Why digitalize? An Investigation of Virtual Internationalization Governance in German Higher Education

Jana Berg, Luzia Ferreira Santos

Abstract

Based on a multimodal understanding of governance in German higher education, we aim to investigate the multiple objectives and factors that shape the digitalization of international higher education.

We triangulate the findings of a content analysis of 16 expert-interviews with heads of international offices at German higher education institutions (HEIs) with the result of a document analysis of 133 internationalization strategies of German HEIs in order to address the following questions: Which are the main objectives of digitalizing international HE? Which factors shape the implementation of digital solutions in international higher education? How can we conceptualize the governance of virtual internationalization?

We find that values-based and competition-related approaches often motivate HEIs to embrace digitalization. They include the aim to respond to societal challenges, such as the climate crisis or overcoming social inequalities, but also the objective to acquire funding, built and maintain fruitful cooperations, or attract high-performance students and staff. The implementation is rather shaped by hierarchy and collegial governance factors. This includes the surrounding rules and regulatory frameworks, the establishment of structures such as specialized positions, the existence or lack of an institution-wide strategy, or the independence and relevance of individual departments, faculties, and individual members of staff. We suggest understanding digitalization as comprehensive approach that is intertwined with all levels and modes of governance in higher education.

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1. Introduction

As a result of the COVID-19 response, higher education institutions (HEIs) saw an unprecedented rise of digital tools and platforms to support teaching and learning processes, collaboration, administration, and decision making in higher education (HE). The impact of digitalization extends to various facets of HE, with internationalization processes being no exception to its influence. It can open new possibilities for international student mobility, university collaborations, present new options to internationalize the curriculum and provide students with an international experience on campus, while virtual course formats can make classes available with relative independence of time and physical location (Bruhn-Zass, 2021; Buchmüller et al., 2021; Caniglia et al., 2018; Chang & Gomes, 2022; Clauss et al., 2019; Cordova et al., 2021; O'Dowd, 2022; Q. Yang et al., 2022). The creation of funding schemes such as the Erasmus+ Blended Intensive Programs are illustrative of such developments (Bedenlier & Stöter, 2022). Evidence from a global pilot study (IAU, 2023) reveals there has been a steady increase in the use of ICT in HE administration services compared to pre-pandemic times, even despite a decline in their use after the pandemic. This suggests that universities continue to reap the benefits of the digitalization boost and the enhanced digital competencies developed during the emergency response. In this paper, we explore some of the factors that supported the continuation of digital offers in German HE beyond the COVID-19 pandemic. Our research adds to the state of research by providing a synopsis of the perceived and intended benefits of virtual internationalization, and by exploring a conceptualization of digitalization within a framework of HE governance. We understand virtual internationalization as using information and communication technologies (ICT) in order to support cooperation and partnership, leadership and decision making, teaching and learning, and administration in international higher education (Bruhn-Zass, 2021)

We triangulate the findings of a content analysis of 16 expert interviews with heads of international offices at German HEIs with the result of a document analysis of 133 internationalization strategies of 118 German HEIs. Our analysis follows three main questions:

- Which are the main objectives of digitalizing international HE?
- Which factors shape the implementation of digital solutions in HE?
- How can the governance of virtual internationalization be conceptualized?

First, we will provide an overview of factors that motivate and facilitate virtual internationalization that have been identified in international research (2), introduce our conceptual framework (3) and methods (4). Further, we will present our findings and contextualize them with the state of research (5). Finally, the conclusion (6) provides a brief overview of our key findings.

2. State of Research: Why Digitalize International Higher Education?

Koop explains that the digital transformation encompasses "all digital processes necessary to achieve a change process that enables HEIs to successfully leverage the use of digital technologies" (Koop, 2019, p. 1449). Discussions surrounding the impact of the digital transformation on HE are not a new development (Bayne, 2015; Kergel et al., 2018; Selwyn, 2014), but they have gained significant momentum in the wake of the COVID-19 pandemic. Previous studies have pointed out a number of interrelated objectives and factors shaping HEIs engagement in digital internationalization.

2.1 Service to Society

HEIs are increasingly expected to engage with societal issues, responding to demands for greater social responsibility (Huang et al., 2022; Liu & Gao, 2022; Wimpenny et al., 2022). In this context, digitalization plays a key role in achieving the Sustainable Development Goals (Abad-Segura et al.,

2020; Ahel & Lingenau, 2020; Jack & Glover, 2021; Josefsson et al., 2022; Liu & Gao, 2022; Pedersen et al., 2020; Woicolesco et al., 2021), and fostering internationalization models that can benefit society at large (Brandenburg, 2020; Jack & Glover, 2021; Liu & Gao, 2022).

