

*Workforce Information Grant
Annual Performance Report
Program Year 2015*



INDIANA
WORKFORCE
DEVELOPMENT

*Submitted by:
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Research and Analysis*

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Introduction

The 2015 program year marks steady progress in recovery following the great recession. Indiana continues to experience employment growth and steady levels of unemployment relative to employment growth and the total labor force. In key industries such as construction and trade, Indiana is adding jobs faster than the national average. Indiana's unemployment rate remained below the national average for several months throughout the 2015 program year. Over the last three and a half years, Indiana has seen growth in private sector employment of over 149,000. During the summer of 2015, Indiana also surpassed peak in private sector employment levels it experienced in early 2000.

Amidst this positive economic news, Indiana is now confronting labor shortage issues for the first time in decades. In many cases, these are geographic issues as populations' shift away from rural areas. There are also signs of misalignment between the educational attainment levels of the unemployed and current employer demand for evolving skills. Meanwhile, in some areas of the state, Hoosiers are still suffering from long-term unemployment. The trend of long-term unemployment remains particularly troubling for those with only a high school diploma, or less. All of these trends point to a greater emphasis on labor market information and quality data analysis to inform job seekers, career counselors, and policy and decision makers. Additionally, with increased attention to labor market information in the Workforce Information and Opportunity Act (WIOA), it is a high priority for the current administration to focus targeted training dollars towards education and training based on accurate employment demand and wage data.

The Indiana Department of Workforce Development (DWD) is developing several initiatives highlighting labor market information to meet these goals:

- 1) Demand Project: Through the creation of a Demand Driven Workforce System (DDWS), DWD seeks to provide more actionable information to our state's employers, job trainers, job seekers and educators by projecting the trends in our employer workforce demand over time. The DDWS will leverage advanced data analytics and data sciences to enhance insights of employer workforce demand using data already collected by DWD, other state agencies and external data sources (where applicable). This project will enhance the occupational projections program with a new emphasis on current demand and greater details on the skills and certifications employers are seeking, including:
 - a. Creation of employer driven data by assessing employers' present workforce needs. Then, look 3, 5 and even 10 years down the road to determine their future workforce needs.
 - b. Utilization of employer driven data to ensure our educational institutions and training providers are teaching the skill sets necessary to fill those current and anticipated needs.
 - c. Ensuring that WorkOne customers and students have a fulfilling job waiting for them upon earning certifications or degrees.

- 2) Longitudinal Data Systems: DWD remains a key agency in the development of the Indiana Network for Knowledge (INK). INK builds on successes achieved since the inception of Indiana's longitudinal data system (IWIS) in 2007. This was a collaborative effort that began with DWD and IU's Indiana Business Research Center. Partner agencies include DWD, Indiana Department of Education, Indiana Commission for Higher Education and Family and Social Services Administration. INK launched for both internal and external data requests in the summer of 2016.
- 3) Workforce Data Quality Initiative (WDQI): Indiana was awarded a grant in 2014 to further the state's longitudinal research and evaluation of workforce training and educational programs and ensure further collaboration and progress. One of the major projects under this grant is matching occupational codes with employer UI wage records as well as developing an occupational coding estimation schema to fill in the occupational gaps missing in the wage record data. Current work on this project includes pulling in data from the public employee and professional licensing databases as well as analyzing OES micro staffing patterns and using a "Multiple Imputation" model to fill in missing SOC codes with plausible values based upon observed demographic information. The partnership continues to make advances in both the direct assignment of the occupational codes and the imputation model.
- 4) New Case Management and Labor Exchange System: Indiana has procured a new combined case management and labor exchange data system. This system will align with the state's labor market information data, interactive website and tools for jobseekers and career counselors. Additionally, Indiana's labor market information division houses the federal reporting team whom are working on improvements to the workforce training performance reports and analysis of outcomes against current economic and wage data. The system is set to launch fall of 2016.

Provision of Regional and Statewide Labor Market Information (LMI):

Regional labor market analysts and DWD staff continue to provide statewide and localized information for economic development efforts, job seekers, educators, career counselors and the general public. Among the most requested information includes:

- Labor force and industry employment trends;
- Available applicant counts (from the Indiana Career Connect, the agency's job-matching system) and incumbent worker pools for specific occupations;
- Occupation and wage statistics;
- Demographic profiles of each region's unemployed workers; and
- Other custom and standard reports in response to requests from a wide range of customers.

