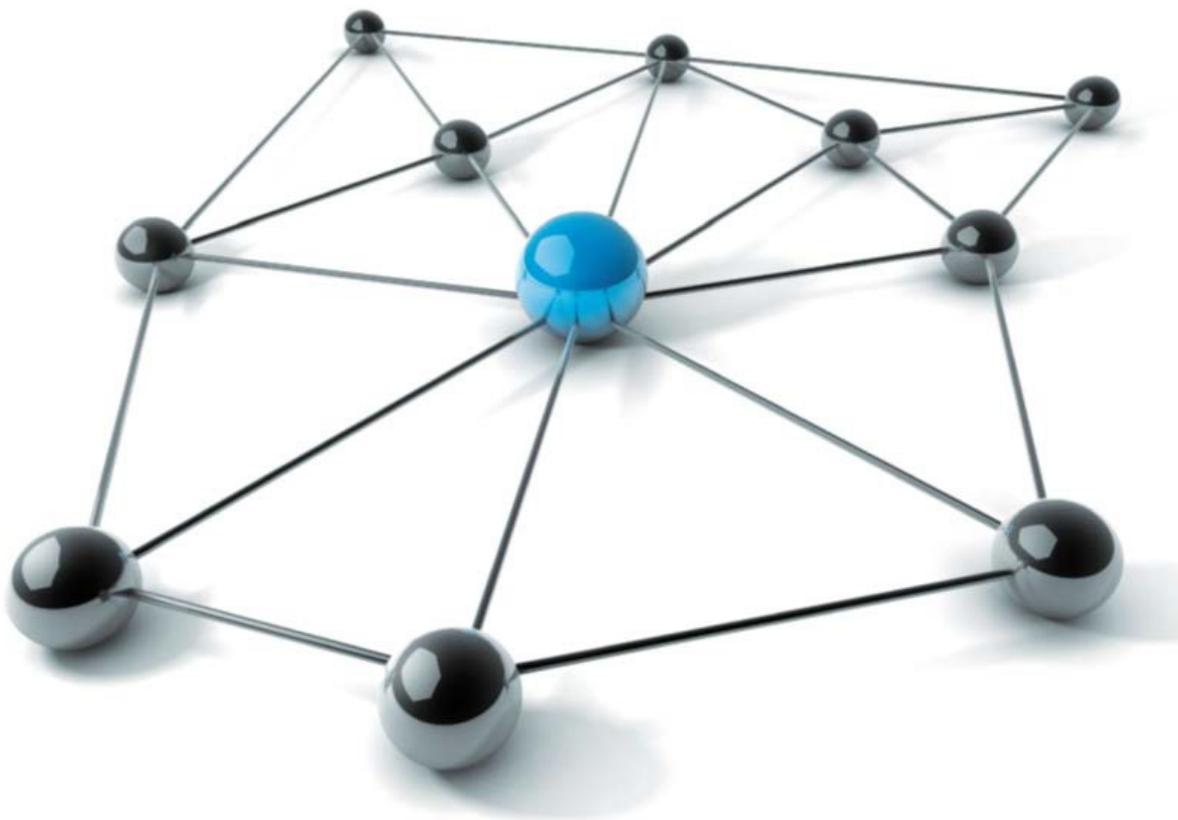


# Austrian National Development Plan for Public Universities 2019–2024



Publisher:  
Federal Ministry of Education, Science and Research  
1010 Vienna | Minoritenplatz 5 | [www.bmbwf.gv.at](http://www.bmbwf.gv.at)

Internet:  
<https://bmbwf.gv.at/wissenschaft-hochschulen/universitaeten/der-gesamtoesterreichische-universitaetsentwicklungsplan-2019-2024/>

Translation: Young Translations, 1030 Vienna

German version published in October 2017  
English version published in August 2018

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## An overview of the 8 objectives for the higher education system

### Objective 1:

Further develop and strengthen the higher education system

#### Implementation objectives:

- a) Differentiate and diversify the higher education system by coordinating the courses offered and forming clusters between institutions
- b) More precise definition of university research profiles and increased interlinking between research activities
- c) Strengthen tertiary arts education and arts development

### Objective 2:

Strengthen basic research

#### Implementation objectives:

- a) The universities should remain the principal providers of basic research in Austria
- b) Promote opportunities for new, innovative and unconventional research at universities
- c) Further develop competitive and project-related components of research funding

### Objective 3:

Improve the quality of university teaching

#### Implementation objectives:

- a) Improve teaching quality
- b) Quality-focused implementation of the new teacher training programme (*Pädagog/innenbildung NEU*)
- c) Foster quality and permeability of university continuing education

### Objective 4:

Improve relevant key performance indicators in teaching (impact-oriented indicators)

#### Implementation objectives:

- a) Improve teacher/student ratios
- b) Increase the number of students actively taking exams
- c) Increase the number of students graduating, particularly in those STEM disciplines that are most in demand on the employment market

### Objective 5:

Career development for young academics

#### Implementation objectives:

- a) Attractive career options for young academics
- b) Increase the educational level by further developing content-related quality requirements and enhancing administrative and organisational support for PhD students

### Objective 6:

Enhance knowledge and innovation transfer as well as location-based benefits

#### Implementation objectives:

- a) Promote Open Access, Open Data and Open Science
- b) Enhance cooperative and competitive research infrastructure
- c) Intensify knowledge and technology transfer and entrepreneurial thinking
- d) Align knowledge locations with an international profile

### Objective 7:

Increase internationalisation and mobility

#### Implementation objectives:

- a) Increase transnational physical mobility along with promoting and funding internationalisation at home
- b) Increase internationalisation

### Objective 8:

Social responsibility of universities: gender equality, diversity and social inclusion, responsible science, sustainability and digital transformation

#### Implementation objectives:

- a) Achieve a gender balance among all members of the university
- b) Improve social inclusion and establish a diversity-oriented culture of equality in universities
- c) Develop university profiles and links between universities in the area of responsible science/responsible university, scientific communication and participative research (citizen science)
- d) Integrate the principle of sustainability in university development and university profiles
- e) Digital Transformation

## Introduction<sup>1</sup>

As a strategic planning framework for the public universities, the Austrian National Development Plan for Public Universities aims to help regulate the optimisation of the Austrian higher education system and to formulate some possible courses of action for higher education in universities. Reference is made to the research contract with universities, which also specifies the link between research and teaching (research-led teaching) as a distinguishing characteristic of university education.

This is taking place amid steadily increasing competition between higher education institutions at the international level.

The submission of the Austrian National Development Plan for Public Universities in December 2015 represented the first tangible step towards complying with the intent of the Universities Act 2002 (ensuring autonomous development and integration of individual universities into an overall system) and the demands from a wide range of stakeholders (Austrian Science Board, Austrian Council for Research and Technology Development, Austrian Court of Auditors, etc.) to pursue a holistic approach to the development of the public university system. The first version was created in close coordination with the Austrian Science Board, following detailed discussions with representatives from Universities Austria (uniko) and a consultation process involving 42 higher education institutions.

The Austrian National Development Plan for Public Universities now was updated in light of the performance agreement negotiations due to take place next year, and was sent to universities in the autumn of 2017 along with the auxiliary document for the performance agreements.

### **Why an Austrian National Development Plan for Public Universities?**

The Austrian National Development Plan for Public Universities must be seen in conjunction with the new university funding mechanism and in particular with the associated focus on teaching capacities.

The Austrian Federal Ministry of Education, Science and Research uses the Plan as a strategic planning tool for developing higher education and training, for setting priorities and for transparent presentation of its objectives for the next two performance agreement periods.

With its planning variables for teaching, such as student numbers, courses with students actively taking exams, graduations or staff/student ratios, the Plan is intended to complement the published key indicators in the research area, such as third-party funding development, development in research and development expenditure/proceeds/research intensity, etc. (see RTI Strategy as well as the Austrian Research and Technology Report).

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<sup>1</sup> This document relates to the universities within the scope of the Universities Act UG 2002 section 6, and in the context of further education also to the University for Continuing Education Krems (DUK) pursuant to DUK Act 2004, but does not take account of private universities (Private Universities Act – PUG 2011).

## Status quo of the controlling<sup>2</sup>

In addition to the statutory basis, the Austrian National Development Plan for Public Universities takes account of the extent to which Austria is embedded within the European Research Area (ERA) and European Higher Education Area (EHEA) along with the corresponding European and national documents:

### Strategic documents at the international level and in particular the European level

- Communication from the European Commission on a renewed EU agenda for higher education, COM 2017(247) final/2, 2017
- Education at a Glance, OECD, September 2017
- Agenda 2030 – “Transforming our World: The 2030 Agenda for Sustainable Development”, SDGs/Sustainable Development Goals, decision by the Austrian Council of Ministers from 12 January 2016
- Communication from the European Commission on a new skills agenda for Europe, COM(2016) 381 final, June 2016
- ECTS guidelines 2015, European Union, 2015
- Yerevan Communiqué 2015, EHEA ministerial conference, May 2015
- Standards and guidelines for quality assurance in the European Higher Education Area (ESG). EHEA ministerial conference, May 2015
- Principles and practices for international doctoral education, European University Association (EUA), 2015
- Council conclusions on advancing gender equality in the European Research Area, Council of the European Union, December 2015
- Communication from the Commission on a Reinforced European Research Area Partnership for Excellence and Growth, European Commission, COM(2012) 392 final, May 2012
- Bucharest Communiqué 2012, EHEA Ministerial Conference, April 2012
- Principles for Innovative Doctoral Training, European Commission, June 2011
- Communication from the Commission, EUROPE 2020 – A strategy for smart, sustainable and inclusive growth, AOM(2010) 2020 final, March 2010

### National government strategies

- National reform programme of Austria, April 2017 (annual)
- Intellectual property strategy for Austria. The intellectual property strategy of the Austrian federal government, February 2017
- The digital strategy of the Austrian federal government, January 2017
- Open innovation strategy for Austria. Objectives, measures and methods, July 2016
- Austrian ERA Roadmap, April 2016
- Outcome objectives in accordance with the Austrian Federal Budget Act or Federal Finance Act<sup>3</sup> (annual)
- RTI strategy of the federal government as well as the recommendations and actions plans

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<sup>2</sup> Documents are stated in the following sequence in order of publication date: European/international level; national level: government documents, Austrian Federal Ministry of Education, Science and Research documents, recommendations from national advisory panels and others.

<sup>3</sup> The five outcome objectives of the Austrian Federal Ministry of Education, Science and Research are:

1. quality and capacity-oriented increase in the number of students graduating from universities, universities of applied sciences and private universities, in line with the Bologna goals;
2. Creating an internationally competitive university and research area with national coordination of teaching and research;
3. Ensuring maximum possible awareness among the public of the importance of science, research and arts development;
4. Gender balance in executive positions, boards and committees and among young scientists and artists;
5. Ensuring a high level of top-quality research through successful participation in the EU Research Framework Programme.

developed by the RTI strategy task force and its working groups during implementation<sup>4</sup>, March 2011

- Federal government's national "Strategy for Lifelong Learning in Austria" (LLL:2020), July 2011

#### Strategic documents of the Austrian Federal Ministry of Education, Science and Research<sup>5</sup>

- National strategy on the social dimension of higher education. Towards more inclusive access and wider participation, Federal Ministry of Science, Research and Economy, February 2017
- Humanities, social sciences and cultural studies. Contribution to the strategic further development of the general framework, Federal Ministry of Science, Research and Economy, September 2017
- Higher education mobility strategy of the Federal Ministry of Science, Research and Economy aimed at promoting transnational mobility at Austrian universities, universities of applied sciences and private universities, August 2016
- Strategy for the future for life sciences and pharmaceuticals in Austria, Federal Ministry of Science, Research and Economy, October 2016
- Action plan for a competitive research area. Measures by the Federal Ministry of Science, Research and Economy aimed at more effective implementation of the federal government's RTI strategy in selected topic areas, 2015

#### Policy recommendations from national bodies

- The Austrian higher education and science system. *Ein Weißbuch und eine konkrete Utopie* (A white paper and a "concrete utopia"), Austrian Science Board, November 2015
- Recommendations from the Austrian Higher Education Conference, in particular those on "improving the quality of teaching in higher education", April 2015
- Memorandum of Understanding from the "Alliance for Responsible Science", 2015
- *Universität 2025, Analysen und Empfehlungen zur Entwicklung des österreichischen Hochschul- und Wissenschaftssystems* (University 2025, Analyses and recommendations for development of the Austrian higher education and science system), Austrian Science Board, November 2009
- Strategy 2020, Austrian Council for Research and Technology Development, August 2009

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<sup>4</sup> Available at: <http://archiv.bka.gv.at/DocView.axd?CobId=53771>

<sup>5</sup> Up to January 2018: Federal Ministry of Science, Research and Economy  
Austrian National Development Plan for Public Universities 2019–2024

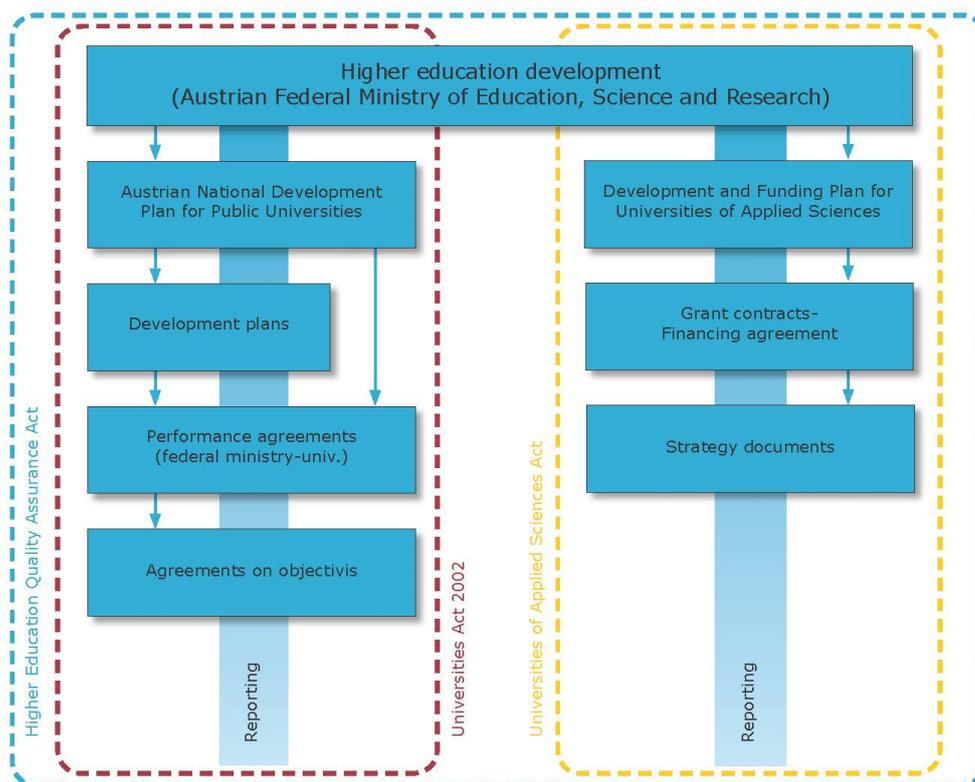


Figure 1: Illustration of the essential control mechanisms between universities and the federal government as well as between universities of applied sciences and the federal government. Source: own illustration

### Description of the chart:

The objectives of the Austrian Federal Ministry of Education, Science and Research in higher education planning stem largely from the documents listed in the aforementioned reference framework, such as:

1. Recommendation of the Austrian Science Board:
  - Diversify higher education system
  - Student- and capacity-oriented university funding
  - Regulate admissions
  - Career development for young academics
2. RTI strategy:
  - Increase funds for basic research and university financing
  - Expand the research infrastructure, academic careers and clusters of excellence
3. Work programme of the Austrian Federal Government
  - 2% of GDP for tertiary education and research
  - Expand research infrastructure

Priority objectives are presented in the Austrian National Development Plan for Public Universities. These form the strategic framework for the areas of activity and responsibilities prioritised by the universities.