Moreover, Information and Communication Technologies (ICT) demonstrated their potential to foster inclusiveness of individuals, institutions, such as those from the Global South, and the infusion of diverse of knowing in internationalization practices (Buchmüller et al., 2021; Guimarães & Finardi, 2021; Wimpenny et al., 2022). In this vein, digital delivery can arguably widen participation and scale up access to educational opportunities by allowing non-traditional students and staff access to international experiences regardless of financial endowments, time availability, geographical location, disabilities (Bruhn-Zass, 2021; Ciurea, 2020; Josefsson et al., 2022), and administrative or political constraints (Bruhn-Zass, 2021; Ciubancan et al., 2021; Huang et al., 2022; Josefsson et al., 2022; Kobzhev et al., 2020; Liu & Gao, 2022).

2.4 Collaboration and competition

Whether digitalization will foster more collaboration or competition remains subject of debates (Ciubancan et al., 2021; Huisman & van der Wende, 2022; J. J. Lee et al., 2021; Wit & Jones, 2022). Digitalization fosters greater opportunities for teaching and research collaborations, not only within academia, but also with the industry, government, and civil society (Hines & Dockiao, 2021; Kanwar & Carr, 2020; Stolze et al., 2021). It has arguably favored stronger regional partnerships (e.g. European University Alliance), and advanced HE internationalization beyond the usual internationalization suspects (Kanwar & Carr, 2020; Liu & Gao, 2022).(Finardi & Guimares, 2020)

At the same time, **embracing ICT constitutes a matter of c**ompetitive advantage for HEIs. Presence in the virtual space grant universities visibility in the international arena and enhance attractiveness of scarce human resources (Kanwar & Carr, 2020).

Touted as a cost-effective alternative, it is contended that digital solutions can significantly reduce the impact of limited funding availability (Hurria, 2021; Rizvi, 2020), and support innovative 'business models' of international education that can secure resilience of HE systems, particularly in times of crisis (Kanwar & Carr, 2020). Conversely, some point out to the substantial investments needed to put forward the digital transformation (Bruhn-Zass, 2021; Caniglia, G., Luederitz, C., Groß, M., Muhr, M., John, B., Withycombe Keeler, L., von Wehrden, H., Laubichler, M., Wiek, A., & Lang, D., 2017; Djakona et al., 2021) and argue that its perceived affordability risks overshadowing the need for appropriate funding measures (O'Dowd, 2021).

Furthermore, digital spaces are deemed as conducive to developing a multitude of competencies, from intercultural and global skills, collaborative and professional skills, to media and digital literacy. These competencies are deemed as key for navigating the intricacies of the digital age (Buchmüller et al., 2021; Ndubuisi & Slotta, 2021; J. Yang & Al-Sayed, 2022), and the demands of an evolving work market that increasingly requires individuals to work in remote, decentralized, culturally diverse, and interdisciplinary virtual teams (Clauss et al., 2019).

2.1 Covid-19 emergency response

Contrary to the perception of universities as slow-moving organizations adapting to changes (Sherwood, 2021) the challenges posed by the COVID-19 pandemic compelled HEIs into a rapid and massive adoption of digital technologies. Spatial mobility restrictions demanded a quick embrace of ICT, leading to significant shifts in internationalization discourses (Buschkamp & Seidenschnur, 2023) and practices (Sziegat, 2022; Zawacki-Richter, 2021). HEIs had to rethink long-standing practices and

purposes in order to continue their operations in a virtual environment (Chang & Gomes, 2022; IAU, 2023; Mussina et al., 2022; Rizvi, 2020).

2.2 Efficient support services

Among recognized benefits, ICT have the potential to optimize administrative services, by enhancing efficiency, scalability, data security, transparency and system interoperability (Bedenlier & Stöter, 2022; Brienza, 2022; Clauss et al., 2019), and guiding data-driven decision making (Alshammari, 2023; Kopp et al., 2019; Sherwood, 2021).

3. Higher Education Governance

The governance of German HEIs is shaped by various stakeholders on multiple levels (Fumasoli 2015B). This includes their internal governance, as German universities are characterized by a high degree of division of labor and relative independence of their subunits (Schimank, 2015) Wolter identifies "five instances of coordination and the relationships between them: the state regulation of HE, the influence of external stakeholders (e.g., agencies, academic staff, and self-organization of universities), university management and administration, and the role of competition and market mechanisms" (Wolter, 2007, p. 1). In decision-making, all levels and stakeholders are involved, making it challenging to label the process strictly as either top-down or bottom-up. Instead, it principally takes place in both directions (Wilkesmann, 2019). In addition to the traditional "combination of political regulation by the state authority and professional self-regulation by an academic oligarchy" (Clark, 1983, p. 140), there has been a push towards *New Public Management* in German HE, which is "characterized by marketization, privatization, managerialism, performance measurement, and accountability" (Sziegat, 2022, p. 476) and facilitates a market- and competition-based *modus operandi*. Newer perspectives have also taken HEIs responses to their social responsibility into account (Bauer et al., 2024; Broucker et al., 2017; Jungbauer-Gans et al., 2023; Tauginienė, L., & Pučėtaitė, R., 2021).

