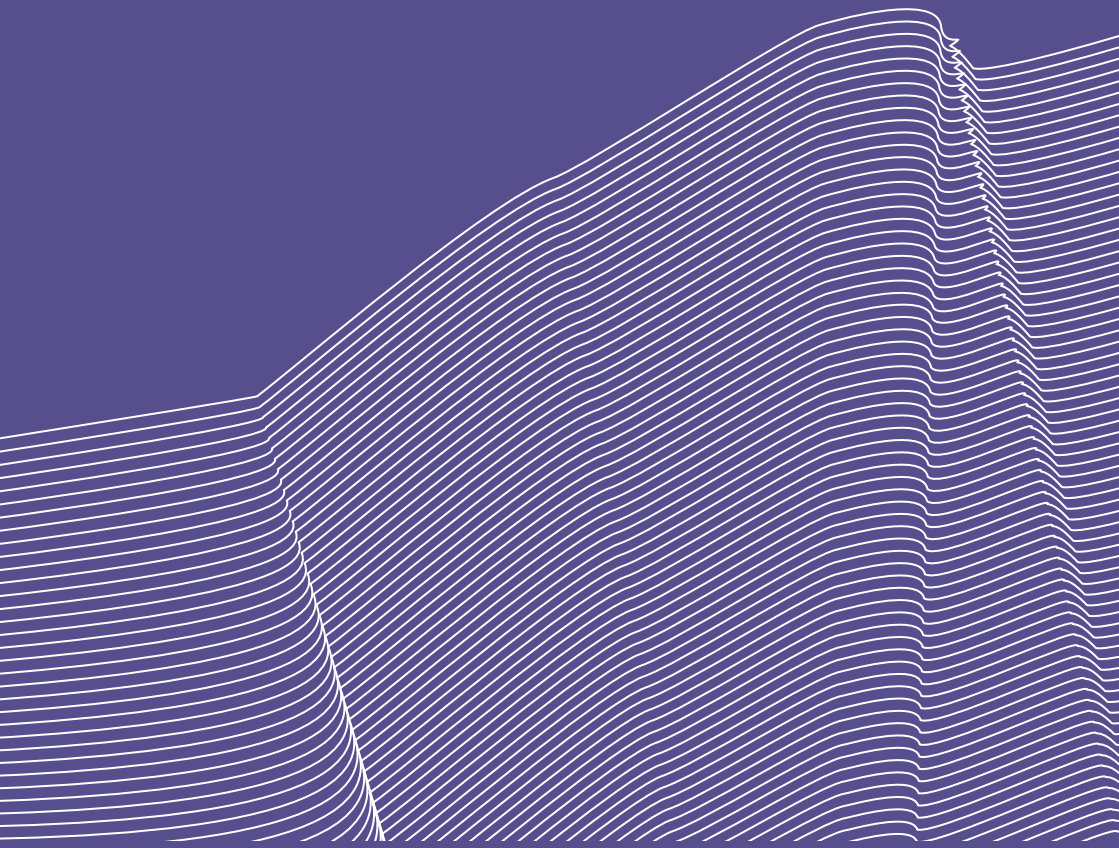
Die Junge Akademie

Internationalisation: Perspectives from German academia

A discussion paper by Anna L. Ahlers, Jan Hennings and Fabian Schmidt,
with commentaries by Max Amann, Valerie Domcke, Valeska Huber,
Jakob Lehnig, Joachim Sauer and Rudolf Stichweh



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Authors of *Die Junge Akademie:*
Anna Ahlers (Max Planck Institute for the History of Science, Berlin and University of Oslo), Jan Hennings (Central European University, Vienna) and Fabian Schmidt (Max Planck Institute for Astrophysics, Garching)

Commentators:
Max Amann (TU Dortmund University), Valerie Domcke (CERN, Geneva), Valeska Huber (University of Vienna), Jakob Lehnig (University of Leipzig), Joachim Sauer (Humboldt University of Berlin) and Rudolf Stichweh (University of Bonn)

This series publishes ideas and positions by members of *Die Junge Akademie*.
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English language editing:
Fiona Bewley (Max Planck Institute for the History of Science, Berlin)
Bill Smyth (Chartered Linguist, Bill Smyth & Associates Ltd.)

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Preface

Internationalisation is a topic of widespread discussion in academia. But what does it actually mean in practice? How is the increasingly global orientation of universities and research institutions changing the academic system in Germany? And what impact will this change ultimately have on society? To answer these questions and gain insights into the diversity of internationalisation processes, Die Junge Akademie's Internationalisation Working Group invited a total of 17 stakeholders from key German academic institutions to join focus group discussions in the spring of 2021. The paper summarises the results of the qualitative analysis of these discussions in the first section.

To put these views in the context of the experience of students and researchers, we then asked for comments on this analysis, which are reproduced in the second section of the paper. The comments open up interesting new perspectives on internationalisation. The paper concludes with an essay by Rudolf Stichweh on the sociological and historical dimensions of internationalisation.

A note on the English version: The analysis and commentary parts in this publication are translations of the original German edition. The institutional affiliations of the commentators reflect their status at the time of the initial publication in 2023. Rudolf Stichweh's essay has been substantially revised during the translation process and therefore differs in certain respects from the German version.

We hope that readers will find our contributions to the debate on internationalisation stimulating. Special thanks go to all of our contributors for their time and efforts, and to Fiona Bewley for her editing of the English translation. We look forward to any feedback, from both inside and outside academia.

Anna Ahlers
Jan Hennings
Fabian Schmidt

Discussion paper

Internationalisation: Perspectives from German academia

Anna L. Ahlers, Lise Meitner Research Group leader, Max Planck Institute for the History of Science, Berlin and Professor II at the University of Oslo
Jan Hennings, Associate Professor of History, Department of Historical Studies at Central European University, Vienna
Fabian Schmidt, Research Group Leader, Max Planck Institute for Astrophysics, Garching

Introduction

Science and scholarship have always been international. The exchange of ideas and the mobility of people across borders was already part of medieval universities and the learned societies founded in the early modern period. Modern universities and scientific organisations would be inconceivable without the transnational dissemination of research results and the circulation of data, technologies and researchers. A new aspect of the internationalisation debate in Germany today is that it comes hand-in-hand with advancing globalisation, and aims to define new fields of action, target groups and strategies. For example, in response to growing discussions on the topic, the German Science and Humanities Council published "Recommendations on the internationalisation of universities" in 2018.[1] However, the existing German higher education system cannot undergo an international reorientation without interacting with national academic traditions, local educational contexts and broader expectations in society, which raises questions about the possibilities and limits of internationalisation. What is meant by internationality (as well as the coveted labels *elite* and *excellence*) can vary considerably from country to country and is perhaps different in Germany than in the USA, for example. Moreover, for today's generation of young academics, internationality has long since ceased to mean merely a broadening of one's horizons; it is increasingly becoming a basic prerequisite for academic work and careers.

In order to gain insights into the diversity of internationalisation processes and explore this topic from different perspectives, *Die Junge Akademie*'s internationalisation working group held focus group discussions with stakeholders from Germany's academic community in spring 2021. The participants included representatives of administrative offices of various German universities, non-university research institutions, institutes of advanced studies and academies as well as various foundations and departments of education at the level of the *Bundesländer*. In line with the concept of focus groups applied in the social sciences, the process was designed to both gather as broad a spectrum as possible of thematically relevant information and perspectives within the framework of a moderated discussion as well as to record congruent and divergent points of view. The aim was to obtain an "insider's" view from Germany's academic community by asking them what they understood as "internationalisation". With this in mind, we ensured that each of the three focus groups were made up of representatives of a wide range of organisations. Each of the three focus group discussions lasted two hours and had between four and seven external participants. Due to the pandemic, the focus group meetings had to take place via video calls. At the beginning of each discussion the individual participants introduced themselves by name, institutional affiliation and professional position – while some of them already knew each other from their various activities in German academia. To encourage as open a dialogue as possible, all participants were promised anonymity in the evaluation of the focus group discussions and publication of the results (in accordance with *Chatham House Rules*). We, the three authors of *Die Junge Akademie*'s internationalisation working group, moderated each discussion and conducted them in the form of a semi-structured group interview using a questionnaire. The questionnaire navigated through three main topic areas: 1) motivation and aims, 2) areas of emphasis in practice, 3) perceptions of internationalisation processes. We recorded and transcribed the focus group discussions. We analysed the focus group data in several rounds using thematic and conceptual codes, employing the MaxQDA software for qualitative content analysis. The following sections summarise these results. They cannot, of course, include all the details from the lively and multifaceted discussions that emerged. Nor do we claim to deliver a representative picture of the current state of the debate in Germany. Rather, our analysis is an attempt to bring together and analyse the debate on the internationalisation of research and teaching in Germany through the perspectives of the participants themselves.

1 German Council of Science and Humanities, "Empfehlungen zur Internationalisierung von Hochschulen", Cologne 2018. URL: https://www.wissenschaftsrat.de/download/archiv/7118-18.html. (Last accessed: 2 November 2023).

What exactly is internationalisation in academia and why is it so important?

