWIS at its August 2013 meeting. The Council then passed a resolution creating the IWIS Taskforce to develop a plan for the Council to ensure it was positioned to provide effective oversight of IWIS. This resolution may be found at <http://www.in.gov/icc/2343.htm>. The Council charged the taskforce with reviewing the current functionality of IWIS, investigating best practices for longitudinal data systems, and developing and submitting recommendations to the Career Council for improvements to IWIS.

The taskforce formed quickly, and held five public meetings between September and November of 2013. Members of the taskforce consisted of Representative Steve Braun, who served as the chairman of the taskforce; Molly Chamberlin, Associate Commissioner for Research and Information, Commission for Higher Education; Derek Redelman, Vice President for Education and Workforce Policy, Indiana Chamber of Commerce; Carol Rogers, Chief Information Officer, Indiana Business Research Center ; Scott Sanders, Commissioner of the Department of Workforce Development ; and Joshua Towns, Director of Information Technology, Department of Education. In the fulfillment of its duties, the taskforce established a work plan, wherein it first reviewed the current functionality of IWIS, and subsequently investigated best practices throughout the U.S. by calling in experts from other states, organizations, and private groups that manage, oversee, review, and/or develop longitudinal data systems.

A section included later in this report indicates the recommendations provided by this taskforce, and the taskforce's full report may be found at the following weblink:

http://www.in.gov/icc/files/IWIS_Taskforce_Recommendations-FINAL.pdf.

Establishment of Community College Best Practices Taskforce

Indiana's community college system and its sub-baccalaureate educational institutions, including Ivy Tech and Vincennes University, comprise key components of the state's education, job skills development, and career training system. To fulfill its legislative duty of addressing the shortage of qualified workers for current employment opportunities, the Council identified that it needed to focus efforts on developing a high level understanding of the impact that these educational institutions have on the system. In order to foster this understanding, the Council, through resolution, established a taskforce to review community college best practices and determine the impact that Ivy Tech and Vincennes University have on the state's education, job skills development, and career training system. A copy of the resolution creating this taskforce may be found at <http://www.in.gov/icc/2343.htm>.

The Community College Best Practice taskforce conducted seven public meetings throughout the months of September, October, and November. Taskforce members consisted of Chairman Joe Loughrey; Representative Christina Hale; Gary Hobbs; Dick Helton, President of Vincennes University; Teresa Lubbers, Commissioner of the Indiana Commission for Higher Education; and Tom Snyder, President of Ivy Tech Community College of Indiana. In fulfilling its duties to review best practices in community colleges through the U.S., to analyze the practices of Ivy Tech and Vincennes University, and to make recommendations to the Council on how these schools can implement best practices that address the needs of the state's employment sectors, the taskforce carried out an intensive work plan. First, it reviewed best practices throughout the U.S. by calling in experts from organizations that study the practices of community colleges. Following this review, the Commission for Higher Education

reported where it believed that progress was being made throughout Indiana; and finally, both Ivy Tech and Vincennes University reported on their progress in implementing innovative best practices.

A section later in this report provides a summary of the resulting recommendations put forth by the taskforce, and the taskforce's full report may be found at the following weblink:

http://www.in.gov/icc/files/Career_Council_CC_Best_Practices_Recommendations-Final.pdf.

Career Pathways and Sector Strategies

Career pathways are defined as a series of connected education and training strategies and support services that enable individuals to secure industry-relevant certification(s) and obtain employment within an occupation and to advance to higher levels of future education and employment in that area. Effective career pathways braid a myriad of programs and funding streams together in a coordinated manner across education and training programs to offer a clear sequence of industry-relevant coursework, opportunities, and credentials to job seekers. Sector strategies harness industry intelligence to identify industry needs and design education and training resources to meet those needs. Industry partnerships, which result from sector strategies, create plans to identify the key skill needs of sectors, provide input into the development of training programs, establish and support career pathways within the sector, identify and align resources for education and training to support the sector, and establish strategies for measuring the success and impact of sector-defined education and training strategies.

At recent meetings, the Career Council has begun to investigate the potential of combining career pathways and sector strategies as method for aligning and coordinating education and training activities to meet the needs of industry gap. Through the usage of these strategies, the state could incorporate the efforts among partners in the K-12, post-secondary, and economic and workforce development systems. In order to accomplish this, the Council would need to garner state, regional, and local commitment to:

- Share vision and overarching strategies;
- Respond to local/regional employer needs in key sectors;
- Establish metrics towards specific indicators and outcomes;
- Align financial and other resources to incentivize coordination across systems;
- Contextualize instruction across pathways from secondary, include career and technical education, to post-secondary education and training;
- Offer multiple entry and exit points amid stackable credential continuum for clients of all ages; and
- Support student transitions and reduced barriers to completion through support services, assessments, and counseling.

As the Council continues in the development of its strategic plan, it will continue to investigate career pathways and sector strategies as overarching strategies that may help transform Indiana's education,

job skills development, and career training system to enhance its connections with and support of Indiana's employment community.

More information on career pathways and sector strategies may be found in the PowerPoint presentation located at the following weblink:

http://www.in.gov/icc/files/Career_Pathways_ICC_Sept_25_2013_final.pdf.

Strategic Plan Framework

Throughout its initial meetings, the Council has focused on the development of a framework that will serve as the foundation of its strategic plan. This Council developed this framework first by considering challenges and strengths that exist within Indiana's education, job skills development, and career training system and within Indiana's economy on the whole. Then, the Council developed a comprehensive vision and goal statement that will serve as guideposts for the development of the strategic plan; and finally, the Council developed strategic objectives and imperatives that will act as the pillars of the strategic plan. These strategic objectives and imperatives were developed following the required contents of the strategic plan, as established within I.C. 22-4.5-9. As the Council continues its work, it will development specific objectives and tactics for each of the strategic imperatives included within the framework.

The Strategic Plan Framework, unanimously approved by the Council at its November 25, 2013 meeting follows:

Challenges

- 60 percent of jobs vacancies in Indiana projected over next decade will require some post-secondary education (Carnavale, 2013)
- Over 115,000 new STEM jobs are projected for Indiana by 2018
 - 40 percent of jobs will require post-secondary education leading up to an associate's degree
 - 60 percent will require four-year degree or more
- Employers consistently report the need for soft skills (problem-solving, flexibility and adaptability, motivation, interpersonal and professionalism, etc. skills) (Indiana Business Research Center, 2013)
- Over half of employers indicate that additional job training or continuing education would benefit most of their workers (Indiana Chamber, 2013 Employer Workforce Skills Survey)
- Indiana's unemployment rate remains at +/-8%
- Indiana ranks 39th nationally in per capita income(\$38,119), and 33rd nationally in median family income(\$46,974) (Bureau of Labor Statistics, 2012)
- Nationwide, 39 percent of businesses report difficulty in finding qualified talent (Manpower 2013 Talent Shortage Survey)
- Indiana's employers continue to report difficulty in filling open positions due to skill deficits of prospective employees
- One in three in Indiana's workforce doesn't have the post-secondary skills deemed minimally necessary by employers
 - One in six doesn't have a High School Diploma or equivalent (American Community Survey)
- 21 percent of Indiana's workforce have a bachelor's degree or higher (American Community Survey)

- 28 percent of Indiana’s workforce have some college or an associate’s degree (American Community Survey)
- Only four percent of Indiana’s two-year college students complete on time and only 12 percent graduate within three years (CHE, Aiming Higher, 2011)
- There are at least 30 separate programs overseen by five state agencies represented on the Career Council, and numerous other programs overseen by other state-level and local organizations, that focus on the delivery of education, job skills development, and career training
 - Examples: \$49 million annually for WIA; \$27 million for Adult Education; \$23 million for Perkins CTE; \$16 million for TANF/IMPACT; \$12.5 million for Skills Enhancement Fund
 - Programs do not have common outcome metrics or measurement of effectiveness/success
- Too many graduates from Indiana’s four-year colleges and universities leave Indiana following graduation

Strengths from which to Build

- Indiana ranks 5th nationally in the rate of private sector job growth
- Indiana ranks 1st nationally in the growth of trade, transportation, and utilities sectors
- Indiana ranks 4th nationally in the growth of manufacturing sector
- Indiana is one of only five states ranked in the first tier for every significant indicator of life sciences industry strength, including concentration of companies, number of companies, and total number of bioscience industry jobs (2012 Biotechnology Industry Organization)
- There are numerous job openings in the state’s high-wage industries; Indiana’s electronic labor exchange system, Indiana Career Connect, currently lists over 94,000 job openings, with over 9,200 jobs posted in the Health Care and Social Assistance industry, nearly 5,300 jobs posted in the manufacturing industry, and nearly 3,400 job postings in the professional, scientific, and technical services industry
- Indiana ranks in the top ten of the Tax Foundation’s 2013 State Business Tax Climate Index
- Indiana is home to internationally-regarded four year research universities
- Indiana houses the nation’s only statewide Community College
- Numerous existing industry-partnership organizations (Conexus, Biocrossroads, Orthoworx, etc.) are well-established in the state

COMPREHENSIVE VISION

The Career Council will act with urgency to direct coordinated efforts among the responsible state agencies and partners to improve the education and training of Indiana’s current and emerging workforce in order to close the skills and knowledge gap. Concurrently, the Council will support the growth of Indiana’s economy by cultivating development of industries in Indiana that will increase the demand for STEM and bachelor’s-level job opportunities.

GOAL STATEMENT

The Council will make recommendations to the Executive and Legislative branches of Indiana's state government in order to ensure that Indiana's education, job skills development, and career training system supports the aspiration and opportunities of the state's current and emerging workforce, closes the skills and knowledge gap, and support the growth of Indiana's economy.

