

University Report > 2020

Executive Summary



Imprint

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Executive Summary

The University Report 2020 is the sixth such report to the Austrian National Council, as stipulated in Section 11 of the Universities Act (*Universitätsgesetz – UG*). It describes the status of developments in Austrian public universities, and their orientation for the future, focusing particularly on fostering early-career academics and researchers, development of staff structures and the situation for students. The full report has eleven chapters and discusses relevant developments in various areas of responsibility and performance in public universities for the reporting period 2018 to 2020. The University Report is largely based on the information in the reports submitted by the universities themselves as part of their reporting requirements, above all on the financial statements and Intellectual Capital Reports for the years 2017 to 2019.

This Executive Summary, released as a separate publication this year for the first time, presents a concise version of the detailed information provided in the main report and offers a compact overview of the key points. One focus area is the implementation of the new funding model for universities, which is based on capacity and student numbers, and was applied for the first time in the current performance agreement period, 2019–2021. The report also takes a closer look at the digital transformation in the university sector. It includes the usual overview of the latest developments in the areas of studying and teaching, research, internationalisation and mobility, social responsibility and equality.

The report summarises the key changes and developments in the university sector during the period covered, and describes pending and future developments. It considers both, the university system as a whole as well as some specific examples from individual universities. More extensive and detailed information, including facts and figures illustrating these developments, is available in German in the main report, as well as from specific reports and publications by the ministry.

1 Development and strengthening of the Austrian Higher Education Area

The Austrian Higher Education Area is comprised of four distinctly different sectors: universities, universities of applied sciences, private universities, and university colleges of teacher education. Sector-specific strategy documents such as the Austrian National Development Plan for Public Universities (*Gesamtösterreichischer Universitätsentwicklungsplan – GUEP*), the Development and Funding Plan for Universities of Applied Sciences, and the Development Plan for University Colleges of Teacher Education (*Pädagogische Hochschulen-Entwicklungsplan – PH-EP*), define priorities and report on progress towards meeting the capacity objectives in each type of higher education sector. To further develop and strengthen Austria's standing as a location for higher education, it is important to establish a good balance between collaboration and competition, and between complementary and congruent activities in the different sectors of higher education. Discussion platforms and formats like the Austrian Higher Education Conference play an important role in this process.

Austrian Higher Education Conference

The Austrian Higher Education Conference is an established forum for policy discussion between the relevant stakeholders in Austrian higher education. To reflect the inclusion of all higher education institutions under the single umbrella of the Federal Ministry of Education, Science and Research, the Conference of Rectors of Austrian University Colleges of Teacher Education was admitted as a member of the Austrian Higher Education Conference in March 2018. All four higher education sectors are now represented in the Austrian Higher Education Conference. During the current reporting period, the Conference adopted two recommendations. The working group on “Improving gender competence in higher education processes” identified four areas for action and presented its recommendations for these in November 2018. They are now being implemented in consultation with the Federal Ministry of Education, Science and Research. In April 2018 a working

Table 1.1: Organisational framework for higher education sectors

	Public universities	Universities of applied sciences	Private universities	University colleges of teacher education
Legal basis	Universities Act 2002 (UG)	University of Applied Sciences Act (FHG)	Private Higher Education Act (PrivHG)	Teacher Education Act 2005 (HG)
Legal status	Independent legal entity governed by public law	Various legal entities mainly governed by private law	Various legal entities mainly governed by private law	Federal or private institutions
Steering mechanisms	Austrian National Development Plan for Public Universities (GUEP)	Development and funding plan for universities of applied sciences (FH-EF-Plan)	n/a	Funding plan for university colleges of teacher education (PH-EP)
Degree of autonomy	Autonomous	Autonomous	Autonomous	Semi-autonomous
Supervision	Government supervision	Accreditation	Accreditation	Government supervision
Funding	Mainly government funding: “ <i>Universitätsfinanzierung NEU</i> ” model via performance agreements	Study places funded by federal government and other sources (e.g. states)	No institutional funding from federal government	Public and private funders
Current number	22	21	16	14

Source: Federal Ministry of Education, Science and Research (BMBWF), reporting date: 1 January 2021

group was formed on “Research Integrity/Research Ethics”, which in February 2020 presented its findings as “Practical guidelines on integrity and ethics in science and research”.

Developments in the four higher education sectors

The Austrian Higher Education Area is currently made up of 22 universities, 21 universities of applied sciences, 16 private universities and 14 university colleges of teacher education. During the current reporting period three new higher education institutions were accredited: Bertha von Suttner Private University, Gustav Mahler Private University for Music, and the Central European University. The four types of higher education institution vary in terms of their legal frameworks, funding systems and the degree of institutional autonomy. These differences are

also reflected in differing supervisory structures and steering mechanisms within the Federal Ministry of Education, Science and Research.

Outlook

The huge increase in the number of students in recent years has made it more difficult for the universities to meet their responsibilities in basic research and research-led teaching. For the current performance agreement period, the new capacity-oriented funding model has been implemented, which links university funding to student numbers, allowing appropriate financial resources to be allocated. This enables universities to make better use of their research strengths in creating and conveying knowledge, as part of a co-ordinated process of development in the higher education system.

2 A focus on digitalisation

The digital transformation is increasingly permeating all spheres of activity in universities, resulting in profound and lasting changes to the content and ways of teaching, research and work in universities. Universities are not only a place where digital solutions are used, but are also a driver of digitalisation, by actively involving and shaping digital processes, and developing them further.

Finally, universities also have a responsibility to equip their students with the necessary knowledge and skills in the use of digital technologies, therefore enabling them to contribute creatively to the processes of digitalisation.

European initiatives

The European Union intends to play a pioneering role in the digital transformation. As part of the “Digital Education Action Plan” (2018–2020), the European Commission launched and promoted projects such as the electronic European Student Card, a “one-stop” authentication system for paperless Erasmus applications, and a European platform for digital higher education. The new version of the Action Plan (2021–2027) includes development of a European Digital Education Content Framework, the formulation of ethical guidelines for the use of artificial intelligence, and a common platform for sharing online resources. The “European Open Science Cloud” will facilitate data-sharing between European researchers.

Digitalisation as a focus area for higher education governance

Digitalisation is recognised as an interdisciplinary issue in the Austrian National Development Plan for Public Universities 2022–2027, in Objective 7, Point e). Five central themes are identified:

- data handling (utilising, sharing, exploiting, analysing, protecting data and personal privacy rights);
- demands that graduates will face in a society transformed by digitalisation (teaching digital knowhow, techniques and cultural skills, conveying an understanding of the technologies and encouraging critical reflection about them);
- development of new information technologies and systems;

- research into the impact on social structures with regard to the use of information technology and learning systems;
- creation of an open and secure virtual environment, where those involved in science and research can store, exchange and reuse their data across the subject boundaries and national borders.

As leading institutions in our society, universities have the responsibility to work actively and reflectively to shape the digital transformation in all these areas.

Performance agreements 2019–2021

Digital transformation is a key priority area of the performance agreements for 2019–2021. The projects and objectives extend across all aspects of the universities’ activities, and include for instance the expansion of technical infrastructure, increased use of innovative digital teaching and learning formats, and the development of new digital research priorities. Many universities are planning to create new study programmes and extension curricula with a “digital emphasis”, often centred on intersecting themes or as combined subjects. In the research sector too, new priorities are emerging and numerous new professorships are being established. These cover the entire range of possible subject areas, and include for example the digital humanities, or artificial intelligence topics such as robotics, big data, computational linguistics, machine learning and human-computer interaction. The medical universities are intending to establish professorships in fields such as digital medicine, medical engineering and telemedicine.

Wider use and accessibility of open educational resources (OER) will also continue to be promoted. All universities have made a commitment to participate in the working groups of the Open Science Network Austria. An additional priority is the structural integration of digitalisation: each university will develop its own digitalisation strategy. Some universities have also set up a specific vice-rectorate for digitalisation. At the level of Universities Austria (uniko), a digitalisation forum has been established, which includes representatives from all 22 universities.

Call for proposals on "Digital and social transformation in higher education"

For the first time, during the reporting period a specific call for project proposals was launched in the topic area of digitalisation. A €50 million share of the university budget for the performance agreement period 2019–2021 was reserved for innovative and future-oriented projects on “digital and social transformation in higher education”. Reflecting the breadth of areas affected by digitalisation, the project categories were wide-ranging:

- “Digitalisation in teaching and in learning and ‘learning analytics’”;
- “Skills for the digital age – the path to curriculum 4.0”;
- “Advantages of digital transformation for the social dimension”;
- “Open science” and “e-administration – digitalisation in administration”.

Out of 71 projects submitted under the call for proposals, 34 were successfully taken forward. What they all have in common is that they address ground-breaking and structurally transformative ideas and approaches which have the potential to improve the entire university system. A key selection criterion was that the universities would be collaborating with other universities and educational institutions.

Teaching Forum New Media Austria

The Teaching Forum New Media Austria (fnma) is an inter-institutional working group and discussion forum which aims to advance the use of new media in teaching at Austrian higher education institutions, and to stimulate new developments. In 2019 the fnma formulated recommendations for the use of “learning analytics” in Austrian higher education, and it has also developed a proposal for the certification of open educational resources (OER). Until now, 19 universities have joined the fnma as full members, and 16 of these have their own in-house support services for media-assisted teaching.

Digitalisation in university teaching

“Digitalisation of teaching” refers to the widespread use of digital tools and applications in teaching and learning processes. Increasing use of digital technologies means that staff and students need to be

taught new skills and basic digital knowhow: “digital skills” such as computational thinking, coding and data literacy. These include the acquisition of data and information, as well as the skills needed to process, critically reflect and evaluate them. This requires an interdisciplinary and holistic approach. The rapid developments in technology also demand the ability to adapt methodological expertise to changing circumstances. As part of the current performance agreements, many universities have made a commitment to reviewing their curricula and/or establishing new subject areas and extension courses.

Use of digital teaching and learning technologies

The use of artificial intelligence in particular has the potential to change the university experience in the future. Intelligent teaching systems that adapt to the level of knowledge and the individual needs of learners provide personalised help and support. Targeted use of learning analysis makes the creation of tailor-made learning environments for students possible. It could help increase students’ academic success, reduce the number of dropouts, offer greater transparency and increase the share of students who actively take examinations.

Massive Open Online Courses (MOOCs) allow teaching and learning content to be made available to extensive groups of people and are already being used successfully, for example as bridging courses to ease the transition from school to university. In Austria the first MOOC platform was launched in 2014: “iMooX” is run collaboratively by the University of Graz and Graz University of Technology. As part of the call for proposals on “Digital and social transformation in higher education”, the project is now being expanded for all Austrian universities.

Open access

In the past, the Federal Ministry of Education, Science and Research provided financial incentives in the form of Higher Education Area Structural Funds (2013–2018), designed to promote open access projects in the universities. One such funded project was “e-Infrastructures Austria plus”, addressing the coordinated expansion and further development of repository infrastructures throughout Austria. The project “Open Education Austria” resulted in a na-

tional OER infrastructure, linking the services of (e)-learning centres, libraries and central computing services for the first time, and creating high quality open educational resources. This successful project is now being continued as part of the funding call for “Digital and social transformation in higher education”, under the title “Open Education Austria Advanced – combined OER package for Austrian higher education”, led by the University of Vienna. To promote the discussion on open science between various different national stakeholders, and to coordinate recommendations in this area, the Austrian Science Fund (FWF) and Universities Austria together founded the “Open Science Network Austria” (OANA) in 2012. The relevant stakeholders (researchers, librarians, research support staff, representatives of research funding institutions) use this forum to clarify various unanswered legal questions in the

area of intellectual copyright, licensing and data protection.

Digitalisation in administration and services

To simplify administration processes and make them more efficient, e-administration will continue to be expanded in Austria’s universities. This means, for example, that enrolling for studies, registration for classes and examinations, applications for research visits or evaluations of teaching, will be carried out in digital form, reducing the amount of administration work for all concerned. In addition to these kinds of student-centred administration processes, universities are also introducing measures to improve staff administration, facilities management, use of infrastructure, procurement, logistics and smart campus management systems.

3 Funding and governance of universities

As national institutions, Austria's universities are predominately financed by public funds. Because of their central importance to society and their constant development, the university funding budget has been increased by the relevant federal government for every performance agreement period. For the current period, 2019–2021, the increase was substantial. An increase has also been achieved for the next performance agreement period, 2022-2024.

University funding

Annual expenditure on higher education in total has increased by 8,9% in the reporting period since 2016. Expenditure allocated directly to the university sector rose by 8,6% respectively. This is approximately comparable to the increase in GDP growth (11.5%) and substantially exceeds the increase in total federal expenditure of 3.4%. Annual federal expenditure allocated exclusively to the university sector amounted to €3.743 billion in 2019 (4.7% of the total federal budget).

During the performance agreement period 2016–2018, which ended during the reporting period, the

federal government provided a total of €9.7 billion in university funding, which was 6.8% more than the previous period. Around 8% of this funding (€750 million) was in the form of Higher Education Area Structural Funds (*Hochschulraum-Strukturmittel – HRSM*). That was the last performance agreement period which was financed under the old system – consisting of the basic budget, the Higher Education Area Structural Funds and tuition fee compensation payments.

For the performance agreement period 2019–2021, university funding was increased by €1.3 billion to a total of €11 billion. This is the first performance agreement period funded under the new capacity-oriented finance model, in accordance with the University Funding Ordinance (*Universitätsfinanzierungsverordnung – UniFinV*). This stipulates that universities will be given a global budget, to be allocated in the performance agreements to the three budget pillars, “teaching”, “research/advancement and appreciation of the arts” and “infrastructure and strategic development”.

The amount for “teaching” is calculated in terms of a key indicator, “the number of students actively taking examinations”, and two competitive indicators. The most important reference value for the dis-

Table 3.1: University budget based on annual financial statements in relation to economically relevant key figures and student and graduate numbers, 2016 to 2019

	2016	2017	2018	2019
University budget ¹ in € billion	4.138	4.256	4.280	4.504
Change between 2016 and 2019, as a %	0.0	2.8	3.4	8.9
Year-on-year change in university budget in nominal terms				
in € million	156.902	117.527	24.584	224.262
as a %	3.9	2.8	0.6	5.2
of which for the university segment ²	3.447	3.523	3.555	3.743
University students on degree programmes ³	280,783	278,052	268,586	264,945
Average expenditure in euros per university student on a degree programme	12,275	12,672	13,237	14,127
University graduates	35,864	34,978	35,655	35,201
Average expenditure in euros per university graduate	96,102	100,731	99,710	106,330

1 University budget: Universities Act 31 “Science and research”, approaches relevant to higher education and research in each case; individual budget 31.01.01.00 (partial amount); individual budgets 31.02.01.00, 31.02.02.00, 31.02.03.00, 31.03.02.03 and 31.03.02.04

2 Expenditure on the university segment: Universities Act 31 “Science and research”, individual budget 31.02.01.00 and 31.02.02.03, 85% of which is for universities

3 Students based on winter term numbers in each case
Graduates based on academic year in each case, e.g. 2019: Academic year 2018/19

Source: Federal Ministry of Education, Science and Research (BMBWF)

tribution of funds is the number of actively pursued degree programmes, divided into seven subject groups for the purpose of funding. A student is considered to be “actively taking examinations” if he/she completes at least 16 ECTS credit points per year. The competitive indicators are the “number of completed degree programmes” and the “number of students with equal or more than 40 ECTS credit points from actively taking examinations”.

For the amount allocated to “research/advancement and appreciation of the arts”, the basic indicator is the number of scientific/artistic staff (in terms of full-time equivalent posts – FTEs) in selected functions by subject areas, as well as the two competitive indicators of “third-party funding acquired” and “number of doctoral students employed by the university”.

These are complemented by an amount determined by the number of existing contractual agreements and university-specific needs, from the funding pillar of “infrastructure and strategic development”. These funds are intended to finance building rental costs, additional clinical costs, funds for specialist areas, and direct investments in strategic projects not directly attributable to teaching or research/advancement and appreciation of the arts (e.g. digitalisation projects).

As specified in the statutory objectives, funding provided for the performance agreement period 2019–2021 is particularly targeted towards improving teacher/student ratios and to expand the priorities for research/advancement and appreciation of the arts, with an emphasis on science, technology, engineering and maths (STEM subjects). In explicit terms, across all universities, a total of 368 additional positions are to be established at professorship level or equivalent, of which 134 are to be in subject group 1, which has particularly adverse teacher/student ratios, and 197 in subject groups 2 and 3, which are principally STEM subjects. The performance agreements are negotiated with each university, specifying targets for the number of students actively taking examinations, and the number of staff to be appointed in each group of subjects. In accordance with capacity- and target-oriented university planning, the portions of funding allocated to teaching and research/advancement and appreciation of the arts will be reduced if the target values

for individual subject groups agreed with the universities are missed by more than 2%.

Another new aspect of the university funding model is the financial link between parts of the global budget and the success of quality assurance measures for teaching and for the social dimension in teaching.

Calls for proposals in 2016 for Higher Education Area Structural Funds

For the performance agreement period 2016–2018 the funding available from Higher Education Area Structural Funds for collaborations was increased to €97.5 million. Three separate calls for proposals were issued for the areas of teaching, research/advancement and appreciation of the arts, and administrative innovations. The priority focus for teaching (€35 million) was on financing the collaborative associations for teacher education. These were successfully established in the period 2016–2018, and from 2019 onwards were incorporated into the regular operations of universities. The funded collaboration projects in research/advancement and appreciation of the arts (€50 million) and administration (€12.5 million) are due to be completed by the end of 2021.

University building projects

The system for carrying out university building projects is specified in Sections 118a and 118b of the Universities Act. The actual procedure for implementing university building projects above a set cost threshold is regulated by the Ordinance on Planning Procedure and Realisation of Building Projects of Universities (*Universitäten-Immobilienverordnung – Uni-ImmoV*), which was agreed by the (then) Federal Minister for Science, Research and Economy, and came into force in February 2018.

Between September 2017 and October 2020, building projects with a total investment value of approximately €450 million were completed by Austrian universities. In autumn 2017, following intensive negotiations with the Austrian Federal Property Association (*Bundessimmobiliengesellschaft mbH – BIG*) and the Federal Ministry of Finance (BMF) the Federal Ministry of Education, Science and Research was able to approve planning processes for four building projects. They have a total value of approx-

imately 700 million and will contribute substantially to the appeal of Austria as a university location.

Financial and commercial position of the universities

Universities are required to submit an early warning report to the Federal Ministry of Education, Science and Research as soon as certain financial indicators suggest a strained liquidity situation. In the performance agreement period 2016–2018 the only university obliged to issue an early warning report was the University of Salzburg. During the first accounting year of the current performance agreement period, 2019–2021, the University of Salzburg was again obliged to submit an early warning report. Discussions on the restoration of the university's financial sustainability began immediately.

The financial and commercial situation of the other universities saw further positive development during the performance agreement period 2016–2018. Over these three years, the total assets grew by approximately 11% and investments by about 25%. There was also a further increase in the universities' capital (=equity plus reserves and investment subsidies), which reached a total of approximately €1.3 billion across all the universities (not including the University for Continuing Education Krems) by the end of the performance agreement period. The amount of social capital (=long-term provisions for staff costs) has increased, amounting to approximately €279 million at the end of the performance agreement period. The 21 universities together reported a net profit of approximately €141 million across the whole performance agreement period.

For the 2019 fiscal year the financial position (calculated for all the universities together) showed a further growth in fixed assets, with two thirds of the universities maintaining or increasing their resources. The financial and economic situation of the universities remained stable in 2019. Overall, the universities have a good equity base of about 43%. The profit situation fell by approximately 20% compared to the previous year. The operating performance (=sum total of revenues, changes in inventory, own work capitalised and other operating income) improved by approximately 4% compared to the previous year. However, the total amount of all operating costs increased by approximately 5% (including an

increase of around 6% in staff costs). The liquidity position was adequate – for almost all universities, short-term liabilities were balanced at the 2019 reporting date by short-term fixed and liquid assets.

