

Insight Report 2019

REALISING ROBOTICS POTENTIAL

ODE | ROBO
NSE | TICS WHERE
ROBOT
HEROES
GROW



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Data, analysis and editorial by Odense Robotics.

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PREFACE

What makes tech companies grow? What makes a cluster grow? And how can we nurture innovation best? These are just some of the questions I'm asked regularly by people interested in finding out more about the Odense Robotics cluster. This report, which builds on independent data on a whole range of growth factors, is a response to this increasing interest.

For the first time, this year we have figures for how much the cluster generates in terms of both turnover and exports. And the results reveal growth rates not seen in many other industries.

In just a few years, export has increased by almost 50% to EUR 509 million, and the number of employees abroad has increased by more than 50%.

Meanwhile, the majority of companies that do not export today expect to do so in the future. This demonstrates that robotics has become a profitable industry and that the cluster has significant growth potential.

The growth, both in terms of companies and employees, is testament to the industry's expansion.

The cluster has grown by 1,000 employees over just two years and is expected to grow by 36% to 4,900 employees over the next two years.

While finding qualified candidates is still the biggest barrier to growth, the figures show a steady expansion in the workforce – now and in the future.

As many industries seek to increase their competitive edge, robotics and automation provide an opportunity to leverage technologies for the benefit of both companies and the people who work there. The robot and automation companies in and around Odense are developing new technologies and products that create value for a multitude of industries and societies in Denmark and globally.



Mikkel Christoffersen
Business Manager, Odense Robotics

KEY FINDINGS

THE CLUSTER



129 companies in the cluster

33% of companies work in full or in part with collaborative and / or mobile robots

40+ education programmes

10+ research and education institutions



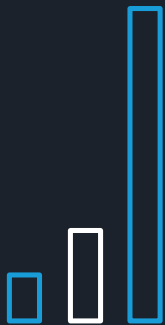
PEOPLE

3,600 employees in the cluster

4,900 employees in the cluster by 2020

760 employees abroad

PERFORMANCE



EUR 763 million turnover in 2017

EUR 509 million in exports in 2017

EUR 750+ million invested in companies since 2015



PARTNERSHIPS

78% of companies collaborate with other cluster companies

THE CLUSTER



COMPANIES

ABB, AKL, ANKELD, AMP-TEC DIVISION, AutomationLab, BIPAS, BEKIDAN, BIPAS, BLUE OCEAN ROBOTICS, BLUE UNIT, Boelbjerg Maskinværksted, BSS ApS, BUIND, Cabinplant, Ceetec, CORE DYNAMICS, CT, ELTEKNIK, DANA, Danish Aerospace, DAN ROBOTICS, DANISH TECHNOLOGICAL INSTITUTE, EFFIMAT, Ega Matic ApS, GATEC, ELEMEN, ENABLED ROBOTICS, EROWA, FANUC, FARMROID, FOM, FISHERROBOTICS, FRONTMATEC, GAIN & CO, GEA, GIBOTECH, GLUNZ & JENSEN, Haptec, HYDAC, inrotech, integro, INVENSTAR, Inwatec, JM Engineering, A/S, KEN, KJÆRGAARD, KKK-Tech, KOBOTS, KUBO, KUKA, Laptics Ivs, Leica Geosystems, LWT, LORENZ, LYNDMELLECTRIC, Martiny Automation, MBL-JR, SKN, MADRINKERHED, MELCO, micro technic, MIR, MA, MRN, Multi Tower, MURR ELEKTRONIK, NEW ICON, NEWTEC, Nidex, Nord Modules, NORDBO, ODICO, Oh robot, Optimatic, PFCON ApS, Polund, Produktionsteknik, PUBLIC, QRS, QuadSAT, ROENOR, ROBOBEND, ROBO MAN, ROBOT AT WORK, ROBOT LOGISTICS, ROBOT NORDIC, Robotikeren, RobotSort ApS, ROEQ, Roll-o-Matic, RV, SANOVO, SANOVO, Scan Convert A/S, Scancomp Sensor and Automation, ScanStore, scanvaegt, Scape, SICK, SKAKO, Smooth Robotics, DDI, TEK, tendo, trendlog.io, TRIVISION, UNIVERSAL ROBOTICS, UVO ROBOTICS, Valcon, VIKING, VIKING, WallMo, WAMATECH, X-drive Robots ApS, Zave, AABO IDEAL

CLUSTERS AND PARTNERS

CARENET, DANSK METAL, DIRA, IDA, ODENSE HEALTH, RoboCluster, SOUTH DENMARK EUROPEAN OFFICE, SYDDANSK KØBESAMFUND, URS, WelfareTech, WORK IN DENMARK

PUBLIC SECTOR AND BUSINESS SUPPORT PROVIDERS

ASSENS KOMMUNE, ODENSE KOMMUNE, FAABORG-MIDTFYN KOMMUNE, INVEST IN ODENSE, Nyborg KOMMUNE, Region of Southern Denmark, Svendborg Kommune, ERHVERVSHUS FYN

ODE ROBOTICS
WHERE ROBOT HEROES GROW
POWERED BY ERHVERVSHUS FYN

FINANCING

SCIENCEVENTURES, Innovationsfonden, SYDDANSK INNOVATION, BOREAN, VEKSTFONDEN

ODENSE SEED AND VENTURE

Public Funding	Family Offices	Venture Funding
Crowd Investors	Business Angels (100+)	Loan and Bank Financing

EUR 750 million invested in (investments, acquisitions and IPOs) in robot companies in the cluster since 2015.

EDUCATION

SDU UNIVERSITY OF SOUTHERN DENMARK

BEng

- Electrical Power Engineering
- Electronics and Computer Engineering
- Global Management and Manufacturing
- Integrated Design
- Manufacturing Engineering and Management
- Mechanical Engineering
- Robot Systems
- Software Technology

MSc

- Applied mathematics
- Computer science
- Electronics
- Energy Technology
- Engineering Robot Systems (Advanced Robotics Technology and Drone Technology)
- Information Technology
- Learning and Experience Technology
- Mathematics
- Mechanical
- Mechatronics
- Operations Management
- Physics and Technology
- Product Development and Innovation
- Software Engineering
- Welfare Technology

Academy Profession AP

- Automatics Technology
- Computer Science
- IT Technology
- Multimedia Design and Communication
- Production Engineer

Bachelor BA

- E-Concept Development
- PBA Software Development
- Product Development and Technology Integration
- Web Development

Continuing Education

- Academic Education
- Diploma

Electricity Automation and IT

- Automatics Technician (+EUX)
- Industrial Operator
- Industrial Technician (+EUX)
- Sheet Metal Worker (+EUX)
- Technical Designer

Metal, Industry and Technology

- Automation Technician (+EUX)
- Industrial Operator
- Industrial Technician (+EUX)
- Sheet Metal Worker (+EUX)
- Technical Designer

OTHERS

ODENSE TEKNISKA GYMNASIUM

SIMAC

Bachelor

- Marine Engineer

DANISH TECHNOLOGICAL INSTITUTE

Disciplines

- Advanced robots
- Co-working robots
- Sensors and robots
- Mobile robots
- Drones (UAS)
- Personal care robots
- Industry 4.0 and data
- Augmented reality
- Artificial Intelligence
- Safety

Activities

- Implementation of solutions
- Dissemination, training and education
- Analysis and consultancy

Faculty of Engineering

TEK Innovation

The Mads Clausen Institute

- SDU Mechanisms
- SDU Innovation and Design Engineering
- The Maersk Mc-Kinney Møller Institute
- SDU Robotics
- SDU UAS Centre
- SDU Software Engineering
- SDU Electrical Engineering
- SDU Embedded Systems for Robotics and Learning
- SDU Health Informatics and Technology
- SDU Energy Informatics

Department of Technology and Innovation

- SDU Mechanical Engineering
- SDU Engineering Operations Management

SDU UNIVERSITY OF SOUTHERN DENMARK

Faculty of Science

- Department of Mathematics and Computer Science (IMADA)

Faculty of Health Sciences

- Department of Sports Science and Clinical Biomechanics
- Department of Clinical Research
- Department of Public Health

SDU Research & Innovation Organisation (RIO)

SDU Odense University Hospital

OUH

SDU Odense University Hospital

Knowledge Center for Automation and Robotic Technology

Knowledge Center for Health and Welfare Technology

Knowledge Center for Automation and Robotic Technology

GROWTH IN COMPANIES

The robot and automation industry in and around Odense continues to grow.

