

New York Works

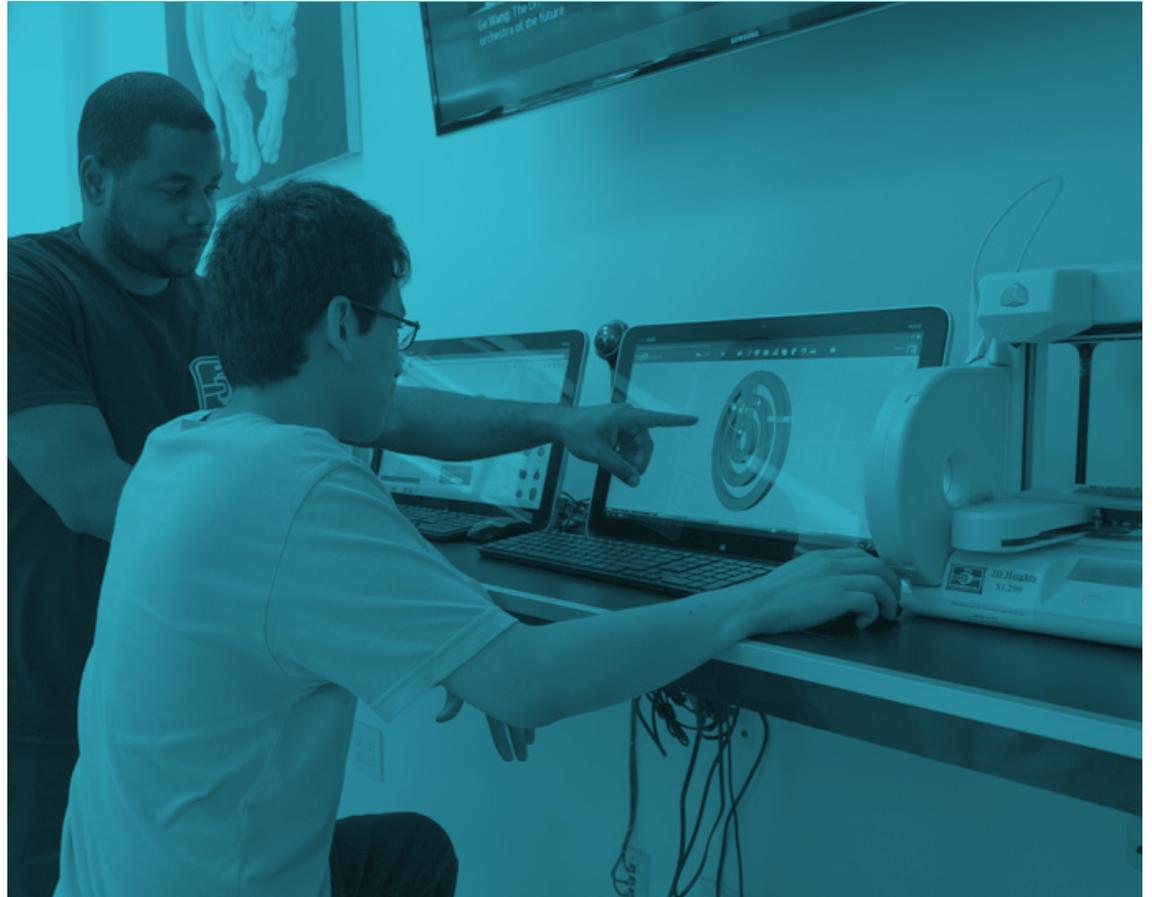
INDUSTRY
SPOTLIGHT

Creating Good Jobs in Advanced Manufacturing

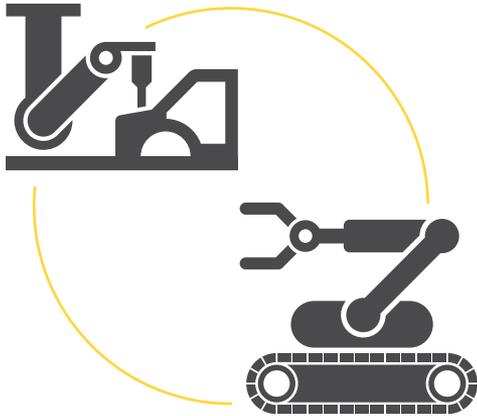
About New York Works

New York Works is the City's roadmap for creating 100,000 good jobs over the next ten years.