Each university sets out its strategies and priorities within the framework of its Development Plan, and the selected objectives are implemented by the federal government and universities specifically via the relevant performance agreements.<sup>6,7</sup>

The university strategies are then finally forwarded by the rectorates to the universities' internal organisational structures as agreements on objectives.<sup>8</sup>

Implementation of the strategies and objectives is accompanied by reporting at different levels (Intellectual Capital Statements (*Wissensbilanz*), statements of accounts, universities report of the Austrian Federal Ministry of Education, Science and Research to the National Council, monitoring of the performance agreements, higher education statistics, etc.).

The Universities Act 2002 and the Higher Education Quality Assurance Act are two of the elements that form the legal framework here.

## Vision

Universities are key strategic institutions today in the context of creating a knowledge-based society. Universities and higher education institutions in general have a location-related impact as lead institutions and stabilising economic “anchors” in a region. They also “attract” new ideas along with investment, and act as agents that can “transform” ideas into innovations with commercial potential.

With the objectives set out in the Austrian National Development Plan for Public Universities, the Austrian Federal Ministry of Education, Science and Research is pursuing the following vision for universities in the Austrian research and higher education area:

1. Diversified higher education landscape: autonomous as well as needs-oriented, gender-balanced and socially responsible universities with comprehensible and clear responsibility profiles which permit creativity and scope for individual action
2. National impact and global visibility of teaching, research and arts development through internationalisation, strong partnerships and associations
3. Balanced participation by all sections of the population in education and training and transferability between the higher education sectors
4. Equal prestige and appreciation for vocational training as well as higher education
5. Adequate funding for universities which provides certainty for planning and allows for a strategic approach

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<sup>6</sup> For universities of applied sciences, the objectives, priorities and development planning are set out as part of the accreditation process for new universities of applied sciences and courses at these, as well as in the priorities for the development and funding plans at each institution.

<sup>7</sup> The objectives for universities of applied sciences are implemented in the form of allocations of new student places (following a proposal procedure) and approval of the funding extensions for existing courses by the Austrian Federal Ministry of Education, Science and Research (based on the university's relevant development and funding plan). The annual funding agreements between the Austrian Federal Ministry of Education, Science and Research and the individual universities of applied sciences include the legal conditions for awarding the funding and details on individual new and existing student places receiving funding at the course level.

<sup>8</sup> For universities of applied sciences there is no statutory obligation to enter into internal agreements on objectives. The strategies of each university of applied sciences are influenced among other things by the student places funded by the Austrian Federal Ministry of Education, Science and Research via the relevant development and funding plan, and are communicated by the leadership of the university via internal management tools.

# The objectives of the Austrian National Development Plan for Public Universities

## Objective 1: Further develop and strengthen the higher education system

### Implementation objectives:

- a) Differentiate and diversify the higher education system by coordinating the courses offered and forming clusters between institutions.

### Description:

Traditional universities and universities of applied sciences are intended, as institutions with differing characteristics, to complement each other in the higher education system<sup>9</sup>, as part of the regional, national and European research (ERA) and higher education areas (EHEA); they also operate to differing extents at the international level. Continued expansion of their obligations and responsibilities requires them to extend the range of services provided, and to improve it constantly – particularly in terms of economic and social impact<sup>10</sup>, within the globally competitive context which is intrinsic to the academic system. Clearer institutional profiles, more explicit allocation of responsibilities and cooperation in service provision are basic requirements for this.

The higher education landscape in Austria today is a complex and diverse one, with 21 public universities (as defined by section 6 sub-section 1 of the Austrian Universities Act (UG)), the University for Continuing Education Krems, 21 universities of applied sciences, 13 private universities and 14 university colleges of teacher education; in the winter semester 2016/17 there were around 357,000 regular students overall (or around 389,000<sup>11</sup> students in total); approx. 56,000 students graduated in the 2015/16 academic year<sup>12</sup>. This makes it essential to establish clearly differentiated profiles in research and teaching and in setting priorities, along with a responsible and proactive process for handling knowledge, in the interests of scientific, social and economic development (e.g. the Third Mission<sup>13</sup>). This is all the more significant since universities in Austria, as research institutions, are the principal providers of tertiary education and training.

The development of the Austrian higher education system expresses an implicit higher-education-policy-decision made on quasi historical grounds to keep the Austrian higher education system open to around 50%<sup>14</sup> of people in the typical age of entry.

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<sup>9</sup> see *Universität 2025, Analysen und Empfehlungen zur Entwicklung des österreichischen Hochschul- und Wissenschaftssystems* (University 2025, Analyses and recommendations for development of the Austrian higher education and academic system), Vienna, November 2009, p. 22 et seq., p. 41 et seq.; see also the position paper of the Austrian Higher Education Conference, 2012: <http://hochschulplan.at/wp-content/uploads/2012/12/2012-12-13-HSK-Positionspapier.pdf> and section 3 of the Universities Act (UG) and section 3 of the Universities of Applied Sciences Studies Act (FHStG).

<sup>10</sup> see Janger, Jürgen et al. (2017): *Wirtschaftliche und gesellschaftliche Effekte von Universitäten* (Economic and social impact of universities). Project report on behalf of the Austrian Federal Ministry of Education, Science and Research and Universities Austria (uniko).

<sup>11</sup> includes some multiple counting. An adjustment by Statistics Austria from winter semester 2015 shows that the student population as recorded (385,000) included around 4,000 double counts (adjusted figure 381,000).

<sup>12</sup> Source: unidata – Datawarehouse higher education sector of the Austrian Federal Ministry of Education, Science and Research: <http://www.bmbwf.gv.at/unidata>; Statistics Austria.

<sup>13</sup> The “Third Mission” and the “Responsible Science” initiative are rooted in a comprehensive understanding of the social responsibility of universities, and demonstrate a commitment to teaching, research and innovation that are open to and responsible towards society. The Third Mission in particular includes the transfer of knowledge and technology, innovation, scientific communication, the interaction between universities and industry, and lifelong learning.

<sup>14</sup> see Education at a Glance (EAG) 2017, Table C3.3 (higher education admissions ratio – Bachelor, ISCED 6). This ratio describes the proportion of students beginning bachelor’s degree courses at universities, universities of applied sciences and colleges of education in a single age cohort and is currently 43%. Factoring in those beginning diploma courses, as additional first-stage academic qualifications, increases this ratio to 52.1% currently, according to Statistics Austria.

With respect to university admissions there is an entrance ratio of around 48% of high school graduates (with the “*Matura*” school leaving examination), i.e. one in two start a university degree course within three semesters of gaining their university entrance qualification.<sup>15</sup>

The design and further development – particularly intersectoral developments – of the Austrian higher education system need to be considered against this background, with universities playing a crucial role. Around 79% of all tertiary students in the 2016/17 winter semester were enrolled at public universities.<sup>16</sup>

This level of commitment to teaching and training is not necessarily inherent in public universities – which were designed primarily to cover (basic) research (see objective 2). Solutions are required here which must include the universities of applied sciences in particular. Correspondingly, the teaching and research profile<sup>17</sup>, along with the social responsibilities of each higher education institution, need to be more clearly defined in a diversified higher education system.

In the long term, some relief for the traditional university system also appears to be necessary, e.g. by redirecting students towards the universities of applied sciences, perhaps through further expansion of the universities of applied sciences or possibly through future consolidation of disciplines.

The results of the “Shaping HEIs for the Future” project provide a clear mandate for improved cooperation and coordination at the national level, to enable the higher education system to become more competitive internationally. This requires each individual higher education institution to reflect on their strengths and identify their weaknesses, and on the basis of this understanding, to plan further developments and partnerships as appropriate.

The results are published as concepts<sup>18</sup>, with the key elements implemented via performance agreements and the Development and Funding Plan for Universities of Applied Sciences.

Greater coordination of the courses offered, taking into account the universities’ research profiles and other activities, is an issue being pursued further by the Austrian Federal Ministry of Education, Science and Research.

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<sup>15</sup> See former “Austrian Federal Ministry of Science, Research and Economics”, *Statistisches Taschenbuch* 2017, Table 1.3.

<sup>16</sup> Source: unidata – Data Warehouse, higher education sector of the Austrian Federal Ministry of Education, Science and Research: <http://www.bmbwf.gv.at/unidata>; Statistics Austria.

<sup>17</sup> On the definition of profiles and priority setting (development of priorities) see: Pichl, *Zeitschrift für Hochschulrecht* 11, p. 194–206 (2012), and initial report of the working group “Profile development of Austrian universities”, p. 4 (2001); or Austrian Science Board, (University 2025, Analyses and recommendations for development of the Austrian higher education and academic system), Vienna, November 2009, p. 58, 74 and 195–203 (on the key topics of profiles, priority setting and coordination).

<sup>18</sup> <https://bmbwf.gv.at/wissenschaft-hochschulen/zukunft-hochschule/>

Action	Institution responsible	Implementation	Time frame
<p>Further coordinate the courses offered, between and within the various higher education sectors</p> <p>Promote and expand the dialogue and cooperation between the higher education sectors (e.g. courses and teaching provided jointly)</p> <p>Systematically expand the cooperation between universities in the less common disciplines</p> <p>Joint activities in course information</p> <p>More proactive transferability management, establishment of new transferability mechanisms</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Actions derived from the</p> <p>“Shaping HEIs for the Future” project embedded in performance agreements or through facilitation by the Austrian Federal Ministry of Education, Science and Research</p>	<p>Ongoing until 2024</p>

b) More precise definition of university research profiles and increased interlinking between research activities

Description:

Successful priority setting is fundamentally important for linking the Austrian systems to global knowledge production.<sup>19</sup> The formation of topic-based priorities in research is key to this.<sup>20</sup>

In order to meet the great challenges of our society successfully, it is essential to support research associations and encourage partnerships between universities and with non-university research institutions. Proximity of subject disciplines as well as locations are beneficial here.<sup>21</sup>

The actual content of basic research involves a bottom-up approach and must be defined by the universities themselves as part of their development planning.

The Austrian Federal Ministry of Education, Science and Research hereby has the responsibility to incentivise universities to raise their research profiles, so that research priorities of universities will be perceived abroad as Austrian research strengths. These research priorities must also be coordinated coherently at national level in order to guarantee the most effective use of investments, e.g. in major research infrastructures.<sup>22</sup>

Identify and develop synergies in disciplines with significant research activities at different research institutions, whether these are university, non-university or downstream bodies (Geological Survey of Austria (GBA), Central Institute for Meteorology and Geodynamics (ZAMG)), should take place within the scope of performance agreements. Future construction and infrastructure projects also need to be similarly coordinated.

<sup>19</sup> see Budget estimate 2017, sub-division 31 Science and research, Federal Ministry of Finance (BMF) 2016, p. 11.

<sup>20</sup> *ibid.* p. 27.

<sup>21</sup> see Austrian Science Board, *Ein Weißbuch und eine konkrete Utopie*, (A white paper and a “concrete utopia”), Vienna 2015, p. 50.

<sup>22</sup> see former “Austrian Federal Ministry of Science and Research”, *Hochschulplan* (Austrian Higher Education Plan), 2011, p. 25.

Action	Institution responsible	Implementation	Time frame
More precise definition of research profiles through continued topic-based priority setting at the overall university level	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	Ongoing until 2024
Identify and consolidate research strengths across institutions and form networking platforms on the major challenges facing society, to improve international positioning  Plan, continue and monitor ongoing processes to coordinate specialisms (e.g. the future strategy on life sciences and Austria as a pharmaceutical location, or the strategy on humanities, social sciences and cultural studies <sup>23</sup> )	Austrian Federal Ministry of Education, Science and Research Universities Non-university research institutions	Performance agreement Consider existing research strengths when awarding funds through competition Implement and further develop existing strategies and processes	Ongoing until 2024
Consider university research strengths in construction and infrastructure projects	Austrian Federal Ministry of Education, Science and Research Universities	Real Estate Management Plan	Ongoing until 2024
Documented use of major international research institutions (e.g. CERN, CESSDA)	Austrian Federal Ministry of Education, Science and Research	Evaluate the use of major international research institutions at Austrian universities, Austrian Academy of Sciences and ISTA by a project group of the Austrian Federal Ministry of Education, Science and Research	by 2024

### c) Strengthen tertiary arts education and arts development

#### Description:

Arts and sciences have come closer together over the last few decades, in terms of both creative and methodical perspectives. Aspects such as research about art, research through art and research in art describe the tasks assigned by law to the universities of the arts under the concept of “arts development” (i.e. *Entwicklung und Erschließung der Künste*, often abbreviated as “EEK”). Six public universities of the arts are the result of conscious higher education policy system decisions: as the “academic” embodiment of Austria’s own view of itself as a land of art and culture. The Austrian universities of the arts provide tertiary artistic training at university level, with a global reputation, and produce graduates for Austria and the world. Greater visibility of their achievements and positioning in the European / global “competitive space” (similar to the “measurement” or “positioning” of the performance of scientific universities) is an important factor over the next few years, to ensure that this system becomes established on a lasting basis. Continuing developments in the quality of the universities of the arts in general, the role of arts development in (social) innovation and creativity (with respect to industry as well as society) represent further important

<sup>23</sup> Humanities, social sciences and cultural studies. Contribution to the strategic development of the situation, Federal Austrian Federal Ministry of Education, Science and Research, September 2017.

contextual stages.