The cluster has grown considerably in size in recent years. The number of companies in the cluster reached 129 at the end of 2018 – an increase of more than 50% since 2015.

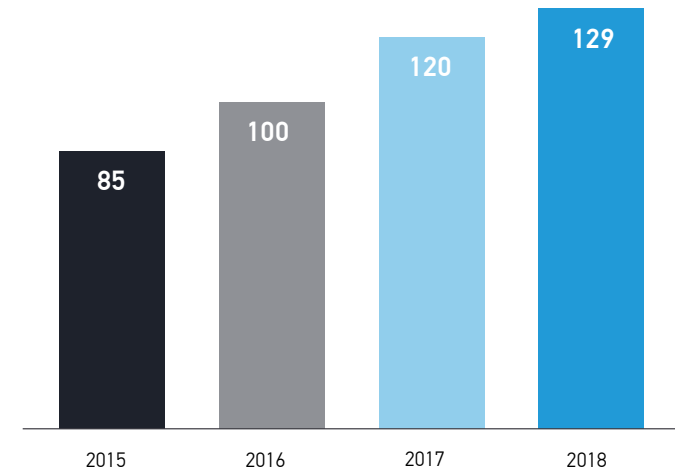
A total of 80% of companies are headquartered in the Odense area, while 11% have their headquarters abroad and only 9% elsewhere in Denmark.

These figures show that the cluster continues to be an important centre for robotics and automation.

129 Companies in the cluster at the end of 2018

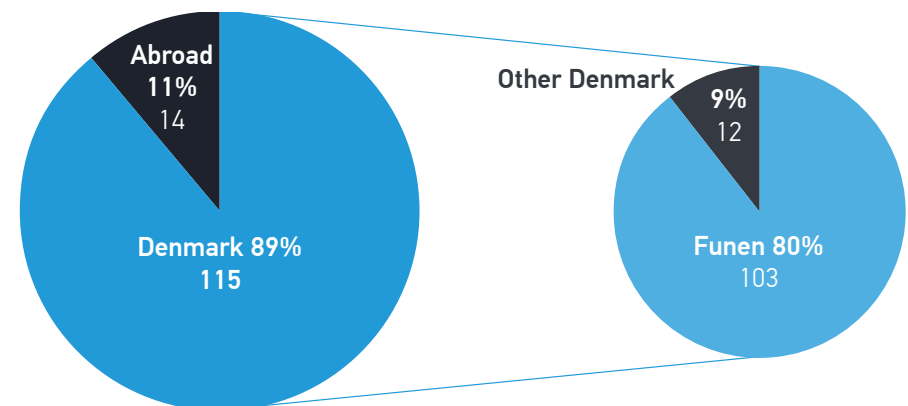
Number of companies

Source: Odense Robotics, January 2019



Companies by headquarters

Source: Odense Robotics, January 2019



STARTUPS FLOURISH

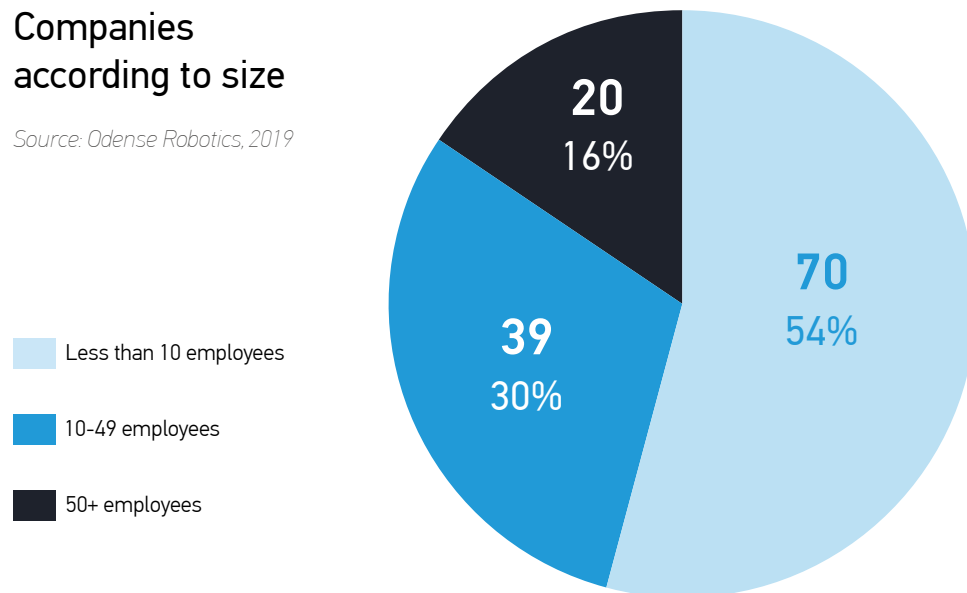
Many new robot and automation companies are establishing their business in the Odense area.

Almost half of the companies in the cluster today were founded after 2010. At the same time, 54% companies in the cluster have under 10 employees – by and large the same proportion as previous years. It is also worth noting that the proportion of companies with more than 50 employees increased last year.

The cluster is made up of many young companies and startups. Of the 27 companies that were new to the cluster in 2018, five were startups and part of Odense Robotics StartUp Hub. These startups were Farmdroid, Fishi Robotics, Happtec, Lorenz Technology and Robot Logistics.

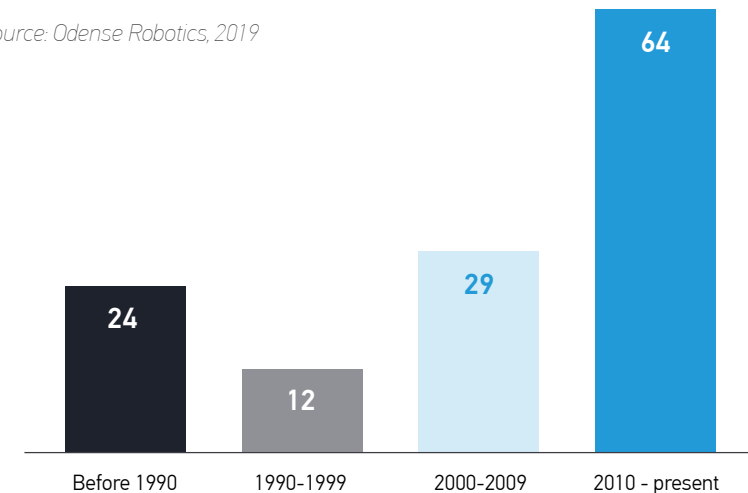
Companies according to size

Source: Odense Robotics, 2019



Companies by foundation year

Source: Odense Robotics, 2019



STRONGHOLD FOR COLLABORATIVE AND MOBILE ROBOTS

More and more companies work with collaborative and mobile robots.

Almost one in three cluster companies work with collaborative robots and/or mobile robots and related products. A total of 42 companies in the cluster are engaged in this area, up from 26 in 2017. This strong and growing focus is not surprising, given that cobots were invented in Odense and that the area is also a front runner in mobile technologies.

Universal Robots is the global market leader in cobots – the fastest-growing segment in industrial robotics, expected to increase to more than a third of all robot sales by 2025, according to the Robotics Industries Association. Also headquartered in Odense is Mobile Industrial Robots, a leading supplier of collaborative autonomous mobile robots for industrial applications.

There are many more companies developing accessories for cobots and mobile robots, or applying the technology to create new products. Examples include Blue Ocean Robotics, Core Dynamics, Enabled Robotics, Farmdroid, Fishi Robotics, Happtec, OnRobot, Roeq, Wallmo and X-drive Robotics.