In orientation on the German Science and Humanities Council (Buschkamp & Seidenschnur, 2023; Jungbauer-Gans et al., 2023; Wissenschaftsrat, 2018, 19. Okober) conceptualize HE governance as an interplay of four different modes of governance, each of which covers different fields and logics of action at HEIs. First, <u>competition</u> between HEIs, but also between organizational units of the same HEI, for example for funding, reputation or high-performing students, is seen as a central motivator of HE governance. Second, leadership positions within universities, as well as the influence of university policy and framework conditions, shape <u>hierarchical HE governance</u>. Third, academic self-administration is a key part of the German HE landscape. In this context, leaders are elected from the faculty and committees are made up of representatives from various employee groups. These decision-making structures, which give academics and academic units a great deal of freedom, reflect <u>profession-based collegial governance</u>. Finally, Jungbauer-Gans et al. (2023)suggest to add <u>values-based governance</u> to the model of HE governance, as social values are becoming important drivers of HE innovation and policy. This might include widening participation, but also research and teaching for sustainable development.

Considering the motivators of each governance mode, Jungbauer-Gans et al. (2023) suggest a model that connects a) collegial self-regulation, or profession, with the norms and standards of academic research and quest for knowledge, b) hierarchical governance through legitimized management levels, as well as legal frameworks and political bodies with political and/or bureaucratic legitimacy, c) competition with efficiency, effectiveness and accountability, and d) values-based governance with addressing societal challenges and expectations.

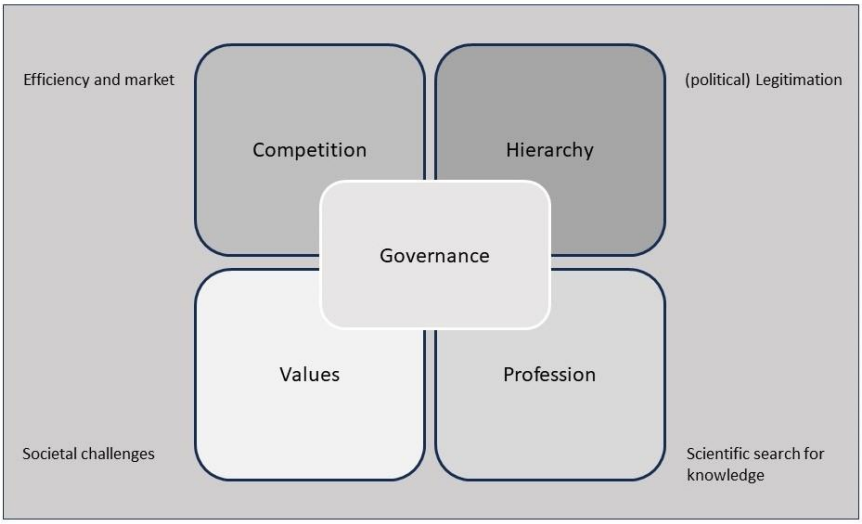

Figure one: Modes of HE governance. Source: Jungbauer-Gans et al. (2023), translated by the authors

Informed by their model, we understand the governance of German HE as multimodal, multi-level, multi-stakeholder, and multi-directional. Thus, instead of focusing on one mode of governance or decision making, we are investigating the multiple objectives and factors that shape the digitalization of internationalization processes across different modes of governance.

4. Methods

This study is based on the analysis of 16 interviews with heads of international offices and 133 internationalization strategies of public German HEIs. Rather than contrasting both data sets with each other, our aim was to analyze them as complementary insights to strategical considerations regarding the digital turn in HE internationalization.

4.1 Sample

The document analysis was based on internationalization strategies as well as paragraphs on internationalization in HEI development-plans. Searches for available strategies were conducted in late 2022 and summer 2023. We could access internationalization strategies and paragraphs on internationalization in HEI development plans of 70,66% of public German HEIs (118 out of 176). In case we could access two internationalization strategies (e.g. an older and a newer one or both a strategy paper and a HEI development plan paragraph), we included both in the analysis. In total, we analyzed 133 documents. As the working language of our research project is English, all documents that were only available in German were translated to English using the digital translation service DeepL. The translations were proofread by two project members who speak German as their first language.