Strategic Objectives

- 1. Increase coordination, data sharing, and communications among state, local, and private agencies, groups, and associations in Indiana's education, job skills development, and career training system**
 - ↳ Strategic Imperative - *Ensure that the State of Indiana maintains a cohesive, demand-driven education, job skills development, and career training system that focuses on developing and delivering client-centered career pathways*

- 2. Address the shortage of qualified workers for current employment opportunities**
 - ↳ Strategic Imperative - *Increase the skill and education levels of Indiana's workforce in order to meet the needs of the State's employer community*

- 3. Prepare Indiana's workforce, students, and incumbent workers for high-value jobs of the future**
 - ↳ Strategic Imperative – *Increase the alignment between the education and training provided through the use of public funds with high paying occupations and careers that are projected for growth*

- 4. Make Indiana a leader in employment opportunities related to the fields of science, technology, engineering, and math (STEM)**
 - ↳ Strategic Imperative - *Make Indiana a global leader in science, technology, engineering, and math (STEM) talent development and employment opportunities*

- 5. Address the shortage of employment opportunities for individuals with a bachelors degree or greater educational attainment**
 - ↳ Strategic Imperative - *Increase the number of career opportunities for Hoosiers that have obtained a bachelors degree or greater educational attainment*

Taskforce Recommendations

On November 25, 2013, the Career Council unanimously approved the following recommendations provided by its taskforces:

Indiana Workforce Intelligence System Taskforce Recommendations

1. The Career Council should support the establishment, and formalization, of a long-term solution for the governance of the Indiana Workforce Intelligence System. This governance structure should ensure that partners that provide data into the system have equal representation and input into the oversight of the system and that those partners are guaranteed continued “ownership” of their agency-specific data.
2. The Career Council should authorize the IWIS taskforce to manage the procurement of vendor to do the following:
 - Conduct a business process analysis for IWIS, reviewing data within system and system outputs, identifying gaps, and developing solutions;
 - Ensure that a long-term solution is in place for efficiently and accurately linking disparate data:
 - Identify potential matching solutions and select an option;
 - Review accuracy of solution and conduct test cases;
 - Ensure performance in linking tens of millions of records; and
 - Ensure ability to perpetuate linkages over time.
 - Ensure that robust, clear, transparent, and usable data structures are created:
 - Create key questions, following guidance from Career Council, or designee; rank by importance;
 - Identify the necessary data elements and identify data gaps;
 - Identify strategies for obtaining missing data elements; determine risks vs. benefits of missing data elements; and develop a process for collecting data elements, collection owners, etc;
 - Create business rules or data models; and
 - Implement data models/cubes.
 - Ensure that stakeholders have appropriate access to data and that confidentiality and security is protected:
 - Identify key audiences for each output;
 - Define output requirements, ensuring that all key questions can be answered;
 - Define output platforms and reporting mechanisms;
 - Define appropriate access and access points;
 - Create and deploy output platforms; and
 - Determine the feasibility of integrating advanced analytics into output platforms.

Community College Best Practices Taskforce Recommendations

1. The Career Council should request that Ivy Tech and Vincennes University investigate the implementation of best practices indicated within this report and provide a progress report of their activities to the Career Council by March 1, 2014. Further, Ivy Tech and Vincennes University will be invited to provide brief presentations to the Career Council, covering the implementation of best

practices aimed at increasing the number of program completions, at the March 2014 Career Council meeting. The recommended best practices consist of the following:

The Expansion of:

- Co-requisite course offerings in Math and English;
- Accelerated Degree Programs;
- Industry Partnership Work-School Models;
- Alternative Paths to Remediation; and
- Programs Facilitating and Encouraging Full-time Enrollment.

The Implementation of:

- Block scheduling availability at all Campuses;
- Focused Strategies for Working Adults;
- Meta-Majors Programming that are Aligned with Primary Employment Sectors; and
- Meaningful Linkages between Education and Workforce Outcomes.

2. The Community College Best Practices taskforce should continue its work through at least March 2014. During this time, the taskforce will further investigate the following in collaboration with the Commission for Higher Education, with the intention of making final policy and potential legislative recommendations to be included in the final Career Council strategic plan due on July 1, 2014:

- Funding Levels of the Community Colleges;
- Student Financial Aid Programs Focused to Working Adults/Non-Traditional Students;
- Enhanced industry Connections to Community College Programs; and
- Closer Alignment of Community Colleges with Sector Strategies.

Plan Moving Forward

In order to ensure that the Career Council stays on track to complete its strategic plan, it has developed a work plan, indicating the timeline of activities it would conduct between December 2013 and June 2014. The work plan has been devised to ensure that the Council receives maximum input from interested parties and organizations throughout the development of its strategic plan.

As is indicated in the work plan, beginning at its December 2013 meeting, and continuing through its April 2014 meeting, the Council will hear presentations from at least two groups per meeting covering viewpoints and recommendations to be considered as the Council develops the strategic plan. Additionally, the Council has established two taskforces that have been charged with developing the specific objectives and tactics that will be included in the final strategic plan. These taskforces, the Program Alignment and Talent Development Taskforce and the Employment Growth Taskforce will conduct numerous public meetings between December 2013 and early Spring 2014, and will provide their respective recommendations to the Council in early Spring 2014. Finally, as part of its work plan,

the Council will work with partners to hold a number of town hall meetings to solicit additional input and feedback from interested individuals and groups.

The work plan and related notes follow:

December 2013

- Progress report and interim recommendations due to Indiana General Assembly on December 1, 2013
- Disseminate progress report, interim recommendations, and strategic plan framework to interest groups (*requesting input*)
- Provide Direction to Works Councils on report of recommendations for CTE programs (*details/requirements to be determined*)
- Taskforce meetings begin
- Presentation to Career Council from [Placeholder for two interest groups-see notes below] (*input into strategic plan*)

January 2014

- Taskforce meetings
- Report to Career Council on written input received from interest groups
- Presentation to Career Council from [Placeholder for two interest groups-see notes below] (*input into strategic plan*)

February 2014

- Taskforce reports due to Council
- Presentation to Career Council from [Placeholder for two interest groups-see notes below]
- Outline of strategic plan finalized – used to develop presentation for public meetings

March 2014

- Regional town hall meetings for input into strategic plan – see notes below
- Reports from Works Councils due to Career Council/Reviewed at Career Council meeting
- Presentation to Career Council from [Placeholder for two interest groups-see notes below] (*input into strategic plan*)

April 2014

- Regional town hall meetings for input into strategic plan (cont.)
- Special working meeting of Career Council (*review input/comments received*); finalize contents of strategic plan

May 2014

- Career Council reviews draft strategic plan and directs revisions
- Draft strategic plan made available for public comment and review (*to be available for 30 days*)

June 2014

- Career Council reviews comments and feedback obtained from public review
- Career Council directs final revisions to plan
- Plan reviewed and approved by full Career Council

July 2014

- Final Strategic Plan delivered to Indiana General Assembly on July 1, 2014

Notes

Taskforces

- Responsibility is to utilize strategic objectives and imperatives to develop specific objectives and tactics to be included in final strategic plan
- Reports due to Career Council at February 2014 meeting

Supply-Side (Program Alignment and Talent Development Taskforce)

- Strategic Plan Objectives 1, 2, 3
- Should include DWD, CHE, DOE, FSSA, Labor, Employer Representative(s)

Demand-Side (Employer Development Taskforce)

- Strategic Plan Objectives 4, 5
- Should include IEDC, Chamber, STEM Employer Representative, IMA

Interest Groups

- Law that created Career Council requires the Council to obtain input from the following groups in the development of the strategic plan:
 - Indiana employers and employer organizations
 - Public and private institutions of higher education
 - Regional and local economic development organizations
 - Indiana labor organizations
 - Individuals with expertise in career and technical education
 - Military and veterans organizations
 - Organizations representing minorities
- Law also requires the Career Council to coordinate its duties with the following:
 - Education roundtable
 - Indiana works councils
- All meetings between December 2013 and March 2014 will include presentations made by interest groups representing these constituencies/partners

Town Hall Meetings

- 5-6 Meeting to solicit input/feedback from the public (and interest groups)
 - 3 in Northern Indiana
 - 1 in Central Indiana
 - 2 in Southern Indiana
- Sponsored/Hosted by Partner Organizations (Chamber, IMA, Ivy Tech, others)
- Video introduction from Governor
- 20-30 presentation of plan
- 30 minute question and answer period
- 30-40 minutes allotted for public statements

Attachments

List of Skill Gap Reports Reviewed

The Skills Gap Issue: Insights from the Literature – Indiana Business Research Center

Updated Inventory of Job and Career Training Activities

Attachment 1 – List of Skill Gap Reports Reviewed

Statewide Reports

Title (click to access)	Scope	Date	Brief Summary
Using Post-Baccalaureate Education as a Competitive Advantage for Indiana's Life Science Industry	Statewide/Life Sciences	2012	Report identifies post-bachelors degree educational needs of Indiana's Life Sciences employers.
Completion with a Purpose: New Strategies to Strengthen Technical Education in Indiana.	Statewide/Multi-Industry	2012	Report focuses on needs for improved technical education in order to connect to needs of Indiana's high wage sectors.
A Quest for Clarity: Identifying the Market for Short-term Training Opportunities and Industry-Recognized Credentials in Indiana	Statewide-Multi-Industry	2012	Report provides an analysis of the sub-bachelor's degree education, training, and skills needed by Indiana's employers and those possessed by Indiana's workforce.
Indiana's Competitive Economic Advantage: The Opportunity to Win the Global Competition for College Educated Talent	Statewide/Multi-Industry	2012	Report focuses on the supply and demand of post-bachelor's degree talent in Indiana.
Indiana's Adult Education and Workforce Skills Performance Report: Preparing Adults for a Brighter Future	Statewide/Multi-Industry	2009	Report focuses on the needs for educational attainment among Indiana's adult population, and provides an analysis of the skills and education needed.
A Demand-Side Strategy to Meet Indiana's Basic Skills Challenge	Statewide/Multi-Industry	2005	Report focuses on education, training, and skills needed among Indiana's incumbent workers.
Reaching Higher, Achieving More	Statewide	2012	Report focuses on educational gaps within Indiana's workforce and improvements needed for increased completions.

Sustaining Indiana's Wealth Producing Economy: A Technically Skilled Workforce for the Future	Statewide/Multi-Industry	2011	Presentation identifies Indiana's wealth-creating sectors, and identifies education and skills needed for workers in those sectors.
New Day, New Rules: What Indiana Should Know about Education in Hard Times	Statewide/Multi-Industry	2011	Presentation focuses on education and skills needed in Indiana's growing industries.
Innovation Vital Signs: Indiana's Federal R&D and STEM Jobs Report	Statewide/STEM	2013	Report identifies the growing need for STEM disciplines among Indiana's workforce.
2013 Employer Workforce Skills Survey	Statewide	2013	Report summarizing the results of Ready Indiana's survey of Indiana's employers.
Resources for Understanding Skills and Education Gaps in Indiana	Statewide/Multi-Industry	2013	Report prepared by Indiana Business Resource Center summarizing a number of skill/education gap analyses, and providing weblinks to numerous other resources.

Reports with National Focus

Title (click to access)	Scope	Date	Brief Summary
Advanced Manufacturing Techniques among U.S. Middle Market Manufacturers	Nationwide/Mfg.	2013	Report identifies skills gap as important issue within middle market manufacturing.
Boiling Point? The Skills Gap in U.S. Manufacturing	Nationwide/Mfg.	2011	Report shows skills gap/shortage among specific occupations within manufacturing sector.

