

Universities as organisational centres of the research system and key players in society

Key considerations on the role of, and challenges facing, the universities

I. Role of universities

Universities develop and define their key role in Germany in constant dialogue with all groups in society. In fulfilling this role, they render services of crucial importance for Germany's scientific, economic, social and cultural development. As "organisational centres of the research system,"¹ universities can draw on a unique structure that is the product of the ongoing training of early career researchers, the unity of research and teaching practised, and the collaboration of fields and disciplines "under one roof".² Having said that, German universities' activities in the following spheres of action demonstrate great diversity and, at the same time, consistently high quality by international standards:

1. **Outstanding teaching.** Every year, nearly half a million people³ complete a course of study at a German university, having acquired genuine academic competencies.⁴ Scientific expertise, personal development, preparation for the labour market, social engagement⁵ – the successful⁶ mediation of this knowledge and these skills depends on the commitment and communication skills of the teaching staff, the use of contemporary learning and teaching methods including digital methods, and the sustained interest of universities in ensuring and continuously enhancing the quality of teaching and studying.
2. **Excellent research.** For decades, knowledge-driven research at German universities has led the world in many fields. Universities in Germany continually demonstrate their leading position in national competition for the funding programmes of the German Research Foundation (DFG) as well as the excellence-based research funding of the Federal and State Governments, in European competition for grants from the European Research Council (ERC) and in international cooperation. In doing so, they produce the 'raw material' that a knowledge-based society requires for its development.⁷ Germany as a research location is also distinguished by a diverse higher education system and the excellent performance of all types of university, particularly in the area of applied research.

¹ German Council of Science: Perspektiven des deutschen Wissenschaftssystems, [Prospects for the German Research System] 2013, p. 28.

² Cf. HRK resolution "Key considerations for the future cooperation of universities and non-university research institutions", 2007, p. 2: "Public universities are crucial for scientific, cultural, technical and economic development in the Federal Republic of Germany. As the only centres for a non-contract and project-independent interdisciplinary combination of research and teaching, they are the most important research bodies in Germany."

³ In 2016: 491,678 (cf. Federal Statistical Office, Volume 11, Series 4.2., Prüfungen an Hochschulen [University Examinations], 2016).

⁴ Cf. HRK press release "A more precise description of university degrees: New qualifications framework of KMK and HRK," March 2017.

⁵ Cf. "To further improve the employability of university and college graduates." Joint declaration of BDA, DGB and HRK, prepared in consultation with the Federal Ministry of Education and Research, Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, Accreditation Council, Centre for Higher Education, German Centre for Higher Education Research and Science Studies, Higher Education Alliance for Applied Sciences, Stifterverband and the Cologne Institute for Economic Research, July 2016.

⁶ On the aspect of vocational skills, cf. most recently Fabian/Hillmann/Trennt/Briedis: Hochschulabschlüsse nach Bologna. Werdegänge der Bachelor- und Masterabsolvent(innen) des Prüfungsjahrgangs 2013 [Higher education degrees according to the Bologna Process. Careers of students awarded Bachelor and Master's degrees in the 2013 graduation year], DZHW, Forum Hochschule 1/2016.

⁷ The proportion of German scientific publications in global literature was 4.8 percent in 2014 (cf. Federal Ministry of Education and Research: Bundesbericht Forschung und Innovation [Federal Report on Research and Innovation] 2016, p. 82). Universities contribute two thirds of this (cf. Schmoch/Gruber/Frietsch; 5. Indikatorbericht Bibliometrische Indikatoren für den PFI Monitoring Bericht 2016 [5th indicator report on bibliometric indicators for the PFI monitoring report 2016], 2016, p. 78).

3. **Transfer: stimuli for innovation.** Universities have a profound impact on society and the economy: In their courses of study they mediate skills for analysing and solving complex issues, while at the same time educating managers and top executives in a practice-oriented way. They collaborate with actors from business and society in teaching, research, development and transfer⁸, and, lastly, they generate **broad** changes in the long term by conducting basic research.⁹ In this respect, universities drive economic and social innovation in Germany and are also key actors on the path to "Industry 4.0.". At the same time, they act as a guarantor of sustainable development.¹⁰
4. **Promotion of professional development.** Universities make an important contribution in a professional world moving rapidly towards the concept of life-long learning in an ever-changing environment: with their dynamic continuing education programmes, they assist the development and long-term maintenance of individual professional qualifications. This not only benefits the key social field of teacher education, for example, but also makes German universities an attractive industry partner.¹¹ At the same time, universities support the accessibility and fairness of the education system through their continuing education programmes.¹²
5. **Educational mandate and strengthening of dialogue.** Universities are places of dialogue and intellectual debate. They promote and develop the character and teach both the approach of relying on the power of objective argument and using it and the ability to do so. As centres of democratic culture, they contribute to fruitful debate on tackling the great social challenges.¹³ In addition, universities offer various programmes to all sections of the population and use innovative approaches¹⁴ to do so: from events for political education to workshops on *Social Entrepreneurship* through to children's university. What is more, they work against xenophobia and marginalisation in a targeted and sustained manner.¹⁵
6. **Responsibility in the region.** Universities take on responsibility effectively in all regions of Germany. They are major regional employers, provide training in skilled occupations, run hospitals, offer consultancy services to the local population, maintain public infrastructures (libraries, sport facilities, botanical gardens, etc.) and work on urban and regional development programmes. Above all, they are key contact and cooperation partners in teaching, research and development for regional companies, associations and educational establishments that

⁸ Cf. HRK resolution: "Transfer and cooperation as tasks of the universities", November 2017; Henke/Pasternack/Schmid: Third Mission bilanzieren. Die dritte Aufgabe der Hochschulen und ihre Kommunikation [Recognising the third mission. The third task of higher education institutions and communicating it], HOF handouts 8, 2016; Roessler/Duong/Hachmeister: Welche Missionen haben Hochschulen? Third Mission als Leistung der Fachhochschulen für die und mit der Gesellschaft [What missions do higher education institutions have? Third mission as a service of universities of applied sciences for and with society], CHE working paper no. 182, 2015

⁹ Cf. most recently Luke Georghiou on the various innovation effects of research: Value of Research. Policy Paper by the Research, Innovation, and Science Policy Experts (RISE), European Commission, 2015; Federal Ministry of Education and Research, Innovation Driver of Basic Research, 2013.

