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Additional Product

Concept for master craftsman train- ing in the form of a dual bachelor course in the Baltic Sea Region

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Common Vocational Training to Master in the Baltic Sea Region (Master BSR)

Concept for master craftsman training in the form of a dual bachelor course in the Baltic Sea Region

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1. Key Points

Within the framework of the project “Common Vocational Training to Master” the implementation of a unified master craftsman training for the Baltic Sea Region is aimed at high qualification level. Within the framework of two workshops intensive consultations were held concerning whether high-quality master craftsman training can and should be implemented in the form of a Bachelor course. It would have various advantages, among others:

- The high-quality master craftsman training in Germany as well as Bachelor degree are classified as Level 6 “Bachelor and other comparable education and competences” of the qualification framework and therefore treated as equivalent qualifications. However any practical effects are hardly related thereto.
- In Germany persons, who have passed the master craftsman examination are usually awarded general access to higher education. However, when they take it up, the acquired competences, knowledge etc. are not recognized, as a rule.
- Implementation of the master craftsman training in the form of a bachelor's program would eliminate this problem, create a complete permeability, strengthen the training and increase attractiveness.
- Complete international recognition, which is often controversially discussed in the context of current master craftsman training, would automatically apply.
- Like any other course, this form of master craftsman training would also enjoy public support and recognition.
- Master craftsman trainings in the form of Bachelor courses are already occasionally implemented in Germany and also partly in separate EU countries.
- Duration of such Bachelor courses could be arranged for all the occupations uniformly and at the same time provide the required occupation-specific contents.
- Transfer of the already acquired competences, knowledge etc. would be made easier and could lead to shorter duration of studies.

In view of the above, the following was decided within the framework of the project:

- a) To develop and to implement unified master craftsman training as high-quality vocational further training.
- b) Additionally, to develop a comprehensive concept for the master craftsman training in the form of a Bachelor course which cannot be implemented within the project but should be intensively consulted with high schools and universities.

Development of a concept for a master craftsman training in the form of a Bachelor course should include the following key points:

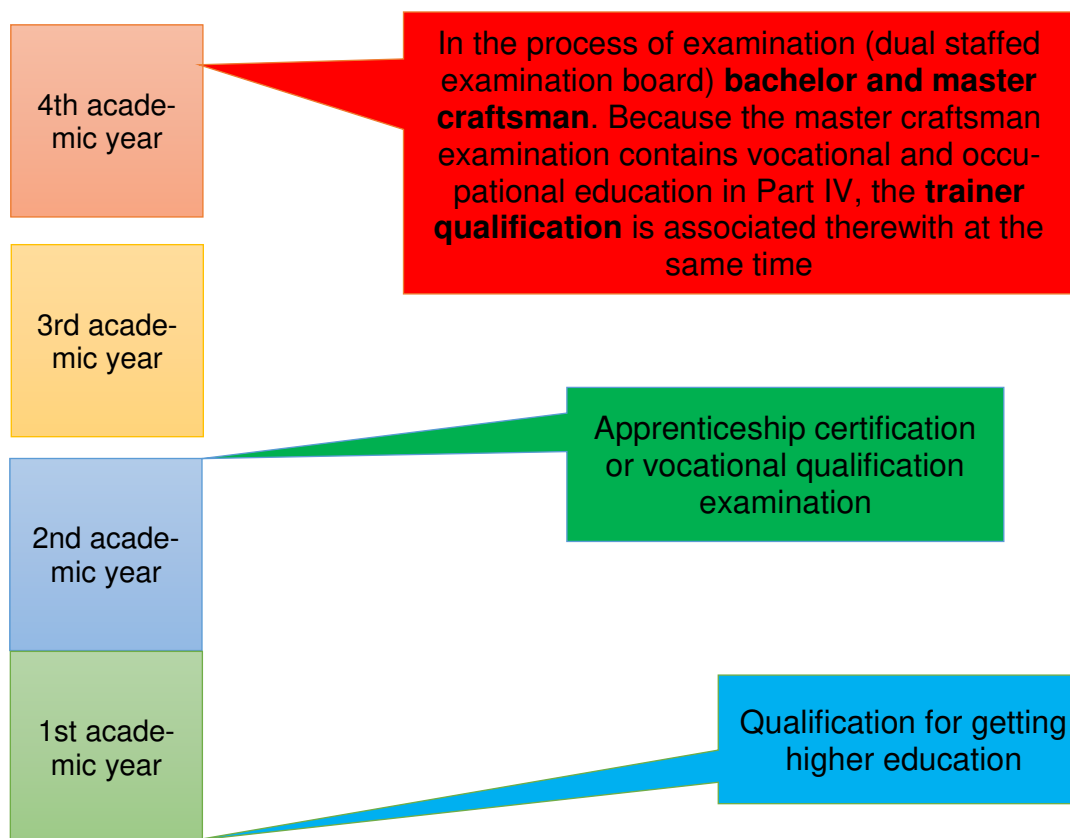
- Conditions
 - admission to a (college) studies at university and
 - working contract with SME
- Implementation

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- In dual form: 50% at the college/university and 50% working in SME
- Duration: 4 years
- Classification in Qualification framework and ECVET assessment
 - Level 6 “Higher education degree Bachelor”
 - Credit Points: 180 CP out of which 30-50 CPs in practice
 - Cross-border transfer of CPs and BSR-wide recognition
- Structure and degree/qualification
 - 4 parts of qualification (B.Sc. Industrial engineer)
 - Job specific study 60% of the total study
 - Uniform study for all professions 40% of the total study
 - Degree: Bachelor and professional Meister and Instructor
- PART A1: profession specific practical training
 - Apprentice course
 - 250 hours study and 25 CPs
 - job-specific content
- Part A2: profession specific theory
 - 850 hours study and 75 CPs
 - job-specific content
- PART B1: Business administration
 - 550 hours study and 60 CPs
 - for all occupations, identical content
- PART B2: Vocational and occupational education
 - 150 hours study and 20 CPs
 - for all occupations, identical content

The duration of a dual course for the integral conveying of Meister (master craftsman) and bachelor degrees will be four years and will lead to the following degrees.

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The dual bachelor course consists of

- a profound vocational training with apprenticeship or vocational certification,
- an acknowledged training with integral acquisition of master craftsman and bachelor degree.

Both parts of the training are closely coordinated and are conducted in parallel. During both first years the training as well as vocational training take place at the institution of higher education/university. Vocational training can include all the technical and professional or commercial professions and takes place alternatively

- in the dual system with practical training at the enterprise and theoretical training at vocational school or
- in the school-based system with practical and theoretical training
- at vocational school as well as practical training at the enterprise. After two or two and a half years the vocational training is completed with an apprenticeship or vocational qualification examination.

During the third and the fourth year the training is continued at the institution of higher education/university and at the same time within the framework of vocational activity at the enterprise competences, capabilities and skills are acquired. The duration of the training is at least 1800 hours. These include hours for independent studies, attending optional courses, writing a bachelor thesis, examinations etc. The training is completed

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during the fourth year with the internationally recognized academic degree “Bachelor” and a Master craftsman degree.

The courses must correspond without any limits to the purposes and requirements of the Bologna process which was joined by more than 40 countries in the meantime.

The courses are designed in the form of modules. Students are awarded credit points both for the modules of the training and for the practical parts of the training. The courses are reviewed and certified by acknowledged accreditation institutions. They should be organized in a uniform manner in the Baltic Sea Region so that cross-border operation of places of study and the exchange of teaching staff and students are promoted. Thereby at the same time international cooperation of those enterprises should be supported which participate in the vocational training. Furthermore the aim is that places of study implement practice-oriented research and development projects with enterprises and students.

The country Germany was consulted in order to outline, for example, problems, current situation and methodological approach whereby the latter is transferable to all the countries.

2. Current situation related to permeability of vocational and academic training

Whereas in the earlier years and decades a relatively clear distinction was identifiable in the profile of vocational and academic educational and qualification pathways¹, especially in Germany as well as other European countries (e. g. Austria, Switzerland) the contours have blurred nowadays.