Cost and performance accounting

In March 2017 the Regulation on Uniform Principles for Cost and Activity Accounting at Universities (KLRV Universitäten) came into force, which provides the Federal Ministry of Education, Science and Research with cost structures from 2021 onwards for the universities' key activities of teaching, research/ advancement and appreciation of the arts and other services. Since 2017 the 22 universities have been working on its administrative and technical implementation under the Higher Education Area Structural Funds collaboration project "Implementation of uniform standards for cost and performance accounting". Feedback from this adjustment process resulted in two amendments to the provisions of the regulation by 2020.

Role of private funding in university finances

In Austria, private funding only plays a minor role in university finances and for the financing of tertiary education in general. In Austria only 0.1% of GDP expenditure on tertiary educational institutions comes from private sources (OECD average 0.3%, EU average 0.2%). While in OECD countries an average of 29% of expenditure on tertiary educational institutions comes from private sources, and in EU countries 22%, in Austria this is only 9%.

The dominance of public funds for university financing is also reflected in the revenue of universities. Global budget allocations and tuition fee compensation together made up around 77.4% of university revenues during the 2016–2018 performance agreement period, while tuition fees and revenues from further education courses paid from private sources amounted to only around 1% each. Similarly, funds from private donations (€17.5 million in 2019) play only a minor role. University research is also overwhelmingly financed from public funds, with around 29% of university R&D revenue coming from the private sector in 2019 (24% from corporate donors, 5% from private sources such as foundations, associations etc.).

Universities have a wide range of formats for

sponsorships, which in addition to donations and charitable foundations also include sponsorship of events, course information activities or sponsorship of a lecture hall. In 2019 there were 38 “privately” funded professorships.

Austrian National Development Plan for Public Universities

The Austrian National Development Plan for Public Universities (GUEP) was reviewed and adapted for the second time during the reporting period, as part of a rolling process, looking ahead to the performance agreement period for 2022–2024. The plan now focusses on seven, instead of the previous eight central system objectives and is complemented by a baseline objective for university financing. Priorities include topics such as sustainability, digital transformation and STEM subjects.

Performance agreements with the universities

The 2019–2021 performance agreements were guided by the new capacity-oriented university funding model, taking the first important steps towards comprehensive further quality development of universities’ core activities. Consequently there is an emphasis on improving teacher/student ratios by appointing additional highly-qualified staff, and measures to increase the number of students actively taking examinations, particularly by improving the “studyability” of courses. As in the previous period, there is also a focus on the expansion of research priorities. In the area of quality assurance, there is an emphasis on plans relating to the audit as well as further development and creation of quality assurance instruments. Also included in the current performance agreements for 2019–2021 are various proposals and objectives in strategic priority areas of the Federal Ministry of Education, Science and Research such as digitalisation, sustainability, STEM subjects, internationalisation and mobility as well as equal opportunity and diversity management. After the first year of the 2019–2021 period, according to the details provided in the Intellectual Capital Reports, 89% of over 1,800 projects planned are already under way or have been completed. Out of the total 431 objectives with targets for the year 2019, the quantitative targets agreed were achieved or exceeded by the universities in 86% of cases.

Evidence-based governance in the university sector

The significance of evidence-based governance and the role of indicators for management and funding of the universities have grown substantially with the introduction of the new funding model.

In addition to key and competitive indicators, the performance agreements for the period 2019-2021 include obligatory performance indicators. They describe each universities’ contribution to the national system objectives under the impact-oriented budgeting of the federal government

The reform process of the new university funding model was also accompanied by measures for admissions management, especially for degree programmes which need to make significant improvements in their teacher/student ratios. The University Admissions Ordinance (*Universitätszugangsverordnung – UniZugangsV*) announced in February 2019 allows universities to regulate their own admissions to certain individual study programmes, for subjects in particularly high demand.

Further development of the Intellectual Capital Reports

The Intellectual Capital Report is a key instrument for reporting, communication and accountability of universities, and depicts the status of intellectual capital, core processes and outputs in teaching and research/ advancement and appreciation of the arts. The 2019 amendment to the Ordinance on Intellectual Capital Reports (*Wissensbilanz-Verordnung – WBV*) reduced the number of topics for the performance report and adapted the content to the current priorities established for higher education. Intellectual capital indicator 2.A.4, concerning applicants to degree programmes with special admission requirements, was modified to allow differentiation for the first time according to the specific procedures for admissions and aptitude assessment for each subject and type of degree programme. The data protection requirements were also amended in some key indicators.

Lastly the “Digital Intellectual Capital Report” was integrated into the legislation as part of the Intellectual Capital Ordinance amendment. Launched in 2018, the project’s goal is the development of a tailor-made application for digital creation, transmission and processing of intellectual capital reports.

4 Staffing, promoting young scientists and academic careers

The legislative framework for staff working in Austria's public universities is set out in the Universities Act. In addition, the Collective Agreement for University Staff (for those appointed on or after 1 January 2004) and the relevant federal civil service and salary legislation ("*Dienst- und Besoldungsrecht*" – for civil servants as well as for government contractual employees transferred to university employment) are of relevance. An amendment to the Universities Act in early 2021 will also complete the integration of the University for Continuing Education Krens into the group of universities regulated by the Universities Act. By the end of 2019, already 82% of university employment contracts were based on the collective agreement. During the reporting period an amendment to university employment regulations introduced the concept of "opportunity hiring", and the European Court of Justice issued a judgment on the regulation of "chain" employment contracts. There were three addenda to the collective agreement concerning salary agreements.

"Opportunity Hiring" – Section 99a of the Universities Act

As part of the 2018 amendment to the Universities Act, the appointment procedures set down in Sections 98 and 99 of the Act were supplemented by Section 99a, allowing universities to designate up to 5% of the posts for university professors – which Section 98 of the Act stipulates must be specified in the development plan – as flexible positions. These require neither a set subject allocation nor a call for applications, making swift and flexible staffing decisions possible. Contract negotiations are conducted by the rector after consultation with the university professors in the relevant subject area, and the employment contract is initially limited to a maximum fixed term of six years. This can subsequently be made permanent after the professor's qualifications have been assessed.

In practice it has proved difficult to attract outstanding individuals when there is only a fixed-term employment contract on offer, so this regulation will be changed in the amendment to the Universities Act which is due to be adopted early in 2021.

Duration of employment contracts – Section 109 of the Universities Act

Section 109 of the Universities Act regulates the duration of employment contracts for employees in either permanent or fixed-term positions. Chain contracts are only permissible for employees whose activities are financed by third-party project funding or research funding, or for staff involved purely in teaching activities, or for temporary replacement staff. The total duration of these "chain" employment contracts has until now been limited to six or eight years, depending on the hours worked, although a single extension was permitted up to a total of ten or twelve years with reasonable justification (e.g. to complete a research project). If an scientific/artistic employee was transferred to a different role, it was permissible to renew a fixed-term contract once, up to a total of six to eight years, although fixed-term contracts had to be added together and were not permitted to exceed the maximum duration in total.

As a result of legal action brought in connection with Section 109(2) of the Universities Act, concerning part-time employment, the European Court of Justice was asked to rule on whether Section 109 of the Act was in compliance with European law. The court's judgment of 3 October 2019 found that Section 109 of the Universities Act does not in principle infringe EU law. However, it was found that action should be taken, as the current regulations were deemed unsatisfactory, not only from the employees' but also from the universities' perspective.

The amendment to the Universities Act scheduled for early 2021 will therefore establish clear, revised regulations under Section 109.

COVID-19: special regulations

Legislation in response to COVID-19 included a special provision allowing fixed-term contracts for project employees whose work could not be completed due to COVID-19 restrictions, to be extended once by a maximum of twelve months, or for a new consecutive contract to be agreed for a fixed period of not more than twelve months. This regulation also covered young researchers and academics who have not been able to meet the requirements of their qualification agreements due to COVID-19 restrictions, and lecturers who were not able to teach during the 2020 summer semester.

Staffing and staff development in the performance agreements

The universities used the 2016–2018 performance agreement period to make further improvements in the working conditions and workplace environment of their employees, by optimising work-life balance, particularly for those with care responsibilities, and by introducing preventive healthcare programmes. In the area of staff development and continuing education, the range of training options was expanded for specific target groups. Goals contractually agreed with the universities often included increasing the number of professorships and tenure-track positions, and increasing the proportion of women in these positions.

In the 2019–2021 performance agreement period, these aspects are being developed further,

with a priority on fostering early-career academics and researchers (e.g. with support in the form of personal coaching and mentoring, funding programmes, grants and start-up finance).

The emphasis for staff planning and structures in the 2019–2021 performance agreement period is defined by the new university funding mechanism. As stipulated by the Universities Act, the key indicator of “Staff in selected roles by subject groups, measured in full-time equivalents (FTEs)” is used, to calculate research performance (for the budget component for research/advancement and appreciation of the arts). There is a strong focus on increasing the number of highly-qualified scientific and artistic staff, described as professorships and equivalent posts.

Table 4.1: University staff (total headcount and full-time equivalents), 2016 winter semester and 2019 winter semester

Staff categories	2016 winter semester (reporting date: 31 December 2016)						2019 winter semester (reporting date: 31 December 2019)					
	Headcount			Full-time equivalents			Headcount			Full-time equivalents		
	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total
Academic and artistic staff	15,816	23,230	39,046	8,373.5	13,713.1	22,086.6	17,542	24,271	41,813	9,275.3	14,366.7	23,642.0
Professors	591	1,903	2,494	571.5	1,822.7	2,394.2	699	1,991	2,690	663.9	1,898.5	2,562.4
Professor equivalents	735	2,127	2,862	695.4	2,077.2	2,772.6	785	2,011	2,796	737.8	1,953.1	2,690.9
“Docents”	501	1,609	2,110	480.0	1,572.5	2,052.5	435	1,311	1,746	416.3	1,273.6	1,689.9
Associate professors	234	518	752	215.5	504.7	720.1	350	700	1,050	321.4	679.6	1,001.0
Scientific and artistic employees	14,536	19,360	33,896	7,106.5	9,813.2	16,919.7	16,105	20,423	36,528	7,873.7	10,515.0	18,388.7
of which assistant professors	253	373	626	232.2	366.0	598.2	169	211	380	153.7	206.7	360.4
of which university assistants in tenure-track positions in accordance with Section 13b(3) of the Universities Act	0	0	0	0.0	0.0	0.0	29	49	78	28.3	49.0	77.3
of which employees financed by third-party funding via R&D projects	3,544	5,621	9,165	2,231.1	3,847.5	6,078.5	4,101	6,097	10,198	2,500.7	4,034.8	6,535.6
of which doctors undertaking specialist training	492	501	993	472.4	497.7	970.0	456	538	994	437.5	533.8	971.3
General staff	11,315	6,649	17,964	8,489.7	5,156.5	13,646.2	12,163	7,171	19,334	9,086.8	5,491.4	14,578.1
of which nurses at a public hospital and animal keepers at medical institutions	448	97	545	376.0	92.0	468.0	632	147	779	522.8	137.7	660.5
of which general staff financed by third-party funding via R&D projects	1,635	867	2,502	1,096.6	553.6	1,650.2	1,518	950	2,468	1,003.5	587.8	1,591.3
Total	26,912	29,635	56,546	16,863.2	18,869.5	35,732.7	29,457	31,196	60,653	18,362.1	19,858.0	38,220.1

All categories of use in accordance with section 3.6 of Annex 9 to the University and Higher Education Statistics and Education Documentation Regulation, excluding staff on long-term leave

Headcount: individuals with multiple employment relationships are only counted once, both within each category and in total (adjusted headcount figures).

Full-time equivalents: person-units weighted by the number of hours they work a week

Source: data reported by universities based on the University and Higher Education Statistics and Education Documentation Regulation (*Universitäts- und Hochschulstatistik- und Bildungsdokumentationsverordnung – UHSBV*)

Quantitative trends in university staffing

In the 2019 winter semester, approximately 60,700 people were employed by the universities, of which 49% were women. The number of non-academic staff has increased by 7.6% (62.9% women), slightly more than the increase in scientific/artistic staff, at 7.1% (41.9% women). In contrast to the number of people in terms of “headcount”, there is a staff capacity of approximately 38,200 FTEs. During the reporting period this grew by 2,487.4 FTEs (7%), which included 1,555 FTEs for scientific/artistic staff, compared to only 931.9 FTEs for non-academic staff. In both categories of staff, 60% of the growth is attributed to an increase in female employees.

At the professorship level, staff capacity in the reporting period grew by 7% (168.2 FTEs), and the headcount by 7.8% (2,690). There is a disproportionately high increase (39.2%) in the number of fixed-term professors appointed under Section 99 of the Universities Act, which is partly attributable to the new groups of professors appointed under Section 99(4 and 6) of the Act, recognised separately for the first time in this reporting period. The proportion of women in professorships of longer duration or with tenure, as defined in Section 98 of the Universities Act, is 24.1%, significantly below the proportion of women in shorter-term professorships according to Section 99, with a simplified appointment procedure (30%).

The number of “professorships and equivalent posts” is particularly relevant, since it is also used to calculate teacher/student ratios and student capacity. In addition to professors appointed under Sections 98 and 99 of the Universities Act, this category also includes “docents” (university teachers), and associate professors: at the end of 2019 there were a total of 5,253.3 FTEs, a 16.7% increase compared to the 2016 figure (5,166.8 FTEs).

From 2017 to 2019, the universities appointed a total of 688 professors. More than half of these (363, or 52.8%) were appointed under the terms of Section 98 of the Universities Act, while the other appointments were all professorships according to Section 99. A small number (2%) of the appointments made in 2019 were under the newly-introduced system of “Opportunity hiring”, subject to Section 99a of the Universities Act.

The number of tenure-track positions increased

again during the reporting period, by 10.8%. Of the 1,527 tenure-track positions reported at the end of 2019, 78 were university assistants, 380 assistant professors, 1,050 associate professors under the terms of the collective agreement, and 19 associate professors under Section 99(6) of the Universities Act. Approximately 36% of the tenure-track positions were held by women.

The figures for scientific and artistic assistants (not including university assistants in tenure-track positions under Section 13b(3) of the Universities Act) show an 15.9% increase in the number of employees compared to 2016 (+15.3% FTEs). This increase is largely attributed to university assistants (+18.2%), senior lecturers (+17.9%) and senior scientists/artists (+55.2%), while the number of employees in expiring posts has fallen by 7.9%.

The number of lecturer (*Lektor*) posts fell by 1.1% to 9,950 (-1.5% FTEs). The average hours worked for lecturers in 2019 was 0.14% of a full-time equivalent post (FTE). At the end of 2019 there were 6,666 student employees (+11%) working in the universities, with a total staff capacity of 1,335 FTEs.

The number of staff financed by third-party funding from R&D revenues according to Sections 26 and 27 of the Universities Act increased again in the reporting period, by a further 8.5% to approximately 12,658 (8,126.8 FTEs, an increase of +5.1%). The increase in academic staff financed by third-party funding, at 11.3%, was greater than the overall increase in scientific/artistic staff (+7.1%). The quantitative significance of this staff category is particularly high in the technical universities.

The majority of employment contracts at universities (63.9%) are on a fixed-term basis. This is particularly true for the scientific and artistic staff (78.6%), in both the sciences and arts. This is also due to the fact, that employment contracts in the form of training positions (e.g. university assistants, trainee doctors) and contracts for student employees are generally concluded for a fixed term.

Student-teacher ratios

Teacher/student ratios are an important factor in higher education policy, and are calculated using the established terms of “professors and equivalent” roles, and “students actively taking examinations”. During the reporting period a significant improve-

ment was made in teacher/student ratios, with a figure of 1:38.4 for the academic year 2018/19 (compared to 1:42.5 for the year 2015/16). This is partly due to a decrease in the number of students actively taking examinations, and partly to an increase in staff capacity over the same period. The target teacher/student ratio of 1:38 for 2019/20, as specified in the GUEP 2022–2027 was therefore achieved. The provisional goal for the performance agreement period 2022–2024 is a teacher/student ratio of 1:36.

Fostering early-career academics and researchers

In order to offer their junior academic staff attractive working conditions and career prospects, universities are increasingly focusing on the creation of

continuous career paths, in particular through the establishment of tenure-track positions. They also provide a wide spectrum of support measures for the various different target groups, ranging from continuing education courses, personal coaching and mentoring, or specific financial support. During the reporting period there was a particular focus on expanding measures for internationalisation (e.g. language skills development) and didactics in higher education. Classes and events on “soft” and transferable skills, social skills, teamwork and leadership development, are an integral part of university staff development programmes. Many universities specifically encourage female early-career academics and researchers, with the aim of reducing the loss of highly-qualified women along the university career

Table 4.2: Ratio of “students actively taking examinations”¹ to “professors and equivalent” (FTE)² by university, 2018/19 academic year

University	Academic year 2018/19		
	Students actively taking examinations ¹	Professors and equivalent ²	Teacher-to-student ratio
University of Vienna	50,552	723.8	1:69.8
University of Graz	17,760	373.4	1:47.6
University of Innsbruck	17,356	430.7	1:40.3
Medical University of Vienna ³	4,717	384.9	1:12.3
Medical University of Graz ³	2,829	155.1	1:18.2
Medical University of Innsbruck ³	2,684	149.5	1:18.0
University of Salzburg	9,176	274.5	1:33.4
Vienna University of Technology	15,371	367.8	1:41.8
Graz University of Technology	8,627	241.5	1:35.7
University of Leoben	2,643	82.1	1:32.2
University of Natural Resources and Life Sciences Vienna	7,112	205.5	1:34.6
University of Veterinary Medicine Vienna	1,540	78.4	1:19.6
Vienna University of Economics and Business	12,991	159.8	1:81.3
University of Linz	10,150	245.1	1:41.4
University of Klagenfurt	4,626	137.9	1:33.5
University of Applied Arts Vienna	1,177	43.8	1:26.9
University of Music and Performing Arts Vienna	2,212	216.0	1:10.2
Mozarteum University Salzburg	1,352	118.8	1:11.4
University of Music and Performing Arts Graz	1,453	119.6	1:12.1
University of Art and Design Linz	871	36.8	1:23.7
Academy of Fine Arts Vienna	1,109	42.0	1:26.4
Total	176,309	4,587.0	1:38.4

1 Students actively taking examinations as per Intellectual Capital Reports key figure 2.A.6

2 Professors and equivalent as per Intellectual Capital Reports data requirement key figure 1.6

3 Including deductions from full-time equivalents in clinical roles

Source: data reported by universities based on the WBV

path. At the doctoral level, the universities promote early-career academics through both target-group programmes (doctoral programmes, doctoral schools, graduate schools, doctoral academies) and individual support (grants for doctoral students, mobility grants and grants for the completion of the doctoral thesis). Funding measures at individual universities are complemented by grants and programmes provided by the Federal Ministry of Education, Science and Research, the Austrian Science Fund and the Austrian Academy of Sciences (ÖAW), as well as by mobility funding within the framework of European funding programmes or international university networks.

The Austrian Science Fund contributes greatly to the promotion of early career researchers by awarding individual funding and prizes, and by employing pre-docs and post-docs through several different programmes. As of 31 December 2019, a total of 1,826 pre-docs and 1,149 post-docs, which were financed by the Austrian Science Fund, were employed in universities. Furthermore, 17 outstanding projects were funded between 2017 and 2020 under the “doc.funds” programme, which launched in 2016. In addition to these, and as part of the pilot programme “doc.funds.connect” initiated by the Federal Ministry of Education, Science and Research, a call for proposals was announced for the first time in September 2020 to facilitate a collaborative doctoral programme between universities and universities of applied sciences.

The Austrian Academy of Sciences supports qualified early-career researchers with grants to support the preparation of the doctoral thesis, under the “DOC” programme, the “DOC-team” programme (for humanities, social sciences and cultural studies), and with post-doctoral grants under the “post-doc-tracks” programme. In 2019 the first nine grants were awarded under the new “APART–GSK” call for proposals, a funding programme for outstanding early-career researchers in the humanities, social sciences and cultural studies (*Geistes-, Sozial- und Kulturwissenschaften* – GSK) in the initial post-doc phase of their careers.

