

Aachen

alive with science

"There are only two seasons in Aachen," a former Rector of the RWTH Aachen University used to claim: "The warm rainy season and the cold rainy season." Of course, the specific relevance of Aachen's rainfall for the academic and scientific fertility of this city and its universities still awaits serious critical appraisal. But, when it's always raining outside, what better use of one's time could there possibly be than inventing silent gears, or integrative production strategies for high-wage countries?

Whether rain or shine, the radiance of excellence that currently illuminates the RWTH is certainly fostering public awareness of precisely these core competencies of the university – areas of expertise for which it has always been highly appreciated in the business and commercial sector, namely, finding solutions to specific, practical problems in industry, and managing highly complex, techno-economic processes.

This is where the method was developed for dry cutting tools – an approach which dispenses with the use of cooling lubricants and thus enormously reduces process costs and environmental impact. This is where the complete production line for the front axle of the BMW 3 series was constructed; where textile-reinforced concrete was invented; where the European launcher Ariane was first rendered flightworthy in terms of cost feasibility; where complete production plants including full management systems are planned – and also where emission- and accident-free automobiles, artificial heart valves and retinal implants are being developed. And this is where, currently, strategies on a European level are being mapped out to exploit the economic crisis as an opportunity for the

promotion of cutting-edge technologies and the securing of wage levels.

The Excellence

Its enormous range of expertise and its continuous integration in economic and social processes are the core strengths of what, in former Rector Ernst Schmachtenberg's words, is "definitely the most technical of all the universities in Germany". These strengths justify the university's own claim to be a service provider for society. And the three clusters of excellence – along with the graduate school – that resulted from the Excellence Initiative 2006/07 speak for themselves. But at least an equally important factor in the RWTH's success is its collegial structure, which ultimately ensures the dynamics and the capacity for self-reinvention of this huge network of nine faculties, 260 institutes, 538 professors, an academic staff of 9,200, and more than 48,000 students.

Going against such a fundamental cooperative attitude did not turn out so well for the alma mater – founded in 1870 as a Prussian Polytechnic, spoiled by success and always rather self-assured – when, in the first round of the Excellence Initiative 2006, the incumbent RWTH rectorate launched a quasi unilateral attempt to grab the title of "elite university" for itself. But the false start worked wonders. To begin with, it led to the transformation of the partnership that had already existed for many years with the highly sophisticated Jülich Research Centre into a permanent relationship in the form of the "Jülich Aachen Research Alliance" (JARA) in the four major research fields: energy, brain research, functional materials and structures, and simulation.

But most of all, ever since the second – and this time successful – attempt in the following year, the whole university has been captured by exactly the kind of energetic movement that it needs in order to meet the challenges of the "Future Project", not only for itself but also for the whole region.

RWTH Aachen Campus

RWTH Aachen Campus is a project whose unpretentious title almost makes it sound trivial. But it actually refers to a truly epoch-making endeavour. Nothing less than one of Europe's largest technology-oriented research landscapes is being created on an area of around 800,000 square metres with 19 research clusters and 10,000 direct and indirect job opportunities. This campus project is transforming Aachen into a true "city of science", a label it can confidently claim for itself – in contrast to the many German municipalities who, in the meantime, are making rather inflationary use of the term to promote their locations. The basic idea is that the RWTH provides its know-how and a unique research infrastructure while, for their part, national and international enterprises get involved with their own on-campus research and development resources. The payoff for industrial partners: not only do they get much-coveted access to qualified young scientists but also benefit from the local availability of specialised basic and further training programmes. Currently, six research clusters are nearing completion on the first of the two development areas, Campus Melaten: Smart Logistics, Production Engineering, Photonics, Bio-Medical Engineering, Heavy-Duty Drives and Sustainable Energy. More than 200 commercial enterprises are already actively involved in these clusters, from Audi, BMW and Daimler, through Bosch, Siemens, Hilti and Gira, to Gerry Weber, Philips, Lufthansa and E.ON. The Bio-Medical Engineering Cluster alone receives around 40 million euro in state and federal funding. The research campus "Digital Photonic Production" will be funded by the Federal Ministry for Education and Research over the next 15 years to the tune of up to 30 million euro. Here, methods of generating, forming and using light – in

particular as a tool for industrial production – are being researched and developed. The list of impressive names and figures could be continued indefinitely, especially as the campus also enjoys international relevance in terms of its architectural design.

Whether SME or major concern, on the RWTH Aachen Campus both types of business can cooperate with university institutes and thus participate today in shaping the focus of tomorrow's research topics – the kind of research topics for which, nowadays, an integrated, interdisciplinary approach is absolutely indispensable. Such close collaboration not only eases decision-making processes, but also increases to an equal extent the speed and quality of research findings. And it also reduces research and development costs, from basic research and joint research right through to the development of a marketable product.

