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## Engineering a Profitable Future

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# **Engineering a profitable future:**

Advanced Manufacturing Institute helps industry, companies succeed

*A high-speed train quietly whisks passengers on a 30-minute, 60-mile journey from home in the countryside to work in city skyscrapers. The train races past bumper-to-bumper highway traffic.*

*Factories earn record profits with on-time rail shipments. American manufacturers rush to hire more workers to build rail cars and tracks. New businesses open near high-speed rail stations.*

Engineers at Kansas State University's Advanced Manufacturing Institute are working with university professors to create one such prosperous economic scenario in the United States. They're researching and testing concrete rail ties, which hold rail tracks together, to make them more durable. The research will help position America for high-speed rail lines found throughout Europe and Asia, where concrete rail ties are commonly used.

Concrete rail ties have the potential to last longer and provide better fuel economy than their wooden counterparts traditionally used in the United States. Fewer greenhouse gases are released during production.

"Part of the economic benefit of this research would go back to the concrete tie manufacturer, improving upon a safe product to make it even better," said Taylor Jones, the institute's chief engineer. "If pre-stressed concrete rail ties are even more competitive, American manufacturers will gain more business and employ more workers."

The research is one of many projects at the institute that will help jump-start the economy. The institute provides services like business planning, product design and manufacturing development. It serves small companies, university professors, entrepreneurs and Fortune 500 companies.

"We fill in the gaps where companies do not have the internal resources because they haven't yet grown sufficiently in size," said Jeff Tucker, the institute's associate director. "In other cases, large companies come to us seeking our expert technical advice."

The institute worked with Hutchinson, Kan.-based Shield Agricultural Equipment to increase profits and create jobs. The institute redesigned a device that cuts through soil and spreads fertilizer. Since the product's launch six years ago, the company has seen an uptick in sales, created eight full-time jobs on top of 32 existing positions, and launched an ancillary business.

The institute also boosts economic development. For instance, planners are studying the possible creation of an innovation business accelerator in south-central Kansas to expand rural manufacturing. The incubator could launch more startups, create high-paying jobs, and expand existing small businesses.

"Every day we help shape and form companies and communities so that they can be more competitive in the global marketplace," Tucker said. "Once we help companies and communities grow and expand, they will create a bigger work force. By working with one company and community at a time our efforts add up to set the foundation for a stronger economy."

*By Trevor Davis, Communications and Marketing*