33%

of companies work with collaborative and / or mobile robots or related products



STRONG INNOVATION CENTRE

There are more and more companies creating new products.

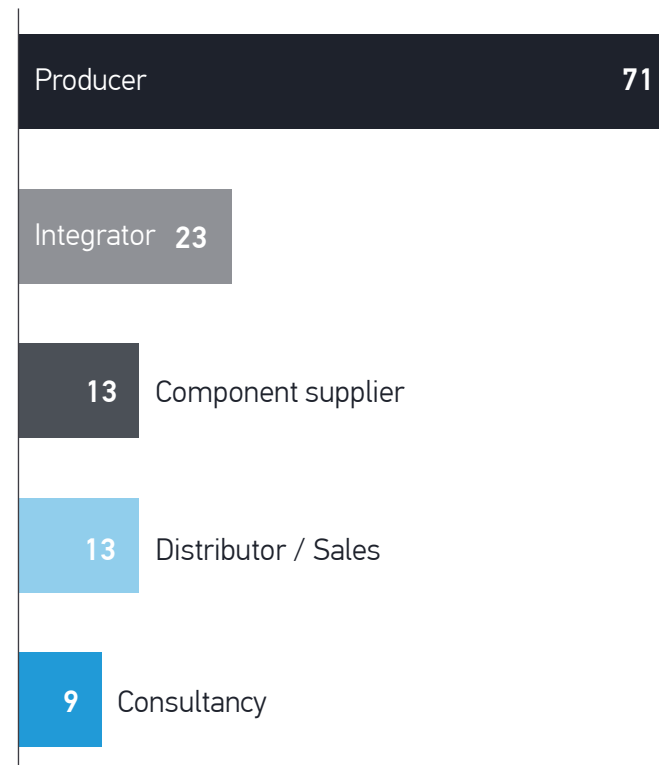
The number of producers in the cluster has increased significantly, highlighting that the cluster continues to be an important centre for new product development. There are now 71 producers in the cluster – up from 58 in 2017.

Integrators represent the second biggest category, with 23 companies. Integrators play an important role in developing new applications for products.

While producers and integrators make up the majority of companies the cluster, other types of companies include suppliers of components and services (13), distributors or sales organisations (13) and consultancies (9).

Type of company

Source: Odense Robotics, 2019



There are
71
producers
and
23
integrators
in the cluster

PEOPLE

ODE | **ROBO** WHERE
NSE | **TICS** ROBOT
HEROES
GROW



GROWING WORKFORCE

A total of 3,600 people work in the cluster today – a figure set to increase to 4,900 by 2020.

By the end of 2018, there were 3,600 full-time employees working in the cluster – 1,000 more employees than in 2016. By 2020, the size of the workforce is forecast to grow by 36% to 4,900.

Meanwhile, the number of employees abroad is growing as companies expand their global footprint. In 2018, companies in the cluster employed 760 people related to robot and automation outside of Denmark in 2018, a 52% increase from 500 in 2017.

There are also more than 150 employees at educational and knowledge institutions in the cluster.

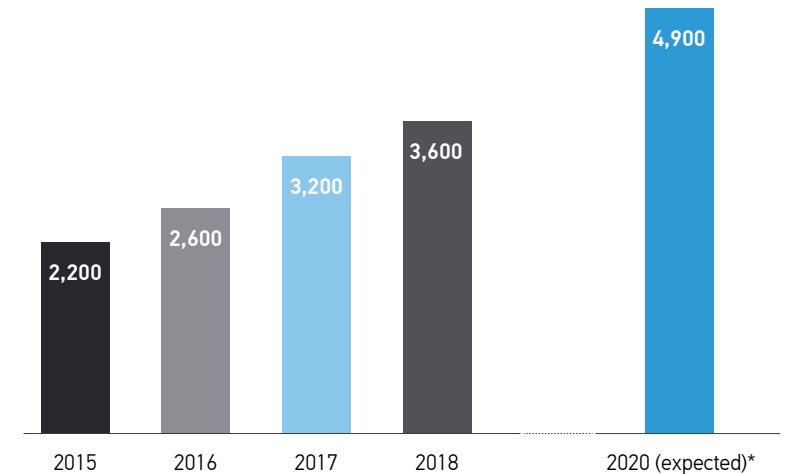
The total number of employees in the cluster is more than 4,500 – if we take into account employees at cluster companies on Funen and abroad as well as at education, research and knowledge institutions.

3,600 Employees in the cluster at the end of 2018

Number of employees

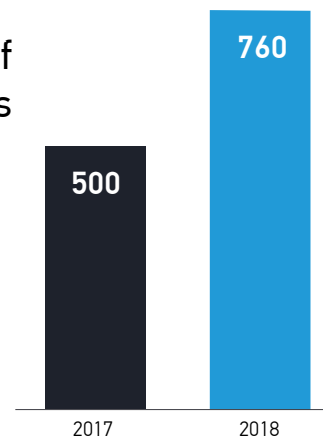
Source: Odense Robotics based on A&B Analysis, January 2019

*) Growth is based on expectations from existing companies. The figure does not include additional companies being established and other induced factors.



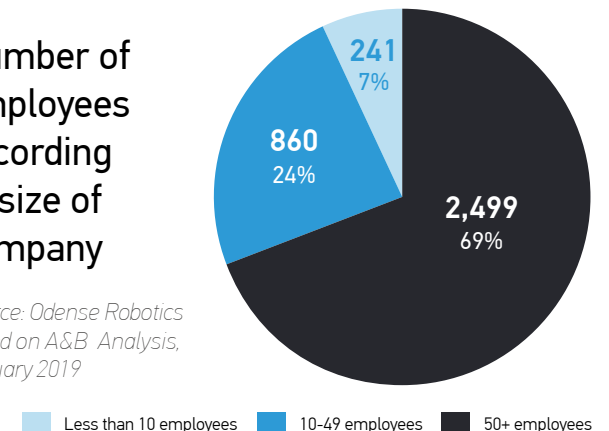
Number of employees abroad

Source: Odense Robotics based on A&B Analysis, January 2019



Number of employees according to size of company

Source: Odense Robotics based on A&B Analysis, January 2019



RECRUITING TALENT

Attracting talent continues to be a challenge. Companies are expanding recruitment efforts to include international candidates.

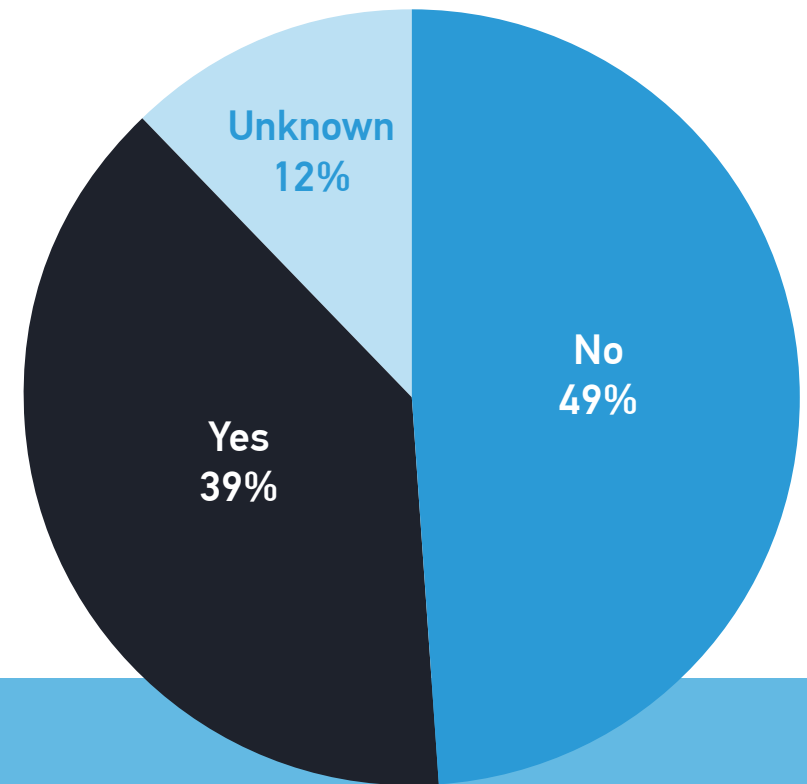
As many as 78% of companies say recruiting qualified employees is their greatest growth barrier. This overall figure is in line with previous years, although on a positive note it is worth noting that the proportion of companies that view recruitment as a critical issue decreased last year from 20% to 15%.