Throughout program year 2015, the regional analyst team offered additional information on employer demand from a variety of external "Real Time LMI" tools, such as Help Wanted Online. The team is also building more comprehensive reports and visualizations with online employer demand data. There are a variety of consumers of labor market information, including regional

operators, state and local economic development organizations, training institutions, business groups and researchers.

Indiana's team of regional labor market analysts are available to address data and information requests in a timely manner. They provide comprehensive region-specific and locally-available data for stakeholders and participate in Regional Workforce Development Board meetings and supply information and training to members upon request. Indiana LMI staff also offer webinars and trainings to local workforce staff that focuses on effective usage of LMI and its application to career research and guidance. Additionally, the LMI Director and partners at the Indiana Business Research Center provide periodic trainings to the state Adult Basic Education (ABE) staff, and to Indiana's Regional Works Councils. Regional reports such as monthly labor market reviews, wage and occupation reports, quarterly job postings and starting wages report as well as analysis of unemployment insurance claimants (labor supply) reports that are regularly distributed and published on the state's *Hoosiers by the Numbers* website. The regional analysts also produce customized LMI reports with requested data specific to particular businesses, locales or industry needs. Regional analysts are the first responders to local economic developers and regional workforce planning boards. They provide data and analysis in a timely and easily digestible fashion for business, chambers of commerce and attraction project requests for information.

Longitudinal Data System Analysis:

INK creates enhanced opportunities to combine workforce and education data (K-12 and higher education) to examine employment outcomes, retention of graduates, differential outcomes based on degree type and area of study and a wide range of other research to better understand the linkages between education and the workforce. INK staff along with technical assistance from the Management and Performance Hub (MPH), Indiana Office of Technology (IOT) and third-party vendor KSMC completed work on the INK system. During the development of the system some key accomplishments included the proper core data elements required from each agency (DWD, CHE, FSSA and DOE) to address stakeholder questions and create a data dictionary that aligns with the CEDS standards. The partner agencies began validating the matched data that was marked complete in early August of 2016. Additionally, system development and maintenance documents were produced.

Some previous analysis for internal and field review included examining outcomes from adult educational programs and apprenticeship programs from DWD service providers. These report are published online via the INK website. This information verified the successful intervention of workforce training leading to positive employment and wage outcomes for participants. Additional studies addressing critical questions posed by the INK Research Advisory Committee (RAG) will continue as more data is integrated into the INK system.

Furthermore, to prepare for impending data requests, the INK team reviewed data request best practices and created a plan to begin handling data requests once the system went live. A key accomplishment INK made towards data sharing with external researchers happened by working with each agency's legal counsel on a general DSA that will be used and adjusted as needed. Another key accomplishment was INK's completion of its first round of professional development opportunities for INK stakeholders in August 2016.

Lastly, the INK Executive Director began planning for the future through the creation of the “Future State” document that will be the basis for INK’s strategic vision moving forward. INK has secured funding for its staff via DWD beginning on June 30, 2016 until July 2017. Throughout the rest of this fiscal year, INK will work with various stakeholders to request funding from state appropriations in the 2017 budget session to continue their operations.

Leveraging a Partnership

The continued decade long partnership between DWD and the Indiana University Business Research Center (IBRC) leverages the best people and resources of both state entities on behalf of the residents and businesses of Indiana. The development of software/applications for the digital sharing of data, the statistical modeling of large volumes of LMI data to produce new information and leveraging university tools to improve productivity in the analysis of labor market information are all part of this partnership. DWD and IBRC continue to focus on offering more localized and regional workforce data to the benefit of local decision makers. Additionally, this partnership offers leadership and technical expertise towards the development and expansion of the workforce warehouse system and for improved performance evaluation of workforce training programs under WIOA. This work also involves producing dashboard analyses and continued evaluation and research on workforce training and unemployment trends. The partnership ensures the continual development and upkeep of *Hoosiers by the Numbers*, Indiana’s LMI website which includes many virtual tools with information for community leaders and individuals. The IBRC also assists in the hosting, developing, and maintaining the Workforce Information Database (WID) as mandated by the Workforce Information Grant.

The Workforce Economy Dashboard developed last year serves the needs of consumers with direct access to information in an easily-digestible format. The Dashboard displays the most recent data from a high-level economic perspective. A second resource, the Employment Outcomes Projections Tool, allows for granular display of SOC codes as well as predefined categories of occupations to be explored by interested parties. A third tool is Tableau Visualization INfographics page covering varying topics of interest.

