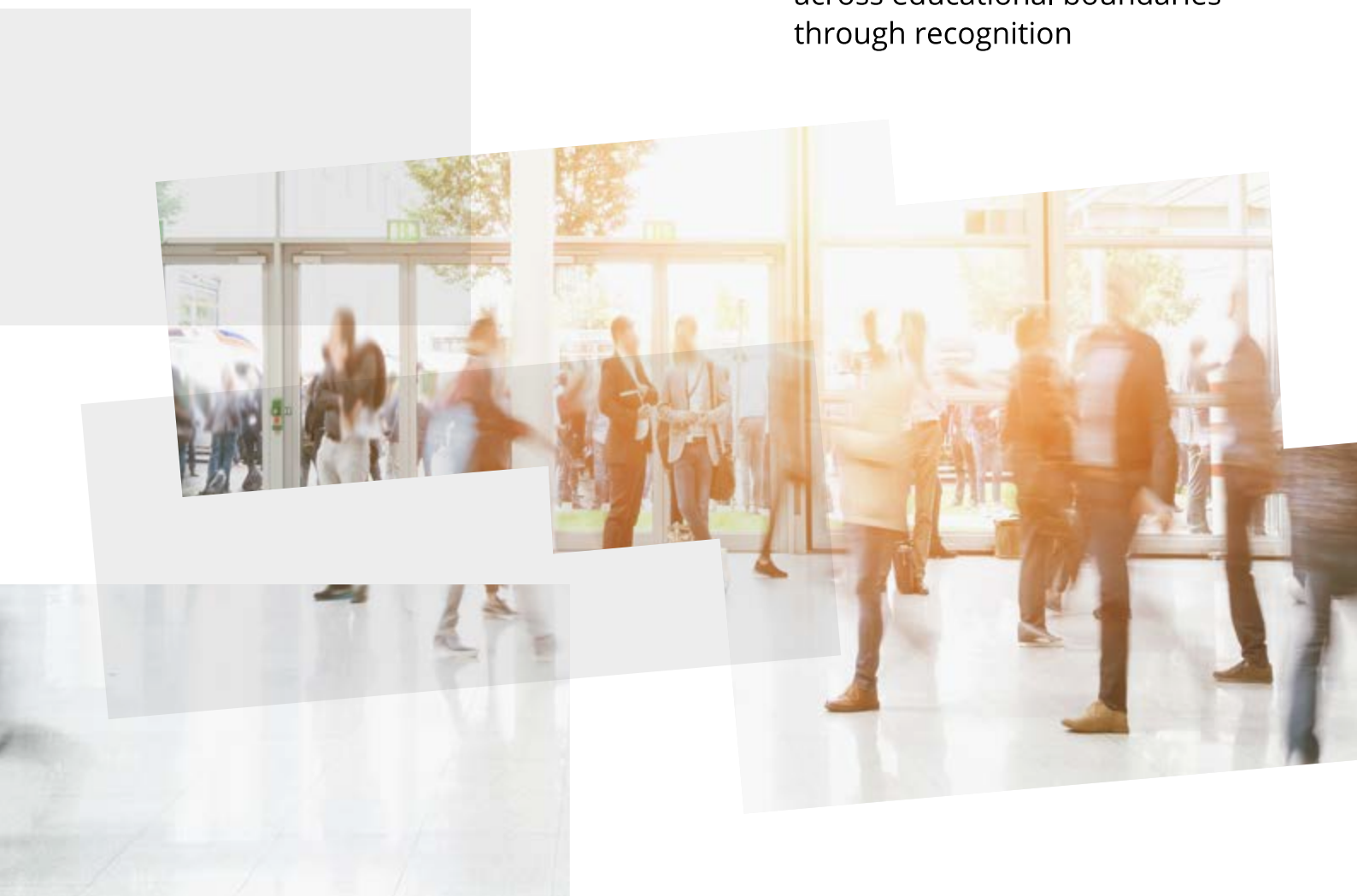


HRK

MOBUS

Enhancing student mobility
across educational boundaries
through recognition



Micro-Credentials at Higher Education Institutions – Strategy Development and Quality Assurance

Results of the Expert Group on Micro-Credentials

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1 Introduction

In recent years, the educational policy discourse on micro-credentials has also reached German higher education institutions (HEIs). The concept integrates solutions for more flexible learning and study opportunities that meet the requirements of lifelong learning and the needs of the labour market. With the increasing use of micro-credentials and the trend towards more modularised study programmes, however, concerns are also being expressed about the possible weakening of established higher education qualifications. In this context, micro-credentials raise broader questions about their relationship to existing models of study and, more fundamentally, about a common understanding of their concept and scope, their fields of application, their quality assurance and their recognition, might it be academic recognition or recognition of prior learning.¹

In 2022, the Council of the European Union adopted the “Council Recommendation on a European approach to micro-credentials for lifelong learning and employability” (Council of the EU 2022). With its proposed definition (see definition on p. 4) and the “European standard elements to describe a micro-credential” (see 3.1 and 6.1), it provides essential prerequisites for the introduction and, in particular, the quality-assured recognition of such credentials within the European Higher Education Area. The open definition of micro-credentials proposed by the Council as “the record of the learning outcomes that a learner has acquired following a small volume of learning [...]” does not limit the concept to a specific range of ECTS or to particular (e.g. online) learning formats of competence acquisition and thus contains significant leeway for the design of offers and the future development of potentials.

1 In the following, academic recognition and recognition of prior learning are defined in a system-oriented manner according to the HRK's understanding: Academic recognition relates to the applicant's competences gained at HEIs, at home and abroad and recognition of prior learning refers to all competences of applicants that have been developed outside HEIs in formal, non-formal and informal contexts (HRK 2022b, p. 19).

Micro-credentials: definition of the Council of the European Union

"Micro-credential' means the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes will have been assessed against transparent and clearly defined criteria. Learning experiences leading to micro-credentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural or labour market needs.

Micro-credentials are owned by the learner, can be shared and are portable. They may be stand-alone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity."