Action	Institution responsible	Implementation	Time frame
<p>Consider the special requirements of universities of the arts in planning processes of the Austrian Federal Ministry of Education, Science and Research</p> <p>Greater visibility of the achievements of universities of the arts</p> <p>Interdisciplinary linkage between artistic expertise and other academic disciplines<sup>24</sup></p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>

## Objective 2: Strengthen basic research

### Implementation objectives:

a) The universities should remain the principal providers of basic research in Austria

#### Description:

Basic research is a core area of government responsibility in research and innovation policy.<sup>25</sup> According to the OECD's Frascati Manual, basic research is aimed at acquiring new knowledge without considering specific application purposes.<sup>26</sup> Basic research must be understood as part of a "dynamic research triangle"<sup>27</sup> which includes application-oriented research as well as applied research and development, and is involved in constant exchange with these modes of research.

The universities are the sponsors of basic research in Austria, and their expenditure on research and experimental development in 2015 accounted for 64% of all R&D expenditure on basic research in Austria (overall the universities are responsible for 21% of total R&D expenditure).<sup>28</sup> The universities are also expected to remain the main sponsors of basic research in Austria, and basic financing for this should also be ensured in future from government funding.<sup>29</sup> Safeguarding high-quality training for young academics is another important task for universities in this area.

Actions	Institution responsible	Implementation	Time frame
<p>Secure balanced third-party funding that fits the university's profile by creating/further developing third-party funding strategies on the part of the universities</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p> <p>Integration into university development plans</p>	<p>2019–2024</p>

<sup>24</sup> Partnerships with the scientific universities are particularly suited to cases where it would not make sense to have disciplines from the core area of the scientific universities also offered by the universities of the arts, and vice-versa.

<sup>25</sup> see Austrian Federal Government's RTI Strategy, 2011, p. 18.

<sup>26</sup> see Frascati Manual, OECD 2015, 46 et seq.

<sup>27</sup> see Austrian Science Board, Basic Research in Austria, Vienna 2012, p. 2 and p. 7.

<sup>28</sup> see R&D survey by Statistics Austria for 2015, expenditure by sectors of performance and types of research, calculated for all public universities, including universities of the arts, university hospitals and the University for Continuing Education Krems.

<sup>29</sup> see former "Austrian Federal Ministry of Science and Research", *Hochschulplan* (Austrian Higher Education Plan), 2011, p. 24 et seq.

Funding for PhD students in structured programmes (see Implementation objective 5b)	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement Integration into university development plans	2019–2024
Consider SDGs in university profiling, in particular through increased interdisciplinary activity and <i>open science</i> (see Implementation objective 8d)	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement Integration into university development plans	Time frame for the SDGs: 2016–2030

## b) Promote opportunities for new, innovative and unconventional research at universities

### Description:

Fundamental innovations in society, industry and technology in particular are based on scientific knowledge that cannot be planned or predicted (principle of serendipity). But to enable basic research leading into fundamental innovation, creative spaces and an adequate budgetary basis are inevitable.<sup>30</sup>

Creating institutional scope for researchers where “risky” and innovative basic research is carried out, without specific expectations for the results, is a fundamental task for the universities<sup>31</sup> and must complement any form of content-related priority setting, in order to respond quickly to new developments and findings and be able to generate this type of stimulus themselves, to facilitate the dynamic formation of future research areas and priorities.

Action	Institution responsible	Implementation	Time frame
Discuss the options for risky and unconventional research in universities  Enable creative spaces	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement Integration into university development plans	2019–2024

## c) Further develop competitive and project-related components of research funding

### Description:

Competitive funding for research is essential for improving the circumstances for basic research with a higher international profile. Promotion and funding for research projects through competitively evaluated award procedures within universities are a sign of increased focus on quality. Universities should encourage researchers to participate in these types of international and national programmes of excellence, and also fund and provide appropriate conditions. The Austrian Federal Ministry of Education, Science and Research is also responsible for devising a competitive and project-related funding mechanism for research across the whole of Austria.

<sup>30</sup> see Austrian Science Board, Basic Research in Austria, Vienna 2012, in particular p. 7–9.

<sup>31</sup> see section 20, sub-section 5, Universities Act.

Action	Institution responsible	Implementation	Time frame
Address participation in international and national programmes of excellence in basic research	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Consider competitive elements within universities in further development of university funding for research	Austrian Federal Ministry of Education, Science and Research	Universities Act (UG)	Ongoing until 2024

### Objective 3: Improve the quality of university teaching

#### Implementation objectives:

#### a) Improve teaching quality

##### Description:

The value to society of higher education and training essentially depends on the quality of teaching, since graduates represent a crucial channel of knowledge transfer from the higher education institution to society. Good teaching must meet international standards in the global competition between locations, and must also have career relevance for the tutors (including consideration of work-related periods spent abroad), alongside evaluation of their research work.

The extent to which research-led teaching also meets the needs of heterogeneous and/or diverse groups of students, and addresses social challenges beyond the professional context, must also be evaluated as an indication of quality (see objective 8a, 8b).

Action	Institution responsible	Implementation	Time frame
Performance agreement 2019–2021, topic-based priorities: <ul style="list-style-type: none"> <li>- Stabilise and/or improve tutor/student ratios</li> <li>- Work towards increasing the proportions of highly qualified university staff (see objective 4a)</li> </ul>	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement  Ongoing communication and exchange aimed at further development in the quality of teaching	Ongoing until 2024

<p>Improve teaching (didactic method) and organisation of courses, including with respect to:</p> <ul style="list-style-type: none"> <li>- Digitalisation, student-centred teaching, examinations</li> <li>- Develop new digital teaching methods (student-centred and accessible)</li> <li>- Take didactic skills into consideration appropriately when qualifying and appointing teachers as well as in education and training for university staff</li> <li>- Use of open educational resources and learning analytics</li> <li>- Studying feasibility</li> </ul>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>
<p>Develop the distinctive research connotation for all courses, particularly MA degrees</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>
<p>Develop the curriculum with regard to the profile of the relevant higher education institution<sup>32</sup></p> <p>Increased consideration of the specifications of the SDGs and of aspects such as employability, entrepreneurship, personal development, responsible science, citizen science and qualitative development of the international aspects of courses and teaching</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p> <p>Time frame for SDGs 2016-2030</p>
<p>Transparency of the quality cycles for quality-driven further development in teaching</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>
<p>Integrate consideration of heterogeneity and inclusion into higher education teaching and the quality assessment of teaching</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>
<p>Form nationally offered courses and teaching partnerships, particularly for those disciplines that are less popular<sup>33</sup></p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>

<sup>32</sup> In particular applying the principle of

- linking research and teaching
- diversity of scientific theories, methods and teaching opinions (plurality in scientific theory)
- teaching of central theoretical and methodological tools as a basis for lifelong learning along with employability as a “core element” of bachelor’s level courses.

<sup>33</sup> To ensure the quality and sustainability of courses offered and to create optimum conditions for learning and teaching with targeted use of resources. A certain volume of BA and MA students is also important as a basis for the development of young academics.

b) Quality-focused implementation of the new teacher training programme (*Pädagog/innenbildung NEU*)

Description:

Particular importance must be attached to the implementation of the new teacher training programme with its focus on quality, and with particular consideration of higher education aspects. This should be designed around a multi-pillar model that integrates scientific disciplines and the arts, teaching methodology, educational principles and practical teacher training courses.

Action	Institution responsible	Implementation	Time frame
<p>Quality-focused implementation of the new teacher training programme (<i>Pädagog/innenbildung NEU</i>) by:</p> <ul style="list-style-type: none"> <li>- Consolidating skills and existing resources through partnerships between universities and university colleges of teacher education in four associated regions</li> <li>- Creating cooperative working units for research and development in the scientific disciplines, teaching methodologies and educational sciences as well as for the greater focus on professional development</li> <li>- Promote young academics' careers through qualification programmes (particularly for teaching methodology and the elementary and primary areas)</li> <li>- Initiate, promote and fund projects aimed at developing holistic educational concepts in general education</li> <li>- Monitor and evaluate implementation of the reform</li> <li>- Increase international partnerships and mobility in teacher training</li> </ul>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Quality assurance council for teacher training</p> <p>Universities</p> <p>University colleges of teacher education</p>	<p>Performance agreement</p>	<p>Ongoing until 2024</p>

c) Foster quality and permeability of university continuing education

Description:

The creation of optimum conditions for lifelong learning means aligning concepts and activities consistently towards the different life and work circumstances of the students. In this sense, academic further education and training can also be seen as a contribution towards social mobility and as a response to demographic changes in society (e.g. age, origin and (pre-)educational background). Further training continues to be increasingly important. Supply and demand of different target groups among the students, as well as in industry, require various specific organisational measures (see objective 8a, 8b).

Action	Institution responsible	Implementation	Time frame
<p>Clarify the educational policy mandate for academic further education and training, with respect to the international reputation of the system, including degree qualifications</p> <p>Clarify transferability between the education and training systems and the working environment</p> <p>Clarify value on the employment market</p>	Austrian Federal Ministry of Education, Science and Research	<p>Commission a study as a basis for discussion and decision-making: "Status and development of further education in universities.</p> <p>Survey of the type of participants, organisation and quality of courses at universities"</p> <p>Make changes to the relevant applicable laws where necessary</p>	2019–2021
Further develop new types of courses with due regard to prior learning and professional experience (e.g. modular bachelor's degree, continuing education bachelor's degree, target-group specific master's degree)	Austrian Federal Ministry of Education, Science and Research Universities	<p>Performance agreement</p> <p>Make changes to the relevant applicable laws where necessary</p>	2019–2024
<p>Accelerate work towards accreditation of university courses leading to a master's degree</p> <p>Extend the assessed areas as part of the audit process for universities to include quality assurance in further education, with due regard to minimum mandatory criteria and/or requirements.</p>	Austrian Federal Ministry of Education, Science and Research Universities	<p>Performance agreement</p> <p>Make changes to the relevant applicable laws where necessary</p>	2019–2024
Create binding and transparent validation procedures for informal and non-formal learning outcomes, equivalence evaluation and recognition procedures for admission and credit transfer to a course, and further develop the corresponding standards	Austrian Federal Ministry of Education, Science and Research Universities	<p>Performance agreement</p> <p>Make changes to the relevant applicable laws where necessary</p>	2019–2024

## Objective 4: Improve relevant key performance indicators in teaching (impact-oriented indicators)

Note: Detailed statistical representations of the projected and targeted developments in these key indicators can be found in the Appendix.

### Implementation objectives:

#### a) Improve teacher/student ratios

##### Description:

The ratio of scientific/artistic staff to students is used as an indicator of the support provided to students ("teacher/student ratio") and is also consequently regarded as an indicator of the quality of the conditions for study and/or teaching. These ratios are a component of impact-oriented

budgeting and are also used for planning under the model of capacity-oriented and student-related university funding.

In order to reflect patterns that are specific to Austria, both in terms of staff structure among the scientific/artistic staff and of admissions to higher education, measurement and evaluation of teacher/student ratios is based on a comparison of the number of students actively taking exams with full-time equivalent professors and tutors, including associate professors.

According to this definition, an average of around 42.5 students actively taking exams on bachelor's, master's and diploma courses were attributable to one professorship or equivalent position in the 2015/16 academic year. A total of 200 additional professors or equivalent positions are required to maintain the current average teacher/student ratio of 1:42.5 in parallel with the increase in the number of students actively taking exams (see objective b), based on the status in 2015/16 within the 2019–2021 performance agreement period (operationalised by the target value of the 2019/20 academic year)<sup>34</sup>; based on the status quo as at 2015/16 this represents an increase in staff of around 5% in these categories by 2019/20. The Austrian National Development Plan for Public Universities strives to achieve an improvement in the teacher/student ratio towards the goal of 1:40 for the upcoming performance agreement period – this improvement will be adjusted with each additional professorship or equivalent position above and beyond these 200 positions. This arithmetical limit, based on the current actual level, amounts to at least 430 additional professorships or equivalent positions for the 2022–2024 performance agreement period (see Figure 2).