¹⁰ This holds true in multiple respects: universities contribute to making development sustainable, above all by way of cross-disciplinary research; at the same time, they impart the relevant content in courses of study and teaching and, as institutions, they adhere to the relevant model (see HRK resolution "Universities for sustainable development". Declaration of the German Rectors' Conference (HRK) and the German Commission for UNESCO (DUK) on higher education for sustainable development, November 2009).

¹¹ Cf. Stifterverband in this regard: Quartäre Bildung [Quaternary education], 2008, p. 21 f.

¹² Cf. HRK position paper on continuing academic education, 2008. Insofar as universities wish to provide continuing education in the area of initial academic training, the responsibility of government for financing this activity and the qualification objective of an academic degree must be borne in mind.

¹³ Cf. HRK press release "Prize for Higher Education Communication 2017 in Potsdam: Social responsibility in difficult times," November 2017.

¹⁴ Cf. the activities of the higher education network "Bildung durch Verantwortung e.V.", in which to date 41 universities of different types and sizes have joined together and work successfully with concepts such as *Service learning* and *Campus Community Partnerships*.

¹⁵ See HRK press release "Open-minded Universities – Against Xenophobia. Nationwide Initiative by the HRK's Member Universities", November 2015, and the associated website www.hrk.de/home/universities-against-xenophobia.

are often crucially dependent on the technological and social expertise and the capacities of universities. Overall, universities have a significant social and economic impact, particularly in their regional context.¹⁶

7. **Preservation and development of cultural heritage.** Through the interplay of tradition and modernity, universities make a long-term contribution to the preservation of cultural heritage in Germany and Europe¹⁷ and its development in the present-day context. The points of reference and mechanisms for this are many and varied: above and beyond the offerings of the archives, collections, museums and libraries, this is exemplified by the visualisation of the past through the historical sciences; the cultivation of creative work predominantly in Colleges of Art and Music; the connection between religious and intellectual-cultural development analysed especially at Theological Colleges; the long-term commitment to strengthening so-called rare disciplines, and the active use and inclusion of architecture from all eras in the everyday activities of universities.
8. **Promotion of diversity.** Universities in Germany are always places of encouragement and integration. This not only applies in the light of the refugee issue¹⁸ or at the highly visible level of international students¹⁹, but also far beyond that. For example, universities foster mutual understanding of cultures and religions; they research and practise inclusion in all their relationships.²⁰ They promote equal opportunity in education with a broad, highly variable range of courses (part-time²¹, combined with employment, etc.) tailored to the needs of students with quite diverse educational backgrounds. Lastly, by providing teacher education they lay the foundations for one of the most important factors for successful cultural, social and political integration.²²
9. **International cooperation.** Research and scholarship are intrinsically international and bound to the values of global citizenship as well as the principles of rationality and competition. Thus, the diverse global collaborations of German universities²³ contribute to the internationalisation of the higher education system and therefore to continual improvement in the quality of studying, teaching and research. Furthermore, the cross-border collaboration of universities and the mobility of students²⁴ open up new realms: they connect people and

¹⁶ See Stifterverband: Wirtschaftsfaktor Hochschule. Investitionen, ökonomische Erträge und regionale Effekte [The university as an economic factor. Investments, economic yield and regional effects], 2013.

¹⁷ Cf. HRK resolution „Eine Europäische Bildungs-, Forschungs- und Innovationsgemeinschaft schaffen“ [Creating a European Education, Research and Innovation Union], November 2016, p. 9, passim.

¹⁸ HRK press release “HRK Senate: Making long-term integration of refugees possible”, October 2015; HRK press release “BDA, BDI and German Rectors' Conference: Utilising Scope for Access to University for Refugees,” September 2015; HRK press release “HRK survey reveals: universities are committed to education and training for refugees,” July 2015.

¹⁹ In the 2016 academic year, 340,305 foreign students enrolled at German universities, accounting for 12.1% of all students in Germany (see DAAD/DZHW: Wissenschaft weltoffen [Open-minded science] 2017, p. 3). Cf. also German Council of Science and Humanities: Empfehlungen zur Gewinnung, Integration und Qualifizierung internationaler Studierender. [Recommendations concerning the acquisition, integration and qualification of international students.] Dritter Teil der Empfehlungen zur Qualifizierung von Fachkräften vor dem Hintergrund des demographischen Wandels [Third part of the recommendations concerning the qualification of skilled employees in the light of demographic change], July 2016.

²⁰ Cf. HRK resolution “A University for All. Studying with a disability and chronic illness,” April 2009; HRK project nexus “Concepts and Good Practice: Diversity,” February 2012.

²¹ Cf. HRK recommendation “Part-time study,” November 2016.

²² Cf. “Educating teachers to embrace diversity. Joint recommendations by the German Rectors' Conference and the Standing Conference of the Ministers of Education and Cultural Affairs of the States in the Federal Republic of Germany,” March 2015; HRK recommendation “Recommendations on teacher education,” May 2013.