There was a basic consensus in the focus groups that good research is always international. The fact that many German research institutions have offices and departments responsible for internationalisation therefore comes as no surprise. But considering that most researchers are already motivated to work internationally of their own accord, it is worth asking the question as to why such offices are necessary. The answer may lie in the contrast between the ambitions of educational policy and administrative reality. Efforts to make higher education and research more international often face legal and bureaucratic hurdles and create tensions with the norms of the given academic system. These competing demands between the institutional mandate to increase internationalisation, on the one hand, and the bureaucratic obstacles which regularly crop up within the same institution, on the other, has long tormented the international offices at various institutions. With regard to the recruitment of top international staff, for example, one participant put it like this: "I have always understood internationalisation in this context …: where is the loophole that allows us to hire this person?" Overall, the feedback from the focus groups shows that the resolution of such conflicts – i.e. better alignment of institutional structures with the requirements of internationalisation – is currently an important motivating factor of the various practices that have emerged in the context of internationalisation.

The implementation of internationalisation at German universities began – albeit usually under a different name – with "international offices" that were primarily concerned with student mobility and also provided support for: outgoing students from the university and incoming students from abroad, participation in exchange programmes and similar activities. Such initiatives had and continue to have political and financial support, as illustrated by the Franco-German exchange programmes in the early years of the Federal Republic and later the EU's *Erasmus* programme. The work of international offices from the beginning was to overcome formal academic and legal obstacles, to establish a system for the recognition of credits from foreign universities and support students in dealing with the authorities e.g. to obtain a visa or residence permit.

Here we can see that internationality is commonly understood as being a benchmark of quality which inevitably raises questions of quality assurance for higher education and research institutions. In most cases, the recognition of academic credits from universities abroad represents an enormous hurdle in Germany. The European Union's Bologna process has made great efforts to reduce these obstacles, at least for students.

The focus group discussions supported the thesis that excellent scholarship is by its very nature international, and many of the participants viewed every type of scientific practice, both individual and collaborative, as becoming "more and more international". There can be material reasons for this, for example in research areas that are dependent on special equipment that is not available in Germany, or require large research infrastructures that can only be built through international cooperation. On a much broader scale, the internet and digital platforms such as preprint and open access servers have also enormously facilitated, accelerated and intensified the global exchange of research results. This development has been fuelled by the major societal challenges of our time, such as climate change and the COVID-19 pandemic; worldwide cooperation is essential to address these global challenges. As a result, German research institutions have significantly stepped up their internationalisation efforts. According to feedback from the focus groups, however, there is a disaccord here as well between the natural, spontaneous processes of research cooperation, which usually take place in multilateral networks, and the more directed approach of university administrations. Again, due to legal and bureaucratic obstacles, traditional tools for financing international research, especially at universities in Germany, tend to be bilateral rather than multilateral. However, the idea of research cooperation in networks is also gaining ground in research funding bodies and university administrations. These institutions increasingly employ the concept of multinational networks to try and encourage decentralised international research cooperation.

Cooperation is not the only principle behind internationalisation in academia. According to the focus group discussions, competition for the best minds is an equally important driving factor. Judging by the comments in the focus groups, there has been a change in how German academic institutions now view themselves: they no longer solely emphasise their societal mandate to provide high quality education in a regional or national context, as laid down in higher education legislation and statutes, but rather they view themselves as participants in the global competition for the best students and researchers. In this competitive landscape, only those institutions that are internationally visible and attractive can hold their own. An institution's global reputation plays a major role in this, which in turn depends to a significant degree on the reputation of its international partner institutions.

Regardless of whether any specific instance involves competition or cooperation, a basic prerequisite for the success of an institution's internationalisation efforts is that it undergoes an internal process of internationalisation, which the focus groups often referred to as "internationalisation at home": from the dean's office to HR management to canteen menus (more on these aspects below). When asked about the objectives of this process, and what a successful implementation might look like, one answer was that internationalisation offices, as separate entities in the institution, would be replaced by an integrated process throughout the entire institution. It is evident from this that the main agent for internationalisation within German universities, which started out as an office for student mobility (Akademisches Auslandsamt),

and then transitioned to an international office whose aim was to attract and dispatch talents at all levels, finally evolved to a process that cuts through virtually all sectors of an institution. In other words: internationalisation was yesterday. Acting and thinking internationally at all levels in an academic organisation, is what it is about today. Implementing this essentially means a strategic repositioning of institutions as actors in the competitive global system. It is worth noting that not all participants agreed with this approach as the only possible internationalisation strategy.

For any organisation, the internationalisation process is going to be shaped by contrasting motivations, e.g. economically-driven incentives might stand in contrast to more value-driven ones. In regards to the latter, several participants remarked that universities in Europe should contribute to the project of European unification by facilitating exchanges and cooperations within Europe. Students undoubtedly broaden their outlook through studies abroad, which are made possible by programmes such as *Erasmus+*. The critical questioning of their own world view, through the experience of studying and living in a foreign environment, as well as the resultant self-reflection and a better understanding of both their own and new foreign cultural contexts are considered valuable educational experiences. The shock of "being culturally at sea", as one participant put it, is therefore an important part of academic internationalisation. The aim is to broaden individual horizons through personal encounters. Other participants emphasised that, in view of the current challenges posed by right-wing extremism and eurosceptic movements, the societal significance of such exchanges between young people across the continent is greater than ever.

Beyond Europe, however, German institutions also need to acknowledge their position within the asymmetries of the global economic and scientific system. After all, the global competition for the best minds inevitably results in a brain drain in the countries of origin. Academic internationalisation therefore has a sustainability problem, as is so often the case in highly competitive markets. For this reason many funding organisations in Germany increasingly see their mission as capacity building when cooperating with countries that are at a disadvantage in global competition. German internationalisation activities with this mission aim to build and strengthen institutions in other countries to make them more competitive in the long term and enhance sustainability. This includes creating an internationally competitive environment for outstanding researchers in their home countries and thereby slowing down the brain drain. Ultimately, however, this remains in conflict with an institution's aim of succeeding in the competition for the best minds.

Institutions encourage their students to broaden their horizons and minds, while at the same time benefiting from the diverse experiences that incoming international students bring with them. A high proportion of international students at German universities is therefore now widely recognised as a measure of excellence. The idea that the diversity of students and staff is in itself a value has long been established in North America, and, according to the focus groups, is now also becoming more important in Germany. Moreover, the focus groups highlighted the conflicts that such value-led motivations and the competitive aspect can create, although some ironically remarked that this was a "typically German discussion".

How is internationalisation being implemented?

There seemed to be a consensus in the focus group discussions that internationalisation is a worthwhile and desirable goal. But where exactly does the impetus for internationalisation come from? What does the process look like? And how do academics and administrators interact in this process? Here too, there are interesting points of friction, and we can observe significant changes.

Inputs to an institution's internationalisation process can take a number of forms, e.g. incentives, guidelines and specifications. In addition to its growing importance, institutes may formulate their own expectations or react to external factors to drive the transformation. One impetus for internationalisation clearly comes *from outside the scientific community*. According to the focus groups, there is a general expectation that internationalisation is not only a benchmark of quality (as discussed above) but also a means of addressing global challenges. Another aspect of this external impetus is that representatives of universities and research institutions see themselves as having a socio-political responsibility to respond to "global events". Such motivation factors are highly dynamic: they follow and respond to public sentiment and political realities. As a result of geopolitical developments or changes in discourse, the emphasis sometimes shifts from certain regions of the world to others, with the result that academic institutions and organisations increasingly focus their initiatives on different geographies. After a prolonged phase of intense interest in East Asia, various German institutions have recently focused their internationalisation programmes increasingly on Africa and Eastern Europe, for example. Short-term trends, temporary crises or individual events also sometimes influence the internationalisation plans of German institutions, for example the election of Donald Trump as US president, Brexit and the COVID-19 pandemic.[2] However, judging by the focus group discussions, it is

2 The focus group discussions took place in 2021, i.e. before the start of the war in Ukraine. It is clear that the resulting developments (for example, the halting of institutional research partnerships with Russia, expansion of funding programmes for refugee researchers etc.) now play a major role in this discussion and will continue to do so in the future.

also clear that institutions involved in internationalisation want to become more independent of such trends, and avoid the perception that their academic policies are largely determined externally. Such an emancipation strategy can be seen as an opportunity for an organisation to shape a distinctive internationalisation profile.

Second, the drive to internationalise also emerges from the expectations and incentives *within the academic community*. As the focus group discussions showed, these include the guidelines of the German Science and Humanities Council as well as the calls for proposals and "wishes" (as one participant put it) of academic funding bodies. It became clear that the prestige of national and European funding programmes as well as the importance of a funding award for any given research institution also creates a certain dependency on those funding bodies' ideas and processes of internationalisation. In effect, strategic decisions made by funding bodies therefore have a steering function in terms of internationalisation strategy within German academia. Interestingly, when external funding bodies were mentioned, the focus groups often emphasised the importance of dedicated resources given the significant costs of internationalisation. Institutions, or individual strategy departments which do not have sufficient funding depend on additional resources to implement a successful internationalisation process. To put it bluntly, internationalisation only goes as far as the financial resources allow. As a result, the specific strategy is often dominated by the external funding sources. In this regard, one participant formulated the following demand:

> "But if internationality assumes from the outset that the best people will work together on the most important topics, then we have to work very, very hard on the internationalisation of the funding organisations and their mechanisms and think beyond pure mobility schemes".