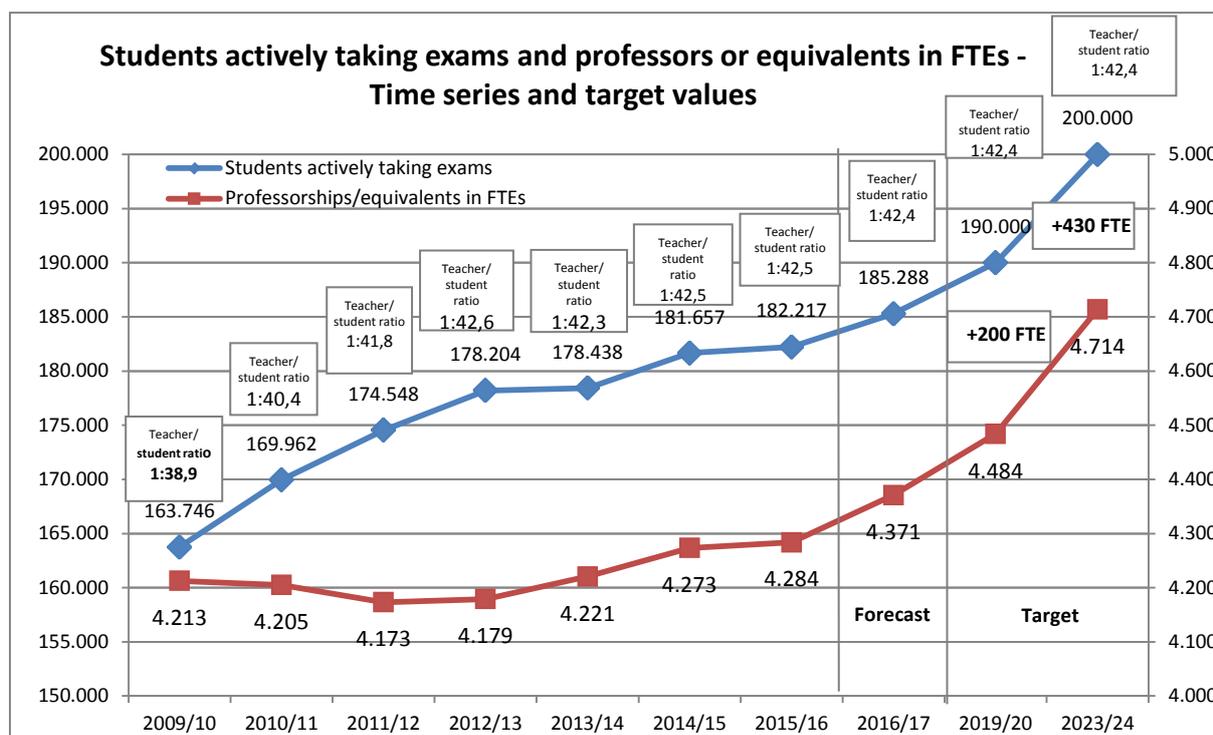


Figure 2: Number of students actively taking exams and professorships (or equivalent) as full-time equivalents (FTEs), time series and target values  
 Source: unidata – Data Warehouse, higher education sector of the Austrian Federal Ministry of Education, Science and Research: <http://www.bmbwf.gv.at/unidata>; special evaluation of the higher education forecast 2017

<sup>34</sup> The data on teacher/student ratios for 2019/20 will be available in the spring of 2021 and will then be used to assess the actual targets; this data will also form the basis for negotiations in 2021 on the performance agreement for the 2022–2024 period.

Action	Institution responsible	Implementation	Time frame
<p>Improve the teacher/student ratio in very popular subject areas (particularly economics, law, IT and engineering) through an increase in staff categorised as “professors, tutors and associate professors” in parallel with increasing numbers of students actively taking exams</p> <p>Use digital options (OER) to handle larger groups of prospective students</p> <p>Consistently implement admissions regulation processes, and monitor the impact</p>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement valid until 2021</p>	<p>Ongoing – 2024</p>

## b) Increase the number of students actively taking exams

### Description:

Students actively taking exams are defined in the Intellectual Capital Statements key indicator 2.A.6 as those in bachelor’s and master’s degree programmes and diploma courses who earn at least 16 ECTS points within one academic year, or who achieve positive academic assessments for a total of eight semester hours’ credit. The Austrian National Development Plan for Public Universities aims for 190,000 students actively taking exams by the end of the next performance agreement period (operationalised through the target value for the 2019/20 academic year), around 7,800 or 4% more than the 2015/16 academic year. An increase by a further 5% will be targeted for the performance agreement period after that (200,000 students actively taking exams). At the same time the number of students actively taking exams as a proportion of total enrolled students should increase from 52% to around 55% (2023/24).

Action	Institution responsible	Implementation	Time frame
<p>An increase in the number of students actively taking exams is achieved by:</p> <ul style="list-style-type: none"> <li>- Improving the students’ Introduction and Orientation Phase (StEOP)</li> <li>- Implementing the statutory regulations on admission to higher education</li> <li>- Improve teacher/student ratios</li> <li>- Raising the status of teaching</li> <li>- Improving the quality of teaching</li> <li>- Increasing compatibility of studies with other areas of life (e.g. expanding availability of courses that facilitate career development, more flexibly formulated attendance requirements)</li> </ul>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Federal Finance Framework Act (BFRG)</p> <p>Performance agreement valid until 2021</p>	<p>Ongoing – 2024</p>

### Comments:

The increase in the number of students actively taking exams is also achieved through the objectives aimed at improving teacher/student ratios (see objective 4a), the positive impact of admissions regulations on overall study progress, and curriculum-based and quality improvement measures in teaching, and through

- Improving the students’ Introduction and Orientation Phase (StEOP) in accordance with the

evaluation outcomes from March 2015. The students' Introduction and Orientation Phase (StEOP) was extended until 2021, and the content was also defined more clearly by the 2015 amendment to the Universities Act (StEOP as an element of the curriculum, making it possible to review the course selection made and the student's suitability for the course performance expectations; prerequisites retained, but also the possibility of bringing options forward as the curriculum permits, etc.);

- Active commitment by the universities to minimise drop-outs and to enable improvements in study progress (e.g. through measures such as early-warning systems, incentives, nudging and learning analytics)
- Implementing the statutory regulations on admission to higher education with reference to fields of study. Achieving this objective is linked to the goals set by the government;
- Improving teacher/student ratios (see objective 4a);
- Raising the status of teaching;
- Improvement in teaching quality (see objective 3a);
- Embedding objectives and initiatives to develop examination activity in the performance agreement with the universities.

c) Increase the number of students graduating, particularly in those STEM disciplines that are most in demand on the employment market<sup>35</sup>

#### Description:

Admissions regulation, measures to improve the teacher/student ratio and further improvements in the quality of teaching should provide significant encouragement for students to focus on completing their degrees. An increase is predicted in completed bachelor's and master's degrees and in diplomas in particular (see Appendix). At +6% for 2019/20 and +10% for 2023/24 the development sought is considerably above the forecast value. This is all the more significant as higher education graduates are the most important factor in terms of the technology transfer from science to industry and society (see objective 6).

There is no intention in the strategic planning of reducing the total number of students in the higher education system. This approach is confirmed by studies such as

- The analysis of gainful employment of university graduates by Statistics Austria<sup>36</sup>;
- Graduate tracking by the University of Vienna for the 2003–2011 period<sup>37</sup>: The majority of higher education graduates spend a relatively short amount of time looking for work, generally have above-average chances of lifetime income and show comparatively high rates of job satisfaction;
- Figures from job centres: Unemployment among academics was at 3.5% in 2017, while for statutory school graduates it was at 24.7% and for people who had completed vocational training it was at 7.3%.<sup>38</sup>

In the long term it will probably be necessary to ease the burden on the university system, by diverting students to the universities of applied sciences, e.g. through expanding the universities of applied sciences or by consolidating disciplines (see objective 1, key concept: coordination of the courses offered).

The structural change towards a knowledge-based society, characterised by research, technology

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<sup>35</sup> STEM focus area: IT and engineering.

<sup>36</sup> see Statistics Austria, "Auswertung der Wegzüge von Personen mit Abschluss eines Studiums an einer öffentlichen Universität" (Analysis of migration of graduates from public universities), 2016, available online at

[https://www.statistik.at/web\\_de/statistiken/menschen\\_und\\_gesellschaft/bildung\\_und\\_kultur/index.html](https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/bildung_und_kultur/index.html) (19/06/2017): Using data from the "BibEr" (education-related monitoring of gainful employment) project, based on graduates from the 2008/09 to 2011/12 academic years, analyses were made of professional employment patterns 18 months after graduation. The findings showed, amongst other things, that the period between graduation and starting gainful employment was short, at around two months on average.

<sup>37</sup> see <https://www.uniport.at/site/karriereberatung/info/berufsinformation/article/26.html>

<sup>38</sup> Source: Job centre (AMS), *Arbeitsmarkt & Bildung* (Employment market and education)/April 2017; survey includes academics with: education at traditional universities, universities of applied sciences and university colleges of teacher education, but not vocational colleges. Unemployed from one educational level related to the labour force potential of the same educational level.

and innovation, requires sufficient availability of human resources with the necessary high level skills. STEM stands for the education and career fields of science, technology, engineering and mathematics, and STEM higher education graduates are particularly important in terms of economic development based on innovation. The availability of STEM skills is considered vital for Austria to keep up with technological progress and be able to benefit from the growth and productivity gains in the high-tech sectors. Studies<sup>39</sup> highlight the continued strong demand for highly qualified experts from the STEM focus area, i.e. graduates in engineering and IT: supply barely meets the demand in the employment market<sup>40</sup>. There must be a special focus placed on ensuring adequate numbers of suitably qualified graduates over the long term. Demand must be stimulated among prospective students for relevant courses in the STEM focus area, and the high dropout rate also needs to be reduced, particularly by improving teacher/student ratios (see also objectives 3a and 4a). It is also crucial to ensure that a broad range of graduates from all disciplines have the relevant key skills (in particular digital and entrepreneurial skills) – (see also objective 8e).

Action	Institution responsible	Implementation	Time frame
Develop and try out additional forms of intervention to prevent students dropping out, e.g. early warning system, nudging, learning analytics, etc.	Universities	Performance agreement	2019–2021
Assess increased modularisation of degree programmes and the possibility of variable study speeds and, if appropriate, establish the necessary legal framework	Austrian Federal Ministry of Education, Science and Research	If applicable in the relevant laws (Universities Act – UG, Universities of Applied Sciences Studies Act – FHStG)	As of 2018
Stimulate student demand for courses in the STEM focus area (IT and engineering), with particular focus on increasing interest from women	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2021
Reduce dropout rates and increase graduation ratios in the STEM focus area (IT and engineering), particularly through improvement in teacher/student ratios	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Partnerships with universities of applied sciences to create options for IT “jobouts” (i.e. who stop studying to take a job)	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Create (curricular) options for students in all disciplines to enable or increase IT skills and basic elementary qualifications such as mathematics and computational thinking.	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024

<sup>39</sup> see Final report of the study, “MINT an öffentlichen Universitäten, Fachhochschulen und am Arbeitsmarkt. Eine Bestandsaufnahme” (STEM at public universities, universities of applied sciences and on the employment market. A review) by the Institute for Advanced Studies, Vienna 2017.

[https://bmbwf.gv.at/fileadmin/user\\_upload/binder-unger-mint-barrierefrei.pdf](https://bmbwf.gv.at/fileadmin/user_upload/binder-unger-mint-barrierefrei.pdf)

<sup>40</sup> This was also confirmed for IT within the scope of the “Shaping HEIs for the Future” project.

## Objective 5: Career development for young academics

### Implementation objectives:

#### a) Attractive career options for young academics

##### Description:

Universities are expert organisations which depend on human resources as their functional and effective base. Excellence also stands and falls with the people involved. Conditions must therefore be created in Austrian higher education and research which enable knowledge to be generated innovatively and creatively for the benefit of society; i.e. researchers, teachers and students must be offered more prospects, transparency and greater attractions of academic life. This also applies in particular to the young academics and artists and their career planning, which should also generally include international career phases.

Action	Institution responsible	Implementation	Time frame
Optimise university staff management based on best practice models (reduction in temporary contracts of employment with a sustainable staff structure established)	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement	As of 2016 ongoing
Quality assurance in career positions based on quality standards, evaluate researchers for the purposes of an “inclusive evaluation culture” (equal treatment of research and teaching phases and consideration of career phases in industry or in civil society organisations)	Austrian Federal Ministry of Education, Science and Research  Universities EQAR agency	As part of the audit/internal university quality assurance process	As of 2016 ongoing
Further develop a career model for academics with special consideration of gender and diversity aspects	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement	As of 2016 ongoing
Raise awareness in relation to the transferability of career paths for “postdocs” between university and non-university careers and those in industry and civil society	Austrian Federal Ministry of Education, Science and Research  Universities	Develop recommendations to optimise postdoc careers	As of 2016 ongoing
Consider job specifications for academic/artistic executive roles with respect to life stage compatibility and adequate consideration of different kinds of achievements in various dimensions (research, teaching, university development, taking social responsibility)	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement	2019–2021

Reduce the proportion of university employees (particularly women) in atypical employment relationships	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	As of 2018 ongoing
Introduce a package of measures to ensure open, transparent and performance-related recruitment from the EU and third countries and provide support for new academic staff	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2021
Prepare evaluation in accordance with section 99 sub-section 7 Universities Act (UG)	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019

b) Increase the educational level by further developing content-related quality requirements and enhancing administrative and organisational support for PhD students

Description:

Based on the applicable international standards, published as recommendations by the European Commission and EUA (Principles for Innovative Doctoral Training 2011 and Salzburg II Recommendations 2010)<sup>41</sup>, doctoral studies at universities should be developed further in accordance with the Austrian framework.

<sup>41</sup> These standards are the criteria for innovative and innovation-oriented doctoral education:

- Research excellence, with adherence to applicable international standards such as peer reviews
- Institutional conditions which also include employment conditions and options to support career development. The “European Charter for Researchers” and the “Code of Conduct for the Recruitment of Researchers” should be the guide here
- An interdisciplinary approach, supported by an open research environment and open research culture
- Involvement of the business enterprise sector or openness towards this
- Formation of international networks, e.g. through research partnerships, “cotutelle” (jointly supervised Ph.D.) and joint degree programmes, mobility
- Training in transferable skills
- Quality assurance for admissions, support and mentoring

Action	Institution responsible	Implementation	Time frame
Increase the educational level through: <ul style="list-style-type: none"> <li>- Further development of content-related and administrative structures<sup>42</sup></li> <li>- Further establishment of PhD students as first stage researchers, ideally based on employment relationships</li> <li>- Quality assurances in terms of the support provided by academics with <i>venia docendi</i> or equivalent qualifications</li> </ul>	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement  Intellectual Capital Statements regulation	2019–2024
Promote innovative approaches within the given legal framework, such as cooperative models in doctoral education	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement or suitable promotion and funding instruments	2019– 2024
Support researchers' career development through international mobility and through intersectoral and interdisciplinary knowledge transfer based on the Marie Skłodowska-Curie Actions programme	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement	2019–2021

## Objective 6: Enhance knowledge and innovation transfer as well as location-based benefits

The most efficient and effective knowledge and technology transfer possible, including through intensive cooperation, e.g. with firms and stakeholders in civil society, is particularly productive in terms of the value creation aspects, i.e. in order to maximise the return from the outcomes of publicly funded research and teaching at universities to the national finances. Efforts to optimise the use of results from research, arts development and teaching (conveying existing knowledge and the ability to acquire new knowledge independently) by industry and society, as well as to respond more effectively to the needs of society in the range of services offered within higher education, require a more proactive role on the part of universities in transferring services (including the *Third Mission*). Using the outcomes of knowledge generation to benefit the economy and society is particularly relevant with respect to increasing innovation performance.<sup>43</sup>

<sup>42</sup> According to the guidance notes for the Intellectual Capital Statements regulation 2010 these are:

- Submission of a synopsis within the first year following admission to the course
- Public presentation of the thesis proposal
- Thesis agreement including schedule and work plan
- Monitoring and support from a team
- Different staff for monitoring and support for the thesis and assessment of the thesis.
- The synopsis and public presentation of the thesis proposal are a prerequisite for entering into a thesis agreement.