With increase of the number of bachelor courses since the beginning of Bologna reforms in 1999 and their professional differentiation and specialization today many courses have acquired strong professionally utilizable components with a view to the requirements of the economy.² On the other hand in the field of vocational further

¹ professional training and further training = orientation at operating requirements of economy; academic training = orientation at scientific and research-oriented requirements of society

² Thanks to the Bologna process especially further development of national higher education systems in Europe, the qualification of specialists for the labour market as well as of the junior scientific staff were taken into consideration. In this regard the increase of the so-called employability plays a special role. It means that university graduates can take up qualified employment on the basis of scientific education (professional and interdisciplinary competences as well as qualifications related to the specific profession). (Source: https://www.bmbf.de/files/Bericht_der_Bundesregierung_zur_Umsetzung_des_Bologna-Prozesses_2012-2015.pdf, p. 5)

In actual fact the higher education system thereby becomes closer exactly to the (at least) German vocational training system, because in § 1 paragraph 3 of the Vocational Training Act (BBiG) it is defined for the training that vocational training (...) has to convey required professional skills, knowledge and capabilities (occupational competence) within the framework of well-regulated courses in order to perform qualified professional activity in the changing working environment. Also within the framework of further training in the field of skilled crafts the orientation of the examination in crafts which are subject to authorization according to the criteria of employability and thereby the participation at the market or competition belongs to the cornerstones of the vocational training system. In § 45 paragraph 2 of the Trade and Crafts Code it is determined that “thanks to the master examination it has to be determined if the examinee is qualified to exercise a craft which is subject to authorization and to perform independently as well as properly train the apprentices.

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training the requirements to the participants of, for example, master craftsman and state-certified technician courses become stricter on the basis of permanent consideration of current technologies and techniques or they stay consistently strict. These overlaps with other training and qualification systems respectively result in the fact that professional requirements which have to be fulfilled in the professional sphere (master craftsman, technician etc.) in some places are more and more difficult to distinguish from the requirements of bachelor courses.

In many cases within rather technically oriented qualification pathways (vocational and academic) it is required to perform a comprehensive and profound analysis of a problem or issue from practical experience having recourse to valid obtained measurement results using approved tools, methods and methodologies, and subsequently to develop reflected suggestions concerning the form and the solution of the problem and to document them in a legal manner.

Therefore it comes as a little surprise that the question of equivalence of vocational and academic training and qualification pathways and degrees is being increasingly discussed in the European countries which have both: a differentiated academic and at the same time professional training and qualification system (e.g. Germany, Austria, Switzerland). Thereby an important milestone is the creation of the instrument of the national qualification network using which it can be specified on which levels vocational and academic training and qualification can be acknowledged as equivalent. In the German Qualifications Network (DQR) after intensive verification and application of DQR criteria the vocational qualification “Meister (Master craftsman)” was classified as equivalent (not: similar) to the academically established Bachelor’s degree.

However due to diverse national provisions in the laws related to higher and vocational education this basic representation of equivalence in everyday life does not lead to any particular consequences for the holders of corresponding vocational or academic degrees. A master craftsman may not refer to himself only on the basis of obtained master craftsman degree either as “Bachelor” or this fundamental equivalence of degrees in the DQR does not enable him to have simplified access possibility to master craftsman courses.

On the other hand graduates with a bachelor’s degree also may not refer to themselves as master craftsmen even if they should have acquired their academic bachelor’s degree in a similar professional field.

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It is very unlikely that the fundamental legal barriers will be removed in the foreseeable future and a genuine applicability of equivalence will be available in the everyday practice through full recognition of performance in the corresponding other system.

Due to not complete legal separation of different vocational and academic educational and qualification pathways there are however fundamental possibilities of application of performance results in one system into the other system.

Therefore, for example, there is a fundamental possibility to achieve (at least) partial applicability of performance during one training according to the requirements of the vocational training system (here: master craftsman's examination) in order to have passed both training and qualification pathways in the end according to a very costly procedure which can only be schedulable conditionally as well as be able to use corresponding qualification designations without legal restrictions (bachelor and title of a master craftsman).

On the other hand there is also a fundamental possibility to credit vocational qualifications of training and further training in one course of studies at least partially in order also to subsequently obtain a degree according to the model which will be kind of streamlined concerning time, basing on vocational degrees.

Both possibilities will be presented and critically examined below.

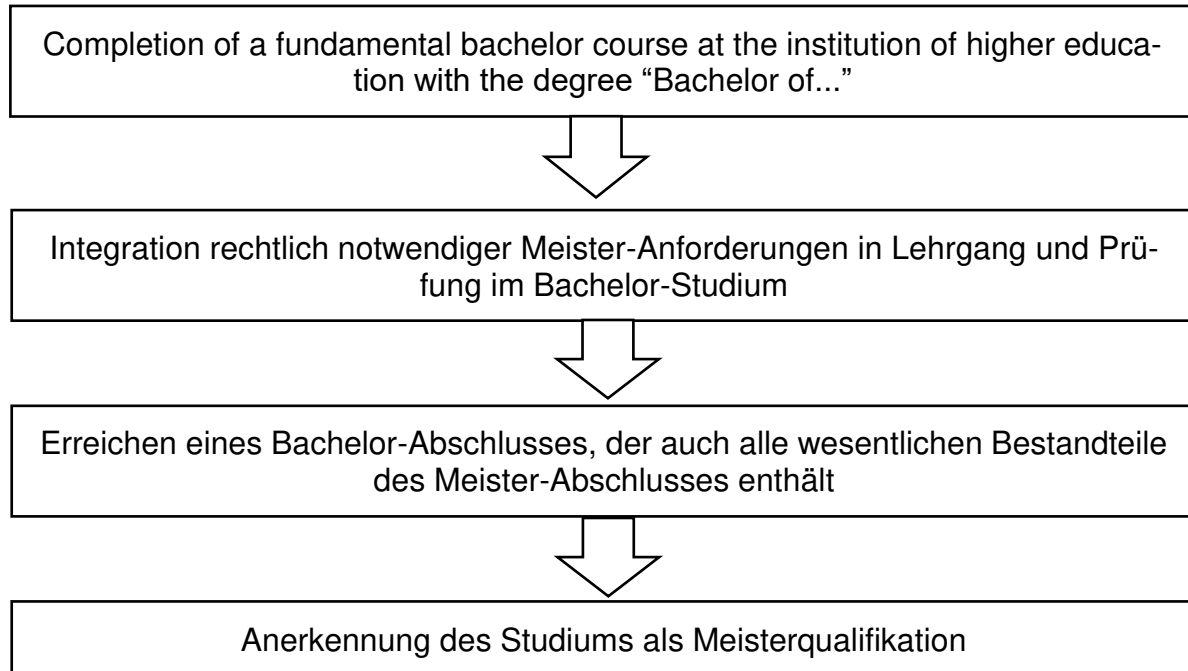
3. Possibilities of application of performance results which have been already obtained in one educational system

3.1 Recognition of academic achievements in the parts of the master craftsman's examination

If an academic training is completed successfully the graduate in Germany can be exempt from separate of the four parts of the master craftsman's examination in a craft subject to authorization according to relevant provisions in the Crafts Code if during these examinations at least similar requirements are set as during the master craftsman's examination (cf. § 46 paragraph 2).

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Overview 1: On the basis of training to become also a master craftsman



Peculiarities and problems:

The determination of meeting the requirements is up to the examination board of the vocational training organization (as a rule Chamber of Crafts). Thereby the determination of requirements takes place only afterwards, i.e. after the completion of the studies. Thus there is absolutely no planning certainty, predictability or even "guarantee" for the determination of meeting the requirements of the studies for the master craftsman's examination. Besides it can be almost impossible that the bachelor course which is designed solely for the purpose of achievement of an academic degree reproduces all the parts of the master craftsman's examination completely and extensively.

Therefore in practice it is about determining the similar requirement for separate parts of the master craftsman's examination but never about complete recognition of the course for all the parts of the master craftsman's examination. Therefore the still absent parts of the master craftsman's examination must still be completed additionally by the graduates of a course subsequently with the corresponding amount of effort.

Conclusion:

In conclusion it can be determined for this procedure that there are significant risks in respect of the scope of actual acknowledgement of course contents. Furthermore as a rule separate parts of the master craftsman's examination are not covered by the course anyway so that even after the partial acknowledgment persons interested in the master craftsman's degree face not only additional loads related to time but also organizational and as a rule financial loads.

