

Case study Germany

Microcredentials for labour market education and training

First look at mapping microcredentials in European labour-market-related education, training and learning: take-up, characteristics and functions

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2020-FWC9/JB-APOULIOU/Microcredentials-Learning&Employment/006/20

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Please cite this publication as:

Haseloff, Gesine (2023). *Case study Germany: Microcredentials for labour market education and training. First look at mapping microcredentials in European labour-market-related education, training and learning: take-up, characteristics and functions*. Thessaloniki: Cedefop.

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CHAPTER 1. Introduction

This case study report is part of the project 'Mapping microcredentials in European labour market-related education, training and learning – take up, characteristics and functions of the European Centre for the Development of Vocational Training (Cedefop). Cedefop has commissioned the research institution PPMI (consortium leader) to undertake the project. PPMI, together with external experts, is carrying out mapping of microcredentials in EU-27 countries, Iceland, Norway and the United Kingdom by implementing 8 in-depth case studies (like this one for Germany), a systematic literature review, a survey and several interview programmes. The research will provide a better understanding of the role played by microcredentials in supporting labour-market-related and employment-relevant education, training and learning. The project findings will offer new knowledge on the characteristics of microcredentials, their added value to individual learners and employees, as well as their impact on existing qualifications and recognition systems.

Microcredentials in labour market related vocational education and training (VET) is a new topic in Germany. In July 2021, the Federal Ministry of Education and Research (BMBF) submitted a statement from the Federal Government of Germany as part of the public consultation on microcredentials at the European Commission ⁽¹⁾.

It says, 'Germany welcomes the European Commission's aim to strengthen lifelong learning and employability and follows its initiative on microcredentials with great interest. From Germany's point of view, however, a differentiated perspective on the issue is necessary' (BMBF discussion statement, 2021, p.1). From the point of view of all interviewees in the case study, Germany has a quite well-functioning system of vocational education and training and further education in which microcredentials hardly play a role. The holistic, regular dual training can be prepared and supplemented by microcredentials, but it cannot be replaced by them.

Modularisation is accepted. But the modules themselves have to be shaping- and work-oriented and the curriculum must combine it sensibly. It has to follow an action and competence-oriented VET approach. A VET concept that is composed of different modules without an overarching occupation-related context offered by

(1) See: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12858-Microcredentials-Erweiterung-der-Lernmoglichkeiten-zur-Forderung-von-lebenslangem-Lernen-und-Beschaffungsfahigkeit/public-consultation_de. The document was submitted for public consultation. It was made available to a wide range of stakeholders. It is available by the author.

various sources contradicts the German VET approach. In the area of further education, microcredentials can play a more important role in Germany. The attempt at a cross European standardisation of microcredentials – with a view to Europe-wide vocational education and further education activities – raises many questions.

The Case study presents findings that were collected through desk research, survey data and interviews. While desk research provides a good context and preliminary information for the case study, interviews and – to a lower extent – survey data convey new primary data to extract judgments on the use of microcredentials.

Sources for desk research for case studies comprise national and regional documents; studies and monitoring reports and evaluations in the field of education and training; documents prepared by international and stakeholder organisations (e.g. BIBB, BMBF, DGB, BDA, Cedefop, European Commission); academic articles on microcredentials and labour market related education and training; online resources (e.g. websites of relevant national authorities, stakeholder organisations, employer organisation and employee organisations); consultancy positioning papers and guidance resources on microcredentials, VET sector and training provided by companies, sectoral and international organisations.

The survey has been designed and implemented by the core project team for research at PPMI. The survey delivers the data on the character, uptake and role of microcredential related to the labour market-related education, training and learning. PPMI includes four different types of stakeholders:

- (a) national authorities (answered by: 1 ministry, 1 research VET institution);
- (b) vocational education and training providers (answered by: 5 public VET provider, 1 private VET provider);
- (c) employer organisations (answered by: 1 employer associations, 1 employer confederation);
- (d) employee organisations (answered by: 1 trade union, 1 trade union confederation).

The PPMI core team is responsible for the sampling, developing questionnaires, conducting surveys and treating the data. Very few people from the individual target groups (2 employee organisations, 2 employer organisations, 7 VET providers, 1 national authority, 1 research institution and no employer) took part in the survey. The largest group but only six individuals were VET provider. Accordingly, the answers from the survey can only be assigned a low weight. However, it can give suggestions as to which areas can be looked into in the future.

For a deeper understanding of the subject, the researcher has implemented 11 expert interviews. 8 interviews were conducted with VET experts and 3 interviews with employers. The latter should provide specific information on the

role of microcredentials in the education, ICT and manufacturing sector. The interviews are an important source of primary data for the case study report. The interviewees are respondents of the following stakeholder groups:

- (a) representatives of national authorities that are responsible for the governance of qualifications system and organisation and development of the vocational education and training (BMBF);
- (b) vocational education and training providers that are accredited or recognised to provide programmes leading to nationally recognised qualifications (state Vocational College 'Anton Zeuner' Dresden, private Vocational Academy 'Wirtschaftsakademie Nord' and Further Education Center – Schweriner Aus- und Weiterbildungszentrum);
- (c) organisations representing employees and employers (DIHK);
- (d) employee confederation; (DGB);
- (e) employer organisation; (Unternehmerverband Schwerin – MV)
- (f) research institutions, (TU Dresden, Duale Hochschule Baden Württemberg)
- (g) employees, who offer VET (Dresdner Verkehrsbetriebe AG, Juni Media GmbH, Dr. Diestel GmbH – Heating and Cooling Technology).

For conducting the interviews, the researcher uses a questionnaire with key questions that follows the general PPMI interview questionnaire. The author customises the questionnaire for each interviewee to address their specific issues. The interviews took place online (Zoom) as group and individual interviews. The author alone conducted, transcribed and analysed the interviews. To analyse the interview data, the author used the method for evaluating qualitative interviews (according to Bohnsack 2010, Mayring 2008, Strauss 1998) from qualitative social research. A summary can be provided for each interview.

The findings can be read below. Empirical evidence has been triangulated by integrating the information obtained from the desk research as well as data from the surveys and the interviews.

After the introduction in chapter 1, chapter 2 discusses the take-ups, characteristics and functions of microcredentials. This is followed by a discussion about the role of microcredentials in the German qualifications system in chapter 3. the report finishes with questions about the benefits of microcredentials for end-users in chapter 4.

The structure of the case study report and the list of questions closely follows topics requested in the Tender Specifications. The most important issues are analysed under each specific question (headline).

CHAPTER 2. Analysis of the take up, characteristics and functions of microcredentials

Microcredentials hardly play a role compared to vocational education qualifications in the regular VET system (dual system) in Germany. This is because the latter causes a real upgrade in the qualification level and microcredentials are recognized as a vocational education and training supplement. The recognition as a vocational education supplement is the responsibility of the companies and/or other regular issuers of VET certifications. The Vocational Training Act (BBiG) (BIBB ⁽²⁾ § 69 and the Vocational Training Preparation Certification Ordinance, BAVBVO ⁽³⁾ rule how certified short courses can be used to prepare for vocational education and training.

Due to low-level awareness, the term ‘microcredential’ is scarcely known nor discussed within the VET field in Germany. Certified short courses are considered useful for complementing regular vocational education. More than 10 000 national and even more international providers of further education training are active in Germany. They provide certified and uncertified short courses as additional training and, if they work internationally, as microcredentials.

Currently, certified short courses in VET are most frequented by qualified workers who need additional training or further education. A certified short course is deemed as being trustworthy by an appropriate time dimension; quality standards; trustworthy references; an examination that is accompanied by professional as well as voluntary examiners from practice; a developed, well-founded and tried-and-tested examination procedure.

In terms of discussions, the BMBF is currently working on a position paper concerning microcredentials in VET in Germany. The interviewees (from employee and employer associations, providers of VET and TVET, research institutions, national and regional authorities) anticipate a stance against a cross-European and a cross-educational introduction of microcredentials and microcredential standards.

⁽²⁾ See: <https://www.bibb.de/de/11087.php> : Paragraph 69 besagt: Die Vermittlung von Grundlagen für den Erwerb beruflicher Handlungsfähigkeit (§ 1 Abs. 2) kann insbesondere durch inhaltlich und zeitlich abgegrenzte Lerneinheiten erfolgen, die aus den Inhalten anerkannter Ausbildungsberufe entwickelt werden (Qualifizierungsbausteine).

⁽³⁾ See: <https://www.gesetze-im-internet.de/bavbvo/BJNR147200003.html> Das konkrete Vorgehen bei der Bestätigung und Anwendung eines Qualifizierungsbausteins regelt die Berufsausbildungsvorbereitungs-Bescheinigungsverordnung (BAVBVO).

Regardless of the debate on microcredentials there is a discussion on modularisation (training modules – Qualifizierungsbausteine) and certified training supplements in VET in Germany. Training modules (Qualifizierungsbausteine) are learning units with delimited content and time that are used as part of measures to prepare for vocational education and training. Their use is regulated by law in § 69 BBiG. They describe competencies that someone has when they have completed the module.

The BIBB was commissioned by the BMBF to provide technical and administrative support for research and development studies and projects with regard to this. Many projects developed and implemented digital learning platforms with digital learning modules. The BIBB developed training modules for more than 30 professions in cooperation with social partners, IHKs, training providers and VET researchers. Their efforts were additionally reinforced by digitalisation and the impacts of the corona pandemic.

Interviewees from German research institutions pointed out the discussion about alternative credentials in the higher education sector. It is about questions of how microcredentials can validate experiences and knowledge. An in-depth discussion is recommended whether a holistic training approach in VET should involve microcredentials and how this can be achieved (MC8).

2.1. How familiar are the stakeholders with the term of microcredential?

The term microcredential is known to all VET experts (MC1, 2, 3, 5, 6, 7, 8, 10, 12, 13 and survey) but not to all employers (MC9, 11, 14). It is not in use by the interviewed experts. The Employees organisation that took part in the survey asks for a definition.

Experts from the field of VET have hardly any points of contact with microcredentials in their daily work. They know it from international discussions at European level. In the BMBF position paper is written: 'In 2020, the European Commission included the development of a European approach to microcredentials across all education sectors in its twelve actions of the European Skills Agenda and specified this in its Communication on the European Education Area and the Digital Education Action Plan. The Commission aims to work together with the EU Member States to develop European standards with regard to minimum requirements for the quality, transparency and use of microcredentials. The possibility of integrating microcredentials into the qualifications frameworks is to be examined and their documentation and management is to be facilitated within Europass. A consultation group set up by the European Commission presented a

comprehensive report in December 2020 containing a proposal for a common definition of microcredentials as well as recommendations for specific actions. However, the work of the expert group focused mainly on the applicability of microcredentials in higher education' (BMBF 2021).

MC5 says, 'microcredentials are marginal on the job market compared to advanced vocational education and training (VET) qualifications that bring a real upgrade in the qualification level. The smaller the certified courses the more irrelevant they are.'

According to an expert from the German trade union federation, appeared the term in various current discussions. They perceive it as vaguely defined. Another representative MC6 comment on the proposed definition: 'The proposed definition was provisional and should be discussed again. We are currently working on this. We cannot comment on this here because the discussion does not even officially exist.'

