

8. Conclusion: Workforce Implications

Automakers face a variety of challenges imposed by global competition, government mandates and consumer demands. Finding the best balance of materials and technologies to meet these sometimes-conflicting demands will require agility and new approaches to design and manufacture going forward. To help meet this challenge, automakers increasingly emphasize integrative systems approaches, critical thinking, problem-solving and communication skills, together with a commitment to lifelong learning at all levels of the workforce.

While engineers, technicians and skilled-trades workers are expected to expand their knowledge base and embrace cross-disciplinary training, more gradual changes are anticipated for production workers' job requirements. The tri-state region appears able to attract and retain research and design, engineering, and systems integration jobs going forward based on its extensive talent pools and knowledge base, but faces stiffer competition from Asian players for other niches such as electronics manufacturing where the region's infrastructure and knowledge are not as advanced.

8.1 Employer Challenges

Automakers and their supply chain partners were sorely stressed by the economic downturn, and many suppliers succumbed to the crisis. Among firms that survived, layoffs and temporary shutdowns were widespread, and now the reduced capacity to meet the demands of automakers' increasing production is straining suppliers.

This stress is evidenced by a gradual increase in quality problems and by production interruptions due to inadequate supplies of components from lower-tier suppliers. Interviewed firms expressed concerns that suppliers struggling to meet production orders may be unable to engage in product development, explore new production techniques and achieve expected continuous improvement goals for quality and productivity.

Longer-term planning is also at risk, including succession planning for key employees and a willingness to invest in endeavors offering delayed returns. Some consolidation among lower-tier suppliers has occurred with the demise of competitors, and many surviving firms are challenged by capital access obstacles and the lack of a diverse customer base. Efforts to stabilize supply chains by moving orders to suppliers perceived as "healthier" may have the unintended effect of pushing reasonably stable firms into insolvency, reducing the pool of available suppliers.

Automakers and Tier 1 suppliers have begun to implement steps to shore up key lower-tier suppliers to prevent further disruptions. Ongoing access to credit by suppliers "on the bubble," who present some weakness or vulnerability, will be an issue of importance for the maintenance of a robust field of competitors to supply the auto manufacturing sector.

8.2 Workforce Challenges

Several trends will challenge the ongoing competency of engineering and technical employees. These include the increased need for holistic systems approaches to design and testing, addressing safety issues in the introduction of new materials, and green technologies for powertrains. While these employees are the most affected by changes rippling through the industry, they are also the focus of employers' most energetic training efforts, including in-house training courses and tuition reimbursement. Although industry interviewees anticipate more cross-disciplinary and systems training for engineers and engineering technicians going forward, they are generally satisfied with the graduates of current programs and they believe certificate programs will be adequate to fill in the gaps.

Training for production workers is seen as being on a level with that involved in new product introduction, as existing skill sets will readily transfer to new materials and processes. However, increased demand for critical thinking and communication skills

formerly associated with postsecondary training may pose challenges for some workers.

Maintenance and repair workers (skilled trades) and those involved in the construction of new plants will likely face higher training demands in order to deal with increasingly complex equipment and systems designed with energy and water conservation in mind. A press for workers with skills in more than one area of expertise will also increase the need for cross-discipline preparation for this workforce segment as they deal with an increasingly green work environment.

As the green economy continues to expand within and across industries, jobs within it will increasingly require specialized training and credentials. “Green” training programs leading to certificates and degrees are being developed at postsecondary institutions at a steady rate and will continue to expand as employers demand these skills from their workers. A database including regional training programs preparing students for green and growing occupations has been created and may be accessed from the Driving Change website.

But the dislocated automotive workforce continues to face challenges. Employers have remained hesitant to reinstate positions eliminated during the downturn and have instead increased reliance on temporary workers. While many older auto workers will likely “age out” of the workforce, a significant number of displaced workers will not. For these individuals seeking alternatives to their former jobs, we developed new career pathway tools, which provide a set of target occupations that leverage their existing skill sets and take preferred work styles into consideration.

As we concluded the many months of interviewing, benchmarking, researching, modeling and analysis, five primary workforce implications emerged:

1. Many smaller firms across a wide range of industries have had difficulty getting credit. Programs such as the State Small Business Credit Initiative can be instrumental in helping small companies expand and hire new workers.

Michigan will be the first state to receive nearly \$80 million in federal funds through this program to back small business loans.

2. Automakers will increasingly need cross-functional employees that can work in several knowledge areas and that can think in terms of how different systems interact. As a result, postsecondary educational institutions may need to retool their offerings and expand their capacity.
3. Investing in worker training can reap large gains in productivity; however, many managers appear reluctant to commit the needed resources, possibly due to an overemphasis on short-term return on investment. Courses in strategic planning have proven useful for managers of small firms in regions such as Ontario and Catalonia. This type of educational extension should be considered in the tri-state region.

A related challenge for managers is that many investments are complementary. As is the case of “agile production,” several complex investments must occur together before achieving any benefits. Increased state and federal investment in technical assistance agencies such as the federal Manufacturing Extension Program and state programs such as the Edison Centers in Ohio could reduce these barriers. These agencies can provide advice about timing and integrating investments, as well as helping to bridge any management skills gap (such as product design).

4. While automakers report that current educational programs are adequate for the workforce needs of today, some green occupations are so new and qualitatively different from current jobs that those designing curriculum will need to work in concert with the industry to develop training programs. Regional differences in defining green jobs and difficulties in measuring emerging occupations present ongoing challenges to arriving at reliable estimates of these jobs. Uniform use of the eight-digit SOC categories, which facilitate breakouts of emerging occupations, would aid researchers in measuring the growth of the green economy;

however, adoption has been slow for a variety of practical reasons.

5. The new career pathway resources developed by the Driving Change research complements the financial support available through such channels as Trade Adjustment Assistance, Rapid Response Services for workers or employers, and the National Emergency Grant On-the-Job Training Program. The Driving Change resources can make these efforts more effective. They can help job seekers and workforce development staff identify feasible career and training alternatives. Transitions to alternative occupations can entail a

significant amount of preparation time. Displaced workers need support to make that transition, especially given that the majority have only a high school education or less.

This report highlighted and summarized the key findings of this project. The Driving Change website (www.drivingworkforcechange.org) provides access to separate reports covering each of the project's goals in more depth. In addition, the site provides access to multiple tools stemming from this project, including the training database that matches green and growing occupations to training programs available in the tri-state region. 🍃