The focus group discussions showed that it is less common for an internationalisation programme to deviate significantly from the approach of funding bodies, nor are they completely dictated by the organisation's management. Among the participants from universities in particular, there was a perception that the basic impetus for internationalisation generally comes from outside their own institution. Nevertheless, even then it is by no means a linear process, as the following statement by one participant suggests: "normally the impetus is set from the outside, then it reaches management, travels down from there and then back up"

Once the impulse to internationalise has been adopted by an academic institution, the question remains as to how it should best be implemented. According to the statements in the focus groups, it would certainly be an exaggeration in this context to talk of a dedicated management of the organisation's internal internationalisation processes. The focus groups also questioned whether internationalisation could even be planned in the first place. Nevertheless, they could identify and describe a number of different variations of internal processes. These can differ greatly, for example depending on the type and size of the institution and its field, and, as was mentioned during one focus group in response to the question of the ideal internationalisation process:

> "Every institution begins the process from a different place, and moves in a different direction. Maybe that's why we find it difficult to [find] general answers".

In theory, one can distinguish between *bottom-up* processes that are mainly driven by researchers themselves and *top-down* processes driven by programmes and administrators. Decentralised institutions tend to rely more on bottom-up internationalisation, while centrally organised institutions tend to act top-down. Based on the evaluation of the focus groups, there does not appear to be any standard templates for the different processes, nor does there appear to be many conscious attempts to learn from other institutions or organisations.

In general, the focus groups expressed a preference for bottom-up initiatives and processes in internationalisation. As far as individual examples of top-down initiatives were concerned (sometimes referred to as the "pet subject" of university presidents or management), participants emphasised that such initiatives would have no chance of succeeding without the support and participation of the various stakeholders within the institution, i.e. administration, faculty and students. This finding in turn points to the understanding of internationalisation as an increasingly institution-wide process, as discussed previously. Many academic institutions and organisations in Germany appear to have a dedicated internationalisation strategy, most of them having been drafted in recent years, yet the value of such an all-encompassing strategy, which is costly and time-consuming to implement, remained controversial in the focus groups. For example, in order to be able to react flexibly to what is often a rapidly-changing environment, institutions "can no longer afford to work on a [strategy] paper for a year and a half", according to one participant's statement. The focus groups also clearly rejected the notion of a fixed institutional internationalisation strategy limited to certain areas. The fact that such highly targeted strategies are less and less common marks an important historical shift, according to the focus groups. One participant summed up this view: "internationalisation simply means an international dimension to everything". The process seems to be so far advanced at some institutions that they no longer talk – or should no longer talk – of internationalisation as a static goal but as a general organising principle.

The strategy of any organisation's internationalisation process can take various forms, e.g. top-down, bottom-up, internal or external. According to the focus groups, tools that are widely used include identifying qualified researchers abroad, mapping international networks and identifying potential contacts within their own institution. The international offices and other administrators within any organisation are expected to establish points of contact and interaction, organise meetings and exchanges and draw attention to funding calls. The focus groups highlighted the critical importance, in such processes, of outstanding, internationally experienced and networked individuals as promoters of internationalisation in any academic institution. It is not unusual for the administration to be effectively dependent on initiatives of these individuals for the success of internationalisation efforts. At the same time administrations are also aware of the associated risk when these pioneering internationalisation "entrepreneurs" retire or decide to leave the institution.

The evolution of internationalisation from a sectoral to a cross-sectional topic, i.e. from merely organising student and academic mobility to an internationalisation that encompasses almost the entire research and teaching process, brings with it more complex tasks of the international offices – especially in university administrations. Due to growing and changing external demands, especially from third-party funding bodies, and the pressure to systematise and support international connectivity, there is a need for an internationalisation process at home.

Internationalisation at home means that Germany's institutions must go through their own process of internationalisation. However, according to the focus groups, the term is nowadays most often used in an administrative context to mean that administrators and other relevant groups within an institution need to prepare for and align with the goals, values and demands of internationalisation. The focus groups mentioned international exchange programmes for employees at an administrative level as an example, although at a more abstract level internationalisation at home was also linked to the "willingness to change oneself".

Aspects of this "internationalisation at home" include the following:

- Developing foreign language skills, in particular the ability to communicate in English with non-German-speaking colleagues and to translate from English;

- Building intercultural competence, increasing openness and creating a *Willkommenskultur*;

- Organising proper onboarding, including campaigns for international students and employees (for example with regard to accommodation, mentoring, sponsorships etc.);

- Gaining an overview and understanding of, and continuously developing, the different degrees of internationality and willingness to internationalise in the institution. This depends on the type and size of the institution (distinguishing criteria include, for example, big/small, global/national/regional visibility, universities of applied science (*Fachhochschule*) /university; already internationalised/not internationalised etc.) as well as the profile and needs of the various disciplines (very different in mathematics as opposed to German philology);

- Strengthening flexibility, pragmatism and problem-solving skills (e.g. doing things quickly and in a non-bureaucratic way, providing support for salary and other negotiations, addressing individual needs such as dual careers, explaining the contract conditions in Germany in general and at the specific location);

- Ideally building up one's own international experience and integrating it in day-to-day work;

- Developing organisation-specific and initiative-specific expertise in marketing and promotion (with an internal, local and global perspective).

Another issue, mentioned several times in the focus group discussions, is the internationalisation of the area that lies between administration and research and teaching: academic self-management and evaluation. According to the focus groups, a more internationally diverse composition of selection committees, commissions and advisory boards, for example, would be seen as evidence of intrinsic and successful internationalisation. Thus, both internationalisation in general and internationalisation at home are evidently complex and multifaceted processes that constantly challenge German research organisations to adapt to change.

What are the limits of internationalisation? Expectations and criticism within current discourse

As discussed above, for many people the idea of internationalisation instils hope for Germany's position in global teaching and learning, scholarship and science. The focus groups shared a broad consensus on internationality as being a mark of quality in research and teaching, together with the advantages of cross-border research networks, which both come as no surprise. A closer, more specific inspection uncovers a much more nuanced picture of what actors believe internationalisation is actually supposed to achieve. As our analysis has shown, there is a long list of motivations and expectations for internationalisation. They range from the classic idea of cultural exchange to values- or competition-based incentives, to development policy, or to a historical rationale, based on the notion that internationalisation emerged as a prerequisite for Germany's reintegration into the international community, which included the international academic community, after the Nazi dictatorship. There is often a clash between the different expectations and the varied incentives driving them. Some see the incentives built into competition among students or researchers, especially for the allocation of resources, but this view often clashes with those who see the values-led, maybe even idealistic orientation, which regards cosmopolitanism and experience of foreignness ("being culturally at sea", as it was put) as a welcome broadening of horizons and "internationalisation through experience". Those who are responsible for internationalisation at an institutional level will have to face up to glaring global asymmetries of wealth and power, as well as the battle for the best minds and the consequences of brain drain.

Such areas of friction in the academic discourse on internationalisation, however, obviously do not obscure the fact that internationalisation is inevitable and worthwhile, particularly considering that the process is already in full swing and permeates all areas of the academic world. The question remains: what kind of internationalisation do academic institutions in Germany want, and what kind do they want to avoid? These questions also lead to the limits of internationalisation and criticisms of how it is being implemented in Germany.

A further reason why internationalisation is on everyone's mind is that the narratives surrounding it in Germany are more prominent today than perhaps ever before. The debate on internationalisation may arguably be seen as a response to deficits in the German academic system, especially when it is compared to other institutional contexts around the globe. The notions of internationalisation as a mark of distinction that characterises "elite" institutions, or as a vision of academic excellence that is expected to contribute to solving global challenges, were not so prominent in the German academic discourse in previous decades. It is clear that internationalisation has become part of a narrative about Germany as a place for higher education and research, which includes many aspects, be it the local impact of a globally oriented research university, excellence criteria, the ability of the German academic system to integrate itself internationally, or global visibility. This is particularly characteristic of the current debate that shapes the German view of internationalisation and possibly distinguishes it from similar processes elsewhere in the world. As one participant commented: "It's about telling a new story about the role of universities, their relevance and how they see their role in wider society". Internationality is being used as a source of academic prestige and reputation and increasingly shapes both how universities and research institutions in Germany want to present themselves, and how they wish others see them. But even if internationalised research and teaching are seen as a prerequisite for solving the global problems of our day, they evidently have a local dimension. The focus groups pointed out that the internationalisation debate may be exploited to highlight the relevance of *local* institutions as global players that produce cutting-edge research. Typical of the debate in recent years, according to the focus groups, has been the emergence of a narrative that is intended to have both an impact on the academic community and broader resonance in society. And yet, every narrative entertains a special relationship to reality and must be measured against it. And of course, every institution has its own story, be it a university, research institute, science ministry or a private foundation. In reality, however, both narrative and strategy face limitations and criticism.

