

HOW NEWSHORING IS REVITALIZING THE U.S.

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Pittsburgh is making an economic splash. Last year, the city’s advanced manufacturing sector received \$450 million in capital investment and created nearly 5,000 jobs—half the total created in the entire 10-county region. Far from being the relic of an old economic model, manufacturing has easily outpaced other local industries like healthcare and life sciences (\$106 million), energy (\$78 million) and information technology (\$53 million).

The upstart manufacturing companies driving this renaissance are at the forefront of another trend: “newshoring”—an approach that emphasizes triangulating supply chains around centers of innovation, production and demand, and leads to the creation of new employment opportunities.

During the second half of the 20th century, the offshoring of American jobs drove costs down and profits up. But what was good for the consumer class was bad for

the nation's industrial centers, as cities struggled to plug the holes created when jobs moved overseas. Today, however, a growing middle class in emerging markets is leveling the playing field. With greater economic parity around the globe, many U.S. manufacturers are rethinking how their supply chains can—and should—work in the 21st century.

Enter Pittsburgh. Located within 500 miles of more than half the U.S. population and under six hours by car or train to nine states (plus Washington, D.C. and Canada), the Steel City is ideally situated to reach customers—with the help of the right logistics partner. That's why UPS, the world's largest package delivery company, hosted a Newshoring Breakfast Symposium in Pittsburgh in September to discuss the increasing prominence of newshoring. At the event, thought leaders gathered to discuss how a confluence of innovative hardware and software—and boundless creativity—can be found among the hungry startups that are working together to revive the city.

Accelerating the growth of small businesses

“Companies can benefit from joining these collaborative environments,” said Afshan Khan, Innovation Adoption Program Manager at Innovation Works, which provides investment, mentorship and office space to local startups. “Accelerators allow large and small companies to participate, which enables new technologies like 3D printing and automation in manufacturing. And that promotes mass customization unlike anything we've experienced before.”

Seven years ago, Innovation Works was founded with the best possible intentions (to invest capital and share business expertise with high-potential tech startups) and the worst possible timing (just before the 2008 economic meltdown). But not even the collapse of the global economy could slow the accelerator down. More than \$60 million and 200 alumni later, Innovation Works' focus has evolved from IT to hardware, with its two-year-old AlphaLab Gear program accelerating hardware and robotics developments in a new wave of manufacturing that has

reestablished Pittsburgh as an important base for industry.

“In the new economy, hardware and software are married, and devices are dynamic, not static,” Khan explained. “And startups are provided the resources and collaborative networks that place them at the forefront of what will transform manufacturing.”



Learn More About Newshoring

Hear from the experts at UPS symposiums dedicated to the trends and innovation that are reinvigorating U.S. manufacturing.

3-D printing creates a newshoring hub.

Pittsburgh’s manufacturing past may have been forged in its steel foundries, but emerging technologies like 3D printing are turning it into a newshoring hub. Alejandro Sklar attended graduate school at Carnegie Mellon University, and he opted to stay in Pittsburgh when he co-founded his company, PieceMaker, which offers a 3D printing in-store kiosk that allows customers to personalize and print objects on demand in less than 30 minutes.

“We are able to compete against larger companies in the industry because technology has really been democratized in the past couple of years,” said Sklar. “Hardware prices have plummeted, so we are able to prototype all of our products right here. Besides a knowledge of how to make things, the city has the resources to take advantage of these new hardware trends. It’s something that can take Pittsburgh to the next level.”

Bolstering the newshoring trend is a marriage of open-source hardware and open-source software to create intelligent devices that can be modified by anyone with the skills to improve them. In that sense, while technology democratizes, the field itself is a meritocracy that frees anyone with the requisite skills to introduce new efficiencies.

This innovation potential is strengthened by collaboration. As an example, Sklar points to TechShop, a member-based prototyping lab with millions of dollars' worth of equipment that companies like PieceMaker can use to churn out prototypes quickly. And then there is Project Olympus, a program that encourages cutting-edge research among faculty and students at Carnegie Mellon's Center for Innovation and Entrepreneurship.