To gain more nuanced insights into strategical considerations and practical experiences around virtual internationalization, semi-structured expert interviews were conducted at 16 German HEIs (eight universities and eight technical universities). Those were selected based on their size, and state of digitalization as well as internationalization. Size was based on the number of enrolled students (above and below 20.000 enrolled students). State of digitalization (advanced and newcomer) was based on participation in networks, trainings, and programs, and the existence of digitalization

strategies. State of internationalization (advanced and newcomer) was based on the number of international students and staff, the existence of an internationalization strategy, as well as participation in networks, trainings, and programs. Finally, we aimed at diverse regional distribution. The 16 HEIs included in this analysis are based in 10 different German states. At each HEI, a virtual semi-structured interviewed was conducted with the head of the international office. The interview guideline covered topics such as the influence of the COVID 19-pandemic, the digitalization of administration, leadership, teaching and learning, and international cooperations, and hopes and risks associated with virtual internationalization. One interview was conducted and analyzed in German; all other interviews were conducted in English. An informed consent form was signed by the interview partners. We used the F4X tool for automated transcription. The transcripts were than proofread and compared to the recordings to assure quality and accuracy.

4.2 Data Analysis

Both interviews and documents were analyzed using the Coding Software MAXQDA. Based on our research questions, we developed a Coding Scheme as an outline for structural coding. In orientation on the topics "Actors and Networks (Who)", "Relevance and Risks (Why)", "Implementation (How)", and "Future Development: Plans, Wishes, Risks (What's next)", we expanded the Coding Scheme with ad hoc Codes. This provided an overview of topics and relevant segments (Mey & Mruck, 2009; Mey, G. & Mruck, K.; Saldaña, 2021, 84ff.). In a next step, we used Axial Coding to sort and categorize the existing codes. For this analysis, we focused on all codes related to the topics "Relevance and Risks (Why)" and "Implementation (How)". We grouped the codes to create categories such as "student service", "efficiency" etc. and comparatively discussed the categories to enhance inter-coder reliability. Each category was described in a memo. Next, we mapped out links and relationships between different categories across both data sets and differentiated motivations to digitalize from factors shaping the practical implementation of virtual internationalization. We proceeded to connect the resulting categories with Jungbauer-Gans et al.'s framework of HE governance. Finally, we contextualized our findings referring to the state of literature.

4.3 Limitations

It is important to note that this paper is part of an ongoing project, and due to time constraints, additional interview data beyond the 16 interviews included in this analysis is yet to be analyzed and, therefore, was not addressed at this point. Furthermore, both Internationalization and Digitalization are broad and complex processes, encompassing a network of organizations and organizational sub-units in HE. Our analysis focusses on the strategical orientation of German HEIs, and specifically their international offices. Given the importance of individual departments, faculties, and even individual staff-members for both comprehensive internationalization and digitalization, multi-perspective case studies could provide a better understanding of multi-level and multi-stakeholder dynamics. Further, we only conducted interviews at universities (universities and technical universities). It could be beneficial to compare various types of public and private HEIs to further our understanding of HE governance in various types of HEIs.

5. Results and Discussion

The digital transformation has produced all-encompassing repercussions for HE governance, including internationalization processes. With this in consideration, the aim of this paper was to identify a) the multiple objectives and b) practical factors shaping the implementation of virtual internationalization in the German HE and across different modes of governance. For this purpose, we triangulated the analysis of 133 documents (internationalization strategies and excerpts of HEI development plans

dealing with internationalization of German HEIs) with 16 semi-structured interviews conducted with international office managers at German HEIs.

The analysis of both data sets produced similar categories, with a stronger emphasis on values and objectives in the strategy papers, and far more detailed insights into challenges and aspects shaping practical implementations in the expert interviews. In this section, we will provide an overview of the values and objectives, as well as practical factors that we identified, and contextualize our findings with international research literature. It should be noted that the selection of quotes from strategy documents is not connected to our interview sample.

5.1 Objectives of Virtual Internationalization

Our analysis showed that virtual internationalization in the German HE is guided by the following objectives: a) commitment to social responsibility, b) enhancement of competitiveness and collaboration, and c) simplifying and increasing the efficiency of information management and communication processes.

5.1.1 Social Responsibility

"*Modern challenges in this area include the pressing issues of climate neutrality and sustainability, digitalisation and participation, and responsible co-existence in society and with the natural environment.*" (Bauhaus Uni Weimar Strategy Document).

HEIs recognize and address the objective to take on social responsibility. It seems important to note that digitalization did not introduce this objective to international HE but is understood to facilitate further inclusive solutions.

"*So inclusion is a big topic, and I think digitization helps us to also include these people who are not able to go abroad and have the experience by themselves to really but allow them to have access to international expertise and to this kind of, you know, academics that has always been international.*" (TU-1-3)

This shows how digital offers are used to compliment traditional internationalization formats, either by facilitating internationalization at home (Beelen & Jones, 2015), or by acting as a teaser or pipeline for actual mobility (Lazarou & Trifan, 2018; J. Lee et al., 2022). This resonates with O'Dowd (2022) who argues that digital offers should be discussed in relation to their potential to complement traditional formats, not as a replacement or in opposition to each other.