Doctoral training

The number of doctoral students fell during the reporting period, continuing the trend of recent years. In the winter semester 2019 there were 20,460 students (of which approximately 45% were women) in doctoral degree programmes: some 20% fewer than in the winter semester 2016.

Employing doctoral students at universities, and the resulting institutional involvement and networking opportunities with the scientific/artistic community is considered a quality and career-enhancing factor for young researchers. The Expansion of structured doctoral training programmes which allow doctoral students to work in the university on a fixed-term contract is a key priority for the Austrian Federal Ministry of Education, Science and Research. According to the Intellectual Capital Reports, in 2019 there were 8,302 doctoral students employed by universities, approximately 5% more than in 2016. Since 2016, however, this figure also includes doctoral candidates employed by companies (e.g. a “competence centre”), as defined by Section 10(1) of the Universities Act.

Post-docs and academic careers

Post-docs at universities are not a category covered by the terms of the Universities Act or the collective agreements as far as their employee rights or job descriptions are concerned. Rather the term “post-doc” is used to describe scientific/artistic staff who have completed a doctoral degree and work in a wide range of staff functions and roles. At the end of 2019 there were 4,136 post-docs working at Austrian universities, approximately 13.7% more than at the end of 2016.

In past years, many permanent positions have been created at post-doc level in categories such as “senior scientist/artist” and “senior lecturer”, which offer an alternative career option within the university system instead of pursuing a professorship. Tenure-track positions, as a standard part of the career path, remain relatively few in number, despite increasing acceptance, resulting in a “bottleneck” problem, due to the growing numbers of post-docs

and early-career researchers and junior academics. The creation of additional tenure-track positions is therefore a key target from the point of view of the Federal Ministry of Education, Science and Research

The system of qualifying agreements and the related tenure-track positions were introduced in an amendment to the collective agreement. The universities set the criteria for an academic career at their own institutions, by defining the requirements for a qualifying agreement, and the targets for the qualifying phase. Under the terms of Section 27(1) of the collective agreement, a university may offer any person from the groups in question (university assistants, senior scientists, senior artists and senior lecturers) the option to complete a qualifying agreement, providing the prior academic record of the person concerned implies that he/she is likely to achieve the high level of qualification specified.

When the 2015 amendment to the Universities Act came into force on 1 October 2016, the establishment of consistent career structures as defined in Section 99(5) and (6) of the Act introduced wide-ranging changes to staff rights and gave mid-level academic staff the right to participate in the statutory organisational structures of the universities. Individuals who enter into an appointment and selection process pursuant to Section 99(5) of the amended Universities Act, and who subsequently fulfil the terms of a qualifying agreement as defined in Section 27 of the collective agreement, must by law (Section 99(6) of the Universities Act) be accorded equivalent status to professors (become members of the “*Professorenkurie*”). By law, there is no need for any further appointment procedure.

5 Research at universities

The universities, through their contributions to basic and applied research, and experimental development, have a key role to play in establishing Austria as a leading knowledge-based economy and overcoming the global challenges of the future.

Research staff

After the business enterprise sector, Austria's universities are the second-most important employers in research and development. In 2017, there were 48,363 people working in research and development (R&D) at higher education institutions, in roles equivalent to 17,680 FTE posts, with the great majority of these employed by universities.

It is particularly noteworthy that the majority of women employed in R&D in Austria, by headcount, are in the higher education sector (57%). The differ-

ent groups of scientific staff spend varying amounts of working time on R&D, among other things, due to different contractually defined teaching obligations. Across all categories of staff, however, the amount of time spent working on R&D is significantly higher in the universities. Over two thirds (68%) of their time on average is spent on R&D. In contrast, the average proportion of time spent on teaching and training is 26%. Significant differences in the allocation of working time are also evident between the different fields of academia in universities, with the most time (75.4%) being spent on R&D in 2017 by those working in technology and engineering sciences. This is partly due to the high level of third-party funding in technical subject areas.

Research funding at universities

The overwhelming majority of university research in Austria is funded by the public sector. For the year

Table 5.1: Research staff in 2017 by sector of performance and gender

	Headcount				Full-time equivalents			
	Men	Women	Total	Proportion of women	Men	Women	Total	Proportion of women
Total	90,938	40,094	131,032	30.6%	57,635.6	18,374.2	76,009.7	24.2%
Higher education sector	25,656	22,707	48,363	47.0%	9,981.3	7,699.0	17,680.3	43.5%
of which universities (excluding hospitals)	19,381	16,206	35,587	45.5%	7,942.6	5,771.4	13,714.0	42.1%
of which university hospitals	2,662	3,321	5,983	55.5%	712.6	905.7	1,618.3	56.0%
of which universities of the arts	880	957	1,837	52.1%	167.0	187.2	354.2	52.9%
of which universities of applied sciences	1,639	1,145	2,784	41.1%	697.2	388.4	1,085.6	35.8%
of which private universities	465	464	929	50.0%	125.3	158.0	283.3	55.8%
of which university colleges of teacher education	196	279	475	58.7%	59.2	75.9	135.1	56.2%
of which other higher education sector	433	335	768	43.6%	277.5	212.4	489.9	43.4%
Government sector	5,635	4,679	10,314	45.4%	3,131.3	2,135.0	5,266.3	40.5%
Private non-profit sector	437	591	1,028	57.5%	271.2	314.1	585.3	53.7%
Business enterprise sector	59,210	12,117	71,327	17.0%	44,251.7	8,226.1	52,477.8	15.7%

Note: the Austrian Academy of Sciences has been counted as part of the government sector rather than the higher education sector since 2017

Source: Statistics Austria, 2017 survey of research and experimental development

2017 this amounted to approximately €2 billion, or 87%. The federal government is the largest contributor, providing 76% of the entire amount of university research expenditure.

In Austria during the year 2017 approximately €11 billion was spent on R&D. This was made up of 17.9% (almost €2 billion) on basic research, 33.5% (€3.7 billion) on applied research and 48.6% (€5.4 billion) on experimental development. The higher education sector received the largest share of funding for basic research, at €1.4 billion (68%), with most of this going to the universities, where the majority of basic research is carried out (approximately €1.2 billion, not including university hospitals). Austria's universities are also very active in applied research, while experimental development plays a smaller role in the universities.

The amount of research expenditure varies widely between different academic disciplines and

there are also differences with regard to the type of research. In the natural sciences (72.2%) and humanities (76.9%) a large majority of the funding goes towards basic research. Applied research is particularly relevant in the technical sciences, accounting for 50.9% of funding.

The origin of third-party funding revenues at universities shows that, in addition to the "global budget", the main contributors to research projects in the universities are companies, providing 24.6%, and the Austrian Science Fund, which provides 22.8% of external funding. The EU and the Austrian Research Promotion Agency (FFG) are also key sponsors of research, particularly for the universities.

Most third-party funding from companies received by the universities in 2017–2019 went to the two research areas of medicine and health sciences (45% of all corporate third-party funding), and technology and engineering sciences (32%). The Austrian

Table 5.2: Expenditure on research and experimental development in Austria by sector/field and type of research, 2017

	Survey units conducting R&D	Total expenditure on R&D in €1,000	of which					
			Basic research		Applied research		Experimental development	
			in €1,000	Share as a %	in €1,000	Share as a %	in €1,000	Share as a %
Higher education sector¹	1,259	2,533,182	1,357,478	53.6	954,415	37.7	221,289	8.7
of which:								
Universities (excluding hospitals) ²	1,052	1,982,619	1,162,182	58.6	671,665	33.9	148,772	7.5
University hospitals	87	269,358	79,265	29.4	151,783	56.4	38,310	14.2
Universities of the arts	65	44,703	25,189	56.3	12,830	28.7	6,684	15.0
Universities of applied sciences	25	121,290	7,591	6.3	91,352	75.3	22,347	18.4
Private universities	12	40,104	21,497	53.6	15,167	37.8	3,440	8.6
University colleges of teacher education	15	14,244	1,107	7.8	11,401	80.0	1,736	12.2
Other higher education sector ³	3	60,864	60,647	99.6	217	0.4	-	0.0
Government sector⁴	288	612,054	239,935	39.2	234,025	38.2	138,094	22.6
Private non-profit sector⁵	48	61,551	8,821	14.3	48,738	79.2	3,992	6.5
Business enterprise sector	3,489	7,888,444	376,344	4.8	2,479,166	31.4	5,032,934	63.8
of which:								
Institutes' sub-sector ("Kooperativer Bereich") ⁶	38	182,630	44,171	24.2	112,568	61.6	25,891	14.2
Company R&D sub-sector ("Firmeneigener Bereich")	3,451	7,705,814	332,173	4.3	2,366,598	30.7	5,007,043	65.0
Total	5,084	11,095,231	1,982,578	17.9	3,716,344	33.5	5,396,309	48.6

1 Excluding Austrian Academy of Sciences

2 Including University for Continuing Education Krems

3 Other institutions attributable to the higher education sector

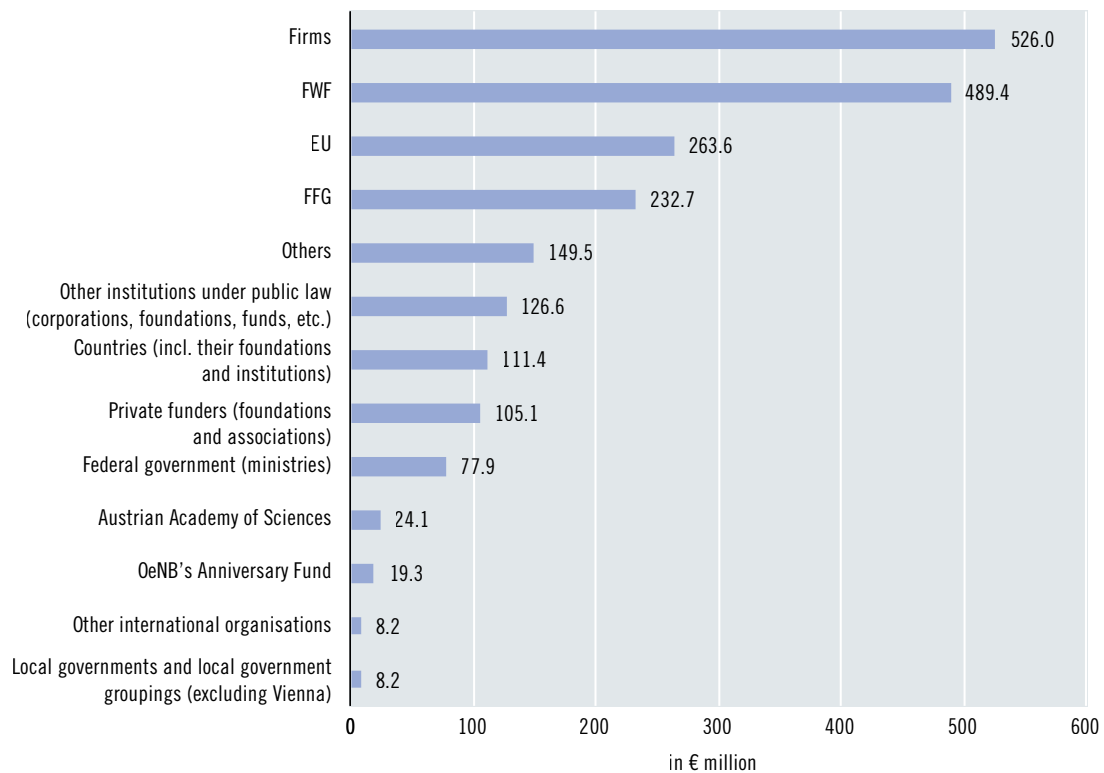
4 Federal institutions (excluding those included in the higher education sector), state-, community- and chamber-level institutions, R&D institutions of social security providers, private non-profit institutions funded and/or controlled by the public sector and R&D institutions of the Ludwig Boltzmann Gesellschaft; including Austrian Academy of Sciences and AIT Austrian Institute of Technology GmbH; excluding regional hospitals

5 Private non-profit institutions whose status is of a primarily private or private-law, religious or other non-public nature

6 Only includes full members of Austrian Cooperative Research (ACR) and centres of excellence

Source: Statistics Austria, 2017 survey of research and experimental development

Fig. 5.3: Revenue from universities' R&D and arts development and exploration projects by donor/funder, 2017-2019 (aggregate, in € million)



Source: Federal Ministry of Education, Science and Research (BMBWF), unidata, Intellectual Capital Reports key figure 1.C.1

Science Fund allocated 53% of its financial support to the natural sciences. This was followed by medicine and health sciences. The largest share of EU funds (45%) also went to the natural sciences, followed by technology and engineering sciences (21%). Austrian Research Promotion Agency funds were directed predominantly (59%) to technology and engineering sciences.

Research infrastructure

The strategic priority of the Federal Ministry of Education, Science and Research in recent years has been strengthening networks, expanding collaborative partnerships between research institutions and companies, and participation in European and international infrastructures. At EU level, the European Strategy Forum on Research Infrastructures (ESFRI) was founded back in 2002, to develop a “Roadmap” for common European research infrastructures (“Projects”) and to identify those of major importance to Europe (“Landmarks”). As of 2018, there were 18 Projects and 37 Landmarks included in the Roadmap. Austria is a participant in numerous ESFRI Projects, which are developed, used and conducted

both in the universities and in non-university research institutions.

The Federal Ministry of Education, Science and Research runs a research infrastructure database (forschungsinfrastruktur.bmbwf.gv.at) which was developed jointly with the Federal Ministry for Digital and Economic Affairs and the Austrian Economic Chambers (WKO), and is designed to accelerate the development of national collaborative partnerships, making synergistic use of large-scale research infrastructures. A total of 114 research institutions, including all the universities, offer more than 1,700 research infrastructures and facilities for collaborative projects. The procurement costs for large-scale research infrastructure and equipment in universities from 2016–2019 amounted to a total of €243.7 million.

Research performance and priorities

The publication activity of researchers in the universities provides some insights into the research work being undertaken. International co-publications are an indicator of the extent of international networking. They show that Germany is the most important

academic and scientific partner for Austria. This is followed by the US, the United Kingdom and Italy. Publications by university employees are centred particularly on the natural sciences (26%), social sciences (24%), and medicine and health sciences (19%). Publications in agricultural science and veterinary medicine (4%) and branches of the arts (2%) play a minor role by comparison.

Although the quantity of publications only gives an approximate picture of the research work of a university, this type of analysis is frequently a reference point used for comparisons of research performance in international rankings. University rankings also attempt to reflect qualitative aspects. The research reputation of a university can for example be ascertained by conducting subject-specific peer surveys. In this regard, universities with a clear research profile and corresponding priority-setting have an advantage. Consequently, for several years now, establishing a research profile has been a central emphasis for the performance agreements between the universities and the Federal Ministry of Education, Science and Research. Each university shall define a small number of thematic priorities, which on the one hand represent its leading research activities, but on the other hand also indicate areas for development toward which the university is specifically directing investment. In the performance agreements for 2019–2021, all universities describe their profile in the form of three to eight, often interdisciplinary, research priorities or arts priorities.

Universities are in principle autonomous with regard to setting priorities, but they address current societal challenges, and make significant contributions towards finding solutions for these. In the con-

text of climate change, for example, some universities have defined research priorities on water and atmospheric research (University of Natural Resources and Life Sciences), environmental technology (University of Leoben), alpine environments (University of Innsbruck), sustainable energy technology (Vienna University of Technology); some have founded their own specialist centres (Wegener Center for Climate and Global Change at the University of Graz) or interuniversity networks (Climate Change Centre Austria – CCCA), and pursue interdisciplinary approaches to researching and addressing the climate crisis.

An outstanding example of the relevance to society of science and research is the global solidarity that has developed between universities, non-university research institutions and companies during the COVID-19 pandemic. Contributions from Austrian universities in this context range from the development and preparation of analytical models on the spread of the virus, and the development of medical testing methods, to analysis of the social consequences of the crisis. Scientists and researchers have had high a profile in the media during the pandemic and have also been consulted more intensively by policymakers. Special calls for project proposals in basic research, applied research and experimental development from the Austrian Science Fund, the Austrian Research Promotion Agency, regional research funding, special funding programmes from the federal government and the EU, as well as projects funded by the universities themselves, have initiated and conducted research projects in all aspects of the global health crisis, as well as developing and expanding networks in the life sciences.

6 Study programmes, teaching and continuing education

High-quality research-led teaching aims to train students to think in an independent and interdisciplinary way, and to put forth graduates who are trained in critical thinking, who obtain a high level of expertise and social skills. Universities face numerous challenges in their mission to provide high-quality teaching for a large number of students while also ensuring the “studyability” of degree programmes, i.e. the practical feasibility of completing the degree on schedule. Universities are increasingly taking responsibility for students’ academic success, and emphasise the structural, organisational and didactic aspects of their curricula and teaching arrangements.

Degree programmes offered at universities

In the summer semester 2020 a total of 1,158 degree programmes were offered by universities, consisting of 41 diploma programmes, 371 bachelor’s programmes, 620 master’s, and 126 doctoral programmes (including 51 PhD programmes, as defined in the Bologna Process). Bachelor’s and master’s programmes made up 86% of the degree programmes on offer, with only 4% remaining in the form of diploma programmes. 11% of degree programmes offered were at doctoral level.

Grouping degree programmes by subject area shows that the largest number are in the humanities and arts (41%), followed by natural sciences, mathematics and statistics (17%), and engineering, manufacturing and construction (12%).

Universities continuously review the range of degree programmes they offer. During the reporting period, universities introduced 14 new bachelor’s programmes, 50 master’s programmes, ten doctoral programmes and seven extension programmes. Nineteen of the new bachelor’s and master’s programmes were in STEM subjects (science, technology, engineering and maths). Eleven of the 50 new master’s programmes were offered as joint, double or multiple degree programmes in collaboration with foreign universities, and four as collaborative programmes within Austria.

To internationalise their programmes, and enhance overall subject expertise and subject-specific

language skills, the universities are further expanding their range of English-language courses and degree programmes, particularly at master’s and PhD level. In 2019 there were 215 English-language degree programmes available at Austrian universities. This represents 19% of the degree programmes on offer. The majority of these were master’s programmes (157) and doctoral (including PhD) programmes (50).

According to the 2019 Intellectual Capital Reports, five universities (the Universities of Vienna, Graz, Linz, the Medical University of Graz, and Vienna University of Economics and Business) offer options allowing students to complete a regular degree programme alongside employment commitments (“extra-occupational”). In addition to this, the majority of university programmes can be taken alongside employment. This shows that the universities are increasingly trying to consider the needs of students in professional employment in their degree programmes at all levels.

Universities have a growing interest in collaborative programmes of study, and in collaborative teaching. These are focused on interdisciplinary studies, cooperative development of new study programmes, better coordinated curricula, optimising organisational and subject-specialist synergies, and increasingly exploiting the potential of digitalisation. In 2019, according to the Intellectual Capital Reports, 20 universities offered collaborative degree programmes; these included 114 programmes run as national collaborations and 111 international collaborations in joint, master’s and multiple degree programmes.

Developments in the field of human medicine

The Faculty of Medicine at Linz was founded in 2014 and is already well established. Its master’s programme in human medicine was launched in the academic year 2017/18. The first cohort completed their degrees successfully in 2020. A PhD programme (Medical Sciences PhD) building on the master’s began in the 2019/20 academic year. It can also be completed as a traditional doctoral degree programme (Medical Sciences).

In January 2020 the medical universities, together with the Faculty of Medicine at the University of Linz, published a set of agreed clinical “learn-

ing outcomes". This has been adopted throughout Austria, and defines what students will have learned by the time they complete their undergraduate degree programme, providing a sound basis for post-graduate training in all specialist disciplines.

During the reporting period, a series of measures were introduced to reinforce the inclusion of general medicine as an element of medical degree programmes, including compulsory courses, the establishment of specific professorships in general medicine, and a greater emphasis on this area during the clinical practice year.