The term is slightly better known in higher education in Germany. However, all the interviewees know courses to which the term microcredentials could apply, but which do not run under this term. They would describe it as supplemental vocational training or partial vocational qualifications in the unregulated (not recognised) VET sector. Expert MC4 says, 'that is a supplement for regular vocational education or to complete vocational education. It does not lead to a nationally recognised qualification or degree for a profession as a first step. The recognition as a VET supplement is the responsibility of the companies (and/or other regular issuers of VET certifications).'

Regarding additional training, the Bundesinstitut für Berufsbildung (BIBB) introduced training modules (Qualifizierungsbausteine) for people who are preparing for vocational education and training (and have not found an apprenticeship position, for example). They state that training modules are learning units that are firmly delineated in terms of content and time and used within the scope of vocational training preparation measures. Their deployment is statutorily regulated in § 69 of the Vocational Training Act (BBiG) (BIBB) and in the Vocational Training Preparation Certification Ordinance, BAVBVO (siehe Seite 9).

2.2. How are microcredentials defined by different stakeholders?

All interviewees describe microcredentials as very short learning units and supplemental training that leads to a certificate in the unregulated (private) VET sector. It was said by experts, that microcredentials certify learning outcomes. 'Microcredentials makes the level of the learners' education transparent and show

the quality of their learning outcomes' (MC8). MC7 describes microcredentials in addition as 'digital short courses with a confirmation of participation.' He noted on, the idea behind the microcredentials is '...introducing standards for the non-formal education in vocational training. Because the microcredentials have to be comparable for the users and the quality has to be verifiable.'

Expert MC5 notes, '...as long as it is a matter of upgrading initial VET with microcredentials, it is undisputedly correct and in demand. But we would see it very critically if the European commission would try to recommend a changing of the national standards of VET (in Germany, the author) to give the microcredentials a more prominent role.'

The interviewee MC4 sees similarities between microcredentials and certified short courses for additional training or partial vocational qualifications in the regulated sector. These courses are embedded in the national VET system and lead to nationally recognised qualifications for a profession (see the characteristics below, Chapter 2.7).

MC5 comments that the proposed definition is extremely critical. Es ist in den Augen von MC2 und MC5 auch fragwürdig, für die unterschiedlichen Bildungsebenen (HE und VET) eine einheitliche Definition zu schaffen. Sie fragen: Ist es sinnvoll für alle Bereiche gleich Ansätze zu verfolgen? MC2 adds, 'according to this definition, microcredentials cannot be included in regular initial VET. Because microcredentials do not link to the concept of action-oriented learning for professional competence (berufliche Handlungsfähigkeit) that we follow in Germany.' The action and competence-oriented VET approach is anchored in the Guidelines for Vocational Education and Training of the Standing Conference of the Ministers of Education and Cultural Affairs (KMK) in Germany. According to the experts MC3 and MC5, the introduced concept of microcredentials can run as a sideline but not as a basic concept for VET. MC5 adds, 'this is agreed by all stakeholders in Germany.'

No one interviewed in the survey can define microcredentials and know what national terms also fit within the preliminary European Commission's definition of microcredentials. However, VET provider in the survey name some credentials, that they would name microcredentials as well: Digital Promise (3), academic certificates (3), vendor-specific certificates (e.g. Cisco) (2), professional certificates (e.g. CertiProf), digital credentials (e.g. City & Guilds), digital badges, vendor-neutral certificates (e.g. CompTIA).

The German BMBF stated: 'We welcome that there is now an initial working definition. To agree on a final definition, however, it should be determined whether this definition should apply to all educational sectors' (2021).

‘Germany still has several questions with regard to the use of the proposed working definition’ (BMBF, 2021). These can be questions that are also of interest in other EU countries (BMBF, 2021):

- (a) what benefit could microcredentials offer to users beyond their integration into the qualification frameworks;
- (b) how can the development of microcredentials be reconciled with the well-established involvement of the social partners that applies in Germany;
- (c) how can funding be ensured given the high level of effort involved;
- (d) what exactly is meant by the standardisation of microcredentials;
- (e) who will be accredited by whom to verify that VET providers comply with the standards and how will this verification be performed;
- (f) what can be done to ensure that the individual characteristics of HE and VET in terms of content and organisation will be respected and considered during the design of the strategies.

2.3. **Are microcredentials or similar credentials referred to in policy discussions and strategic documents? What are the main activities related to microcredentials that are taking place in different contexts? What are the recent developments related to microcredentials?**

A discussion statement of the BMBF (2021) deals with the question of strategic importance and activity with regard to the introduction of microcredential. In view of the system changing potential of microcredentials and the limited competences of the European Union in the field of education, Germany considers it necessary to discuss and clarify the following issues:

- (a) what is the demand of the Member States for EU-wide quality assurance standards for microcredentials and what is their European added value;
- (b) how can the principle of voluntary application of European quality standards be guaranteed;
- (c) what is the demand of the Member States for EU-wide accreditation standards for microcredentials and what is their European added value;
- (d) what is the demand of the Member States for certification standards for microcredentials and what is their European added value;
- (e) what is the cost benefit ratio and to what extent could standardised requirements hinder the flexible design and rapid use of microcredential;

- (f) what is the demand of the Member States for EU-wide recognition standards for microcredentials and what is their European added value;
- (g) how can a potential digital proof of learning outcomes be used by learners across Europe in a self-determined way and with legal certainty;
- (h) what should be the relationship in future of microcredentials to undergraduate and postgraduate study courses and training pathways.

These questions are still at the stage of discussion and have not yet been included in papers (BMBF 2021, p.1).

The survey gave some indications of barriers that prevent the spread of microcredentials in Germany. As main barriers that hinder the uptake of microcredentials are mentioned by the survey participants that the recognition of microcredentials is not standardised (1), that microcredentials are not on the national / regional policy agenda (1) and that microcredentials are not compatible with the national qualifications system / framework / catalogue (1).

According to the survey, VET providers offer microcredentials mainly on their own (3) but as well as in partnership with formally recognised education and training providers (2), in partnership with private accredited providers (2) and in partnership with employers' organisations (2).

It was said before, due to low level awareness, the term 'microcredential' is scarcely known nor discussed within the VET field in Germany. Only a few publications from the higher education sector address this topic, such as the Recommendation of the 29th General Meeting of the HRK, November 24, 2020: Micro-degrees and badges as formats of supplementary digital credentials (HRK, 2020). This article recommends that universities should be proactive in addressing the development of micro degrees (and badges). Because '...they both (micro degrees and badges, the author) offer a great deal of potential with regard to the paradigms of individualisation, modularisation and accessibility,' (HRK, 2020). But the paper also stated '... (higher) education can only be broken down into micro-components to a limited extent as the overall qualification is more than just the sum of individual verifications. Micro degrees (...) can only be a useful complement to other curricular programmes' (ibid.).

In the VET sector, there are studies on the introduction and crediting of individual training modules/learning units. In particular, the article 'Flexible training paths in vocational training' (2006) by Severing and Euler, published with the support of the German ministry of research and education (BMBF), should be mentioned here. The authors ask whether: '... improved horizontal and vertical integration of training with upstream and downstream as well as parallel full-time school education offers can be achieved and whether more flexible training opportunities can be realized for companies' (p. 11). Their work propagates a more

modularized VET. It is driven by the concern to make vocational education and training paths more open, to provide less qualified people with access to regular VET and thus to counteract the shortage of skilled workers in some professions. The interviewees from VET providers (MC2) said, 'Modularisation in itself is not a problem. But the curriculum must combine the modules sensibly. It has to be occupation-related and must follow an action and competence-oriented VET approach. A VET concept that is composed of different modules without an overarching occupation-related context – offered by various sources – contradicts the German VET approach.'

The interviewees MC5 and MC6 know processes and discussions on the development mentioned above. MC5 introduces the National Further Education Strategy with a strong note on informal education pathways, as a result of a round table discussion. But microcredentials as an independent topic are just emerging.

Euler & Severin aim in their study at '... a higher compatibility with European educational standards' (2006, p.11). Efforts are being made to address this, also taking into account national regulatory issues. The BMBF funded pilot project European Credit System for Vocational Education and Training (ECVET) ⁽⁴⁾ should be mentioned in this context. ECVET should open up the possibility of cross-European comparability of VET by focusing on learning outcomes. Researchers tried to validate the competences acquired in the ECVET modules (ValiKom) and this resulted in the efforts in the ECVET project as having failed, due to the representatives of national authorities.

But efforts and discussions for a cross-Europe cooperation in the area of VET are continuing. The EU Commission is planning to present a recommendation on microcredentials in the 4th quarter of 2021. This should contain a European approach and a European definition, which is cross-educational. Experts MC3 and MC5 argue that a cross-European and a cross-educational approach would, nevertheless, be questionable. And it is seen very critically when the EU intervenes in the field of education. Interviewee MC6 added that education is a national state matter, even if European interests should be considered ⁽⁵⁾.

The EU recommendation has to be discussed nationally in the first half of 2022. It can be assumed that France (EU Presidency) and other EU countries have a different understanding of the role that microcredentials should play in vocational training.

⁽⁴⁾ See: <https://www.na-bibb.de/erasmus-berufsbildung/mobilitaet/ecvet-und-qualitaet>.

⁽⁵⁾ See: <https://www.dqr.de/>.

The social partners (trade unions and employer organisations) of VET in Germany asked the national authorities to take a position and to ensure the continuing maintenance of the dual system.

The BMBF has published a position paper (BMBF, 2021) concerning microcredentials in VET in Germany. This document should give guidance in dealing with microcredentials in Germany. It will be presented to the Standing Conference of the Ministers of Education and Cultural Affairs (KMK) and the Ministers of Education in the federal states in Germany and discussed at federal state level. The German Higher Education Rectors' Conference (HRK) has already published a basic position paper (HRK, 2020) for discussion on the introduction of microcredentials in higher education (this also applies to teacher education for VET).

The interviewees, experts MC3, MC4, MC5, stated that they can only imagine a 'soft' recommendation for microcredentials that can be followed voluntarily. How microcredentials could be embedded must be determined on the basis of pilot projects. 'This must not lead to a weakening of the dual vocational training system', MC5 stated.

Employers who participated in the survey argues in this way: 'common European standards must preserve this attractiveness and not limit it through over-regulation and formalization. Microcredentials are evidence of practical, flexible, on-demand, and short learning experiences. This is what makes them so attractive. It is thus central to find an appropriate balance between fostering trust and transparency as part of a common approach without compromising the flexibility of microcredentials.'

Expert MC8 is sure, '... there will be microcredentials according to regulated standards' (MC8). Because in the future is '...the currency that counts for getting a certain job no longer the professional qualification, but rather the experience' (MC8). This experience can be validated through microcredentials. But it has to be discussed how this can be embedded contextually in such a way that holistic education is retained and professional competence to act is promoted (MC8). In addition, the working conditions must be kept in mind (MC7). The certification must not lead to training with a narrow view only to certain skills and abilities (MC7).

