

YESTERDAY, BOO!

TODAY, BRAVO!

Robotics and space travel instead of coal and steel: The former US industrial city Pittsburgh has completely reinvented itself. GTAI visited them at the end of 2023.

By **ROLAND ROHDE**, Germany Trade & Invest Washington, D.C.

When the friendly email from the economic development agency arrived in late autumn 2023, I expected to visit a steelworks or a mechanical engineering company. The Allegheny Conference on Community Development invited me to visit Pittsburgh, which many consider the epitome of classic heavy industry.

Steel makers and coal mines shaped the city in the second half of the 19th and first half of the 20th century. They also attracted many skilled workers from abroad, particularly from Italy, Poland, and Germany. The descendants of these immigrants no longer work underground or in smelting furnaces, but rather run restaurants and shops or have set up high-tech companies. The mines have been shut down, the steelworks demolished or converted. In their place, startups from the robotics and space industries dominate today.

“Pittsburgh is the nation’s third-largest robotics hub, behind Silicon Valley and Boston,” said Philip Cynar, senior director of media and public relations at the Allegheny Conference. It’s just one of the surprising facts that Phil, as he calls himself in true American style, likes to amaze visitors with at the start of the Pittsburgh tour.

He has been working as an economic developer for around two decades. “The first few years were difficult,” he reports. “Pittsburgh still



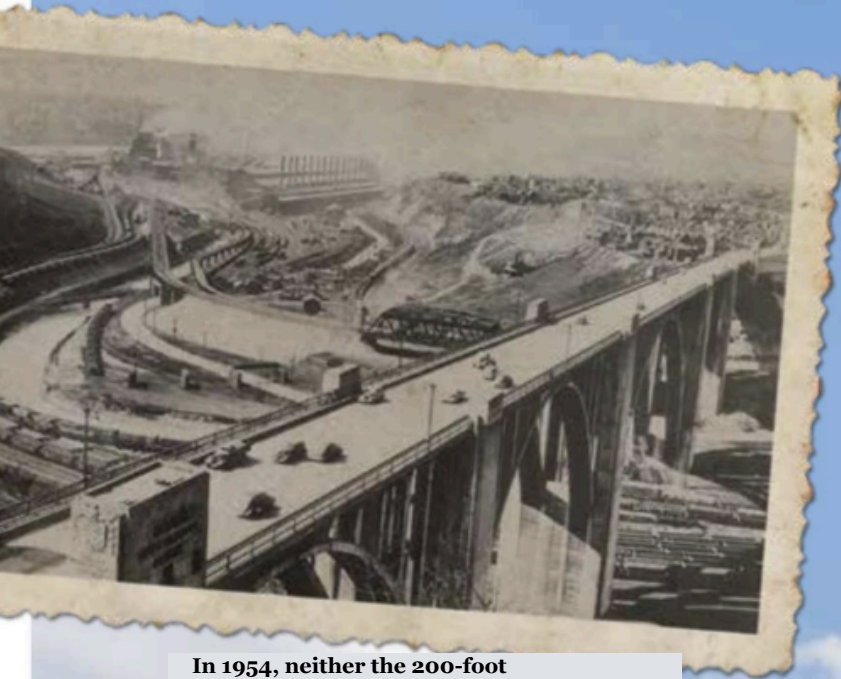
hung on to its old image.” His colleague Mike Harding, Vice President of Business Investment, agrees: “You have to find a first mover to get the process going.” It was only after the digital ride service Uber set up shop in Pittsburgh in 2017 that the industry for artificial intelligence and autonomous driving really blossomed.

Today it is no longer difficult to attract skilled workers and specialists to the city. Phil lists: The cost of living is significantly lower compared to the West and East coasts. The city has excellent hospitals and universities. The health and education sectors are the largest employers.

