

Viewpoints

Lessons we can take from Farnsworth 100 years after his birth

Top of Utah Voices



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Michael Vaughan

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Commentary

This year marks the 100th anniversary of the birth of one of Utah's most famous citizens: Philo T. Farnsworth, "the father of television." Farnsworth was born in 1906 in Beaver County and educated at Brigham Young University. Farnsworth is widely considered to be the inventor of television, having broadcast the first electronic image in 1927.

The Federal Communications Commission credits Farnsworth for his pivotal role in the development of television, which he first visualized while in high school. Farnsworth is one of two Utahns honored in Statuary Hall in the U.S. Capitol; the other is Brigham Young. At a time when Utah's elected officials and business leaders are considering investing in home-grown research and innovation to stimulate the economy of the state and Northern Utah, Farnsworth's story offers key insights that can and should be applied to these initiatives.

Given that television was invented by a Utahn, what did this important innovation contribute to the Utah economy? Almost nothing. Virtually no manufacturing jobs were created. There was never a large-scale production facility for television receivers in Utah, nor were critical components for television, such as cathode ray tubes, ever produced in Utah.

There was never a significant television research laboratory in Utah.

Television created

thousands of jobs in other states, made many people very wealthy and continues to provide hundreds of thousands of manufacturing jobs in Asia. Farnsworth's invention created jobs, but not in Utah.

What happened, and why? For those pinning their hopes on the role research and innovation will play in Utah's economic future, these are important questions to consider.

Regardless of where innovations occur, they will quickly gravitate to regions that can make the most efficient and productive use of the innovation. Economists call this concept comparative advantage.

Consider a hypothetical example: Suppose agricultural researchers at the University of Nebraska discovered a way to economically double the output of an orange tree. Even though the research was done in Nebraska, the innovation would not turn the Great Plains into acres of orange groves.

Instead, the innovation would likely increase the productivity of orange growers

in Florida, California and other orange-growing regions. Innovations may be viewed as seeds for economic growth, but those seeds will only sprout in regions where the ground is fertile and plowed.

Years before Farnsworth's invention, the fertile ground for electrical innovations had been plowed in northeastern states, especially New Jersey and New York.

Thomas Edison invented the phonograph in 1877. This was followed by his invention of an incandescent lighting system in 1897.

In the early 20th century, Edison's research lab in Menlo Park, N.J., was the epicenter of electrical innovation. Edison was not only an inventor; he was also an accomplished entrepreneur. His most notable business achievement was the formation of the General Electric Company in 1892. GE formed the Radio Corporation of America as a separate company in 1919, and RCA would play a critical role in Farnsworth's life.

Shortly after the demonstration of his successful invention, Farnsworth had difficulty finding financing. His financial problems didn't stem from a lack of capital in Utah, or the West. There were entrepreneurs in Utah with the financial wherewithal to support Farnsworth. In San Francisco, where Farnsworth did some of his most important research, there was even more potential for capital. The problem was that Utah's

financiers didn't have the interest or experience in electronic technology. Their areas of expertise and Utah's comparative advantage were in construction, mining, railroads and banking.

Farnsworth's quest for financing drew him to a person with money, experience in electronic products, and an interest in the development of television. That person was David Sarnoff, who served as president of RCA in the 1930s and '40s. The tale of Farnsworth and Sarnoff is one of power, cunning and competition to shape the future. By the end of the 1930s, RCA and Sarnoff had control of Farnsworth's innovation, and they would use the technology to bring television to the American public.

As Utah's business and government leaders consider plans to spur the economy, two important lessons can be learned from Farnsworth and

the invention of television: The first is that innovations are mobile. In fact, innovations are much more mobile today than in Farnsworth's time. An innovation developed at Princeton University is likely to create more jobs in China and India than Princeton, N.J. Investment in research and innovation fosters worldwide economic development. This conclusion isn't an argument against basic research. Countless innovations born from basic research enrich our lives.

The point is that regional economic development isn't the *raison d'etre* for basic research. The potential for an innovation to create significant job growth within a 50-mile radius of the discovery is an uncertain proposition.

The second conclusion is that carefully-targeted, applied research has great potential for promoting the economic growth of a region.

For this reason, some states are purposefully directing their research efforts. North Carolina is exploring how nanotechnology can be used in the textile industry — historically, a source of comparative advantage for the state.

At Wichita State University, researchers are examining the use of composites in turbine blades and other components used in aerospace, a cornerstone for the region's economy.

Gov. Huntsman has identified six industry clusters that will be critical to Utah's economic future. Two of these clusters, aerospace and defense, are firmly grounded in Northern Utah. If we've learned from Farnsworth's experience, Utah's research and development investments should be applied toward those industries, and others, in which Utah enjoys a comparative advantage.

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