Regardless of the EU debate the discussion about modularisation (training modules) and certified additional training or partial qualifications in VET continues. Jobstarter-Connect, (BMBF funding program, 2009) and Jobstarter ⁽⁶⁾ are nationwide initiatives in Germany. They attempt to open up new pathways in VET with training supplements (training modules, certified short courses). This offer is

⁽⁶⁾ See: <https://www.jobstarter.de/de/ausbildungsmanagement.html#section1927>.

embedded in the existing system of VET in Germany: ‘...if the additional training is successfully completed, it can be credited towards any subsequent qualifications, for example for courses of study, through the recognition of credit points’ (MC2).

Current efforts are primarily driven by the increasing digitalisation of the world of work, additionally reinforced by the coronavirus pandemic. Interviewee MC5 commented that ‘This is a development that we see and face. It leads to questions about digital platforms, which is a significantly sized topic in Germany at all levels of education. How can we merge over 200 platforms in such a way that users can assess which of them is suitable for them? For this we need to develop standards.’ German research projects address the topic of cross-European offerings for vocational e-learning courses (Units for Learning, Modules) for VET schools (EDU-VET, 2021) ⁽⁷⁾ and digital learning platforms. In EDU-VET, the learners at vocational schools in the regular system of German dual education should be able to access the learning units via web-based learning platforms (ibid.). Other recognised digital learning platforms with digital learning modules comprise: HAND – with freely accessible online courses for the vocational education course plant mechanic ⁽⁸⁾, ELKOnet – a network of six competence centres for electrical engineering and information technology ⁽⁹⁾, ETAEMA 4.0 – modules for the apprenticeship as an electronics technician specialising in automation technology and an electronics technician for machines and drive technology, DentalDigital3 ⁽¹⁰⁾ – modules for the apprenticeship and KOMZET ⁽¹¹⁾, a digital platform with digital modules for office managers.

Since 2020, the BMBF has funded a further 15 projects in Germany in which the digitalisation of the training modules is promoted ⁽¹²⁾.

The vocational education and further education offered on the above-mentioned learning platforms and modules is recognised in accordance with the Vocational Training Act (§ 69 BBiG) and embedded in the regular vocational education.

Further activities are initiated by the Bund der deutschen Arbeitgeberverbände (BDA). The BDA works in the interests of employers and

⁽⁷⁾ See: <https://eduproject.eu/eduvet/>.

⁽⁸⁾ See: <https://www.btz-osnabrueck.de/projekte/hand>.

⁽⁹⁾ See: https://ueba.elkonet.de/static/ueba_start/index.html.

⁽¹⁰⁾ See: <https://elearning.hwk-freiburg.de/index.php>.

⁽¹¹⁾ See: <https://hwk-schulung.de/?AspxAutoDetectCookieSupport=1>.

⁽¹²⁾ See: <https://www.bibb.de/de/128348.php>.

welcomes a stronger breakdown of qualifications into modules and the independence of certificates in order to be as flexible as possible.

The trade unions are currently discussing whether additional criteria are required in Germany in order to allow and assess new offers in VET, such as microcredentials (AZAV, 2020). There are also discussions in the trade unions about how non-formal qualifications should be validated in the future. This is not just a question of inclusion in the DQR. It has to be discussed how the validation can take place: how can the quality of vocational education be assessed; how can providers of vocational education be evaluated and who carries out the assessments. Results are expected in autumn 2021.

2.4. What is the extent to which microcredentials are used in the labour market related education, training and learning?

Expert MC3 clarifies the overwhelming opinion of the experts, 'Microcredentials have no place in the initial VET or in the regulated further education in Germany. Credentials for short courses (not named as microcredentials) are useful for completing some additional qualification that are supplementary to the regular VET. They are demanded as additional training if the company has special requirements due to its work tasks.'

Additional training courses, such as those offered by the inter-company vocational training centres ⁽¹³⁾, complement the regular VET, is mentioned by expert MC3. The inter-company vocational training centres have emerged as the venue for providing complementary centralised vocational education and training (Article 5 Section 2 No. 6 BBiG – German Vocational Training Act). In fulfilment of this role, they are responsible for the centralised instruction of apprentices in the skilled trades, amongst other responsibilities. Comparable courses are also offered in other fields, for example, in industry and agriculture.

The increasing specialisation of small and medium-sized enterprises (SMEs) made it necessary to provide additional programmes at educational centres, which allow for the complete coverage of all elements of vocational education and training. This helps to ensure the ability of SMEs to provide vocational education and training and thereby makes an important contribution to safeguarding the skilled labour supply ⁽¹⁴⁾.

⁽¹³⁾ See: <https://www.bibb.de/en/741.php>

⁽¹⁴⁾ See: <https://www.bibb.de/en/12303.php>

Based on desk research and expert interviews, it is determined that microcredentials can play a role in vocational education and training as further training instruments. But it is clear: Microcredentials and other additional training courses cannot replace regular VET. 'The holistic approach, the interlocking of the various training components, cannot be achieved through different (supplemental) training courses alone', says expert MC4. This is agreed by all interviewees.

MC13 stated, 'certified short courses or alternative credentials in the manufacturing industry and service industry are particularly in demand where products, work and working conditions are subject to rapid change. There is a high degree of flexibility and a continuous development of knowledge and competencies required. This is being propelled by digitalization. So, manufacturing industry and service industry are presumably interested in the introduction of microcredentials as supplementary training, in particular, service professions in the field of metal and mechanical engineering as well as electrical engineering were mentioned in the interviews. In the commercial area (i.e. salespersons and office managers), too, the use of microcredentials is considered useful, but supplementary, training.'

The introduction of microcredentials as a further training instrument is also considered to be reasonable in those labour market areas 'which have decoupled from the previous system of education and training (MC8).' The previous certificates would no longer apply there, experience would in comparison be of higher importance. There, microcredentials can help to assess experience and competencies (MC8). These are professions in innovation-driven sectors such as Information Technology (IT), Communication/Media, Insurance, and Financial Technology (Fintech) (MC8).

2.5. Who are the main actors providing learning activities leading to microcredentials and issuing microcredentials?

More than 10 000 national and even more international providers of further training are active in Germany. They provide certified and uncertified short courses as additional training and microcredentials. These providers have a marketing interest in standardising microcredentials across the EU. According to expert MC5, this is a large commercial market, because a microcredential course is subject to a fee. Expert MC5 asks: 'Doesn't the state have to intervene to regulate this?'

Interviewee MC4 expresses that companies are providing learning activities as credentials for short courses or additional training courses themselves. 'They

use this approach if they want to introduce new products, machines etc.’ Two representatives of employers in the survey explained that they offer microcredentials on their own, from formally recognised education and training providers, from private accredited providers, in partnership with formally recognised education and training providers, in partnership with private accredited providers and in partnership with big tech companies (e.g. Google, Microsoft).

However, according to the German Vocational Training Act (BBiG), these microcredentials cannot lead to a regular VET degree. Exams leading to a VET degree (educational qualification) can only be taken by the Chambers of Commerce. However, it is possible to recognise specific certified courses as an equivalent for parts of the vocational education – not for exams. They are offered by private institutions that also certify their vocational training. But these run in parallel to the regulated dual system in Germany. ‘There is a lack of research about the question of how successful graduates of this type of training enter the job market’, says expert MC4.

The BIBB attempts to embed further certified education offers from various providers in the national further education strategy. It announced the innovation competition INVITE (digital platforms for professional training ⁽¹⁵⁾) for this purpose. The grant winner has to offer digital training modules for further education on an internet platform. The BIBB was commissioned by the BMBF to provide technical and administrative support for the project. Implementation started in March 2021.

2.6. Who are the main users of microcredentials?

Currently certified short courses in VET are mostly used by qualified workers who need additional training or further education. MC 7 adds: ‘...mainly academically educated people who need up-to-date input.’ MC7 identifies microcredentials ‘as supplemental education courses for company based vocational education of huge international companies.’ One employer (survey) said that the main recipient of microcredentials offered by their organisation is their employees. Their employees use microcredentials to attain promotion within the workplace, to comply with the industry standards (e.g. to make use of specific machinery) and to comply with health and safety standards.

The organisation of employers and employees introduce partial certified vocational qualifications that are acquired with smaller learning units (together with social partners) and in this regard the project ValiKom (11/2015 - 10/2018) and

⁽¹⁵⁾ See: <https://www.bibb.de/de/120851.php>.

ValiKom transfer ((11/2018 - 10/2021) (¹⁶). The Valikom team has developed and trialled a standardised procedure with which vocational skills and competencies can be identified, assessed and certified. In addition to chambers of skilled trades and chambers of industry and commerce, chambers of agriculture are also involved in the ValiKom projects. The ValiKom validation procedure supports people without formal VET degrees to make their competencies visible. This could be a way to recognise existing professional experience and competence up to a partial or full certificate of equivalence for a VET degree. Therefore, standards should be developed.

Interviewee MC5 states, that German institutions have to continue to develop in this way, because there are over 2 million unqualified people in Germany. 'These people have dropped out of the VET system, but they still have more or less work experience. Offering microcredentials to such people would mean a downsizing to them. That is because the microcredential certificates lack a larger context that could otherwise lead to a higher level in terms of qualification.'

Alternative credentials increase importance where the conventional VET concepts no longer work, in the very innovation-driven sectors. 'Microcredentials can validate competencies in the new economy where regular professional qualifications are less important' (MC8).

2.7. What are the main and most important characteristics of microcredentials?

The BIBB maintains a catalogue (¹⁷) that names training modules according to the Vocational Training Act § 69 BBiG. The BBiB writes: 'Training modules are learning units that are firmly delineated in terms of content and time and used within the scope of vocational training preparation measures. Their deployment is statutorily regulated in § 69 of the Vocational Training Act (BBiG).'

The BIBB provides the following information: § 69 BBiG states that a training module must contain specific learning content from a recognised training occupation because the goal of vocational training preparation is to help young people who have learning difficulties or who are socially disadvantaged to acquire employability skills. For this reason, the basis for the content structuring of a training module must always be the latest training regulation of a recognised training occupation. If training regulations are revised, the training module also

(¹⁶) See: <https://www.validierungsverfahren.de/en/home>.

(¹⁷) See: <https://www.ueberaus.de/wws/9.php#/wws/suche-baustein.php?sid=44552757800094053062211441144670>.

loses its validity and may need to be adapted for further use. Reconfirmation is required in every case.

To ensure proximity to a recognised training occupation, providers of vocational training preparation schemes must obtain confirmation for every specific training module from the relevant competent body (usually the Chamber of Industry and Commerce or the Chamber of Crafts and Trades) prior to its use. The specific approach to be adopted for the confirmation and use of a training module is regulated by the Vocational Training Preparation Certification Ordinance (BAVBVO ⁽¹⁸⁾).

Expert MC1 explained that certified short courses (microcredentials) are characterised by a certificate, a limited period of time, a learning concept/curriculum and trustworthy references.

Expert MC7 added: '...the mostly digital microcredentials are fee required and for the purpose of fast, flexible training, the microcredentials themselves must be flexible and adapt to the given structures.'