First, in response to expectations of HE to tackle the climate crisis, interviewees and strategies emphasize a 'green' development, and the integration of more environmentally friendly internationalization practices, such as reducing business travels.

"*And (.) and I think with regard to international cooperation, (.) we haven't really acted sustainable in the years before the pandemic. You know, having (.) especially when you when you're talking about professional traveling, going for six hours to a meeting and having a talk for 50 minutes and then leaving it after three hours and things like that, and perhaps even taken a flight for that or something.*" (TU-1-4)

Second, digital offers are expected to widen participation in internationalization. They can help to provide students that cannot go abroad with an international experience and might motivate so far

underrepresented groups, such as refugee students, to participate in international HE (Castaño Muñoz, J. C., Colucci, E., Smidt, H., 2018; Drolia et al., 2022).

"*And with regards to the internationalization strategy, one of our key goals at the moment is (...) creating international experience for all students. And digitalization plays a role in that because that's only possible if we're using digital formats in addition to, you know, the traditional (.) semester abroad.*" (U-1-2)

This commitment is consistent with a broader trend observed in the literature, particularly post-COVID-19, that highlights a surge in stakeholders expectations of HEIs' to engage with social and cultural mandates beyond the academic realm (Brennan et al., 2021; Huang et al., 2022; Liu & Gao, 2022; Wimpenny et al., 2022). In the same vein, Brandenburg's concept of Internationalization in Higher Education for Society (IHES) puts forward that HEIs must reestablish their 'social contract with society and bear responsibility for it.' Brandenburg (2020, p. 12).

Together, strategies and interviews underscore initiatives aimed at fostering diversity, inclusivity (Bruhn-Zass, 2021; Huang et al., 2022; Josefsson et al., 2022; Kobzhev et al., 2020; Liu & Gao, 2022; Woicolesco et al., 2022) along with environmentally sustainable approaches to virtual internationalization (Ahel & Lingenau, 2020) .Notwithstanding these optimistic perceptions, interview partners are not oblivious to the social boundaries and exclusionary factors pertaining the sudden widespread of online learning and virtual mobility (Buchmüller et al., 2021; Buschkamp & Seidenschnur, 2023; Laufer et al., 2021; Wimpenny et al., 2022).

5.1.2 Competition and Collaboration

While competition is rather implicitly mentioned in the analyzed interviews, HEIs internationalization strategies directly address the "*increasing competition for the best minds and ideas and attract top researchers as well as talent, promising and competent students*" (Paderborn University Strategy Document), for prestigious collaborations, and resources (Chan, 2004, p. 35). The pursuit for competitive advantage is closely related to marketing strategies aimed at strengthening the online presence and visibility of HEIs "*as an attractive science location*" (Paderborn University Strategy Document).

„*Successful research needs international partners - for transnational research topics, for the regular exchange of current results, for cooperation based on the division of labor, for the generation of synergies, and for the acquisition of third-party funding for joint research projects. The UK wants to be permanently perceived as a globally leading research university and uses adequate analog and digital measures for this purpose*." (Köln University Strategy Document)

By and large, interviewees emphasize the centrality of engaging in international teaching and research collaborations. Throughout the interviews and strategies, eased communication and standardized information exchange with strategic partners is discussed as a main benefit of ICT. Even though digital potential for automated and standardizes processes and the convenience of connecting digitally was emphasized, there was also concern that stronger partnerships might require closer attention via in-person interactions.

"*I don't I'm trying to think if we have. (..) Completely started new partnerships (.) via digital tools. (...) I think at least a strategic partnership. I think at some point we probably at least either they have visited us or we have visited them (.) in the sense that, you know, okay, this is [...] a real place. (..) I think I think you do need. (.) Some personal contact (.) at some point*" (U-1-2)

Our analysis shows that virtual internationalization is perceived to encompass both cooperation and competition as objectives, and the interplays between these seemingly opposing dynamics are evident. This convergence is also evident in terminology found in contemporary scholarship, such as coopetition (Nyemba et al., 2021), and competitive advantage (Chan, 2004) and collaborative advantage (Gunn, 2020), which, in simple terms, encapsulate the idea that HEIs collaborate to compete (Chan, 2004). Yet, there has been ongoing concern regarding the 'global industry' and the persistent risks associated with market-driven approaches to internationalization, posing threats to collaboration as a fundamental value for internationalization (IAU, 2012).

HEIs' focus on competitiveness extends to their aims for their students, which is reflected in the objective to enhance their competitive advantage in the labor market. By taking a "glocal" (global + local) approach to internationalization (Caniglia et al., 2018; Jacobs et al., 2021) HEIS aim at enhancing students employability prospects and insertion in a global work market (Ciurea, 2020; Dehtjare et al., 2022) without losing sight of their potential to contribute to the regional development.

