PRESS INFORMATION

Research and Development on RWTH Aachen Campus

With its new RWTH Aachen Campus, RWTH Aachen University is becoming one of the leading universities for technology in the world. With 16 research clusters on an area of 800,000 square meters, RWTH Aachen is developing one of the largest technology-oriented research landscapes in Europe.

The Campus project creates a bond between academia and industry with the objective of finding answers to the challenges posed by mega trends. The respective long-lived topics are represented by the clusters. In the centers of the clusters, interdisciplinary teams and industry consortia work jointly on specific relevant issues of the future and develop visionary approaches to solving these issues. Seven clusters are currently in development on Campus Melaten: Construction, Bio-Medical Engineering, Sustainable Energy, Photonics, Production Engineering, Heavy-Duty Drives and Smart Logistics.

More than 400 companies are currently represented on RWTH Aachen Campus

The challenges faced by research in the coming years require an interdisciplinary approach. Companies – from mid-sized businesses to global enterprises – can help shape current and future-relevant research topics on RWTH Aachen Campus in close cooperation with higher education institutions. Common research issues are formulated and processes holistically and interdisciplinary in dedicated research centers. Businesses share resources with the university institutes, use synergies and share knowledge on-site. Close cooperation facilitates coordination processes, accelerates research results and improves its quality, while research and development costs are reduced. Companies can utilize the research infrastructure and competence of RWTH Aachen at various levels of intensity: from basic research to the further development of individual technologies, all the way to the development of a market-ready product.

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Enrollment: Benefit Categories for Members

Businesses enroll in a center by signing a premium, business or basic 5-year membership. Depending on the membership type selected, these businesses benefit from up to five benefit categories: Affiliation, research and development, community, further education and services.

1. Inclusion

Enrolled member companies have access to an interdisciplinary team of scientists and benefit from knowledge exchange with other members and scientists. The close proximity to qualified specialists and young academics, as well as a full range of further education options allows members to develop and expand know-how within the member's own company. New business partnerships arise from joint projects, visits to and the implementation of events, congresses or seminars.

2. Research & Development

The interdisciplinary team of scientists and the enrolled companies jointly conduct research and development at the various centers. They have access to scientific know-how and are involved in the definition of relevant technology topics and research focal points of the relevant center over the coming years. The focus will be on visionary solutions that will strengthen the competitive edge of the members by way of e.g. product or process innovations. Decision-making processes are facilitated using shorter routes, the speed and quality of research results are improved and the research and development costs are reduced.

3. Community

The RWTH Aachen Campus community consists of all scientists and enrolled members. Participating in congresses, fairs or symposia of the clusters and centers boost knowledge exchange. Every enrolled member is furthermore included in the virtual community, the RWTH Aachen Campus Extranet.

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4. Further Education

The center offers specific further education programs for the industrial companies. These include seminars and training courses, as well as certification and master programs. These further education programs allow employees of the associated companies to implement their newly gained know-how in their practical business environments, while at the same time developing their personal careers within their specific research environment.

5. Services

Services offered include consulting, certification, verification, approbation and many more. Based on research results, the scientists and academics develop tailor-made solutions for each individual company in close cooperation with other members.

Hands-on Science

RWTH Aachen Campus offers scientists and academics of RWTH Aachen the unique opportunity to participate in interdisciplinary projects under one roof. The close cooperation with enrolled businesses furthermore ensures access to research objects with practical relevance. The long-term commitment of the enrolled businesses increases third-party income and facilitates access to grants and scientific facilities due to the close collaboration between science and industry.

Development of clusters and centers on Campus Melaten

Seven of the envisaged 16 research clusters are already in the implementation phase. Overall, around 30 centers are currently working on relevant issues of the future.

Construction Cluster

The Construction Cluster deals with innovations, new technologies and their implementation and introduction in the construction sector. One focus of the cluster is on the networking of

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devices and machinery to allow the digital mapping of increasingly complex construction processes in the context of Building Information Modeling (BIM), create more efficient construction processes and optimally support strategy planning. The following centers form the research focus in the Cluster Construction: BIM Center Aachen, Center Building and Infrastructure Engineering and the Center Construction Robotics.