Implementation of the new teacher training programme

Since the 2016/17 academic year, the universities and university colleges of teacher education have offered the new teacher training programmes for general secondary education, which are run jointly in four regional associated partnerships. Teaching qualifications can be gained in 35 teaching subjects and a wide range of other specialist aspects of teaching. To strengthen subject didactics and to strengthen collaborative working partnerships, the Federal Ministry of Education, Science and Research has allocated approximately 32 million euros from Higher Education Area Structural Funds in the period 2016–2018. Funding for the 82 or so additional academic positions that have been created by this initiative was extended in the performance agreements for 2019–2021. These also included measures for further development of regional concepts, and cooperative agreements on topics such as joint planning for staffing and resources between the universities and university colleges of teacher education. Since September 2019, the induction phase has replaced the former teaching internship. It provides an extra-occupational introduction to the teaching profession in the form of an initial employment, during which the newly qualified teacher is supported by a mentor.

EXCURSUS: Universities and university teaching during the COVID-19 pandemic

In the summer semester 2020, the universities had to switch almost all their teaching and examination activities from face-to-face to distance formats as within a very short period of time due to COVID-19.

Two special laws and three ordinances based on them were enacted for the rapid changeover. These addressed matters such as options for extending fixed-term contracts, making the student enrolment and orientation phase more flexible, modifications to the methods and evaluation criteria used for examinations, delayed admissions processes and extended application deadlines for the Student Support Scheme. Apart from universal requirements in certain specific areas, the majority of these regulations were optional.

The transition to distance-learning formats was accomplished very effectively by the universities. At very short notice, they managed to upgrade their technical systems and facilities extensively, and established special training and support programmes for students and teaching staff. The innovation processes raised numerous questions on matters such as quality assurance, "digital equality", virtual mobility programmes, higher education didactics and digital examining, which merit further discussion. To stimulate dialogue and share experiences for the future use of distance learning and teaching, the Federal Ministry of Education, Science and Research arranged three events on the topic of "Distance learning lessons learned".

"Studyability" and quality of teaching

Structural "studyability" of degree programmes as an aspect of quality and efficiency is a priority area in the 2019–2021 performance agreements, particularly with regard to measures for quality assurance and improvement, such as external evaluations and enhancing the didactic skills of the teaching staff.

From the students' perspective, "studyability" means the feasibility of completing the degree programme within the statutory duration of studies, assuming an appropriate amount of effort and time is spent on it. The infrastructure, didactic skills of teaching staff, compatibility of class schedules and the social network at the university are all mentioned by students as factors that contribute to their learning progress. In the 2019 Social Survey of Students, 38% of university students described their degree programme as having good or very good "studyability", and 62% described it as poor or fairly poor. Ratings of studyability – like the evaluations of teaching – tend to be worse in subject areas with a

large number of students. STEM subjects are regarded by students as tending to have poorer studyability than other subject areas.

Universities recognise that studyability is a complex, multidimensional construct and are introducing a wide range of measures such as early information events and advice about university studies. In addition, they offer bridging courses on entry to university to address any gaps in prior knowledge. Degree programmes are increasingly being designed and structured with consideration of what constitutes an appropriate workload. At curricular level the universities are working to create more flexible pathways for study and more recognition of prior learning achievements. More attention is being paid to didactic skills for higher education in the selection and professional development of teaching staff.

Quality assurance and quality management in universities

The audit process established as a consequence of the Act on Quality Assurance in Higher Education (*Hochschul-Qualitätssicherungsgesetz – HS-QSG*) is an external quality assurance mechanism for universities, to confirm that effective internal quality management systems are in place; this is making a valuable contribution to on-going development and improvement for quality assurance and quality development. The majority of universities have by now undergone an audit of their quality management system, and by the end of 2021 the first round of this audit system will have been completed in all universities. The universities engage in a wide range of activities for quality management and quality development, and exchange their experiences through the “Network for quality management and quality development”.

The Agency for Quality Assurance and Accreditation Austria (AQ Austria) conducts audits, evaluations and accreditation processes, and prepares research studies and thematic analyses on the topic of quality in higher education. It provides advice on quality assurance and quality development, and functions as a platform for discussion of new developments in quality assurance. As stipulated by Section 28 of the Act on Quality Assurance in Higher Education, AQ Austria produces a report every three

years on the development of quality assurance in Austrian higher education institutions. The 2018 report on studyability provides information on the universities’ understanding of studyability, and measures to improve it, such as student support programmes, scheduling of courses, the organisation of study programmes, support options for teaching staff etc.

An amendment to the Act on Quality Assurance in Higher Education adopted in July 2020 made further qualitative changes to the legal framework for external quality assurance in Austria. These changes relate to organisational requirements for AQ Austria, adaptations to the quality assurance processes, and procedural aspects. By including the university colleges of teacher education in the Act on Quality Assurance in Higher Education, all higher education sectors are now covered by the law.

Teaching and degree programmes in the performance agreements

In the 2016–2018 performance agreement period, priority objectives and projects in the area of degree programmes and teaching were focused on further development of the quality of university teaching. The universities drove the strategic development of the range of degree programmes forward, and made improvements to individual study programmes. The measures put in place addressed course content, structural aspects of studyability and administrative support for the organisation of teaching and learning. Progress was made regarding the internationalisation of teaching by expanding the number of English-language courses and including mobility windows as an integral part of some curricula. With regard to implementation of the Bologna Process, consideration was given to appropriate ways to measure workload, and to the award of ECTS credit points. Greater focus was encouraged on university teaching as an integral component of an academic career, for instance by considering qualifications in higher education didactics as part of staff appointment procedures.

Another key topic for the 2019–2021 performance agreement period was the continuation of measures to improve structural studyability. At the same time, the universities focused on examination

activity and the number of students actively pursuing a degree in their measures for further development and improvement of teaching. The new capacity-oriented funding model for universities, and the increase in highly qualified staff – made possible by substantial increases in budget allocations – resulted in a clear improvement in teacher/student ratios. The support options provided by the universities for different phases of the student life-cycle, such as peer mentoring, writing workshops, bridging courses and more, are being evaluated during the current performance agreement period to provide an evidence base for further development of these measures in the future.

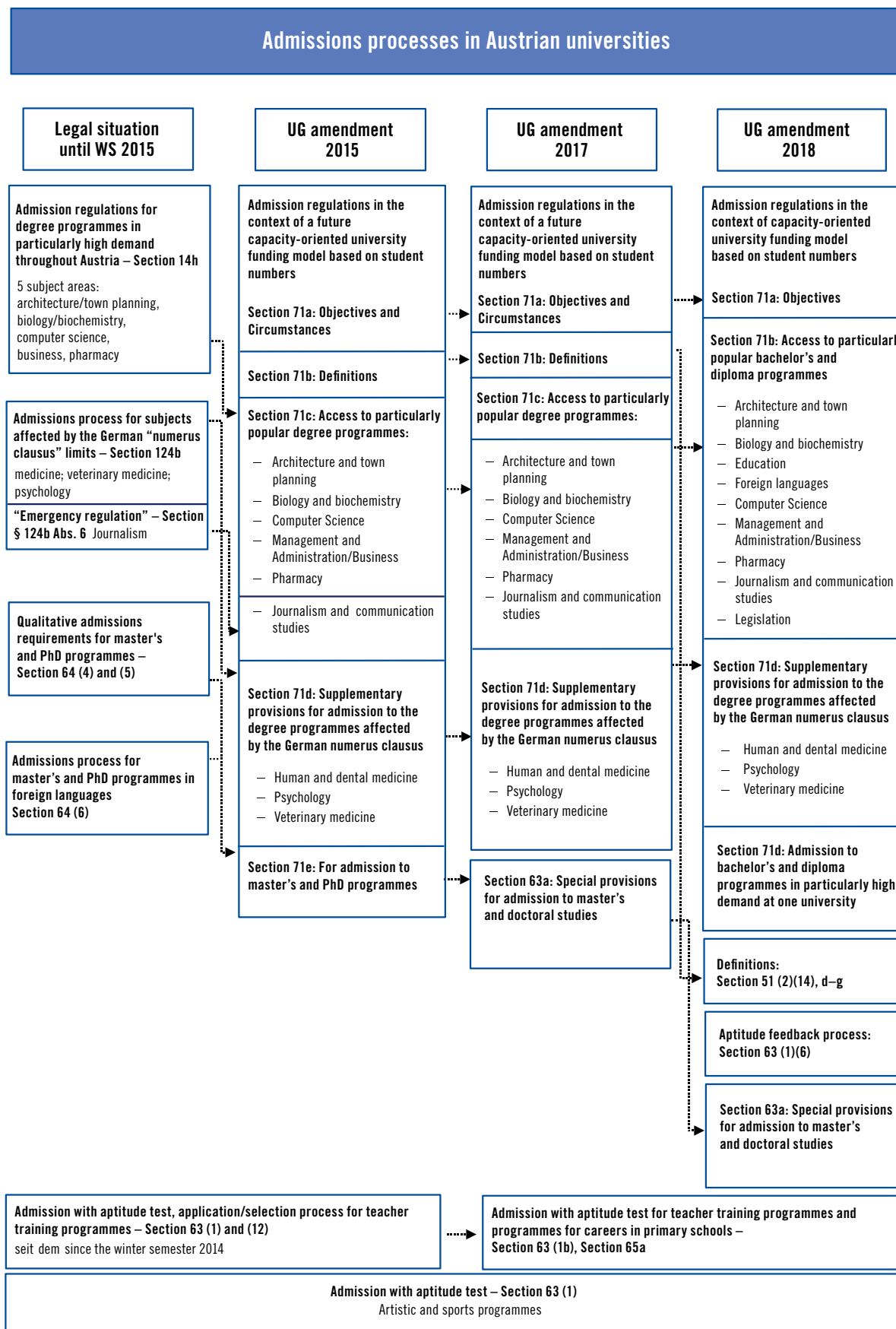
Degree programmes with admission regulations – recent changes to the legal framework

In 2018, as part of the implementation process for the new university funding mechanism, the existing regulations for admission systems were refined (Sections 71a to 71d of the Universities Act). Firstly the admission regulations for bachelor's and diploma programmes in particularly high demand nationally were extended to include a wider group of degree programmes. As a result the admission regulations under Section 71b of the Universities Act now apply to study programmes for architecture and town planning, biology and biochemistry, educational science, foreign languages, computer science, management and administration/business, pharmacy, journalism and communication studies, and law. The performance agreement with each individual university determines the minimum number of study places for new entrants a university must offer in the relevant degree programme. The university rectorate has the right to define the details of admission regulations by statute.

Secondly, the amendment to the Universities Act made it possible to regulate the admission to certain bachelor's and diploma programmes at one particular university if they are in particularly high demand there (Section 71d, Universities Act). Identifying the degree programmes concerned, and setting the number of study places for new students, is established legally by the federal minister, based on three indicators. In these cases too, the rectorate is empowered to specify the details of admission regulations by statute. For applicants who are not awarded a study place, legal protection mechanisms were implemented.

The admission regulations for degree programmes affected by the German “*numerus clausus*” limits (Universities Act, Section 71c) were not changed by the 2018 amendment to the Universities Act. These are the programmes in medicine and dentistry, psychology and veterinary medicine. From 2006 to 2017 there was an infringement case lodged with the European Commission against Austria with regard to the legally defined allocation of study places in medicine and dentistry (the “*quota regulation*”). The case was dropped in 2017, with the result that the quota regulation for medicine remained in place, while for dentistry the quota was to be phased out. As a consequence, in accordance with Section 71c(5) of the Universities Act, 75% of the study places in medicine are still reserved for entrants with Austrian A-levels (or comparable university entrance qualifications). A further 20% are reserved for EU citizens. The remaining 5% are not subject to any legal regulation. Maintaining this quota regulation ensures that Austria's future supply of medical staff is secure. From the 2019/20 academic year onwards, the quota for dentistry degrees has no longer been applicable. However, the admission regulations remain in place.

Fig. 6.1: Legal situation governing acceptance at universities before and after the Universities Act amendment in 2018



Source: Federal Ministry of Education, Science and Research (BMBWF)

Quantitative trends in degree programmes with admission regulations

In the 2019/20 academic year, over 56,000 students began bachelor's or diploma programmes at Austrian public universities. 52% of these were degree programmes with some form of admissions regulation (programmes subject to Sections 71b to 71d of the Universities Act, and programmes with aptitude tests as defined in Section 63(1) of the Universities Act). The number of degree programmes with admission regulations, as a proportion of all programmes begun, increased from around 40% in the winter semester 2018 by a further 12% in the winter semester 2019. This was because the disciplines of law, educational science and foreign languages were subject to new national regulations, as well as new university-specific regulations in the case of some individual degree programmes.

Around 60% of enrolments in programmes subject to specific admission regulations were new students in particularly high-demand degree subjects (Section 71b of the Universities Act), and 13% were programmes affected by the German "numerus clausus" restrictions (Section 71c of the Universities Act). A further 6% were subject to university-specific admissions management measures, due to particularly high demand at an individual university (Universities Act, Section 71d). The remaining 21% were degree programmes with aptitude-based tests, in art, teaching and sport (Section 63(1) of the Universities Act).

Degree programmes with admissions regulated by Section 71c of the Universities Act

In medicine and dentistry the number of applicants and test candidates increased again during the reporting period, while in veterinary medicine the demand remained more or less the same. In psychology, there was a gradual increase in binding registrations, particularly for the 2020/21 academic year. The regulated admission procedures are selective: for medicine in 2019/20 there were 7.9 applicants for every study place. For dentistry there were 5.3, in veterinary medicine 4.5 and in psychology 3.6 test candidates per place. The proportion of German students applying for these subjects is very high compared to other fields of study (medicine: 20%, dentistry: 36%, veterinary medicine: 18%, psychology: 50%).

Degree programmes with admissions regulated by Section 71b of the Universities Act

In the 2019 winter semester there were 104 degree programmes for which it was possible to activate the admission regulations for subjects in particularly high demand; in practice these were only used for 33 programmes at six universities. For the subject fields of law, educational science and foreign languages, the winter semester 2019 was the first time that the admission regulations under Section 71b of the Universities Act could be applied; out of 53 possible programmes, admission management measures were in fact only used at three universities, for a total of seven programmes in the winter semester 2019.

While in the academic year 2016/17, admission procedures were used for all degree programmes in pharmacy, journalism and business (in all but one university), in the 2019/20 academic year there were only 13 (of a possible 33) degree programmes for which a selective admissions process was used (where there were more test candidates than available study places).

Degree programmes with admissions regulated by Section 71d of the Universities Act

University-specific admission regulations were possible from the winter semester 2019 for the first time for a total of 15 bachelor's or diploma programmes at four universities. The admissions mechanism was activated for half of these, but in most cases ended with a lower number of registrations than the number of study places. The only one for which the process resulted in a selective admissions test was the bachelor's programme in "Environment and bio-resources management" at the University of Natural Resources and Life Sciences Vienna.

Degree programmes with admissions aptitude tests subject to Section 63(1)(6) of the Universities Act

An amendment to the Universities Act in 2018 made it possible for universities to conduct aptitude testing procedures for applicants. This process can only be used for admissions to diploma and bachelor's programmes for which there are no other admission

regulations. The aim is to enable applicants for these degree programmes to make an informed and considered choice of study programme, by providing information about the demands of the programme selected, and to allow the universities to evaluate the aptitude of the individual concerned. The outcome of the aptitude test is not binding for the rest of the admissions process. The rectorate is entitled to determine by statute whether this kind of admissions process is used, and what methods are used to assess the aptitude of candidates (e.g. personal statement of motivation, online self-assessment, individual advisory interview, interactive trial course etc.). So far the only institution to have made use of this option is Vienna University of Technology, which has introduced aptitude testing for all subjects, starting from the winter semester 2019/20.

Student enrolment and orientation phase

The principles of the student enrolment and orientation phase (*Studieneingangs- und Orientierungsphase – StEOP*), as currently defined in Section 66 of the Universities Act, were implemented in the Universities Act in 2009. The provisions of this system have been subsequently evaluated and amended several times. In 2020, the StEOP system was evaluated again, as provided for in Section 143(41) of the Universities Act, in consultation with the universities. The evaluation focused on the impact of the StEOP system, and in addition to data analyses, includes interviews with university management at the eleven affected universities and with student focus groups. The findings of the evaluation were to be presented to the Austrian National Council by the end of 2020, and are intended to form the basis for further amendment to the StEOP provisions in 2021.

Continuing education at universities

During the reporting period there was a shift of emphasis regarding continuing education courses: from quantitative development towards quality improvement. An amendment to the Act on Quality Assurance in Higher Education, effective from January 2021, expands the proposed obligatory audit of quality management systems in universities, adding continuing education to the areas to be audited. This perpetuates and supports the further develop-

ment of high-quality academic continuing education.

University continuing education courses reflect the different needs of their target groups, and the needs and demand from industry. The level of interest in university continuing education courses has fallen slightly; in the winter semester 2019 there were just over 18,000 students making use of these courses (2016: just over 20,000).

Academic continuing education at universities is still characterised by a highly diversified range of courses and target groups. In addition to the University for Continuing Education Krems, the universities of Salzburg and Vienna, and the Vienna University of Economics and Business are the largest providers of university continuing education programmes. These courses are designed for postgraduates as well as for non-academics, and take many different kinds of relevant experience and professional background into account. This is also exemplified by the age of the students: more than 88% of students taking these courses are over 30 years old. During the 2016–2018 performance agreement period, the priorities were to systematise, consolidate and focus university continuing education courses. During the 2019–2021 period, projects and objectives specified in the performance agreement are focused on supporting graduates and people with professional experience and differing patterns of prior learning, reflecting the universities' social responsibility. A research study conducted during the reporting period on the "Current situation and developments in academic continuing education" provides an informed basis for discussion and decisions on the further development of academic continuing education.

During the current reporting period, the Danube University Krems changed its name to the University for Continuing Education Krems. This university has substantially consolidated its range of courses during the reporting period. In 2018/19 it offered 444 courses, of which two thirds were active, with a total of 8,503 students. Of the students registered for these courses, 87% were enrolled in university master's programmes. In the current performance agreement period, three more PhD programmes are in preparation, to be added to the two existing ones.

Table 6.2: Students on university courses¹ by university and gender, 2019 winter semester

University	Students on university courses			of which on master's courses		
	Women	Men	Total	Women	Men	Total
University of Vienna	1019	662	1,681	514	484	998
University of Graz	524	237	761	294	157	451
University of Innsbruck	364	163	527	85	87	172
Medical University of Vienna	269	151	420	213	121	334
Medical University of Graz	398	182	580	118	83	201
Medical University of Innsbruck	56	21	77	56	21	77
University of Salzburg	751	1,038	1,789	535	849	1,384
Vienna University of Technology	129	305	434	113	225	338
Graz University of Technology	7	103	110	7	87	94
University of Leoben	16	33	49	4	2	6
University of Natural Resources and Life Sciences Vienna	10	74	84	0	0	0
University of Veterinary Medicine Vienna	75	17	92	0	0	0
Vienna University of Economics and Business	503	673	1,176	267	441	708
University of Linz	294	362	656	266	321	587
University of Klagenfurt	427	538	965	206	398	604
University of Applied Arts Vienna	53	20	73	53	20	73
University of Music and Performing Arts Vienna	238	175	413	70	43	113
Mozarteum University Salzburg	142	80	222	0	0	0
University of Music and Performing Arts Graz	132	65	197	0	0	0
University of Art and Design Linz	28	21	49	6	16	22
University for Continuing Education Krems	4,088	3,928	8,016	3,455	3,589	7,044
Total	9,523	8,848	18,371	6,262	6,944	13,206

1 Excluding preparatory and preliminary courses and excluding courses for the qualifying exam for higher education ("Studienberechtigungsprüfung"). Students following more than one university course are counted multiple times.

Source: data reported by the universities based on the University and Higher Education Statistics and Education Documentation Regulation as at the corresponding reporting date

Data reviewed and prepared by Federal Ministry of Education, Science and Research (BMBWF), Department IV/10

7 New entrants, students and graduates

In quantitative terms, the Austrian higher education system continues to be dominated by the universities. Whilst student numbers rose sharply during the last reporting period (2015-2017), they fell during the period currently under review (2018-2020), due not least to the steady growth in other higher education sectors and to demographic trends. The universities student body is heterogeneous and diverse in terms of their socio-economic background, origin and financial circumstances. As a result, students have differing needs with regard to how their studies are organised, how they manage their time and what support they require. Universities remain faced with the challenge of designing the entry into higher education, study conditions and institutional frameworks in such a way that under-represented groups can participate in an appropriate way and make effective use of the education offered by the universities.