„TH Köln's international activities will enable students at all academic levels, be they from Germany or abroad, to successfully position themselves in the regional, national and international labor market and to make a sustained contribution to internationalization in Cologne and the surrounding area." (TH Köln Strategy Document)

5.1.3 Knowledge and process management

A key objective of digitalizing internationalization processes is "*making processes more effective*." (U-1-3)

Another objective guiding virtual internationalization has to do with the optimization of administrative processes (IAU, 2023). The interviewees emphasize the ability to make information available. This can be relevant for students, but also for process documentation in staff onboarding or absence. However, an additional challenge that has been described in this context is to continuously produce and update relevant content.

Easier digital communication can impact decision making-processes and increase transparency by making information and good practices available and establishing relationships with stakeholders (Esteve-Mol et al., 2022). It can also support *data-driven decision making* concerning data management and exchange, resource allocation (Sherwood, 2021) staff training and development, student support services and recruitment (cite scoping review), and pedagogical processes (Alshammari, 2023). Overall, information exchange, decision-making, and administration can become much more time-saving provided that the necessary infrastructure and digital competencies are well maintained, which in turn needs personnel, resources, and time.

Further, ICT are understood to improve service delivery for students by offering various formats to communicate with them. This includes information for incoming and outgoing students, such as virtual pre-arrival sessions, pre-mobility networking sessions, and better access to course schedule and acknowledgement procedure information. Finally, as mentioned above, they are meant to allow for international experiences for all students, including those that cannot take part in physical mobility.

5.2 Factors shaping virtual internationalization

Delving into the practical factors influencing the implementation of virtual internationalization, we point out the following aspects: a) the COVID-19 pandemic; b) stakeholders' influence; c) regulatory frameworks; and d) comprehensive digitalization.

5.2.1 The Covid-19 pandemic

The COVID-19 pandemic gave substantial impetus to the adoption of digital offerings regardless of the existence of previous structures. Both strategies and interviews recognized the Covid crisis as a moment of opportunity (Buschkamp & Seidenschnur, 2023), allowing to find improvised workarounds for challenges, such as flexibility in dealing with rules and regulations around the status of students on virtual mobility.

However, concerns were voiced over the need to learn on site, e.g. in a laboratory, in certain disciplines and also the need to have lecturers available for students' queries:

"*Of course the students complained because they were not here in presence and so they, they could not (.) talk to them or have questions directly. So they were not in their offices.*" (U1-4)

While some interviewees emphasized that their universities had already started to establish digital infrastructures, for others digitalization was mostly part of an emergency response to the pandemic (Bosse et al., 2023, p. 66).

In the post-pandemic context, interview partners noticed a pushback, such as declining readiness to engage in digital processes, and a wish to participate in face-to-face meetings. Also, structural support, such as funding for additional virtual teaching, has been discontinued. In international literature, there are competing views in this regard as some have argued that the German HEIs fell short of taking full advantage of the digital structures and process changes enabled by the Covid-19 pandemic (Bedenlier & Stöter, 2022), and question whether it will result in the systematic integration of education technologies by HEIs (Zawacki-Richter, 2021). On the other hand, a 2023 global pilot study (IAU 2023) concluded that, despite the partial slowdown in the use of ICT in the aftermath of the pandemic, HEIs continue to reap the benefits of the digitalization boost and the enhanced digital competencies developed during the emergency response.

5.2.2 Stakeholder Expectations, Resources, and inefficient digital infrastructures

Another practical factor refers to the influence of stakeholders. This aspect touches upon expectations, regulations, the provision of external funding, as well as the overall quality of IT infrastructures. There is an expectation from network partners, funders, political bodies (EU), students, and academics to digitalize, mainly by providing information, digitalizing processes such as cooperation agreements and information exchange, but also assessment and acknowledgement of students' credits. However, it is a continuous, time-consuming, and resource-intensive process and perceived as a burden when stakeholder expectations are connected to inefficient or incompatible systems.

"*A number of processes (.) have been digitally digitized because the EU wanted the digitized learning agreement. All of the bilateral agreements. (.) However, the tools that the EU has developed are very faulty. (.) And so there's a lot of frustration amongst (.) students, but also any staff who work with the Erasmus program because. (..) They have to do these things digitally, but the tools don't work. Mm*

hmm. And so we have to invest a lot of resources in (.) to dealing with these these tools and (.) troubleshooting (.) that could probably be put elsewhere." (U-1-2)

The interviews and strategies emphasize the importance of ample funding to maintain digital offers. On the other hand, digital offers can provide cost-effective solutions, e.g. by avoiding travel expenses. Further, digitalization can generate substantial workload, requiring skilled personnel and demanding time from all actors involved. Given their freedom of choosing their teaching formats, HEIs have emphasized the need to incentivize academics' engagement in virtual teaching.