Regional Reports

Title (click to acces)	Scope	Date	Brief Summary
Economic Growth Region 1 Education and Workforce Data	Regional/Multi-Industry	2012	Report produced for Indiana's Education Roundtable covers the education and skills needed by Northwest Indiana's employers.
Economic Growth Region 2 Education and Workforce Data	Regional/Multi-Industry	2012	Report produced for Indiana's Education Roundtable covers the education and skills needed by North Central Indiana's employers.
Economic Growth Region 11 Education and Workforce Data	Regional/Multi-Industry	2012	Report produced for Indiana's Education Roundtable covers the skills and education needed by Southwest Indiana's employers.
Southwest I-69 Corridor Education and Workforce Data	Regional/Multi-Industry	2012	Report produced for Indiana's Education Roundtable covers the skills and education needed by employers in the Southwest Indiana I-69 Corridor.
Hire Up Indy: Supporting our Wealth Driving Sectors: Demand for Technical Talent in Central Indiana	Regional/Multi-Industry	2012	Report identifies the primary employment sectors in Central Indiana, and education and skills needed by employers in those sectors.
Hire Up Indy: Supporting our Wealth Driving Sectors: The Supply of Technical Talent in Central Indiana	Regional/Multi-Industry	2012	Report identifies the skills and education levels of the workforce in Central Indiana, and identifies the gaps between the skills and education needed and those that are available.

**Attachment 2 - The Skills Gap Issue: Insights from the Literature – Indiana
Business Research**

The Skills Gap Issue: Insights from the Literature

September 2013

A report to the Indiana Career Council

from the

Indiana Business Research Center

Kelley School of Business

Indiana University

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Executive Summary

At the request of the Indiana Career Council, researchers from the Indiana Business Research Center reviewed the rapidly growing literature on the “skills gap” problem, seeking common threads connecting the various studies, reports and opinions merging in recent years. This report summarizes key findings and recommendations from more than two dozen reports on the subject.

Key Points

- “Skill gap” is used to refer to various kinds of issues, but what they have in common is a mismatch between the abilities employers seek in filling positions and the abilities that candidates offer.
- Many employers report difficulty in filling positions with qualified candidates. This is a widespread phenomenon, especially in rapidly growing technical fields requiring college degrees. It is also very common, and in even greater numbers, for “middle skill” jobs, the ones that require an associate degree or postsecondary vocational certification. Two-thirds of the U.S. job openings in this decade will require such credentials.
- Many employers no longer expect to provide substantial on-the-job training to new hires. They’ve come to rely on educational institutions to prepare students for the working world. But most educational institutions do not offer programs of study well suited to filling this need.
- Technical skills are among those in shortest supply. One survey reported that 35 percent of manufacturers expected a shortage of scientists and engineers, but twice as many expect a shortage of technicians and skilled production workers.
- “Soft” skills are also often cited as hard to find. These refer to traits such as flexibility and adaptability, interpersonal skills, critical thinking, problem solving and professionalism.
- The Indiana (and, largely, U.S.) educational system generally has downplayed the role of preparing workers for vocational and technical occupations. Career and Technical Education (CTE) curricula typically do not offer many options that lead to well-paid work, and these curricula are often viewed as less desirable than academic curricula designed to prepare students for college. But many college students lack insight into how their studies can lead to productive, well-paid careers that will be in demand.
- The most promising route to closing skill gaps appears to involve close partnership between industry and educators at all levels. K-12 students need more exposure to career options and the kinds of training needed to prepare for them. Teachers at K-12 and postsecondary levels need help developing career-relevant teaching materials. The business community should be a close partner with educators throughout the talent-development pipeline, not only in curriculum development and delivery, but also in providing learn-by-doing opportunities where students can gain practical experience applying what they learn.

The Skills Gap: Definition and Importance

Since the end of the Great Recession, unemployment rates have remained stubbornly high and hiring levels have been sluggish, leading researchers and trade associations to deploy surveys to understand why firms are slow to hire. Respondents have increasingly cited the presence of a skills gap as a key factor. Though the term “skills gap” is frequently used, it seems to reflect a range of meanings, and a universal definition has not emerged. This review uses the term in the relatively generic sense encountered in the recent literature.

Researchers at the Chicago Federal Reserve Bank use the term “skills mismatch” to refer to a misallocation between the attributes of individuals seeking jobs and attributes employers require for their vacant positions. This misallocation leaves vacant positions open longer and forces job seekers to search longer to find work. It also results in weak hiring because it is harder for employers to find qualified applicants.¹ This concept appears to apply as well to what most people mean by skills gap.

Interestingly, the perceived presence and severity of a skills gap depends on a firm’s willingness and ability to train its prospective workforce. An example from a report by the Boston Consulting Group on the U.S. manufacturing sector aptly illustrates the point:

“For example, say that two companies are having difficulty recruiting a pipe welder. Company A is a large industrial conglomerate, has training infrastructure, and works with a community college to develop curricula. Company A says it does not perceive a skills shortage because it can “build” a pipe welder by training a high school graduate or by hiring through its partnership with the community college. Company B, by contrast, is a small automotive supplier that lacks the resources for training programs. It says that there is a skills shortage because its available options may be more limited. If it does not have a relationship with the community college or an established apprenticeship program, the most likely way for Company B to hire a pipe welder is to compete for one by offering high pay.”²

To confound the issue even further, a skills gap may refer to either or both of two types of skills. “Hard” skills tend to be technical in nature; examples include necessary qualifications (technical and vocational training), professional certifications, cross sectional technical knowledge and relevant trade skills experience. “Soft” skills include abilities in such areas as communication, problem solving, professionalism, interpersonal interaction, work flexibility and adaptability, as well as overall work ethic, attitude and reliability. Employers’ perceptions of skill gaps vary across industries. For example, among manufacturing firms, the most serious skills deficiencies were

¹ The authors found some evidence of a skills mismatch in the national labor market for middle-skill workers, but not for lower- or higher-skill workers. Faberman, J. and Mazumder, B., 2012. “Is There a Skills Mismatch in the Labor Market?” *Chicago Fed Letter*, July 2012, No. 300.

https://www.chicagofed.org/digital_assets/publications/chicago_fed_letter/2012/cfljuly2012_300.pdf

² Sirkin, H., Zinser, M. and Rose, J. 2013. “Made in America, Again: The U.S. Skills Gap—Could it Threaten a Manufacturing Renaissance?” The Boston Consulting Group.

https://www.bcgperspectives.com/content/articles/lean_manufacturing_us_skills_gap_could_threaten_manufacturing_renaissance/

ranked as inadequate problem-solving skills, followed by a lack of basic technical/vocational training, with inadequate basic employability skills in third place.³

In a 2013 survey, 39 percent of U.S. businesses cited difficulties in finding qualified talent.⁴ The problem seems especially acute in manufacturing, where advanced techniques are dramatically increasing the demand for postsecondary skills in addition to experience.^{5,6} Postsecondary education will likely be a key factor in improving workers' skill sets. The Center on Education and the Workforce (CEW) at Georgetown University estimates that of the 55 million projected new U.S. jobs between 2010 and 2020, two-thirds will likely require at least some postsecondary education, with more than half of these—the “middle-skill” jobs—requiring workers with an associate degree or postsecondary vocational certificate.^{7,8} In Indiana alone, of the nearly 1.1 million job vacancies projected for the current decade, 60 percent will require some postsecondary education, with 38 percent requiring an associate degree or more.⁹ Presaging this trend, over the past third of a century, all of the net job growth in America can be accounted for by positions requiring at least some postsecondary education.¹⁰

In the past, obtaining higher education generally resulted in increased monetary rewards in one's career. Now higher education equates to having a job. These statements stems from observations made about education levels and unemployment rates during and post the Great Recession. During the recession, those with a high school diploma or less lost the most jobs (5.6 million), followed by those with an associate degree or some college (1.75 million), whereas job growth was evident among bachelor degree graduates (187,000). Since the recession, jobs requiring an associate degree or some college have nearly recovered to pre-recession levels. Employment for bachelor's degree holders has grown; however the recovery never came to those with a high school diploma or less.¹¹

³ Deloitte, 2011. “Boiling Point? The Skills Gap in U.S. Manufacturing”
<http://www.themanufacturinginstitute.org/~media/A07730B2A798437D98501E798C2E13AA.ashx>

⁴ Manpower Group, 2013. “2013 Talent Shortage Survey: Research Results”.
http://www.manpowergroup.com/wps/wcm/connect/587d2b45-c47a-4647-a7c1-e7a74f68fb85/2013_Talent_Shortage_Survey_Results_US_high+res.pdf?MOD=AJPERES

⁵ Lumina Foundation, 2013. “Strategic Plan: 2013 to 2016”.
http://www.luminafoundation.org/advantage/document/goal_2025/2013-Lumina_Strategic_Plan.pdf

⁶ An analysis by the State of Oregon Employment Department found that difficult-to-fill vacancies differed from other vacancies in three areas: more likely to require education beyond high school; much more likely to require previous work experience; and higher wages, on average, for difficult-to-fill vacancies. Results were based on Oregon's 2012 quarterly Job Vacancy Surveys.

⁷ Middle skilled jobs are those that require more than a high school diploma but less than a four-year college degree. National Skills Coalition, 2010. “Indiana's Forgotten Middle-Skill Jobs: Meeting the Demands of a 21st Century Economy”.
<http://mpcms.blob.core.windows.net/6864e884-8313-4d1f-97b8-696c824cfd60/docs/8d159b16-702d-4051-939f-631d69a11129/in-forgotten-ms-jobs.pdf>

⁸ Carnevale, A., Smith, N. and Strohl, J., 2013. “Recovery: Job Growth and Education Requirements through 2020.” Center on Education and the Workforce, Georgetown University, <http://cew.georgetown.edu/recovery2020/>

⁹ *Ibid.*

¹⁰ Harvard Graduate School of Education, 2011. “Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century”. http://www.gse.harvard.edu/news_events/features/2011/Pathways_to_Prosperty_Feb2011.pdf

¹¹ Lumina Foundation, *op. cit.*

CEW notes that many of the lost jobs that formerly required a high school diploma and were deemed middle-skill are now considered low-skill jobs and are not likely to return. Employers are increasingly hiring those with postsecondary education for these same jobs—particularly those in the healthcare, science, technology, engineering and math (STEM) areas.¹² The Alliance for Science and Technology Research in America (ASTRA) reported that Indiana will have demand for 123,000 STEM-related jobs by 2018, and the National Skills Coalition projects Indiana to have a total of 550,000 middle-skill job openings by 2020 (half of all openings). However, the key question becomes: Can our educational system produce enough new workers to fill these jobs?^{13,14}

Indiana has launched a number of initiatives to increase overall educational attainment and to increase interest in technical careers. An Indiana Education Roundtable report, however, calls for an even stronger and sharper focus on technical education. Policies are needed to increase the supply of students choosing to enter technical fields related to the growing clusters that are expanding the state's economy. The education pipeline feeding these fields is leaking potentially high-value students (or not capturing potentially interested students), and it needs fixing. To reach ambitious goals for educational attainment among adults¹⁵, and to supply enough qualified workers to meet demand, many more students and working adults will need to complete postsecondary credentials, and much more of the increase in educational attainment must come from more students entering and completing technical education.¹⁶

Troubling Trends

U.S. Census data on interstate migration during the past decade reveal a consistent pattern for Indiana: the state exports sizable numbers of bachelor's degree recipients, while having to rely on importing graduates of two-years-or-less programs from other states. There is thus a mismatch between degrees awarded in Indiana and the knowledge and skills needed in the state, leading students to search elsewhere for jobs—the “brain drain” phenomenon. Indiana needs to produce substantially more associates degrees and undergraduate certificates among residents who historically have stopped their educational pursuits after high school, and among older adults who are displaced from work and need retraining for careers that will be in demand.¹⁷

¹² Carnevale et al. *op. cit.*

¹³ Alliance for Science and Technology Research in America (ASTRA), 2013. “Innovation Vital Signs: Indiana’s Federal R&D and STEM Jobs Report 2013”. http://www.in.gov/dwd/files/swic/Innovation_Vital_Signs_-_Indiana_STEM_Jobs.pdf

¹⁴ National Skills Coalition, 2013. “Indiana’s Forgotten Middle Skill Jobs: 2013.”

