

# CASE STUDY: CARCAM

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NSF ATE Center Awards: [1304036](#)

## EXECUTIVE SUMMARY

Over a 13-year period, CARCAM positioned itself as the trusted intermediary between the Alabama Automobile Manufacturing Association (AAMA) and 15 of the 24 community colleges in Alabama to facilitate a pipeline of students prepared to work in auto manufacturing. By demonstrating the value of the training for all stakeholders, CARCAM provided the background setting for the current administration of state-appropriated scholarships for students in the automotive fields. These small scholarships reach hundreds of students and are built into the state budget.

## PURPOSE AND BACKGROUND

In 2005, the Consortium for Alabama Regional Center for Automotive Manufacturing (CARCAM) was first funded out of Gadsden State Community College as a regional center consisting of five Alabama community colleges: Jefferson State CC, Gadsden State CC, Trenholm State CC, Wallace State CC, and Central Alabama CC. The colleges partnered with the automotive manufacturing industry with the mission to provide a skilled automotive workforce within Alabama to support the rapidly expanding automotive manufacturing factories for Mercedes-Benz/Daimler Chrysler, Honda, Hyundai and Toyota. By 2017, the network had grown to 15 institutions. At the time CARCAM was funded, the state of Alabama had worked hard to court the automotive industry to replace the dying textile industry. In doing so, the state committed to companies that there would be a well-trained workforce available. CARCAM was established to ensure this promise was met.

The automotive and manufacturing industry is strong in Alabama. As reported in the CARCAM final project report, data from the state Department of Labor shows that “automotive related careers are one of the highest paying jobs in the state” with an average salary of \$57,303 for automotive fields and \$54,030 in manufacturing, as compared to the average salary of \$44,419 in other fields. Creating an educational pipeline that prepares students for local careers is an important state priority.<sup>1</sup>

The Center, with two additional rounds of funding, supported the formation of relevant degree programs, curricular development, faculty development, education pathways, industry engagement, and outreach programs. By 2016 there were 71 ATE grant-funded programs developed and/or offered including 1,080 unique courses serving nearly 6,000 students. According to the last NVC report in 2017, the committee had unanimous, positive endorsements for the work of the Center, including the network between the 15 participating colleges, increasing industry buy-in, outreach programs, leveraging funding, and strong state level support. External evaluation found that CARCAM consistently met and exceeded goals, objectives and metrics laid out in the grant. For example, according to the final report, “CARCAM has implemented innovative professional development for the State’s college faculty and secondary teachers. By providing relevant opportunities for the entire community college system, and their secondary schools, the whole education network is activated and educators remain up-to-date year to year.”

The Center was able to increase capacity for both industry and educational institutions. Data from 2013-2016 show the following:

Institutional Evidence of Increases in Capacity	
Indicator	2013-16
Number of companies with co-ops and/or internship relationships	367*
Number of CARCAM program students participating in co-ops or intern/apprenticeship programs	976*

<sup>1</sup> [https://ache.edu/ACHE\\_Reports/Reports/State\\_Plan/State\\_plan.pdf](https://ache.edu/ACHE_Reports/Reports/State_Plan/State_plan.pdf)

Number of new or revised modules for existing courses	63**
Number of courses revised through insertion of new modules	43**
Number of new certificates or degrees created using the new modules	9**
Number of colleges participating in a systemic Prior Learning Assessment (PLA) program	14**

\* Four years of data: 2013-14; 2014-15; 2015-16; 2016-17

\*\* Two years of data: 2015-16; 2016-17

One of the fundamental ways CARCAM built capacity at the educational institutions was by working with willing community colleges to identify the courses that industry indicated prepared students for careers in automotive manufacturing. Colleges that participate in CARCAM are typically connected through the initiative of a specific faculty member. These faculty members created a community in which they share information about equipment and curriculum. They also participate in a quarterly industry and educational leadership meeting which provides networking opportunities and the opportunity to stay current on workforce needs and educational programming. Many of the individuals who were involved early on have moved up into administrative positions such as Deanships, raising the profile of CARCAM and the scholarship opportunity.