The position of universities within the tertiary sector

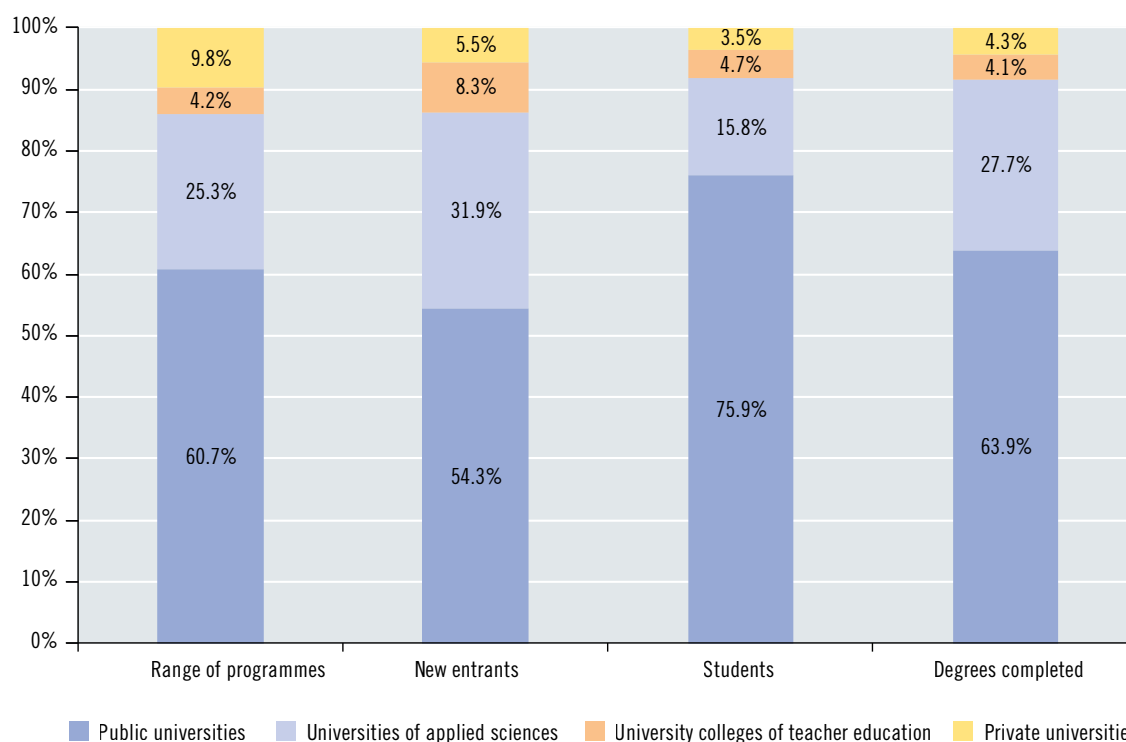
61% of higher education study programmes are offered by universities, 54% of first-year students took up studies at a university in the academic year 2019/20. As a consequence, 76% of all students are to be found in the university segment, and 64% of degrees are awarded at universities.

Access to universities

45% of female holders of an Austrian A-level and 43% of their male counterparts begin a university degree within three semesters (49% within five semesters) of earning their certificate. The highest entrance rate is found in secondary school graduates having completed the full eight years at an Academic Secondary School (“AHS Langform”) (72% after three semesters). The entrance rate amongst secondary school graduates of a College for Higher Vocational Education (“BHS”) currently stands at 23%.

In the 2019/20 academic year, 43,692 students from Austria and abroad were admitted to a degree

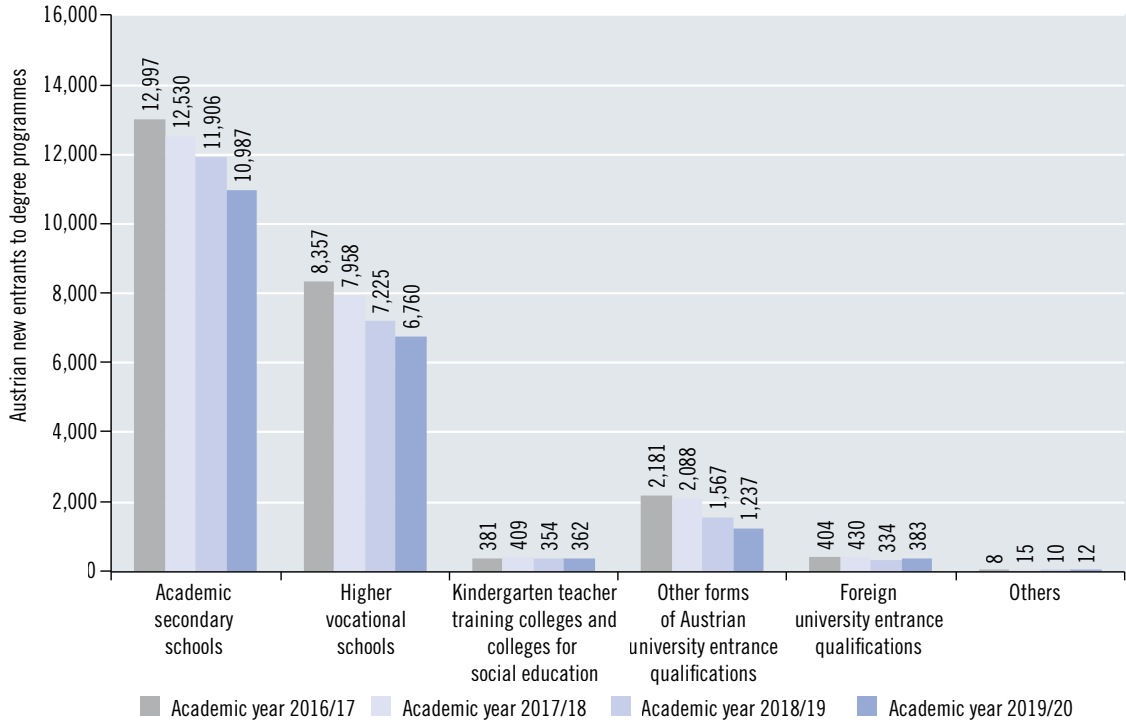
Fig. 7.1: The universities’ dominance of the higher education sector – selected key figures



Range of programmes: 2019 winter semester; new entrants onto degree programmes: 2019/20 academic year; students on degree programmes: 2019 winter semester; students completing programmes: Academic year 2018/19

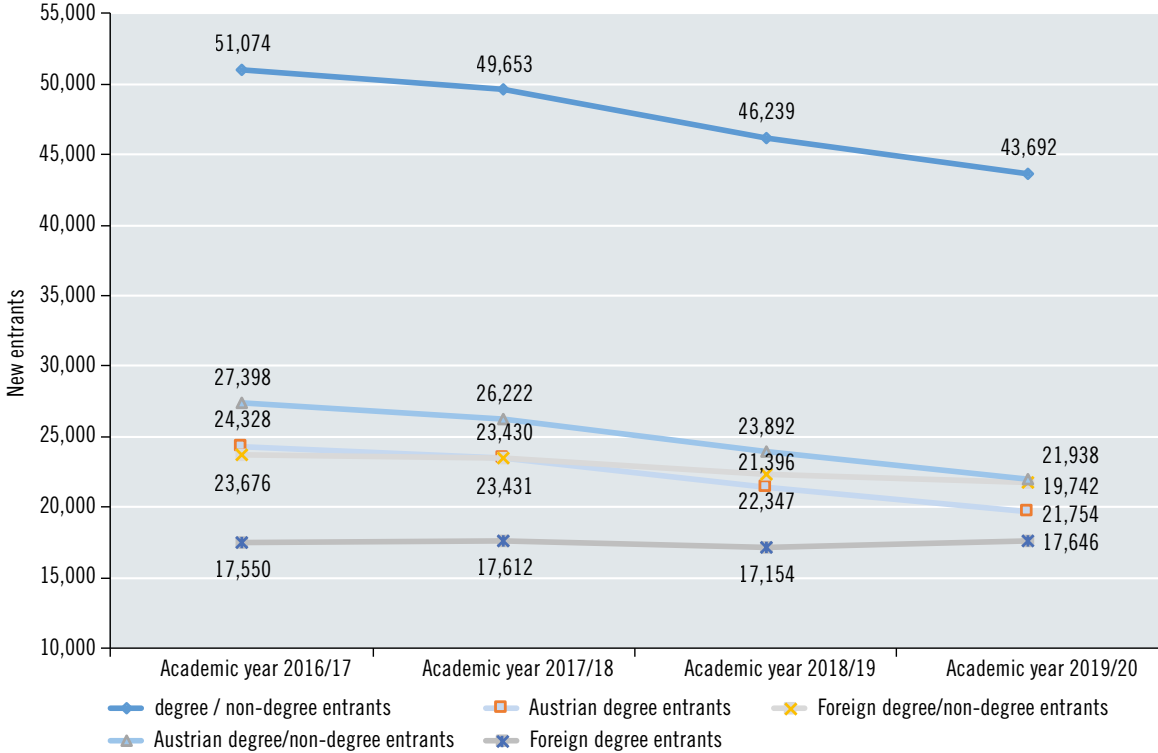
Sources: Federal Ministry of Education, Science and Research (BMBWF), unidata, Statistics Austria (university colleges of teacher education)

Fig. 7.2: Austrian new entrants to degree programmes by type of school leaving qualification, 2016/17 to 2019/20 academic years



Source: Federal Ministry of Education, Science and Research (BMBWF), unidata

Fig. 7.3: Trend in Austrian and foreign new entrants to degree and non-degree programmes at universities, 2016/17 to 2019/20 academic years



Source: Federal Ministry of Education, Science and Research (BMBWF), unidata

or non-degree programme at an Austrian university for the first time, including 37,388 new entrants to a degree programme. The number of new entrants to universities per year declined steadily in the reporting period (-14% compared to 2016/17); considering only new entrants beginning a degree programme, there was likewise a decline in the 2019/20 academic year (-10.7% compared to 2016/17). The downward trend has been sharper amongst Austrian new entrants (-19.9%) than their foreign counterparts (-8.1%) over the past four academic years.

The “first matriculation quota“ (Austrian new entrants to degree programmes at public universities in relation to the mean age group of 18- to 21-year-old Austrian resident population) is regarded as an indicator for participation in university education and was 26.2% nationwide in the 2019/20 academic year. This represents a fall on the 2016/17 academic year (29.8%).

Of the students embarking on new degree programmes, 36% chose one of the ten most popular subjects (economics and social sciences, law, computer science, economics, biology, psychology, teaching, human medicine, business law and philosophy). More than half (55.5%) of students starting degree programmes picked one of the 20 most popular subjects in 2019.

As a result of the large-scale changeover to degree programmes structured according to the Bologna study system, 87.6% of all new students who begin a degree programme leading to a first degree are enrolled on a bachelor’s programme and only 12.4% on a diploma course, with legal and medical studies making up the lion’s share of diploma courses.

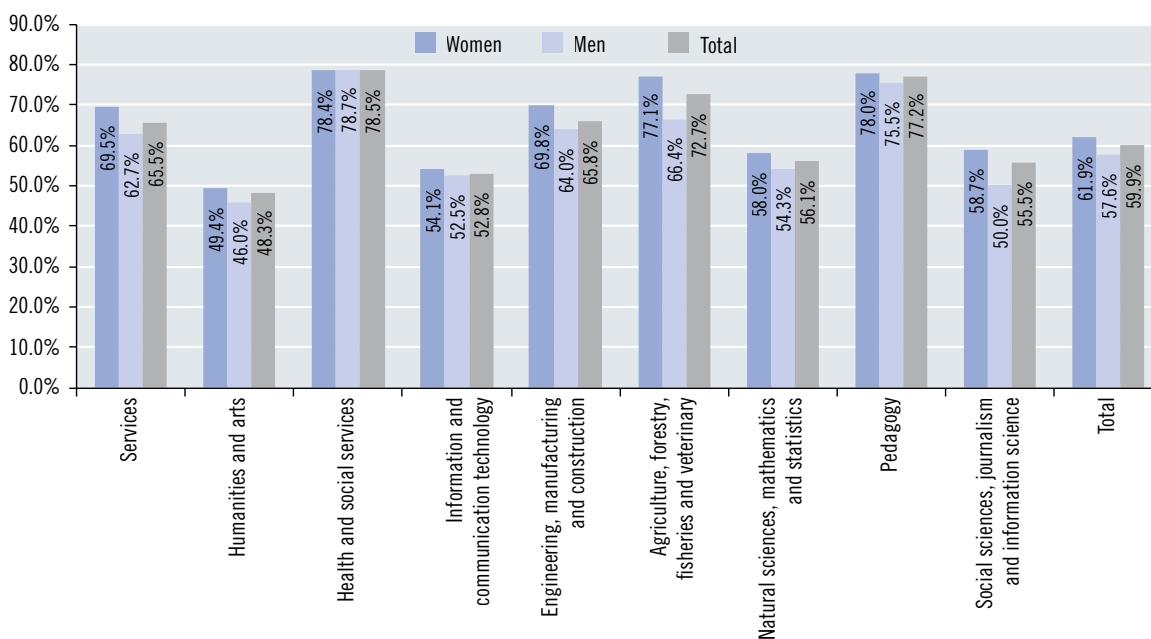
Students

During the reporting period, total student numbers fell by 5.6% to 288,492 students on degree and non-degree programmes in the 2019 winter semester (-7.8% amongst Austrian and -3.2% amongst foreign students). In the 2019 winter semester, 29.7% of students on degree and non-degree programmes were foreign nationals. There were 264,945 people following a degree programme, including 188,636 Austrians. In the 2019 winter semester, 56.9% of degree programmes were bachelor’s programmes, 15.6% were diploma courses, 20.9% were master’s programmes and 6.6% were doctorates.

The number of students actively taking examinations fell by 3.2% during the reporting period. The performance agreements for 2019-2021 agreed targets with the individual universities for the number of students actively taking examinations (key indicator 1) for each subject group for the 2019/20 academic year. As of November 2020, half of the universities have already met their targets, with another group already very close to doing so. Some universities do not seem to be achieving their agreed targets, at least not for individual subject groups.

The number of students actively taking examinations as a percentage of all students on degree programmes serves to indicate the degree of study activity and stood at 59.9% in the 2018/19 academic year (2015/16: 57.6%). Calculations that compare the number of students actively taking examinations with the number of enrolments by university and by ISCED field illustrate that the proportion of students actively taking examinations is significantly higher at universities or in fields of education that have admission regulations in place (pursuant to Sections 71b to 71d of the Universities Act) or require an aptitude test (Section 63 of the Universities Act).

Fig. 7.4: Students actively taking examinations as a percentage of total students on degree programmes (excluding doctorates) by ISCED study groups, 2018/19 academic year



Source: Federal Ministry of Education, Science and Research (BMBWF)

Pathways for study

68.8% of graduates of bachelor's programmes (72.8% for men and 65.5% for women) in the 2017/18 academic year had continued their studies on a master's programme by the 2020 summer semester (cohort graduating in 2014/15: 72.4% going on to a master's within five semesters).

14% of graduates of master's programmes and of diploma courses at universities began a doctorate/PhD at an Austrian university within two years, with the percentage doing so varying extensively between different groups of programmes (31% for law and natural sciences, 5% for economic studies).

Graduates

35,201 people successfully completed a degree programme in the 2018/19 academic year. Compared to the 2015/16 academic year, this shows a decrease in annual graduations of 1.8%. The percentage of completed degree programmes done by women held steady at 55%. The percentage done by foreign students increased by 6% on 2015/16 and now makes up over a quarter of all completed degrees at 27.2%. 17,162 bachelor's programmes were completed in the 2018/19 academic year, an increase of 1.9% over the

reporting period. No less than 48.8% of all successfully completed degrees are bachelor's programmes. Master's degrees (10,384 in the 2018/19 academic year) are enjoying continued growth (+9%), while diploma degrees have fallen sharply (-24.5%). The number of completed doctorates also dropped to 2,182 in the 2018/19 academic year following a steady rise in the previous few years. Women made up 42.3% of all doctorate students. The disproportionately high percentage of foreign students, which increased once again during the reporting period to 37.3%, demonstrates the attractiveness of doctoral training at Austrian Universities.

The average duration of a bachelor's degree programme remained virtually unchanged at 8.0 semesters, while that for master's programmes increased from 5.6 to 6.0 semesters. The length of a diploma course fell by half a semester to 12.4 semesters on average. Doctorates were completed in an average of 9.2 semesters in the 2018/19 academic year.

STEM trends

In the 2018/19 academic year, 29% of all bachelor's programmes and diploma courses started at universities were STEM courses (ISCED fields of education

“Natural sciences, mathematics and statistics”, “Engineering, manufacturing and construction” and “Computer Science and Communication Technologies”). The number of students taking up bachelor’s programmes and diploma courses in a STEM subject fell from around 19,100 to just under 16,300 (-15%) between the academic years of 2014/15 and 2018/19. The number of degrees finished successfully has risen slightly since 2014/15, with 5,700 bachelor’s programmes (+5%) and 4,500 master’s degrees and diploma courses (+9%) being completed in 2018/19. 37% of all students enrolling on bachelor’s and master’s programmes and diploma courses in a STEM subject were women – a much lower percentage than in other fields of study. Women are particularly under-represented in the core STEM subjects of engineering (22%) and computer science (19%), although both these figures have risen slightly since 2014/15.

Diversity of the student body

University students are a diverse group. The greater consideration of the social dimension through university-specific measures was taken up by the Federal Ministry of Education, Science and Research as part of the 2019-2021 performance agreements. For the first time measures were directly linked to a funding retention. Monitoring the diversity of students at the individual universities and targeted measures determined on this basis is a key element of quality development and quality assurance in teaching and the organisation of study programmes.

Age of students

77.9% of students on degree programmes are under 30, 15.9% are between 30 and 40, and 6.1% are 40 or older. The average age and age breakdown of students vary depending on the type of study programme. In the 2019 winter semester, the average (median) age of students on bachelor’s programmes was 23, those on diploma courses 25 and master’s students 26. The average age of a doctorate student was 31.

The average age of a new entrant on a bachelor’s programme or diploma course in the 2019 winter semester was 19 for female and 20 for male students. 81% began their university studies immediately after (i.e. within two years of) their school leaving exam-

ination, with 19% opting for a delayed start. The percentage of students delaying the start of their higher education (“non-traditional students”) is on the rise.

Social background of students

A student’s participation in university education is influenced by many factors, including their interest in the subject, the courses available in their local area, options for funding their studies, the compatibility of studying with their care commitments and job, and their socio-economic background. The effects of “educational heredity” are for the most part already at work in the upstream school system in the context of selection mechanisms, which continue to have an impact on university access (and subsequently also on study progress).

People whose parents did not obtain a school leaving certificate are significantly under-represented – by a factor of 2.98 – compared with those whose parents did pass their school leaving examination. Improving this recruitment quota is one of the goals defined in impact-oriented budgeting and in the “National strategy on the social dimension of higher education”. Compared to other *European countries*, Austria’s percentage of students whose parents do not have any academic qualifications is relatively high at 64%.

A person’s educational background and socio-economic factors also influence what form of higher education and what subject they choose. An above-average percentage of new entrants at the medical universities, arts colleges and Viennese universities come from an “educated” background.

Foreign students

In the 2019/20 academic year, 21,815 students from abroad were admitted to a programme at an Austrian university for the first time (including 17,675 starting a degree programme). The percentage of foreign new entrants has increased from 46.4% to 49.9% since the 2016/17 academic year. 65.5% of foreign new entrants came from EU countries, including 31.2% (6,816 people) from Germany.