<sup>43</sup> see Janger, Jürgen et al. (2017): *Wirtschaftliche und gesellschaftliche Effekte von Universitäten* (Economic and social impact of universities). Project report on behalf of the Austrian Federal Ministry of Education, Science and Research and Universities Austria (uniko). Janger, Jürgen, Kügler, Agnes, Reinstaller, Andreas, Unterlass, Fabian (2017): Österreich 2025 – *Die "Frontier" in Wissenschaft, Technologie, Innovationen und Wirtschaft* (Austria 2025 – the "frontier" in science, technology, innovations and industry) in: Austrian Institute of Economic Research (WIFO) monthly reports, 2017, 90(2), p. 141–151; particularly 145 et seq.

## Implementation objectives:

### a) Promote Open Access, Open Data and Open Science

#### Description:

Effective use of scientific findings requires access to research results and research data to be as open and accessible as possible, and needs options for practical use to interact with science. This is why initiatives in the area of open access need to be continued and increased, both in open data and more generally in open science<sup>44</sup>, with an increase in initiatives sponsored by the public sector bodies crucial here.

Action	Institution responsible	Implementation	Time frame
Participate in the EU platform of National Points of Reference and in the ERA working group on Open Access	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Communicate and coordinate these activities with existing Austrian networks <sup>45</sup> , particularly with respect to coordinated strategies	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Increase awareness surrounding the correct licensing of academic articles	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Monitor the results from relevant Higher Education Sector Structural Funding (HRSM) projects, creation of the infrastructure required for further development	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024

<sup>44</sup> Open Science opens up the scientific process from the initial idea through to the final publication in order to make this as comprehensible as possible so that everyone can use it. "Science" is very broadly defined here and includes all academic disciplines, research and teaching as well as projects and the social sphere. The idea is that as many people as possible should be able to access knowledge and participate in the creation of knowledge. The six principles of open science:

- Open Methodology: documentation of methods and the entire process behind these, as far as practicable and relevant
- Open Source: use of open technology (software and hardware) and opening up own technologies
- Open Data: making findings freely available
- Open Access: publication in an open manner for use and access by anyone
- Open Peer Review: transparent and comprehensible quality assurance through open peer review
- Open Educational Resources: use of free and open materials for education and in university teaching. Source: <http://openscienceasap.org/open-science/>, 30/11/2015.

<sup>45</sup> Austria has a series of networks that are of major importance in terms of implementation and further development of open access, as well as for the establishment of joint strategies and procedures:

- Universities Austria (uniko) as a network of universities
- the University Libraries Forum as a network of all Austrian academic libraries (including the National Library)
- *Österreichische Bibliothekenverbund und Service Ges.m.b.H. (OBVSG* – the Austrian Library Network and Service Ltd) as an electronic network for all academic and scientific libraries
- E-Media cooperation as an association of some universities for consortium purchase of e-journals
- Open Access Network Austria (OANA), which was founded on the initiative of the Austrian Science Fund (FWF) and includes contributions from every scientific institution in Austria.

Integrate citizen science <sup>46</sup> and crowdsourcing models <sup>47</sup> into university priorities	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
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## b) Enhance cooperative and competitive research infrastructure

### Description:

A modern high-tech research infrastructure provides the basis for excellent and competitive research. For this cost-intensive area, characterised by extended duration of investment and usage, intra- and interuniversity coordinated and documented procurement and partnership initiatives should be sought – including with external partners – and with due regard to the relevant university profiles.

Action	Institution responsible	Implementation	Time frame
Coordinate and document procurement and use of competitive research infrastructures based on partnerships  Monitor the relevant HRSM projects	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement	ongoing

## c) Intensify knowledge and technology transfer and entrepreneurial thinking

### Description:

Mapping and encouraging a consistent innovation and value creation chain for science, research/arts development in industry and society is enshrined in universities' intellectual property rights and exploitation strategies<sup>48</sup> which are subject to continuous further development.

<sup>46</sup> Citizen Science is the term for a type of scientific work where projects are implemented with the cooperation of or entirely by interested amateurs [Lat. *amator* = lover], in accordance with the principles of science. See also: <http://www.citizenscience.at/>

<sup>47</sup> Crowdsourcing in this sense refers to large-scale collation of ideas, problems, feedback (e.g. within the scope of tests) from knowledge providers, and is generally internet-based and voluntary (self-selecting); see Open Innovation Strategy for Austria, p. 40.

<sup>48</sup> [https://wissenschaft.bmbwf.gv.at/fileadmin/user\\_upload/forschung/publikationen/Studien/Leitfaden\\_Verwertungsstraegien\\_final.pdf](https://wissenschaft.bmbwf.gv.at/fileadmin/user_upload/forschung/publikationen/Studien/Leitfaden_Verwertungsstraegien_final.pdf)

Action	Institution responsible	Implementation	Time frame
Motivate university activities to promote or incorporate entrepreneurial thinking in teaching and research (e.g. through specific instructional elements within courses, cooperation projects between knowledge transfer centres, NCP-IP events, promotion of academic spin-offs)	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement Programme “Knowledge transfer centres and IPR exploitation” <sup>49</sup> “Spin-off Fellowships” programme <sup>50</sup> Intellectual Property (IP) strategy of the federal government <sup>51</sup> Open Innovation (OI) strategy of the federal government <sup>52</sup>	ongoing
Consider the programme objectives “Knowledge transfer centres and intellectual property right (IPR) exploitation” in intellectual property rights- and exploitation-strategies pursuant to performance agreements	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement Special guideline <sup>53</sup> “Knowledge transfer centres and IPR exploitation” IP strategy of the federal government OI strategy of the federal government	ongoing
Further develop the university property right and exploitation strategies, based on guidelines provided by the (former) Federal Ministry of Science, Research and Economy, with due regard to the federal government’s open innovation and IP strategies	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement Action plan for a competitive research area IP strategy of the federal government OI strategy of the federal government	ongoing

#### d) Align knowledge locations with an international profile

##### Description:

Location matters. Universities are important partners in making Austria an internationally competitive place to create knowledge and innovation. Universities also draw crucial momentum for their own priority setting from local partnerships; and research, teaching and universities’ local engagement also always have an impact in the specific urban and regional ecosystems context (European concept of smart specialisation).

Enshrining this objective in university development plans therefore serves to

<sup>49</sup> see <https://bmbwf.gv.at/forschung/national/programme-schwerpunkte/wissenstransferzentren-und-ipr-verwertung/>

<sup>50</sup> see <https://www.ffg.at/spin-off-fellowships-programm>

<sup>51</sup> Intellectual Property Strategy for Austria. The intellectual property strategy of the Austrian federal government: <https://www.bmdw.gv.at/Innovation/InnovationsUndTechnologiepolitik/Seiten/IP-Strategie.aspx>

<sup>52</sup> see Open Innovation Strategy for Austria. Objectives, measures and methods: <http://openinnovation.gv.at/>

<sup>53</sup> see [https://www.bmbwf.gv.at/Innovation/Foerderungen/Documents/Sonderrichtlinien\\_WTZ\\_und\\_IPR\\_Verwertung.pdf](https://www.bmbwf.gv.at/Innovation/Foerderungen/Documents/Sonderrichtlinien_WTZ_und_IPR_Verwertung.pdf)

- position the universities as lead institutions, together with industry and society, shape the development of locations and regional ecosystems for innovation (e.g. through helping to generate findings and innovations),
- position the universities as international partners with a strong local network,
- effect a change in perspective from a purely institutional viewpoint towards the development of knowledge locations with internationally recognised profiles,
- justify public investments through prior place-based co-ordination and alignment in academic research, teaching, management and services.

Action	Institution responsible	Implementation	Time frame
Create knowledge locations with international profiles through place-based alignment <ul style="list-style-type: none"> <li>- Increasing synergies by establishing or using regional coordination structures between higher education institutions within the location</li> <li>- Strategic positioning as a regional lead institution in the university development plan and in the performance agreement</li> <li>- Documentation of progress towards joint priority setting and coordination within the location (research, teaching, management and services), including this in development plans and performance agreements as a basis for investment planning (see objective 1a, 2b, 6b)</li> </ul>	Austrian Federal Ministry of Education, Science and Research  Universities  Knowledge locations (higher education conferences)  Cities and states	Performance agreement  Location concepts and development plans	ongoing

## Objective 7: Increase internationalisation and mobility

### Implementation objectives:

a) Increase transnational physical mobility along with promoting and funding

Internationalisation at home

#### Description:

Promoting mobility among students, tutors and researchers makes an important contribution to internationalisation and to strengthening Austria as a location for science, research and science.

The Higher Education Mobility Strategy (HMS)<sup>54</sup> of the Austrian Federal Ministry of Education, Science and Research, which is aimed equally at Austrian higher education institutions and the Ministry itself, includes recommendations and actions for quantitative and qualitative improvements.

Transnational physical mobility:

Based on the objective within the Higher Education Mobility Strategy of increasing the annual number of graduates who have spent time abroad on studies relevant to their degrees across Austria by 2025, the higher education institutions and universities are further called upon to support student mobility (including for the purposes of quality) as best they can under the circumstances specific to them.

<sup>54</sup> The higher education mobility strategy of the Austrian Federal Ministry of Education, Science and Research covers the period until 2025.  
Austrian National Development Plan for Public Universities 2019–2024

- The aim is for 150,000 students from Austrian higher education institutions to have taken part in ERASMUS+ by 2025<sup>55</sup>; students from “educationally disadvantaged social groups” should also be included.
- Create curricula with structured mobility windows as an essential basis for facilitating student mobility
- Continue to expand the existing range<sup>56</sup> of joint, double and multiple degree programmes until 2021
- Increase the qualitative and quantitative outgoing mobility of scientific, artistic and general staff. The “European Quality Charter for Mobility”, the principles of the “Erasmus Charter for Higher Education” and the “Standards and Guidelines for Quality Assurance in the European Higher Education Area” are used as a basis for quality assurance within the context of mobility.
- Measures to enable fair and transparent recognition of degree and examination performance pursuant to the Universities Act and the Lisbon Recognition Convention along with the “European Recognition Manual for Higher Education Institutions (2014)” also need further improvement and expansion.

#### Internationalisation at home:

- Internationalisation of the curricula plays a crucial role in preparing students for an increasingly global employment market.
- Increase the qualitative and quantitative mobility of scientific, artistic and general staff – outgoing. Increasing the proportion of international teaching and general staff is expedient for the purposes of successful internationalisation at home.
- Foreign language teaching – “International Classroom” increases the appeal of higher education institutions to international students and opens up opportunities for Austrian students (including those who cannot participate in physical mobility programmes) to acquire language skills in particular, but also intercultural skills and international contacts.
- New forms of ICT-assisted learning enable students to complete course elements internationally (“virtual mobility”) without being mobile themselves. Credit recognition for these forms of study should be based on a clearly formulated learning agreement between the university/higher education institution and the student<sup>57</sup>.

#### Asymmetrical mobility:

Austria successfully introduced the concept of “asymmetrical mobility” into the Bologna process and raised awareness among member countries, since only six countries have balanced patterns of student mobility. This illustrates the complexity of the issue for Europe and shows that Austria is not the only country affected<sup>58</sup>. Together with its European partners, Austria has also managed to ensure that in addition to the “20% by 2020” mobility benchmark (i.e. whereby at least 20% of graduates by 2020 should have completed part of their studies abroad), “balanced mobility” has also been accepted as a European target for student mobility.

Foreign students and researchers are certainly welcome in Austria. The task first of all will be to get students to complete their degrees. Improvements will then be required in terms of access and integration for international graduates in the Austrian employment market, for the purposes of creating value for the national economy. Measures should ensure, that the attraction to the Austrian employment market for international graduates who have studied in Austria will be enhanced.

<sup>55</sup> These are totals, starting from the 1992/93 academic year.

<sup>56</sup> 76 international joint degree or double degree programmes (source: Intellectual Capital Statements 2016).

<sup>57</sup> ECTS guidelines 2015, p. 36.

<sup>58</sup> see Ferencz Irina, *Balanced Mobility Across the Board – a Sensible Objective?* In: Curaj et al. (editors): *The European Higher Education Area: Between Critical Reflections and Future Policies*. Springer Verlag 2015, p. 46.

Action	Institution responsible	Implementation	Time frame
Implement and further develop the higher education mobility strategy to promote transnational mobility, and appropriate updates to the measures and instruments resulting from this (with due regard to students from “educationally disadvantaged social groups”)	Austrian Federal Ministry of Education, Science and Research  Universities	Performance agreement  Adapt existing measures and/or implement new ones	ongoing

## b) Increase internationalisation

### Description:

Excellent achievements in research and teaching are only possible in an open higher education and research area with an international focus. To this end, strategy-driven internationalisation is a crucial requirement to enable universities to attain the optimum position in international competition for the best candidates and ideas, to be seen as an attractive partner and thereby also to make a visible contribution to global knowledge production.

The universities set out their key points for strategic internationalisation in internationalisation strategies (including mobility strategies) with due regard to national and regional research, technology and innovation (RTI) and location-related strategies. These strategies are constantly under development and include

- strategic internationalisation objectives and measures based on comprehensive mapping and analyses of potential by the universities;
- objectives and actions aimed at boosting and further developing comprehensive proactive and practical support as part of the EURAXESS network for new scientific staff and graduates on the Austrian employment market. Monitoring: definition of meaningful indicators and ongoing data recording to monitor success and for regular evaluation of the internationalisation objectives and measures (and adaptation where necessary);
- Monitoring and further development of the “Red-White-Red”-Card for Austrian residence.