Bio-Medical Engineering Cluster

The Bio-Medical Engineering Cluster specializes in the research and development of integrative methods and products for diagnostics and therapy. The Center for Telemedicine Aachen is an initial research focus for the Bio-Medical Engineering Cluster:

Sustainable Energy Cluster

The objective of the Sustainable Energy Cluster is increased energy efficiency and a switchover to sustainable energy generation. The BMBF initiative "Research Campus" selected the RWTH Aachen consortium "Electrical Networks of the Future" as one of the ten winners from a pool of 90 submissions in a national competition of the Federal Ministry of Education and Research (BMBF) in 2012. The BMBF will be providing funding of up to 30 million euros for research projects of the "Research Campus Flexible Electrical Networks" over a total of 15 years. The following units form the key research areas in the Sustainable Energy Cluster: Flexible Electrical Networks (FEN) and E.ON Energy Research Center.

Production Engineering Cluster

The Production Engineering Cluster is currently one of the largest research laboratories for production engineering and Industrie 4.0 in Europe. The research focus here will be digitally integrated production. Industry and science will explore the possibilities of Industrie 4.0 and the Internet of Things (IoT) for the production development process and cyber-physically integrated production. The following centers form the research focus in the Production Engineering Cluster: AZL – Aachen Center for Integrative Lightweight Production, Complexity Management Academy, Fuel Cell Industrialization, Global Production Management Center,

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INC Invention Center and WBA Toolmaking Academy Aachen. The RampUp Factory is also located in this cluster.

Photonics Cluster

The Photonics Cluster researches and develops processes to generate, shape and utilize light, specifically as a tool for industrial production. Researchers are currently working on the next generation of laser printers and on laser-based rapid manufacturing processes that will allow the printing of metal products. A particular highlight of the Photonics Cluster is the "BMBF Research Campus Digital Photonic Production", which will receive funding of up to 30 million euros from the Federal Ministry of Education and Research (BMBF) for a total of 15 years. The following centers form the research focus in the Photonics Cluster: ACAM Aachen Center of Additive Manufacturing and Digital Photonic Production (DPP).

Heavy-Duty Drives Cluster

The Heavy-Duty Drives Cluster conducts research and development projects in drive technology systems. The objective here is the consideration of complete systems and the deployment behavior of the individual components within the complete system. The following centers form the key research areas in the Heavy-Duty Drives Cluster: Center for Wind Power Drives and Center for Systems Engineering.

Smart Logistics Cluster

More than 350 individuals from science and industry are currently engaged in research projects in the Smart Logistics Cluster. The research focus here is to find solutions for the flow of information and goods in the cyber-physical world of the future. The research is based on the presumption that the digital world will be networked at near realtime via the Internet. The following centers and institutions form the research focus in the Smart Logistics Cluster: Center Connected Industry, Center Enterprise Resource Planning, European 4.0 Transformation Center, Industrie 4.0 Maturity Center, Center Smart Commercial Building and Center Smart Services. Additionally, the Demonstration Factory and the Electromobility Lab (eLab) are located in this cluster

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Innovation Factory

The Innovation Factory on RWTH Aachen Campus allows companies the implementation innovations quickly and cost-effectively at a single location – individually or as part of a consortium. The innovation process is based on five phases: Ideation, Customer Focusing, Development, Prototyping and Industrialization. The unique eco-system on RWTH Aachen Campus, where academia and industry work together closely, offers the necessary infrastructure. Innovation Factory experts configure the individually required competences for a target-oriented company project team. Businesses can join the innovation process at any time and any stage and it is also possible to just run through individual phases at the Innovation Factory.

Lighthouse Project Electromobility

A network of experts with extensive specialist know-how on the topic of electromobility was created on RWTH Aachen Campus over the past ten years. Production researchers at RWTH Aachen demonstrated that highly iterative development processes and a particularly cost-effective prototype and batch production of electric vehicles were possible using Industrie 4.0. A decisive factor here was the network consisting of scientists and industry, which culminated in the development of two electric vehicles at the Aachen location. Initially, a team of RWTH scientists created the StreetScooter Initiative in conjunction with an industrial consortium in 2010. The objective was to demonstrate that the lifetime costs for a purely electric vehicle would actually be comparable to those of a traditional combustion vehicle. More than 80 companies contributed to the development until the project was taken over by Deutsche Post DHL Group in 2014, who produced the electric, lightweight utility vehicle until 2020. Starting in 2015, the researchers applied their know-how to develop the affordable electric city car e.GO Life to a close to series production prototype. To this day, the access to more than 3000 experts, the infrastructure and the mentality on campus are unique: From

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agile teamwork to software architecture and virtual reality installations all the way to prototype construction. The result: Series production of the e.GO Life electric car began in 2019 at a new factory in Aachen Rothe-Erde.

Further Information:
www.rwth-campus.com/en

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