Expert MC4 quite similarly argues: 'The VET quality framework applies to the certification of further education (additional training, certified short courses), which contains: a time dimension; quality standards; an examination that is accompanied by professional as well as voluntary examiners from practice; a developed, well-founded and tried-and-tested examination procedure. A possible modularisation must be coordinated for regular recognition, together with representatives of the social partners, the KMK and experts from companies in the respective industry.'

Companies can themselves recognise certain external modules or certified courses (18 months) as regular vocational education courses. But these cannot replace the exams that lead to a VET degree.

Expert MC5 mentions the breadth and the quality of the content in certified short courses as being crucial, and the professional competence to act. Microcredentials are often so specific and unclear that they do not even have the critical size to receive recognition in the regulated VET system. The question for them then arises – to what purpose are they necessary?

VET providers mention in the survey the following information elements of microcredentials as important:

- (a) title of a microcredential is specified (5);
- (b) the holder is identified (5);
- (c) awarding body is specified (5);
- (d) date of issuing is specified (5);
- (e) purpose and scope of learning activities are indicated (5);

⁽¹⁸⁾ See: <https://www.gesetze-im-internet.de/bavbvo/BJNR147200003.html>.

- (f) learning outcomes are specified (5);
- (g) results of assessment of the individual's knowledge, skills, competences are specified (5);
- (h) workload is expressed in credits and/or duration (3);
- (i) linked to standards (3);
- (j) relationship to existing qualifications is specified (3);
- (k) prerequisites for participation in learning activity are described (e.g. working experience, skills and/or qualifications required) (2);
- (l) duration of validity is specified (2).

The BMBF discussion paper pointed out: 'The attractiveness of microcredentials is due to their market-driven ability to rapidly respond to technological changes in continuing vocational training that goes beyond completed vocational training or regulated upskilling. In contrast to in-company continuing vocational training, continuing training provided as a component of labour market policy focuses on continuing training programmes which involve longer participation of learners and are aimed at the acquisition of skills that can be utilized more broadly on the labour market. Very short modules should therefore be avoided in the interest of promoting employment' (BMBF 2021, p. 3).

2.8. **Are there any sectors / occupations where microcredentials are prevalent, relevant and important? Please provide a detailed overview of the use of microcredentials in the sector/occupation.**

It can be stated that certified short courses or alternative credentials in the manufacturing industry and service industry are particularly in demand where products, work and working conditions are subject to rapid change. There is a high degree of flexibility and a continuous development of knowledge and competencies required. This is being propelled by digitalisation. So, manufacturing industry and service industry are presumably interested in the introduction of microcredentials as supplementary training, in particular, service professions in the field of metal and mechanical engineering as well as electrical engineering were mentioned in the interviews. In the commercial area (i.e. salespersons and office managers), too, the use of microcredentials is considered useful, but supplementary, training.

The introduction of microcredentials as a further training instrument is also considered to be reasonable in those labour market areas 'which have decoupled

from the previous system of education and training' (Interviewee MC8). The previous certificates would no longer apply there, experience would in comparison be of higher importance. There, microcredentials can help to make experience and competencies visible and assessable. These are professions in innovation-driven sectors such as Information Technology (IT), Communication/Media, Insurance, and Financial Technology (Fintech).

It was not possible to find some more detailed information on microcredentials in de Sectors ICT, manufacturing and education. The use of microcredentials is too new and unusual in these areas for that. However, further research can and should be carried out to monitor developments specifically in these areas.

The interviewee and expert MC3 explains, 'At the moment, additional training in certified short courses is being offered, especially in service-oriented professions. Those who work in these professions have to adapt quickly and often to new products etc. Short courses could thus be helpful for them. Migrants, refugees or job returners, could be provided with short courses as additional training and motivation e.g. on language acquisition but also to acquire current professional competencies.'

According to the interviewee MC3 there are already examples of this such as when Management Assistants can become European Management Assistants after completing their additional training as a supplement to initial vocational education ⁽¹⁹⁾.

'Four or five partial qualifications can be credited towards achieving a new level. However, no entire apprenticeship can be pieced together' (MC4). Possible areas for additional training are also electrical engineering/digitalisation, the environment and sustainability, energy management.

Expert MC5 believes that, rather large and less complex professions, which are in high demand, have an interest in microcredentials. It is a labour market and employer-driven selection, which reacts to the shortage of qualified workers. In contrast, MC7 sees users more in the academic sector: '...they need new input for their professional skills.'

In cooperation with social partners, IHKs, training providers, researchers and the BIBB developed training modules for more than 30 professions. These training modules prepare for an apprenticeship, i.e. they relate to the training framework

⁽¹⁹⁾ See:
<https://www.aachen.ihk.de/bildung/pruefungen/fortbildungspruefungen/zusatzquali-europakaufmann-4140192>

plan for a regular VET. Over 557 BIBB-training modules are listed in the BIBB database ⁽²⁰⁾.

Table 1. Modularised curricula for VET professions

Branch	Choose this term to find the special vocations in ⁽²¹⁾
Construction industry	Bauwirtschaft
Chemical industry	Chemieberufe
Electronics / IT	Elektronik / IT
Colour design / interior design	Farbgestaltung / Raumgestaltung
Health care / Social affairs	Gesundheit / Soziales
Agriculture / Greening TVET	Grüne Berufe
Housekeeping / Cleaning Service	Hauswirtschaft / Reinigung
Wood technology	Holztechnik
Hotel and hospitality / Nutrition	Hotel-und Gastgewerbe / Ernährung
Cosmetics	Kosmetik / Körperpflege
Ware housing / trade	Lager / Handel
Media / printing technology	Medien / Druck
Metal and Machine technology	Metalltechnik
Economy and administration	Wirtschaft und Verwaltung.

Source: überaus, 2021.

This database contains training modules that are connected with the regular VET system. The BIBB training module system can be a model for more modularised training. It should be noted that the modules are more comprehensive than microcredentials. They are not very short units like microcredentials.

The professions below are in great demand. They all contain training modules for the acquisition of basic vocational skills that prepare for entry into regular

⁽²⁰⁾See: <https://www.ueberaus.de/wws/9.php#/wws/suchebaustein.php?sid=44552757800094053062211441144670>

⁽²¹⁾See: <https://www.ueberaus.de/wws/9.php#/wws/suche-baustein.php?sid=44552757800094053062211441144670>

vocational education and training. The modules are available digitally via online platforms ⁽²²⁾:

Table 2. Industry and Commerce

English	German
Salesperson	Kaufleute im Einzelhandel (Verkäuferin)
Office Manager	Bürokaufmann/-kauffrau
Warehouse Logistics Expert	Fachkraft für Lagerlogistik
Industrial Mechanic	Fachkraft für Metalltechnik
Chemical Production Technician	Chemikant
Electronics Technician for Equipment and systems	Elektroniker für Geräte und Systeme
Electronics Technician for Automation Technology	Elektroniker für Automatisierungstechnik
Skilled Warehouse Operator	Fachlagerist

Source: überaus, 2021.

Table 3. Hospitality

English	German
Cook	Koch/Köchin
Hotel and Catering Industry Expert	Fachkraft im Gastgewerbe
Catering Expert	Fachkraft für Systemgastronomie
Restaurant Expert	Restaurantfachkraft
Housekeeper	Hauswirtschafter / Hauswirtschafterin

Source: überaus, 2021.

Table 4. Handicrafts

English	German
Plant Mechanic for HVAC and Sanitary Engineering	Anlagenmechaniker/in SHK
Plant Mechanic for HVAC and Sanitary Engineering Focus: Environmental Engineering / Renewable Energies	Anlagenmechaniker/-in für Sanitär-, Heizungs- und Klimatechnik / SP: Umwelttechnik/Erneuerbare Energien
Electronics Technician for Building and Infrastructure. Systems	Elektroniker/-in für Gebäude- und Infrastruktursysteme

⁽²²⁾See: <https://www.ueberaus.de/wws/9.php#/wvs/qualifizierungsbausteine.php?sid=18671724851071827962237843784250>

Painter	Maler/in und Lackierer/in
Automotive Mechatronics Technician	KFZ Mechatroniker
Dental Technician	Zahntechniker

Source: überaus, 2021.

However, modularisation is not to be equated with microcredentials. Despite the modularisation, the professions mentioned remain as recognised vocational education professions, according to the German Vocational Training Act (§68–§70 BBiG ⁽²³⁾, Handwerksordnung (§42o–42qHwO ⁽²⁴⁾) and Vocational Training Preparation Certification Ordinance (BAVBVO ⁽²⁵⁾).

All interviewees from the VET sector stated that most German companies prefer fully qualified (VET qualified) employees. ‘This may change in some industries to a certain extent. That are sectors where experience counts a lot, for example in IT professions where digital skills are in great demand. But on the other hand: ‘microcredentials are not a topic in the new regulation of further education for IT professions’, says MC7. (The regulated further education requires an accreditation process in which trade unions, chambers, employers, national and regional authorities and academics are involved, the author).

This is followed by discussions from the Education, ICT, Metal and Machine Technology sectors on the role of microcredentials in vocational training. The statements are mainly based on interviews, as hardly any literature was available on the subject.

2.8.1. Sector Analysis: Example Education Sector

This section of the report draws on information derived from the desk analysis and two in-depth interviews. One interviewees is responsible for the management of a state vocational school centre that includes a vocational school, a technical secondary school and a special school to prepare for vocational education and training. (MC1). The second interviewee (MC12) is in charge of a private educational company with six types of vocational schools, including a dual university, a vocational school and a service company.

Both of the interviewees who provide vocational training in government and private sectors are not particularly familiar with the term microcredential.

However, they (MC1, 12) are familiar with certified short courses for teachers, which have also been used by their own staff for further training for some time. The

⁽²³⁾ See: http://www.gesetze-im-internet.de/bbig_2005/

⁽²⁴⁾ See: <https://www.gesetze-im-internet.de/hwo/>

⁽²⁵⁾ See: <http://www.gesetze-im-internet.de/bavbvo/>

state vocational schools are provided with a budget which they can use for the further training of their teachers.

In Germany, the providers of certified short courses for teachers integrated into the system of vocational education are the state institutes for school quality and further education, which secure what is known as the phase 3 of teacher training (after university studies and traineeship) with their further training courses (KMK, <https://www.kmk.org/service/servicebereich-schule/landesinstitute.html>). The state institutes offer in-service training content that is in demand, up-to-date and sustainable for school and classroom development (Pasternack et al, p. 237 - 238). The teaching in these in-service training courses is adapted to the qualification level and the experience of the teachers. It is undertaken by employed staff as well as external freelancers. The identification of new topics (e.g. e-teaching) and the conception of corresponding courses is carried out with the assistance of external experts and experienced further education teachers. In the process, suggestions from school practice are also taken up (Pasternack, p.254 ff). Other providers of certified short courses in teacher training include professional associations or churches, independent and private sponsors (for an overview see: Pasternack et al, p. 240).