I was skeptical before the trip began. But even a short internet search showed: The local Carnegie Mellon University was in 24th place out of a total of 439 universities in the US ranking in 2023. In total, the city is home to around 80,000 students. That’s a quarter of the population, which, not coincidentally, is nine years younger than the national average. Almost half of residents over the age of 25 have at least a bachelor’s degree. In terms of master’s degrees, the fields of information technology - including artificial intelligence and robotics - and electrical engineering make up the largest factors. Economics follows in third place. Local companies and research institutes can therefore look forward to a lively influx of graduates.

German companies dominate the surrounding area

Phil’s economic development company not only promotes the city, but also the greater Pittsburgh area. In addition to the actual city area, this includes nine neighboring communities. “More than 100 German companies have settled in this region,” reports Rachel Mauer, President of the German-American Chamber of Commerce in Pittsburgh. I’m sitting at an informal lunch with her, the German Honorary Consul for Pittsburgh, Paul Ivar Overby, and almost a dozen German company representatives. I always ask entrepreneurs why they came to Pittsburgh. Even though the reasons for the location are different, one thing quickly becomes clear: there is particu-



In 1954, neither the 200-foot George Westinghouse Bridge over Turtle Creek nor the steel mills could be missed. Today, Pittsburgh boasts a modern skyline and a city park along the Allegheny River

33.7 YEARS

is the average age of the population in the city of Pittsburgh.

2.5 MILL.

People live in the greater Pittsburgh region. The city itself has a population of just over 300,000.

46.7 %

of Pittsburghers over 25 have a bachelor's degree or higher.

2.9 %

was the unemployment rate at the end of 2023.

40 %

Houses in Pittsburgh cost less compared to the US average.

32 %

of master's graduates studied information and communications technology, computer and electrical engineering or robotics.

600

Start-ups were founded in Pittsburgh and the surrounding nine counties.

larly close cooperation between companies, universities, city administration, and local economic development. The distances are short. The state's governor is also considered business-friendly and is described by many as a doer.

This is a decisive competitive advantage in the USA, with its excessive bureaucracy in many places - which is often even worse than in Germany. There is only one thing that everyone complains about: There are no direct flights between Pittsburgh and Germany. "The talks with Lufthansa are ongoing," assures Phil. They hope for 2025.

Everyone works on the cooperative model

Chris Martin is also sitting at the table. He is director of research and development at the Bosch Pittsburgh Research and Development Center and invites me to visit his company that same day. He packs more information into the half-hour conversation than others do in an entire conference. The small development center is a leader in the field of robotics within the huge Bosch Group, says Chris.

Why are the laboratories located in Pittsburgh of all places? He doesn't hesitate for long: everyone knows everyone here. If you have a problem, you can call the mayor quickly. Many of the local companies rely on cooperation and not on tough competition, emphasizes the Bosch manager. For example, it is considered inappropriate to poach entire research teams from universities. This, says Chris, destroys the cooperative model and harms the location.

Blast furnaces and their emissions determined the cityscape of Pittsburgh at the beginning of the 20th century.



MATT SMITH »ENTER UNUSUAL COLLABORATIONS.«

Matt Smith, Chief Growth Officer of the Allegheny Conference on Community Development, talks about his city's transformation.

Who or what were the drivers of Pittsburgh's economic transformation?

In principle, the transformation process began more than 100 years ago. The main drivers were the local universities, particularly Carnegie Mellon University. The founders were pioneers in their field and were very committed to the region: Andrew Carnegie was a major industrialist who relied on the most modern production technology. Banker brothers Andrew and Richard Mellon invested in local start-ups.

Where will Pittsburgh be in five to ten years?

We want to become a global leader in robotics in the foreseeable future. Along with this industry, the areas of artificial intelligence, autonomous driving, cutting-edge manufacturing, and life sciences are also expected to develop.

What can German cities that are undergoing a similar transformation process learn from Pittsburgh?