Source: Council of the EU 2022, p. 14.

For HEIs, the development described above means that they will be confronted with micro-credentials from two directions. As a result of the increase in flexible university and non-university study and training programmes, it is to be expected that in the foreseeable future there will be a growing number of applications for the recognition of such certificates of competence. For HEIs, this raises the question which instruments and standards should be applied for recognition procedures as well as for quality assurance. In addition, HEIs are faced with the decision of whether to take advantage of the opportunities associated with micro-credentials for their own strategic development and to strengthen their profile. These opportunities refer to making studies more flexible, continuing higher education and internationalisation.

Micro-credentials are by no means a completely new situation for HEIs, which have already invested intensively in the further development and opening-up of their study programmes as part of the Bologna Process. Nevertheless, a political momentum is emerging from the current debate in the European and national context (Rentzsch 2023), which opens up new strategic opportunities for HEIs. In particular, the ability to adapt study models to the needs of heterogeneous educational biographies without loss of quality and to create learning spaces that meet the demands of lifelong learning is one of the success factors of future higher education. Micro-credentials offer a variety of solutions here. However, transparent recognition procedures are a necessary prerequisite for ensuring successful transitions between undergraduate, consecutive and postgraduate programmes as well as between study programmes and additional qualifications, or to contribute to permeability between vocational education and training and higher education.

The project “MODUS – Enhancing student mobility across educational boundaries through recognition” of the German Rectors’ Conference, funded by the Federal Ministry of Education and Research (BMBF), supports HEIs in improving their recognition practices. In order to help HEIs prepare for the anticipated growing relevance of micro-credentials, the MODUS project initiated an expert group in September 2022, to address questions such as what minimum requirements and quality criteria must be fulfilled for recognition, and which instruments and standards should be taken into account in the planning and sustainable development of micro-credentials.

This publication of the expert group has two objectives: firstly, it is intended to assist HEIs in their own strategy development processes and in the elaboration of specific concepts tailored to their respective profiles (see 2); secondly, it provides an overview of the relevant standards for the quality assurance of micro-credentials (see 3.1) as well as for academic recognition and recognition of prior learning (see 3.2).

The current debate on micro-credentials is taking place in a dynamic process of negotiation and discussion in which new approaches, standards and definitions are emerging. This publication is therefore a snapshot in the midst of these processes taking place at different levels and follows a broad understanding of micro-credentials based on the definition of the Council of the European Union.²

A concept that should also be mentioned here is that of *stackability*. In the following, stackability is understood in the framework of a holistic approach to higher education as a way of combining shorter and more flexible learning opportunities within curricular contexts and coordinated learning concepts.

The information and recommendations compiled here are aimed at different target groups at HEIs: university leaders, heads of faculties and departments, heads of continuing higher education centres, academic international offices and other central and decentralised institutions as well as lecturers and other persons involved in recognition. The recommendations have been developed in the context of the German higher education system. As they are principally based on European standards for quality assurance and recognition, they can also be of interest for HEIs in the European Higher Education Area and beyond. Recommen-

2 In the current discussion in German-speaking countries, the term micro-credentials is also used alongside micro-degrees. Both concepts refer to certificates of competence, but the term micro-degree tends to “claim to at least be a precursor to a formalised final qualification” (HRK 2020, p. 6), from which different considerations and proposals on the minimum and maximum range can be derived in each case (Rentzsch 2023).

ditions that refer to the regulatory framework in Germany and the legally required separation of undergraduate studies and continuing education at HEIs are excepted.

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2 Strategic relevance of micro-credentials

2.1 Initial situation: Strategic importance of micro-credentials for HEIs

Micro-credentials are linked to a wide range of old and new higher education policy issues and developments. For HEIs, they open up a wide range of possibilities for profile development as well as the flexibilisation and expansion of existing study programmes.

Regardless of the strategic options that present themselves, HEIs can assume that they will have to be prepared for an increase in applications for the recognition of micro-credentials. This is due to the fact that an increasing number of university and non-university learning formats can already be observed, and more and more people will be interested in this new option of proving competences.

There are therefore two directions from which HEIs should or must address this issue. Firstly, it is necessary to adapt their recognition procedures to competences and prior knowledge that have increasingly been acquired via flexible learning pathways and formats (such as micro-credentials). The procedures necessary for this already exist (HRK 2022b). Secondly, HEIs that want to make their study programmes more flexible by introducing alternative learning formats face far-reaching questions that concern quality assurance measures (see 3.1) and above all strategic reflection processes and positioning.

According to current estimates, HEIs will be confronted with a dynamic sampling of political, social and ecological developments and challenges in the coming years, such as the consequences of demographic change and the climate crisis, technological transformation and shifts in the labour market (EUA 2021, p. 4 f.). For HEIs, the crucial question is how to react appropriately to this dynamic from the perspective of education, thus teaching and learning. As central actors which promote innovation and convey competences for shaping transformation processes and for overcoming current and future challenges, HEIs must create new environments that are more flexibly geared to the heterogeneous educational needs of current and future generations of students instead of "one size fits all" study programmes. The expansion of study formats and the overall flexibilisation of studies can contribute

to “strengthening HEIs as places of lifelong learning” (Wissenschaftsrat 2019, p. 67 f.) or repositioning them as such.

Even though the German higher education system does not yet have the necessary legal and financial framework conditions to fully utilize the potential of more flexibilised studies, the following guiding ideas and implementation strategies show possible approaches on the path to a sustainable development that can already be implemented today. The flexibilisation of educational pathways in our society is in a dynamic phase and HEIs should play a decisive role in shaping it. The establishment of transparent procedures for the recognition of competences and prior knowledge is an important step in this regard, which also represents a fundamental prerequisite for a further opening-up of the higher education system.

Whether and with what objective micro-credentials and shorter learning formats are used by HEIs requires a conscious strategic decision. A long-term implementation must be supported by the HEI’s leadership. The central question here is which target groups the HEIs would like to address in the future with micro-credentials and other study formats.