¹⁵ Lumina established a goal of having 60 percent of Americans obtain a high-quality postsecondary degree or credential by 2025.

¹⁶ Indiana Education Roundtable, 2012. “Completion with a Purpose: New Strategies to Strengthen Technical Education in Indiana”. Prepared by FutureWorks, http://www.in.gov/dwd/files/swic/Indiana_Education_Roundtable_Completion_with_a_Purpose.pdf

¹⁷ National Center for Higher Education Management System, 2012. “A Quest for Clarity: Identifying the Market for Short-Term Training Opportunities and Industry Recognized Credentials in Indiana”. http://www.in.gov/dwd/files/swic/Chamber-A_Quest_for_Clarity_Report_Final.pdf

However, despite efforts to cultivate more technical degree students among those pursuing credentials from certificates through bachelor degrees, technical programs experience high enrollment yet low completion rates. This is an issue at both community college and university levels. Instead, students tend to complete non-technical programs that are deemed more versatile, such as business/marketing, education and liberal arts.¹⁸

In addition to improving completion rates in technical programs, it is important to ensure inclusion of low-income, minority or immigrant students, groups that are less likely to pursue post-secondary education.¹⁹ Minorities and immigrants are attaining a larger share of the state's population over time; thus they must not be overlooked or left behind.

The literature reveals that much of the burden of closing the skills gap is placed on the educational system. The shift in thinking about who bears responsibility for developing and updating workers' skills was described in 2000 by then-Federal Reserve Chairman Alan Greenspan, observing that over the past two decades, on-the-job training had shifted to formal education programs – those that would presumably turn out fully qualified workers in advance of having a job.²⁰ In addition to this mindset change, the shift in responsibility for preparing workers may have been due in part to recent economic downturns. To stay afloat, many firms had to focus on productivity, trimming their workforce and adopting lean business practices. Toward this end, many intensive on-the-job training programs were eliminated. Businesses now prefer to hire a new employee who's able to hit the ground running, possessing a usable skill set and needing only light on-the-job training to get up to speed. Employers no longer are willing or able to mold non-skilled workers into skilled worker, especially in mass numbers.²¹ Therefore, employers who are not engaged with their local education systems tend to believe a skills gap exists and that the education system is not producing workers with the basic needed skills.²²

In summary, Indiana is transforming into a knowledge economy and is less reliant on low-skill workers (those with a high school diploma or less).²³ In the past, businesses were able to assimilate large numbers of high school graduates and mold them into skilled workers at wages sufficient to raise a family and support a respectable standard of living. The brief recession of the early 2000's subtly catalyzed the state's transformation; however the Great Recession rapidly accelerated the process, as evidenced by the high unemployment rates among those with a high school diploma or

¹⁸ Indiana Education Roundtable, *op. cit.*

¹⁹ Lumina Foundation, *op. cit.*

²⁰ Kiviat, B. "The Big Jobs Myth: American Workers Aren't Ready for American Jobs," Atlantic, July 25, 2012. <http://www.theatlantic.com/business/archive/2012/07/the-big-jobs-myth-american-workers-arent-ready-for-american-jobs/260169/>

²¹ Indiana Education Roundtable, *op. cit.*

²² Deloitte, *op. cit.*

²³ National Center for Higher Education Management Systems, 2008. "Indiana's Adult Education and Workforce Skills Performance Report". Prepared for the Indiana Chamber of Commerce, <http://www.in.gov/dwd/files/swic/Chamber-INAdultEdWorkforceReport2008.pdf>

less education. Unfortunately, the outdated expectation of being able to obtain a quality job with a high school diploma persists.

In parallel with these changes in the workplace, educators strongly pushed students to attain bachelor's or higher degrees by presenting a narrower, professional pathway to success. High school curricula focused much attention on this academic pathway, while vocational programs were underfunded or cut from school offerings altogether. Enrollment levels grew at postsecondary institutions, but retention and graduation rates have been less than desired. Indiana has slowly increased its educational attainment levels, especially among young adults (ages 25-34); however, it's still far behind the national average, and a growing problem in the shape of a dumbbell has emerged.

The state churns out a large number of bachelor's degree graduates, yet many of these graduates leave the state. Students who do not pursue education beyond high school are viewed as low-skilled and have difficulty finding quality jobs with sustainable wages. Workers without a degree who lost their jobs in the recession are typically deemed low-skilled and have difficulty finding work. Those with a sub-baccalaureate degree are now viewed as middle-skill workers and are in high demand by employers citing a skills gap in the current workforce. This is especially true for workers with technical skills, professional certifications, problem solving skills and experience across different technical disciplines. Approximately two-thirds of the people who will be in Indiana's workforce in 2025 were already working adults in 2010—long out of the traditional high school-to-college pipeline.²⁴ Bridging a significant portion of the skills gap by increasing the quantity and quality of middle-skill workers will require attention not only to educational opportunities for young people, but also for those already in the workforce.

²⁴ National Skills Coalition, *op. cit.*

Skills Employers Seek

The skills employers seek for their open positions are diverse, varying across industries and occupations. However, several surveys and interviews of businesses in the manufacturing, life sciences and healthcare sectors offer some insight into the desired skills.

Complaints about Indiana's skills gap tend to come from the state's prominent industry clusters, especially advanced manufacturing and healthcare. These targeted clusters are key drivers of the Indiana economy, along with life sciences, defense/aerospace industries, logistics and energy. In these high value-added clusters the occupational skill requirements are notably different than in many other sectors, and they change more rapidly. Across the board there is a strong shift away from semi-skilled work towards technical and professional occupations and work requiring more-specialized skills. This shift reflects the growth of middle-skill occupations, which are expected to make up half of all new jobs through 2020. Such jobs are becoming more important as dependence on them increases in sectors such as manufacturing.

Manufacturers recruiting STEM workers have noted a significant shortage of technicians and skilled workers to implement new technologies developed by high-skill innovators. A 2005 American Association of Manufacturers survey found that 35 percent of manufacturers expected a shortage of scientists and engineers, but twice as many anticipated a shortage of skilled production workers, primarily middle-skill workers.²⁵ Many manufacturers have increased reliance on research, innovation and advanced technologies to stay competitive in their fields.²⁶ With increased automation and innovation, skilled workers such as maintenance engineers are needed to operate and fix the machines.²⁷ Similarly, hospital administrators report increasing reliance on technical specialties, specialists in treatment technologies and the importance of information technologies. The pressure to operate more efficiently in an environment of declining reimbursements forces hospitals and other healthcare facilities to focus more on technology-based procedures, in both patient care and administration, to improve financial performance.²⁸

Due to the fast paced work environment and desire to maximize productivity while minimizing expenses, employers often seek entry-level employees with credentials certifying higher levels of technical skills and knowledge that will be "brought into" the workplace rather than developed there. Employers desire workers with the right technical skills who can be productive without a steep learning curve, translating into demand for workers with higher levels of educational attainment.²⁹ However, higher educational attainment is just one piece of the pie; employers need both "hard" and "soft" skills. Applicants often lack necessary qualifications or relevant trade skills experience such as professional certifications, cross-sectional technical knowledge, experience and

²⁵ National Skills Coalition, *op. cit.*

²⁶ Indiana Education Roundtable, *op. cit.*

²⁷ Deloitte, *op. cit.*

²⁸ Indiana Education Roundtable, *op. cit.*

²⁹ Indiana Education Roundtable, *op. cit.*

basic technical/vocational training. In addition to such technical skills, employers want soft-skilled individuals with traits such as enthusiasm/motivation, flexibility and adaptability, problem-solving, and interpersonal and professionalism skills.³⁰ The ideal prospective employee would be a “renaissance technician” with well-developed critical thinking and problem-solving skills, strong familiarity with several technical disciplines (developed in an applications framework) and the decision-making skills to optimize production in a complex 21st Century industrial environment.³¹ This shift towards a more technical worker clearly displays that physical and mechanical skills are less essential in today’s economy than they used to be; conversely, cognitive skills are on the rise.³²

Once an employer hires this ideal candidate, training and educational needs evolve to a new level. Slightly more than half the employers responding to a 2013 workforce skills survey indicated that additional job training or continuing education would benefit most of their workers. Another 18 percent said it would benefit half of their workers.³³ However, many businesses lack intensive in-house training programs and would like to have academic institutions help fill the knowledge gap. For example, life sciences firms would like academic institutions to develop post-baccalaureate curricula geared towards industry-specific topics. High priority topics include FDA regulations (including Good Manufacturing Practices, Good Laboratory Practices and Quality Assurance), project management, overview of pharmaceutical and medical device industries and an overview of the U.S. healthcare delivery system. Beneficial outcomes of such post-baccalaureate education would include job readiness, increased employee knowledge/productivity, employee retention, professional development and credibility with clients.³⁴

³⁰ Manpower Group, 2013. “2013 Talent Shortage Survey Research Results.” http://www.manpowergroup.com/wps/wcm/connect/587d2b45-c47a-4647-a7c1-e7a74f68fb85/2013_Talent_Shortage_Survey_Results_US_high+res.pdf?MOD=AJPERES. Also see Note 3.

³¹ Indiana Education Roundtable, *op. cit.*.