Action	Institution responsible	Implementation	Time frame
<p>Formulate and further develop internationalisation strategies by the universities</p> <p>Increase internationalisation through:</p> <ul style="list-style-type: none"> <li>- Participation by the universities in relevant national and international programmes, instruments and strategic processes, particularly those of the EU (e.g. EU Research Framework Programme</li> <li>- “Horizon 2020” and the 9th Framework Programme, ERASMUS+)</li> <li>- Increased utilisation of membership in international organisations (e.g. CERN, ESA, Euratom, EUSA/FISU)</li> <li>- Use of government (e.g. CEEPUS, Scientific &amp; Technological Cooperation) and university bilateral cooperation agreements</li> <li>- Participation in international topic-based university networks</li> </ul>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p>	<p>Performance agreement</p>	<p>ongoing</p>

## Objective 8: Social responsibility of universities: gender equality, diversity and social inclusion, responsible science, sustainability and digital transformation

Under section 1 of the Universities Act (UG), the universities are required to contribute through their scientific research, teaching and arts development, towards the productive development of society and the natural environment and to overcoming social challenges in a changing humane and gender-neutral society. Social responsibility in the sense used here includes the Third Mission<sup>59</sup> and therefore also Responsible Science<sup>60</sup>. Universities are expected to engage proactively in public discourse and also to raise specific issues for discussion.

Improved access to higher education, solutions for the “Grand Challenges” and active involvement of civil society in research and innovation processes are a natural part of universities’ efforts to exercise their social responsibility.

For the purposes of prioritisation, the following implementation objectives only cover those areas in which a cultural change is being sought and/or expected in society as of today.

<sup>59</sup> e.g. the “E3M” project, [www.e3mproject.eu/](http://www.e3mproject.eu/); see also footnote 12.

<sup>60</sup> Responsible science describes a scientific culture which develops in a continuous process of exchange, reflection and interaction between science and society; it combines aspirations of scientific excellence with relevance to society, makes active reference to developments and needs in society, and then makes these to the topic-based focus of its core responsibilities. See also: [www.responsible-science.at](http://www.responsible-science.at)

## Implementation objectives:

### a) Achieve a gender balance among all members of the university

#### Description:

With respect to gender equality, the universities promote gender balance in all areas (executive positions, panels; young and upcoming scientists/artists as well as at the level of individual subjects and fields of education and/or courses), as well as a culture of compatibility between specific work and life-phase commitments, and the establishment and widening of gender and diversity skills among all members of the relevant university. Quality research and research-led teaching also include the gender dimension;<sup>61</sup> Findings from gender research are used for further development of the university equality policy.

Action	Institution responsible	Implementation	Time frame
<p>Achieve gender equality among university members by:</p> <ul style="list-style-type: none"><li>- Implementing binding university-specific targets in performance agreements to increase the proportion of women in career positions and professorships</li><li>- Developing university objectives based on the potential for increasing the proportion of women in career positions and professorships for the 2019–2021 performance agreement period (“cascade model” as a basis for development)</li><li>- Implementing and monitoring the 50% ratio of women in university collegiate bodies</li><li>- Achieving a proportion of at least 10% women or men in all fields of education. The goal in the medium term is to increase the proportion of the underrepresented gender to 30%</li><li>- Establishing and widening gender skills amongst all university members</li><li>- Taking the gender dimension into account in research content and research-led teaching</li></ul>	<p>Austrian Federal Ministry of Education, Science and Research</p> <p>Universities</p> <p>Austrian Science Fund (FWF)</p>	<p>2019–2021 performance agreement</p> <p>Impact objective of the Austrian Federal Ministry of Education, Science and Research</p>	<p>2019–2021</p>

### b) Improve social inclusion and establish a diversity-oriented culture of equality in universities

#### Description:

Based on their statutory mandate the universities work towards achieving a diversity-oriented and inclusive organisational culture and equal opportunities, while also taking into account the needs of disabled people. The university acts therefore in the knowledge of possible disadvantages and implements measures to eliminate barriers for disadvantaged groups (e.g. reducing educational selection).<sup>62</sup> There may also be structural advantages or disadvantages in universities for

<sup>61</sup> see “Gendered Innovations: How Gender Analysis Contributes to Research”, European Commission, 2013

<sup>62</sup> see the “National strategy on the social dimension of higher education” for relevant mapping of the heterogeneity of students and measures related to the social dimension in higher education.

researchers and tutors depending on their individual life and work situations.

It must be ensured that disabled people have access to general tertiary education without discrimination and on an equal basis with others (Art. 24 [5] of the Convention on the Rights of Persons with Disabilities). It should also be noted that the Federal Disabled Persons' Equality Act (BGStG) and Disability Employment Act (BEinstG) also apply to universities.

This requires a diversity-oriented approach in relation to equality and equal opportunity issues, which includes not only gender, but all diversity aspects. The relevant strategies and measures by the universities to establish holistic systematic diversity management should be consolidated.

Action	Institution responsible	Implementation	Time frame
Implement the "National strategy on the social dimension of higher education – towards more inclusive access and wider participation"  "Mainstreaming" the social dimension: Integrate the measures / objectives in all spheres of activity where this theme may be relevant	Austrian Federal Ministry of Education, Science and Research  Universities	Corresponding applicable laws (Universities Act – UG, Student Support Act – StudFG, etc.)  Performance agreement  Impact-oriented budgeting	As of 2017 – 2024  By 2021/22:  Interim evaluation of the strategy
Formulate stipulations for the development of university diversity strategies and implement them	Austrian Federal Ministry of Education, Science and Research	Performance agreement	2019–2021
Further develop and implement strategic diversity management (development of a socially inclusive culture in higher education)	Universities	Performance agreement	2019–2021
Implement the statutory requirement to create a university equality plan (in accordance with the Universities Act, covering in particular compatibility, anti-discrimination)	Universities	Enshrine equality plans in the relevant university statutes	As of 2017 – 2024
Select projects aimed at reinforcing a diversity-oriented equality policy (including through use of the findings from the Social Survey of Students: students with a disability)	Austrian Federal Ministry of Education, Science and Research  Universities	Federal Ministry of Science, Research and Economy  Universities  Strategic documents	2019–2021
Equality for people with a disability/health impediment and accessibility in teaching and research as a component of university development	Austrian Federal Ministry of Education, Science and Research  Universities	Statutes  Development plans  Performance agreement	Ongoing – 2024

- c) Develop university profiles and links between universities in the area of responsible science/responsible university, scientific communication and participative research (citizen science)

Description:

Universities that are open to society and act responsibly with respect to social developments and challenges combine excellence and social relevance at all levels of influence.

Universities act with social responsibility when their resources and existing knowledge are used to enrich social developments (e.g. encouraging a culture of debate and democratic, cultural values, e.g. through initiatives towards European democracy). Scientific co-production of knowledge, e.g. via citizen science or crowdsourcing, opens up previously unused potential for knowledge both in basic research and in practical research fields, and equally requires reinforcement of scientific literacy<sup>63</sup> in society and societal literacy<sup>64</sup> among the scientific community. In this context, both the intended and unintended effects of university achievements on society should be subjects for reflective consideration.

Universities' responsibility in terms of ensuring evidence-based communication is also particularly important. A proactive lead from universities is vital in matters of public debate.

Action	Institution responsible	Implementation	Time frame
Scientific communication: develop and continue initiatives such as: the "Long Night of Research", children's and young people's universities, and other interactive formats based on dialogue	Austrian Federal Ministry of Education, Science and Research Universities Knowledge locations	Performance agreement	ongoing
Implement innovative concepts and priority-setting in the area of co-creative and open research, teaching, evaluation and innovation processes (e.g. citizen science, crowdsourcing, open labs, inter-university and inter-institutional platforms and networks, interdisciplinary and transdisciplinary activities) as well as incentive mechanisms with relevance to career development	Austrian Federal Ministry of Education, Science and Research Universities Knowledge locations	Performance agreement	ongoing
Link research about higher education institutions (including on institutional development and remit, [social] access to higher education and research results, on the impact of higher educational achievements)	Austrian Federal Ministry of Education, Science and Research Universities Higher education researchers	Project events	Ongoing until 2024

<sup>63</sup> Experience and skills dealing with science and research and its significance for society in the areas of knowledge, action and evaluation, particularly with respect to scientific structures, processes and knowledge production.

<sup>64</sup> Experience and skills in dealing with civil society stakeholders, structures, processes and institutional logic and their significance for the science and research system in the areas of knowledge, action and evaluation.

d) Integrate the principle of sustainability in university development and university profile

Description:

As centres of education and training for future executives and decision-makers, the universities have a duty to equip their students with the appropriate skills to find solutions to the “Grand Challenges” (climate change, food security, energy supply, scarcity of resources, biodiversity, demographic change, social security, migration, etc.).<sup>65</sup> Integration of the principle of sustainability into educational and research content and the process of conveying knowledge is therefore an important factor in terms of raising awareness. The “Alliance of Sustainable Universities in Austria” is one example of this approach making its way into everyday university life. The Alliance’s objectives and activities involve sharing experiences across all universities, and the use of synergies between the universities in the five areas of teaching, research, university management, knowledge exchange and sustainability strategies.<sup>66</sup> Interdisciplinary research approaches and research at the interfaces between scientific disciplines, carried out by teams with researchers from different specialist disciplines, must take priority here.

Action	Institution responsible	Implementation	Time frame
See objectives 2a and 3a			

e) Digital Transformation

Description:

The term “Digital Transformation” refers to significant changes in everyday life, science, industry and society through the use of digital technologies and procedures, and the effects of these.

As leading institutions in society, the universities have a responsibility to help shape this transformation process in a manner which also includes ongoing reflection and scrutiny.

The main issues relate to:

- the processes for handling data – from usage, sharing, exploitation and analysis, through to issues involving data protection and personal rights;
- teaching digital abilities, skills and cultural techniques for the use and understanding of these technologies, and critical reflection about them;
- developing new information technologies and systems;
- shaping social structures for co-existence with respect to the use of information technology and learning systems.

Everyday processes such as generating, maintaining/storing and organising knowledge as well as conveying knowledge are affected by this transformation. Assistance and support for students must be developed appropriately, as well as the use of new technologies in teaching.

Here too then, the universities must therefore assume active responsibility for the productive development of society, and proactively take on a substantial role, providing a space in society for reflection and creativity, and so also remaining significant and visible in the society of the future.

The people who are educated at universities must also use digital technologies not just as consumers, but must also develop an understanding of how to use them creatively, how to modify and develop them independently, and how they can actively participate in the innovation process themselves. This is particularly relevant with respect to information technologies and learning

<sup>65</sup> Experience and skills in dealing with civil society stakeholders, structures, processes and institutional logic and their significance for the science and research system in the areas of knowledge, action and evaluation.

<sup>66</sup> see <http://nachhaltigeuniversitaeten.at/>; further information on sustainability is available on website: <https://bmbwf.gv.at/wissenschaft-hochschulen/nachhaltigkeit/>

systems.

This means

- that the use of digital technologies, new cultural technologies and computational thinking must also be taken into account when developing non-technical curricula, just as much as the traditional scientific methods of statistics and scientific working.
- that Knowledge and thinking skills from the arts and humanities must also be integrated into technical/technological curricula.

Action	Institution responsible	Implementation	Time frame
Research on epistemological, ethical, legal, pedagogical, societal and social issues in connection with the digital transformation	Universities	Performance agreement	2019–2024
Define and widen the curricula, develop new curricular models (e.g. a <i>Studium Generale</i> ) and review the courses offered at universities with the above aims in mind	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Embed basic digital procedures and computational thinking as mandatory elements in basic academic education, particularly in social science, humanities and cultural science degree programmes	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Make it mandatory to treat philosophical/epistemological as well as ethical and legal issues and assess the consequences of technology in the technical/natural science degree programmes	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024
Develop institutional strategies to become more innovative and transformative overall as an organisation in terms of digitalisation	Austrian Federal Ministry of Education, Science and Research Universities	Performance agreement	2019–2024

## Financing

Achieving the objectives crucially depends upon adequate funding for universities as this provides some certainty for planning and allows for a strategic approach.

### 1. Securing an adequate university budget and effective use of funds:

Many of the objectives in this document are linked to a continuous increase in university budgeting. The government is responsible for protecting science and research at universities as fundamental pillars for the long-term overall development of Austria and its potential. With this aim, the budgetary framework for reinforcement of the tertiary sector and research/arts development must be improved, to enable Austria to position itself better in terms of international competition. Although the economic situation makes it seem very difficult to reach the target of 2% of GDP for tertiary educational institutions by 2020, specific budgetary

measures must still be implemented in order to progress as far as possible towards the target.

Nevertheless, with public expenditure<sup>67</sup> for higher education (the majority of which goes to the university sector) at 1.455% of GDP (last available value according to Education at a Glance 2017), Austria ranks amongst the leaders, alongside the Scandinavian countries, in EU and OECD comparisons. In recent years, various efforts have been made to increase this, such as the proposal for partial financing of cooperation projects between universities and industry or other educational institutions. Even if there were to be a successful substantial increase in private funding, this would not itself be enough to bring the 2% target back within reach, since this only constitutes a small proportion of the whole.

The Austrian Federal Ministry of Education, Science and Research will do whatever it possibly can to provide the funds necessary to reach the 2% target or to come as close as possible to the financing required to reach the 2% target.

Experience from the negotiations on the performance agreement for 2016–2018, in which EUR 615 million more was made available than in the previous performance agreement period, shows that given the existing budgetary situation for universities, it is certainly relevant for universities to aim to improve efficiency by consolidating areas of strength, in order to release resources for new initiatives, and thereby also increasing international visibility and competitiveness (e.g. through partnerships, more clearly defined institutional profiles and priority setting).

## 2. New quality and capacity-oriented university financing:

The Higher Education Sector Structural Funding (HRSM) was increased from EUR 450 million previously to EUR 750 million for 2016–2018 for the purposes of consistent pursuit of the target set. These funds are now being made available in accordance with criteria based on the principles of “funding for student places” (all courses broken down into seven subject groups with different weighting; courses where students are actively taking exams as the most important indicator for awards).