Given internationalisation's high and wide-ranging expectations, it is not surprising that in practice it attracts a long list of criticisms. The focus groups generally agreed that the national and federal structures of the German academic system place noticeable limits on internationalisation efforts. However, this does not necessarily appear to be a specifically German problem. Such barriers also exist in other academic systems, as can be observed when cooperating with foreign partners. The greatest obstacles to internationalisation attempts appear to be the differences between and (in)accessibility of some national academic systems. This once again exposes the tension between the genuinely international nature of academia and the domestic legal and normative character of research and teaching, which can cause friction between the administrative discourse on internationalisation, on the one hand, and the actual ability to implement reforms in the spirit of internationalisation, on the other. The problems range from the higher education law, pension issues and the recognition of teaching credits from abroad, to bureaucratic difficulties when hiring foreign professors; for instance, one participant jokingly quoted a faculty candidate asking "What is a *Beamter?"* on the subject of pensions.

The fact that financial support for internationalisation is usually tied to national funding structures is seen as a contradiction by many stakeholders, as this means that the

money cannot be spent abroad unless it benefits scholars working in the German academic system, i.e. flows back to Germany. It became clear from the focus group discussions that almost all funding institutions are in favour of internationalisation, but that they have not fully internationalised to the extent that they can provide effective international funding, as they operate legally within a national framework. In view of this, one participant pointed out that the evolution of the internationalisation debate was by no means aligned with the development of institutions, because institutions remained in their own normative and legal frameworks, while the discourse moves forward swiftly.

The limits of internationalisation become particularly tangible for all institutions who cooperate with and are active in countries that are criticised for violating basic rights and values, particularly in relation to academic freedom. Institutions must strike a balance between the risk of indirectly supporting an oppressive political regime and the opportunity to contribute to long-term political change through academic cooperation. This is particularly challenging when the balance between academic benefit and political damage becomes precarious. The focus group participants spoke of their experiences and explained how a misuse of internationalisation for political purposes or interference in academic matters would be a red line, especially in the area of science diplomacy.

The focus groups also reflected critically on how top-rated and highly internationalised institutions can grow alienated from their local area: *Raumschiffphänomen* ("spaceship phenomenon"). The fear here is that some sections of society could view this kind of internationalisation negatively and as an expression of a threatening globalisation process. The fully globalised university or research institution, the majority of whose students and researchers come from abroad and have dedicated themselves exclusively to their education and research without any connection to the local region, clashes with the principle that an institution should have a relationship with its local community, and raises questions about its public mission and funding model. Focus group participants also questioned the influence of internationalisation on academic identity and specific academic traditions: If internationalisation is taken to its logical conclusion, it could possibly, in the long term, lead to standardisation and a kind of arbitrary conformity – particularly if institutions ended up only offering what was offered everywhere else in the world. It is important to point out that these issues were not put forward as criticism of the current state of internationalisation in practice; rather, they were meant as a warning to raise awareness about the danger of internationalisation pursued for its own sake and without self-reflection, and to motivate action to prevent this from happening at an early stage.

Universities and higher education policy in Germany respond to the asymmetries of the global system of science with various internationalisation strategies. If one

accepts, for the moment, the idea that internationality is an indicator of the quality of academic work, who or what is actually international? If internationality is a value in its own right, where are its material and symbolic resources located? Which countries or university models are used as a guide? How are lines drawn between academic systems? Where do they overlap and where do they differ? Are they divided along linguistic borders? Or along different academic norms and recognition mechanisms? Are the lines drawn between strongly stratified systems with a corresponding accretion of resources, on the one hand, and publicly funded institutions on the other? Or rather between the centre and periphery, or along an east-west or north-south divide? Judging by our analysis of the focus groups, these questions are an important part of the wider debate. In attempting to answer them, the focus groups were critical (sometimes self-critical) of what they saw as a problematic hegemony of the Anglo-American academic world in the German debate. So the question is: does internationalisation, as currently understood and pursued in Germany, not simply mean Anglo-Americanisation? The debate is ongoing about how far this development promotes internationalisation, for example in the sense of creating an academic elite, or whether it reduces it to narrowly defined criteria of excellence and stands in opposition to wider goals such as diversity of perspectives and global responsibility.

Furthermore, the focus group discussions pointed to a certain amount of pressure on institutions exerted by the administrative discourse and its effects in higher education policy. There is a perceived danger that actors in the system – scholars, managers, and administrators – chase one proposal call after the next, creating extraneous bureaucratic burden and at times forcing scholars into parroting internationalisation goals when preparing funding applications. This describes a shift from an intrinsic motivation for internationalisation to an externally imposed one. The focus group participants further identified a discrepancy between the demands formulated in the internationalisation debate and their day-to-day implementation in academic institutions. They described how the resulting contradictions are often attributed to internationalisation itself. One example of this is an institution that succeeds in portraying itself as an "international player", while raising expectations that are not met in practice.

None of these criticisms represent the end of the debate. On the contrary, with an awareness of the limits and consequences of actively pushing internationalisation, stakeholders are now taking up completely new challenges. The focus group discussions made it clear that higher education systems worldwide are now at a crossroads. They will be subject to a process of radical change that has already begun: internationalisation beyond mobility, in a digital age accelerated by the COVID-19 pandemic. Online formats make communication independent of location, and have become part of everyday academic life. The virtualisation of human interaction and the possibility

of meeting independently of place, at any time and without the need for travel, calls into question some of the previous core assumptions of the internationalisation business, especially those core features that relate to the motivation behind mobility schemes. What is the long-term significance of personal encounters? How much emphasis should be placed on mobility for international exchanges and networking in an age of climate change and the readily available online formats? The focus groups did highlight the advantages of the various levels of face-to-face meetings and mobility, although there is a concern that the discussion of internationalisation could be replaced by a debate on the future of digitalisation. The idea that meeting face-to-face and the experience of foreignness are a prerequisite for international scholarship could potentially come to be seen as old-fashioned. Few in the focus groups would go that far, and the participants reaffirmed their belief in the importance of in-person encounters: "Internationalisation is a people's business", as one participant put it. On the other hand, they all agreed that the optimal balance between personal and virtual mobility will be a key issue in future debates.

Commentary

Max Amann
PhD student in organic chemistry at TU Dortmund and spokesperson for the doctoral scholarship holders of the German Academic Scholarship Foundation (Studienstiftung des Deutschen Volkes) in natural sciences.

The authors of *Die Junge Akademie*'s internationalisation working group have provided a wide range of insights into the diversity of internationalisation processes, their benefits and the challenges. In my daily work as a doctoral student in an international scientific research group, I regularly come into contact with many of the issues raised. Internationalisation is not necessarily trivial and requires an effort on the part of the state and academic institutions, but above all from each individual, to enable society as a whole to benefit from efforts to internationalise.

I can strongly endorse the basic consensus of the focus group discussions that good research is always international. Generally speaking, increasing internationalisation means that more and better-quality research data is available for our own work. Easier access and international standards make it much easier to carry out literature searches, for example, which results in better data and analysis and thus significantly increases one's own potential output.

Internationalisation also enables the establishment of specialised institutions. Due to the high costs and insufficient availability of specialised equipment and specialists who can operate this equipment, specialised research is not possible everywhere in the natural sciences and engineering. In synthetic chemistry, for example, we cooperate with institutions from all over the world that characterise our substances using crystal structure analysis, magnetic measurements and even electrochemical or nucleophilic investigations and identify special properties of the compounds. However, as analytical specialists often lack the expertise required for sophisticated syntheses, these results can only be achieved by bringing together synthesis specialists and analytical specialists, which advances research in both areas. Increasing internationalisation facilitates the potential for such collaborations enormously, which is reflected in the rapidly rising number of publications in each specialist area.

Furthermore, the paper points to how administrative processes at universities can differ across different countries, for instance regarding the recognition of foreign university credits, which can be a particularly tortuous process in Germany. The European Union's Bologna Process was the first to achieve success in ensuring uniform quality standards within institutions. An extension of this process to a worldwide

standard would be desirable and necessary for the future. Nevertheless, this does not change the fact that people can learn and benefit a great deal from one another in an international environment. Different educational systems and cultural backgrounds mean that approaches to issues and problems differ. Open discussions among international employees have led to many results that could never have been achieved without a change of perspective. This shows that constructive cooperation is much more productive than competing with one another.

In addition to all the advantages of internationalisation, there are also obstacles to be overcome. The authors call the solution to this "internationalisation at home" or "self-internationalisation". While universities in Germany have opened up more and more in the past decade and made great efforts to welcome international students, for example by introducing English-language degree programmes, facilitating the recognition of degrees obtained abroad and setting up international offices, international students still face problems in everyday life. Whether it's the aforementioned canteen menu, which is only available in German, going to the post office or having to do paper work, find accommodation or signing contracts in German. Here, international staff are always dependent on the help of dedicated, German-speaking colleagues and friends, without whom it would be impossible to manage these tasks at the present time.

In summary, internationalisation has become increasingly important in recent years and great efforts have been made by academics and institutions to enable the integration of international staff, and also to reap the benefits of an international scholarly community. However, I believe this process is far from complete. In order to drive it on from here, the administrative apparatus of academia and the state, as well as the economy, must open up to internationalisation and create opportunities to facilitate the integration of non-German academics. I am very grateful to the authors of this text for advancing the debate on internationalisation through their work and thus promoting the development of this process. It will be interesting to see how it evolves in the future.