There are numerous other qualification courses in the field of education that build on existing educational qualifications. These include courses that offer a vocational qualification as an adaptation or upgrading qualification, an example of which is the adaptation qualification as a social pedagogical specialist for the elementary level. For this, the following are expected as prerequisites: a university degree in a related discipline and more than six months of professional practice in the educational sector ⁽²⁶⁾. Participants in the programme acquire 300 hours of continuing education in social pedagogical and daycare centre-specific basic knowledge in eight focus areas. An educational institution, for example a day care centre, agrees with the trainee on an individual training plan according to his/her entry requirements. The qualification period is a maximum of four years of continuous employment. The employees must agree with the institution where the further training will take place and who will bear the costs. There are various public and private providers for this qualification. Once the training has been completed and the trainee has worked in the institution for four years, he/she is granted the status of a socio-educational specialist.

The interviewees from the education sector (MC 1, 2, 12) are convinced of a holistic and basic education as the best educational path. However, they also emphasise that there must be open educational pathways. Especially against the

⁽²⁶⁾ See: <https://www.erzieherin-ausbildung.de/content/anpassungsqualifizierung>

background of the shortage of teachers in the education sector. The interviewees therefore accept atypical education pathways for teachers (for example: engineers qualifies themselves to become vocational teachers). 'But anyone wishing to be hired as a teacher must have at least a university degree' (MC12). MC 1 adds 'No one can become a teacher with a combination of certified short courses. But they are useful for further education.' This means alternative (atypical) educational qualifications (study) are accepted for teacher qualification and microcredentials for teacher further education.

The interviewees (MC1, 12) can imagine that microcredentials for further training will find their way into the regular further training system for teachers. However, this is considered difficult especially if it is to be valid throughout Europe. In this case, the standards to be followed or who sets them must be negotiated (MC1). Interviewee MC1 sees 'huge cultural and educational historical differences as obstacles to standardisation'.

According to the interviewees (MC1, 12), a microcredential as an additional qualification in education should contain: Information on the provider, transparent information on content (curriculum), time required (for credit points, i.e. how much effort for one point) and information on examination procedures. 'If the qualified person would like to work on a German school, the examination has to follow the German qualification guidelines' (MC12).

In order to create a trustworthy basis for a European microcredential offer in further education, one of the interviewees (MC12) suggested a common database hosted by Cedefop. The international database should contain information on already evaluated VET providers in the field of microcredential and their offers.

The interviewee (MC12) added that he is very reluctant to employ unequally qualified people for the same work. This is because employees who are less qualified receive lower wages. This leads to dissatisfaction among the lower paid staff, because 'the lower qualified employees partly do the same as the higher qualified ones. This problem is an explosive one within the team' (MC12).

2.8.2. Sector Analysis: Example Metal and Machine Technology Sector

This part of the report includes information from the desk analysis and two interviews. The CEO of a refrigeration company and the training manager of a transport company were available for the interviews. Both companies train in the field of metal and electrical engineering and refrigeration and air conditioning respectively. They are directly affected by what is presently a very problematic shortage of skilled workers.

The interviewees from companies are not familiar with the term microcredential. But they have been working with certified short courses in the area of further education for a long time and know various providers in this area.

According to interviewee MC11, certified short courses are trustworthy if they are equivalent to the regular vocational education and training in terms of provider, timeframe and content (MC11). If they are to be used in her company, they have to follow German standards in vocational education and training.

MC11 thinks it makes sense for employees to take part in microcredentials with standards that are valid across Europe. In this case, however, the individual microcredentials would have to meet generally recognised minimum standards, which should also be defined Europe-wide for a European labour market (MC11). On the one hand, this is necessary, but should be done very thoughtful. Microcredentials must not be over-regulated, they must be geared to the reality in the region and 'requirements must not be imposed that are not even called upon in the companies' (MC11). This is confirmed by other interviewees (MC9,10,13) 'There are a lot of European certified short courses that do not properly apply to our conditions.' (MC14). On the other hand, current standards in the regular German vocational education and training must not be undermined, say both interviewees (MC11, MC14). In the (possibly Europe-wide) coordination of standards, care must be taken that we do not lower our expectations to a lowest common (European) denominator: 'Minimalism destroys the profession' (MC11). Interviewee (MC11) adds that a whole qualification is definitely worthy of recognition if, after the completion of various trustworthy modules (microcredentials), a measure is taken which combines the individual achievements in a meaningful way, for example an examination project of at least 60 units (MC11).

Interviewee (MC14) emphasises that he only has his employees trained for specific additional certificates, but does so on a continuous basis. According to MC14, specific certificates have to be acquired urgently: firstly, in order to be able to carry out certain assignments, and secondly, in order to be constantly up to date with certain special knowledge and skills. However, this has nothing to do with regular vocational training.

The interviewee (MC14) states that he only works with particularly trustworthy institutions (federal guild colleges) from his sector for these certificates. He knows these institutions personally and does not trust that other providers possess the same expertise.

The acquisition of a microcredential must be seen as a bonus by the end users. It must bring direct financial or career benefits, otherwise the incentive is too weak. For people who need an adaptation qualification (e.g. migrants) there are

already enough vocational qualification offers. For the company, a completed certificate is noticeable either as an improved professional competence of the end users or also in the ability to take on more and new responsibilities and tasks (MC11, MC14).

Interviewee (MC11) adds that in the case of applicants with unknown certificates, the current status of professional competence is checked with tests and trial work. If these assessments are not passed, no regular qualification can be recognised despite the certificate. The person can only be hired with a helper status. However, there are certain certificates for the interviewee (e.g. from the Chamber of Commerce or abroad from the AHK – German Chamber of Commerce abroad), which are wholly trusted. In this case, no assessment is necessary at the time of hiring. This is agreed by other interviewees (MC9, 10, 12, 13, 14).

Interviewee (MC14) stated that he did not use assessments for unknown certificates but used the six-month probationary period after recruitment to assess the employee's work performance in significant detail.

The interviewees are familiar with trustworthy upgrading qualifications (not microcredentials) from universities and technical colleges. For example, the Düsseldorf University of Applied Sciences offers the degree course 'Building, Energy and Systems Technology – HEAT' for skilled tradesmen from the sanitary, heating and air conditioning sectors. This course of studies enables the participants to complete the bachelor's degree and the master's degree at the same time. As a part-time bachelor's degree programme, it offers working professionals the opportunity to continue their academic education without losing touch with their professional practice. (Hesselbach, 2017).

2.8.3. Sector Analysis: Example Information and Computer Technology Sector

This part of the report is based on information from the desk analysis and an in-depth interview. The interviewee and his company offer commissioned communication and technical communication solutions for the Internet, TV and events.

Again, the interviewee was not very familiar with the term microcredential. For him the term microcredential means short courses on specialist topics that lead to a certificate. It don't have to end with an examination.

Certified short courses are usually taken for lifelong learning and not for initial training (Ilg, 2021). 'For this, the courses must be clearly focused thematically and show the scope in terms of time and content. They must be very clearly aimed at processes in practice because purely theoretical reflection is not desirable' (MC9).

With the certificates, their holders demonstrate professional skills. 'This makes them valuable for the company but also for the whole labour market which is short of skilled workers' (MC9). The literature also associates a clear competitive advantage with certificates in ICT (Ilg, 2021). The employer can get work orders through the certificates of his employees (MC9). Because these are often linked to certificates.

The interviewee from the ICT sector (MC9) has no problems recognising vocational training that was composed of various trustworthy (in terms of issuer, content and scope) microcredentials. These can also have been acquired in different regions. 'The requirements for practicing a profession in our field are internationally approximately the same, thus, it is irrelevant where they were acquired' (MC9).

The interviewee would also have no problems recognising exams for technical skills. 'The technical tools for work are also the same internationally in our field - I can also rely on foreign certificates' (MC9).

Social competences cannot be demonstrated by certified short courses in MC9's opinion. In their opinion, a regular education is more advantageous for this. In MC9's opinion, regular training and certificate courses can run in parallel or be integrated into the training as a kind of elective compulsory area.

The interviewee MC9 would, however, carry out a formative assessment of other professional competences (customer relationship, interview techniques etc.) with each new recruit and only then would hire on a permanent basis.

For other employers, an exam at the end of the certificate course is sometimes undesirable (and not necessary for employers) because it visibly upgrades employees for the labour market and may entice them away (Ilg, 2021).

Interviewee MC9 is very interested in the further training of his employees. He offers monetary bonuses and further opportunities for advancement within the company to those workers who acquire additional skills through certified short courses. From his perspective, barriers to taking certified short courses are financial, but above all it is also the time constraints of employees.

For software development, international boards such as the International Software Testing Qualifications Board (ISTQB) define curricula for certified short courses and content for exams. According to their information, the most important certifications on the market have been the same for years: For vendors, these include Microsoft and Citrix; for processes, ISTQB and ITIL. IT certifications are like a self-runner in further training, because whenever there are new versions of hardware, software and standardised processes, there is also an update in certification (Ilg, 2021).

CHAPTER 3. Analysis of microcredentials and evolving qualifications systems

Certified short courses (microcredentials) can be recognised as additional training or a training supplement for apprentices. They can be credited to certain education achievements. The legal basis for this is § 69 of the Vocational Training Act (BBiG) (BIBB ⁽²⁷⁾) and the Vocational Training Preparation Certification Ordinance, BAVBVO ⁽²⁸⁾.

Credit points (CPs) are not usually used at the vocational colleges in the German dual system. But some vocational academies award a 'diploma supplement,' in which credit points are shown according to the European Credit Transfer System (ECTS; see below). If the apprentices have passed the (recognised) certificates for short courses (microcredentials), they can combine several certified courses. But a whole apprenticeship as such cannot be pieced together.

The BMBF stated: 'Germany emphasises that attention must be paid in further consideration of modularisation of learning programmes and microcredentials to ensure that such learning experiences will not conflict with the acquisition of academic or vocational qualifications as regulated by the Member states and that they cannot replace these. Thus, further options are provided in Germany under its VET Act to acquire a vocational qualification through upskilling. For example, learners can participate in upskilling or reskilling course to acquire a full vocational qualification through the acquisition of partial qualifications which build on existing skills and the successful completion of the final examination' (BMBF 2021, p. 3). The interviewees from the education sector (MC 1, 2, 12) are convinced of the regular education as the best educational pathway for teachers. However, they also emphasise that there is a need to recognize alternative (atypical) education and further qualification because there is a worrying shortage of teachers. The TU Dresden, for example, is running a pilot project on this subject with its dual study concept for atypical target groups in teacher training ⁽²⁹⁾. At the moment, this requires elaborate procedures for the recognition of previous study achievements and degrees. Further standardisation of the recognition of criteria for additional or

⁽²⁷⁾ See: <https://www.bibb.de/de/11087.php>

⁽²⁸⁾ See: <https://www.gesetze-im-internet.de/bavbvo/BJNR147200003.html>

⁽²⁹⁾ See: <https://wiki.tum.de/display/tds/Begleitung+beruflich+Qualifizierter+im+Studium%3A+Perspektive+berufliches+Lehramt>

equivalent educational qualifications would be desirable ⁽³⁰⁾. It has to be added that this approach is not about short courses or microcredentials, but rather a study course.