²³ There are currently around 33,000 collaborations with more than 5,400 partner universities in 158 countries (source: International University Partnerships, Offered by German Rectors' Conference, January 2018)

²⁴ Around 28,500 students are currently completing a German degree programme in one of the transnational higher education projects run by German universities abroad (cf. Wissenschaft weltoffen 2016, p. 86). In turn, 134,500 German students completed part of their studies abroad in 2013 (cf. *ibid.* p. 39).

cultures and, in this way, contribute to fostering collaboration in many areas of society where there is no scope for direct political action. German universities actively assume the responsibility associated with this.²⁵

10. **Universities in Europe.** In their international dealings, German universities view themselves as part of the European Higher Education Area and the European Research Area. They have implemented the European Study Reform in a sustained manner²⁶, successfully faced competition in European research funding for decades and make intensive use of the educational programmes of the European Union (EU) to expand mobility and networks. In the course of their collaboration, universities strengthen the European ideal, cultural, personal and linguistic²⁷ exchange with partner countries and Europe's economic and social innovation.²⁸ Through their performance, they contribute to the financial return from the funds Germany pays to the EU.²⁹

II. Challenges of the higher education system

Universities wish to continue to perform the role described and to render the services named over the long term, with a high degree of flexibility and continuous quality improvement. As dynamic establishments attuned to change, they will actively contribute to this goal by responding to competition, continuously developing their structures and seeking dialogue with all important social groups. In this regard, it is very important that Federal and State Governments, in particular, constructively support the change process and provide assistance with the implementation and adaptation of the corresponding framework conditions. In order to maintain and develop the effectiveness of the system in coming years, universities and their partners must work closely together in the following key fields:

1. **Increasing autonomy.** Autonomy is not an end in itself, but rather a precondition for universities to develop to their full potential in all areas. For this reason, flexibility and freedom of action in the legal sphere, in relation to finance, personnel and organisation are imperative when it comes to the autonomy of universities. This is clear across the entire spectrum of higher education activities, most recently in relation to the question of regulation of compulsory attendance at lectures³⁰ and the restructuring of the accreditation system.³¹ At the same time, autonomy is inseparable from responsibility; legally, the degree of autonomy moves in the realm between the guarantees of Art. 5 (3) clause. 1 of the Basic Law and the commitment to the rule of law. In light of this, the Federal states must undoubtedly exercise legal supervision. They should, however limit themselves to this core area and move away

²⁵ Cf. HRK press release "Iran: HRK President protests against death sentence for academic Djalali," December 2017; HRK press release "One year after failed military coup, academic freedom in Turkish universities severely curtailed," July 2017; HRK press release "Science is international," February 2017; HRK press release "HRK President on the situation in Turkey: Unacceptable encroachment on academic freedoms," November 2016; HRK press release "HRK President expresses his protest against treatment of academic staff in Turkey,"; HRK press release "Rectors' conferences in Germany, Austria and Switzerland: Criticism of how researchers who are critical of the government are treated in Turkey," January 2016; HRK press release "Mourning for the terror victims at Bacha Khan University in Pakistan," January 2016.

²⁶ The proportion of BA/MA degree programmes at German universities was around 91.4 % during the winter semester of 2017/2018 (cf. HRK: Statistical Data on Study Opportunities at Universities in Germany, 2017).

²⁷ Cf. HRK recommendation "Sprachenpolitik an deutschen Hochschulen" [Language policy at German Universities], November 2011.

²⁸ Cf. HRK resolution "Eine Europäische Bildungs-, Forschungs- und Innovationsgemeinschaft schaffen" [Creating a European education, research and innovation community], November 2016.

²⁹ Research example: Of the budget for Horizon 2020, after two years of operation (2014-2016) 19.3% of funds went to German establishments. One-third of these funds went to universities (cf. Federal report on research and innovation 2016, p. 284).

³⁰ Cf. HRK press release "Mandatory attendance is a matter for the universities," June 2016.

³¹ Cf. HRK resolution "Neuordnung des Akkreditierungssystems" [Reorganisation of the accreditation system], November 2016, p. 3.

from micro-management and the (re-)introduction of overly detailed indicators.³²

2. **Balance in governance.** The tasks of universities – in research and teaching in particular – are primarily carried out by departments and faculties, while the structural, financial and personnel conditions are profoundly influenced by the leadership of the university. For this reason, close links between the local and central discussion and decision-making processes in a distributed institutional structure and the clear delineation of universities' capacity to act are very important. The objective of good higher education management must be the balancing out of these decision-making structures, so that even uncomfortable decisions or those with long-term implications can be reached for the benefit of the university. In the process it must be ensured that the development of the university as an organisation with its collective interests is balanced with the justified individual interests of the academic profession. The state legislatures are called upon not to impede the development of the necessary balances in universities through overly detailed provisions.³³
3. **Securing of financing.** By European standards and in absolute terms, the Federal and State Governments have invested heavily in the higher education system in recent years. Overall, however, the developments of the last twenty years affecting the financial structure of universities have been unfavourable.³⁴ A sharp increase in third-party funding and competitive funds is offset by a weak increase in basic funding relative to the sharply increasing number of new students. On average, more than one-fifth of the higher education budget is now earmarked and assigned for a limited period of time.³⁵ In order to ensure meaningful scope for organisational decisions and options for further development in research and teaching, as well as genuine competition with non-university research, which has been afforded a constant increase in basic funding for a decade³⁶, the basic funding of universities must therefore be permanently increased by the State Governments, in particular by providing continuity in funding from the 2020³⁷ Higher Education Pact. In addition, supplementary funding should be made available to universities³⁸ due to programmatic grants offers that support not only quality assurance but also competitiveness and future-readiness. This "two-pillar model" must be underpinned by an annual increase of at least 3% in funding. In thematic terms, in addition to the long-term safeguarding of research and teaching, the following aspects are a top priority for the universities: digital infrastructure including research and transfer infrastructure³⁹,

³² Cf. HRK resolution "Zur Hochschulautonomie" [On the autonomy of universities], May 2011.