³² Carnevale, A. “New Day, New Rules: What Indiana Should Know and Do about Education in Hard Times”. A presentation to the Indiana Education Roundtable, <http://www.doe.in.gov/sites/default/files/roundtable/education-roundtable-new-day-new-rules-carnevale-september-2011.pdf>

³³ Indiana Chamber of Commerce. 2013 *Employer Workforce Skills Survey*. http://www.in.gov/dwd/files/swic/Ready_Indiana-2013_Workforce_Survey_SummaryCharts.pdf

³⁴ BioCrossroads, 2012. “Using Post-Baccalaureate Education as a Competitive Advantage for Indiana’s Life Sciences Industry.” http://www.in.gov/dwd/files/swic/BIOX_0000_ProCoursework_Report_Final.pdf

Supply Side: Our Current Education Situation

To address the skills gap challenge, the literature points toward pursuing a multi-pronged approach targeting three different audiences. One approach focuses on students in the K-12 education system, while a second focuses on retention and increasing completion rates of those enrolled in postsecondary education. The third approach focuses on adults with no postsecondary credential: those with some post-high-school education who never completed a degree, as well as helping adults with no postsecondary education to earn at least a high-quality certificate.³⁵

A more holistic approach to K-12 education is needed to equip young adults with the broad range of skills required to succeed in the 21st century economy. Numerous studies have observed that today's young adults are weak in oral and written communications, critical thinking, problem-solving and creativity and professionalism skills. A focus on college readiness alone does not equip young people with all the skills and abilities they will need in the workplace or to successfully transition into adulthood. Therefore, the current education reform movement should broaden significantly, adopting a “post-high-school credential for all” goal. This goal should not be limited to only a baccalaureate or higher degree. Rather, it should embrace the completion of certificates and associate degrees—the bare minimum a student should obtain before entering the workforce, as a high school diploma is no longer enough.

The educational system needs to strengthen vocational education by creating a system of career-focused pathways spanning the last two years of high school and at least one year of postsecondary education or training that leads to an industry-recognized credential. These career pathways need to be firmly linked to community colleges and four-year, career-oriented majors. Many other countries place far more emphasis on vocational training than the U.S.; likewise, they have superior postsecondary attainment rates due to more diverse, robust pathways to careers and practical-minded postsecondary options than the U.S.³⁶

Addressing the needs of current postsecondary enrollees and the adult workforce likely requires less radical change than is needed in the K-12 educational system. Approximately 70 percent of American high school graduates now go to college within two years of graduating; yet, by their mid-twenties, only four out of 10 adults have obtained either an associate or bachelor's degree. Roughly another 10 percent have earned a certificate. It's also taking longer to complete degrees: only 56 percent of those enrolling in “four-year” colleges attain a bachelor's degree within six years, and less than 30 percent of those who enroll in community college complete associate degrees within three years. Breaking out attainment rates by race, the numbers are even more depressing for minorities. Overall, the U.S. now has the highest college-dropout rate in the industrialized world. Students drop out of college for many reasons including: under-preparation for the required course work, financial pressures, and competing demands of family, jobs and other pressures.

³⁵ Lumina Foundation, *op. cit.*

³⁶ Harvard Graduate School of Education, *op cit.*

A major reason, however, is that too many do not see a clear, transparent connection between their program of study and tangible opportunities in the labor market.³⁷ In addition, a growing number of these students no longer attend college in traditional ways; thus, innovative approaches are needed to retain students and help them complete degrees. Lumina Foundation strongly advocates a student-centered higher education system with multiple approaches. It recommends taking advantage of the proliferation of competency-based models³⁸ and open courseware to create new pathways to degrees; expanding the availability of prior learning assessments (PLAs)³⁹ and other innovative approaches to accelerate progress towards degrees. These approaches could help colleges serve many more students and also appeal to adult learners who return to complete their degree.⁴⁰

When developing programs aimed at adult learners, colleges should adopt these innovative approaches to education and expect returning students to require a strong dose of remediation.⁴¹ Tying in remediation with coursework—rather than as separate course—may be one promising approach to this issue. Indiana’s Ivy Tech Community College has created a College for Working Adults that utilizes these innovative recommendations; however the program could be expanded greatly to more areas of study and more locations for adult learners to participate. Through a Shifting Gears grant from the Joyce Foundation, Ivy Tech developed five pilots that contextualized basic-skills instruction within occupational programs to help students gain the academic foundations needed to move from initial technical certificates to more advanced ones and then into degree programs.⁴² This was an innovative approach to reaching adult learners and Ivy Tech did experience higher completion and persistence rates. However, it required one-on-one interaction between staff and at-risk students, and the contextualization of basic skills required significant time, effort and collaboration between developmental educators, career and technical faculty and workforce partners. Ivy Tech has indicated that increased funding would be needed to continue this effort.⁴³

The education system will shoulder an immense burden in tackling these approaches to narrow the skills gap. However, in order to truly make these approaches effective, employers will need to become full partners in the effort to prepare young adults for success. Ideally, the K-12 career-

³⁷ Harvard Graduate School of Education, *op. cit.*

³⁸ Western Governors University is well known for helping students earn credit for relevant experience-based knowledge.

³⁹ Lumina recommends using PLAs for veterans as it would recognize the knowledge and skills obtained through military service.

⁴⁰ Manpower Group, *op.cit.*

⁴¹ National Center for Higher Education Management Systems, 2008, *op cit.*

⁴² Strawn, Julie. 2010. “Shifting Gears: State Innovation to Advance Workers and the Economy in the Midwest.” A report for the Joyce Foundation. <http://www.shifting-gears.org/images/PDF/ProjectResources2/shiftinggearsstateinnovationstoadvanceworkersandtheeconomyinthemidwest0710.pdf>

⁴³ Kennon, M. and Doucette, D. 2009. “Update on Pilot Projects for Remedial Education at Ivy Tech”. A presentation to the Indiana Commission for Higher Education. www.ivytech.edu/academics/2013-program-curriculum.pdf

focused pathway would include work based learning experiences, ranging from internships, business visits, business leader mentors and the like that gives students hands on exposure to the careers they are exploring. Expected roles for businesses would include assistance in program development and implementation such as setting standards, designing the programs of study, advising young people and providing expanded opportunities for work based learning (e.g., internships).⁴⁴ Employer involvement could be expanded more robustly to the college level, where business leaders serve as adjunct professors or even become close collaborators in developing courses to train students on skills needed in the workforce. Even if employers may not have the funds to provide intensive on-the-job training, they could help shape the future workforce by collaborating closely with the education community.

Our Current Educational Approach

This section aims to provide a better understanding of the current educational system and insight into why students drop out, whether from high school or postsecondary institutions. In response to criticisms about students not being prepared for college and the large number of drop-outs, today's educational environment focuses heavily on college readiness. Although great investments have supported these efforts, the results are not very impressive. The narrowly defined "college for all" goal—one that does not include a strong focus on career-oriented programs leading to occupational credentials—seems doomed to fail. Even if Indiana were to accomplish the goal of 60 percent of adults having a postsecondary degree – what about the other 40 percent? These are likely the students who said they were bored in school, dropped out or never got past remedial courses in community colleges, and might wistfully say a few years after high school that they wished they had applied themselves more.⁴⁵ When they drop out of school, they often have very few skills to offer to offer employers, and they often end up in a vicious cycle of unemployment and low-pay jobs that leads to reliance on government assistance.

Frankly, today's education system has not evolved very far to serve young adults in this rapidly changing world. The traditional pathway of obtaining a diploma, attending a four-year institution and then securing a quality job still works, but not for everyone—especially those from low-income backgrounds, minorities and immigrants. Unless young adults have quality jobs outside of their high school and postsecondary pursuits, they have few opportunities to develop critical technical skills or experience needed at time of hire. This is due to the vast majority of school systems being academically focused and offering few quality opportunities to apply this learning in an applications or work-based learning environment. Additionally, very little career guidance is given within the K-12 system – leaving students to figure out on their own which careers seem interesting and determining the types of classes needed to prepare for such work. Therefore many students become "lost" and frustrated with the system, or graduate with a diploma and little knowledge on how to apply what they've learned.⁴⁶

⁴⁴ Harvard Graduate School of Education, *op. cit.*

⁴⁵ Indiana Education Roundtable, *op. cit.*.

⁴⁶ See Harvard Graduate School of Education, *op. cit.*; Indiana Education Roundtable, *op. cit.*.

Indiana's K-12 school systems do have career and technical education (CTE) programs, which have recently undergone significant revisions statewide to create pathways linked to career clusters (with implementation to be completed in 2013). Several of these pathways end with the option for students to obtain certifications, and they provide information on courses the student can take for dual credit at a local community college. The intended result is a seamless transition from secondary schools into further education or employment. Indiana currently funnels \$100 million plus an additional \$25 million in federal funds into these CTE programs, yet the state is still not seeing desired results. There are CTE programs intended to guide students into careers in emerging clusters; however most CTE students are taking non-technical courses. The most popular ones are in culinary arts, early childhood education and healthcare (nursing). An analysis by FutureWorks found that in a given year, initial enrollments in CTE programs were high but subsequent enrollment in corresponding CTE classes dropped dramatically. Of hundreds of thousands of students who took at least one CTE class in a given year, the study found that only a small fraction subsequently chose to enter a sequence of classes leading to a concentration in a technical field and spend one or two years attending CTE program classes at their school district's career center.⁴⁷

Indiana's K-12 CTE program has much untapped potential and could be a great tool to bridge the state's skills gap. High quality CTE programs do exist around the nation; however none offers a universal approach that would work well everywhere. As Indiana moves forward with its CTE program, it must ensure that the CTE programs are of high quality throughout the state, otherwise it will be at risk of losing its support from employers, educators and students. Unfortunately, CTE programs are often demeaned and disparaged, and the nation (and Indiana) needs to overcome the mentality that CTE is for the "other" kids or low-performing students. This is especially true within the education system itself.

⁴⁷ Indiana Education Roundtable, *op. cit.*.

Recommended Ways to Narrow the Skills Gap

The FutureWorks/Indiana Education Roundtable report and the Harvard Graduate School of Education report outlined specific recommendations that could be applied to Indiana. Much of the focus was on the K-12 education to workforce pipeline, using comparisons of other states' or countries' career education programs. The Lumina Foundation provided a few recommendations on ways to improve the community college experience for current students and prospective adult learners returning to complete their degrees, addressed in the preceding section of the present report. The section that follows focuses heavily on how the state can improve the K-12 through postsecondary to workforce pipeline.

The bottom line is that many high school and college students do not see a clear link between their coursework and a career path they can build a future on. Indiana needs more early emphasis on career options and defining explicit pathways that can equip young people to reach their goals. Ideally, these pathways would begin in high school and continue into postsecondary education, regardless whether the student obtains a certificate, associate or bachelor's degree. School systems could create dual education tracks—a college readiness pathway and a career readiness pathway—while providing enough flexibility to allow students to participate in both pathways while still remaining on track to complete Common Core standards and Core 40 requirements.

The college readiness pathway would be the current curriculum with the inclusion of Core 40 classes in a CTE format. The career readiness pathway could be the CTE program, allowing students to pick a career cluster of interest and including applications or work-based learning experiences. Courses in the CTE pathway should also allow students to fulfill the Common Core standards and Core 40 coursework. Students and their parents would be given the option of which pathway will be their primary pursuit at the end of the 10th grade, following two years of career guidance and participation in CTE courses within the career cluster of interest.