3.1. How are microcredentials linked to and/or integrated into qualifications systems? How do they operate outside a national qualifications system?

Certified short courses (microcredentials) can be recognised by companies as additional training for the apprentices and can be credited to certain education achievements of up to 18 months. VET providers agree in the survey that microcredentials offered by their organisation are linked to a credit system with certain extent. But a whole training course cannot be pieced together. Microcredentials cannot replace an examination in initial VET or regulated vocational further education. The German Vocational Training Act, BBiG, speaks against this ⁽³¹⁾.

The interviews showed that employers in Germany prefer employees who have completed full vocational education and training in the regular system. Additionally acquired certificates are very welcome, as they are required for certain tasks / assignments (MC9, 14).

Here, the renowned providers are used, who are often the only ones who have this specialist knowledge (MC8,14) (Ilg, 2021). 'Suppliers of special technology often have a certain position of power and can always create new certificates. It is important that companies are not driven further and further into this spiral by regulation (MC14).

It would not be a problem for other interviewees from companies (MC11, 9) if certain training units were acquired from providers outside the regular VET system. 'At the end of the vocational education and training, however, the trainees should have to prove their competence with an examination in the regular system' (MC11). In the education sector there are mainly providers from state institutes for school quality and further education, but some providers of certificate courses in teacher

⁽³⁰⁾ For example, TU Dresden is running a pilot project based on dual study concept for atypical target groups in teacher training. See: <https://wiki.tum.de/display/tds/Begleitung+beruflich+Qualifizierter+im+Studium%3A+Perspektive+berufliches+Lehramt>

⁽³¹⁾ See: http://www.gesetze-im-internet.de/bbig_2005/

training include professional associations or churches, independent and private sponsors (for an overview see: Pasternack et al, p. 240).

MC7 adds 'microcredentials are not standardized, that are not continuous and stable educational courses, so they are not per se recognizable as initial training.' But recognition of informal and non-certified training is also possible in the German VET. This is more difficult because the acquired competencies must become visible at first. The above mentioned ValiKom project attempts to solve this problem. But this could be a way to motivate migrants, refugees and unqualified people with work experience for entering the regulated VET sector. 'We need to make sure that recognition is in the interests of individuals who wish to attain a higher level of education', says expert MC5.

3.2. How are microcredentials linked to credit systems?

See the answers for the last question: certified courses acquired outside the system as well as informally acquired competencies can be recognised in the regulated VET System and further education.

Creditable achievements can also lead to a CP system. But CPs are not usually used at vocational colleges in the dual system. But some vocational academies ⁽³²⁾ award a what is known as a 'diploma supplement' in which credit points are shown according to the European Credit Transfer System (ECTS; see below). The apprentices can already collect credit points during their vocational education, which count for a bachelor's degree at some universities of applied sciences. VET providers in survey confirm: microcredentials offered by their organisation can be accumulated and combined with other qualifications and credentials from their organization to a certain extent.

Expert MC2 comments on this point: 'Educational processes must not only be seen formally and functionally – VET is more than knowledge and skills.'

3.3. Can microcredentials be accumulated and combined with other qualifications?

If apprentices have passed the (recognised) certificates for the courses, they can combine several certified courses. VET providers in the survey confirm: microcredentials offered by their organisation can be accumulated and combined

⁽³²⁾ See: http://www.bk-kartaeuserwall.de/cms/index.php?id=bg_bta_creditpoints

with other qualifications and credentials from other organisations to a certain extent. It can be combined into a full qualification, recognised as part of learner's education and training programme, added to learner's individual account / personal portfolio, combined into a larger credential and recognised as prior learning.

However, expert MC4 mentioned that this is not possible and not allowed for the entire apprenticeship. MC2 noted: 'The whole is greater than the sum of the parts' and says, 'the apprentices have to develop a work ethic and a holistic view of their future profession.'

Expert MC3 argues in the same way: 'If additional certified training is to be recognised, care should be taken to ensure that the holistic vocational education is maintained in order that comprehensive professional competencies are developed. This means that additional training courses are only recognised up to a certain reasonable proportion.'

Expert MC2 added, that the recent curricula are structured in such a way that the students can combine the various demands of their future profession in a meaningful way. 'If the training works piece by piece, the holistic element is lost, and the individual courses do not interlock in a meaningful way.'

MC5 adds, 'The accumulation of very small certified courses to a higher qualification is rejected by all stakeholders involved in VET in Germany.'

MC1 notes on: 'Vocational education cannot mean to simply plug different modules for different skills together like in a construction kit.'

The interviewee from the ICT sector (MC9) has no problems recognising vocational training that was composed of various trustworthy (in terms of issuer, content and scope) microcredentials. These can also have been acquired in different regions. 'The requirements for practicing a profession in our field are internationally approximately the same, therefore, it is irrelevant where they were acquired' (MC9).

The interviewee MC9 would, however, carry out a formative assessment of other professional competences (customer contact, interview techniques, etc.) with each new recruit and only then would hire on a permanent basis. Social competences cannot be demonstrated by certificate courses in MC9's opinion - for this a regular ('classical') education is advantageous.

In MC9's opinion, regular training and certificate courses can run in parallel or be integrated into the training as a kind of elective compulsory area.

Employee (MC11) stated that a qualification is worthy of recognition if, after completing various individual modules (microcredentials), a measure is taken that sensibly combines the individual examinations, for example an examination project of at least 60 units (MC11).

CHAPTER 4. Analysis of microcredentials and the added value for end users

In the German VET system, it is hard to find gaps in education pathways. In addition to the initial vocational education and the regulated further education, the existing opportunities are sufficient enough for low-skilled or unskilled people to enter the VET system. But in some industries new competencies are required that are not assessed in conventional certificates. Microcredentials can help to validate these competencies.

In addition, microcredentials can offer more flexibility regarding new working tasks for employees and employers. For example, they could address current needs, such as the digitalisation of work processes.

Research regarding the assumed target group for microcredentials is lacking. Presently most participants of certified short courses are qualified workers. They have to or want to improve their professional skills. But it could be possible that microcredentials could motivate low or unqualified people to enter the regular VET system.

With regard to the advantages that users expect when they complete microcredentials, it can be said: They want additional skills through certificate courses to be rewarded in monetary terms and to have further opportunities for advancement within the company. In the eyes of the interviewees (MC9, 13), the obstacles to attending certificate courses are scarce financial resources but, above all, time problems for employees.

Regarding the relevance of VET further education or training that is really necessary and in demanded, the BMBF (2021, p. 3) wrote: 'It is questionable if the necessary development of a European framework including standards, requirements, certification criteria, which will have to meet the needs of the different sectors, regions, companies and continuing education participants in a flexible, targeted and anticipatory way, can provide genuine added value. Under no circumstances should European standardisation negatively affect the dynamism of the non-regulated continuing vocational training market with the imposition of bureaucratic burdens on training providers or delays in market entry.'

There is a very serious concern among the VET experts that (EU recommendation for) microcredentials could weaken the so far successful German dual VET system. Neither the interviewed experts not the literature could deliver any evidence regarding an added value through the new microcredentials for end users in Germany.

4.1. Is there a need for microcredentials? Why do different stakeholders need microcredentials?

'In the regular VET system, microcredentials are not absolutely necessary. The training is structured (curricula) in such a way that the apprentices learn a profession and acquire the competencies for professional working so that they can start working immediately. Microcredentials could be helpful for specific and additional work tasks (additional training) for apprentices and employees', states expert MC1. The National authority in the survey confirms that it was said that microcredentials do not have any advantages over traditional forms of qualifications and other forms of competence recognition.

State VET institutions (like vocational schools – Berufliche Schulen) are familiar with certificate courses as further education for teachers. The courses are offered regularly so that the teachers are up to date with the latest technical and pedagogical standards (MC1). The identification of new topics (e.g. e-teaching) and the conception of corresponding courses is carried out with the assistance of external experts and experienced further education teachers. In the process, suggestions from school practice are also taken up (Pasternack, p.254 ff).

Expert MC3 says: 'We cannot see the benefits for local companies. The companies are convinced of the dual system for quality assurance reasons. Internationally operating companies with branches in Germany may have a different point of view. We also doubt the benefit for the learners. It has not been researched whether microcredentials are useful for them. We also doubt the social benefit, because only holistic vocational education leads to shaping competence and social and personal competence. But as training supplement, microcredentials can be helpful'.

Expert MC8 says: 'Microcredentials are meaningful in the innovation driven labour market sectors.' MC9 noted on: 'If vocational education does not provide the skills that the new economy needs and/or the conventional certificates are not suitable to assess the demanded competencies, new concepts are needed. Microcredentials can fill this gap.'

One employer (MC9) says in the interview, 'With the certificates, their holders demonstrate professional skills. This makes them valuable for the company but also for the whole labour market which is short of skilled workers' (MC9).

According to MC14, specific certificates have to be acquired urgently: firstly, in order to be able to carry out certain assignments, and secondly, in order to be constantly up to date with certain special knowledge and skills.

The literature also associates a clear competitive advantage with certificates in ICT (Ilg, International research on labour market (MC8) needs would show this demand.

For other employers, an exam at the end of the certificate course is sometimes undesirable (and not necessary for employers) because it visibly upgrades employees for the labour market and may entice them away (Ilg, 2021).

Six VET providers in the survey list a few reasons why microcredentials can grow in importance: to upskill and reskill the workforce, to tailor education and training, to individual needs and to make it more learner-centred, to provide access to education and training to a greater diversity of learners, to better respond to the changing labour market needs, to encourage lifelong learning behaviour among individuals, to address skills needs in emerging sectors of the economy where qualifications are not yet formalized, to increase speed with which emerging lifelong learning opportunities are being met, to assist transition to labour market for new graduates, to facilitate digital transformation, to address structural unemployment, to sustain labour market reforms.

Expert MC5 cannot see any gaps in the German VET system. 'For the validation of competencies projects such as ValiKom are introduced. People start with a validation of their competencies and after receiving their results they can get started with vocational education in the regular dual system. It is one of many opportunities for low-skilled or unskilled workers to enter the VET system. For over 2 million unqualified people in Germany, post-qualification and programs for qualification supplements are offered. These programs are financed by the state.'

Qualified migrants and refugees can find other pathways. Expert MC5 notes: 'Everybody and, of course, refugees and migrants as well have the legal right to a procedure for the recognition of qualifications in vocational education that was acquired abroad. Ninety per cent of these cases receive partial or full recognition of VET qualifications.'

Lastly Expert MC6 asks: 'For which target group should microcredentials be useful?' Expert MC5 states: 'Did we even create ways out of the VET system with microcredentials instead of bringing those in need into more valuable long-term education paths.'

4.2. What are the main benefits/added value of microcredentials for end users (e.g. learners, education and training providers and employers)? What value do microcredentials bring to the overall qualifications system?

Expert MC1 answers: 'Microcredentials can offer more flexibility regarding additional or new working tasks for employees and employers. But we wouldn't recommend it for apprentices in the regular initial vocational education. Because microcredentials did not work with learning situations or tasks that come from a real work situation'.