In the 2019 winter semester, 29.7% of all students (on degree and non-degree programmes) were foreign nationals, with 68% hailing from EU member states and 32% from non-EU countries. In

Table 7.5: New entrants (to degree and non-degree programmes) by country group, 2016/17 to 2019/20 academic years

Country group	Academic year 2016/17				Academic year 2017/18				Academic year 2018/19				Academic year 2019/20			
	Women	Men	Total	Share of total as a %	Women	Men	Total	Share of total as a %	Women	Men	Total	Share of total as a %	Women	Men	Total	Share of total as a %
Austria	14,884	12,514	27,398	53.6%	14,404	11,818	26,222	52.8%	13,230	10,662	23,892	51.7%	12,151	9,778	21,929	50.1%
Germany	3,373	2,925	6,298	12.3%	3,372	2,884	6,256	12.6%	3,444	2,959	6,403	13.8%	3,753	3,063	6,816	15.6%
EU	4,777	3,339	8,116	15.9%	4,550	3,288	7,838	15.8%	4,383	3,032	7,415	16.0%	4,366	3,116	7,482	17.1%
Non-EU countries	4,740	4,522	9,262	18.1%	4,944	4,393	9,337	18.8%	4,703	3,826	8,529	18.4%	4,255	3,262	7,517	17.2%
Total	27,774	23,300	51,074	100.0%	27,270	22,383	49,653	100.0%	25,760	20,479	46,239	100.0%	24,525	19,219	43,744	100.0%

Source: Federal Ministry of Education, Science and Research (BMBWF), unidata

the 2019 winter semester, the five most common countries of origin of foreign students at Austrian universities were Germany, Italy, Bosnia and Herzegovina, Croatia and Turkey.

Students with a migration background

According to the 2019 Social Survey of Students, 76% of students had gone through the regular school system in Austria and are thus considered “educational residents”. These 76% can be broken down further as follows: 70% educational residents without a migration background and 6% with a migration background. 2.5% are first-generation migrant students, i.e. they were born abroad but completed their schooling in Austria. 3.5% are second-generation migrant students, meaning that they were born in Austria but their parents in another country. The percentage of second-generation educational residents has increased by just over a third since the last Social Survey of Students, while the figure for first-generation migrants has fallen (-17%). The entry rate to higher education is much lower amongst students with a migration background than amongst those without: whilst 31% of all educational residents without a migration background will study at university at some point in their life, this figure is estimated at 14% and 13% amongst second- and first-generation migrants respectively.

Students with a child or children

7% of students at universities (excluding doctorate students) have at least one child under 25. Students with a child or children are more likely to have a job throughout the entire semester than those without (75% vs. 65%). 50% of mothers and 84% of fathers undertaking studies who have a child or children un-

der three also have a job. Students with a child or children have a different amount of time at their disposal as they also need to find time for childcare alongside the time they spend studying and in gainful employment. 52% of mothers undertaking studies admit that childcare is preventing them from studying without any restrictions. This figure is 43% amongst fathers in the same position.

Students with disabilities or with chronic diseases

According to a special study forming part of the 2019 Social Survey of Students, 12% of all students in Austria say that they have one or more impairments that make studying harder. This could be a disability, a chronic, mental or other prolonged illness, or a specific learning disability (dyslexia, dyscalculia, etc.). Students with mental illness make up the largest group. In absolute terms, there are an estimated 39,100 or so students with a health impairment or disability that has an adverse impact on their studies.

The Universities Act provides for the requirements of disabled people to be given particular consideration in its guiding principles. All universities now have dedicated disability officers, while some also have an institutional-level organisational unit that students with disabilities, health issues and chronic illnesses can contact. Measures at individual universities for students with disabilities or chronic illnesses include specific information leaflets, online courses, accessible working and study conditions, different examination methods and organising tutorial support. These also form part of the performance agreements.

Gainful employment and financial circumstances

Gainful employment during the semester or in lecture-free periods is an integral part of the daily study routine for the vast majority of students. According to the 2019 Social Survey of Students, 65% of all university students are in gainful employment during the semester. The average student who works during the semester spends 20 hours a week on their job. Both the percentage of working students and the time they spend in gainful employment increase with age. Amongst all students – including those without a job – some 21% see themselves as people in gainful employment who study in their spare time. At master's level, this figure increases to 29%.

69% of working students say that they need their job in order to meet their essential living costs. 63% state that they work in order to be able to afford a bit more and 49% in order to gain career experience (multiple answers were possible). Many people find that the double burden of studies and gainful employment results in a higher weekly workload overall. Gainful employment also erodes the time spent on studying.

University students had around €1,160 per month at their disposal in 2019 as against €1,100 in 2015 (-0.9% adjusted for inflation). On average, this amount comprised €1,020 in cash and non-monetary benefits worth an equivalent of €140 on average. The main source of income is the student's own gainful employment, which provides some 43% of their total budget on average; an average of 22% comes from their family in the form of monetary benefits (including family allowance) and 12% in the form of non-monetary benefits. The student grant makes up roughly 7% of the total budget on average.

Implementing the "National strategy on the social dimension of higher education"

The "National strategy on the social dimension of higher education", which was published by the then Federal Ministry of Science, Research and Economy in February 2017, is to be implemented by 2025. It aims to ensure that students at all levels of higher education (entry, participation, completion) reflect the demographics of the wider population. As a major implementation step and means of university pol-

icy management, it was determined in the performance agreement period 2019-2021 that 0.5% of the global budget (approximately 50 million euros) will be reserved for the implementation of projects in the social dimension. Universities are required to prove that they are implementing appropriate measures in order to receive the funding by the end of 2020. Different projects have been agreed with different universities. A third are formulating and implementing their own institutional strategies for the social dimension. The others are focusing on, for instance, outreach measures, monitoring student admissions and providing support for students entering higher education or just beginning their studies. The requirements and examples of best practice regarding implementation at the universities are shared at annual networking conferences.

2020 Higher Education Forecast

Prepared by Statistics Austria in 2020 on behalf of the Federal Ministry of Education, Science and Research, the fourth Higher Education Forecast predicts some of the fundamental quantitative trends in Austria's higher education sector in the years to 2040/41. It covers Austrian and foreign students at universities, universities of applied sciences, private universities and university colleges of teacher education.

The Higher Education Forecast is based on how many pupils are expected to be taking their secondary school leaving examinations in Austria. It suggests that the number of these A-level holders as a percentage of the average year-group cohort will increase from around 43.7% (2018/19) to an expected level of 44.1% in 2041. This means that some 40,624 people will be taking their school leaving examination in 2041. On average, roughly 76% of those taking it at an Academic Secondary School (AHS), around 37% of those taking it at a College for Engineering, Arts and Crafts (BHS), 46% of those taking it at a College for Business Administration and 2% of those taking it at a Kindergarten Teacher Training College or College for Social Education will begin a higher education degree within three years. A university is the most popular destination for secondary school leavers going on to higher education.

Overall, a slight increase is predicted in the number of students at universities, universities of ap-

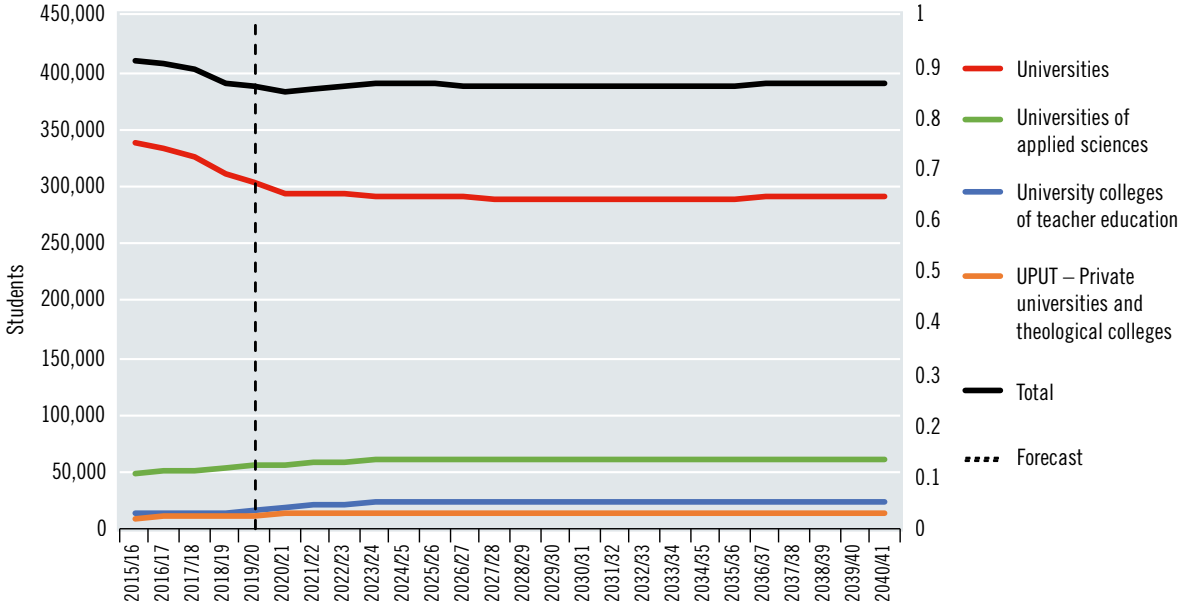
plied sciences, university colleges of teacher education and private universities, up from a total of some 388,000 students in the 2018/19 academic year to around 391,000 students in the 2040/41 academic year. Whilst a slight decline is anticipated for the universities (from 304,156 to 291,548 students), student numbers in the other higher education sectors are expected to increase during the period covered by the forecast (in some cases significantly): from 55,203 to 60,168 students at universities of applied sciences, from 12,667 to 15,125 students at private universities and from 15,762 to 24,533 students at university colleges of teacher education (between 2018/19 and 2040/41 in each case).

The number of Austrian students has been falling slightly since the 2015/16 academic year. The percentage of foreign students is set to remain virtually

unchanged over the period covered by the forecast. Assuming the current admission regulations continue to apply, a slight rise is forecast for German students and a slight fall for those from other EU countries. The number of students from non-EU countries is set to stay more or less constant.

The number of higher education degrees completed has remained virtually unchanged since 2015/16 at around 55,000, albeit with marginal fluctuations. The forecast indicates that completion figures are likely to fall at public universities but continue to rise slightly in subsequent years at universities of applied sciences and private universities. A sharp rise in the number of degrees is anticipated at university colleges of teacher education, largely due to the introduction of master's degrees.

Fig. 7.6: Trend in number of students by higher education sector



Source: Statistics Austria, 2020 Higher Education Forecast, interim report (see Statistics Austria 2020b)

8 Student counselling and student support

The Federal Ministry of Education, Science and Research, the Austrian National Union of Students (ÖH), the Public Employment Service Austria (AMS) and the educational institutions themselves provide a range of information and counselling services in order to give the best possible support to students looking to make a well-informed, long-term choice of studies. These services were maintained and expanded during the reporting period.

The universities continued to develop their course information and course marketing measures as well as their counselling geared towards diversity-sensitive course guidance. Particular focus was also placed on attracting more students – especially girls – who were interested in STEM subjects. In addition, the universities are making use of the new opportunities afforded by digitalisation and technology. Their range of online self-assessments was expanded further, and new innovative formats such as the University of Vienna's interactive "uni:check" online tool or the University of Innsbruck's self-learning chatbot were created for schoolchildren. However, individual counselling on site remains a priority of the universities and is being supplemented by formats including summer schools and holiday jobs.

The wide variety of course options and wealth of information available can also pose an obstacle to potential students. The schemes run by the Federal Ministry of Education, Science and Research and the ÖH offer free support during the decision-making process.

The "18plus. Berufs- und Studienchecker" programme, which supports schoolchildren with their choice of career and studies over a two-year period, helped nearly 22,000 young people across Austria in the 2019/20 academic year. The long-term evaluation of the programme was completed during the reporting period. This revealed that personal contact, such as in small-group counselling sessions, is still seen as the best form of support and that finding information electronically is a key priority for the generation surveyed. As part of the ÖH's "Maturant-Innenberatung" project, specially trained university students share information about course subjects and day-to-day student life with the schoolchildren.

Around 17,000 schoolchildren still managed to take part in these advice sessions in the 2019/20 academic year even though many fewer were held as a result of COVID-19. The "Studieren probieren" scheme allows schoolchildren to attend (introductory) lectures, thus giving them practical insights into what being a student is all about. A total of 734 events were put on during the 2019/20 academic year, with some 6,300 people signing up.

The nationwide student psychological counselling centres, which help students to cope with their studies and support them with aspects of student life, continue to play a major role. Over 9,000 people across the whole of Austria were supported during the 2019/20 academic year.

Between September 2017 and January 2018, the Austrian Court of Audit (*Rechnungshof* – RH) reviewed the counselling and information services provided by the Federal Ministry of Education, Science and Research and the ÖH on the subject of choosing a study programme. It produced a thoroughly positive assessment of the content of this advice and the "18plus" scheme in its audit report, which was published in 2020. Room for improvement was identified in terms of how the scheme was organised and its level of penetration, amongst other things. Some of the Austrian Court of Audit's recommendations were already implemented during the reporting period.

Austrian Student Ombudsman

The Austrian Student Ombudsman acts as a central point of contact for the concerns of domestic and foreign students, as well as for prospective students from the entire higher education sector and also focuses on information work. The ombudsman addressed 478 issues in the 2018/19 academic year. It remained an important first port of call for students even while university life was restricted as a result of COVID-19, something that was reflected in a marked rise in the number of issues raised from mid-March 2020 onwards.

Welfare support for students

In terms of student support, the increase in study grant rates that was agreed in the revised Student Support Act (*Studienförderungsgesetz* – StudFG) in 2017 resulted in the number of applications being

Table 8.1: Average study grant amount by category at universities (including private universities) and universities of applied sciences, 2016/17 to 2019/20 academic years, amounts in euros (rounded)

Category	2016/17		2017/18		2018/19		2019/20	
	University	UAS	University	UAS	University	UAS	University	UAS
Non-foreign	2,610	2,070	4,080	3,390	4,090	3,240	4,080	3,230
Foreign	4,080	3,440	5,440	4,610	5,240	4,410	5,190	4,280
Married	6,290	5,660	7,600	6,670	7,320	6,350	7,020	6,420
Self-supporting	8,060	7,360	9,610	8,750	9,580	8,710	9,570	8,710
With child/children	9,180	8,540	10,770	10,270	10,520	10,210	10,620	10,660
Disabled	5,070	3,560	6,320	5,230	6,360	5,110	6,250	5,070
Total	4,890	5,070	6,170	6,190	6,030	5,990	6,020	5,940

Source: Austrian Study Grant Authority, 2020

approved climbing by 12% in the following year. Within the space of a year, the average study grant increased by 25% and the amount of budget funding spent by 27%. The size of an average grant has also risen sharply, from €4,980 per year in the 2016/17 academic year to €5,980 per year in the 2019/20 academic year.

The Student Support Act was revised several more times during the reporting period. One such revision in 2018 primarily served to adapt its terminology in line with the General Data Protection Regulation (GDPR). A further revision in 2020 related to “Brexit”, maintaining support for courses at British universities even after the UK had left the EU by means of mobility grants and ensuring that British students would receive equal treatment under student support law (Art. 23 and Art. 127 of the EU-UK Withdrawal Agreement).

The COVID-19 pandemic necessitated numerous measures to protect the public, which are also having an impact on the study grant and other forms of

support under the Student Support Act. With the COVID-19 Higher Education Act (COVID-19-Hochschulgesetz – C-HG), therefore, secondary legislation was used to establish the legal basis for the Federal Minister of Education, Science and Research to set out regulations that deviated from the Student Support Act. To ensure that recipients of study grants were not disadvantaged in terms of receiving their grants as a result of the restrictions on university life due to COVID-19, the COVID-19 Student Support Regulation (COVID-19-Studienförderungsverordnung – C-StudFV) lays down special provisions for deadlines for the 2020 summer semester that are relevant under student support law. Another special provision governing the study grant for a course abroad stipulates that, by way of an exception, no transcript of records from the course abroad needs to be submitted in order to be exempted from the obligation to repay the grant if part of the course abroad fell during the period affected by COVID-19 (2020 summer semester).

9 Gender equality and diversity management

The efforts of the Federal Ministry of Education, Science and Research to promote gender equality in science and research follow a three-dimensional approach:

- Increasing the representation of the under-represented gender (“fix the numbers”);
- Integrating the gender dimension into structures/processes (“fix the institutions”);
- Incorporating the gender dimension into research and teaching (“fix the knowledge”).

This gender equality policy is based on national and European agreements such as the prioritisation of gender equality for a common European Research Area and the Ministry’s gender equality target as part of outcome-oriented budgeting. The objectives were reprioritised during the reporting period. Whereas the focus had primarily been on balanced gender representations in the past, more attention is now being paid to changing structures and pro-

cesses and integrating the gender dimension into the content of teaching and research.

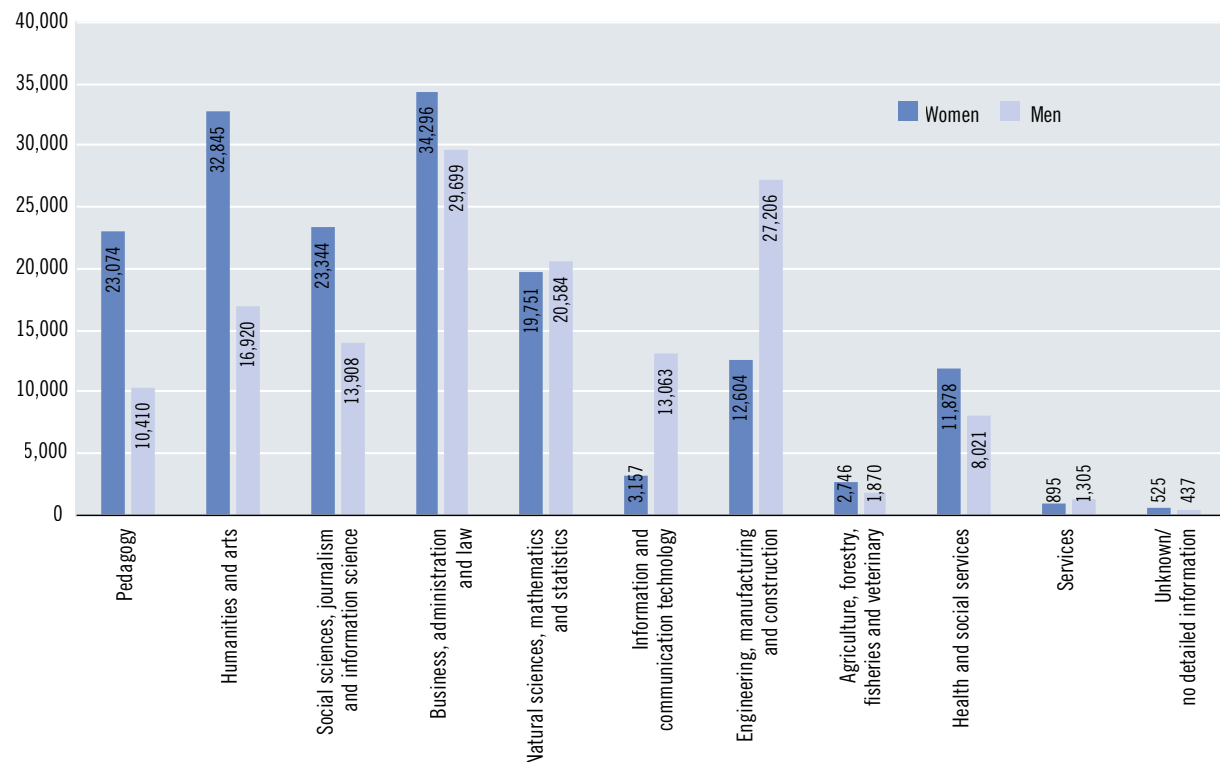
The focus at European level is on making gender equality a priority as part of the ERA Roadmap, to which Austria is contributing accordingly with its national ERA Roadmap and the implementation of its projects.

Gender equality is also a strategic element of the Austrian National Development Plan for Public Universities for 2022-2027: System Goal 7 aims at the universities’ responsibility to society and addresses issues such as gender equality and diversity, while numerous gender equality targets and projects have also been agreed in the performance agreements with the universities.