Valerie Domcke
Physicist, Department of Theoretical Physics, CERN,
Geneva and former member of *Die Junge Akademie*

In my field, elementary particle physics, close international collaboration has been a reality for decades. Large-scale experimental infrastructures that cost far more than any national budget could afford and require the collaboration of thousands, even tens of thousands, of scientists on highly specialised projects are neither economical nor worthwhile within the framework of national research and funding.

The many administrative and practical hurdles to internationalisation mentioned in this paper are therefore certainly not unknown to me. Successful internationalisation goes hand in hand with the removal of such hurdles. Many are anchored in state or federal law in Germany and cannot be directly influenced by universities and research institutions. Indirectly and in the longer term, of course, it is certainly possible to bring the needs of German universities to the attention of legislators.

But there are many other ways of facilitating internationalisation in the academic system itself: open access publications make research results freely available outside of financially strong universities. Preprint servers go one step further and allow the latest findings to be shared quickly and directly worldwide. Publications in English are accessible to a much wider audience. The possibility of attending conferences digitally and without paying a conference fee opens up participation to scholars who would otherwise be excluded due to budget constraints, visa requirements or family responsibilities. The list goes on.

One point I deliberately did not include above is mobility. The assumption that internationalisation equals mobility, and hypermobility equals excellence, urgently needs to be questioned — and this not just in the context of the COVID-19 pandemic and climate change. While the value of an Erasmus year, including "a deliberately induced feeling of being culturally at sea", cannot be overstated, the same cannot be said for a short transatlantic trip by an established researcher for a committee meeting or an evening lecture. A more nuanced approach to different issues and situations is needed more than ever.

The advantages of further internationalisation, which have been mentioned many times, are obvious: faster progress through the free exchange of ideas, new perspectives through diverse research groups, pooling of resources to find solutions to global problems, equalizing opportunities through easier access to education and knowledge, international understanding through regular international exchange, a stimulating research environment for young scientists, healthy international competition as an engine of progress and so on.

In line with the conclusions of this paper, I therefore see the key question not as whether we do internationalisation or not, but how. And this is where a much more nuanced and critical, even self-critical, analysis is needed. We want to bring in the brightest minds – but have we considered work permits and opportunities as well as childcare options for the family? The well-known problems of precarious working conditions in the academic system do not get any better if you move to another country every few years, possibly with a family in tow. Learning the language, integrating into a new school system, fighting your way through a new bureaucracy and perhaps finding a job

that matches your qualifications on the side – and all this before moving on after a few years to the next postdoc position?

The same applies to the still widely-used criterion of international conference presentations as a measure of quality in application processes. Candidates with a generous travel budget, the right passport and no family commitments or other restrictions have a clear advantage here. But these are probably not the criteria we actually want to apply in the battle for the brightest minds.

Unfortunately, there is no simple answer to these challenges. Like many other social processes, increased internationalisation offers great opportunities and harbours considerable difficulties at the same time. A differentiated, thoughtful and self-critical approach that can adapt to changing circumstances (pandemic, climate change, digitalisation etc.) will certainly be more sustainable and successful in the long term than "internationalisation" simply being a buzzword. Defining clear objectives, seeking feedback from all stakeholders and exchanging ideas with other institutions to define examples of best practice and guidelines should be a matter of course.

Valeska Huber
Tenure track professor at the Institute of Contemporary History,
University of Vienna and spokesperson for the internationalisation working group of *Die Junge Akademie*

At the beginning of the article "Internationalisation: Perspectives from German academia" the authors point out a link between internationalisation and globalisation. However, globalisation processes never consist solely of networking and integration, but also involve continuing and new inequalities – exchange is always associated with exclusion. As a global historian who has also spent a large part of her academic life studying and working outside Germany, I am familiar with these conflicting dynamics. I am also academically interested in the exclusionary elements of globalisation processes – for example in the areas of migration, health and education. My main contact with the topic is research-led: one of the areas I have worked on is the emergence of international education initiatives in the 20th century. These educational initiatives were often motivated by an educational mission (for example, the global appeal of the American university model), and were also shaped by geopolitical power and financial issues. Such initiatives illustrate different aspects in globalisation processes, for instance, allowing or restricting access.

While in the past, my own motivation has shaped my experiences abroad, as spokesperson for the internationalisation working group of *Die Junge Akademie*, a lecturer on international study programmes and when applying for third-party funding for postdocs, I now increasingly have to question how internationalisation processes are structured by institutions and funding programmes. Even if the general principle that internationalisation per se is something to be welcomed is naturally widely accepted, this discussion paper, by drilling down into the concept of internationalisation, gets to the heart of the very different motivations for internationalisation in German universities. It highlights the differences between standardisation and the hegemonic discourse of the Anglo-American academic world on the one hand and the goal of pluralisation and diversity of perspectives on the other; between motives shaped by the market economy and competition and motives guided by values; between intrinsic bottom-up processes driven by academics and strategic top-down control and planning driven by institutions.

Based on this assessment of where we stand today, how should we think about the future of internationalisation? First of all, I would like to revisit the challenges of "internationalisation at home" outlined in the discussion paper. Only recently, the German Academic Exchange Service (DAAD) announced a record number of 370,000 international students in Germany. The problems of internationalisation at home outlined above are therefore part of everyday life for many academics. We need to create additional coordinator positions to internationalise degree programmes. The multitude of individual problems and additional logistical challenges, above all visa procurement and residence permits, but also supportive mentoring and an openness to conversation, cannot solely be handled by the academic scholars involved. The hard graft of providing academic support for international students, doctoral candidates and postdocs must not be left to individual, particularly committed, academics. At the same time it would be desirable to recognise and increase the visibility of committed individuals rather than focusing purely on institutionalised internationalisation.

The paper also mentions other areas of internationalisation that have grown in recent years. One of the most obvious of these is emigration and exile. In the context of internationalisation at home, we are increasingly encountering not just voluntary or market-driven academic mobility, but also "forced internationalisation", where academics have been compelled to leave their countries of origin. While there were hardly any initiatives for scholars at risk before 2015, a large number of programmes have emerged in recent years, especially since the start of the war in Ukraine. It is now time to evaluate these programmes, reflect on their sustainability and develop best practice guidelines for future crises. To continue this debate, we need to talk with those affected, not just about them. Which programmes make sense? How can we combine humanitarian aid with the pursuit of excellence as the basis of the international research and scholarship system? What are the possibilities and limits of integrating scholars at risk in an already precarious system dominated by risk and competition?

Other fields that have received less attention to date should also inform future debates on internationalisation beyond the institutional level. Burning questions of academic freedom are currently coming to the fore in the context of populism, authoritarianism, polarisation and nationalism. Who are we willing and able to cooperate with? What are the political and ethical limits of internationalisation? This is not just an institutional question, but also increasingly concerns us as individual academics, especially in a time of growing deglobalisation and isolationist processes. Finally, the connection between internationalisation and sustainability needs to be mentioned. How is our view of internationalisation changing in the context of scarcer resources and the dangers of climate change? What low-level opportunities for international networking does digitalisation offer and how are these related to global and generational asymmetries?

The concept and practice of internationalisation have changed in recent years owing to a changing world order and a growing awareness of global power asymmetries. In times of an unstable world order, internationalisation strategies are also changing – internationalisation and globalisation are inevitably closely linked. How can we develop new ideas for an international system of producing and disseminating knowledge under these conditions that also considers questions of global justice in individual and institutional internationalisation processes? At least within *Die Junge Akademie*, this is likely to determine the debates of the coming years.

Jakob Lehnig
Law student at the University of Leipzig

Seen through a student's eyes, internationalisation in the German academic system is something abstract and of little immediate importance. The discussion paper underlines once more that this is far from the truth. The problems and core concerns discussed here naturally have an impact on the student body and is something the next generation of academics will have grown up with. It should be noted that I am writing from the perspective of legal studies, where there are inherent barriers to internationalisation. Nonetheless, I believe that the comments below can be generalised.

The analysis presented in the paper is in line with the experience of many students. The goals and values seem to coincide. From a student's perspective, the principles of a more international academic world have two main pillars. Firstly, teaching needs to become more international. Secondly, universities need to be internationalised in order for them to act as effective links to a diverse range of academic institutions.

The internationalisation of teaching usually requires staff as well as students at universities to develop foreign language skills, as is rightly mentioned in the paper. Students' experience, however, is that the acquisition of foreign language skills depends heavily on the subject students are studying. Particularly in degree programs that are by their nature domestically focused, such as law, students usually acquire only rudimentary foreign language skills as part of their degree. Here it is important to lay the foundations for a successful international orientation at student level. As discussed in the paper, teaching primarily benefits from the approach of seeing diversity within the group as a worthwhile value in itself. This is particularly evident in a heterogeneous student body. The added value of internationally mixed teaching communities is even more influential. The involvement of foreign guest lecturers is particularly enriching in this respect, as it enables students to access different thematic approaches outside the German perspective. This area in particular offers institutions the opportunity to create their own independent internationalisation profile to offer students greater opportunities to specialise at their own universities, thus increasing their appeal. Nonetheless, even further internationalisation of universities in Germany will not lead to a reduction in the number of students going to foreign universities. Rather, the aim should be to attract these internationally trained and networked future academics back to their home universities and retain them. This will only be possible if universities internationalise their entire organisation beyond teaching. However, it is not really possible, from the student perspective, to assess whether this is occurring or not.