Employers and employees benefit from microcredentials if these validate competencies that are not assessed in a conventional VET certificate (MC8). That was confirmed by the two employers who took part in the survey. They said: employers in our sector(s) benefit strongly from a wider uptake of microcredentials for training and continuous professional development. They have advantages over traditional forms of qualifications and other forms of competence recognition. These advantages are: Their flexibility is more suited for upskilling and reskilling of employees and their format allows speedier response to the needs of employers.

Expert MC4 adds: 'if microcredentials run as supplemental training courses, they could address current needs, e.g. digitalisation of work processes, language studies etc. They could also be attractive to people who cannot concentrate for long. Because they can provide assistance, e.g. as video tutorials, for the regularly offered vocational education. But it has to be well embedded in this vocational education. There is still a lack of research and pilot projects'.

With regard to labour market requirements MC5 says: 'Companies are interested in quick, small learning units with regard to new goods, new machines, new technologies, etc. But that already corresponds to the current reality. We don't need a new European regulatory framework for that.'

'Microcredentials could motivate low or unqualified people to enter the regular VET system. But from a regulatory point of view, it must be clear that this is an entry into a further qualification without any chance to a degree in the first step', says the expert MC4.

The EU have not yet succeeded in establishing common cross-European standards for VET. That would be the lowest common denominator. 'There is a new initiative by the EU Commission in the skills agenda: European core profiles for professions – I welcome that because it corresponds to 60 per cent of our professional profiles in terms of vocational education. But using microcredentials to break down vocational education for professions in very small pieces and trying

to standardise these microcredentials at a common European level – that would not work. I even consider it negative for the mutual work in the education sector in Europe. I wonder, is it in the EU's interest to align the national education systems in the same way?' added expert MC5.

The BMBF paper (2021) argues in this direction: We have to take into account: The creation of duplicate structures should be avoided. New administrative and financial burden should be avoided (p. 2).

Germany is afraid that the value of qualifications will be diluted across all educational sectors. Microcredentials can be a useful addition to undergraduate or postgraduate qualification but can be no substitute for them. The holistic design of the learning processes must be maintained in the future (MC7).

Germany is sceptical about EQF developing from qualifications framework into a credentials framework (MC5).

There are considerations whether the introduction of EU-standardised micro credentials will promote mobility within Europe. 'At the moment just 2 per cent of all workers in Europe are mobile. This is not a critical mass of interested people. The target group of the unqualified people is the most immobile group in the EU.

But does more standardisation bring more mobility? If one could say 20 per cent of the people are already mobile – then we have evidence to act. But with about 2 per cent – who would change the working national system for this? I have to take into account the cost/benefit calculation', these considerations have been carried out by expert MC5.

VET Provider who took part in the survey name the main advantages of microcredentials: Flexibility makes them more suited for upskilling and reskilling needs, they are suitable for lifelong learning purposes, the format allows a speedy response to labour market needs and they allow for portability of skills for the learners.

An employer who take part in the interviews adds: 'The acquisition of a microcredential must be seen as a bonus by the end users. It must bring direct financial or career benefits, otherwise the incentive is too weak' (MC14).

Interviewee MC9 offers monetary bonuses and further opportunities for advancement within the company to those workers who acquire additional skills through certificate courses. From his perspective, barriers to taking certificate courses are financial, but above all it is also the time constraints of employees.

For the company, a completed certificate is noticeable either as an improved professional competence of the end users or also in the ability to take on more and new responsibilities and tasks (MC11).

The overwhelming majority of those questioned said that microcredentials do not represent any benefit for the regular German system of vocational education and training.

The acceptance of microcredentials, which have been largely unknown up to now, is seen above all as a concession to European (and international) developments. All respondents see no need for the introduction of new forms of vocational education and training. The instruments that are on the market in Germany for vocational education and training and further education were seen as sufficient.

4.3. Are microcredentials trusted among different stakeholders? What are the main reasons for trust / distrust in microcredentials? What are the conditions for ensuring the trust in microcredentials?

Microcredentials (certified short courses) must have a certificate that guarantees quality. 'For this, the certificate must be issued by a trustworthy body with references and the curriculum of the course must be known and published. It is also important that the course covers a comprehensible and convincing period of time' – this is the view of expert MC2. MC 4 adds: 'microcredentials are often so particular and unclear that they do not even have the size to be recognised within the system'. VET providers and representatives of employers in the survey confirm that the short duration is a reason for distrust in the quality of microcredential.

He (MC2) adds: 'Only credentials with a real work-based task that combines competence acquisition and professional acting are worthy of recognition. It is important that the learning tasks in the course arise from a real work situation and can be solved autonomously by the students.'

For this, the certificate courses must be clearly focused thematically and show the scope in terms of time and content. They must be very clearly aimed at processes in practice – purely theoretical reflection is not desirable (MC9).

The interviewee (MC14) states that he only works with particularly trustworthy institutions (federal guild colleges) from his sector for these certificates. He knows these institutions personally and does not trust that other providers possess the same expertise.

For software development, international boards such as the International Software Testing Qualifications Board (ISTQB) define curricula for certificate courses and content for exams. According to their information, the most important

certifications on the market have been the same for years: For vendors, these include Microsoft and Citrix; for processes, ISTQB and ITIL. IT certifications are like a self-runner in further training, because whenever there are new versions of hardware, software and standardised processes, there is also an update in certification (Ilg, 2021).

Recognised upgrading qualifications are also available at universities and technical colleges (MC12, 13). The interviewees are familiar with trustworthy upgrading qualifications from universities and technical colleges. For example, the Düsseldorf University of Applied Sciences offers the degree course 'Building, Energy and Systems Technology' – 'HEAT' for skilled tradesmen from the sanitary, heating and air conditioning sectors. This course of studies enables the participants to complete the bachelor's degree and the Meisterschule at the same time. As a part-time bachelor's degree programme, it offers working professionals the opportunity to continue their academic education without losing touch with their professional practice.

Expert MC7 says that it would be a quality criterion how the course is prepared from an educational and didactic point of view. MC7 would ask if there is enough time planned for conveying the content.

For expert MC4 what is important is, 'If additional training has to be recognised, the time dimension, the existing curriculum – what was taught and learned, the issuing institution (does it work according to fixed quality standards of vocational education) have to be controlled. It has to be taken in account, who is going to conduct the examination and in which way?'

Interviewee MC11 also names conditions for trustworthiness: 'According to him, certificate courses can only lead to fully-recognised VET degree if they are equivalent to the regular training in terms of provider, timeframe and content' (MC11).

According to the interviewees (MC11,12), a microcredential as an additional qualification in education should contain: Information on the provider, transparent information on content (curriculum), time required (for credit points – how much effort for one point) and information on examination procedures.

However, there are certain certificates for all interviewees (e.g. from the Chamber of Commerce or abroad from the AHK – German Chamber of Commerce abroad), which are wholly trusted.

In order to create a trustworthy basis for a European microcredential offer in education, one of the interviewees (MC12) suggested a common database hosted by Cedefop. The international database should contain information on already evaluated VET providers in the field of microcredential and their offers.

Expert MC5 adds to this: ‘Cooperation and shaping of the certificates should be the responsibility of the chambers of commerce and other chambers. That would generate trust and a high recognition rate on the labour market. For the recognition of certificates, I would need: trust in the provider, reliability of the provider and applicability, quality according to the applicable criteria of vocational education, compatibility of the certificate.’

VET providers say, microcredentials are trusted by education and training providers merely to a small extent and by employers and learners to a large extent. In their opinion main reasons for not trusting are: no agreed standards for quality assurance of microcredentials, national authorities do not recognise microcredentials, microcredentials are not compatible with the national qualifications system / framework / catalogue.

Two representatives of employer organisations in the survey said they would benefit from a wider uptake of microcredentials for training and continuous professional development of employees. They agreed that microcredentials have advantages over traditional forms of qualifications and other forms of competence recognition. The main advantages for them are: Their flexibility is more suited for upskilling and reskilling of employees, their format allows for speedier response to the needs of employers, and they are short duration.

The German BMBF (2021) pointed out: The potential alignment of microcredentials with national qualification frameworks and hence also the EQF might undermine the credibility of and trust in the respective qualifications frameworks. An excessive widening of the qualifications framework and the associated assignments of the equivalency between formal qualifications and short learning outcomes could devalue the meaningfulness of classifications in these frameworks (p.2).

VET providers who participated in the survey can noted several good practice examples of microcredentials offered in their organisation and/or company and/or sector(s): English Certificates (BEC/KMK); CISCO (CCNA); Project Management (University Certificate); ARIS Process Modelling certificate; www.zww.uni-mainz.de. An Employer who participated in the survey added Quadriga in Berlin.

4.4. As an addition

It is considered by expert MC8 as a challenge to shape microcredentials as further training instruments in such a way that it complements holistic vocational education and encourage professional action competence.

Experts MC3, MC4, MC5 and MC6 all ask: ‘What is the anticipated added value for the EU and for Germany after the introduction of microcredentials? More

specifically: 'are there certain fields of application for certain groups of people where microcredentials bring additional value? We lack research (pilot projects) for justified decision-making on this topic.'

MC5 also comments: 'We are in favour of an exchange of good practices in VET in Europe. But it is out of the question for us to change our national VET system because of microcredentials.'

MC6 asks 'Where is the European mandate for cross-European systematisation, standardisation or specification in VET?'

We have a critical view towards anyone trying to use microcredentials for the introduction of crediting, quality specifications and/or the standardisation in VET at a European level. And two other critical points: 'Does it make sense to pursue the same approach for all areas of education?'

MC5 adds: 'We suppose that education providers will use the introduction of microcredentials to open up a new market (with partly questionable offers) which causes difficulties for us in our educational responsibility.'

VET providers who participated in the survey would like to add: 'The Hamburg Standards for Modules of Continuing Training are an excellent standard for MC, the recognition could be developed based on OpenBadge approach. The whole system of ULLL (university lifelong learning) offers since years exactly those flexible and quality assured microcredentials which are now being discovered by the EU and other players / stakeholders.'

The BMBF paper (2021): 'For the vocational training sector, experience and lessons learned from the establishment of the European Credit System for Vocational Education and Training (ECVET), which was not successful due to its accumulation dimension and cannot be reintroduced on a stackability basis, must be taken into account with regard to the quality assurance of microcredentials and a possible link to the European Credit Transfer and Accumulation System (ECTS).'

(p. 3)

CHAPTER 5. Conclusions

Microcredentials in labour market related vocational education and training (VET) are largely unknown in Germany. Due to low level awareness, the term 'microcredential' is scarcely known nor discussed within the VET field in Germany (interviews, survey).

A provisional definition of microcredentials was presented to the interviewees by Cedefop. The proposed definition is seen as critical by VET experts. According to this definition, microcredentials cannot be included in a regular initial VET. Because it does not link to the concept of action-oriented learning for professional competence. The VET experts agree that such a definition can only be proposed as a cautious recommendation by the European Commission.

Microcredentials are compared to certified short courses. These are considered as supplements for the regular vocational education. Asked about their idea of microcredentials: All VET experts describe them as short and as supplemental training that leads to a certificate in the unregulated (private) VET sector. It was said by the VET experts, that microcredentials need a confirmation of participation and that they certify learning outcomes.