An example may help illustrate how this career readiness pathway could work. At the end of the 10th grade, students could be given the option to enroll into a CTE program in their field of interest. This could be a three-year program. In the first two years, students complete their high school requirements and earn a diploma; in the third year they complete a high quality, industry-recognized credential from a community college that can flow directly into an associate degree program or a career-oriented job with advancement opportunities.

During the CTE program students should receive career counseling, job shadowing and opportunities to work on projects or problems designed by industry partners. Likewise each CTE program should be designed in collaboration with industry leaders and have opportunities for more intensive work-based learning such as internships. As the student moves into the postsecondary portion of the CTE program, the college should continue to expand on the previously learned skills and knowledge, with input from industry leaders and trade associations. They should also provide structured part-time employment opportunities linked to the student's program of study. A prototype of this type of program is the engineering cooperative education program at Purdue University; however, it would be scaled appropriately for certificate-level students. Upon

earning a certificate, the knowledge and skills earned should allow a graduate to enter the workforce and obtain a sustainable job. The graduate should also have enough postsecondary credits to be able to easily transition into an associate degree program, if desired.

Another variation of a three year CTE program could entail a partnership with a polytechnical institute at a four-year institution. The institute would be based in an appropriate school or college at the institution (e.g., School of Business, College of Agriculture) and have a rigorous, multi-disciplinary, three-year curriculum that would lead to a polytechnical degree. Here a student would apply for admission at the end of their sophomore or junior year of high school. The sending school could finance the first year of study and award the high school diploma at the completion of year one. The student could then be eligible for a Mitch Daniels Early Graduation Scholarship or be eligible for other special financial support for the student's next two years at the polytechnical institute. Students would be in cohorts of 20-25 individuals and move through a very structured program with a block schedule and fixed course sequences (like their high school experience). At the time of admission, students would know their three-year schedule and competency expectations. Completion of the program would then yield a unique degree—e.g., Associate of Polytechnical Sciences—which would allow the graduate to either enter the workforce or continue education toward a bachelor's degree in polytechnical sciences or another technical degree program.

Other recommended ways of improving the postsecondary experience by making it more career-relevant to working adults were presented as well. FutureWorks/Indiana Education Roundtable recommended improving Associate of Applied Sciences (AAS) programs that allow graduates to easily articulate into bachelor degree programs with a similar applied learning format, retaining credits obtained en route to the higher degree. The applied baccalaureate program would focus on technical program areas, not liberal arts, and address skills and knowledge needed in the workplace. Thus the distinguishing characteristic of this baccalaureate degree would be the learning in an applications context—not in a more traditional academic learning framework. It is envisioned that this program would be designed for seamless transfer from the AAS degree that was once considered “terminal” and non-transferrable. If designed right, such programs could be natural extensions of the CTE programs mentioned earlier – maintaining the applied learning format while enhancing the knowledge and skill levels.

Reviewed studies presented several policy recommendations to make higher education more affordable as well as make technical education more enticing to students and garner interest from the general population. One option would be to expand eligibility for financial aid for sub-baccalaureate degrees and part-time students, and expand upon the federal on-the-job training (OJT) assistance program opportunities. Another option would be to establish and support statewide Lifelong Learning Accounts programs.⁴⁸ These programs would allow workers to set aside funds via payroll withholding for continuing education—matched by their employer—to be

⁴⁸ Lifelong Learning Accounts (LiLAs) were piloted in early 2001 to 2007 by the Council for Adult and Experimental Learning in Indiana's northeast manufacturing and public sectors. Subsequent legislation to reestablish the program has not gained traction. <http://www.incap.org/documents/iwof/2011/FINAL%20LiLAs.pdf>

redeemed at a college or university to offset the expenditures associated with higher education.⁴⁹ Incentives designed to increase the appeal of technical education could be designed in a way to link public and private sectors in support of technical education and attainment, engage postsecondary institutions, and reflect regional needs by being state-led but locally-administered.

Examples of ways other states are addressing skills gaps to strengthen their workforces may be found on the web; the most notable is Minnesota. Its 2012 report, titled “All Hands on Deck,” looks at 15 ideas for strengthening the workforce, targeting adult learners (current workforce and aging workforce), disabled workers and high school students. Many of the ideas that report addresses (found in the Appendix to this report) echo the recommendations found in the research reports reviewed above.⁵⁰

⁴⁹ Skills2Compete Indiana. “Meeting the Demands of a 21st Century Economy.”
<http://www.incap.org/documents/iwof/2012/Skills2CompleteReport-2012.pdf>

⁵⁰ Governor’s Workforce Development Council, February 2012. “All Hands on Deck: 15 Ideas for Strengthening Minnesota’s Workforce”. http://www.gwdc.org/docs/publications/All_Hands_on_Deck_2011.pdf

Appendix

Minnesota's Recommended Ideas

Minnesota provided a recommended 15 ideas as to how to improve their workforce through education and training through its "All Hands on Deck" 2012 publication.⁵¹

1. Expand the Minnesota FastTRAC Initiative

The FastTRAC program helps educationally underprepared adults achieve success in well-paying careers by integrating basic skills and career-specific training in formats that are convenient and manageable for working adults (similar to Ivy Tech's College for Working Adults curriculum). Within three years, the Department of Employment and Economic Development (DEED), the Minnesota State Colleges and Universities system (MnSCU), and Minnesota Department of Education (MDE) - Adult Basic Education (ABE) should collaborate with workforce development and community-based organizations and other service providers to provide one or more Minnesota FastTRAC (*Training, Resources, and Credentialing*) career and technical education programs at each of the 25 Minnesota State Colleges. These programs should be required to offer a stackable credential or an industry-recognized credential to successful participants.

To support ongoing coordination and the sustainability of the FastTRAC Initiative, funding sources should be identified and formalized. State funds, along with focused professional development, should be used to incent coordination and to leverage and align the financial resources of local partners.

2. Set goals and develop plans for increasing adult credential attainment

Minnesota State Colleges and Universities (MnSCU), in partnership with the Department of Employment and Economic Development (DEED) and Minnesota's Adult Basic Education (ABE) system, should set a broad strategic goal for increasing the number of low-skill adults that earn credentials leading to high-demand occupations that provide family-sustaining wages, and should develop a plan to reach that goal. The plan should be submitted to those committees in the Minnesota Legislature that oversee MnSCU and its partners. The plan should address how MnSCU set its goal and how the plan will be implemented to meet that goal. Further, the Legislature should require that MnSCU and its partners report on their progress toward the goal on a yearly basis.

In addition:

- The plan should involve expanding collaborations with ABE, workforce development partners, and human services providers to develop and expand access to academic programs, including career, technical, and general education programs, and student support services that support the success of low-skill adult learners.
- The plan could include setting goals for helping students meet momentum points for student success that fall along a continuum, from basic academic skills through postsecondary credential attainment. These "momentum points" should be

⁵¹ See Note 50.

evidence-based and linked to student labor market success. These momentum points should include, but not be limited to, the completion of stackable credentials, including certificates, diplomas, and degrees.

- These momentum points could be integrated into the accountability dashboard framework currently used by MnSCU so that colleges are able to track their progress in helping students meet momentum points along the continuum from enrollment to completion of credentials.

3. Integrate state data systems to better understand and serve working learners

The State of Minnesota should use data systems currently in place or under development, such as the State Longitudinal Education Data System (SLEDS), the FastTRAC data management plan, and Action Analytics, to enrich policy makers' and program managers' understanding of the educational pathways working learners use to move through and across these systems, why some go on to succeed in the labor market and others do not, and how we can better serve all customers.

DEED and FastTRAC staff should convene the representatives from the relevant data systems and initiatives, including those listed above, to establish shared goals pertaining to understanding working learners. These partners should meet on an ongoing basis to ensure integration between systems.

4. Reduce cost barriers to credential attainment

The Legislature should target grant and loan forgiveness programs to low-income adults who pursue and complete education and training in regionally high-demand career fields that provide family-sustaining wages. This could be accomplished by modifying existing grant programs or by creating a new grant program to provide financial support to low-income adults who are training for high-wage, high-demand careers. In either case, resources should incentivize program completion and credential attainment. In addition, these newly-targeted grant or loan forgiveness programs should have specific goals around student outcomes, including job placement, and should be required to collect data and report on these outcomes. Such a program could be modeled after Washington state's successful Opportunity Grant program.

5. Ensure that Minnesota's workforce development system has the capacity to handle the state's looming demographic and economic shifts

In preparation for the demographic shifts now underway, the Department of Employment and Economic Development (DEED) should examine the state's workforce development system and recommend ways to ensure that the system has the capacity to meet the needs of an aging workforce in the coming decade. In particular, DEED should examine the capacity of the state's WorkForce Centers to provide services to customers who need help re-entering the workforce or transitioning into new careers.

6. Develop a state plan to extend the work life of aging workers

The **Legislature** should establish a Mature Worker Taskforce to develop and recommend a state plan that includes action-oriented recommendations to extend the work-life of

Minnesota's aging labor force. Composition of the Mature Worker Taskforce should include legislators as well as key leaders from business, labor, higher education, the state workforce system, academic institutions, and the state's aging network. In addition, the Taskforce should include citizen representatives who are older adults.

The Taskforce should develop action-oriented recommendations for state policy that promote and recognize employer efforts to support and train older workers in ways such as:

- Adopting flexible human resource policies such as job-sharing, phased retirement, progressive part-time work arrangements, and sabbaticals
- Establishing caregiver support programs for employees actively caring for aging parents, spouses, or other older adults
- Offering skill-building opportunities to incumbent workers to prevent/divert dislocation and increase retention, such as loaned-executive or snow-bird programs or allowing workers to explore alternative or complementary careers through on-the-job experiential learning opportunities such as skills mentoring programs or "midternships."⁵²

In addition, the Taskforce should consider recommendations to:

- Promote and expand upon existing opportunities for continuous learning and training for aging workers
- Promote and encourage post-retirement work and paid volunteer opportunities, including encore service models that draw on older workers' skills⁵³
- Address pension and retirement income policies that deter returning or continuing to work
- Promote awareness among aging workers and others of the opportunities and benefits of continuing or returning to work

7. Establish the Lifelong Learning Accounts to help aging workers finance continuous learning opportunities

The Legislature should amend the state's tax code to establish demonstration Lifelong Learning Account (LiLA) programs to help individuals access and pay for additional training and continuing education. LiLAs should be available for use with both traditional training programs and programs offered by employers, and could be supported by individual contributions, employer matches, and state income tax incentives.

8. Support entrepreneurship and small business development among aging workers

⁵² Midternships refer to a pilot program developed by SHiFT and the Minnesota Department of Employment and Economic Development (DEED) to help people at midlife gain hands-on work experience in a new career field.