The decision to design and establish micro-credentials offers the following **strategic development and profiling options**:

The introduction of micro-credentials presents different opportunities to **make learning pathways more flexible** in undergraduate, consecutive and postgraduate degree programmes. In this way, additional study programmes can be used on the basis of shorter learning experiences, for example, for the introductory phase, the transition between bachelor’s and master’s degree programmes, career entry, or for the acquisition of key competences and additional qualifications that are in demand. Learning opportunities can be more strongly geared and developed towards the needs of different educational biographies as well as to societal or professional requirements (e.g. relating to sustainability, data literacy and artificial intelligence).

The establishment of micro-credentials to create new access routes and continuing education opportunities for those with vocational qualifications and those in employment enhances **permeability** between educational sectors and can thus also contribute to an increasingly important distinguishing element between HEIs.

Micro-credentials also offer HEIs the opportunity to strengthen the strategic direction of **internationalisation** and to promote mobility

through the development of joint courses with foreign partner HEIs (DAAD 2022). Shorter study visits and virtual mobility formats can help to increase the attractiveness of studies, stimulate interest in further mobility experiences, including physical mobility, and ultimately support the recruitment of international mobile students.

In addition, new avenues for the **transfer**⁴ of current research are emerging. Shorter learning units in particular could transfer recent scientific findings to business and the public sector and thus contribute to or trigger innovation processes (Microbol 2022, p. 6). New or existing cooperations and networking activities on the regional level, be they economic, cultural or relating to civil society, can also be initiated or strengthened in this way.

The increase in visibility that can result from a sharper profile and a stronger focus on the qualification needs of old as well as new target groups through the sustainable implementation of micro-credentials also makes them an instrument for **university marketing**. Attracting students through low-threshold and flexible learning opportunities is not limited to the area of continuing higher education. Rather, micro-credentials, accompanied by corresponding recognition options, can also be used specifically to facilitate the entry into undergraduate and postgraduate studies (HRK 2020, p. 7f.).

2.2 Challenges

In recent years, HEIs have already increasingly promoted opportunities for lifelong learning processes. In addition, a growing linkage of continuing higher education and first degree studies can be observed – at least with regard to the range of courses – in the context of the federal government/federal states competition “Aufstieg durch Bildung: offene Hochschulen” (2011-2020) (Wolter/Schäfer 2020, p. 29 f.). However, in the flexibilisation and opening-up of their study models, HEIs continue to face, among other challenges, the fundamental problem of different financing logics, according to which undergraduate study programmes must be financed from basic funding and postgraduate programmes via fees and charges (Wissenschaftsrat 2019, pp. 48-52). As long as political decisions and legally secure solutions to this problem are still pending, it is up to the HEIs – in dialogue with the federal states and, if applicable, in a network of HEIs – to find their own solutions that are suited to their individual profiles. This principle also applies to the challenges described below.

4 For an understanding of transfer and cooperation based on the core competences of higher education in research and teaching, see HRK 2017.

2.2.1 Coordination within the HEI

Depending on the area in which micro-credentials are used, there are different hurdles with regard to the establishment, design and financing of corresponding learning opportunities. If the prerequisites and structures in both teaching and administration are not already in place, the establishment and integration of flexible study programmes means a not insignificant **additional workload** for all actors and bodies involved.

There is already a **need for coordination** in the design of the content, as a meaningful link to the profile of the HEI, the relevant faculties or departments and the disciplines should be considered from the outset. At the same time, the qualification needs of specific target groups should be determined in advance. With regard to the undergraduate teaching offer, one challenge is to keep the possibilities of modularisation in line with the demand for holistically conceived courses of study (Bundesrat 2022, p. 2) and to develop new, additionally qualifying offers complementary to the existing degree programmes.

The design of flexible study models and learning paths, as well as the reorientation towards student-centred learning processes, requires **acceptance by all university stakeholders involved**. Continuous support (e.g. through contact and coordination points), additional advisory services for teachers, staff and students as well as clear responsibilities within the HEIs are necessary for this.

2.2.2 From strategy to implementation

With regard to the **implementation level**, it is important to clarify the two perspectives on the topic of micro-credentials for one's own HEI that were explained at the beginning. If the occupation with micro-credentials is limited to the recognition of proofs of competence, appropriate information and training opportunities must be provided for the responsible persons. If the HEI itself wants to become a provider of micro-credentials, responsibilities should be clarified in the early planning stages and the provision of human and other resources for implementation should be coordinated and sustainably ensured. The HEI's administrations must also be involved in this coordination process. If more comprehensive changes are introduced, e.g. by making curricula more flexible, there must also be long-term support for institutional change processes.

The introduction of micro-credentials offers new opportunities to initiate, build and deepen **cooperation with non-university actors** from different educational, social and economic sectors. However, the concrete design of joint study programmes and their accompanying

recognition practice are often complicated by the lack of common quality standards, e.g. for the relevant descriptions of learning outcomes or for the classification of levels. Cooperation may take very different forms depending on the professional fields involved and its success is often dependent on the long-term support of the HEI's leadership as well as the initiative of individual actors and responsible persons.

The establishment of micro-credentials and accompanying study programmes in continuing higher education meets the fundamental challenges in this area, which concern **funding** and the **legal framework**. In Germany, the higher education acts of the federal states oblige HEIs to charge cost-covering fees or charges. This is in line with the European law on state aid, which does not allow state funding of economic activities (continuing education programmes, in contrast to undergraduate programmes, have been considered as such in many cases) (Bade-Becker 2020, pp. 488-491 and Wissenschaftsrat 2019, pp. 48-52). Until such time as the funding of continuing education at HEIs and the legal situation on which it is based is simplified by the Federal Government and the federal states (HRK 2021, p. 11 f.), HEIs must therefore treat continuing education and undergraduate degree programmes as economically separate. These different financing logics reduce the scope for possible synergies that could arise from an interlocking of continuing and undergraduate studies in the design of new flexible learning formats.