Attracting talent has long been a challenge, which is why it is continues to be a key focus area for companies and the cluster as a whole. Many companies are indeed joining forces in the campaign 'We are robot heroes', launched in 2018 with the aim of attracting talent and creating a bigger, stronger talent pool.

In order to meet recruitment needs, a significant proportion of companies are internationalising their recruitment efforts. This year, 39% of companies expect to recruit employees from abroad to work in the Odense area. The figure is highest among larger companies.

Companies
expecting to
recruit to Funen
from outside of
Denmark in 2019

*Source: Odense Robotics based
on A&B Analysis, January 2019*



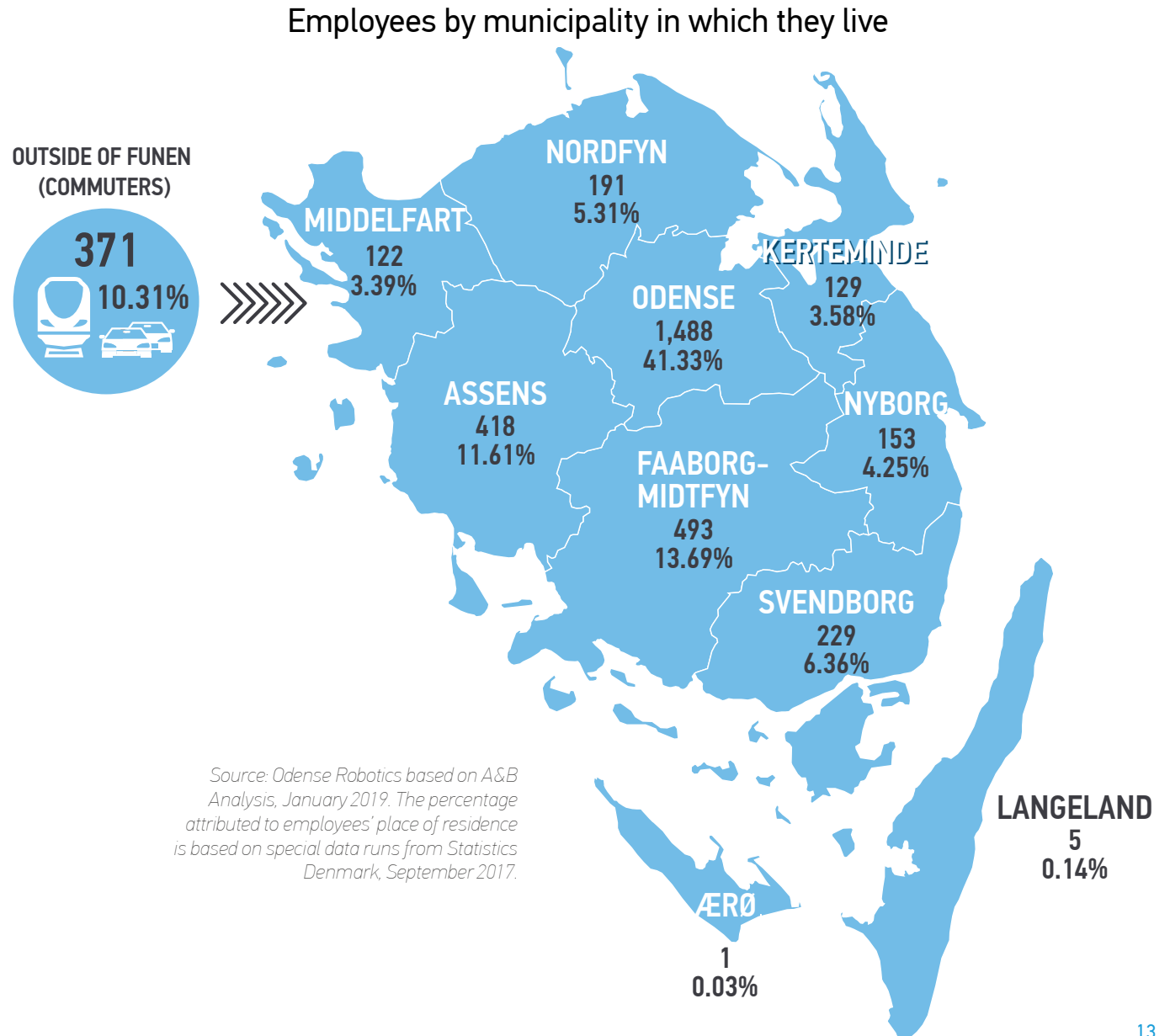
78% of companies say recruiting
qualified employees is their greatest
growth barrier

IMPORTANT EMPLOYER ON FUNEN

The industry is an important employer for people living on Funen.

Of the 3,600 people working in the Odense area in the cluster, more than 40% live in the municipality of Odense. Around 50% live in other municipalities on Funen and around 10% commute from outside Funen. These figures are in line with previous years.

While the number of commuters has increased slightly since 2017, the overwhelming majority of employees continue to live on Funen.



DIVERSE WORKFORCE

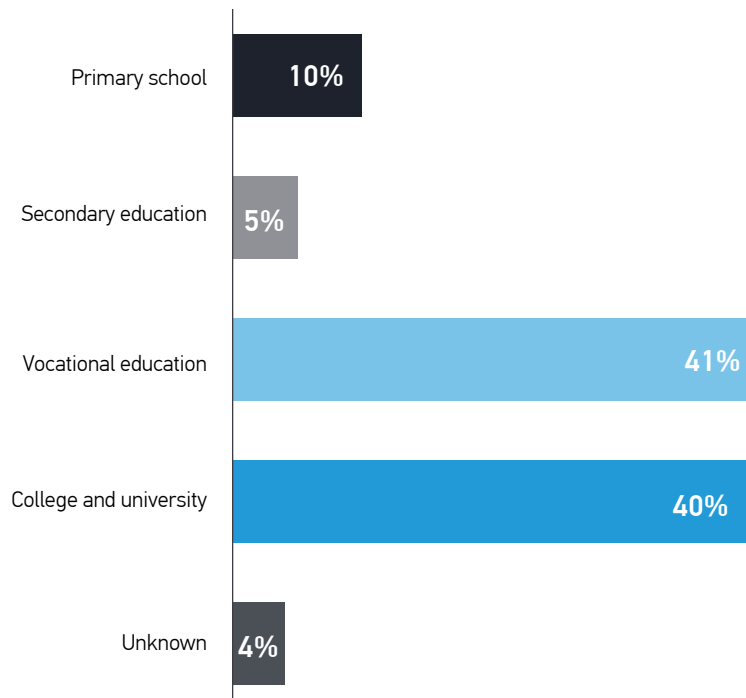
There is a diverse demographic of people working at the cluster companies.

The workforce is diverse – both in terms of age and educational level. Around 40% of people have a university or college degree. The figure is 41% for people with a vocational education ('erhvervsuddannelse'), which typically involves a high degree of on-the-job training.

Recruiting highly-qualified employees continues to be a significant challenge for companies. In addition, there continues to be a need to attract young people to the industry, with 63% of the workforce aged 40 years or over.