³³ Cf. resolution of the Executive Board of the HRK "Organisationsstrukturen an Hochschulen" [Organisational structures in higher education institutions], March 2017.

³⁴ Cf. HRK press release "Latest OECD figures confirm deficits in higher education funding," September 2017; HRK resolution "Finanzierung der Hochschulen" [Financing of universities], November 2011.

³⁵ Of a total volume of €50 billion in 2015, €7.4 billion was third-party funding; €3.2 billion went to universities as part of the Higher Education Pact. The proportion of third-party funding as well as other temporary funding has almost doubled in the last ten years (cf. Federal Statistical Office, Volume 11, Series 4.5. Financing of universities 2015; Joint Science Conference (GWK), Higher Education Pact 2020, report on implementation in 2015, Bonn 2017). Cf. most recently Baumgarth/Henke/Pasternack: *Inventur der Finanzierung des Hochschulsystems. Mittelflüsse, Kontroversen und Entwicklungen im letzten Jahrzehnt* [Inventory of the financing of the higher education system. Cash flows, controversies and developments in the last decade], Hans-Böckler-Stiftung, 2016.

³⁶ The indirect participation of universities with strong research capabilities in the Joint Initiative for Research and Innovation via the funding budget of the DFG does not compensate for the lack of basic funding for all universities.

³⁷ Cf. HRK press release "Student numbers at record high: HRK calls for consolidation of Higher Education Pact," November 2016.

³⁸ Where an institutionalisation of programme funding for the core area of teaching occurs, it is no longer possible to discern the merely supplementary nature of the funding; this was one of the reasons for the rejection of such proposals by higher education institutions. Cf. HRK press release, "No institutionalised programme funding for teaching," May 2017.

³⁹ Debate on the important question of whether adequate and appropriate funding options exist for practically oriented research projects at universities is also relevant in this context.

national licences and other “national services,” higher education facility construction and refurbishment, programme allowances and social infrastructure. It is incumbent on the Federal and State Governments to implement this model as a matter of joint political and financial responsibility.⁴⁰ Given that the great demand for higher education, which will become harder to finance due to the “debt brake” and limits to public funds, may conceivably be permanent, over the long term the conditions for generating additional private funds should be established again, first and foremost through socially responsible tuition fees.⁴¹

4. **University construction and renovation.** An important precondition for German universities to hold their own in competition with non-university research institutions and leading universities worldwide for the best brains is up-to-date building facilities. This has been neglected for decades because the funds for the simultaneous expansion and maintenance of the existing building were insufficient. The current renovation gap is estimated to be approximately €30 billion⁴²; particularly extensive renovations are especially necessary for institutions established in the late 60s and the 70s. Overall, beyond the issue of impressive appearances, the practical and academic functionality of many buildings is often considerably restricted due to obvious defects and non-compliance with applicable safety standards – a locational disadvantage throughout Germany with consequences for the performance of universities when competing for students and top-level researchers. Due to the ongoing high demand for study places, more space must also be provided. Given that Federal Government funding to compensate for the joint programme of higher education facility construction abolished as part of the federalism reform expires in 2019, a shared concept on the part of the Federal and State Governments is urgently needed for the long-term safeguarding of the building stock at universities.
5. **Strengthening universities of applied sciences.** Beyond securing basic budgets, when strengthening universities of applied sciences their specific requirements must be taken into account. Universities of applied sciences require appropriate basic funding for research and development as well as special funding options, and for the vital and particularly challenging task of recruiting new professors, they need a multi-level system of career development and options for an intersectoral dual qualification. These programmes must be coordinated with each other and accompanied by measures to develop infrastructure and mid-level academic staff.⁴³ In the important area of teaching and studies, in recent years expansion has been successful, with a disproportionately high increase in new students at universities of applied sciences. This trend must be reinforced, primarily by means of continuity of funding from the 2020 Higher Education Pact. Furthermore, the relationships between universities of applied sciences and other universities in research and teaching must be further developed in regional associations. As a means of quality assurance, interdisciplinary procedural standards must be developed for these cooperation models.

⁴⁰ Cf. HRK resolution “Funding of the higher education system from 2020 onwards”, May 2017; HRK resolution “Nutzung des neugefassten Art. 91 b GG” [Application of the reworded Art. 91 b of the Basic Law], November 2015.

⁴¹ Cf. HRK resolution “Zur künftigen Studienfinanzierung” [On future student funding], November 2005; HRK resolution “Zur künftigen Studienfinanzierung” [On future student funding], June 2004.

⁴² Cf. Palme König: Der vernachlässigte Hochschulbau [Neglected university construction], in: *Forschung und Lehre* 4/2013. Standing Conference of Education Ministers, *Solide Bauten für leistungsfähige Hochschulen* [Solid structures for effective higher education institutions], 2016.

⁴³ Cf. HRK recommendation “Basic principles for a long-term Federal/State Government programme to recruit professors at universities of applied sciences,” October 2016; HRK recommendation “Towards strengthening research and development and early career researchers at universities of applied sciences,” June 2016. The same applies to early career researchers in the arts, to whom hardly any appropriate programmes have been available to date.

