

Odense's Universal Robots reaches 1,000 employees: Background on how a Danish town became a global robotics hub

The founding of Universal Robots, flagship company in Odense Robotics hub

Universal Robots is spearheading a small Danish city's rise to the top of the world's robotics scene, reaching a milestone of 1,000 employees supporting the company's collaborative robot (cobot) operation.

Since Universal Robots was founded in 2005, a robotics cluster has emerged in Denmark with the city of Odense at the center. There are now more than 400 Danish robotics companies with total revenues above \$2.79 billion. Over 130 of these companies are based in Odense.

So how did Odense, with a population of around 200,000, emerge as a global robotics hub for innovation, talent and excellence?

Industrial heritage

Odense's historical industry was shipping, with Maersk's container ships built at the city's shipyard for most of the 20th century. However, by 2009, global economic plight led Maersk to close the yard, jeopardizing the livelihoods of thousands of workers.

Luckily, in the 1980s, owing to the need for robotics solutions on the shipyard, Maersk had started investing in new initiatives in close collaboration with the local university, University of Southern Denmark (SDU).

From the start, the developing robotics sector relied on ambition and talent from innovative thinkers, largely emanating from SDU.

Talent

SDU was a primary focus of Maersk's continued financial support and three decades later, the institution is among the world's leading universities for robotics.

Universal Robots itself formed out of the SDU, founded by three researchers from the university; its current president, Kim Povlsen, is also an SDU alumnus. There is a symbiotic relationship between SDU and the Odense robotics cluster, with talent from the university encouraged to pursue commercial innovation alongside academia and spin companies out – with the assurance that their university posts will still be there should they return.

SDU's growing reputation globally is now seeing it attract the best undergraduate, postgraduate, and academic talent from around the world, in turn fuelling innovation and excellence in Odense around the ideas and services the cluster's companies are offering.

A supportive community

The emerging robotics hub would not have succeeded so quickly were it not for the foundation put in place by Odense Kommune (the municipal government), and SDU.

The growth of the Odense cluster has been possible as result of close collaboration and partnerships. This collaboration involves government, companies, and universities, including

partnerships between institutions across Denmark: Aalborg University, Aarhus University, University of Copenhagen, Kolding Design School, Denmark's Technical University, University College Lillebælt, University of Southern Denmark and the Danish Technological Institute.

Now, the municipality has a plan for 2030 to support its robotics sector and maintain Odense's position as a global leader. Robotics is a political priority for the area and as a result, its start-ups and scale-ups are supported accordingly.

Collaboration and innovation

What has driven the Danish robotics cluster's growth and success has been how its companies have worked together rather than in competition.

This is best exemplified by the Universal Robots product ecosystem. The company makes robotic arms of different sizes but independent companies within its ecosystem produce the components, kits and solutions required for the robots to take on a wide variety of industrial tasks – from welding to palletizing. Some of these companies are also based in Odense and benefit from the shared robotics intelligence within the city.

The number of employees working for Danish robotics companies is forecast to reach 23,000 by 2025, with new ventures starting up every year.

The Odense robotics story is held up globally as a model of multi-sectoral collaboration and high-tech regeneration and an example for other cities hoping to build an exciting new economy.

STAKEHOLDERS

UNIVERSITY

Spotlight on University of Southern Denmark (SDU)

The origins of the robotics hub in Odense can be traced back to the Maersk Shipyard that was based there. In the 1980s, the Odense Steel Shipyard used large industrial welding robots to build ships for its parent company, Maersk.

This increasing need for robotics solutions meant that Maersk invested in robotics research at the local university, SDU, supporting the growth of the Maersk Mc-Kinney Moller Institute in particular. The shipyard had to close in 2009 due to the global financial crisis, but the institute has become an internationally recognized department which has maintained a leading position in robotics for over three decades and spawned a cluster of robotics in Odense and Denmark with more than 400 robotic companies nationwide.