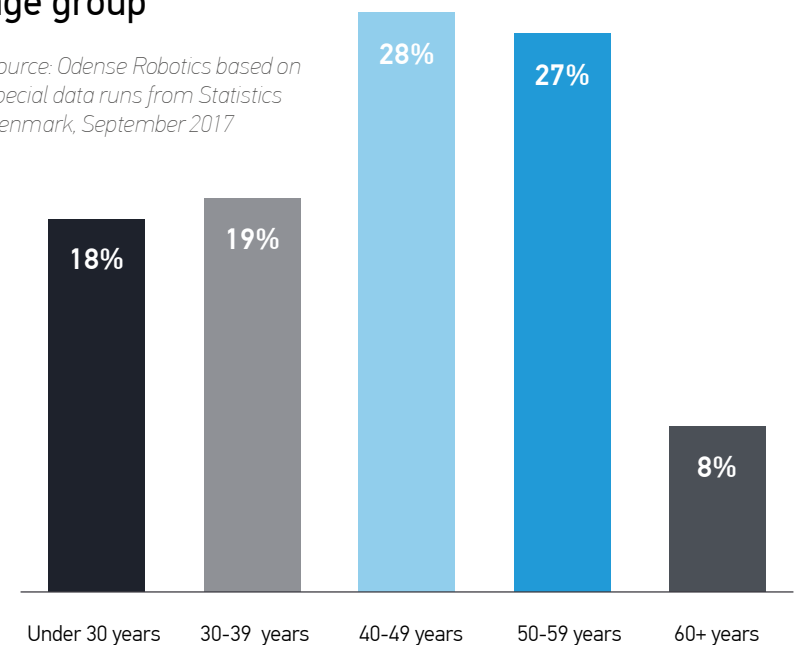
Employees by education level

Source: Odense Robotics based on special data runs from Statistics Denmark, September 2017



Employees by age group

Source: Odense Robotics based on special data runs from Statistics Denmark, September 2017



EDUCATING FUTURE EMPLOYEES

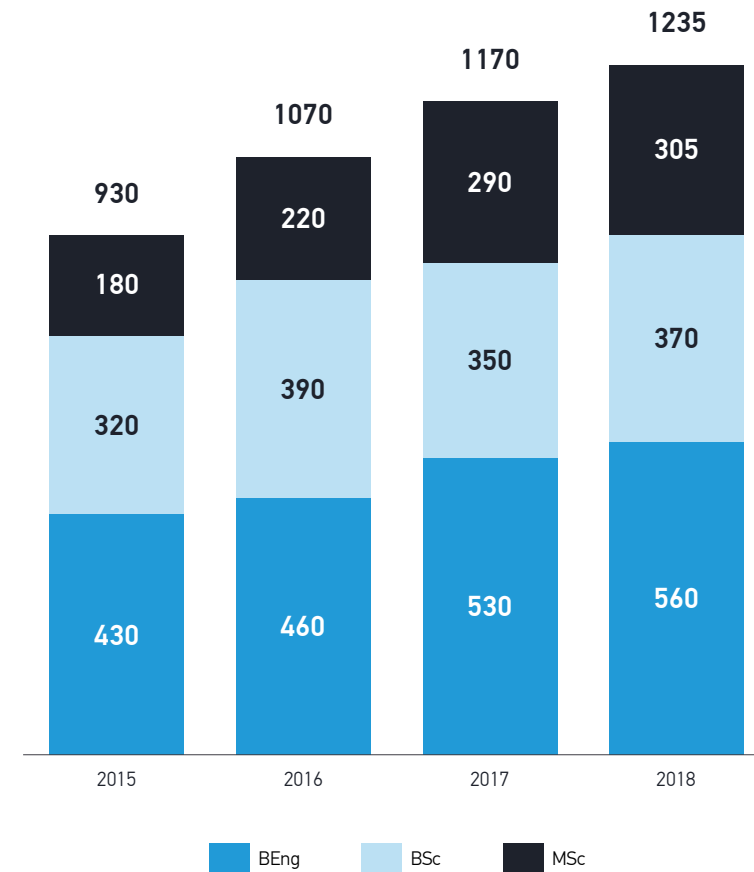
The University of Southern Denmark plays an important role in creating a pipeline of future employees.

The number of students at the University of Southern Denmark's Faculty of Engineering in Odense in programmes relating to robotics and automation has increased by 34% from 2015-2018.

This figure includes a 69% increase in MSc students, a 16% increase in BSc students and a 33% increase in BEng students.

Particularly worth noting is the considerable increase in students in BSc Software Engineering and BEng Software Technology – a field where there is a high demand from companies for new employees.

In addition, it is positive to see that as many as 150 students were admitted to BEng Robot Systems between 2018 and 2017, when the study programme was established.



Admissions to study programmes relating to robotics and automation at the University of Southern Denmark's Faculty of Engineering in Odense.

Source: University of Southern Denmark, Statistical Yearbook, January 2019

GLOBAL CENTRE FOR ROBOTICS RESEARCH



The Maersk Mc-Kinney Moller Institute based at the University of Southern Denmark (SDU) is an internationally recognised research department, which has maintained a leading position in robotics for more than two decades. Indeed, the department is the origin of robotics research in Denmark and has played a key role in the creation of the Odense Robotics cluster.

Thanks to its expertise within robot systems and software, the Institute has been able to create strong research centres within related areas such as Artificial Intelligence, Health Informatics and Energy Informatics. In recent years, the Institute has also included drone research to its portfolio.

In 2018, the Institute announced an investment of EUR 13.4 million in an Industry 4.0 Lab. The investment will enable students and companies to be at the forefront of developments within hyper-flexible robots, virtual reality, smart materials and soft robotics.

In 2018, 11 researchers from SDU won the unofficial World Championship in Robotics, The team won within the category of industry robots at the World Robot Summit Challenge held in Japan.

Full range of robotic education programmes

The cluster is home to several educational institutions that offer courses relating to robotics and automation. The University of Southern Denmark, UCL University College and SDE College together offer a combination of academic and vocational and academic programmes such as MSc in Engineering - Robot Systems, Automation Technician, Industrial Operator and Automatics Electrician. As such, there is a strong pipeline of students who can be employed upon graduation in the industry.

PERFORMANCE



STRONG FINANCIAL RESULTS

Companies generated a turnover of EUR 763 million in 2017. Turnover is expected to increase significantly by 2021.

The cluster generated a turnover of EUR 763 million in 2017 – an increase of 32% since 2015 and the equivalent of EUR 238 thousand on average per employee. In 2017, 49% of companies said their financial result was acceptable or satisfactory.

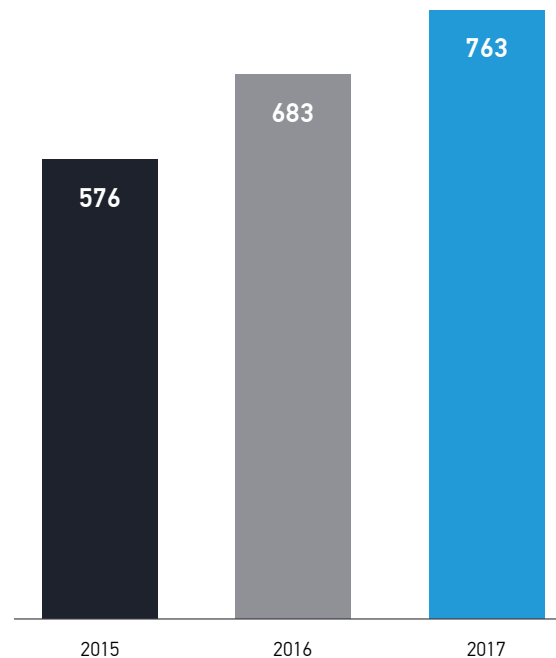
This strong top and bottom line growth shows a profitable industry successfully performing in terms of both development and sales.

Turnover is set to increase significantly in the coming years. Almost 40% of companies expect a 20%+ increase in turnover in 2018 compared to previous year, and almost 70% expect a 20%+ increase in turnover for 2019-2021 compared to 2017.

The majority of companies' turnover is generated on Funen (53%), indicating a strong epicentre around Odense with important additional activity throughout the country.