When making learning paths more flexible through additional offers in undergraduate and consecutive degree programmes, **opportunities for recognition** of shorter teaching/learning units, for example in *container modules*⁵ (in compulsory elective areas or the *Studium Generale*), must also be coordinated between different departments and faculties within an institution. This may go along, for example, with overarching considerations to create curricularly linked opportunities at module level for the acquisition of key or complementary competences related to the study objectives (HRK 2022b, p. 47).

In the context of **shorter study visits abroad or virtual exchange offers** as well as jointly designed international study programmes, options for the recognition of micro-credentials are also needed in international HEI networks, similar to the usual learning agreements in mobility programmes. In addition, there is still a lack of consistent framework conditions on the issue of the legal status of students

5 "Container modules function as a module placeholder into which competences acquired outside the curriculum can flow. Nevertheless, learning outcomes must be formulated for such modules and they must be embedded in the curriculum" (HRK 2022b, p. 36).

participating in a virtual exchange. In this context there is a need for clarification, ranging from entitlement to examinations and funding to compulsory health insurance and authorisation to use university infrastructures.

2.3 Recommendations


2.3.1 Key strategic ideas

- HEIs should understand the flexibilisation of learning paths as a **strategic goal**, the implementation of which, through the introduction of shorter study formats such as micro-credentials, offers development potential for the entire institution as well as opportunities to strengthen its profile in the long term. This development process should be aligned with the individual profiles of the HEI.
- Insofar as HEIs are concerned with micro-credentials from the provider perspective, beyond questions of recognition of certificates of competence, it should be considered what **development potentials and fields of applications** micro-credentials have for different profile areas and can be used, for example, to make studies more flexible, to promote continuing higher education, to strengthen transfer processes or to deepen international cooperation.
- In addition, HEIs should examine the extent to which they can use the introduction of micro-credentials to **promote permeability** between higher education and vocational education. Against this background, a stronger link between undergraduate and continuing education study programmes is recommended. In this context, opening up modules or module components for further academic qualification could not only meaningfully expand the existing range of courses, but at the same time open up transitions to higher education for those with vocational qualifications (Wissenschaftsrat 2020, p. 75). Furthermore, in this context, cooperations with non-university actors are particularly suitable, which may be accompanied by cross-the-board recognition of prior learning procedures.
- At the same time, a culture is needed that encourages **experimentation with new learning and study formats** and supports and promotes initiatives from faculties or departments, degree programmes, continuing education centres and other areas. The development processes that emerge in this way derive from the expertise available within the disciplines and are often co-designed and supported by the actors involved, especially teachers and students. In this way, essential experience can be gained and individual activities can be tested. Such impulses from the degree program-

mes, but also those from outside the HEI, can in turn be integrated into the strategy and development processes.

2.3.2 Implementation strategies

- From the very beginning of the process of introducing micro-credentials, university leaders should involve representatives of the HEI stakeholders (teachers, administrative staff, students) as well as the central and decentralised institutions concerned (e.g. continuing education institutions, international students' offices) in the conceptual design and encourage them to develop discipline-specific implementation concepts. In this way, the **acceptance** of the process can be increased, and through the perspective of those implementing the process, organisation- and university-specific characteristics, challenges, and also synergies can be taken into account at an early stage.
- As some of these are long-term development and change processes, **accompanying structures** must be created at an early stage, ranging from incentives, participation opportunities and advice to coordinated discussion on obstacles to implementation.
- In view of the complex and, in some cases, **divergent legal framework conditions** across the German federal states for the **funding** of higher education-based continuing education, HEIs must identify options for sustainable funding and support at an early stage, particularly when designing new study offers that are to be located across the undergraduate and continuing education sectors (taking into account the separation of basic funding, cost-covering fees, charges and subsidies).
- Micro-credentials offer numerous fields of application and flexibility for both undergraduate and postgraduate programmes. The spectrum ranges from extracurricular and vocational additional learning and the use of highly specialised fields of study to the promotion of transdisciplinary cooperation across faculty or department boundaries or the design of cooperative curricula in international HEI networks. It is recommended that HEIs **make use of the scope** to develop student-centred programmes. It is advisable to start with **trial phases** of individual programmes in order to gain specific experience and concrete insights into possible requirements in dialogue with the target groups and responsible teachers. In the process, possibilities of recognition and the curricular linking of internal and external micro-credentials should be provided for and established from the outset.

- The **stackability** of micro-credentials should be taken into account in the development of competence-oriented learning opportunities and should be used in didactically meaningful curricular contexts that build on one another, for example to enable the supplementary acquisition of key qualifications during undergraduate studies.
- 

3 Quality assurance for micro-credentials

To implement micro-credentials sustainably at HEIs, quality assurance standards are needed that should be obligatory for all HEIs. To this end, the Council of the European Union calls on member states to support the quality and transparency of micro-credentials by developing quality assurance mechanisms for micro-credentials or adapting and applying them in accordance with the standards agreed in the relevant sector (Council of the EU 2022, p. 16f.). In the following, existing standards in the higher education sector that are already in place and others that are still required are presented from two perspectives. First, the perspective of a HEI that offers or would like to offer micro-credentials is outlined; this is followed by the position of all HEIs in their role as a recognising authority.

3.1 The HEI as a provider of micro-credentials

If HEIs plan to include micro-credentials in their repertoire of offerings, they should establish suitable quality assurance measures or adapt and, if necessary, expand suitable established measures. With regard to the relevant quality assurance standards, it should first be noted that micro-credentials have been widely used in the higher education sector for several years in the context of lifelong learning and continuing higher education. The “Empfehlungen zu hochschulischer Weiterbildung als Teil des lebenslangen Lernens” (2019) of the German Science and Humanities Council (Wissenschaftsrat), the “Recommendations for the continuing academic education” (2021) of the German Rectors’ Conference (HRK) and the recommendations of the Round Table on “Qualitätssicherung von Zertifikatsangeboten in der hochschulischen Weiterbildung” (2021) published by the Institute for Innovation and Technology (iit) already address the challenges of continuing education formats at HEIs, show ways of integrating them into quality development processes and recommend the systematic inclusion of continuing education offerings in higher education quality assurance.