Workforce Economy Dashboard

Information in this dashboard includes:

Seasonally Adjusted	Business Establishments (quarterly change)
Total Nonfarm Jobs	Business Establishment (annual change)
Private Sector Jobs	Unemployment Insurance Initial Claims
Manufacturing Jobs	Exports (millions of dollars)
Unemployment Rate	Residential Building Permits
LAUS Employment Monthly Change	Unemployment Insurance Claims
Total Online Job Postings	Labor Force Participation Rate
New Online Job Postings	Employment to Population Ratio

Employment Outlook Projections

The Employment Outlook Projections tool enables users to explore various SOC codes either individually or through predetermined groupings, which include Hoosier Hot 50, High Wage/High Demand, Regional Hot 50 and STEM (Science, Technology, Engineering and Math). Additionally, this can be viewed by major industry groups, total occupations and on national, state or regional levels. It is dynamically sortable across columns and geographies can be compared side by side.

Infographics

The Infographics provides Tableau visualizations produced by DWD's Research and Analysis division. The Tableau software enables users to illustrate and manipulate data within the visualization for a more customizable experience. There are various research topics currently available and the team continues to explore new and innovative topics that will be presented in the future.

BLS Longitudinal Database (Indiana Detail)

Using quarterly files of longitudinally-linked records for Indiana employers provided by the Bureau of Labor Statistics, employer records from 1990 through 2015 allow business entities to be tracked through the maze of account changes and partial transfers to identify actual business births and deaths, expansions and contractions. Organic employment growth can be distinguished from growth by acquisition or merger, facilitating research on employment dynamics by size class and industry. The LDB files have been used for requests within and outside the agency and have informed a number of economic development projects handled by our research partner. The longitudinal files have been created using SAS and during 2015 and 2016 we have interacted with BLS to determine why there were some significant discrepancies between our state totals from the LDB and the published data by state. We have now received revised files back to 2013 and will work toward a meaningful web output in the 2016 program year.

The Workforce Warehouse (IWIS – Research and Analysis Warehouse)

The Indiana Workforce Intelligence System (IWIS) was developed as the states longitudinal data system in 2007 as a joint project of the DWD, IBRC, Indiana Commission on Higher Education (CHE) and (more recently) the Indiana Department of Education (IDOE). The system has continued in recent years to serve both as DWD's unofficial data warehouse and as a means of connecting higher education and workforce records. In 2014 the decision was made to request proposals to conduct an analysis of the current system and its capabilities to design a production-level system to augment or replace it as the state's student (P-20W) longitudinal database. IWIS was renamed the Indiana Network of Knowledge (INK) by legislative action and a broader governance committee (including the Commissioners of DWD, CHE and IDOE) was established and headed by the Governor. However, in order to sustain continuity of available data, DWD continues to maintain its workforce warehouse (IWIS) of existing data series and seeks to expand and enhance it with data series useful for labor market and training research in collaboration with, and yet also potentially outside, the scope of INK.

During the 2015 program year, DWD continued the enhancements of the workforce data in the IWIS longitudinal warehouse. Continued analysis of the workforce data in IWIS system has also allowed for new research on the skill levels and potential skill gaps between unemployed claimants and the job postings found within Indiana's ICC job matching site. Additionally, the Research and Analysis department (R&A) has continued to maintain the responsibilities of federal reporting for WIA, Wagner-Peyser, TAA, and veterans' data while also pulling data from the case management system into the workforce warehouse. In the coming year, R&A will also be taking on WIOA. A great amount of work has been put into the building and automating of these federal reports with the accomplishment of implementing transfer report query language from SPSS to a SQL Server environment.

Many data requests continue to be fulfilled through the IWIS system, using data from the claims, Indiana Career Connect and TrackOne case management systems as well as reports combining wage data and higher education data. Work is also continuing with Career and Technical Education data through examining wage and educational outcomes. Studies and reports have been completed, involving completions of apprenticeship programs from one local community college and examining activity in the local WorkOne offices. Two major reports have been created to include veterans data based on federal reporting requirements to inform management and the field office staff to improve veteran services. One of which focuses on occupational activity on claimants (one of the datasets that collects occupational data). Additionally, the IWIS staff has participated in training in how to build dashboards in Tableau to enhance the presentation of data.

