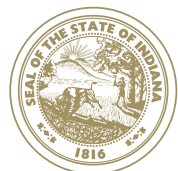




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The Consortium



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Executive Summary

Finding New Careers for the Displaced

To more effectively serve the large numbers of dislocated auto industry workers, the work of the Driving Change consortium was based on four overarching goals:

1. **Chronicle the transformation** from the old auto industry to a new, more efficient auto industry, especially focusing on the new skill and training requirements of the auto workforce.
2. **Identify the effects** of this structural transformation on the auto parts supply chain workforce.
3. **Find green job opportunities** now and in the future as alternative career pathways for displaced workers.
4. **Identify the skills gap** and the required educational and technical training needed for dislocated workers to transition into new occupations.



More reports from the Driving Change project are available on the web:
www.drivingworkforcechange.org

Access reports and tools at
www.drivingworkforcechange.org

EXECUTIVE SUMMARY

Even before the Great Recession, the auto industry in Indiana, Michigan and Ohio was in the throes of restructuring. They were already applying new technologies and production efficiencies, reducing costs, and modifying product lines to equal or beat global competitors. All of this was accompanied by an extended period of downsizing. The Great Recession just compounded the challenges the industry was already facing.

This report is a reality check, accepting that the regional economy is at a fundamentally different place and cannot return. As the auto sector works toward its revival, there are significant workforce issues that must be addressed.

Workforce Implications

Several practical responses emerged from this research:

- The need for ongoing access to capital for the supplier network is critical to the stabilization of this sector.
- Emerging green and cross-functional systems approaches to design, manufacturing, equipment maintenance and building construction will demand corresponding changes in the training of workers from the design center to the shop floor.
- Strategic training for managers that emphasizes long-term planning, worker training benefits and the need to integrate complex investments could improve acceptance of the associated investment costs.
- Current differences among definitions of green jobs and inconsistent use of occupational coding systems frustrate and complicate research efforts aimed at identifying and quantifying these jobs and identifying training opportunities.
- Many of the workers displaced from the auto sector who will need to transition to alternate occupations are starting with limited education (high school or less). These workers will be especially challenged in finding acceptable replacements for their old jobs and will need support throughout that process.

Technology Drives Change

The pace of vehicle technology change is accelerating. Vehicles are changing in response to consumer taste and expectations, higher safety standards, and the drive toward a low-carbon future. When considering changes in automotive technology that support the “greening” of automotive transportation, most people think first about advanced powertrains, materials and electronics. These three technology sectors play a significant role in the transformation of the new auto industry:

Powertrain: The most noteworthy change is the re-emergence of the electric vehicle. The development of alternative forms of energy storage (primarily batteries) is rapidly progressing. As powertrain technologies advance, the locations of powertrain production and employment may shift. It is possible that new propulsion systems will be produced outside the region or require fewer workers to produce the same number of propulsion systems. In either event (or both), a large-scale displacement of traditional engine production by alternative technologies puts the tri-state region’s powertrain employment at risk.

Materials: The need to make vehicles lighter for improved fuel economy is a major driver in the development of automotive materials and forming. The U.S. workforce’s strength is in steel, but less so in alternative materials. While there are only a few domestic metallurgy programs focused on lightweight materials, Europe and Asia have much more experience in this field.

Electronics, software and controls: Technology in vehicles will continue to increase at a rapid rate. Today, electronics accounts for 25 percent of a vehicle’s value—tomorrow, 40 percent. Yes, the tri-state region is poised to benefit from the research and development, design, engineering, and systems integration side of the electronics used in vehicles, but the area may lose jobs to other automotive regions that are stronger in electronics manufacturing, particularly producers in Europe and Asia.

Workforce Implications

Today’s auto industry workers need systems thinking. That means that individuals must possess the soft skills that enable cross-cultural communication, collaboration and teamwork. Production and skilled-trades workers must adapt to an increasingly fast cadence of new product, process and technology introductions.

Fortunately, the tri-state region has the educational infrastructure to meet these challenges and prepare the workforce for the occupations and careers of the future. Out of nearly 900 accredited postsecondary institutions in the region, more than one-third offer programs relevant to the engineering, design, production and maintenance of automobiles.

Investing in the Future

Automaker announcements since 2010 total \$4.3 billion in “green” investment in the tri-state region alone. But despite that huge investment and a rebound in sales in 2010, management appears concerned about the rebound’s permanence. They continue to hesitate to expand hiring or production at the rate of previous economic recoveries. Management, it appears, continues to operate in a cost-cutting mode. Unfortunately, simple cost-cutting models of survival alone are not viable in the long run. Firms also need to build on the strengths of the knowledge, experience and skills of their workers.

One of our most important research-based conclusions: the U.S. auto supply chain could prosper by adopting a “high-road” production approach in which firms, their employees and suppliers work together to optimize investment, labor, quality and technology development.

What does this mean? That **adopting high-road production requires everyone in the value chain be willing and able to share knowledge.** Production will gravitate toward decentralization and increasing reliance upon all workers. Our fieldwork found examples of firms that are thriving because they adopted an agile production model—a variety of products for a variety of industries delivered quickly. They use advanced equipment enhanced with cutting-edge information technology; but in addition to changing their product and operations strategies, they have also transformed their human resource policies.

Green Opportunities Require Worker Up-Skilling

Team assemblers and assemblers/fabricators were the two auto manufacturing occupations experiencing the largest job losses, accounting for more than 57,000 dislocated workers in the three states. **More than 60 percent of these workers have only a high school education**—a troubling statistic that does not bode well for their return to the auto industry.

Where will these displaced workers find jobs? How can they increase their training and skills in order to secure the jobs of the future? Is the green economy a viable alternative?

To answer these questions, we began by benchmarking the number of green jobs in each state and the industries of concentration. Next, each state conducted surveys of thousands of businesses and found that green jobs span a wide

range of industries and occupations, but were concentrated in manufacturing and construction—the very industries most affected by the recent economic downturn. Demand for these green jobs varied across the region, based on the industry mix and employers’ perceptions of green.

Automakers also stated that green products and production techniques will have a more profound effect on engineering and technical staff requirements than on the production and trades worker skill sets.

The green engineering and technology occupations with the greatest demand now and projected for the future tend to require expanded skill sets and more education and training. This trend in “up-skilling” of occupational requirements is true of green jobs as well as most other in-demand occupations.

Alternative Career Pathways

It’s obvious: many displaced autoworkers need help to find suitable career alternatives. We used a two-step pathway cluster and skills gap analyses developed specifically for this study, resulting in tools that offer valuable guidance to displaced workers charting pathways to new job opportunities.

We show the similarities and differences of worker and job characteristics and measure the degree to which worker traits such as “highly social” or “attentive to detail” make occupations more or less similar. Job transitions within a given cluster would be easier than moving from one cluster to another.

But a worker still needs to know the relative difficulty or ease in closing the skills gap between two occupations. Our work broke new ground in developing a skills gap model that measures the time to change from one occupation to another. We call this the trip time. This time is based on the extent of preparation required for the new job. While the trip time measure is not perfect, it is a great advance because it provides job seekers and counselors an easily understandable measure of the gap between their current occupation and a new one they may want to pursue.

Finally, this study produced a tri-state training program database for green and growing occupations as a resource to complement the trip time results. After a displaced worker generates a set of suitable alternative occupations, he or she can match those occupations with postsecondary educational, technical and vocational programs in the region. The skills gap and training program databases are available on the web at www.drivingworkforcechange.org.