

Request Name: Rising Tides Rural Manufacturing Initiative

Description: The Rising Tides Manufacturing 4.0 Initiative is a public/private partnership between FutureinDesign 501(c)3 and Blacksmith International, LLC. It will bring cutting edge, manufacturing 4.0 practices to rural Utah, create thriving wage jobs, create an education to careers pathway through Utah State University - Eastern, and position Utah as a leader in the coming shift in manufacturing from Asia to the United States.

Agency: Economic Development

Purpose: To position Utah as a leader in technology-enabled, Manufacturing 4.0; to create thriving wage jobs and career opportunities in coal impacted Carbon and Emery counties; to create a model for manufacturing 4.0 that can then be used to educate other facilities and industries in the State of Utah.

Funding for: \$1,000,000. 2020 (One time)

Private Not-for-Profit

Rising Tides Initiative

Rural Manufacturing 4.0

Legislative Paper

Executive Summary

Utah has the opportunity to invest in a major shift that is underway in manufacturing. Manufacturing 4.0 is the digital transformation in manufacturing, also known as Industry 4.0 and Factory 4.0. Economic drivers favoring cheap labor sent the U.S. manufacturing capacity to Asia; a new set of drivers, fueled by e-commerce, the 2-day delivery standard and enabled by new technology efficiencies are driving manufacturing back to the United States. Utah is in a position to emerge as one of the leading states in the nation bringing jobs/products back from overseas. Efforts are happening now in Wisconsin, North Carolina, South Carolina and New Jersey. The state of New Jersey has just invested \$38M to create a facility.

An investment in manufacturing is a key tool to revitalize rural Utah, address generational poverty, and overall strengthen Utah's economy. The digital transformation of manufacturing provides thriving wage careers, that have a low-barrier to entry. The short-term outcomes will create a globally competitive workforce with the technology skills needed for high-tech manufacturing resulting in thriving wages, and legitimate career trajectories. The Long-term outcomes will expand the capacity for Rural Utah's to start and run their own product companies.

The rural manufacturing 4.0 initiative will expand the already existing manufacturing 4.0 industry in Carbon County, Utah, as well as increase the capacity to serve more individuals with rapid job placement. The "Learn and Earn" model currently in place as a public-private partnership with FutureINDesign and Blacksmith International. It will increase the capacity for rapid job-placement, increase participation in manufacturing apprenticeship programs, and create a post-secondary education-to-career pathway through a partnership with Utah State University.

Manufacturing 4.0 compared to current manufacturing practices

Twentieth Century manufacturing required mass amounts of cheap labor to produce products driven by low prices -- resulting in ethical labor and environmental waste issues. Manufacturing 4.0 produces exactly the amount of inventory needed, made by well-trained people using data and machine learning to increase production and cost efficiency. The chart below compares the two manufacturing practices:

Manufacturing 4.0 compared to Traditional Manufacturing	
Manufacturing 4.0	Traditional Manufacturing
Data drives cost efficiency	Cost efficiency is a result of lots of low-wage workers

Complete an order in a matter of days or weeks	Complete an order in a matter of months
Digital prototyping - no waste	Physical prototyping - high waste
Smart machines and systems limits human error and increase production efficiency.	High error fail rates (More product that can't be sold and workers time wasted)
Small Batch, highly customizable	Mass production, must make a lot of the same to be profitable
Highly trained, high wage workforce	Low skilled, low wage workforce

Why manufacturing is moving closer to the consumer

Industry 4.0 allows United States. based manufacturing to compete with the cost of overseas manufacturing. Even if every factory overseas adopted 4.0 manufacturing practices, they still have to deal with the reality of distance, and the speed to market demands driven by today's consumer. Over 20 percent fashion companies' in the United States, sourcing volume could be from nearshore (and onshore) by 2025 .¹ This is why brands are moving back.