Students on the other hand are better placed to evaluate the organisational structure of a university in the context of internationalisation. As mentioned in the paper, the question of *contact points* within the institution regarding a particular issue is crucial here. Although there are established offices, I have been told in many conversations with fellow students that it is often unclear which offices have which responsibilities. This uncertainty will not prevent students who are actually interested from finding their way around. From my own student perspective, however, it cannot be emphasised strongly enough how important it is to minimise barriers to achieve a broad penetration of the student body by international ideas. When this is achieved, it is easy to generate widespread interest and participation in lectures or seminars with an international theme. Solutions that are already being practised at some institutions include advice offices staffed by students.

Ultimately, academic institutions need to position themselves as quickly as possible and establish international networks and programmes. What is critical from a student vantage point is that these networks and programmes are offered proactively to raise awareness of these opportunities. In the legal context, universities already play an intermediary role in some cases, through moot courts and internship programmes, for example. However, the intended effect of facilitating recruitment primarily benefits private sector entities, in this case law firms. Even if this does not necessarily

stand in the way of building up a more international university system in Germany, it is still important for academic institutions to show their true colours and offer students, as the academics of tomorrow, the prospect of working internationally in a German institution.

Joachim Sauer
Emeritus professor of physical chemistry at Humboldt University of Berlin

Science is international. There are certainly differences between the natural and technical sciences on the one hand and the humanities and social sciences on the other. In the natural sciences, the publication and conference scene is international, the conference language is English; this also applies to conferences of national societies, where there are always guest speakers from abroad. Research groups are international, with doctoral students and postdocs from Germany often being a minority. However, internationality is not a value in itself, but (beyond the cultural aspect) a necessity to answer questions about the future and satisfy the needs of a growing world population.

In the natural sciences, education policy has established a framework that provides sufficient scope for bottom-up activities. Without this, the programmes could not be successful. There are large international projects (e.g. in astrophysics, space science, particle physics cf. CERN) and large cooperation projects in the various EU framework programmes. The European Research Council (ERC) programmes have also established Europe-wide competition between individual researchers, and the German Research Foundation (DFG) has bilateral cooperation programmes with various partners (I am currently working on a cooperation project between DFG and the National Science Foundation (USA) with the University of Chicago and the University of California, Berkeley). I had a two-year contract as a "key foreign researcher" with the Faculty of Natural Sciences at Charles University in Prague. The Czech government had made it a funding condition for a major project in the field of materials research that leading personnel should be recruited from abroad.

For students, the Erasmus programme provides an excellent framework for international mobility, which also leaves plenty of scope for individual arrangements. We also have the German Academic Scholarship Foundation, which sponsors doctoral students from abroad at German universities, the German Academic Exchange Service (DAAD), whose function is self-explanatory, and the Alexander von Humboldt Foundation, which funds postdoc positions for candidates from abroad. It is important for these programmes to be maintained and supported – unfortunately, the Humboldt Foundation is facing major funding problems.

Third-party funding programmes involve the hassle of submitting applications, drawing up contracts and reports, which is unavoidable for quality assurance reasons. This is where the institutions come in. We need service staff who know how the system works, instead of staff units that think up new activities *top-down*. In my experience, support for EU joint projects and ERC applications at the Humboldt University of Berlin has been very good. On the other hand, my experience with the processing of certificates equivalent to a master's degrees obtained abroad, a requirement for people applying for admission to a doctoral programme, was much more negative. This process can take months, which is not due to the people working there, but to the lack of staff for this work. However, admission to a programme is a prerequisite to apply for a visa.

The biggest practical problem is finding accommodation. I am supervising a doctoral student from India who came to the Humboldt University for a year on the DAAD *Sandwich Programme*. To find a place in a hall of residence, she first had to pay a deposit of 600 euros (which she didn't have, so I gave it to her), only to be finally told that there was no room available.

However, my experience has also taught me that things are not necessarily better elsewhere, as I am currently witnessing again in the course of the onboarding process as a visiting scholar at the University of California, Berkeley. So my conclusion is: we don't need analyses, strategies or staff units, we need to solve the practical problems if we want to make use of the existing opportunities for international exchange.

Migration and internationalisation in world higher education and the global system of science[1]

Rudolf Stichweh, Professor of Sociology and Director of the Democracy Research Department, Forum Internationale Wissenschaft, University of Bonn

I The European University as an international institution

The emergence of European universities in the 12th and 13th centuries functioned as the basis of a Europe-wide migration system. Initially a small number of universities was established across a relatively large area in Europe. For anyone who studied or taught at one of those universities, all others became a potential place to teach or to continue studying. In this regard, internationality was, from the beginning, inherent to universities and integral to their research. At that time, factors such as the commonality of Europe's Christian culture (with Christianitas as the dominant self-description of European identity) and the universal use of Latin as the language for teaching and scholarly work contributed to the cohesion of European universities and its science and scholarship system.

This Europe-wide system of learned knowledge, migration and communication was a system with internal differentiation. Not all universities had the same rank, nor did they offer the same subjects. For instance, it was rare for students to choose to study medicine, and the medical faculty was in most cases the smallest faculty. Students could migrate over long distances, but these migrations often were chain migrations, in other words, the majority of students from a particular region often chose the same university in one of the other European regions.[1]

In the five or six centuries following the founding of the European university, a number of developments appeared to demonstrate a shift in the implicit nature of internationality in the university system. The network of European universities grew denser with the establishment of new ones, which increased the likelihood of students and scholars choosing to study close to their place of birth or residence. The creation of territorial states meant a certain restriction for migration and communication (including through border controls, which occasionally prevented the migration of scholars). These newly formed states attempted to control the universities located or recently established in their territory, and were successful in co-opting them into the service of the state.[2] Since the 16th century, Europe was divided by confessional borders, which were mostly also impassable for university migrations. Alongside a state's establishment of new universities, confessional networks of universities arose, and these could in turn be European networks or even – as in the case of the Jesuit colleges from the 16th century onwards – transcontinental networks of schools and universities. The emergence of European colonial empires beginning in the early modern period was, alongside territorialisation and confessionalisation, the third factor in the transformation of universities. Relatively fast, especially in North and Latin America and Asia, and under both Protestant and Catholic doctrines, non-European universities were established, paving the way for the globalisation of the university model. As national languages gained in importance in university teaching and scholarly publications starting around 1700, Latin lost its status as a monopoly language which initiated further change in the university system. At the same time, however, it should be emphasised that although the use of different languages can delay the transfer of knowledge in the history of universities and science, it has never seriously hindered the global nature of communication. The ability to translate and speak multiple languages are integral parts of human aptitude.[3]

In the early modern development of universities and science, despite regional and provincial differences, linkages across the European university system remained intact. There were always individual universities with European significance and appeal, such as Leiden and Padua in the 17th century and Göttingen and Edinburgh in the 18th century. The same applies to the boundaries between social classes or estates; it was precisely these universities with their Europe-wide visibility that sometimes became places of study for the nobility, who otherwise tended to avoid universities. Even at universities that were not considered of comparable importance and were marginalised in some respects, there were always scholars whose effectiveness, influence and ultimately fame had a pan-European reach. Hermann Conring, professor in Helmstedt from 1635 to 1681, who simultaneously taught natural philosophy, rhetoric, medicine and politics, was the Swedish queen's personal physician and advised a number of other European courts, is a good example.[4] More important, as the example of Hermann Conring shows, is of course the fact that the European interrelationships

1 cf. Stichweh (2010).

2 cf. Stichweh (1991).

3 At the same time, from an evolutionary perspective, it should be emphasised that multilingual science has clear advantages because it provides niches for the development of perspectives that will eventually be adopted by the worldwide scholarly communication nexus as innovations with global relevance.

4 cf. Herberger (1982); Stolleis (1983).

between the sciences were never lost. There was no division of European science into knowledge systems with a clear territorial or national affiliation.