Furthermore, IWIS has been at the forefront of the DDWS and much data has been placed into and taken from IWIS in order to assist with this effort. Questions related to demand alignment and current pipeline of workers has been explored with data provided from IWIS. Work with partner agencies as well as outside research entities continues to persist and is widely well received by members of the business and academic community. One such project is a partnership with the WDQI grant which has yielded occupational assignments to wage records that are now incorporated into IWIS and can be used to produce reports of economic value.

Workforce Information Core Product Deliverables – Accomplishments

1. Populate the Workforce Information Database (WIDb) with state and local data

DWD continued to populate the WIDb with state and local data that covers at least the most recent ten-year period and includes any federally-applicable changes mandated. WIDb serves as the primary source for Indiana's website (*Hoosiers by the Numbers*) and is supplemented by the Stats Indiana database that is maintained by our university partner IBRC. The data covers counties, metropolitan statistical areas, economic growth regions and balance of state areas in addition to statewide estimates and aggregates.

In program year 2015, *Hoosiers by the Numbers* had more than 82,745 active sessions and nearly 53,496 unique users on the site according to the web analytics. Over 36% of visitors to the site were returning and 13,551 of the page visit sessions were from mobile devices or tablets showing an increase of 13.63% above last year's total of 11,925. This is an indicator that the enhancements to create mobile-friendly applications have been successful and popularity of use in these formats is on the rise. Furthermore, on average visitors viewed approximately five pages per session and

were on the site an average of three and a half minutes. The core of *Hoosiers by the Numbers* is strong navigation geared to people looking for their county, region or a specific piece of data on a workforce-related topic. The site is powered by more than 32 billion records in the joint databases of the IBRC and DWD. Its purpose is to serve as a leading informational site for business developers, researchers and the public alike.

Additionally, three other sites are maintained through partnership with IBRC. These are: STATS Indiana, IN Context and Driving Change. These three sites, with links to *Hoosiers by the Numbers* and additional data and resources, hosted over 525,692 page views during program year 2015. STATS Indiana led the way with slightly less than 341,100 views, followed by In Context at over 101,880 views. In total, these sites also contributed a total of 122,131 mobile views.

Maintenance of Databases and Outputs

- During this grant period, required data loaded to the WIDb was generated and reviewed weekly, quarterly or annually – depending on the data series – by in-house information technology support staff. IBRC staff reviewed and loaded additional data series from BLS for all states, such as monthly estimates from Current Employment Statistics (CES) and Local Area Unemployment Statistics (LAUS).
- IBRC, in collaboration with DWD, created an XML version of the *Hoosiers by the Numbers* County Highlights section that allows economic developers and others to “feed” certain tables (or all of them) into their own sites and not have to update anything.
- Two separate systems are actually maintained – TEST and PUBLIC. All data are verified and tested prior to public display; CES and LAUS data are kept under embargo until DWD Communications issues the monthly press and data release.

2. Produce and disseminate industry and occupational employment projections

DWD generated and delivered to the Employment and Training Administration (ETA), statewide short-term industry 2015-2017 projections and regional long-term industry 2014-2024 projections. The *Hoosiers by the Numbers* website displays the current short term and long term projects.

3. Conduct and publish relevant economic analyses, special workforce information, and/or economic studies of benefit to the governor and state and local Workforce Information Boards (WIBs).

Indiana’s Annual Economic Analysis Report for program year 2015 is in review and was written to serve as an important source of economic information for the governor, the SWIC, local WIBs, colleges, economic development organizations and other workforce development interest groups. The report includes the following topic headings: Employment and Income; Education; Workforce Transition; Occupations; Workforce and Industry Composition; and Housing. A copy of the report will be submitted and posted on the *Hoosiers by the Numbers* website not later than October 2016.

Special Studies/Projects

4. Post products, information and reports on the internet

DWD continued to maintain and enhance its labor market information website, *Hoosiers by the Numbers*, located at <http://www.hoosierdata.in.gov>. Electronically available labor market data and publications presented in various formats (i.e., Word, Excel, PDF, etc.) facilitate export of the information from the website for customers' use. IBRC hosts, maintains and enhances the website by populating some of the non-core datasets and providing links to other data series of interest maintained on their STATS Indiana website. In addition, data from *Hoosiers by the Numbers* is "pushed" by IBRC to a variety of local websites. Highlights mentioned throughout this annual report are summarized below:

- **Website Enhancements/Activities**

1. Maintain the databases that drive *Hoosiers by the Numbers*, which involves multiple staff at both agencies. This work entails daily updates, transformations, research into series changes/format changes, revisions and weekly review of all links and outputs to ensure availability.
2. The new tools have also been illustrated above in this report.
 - a. Workforce Economy Dashboard
 - b. Employment Outlook Projections
 - c. Infographics

5. Partner and consult on a continuing basis with workforce investment boards and key economic development partners and stakeholders.