Micro-credentials that have emerged from accredited bachelor's or master's degree programmes are quality-assured via the programme accreditation of the degree programme or the system accreditation of the HEI. Prior to the recommendation of the Council of the European Union, however, there were no standards for the description of formats that are not part of degree programmes (Wissenschaftsrat 2019,

p. 79). Only the recommendations of the above-mentioned Round Table have so far offered an approach to minimum requirements for the quality of content and processes of further development and implementation of shorter programmes. At this point in time, it is already possible to integrate the quality assurance of continuing education programmes at HEIs in system accreditation in the field of teaching and learning (Wissenschaftsrat 2019, p. 12 f). In addition to quality assurance by accreditation agencies and the German Accreditation Council, which is common in the higher education sector, there are further options for external quality assurance in the form of certifications in the non-university sector.

The Wissenschaftsrat considers “continuing education at HEIs as part of teaching” and recommends that corresponding study programmes are included in the existing quality development and assurance systems for teaching, “taking into account their special requirement profile” (Wissenschaftsrat 2019, p. 79). In this context, reference can be made to the “**Standards and guidelines for quality assurance in the European Higher Education Area (ESG)**” (HRK 2015), which apply to the whole higher of education, including study programmes without formal qualifications (HRK 2015, p. 11).

The “Standards and guidelines for internal quality assurance” contain a total of ten standards:

Standards for internal quality assurance (ESG)

1. Policy for quality assurance. Institutions should have a policy for quality assurance that is made public and forms part of their strategic management. Internal stakeholders should develop and implement this policy through appropriate structures and processes, while involving external stakeholders.

2. Design and approval of programmes. Institutions should have processes for the design and approval of their programmes. The programmes should be designed so that they meet the objectives set for them, including the intended learning outcomes. The qualification resulting from a programme should be clearly specified and communicated, and refer to the correct level of the national qualifications framework for higher education and, consequently, to the Framework for Qualifications of the European Higher Education Area.

3. Student-centred learning, teaching and assessment. Institutions should ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach.

4. Student admission, progression, recognition and certification. Institutions should consistently apply pre-defined and published regulations covering all phases of the student “life cycle”, e.g. student admission, progression, recognition and certification.

5. Teaching staff. Institutions should assure themselves of the competence of their teachers. They should apply fair and transparent processes for the recruitment and development of the staff.

6. Learning resources and student support. Institutions should have appropriate funding for learning and teaching activities and ensure that adequate and readily accessible learning resources and student support are provided.

7. Information management. Institutions should ensure that they collect, analyse and use relevant information for the effective management of their programmes and other activities.

8. Public information. Institutions should publish information about their activities, including programmes, which is clear, accurate, objective, up-to date and readily accessible.

9. On-going monitoring and periodic review of programmes. Institutions should monitor and periodically review their programmes to ensure that they achieve the objectives set for them and respond to the needs of students and society. These reviews should lead to continuous improvement of the programme. Any action planned or taken as a result should be communicated to all those concerned.

10. Cyclical external quality assurance. Institutions should undergo external quality assurance in line with the ESG on a cyclical basis.

Source: HRK 2015, pp. 78-79

This quality framework, which is used for higher education teaching, provides orientation to ensure and develop the quality of micro-credentials at HEIs.

The EU Council recommendation on micro-credentials also refers to the ESG. The “European principles for the design and issuing of micro-credentials” (Council of the EU 2022, pp. 23-25) summarise the core elements of the Council recommendation in ten points (see Annex 6.2):

Principles for the design and issuing of micro-credentials

1. Quality
2. Transparency
3. Relevance
4. Valid assessment
5. Learning pathways
6. Recognition
7. Portable
8. Learner-centred
9. Authentic
10. Information and guidance

Source: Council of the EU 2022, pp. 23-25.

With regard to the quality assurance of micro-credentials at HEIs, it advocates applying the existing mechanisms of quality assurance at HEIs and, in particular, using the instruments established at European level, such as the listed ESGs, the ECTS and qualification frameworks.

Additionally, in order to achieve the goal of promoting flexible and lifelong learning pathways linked to micro-credentials, measures are recommended which are also relevant for their quality assurance. This includes, in particular, facilitating the recognition of micro-credentials by describing them transparently using standard elements. The following elements are considered mandatory:

European standard elements to describe a micro-credential

- Identification of the learner
- Title of the micro-credential
- Country(ies)/region(s) of the issuer
- Awarding body(ies)
- Date of issuing
- Learning outcomes
- Notional workload needed to achieve the learning outcomes
- Level (and cycle, if applicable) of the learning experience leading to the micro-credential
- Type of assessment
- Form of participation in the learning activity
- Type of quality assurance used to underpin the micro-credential.

Source: Council of the EU 2022, p. 21.

Further optional elements are recommended (see Annex 6.1).

3.1.1 Challenges

Integration into existing systems

Accordingly, standards, processes and structures already exist for the quality assurance of micro-credentials, which were either developed specifically for micro-credentials (EU Council recommendation) or are applicable to them (accreditation system and ESG as well as certification options of the non-university sector). From a quality assurance perspective, the key challenge is to apply them in a way that allows for the creative and innovative potential of micro-credentials to flourish while meeting higher education standards – the aim being to find a balance between flexibility and standardisation.

The lack of experience at HEIs in dealing with the question of how micro-credentials can be efficiently integrated into existing quality assurance processes and structures and how the standards can be applied leads to uncertainties. Many questions also remain open in terms of how micro-credentials can be linked to the HEI's learning provision in a way that both supports the HEI's strategic goals and is meaningfully connected to the student life cycle.

A specific challenge in this context is, for example, to find a suitable (ECTS) range for micro-credentials that facilitates the connection to higher education learning opportunities. In order to implement solutions, sufficient structural, human and financial resources are required, as has been recognised for some time in the field of continuing higher education (Wissenschaftsrat 2019 and HRK 2021).