II The 30,000 universities of the world are one small-world network

In some respects the 21st century world we live in looks quite similar to the one just described. Within the higher education sector, there are now around 30,000 universities and other institutions of higher education worldwide. If we assume that there are 200 countries across the globe, this would give us an average of 150 universities or colleges per country. This is a dense network, and in many countries, this means there is practically no reasonably large city without a university. If you relate this to population figures, the global average would be one university or college for every 265,000 inhabitants, which, as an example would lead to a projection of 10 universities in Chicago (2020 census: 2.746 million). However, since Chicago is one of the most important centres of higher education in the world, it is not surprising that the actual number of universities and colleges there is between 20 and 70, depending on the definition of a university.[5]

What is important for the purposes of this paper is the thesis that these 30,000 universities constitute a single global network. First of all, this thesis argues that in this global network of universities, it is, in principle, possible for a student or teacher to move from any university to any other one (or to establish academic relationships and contacts between them). Of course, there are some trajectories that would be relatively unlikely, and what's more, the traditional routes are often complex with several stops along the way. But this complex structure is precisely what constitutes a global network or "small-world" network as we understand it today. The global system of higher education institutions is on the level of contacts, cooperation and migration between universities and other institutions, in the strictest possible sense of the term, a small-world network made up of local clusters and global links.[6]

This global network of universities has centres and peripheries, and among those centres we can identify "hubs", a word borrowed from the taxonomy of airports and defined as places from which you can get anywhere if you want to. At the same time, the peripheries also have peripheries.[7] These are the places that are difficult to get away from, no matter how much you want to. These network structures of the global higher education system are directly and indirectly factored into university rankings[8] and lend them a certain legitimacy. It is much more plausible to think of universities as being linked to one another in a relational global network structure and of institutions moving up or down within this network rather than as 30,000 independent participants competing against each other in a single global league.

The view proposed here has implications for internationalisation strategies, at say, a German university. It is inaccurate to imagine that a university would be initially regional or national and then, through an internationalisation strategy, it becomes embedded in a global network for which it has to prepare an appropriate rhetoric of internationalisation. It is much more realistic to think of one's own university as having always been part of a global network of universities, possibly for centuries (it may at the same time be part of a local cluster whose marginal position in the global system is determined by the paucity and weakness of global links the members of the cluster can demonstrate). Internationalisation strategies are therefore initially always strategies of adaptive internationalisation,[9] i.e. they study the existing ways in which an institution is embedded in the global system and use these as a starting point to strengthen ties or change course. Much less commonly, they may be part of a creative internationalisation that attempts to significantly change the position of the university concerned in the global system through more radical change. [10]

5 See the list of colleges and universities in Chicago on Wikipedia at: https://en.wikipedia.org/wiki/List_of_colleges_and_universities_in_Chicago (last accessed: 2 November 2023)

6 On small-world networks, see Barabási (2009); Barabási & Bonabeau (2003).

7 A few years ago, having been invited to give a lecture in Mallorca, my host used this self-description of his university as a periphery of the periphery. The University of the Balearic Islands is only a few kilometres from the city centre of Palma de Mallorca, clearly one of the most famous attractions of international tourism. This is a good illustration of how strongly the spatial positioning of centres and peripheries can vary between function systems. In the World University Ranking (THE), the University of the Balearic Islands is currently (2025) listed in the 801–1,000 group, with a relatively good score for research quality (56.6) and a bad score for research environment (16.4) and a decent score for international outlook (51.5) (https://www.timeshighereducation.com/world-university-rankings/university-balearic-islands).

8 They are best captured in the Leiden Ranking (Centre for Science and Technology Studies, University of Leiden), which, however, has relatively low visibility.

9 cf. Schumpeter (1947), on adaptive and creative responses of social systems.

10 Universities such as Duke or Nottingham, which have set up foreign branches, are examples of attempts at strategic innovation that are intended to significantly change the position of the university in question. They seem to have had limited success so far. See the case study on Duke in Kirby (2022), chapter 7.

III Universities are localised institutions, migration is therefore constitutive for world higher education

So far, this paper did not explicitly emphasise the difference between higher education and the system of science. However, this difference is important for the argument of the paper. Higher education and the system of science are two different function systems in modern society that overlap at many points in the organisation of a university. Both function systems provide various actors in their respective roles with motives/reasons for migration, with contacts and forms of communication that transcend local contexts. Both are global systems, with a dual affiliation for much of what happens in them, and a dual affiliation for most of the actors as well. A new scientific article starts off as a communication event in the system of science. However, it can also become a medium for teaching in a university seminar almost simultaneously with its academic publication.

A core event in the university system is the migration of students and lecturers. This can occur on entry into the system or at any time thereafter as people move from place to place between the organisations within the system. In addition to migration, all contacts and communications that take place between the organisations form part of the system's translocality and globality. In the history of the system, migration has been increasingly substituted by interactions embedded in communication media. But these communications can in turn become the reason for a migration. People hear about a person and their published scientific works and want to move to the place where this person works to either teach or learn there. Beyond the impact of an individual, this also applies in general to the features and perceived qualities that attract people to teach or learn at a university. The university system, similar to other function systems, has experienced a secular shift over the past few centuries, from connections via migration to a media-supported global transfer of communications.[11] However, since higher education is still primarily a system that requires physical presence,[12] this shift of emphasis from migration to communication is far less pronounced than in other function systems.

At this moment we do not know yet whether the virtualisation of attendance using real-time media such as Zoom (and similar) will lead to a transformation of higher education. It is possible to conceive of future student careers where the university that immatriculates a student has a coordinating function and students attend classes and teachers give lectures in the local university as well as at distant places in foreign universities. A seminar at one's "own" university, for instance, could be attended by students from any university around the world, or the experience that an individual student builds up over the years could consist of participation in programmes offered by many universities, most of which the student has never physically attended. A student's "own" university then becomes primarily a place of certification and examination. It is currently impossible to say whether such trans-university study programmes and trans-university teaching practices will become established. If they do, they would embody a new form of internationality in the higher education system.

11 cf. Stichweh (2016).
12 cf. Stichweh (2015).

IV The autonomy of the communication system of science and its evolution

While the internationality of the higher education system sometimes gives rise to the perception that this is a relatively conservative system that has preserved certain basic features continuously since the 12th and 13th century, the upheavals and discontinuities in the internationality/globalisation of the system of science are much more striking. In a first respect, it is important to recognise that science and universities are largely congruent in terms of the knowledge systems they use. All knowledge that is produced in science is knowledge for which a global truth claim can be postulated and the same knowledge can also become an object of teaching at the university. By this concept of universalistic knowledge, science therefore provides the university with a further aspect of globality that decisively supports its internationalisation. Inversely, as the university is a near universal institution of tertiary education – with no competitors grounded in different knowledge foundations[13] – it constantly affirms the epistemic primacy of science over other knowledge systems, even if, in this case, it is true that the stronger ties arising between the modern university and occupations and professions result in a pluralisation of the knowledge systems used in the university, some of which extend beyond science.[14]

Res Publica Literaria

In contrast it is interesting to observe the different ways in which science began a partial separation from the university, e.g., through structural forms of internationality and globality. A significant innovation in the 17th and 18th centuries was the self-description of the res publica literaria/république des lettres as a system of science.[15] These semantics describe science as a macrosystem that is not defined by organisations, as is the case for the university system; it is a quasi-political entity that has a republican constitution, which means that all members of the res publica participate with equal

13 cf. Stichweh (2023).
14 cf. Mitterle, Matthies, Maiwald and Schubert (2024).
15 cf. Stichweh (1991), Chapter VI: "Gelehrsamkeit als Sozialsystem – Die Gelehrtenrepublik".

rights in shaping the macrosystem. In the world of the 17th and 18th centuries, where there were few republics in political terms, this was an extraordinary way for a global macrosystem to understand its own governance. The universities were not members of the res publica literaria, even though they undoubtedly functioned as an underlying infrastructure. Members of the res publica literaria, however, were individual scholars, scattered across Europe (potentially the whole world) and formed a global "small-world network" linked by writings and letters. In this model, migration did not play the central conceptual role that it did in the network of universities, where people were always linked to universities via career movements from place to place. In the res publica literaria, these migrations were replaced to a certain extent by the scholar's journey, which was intended to facilitate personal interactions, but was also used to transport communications that were handed over to travelling scholars in the form of writings and letters.

Scientific disciplines as communication systems

This situation changed significantly in the decades after 1780, as a result of the scientific discipline emerging as the new unit of internal differentiation within the global system of science.[16] A discipline is a social, epistemic and communication system including all the scholars and scientists who work within these three overlapping affiliations. They consider themselves as belonging to a specific socio-epistemic community and engage with it; they advance their research using a certain collection of concepts, theories and methods while also addressing their communications to the emerging community within their discipline as well as allowing themselves to be influenced by it. Global science is now established as a system of scientific disciplines, a system that is increasingly present on all continents. The idea of one republican community of all scholars diminishes in comparison as a somewhat vague idea, as this community lacks a convincing idea of internal structural differentiation. The metaphorical and political semantics of one global community of all scholars lost significance in the world of the 20th century, and its place has now been taken by many individual disciplines including specialised scientists. These disciplines perceive themselves as being embedded within a socio-epistemic environment consisting of other sciences, from which initially they are separated by processes of internal differentiation. Over the last 250 years this system of scientific disciplines has been reorganized by the addition of new disciplines, ever stronger interdisciplinary contacts and transdisciplinary concepts.

The key communicative constituent of a scientific discipline is the publication. Publications are the elementary units of autopoiesis in the system of science.[17] They support the primary internal differentiation of the system into disciplines. During the 20th century, it is the transformation of the scientific publication that radically changed the internationality and globality of the system of science. Throughout the 19th century, doing science was still essentially an individual process of investigation by an individual scientist who would regularly publish on a particular sub-area of problems and provide temporary conclusions in their own individual publications.