⁵³ Bluestone, B., et al. (2010). *After the Recovery: Help Needed*. Civic Ventures. Available at <http://www.encore.org/files/research/JobsBluestonePaper3-5-10.pdf>.

See also *The Boomer Solution: Skilled Talent to Meet Nonprofit Needs*. (2010). RespectABILITY Initiative Report, National Council on Aging. Available at

<http://www.ncoa.org/strengthening-community-organizations/community-action-volunteering/boomer-solutins-skilled.html>.

The state Legislature should ensure the coordination of current federal, state, and local business development resources that help all individuals, aging individuals in particular, become successful entrepreneurs. The result of this coordination should be a more comprehensive set of assistance programs for entrepreneurs that builds on best practice efforts — including Project GATE II, the Department of Employment and Economic Development (DEED) Urban Initiative Loan Program, and the work of the Minnesota Initiative Foundations — and responds to the unique skills and needs of aging entrepreneurs. Programs should also establish partnerships (service, financial, or other) with local area foundations, education institutions, aging network organizations, and other aging advocacy or leadership groups. Services to be coordinated are currently provided by the Small Business Development Centers, ISEEK, other DEED programs, regional economic development leaders, and the U.S. Small Business Administration.

9. Establish the State of Minnesota as a model employer of people with disabilities

9.1 Accountability. The state’s Executive Branch Agencies should be held accountable for the employment goals for people with disabilities (and all other protected classes) set forth in each agency’s affirmative action plan. These goals should be a required part of the **state’s** Affirmative Action Progress Report, along with current levels of employment for protected classes and a description of each agency’s efforts to reach its stated goal.

9.2 Technology Accessibility. Minnesota Management and Budget should ensure that the **state’s** online job application system meets the standards set by the 2009 Technology Accessibility law⁵⁴ (Chapter 131, H.F. 1744), that the system makes end-user feedback opportunities readily apparent and available to all, and that the system provides easy access to assistance via a phone/TDD/web help line. Furthermore, as Management and Budget looks to replace the current system, it should consider using a platform like MinnesotaWorks, DEED’s online jobs site.

9.3 Staff Training. Minnesota Management and Budget should ensure that training programs for state hiring managers address the benefits and opportunities associated with hiring people with disabilities, in addition to covering legal compliance issues. The State of Minnesota should include people with disabilities as facilitators of staff training modules whenever possible, and training curricula should be reviewed and updated regularly, with the input of relevant stakeholder groups.

9.4 Accommodation Funding. The State of Minnesota should create a centralized fund, available to all agencies, to help pay for costs associated with providing reasonable accommodations for employees with disabilities. Since funding accommodations can be more difficult for smaller agencies with smaller operating budgets, the centralized fund should be targeted to serve these agencies. The design of the fund should explore the merits of allowing agencies to opt in to the fund, whether or not monies contributed to the

⁵⁴ Chapter 131, HF 1744, available at

https://www.revisor.mn.gov/revisor/pages/search_status/status_detail.php?b=House&f=HF1744&ssn=0&y=2009. On September 1, 2010, State Chief Information Officer Gopal Khanna put forth a policy directive that defines accessibility standards for all executive branch agencies. For more information, see http://www.mnddc.org/news/pdf/Standard_OET000_Accessibility_090110.pdf.

fund should be returned if not used, and the feasibility of using a revolving loan fund. In any case, the centralized fund should be derived from state general funds, and should be designed to be cost-effective with minimal administrative costs. In addition, the state should keep a centralized list, available on the state intranet, of equipment purchased for accommodations but no longer used as a way to save money on future accommodations.

9.5 Internship and Work Opportunities. The State of Minnesota should expand its current efforts to offer people with disabilities pathways and incentives for working for the state. In particular, Minnesota Management and Budget should work with all state agencies to develop and implement a plan to expand internship and work experience initiatives. Promising examples might include the Minnesota Department of Transportation's Seeds/Pathways program, the WorkForce Center Resource Area Internship program, and the Minnesota Capitol Fellowship program.

10. Ensure that Minnesota's WorkForce Centers and the services they provide are accessible and usable by people with disabilities

10.1 Recertification Periods. The Department of Employment and Economic Development (DEED) should set three years as the maximum time between recertifications for a given WorkForce Center. In addition, DEED should ensure that staff responsible for recertifying WorkForce Centers receive ongoing training that helps them understand accessibility and usability issues from the perspective of people with disabilities.

10.2 Customer Feedback. DEED should require that all WorkForce Centers publicize multiple avenues for submitting complaints (phone, email, web, etc.), along with information that clearly explains the complaint resolution process and identifies the on-site manager or designee in charge of handling complaints. This information should be easy to find, both on-line and at the WorkForce Center. In appropriate instances when confidentiality is not a concern, each WorkForce Center's on-site manager or designee should also be responsible for notifying complainants when their issue has been resolved.

10.3 Mystery Shoppers. The Minnesota Workforce Council Association (MWCA) should include accessibility and usability criteria in its Mystery Shopper program. The MWCA could work with the State of Minnesota's disability organizations and DEED staff to develop these criteria, train mystery shoppers, and recruit volunteers from the disability community to participate in the reviews.

10.4 Staff Training. Non-DEED staff should receive training on physical and programmatic accessibility and on serving people with all types of disabilities. DEED should develop policy guidelines for training all WorkForce Center staff during their orientation, and require WorkForce Center managers to report on which staff have and have not received training. The GWDC supports DEED's current inclusion of people with disabilities as facilitators of staff training programs and encourages the expansion of these practices. In particular, DEED should continue to include people with disabilities in staff training modules to demonstrate the use of assistive technology and to provide insights on accessibility and usability. Additionally, training curricula should be reviewed and updated regularly, with the input of relevant stakeholder groups.

11. Help students navigate the challenges and opportunities they encounter on their way to career and postsecondary success

All students, no later than 9th grade, should have a Career and Postsecondary Plan (CPP) that helps them prepare for success in a range of postsecondary education and career opportunities.

Career and Postsecondary Plans (CPP) should:

- Help students explore personal interests and learning styles and their implications for a range of career and postsecondary options.
- Help students identify actions required to successfully access postsecondary options, including making informed choices about selecting high school courses and developing personal, social, and work readiness skills that promote success on the job. CPPs should also help each student find opportunities that promote access to postsecondary options, such as college visits and internships.
- Allow school districts, school staff, and parents to assess and monitor student academic progress and participation in work-based or experiential learning opportunities. Schools districts, school staff, and parents should review student progress on at least an annual basis.

To achieve this, the Department of Education (MDE) should require all school districts to implement CPPs, with the following parameters:

- Local school districts should control how transition planning is implemented.
- CPPs may be implemented gradually, starting at least by 9th grade, and should be a graduation requirement for the class of 2015. Minnesota should set a goal that eventually all students no later than 6th grade have CPPs.
- CPPs should build off current tools available, including the MDE/Minnesota State College and Universities Career Fields, Clusters and Pathways model; the Minnesota Career Information System; and ISEEK and its MnCareers Magazine.

12. Increase opportunities for students to pursue postsecondary credit while in high school

School districts and postsecondary institutions should collaborate to provide increased options for all high school students to earn up to two years of postsecondary credit that is transferable to all Minnesota public postsecondary institutions that can lead to jobs earning family-sustaining wages. In particular:

12.1 Dual Credit Funding. The Legislature should examine innovative dual credit funding arrangements that ensure adequate, efficient, and equitable funding and proper incentives for providing dual credit options for all students.

12.2 Credit Transfer. MnSCU, the University of Minnesota, and the Department of Education should develop MOUs to allow for greater credit transfer among all public postsecondary institutions, and to standardize how postsecondary institutions award credits (i.e. standardize requirements for receiving credit across all institutions).

12.3 Dual Credit Advisory Board. Minnesota's P-20 Education Partnership should create a Dual Credit Advisory Board, as described by the Minnesota Department of Education's College and Career Readiness Policy Institute, to provide oversight and guidance to local

secondary and postsecondary partners on a wide array of issues, including those outlined above.⁵⁵

13. Strengthen assessments and supports to identify off-track students and bring them back on track

13.1 Assessments. The Minnesota Department of Education (MDE), in collaboration with representatives from business, school districts, and career and technical education, should develop and implement assessments for demonstrating college and career readiness skills and outcomes, including the Minnesota Early Indicator Response System (MEIRS). MDE should require all districts to use such assessment systems to identify students who may be off-track for graduation and career and postsecondary readiness and to inform supports and interventions that meet student needs.

13.2 Supports and Interventions. The Minnesota Department of Education should require school districts and/or postsecondary institutions to develop appropriate supports and provide plans indicating how they will institute supports for students identified through systems like MEIRS and Career and Postsecondary Plans. Supports and interventions should be focused to help ALL students (including but not limited to at-risk, underrepresented, economically disadvantaged, and first generation college students) prepare for, understand, and take advantage of a variety of dual credit opportunities. Supports and interventions may include tutoring, summer bridge programs, AVID (Advancement Via Individual Determination), distance learning, mentoring, work-based learning, experiential learning, or collaboration among school districts and postsecondary institutions to align curricula and expectations.

14. Further align state academic standards and teacher preparation with real-world learning

At the state and local levels, academic standards and classroom instruction should be integrated with relevant, work-based applications that promote college and career readiness.

14.1 Academic Standards. The Minnesota Department of Education, in collaboration with representatives from business, school districts, and career and technical education, should embed requirements that link classroom learning to real-world applications into state academic standards. At the same time, school districts should work with local businesses and community organizations to provide opportunities for students and teachers to meet the updated state standards through real world applications.

14.2 Teachers in the Workplace. The state should require teachers seeking licensure or re-licensure to participate in workplace-related experiences that inform and enhance their curriculum and instruction practices. These workplace experiences should count toward re-licensure requirements by earning teachers Continuing Education Units (CEUs).

⁵⁵ *Minnesota College- and Career-Readiness Policy Action Plan.* (2010). College- and Career-Ready Policy Institute, Minnesota P-20 Council.

15. Encourage schools and districts to take innovative, comprehensive approaches to preparing adults

The Minnesota Department of Education (MDE) should create a “21st Century” designation for K-12 schools that take comprehensive and innovative approaches to preparing their students for college and careers. MDE should work with partners in business, workforce development, postsecondary education, and K-12 to develop the requirements for the “21st Century” designation. MDE should award “21st Century” status to districts and schools that develop and implement comprehensive plans that meet the established requirements. Awardees and their home cities should be provided with plaques, banners, and road signs to publicize their accomplishments. The designation could also be printed on student diplomas.

Minnesota also released an updated document with four recommendations on how to approach increasing educational attainment and training of the current workforce – thus closing the skills gap.⁵⁶ The four recommendations were as follows:

Recommendation 1: Establish a competitive career pathways grant for adults within the Workforce Development Fund.