6. **Promotion of top-level basic research.** Federal and State Governments have already effectively supported knowledge-driven, top-level research at universities in recent years. However, they must intensify their activities jointly with universities in order to secure and strengthen their leading international position. Key issues are the development of financial and legal framework conditions for acquiring and retaining top-level researchers; an absolute and proportional increase in non-earmarked research funding in universities' basic budgets; the consolidation of large research funding programmes (already initiated⁴⁴; an increase in the budget of the German Research Foundation (DFG); the establishment of overheads as a fixed component of funding programmes⁴⁵, an increase in existing programme lump sums⁴⁶, and lastly a political and social stance that steers clear permanently of short-term and often dysfunctional demands for "impact" from research.
7. **Improvement of research infrastructure.** German universities operate a number of forms of infrastructure that are essential to research and development in all academic areas.⁴⁷ The size, type and quantity of infrastructure reflect the thematic breadth of research in higher education; for example, archives used for the humanities, special medical devices at university hospitals, major equipment for the engineering sciences. In light of this, it is necessary to significantly improve the ability of universities to manage research infrastructure. From the financial point of view, this has three implications: increasing funds for equipment and specialised staff in the basic budgets of universities; the establishment of (additional) funding mechanisms in the vital size range between approximately €5 million and €50 million, and the possibility to apply for operating costs including personnel costs. The acquisition and retention of personnel required for operations is only feasible if attractive careers⁴⁸ and the relevant training and continuing education options are available at universities. Universities are called upon to develop an efficient, resource-saving system of research infrastructure across Germany – in dialogue with Federal and State Governments and funding organisations, involving the establishment of networks, core facilities and associations (including cross-border and/or with non-university research bodies) and integrated at the European level.
8. **Development of digital infrastructure.** The development of efficient digital infrastructure at universities is a task for the future that is essential in all areas of higher education. Campus management systems, long-term archiving of data and publications, research data management⁴⁹ and research information systems, Open Access, data and information security, digitalisation of teaching, electronic admission procedures, increase in information literacy – these tasks signify huge changes for all members of the university and require the development of relevant competencies as well as financial and administrative resources.

⁴⁴ One example is the Federal and State Governments' "Excellence Strategy" adopted in June 2016 and established on a permanent basis in line with the amended Art. 91 b of the Basic Law.

⁴⁵ The offer of a "university allowance," for example, in the cluster of excellence funding line of the "Excellence Strategy" is very welcome.

⁴⁶ An initial increase to 40% is considered reasonable (cf. HRK resolution "Application of the reworded Art. 91 b of the Basic Law," November 2015; Joanneum Research/KPMG/prognos: Wissenschaftliche Untersuchung und Analyse der Auswirkungen der Einführung von Projektpauschalen in die BMBF-Forschungsförderung auf die Hochschulen in Deutschland [Scientific study and analysis of the impact of the introduction of overheads in BMBF research funding on universities in Germany], 2014).

⁴⁷ Cf. HRK statement on Public Expert Debate on the "Funding of research infrastructure," Committee on Education, Research and Technology Assessment of the German Bundestag, June 2016. A requirements analysis and the optimisation of the existing national roadmap process are outstanding.

⁴⁸ Cf. HRK recommendation "Guidelines for the advancement of early career researchers in the post-doctoral phase and for the development of academic career paths in addition to professorships," May 2014, p. 6.

⁴⁹ Cf. HRK recommendation "Management of research data – a key strategic challenge for university management," May 2014; HRK recommendation "How university management can guide the development of research data management. Orientation paths, options for action and scenarios," November 2015.

Currently, universities have a number of good projects and approaches, which must now be provided with direction and continuity, with their quality being guaranteed by means of accompanying research. In this context, the higher education system is called on to effect a division of labour and to prioritise in this area also, for the purpose of profile development. Federal and State Governments are called upon to view this matter as an urgent national task and, on the Federal Government's part, to make use of the organisational options of the new Art. 91 b of the Basic Law.

9. **Development of the study system.** The principle of the two-tier European Study Reform (Bachelor's/Master's) has been established in Germany. Further appropriate implementation steps are required, for example in the area of regulated courses (say, teacher training), and an increase in international student mobility through improvement of the system of mutual recognition of academic performance and academic degrees. In any event, universities are encouraged to make use of the scope that currently exists, for example in respect of standard course durations and accessibility between the types of university.⁵⁰ In addition, internationalisation⁵¹ and digitalisation⁵² of all areas of life require a corresponding change to curricula. Attention must be paid to concepts and pilot processes for the mediation of digital information literacy in particular.⁵³ Furthermore, what has been to date the mere examination of "academic feasibility" of a course of study must be further developed into a peer-based review system aimed at ensuring and developing quality, under the crucial guidance of academic staff (in terms of an audit).⁵⁴ In addition, the fundamental reform of the initial study phase already initiated is to be further advanced, and ought to aim for an optional orientation period at the university as a whole, independent of the course of study, and exercise an influence over the laws on admission and capacity.⁵⁵
10. **Modernisation of the law on capacity.** The basic structures of the current capacity law do not take sufficient account of developments of the past decades in the higher education system in Germany. For example, the modularisation of subjects that has been established in the interim, the transition to student-centred teaching and learning, the pending effects of digitalisation on teaching, the increasing heterogeneity of the student population, the growing number of part-time students, profile development through the definition of key research areas and the need to improve the student/teaching staff ratio all require⁵⁶ a degree of flexibility in universities' planning processes that is not achieved by the existing approaches (bandwidth model). Bearing this in mind, capacity law must be comprehensively modernised and understood henceforth not so much as a public policy tool but rather as a means of implementing profile development and differentiation of universities.

⁵⁰ Cf. joint declaration by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany and the German Rectors' Conference "European Study Reform," July 2016.

⁵¹ Cf. HRK recommendation "On the internationalisation of curricula," May 2017.

⁵² Cf. Modes of digital teaching in German universities. On behalf of the topic group "Governance & Policies" coordinated by the German Rectors' Conference (HRK) in the Higher Education Forum on Digitalisation, HIS-HE, working paper no. 21, 2016.

⁵³ Cf. HRK recommendation "Universities in a digital age: rethinking information competency – redirecting processes," November 2012; funding programme "Curriculum 4.0" of Stifterverband Carl-Zeiss-Stiftung, 2016.