Among these companies is Universal Robots, which was founded in 2005 by three young researchers from the university, Esben Østergaard, Kasper Støy, and Kristian Kassow. Their goal was to make robot technology accessible to small and medium sized businesses by launching a lightweight robot – cobot – that was easier than traditional industrial robots to install and program. UR's first product, the UR5 launched in 2008, revolutionizing the market for industrial robots, as it allowed robots and humans to collaborate.

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Quote: Henrik Bindslev, Dean of Faculty of Engineering, University of Southern Denmark

“The success of Odense as a robotics hub on the world stage is really testament to 40 years of robotics research and development which started at SDU in the 1980s. We have seen phenomenal growth in robotics start-ups which spun directly out of the university – to put this in perspective, in 2004, Odense had just about zero robotics companies, compared to the 136 companies formed by 2021 born out of the collaborative, melting-pot environment of engineers, students, researchers and developers at SDU and at manufacturers. The ongoing curiosity of these brilliant people, dedicated to delivering robotics innovation into the future, has given witness not only to Universal Robots but an ongoing, fruitful ecosystem which continues to deliver new ideas and products for the robotics industry.”

MUNICIPAL GOVERNMENT

Spotlight on City of Odense

In Odense, the key elements to a thriving robotics industry are united: economy, expertise, capacity. As the world's leading cobot hub with an excellent startup environment, a huge national cluster, academic centers, and advanced education possibilities including Odinskolen - an elementary school that aims to be the world's best robotics school for children - the city is one of the world's top locations for robotics and automation activities, currently the home for more than 130 companies within this rapidly growing industry. As of 2022, more than 1 billion USD has been invested in Odense robotics companies. The collaboration between local government (the City of Odense), knowledge institutions, and industry representatives makes for a rare, innovative ecosystem matched by few other cities in the world.

Quote: Peter Rahbæk Juel, Mayor of Odense

“Developing a world-class robotics environment right here in Odense has been a City Council top priority for years, and it shows up in everything; from the way we teach our children about technology to innovating and bettering our public sector services to funding ambitious and innovative startups in the robotics, drone and automation industry.”

“Visitors, entrepreneurs and investors know Odense to be a place of collaborative effort, a place of local governmental support, and a place where members of our local ecosystem look to one another for knowledge and expertise. Not only that, we are building companies and products that make a real difference on a global scale.”

THE CLUSTER

Spotlight on: Odense Robotics

Odense Robotics is Denmark's national robot and drone cluster, playing a crucial role in accelerating innovation and driving sustainable development amongst robot, automation and drone companies across Denmark.

It is structured as an ecosystem designed with a nationwide setup with regional hubs across the country, bringing together 418 robotic, automation and drone companies across the country which employ around 10,700 people in Denmark and 3,800 abroad. The number of employees working for companies within the Odense Robotics cluster is forecast to reach 23,000 by 2025, with new ventures starting up every year.

The cluster focuses on connecting businesses, people, research and education, advancing policy and branding the cluster, all with the goal of promoting the Danish robotics and automation community.

Quote: Mikkel Christoffersen, CEO, Odense Robotics

“Having a vision on your own is one thing – but bringing multiple people together with a similar vision is even more powerful. That’s what the Odense Robotics cluster was created to do in the field of robotics, creating and sustaining communities that have delivered far more widely than could initially have been envisaged. Denmark’s flourishing robotics industry and the sheer number of employees in this growing field is testament to that, but it’s also shown that as a country and economy, we’re driven to stand on the shoulders of our past successes and are excited to evolve to support this community into the future.”

COMPANIES

Spotlight on Universal Robots

Robotics companies in the cluster frequently meet to share insights and they work closely with the university and city.

Quote: Kim Povlsen, President of Universal Robots, the cluster’s biggest robotics company

“We are a global company now, but we are proud of our roots and maintain an active relationship with our local partners. We work with the city to promote the digital, technical and robotics skills required for a strong future workforce, we offer student jobs to talented university students and we draw on the cutting-edge expertise in Denmark’s higher education institutions.”

“Our cobots are produced in Odense and we are building a brand-new headquarters here in the city. The city and university have helped to create an attractive environment for international talent and we are very excited for the future of this hub.”