Gender representation at universities

The representation of women and men amongst students and researchers and on collegiate bodies is a key gender equality indicator. Progress towards more balanced gender representation was made in all three of these areas during the reporting period.

Fig. 9.1: Students on degree programmes by subject and gender, 2019 winter semester



Source: data reported by the universities based on the University and Higher Education Statistics and Education Documentation Regulation as at the corresponding reporting date

Women made up 53.9% of students on degree programmes in 2019. With a success rate of 48%, women are more successful students than men and are over-represented compared to them amongst students all the way up to the second qualifying degree stage (50.9%). At doctorate/PhD level, however, the balance shifts in favour of men. A process of vertical segregation kicks in: the proportion of women decreases as the level of qualification and career stage increase. There is also a great difference in gender proportions by field of study (e.g., women are severely underrepresented in computer science and engineering, men in education).

To combat this horizontal segregation, the Federal Ministry of Education, Science and Research set itself the target in its “National strategy on the social dimension in higher education” of having at least 10% students from the under-represented gender studying every subject at every higher education institution by 2025.

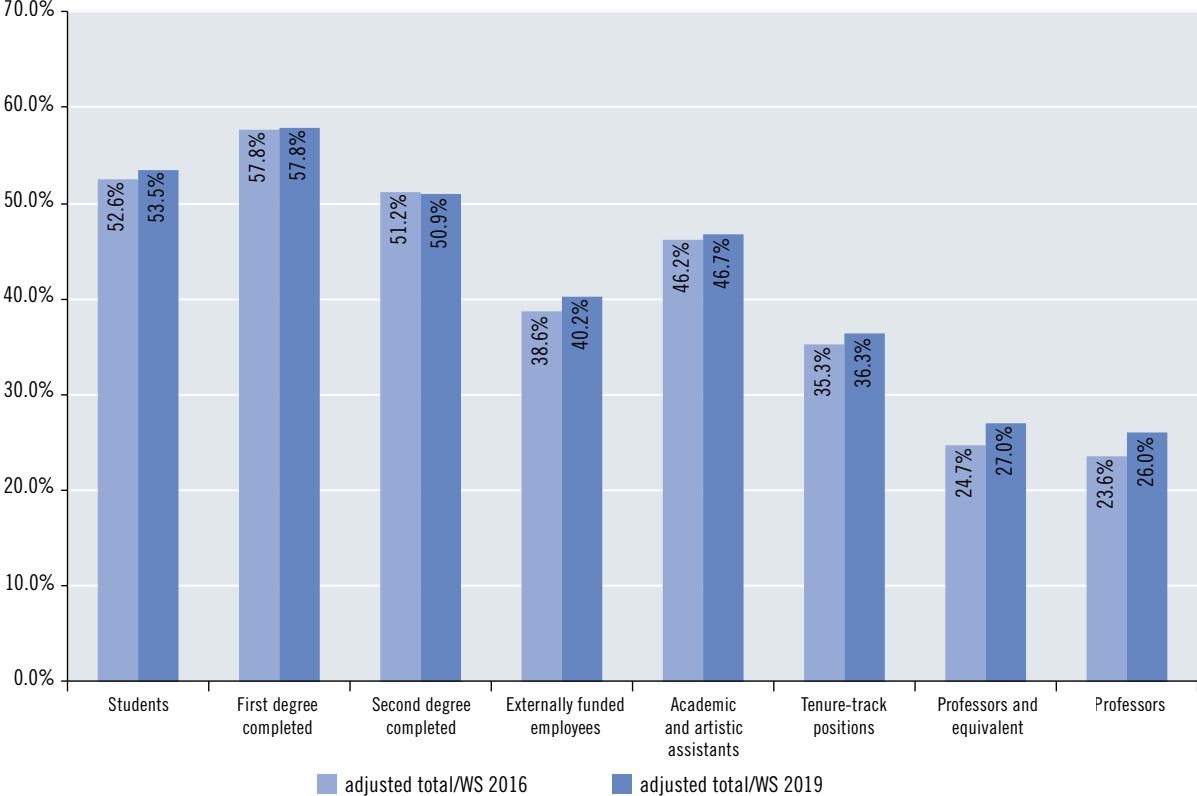
Vertical segregation also exists among the scientific/artistic staff, although improvements were made

during the reporting year. Whilst women are in the majority up to master’s and diploma level, the percentage of women falls from 46.7% amongst scientific and arts assistants to 36.3% amongst those in tenure-track positions and 26% amongst professors.

Since 2009, collegiate bodies at universities have been subject to a quota enshrined in the Universities Act. This quota is having an impact, with the representation of women on university governing bodies improving steadily over the reporting period. Women made up 49% and 46.1% of rectorates and senates respectively in 2019. Only on university councils was there a slight fall compared to 2016, to 46.8%.

The Austrian Higher Education Conference presented recommendations from the “Gender expertise in higher education processes” working group in June 2018. The 36 recommendations delivered significant impetus for integrating and incorporating the gender dimension in research and research-based teaching and in university structures and processes over the long term.

Fig. 9.2: Women at universities, 2016 winter semester to 2019 winter semester



Source: data reported by universities based on the University and Higher Education Statistics and Education Documentation Regulation

Gender equality measures in the performance agreements

The universities mainly pursued objectives and implemented projects relating to representation and structures/processes/policies during the 2016-2018 performance agreement period. In terms of gender representation, the focus was on increasing the proportion of women in tenure-track positions and professorships. In the area of structures/processes/policies, meanwhile, the priority was to apply gender mainstreaming in organisational, budgetary and other institutional processes. By contrast, the issue of integrating gender equality into research and teaching content received only little attention.

In view of the three-pronged approach by the ministerial department, the universities have set themselves an especially large number of targets in the current performance agreement period (2019-2021) for reducing vertical gender segregation and in the areas of compatibility and gender mainstreaming. Overall, the universities are pursuing some 170 objectives and projects to improve gender equality during the current performance agreement period. This is a marked increase of around 70 objectives and projects compared with the previous period (2016-2018). In quantitative terms, the gender equal-

ity dimensions of representation and structures/processes/policies (77 and 69 measures respectively) outweigh the content dimension (30 measures).

Diversity management

Achieving equal opportunities and educational equity in science and research goes beyond the issue of gender: Proactive diversity management allows universities to harness the diversity of students and staff as an opportunity and resource as they compete in the higher education sector. Accordingly, the Federal Ministry of Education, Science and Research has integrated diversity management as a field of activity into the central strategy and steering instruments performance agreement, the National Development Plan for Public Universities and the National Strategy on the Social Dimension. The “*Diversitas*” prize for diversity management marks an important step in raising the profile of outstanding, innovative achievements in the field of diversity management. Instruments accompanying “*Diversitas*”, such as the publication “*Blickpunkte Diversitas*”, which documents all submissions as examples of good practice, and the annual “*Diversitas-Werkstatt*” on current trends have also become firmly established.

10 Internationalisation and mobility

Internationalisation and mobility are now an integral part in universities' strategies. A framework is provided by Austria's higher education policy (particularly through the National Development Plan for Public Universities and the issue-specific strategies on the social dimension and mobility in higher education) as well as the relevant EU programmes (such as Erasmus+ and Horizon 2020) and the agenda of the European Bologna Follow-up Group within the European Higher Education Area (EHEA).

The COVID-19 pandemic shone a new light on internationalisation and, in particular, on mobility in higher education in 2020, with new mobility strategies being trialled and successfully adapted to the changing circumstances using all kinds of digital solutions.

Higher education in the context of the EHEA

2019 marked the 20th anniversary of the Bologna Process, which created the European Higher Education Area. In the previous year, EHEA higher education ministers had released the Paris Communiqué, in which they committed to accelerating implementation of the key elements of a common higher education area – the study system, quality assurance and recognition – and placing particular focus on improving the social situation for students and on teaching and learning. During Austria's presidency of the EU Council, the European Bologna Follow-up Group resolved to set up working groups for monitoring, the social dimension and teaching and learning and to step up peer learning activities on the key instruments.

Higher education in the context of the EU

Building on the strategic framework for cooperation in education and training (ET 2020), in 2020 the European Commission presented a communiqué on establishing the European Education Area by 2025. It will focus on the dimensions of quality, inclusion and gender equality, green and digital transitions, teachers and trainers, higher education, and a stronger Europe in the world. Published at the same time, the Digital Education Action Plan has two long-term strategic priorities: promoting the development of a high-performance ecosystem for digital education

and improving digital skills for the digital transition. During the Austrian Presidency of the EU Council in 2018, discussions were held on the future of EU-cooperation on education and training. Moreover, negotiations on the future Erasmus+ programme (2021-2027) took place and member states adopted a common stance ("partial general approach").

The Erasmus+ programme

Since the beginning of participation in the Erasmus programme in 1992/93, more than 115,000 students from Austria have completed an Erasmus stay. Stagnating mobility figures in the 2017/18 and 2018/19 academic years were tackled by increasing monthly Erasmus+ grants by 13-20% depending on the destination country and introducing measures into the Student Support Act. Teachers and administrative staff at universities can also spend time working abroad under the Erasmus+ programme. No fewer than 1,700 people took up this mobility offer in the 2018/19 academic year. Mobility arrangements can also be made with countries outside Europe. Additional national funds were made available for priority regions in 2019/20 and 2020/21 as part of international mobility in higher education. Israel, Russia and Georgia have been the most popular partner countries for Austrian higher education institutions in the 2020 funding year. The European Student Card Initiative, which has emerged during the current programme, is geared towards digitalising and modernising all processes related to Erasmus+ mobility activities in the higher education sector. This initiative aims at a professionalisation of administrative processes and at the introduction of a European Student Card. Its implementation is being assisted by a national supporting group and by digital officers.

European Universities Initiative

When drawing its conclusions in December 2017, the European Council committed to strengthening strategic partnerships between higher education institutions across the EU and promoting the development of European universities (the European Universities Initiative). This is now one of the EU's main initiatives in its efforts to establish a European Education Area. European higher education institutions have been funded as pilot projects under the

Erasmus+ programme since autumn 2019, while Horizon 2020 funds are also available to support research and innovation activities. The initiative is being rolled out as part of the new Erasmus+ programme in parallel with Horizon Europe and other EU instruments. The first calls for proposals in 2019 and 2020 saw 41 alliances selected. Eight Austrian higher education institutions are currently involved (including five universities: University of Natural Resources and Life Sciences Vienna, University of Graz, University of Leoben, University of Innsbruck and Vienna University of Economics and Business).

Pursuing the EHEA's objectives at national level

One of the main instruments for creating the EHEA is the National Mobility and Internationalisation Strategy for Higher Education 2020-2030, subtitled "There are many routes to internationalisation" (*Nationale Hochschulmobilitäts- und Internationalisierungsstrategie 2020–2030 – HMIS 2030*), which was published in autumn 2020. Setting five goals, the document focuses on: promoting an all-encompassing culture of internationalisation at higher education institutions; promoting mobility for all members of higher education institutions; developing and implementing innovative digital forms of mobility; effective skills improvement and institutional learning; and a "global mindset" – Austria's higher education institutions and their position in the world.

The Austrian Bologna Follow-up Group serves as the steering committee for creating the EHEA at national level, while the Bologna Contact Point and a team of EHEA experts provide the universities with tangible support. Comprehensive monitoring of the progress made towards achieving the Bologna goals within the Austrian Higher Education Area has been published in the Bologna Implementation Report 2020.

Student mobility

Student mobility can take the form of "credit mobility" (study-related stay in which the study achievements completed abroad are credited as ECTS credits towards studies at home) or "degree mobility" (in which an entire study program or cycle is completed abroad). Both forms of mobility can be either outbound or inbound. The table below shows the number of students per academic year who spent time abroad under an international mobility scheme (credit mobility). The highest level during the reporting period was recorded in the 2017/18 academic year, while the 2019/20 academic year saw the lowest level due to the COVID-19 pandemic in the summer semester.

Table 10.1: Outbound students spending time abroad as part of a funded mobility programme, 2016/17 to 2019/20 academic years

	Outgoing students in the academic year	Thereof Erasmus study periods and practical experiences
2016/17	7,960	60.6%
2017/18	8,348	60.7%
2018/19	7,663	61.7%
2019/20	6,782	64.3%

Intellectual Capital Reports key figure 2.A.8

Source: unidata; according to data reported by the universities based on the University and Higher Education Statistics and Education Documentation Regulation as at the corresponding reporting date

Restrictions on mobility in the 2020 summer semester also affected incoming mobility. The trend in incoming student numbers in the reporting period is shown in the table below.

Table 10.2: Incoming students spending time abroad as part of a funded mobility scheme, 2016/17 to 2019/20 academic years

	Incoming students in the academic year	Thereof Erasmus study periods and practical experiences
2016/17	8,449	62.4%
2017/18	8,596	61.6%
2018/19	8,469	61.2%
2019/20	8,121	63.1%

Intellectual Capital Reports key figure 2.A.9

Source: unidata; according to data reported by the universities based on the University and Higher Education Statistics and Education Documentation Regulation as at the corresponding reporting date

Some 20,700 Austrians spent time studying in another OECD country in 2018, with an estimated 13,800 making use of degree mobility. Austria is an attractive place to study for foreign students – particularly German speakers – looking to complete an entire programme here. Calculations suggest that around 59,300 foreign students studied at an Austrian university in the 2019 winter semester as part of a degree mobility programme, equating to 78% of all regular foreign students. 41% of foreign degree mobility students were from Germany.

In the 2017/18 academic year, 24% of graduates said that they had spent time studying abroad during the course of their studies. At around 17%, graduates of bachelor’s programmes have the lowest rate of stays abroad, while master’s graduates are at 25% and doctoral graduates at 29%. The survey shows that women are more likely than men to spend time studying abroad (23% as against 19%).

According to the Social Survey of Students 2019, financial reasons as well as negative effects on studies (particularly time lost for their studies in Austria) are cited as obstacles to mobility. The universities are taking various measures to promote mobility and foster an environment conducive to mobility, such as expanding joint, double or multiple degree programmes and expansion of mobility-windows. Incoming students can access a wide range of support and other services, including language courses, orientation courses and housing services.

Mobility of university staff

Staff mobility at the university is offered both at the institutional level via schemes as well as at the individual level. During the 2018/19 academic year, 497 teachers spent time abroad under an Erasmus+ staff mobility arrangement and 325 university employees undertook life-long learning under the Erasmus programme. 42% of the scientific and artistic staff completed a stay abroad of up to five days for the purpose of carrying out teaching as well as scientific/artistic work, with 55% spending between five days and three months and 4% spending over three months abroad. Women made up an average of 40% of those spending time abroad in 2018/19.

The COVID-19 pandemic and its impact on internationalisation and mobility

The COVID-19 pandemic also impacted on mobility stays abroad as a result of major travel restrictions. Within the Erasmus+ programme, all formal measures were taken to ensure that cross-border mobility and project partnerships could continue. Grants and funding schemes were adapted as required. An evaluation by the Austrian Agency for Education and Internationalisation (OeAD-GmbH) indicated that the vast majority of students opted to switch to e-learning, with only a few cutting their stay short.

The European Research Area

The European Research Area (ERA) Roadmap for 2015-2020 and the Austrian ERA Roadmap approved by the federal government in 2016 were the main strategic frameworks for establishing the European Research Area during the reporting period. In line with seven ERA priorities, national reforms and initiatives were implemented such as establishing national networking platforms in the areas of ageing research, personalised medicine, climate research and sustainable water systems as well as the EURAXESS Meeting Point Vienna platform, a communication and social integration tool for international researchers in Vienna. Progress at EU level continued to lag behind expectations, however, prompting the EU Council in 2018 to envisage realigning the European Research Area. The European Commission therefore published a communiqué in 2020 entitled “A new ERA for Research and Innovation”.

Involvement in Horizon 2020

Endowed with some €77.4 billion, Horizon 2020 – the EU’s eighth Framework Programme for Research and Innovation – is the world’s largest transnational research and innovation scheme and a central catalyst for Austria’s research, technology and innovation (RTI) activities. Data collected in 2020 ranks Austria tenth out of the EU-28 in terms of involvement, placing it in the top third. Austrian organisations received a total of €1.6 billion in funding commitments, with €535 million of this amount going to the public universities.

Horizon 2020 comprises three main pillars: “Excellent Science”, “Industrial Leadership” and “Societal Challenges”.

A sum of €566 million has been secured in the “Excellent Science” pillar, which includes the European Research Council (ERC) – the most significant individual programme for Austria. 53% of all projects in which the Austrian universities are involved relate to activities under this pillar. The chart illustrates the Austrian universities’ strong presence in the individual programmes for this pillar.

The “Societal Challenges” pillar covers 27% of the projects in which the universities are involved, while the “Industrial Leadership” funding pillar accounts for 15% of the sector’s activities. Rather than being specific to Austria, however, this pattern of distribution can be regarded as representative for the entire European higher education sector.

The ERC is the main funding instrument for pioneering research on any chosen topic. Funding is awarded to a specific individual and is geared solely towards promoting excellence. Austria’s perfor-

mance has been above average, with 15% of applications approved. Half of its ERC projects are being implemented at universities. As of October 2020, the University of Vienna leads the field in Austria with 60 projects, ahead of Vienna University of Technology with 27 grants and the University of Innsbruck with 18.

The Marie Skłodowska-Curie Actions (MSCA) programme aims to build a strong pool of researchers in Europe and make Europe a more attractive place for pre- and post-doc researchers. Some 29% of all Horizon 2020 projects, 44% of all coordination actions and 15% of all funding relate to the MSCA scheme.

With Horizon 2020, the European Institute of Innovation and Technology (EIT) become part of the EU’s Framework Programme. The thematic clustering of activities in the knowledge triangle of education – research – innovation in the form of *Knowledge and Innovation Communities* (KICs) is intended to accelerate the transformation of scientific knowledge into innovative achievements in the priority areas defined in the Strategic Innovation Agenda. The calls for proposals on the topics of manufacturing and urban mobility went out in 2018 and 2019. The University of Leoben has been particularly successful with its involvement in the Raw Materials and Climate KICs, as has Vienna University of Technology in the Manufacturing KIC.

The ERA dialogues organised by the Austrian Research Promotion Agency, which are being conducted with 14 universities, help them to position themselves at EU level to fit their own priority areas and objectives.

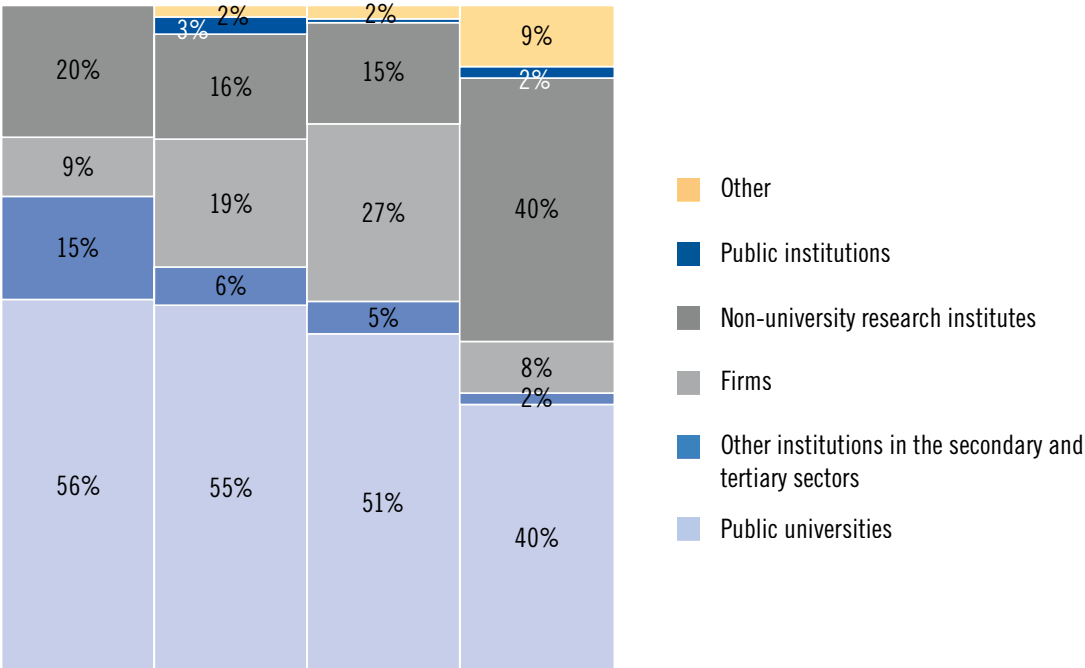
Table 10.3: Horizon 2020 – Austrian projects involved by type of organisation

Type of organisation	Total projects	Projects as a %	EU funds in € million	EU funds as a %
Public universities	1,111	26%	534.5	33%
Other secondary- and tertiary-sector educational institutions	130	3%	83.2	5%
Private enterprises	1,605	37%	514.9	32%
Non-university research institutes	994	23%	413.2	25%
Public institutions	136	3%	18.7	1%
Other institutions	329	8%	68.9	4%
H2020 AT total	4,305	100%	1,633.4	100%

Note: 760 private enterprises are counted in the “SMEs” category. The organisations themselves determine whether they count as an SME.