This epistemic activity by the individual scientist was of course embedded in the work of other scientists, who were considered, discussed and cited in the publication and in turn would pick up from where the previous publications by colleagues left off. The population of people who could be referenced for their observations continued to expand through the 19th and 20th centuries. This is one aspect of internationalisation and stems from the fact that every discipline has become a worldwide social system.

Complex publications and the complexity of science

A dramatic change during the 20th century was that the publication produced with co-authors replaced the publication of the individual scientist. The example of the New England Journal of Medicine illustrates this shift: a journal that was most influential around 1900 and still is today. In 1900, around 98 per cent of articles had a single author but by the year 2000, this proportion of single authorship fell to 5 per cent.[18] Why did this happen and what does it have to do with internationalisation?

Firstly, this shift can be attributed to the increasing complexity of science. Complexity has many aspects: the complexity of scientific problems, which increasingly stem from major problems in society (climate change, COVID-19, diversity of species, inequality and division in society, migration); the multiplicity of data required to be able to work on problems; the availability of and proficiency to use tools required to collect data; specialisations of individual researchers in certain theories and methods; expectations of excellence from reviewers and journals, which make it necessary that each individual feature of the publication can be attributed to someone who is irrefutably an expert on this precise issue. It is presumably this internal and external increase in scientific complexity that has driven the rapid growth in the number of authors in 20th and 21st century science. What's more, there is a direct link to internationalisation as well. When recruiting co-authors, scientists do not limit themselves only to those locally or nationally available. They look for those who are best suited according to their specialisations, as long as they are approachable within their network position, regardless of geographical distance.

16 cf. Stichweh (1984), (1992).
17 cf. Stichweh (2013).
18 cf. Constantian (1999).

Such connections between authors become reinforced by the reward system that exists in academia. The number of citations a scientific publication receives increases with the number of authors, and their affiliated institutions, as well as the number of countries where they are active and the different disciplines represented by the authors. It is particularly noticeable that the addition of another author results in additional citations, and more so if this author comes from a different country. This effect is stronger than when, say, the co-authors add someone from an additional institution in a country that is already represented.[19] This reveals a strong bias towards an international population of authors in every individual paper. This bias comes from values institutionalised in the system of science. At the same time, it changes the university system as there are ever more lecturers who are scientific cosmopolitans in a specific university. They are internationally oriented and have a significant number of international links.

Hyperauthorship

Another surprising change over the last twenty years has been the emergence of a publication form known as hyperauthorship.[20] Increasingly, hundreds and even thousands of authors from dozens of countries are co-authoring scientific papers. Prime examples include the publications on the experimental evidence for the existence of the Higgs Boson. Peter Higgs postulated the existence of this elementary particle in three publications in 1964, two of which where he was the single author while the third paper included two more authors. Fifty years later, the first paper that documents the Higgs Boson's experimental proof was published in 2012, with 2,932 participating authors; three years later (2015), another paper clarifying the proof followed with 5,154 authors. The record number to date can be found in a research review published in 2021 on preoperative Sars-CoV-2 vaccinations and their impact on the mortality of patients who had elective surgery afterwards, with 15,025 authors.[21]

A breakdown of the distribution of publications in the current system of science provides a more accurate picture of publication authorship:[22] 95 per cent of recorded article publications have between 1 and 10 authors while the most common scientific article today is written by three authors; 5 per cent of all published articles have more than 10 authors. The impact of this last group is significantly greater than its share of the total number of articles, due to the fact that the probability of citation increases almost continuously with the number of authors. One part of this 5 per cent group are the texts with hyperauthorship. These are understood as those articles with more than 100 authors or those who represent (based on the addresses of their authors) more than 30 countries. The share of hyperauthorship articles in the total count of all scientific articles is lower than 1 per cent, but the number of these articles is growing rapidly while their influence on a country's citations in some cases is already significant. As the authors of these articles include many people who are located in countries that have played only a limited role in science in the past, the citation impact can multiply, especially for small countries. In the case of Sri Lanka, the citation impact has increased by a factor of five, and there are other smaller countries where the factor reaches 11. This demonstrates a significant increase in the internationality of science and a strong inclusion effect towards previously marginal countries caused by hyperauthorship.

But what are the reasons for this? How do we explain the emergence of hyperauthorship in a time where knowledge production is strongly individualised? In order to arrive at an explanation, we must once again turn to the theorem of the increasing complexity of scientific problems and the increasing complexity of world problems. Modern science sees itself as a responsive system of knowledge that is closely tied to how world society has dealt with problems throughout history. The scientific paper is a striking example here. No longer a one argument paper, the modern essay tends to provide a meta-analysis, which combines a multitude of individual insights into an overall picture. This new type of scientific article signals a shift away from a reliance on individual scientists, who would presumably find it difficult to bring together thousands of colleagues to form a consensus. A number of disciplines now organise into specific consortia,[23] they collect data from research groups in many places around the world, e.g. ENIGMA, a consortium in genomics, neurology and psychiatry; the Many Babies Consortium in developmental psychology; and the Psychological Science Accelerator in psychology. In the case of the COVID-19 paper mentioned above, there are two such collectivities behind it: the "GlobalSurg Collaborative", an organisation of more than 3,000 surgeons from more than 100 countries, and the "CovidSurg Collaborative". Other important conditions that have contributed to changes are, for instance, drives to promote inclusion and diversity (especially of younger and female scientists or researchers from previously marginalised countries); the emergence of an explicit classification of scientific roles that diversify the inclusion in authorship; and finally a complex coordination of writing processes for articles with numerous authors. The COVID-19 paper mentioned above

19 cf. Adams, Pendlebury, Potter & Szomszor (2019).
20 cf. Nogrady (2023).
21 cf. CovidSurg Collaborative and GlobalSurg Collaborative (2021).
22 cf. Adams, Pendlebury, Potter & Szomszor (2019); Gazni, Sugimoto, Cassidy & Didegah (2012).
23 cf. Nogrady (2023).

is a good case with a very interesting division of labour.[24] In the list of 15,025 authors there is the "writing group" with 35 authors from 16 countries, among them five "joint first authors" from the UK and Portugal and positioned at the bottom of this list is the "senior author", Aneel Banghu, a professor for global surgery at the University of Birmingham. Going down the list, one finds "statistics" (only two names), an "operations committee" (of 35 names with two co-chairs, namely Banghu and the statistician from Birmingham), a much bigger "dissemination committee", and finally the very long lists, each of them having thousands of names, for "hospital leads" and "local collaborators", ordered by country (68 countries, 117 in total).

It could be argued that hyperauthorship will significantly change the network structures of the system of science. The present-day structure of many relatively small local clusters may lose their importance. These clusters are usually integrated into global science by members who differ from others e.g. transcending cluster boundaries via their numerous global ties (small-world networks). Instead, large global clusters may arise, observed and organised by consortia that see their organisational function in the selective recruitment of scientists as authors for hyperauthorship papers. It seems plausible that these two alternative patterns – the spontaneous small-world networks and the organisational bundling of hyperauthorship – will coexist and could function as the basis of multi-authorship and hyperauthorship as two different types of publications. These are questions of the future evolution of science, regarding which we have no definite answers today. Anyway, these alternatives reveal something about the huge momentum towards change and the extreme globality of today's science system.

V Higher education and science: Congruence and difference

In summary, this discussion on higher education and the system of science points to some interesting differences between the two, but at the same time to a strong connection among both systems created by the shared centrality of the same scientific knowledge systems. That being said, the two systems do differ in terms of migration and internationality.

The global university system is, and has always been, a global migration system. For many participants, beginning a degree programme involves a migration, which they repeat for an Erasmus programme, or they move once more for a master's degree, or a doctorate and again in later career stages, sabbaticals and other occasions. Such migrations are usually academically motivated, and often happen because the university wants to recruit a prominent academic with specific skills. They are perceived as a restructuring of the university landscape, in much the same way as the half-yearly migrations of footballers are seen as a change in the competitive situation of the many clubs in many leagues.

In some respects, these migrations are a neutral aspect from the perspective of the system of science. This is a giant system of millions of addresses with disciplinary specifications. No competition exists between the universities or nations within the system of science. Political actors outside of this system create this perceived competition through their external observations. The global system of science at any given moment is made up of selective combinations of one or more of these addresses that cooperate temporarily on projects and publications with multiple authorship or hyperauthorship, or in disciplinary and multidisciplinary networks and organisational consortia, all of them incessantly reorganised. This structure is highly international, but unlike the university system, it is project- and cooperation-orientated rather than migration-orientated. For universities, migrations of academics can be successes or sometimes disasters; for science, they are movements within a huge network that do not affect any central interests. We observe interests here that are much more individualised in science and which, as interests of individuals, tend to have an opportunistic relationship with universities. In terms of opportunities in science, the scientific strategies of universities are at best opportunities to launch projects. If the university's research strategy suits a scholar's own interests, that's even better, but if not, scientists will pursue their own strategies in suitable locations and in collaborations formed for this purpose. Scientists and scholars view the university as a research bureaucracy that draws up strategic plans but may not be able to implement them due to a lack of influence on its academics.

24 CovidSurg Collaborative and GlobalSurg Collaborative (2021). Online there is an author-collaborator list printed on 67 pages, where you can find the more than 15,000 names.

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office@diejungeakademie.de
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