Turnover,
EUR million

*Source: Statistics Denmark,
September 2017*



EUR
763
million
turnover in 2017

20%+
increase
expected by 2021

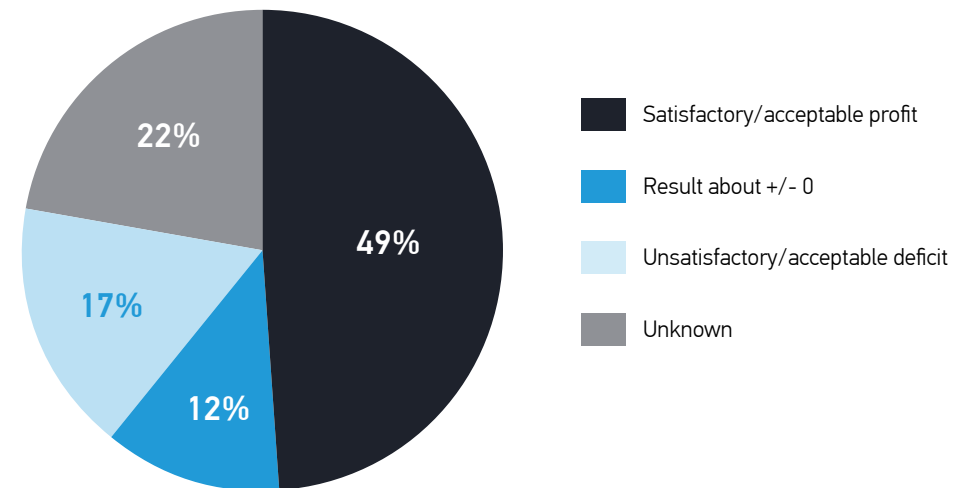
SATISFACTORY PROFITS

Strong top and bottom line growth shows profitable industry.

Almost half of all companies regarded their profit in 2017 as satisfactory or acceptable.

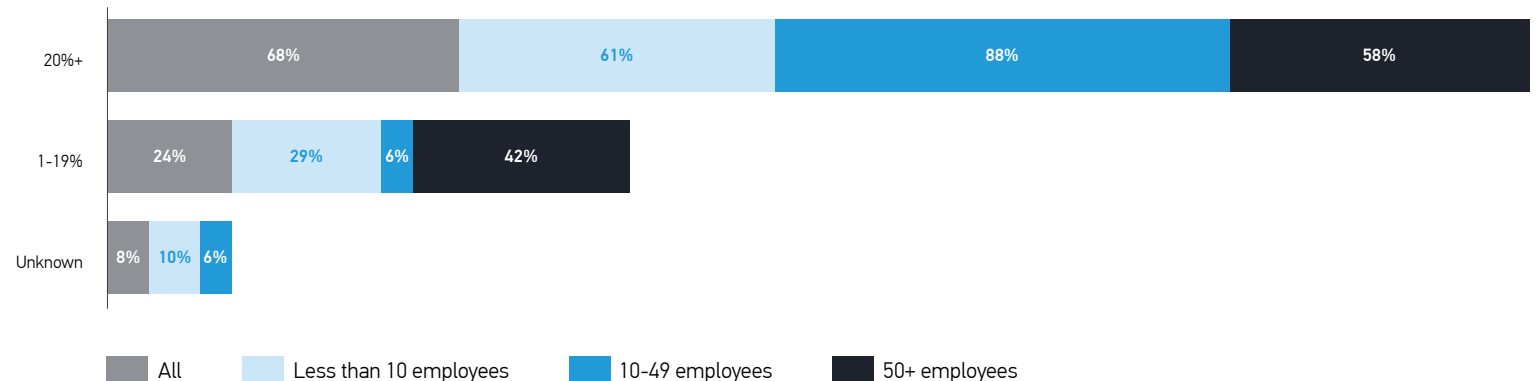
Satisfaction with financial result 2017

Source: Odense Robotics based on A&B Analysis, January 2019



Expected development in turnover for 2019-2021 compared to 2017

Source: Odense Robotics based on A&B Analysis, January 2019



EXPORTS INCREASING

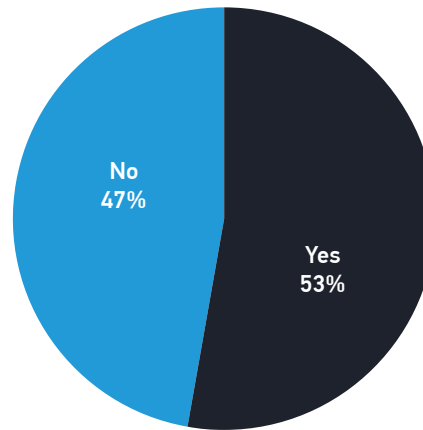
Exports have increased significantly and will continue to rise in coming years.

Exports in the cluster have increased by 46% since 2015 to reach EUR 509 million – accounting for almost 70% of the cluster's total turnover. And as many as 66% of the companies that do not export today, expect to do so in the future.

The average share of exports for companies with export activities was 60% in 2017. This figure was higher amongst companies with a high number of employees. The share of exports was almost 80% in 2017 amongst companies with 50+ employees, while the figure was 33% for companies with up to 10 employees.

Thus, there is a significant potential to increase exports further – both for companies that already export and those who do not export yet.

The Odense area is an important centre for the companies' export activities; 82% of exports are generated on Funen.

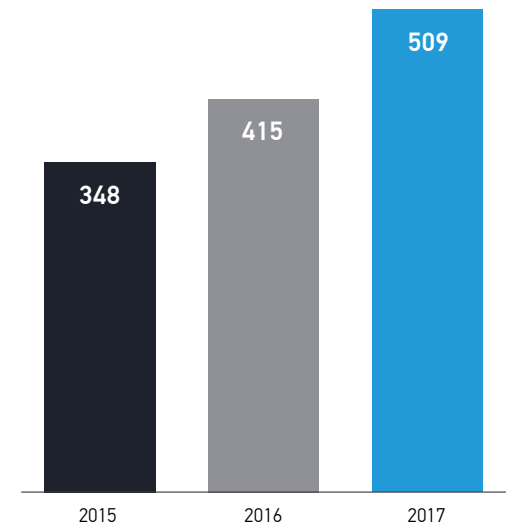


Export activities in 2017

Source: Odense Robotics based on A&B Analysis, January 2019

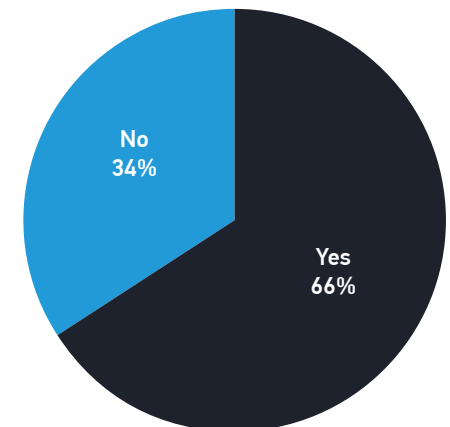
Exports, EUR million

Source: Statistics Denmark, September 2017



Out of the companies that do not export today, how many expect to do so in the future

Source: Odense Robotics based on A&B Analysis, January 2019



ATTRACTING STRONG INVESTMENTS

More than EUR 750 million has been invested in companies since 2015, enabling companies to fuel their expansion.