For its part, PieceMaker has set its sights on more than just wowing kids at the local mall. The company is also dedicated to forging bonds with companies of all sizes that are willing to think outside the box and become beta testers—the very early adopters that drive investment and help startups achieve scale over time.

More than a mere gimmick, 3D printing offers a glimpse of the supply chain of the future—a new era of manufacturing in which goods can be made digitally, reducing the need for costly inventory. “The digital supply chain even has ramifications in mass manufacturing,” said Sklar. “Instead of investing a ton of money up front into making something you're not sure is going to do well, you can do it digitally. On the retail side, you can capitalize on the trend of personalized, one-off goods.”

Lynn Parchuke, Industrial and Automotive Marketing Manager at UPS, can already see the larger companies among her client base embracing such cutting-edge technologies. “A lot of automotive and aerospace companies have jumped on early,” she noted, “but we're really just scratching the surface as to how it's going to fit into manufacturing.”

UPS helps optimize the supply chain

The full potential of 3D printing may not be realized for a few years, but continued automation of manufacturing—and utilizing data to optimize every aspect of the supply chain—is increasingly being observed across all levels. Indeed, a successful newshoring company needs to have insights into the full scope of its supply chain.

Large organizations see the value in automation, of course, but even small businesses are identifying strategic links in the supply chain that can be improved by technology. When they do, UPS plays an integral role in helping its partners digitalize.

“When you hear UPS, you may think of the brown trucks that come to your home, but we’re really a technology company,” said Parchuke. “Taking packages from Point A to Point B is no longer the conversation that we’re having with customers. Technology and information are as crucial as the packages themselves.”

By collecting all the data they can from multiple points within the supply chain, UPS is able to bolster customer experience, efficiencies and time-to-market. “We come in and map out the supply chain to make it more efficient,” Parchuke added. “If there’s anything we can automate—any information coming into the system that needs to be hand-typed or keyed, for instance—we can get it to scan and transmit data back and forth.”

With that in mind, the company’s goal is to partner with like-minded organizations as a consultant that can share its expertise and assess emerging opportunities in newshoring. “Newshoring has really changed the way customers want to have conversations, and they’re looking for ways to improve their supply chain both from the inbound and outbound perspective,” explained Parchuke. “They are interested in what type of technology and data we can provide, and then what they can do with that data—how it can help them provide more information to their clients in a timely fashion.”

Armed with this digital tool, even a startup can begin introducing automation to its operations, and use the knowledge it gleans to improve other practices. “Ideally, we’d like to come in to help you understand how you’re running your business today, and what information we can provide to help streamline some of those processes,” said Parchuke. “Technology has really opened the window of visibility to small and large businesses alike.”

Launching a new innovation economy with newshoring

As the Chief Innovation and Performance Officer for the City of Pittsburgh, Debra Lam’s mission is to implement initiatives that leverage new technologies as a catalyst. Under the guidance of Mayor Bill Peduto, the city has cemented its newshoring prowess—and proven to be a role model for other post-industrial cities—thanks to its recently launched innovation roadmap.

Over a year of research and analysis went into creating this strategy plan that identifies projects that align with the city’s vision, leverages the rich local university system and views local digital infrastructure as a public utility along the lines of electricity or water. All told, 100 different projects have been outlined to create what Lam described as a “living document” that will serve as the city’s blueprint.

“We have been blessed with a rich industrial manufacturing past,” Lam explained. “And now we’re blessed with a new economy built around innovation and technology. We haven’t completely connected these together yet, but this is something the local government is constantly thinking about: how best to play matchmaker.”

In a city famous for its bridges—446 of them, to be exact—it is no surprise that spanning the divide between the old and new economies promises to be the key to Pittsburgh’s success. By leveraging the power of data and technology, the erstwhile Steel City is poised to be a hub from which the advances of tomorrow will be shared with the rest of the nation.

“Technology’s impact in American manufacturing is vital, and it’s exciting in terms of diversifying our economy,” added Lam. “What’s most exciting is that we haven’t even thought of most of the technologies that we will be using 10, 15 or 20 years from now.”