„TH Köln will support its faculties in their endeavors to internationalize their lectures, classes, courses, programs, and extracurricular activities in both analog and digital formats. It will establish the infrastructure required to undertake this successfully, particularly with regard to information technology, and maintain its compatibility with international standards and practices" (TH Köln Strategy Document)

This find support in the scientific literature where the implementation of ICT can result in less time academics could devoted to research activities, for instance, or even compromise the quality of digital teaching offers (Esteve-Mon et al., 2023). On the other hand, staff can also push digitalization processes. Some staff members value flexible working arrangements and motivated staff pushes digitalization processes. e.g. by creating virtual classes or initiating their own collaborations.

5.2.3 Rules, Regulations, Legal Frameworks

The practical implementation of virtual internationalization is significantly influenced by regulatory frameworks. A main challenge to digitalizing internationalization is the lack of clear standards, or the existing of contradictory rules and regulations, which require case to case decisions and workarounds. This also relates to various interpretations of rules or best practices to approach certain issues. For example, there is a multitude of organizational approaches on what video-conference tool is to be used for calls and teaching.

"*And then, of course, in Germany because of federalism. Each state has its own regulations, (.) which complicates things. (..) But I think that. (...) It's a challenge. It's a challenge at the moment. And I think it will continue to be a challenge*." (U-1-2)

Further, rules and regulations do not keep up with digital developments.

"*Legal things that if you're if you're enrolled at at our institution, then you have to you have to show proof of health insurance and you have to pay the semester contribution and all that. And, of course, then there's the question. Okay, but what if you (.) are enrolled, but you're not here*?" (U-1-2)

Contrary to common assumptions about the digital learning, Knight (2015, p. 2) explains that "there is growing importance attached to borders when the focus turns to regulatory responsibility, especially related to quality assurance, funding, and accreditation". This observation aligns with the experiences shared by participants on the variety of rules and regulations, often diverse, contradictory, and subject to different interpretations.

5.2.4 Comprehensive Digitalization

Finally, a positive influence of the strategic orientation of digitalization as a comprehensive project of the entire institution is evident. At some HEIs, digitalization is facilitated as a comprehensive endeavor, affecting all aspects of administration and partly also science communication and teaching. This is

manifested in references to the availability and allocation of resources, the potential for internal collaboration and synergies, as well as a shared framework and the coordinated use of tools and platforms. In those cases, internationalization processes are digitalized as part of an institution-wide change, which is often guided by a digitalization strategy (Bosse et al., 2023, p. 66). (Andrews et al., 2019)Available infrastructure, trained staff, and incentives to increase readiness to engage in digital offers can positively impact efficient and successful digitalization. This aspect emphasizes the importance of collaboration between academic and administrative staff (Taylor, 2013).

In other cases, the lack of a comprehensive approach can create inconsistent solutions:

"*So you do it outside because there's a time pressure to have to have a digitalized and which leads to this very funny and weird kind of landscapes of digitalization at the universities where some stuff is working great, but as a stand alone solution*" (TU-1-1)

"*And that's a big issue. There's lots of different platforms at the university that are used for lots of different things, but not all of the platforms can talk to one another.*" (U-1-2)

Faulty or inefficient digital infrastructures can provide a large setback for digitalizing internationalization processes. A lack of interoperability causes frustration, "*island solutions*" (TU-1-1), which are perceived as inefficient (Brienza, 2022). Similar to the notion of Comprehensive Internationalization (Brajković & Helms, 2017; Hudzik, 2011), our findings point to comprehensive digitalization as a sustainable approach to digitalizing HE, including virtual internationalization (Bruhn-Zass, 2021).

5.3 Modes of Virtual Internationalization Governance

Our findings align with the model proposed by Jungbauer-Gans et al. (2023). We can find all modes of governance in the analyzed material. With regard to the objectives that motivate the digitalization of internationalization processes, there is a clear focus on competitive and value-based governance in the strategies and interviews. On the one hand, objectives relating to collaboration and competition are clearly linked to institutional prestige, competition for resources, as well as for highly qualified students and excellent researchers. On the other hand, digitalization is recognized as an opportunity to support the fulfillment of social expectations and the addressing of social challenges. Thus, striking a balance between multiple objectives while safeguarding institutional core values remain both a challenge and an opportunity for HEIs (IAU, 2012).