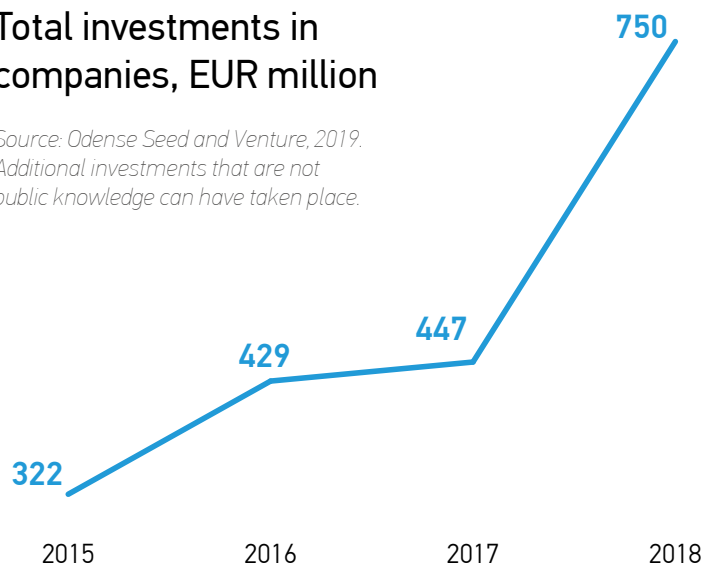
The cluster has become a magnet for investors who want to be part of the industry's growth journey at an early stage. Since 2015, more than EUR 750 million has been invested in cluster companies. These investments from Denmark and abroad have been instrumental in enabling companies to fuel their expansion.

Investments range from funding to robotic startups to the acquisition of high-growth companies, such as the acquisition of Universal Robots and Mobile Industrial Robots by Teradyne in 2015 and 2018 respectively.

Most companies gain capital via investors (42%), while public funding represents companies' second highest source of capital (28%). A total of 43% of companies say their capital acquisition plan matches their ambitions.

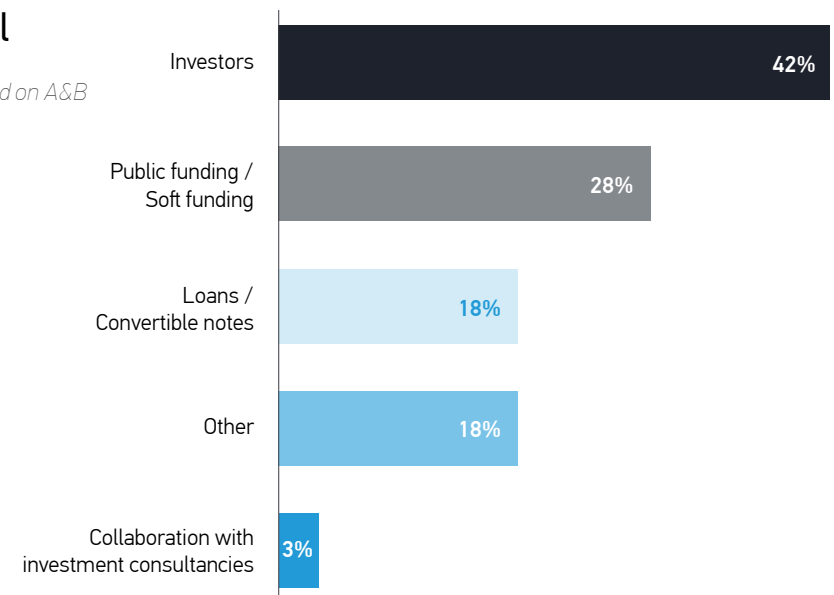
Total investments in companies, EUR million

Source: Odense Seed and Venture, 2019.
Additional investments that are not public knowledge can have taken place.



Sources of capital

Source: Odense Robotics based on A&B Analysis, January 2019



STRATEGIC FOCUS AREAS

Collaboration with other companies is the most important strategic focus area for companies.

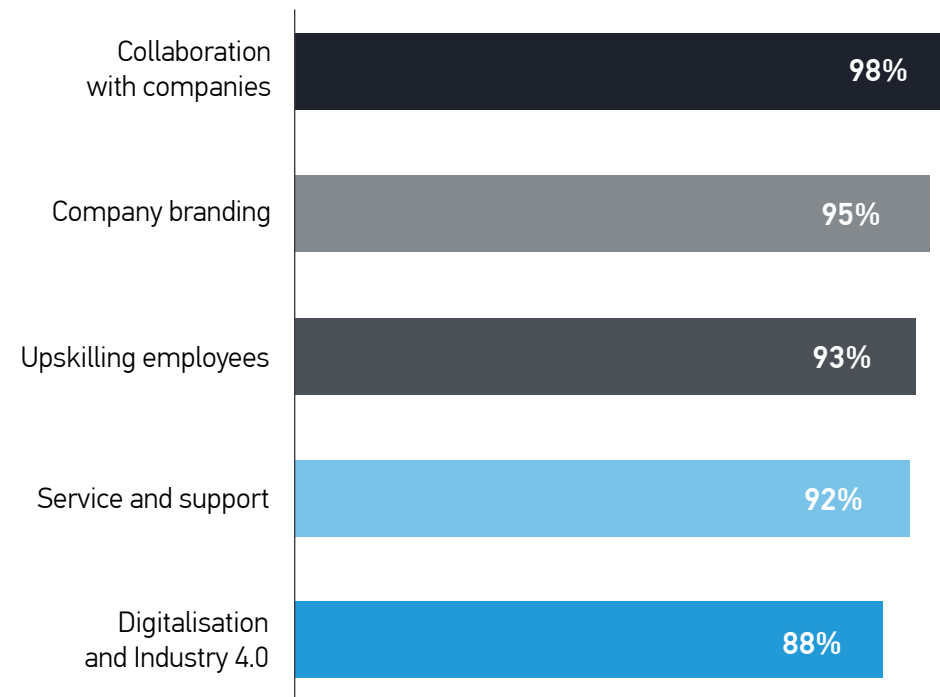
Collaboration with other companies – in and outside the cluster – is the single most important strategic focus area for companies.

This high figure indicates a strong focus on innovation activities as well as on leveraging synergies across sectors and technologies. Indeed, this also explains the many mergers between cluster companies in 2018, where companies saw an opportunity to have a stronger impact through closer collaboration.

Additional strategic focus areas are corporate branding (95%), upskilling employees (93%), service and support (92%), and digitalisation and Industry 4.0 (88%).

Top 5 strategic focus areas for next three years

Source: Odense Robotics based on A&B Analysis, January 2019



STARTUP HUB TURNS TECH INTO BUSINESS

Robotic entrepreneurs grow their business at Odense Robotics StartUp Hub.

Odense Robotics StartUp Hub is recognised as one of the best robotic incubators in Europe. It is located at the 2,000m² specialist facility at the Danish Technological Institute, a leading research and technology company. Here, robotic and drone startups are joined by a team of business and technology experts that help turn technology into business.

Many successful robotic startups emerge from Odense Robotics StartUp Hub and stay in Odense as they grow to become innovative businesses with international markets. The Hub also now has a track especially for drone startups.



15

**robotic startup
companies**

have been
part of the
Odense Robotics
StartUp Hub



PARTNERSHIPS

ODE | **ROBO** WHERE
NSE | **TICS** ROBOT
HEROES
GROW



COLLABORATION KEY TO GROWTH

Collaboration thrives in the cluster,
where 78% of companies work together.

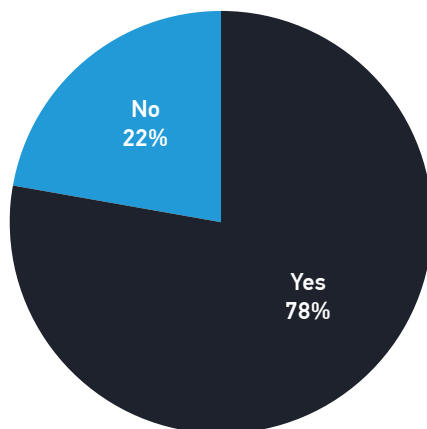
Companies in the cluster recognise that collaboration is key to driving innovation and growth. As many as 78% of companies collaborate with other companies in the cluster.

Not only that, figures show that companies' collaboration often involves several partners. A total of 46% of companies collaborate with between 6-10 companies and 38% collaborate with more than 10 companies.

In addition, as many 68% of companies collaborate with research and education institutions. Most collaboration can be seen amongst the larger companies.

