UNITED STATES' EXPERIENCE

TITLE: Clemson University International Center for Automotive Research (CU-ICAR)

Country: United States

Institution: Clemson University (Public)

Date: January 2008 to 0July 2013

Other institutions involved: BMW Manufacturing Group, Michelin North America, Timken Inc, State of South Carolina, and Clemson University Real Estate Foundation are all founding partners of CU-ICAR

Webpage: www.cuicar.com

Context

In 2001, Clemson University's President, James Barker, led an initiative to explore how Clemson University could add sustainable value to industry clusters within the South Carolina. In consensus, all SC industry clusters claimed a need for a research and development environment as a critical component to a sustainable model for their clusters. From the automotive industry specifically, the answer was twofold: (1) provide an infrastructure which will allow us to become more competitive and (2) increase the pool of engineering talent by educating a future engineering workforce with a focus on vehicle systems integration. Today Clemson's response to that feedback now exists in Clemson University's International Center for Automotive Research.

Objectives

• To provide exceptional talent to the automotive industry in the form of uniquely qualified masters and doctorate students for employment.

• To contribute to economic development for South Carolina through the development of a knowledge-based economy and the attraction of companies to the state.

• To provide cutting-edge research to the automotive industry to make it more competitive and sustainable.

Relevance

The most recent data show that CU-ICAR alumni (62 to date) are gainfully employed in automotive companies within South Carolina. Students are no longer leaving South Carolina in search of well-paying, knowledge-based employment at nearly the historical rate. Five years into the program we believe that this statistic is testimony to our success in addressing one key historical market failure within our state.

Implementation

Preparatory activities include detailed feasibility studies and technical designs for the demonstration pilots that have passed the selection process. This process involves completion of prefeasibility or feasibility studies, consultations with user groups, as well as criteria to judge socio-economic impact, cost-effectiveness, risks, visibility, and replication potential.

Distribution of tasks

The Automotive Engineering Department Founding Chair (at that time organizationally within the Mechanical Engineering Department) led a team of industry and faculty through the development of this new and exceptional curriculum development for a Masters and PhD in Automotive Engineering.

The Clemson University Land and Capital Stewardship and Real Estate Foundation led the campus planning and development. A Partnership Business Office was established to foster and maintain industry relationships and marketing.

Achievements and results

Various economic impact studies have already been conducted to measure CU-ICAR's contribution to economic development within South Carolina. As of 2011, CU-ICAR has generated nearly $250M in investments, with another $500M in development, has announced more than 2,300 new high-wage jobs, and has constructed more than 760,000 square feet on site, with another 75,000 square feet in process. Harvard Business School's recent analysis of the South Carolina Automotive Cluster states "CU-ICAR distinguishes the cluster." Many other recent studies provide similar recognition.

Unexpected achievements

CU-ICAR has become a gathering place for industry to meet. The local engineering and business community seem to thrive on being able to meet, hold conferences, and gathering within such an innovative campus environment.

Capacity to replicate and potential for exchange

The sustainability of the CU-ICAR public/private model is already evidenced by the recognition it has received from a number of prestigious organizations. CU-ICAR was awarded the 2009 AURP Emerging Science and Technology Park Award for North America and was recognized the same year by the National Academy of Sciences as one the five best global practices for Science and Technology Parks in the United States. In 2012 CU-ICAR was the winner of the SSTi TBED Award for "Improving the Competitiveness of Industry."

The specific transferability of the model can be seen in a grant made in late 2009 by the U.S. Department of Energy (DOE) to Clemson University's Restoration Institute (CURI) and its partners. The $45 million grant — the largest award in Clemson University history — is for building and operating a facility in Charleston, South Carolina to test and enhance the performance, durability, and reliability of utility-scale drive trains for next-generation wind turbines.

The core successful components of the CU-ICAR model are being used as a benchmark model for

development of CURI. The goal is to make CURI the university's "energy campus," just as CU-ICAR is its automotive engineering campus.

Human, operational and institutional capacities

We are able to share information electronically, via our website, annual reports (both in print and interactive digital versions) , and social media such as our Facebook page. We are also able to offer exchange via personal contact for those wishing to learn about the model.

Modalities to facilitate the exchange

The sustainability of the CU-ICAR public/private model is already evidenced by recognition by prestigious organizations. CU-ICAR was awarded the 2009 AURP Emerging Science and Technology Park Award for North America and was recognized the same year by the National Academy of Sciences as one the five best global practices for Science and Technology Parks in the United States. Last year CU-ICAR was the winner of the SSTi TBED Award for "Improving the Competitiveness of Industry".

Good practices and concrete lessons to be shared with other RIAC Members

Involvement of industry is key to developing such a public/private partnership. Continued surveying and assessment of industry market needs are critical to maintaining alignment with industry trends and needs.

Experiences and subjects to learn from other RIAC members

Other public/private models that have been successful, particularly where coupled with academic programs

Key persons involved in the design, implementation, and evaluation

Dr. Imtiaz Haque, Founding Chair of Automotive Engineering Program and Executive Director of Carroll A. Campbell Graduate Engineering Program, Clemson University

Author of this story

Suzanne Dickerson
Clemson University International Center for Automotive Research (CU-ICAR)
Director of International Business Development
sdicker@clemson.edu