The expansion areas in Melaten and Aachen West are comparable in size to Aachen's city centre. Together with Campus Central, they form a cohesive area fully integrated into public life. The RWTH Aachen Campus is not just a place populated by company buildings, research facilities and university institutes. It is also increasingly coming alive with retail outlets, restaurants and service centres. Since 2014, the bilingual day care centre in the park on Campus Boulevard has been looking after up to 80 children. Campus Melaten also boasts a medical insurance branch office and the Bistro Restaurant Forckenbeck.

FH Aachen

Smaller than the RWTH Aachen, but no less ambitious – the "other" Aachen university, with its own focus on technology, natural sciences and business studies, as well as a faculty of design. For a long time, Aachen's University of Applied Sciences (FH Aachen), founded in 1971, stood in the shadows of its bigger, much older sister. But with the Bologna Process, its qualifications have gained greater parity. Whether students choose to do their Bachelor or Master's degree here or at the RWTH is now more a question of which courses on offer are better tailored to the future careers they have

in mind. With more than 13,000 students and 250 professorships, the FH Aachen is one of Germany's largest universities of applied sciences and – like the RWTH Aachen – gets top ranking in surveys conducted among personnel managers on the subject of best graduates, particularly in the fields of mechanical engineering and electrical engineering. The practical orientation of the study courses here, especially in collaboration with SMEs, tends to be much stronger, but, for years now, the FH Aachen has also held a front-rank position among Germany's most research-intensive universities of applied sciences.

Catholic University of Applied Sciences (KatHO)

With its focus on social work and health care management, the Aachen department of the Catholic University of Applied Sciences (KatHO) has about 800 students in Bachelor and Master's courses.

University of Music and Dance

Small, but formidable – an appropriate description for the Aachen department of the Cologne University of Music and Dance. The Aachen department focuses mainly on the training of singers and instrumentalists. Through cooperative projects with the Theater Aachen and through many public concerts, the students make a substantial contribution to Aachen's rich cultural programme.

Future Lab Aachen – The Art of Progress

Aachen ticks to the rhythm of its universities, of research and development. This gives the city a distinctive flair, keeps it young and always one step ahead. To make the general public more aware of this, in 2016 the City of Aachen initiated the project Future Lab Aachen – in collaboration with the universities, of course. A digital science guide, a gala event, an "Archimedes' Sandbox" are just some of the many products that render the concept of Future Lab Aachen visible and tangible to all. The website www.futurelab-aachen.de provides a calendar of relevant events and

magazine articles offering introductions to the various facets of science in Aachen.



And what else does the city have to offer?

Aachen, city of water – of water from springs and fountains and, of course, of water pouring down from the heavens themselves. The only watery thing that Aachen's famous hydraulic engineers have not yet managed to bring to Aachen is a river. But, contrary to Aachen's reputation for unrelenting rain, the sun does actually shine here often enough to fill the countless street cafes, and draw throngs of people to day trip destinations in the magnificent surrounding landscapes of the Border Triangle between Germany and Belgium, with which Germany shares the Eifel national park, and the Netherlands, which presents its most spectacular landscapes in this region. If you want to or need to travel, there are fast connections to Maastricht, Brussels, Paris, London, or to the North Sea. It is this natural environment and geographical location that constitutes one of Aachen's two major life quality factors. The other one is the flair – also international – that characterises this university city. Between the university quarter, Market Place, Town Hall, historic town centre and spa gardens, there is a daily flow of more than 60,000 students, statistically speaking a good fifth of the total population. These students mix and mingle with the countless tourists who come here in search of the European spirit, or at least the Throne of Charlemagne in the 1200-year-old Cathedral, or to marvel at Aachen's 14th-century Town Hall, or simply to enjoy both of these historic monuments as the picturesque backdrop to the Aachen's annual Christmas Market.

The Route Charlemagne, which connects eight historically significant stations in the city, clearly illustrates how strongly tradition and innovation

enhance each other in Aachen. Ever since Charlemagne's Palatine School with its progressive, international and interdisciplinary approach, the past and the future have followed common paths in Aachen, in science and in culture, in society and politics. A visit to the Centre Charlemagne, the Town Hall, the Grashaus or the Couven Museum will suffice to prove the point. This is also why the SuperC – as the station representing the topic "Science" is included in the Route Charlemagne. Then there are Aachen's renowned museums. for example the Ludwig Forum or

the Suermondt Ludwig Museum, one municipal and quite a number of private theatres, the annual celebration of the Charlemagne Prize Award and, in the sports department, the CHIO equestrian tournament as well as the occasional successes of Alemannia FC. In a nutshell: there are far less pleasant places in which to pursue a career.

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