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In the end this is not an attractive educational and qualification pathway which meshes vocational and academic qualification together in a reasonable manner. Despite basic available transparency related to the represented possibility of acknowledgement of studies for the master craftsman's examination this procedure is not the expression or even a good example for the creation of extensive equivalence of vocational and academic pathways and degrees.

Theoretically it would be possible to extend the above-mentioned procedure for the real equivalence only so that all the requirements of the master craftsman's examination which are relevant for this examination had to be integrated in the existing structures and legal provisions of the (already available) course. With the acquisition of the regular bachelor's degree it could be proven that all the requirements of the master craftsman's examination are met. These evidences could be in turn completely acknowledged by the responsible master craftsman's examination board in order to be able to award also the title of a master craftsman correspondingly.

However it must be critically noted that such integration of master craftsman's examination requirements in existing structures of a course which are secured by the higher education laws hardly has any realistic chances for success. Subsequent change of courses can therefore be regarded as generally pointless and hardly realizable.

Another possibility to at least partially credit vocational qualifications of training and further training in the course for the purpose of creating more equivalence is presented below.

3. 2 Acknowledgement of master craftsman's qualification for the parts of the training

This option is based on the crediting of knowledge and skills which have been acquired by persons with vocational qualification interested in the course outside of higher education. Institutions of higher education³ have various possibilities to credit knowledge and skills which have been acquired within the framework of vocational training and further training, e.g. master craftsman's examination or within the framework of professional practice. The duration of studies should be reduced through crediting the performance results of persons with vocational qualification interested in the course and thereby one of the biggest inhibitions for the taking of a course of the target group of persons with vocational qualifications should be lowered.

³ Also further in the text the term "Institution of higher education" is used as a generic term for institutions of the tertiary education sphere, including universities, universities of applied sciences, technical colleges etc.

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This acknowledgement of educational background including not formal and informal learning required by the European education ministers within the framework of the Bologna process was obligatorily implemented, for example, in Germany for the institutions of higher education already through decisions of the Conference of Ministers of Education and Cultural Affairs⁴. According to the results of the Conference of Ministers of Education and Cultural Affairs the crediting of performance results can be performed through:

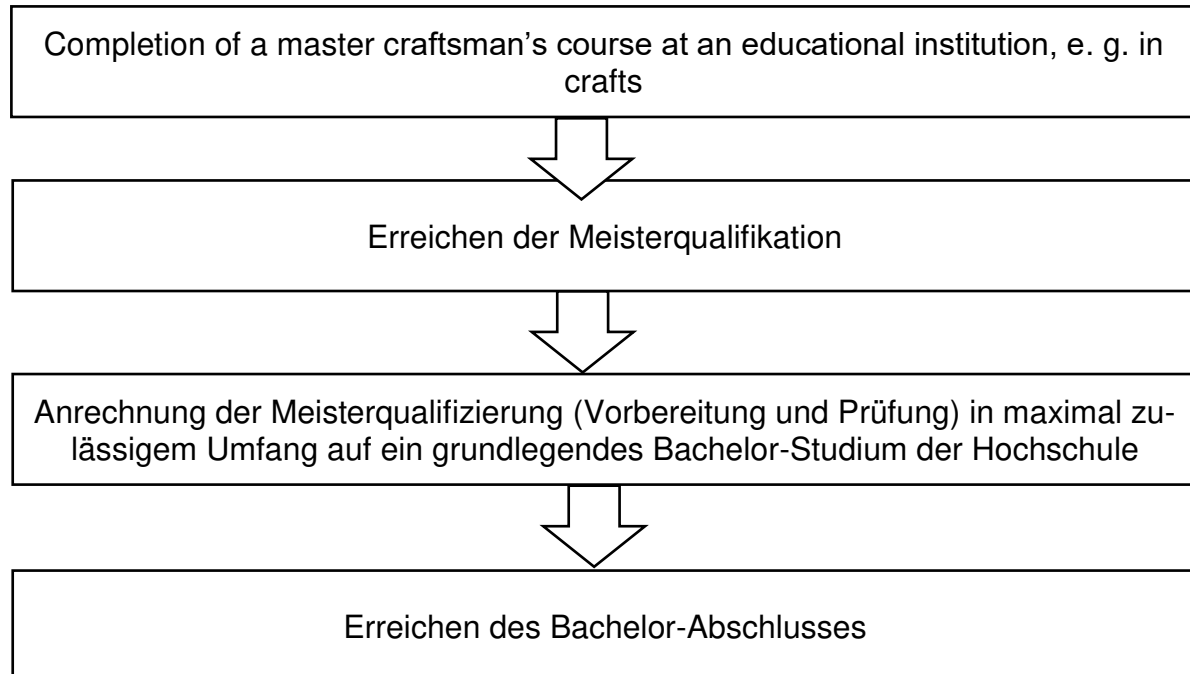
1. individual examination on a case-by-case basis. Thereby on the basis of documents provided by the vocationally qualified applicant it is examined if and to what extent his qualifications acquired outside of the sphere of higher education are equivalent to the parts of the course concerning the content and the level. If equivalence is determined within the framework of the examination on a case-by-case basis these proven qualifications can substitute the equivalent results of performance during studies and examinations.
2. general crediting. Thereby certain vocational qualifications which have been as a rule determined by the institution of higher education in advance as equivalent concerning content and level are acknowledged for a homogenous group of applicants (like e.g. graduates of a master craftsman's examination) without further verification of the individual case.
3. placement examination. Thereby individual knowledge and skills of the vocationally qualified applicant are verified in a formal examination procedure for the purpose of his placement to a higher study semester.

The Conference of Ministers of Education and Cultural Affairs has limited the amount of credit possibilities to 50% of the volume of higher education studies.

⁴ Cf. decisions of the Conference of Ministers of Education and Cultural Affairs concerning the crediting of knowledge and skills acquired outside of the sphere of higher education in the higher education I (dated 28.06.2002) and II (dated 18.09.2008)

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Overview 2: On the basis of master craftsman's qualification also become a bachelor



Peculiarities / problems:

The regulation related to the crediting of knowledge and skills of persons with vocational qualifications as performance results of studies and examinations is basically reasonable and on the basis of theoretically possible share of credit of 50% can contribute to the reduction of the period of studies and therefore to the politically desired facilitation of transfer of persons with vocational qualification in the sphere of higher education.

In the crediting practice of institutions of higher education the situation however shows that crediting volume which leads to the significant reduction of studies and thereby creates an incentive for taking a course is achieved relatively seldom. The decision of the Conference of Ministers of Education and Cultural Affairs from the year 2008 has basically determined that the institution of higher education shall decide under own responsibility if and to what extent the crediting of those knowledge and skills can be performed which have been acquired outside of the sphere of higher education. Thereby it is explicitly pointed out that such a decision of the institution of higher education [can] not be replaced "On the basis of diverse possibilities of content-related design of courses, [...], on the one hand, and the variety of possibilities for professional training and further training, on the other hand [...]".⁵

⁵ Cf. decision of the Conference of Ministers of Education and Cultural Affairs concerning the crediting of knowledge and skills acquired outside of the sphere of higher education in the higher education II (dated 18.09.2008), p. 3

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Especially due to the reason of diversity of vocational and academic qualification substantial problems arise during the verification of proven vocational qualifications in respect of equivalence concerning contents and level. The equivalence of vocational qualifications is therefore often not determined only because the quantity of hours of courses attended within the framework of formal vocational qualification measure is as a rule lower than the workload⁶ of courses evaluated within the framework of the ECTS. Thereby however knowledge and skills which are acquired in this field in the professional environment in the informal manner are not taken into consideration completely. Moreover in the curricula of vocational qualification measures as a rule only the amount of classroom-based events (class hours) is declared and not the time for “self-study phases” which are however entered as “self-study” in the estimation of academic courses workload.

Further difficulties can arise during the verification of equivalence with regard to levels. Due to diversity of goals of vocational qualifications and academic courses the comparison is also difficult in this case. While vocational qualification measures are first of all aimed at the transmission of professional competences in case of academic courses also science-oriented goals are paramount. In the form of the German Qualifications Network (DQR) an aid is available for the determination of equivalence which can help at least by formal recognized vocational qualifications. So, for example, the master craftsman’s qualification is assigned to the same level as the bachelor degree. However vocationally qualified applicants cannot derive a right for the crediting of their qualifications. During the verification institutions of higher education can independently of the grading in the DQR come to the result that qualifications are not equivalent. Therefore the DQR does not have a direct influence on the crediting practice of institutions of higher education.