⁵⁴ Cf. HRK resolution "Reorganisation of the accreditation system," November 2016; HRK resolution "Key points for the further development of the accreditation system," May 2016; HRK resolution "On the further development of the accreditation system – the Institutional Quality Audit model," April 2012.

⁵⁵ Admission would initially be to the university itself, and no longer to a degree programme. This goes significantly beyond the previous pilot projects (see also Zervakis/Bargel: Flexibilisierung und Mobilität im europäischen Hochschulraum [Flexibility and mobility in the European Higher Education Area], 2015, p. 21 f.).

⁵⁶ Cf. HRK recommendation "Qualitätsoffensive in der Lehre – Ziele und Maßnahmen" [Quality offensive in teaching – aims and measures], October 2007, p. 2.

11. **Development of young researchers.** Many academics are currently working in fixed-term positions in the German higher education system due to increasing third-party funding and programme funding.⁵⁷ The number of permanent posts and professorships has not grown in relation to the number of qualified early career researchers, which today greatly reduces their chances of remaining in, or gaining promotion in, the higher education system. In respect of professorships, it is true that the 1,000 new professorships in the area of universities specified by the so-called early career pact⁵⁸ can provide early career researchers with an additional prospect, provided the State Government guarantees the necessary quantity and the continuity of the financing with additional funds.⁵⁹ In other respects, in addition to professorships, permanent academic positions are required in research, on the teaching staff and in research administration that represent attractive prospects to early career researchers so that the universities can fulfil their remit.⁶⁰ Overall universities are encouraged to further expand on the substantial personnel development efforts already taken in the area of early career researchers.⁶¹ Federal and State Governments are required, in particular, to guarantee the suitable legal framework conditions. It is expected that stabilisation in the interpretation and application of the Academic Fixed-Term Contract Act (*Wissenschaftszeitvertragsgesetz*) will play a key role.
12. **Quality assurance for doctoral education.** As a key qualification for an academic career, doctoral education must be strongly defended against European appropriation as a third cycle of study, against a weakening of the definition and decision-making autonomy of the universities in doctoral projects with industry⁶² or non-university research⁶³ and, above all, against deterioration of quality in all academic areas (including medicine⁶⁴). Doctoral candidates are considered early career researchers; their independence and personal responsibility must therefore be required and encouraged. With respect to collaboration between the universities types, universities and higher education institutions entitled to confer doctorates intend to further enhance the opportunities for professors of universities of applied sciences to act as supervisors, reviewers and auditors in cooperative doctoral examination procedures, and promote access to doctoral education for graduates of universities of applied sciences.⁶⁵
13. **Intellectual property.** Universities require modern, reliable and legally feasible framework

⁵⁷ On 1 December 2015, 15.5% of academic and artistic staff were in permanent employment (cf. Federal Statistical Office: Personal an Hochschulen [Personnel at universities], Volume 11, Series 4.4 – 2015, 2016).

⁵⁸ Cf. "Programm zur Förderung des wissenschaftlichen Nachwuchses von Bund und Ländern" [Funding programme of the Federal and State Governments for young researchers], June 2016.

⁵⁹ Cf. Alliance of Science Organisations in Germany: In favour of an ongoing form for the "early career pact," November 2016.

⁶⁰ Cf. HRK recommendation "Guidelines for the advancement of early career researchers in the post-doctoral phase and for the development of academic career paths in addition to that of a professorship," May 2014; HRK recommendation "Core theses for the *Guidelines for the advancement of early career researchers in the post-doctoral phase and for the development of academic career paths in addition to that of a professorship*," May 2015.

⁶¹ Cf. Stifterverband/DZHW, Personalentwicklung für den wissenschaftlichen Nachwuchs [Career development for early career researchers], 2016.

⁶² Cf. HRK resolution "Eckpunkte zur Qualitätssicherung der Promotion mit externem Arbeitsvertrag" [Key points on quality assurance in doctoral education with an external employment contract], November 2017; HRK press release "Joint position of BDA, BDI, HRK and Stifterverband on doctoral degrees offered in partnership between doctorate-conferring universities and companies (doctoral degree with external employment contract)," March 2018.

⁶³ Cf. Joint resolution of the Executive Board of the HRK, the spokespersons of the Universities Member Group and the HRK concept group 'Max Planck Schools'," August 2017.

⁶⁴ Cf. HRK recommendation "Zur Qualitätssicherung der Promotion in der Medizin" [On quality assurance for doctoral degrees in medicine], November 2016.

⁶⁵ Cf. HRK recommendation for "Managing cooperative doctoral degree programmes," May 2015.

conditions for dealing with intellectual property. As a result, universities together with their partners in academia are calling for the permanent establishment of an effective European and national copyright law⁶⁶ that is supportive of education and research, particularly with digital teaching and learning management systems in mind. Additionally, universities point out that many years of sharply increasing costs for journal subscriptions are jeopardising an adequate supply of up-to-date literature to universities for research and teaching. In view of this, universities and their partners have got the project "DEAL – nationwide licensing" off the ground. The objective is to conclude national licence agreements for the entire range of electronic journals offered by the major science publishers with better conditions.⁶⁷ Strong support from government is imperative during the difficult transformation phase. With respect to the principle of open access, universities ultimately have confidence that the concept will prevail due to growing support and appropriate regulation by major research funders. They therefore support initiatives that are geared towards providing researchers with enabling structures (e.g. financing of the "Golden Road" and identification of repositories for the "Green Road").⁶⁸