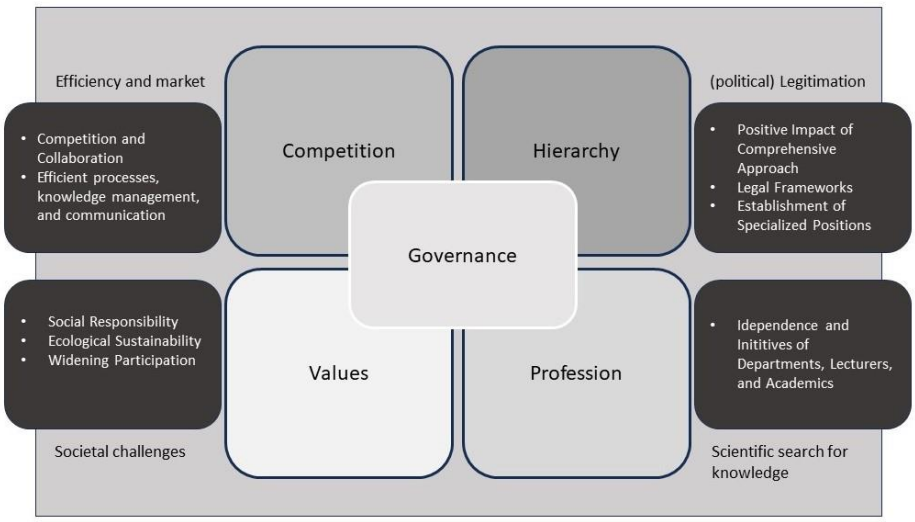

Figure 2: Objectives and practical factors shaping international HE governance

With regard to the factors that shape the implementation of virtual internationalization, there is a prevalence of references to collegial and hierarchical governance. The digital turn is accompanied by the establishment of specific positions of responsibility and communication and decision-making structures that support digitalization with bureaucratic legitimacy. At the same time, the hierarchical influence of democratically legitimized actors, such as legal requirements from the federal and state governments, as well as EU programs and objectives, is observable. This reflects the hierarchical governance. The independence of teaching staff and researchers in their choice of teaching and cooperation formats is emphasized several times and the importance of individual professorships and faculties to foster virtual internationalization is pointed out. This reflects collegial governance.

While a focus on hierarchical decision-making structures is certainly described in the crisis mode of the pandemic (Bosse et al., 2023), our interviews reveal a very diverse readiness to engage in digital solutions, regardless of hierarchical positions. This resonates with the view that embracing the digital transformation requires "digital maturity" (Kopp et al, 2019; (Brienza, 2022), that is, organizational openness towards a culture of data-driven decision-making (Sherwood, 2021). It remains a question for further analysis to determine the extent to which bottom-up initiatives will shape the further process.

Sziget states that

"[t]he transformation of university governance involves digital transformation and digital governance including digital infrastructures and digital service systems. Digital governance in HE encompasses main dimensions different from traditional university governance and concerns the standardization of education, transparency, and digitalization […] [D]igital governance may drive the governance model to move toward the state control model based on rational planning and control rather than the state supervising model based on self-regulation" (Sziegat, 2022).

Our analysis suggests that the governance of virtual internationalization is indeed linked to the introduction and maintenance of infrastructure and the allocation of resources. However, following the modes of governance proposed by Jungbauer-Gans et al.., we understand the governance of virtual internationalization as a comprehensive process interwoven in value-based, hierarchical, collegial and competitive governance.

Our analysis showed the prevalence of competition and values-based governance as key drivers of the digital turn in HE internationalization. Both aspects highlight expectations in international HE, HEIs perception of their role in society, as well as different applications of digitalization to HE governance.

6. Conclusion

Our analysis showed competition and values-based governance as key objectives of the digital turn in HE internationalization. First, HE is, in many forms and variations, competitive. On a strategical level, HEIs compete, for example, for funding, prestigious collaborations, highly achieving students, and recognition. Second, interviewees and internationalization strategies address social values, such as inclusiveness, sustainability, but also brain-gain and the training of experts and problem-solvers, and the way such values are embedded in the governance of virtual internationalization. Both aspects highlight expectations in international HE, HEIs perception of their role in society, as well as different applications of HE governance.

Considering factors that shape the practical implementation of digital solutions, we find that hierarchical and collegial modes of governance are becoming increasingly relevant. In this context, key factors include the expectations of stakeholders and the development of digitalization as an overall institutional strategy, as well as the availability of functional and coordinated digital infrastructures and trained personnel, and finally the readiness to engage in digital solutions play central roles. The diverse and sometimes contradictory regulatory frameworks were perceived as particularly challenging.

Although we have unpacked facets that might be distinctive of the German HE, the insights we presented can contribute to a broader understanding of digitalization and its implications for the governance of internationalization processes in Germany and beyond. We hope that providing strategic and practical perspectives resonates with the concerns of practitioners, researcher and policymakers engaged in advancing internationalization in the digital environment.

A key question for further research will be how the governance of university networks, transnational campuses and joint study programs develop. So far, it has become clear that it is a challenge for individual institutions to use ICT in a uniform and coordinated manner. Conflicting or different legal frameworks also pose a major challenge for the cooperation of diverse stakeholders. It remains to be seen to what extent trans institutional governance can be shaped in ever closer digital collaborations.

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