New York City Economic Development Corporation (NYCEDC) publishes *New York Works Industry Spotlight* to introduce the public to important industries and job-creating initiatives that the City is adopting, as well as to explore how both contribute to the City's 10 year goal.



New York Works Industry Spotlight: Advanced Manufacturing



What is advanced manufacturing?

Advanced manufacturing is the use of new, digital technologies to develop, modify, or assemble goods and materials. Examples include 3D printing, robotic automation, and Computer Numerical Control (CNC) devices using digital programming to run machines.

A Manufacturing Renaissance

New York City is known as the “3D printing capital of the world,”¹ with over 500 3D printers and nearly 3,800 manufacturers² using them. The city is also seeing a rise in the number of businesses pioneering advanced technologies, from IoT hardware to underwater drones. These technologies favor New York City’s production landscape with its accelerated innovation cycles, allowing for high customization and shortened supply chains.

Futureworks NYC is driving this growth by helping accelerate early stage manufacturing companies using or developing advanced technologies, while supporting the adoption of these technologies by traditional manufacturers. This City program has received an \$8 million investment to create more than 2,600³ good-paying jobs over the next decade.



Futureworks NYC

Advanced manufacturing. Advanced opportunity.

NYC Sector Overview

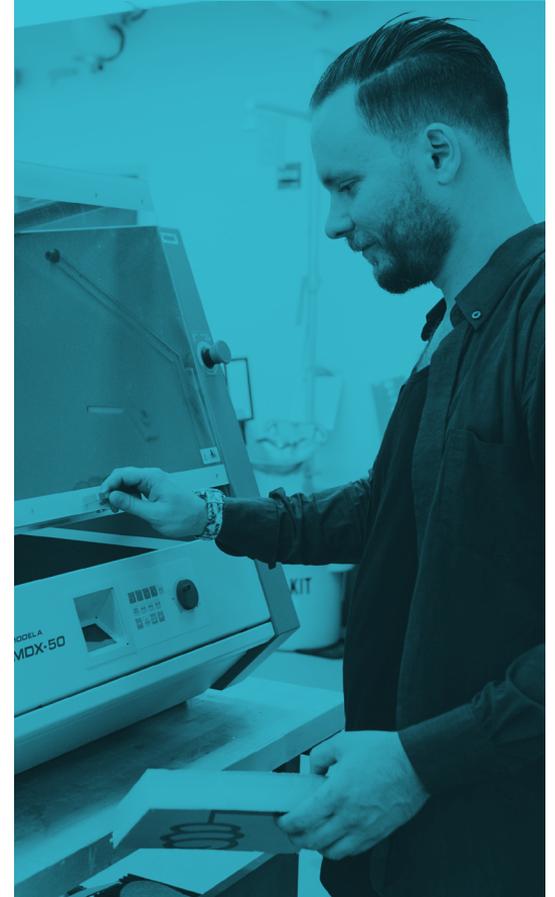
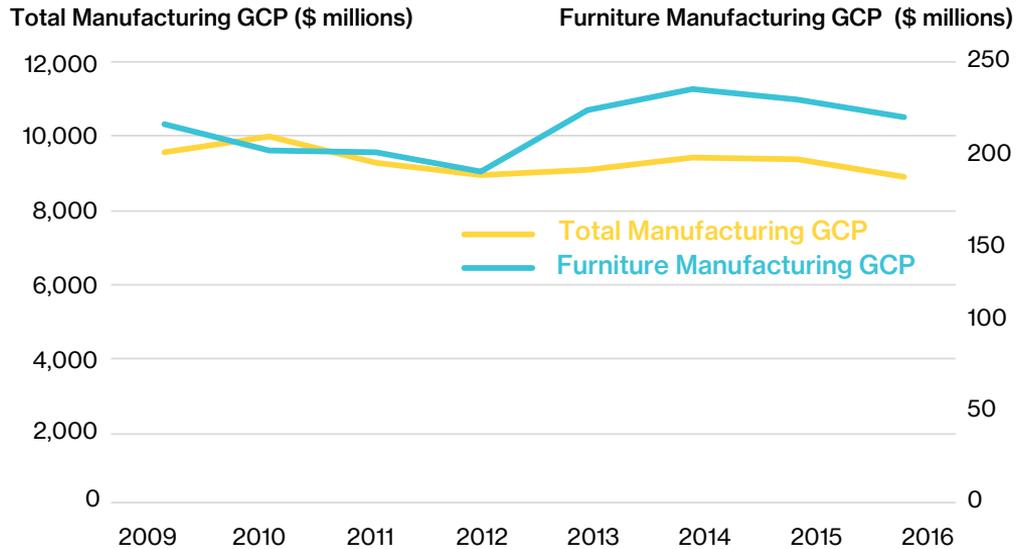