Apart from these problems during the verification of equivalence due to structural diversity substantive reservations are observed by several university representatives in respect of acknowledgement of equivalence which can lead to an especially strong application of formal verification criteria with regard to content, time scope and levels in the verification practice.

3.3 Generalized crediting through cooperation with vocational education and further education institutions

The decisions of the Conference of Ministers of Education and Cultural Affairs already cited above obligate the institutions of higher education “... to make use of existing possibilities of crediting and to develop procedures and criteria for the crediting of knowledge and skills acquired outside of the sphere of higher education in the

⁶ Workload = amount of work for studies in a classroom and self-study

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corresponding examination regulations”.⁷ The Conference of Ministers of Education and Cultural Affairs recommends the institutions of higher education to use cooperation with appropriate training and further training institutions in order to reduce effort related to examinations on a case-by-case basis and to enable generalized crediting for homogenous applicant groups.

An example of such cooperation is the collaboration of a university of applied sciences for SMEs (FHM) with the Cologne Chamber of Crafts. Collectively the course “B. Sc. Industrial Engineer” was developed which is based on the complete crediting of master craftsman training conducted by the Chamber of Crafts. The course was “... conceived so that competences transferred during the master craftsman training correspond to the competences provided for the bachelor course of FHM and due to equivalence can be completely credited during studies”.⁸ Thereby the allowed volume of acknowledgement of 50% was exploited completely and thus the reduction of the regular study time from 18 terms to 9 terms was achieved.⁹

It is undisputed by university representatives if vocational qualification measures in respect of conveyance of science-based fundamentals are sufficient.¹⁰

Both specified fundamental possibilities of crediting of acquired performance results of a training and qualification system in the corresponding other system and the outline of problems which are related thereto and which are partly substantial during the achievement of real equivalence of vocational and academic degrees and authorizations lead to the consideration that it is more expedient in total to conceive a bachelor course from scratch so that both the required science-oriented fundamentals and competences necessary for the achievement of a master craftsman’s qualification are conveyed integrally. This possibility is presented in the following, third option.

⁷ Cf. decision of the Conference of Ministers of Education and Cultural Affairs concerning the crediting of knowledge and skills acquired outside of the sphere of higher education in the higher education II (dated 18.09.2008), p. 3

⁸ Expert report related to the decision of the FIBAA accreditation board for programs concerning the accreditation of the course Industrial Engineer (B. Sc.) dated 27./28.9.2012, p. 13

⁹ Cf. Homepage of FHM, <http://www.fh-mittelstand.de/wirtschaftsingenieur/>

¹⁰ So in the expert report related to the initial accreditation of the course “B. Sc. Industrial Engineer” of FHM it is criticized: “Especially concerning the part of the course related to engineering sciences experts missed various basic subjects. So experts missed, for example, the following technical subjects: Fundamentals of Mechanics, Fluid Mechanics, Thermodynamics and Chemistry on the level of engineering sciences. The fundamentals resulting from the master craftsman training are oriented at crafts. The module provided in the FHM “Natural and engineering fundamentals I and II” is not sufficient in the opinion of experts for the conveyance of required fundamental knowledge of an engineer. (Expert report related to the decision of the FIBAA accreditation board for programs concerning the accreditation of the course Industrial Engineer (B. Sc.) dated 27./28.9.2012, p. 28

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4. Integral conveyance of master craftsman and bachelor within the framework of studies

On the basis of presented procedure related to the creation of equivalence as well as demonstrated problems, difficulties and challenges the third way for the design of master craftsman and bachelor degrees is presented below.

The fundamental objective of the project idea outlined here is to create an educational and qualification system where the master craftsman's qualification and the bachelor course are integral parts of a common system. Thereby all the required legal provisions and framework conditions for obtaining corresponding degrees have to be identified at first and they have to be considered during the design of a common educational and qualification pathway.

The design of such third way of a bachelor course with integral master craftsman's qualification in addition to legal provisions includes also a variety of institutional, organizational, curricular, personal and if necessary other design parameters which are clarified exemplarily in the overview below.

Overview 3: design parameters for an integral vocational and academic educational and qualification system

Fundamental design parameters of the system	Verification of necessity and suitability of...
Institutional and spatial equipment for courses and examinations	Seminar rooms, laboratories, technical rooms, libraries, examination rooms...
Sufficiency of personnel incl. lecturers and examiners	Qualifications, experiences, ideas about equipment and staffing incl. full-time and part-time lecturers and examiners
Sufficiency of personnel incl. employees for organisation, management and administration	Qualifications and experiences
Curricular and contentual requirements	(Framework) course concepts, module handbooks, minimum number of hours for modules, courses and examinations, examination requirements and tasks (written, oral, practical...)
Institutional and legal requirements	Implementing course and examination organizations, e. g. chambers, universities, educational institutions... Legal provisions for vocational and academic education pathways, e. g. admission regulations, course and examination regulations...
Practical requirements	Cooperation and practice partners, e. g. enterprises for the acquisition of practical experiences...
Other requirements	...

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If you follow this third way there are three central areas of responsibility in particular which emerge for the creation of such an integral system and which are briefly described below.

Area of responsibility A

First all existing and available legal and curricular framework conditions (as a rule laws and regulations) for the identification of (minimum) requirements of the master craftsman's examination and subject-specific comparable bachelor course should be surveyed and analyzed.

The main focus of the analysis should be especially the corresponding admission provisions, scope and duration of the course and studies (minimum workload), main topics, types and scope of examinations, requirements and scope of final examinations as well as further specific requirements if any which have to be taken into account for the creation of an integral system.

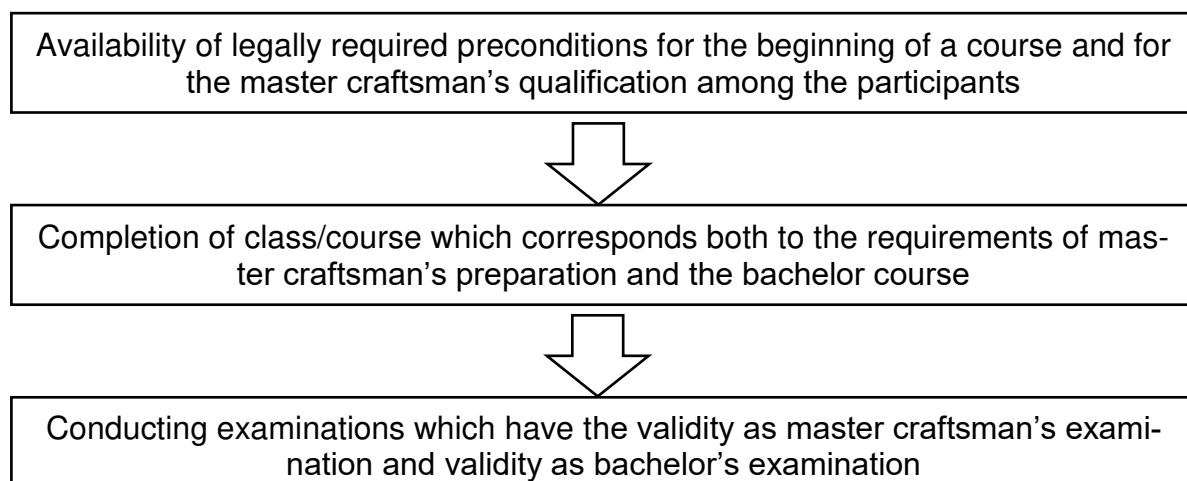
Area of responsibility B

In connection with the survey and analysis a synopsis (comparison) should be prepared for the relevant legal provisions and regulations as well as curricular benchmark figures in respect of their differences and similarities and "open points". Thereby the matching and especially not matching of the relevant legal and curricular framework conditions can be shown and the scope of substantial organizational areas can be determined.

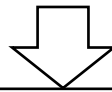
Area of responsibility C

In this area of responsibility C on a specific example the development of a kind of "blueprint" for the organization of a bachelor course with integrated master craftsman's qualification on the basis of legal and curricular required framework conditions and organizational areas can be conceived.