The Minnesota Legislature should make changes to the WorkForce Development Fund to create a career pathways system and funding stream that has an explicit focus on postsecondary credential attainment in high-growth, high-demand occupations, especially for lower wage and low skill adults.

An ideal format to create the career pathways system in Minnesota would be to institute a significant and permanent competitive grant fund within the Workforce Development Fund that awards grants based on career pathways criteria. Although career pathways models vary nationwide, Minnesota should require the following three components⁵⁷ for all grantees:

1. Adult Basic Education bridge instruction that prepares adults for an integrated instructional set of credit-bearing postsecondary courses.
2. Integrated instruction that includes integrated ABE instruction in existing postsecondary college and technical gateway courses through accumulation of credits. These credits must be within a financial aid eligible program that leads directly to a diploma or degree program via stackable credentials. Integration of at least six college credits targeted to courses with high drop/withdraw rates is required.

⁵⁶ Governor’s Workforce Development Council, January 2013. “The Most Competitive Workforce in the World: How Minnesota can help more Adults Gain the Right Skills to get and keep Good Jobs”. <http://www.gwdc.org/docs/publications/Most-Competitive-Workforce-GWDC-Feb-2013.pdf>

⁵⁷ Adapted from Minnesota FastTRAC Adult Career Pathway 2012 Request for Proposal. Available at <http://www.mnfasttrac.org/docs/Minnesota%20FastTRAC%20Adult%20Career%20Pathway%202012%20RFP.docx>.

3. Comprehensive support services delivered through pathway completion via a navigator⁵⁸, including transition to employment or further continued education, placement, and retention.

Recommendation 2: Require publicly reported and disaggregated credential outcomes of workforce programs.

The Minnesota legislature should require the Workforce Investment Act Adult program, the Dislocated Worker program (both WIA and state-funded activities), and FastTRAC⁵⁹ to publicly report important progress points and outcomes like training enrollment and completion, degree and credential attainment, and employment and wage data. It is extremely important that these outcomes be easily disaggregated by region and program as well as by the participants' race, gender, income and educational attainment and/or skill level. Reporting only aggregated results masks education and employment disparities that Minnesota must address directly.

Recommendation 3: Direct Workforce Centers to focus more energy on helping customers attain industry-recognized credentials and one year of post-high school education.

The Minnesota Department of Employment and Economic Development and WorkForce Centers should continue to implement better triage and online services in an effort to reduce operating costs and improve services to universal customers. These strategies should allow WorkForce Centers to concentrate more time, energy and resources on postsecondary credential attainment. Additionally, WorkForce Centers should focus on strategic alliances with partners, such as libraries, to help create and promote an effective pipeline of services. There is an increasing need for in-depth education and career navigation in career pathways systems. WorkForce Centers, which already provide some level of navigational services, should redouble efforts to help more customers reach the tipping point—specifically, attainment of one year of postsecondary-credit courses with an industry-recognized credential.⁶⁰

⁵⁸ Minnesota FastTRAC Adult Career Pathway Definitions and Core Elements (2012), reports that a critical component of the FastTRAC model is support services provided by a navigator. According to FastTRAC, navigation services are “comprehensive services that enhance planning and informed decision making, and increase success in achieving both education and employment goals. Support services might include formal social services needed to complete a program, including basic needs, housing, childcare, transportation, crisis intervention, and social service navigation. Informal supports might include peer support groups, mentor programs and job or life coaching. FastTRAC programs with a well-organized Navigation strategy have seen greater retention and completion numbers. The Navigator role is responsible for helping FastTRAC participants connect to existing resources (workforce development, postsecondary, community) rather than duplicating those resources.” Available at <http://goo.gl/Hrnjhj>.

⁵⁹ Additional programs such as the WIA youth program, Minnesota Family Investment Program, Adult Basic Education and MnSCU's career and technical education, customized training, and remediation should also be considered.

⁶⁰ Jenkins, D. and Prince, D. *Building Pathways to Success for Low-Skill Adult Students: Lessons for Community College Policy and Practice from a Longitudinal Student Tracking Study (The “Tipping Point” Research)*. (2005). Washington State Board for Community and Technical Colleges. Available at http://www.sbctc.edu/docs/data/research_reports/resh_06-2_tipping_point.pdf.

Recommendation 4: Ensure adults have easy access to local labor market information, including jobs in demand and information about related career pathways training programs.

The Minnesota Department of Employment and Economic Development (DEED) Labor Market Information Office in partnership with WorkForce Boards should collect and provide easily accessible information on the specific credentials in-demand by local employers and connect this information to adult career pathways information for use by WorkForce Center customers. The information presented should be easily understood by WorkForce Center customers and should include future projections (as opposed to only current vacancies) of high-wage and high-demand jobs, estimated costs of training by credential, and potential earnings estimates by occupation. Information should be reviewed regularly by local employers, including employers who are not members of Workforce Investment Boards. Although some of this information exists via DEED's Labor Market Information office and in local board strategic plans, the information should be easily available online and in print at WorkForce Centers for participants to use. Minnesota Workforce Council Association could provide a "one-stop-shop" on their website with links to this information for each region of the state.

CTE College and Pathway Plan Examples

The following two CTE college and career pathway plans are examples of the new efforts to provide students the option to obtain an industry recognized certification prior to leaving high school.

CTE career pathway example #1: Advanced Manufacturing

Indiana College and Career Pathway Plan – State Model									
Cluster: Manufacturing					Pathway: Advanced Manufacturing				
Core 40 with Honors High School Graduation Plan*									
*This is a SAMPLE plan for schools to use in planning. Course sequences and grade level in which courses are offered may vary according to local policies, practices and resources.									
Students should enroll in Indiana Career Explorer, complete interest inventories, and investigate careers in clusters & pathways prior to or during the time they create their individual Pathway Plans.									
SECONDARY	Grade	English/ Language Arts	Math	Science	Health/PE Social Studies	CTE/Career Preparation Courses for this Pathway		Other Elective Courses for this Pathway	
	9	English 9	Algebra I	Biology	Health & Wellness/ Physical Ed	Preparing for College & Careers;		Digital Citizenship, Personal Financial Responsibility	World Language
	10	English 10	Geometry	Chemistry	Geography/History of the World or World History/Civilization	Introduction to Advanced Manufacturing & Logistics	Computers in Design & Production or Intro to Engineering Design or Principles of Engineering		World Language
	11	English 11	Algebra II	3 rd Core 40 Science	US History	** Advanced Manufacturing I			World Language
	12	English 12	Math or Quantitative Reasoning		Government Economics	** Advanced Manufacturing II			Fine Arts
State specified Pathway Assessment: Dual credit assessment from Ivy Tech or Vincennes University or MSSC assessment (all 4 exams)									
Industry Recognized Certification: MSSC									

Postsecondary Courses Aligned for Potential Dual Credit**	
**See individual Course Frameworks for alignment of high school course standards and postsecondary course objectives	
Ivy Tech Community College	Vincennes University
ADMF 101 Key Principles of ADMF ADMF 102 Technology in ADMF ADMF 113 Electrical and Electronic Principles for Manufacturing ADMF 116 Automation & Robotics in Manufacturing ADMF 103 Graphic Communications for Manufacturing	CIMT 100/L Electronics for Automation CIMT 125/L Intro to Robotics and Automation PMTD 110/L Manufacturing Processes

CTE Career Pathway Example #2: PC Networking

Indiana College and Career Pathway Plan – State Model	
Cluster: Information Technology	Pathway: PC and Network Support
Concentration: Network Support	
Core 40 with Honors High School Graduation Plan*	
*This is a SAMPLE plan for schools to use in planning. Course sequences and grade level in which courses are offered may vary according to local policies, practices and resources.	

Students should enroll in Indiana Career Explorer, complete interest inventories, and investigate careers in clusters & pathways prior to or during the time they create their individual Pathway Plans.

SECONDARY	Grade	English/ Language Arts	Math	Science	Health/PE Social Studies	CTE/Career Preparation Courses for this Pathway	Other Elective Courses for this Pathway	
	9	English 9	Algebra I	Biology	Health & Wellness/ Physical Ed	Preparing for College & Careers;		Digital Citizenship, Personal Financial Responsibility
10	English 10	Geometry	Chemistry	Geography/History of the World or World History/Civilization	**Information Communications and Technology			World Language

11	English 11	Algebra II	3 rd Core 40 Science	US History	**Computer Tech Support		World Language
12	English 12	Math or Quantitative Reasoning		Government Economics	**Infrastructure of the Internet		Fine Arts
State specified Pathway Assessment: Dual Credit Finals							
Industry Recognized Certification: IC3, Strata, Microsoft Office Specialist Expert, A Plus, Cisco IT Essentials, Cisco CCENT							

Postsecondary Courses Aligned for Potential Dual Credit**	
**See individual Course Frameworks for alignment of high school course standards and postsecondary course objectives	
Ivy Tech	Vincennes University
<ul style="list-style-type: none"> • CINT 106 Micro Operating Systems • CINT 108 Linux Fundamentals • CINT 115 IT Essentials • CINT 116 PC Technician • CINT 160 Cisco Exploration I • CINT 161 Cisco Exploration II 	<ul style="list-style-type: none"> • CMET 240 Computer Maintenance I • CPNS 101 LAN Basics and OSI Model • CPNS 102 WAN Basics and Routers • CPNS 150 Computer Telecommunications

Attachment 3 - Updated Inventory of Job and Career Training Activities



The attached reports show the following information for those enrolled in training programs during the past year in a degree and certificate program where the provider is listed on INTraining on a statewide and regional basis.

The first report is sorted by Instructional Category and the second report is sorted by Provider. The following data fields are in both reports.

Training Provider	Lists all public and private education and training institutions identified by the State of Indiana as eligible to receive WIA funds. Not all providers on this list have approved programs.
Instructional Category	Lists the classification of instructional program (CIP) for each program offered to track and report the field of study.
Degree	Lists all programs where an individual is enrolled that could lead to a degree or certificate/credential.
Bachelors Or Higher	Shows the number of students and average age for students enrolled in programs if they have not completed or have completed the degreed or certificate/credential program.
Annualized Wages	For those that have completed either the degreed or certificate/credential program, the wages from the most recent quarter are listed and multiplied times four to simulate an annual wage. Wages for programs with only one student have been suppressed.

The data compiled in these two reports was done utilizing both the Department of Workforce Development's InTERS database and the Indiana Workforce Intelligence System (IWIS), the state's longitudinal data warehouse.

The report sorted by instructional category may be found at the following weblink:

http://www.in.gov/icc/files/INTraining_data_update_Statewide.pdf

The report sorted by training provider may be found at the following weblink:

http://www.in.gov/icc/files/INTraining_data_update_by_provider_Statewide.pdf