Describing and maintaining academic level

Micro-credentials offered at HEIs are expected to be of a commensurate level. The question therefore arises as to how this level can be made transparent. While the Council of the EU calls on member states to assign micro-credentials to national qualifications frameworks (Council of the EU 2022, p. 17), in Germany this is viewed critically, as it “could lead to their overloading and a simultaneous loss of their impact and significance, as well as to a devaluation of the qualifications that have been assigned up to now, which aim at a holistic acquisition of competences” (Bundesrat 2022, p. 7). For HEIs that offer micro-credentials, this means that they must clarify the level of a micro-credential in an alternative way. The competence-oriented description of learning outcomes is of particular importance, which in turn brings its own challenges that have been known for some time.

Within the framework of cooperations and franchise models, HEIs must ensure that their quality standards (Wissenschaftsrat 2019) are met. They are therefore required to design them in such a way that the academic responsibility lies with the HEI. In practice, this concerns, for example, the appropriate choice of teachers and not least the allocation of micro-credentials to the area of and not least the allocation of micro-credentials to the area of academic recognition instead of recognition of prior learning (see 3.2).

3.1.2 Recommendations

The following recommendations for **quality assurance** of micro-credentials at HEIs result from the challenges outlined above:

- Micro-credentials should be included in **internal quality assurance** in accordance with the ESG.
- Clear and consistent regulations should be created for the **external quality assurance** of micro-credentials. In principle, micro-credentials should be integrated into existing mechanisms for degree programmes (programme accreditation or internal procedures of system-accredited HEIs) and do not require a new and independent procedure. They should be taken into account as micro-credentials within the framework of programme or internal accreditations of the study programme. This applies to all forms of micro-credentials, regardless of whether they consist of modules of a degree programme, are related to a degree programme or do not arise directly from such a programme. In the last case, they should be dealt with in conjunction with thematically related degree programmes.
- **No separate accreditation** should be provided for individual micro-credentials.
- Micro-credentials that have already been introduced should be taken into account in the next programme accreditation or the **next internal procedure**. In the future, micro-credentials should be incorporated into existing procedures as they are introduced.
- In the context of **system accreditation**, the handling of micro-credentials in the context of recognition should be taken into account, even if the usual procedures are already the subject of assessment.
- In the interests of permeability and for economic reasons, **forms of certification in non-university education**, such as those in accordance with ISO standards or the Accreditation and Licensing Regulation for the Promotion of Employment (AZAV), can be taken into consideration.
- In order to ensure the quality of **cooperative programmes with non-university providers**, academic responsibility and quality as-

assurance should remain with the HEI in these cases. Otherwise, this should be clearly recognisable. Responsibilities should be clearly regulated and the continuous dialogue between the bodies involved should be defined and adhered to (e.g., in a process visualization) (HRK 2022a, p. 10)⁶. Particularly for the recognition of micro-credentials from cooperative programmes, it is necessary that their description, in addition to the information provided in the standard elements, shows which institution is responsible for quality assurance.

The following recommendations serve the purposes of **quality-assured design and establishment of micro-credentials**:

- Micro-credentials should be described according to the **European standard elements** of the EU Council recommendation. The following applies in particular:
 - Describe learning outcomes in a **competence-oriented way**
 - Indicate the **workload** of the course using the ECTS system
 - Provide the information on the assignment of a **qualification level** exclusively via the learning outcome descriptions, if an assignment to reference systems is not regulated or even not feasible
 - Specify the **level** if the learning offer is part of a study programme
 - Plan for **compatibility** (within the HEI) when designing micro-credentials. For this, learning formats should encompass the size of modules. Alternatively or additionally, appropriate options for stacking should be created, so that through stacking the size of a module is achieved. In any case, the size should not be less than one ECTS credit
- When certifying micro-credentials, HEIs should, in the context of the general digitalisation of examination certificates, aim to issue them as “European digital certificates” (European Digital Credentials for learning)⁷ for micro-credentials, in order to simplify their authentication, transferability and interoperability, to increase transparency for learners and to facilitate recognition at HEIs.

6 In the HRK resolution “Recognition at universities”, it is recommended that HEI “conclude framework agreements for partnerships with other HEIs and for cooperation with non-university (education) actors” (HRK 2022a, p. 9).

7 <https://europa.eu/europass/en/europass-alati/european-digital-credentials>, last accessed on 31/07/2023.

3.2 The HEI as a recognising body

Since HEIs are already receiving applications for recognition of micro-credentials, these should be embedded in the quality assurance measures of recognition procedures in the immediate future and solutions should be found at the HEIs themselves.

Although quality assurance for recognition at German HEIs is comprehensively regulated (HRK 2022b), specific features of micro-credentials must be taken into account. In this context, a distinction must be made between **higher education and non-higher education**. Micro-credentials awarded within the framework of university formats require academic recognition, while micro-credentials from non-university education are in the area of recognition of prior learning.

Since the quality assurance of micro-credentials acquired at HEIs is the responsibility of the HEIs, the principles of **recognition** with the assessment criterion of substantial difference apply here (HRK 2022b, p. 11).

Recognition of prior learning on the other hand, concerns evidence of competences acquired outside higher education in formal, non-formal and informal contexts, i.e., micro-credentials offered by non-university providers (e.g., commercial providers or NGOs), among others. Here, the so-called recognition resolutions of the Kultusministerkonferenz (KMK) of 2002 and 2008 provide the orientation framework, whereas the higher education laws of the federal states are decisive for the legal implementation. In the HRK resolution "Recognition at universities" non-higher education providers are requested to "transparently communicate their quality assurance mechanisms for degrees, certificates and achievements" (HRK 2022a, p. 12) to sustainably promote permeability and ensure the quality of their programmes.