For the 2019–2021 performance agreement period the federal act dated 1 Aug. 2017, in Federal Law Gazette I no. 129/2017, set the total amount of funding for universities at EUR 11.07 billion, and required the federal government to develop an implementation model for capacity-oriented and student-related university funding by 31 January 2018. In accordance with this mandate, on the same day a corresponding bill was published for scrutiny, based on the expired federal act in Federal Law Gazette I no. 52/2013, as well as on a funding model developed in coordination with the Federal Ministry of Finance and Universities Austria (uniko).

As part of the new funding system the universities continue to receive an overall amount for the three-year performance agreement period, made up of separate allocations for teaching, research/arts development, infrastructure and strategic development. The allocations for teaching and research/arts development are defined using specific indicators, i.e. the number of courses where students are actively taking exams (“student places”) on the one hand and the scientific/artistic staff (“research/arts development basic service performance”) on the other. Competitive indicators are used as additional incentives (e.g. number of degrees completed, number of students completing quickly, proceeds from third-party funding and structured doctoral studies).

Both nation-wide and university-related admission regulations should also be allowed if the teacher/student ratios for the relevant degree course are exceeded by a certain percentage.

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<sup>67</sup> Around 95% of higher education expenditure comes from public funds and 5% from private funds. The private portion of tertiary expenditure (there is no calculation available for higher education institutions alone) as a share of GDP is negligible (0.091% of GDP).

### Summary:

The Austrian Federal Ministry of Education, Science and Research will continue to support budgetary increases in the medium to long term, both from government funds and from supplementary private funds. The capacity-oriented and student-related university funding model should also be introduced from the start of the 2019-2021 performance agreement period, in order to implement the objectives set out in this Austrian National Development Plan for Public Universities.

## Appendix – Statistical information

### Current capacity in different fields of education

Ratios for courses where students are actively taking exams per professor (and equivalent positions) have been included in the performance agreement since the 2013–2015 period, in order to provide an expanded structural view of highly qualified academic staff in universities for each field of education. The current status of the arithmetical over- and under-capacities can be found in Figure 1.

Figure 1

#### Over- and under-capacities in universities, 2015/16 academic year

Data source: Key further education indicators 2.A.1 and data reported by the universities pursuant to the University Course Evidence Regulation (UniSTEV)

	University of Vienna	University of Graz	University of Innsbruck	Medical University of Vienna	Medical University of Graz	Medical University of Innsbruck	University of Salzburg	Vienna University of Technology	Graz University of Technology	University of Leoben	University of Natural Resources and Life Sciences Vienna	University of Veterinary Medicine Vienna	Vienna University of Economics and Business	University of Linz	University of Klagenfurt	University of Applied Arts Vienna	University of Music and Performing Arts, Mozarteum University of Salzburg	University of Music and Performing Arts, Graz	University of Art and Design Linz	Academy of Fine Arts Vienna	Overall result
<b>Subject group 1</b>																					
142 Educational sciences																					
146 Training of teachers in vocational subjects																					
211 Visual arts																					
212 Music and performing arts																					
220 Humanities, general																					
221 Religion																					
223 Mother tongue																					
225 History and archaeology																					
226 Philosophy and ethics																					
310 Social and behavioural sciences, general																					
312 Sociology and cultural sciences																					
313 Political science and citizenship																					
314 Economics																					
321 Journalism and reporting																					
322 Library, information science and archiving studies																					
340 Business and administration, general																					
342 Marketing and advertising																					
343 Credit and insurance business																					
344 Tax and accounting																					
345 Management and administration																					
380 Law, general																					
723 Nursing and healthcare																					
<b>Subject group 2</b>																					
222 Foreign languages																					
311 Psychology																					
461 Mathematics																					
462 Statistics																					
481 Computer science																					
541 Catering																					
581 Architecture and town planning																					
813 Sport																					
850 Environmental protection, general																					
851 Environmental protection technologies																					

arithmetical free capacity

balanced arithmetical capacity

arithmetical under-capacity



Figure 1 summarises the results of the current capacity calculation in a chart. As the capacities differ at the individual locations, the illustration is broken down by universities. In this context the red, black and grey fields represent arithmetical over, under and balanced capacities. In addition the “Total result” is stated as the result of the rows or columns at the university or field of education level.

The aforementioned format was agreed during the work to develop capacity-oriented student-related university funding. Aligning these ratios with the Swiss or German guidance values provides an indication of whether fields of education are equipped satisfactorily in terms of the capacity ratios.<sup>68,69</sup> The results of this capacity calculation prepared periodically by the Austrian Federal Ministry of Education, Science and Research are debated regularly in the accompanying discussions on the performance agreements with the universities. This permits an assessment of the noticeable or target development trends with respect to the implementation of the objectives stated in this regard in the performance agreements, and allows these to undergo more specific benchmarking as necessary.

## Quantitative objectives

In the absence of a legally binding control system which comprehensively determines the new entrants required, based on the desired number of graduates, new entrants and student numbers can only be determined through forecasts in future as a result of the open university admission policy in Austria. Demographic change, the scope of participation in education and study behaviour form the basis for these estimates.<sup>70</sup> The special evaluation of the higher education forecast 2017 prepared by Statistics Austria for the Austrian National Development Plan for Public Universities therefore illustrates the potential development in student and graduate numbers, students actively taking exams and teacher/student ratios.<sup>71</sup>

The tables are structured as follows: in terms of the student numbers they contain the values for winter semester 2017 or the 2017/18 academic year, which form the basis for the objectives for the 2019–2021 performance agreement period. For completed degrees and students actively taking exams, the 2016/17 academic year forms the starting basis. In order to be able to illustrate developments as well as to enable control loops between two performance agreement periods in this context<sup>72</sup>, the forecast values for deriving the developments sought are used in the performance agreement period at the middle of the next and the end of the next performance agreement period but one.

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<sup>68</sup> The total number of professors and equivalent positions, multiplied by the benchmark value provides the number of available student places; the number of available student places minus the number of student places taken up (students actively taking exams) results in an over-capacity (positive value) or under-capacity (negative value).

<sup>69</sup> At the end of 2010 a working group with representatives from Universities Austria (uniko) and the Austrian Federal Ministry of Education, Science and Research was mandated with developing a new funding model for universities which takes into account the separate presentation of teaching and research-related awarding of funds. Result: Guidance values from similar countries were used and adapted accordingly to the specific features in Austria as a benchmark for a reasonable utilisation of scientific and artistic staff through teaching. The teacher/student ratios relate to the ratio of students actively taking exams to each full-time equivalent qualified staff member (professors and tutors, including associated professors). The teacher/student ratios used in this context also take on an important role in the New university funding reform project and are also used in the draft bill for a university admission regulation from August 2017.

<sup>70</sup> The Science Department has been publishing forecasts on future developments in student numbers in the higher education and university reports since the 1970s. These were based on projections from the Austrian Academy of Sciences (Institute for Demography) up until and including 2007, and have been based on model calculations from Statistics Austria since 2011. The 2017 forecast model is calculated based on the rates of progression from higher education statistics and thereby estimates the course behaviour to be expected (field, gender and educational background-specific transition ratios for continuing degrees, changing courses, completing degrees and dropouts). The model is based on the assumption that the trends between the observation periods included will continue in future. New data ranges for the Austrian National Development Plan for Public Universities (students actively taking exams, full-time equivalent professors, etc.) were included in the forecast starting 2014. A special evaluation of the higher education forecast 2017 was carried out by Statistics Austria for the National Development Plan for Public Universities.

<sup>71</sup> These planning variables are based on the 2016–2021 Austrian National Development Plan for Public Universities or on those figures that are key indicators in the New university funding reform project.

<sup>72</sup> An example of one such control circuit: the data on the 2019/20 teacher/student ratios is available in the spring of 2021, and this is then used to evaluate the objectives set; at the same time this data will be used as the basis for the negotiations on the performance agreements in 2021 for the 2022–2024 period.

## 1. Developments sought in the number of students<sup>73</sup>

The plan is to have around 264,000 regular students taking bachelor's or master's degrees or diplomas in the 2019–2021 performance agreement period (see Table 1). This value is based on the value calculated by Statistics Austria in the 2017 higher education forecast of 264,126 regular students taking bachelor's or master's degrees or diplomas for the winter-semester (WS) 2020, which does not include any incoming mobility students. The 264,000 students will therefore be supplemented by around

4,000 guest students who generally spend between one to two semesters studying at a university. The proportion of women students will be around 54%. The number of students taking bachelor's or master's degrees or diplomas will grow by around 2% based on the 2017 value.

### 1.1. Regular students and new entrants by gender

The target is for 270,000 regular students (not including doctoral students) for the WS 2023 (end measurement point of the next performance agreement period but one). This value is around 4% higher than the level in the base year 2017. Increases observed in the number of students in recent years continue in the projected student numbers. The ratio between female and male students in the target development is based essentially on the ratio for the forecast values.

Since large numbers of the students are already in the university system and the number of future new entrants is relatively easy to estimate accurately, with these already at the higher stages of the school leaving examination or at leading schools for university admission, and no major changes are expected in higher education admission behaviour, the target student numbers largely correspond with the forecast value.

	Forecast <sup>1</sup>	Development sought in the performance agreement period	Index (Basis=WS 2017)
Winter semester 2017	258,495		100
Women	138,190		100
Men	120,306		100
Winter semester 2018	260,886		101
Women	139,631		101
Men	121,255		101
Winter semester 2019	262,482		102
Women	140,429		102
Men	122,052		101
Winter semester 2020	264,126	264,000	102
Women	141,410	141,000	102
Men	122,716	123,000	102
Winter semester 2023	270,225	270,000	104
Women	144,916	144,000	104
Men	125,308	126,000	105

1) Source: Special evaluation of the higher education forecast 2017.

<sup>73</sup> The ISCED was revised in 2011, with the technical classification for degree courses also adapted. Starting with the 2019–2021 performance agreement period this new classification will be used in the form of the ISCED-F-2013.

Table 2 contains the future regular new entrants studying for bachelor's and master's degree courses and diplomas (not including incoming students) at public universities, which predominantly arise based on the forecasts for the high school graduates, which are in turn used for the school attendance forecasts and therefore the population growth figures. Based on a demographic decline in the relevant age groups, which is no longer compensated through increases in the participation in education, the forecast by Statistics Austria as of the 2017/18 academic year includes slight declines among regular new entrants by 2019/20. The target values for new entrants take this decline into account, but only absorb it to a moderate extent. This stipulation meets the goal of keeping the current scales related to university admission as stable as possible.

	Forecast <sup>1</sup>	Development sought in the performance agreement period	Index (base=acad. year 2017/18)
Academic year 2017/18	36,851		100
Women	20,335		100
Men	16,516		100
Academic year 2018/19	36,743		100
Women	20,279		100
Men	16,464		100
Academic year 2019/20	36,694		100
Women	20,221		99
Men	16,472		100
Academic year 2020/21	36,914	37,000	100
Women	20,365	20,400	100
Men	16,549	16,600	101
Academic year 2023/24	37,431	38,000	103
Women	20,665	20,500	101
Men	16,766	17,500	106

1) Source: Special evaluation of the higher education forecast 2017.

## 1.2. Courses occupied and courses in the first semester by subject groups based on ISCED-F-2013 fields of education

A breakdown of students by subject groups<sup>74</sup> is only possible based on courses that are actually occupied, i.e. study cases (Tables 3 and 4). This statistical figure differs from the number of students (“actual students”) as a result of double and multiple counting. The higher education forecast calculates around 255,000 bachelor’s degrees and diplomas (first-stage academic qualifications) for the WS 2017 and around 315,000 bachelor’s and master’s degrees and diplomas in total. A slight decline in the first-stage academic qualifications is stated for the WS 2020 and 2023; the increases are essentially attributable to an increase in master’s degrees. The changes forecast within the individual subject groups can be found in Tables 3 and 4.

Table 4 shows the forecast values for courses occupied in the first semester (not including incoming courses) by subject groups – and therefore the relevant future new entrants.

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<sup>74</sup> Subject groups are classification of courses in accordance with criteria based on the technical orientation and required infrastructure.

**Table 3**  
**Courses occupied by subject groups based on ISCED-F-2013 fields of education**  
 Not including doctoral students  
 Winter semester 2017 to 2020 and 2023 | forecast

		WS 2017	WS 2018	WS 2019	WS 2020	WS 2023
		Forecast	Forecast	Forecast	Forecast	Forecast
Subject group 1: Basic infrastructure based around research or arts development and teaching needs (humanities, social sciences and economics, law, etc.)	Bachelor's/diplomas and master's degrees	153,356	154,445	155,354	156,557	160,788
	of which bachelor's degrees and diplomas	124,335	123,736	122,908	122,561	123,760
Subject group 2: Courses in mathematics, information technology, natural sciences and engineering (STEM) with basic infrastructure (mathematics, information technology, architecture etc.)	Bachelor's/diplomas and master's degrees	71,784	71,128	70,576	70,385	71,391
	of which bachelor's degrees and diplomas	56,933	56,337	55,529	54,994	55,191
Subject group 3: Courses in mathematics, information technology, natural sciences and engineering (STEM) with particular requirements as to infrastructure (e.g., laboratories, machinery, small groups)	Bachelor's/diplomas and master's degrees	70,472	71,005	71,473	72,042	73,890
	of which bachelor's degrees and diplomas	56,112	56,077	55,887	55,821	56,413
Subject group 4: Human medicine, dentistry	Bachelor's/diplomas and master's degrees	11,225	11,246	11,279	11,344	11,728
	of which bachelor's degrees and diplomas	11,191	11,212	11,244	11,308	11,691
Subject group 5: Veterinary medicine	Bachelor's/diplomas and master's degrees	1,512	1,531	1,562	1,608	1,554
	of which bachelor's degrees and diplomas	1,512	1,531	1,562	1,608	1,554
Subject group 6: Visual arts	Bachelor's/diplomas and master's degrees	3,193	3,201	3,195	3,208	3,264
	of which bachelor's degrees and diplomas	2,663	2,651	2,627	2,622	2,649
Subject group 7: Performing arts, music	Bachelor's/diplomas and master's degrees	3,197	3,152	3,156	3,174	3,307
	of which bachelor's degrees and diplomas	2,182	2,060	1,977	1,948	1,958
<b>TOTAL</b>	Bachelor's/diplomas and master's degrees	<b>314,739</b>	<b>315,707</b>	<b>316,595</b>	<b>318,317</b>	<b>325,923</b>
	of which bachelor's degrees and diplomas	<b>254,928</b>	<b>253,604</b>	<b>251,734</b>	<b>250,862</b>	<b>253,216</b>
1) Source: Special evaluation of the higher education forecast 2017.						