Regional Analysts worked closely within their assigned Economic Growth Regions in pro-actively providing current labor market information and educational LMI presentations. Each analyst routinely attended regional Workforce Investment Board (WIB) meetings and served as a consultant for various community committees. Regional Analysts also continued to reach out to the Works Councils, established in 2013, throughout the regions. These groups are focused on career pathway work and alignment with educators and business. These partnering efforts help workforce investment boards, economic developers, schools, community organizations, local businesses and other key workforce organizations in the formulation of their strategic business and education/training.

Outreach Activities by Regional Analysts during Program Year 2015 (in addition to standardized monthly LMI reports, Quarterly RTJD reports and other standardized reports):

- Customized labor market information for regional stakeholders = average of 45-50 adhoc reports each month.

- Attendance at Regional Workforce Investment Board Meetings = average of 6 per month.
- Participation in external stakeholder meetings, conferences, webinars, job fairs and other educational events = between 14 and 15 each month.
- Offering presentations and webinars on LMI to regional stakeholders and educators = 1 each month.

Additional outreach presentations and webinars hosted by LMI staff and IBRC Partners:

- IBRC Led – Indiana Economic Development Academy – 89 participants
- IBRC Led – Lynda.com training for SQL - March 12, 2015
- IBRC Led – Using Adobe Connect – April 06, 2015
- IBRC Led – Using SharePoint – April 10, 2015
- IBRC Led – Using /Promoting the tools on Hoosiers by the Numbers – April 14, 2015
- IBRC Led – Excel 2013 –April 20, 2015
- IBRC Led – Indiana Community Development Course – 72 participants
- IBRC Led – DataFerret.com training – June 04, 2015

Central office team members continued to work closely with the Indiana Economic Development Corporation (IEDC) by providing materials geared towards business attraction efforts, analyses of the economic impact of specific industries and identification of expanding industry subsectors to serve as a focus for future attraction efforts, among other programs. Economic and Market Analysis team members also worked closely with other DWD staff in the preparation of statewide and multi-regional grant proposals. In addition, R&A staff utilized packaged software to generate industry and workforce reports to meet customer demands.

IBRC staff provide weekly extracts from their IBIS World database to the Indiana Small Business Development Center, a federal-state cooperative with the Small Business Administration and the State of Indiana. These market-specific reports are used to assist entrepreneurs throughout Indiana.

IBRC staff provide quarterly and annual exports data to IEDC and other state and trade groups to enhance their understanding of the impacts of both exporting on jobs and foreign direct investment.

Economic Modeling Specialists Inc. (EMSI) / Strategic Advantage – A labor market information software application with data and analysis components that provide in-depth, local employment data and analysis to R&A staff to be shared with stakeholders needing to make clear, data-driven decisions. Regional analysts use this tool to make customized reports that profile a given region’s employment, unemployment, industry mix, projected growth and demographics.

Wanted Analytics – An online tool and database that provides job-posting statistics as well as record-level occupation and industry classification data from the postings. This tool allows greatly enhanced data mining of the Conference Board’s Help Wanted On-Line (HWOL) data series. Information from this source provides monthly insights into the current job-posting activity by occupation and industry for the DWD Commissioner and Lead Team. The identification of the Hoosier Hot 50 occupations included review of aggregate job postings from this source. The

Regional analysts also developed a report to highlight the top jobs and skills in demand for local areas based on the employer data from this site.

Other Customer Consultations

DWD uses several SharePoint sites in an effort to coordinate information dissemination and increase collaboration while reducing effort redundancy. These sites were developed to facilitate distribution of frequently requested data, such as an applicant count by occupation from the Indiana Career Connect (the agency's job-matching system) applicant pool, wage demand by occupation and county, and occupational employment estimates (incumbent employment) by county. In addition, R&A established and continues to use a SharePoint for the regional analysts to facilitate the collaborative exchange of information concerning their work in their assigned regions. It is also used to further progress and develop data and procedures. These measures are used to ensure client satisfaction and effective data management and distribution.