With solid venture capital backing that topped \$41 million in 2016,⁴ development of new technologies and businesses in the advanced manufacturing sector looks promising. Progress in advanced manufacturing could benefit the city's design sector, which includes 4,000 design firms and 13,000 fashion firms, including nearly 1,800 fashion manufacturers,⁵ and could use new technologies to accelerate production and to meet the demand for custom, small-batch orders.

- In subsectors using advanced manufacturing techniques, **wages have risen 7.1 percent**, almost **five times faster** than in traditional manufacturing.⁶
- Local job postings **more than tripled between 2012 and 2015**.⁷
- 47 local companies posted **at least five jobs with advanced manufacturing qualifications** in 2016, up from 14 companies in 2010.⁸
- Over the past 12 months, over **67 percent of jobs** posted in advanced manufacturing offered annual **salaries of \$50,000** or more, qualifying them as “good jobs.”⁹
- Since 2009, **14 advanced manufacturing companies** have raised a collective **\$99.2 million in VC capital**.¹⁰
- Since 2010, local employment across all manufacturing industries fell by only 2.7 percent, **less than the 8 percent drop** across all US manufacturing.¹¹

NYC Sector Overview continued

Manufacturers who leverage advanced manufacturing techniques are particularly successful in New York City. Expiring patents have fueled adoption and allowed new businesses to produce cheaper, small-scale and widespread 3D printers that are able to print a variety of materials including metals, carbon fiber, and even human cells. Furniture manufacturers have been early users of new technologies, driving innovation that has resulted in an increase in the gross city product of the subsector by 16 percent since 2012, compared to a decrease of 0.3 percent across all manufacturing industries.¹² Moreover, employment has increased by 6 percent in furniture manufacturing, suggesting the rebirth of a traditional industry in this environment.¹³



City Investment and Impact — Powering New York

Advanced manufacturing is driving the creation of good jobs across the city. To capitalize on this opportunity, and to prepare the city's workforce to meet the demand, [the City of New York is focused on five key strategic areas](#), each with dedicated initiatives:

1

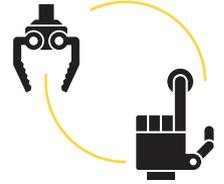
Futureworks Ops21: Increase the Competitiveness of Traditional Manufacturing

In order to drive awareness of ways that advanced manufacturing technologies can help existing businesses stay competitive and grow, New York City has partnered with the Industrial & Technology Assistance Corporation (ITAC), the local state-mandated MEP (Manufacturing Extension Partnership). The program, called Ops21, launched in November 2017 and [will provide educational services to over 150 traditional manufacturers through a series of workshops](#). In partnership with Cornell Center for Materials Research, Rochester Institute of Technology's Center of Excellence in Advanced and Sustainable Manufacturing, NYU Tandon School of Engineering, and EWI technology experts, Ops21 workshops will focus on advanced materials, robotics, and digital manufacturing. Participants will learn about new technologies and learn how to equip their workforce with the expertise needed to integrate these technologies into the manufacturing process to improve their bottom line.