**Table 4**  
**Courses in the first semester by subject groups based on ISCED-F-2013 fields of education**  
 Not including doctoral students  
 Academic year 2017/18 to 2020/21 and 2023/24 | forecast

		Academic year 2017/18	Academic year 2018/19	Academic year 2019/20	Academic year 2020/21	Academic year 2023/24
		Forecast †				
Subject group 1: Basic infrastructure based around research or arts development and teaching needs (humanities, social sciences and economics, law, etc.)	Bachelor's/diplomas and master's degrees	46,326	46,614	47,114	47,713	48,746
	of which bachelor's degrees and diplomas	36,302	36,065	36,205	36,585	37,342
Subject group 2: Courses in mathematics, information technology, natural sciences and engineering (STEM) with basic infrastructure (mathematics, information technology, architecture etc.)	Bachelor's/diplomas and master's degrees	21,597	21,865	22,028	22,124	22,782
	of which bachelor's degrees and diplomas	17,427	17,426	17,513	17,525	18,076
Subject group 3: Courses in mathematics, information technology, natural sciences and engineering (STEM) with particular requirements as to infrastructure (e.g., laboratories, machinery, small groups)	Bachelor's/diplomas and master's degrees	21,244	21,386	21,605	21,709	22,219
	of which bachelor's degrees and diplomas	16,403	16,359	16,435	16,528	16,921
Subject group 4: Human medicine, dentistry	Bachelor's/diplomas and master's degrees	1,794	1,854	1,854	1,919	1,977
	of which bachelor's degrees and diplomas	1,787	1,847	1,848	1,912	1,970
Subject group 5: Veterinary medicine	Bachelor's/diplomas and master's degrees	252	252	253	252	252
	of which bachelor's degrees and diplomas	252	252	253	252	252
Subject group 6: Visual arts	Bachelor's/diplomas and master's degrees	754	762	760	775	793
	of which bachelor's degrees and diplomas	600	608	608	616	639
Subject group 7: Performing arts, music	Bachelor's/diplomas and master's degrees	963	1,005	1,030	1,052	1,089
	of which bachelor's degrees and diplomas	577	591	592	605	611
<b>TOTAL</b>	Bachelor's/diplomas and master's degrees	<b>92,929</b>	<b>93,739</b>	<b>94,644</b>	<b>95,544</b>	<b>97,858</b>
	of which bachelor's degrees and diplomas	<b>73,348</b>	<b>73,149</b>	<b>73,454</b>	<b>74,024</b>	<b>75,811</b>

†) Source: Special evaluation of the higher education forecast 2017.

## 2. Developments sought in the number of students actively taking exams

Students actively taking exams are used as a cost factor in the definition of the Intellectual Capital Statements key figure 2.A.6 in the capacity-oriented student-related university funding. Students actively taking exams include those on bachelor's and master's degree programmes and diploma courses who earn at least 16 ECTS points within one academic year, or who achieve positive academic assessments for a total of eight semester hours' credit. A forecast on the development of students actively taking exams and their share of the occupied courses overall was prepared by Statistics Austria for the Austrian National Development Plan for Public Universities for the first time in 2014. This forecast from 2017 calculates an increase of students actively taking exams by around 4% from the 2015/16 academic year to 2019/20 and a further 5% by the 2023/24 academic year. This increase also results in a slight increase in courses where students are actively taking exams as a proportion of courses occupied. According to projections this proportion of 52% in the 2015/16 academic year will increase to around 55% by 2023/24.

The National Development Plan for Public Universities is striving to achieve ambitious improvements by 2023/24, as targeted actions (e.g. additional professorships) are being implemented to improve teacher/student ratios, the effects of which should be seen in full in future performance agreement periods. By the end of the next performance agreement period – in the 2019/20 academic year – the target value is for 190,000 students actively taking exams, around 7,800 or 4% more than in the 2015/16 academic year, and this should rise to 200,000 students actively taking exams in the 2023/24 academic year, i.e. a further increase of 5%.

	Forecast <sup>1</sup>		Development sought in the performance agreement period		Index (base=aca d. Year 2016/17)
	absolute	in % <sup>2</sup>	absolute	in % <sup>2</sup>	
Academic year 2016/17	185,288	51.8			100
Women	101,700	52.9			100
Men	83,588	50.5			100
Academic year 2017/18	186,050	51.7			100
Women	102,202	52.9			100
Men	83,848	50.4			100
Academic year 2018/19	186,915	51.8			101
Women	102,548	52.8			101
Men	84,367	50.6			101
Academic year 2019/20	187,373	51.7	190,000	52	103
Women	102,792	52.8	104,300	53	103
Men	84,581	50.5	85,700	50	103
Academic year 2023/24	193,148	51.7	200,000	55	108
Women	106,321	52.8	110,000	56	108
Men	86,827	50.5	90,000	54	108

1) Source: Special evaluation of the higher education forecast 2017.  
2) Ratio of courses where students are actively taking exams to courses occupied.

The target development by subject groups can be found in Table 6.

Table 6

**Courses where students are actively taking exams or their share by subject groups based on ISCED-F-2013 fields of education**

Not including students actively taking exams on doctoral courses

Academic year 2016/17 to 2019/20 and 2023/24 | forecast or development sought

		Academic year 2016/17	Academic year 2017/18	Academic year 2018/19	Academic year 2019/20		Academic year 2023/24	
		Forecast <sup>1</sup>	Forecast <sup>1</sup>	Forecast <sup>2</sup>	Forecast <sup>1</sup>	Development sought in the performance agreement period	Forecast <sup>1</sup>	Development sought in the performance agreement period
Subject group 1: Basic infrastructure based around research or arts development and teaching needs (humanities, social sciences and economics, law, etc.)	absolute	83,669	84,613	85,450	86,017	86,340	89,370	
	<i>in %<sup>2</sup></i>	47.7	47.9	48.0	48.0	-	48.2	
Subject group 2: Courses in mathematics, information technology, natural sciences and engineering (STEM) with basic infrastructure (mathematics, information technology, architecture etc.)	absolute	40,337	39,713	39,193	38,620	40,790	38,722	
	<i>in %<sup>3</sup></i>	48.6	48.3	48.0	47.6	-	47.1	
Subject group 3: Courses in mathematics, information technology, natural sciences and engineering (STEM) with particular requirements as to infrastructure (e.g., laboratories, machinery, small groups)	absolute	44,245	44,745	45,215	45,608	45,780	47,225	
	<i>in %<sup>4</sup></i>	56.1	56.0	56.0	56.1	-	56.1	
Subject group 4: Human medicine, dentistry	absolute	9,756	9,790	9,856	9,921	9,550	10,390	
	<i>in %<sup>5</sup></i>	82.5	82.6	83.0	83.3	-	83.9	
Subject group 5: Veterinary medicine	absolute	1,337	1,384	1,402	1,419	1,420	1,437	
	<i>in %<sup>6</sup></i>	85.9	86.3	86.3	85.7	-	87.2	
Subject group 6: Visual arts	absolute	2,820	2,820	2,841	2,825	2,870	2,889	
	<i>in %<sup>7</sup></i>	79.8	80.1	80.4	79.9	-	80.1	
Subject group 7: Performing arts, music	absolute	3,126	2,984	2,957	2,963	3,250	3,114	
	<i>in %<sup>8</sup></i>	81.7	81.6	81.6	81.5	-	81.6	
<b>TOTAL</b>	absolute	<b>185,288</b>	<b>186,050</b>	<b>186,915</b>	<b>187,373</b>	<b>190,000</b>	<b>193,148</b>	<b>200,000</b>
	<i>in %<sup>9</sup></i>	51.8	51.7	51.8	51.7	52	51.7	55

1) Source: Special evaluation of the higher education forecast 2017.

2) Ratio of courses where students are actively taking exams to courses occupied.

### 3. Developments sought in the number of graduates

The flattening out in the increase of graduations (not including doctorates) in recent years has a significant effect on the forecast values. An increase of 6% is forecast from 2016/17 to 2019/20; this rises to 10% by 2023/24. Admissions regulations, measures to improve the teacher/student ratio and an increase in courses where students are actively taking exams should provide significant encouragement for students to focus on completing their degrees in this period.

Table 7

#### Graduations by gender

Not including graduations on doctoral courses

Academic year 2016/17 to 2019/20 and 2023/24 | forecast or development sought

	Forecast <sup>1</sup>	Development sought in the performance agreement period	Index (Basis=2017/18 academic year)
Academic year 2016/17	33,015		100
Women	18,742		100
Men	14,273		100
Academic year 2017/18	34,210		104
Women	19,519		104
Men	14,692		103
Academic year 2018/19	34,873		106
Women	20,008		107
Men	14,866		104
Academic year 2019/20	34,612	34,900	106
Women	19,806	19,950	106
Men	14,806	14,950	105
Academic year 2023/24	35,065	36,300	110
Women	20,207	21,150	113
Men	14,858	16,150	113

1) Source: Special evaluation of the higher education forecast 2017.

The graduations in bachelor's and master's degrees and in diplomas at the subject group level can be found in Table 8.

**Table 8**  
**Graduations by subject groups based on ISCED-F-2013 fields of education**  
 Not including graduations on doctoral courses  
 Academic year 2016/17 to 2019/20 and 2023/24 | forecast

		Academic year 2016/17	Academic year 2017/18	Academic year 2018/19	Academic year 2019/20	Academic year 2023/24
		Forecast	Forecast	Forecast	Forecast	Forecast
Subject group 1: Basic infrastructure based around research or arts development and teaching needs (humanities, social sciences and economics, law, etc.)	Bachelor's/diplomas and master's degrees	15,156	15,626	16,149	16,134	16,621
	of which bachelor's degrees and diplomas	10,340	10,632	10,961	10,741	10,345
Subject group 2: Courses in mathematics, information technology, natural sciences and engineering (STEM) with basic infrastructure (mathematics, information technology, architecture etc.)	Bachelor's/diplomas and master's degrees	7,762	8,009	7,972	7,752	7,543
	of which bachelor's degrees and diplomas	5,157	5,319	5,466	5,316	4,919
Subject group 3: Courses in mathematics, information technology, natural sciences and engineering (STEM) with particular requirements as to infrastructure (e.g., laboratories, machinery, small groups)	Bachelor's/diplomas and master's degrees	7,739	8,180	8,356	8,349	8,409
	of which bachelor's degrees and diplomas	5,195	5,414	5,607	5,568	5,341
Subject group 4: Human medicine, dentistry	Bachelor's/diplomas and master's degrees	1,298	1,358	1,360	1,370	1,401
	of which bachelor's degrees and diplomas	1,295	1,352	1,354	1,365	1,395
Subject group 5: Veterinary medicine	Bachelor's/diplomas and master's degrees	111	137	133	107	162
	of which bachelor's degrees and diplomas	111	137	133	107	162
Subject group 6: Visual arts	Bachelor's/diplomas and master's degrees	380	373	392	390	401
	of which bachelor's degrees and diplomas	292	285	292	293	296
Subject group 7: Performing arts, music	Bachelor's/diplomas and master's degrees	570	527	512	510	527
	of which bachelor's degrees and diplomas	398	329	296	266	234
<b>TOTAL</b>	Bachelor's/diplomas and master's degrees	<b>33,015</b>	<b>34,210</b>	<b>34,873</b>	<b>34,612</b>	<b>35,065</b>
	of which bachelor's degrees and diplomas	<b>22,787</b>	<b>23,469</b>	<b>24,109</b>	<b>23,657</b>	<b>22,692</b>

1) Source: Special evaluation of the higher education forecast 2017.

## 4. Target teacher/student ratios

The teacher/student ratio illustrates the students actively taking exams (at least 16 ECTS points or positive academic assessments for a total of eight semester hours' credit within one academic year) per full-time equivalent (FTE) professor and tutor including associate professors.<sup>75</sup> According to the forecast for students actively taking exams (see Table 5) there were 4,484 FTE professorships or equivalent positions required in the 2019/20 academic year in order to maintain the current average teacher/student ratio of 42.5 students actively taking exams per FTE. This would require an increase in these staff categories of more than 200 FTEs based on the status quo for 2015/16 (see Table 9). This equates to an increase in staff of around 5% in these categories by 2019/20. The Austrian National Development Plan for Public Universities aims to achieve an improvement in the teacher/student ratio towards the goal of 1:40 for the upcoming performance agreement period – this improvement will be adjusted with each additional professorship or equivalent position above and beyond these 200 positions. This arithmetical limit, based on the current actual level starting from the current status as at (2015/16), amounts to at least 430 additional professorships or equivalent positions for the 2022–2024 performance agreement period.

**Table 9**  
**Teacher/student ratios - overview with (roughly) constant teacher/student ratio**  
 Academic year 2016/17 to 2019/20 and 2023/24 | forecast or development sought

	Forecast <sup>1</sup>			Development sought by the end of the performance agreement period			Index (Basis=2016/17 academic year)	
	students actively taking exams	FTE Prof. and equival.	const. Teacher/student ratio	students actively taking exams	FTE Prof. and equival.	Teacher/student ratio	students actively taking exams	FTE Prof. and equival.
Academic year 2016/17	185,288	4,371	42.4				100	
Academic year 2017/18	186,050	4,389	42.4				100	
Academic year 2018/19	186,915	4,410	42.4				101	
Academic year 2019/20	187,373	4,421	42.4	190,000	4,484	42.4	103	103
Academic year 2023/24	193,148	4,557	42.4	200,000	4,714	42.4	108	108

1) Source: Special evaluation of the higher education forecast 2017.

<sup>75</sup> The two Intellectual Capital Statements key figures 2.A.1 and 2.A.6 form the basis for this.