Overview 4: Integral attainment of a bachelor and master craftsman degree



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Double degree as master craftsman and bachelor

5. Development of a project

It was decided to develop a grant application for the conduct of a separate project for the implementation of a dual bachelor course with integral attainment of a master craftsman and bachelor degree.

5.1 Description of the project

In all the EU countries there is a distinct, quickly increasing in the future lack of management staff which limits the further development of SMEs most of all. The need for new personnel and the required competences were comprehensively analyzed by the Hanseatic Parliament for all the countries of the Baltic Sea Region.

In separate EU countries, e. g. in Germany, a big part of new personnel is acquired through vocational training, especially through master craftsman training. However the number of problems related to this education is increasing.

a) in many EU countries vocational training has lost its attractiveness, more and more young people strive for studies, also in Germany in 2016 for the first time the number of new students was higher than the number of vocational training contracts.

b) The master craftsman training is increasingly perceived as a dead-end road and not as a good alternative to studies.

c) The master craftsman training is classified in Germany like the bachelor in Level 6 of the EU qualification framework. However hardly any practical consequences are related thereto, the actual permeability is very restricted.

d) In fact higher education entrance qualification is associated with the master craftsman training; however competences which have been already acquired etc. as a rule are not credited in the studies.

e) The master craftsman degree has only limited acknowledgement on an international level.

f) Master craftsmen possess comprehensive practical knowledge, professional experiences as well as good competences in professional practice and theory. However competences in business administration and company management are less and less sufficient for the management of an enterprise. Urgently needed improvements cannot be implemented because in many handicraft trades the independent exercise is tied to the master craftsman training and these “hurdles” may not be raised.

In SMEs practical experiences and vocational knowledge are essential for the independent activity. Because many university graduates do not have these competences the SMEs can have only limited number on young managers from this circle. To solve

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this problem within the framework of bachelor courses relevant competences in professional practice and theory as well as vocational knowledge must be conveyed.

The project will develop and implement dual bachelor courses which will offer integral bachelor and master craftsman degree. The following goals of activity are related thereto:

- a) In the parts of the master craftsman training and the bachelor training attainment of urgently required improvements of competences and knowledge.
 - The master craftsman training has proved to be successful, however competences and skills acquired thereby are less and less sufficient for the entrepreneurial activity especially in the fields of “Business administration” and “Company management”. It is urgently required to raise the qualification level of master craftsman training according to the requirements of activity as entrepreneur.
 - Professional competences and practical experiences are absent in conventional courses. Accordingly the quality and the relevance of knowledge and skills of the students must be increased.
- b) Conveyance of relevant professional skills and practical experiences through the dual study approach.
- c) Implementation of important contributions to overcome the lack of new entrepreneurs for SMEs.
- d) Complete international recognition as studies conforming to the Bologna resolutions
- e) Contributions to the EU Agenda for the modernization of the European system of higher education.
- f) Improvement of attractiveness of vocational training and increased acquisition of school-leavers with higher education entrance qualification for the vocational training.
- g) Creation of more permeability without any problems related to the crediting of acquired competences.

Vocational trainings according to the master craftsman and bachelor courses take place completely independently from each other so far. Permeability and acknowledgement of already obtained competences are limited and have practically very little importance. Dual courses are developed as completely new and they are implemented for the first time within the framework of the project. They ensure the integral attainment of bachelor and master craftsman degree. Through this innovative approach entrepreneurship is promoted, the number of young entrepreneurs and management staff for SMEs increases and at the same time the attractiveness of vocational education is improved.

An important innovation is that the advantages of a master craftsman training are combined with the advantages of a bachelor training and thereby the existing qualification deficiencies in both fields of education are eliminated. For the first time a course is created which is aimed at the specific qualification requirements of the management staff in SMEs and urgently increases the relevance and the quality of competences, skills and knowledge. At the same time it leads to the elimination of problems which

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existed so far concerning the permeability, the crediting of already acquired competences and the international recognition of the master craftsman degree. With this innovative education the growing part of young people with higher education entrance qualification within the framework of a four-year course acquires at the same time apprentice/skilled worker, master craftsman and bachelor degree.

It is also innovative that knowledge and experiences during the conduct of bachelor courses as well as further training for master craftsman are consolidated from four countries and mutually new, international bachelor courses are implemented. Therefore especially innovative is the linking of vocational further training and training with intensive cooperation of institutions of higher education/universities, chambers of commerce and SMEs.

Currently the project "Common Vocational Training to Master in the Baltic Sea Region - Master BSR" is implemented by partners from Germany, Denmark, Poland, Lithuania and Latvia. Within this framework for the comprehensive vocational further training with the degree "Meister (Master craftsman)" curricula were developed which are uniform for the Baltic Sea Region and they were implemented in the participating countries. The present project is built on the results and experiences of the current project "Master BSR" and fulfills an even more important, definitely more innovative step to combine vocational further training and studies uniformly for the Baltic Sea Region so that integral master craftsman and bachelor degrees are attained.

5.2 Project consortium

The elimination of lack of management staff for SMEs as well as major improvement of competences and increase of relevance and quality of knowledge is of crucial importance to all the EU countries. Therefore it is recommended to implement the project on transnational level urgently. Thereby Best Practices are acquired internationally and solutions developed within the framework of the project are elaborated under various national conditions.

On the basis of results and experiences of the project "Master BSR" first of all partner countries were determined. Germany was chosen as a land which has implemented the dual vocational training very successfully, already possesses comprehensive experiences with dual bachelor courses and which is to a certain degree the motherland of classic training of master craftsmen in industry and crafts.

Poland and Lithuania are two countries which pursue school-based vocational training so far and have little experience with dual courses. In Poland in crafts there is a vocational further training to master craftsman which in comparison to Germany is much more oriented at job-specific competences and practical professional experiences. In Lithuania the master craftsman training was implemented in the project "Master BSR" for the first time. In both countries currently far-reaching reforms are undertaken in the sphere of vocational training (keyword "Work-based learning") and within this framework the present innovative project can be implemented very well.

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In Finland also school-based vocational training is pursued, however both in the sphere of vocational training and in studies other interesting ways are pursued for intensive cooperation with enterprises which create innovative impulses for the present project. Up to now Finland didn't have master craftsman training and it is in search of new methods of training in order to train management staff according to the needs and qualification requirements of SMEs.

Thanks to cooperation of very diverse countries with different national conditions, experiences and readiness the transfer and implementation of project results are firmly promoted in a larger number of various countries.

The partners from 4 countries Germany, Poland, Lithuania and Finland were selected so that all the experiences and competences required for the implementation of the project in the field of master craftsman training and also implementation of (dual) courses are covered by the advisory board and also comprehensive transfer capacities are included.

Germany is represented by the Lead Partner Hanseatic Parliament which possesses an extensive body of preparatory work and experiences related to the qualification of entrepreneurs and to the master craftsman training in Germany and in the international field as well as in the field of implementation of complex international projects. Besides this partner introduces 68 chambers as well as institutions of higher education/universities from 13 countries as associated partners which contribute as transfer recipients and implementation partners during the whole process of project implementation.

Furthermore from Germany the Hochschule 21 is represented which successfully trains entrepreneurs, together with medium-sized enterprises has eight different dual bachelor and master craftsman courses and it is very experienced in the development and implementation of curricula. As a subsidiary of two chambers of industry and commerce and also two chambers of crafts it can have unlimited recourse to all the legal provisions, materials, knowledge and experiences of master craftsman training and build examination boards together with chambers which are valid as master craftsman's examination and as bachelor's examination.

From Poland in the sphere of higher educational the Poznan University of Life Sciences and in the sphere of enterprises and master craftsman training the Wielkopolska Craft Chamber in Poznan are represented as partners. The university already cooperates with the chamber intensively and is very interested in the development and implementation of bachelor courses which correspond to the qualification requirements and competence needs of SMEs and also in providing SMEs with urgently needed new management staff. The Poznan Chamber belongs to the most prestigious, innovative chambers in the country. It holds master craftsman trainings and trainings of trainers in SMEs according to Polish laws.

