Staffing the Space Assembly Line

MAKING LEADERS

How a group of companies tackled the challenge of creating a technical workforce for a space systems manufacturing, establishing a model for other commercial space clusters across North America and around the world.

SSPI
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Escape velocity for Henry Ford

Henry Ford became a business legend by turning a big idea into one of the most successful companies in history. The big idea – mass production – was not his. It began more than 2,000 years ago with the production of weapons in China. The first industrial applications took place in Britain in the 18th Century. It was Raymond Olds who first began production-line manufacturing of cars in his Oldsmobile factory.

But Ford worked relentlessly to simplify and standardize the manufacture of the automobile, and created the assembly line system that could produce it inexpensively in large quantities with consistent quality. He also innovated in two other ways that would reshape the century. He pioneered in mass advertising to create demand for his products and in paying his employees double the going wage, reasoning that prosperous consumers would turn into his customers.

Introduced in 1908 at a cost of US$820 (about $23,000 today), the Model T blew open the automobile market. Its price fell every year, thanks to constant innovation, and just 10 years later, half of all the cars in America were Model Ts. By 1920, there were over 8 million vehicle registrations in the US and the number of registered drivers nearly tripled to 23 million by the end of the decade.

It is hard today to appreciate what a revolution this was. Before the perfection of assembly-line manufacturing, the automobile market consisted exclusively of wealthy people. Many of Ford's investors told him that making a better car for rich people would be his path to success. The small size of the market and high prices dictated how cars were made – slowly, with much manual labor by skilled craftsmen – like the furniture and furnishings that graced the homes of the wealthy. It was a niche business that attracted remarkable engineering innovators with names like Daimler and Benz, Puegot and Diesel, who prized performance and built with race drivers in mind.

And then, within one generation, it wasn't.

The OneWeb Satellites challenge

To meet its unique manufacturing challenge, OneWeb formed a joint venture, OneWeb Satellites, with aviation manufacturer Airbus to design and manufacture its satellites. Led by CEO Tony Gingiss, it assembled an international team drawn from space, aircraft and automotive manufacturing, and created an industrial supply chain of 40 companies, each of which took responsibility for mass-producing parts of the satellites.

Manufacturing began at a factory established at Airbus facilities in Toulouse, France. There, the company validated its satellite design, Final Assembly Line and industrial processes. In 2017, the company broke ground on a second factory in Merritt Island, Florida, just minutes from Cape Canaveral, where the bulk of assembly would take place, reaching a planned tempo of 15 satellites per week.

Development of both facilities required major advances in automated clean-room manufacturing, assembly and testing. Brilliant engineering and hard work solved problem after problem. But neither could address the need for skilled people to work the machines, take accountability for processes and deliver quality at a targeted cost. Despite the deep roots of the space industry on Florida's Atlantic Coast, there were simply not enough technician-level individuals ready to report to work to meet the increasing demand. There might have been when the Space Shuttle was still flying, but its mothballing in 2011 led to an outflow of technician-level talent from which the region has yet to recover.

Taking cues from Europe