The be-all and end-all is building partnerships. You should also enter into unusual collaborations. In Pittsburgh, for example, the symphony orchestra is an important piece of the economic development mosaic. The orchestra will have several guest appearances in Germany in 2024. This promotes the image of the location abroad. It also increases the local quality of life. Cooperation with the higher government is also important. Thanks to our new, business-friendly governor of Pennsylvania, Josh Shapiro, it's working brilliantly.

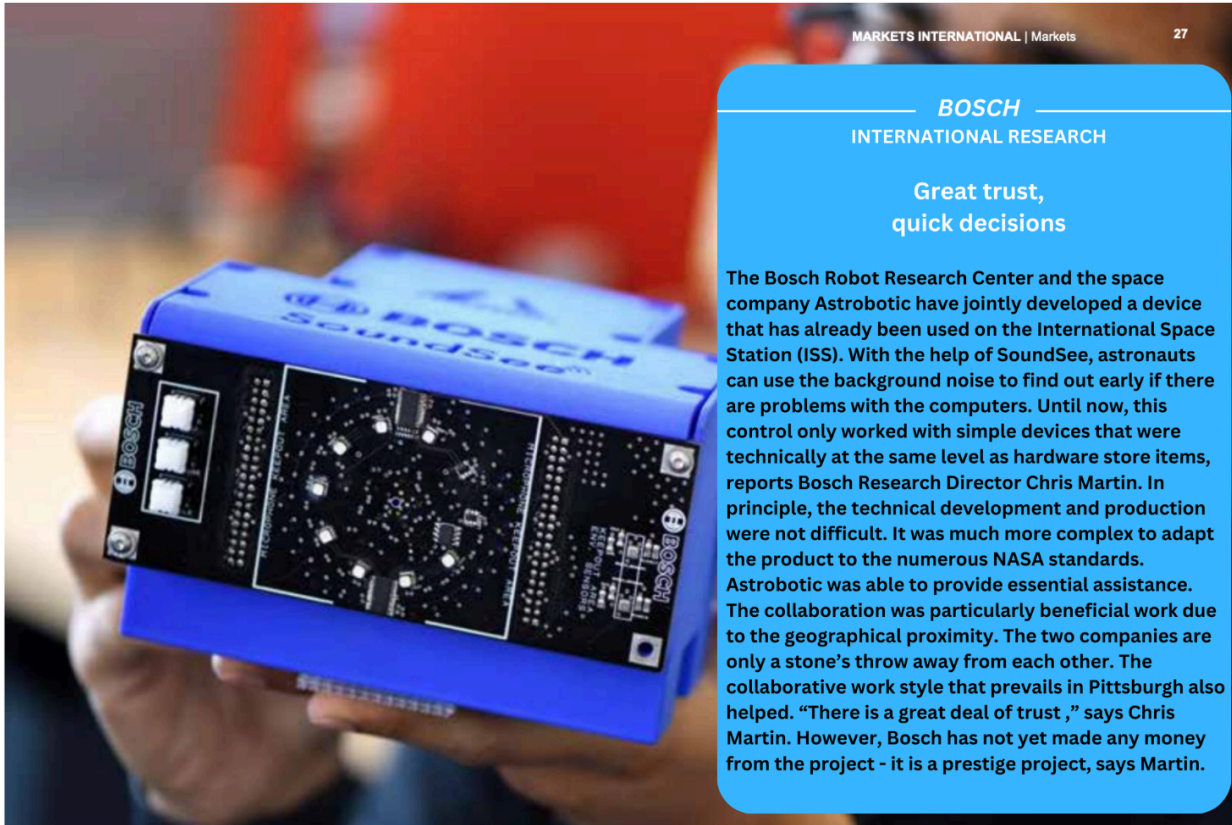
Then he pushes a box-shaped device into my hands and shouts: "Just don't drop it!". The SoundSee processes audio signals and has been in use on the international space station ISS - it therefore has inestimable intellectual value.