Lithuania is represented by the Vilnius Gediminas Technical University in the consortium as a partner. It is very experienced in the development and implementation of technical and economic curricula. It has already developed a fundamental concept for the implementation of dual bachelor courses and has an intensive cooperation with the Vilnius Chamber of Commerce, Industry and Crafts and the Vilnius Builder Trainings

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Center which conducts vocational training and further training courses and in 2016 for the first time in Lithuania started the master craftsman training.

Finland is represented by the Satakunta University of Applied Sciences as project partner. This university intensively collaborates with SMEs and is very experienced in the development, implementation and evaluation of curricula. It cooperates intensively with regional vocational training centers and organizes further trainings independently.

The project is implemented by 6 experienced partners from 4 very different countries (Germany, Poland, Lithuania and Finland). Poland, Lithuania and Finland benefit among others from the German dual vocational training as well as German systems for preparing entrepreneurs through master craftsman training. Germany benefits especially concerning the following experiences from other countries:

- a) Organization of the dual training with various linking of training locations “Institution of higher education” and “SME” as well as with various possibilities for getting credit points within the framework of training at the enterprise.
- b) Various forms or previous master craftsman training, especially of very different practical parts of education (e. g. in Germany and Poland).
- c) Acquisition of competences through formal and informal learning with various crediting.
- d) International orientation of courses with promotion of mobility and permanent transnational cooperation during the development and implementation of courses with and for SMEs.

Within the framework of the project concepts, curricula etc. are oriented basically internationally for the implementation in the four different European countries. Thereby transfer and implementation in further countries are promoted very actively at the same time.

For the development, implementation and permanent conduct of new dual courses developed as part of the project two stakeholder groups are absolutely essential.

1. Institutions of higher education and universities

Institutions of higher education and universities are very important stakeholders because they develop and test dual courses and conduct them on a permanent basis in cooperation with enterprises. In 2010 the Lead Partner Hanseatic Parliament established the Baltic Sea Academy as the merger of 18 institutions of higher education and universities from 9 countries. They conduct bachelor courses, train junior management staff and entrepreneurs for SMEs and devote themselves to the promotion of innovations.

The Baltic Sea Academy and the 18 institutions of higher education/universities are associated partners of the project which cooperate as transfer recipients and implementation partners during the whole implementation of the project.

2. Chambers of industry, commerce and crafts (chambers of commerce)

During the development and implementation of dual courses the chambers of commerce must perform the following tasks.

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- a) They contribute their experiences, knowledge and materials which they have acquired during longtime conduct of classic master craftsman training to all the works.
- b) Chambers of commerce present concerns and needs of entrepreneurs in constant cooperation with institutions of higher education and universities.
- c) They attract enterprises as training partners for the ongoing conduct of dual courses.
- d) Chambers are bodies responsible for vocational training. They prepare and issue examination regulations for the master craftsman training, appoint examination boards and conduct exams. Within the framework of dual courses with integral earning of the master craftsman and bachelor degree they must cooperate when preparing examination regulations, issue examination regulations related to the master craftsman's examination according to legal provisions and cooperate during the conduct of examinations.
- e) The chambers of commerce have a keen interest in attracting qualified young entrepreneurs and management staff for their member enterprises. In view of the above they support the sustainable conduct of courses. Within the framework of their tasks related to the economic and political representation of interests and cooperation in political authorities on the municipal, regional and national level they are helpful when getting possibly required permissions and support future implementations in every sense.

Therefore for the conduct of the project and especially for the long-term implementation of project results it is essential to attract chambers of commerce as important stakeholders. The Lead Partner Hanseatic Parliament is a merger of 50 chambers of commerce from 13 countries. These 50 members are associated partners of the project which cooperate as transfer recipients and implementation partners during the whole process of project implementation.

Chambers involve a corresponding area of a region so that 50 regions from 13 countries are covered with this dissemination approach. More than 475.000 SMEs belong to the participating chambers so that SMEs can be reached on a very broad basis.

The cooperation between 50 chambers and 18 universities has already worked well for many years. The international network work is performed according to the following principles:

- a) The Hanseatic Parliament and the Baltic Sea Academy develop, test and evaluate new promotional and educational measures with few members from different countries.
- b) The finished products are transferred to all members and implementation is advised.
- c) The constant use of products as well as further developments are promoted and supported on a permanent basis by both international parent organizations.

Through the Hanseatic Parliament and the Baltic Sea Academy the 68 associated partners from the start of the project are informed about concerns, progress and results of the project; suggestions, national conditions etc. are introduced in the project work on an ongoing basis so that the project implementation is aimed at the use of results by

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all the project and associated partners in 13 countries from the very start. When performing separate project activities the associated partners cooperate directly, e. g. during testing or at conferences. So it is not about dissemination and utilization of “foreign” results but about “own” results which transfer recipients have helped shape and need for themselves. So the creation of value begins already from the application, includes the whole project implementation with mutual influence and permanent orientation at permanent use of results and it is continued after the end of the project during ongoing implementations.

5.3 Work packages and results of the project

Partners from all the countries equally work together and conduct development works for courses with integral earning of master craftsman and bachelor degrees for the professional fields of construction and electrical engineering. Therefore in every course several professions or focal points are represented obligatorily, and namely:

- Course “Construction”, professions “Bricklayer” and “Concrete worker”.
- Course “Electrical engineer”, focal points “Energy and building technology”, “Communications and safety engineering” and “System electronics”.

In order to have regard to various professions and focal points within the framework of the courses

1. during occupation-specific parts of studies “Specialist practice” and “Specialized theory” are developed in the module handbook
 - a) compulsory modules which are identical for all the professions and focal points.
 - b) optional compulsory modules which concern specific professions or focal points and are selected by students according to their corresponding profession or focal point.
2. during cross-professional parts of the studies “Business administration” as well as “Vocational education” all the modules are equally compulsory modules for all the students.

The project includes 9 work packages (WP):

WP1 Project management

WP2 Alternative models for integral dual courses

- a) alternative methods of integration of master craftsman and bachelor training
- b) alternative models of organization of dual courses and integration of initial vocational education
- c) basic model for bachelor courses with integral earning of master craftsman and bachelor’s degree

WP3 Development of four national concepts

On the basis of results of WP2 the partners from one country develop specific national implementation models with key points, responsibilities etc. and agree them with their regional partners (vocational schools, chambers, SMEs) and competent authorities.

WP4 Development of curricula and module handbook “Construction”

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A module handbook is developed for a course “Construction” in Germany which will be subsequently oriented at the conditions in Poland, Lithuania and Finland according to the results of WP3 with the collaboration of partners from each country.

WP5 Development of curricula and module handbook “Electrical engineering”

A module handbook is developed for a course “Electrical engineering” in Lithuania which will be subsequently oriented at the conditions in Poland, Germany and Finland according to the results of WP3 with the collaboration of partners from each country.

WP6 Testing and evaluation of the integral course “Construction”

Implementation, testing and evaluation of the developed course “Construction” in Germany. All the remaining partners monitor these works and sit in on during testing in Germany in order to gather experiences for own implementations.

WP7 Development and agreement of examination regulations

Development of examination regulations for the courses “Construction” and “Electrical engineering”. Drafts for both courses are agreed in every country with competent bodies so that in every case a common examination board is appointed for master craftsman’s and bachelor’s examination.

WP8 Preparation and introduction of further works

This work package includes two different bundles of activities.

- a) In all four countries comprehensive preparation of further implementations which begin at the end of the project period or directly after the end of the project.
- b) Introduction of accreditation of developed bachelor courses which is probably concluded still during the project period or directly after the end of the project.

WP 9 Transfer and implementations

Written, electronic and personal transfer of project results to 68 associated partners from 13 countries, preparation of a handbook with all the project results and distribution through bookshops, conduct of six workshops and two international consultative and transfer conferences, demand-oriented conduct of individual implementation consultations as well as implementation of various measures for further dissemination.

The following results were achieved:

1. Development and agreement of models for dual courses with integral earning of master craftsman and bachelor degree

The following results are available:

- a) Alternative models for various integration forms of master craftsman training and bachelor courses as well as for different forms of conduct of dual bachelor courses and the learning locations “Institution of higher education” and “Enterprise”.
- b) Four implementation concepts according to national conditions and needs for Germany, Poland, Lithuania and Finland.