2

Futureworks Advanced Manufacturing Center

Brooklyn Army Terminal will be home to a 20,000-square-foot advanced manufacturing center that will [provide access to equipment, STEAM¹⁴ programming, and trainings](#). The goal for the center is to serve as the launch pad for new manufacturing businesses, as well as a job creator in the manufacturing sector, generating nearly 2,000 jobs over the next 10 years.



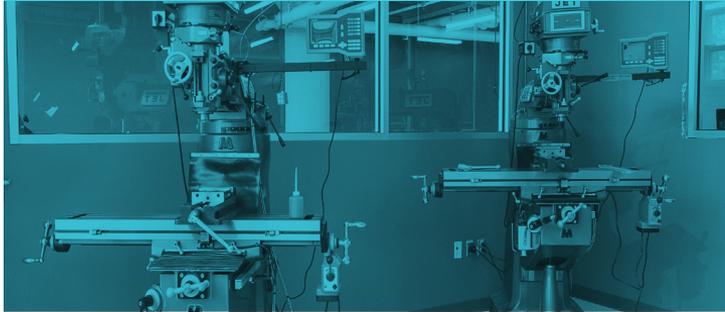
City Investment and Impact — Powering New York

continued

→ **3**

Futureworks Incubator: Scale Startups Through Business Support

SecondMuse, an innovation and collaboration agency, is operating this virtual incubator to **provide support to early-stage advanced manufacturing companies**. The incubator supports over **80 advanced manufacturing businesses through a combination of 3 summits, 10 workshops, and other events, resulting in 140 jobs in 4 years, and 280 jobs in 10 years**. It also supports over 450 entrepreneurs through a series of workshops related to prototyping and business development for hardware startups, and maintains a network of 70+ mentors in relevant industries for each incubator cohort.



→ **4**

Futureworks Shops: Open up Space for Advanced Manufacturing

The City has created a network of local prototyping facilities for entrepreneurs. **12 state-of-the-art fabrication studios, institutions, and other innovation spaces host events, workshops, and are opening up to over 100 new members, connecting entrepreneurs to resources and equipment** they might not normally have access to. Futureworks Shops will support the launch of nearly 50 advanced manufacturing businesses and create over 200 jobs in the next four years.