Continuing education programmes from **franchise models** or from **co-operations** between universities and non-university providers cannot be assigned to recognition without prior consideration. The assignment is made by looking at the quality assurance of the learning programme. If this is the responsibility of the university and higher education standards therefore apply, the cases are assigned to recognition. Conversely, if quality assurance is not the (clear) responsibility of the HEI, the standards for recognition of prior learning will apply.

3.2.1 Challenges

In the case of **cooperative programmes with non-university providers**, one challenge is that it is not always clearly specified and recognisable which institution is responsible for quality assurance and has the academic responsibility (see 3.1.1). The Wissenschaftsrat emphasises that, for example, “spin-offs of study programmes or ‘franchise models’ with private providers are fraught with risks for quality assurance and transparency” (Wissenschaftsrat 2019, p. 10). The HRK states in this regard: “Especially in the case of foreign franchise models, it should be examined in detail whether and to what extent the quality assurance instruments applied by the HEI also apply to the non-university partner. However, this information is usually difficult to find and thus hinders the recognition” (HRK 2022a, p. 8).

Furthermore, micro-credentials are often smaller than higher education modules. However, the aim of recognition is precisely to replace study modules (HRK 2022a, p. 4). Therefore, individual micro-credentials have to be combined with one other or with other learning activities or competences in order to be recognised for a module.

The possibility of combining micro-credentials into more comprehensive, broader qualifications promotes the flexibilisation of learning pathways. One challenge, however, is that the “overall qualification is more than just the sum of individual verifications” (HRK 2020, p. 15f.). In order to ensure the “continuity of academic material, methods and qualifications” with respect to individual achievements and the quality assurance of qualifications (HRK 2020, p. 5), it is necessary to find solutions for the reasonable **stackability** of micro-credentials.

3.2.2 Recommendations

The following recommendations are intended to help shape and improve the recognition of micro-credentials at HEIs:

- HEIs should approach applications for recognition of micro-credentials with **flexibility** and **openness** and take into account the specific features of micro-credentials in existing academic recognition and recognition of prior learning regulations and communicate these transparently to all parties involved.
- A flexible programme design should provide for **container modules** and **mobility windows** that enable the recognition of (potentially stacked) micro-credentials within a degree programme.
- In the case of micro-credentials resulting from **cooperative programmes** between universities and non-university providers or from franchise offers, the recognising body must check which

institution was responsible for quality assurance. The test criteria in academic recognition (substantial difference) or recognition of prior learning (equivalence) are based on this.

- In the case of micro-credentials awarded by non-university providers, the awarding body should thoroughly check whether the submitted credential and the associated learning programme are **certified** and **verifiable**.
- Applications for recognition of micro-credentials awarded by HEIs as well as applications for recognition of micro-credentials awarded outside universities should be treated and examined **individually**, as is usual with other proofs of competence. In the event of an accumulation of applications for recognition of the same micro-credentials, this can result in **across-the-board procedures**.
- HEIs should establish **regulations for dealing with** the recognition of micro-credentials whose **volume is less than the size of a module**, e.g. through partial recognition. To ensure qualitative verifiability of learning outcomes, a **minimum range** of at least one ECTS credit should be defined as a prerequisite for recognition.
- Furthermore, options for the quality-assured **stackability** of micro-credentials should be examined and created. In this context, HEIs should establish and disclose regulations for the meaningful stacking of micro-credentials. In the case of stacked micro-credentials, it must be ensured that they have a curricular logic and thus a **content-related** fit with the degree programme in which they are recognised.

4 Outlook

This publication points out that HEIs already have suitable instruments and standards for the quality assurance and for the recognition of micro-credentials at their disposal, on the basis of which their quality assurance measures should merely be adapted or expanded. In order to ensure that the recognition of micro-credentials can be accomplished and that compatibility is guaranteed, not only HEIs but also non-university providers are responsible for ensuring the quality of their offerings and describing them in a transparent manner by following the standard elements of the recommendation of the Council of the European Union.

The process of strategic planning and operational implementation has already been initiated at many HEIs, and the coming years will offer opportunities for them to learn from each other on the basis of good practice examples and to gain specific insights into the benefits and options of making study programmes and models more flexible through micro-credentials. The European University Alliances in particular are already providing important momentum with regard to testing shorter study formats in international cooperations, but also in the area of lifelong learning on specific priority topics (e.g. in the area of sustainability).

At present, however, implementation within existing study structures and the associated legal framework and financing logics is still associated with great uncertainties and hurdles. In Germany, HEIs and federal states should find joint solutions, for example to clarify questions about enrolment or student status in the case of shorter study formats. HEIs and federal states should also enter into dialogue with regard to the question of whether and how micro-credentials can be used to jointly deploy teaching capacities within HEIs for undergraduate and postgraduate fields of study.

With increasing use, new areas of application will differentiate, and additional added values will emerge in the coming years. It therefore remains to be seen what significance micro-credentials will gain in the future, for instance in the context of consecutive degree programmes and postgraduate continuing education programmes, examples being the gradual introduction to a degree programme or the integration of attractive external learning opportunities. It is up to the HEIs to decide which options are to be developed for making study programmes more flexible, for internationalisation or, in cooperation with other educational sectors, to promote permeability. However, the establishment

and design of student-friendly recognition procedures is an important condition for a successful further development.

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6 Annexes

The annexes comprise Annexes I and II of the “Council Recommendation on a European approach to micro-credentials for lifelong learning and employability” (Council of the EU 2022, pp. 21-25).

6.1 Annex 1: European standard elements to describe a micro-credential

Mandatory elements:	Identification of the learner	
	Title of the micro-credential	
	Country(ies)/region(s) of the issuer	
	Awarding body(ies)	
	Date of issuing	
	Learning outcomes	
	Notional workload needed to achieve the learning outcomes (in ECTS credits, where possible)	
	Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF, QF-EHEA), if applicable	
	Type of assessment	
	Form of participation in the learning activity	
	Type of quality assurance used to underpin the micro-credential	
	Optional elements, where relevant (non-exhaustive list)	Prerequisites needed to enrol in the learning activity
		Supervision and identity verification during assessment (unsupervised with no identity verification, supervised with no identity verification, supervised online, or onsite with identity verification)
Grade achieved		
Integration/stackability options (stand-alone, independent micro-credential/integrated, stackable towards another credential)		
	Further information	

6.2 Annex 2: European principles for the design and issuance of micro-credentials

1 Quality

Micro-credentials are subject to internal and external quality assurance by the system producing them (e.g. the education, training or labour market context in which the micro-credential is developed and delivered). Quality assurance processes must be fit-for-purpose, clearly documented and accessible and meet the needs and expectations of learners and stakeholders.