- The Amazon effect (Speed to Market): Amazon has trained consumers that they can have anything in two days time. Product based businesses must respond to the demand
- Turbulent times for trade: Tariffs are a reality in a product based business and current economic projections are for more volatility
- Sustainable Practices: Consumers are more frequently demanding fair and sustainable sourcing practices. Brands seeking ecologically sustainable manufacturing practices are moving manufacturing closer to the consumer

Utah is situated to benefit from these shifts in manufacturing

Thirty percent of the ten fastest growing privately held businesses in Utah are product based businesses.² The need for advanced, fast to market manufacturing here in Utah is a real need. Utah's investment in 4.0 manufacture will increase new job creation. A conservative estimate is for each 4.0 soft goods manufacturing facility 200 new jobs will be created every five years.

Leveraging Silicon Slopes

Utah is a tech leader in the USA, and manufacturing 4.0 requires strong technology partnerships to succeed. Investing in manufacturing 4.0 will leverage Utah's product based industry and tech industry.

Rural Utah - Assets

Rural Utah has the characteristics that will drive 4.0 manufacturing:

¹ <https://www.mckinsey.com/industries/retail/our-insights/the-state-of-fashion-2019-a-year-of-awakening>

² <https://www.inc.com/tim-crino/2018-inc5000-fastest-growing-companies-utah.html>

1. Rural investment in fiber internet infrastructure
2. High population of young people ages 18-34 interested in thriving wage careers
3. In Carbon County 16.7% of the 9,066 employed residents earn less than \$10,000 per year. The poverty rate is 15.5% compared to just 9.2% in Salt Lake County. This is a population that is looking for a chance to work for a fair wage in a fulfilling career
4. Communities invested in bringing meaningful industries to their area

The Price, Utah Manufacturing 4.0 Facility

In 2018, FutureINDesign 501(c)3, and Blacksmith International, LLC, entered into a public/private partnership to leverage the shifting economics of manufacturing to rebuild depressed rural communities. With the assistance of a Federal Economic Development grant, FutureINDesign and Blacksmith have committed to the creation of 200 jobs in nine years by opening a rapid job training “Learn and Earn” (eight-hours-a-week for ten weeks) and placement center in Price Utah. Providing displaced, unemployed and underemployed Carbon and Emery county residents a career opportunity with Blacksmith International.

Learn and Earn Program

Manufacturing 4.0 is so new, the skills needed (machine operation, data analysis, digital prototyping) are not found in a single job/education training program. This presents the unique opportunity of creating a

“Learn and Earn” program. A program which hires workers with the understanding they will learn the necessary skills as they earn a livable wage. Participants are trained in any aspects of 4.0 manufacturing they are interested in learning.

Learn and Earn Partnerships



Benefits of a “Learn and Earn program” :

- Workers are trained in manufacturing 4.0 practices while getting paid
- Employers have workers trained in the skills needed for the industry
- Training is transferable should workers leave employment
- Work environment built around removing barriers of generational poverty

Funding Request

FutureINDesign and Blacksmith request a one time appropriation to support the existing Learn and Earn centers in Price including : (A proposed budget for these programs can be found in Appendix 1) :

1. Wage-offset of workers as they are ramping their skills
2. Working parent scholarship funds
3. Hiring highly skilled training instructors for the Learn and Earn program

4. Further investment in 4.0 Manufacturing technology and equipment
5. Expansion of 4.0 practices in other Utah based soft goods manufacturing facilities

Measurement

Below are the criteria used to measure success in the manufacturing 4.0 program:

- Moving Rural Utah 200% above the national poverty level
- Industry Certifications
- Pathway to Utah State-Eastern certifications and degrees
- Blacksmith Manufacturing to hire students who complete each quarter

Appendix 1 - Budget

Wage Offset for Ramp Up Time	\$350,000
Equipment and Technology	\$300,000
Expansion of 4.0 to Utah Facilities	\$100,000
Working Parent Scholarship Program	\$150,000
Skilled Training Instructors for Learn and Earn Program	\$100,000
	\$1,000,000.00