On the way through the city again, many things remind me of the Ruhr area. There is a rusty old bridge, there is an old brickworks that exudes the bygone charm of the industrial age. Meanwhile, hip shops have moved in. The mining towers of the coal mines used to stand on the Duquesne Heights range of hills. Now, a viewing platform offers a breathtaking panorama. Homeless people, as is common in the city centers of New York, Chicago or Washington, are not to be seen. Water and bridges characterize the cityscape. In Pittsburgh, Phil explains, the Monongahela and Allegheny flow together to form the Ohio River.

Robots are created in the old steelworks

We then visit Mill 19 – a huge former steelworks. After it was completely gutted, a building with state-of-the-art technology was created within the old steel frame. The roof is equipped with solar systems, which now cover the entire power supply. In the USA, such a sustainable building is the absolute exception. Mill 19 is home to the Advanced Robotics for Manufacturing (ARM) Institute. Several companies have settled under its roof. One is currently testing the maximum number of times robots can perform a certain movement, another is having them lift heavy loads, and a third is tinkering with autonomous cars.

The highlight of the trip is still to come, promises Phil. The next day we visit Astrobotic. The private start-up is planning a completely robot-controlled moon landing. NASA is one of the main clients, reports spokeswoman Alivia Chapla.



BOSCH

INTERNATIONAL RESEARCH

Great trust, quick decisions

The Bosch Robot Research Center and the space company Astrobotic have jointly developed a device that has already been used on the International Space Station (ISS). With the help of SoundSee, astronauts can use the background noise to find out early if there are problems with the computers. Until now, this control only worked with simple devices that were technically at the same level as hardware store items, reports Bosch Research Director Chris Martin. In principle, the technical development and production were not difficult. It was much more complex to adapt the product to the numerous NASA standards. Astrobotic was able to provide essential assistance. The collaboration was particularly beneficial work due to the geographical proximity. The two companies are only a stone's throw away from each other. The collaborative work style that prevails in Pittsburgh also helped. "There is a great deal of trust," says Chris Martin. However, Bosch has not yet made any money from the project - it is a prestige project, says Martin.

Thanks to Astrobotic, companies and private individuals will soon be able to transport devices and other objects to the moon with the help of a probe and a rover. Alivia leads us through the factory halls. According to the official schedule, the first probe is scheduled to land on the moon in February 2024. "Please don't take photos here," says Alivia in the computer center from which the company will control the launch, flight and landing of the probe.

Then we go to MSA, a world-leading manufacturer of security technology. The company is more than 100 years old and has successfully participated in and shaped Pittsburgh's structural change. It has become big with gas measuring devices for mining. Today, it offers its products in a wide variety of industrial sectors worldwide. Its specialty lies in its great manufacturing depth, as is said during the tour through the factory halls with the latest high-tech machines. For example, MSA produces circuit boards itself, while many competitors buy them out. However, the production of sensors is top secret and may not be viewed. Even many of

their own employees do not have access.

Finally, Phil talks about funding from the US government. The major economic stimulus programs launched under Joe Biden have helped the region greatly and further accelerated structural change, he says.

The conditions must be right

The sightseeing program is over, and I drive back towards Washington, D.C. Pittsburgh was impressive. It becomes clear to me that the city is showing how structural change can create a biotope for companies in the high-tech scene: When there is dynamic local economic development, collaborative entrepreneurs, an unbureaucratic government at the local and state level, good universities and a low cost of living. But there are also limits. Pittsburgh tech companies are still mostly very small. The robotics industry employs a total of just 7,000 people. In addition, many of their products are not yet fully developed. This also applies to Astrobotic: At the beginning of January 2024, I received a company announcement: There were

problems when the probe was launched, it says. It is flying, but a soft moon landing can no longer be achieved.

Space travel is and remains a technically and economically highly risky undertaking. The Japanese competition also only successfully landed on the moon in February 2023: on their third attempt. And it's not a problem for US companies to fail anyway. As long as you get up again afterwards, stumbling is more like an award.

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