Source: ECORDA contract data, data correct as of October 2020, prepared by EU-PM

Fig. 10.4: Horizon 2020 – Austrian projects involved in the “Excellent Science” pillar



ERC: European Research Council; FET: Future and Emerging Technologies; MSCA: Marie Skłodowska-Curie Actions; INFRA: research infrastructure

Source: ECORDA contract data, data correct as of October 2020, prepared by EU-PM

Bi- and multilateral education and research partnerships

The universities cooperate with many prestigious international partner institutions in areas relevant to Austria for geographical, economic and cultural reasons. North America, Europe (EU, CEE countries and Danube region) and parts of Asia remain the regions of particular focus. Africa has been added as a new focus region in the wake of the “High Level Forum Africa-Europe – Taking cooperation to the digital

age” as part of Austria’s EU Council presidency in 2018. Significant partnerships are in place both at individual level and at institutional level via specific programmes (such as Fulbright, CEEPUS), institutions (such as the centres for Austrian studies and Offices of Science and Technology Austria in Washington, D.C. and Beijing) or networks (such as Austrian Scientists and Scholars in North America – ASCINA, the Asean-European Academic University Network – ASEA-UNINET, and Africa-UniNet).

11 Universities and their interaction with the economy and society

Universities are key strategic institutions that accelerate social, economic and technological progress by generating both highly qualified human potential and knowledge relevant to society. This happens as they fulfil their primary tasks of teaching and research as well as advancement and appreciation of the arts (their first and second mission). The targeted use of academic knowledge for society and the economy takes place in a number of fields of activity, which are ideally assigned to the so-called third mission.

The successful activities of the past few years that can be attributed to “third mission” and “responsible science”, were further expanded and embedded in the strategy under the 2019-2021 performance agreements with the universities. The focus lay on achieving the Sustainable Development Goals (SDGs), expanding citizen science approaches, life-long learning, validating non-formal and informal skills and qualifications and the concept of the entrepreneurial university.

Teaching and communicating science

For the universities, acting responsibly means making the knowledge that they generate accessible to a large part of the population by preparing it in a suitable manner and reflecting this in an on-going dialogue with society. To facilitate this exchange, the capacity of both sides to engage in dialogue must be fostered by increasing the scientific literacy of the general public and the societal literacy of the scientific and academic community. The 2019-2021 performance agreements thus made projects geared towards strengthening societal literacy a priority.

Alongside traditional forms of public relations and knowledge communication, the universities also focused increasingly during the reporting period on target-group-specific formats – some of which were brand-new – on issues relevant to society. These formats included policy cafés, knowledge quizzes, science brunches, “science slams” and hands-on labs, as well as debates. In 2020, Universities Austria in partnership with the 22 universities and the Austrian Science Fund launched the “Uninteresting?”

(“Uninteressant?”) campaign. It highlights projects and research results that are helping the Austrian universities improve people’s lives and daily routines on an on-going basis.

Science education for children and young people is carried out via specific initiatives and programmes such as “Young Science”, “Sparkling Science” and children’s and young people’s universities. This is something in which the Federal Ministry of Education, Science and Research has a particular interest.

Responsible science initiatives

Established in 2015, the Alliance for Responsible Science is an association of currently 48 Austrian institutions, including Universities Austria, universities, the Austrian Science Fund, the Federal Ministry of Education, Science and Research and the Austrian Academy of Sciences. The alliance aims to develop hybrid networks between universities, non-university research, the private sector and civil society and to harness hitherto untapped potential for society to contribute its own findings to both basic and applied research by way of citizen science or crowdsourcing projects.

Organised by the Federal Ministry of Education, Science and Research, Austrian Exchange Service and Austrian Science Fund, the “Top Citizen Science” funding initiative is a key tool for promoting citizen science research. The Austrian Science Fund issued three calls for proposals in the reporting period. Five projects in 2018 and four in 2019 secured funding worth up to €50,000 each.

Since 2019, the Citizen Science Network Austria (CSNA), based at the University of Natural Resources and Life Sciences Vienna, has also been in existence.

Universities and the Sustainable Development Goals (SDGs)

At the level of higher education policy-making, the Federal Ministry of Education, Science and Research is continuing to further the implementation of Agenda 2030 by incorporating it into key federal government strategy documents (Austrian National Development Plan for Public Universities 2019-2024, 2022-2027; RTI strategy 2020) and including it in the performance agreements (2019-2021 and 2022-2024) with the universities.

In its manifesto for sustainability, which was published in early 2020, Universities Austria emphasised the universities' responsibility for acting sustainably in their teaching, research, knowledge exchange and university management, and committed to embedding sustainability more firmly within universities. Networks of excellence such as the Alliance of Sustainable Universities in Austria, the university network UniNEtZ, the Climate Change Centre Austria, and the ÖKOLOG schools network, which is run by the university colleges of teacher education, are doing much to achieve this objective by providing coordination services and practical assistance.

Launched jointly by the Federal Ministry of Education, Science and Research and the Alliance of Sustainable Universities, the UniNEtZ project is a shining example of inter- and intra-university networking and of embedding the SDGs in all areas of the university. UniNEtZ will present an options paper in 2021 designed to show the Austrian Federal Government a range of potential forward-looking actions for pursuing the SDGs.

Every two years since 2008, the Federal Ministry of Education, Science and Research and the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology have presented the "Sustainability Award" to show fitting appreciation of the wealth of initiatives undertaken at institutions of higher education in the area of sustainable development. The award was handed out twice during the reporting period and has enjoyed a significant rise in popularity judging by the number of submissions (+30% between 2018 and 2020).

Lifelong learning

The universities are key players in the implementation of the national "LLL:2020 Strategy for Lifelong Learning in Austria". Nearly all universities now have

a dedicated LLL strategy or have integrated one into their development plans or other strategies.

A strategy for the validation of non-formal and informal learning in Austria was developed in 2017 as a further contribution towards implementing the national LLL:2020 strategy. More work was done on implementing this during the reporting period, such as agreeing with the universities to develop procedures for recognition of non-formal and informal prior qualifications. Among other things, this should facilitate permeability between vocational and higher education and shorten the study time of students with work experience.

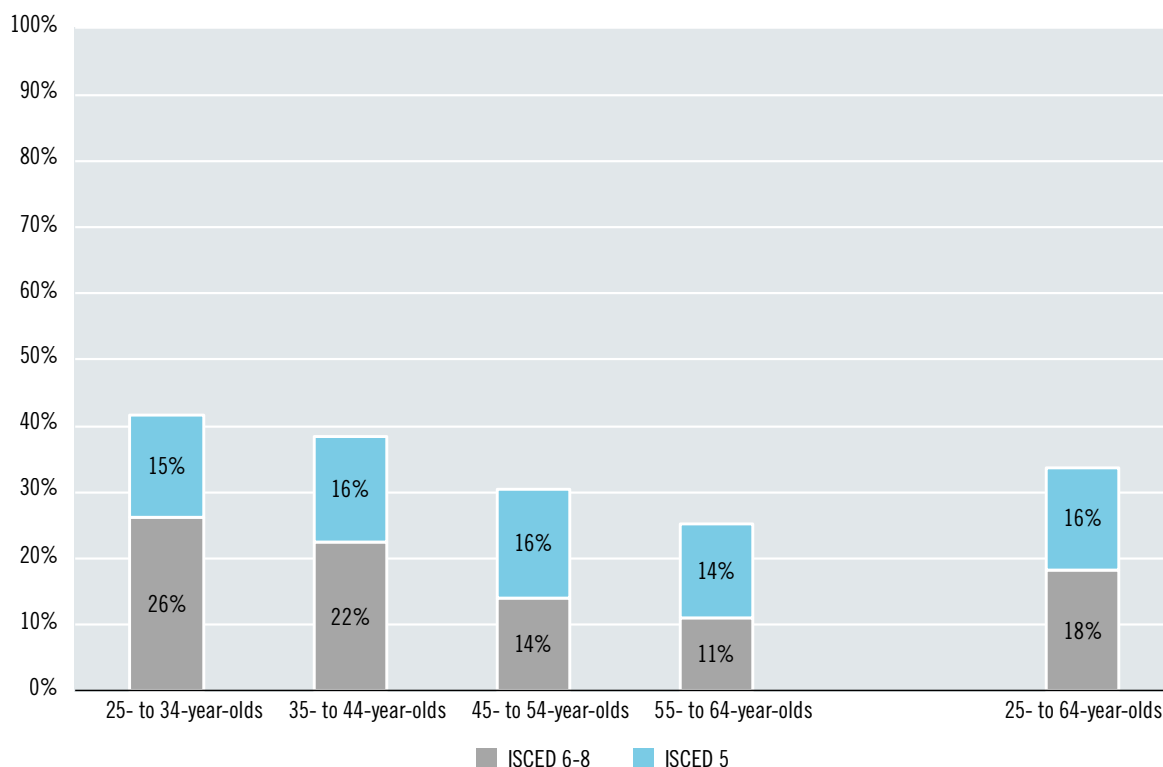
An important priority in continuing academic education remains supporting extra-occupational study, e.g. by setting up extra-occupational master's programmes. Offering a range of formats such as courses for specific target groups, seminars, workshops and lectures – including some at the interface with science communication – also gives interested members of the general public access to high-quality continuing education.

Tertiary quota and proportion of academics

Education is one of the main determinants of economic growth, particularly in high-tech OECD countries. The "tertiary quota" reflects the percentage of 25- to 64-year-olds with a tertiary education qualification at ISCED levels 5 to 8. It also counts short-cycle tertiary education programmes, which include degrees from a College for Higher Vocational Education (BHS). The tertiary quota continued to increase during the reporting period and stood at 33.8% overall in 2019, roughly in line with the OECD average.

By contrast, the figure for the proportion of academics only covers ISCED levels 6 to 8 and shows the percentage of the 25- to 64-year-old resident population with a higher education qualification. It was 18.2% in 2019, well below the OECD average.

Fig. 11.1: Tertiary quota and proportion of academics in 2019



Tertiary quota = percentage of the 25- to 64-year-old resident population with a tertiary education qualification (ISCED 5-8)

Proportion of academics = percentage of the 25- to 64-year-old resident population with a higher education qualification (ISCED 6-8)

ISCED 2011 classification.

Source: Statistics Austria. Austrian Micro Census – Labour Force Survey Yearly Data

Academics in the labour market

Higher education graduates find jobs in many different and highly contrasting markets. Higher education also has a positive impact on average salary, the employment rate and the unemployment rate across the board. For instance, people in Austria with a qualification from a College for Higher Vocational Education (BHS) or a post-secondary school (“short-cycle tertiary”) earn 31% (OECD average: 19%) more than graduates of upper secondary institutions, mainly Academic Secondary Schools (AHS) and Schools for Intermediate Vocational Education (BMS). The corresponding figure for those with a master’s degree, diploma or doctorate is 75% (OECD average: 89%). A higher education qualification still pays off, in other words, despite the sharp rise in the percentage of academics amongst the general population.

Whilst the unemployment rate amongst academics increased between 2008 and 2016, it fell slightly from 2017 to 2019. Although the COVID-19 pandemic

has prompted a renewed rise, it has been much less severe so far than amongst those with lower-level formal qualifications.

A forecast by the Austrian Institute of Economic Research (WIFO) suggests that the number of academic staff employed by institutions will have increased by 2.5% each year between 2018 and 2025, thus continuing to climb much faster than the figure for all people in gainful employment. While a rise in employment numbers is anticipated across all groups of academic professions, academic ICT professions are set to enjoy the highest rates of employment growth in relative terms (+4.7% per year). Demand for academic posts in economics, engineering, architecture, natural sciences and healthcare is also expected to increase by over 3% a year according to the survey.

The Skills Barometer of the Public Employment Service Austria suggests that academics have the best job opportunities in life sciences, engineering, law and economics as well as teaching. Aspiring hu-

manities scholars and social scientists are considered to have fairly unfavourable job prospects. There will potentially be a skills shortage affecting, in particular, electrical engineering, electronics, telecommunications, IT and the interface between business and technology. The barometer also points to an upcoming shortage in some medical specialisms at regional level (e.g. general practice in rural areas).

A good match between skills available and skills demanded is crucial for enterprises and the labour market. According to the European Commission, the skills level of the Austrian population is a good fit for the structure of its labour market. Around a third of higher education graduates in Austria in gainful employment were overqualified in 2017, with women slightly outnumbering men in this category.

Interface between studying and the world of work

Universities have a responsibility to teach their students skills that empower them to apply scientific knowledge and capabilities outside the academic system. The universities use a wide variety of measures to smooth their students' transition from studying to the labour market, including job fairs, job platforms, fact-finding events and continuing education courses that help them obtain additional specialist qualifications and boost their personal skills. Most universities have job or careers centres, some of which are linked to alumni associations. Many have run surveys to find out what jobs their graduates are doing, what skills they have and how well they have integrated into the labour market.

In order to learn more about what their graduates do after finishing their studies and make this knowledge more comparable, all universities offering bachelor's programmes and diploma courses agreed on a standard tracking system for graduates in partnership with Statistics Austria. This analysed the careers that graduates entered using administrative data from Statistics Austria, based on indicators such as status on the Austrian labour market, time until first job, stability of employment, income trend and economic sectors. The analyses, which are broken down by subject, can help the universities shape the advice they provide to students, give students clearer focus and improved career guidance, share information with the general public and further de-

velop their curricula. Three years after completing their bachelor's programme, 66% of those aged under 35 who have remained in Austria and did not continue education are either employed or self-employed. This rate increases to 82% for graduates of a master's programme. The master's graduates not in gainful employment are either unemployed (2.3%), engaged only in minimal employment (1.3%) or not earning (14%: e.g. on maternity leave, self-insured, making no disclosures other than their principal residence).

Universities as a factor for a location and its region

Universities play a key role in a knowledge-driven regional economic policy. European regional economic policy – one of “smart specialisation” – is essentially an innovation policy that addresses education, knowledge and the creative potential of a city or region alongside scientific and technological aspects. The presence of strong regional networks and the recognition of universities' strengths as competitive factors for a city or region also help to raise the international profile of Austria's knowledge hubs.

As part of its “leading institutions” initiative, the Federal Ministry of Education, Science and Research has invited the universities to position themselves actively as partners of a knowledge-driven regional economic policy. All universities have now developed a location strategy.

Knowledge and technology transfer

Knowledge and technology transfer has continued to grow in importance as a core element of the “third mission” in recent years, thus increasing the universities' responsibility not only to serve as knowledge carriers but also to impart that knowledge to the economy and society.

Knowledge and technology transfer and the exploitation of intellectual property rights at universities were driven forward in a targeted manner during the reporting period. The universities' current strategies for intellectual property rights and their exploitation contain targets and measures covering a wide range of exploitation activities such as patents, licences, business start-ups, expertise transfer, partnerships with the private sector, incentives and awareness. They are thus making a major contribu-

tion to the professional and strategic transfer of knowledge and technology. The strengthening and expansion of technology transfer offices at universities and research institutions based on international models has been strongly promoted.

Academic spin-offs are key to turning a good technological idea into an innovation. The number of university spin-offs increased during the reporting period from 12 in 2017 to 19 in 2019. The Federal Ministry of Education, Science and Research is helping to promote the establishment of spin-offs by embedding spin-off strategies in the performance agreements, offering a dedicated funding programme (the “Spin-off Fellowship”) and awarding the PHÖNIX prize for start-up entrepreneurs in Austria. Launched in 2018, the Austrian Startup Monitor provides an extensive database covering the creation, growth and development of start-ups in the country.

Cooperation between science and industry

Successful partnerships between science and industry open up access to top-level research expertise, promote synergy effects and play a major role in regional policy and in business location decisions. Pooling complementary skills of universities and companies in cooperative research is a priority of Austria’s RTI policy and is receiving successful support from a variety of schemes such as “COMET” of the Austrian Research Promotion Agency, professorships funded by foundations, and “K2 Centers” as well as Christian Doppler Research Association laboratories and Research Studios Austria. Austrian universities are generally very successful in bidding for this research funding.

The Austrian Research Promotion Agency’s COMET programme sets a strong impulse for cooperative research focusing on excellence and location-specific technological leadership. It is run under the aegis of the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology and the Federal Ministry for Digital and Economic Affairs and is supported by funds from the regional governments. The scheme has attracted €1.1 billion in funding since 2008 (€745 million from the federal government, €373 million from the states) and comprises three fields of activity: “COMET Centers” (formerly “K2 Centers”

and “K1 Centers”), “COMET Projects” and “COMET Modules”.

In the Christian Doppler Research Association laboratories, Austria has a model for cooperation between science and industry that has proved its worth over many years and that is funded 50/50 by the public sector and participating companies. CD Laboratories undertake application-oriented basic research that involves research groups working closely with business enterprises on innovative answers to questions of business research. The CD Laboratories had a total budget of some €32 million at their disposal in 2020. As of July 2020, 81 CD Laboratories had been set up at 13 universities to promote cooperation between university research and industrial development.

Established in the 1960s, the Ludwig Boltzmann Gesellschaft (LBG) is now a research-performing organisation focusing on medicine and life sciences as well as the humanities, social sciences and cultural studies. Twenty Ludwig Boltzmann Institutes and two research groups work on clearly defined issues, which are generally interdisciplinary and at the interface between basic and applied research. The LBG Open Innovation in Science Center and the LBG Career Center for young scientists and academics have also been set up in recent years. As a key institution in the Austrian research area, the Ludwig Boltzmann Gesellschaft will receive a three-year performance agreement on a statutory basis in the future. It will set a new strategic course in 2021 in order to carve out a new position for itself in healthcare and medical research. Ten Austrian universities partnered with seventeen Ludwig Boltzmann Institutes and one research group in 2020.

Entrepreneurship and innovation in the university segment

The concept of the entrepreneurial university, which is geared towards promoting entrepreneurial and innovative thought processes and actions for the benefit of society, is guiding the strategies and decisions of an increasing number of universities. The universities are taking measures to strengthen entrepreneurship and innovation in the 2019-2021 performance agreement period, from organising courses and continuing education in order to teach relevant skills through to networking activities with the pri-

vate sector and setting up business incubators, co-working spaces, “maker spaces” for building prototypes and open labs as a space for experimentation. Every university location also has a business incubator in partnership with regional players. The “Entrepreneurship Center Network” was set up by six universities as an interdisciplinary platform for students in order to increase the number of interdisciplinary enterprises emerging from universities over the long term.

In order to compare the performance of the university system in terms of entrepreneurship and innovation with that of other countries, Austria took part in the second round of “HEInnovate” country studies run by the European Commission and the

OECD. Austria's review focused on three dimensions: “Leadership and Governance”, “Entrepreneurial Teaching and Learning” and “Preparing and Supporting Entrepreneurs”. In its country review, entitled “Supporting Entrepreneurship and Innovation in Austria”, the OECD gave Austria a very good report for its policy of promoting partnerships between science and industry that has remained consistent over many years and that has recently also focused increasingly on greater openness towards society. This confirms that the universities and universities of applied sciences are genuine key players in innovation and entrepreneurship but that are also largely responsible for the country's economic success.