14. **Pooling of strengths in the education system.** Academic education and vocational training are different but of equal value⁶⁹: they contribute equally to the success of Germany as a research and business location. Universities advocate a differentiated⁷⁰ approach to the question of how individual backgrounds and competencies can best be developed. To this end, they intend to work even more closely with vocational training bodies and argue at the appropriate locations for joint consultative structures.⁷¹ In doing so, they aim to contribute to equal opportunity in education and address upcoming challenges in the tertiary sector. In addition to the integration of migrants and refugees⁷² and the inclusion of people with disabilities and chronic illness⁷³, it is important to take action when people from a non-academic environment are deterred from a course of study even where the formal prerequisites have been satisfied and personal aptitude exists.⁷⁴ The availability of adequate, continually adjusted student financing is very important here. Additionally, timeliness, individual character and perfect fit of advice play a key role.⁷⁵ Beyond the decision for a particular training route, permeability between the sectors while simultaneously safeguarding access standards is of great

⁶⁶ Cf. HRK press release "Planned copyright law reform very welcome and urgently needed," November 2016; Alliance of Science Organisations in Germany: Removal of the time limitation in Paragraph 52a of the Copyright Act only an interim step – general education and science exception must follow, December 2014.

⁶⁷ Cf. Alliance of Science Organisations in Germany: Elsevier licence offer contravenes open access and fair pricing for academic publishing, December 2016.

⁶⁸ Cf. also Priority Initiative "Digital Information" of the Alliance of Science Organisations in Germany, since 2008; Federal Ministry of Education and Research: Open Access in Germany. The strategy of the Federal Ministry of Education and Research, 2016.

⁶⁹ Cf. "DQR muss Transparenzinstrument bleiben." [GQF must remain an instrument of transparency] Joint declaration of Germany's leading industry associations, the Confederation of German Trade Unions and the German Rectors' Conference on vocational and academic education, August 2016.

⁷⁰ A differentiated view also takes account of the fact that universities there support and promote making professions into academic disciplines where this is appropriate given increased skills requirements.

⁷¹ Cf. German Council of Science and Humanities: "Empfehlungen zur Gestaltung des Verhältnisses von beruflicher und akademischer Bildung. Erster Teil der Empfehlungen zur Qualifizierung von Fachkräften vor dem Hintergrund des demographischen Wandels" [Recommendations on shaping the relationship between vocational and academic education. First part of the recommendations on the qualification of skilled staff in the light of demographic change], April 2014, p. 82-85.

⁷² Cf. HRK press release "HRK President praises cooperation in education and training advice for refugees. Initiative launched in Baden-Württemberg," February 2016.

⁷³ Cf. HRK press release "Federal Participation Act does not meet the needs of students with disabilities," October 2016.

⁷⁴ Cf. the important figures from the 20th Social Survey by German National Association for Student Affairs, 2013, p. 111.

⁷⁵ Cf. the summary of the results of the Berliner Studienberechtigungspanel (Best Up); in: DIW weekly report 26, 2016, p. 555 ff.

importance for universities.⁷⁶

15. **Promotion of equality.** It is crucial to the success of the German research system that as many individuals of outstanding talent as possible remain in academia, regardless of their gender. Women account for half of new students, students and graduates. Through targeted funding, the proportion of women gaining doctoral degrees, postdoctoral qualifications and working as non-professorial teaching staff has increased significantly over the last two decades. Nevertheless, professorships are still predominantly occupied by men.⁷⁷ Equal opportunities policy therefore remains a key leadership task of universities. It must be designed to establish the preconditions for better compatibility of academic careers with family responsibilities and to continue to eliminate existing structural and cultural disadvantages to women in academia. This requires a changed leadership culture in universities which considers gender equality, diversity and staff development as prerequisites for the success of the individual establishment.
16. **Expansion of internationalisation.** Building on the established structures of internationalisation and the mostly well-developed networks with cooperation partners worldwide, the establishment of internationalisation at home and the international classroom, the focus for universities will turn to the continued internationalisation of higher education staff, the development of structured forms of cooperation in research and teaching with foreign partners and also international profile development along the lines of branding. However, the processing and implementation of these topics in universities repeatedly strikes obstacles. As a result, important initiatives and units at the universities (for example International Offices, Welcome Centres, Career Services) suffer from a lack of resources and permanency. In addition, internationalisation funds are usually allocated for specific purposes, with the result that an institutional internationalisation strategy can only be partially implemented or has to be limited to externally determined content. The most urgent need of universities in the area of internationalisation – typically for small and medium-sized institutions – is thus the availability of untied funds on an ongoing basis. Moreover, universities require further clarification and development of the legal and administrative framework conditions for internationalisation (for example, regarding the transferability of additional pension entitlements in cases of international mobility).
17. **Intensification of the European commitment.** With respect to the end of the current EU budget period, universities require even clearer political and financial priorities to be set for EU education and research funding in the EU budget from 2021 onwards. In doing so, the opportunity should be taken to remedy the enormous conceptual deficit that has existed for years, above all in the field of research and innovation, in addition to resolving some unsolved funding and programming conflicts.⁷⁸ First and foremost in this context, the relationship between national and European research and innovation funding under the heading of "European added value" must be clarified.⁷⁹ It must also be determined what value remains in the basic form of "collaboration on equal terms" cultivated for decades in Europe, if the

⁷⁶ Cf. HRK project nexus "Concepts and Good Practice: Accessibility," February 2012; Federal/State Government competition "Advancement through Education: Open Universities," since 2011; online portal of the Federal Government www.studienabbruch-und-dann.de, since 2016

⁷⁷ In 2015, almost 23% of full-time professorships were occupied by women (cf. Federal Statistical Office, Zahlen & Fakten ["Facts & Figures"] of 2016 in the field of "universities").

⁷⁸ Cf. Alliance of Science Organisations in Germany: On the Interim Evaluation of Horizon 2020, July 2016.