The description of a trustworthy certified short course by the respondents in the sector analysis (MC9, 11, 12, 14) largely matches with that of the VET experts' ideas of a microcredential (Table 5).

Table 5. Characteristics of a trusted microcredential

VET Experts (MC1, MC2, MC3, MC4, MC5, MC6, MC7)	Entrepreneur (sector analysis) MC1, MC9, MC11, MC12, MC14
<p>A trusted microcredential is characterised by:</p> <ul style="list-style-type: none"> (a) appropriate time frame; (b) quality standards; (c) trustworthy references; (d) an examination that is accompanied by professional as well as voluntary examiners from practice; (e) a developed, well-founded and tried-and-tested examination procedure. 	<p>A trustworthy certificate course is characterised by:</p> <ul style="list-style-type: none"> (a) comprehensible time effort (for credit points - how much effort for one point) (b) transparent information on content (curriculum) (c) trusted provider (d) information on the examination procedure

Source: case study interviews.

Compared to regular qualifications and further education, microcredentials play a minor role in vocational education and training in Germany. Because the regular vocational education and training degrees causes a real upgrade in the qualification level and microcredentials are recognized as a supplement to vocational education and training.

Regular further education provided as a component of labour market policy focuses on continuing training programmes which involve longer participation of learners and are aimed at the acquisition of competencies that can be utilized more broadly on the labour market. Very short modules should therefore be avoided in the interest of promoting employment' (BMBF (2021).

It can be stated that microcredentials could not replace the initial VET or the regulated further education in Germany – is the result from literature research and the overwhelming opinion of all interviewees (VET experts: VET provider, research institutions, VET authorities, employer / employee organisations, and employer). The holistic approach, in which various training components are interlinked, cannot be fulfilled by supplementary training courses alone. This is agreed by all interviewees.

Statements from the survey and the literature confirm that the special holistic approach is a success factor of the German dual system. It should not be destroyed by randomly modularization, but that it can be enriched by additional qualifications in a meaningful way (Euler and Severing, 2006).

Currently, certified short courses are demanded as additional training if the company has special requirements due to its work tasks.

So, for the companies the attractiveness of microcredentials is due to their market-driven ability to rapidly respond to technological changes in continuing vocational training that goes beyond completed vocational training or regulated upskilling (BMBF, 2021)

Certified short courses in the manufacturing industry and service industry are particularly in demand where products, work and working conditions are subject to rapid change. On average, each employee in Germany spent 18.3 hours on continuing education in 2019, one hour more than in 2016. Companies invested EUR 1 236 per employee in continuing education (around 16 percent more) (IW Continuing Education Survey, 2020).

Currently, certified short courses in VET are most frequented by qualified workers who need additional training or further education. A certified course is deemed as being trustworthy by an appropriate time dimension; quality standards; trustworthy references; an examination that is accompanied by professional as well as voluntary examiners from practice; a developed, well-founded and tried-and-tested examination procedure.

No institution can offer a comprehensive overview of the range of European or German continuing education programmes in the field of vocational education and training. Microcredentials are relatively new on the education market.

None of the respondents in the interviews questioned the regular vocational and training system. There is a high level of trust in and good experience with regular vocational training. The instruments that are on the market in Germany for further education and training were seen as successful and effective.

But some interviewees in the sector analysis (MC9, 11, 14) point to the shortage of skilled workers. All of them stated that they accept atypical training paths. But the completion of training should be demonstrated with a holistically oriented examination at a state institution or chamber to prove vocational competence (see also Euler and Severing, 2006). Because the companies surveyed prefer fully educated specialists. Interviewees in the sector analysis are sure: In the future, trustworthy certificates could complement regular vocational training more extensively than in the past. The Interviewees in the sector analysis (MC9, 11, 14) revealed that international qualifications, which are not based on German training standards, should be assessed more flexibly and, if necessary, recognised or transferred to an adaptation qualification. The existing range of additional qualifications in Germany was considered as sufficient but the possibilities for recognition were seen as unclear (MC11, 9, 10). Interviewees in the sector analysis name it as necessity to be compatible with the international training market (MC 13, 12, 10).

A number of interviewees pointed out the lack of standardisation ⁽³³⁾ (MC9, 10, 11, 12, 13, 14) of certificate courses like microcredentials. The standardisation of already existing certificate courses would make it easier to accept corresponding offers or to recommend them to employees.

The acceptance of microcredentials, which have been largely unknown up to now, is seen above all as a concession to European (and international) developments (MC9, 10, 11, 12, 13, 14). All interviewees in the sector analysis said that transparent accepted standards are desirable for the recognition of European microcredentials. Because the microcredentials must be comparable for the users and the quality has to be verifiable. How these standards should be determined, however, was questionable for all interviewees. This is problematic above all in view of the different educational histories and cultures and the different needs of the regions and companies in which vocational education and training takes place (all interviewees). However, all respondents see any insuperable

⁽³³⁾ Here it should be determined under which conditions a certified short course in vocational training is trustworthy and sufficiently developed in terms of content to be recognized as part of regular training if necessary (MC9, 10, 11, 12, 13, 14).

difficulties in agreeing on criteria for these standards and a definition for microcredentials across the EU. Previous attempts (EQR, ECVET - <https://www.gew.de/berufliche-bildung/berufliche-bildung-in-europa>) to introduce EU-wide standards for vocational education and training have failed. Moreover, it is questionable as to who has the competence to introduce microcredentials across Europe. The requirements and expectations of vocational education and training in the national education systems in the EU are seen as too different (all interviewees). The HE definition of microcredentials cannot simply be transferred to vocational education and training (VET experts). However, it would be viewed very critically if the European Commission would attempt to recommend a changing of the national standards of VET (in Germany) to give the microcredentials a more prominent role (BMBF, 2021).

Experts MC3, 4, 5 and 6 cannot see the anticipated added value for the EU and for Germany after the introduction of microcredentials. They cannot identify certain fields of application for certain groups of people where microcredentials bring additional value. They recommend research (pilot projects) to justify decision-making on this topic.'

The surveys and the literature analysis have further revealed the following: common European standards must preserve the attractiveness of formal and non-formal VET and not limit it through over-regulation and formalisation (MC5,10,11,14). Under no circumstances should European standardisation negatively affect the dynamism of the non-regulated continuing vocational training market with the imposition of bureaucratic burdens on training providers or delays in market entry (BMBF, 2021).

Regarding trust in microcredentials: For this, all VET experts stated, the certificate must be issued by a trustworthy body with references and the curriculum of the course must be known and published. It is also important that the course covers a comprehensible and convincing period of time. So, very short modules are not trustworthy because the dual approach (combining theory and practice) and the action orientation are not implementable in a very short time. In the sector analysis (MC9, 10, 11, 12, 13, 14) the results were quite similar. For the interviewees, in order to trust a certificate course, it must contain: details of the course provider, transparent content details (curriculum), the expected time required to complete the course (for credit points – how much effort is required for one point) and details of the examination process.

In the interviews (MC9, 10, 11, 12, 13, 14) it became clear that certificates are seen as a valuable additional qualification by employees and companies. Certificates of employees help companies in the competition for work orders (certain orders are tied to certain certificates). In addition, a completed certificate

is noticeable as an improved professional competence of the end users in the company. Thus, end users of certificate courses not only increase their professional competence but also their attractiveness as (future) employees for potential employers. Since the companies know about the value of the certificates, they also offer the courses the prospect of improved career opportunities or remuneration. Employees would also actually expect this (MC13).

Representatives of the metal industry (MC14) see a danger in a spurious or artificially created need for certificates: every new version of a product or process can necessitate certificate training. In this way, the certificate market can be kept in motion by itself (Ilg, 2021).

From the education sector (MC1, 12) but also from the other sectors (MC11, 13, 14) it is said: if microcredentials are to be useful as tools for additional qualification for educational institutions, they must respond to the individual needs of the institutions. A uniform Europe-wide standardisation could counteract this. Given the great diversity in the education sector, the offers could no longer be precisely tailored to the requirements and, on the one hand, demand many skills that are impractical at the location or, on the other hand, neglect skills that are in demand.

When dealing with microcredentials and considering their recognition, it must also be taken into account that problems, dissatisfaction and justified criticism can arise when people with different educational qualifications do the same work in a company and are possibly paid different amounts for it (MC 7, 9, 10, 12).

List of abbreviations

BAVBVO	Vocational Training Preparation Certification Ordinance
BDA	Federation of German Employers' Associations
BIBB	Federal Institute for Vocational Education and Training
BBiG	German Vocational Training Act
CP	Credit Point
DGB	German Trade Union Confederation
DIHK	German Chamber of Industry and Commerce
ECTS	European Credit Transfer System
HRK	German Higher Education Rectors' Conference
IHK	Chamber of Industry and Commerce
KMK	Standing Conference of the Ministers of Education and Cultural Affairs
PPMI	European research and policy analysis centre
TVET	Technical vocational education and training
VET	Vocational education and training

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Annex 1. A list of interviewees

The interviewees are experienced VET experts in various professional positions. They have a good overview on the shaping of VET in Germany. In order to protect their data, the author uses codes for the names. The codes do not refer to the numbering in the table.

Table 6. A list of interviewees

No.	Name and surname of the interviewee	Type of interviewee (stakeholder group)	Country/region/sector	Date of the interview
1.	Assenmacher, Michael	Employer organisation	Germany, national, German Chamber of Industry and Commerce, Vocational Education, technical professions	1 May 2021
2.	Böhm, Thomas	Employer	Germany, regional, Juni Media GmbH, CEO	1 December 2021
3.	Buggenhagen, Pamela	Employer Organisation	Germany, Employer Board, regional, Schwerin, Mecklenburg Vorpommern	26 November 2021
4.	Diestel, Thomas	Employer	Germany, regional, CEO	6 December 2021
5.	Ehlert, Ulf-Daniel	Research Institution	Germany, Baden-Württemberg, DHBW Kartsruhe, Education Scientist	16 June 2021
6.	Fabian, Barbara	Employer organisation	Germany, national, German Chamber of Industry and Commerce, Head European Education and VET policy	19 May 2021
7.	Fach, Kati	Employer	Germany, national, Dresdner Verkehrsbetriebe GmbH, Head of Education Department	30 November 2021
8.	Hartmann, Martin	Research Institution	Germany, Dresden, TU Dresden, VET Didactics, Professor	14 May 2021
9.	Kornatzki, Kay	VET Provider	Germany, regional, Wirtschaftsakademie Nord Director	30 November 2021

10.	Marohn, Ralf	VET Provider	Germany, regional Head of Process and Product Management	1 December 2021
11.	Patuzzi, Mario	Employee confederations	Germany, national, DGB - German Trade Union Confederation VET Policy	10 June 2021
12.	Siegel, Claudia	National authority	Germany, national, BMBF Verbindungsbüro EU	21 May 2021
13.	Szymanski, Rico	VET provider	Germany, Dresden, regional, Head of Vocational School Centre	12 May 2021
14.	Thiele, Peter	National authority	Germany, national, BMBF Further Education	21 May 2021