The educational network has had a direct benefit on industry. Scott Haywood, Senior Vice President, Manufacturing Operations of Honda, stated that “currently 10% of the plant’s Equipment Service Group has been hired through the CARCAM co-op or School to Work Program” and they have 100% positive feedback from departments receiving these students.<sup>2</sup> Over the life of the project, CARCAM engaged business through the Industry Advisory Board (IAB). The IAB meetings ensured that technical education aligned with desired workforce skills. Evidence of the success of these relationships includes:

- Nearly \$50 million in leveraged funding
- 127 companies offering co-ops, internships and/or apprenticeships (2016-2017)
- Regular industry attendance and engagement in the IAB

A close relationship with state agencies allowed CARCAM to position itself as the trusted intermediary between the Alabama Automobile Manufacturing Association (AAMA) and 15 of the 24 community colleges in Alabama to facilitate a pipeline of students prepared to work in auto manufacturing. CARCAM promotes collaboration between the workforce development and educational components of advanced manufacturing by facilitating relationships in person and through email contacts, a website, a newsletter and Twitter.

## TIMELINE

**2001**  
Alabama Automotive Manufacturers Association (AAMA) began to award scholarships

**2005**  
NSF CARCAM first award

**2010**  
Second Center grant

**2011**

## HIGHLIGHTED INNOVATION

Scholarships are important for many students to continue their studies. One student reported to CARCAM, “I ended up getting scholarships, and that’s pretty much what made me stick with it.” In 2001, the Alabama Automotive Manufacturers Association (AAMA) began providing partial scholarships to high school and college students interested in pursuing majors that would prepare them for careers in automotive manufacturing. Companies were struggling to fill the scholarships with the right students. They would offer scholarships to students (often high school students who were not prepared to make career decisions) who would later transfer into other majors. Companies realized that taking students enrolled in specific majors (and in some cases individual courses) would be the most expedient process. CARCAM, as the leading authority on automotive education, positioned itself to manage a scholarship process for the companies by vetting the programs and students that meet the companies’ needs.

<sup>2</sup> Final project report to NSF, 7/17/2018

AAMA stopped awarding scholarships to high school students, instead focusing on those in relevant majors at CARCAM colleges.

**2014**

Third Center grant

**May 31, 2018**

Center grant concluded

## EVOLUTION

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In 2011, AAMA refined the selection and awarding process to award scholarships only to students in CARCAM participating schools/programs in order to assure that their funds were supporting individuals pursuing skilled technician education who wanted to work in the state's automotive manufacturing field. CARCAM assumed the facilitation of the scholarship program and leveraged the partnership opportunities of the organization.

In 2017, the President of AAMA and the Director of the Alabama Industrial Development Training Division (AIDT), and the Director of Workforce Development for the Alabama Community College System met with select State Senators to promote the scholarship program in order to facilitate filling the skilled technician pipeline for the state's growing automotive industry. PI Hilderbrand and the above noted officials were subsequently invited to speak with politicians about the program and offer guidance for how it could be expanded statewide.

## PROJECT CONTINUATION

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Over 300 scholarships have been awarded to students to complete their academic programs.

The program had such an impact on the state that in early 2018 the state legislature appropriated \$200,000 to the scholarship program to expand beyond CARCAM colleges to the entire state system. Twenty-four community colleges now boast degree programs designed to produce highly skilled technicians for the automotive industry. The scholarship, co-managed by AAMA and the ACCS, currently offers two semesters of funding at one of these colleges. Community college students (as well as high school seniors) enrolled in the approved programs may apply. Applicants must have a minimum 2.5 GPA and must submit a transcript, essay, and letter of recommendation.

Ms. Hilderbrand currently works in partnership with the AAMA Scholarship Committee and the ACCS as Program Manager to oversee this program, which uses 10% of the funds to cover overhead costs. In 2019, 61 students (52 male, 9 female) received the scholarship in the amount of \$3,600 (totalling over \$219K) to be utilized for two semesters.

A mentorship program initiative began in 2019 to connect each scholarship recipient with a volunteer from the automotive industry to benefit students as they progress through their degree programs. The scholarship recipients are currently being tracked for successful program achievement and surveyed regarding their mentorship participation.

## LESSONS LEARNED

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- Developing the connections between industry, the state, and the educational institutions required a concerted communication and relationship building effort. Each of the partnering colleges had a dedicated coordinator as part of their affiliation with CARCAM.
- Collecting data from all the participating colleges and industry partners ensured that all stakeholders were partnered in a one-to-one relationship. This led to programs being better customized to meet the specific training needs of the manufacturer, and also facilitated student experiences such as co-ops, internships and apprenticeships.