⁷⁹ Cf. Dr Georg Schütte, Federal Ministry of Education and Research: Interaction between national and European research and innovation funding (speech), Science Europe ERA High-Level Workshop, Oslo 2016.

important hub of EU collaborative research that key academic partner country Great Britain⁸⁰ represents ceases to exist in its present form.⁸¹ However, German universities not only wish to help find an answer to the question of a robust future funding architecture, but also, as a pillar of the largest and most powerful science nation in Europe, to make a significant contribution towards the imminent political and geographical re-adjustment of the EU. For this reason, universities recommend to government and society the establishment of a European education, research and innovation community with the universities as its core which can form the basis for a Europe that is vibrant, innovative economically and socially as well as culturally diverse.⁸² New EU initiatives demonstrate that this concept is gaining ground internationally and is certainly also having an impact on political decision-making.⁸³

18. **Reflection: quality in research.** Research at universities in Germany is anchored in society and directly impacted by society's change processes. The rapid change in standards and reference systems this involves calls for continuous reflection on the maintenance and development of quality in research. This concerns many different actors and fields of action: universities support the development of uniform and transparent standards for research integrity and will advance networking between the different national and international actors and responsible professionals, in order for even more reliable prevention structures to emerge over the medium term.⁸⁴ Beyond this, universities will remain committed to the important development and mediation of the ethical foundations of research⁸⁵ and welcome a legitimate discussion on the right amount of transparency in collaboration between the academic sector and business.⁸⁶ Universities consider these and similar discussions to be vital for the integrity and effectiveness of the academic sector.

III. Outlook: Universities after 2020

With regard to the international competitiveness of the German higher education system, time is a critical factor. This certainly applies with respect to the significant investment endeavours of other nations in the higher education sector and the superior financial room to manoeuvre enjoyed by non-university research bodies in Germany. This also applies specifically with a view to the immediate future: in the forthcoming period of medium-term financial planning, some programme- and

⁸⁰ Cf. HRK press release "HRK President on Brexit: profound impact extends to universities," June 2016.

⁸¹ The same applies to the upcoming mobility and education programmes of the EU (especially the successor to ERASMUS+), which should be developed from 2020 onwards with aims including strengthening of the humanities and social sciences, links with EU funding measures for research and innovation and the expansion of the international dimension. ⁸¹ Cf. HRK resolution „Eine Europäische Bildungs-, Forschungs- und Innovationsgemeinschaft schaffen“ [Creating a European education, research and innovation community], November 2016.

⁸² Cf. HRK resolution "Eine Europäische Bildungs-, Forschungs- und Innovationsgemeinschaft schaffen" ["Creating a European education, research and innovation community], November 2016

⁸³ Cf. EU initiative towards a European Education Area, November 2017; HRK press release "HRK in Brussels: European Excellence Initiative – European Universities," January 2018.

⁸⁴ As a contribution to this process, in October 2016 the Senate of the HRK approved complementary networking of higher education ombudsmen through the State Rectors' Conference and HRK.

⁸⁵ Cf. DFG/Leopoldina: Wissenschaftsfreiheit und Wissenschaftsverantwortung. Empfehlungen zum Umgang mit sicherheitsrelevanter Forschung [Academic freedom and academic responsibility. Recommendations regarding the use of security-related research], 2014; initiative of the Alliance of Science Organisations in Germany www.tierversuche-verstehen.de, 2016.

⁸⁶ See Stifterverband: Transparenz bei der Zusammenarbeit von Hochschulen und Unternehmen ["Transparency in the collaboration between universities and companies"], 2016; HRK press release "HRK President Comments on Recommendations by the Stifterverband: A Useful Contribution to the Discussion on Transparency Regulations," April 2016.

competition-based funding is still available to the universities⁸⁷ or has already been renewed⁸⁸; some of this funding, including pillars 1 and 2 of the 2020 Higher Education Pact, which are vital for universities and also the quasi-institutional financing through deconcentration funds from higher education facility construction, will end in the 2019/2020 years. The time remaining must be used to readjust the higher education financing system. Other influential factors must be considered for this endeavour, including the amendment already passed to the Art. 91 b of the Basic Law, the upcoming entry into force of the ban on net borrowing in federal states (2019/2020), the planned reformulation of financial relations between Federal and State Governments (by the end of 2019), the conclusion of the current EU budget period and the expiry of the Joint Initiative for Research and Innovation (both by the end of 2020). Ultimately, the re-adjustment should bring about a clear enhancement of cash flows to universities⁸⁹ and a significant shift in higher education financing in favour of basic funding over third-party funding. In view of the complex initial situation and the long-term consequences for the research system, universities wish to enter into a constructive and trusting dialogue with their partners in government, research,⁹⁰ and society on this issue, and bring their own concepts to bear in the process.

Resolution of the Senate of the German Rectors' Conference (HRK), October 2016 (updated by resolution by the President of the HRK on 10 April 2018)

⁸⁷ According to current plans, the Federal Government programme "Research at Universities of Applied Sciences" (open-ended) and also the programmes of the Federal and State Governments "Advancement through Education: Open Universities" (ending 2020) and "Quality Offensive in Teacher Education" (ending 2023) will be available during the period named and, in some cases, beyond that.

⁸⁸ Federal and State Governments have been providing additional funding since 2017 ("Funding programme for young researchers") and 2018 ("Innovative University," "Excellence Strategy", "Programme for Women Professors").

⁸⁹ Along the lines of a "Higher Education Pact for Education, Research and Innovation" to be redrafted, which ensures appropriate financial growth of universities' basic budgets over the long term.

⁹⁰ In this context, the HRK considers its exchange with the Alliance of Science Organisations in Germany to be a focus within research. Cf. also HRK resolution "Key considerations for the future cooperation of universities and non-university research institutions," 2007.