



SCIENCE & TECHNOLOGY

Electric Car Companies Seek Low-Cost Production Methods

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Electric vehicle companies are racing to become the next Tesla, but want to avoid Elon Musk's early problems with production.

So, companies like Arrival and Fisker are taking very different roads to overcome such issues.

A few have found investors who are willing to spend billions to finance their **startups**. Rivian has raised around \$10.5 billion from Amazon.com and Ford Motor Company. It is set to begin production on electric vans, trucks and SUVs.

Startup companies without enough investment money need less costly ways to produce a lot of vehicles in a short time. If they cannot, they risk having the problems Tesla had in its early years.

The remarkable thing is that Tesla was not ruined financially in reaching mass production, Musk told Reuters news agency.

The traditional method of many carmakers has been to spend above \$2 billion on a big factory to build 240,000 or more vehicles each year.

Arrival has chosen instead to build electric van and bus "microfactories." They are small factories that cost \$50 million and have fewer pieces of expensive equipment. Arrival does not need special equipment to paint its vehicles because they are made of lightweight colored plastic. Painting equipment can cost hundreds of millions of dollars.

Arrival plans microfactories close to major markets around the world. This will let them hire local workers, and lessen shipping costs.

The money a company must raise "to do this the traditional way...keeps startups from coming forward with new ideas," said Mike Abelson. He is the North American head of Arrival.

The company raised about \$660 million from selling shares of its company in its March public offering. Now, it is building two U.S. plants. One is in North Carolina and will make vans. The other is in South Carolina and will make buses. In addition, it is building a factory in Spain. Abelson said Arrival will announce more factories later this year.

Production in microfactories

Arrival's first microfactory in Bicester, England, will serve as the model for other plants. The lack of painting equipment is just one way the company will avoid the costs of traditional vehicle making.

The startup's engineers have built **molds** for plastic vehicle parts costing thousands of dollars. That is far less than the millions of dollars needed for traditional metal equipment. Arrival's engineers have also designed their own molding machines.

Abelson said Arrival needs around 70 robots for each microfactory. And it is buying only commonly used, basic robots from long-time car industry suppliers.

Going small means that Arrival can produce 10,000 vans each year in each microfactory rather than 100,000, Abelson says. Also, each microfactory will create around 250 jobs. That is not close to the many thousands of jobs created by larger plants in the past.

"That means if a plant doesn't work out, it's not a disaster for a local economy," Abelson said. "A major car plant closing is a big hole to fill."

'Work our way backwards'

Electric vehicle maker Canoo has taken a similar path. But leader Tony Aquila said Canoo will build a larger microfactory to serve as a center for smaller future factories.

Electric Last Mile Solutions plans to launch a small electric van in the United States later this year. At first, it will **reassemble** prefinished vehicles made in China at an old General Motors plant in Indiana. There, it will add new safety features to meet U.S. regulations.

Company head James Taylor said this will at first save hundreds of millions of dollars on equipment. As profits grow, it will add in more American parts over time. "We'll work our way backwards," Taylor said.

Other startups are doing production overseas to cut costs.

Israel-based REE is looking at agreements with American Axle and Mitsubishi to help build its electric **platforms**.

Both REE and Fisker have also teamed up with Canadian car supplier Magna International to build their electric vehicles. Fisker has a similar agreement with Taiwan's Foxconn Technology.

I'm Alice Bryant.

Reuters news agency reported this story. Alice Bryant adapted it for Learning English. Susan Shand was the editor.

Words in This Story

Startup – n. a new business

Van – n. a vehicle that is used for transporting goods and that is closed in on all sides

SUV – n. a large vehicle designed to be used on rough surfaces but that is often used on city roads or highways

Mold – n. a container that is used to give its shape to something that is poured or pressed into it

Reassemble – v. to put the parts of something back together

Platform – n. a usually raised structure that has a flat surface where people or machines do work