↓ **5**

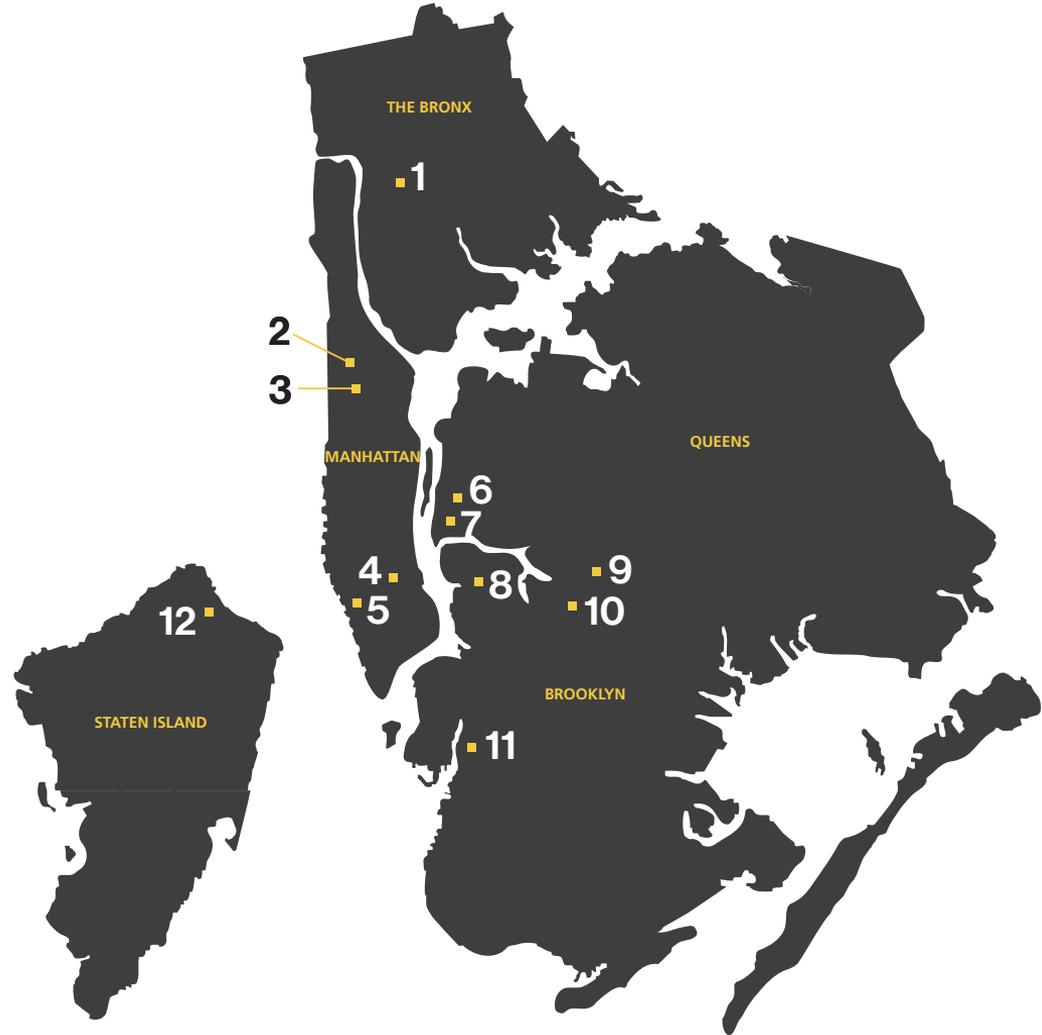
Brooklyn Army Terminal

In an effort to make Brooklyn Army Terminal a home for advanced manufacturing, the **City will invest \$100 million to reactivate 500,000 square feet of industrial space** to host over 1,300 good-paying jobs in the sector.

Futureworks NYC Shops

Futureworks NYC provides access to a network of advanced manufacturing spaces across New York City.

- 1 **Bronx Innovation Factory:** Makerspace
- 2 **Zahn Innovation Center:** Startup Incubator
- 3 **CUNY Advanced Science Research Center NanoFab:** Nanoscale Device Workspace
- 4 **NEW INC:** Art, Design, Technology Incubator
- 5 **Collab:** Fabrication Lab
- 6 **NYDesigns:** Fabrication Studio & Incubator
- 7 **C4Q Labs:** Workspace
- 8 **A/D/O:** Workspace
- 9 **Voodoo Manufacturing:** 3D printing
- 10 **Brooklyn Fashion + Design Accelerator:** Fashion & Design Hub
- 11 **Craftsman Ave:** Workspace & Collaboration Space
- 12 **Staten Island Makerspace:** Makerspace



End Notes

1. 3D Hubs. July, 2016. www.3dhubs.com
2. 3D Hubs. July, 2016. www.3dhubs.com
3. Jobs have been estimated by NYCEDC
4. CB Insights. 2017. www.cbinsights.com
5. Burning Glass Labor Insight. 2017. www.burning-glass.com
6. Quarterly Census of Employment and Wages
7. Burning Glass Labor Insight. 2017. www.burning-glass.com
8. Burning Glass Labor Insight. 2017. www.burning-glass.com
9. New York Works defines Good Jobs as those that pay at least \$50,000 a year or put people on a clear pathway toward achieving that wage.
10. CB Insights. 2017. www.cbinsights.com
11. American Community Survey – 2011-2015
12. Moody's Analytics. 2017. www.economy.com
13. Quarterly Census of Employment and Wages
14. STEAM is an approach to education that focuses on Science, Technology, Engineering, Arts, and Mathematics disciplines.



Visit edc.nyc/newyorkworks for more economic data.
Contact us at newbusiness@edc.nyc to find out how to get involved in our programs.