Providers: External quality assurance is based primarily on the assessment of providers (rather than individual courses) and the effectiveness of their internal quality assurance procedures. Providers should make sure that internal quality assurance covers all the following elements:

- the overall quality of the micro-credential itself, based on the standards referred to below;
- the quality of the course, where applicable, leading to the micro-credential;
- learners' feedback on the learning experience leading to the micro-credential and;
- peers feedback, including other providers and stakeholders, on the learning experience leading to the micro-credential.

Standards: External quality assurance is to be conducted in line with:

- Annex IV of the European Qualifications Framework Recommendation, where applicable;
 - the Standards and Guidelines for Quality Assurance in the European Higher Education Area, where applicable;
 - the European Quality Assurance Reference Framework (the EQAVET Framework) in the field of vocational education and training, where applicable;
 - other quality assurance instruments, including registries and labels, to build public trust in micro-credentials, where applicable.
-

<p>2 Transparency</p>	<p>Micro-credentials are measurable, comparable and understandable, with clear information on learning outcomes, workload, content, level, and the learning offer, as relevant</p> <p>Workload</p> <ul style="list-style-type: none"> ■ Higher education institutions should use the European Credit Transfer and Accumulation System (ECTS) and comply with the principles in Annex V to the EQF Recommendation, where possible, to demonstrate the notional workload needed to achieve the learning outcomes of the micro-credential. ■ Providers that do not use the ECTS may use other systems or types of information that can effectively describe learning outcomes and workload, in compliance with the principles in Annex V to the EQF Recommendation. <p>Qualifications framework/systems</p> <ul style="list-style-type: none"> ■ Micro-credentials may be included in national qualifications frameworks/systems, where relevant, and in line with national priorities and decisions. National qualifications frameworks/ systems are referenced to the European qualifications framework of the European Higher Education Area, which can further support the transparency of, and trust in, micro-credentials. <p>Information on the offer of micro-credentials</p> <p>Systems for micro-credentials should provide transparent and clear information, to underpin guidance systems for learners, in line with national practices and stakeholders needs:</p> <ul style="list-style-type: none"> ■ Information on providers of micro-credentials is published where possible in existing relevant registers. Higher-education providers (and other relevant providers) should be included, where possible, in the Database of External Quality Assurance Results (DEQAR), based on quality assurance in line with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG); ■ Information on learning opportunities leading to micro-credentials should be accessible and easily exchanged through relevant platforms, including Europass.
<p>3 Relevance</p>	<p>Micro-credentials should be designed and issued as distinct, targeted learning achievements and learning opportunities leading to them are to be updated as necessary, to meet identified learning needs.</p> <p>Collaboration between education and training organisations, employers, social partners, other providers and users of micro-credentials is encouraged to increase the relevance of the micro-credentials for the labour market.</p>
<p>4 Valid assessment</p>	<p>Micro-credential learning outcomes are assessed against transparent criteria.</p>
<p>5 Learning pathways</p>	<p>Micro-credentials are designed and issued to support flexible learning pathways, including the possibility to validate, recognise and 'stack' micro-credentials from across different systems.</p> <p>Stackability</p> <p>Micro-credentials are designed to be modular so that other micro-credentials may be added to create larger credentials. Decisions to 'stack' or combine credentials lie with the receiving organisation (e.g. education and training institutions, employers, etc.), in line with their practices, and should support the goals and needs of the learner. Stacking does not create an automatic entitlement to a qualification or a degree. Such decisions are made by regional and national authorities or institutions in line with their awarding processes.</p> <p>Validation of non-formal and informal learning</p> <p>Obtaining micro-credentials is possible following assessment of learning outcomes, obtained either through a specific course leading to a micro-credential, or on the basis of assessment of learning outcomes resulting from non-formal and informal learning.</p>

6 Recognition	<p>Micro-credentials have a clear signalling value of learning outcomes for smaller modules of learning. Recognition paves the way for a wider offer of such learning experiences in a comparable way across the EU.</p> <p>Micro-credentials are recognised, where possible, by the competent authorities, for academic, training or employment purposes, based on the information provided according to the European standard elements (Annex I) and the principles for the design and issuance of micro-credentials (Annex II).</p> <p>When micro-credentials are issued by formal education providers, they are recognised, where possible, based on standard recognition procedures used in recognising foreign qualifications and learning periods abroad.</p> <p>This is without prejudice to the right of the competent authorities to define recognition procedures or to verify the authenticity of documents.</p>
7 Portable	<p>Micro-credentials are owned by the credential-holder (the learner) and may be stored and shared easily by the credential-holder, including through secure digital wallets (e.g. Europass), in line with the General Data Protection Regulation. The infrastructure for storing data is based on open standards and data models. This ensures interoperability and seamless exchange of data, and allows for smooth checks of data authenticity.</p>
8 Learner-centred	<p>Micro-credentials are designed to meet the needs of the target group of learners. Learners are involved in the internal and external quality assurance processes and their feedback is taken into account as part of the continuous improvement of the micro-credential.</p>
9 Authentic	<p>Micro-credentials contain sufficient information to check the identity of the credential-holder (learner), the legal identity of the issuer, the date and place of issuance of the micro-credential.</p>
10 Information and guidance	<p>Information and advice on micro-credentials should be incorporated in lifelong learning guidance services and should reach the broadest possible learner groups, in an inclusive way, supporting education, training and career choices.</p>

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