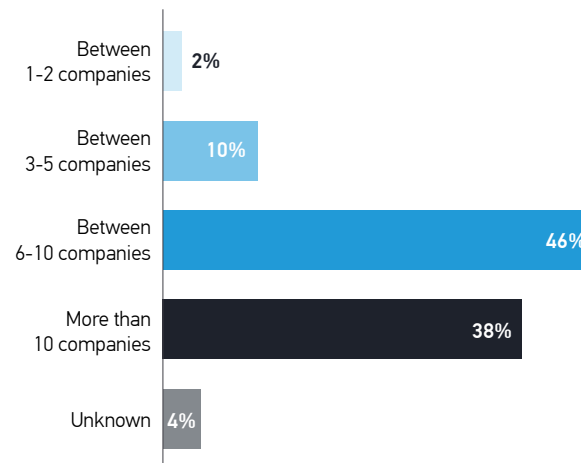
Collaboration between companies in the cluster

Source: Odense Robotics based on A&B
Analysis, January 2019



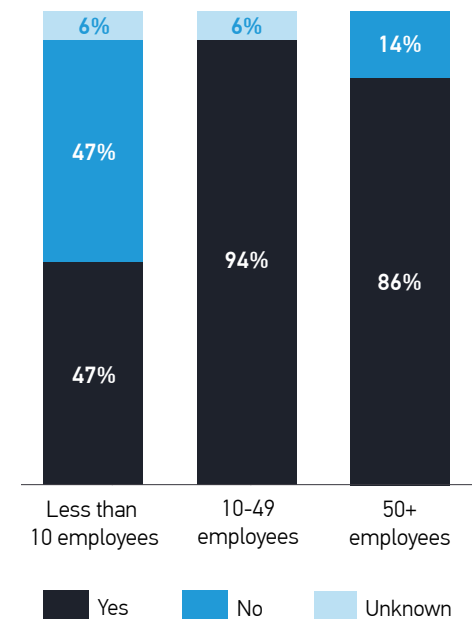
Number of cluster companies that companies collaborate with

Source: Odense Robotics based on A&B Analysis, January 2019



Collaboration between companies and research and education institutions

Source: Odense
Robotics based on A&B
Analysis, January 2019



ODENSE PRIME LOCATION

Many companies say that their location in the Odense area is an advantage.

A total of 57% of companies say their location on Funen is an advantage. This figure is in line with previous years – and increases to as much as 70% amongst

companies with 10-49 employees. Amongst companies with more than 50 employees, 50% say the location is advantageous and the other 50% say neither/nor.

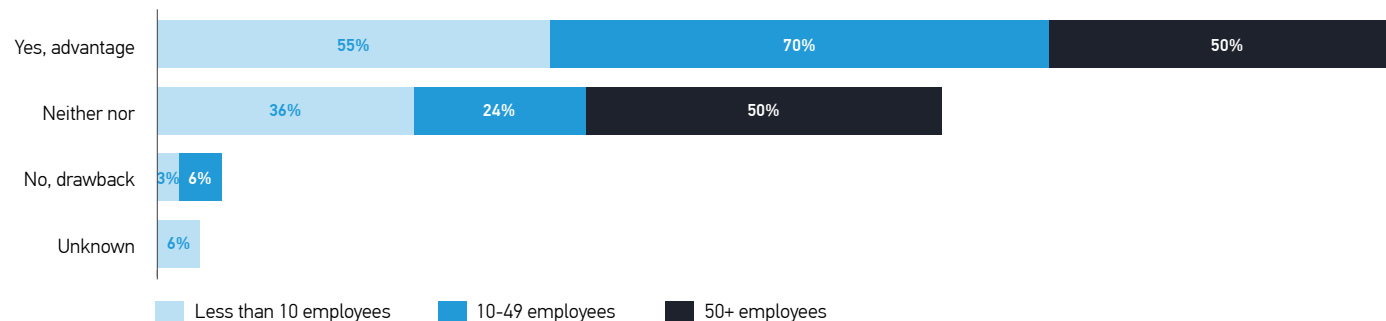
There are many initiatives that are making Odense an even more attractive location for robot and automation companies.

Key developments include SDE College's new National Knowledge Centre, the Danish Technological Institute's building expansion, the University of Southern Denmark's Industry 4.0 Lab as well as the University's UAS Test Centre at HCA Airport.

On a more general note, a tram line is currently under construction in the city, which will improve public transport.

Advantage of being located in the Odense area

Source: Odense Robotics based on A&B Analysis, January 2019



METHODS

Scope

This report includes the companies that are part of the Odense Robotics cluster. The companies typically have strong links to the robot and automation sector through, for example, a dedicated strategic focus on the industry, a significant share of revenue from the industry, dedicated technology, and/or cluster collaboration. Geographically speaking, the companies are located on the island of Funen, Denmark, either with a headquarters or a department.

Categories of companies

The companies have been categorised as one of the following:

- Producers: Develop and manufacture automatic machines, robots or components.
- Integrators: Sell automated machines, and design and develop automation solutions that can include robots.
- Suppliers of components and services: Dedicated suppliers of parts and/or services for automatic machines or robots.
- Distributor / sales: Companies that distribute and/or sell automatic machines and robots, and related parts and products.
- Consultancy: Consultants offer advisory services on a range of topics relating to robot and automation.

While many companies have products or services across multiple categories, the category selected indicates a company's primary focus.

Method and data sources

The report primarily uses quantitative analysis. It is based on several data sources, primarily company responses in the annual survey conducted by the independent agency A&B Analysis for Odense Robotics. The latest survey was sent in October 2018 to all companies in Odense Robotics. A total of 65 companies, more than 50%, participated. The responses are spread evenly across the three categories of company size (1-9, 10-49 and 50+ employees) and are therefore considered to be representative.

Data concerning the year when companies were established and their location is taken from public databases and registers based on companies' VAT numbers. Data concerning how many people the

companies employ, the workforce's educational level and their age is calculated via special data runs from Statistics Denmark, based on companies' VAT numbers.

The number of full-time employees is calculated by A&B Analysis on the basis of calculations from Statistics Denmark from September 2017 as well as companies' responses in the latest annual survey or public registers. Growth in the number of employees is based on existing companies' expectations. The expectations for the growth in the workforce do not take into account additional companies being established in the cluster and other related factors.

Data regarding turnover and export is calculated by Statistics Denmark based on company VAT numbers. Statistics Denmark calculates figures according to companies' number of employees on Funen. The figures are from September 2017 and include existing companies in the cluster if they existed at that time. The data regarding companies' expectations to development in turnover and export is based on the latest annual survey.

The following data is based on the latest annual survey: companies' satisfaction with financial results, their expectations to development in turnover in the coming years, turnover in relation to company size, expected future exports, financial performance, growth barriers, strategic focus areas, and collaboration with other companies, research and knowledge institutions.

Data concerning the number of companies is derived from Odense Robotics, which tracks the cluster's development on an ongoing basis. Data relating to whether companies work in full or in part with collaborative and/or mobile robots or related products is based on Odense Robotics' market insight.

Data relating to investments in companies is based on interviews by Odense Seed and Venture with investors, founders, CEO's in the cluster as well as public data. Dates refer to the day deals were signed. Additional investments can have taken place without the knowledge of Odense Seed and Venture.

Unless otherwise stated in graphs and charts, data is from the end of 2018.

Use of material

Odense Robotics would like to thank all the companies that took part in the survey. Thanks to their participation, this report offers unique insights into the development of the cluster. Please state the source when using or referring to the material in this report.

ODENSE ROBOTICS

Odense Robotics is one of the world's top robotics clusters located in the city of Odense, Denmark.

Our vision is to make Odense the global leader of the next industrial revolution by serving the needs of its robotics cluster.

We accelerate growth and innovation in the robot and automation cluster in and around Odense. We do this by connecting businesses, people, research and education, advancing policy and branding the cluster.

We do this because we believe that robot technology can bring about meaningful change in the workplace – not just for businesses, but also for the people who work there.

www.odenserobotics.com