2. Development of curricula and module handbook for a dual bachelor course “Building professions” in Germany, testing of the course in Germany and also adaptation to the national conditions in Poland, Lithuania and Finland

The following results are available:

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- a) Module handbook in Germany for a dual bachelor course “Building professions” with integral earning of a master craftsman and bachelor degree
- b) Accreditation of the course
- c) Implementation with practical testing and evaluation with at least 25 participants
- d) Three module handbooks for Poland, Lithuania and Finland which are adapted to the national conditions and needs

3. Development of curricula and module handbook for a dual bachelor course “Electrical occupations” in Lithuania and also adaptation to the national conditions in Germany, Poland and Finland

The following results are available:

- a) Module handbook in Lithuania for a dual bachelor course “Electrical occupations” with integral earning of a master craftsman and bachelor degree
- b) Three module handbooks for Germany, Poland and Finland which are adapted to the national conditions and needs
- c) Complete preparation of implementation

4. Development and agreement of examination regulations for the integral earning of a master craftsman and bachelor degree

As a result the following examination regulations are available for Germany, Poland, Lithuania and Finland for

- a) master craftsman and bachelor’s degree for building professions.
- b) master craftsman and bachelor’s degree for electrical occupations.

Both degrees are examined during one examination by examination boards consisting of examiners from both fields.

The examination regulations are an independent product of the project. They are incorporated in the accreditation of courses, furthermore regarding the part “master craftsman’s examination” these are independent regulations of competent authorities for master craftsman training/examination.

5. A further result of the project is a handbook with all the results, curricula, documentation etc. and also with detailed recommendations and instructions for use which is published in an introduced series and distributed through bookshops.

7. As a result of transfer activities and implementation consultations 50 chambers and 18 institutions of higher education/universities from 13 countries will receive all the results and implementation consultations based on demand, they will be intensively prepared for implementation so that use of project results is possible on a broad basis.

8. As a result of activities related to further dissemination of project results the following is achieved: presentations at 6 internet platforms with public access, publications in specialized and member magazines, personal presentations of results during at least 18 events of third parties in different EU countries, at least 3 press conferences and

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minimum 6 press releases with publications in mainstream media of participating countries.

9. Besides within the period of the project the following activities are conducted which results will be available at the end of the project at the earliest or shortly after the end of the project:

- a) In the participating countries preparation of implementation of dual courses developed during the project (among others acquisition and training of lecturers; attraction of enterprises as training partners, attraction of students; preparing rooms; development of teaching materials etc.).
- b) Beginning of accreditation of dual bachelor courses developed within the framework of the project. According to experience the time required for the accreditation procedures is 18 – 24 months: from assignment of an agency through filing of a self-declaration as well as inspection and on-the-spot examination to the decision. In the best case the first accreditation procedure can be completed only shortly before the end of the project, in other case shortly after the end of the project.

5.4 Dissemination and use of project results

The project objective is

- a) to develop and to implement two different dual courses with integral earning of master craftsman and bachelor's degree in four countries.
- b) to transfer the developed courses to 68 associated partners which are involved in the project work as transfer recipients and implementation partners and to provide consultations related to implementation.
- c) to establish permanent cooperation of 18 institutions of higher education/universities between each other as well as with 50 chambers of commerce so that if possible in all regions of 13 countries such training courses are implemented in all professional fields for future management staff in SMEs.

Transfer target groups "Institutions of higher education/universities"

The most important target group for transfer and dissemination activities is institutions of higher education and universities which develop integral dual courses and implement them on a permanent basis. The following participants are involved in the project:

- a) As project partners four institutions of higher education and universities which develop two corresponding courses during the project period and begin the implementation in cooperation with SMEs.
- b) As associated partners 18 institutions of higher education/universities from 9 countries. They are involved in the works from the beginning of the project, obtain all information and their suggestions, desires and conditions are included in the project works on an ongoing basis. All the results are transferred to 18 institutions of higher education/universities in written, electronic and personal form, they take part in workshops and also international consultation and transfer conferences. According to demand

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they receive implementation consultations so that they could perform eventually required adjustment works and perform implementation on a permanent basis with the support of chambers in as many of the 50 regions as possible. The institutions of higher education/universities cooperate in an institutionalized group permanently, perform development works related to corresponding courses for further occupational areas together and perform implementations based on the division of labour.

Concerning further dissemination activities also institutions of higher education and universities from regions of other countries are addressed and informed.

Transfer target groups "Chambers of commerce"

Chambers of commerce organize the initial vocational training, contribute their experiences and knowledge through master craftsman training to the works and cooperate as bodies responsible for master craftsman training when holding examinations. Besides they undertake an important task to inform SMEs and to attract them as training partners for dual courses. The following participants are involved in the project:

a) As project partner one chamber as well as

b) As associated partners 50 chambers of commerce from 13 countries. They are involved in the works from the beginning of the project, obtain all information, and their suggestions, desires and conditions are included in the project works on an ongoing basis. All the results are transferred to the 50 chambers of commerce in written, electronic and personal form, they take part in workshops and also international consultation and transfer conferences. According to demand they receive individual implementation consultations so that they could perform implementation on a permanent basis in as many of the 50 regions as possible.

Concerning further dissemination activities also chambers and other SME funding institutions from regions of other countries are addressed and informed.

Transfer target groups "SME"

During dual courses SMEs are essential training partners which acquire qualified management staff with all relevant competences, skills and requirements through their cooperation.

The SMEs are constantly informed by the chambers in writing as well as addressed by chambers during meetings, consultations etc. on an ongoing basis. 50 chambers participating in the project are joined by about 475.000 SMEs so that SMEs are informed on a broad basis and attracted for cooperation. Representatives of SMEs take part in workshops, conferences and development works and participate as training partners during tests and implementations.

Dissemination target groups "Politics and administrations"

At the regional, national and international level politics, administrations, other stakeholders and multipliers are intensively informed on an ongoing basis and addressed in person by all the project and associated partners, especially also by 50 chambers of commerce. Besides through their participation in international consultation and transfer

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conferences they are informed about the results of the project, they obtain concepts, documentation etc. Within the framework of conferences and also in bilateral discussions it is discussed with these target groups how concepts and courses can be established and funded in their countries.

The international organizations Hanseatic Parliament and Baltic Sea Academy address target groups at the international and EU level.

5.5 Effects of the project

The strong lack of entrepreneurs and management staff which will be only increasing in the future restricts in all the EU countries most of all the further development of medium-sized businesses which provide 99% of all enterprises and approximately 70% of all jobs. In several EU countries, especially also in Germany, junior specialists are attracted through the classic master craftsman training. However vocational training has significantly lost its attractiveness, moreover competences and skills must be expressly improved especially in the fields of business administration and corporate management. SMEs can attract new management staff from the number of university graduates only to a limited extent because they do not possess essential vocational competences and practical experiences.

Within the framework of the project through the development of dual bachelor courses with integral earning of master craftsman and bachelor degree the existing qualification deficiencies are eliminated, the attractiveness of vocational training is increased and important contributions are made to the promotion of entrepreneurship and to the overcoming of lack of entrepreneurs.

Target groups "Students"

Young people with higher education entrance qualification complete a four-year dual course which integrates vocational training during the both first years and ends with a master and bachelor degree. They acquire all the relevant competences and comprehensive knowledge and gather practical professional experiences with high relevance for management tasks and independent activities in SMEs.

Target group "SME"

SMEs are training partners within the framework of dual integral courses. They acquire urgently required qualified new management staff which relevance and quality of competences and skills correspond to the conditions and needs of SMEs. The number of young entrepreneurs and their qualifications are improved and the competitive ability and innovation capacity are promoted.

Educational stakeholders "Institutions of higher education and universities"

They obtain tested curricula and complete module handbooks for dual courses with integral earning of a master craftsman and bachelor degree. They implement an intensive cooperation with enterprises, increase the number of students and train those

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young people at a high quality level which meet all the requirements for the management tasks in SMEs and fulfill the best career opportunities as an independent entrepreneur or management staff in a growing medium-sized business.

Educational stakeholders “Chambers of commerce”

Their task is to support entrepreneurs and their employees and to represent economic interests. They cooperate as intermediaries between SMEs and institutions of higher education/universities, organize vocational training and as competent bodies they are partners in examination boards during the assessment of the integral master craftsman and bachelor degrees. They help the participating enterprises to overcome the lack of management staff, create preconditions for the preservation of existing as well as creation of new jobs and strengthen sustainable cooperation of SMEs and institutions of higher education/enterprises through cooperation in the sphere of education and therefore the innovative strength of their member enterprises in the future.

Stakeholders of “Vocational training and higher education policies”

The aim is to effect the improvement of attractiveness of vocational training; at the same time important contributions are made to the “Support of growth and employment – an agenda for the modernization of the European higher education system”. Vocational further training and higher education experience close linking, high permeability and full international recognition of earned degrees are achieved. Through integration of vocational, master craftsman training and higher education current problems related to crediting of competences acquired during vocational training in the studies become obsolete.

Within the framework of the project period the following results and effects are achieved in 4 regions of different countries:

a) in Hamburg, Northern Germany: testing, accreditation and implementation of the course “Building professions” as well as preparation for the implementation of the course “Electrical occupations”.

b) preparation for the implementation of the course “Building professions” and “Electrical occupations” in

- Poznan, Poland.
- Vilnius, Lithuania.
- Satakunta, Finland.

In these four regions the dual, integral courses are conducted continuously and correspondingly management staff and entrepreneurs for SMEs are specifically qualified so that the urgently required junior staff for SMEs is attracted. The consequences are that existing enterprises and jobs are being preserved and new ones are being created. At the same time educational stakeholders in these regions receive a comprehensive handbook using which they can develop and implement corresponding courses for further occupational areas whereby “only” curricula for parts of the courses “Vocational practice” and “Vocational theory” related to this occupational area must be developed.

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Through international cooperation in the field of development and cooperation established as part of the project the relevant stakeholders will acquire these development works in the future for further occupational areas based on the division of labour and corresponding curricula and module handbooks will be exchanged between one another.

A significant spatial extension to 50 regions is achieved within the framework of the project through transfer of all the results of the project to 50 chambers of commerce as well as 18 institutions of higher education/universities from 13 countries which receive individual implementation consultations. Thereby there are about 10 EU countries and 3 neighboring countries. Institutions of higher education/universities conduct courses in cooperation with SMEs as training partners. Thereby they receive sustainable support from the chambers which are working on a regional level. The chambers are joined by about 475.000 enterprises so that SMEs are reached on a broad basis in all the countries of the Baltic Sea Region. Thereby the goal is pursued to achieve effects which are implemented during the conduct of the project in the four partner countries in the midterm in as many of the 50 regions from 13 countries as possible. Besides politics, administrations, further stakeholders and multipliers from these countries are involved through workshops and international consultation and transfer conferences.

At the national and international level within the framework of the project cooperation of leading stakeholders, chambers of commerce and SMEs, institutions of higher education/universities as well as politics and administrations is strengthened intensively. Ultimately thanks to the project an intensive information and experiences exchange between each other in the sphere of learning is realized in 13 countries. The 18 institutions of higher education/universities involved as associated partners have already maintained an intensive cooperation in the field of development and implementation of training courses and innovation promotion for SMEs for many years. This cooperation is clearly extended within the framework of the project so that in the future

- a) development works related to curricula and module handbooks for dual integral courses for further occupational areas based on the division of labour can be performed by 18 institutions of higher education/universities and conducted cost-effectively.
- b) implementation is performed in possibly 18 institutions of higher education/universities whereby courses based on the division of labour for smaller occupational areas are implemented at fewer sites in order to secure a sufficient large number of participants.
- c) this future-oriented training of entrepreneurs and management staff includes the whole Baltic Sea Region and all occupational areas.

Further effects at the national and international level are:

- a) Efficient training of entrepreneurs and management staff with high relevance and quality of competence and skills for SMEs is created.

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- b) Growing number of young qualified entrepreneurs so that existing lack is eliminated and business transfer by generation change and start-ups is secured.
- c) Through funded entrepreneurial training sustained strengthening of economic success and of innovative continuation of SMEs and preservation of existing and creation of additional jobs associated therewith.
- d) Increase of attractiveness of vocational training, creation of high permeability and avoidance of existing problems by (actually absent) crediting of competences acquired during vocational training in the studies.
- e) Unlimited international recognition of acquired degrees.

The project results are discussed during international consultation conferences and included in the works at the EU level and moreover make important contributions related to the modernization of European systems of higher education, for the further development of vocational training and implementation of work-based learning as well as for the sustainable support of SMEs.

5.6 Summary

In all EU countries there is a clear, rapidly growing lack of management personnel which strongly restricts the growth of SMEs. The Hanseatic Parliament comprehensively analysed the demand for young managers and the necessary competences for all countries around the Baltic Sea Region.

In separate EU countries, e.g. in Germany, a large proportion of young entrepreneurs is attracted to vocational training, in particular the master craftsman training (Meister). However, there are growing problems.

In many EU countries vocational training has lost much of its attractiveness; more and more young people are taking up academic studies. Master craftsman training is often perceived as a dead-end and not really as a good alternative to studying.

In Germany master craftsman's degree program is just like the academic bachelor's level 6 of the European qualification framework. However, this does not have any practical effects and the actual permeability is very low.

As a rule, competences already acquired during the master craftsman training are not recognized for a study program.

Internationally the master craftsman degree is accredited only to a very limited extent. The master craftsmen have extensive practical knowledge, professional experience as well as good competences in practice and theory. On the other hand, competences in business management and company management are not efficient to manage a company.

In SMEs, practical experience and professional knowledge are indispensable for a company. Since many university graduates lack these competences, SMEs can only recruit few graduates from this group. Therefore the relevant competences in practice and theory as well as professional knowledge must be taught in study courses.

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The project develops dual bachelor study courses that combine two degrees: the academic bachelor's and the master craftsman's degree, and thus pursues the following goals:

- (A) increasing relevance and quality as well as improving competences and knowledge in the parts of the master craftsman's program and in the parts of the Bachelor's degree
- (B) transfer of relevant professional skills and practical experience through the dual study approach
- (C) realize important contributions to overcoming the lack of entrepreneurs in SMEs
- (D) a Bologna-compliant study, full international recognition
- (E) contribute to the EU agenda for the modernization of Europe's higher education systems
- (F) increasing the attractiveness of vocational education and training
- (G) creation of permeability and reduction of recognition problems

The project is carried out by 6 experienced partners from Germany, Poland, Lithuania and Finland. The internationally active lead partner is particularly experienced in the training and support of SMEs as well as in the implementation of complex projects.

A chamber joins the partnership to bring in its experience in master craftsman training and represents the interests of SMEs in the project.

4 partners are universities; one has extensive experience with dual courses in cooperation with SMEs.

The project requires a 3-year implementation period to process 9 work packages with the following main activities:

1. Project management and implementation of 6 project partner meetings and 2 international multiplier events
2. Development of alternative methods and models for the implementation of dual courses of studies with the integral achievement of master craftsman's and bachelor's degrees
3. Development and coordination of 4 national implementation concepts
4. For construction as well as for electrical sector: development of curricula and module handbooks for two integral dual courses according to the guidelines and structure requirements for the accreditation of bachelor courses
5. Testing, accreditation and implementation of the course of studies for construction professions
6. Development and coordination of examination regulations
7. Introduction of further accreditations and preparation of further implementations
8. Transfer of the project results to 68 chambers and institutions of higher education/universities from 13 countries, which are involved as project partners in the project implementation and receive sustainable implementation advice, as well as implementation of further dissemination activities

All concepts, curricula, etc. are internationally oriented for use in the 4 different European countries. At the same time, transfer and implementation in other countries are strongly encouraged.

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For the five products of the project

- Blueprint models and concepts for integral, dual courses of studies,
- Module handbook for the course of studies of construction,
- Module handbook for studies of electrical engineering,
- Integral examination regulations for master craftsman's and bachelor's degree and
- Handbook of all project results and wide distribution

a highly sustainable use is ensured by means of a process-oriented expansion of the implementation regions, including financing.

5.7 The state of work and further procedure

The complete project application was submitted for funding in the spring of 2017 in the program: Erasmus+, Key Action: Cooperation for innovation and the exchange of good practices, Action Strategic: Partnerships for higher education and Main Objective: Development of Innovation. The grant application was approved in July 2017, the project started on 1 September 2017 and runs until 31 August 2020.