WP5

Deliverable 5.1 - Recommendations for EWF's Quality Assurance System

TABLE OF CONTENTS

1

Aim and background

The WOW project addresses the need of establishing and developing VET-business partnerships on apprenticeships in European Welding Qualifications. These would allow maintaining the industry competitiveness and captivate younger generations into the manufacturing sector.

Work based-learning (WBL) is claimed to be needed by all stakeholders, companies and learners, and has been referenced in the EWF strategy which is also aligned with the EC priorities, but still not put into practice in the EWF System, as no formal partnerships have been established between companies and VET centres (Authorised Training Bodies – ATBs) neither formal procedures and rules for a harmonised implementation at European level. One of the biggest challenges in implementing WBL in a harmonised qualification system, like the one from EWF, is to ensure that the learning outcomes obtained in WBL are recognised and follow the quality standards and industry requirements of the qualification the trainee is trying to obtain.

WOW project intended to introduce a model of WBL, namely, "on-the-job training periods" in companies and/or industrial environments in the European Welding Practitioner (EWP) and in the European Welding Specialist (EWS) qualifications, aligned with European tools, such as the European Qualifications Framework (EQF), learning outcomes approach, European Quality Assurance for Vocational Education and Training (VET) and European Credit system for VET, as well to establish the structure, quality requirements and cooperation strategies for the implementation of WBL in the Welding Sector.

EWF, as private system responsible for the management of European Qualifications, has its own quality assurance process, where the agreement on the definition of International Qualifications is set through the approval of training Guidelines. The EWF qualifications are developed by Working Groups that have representatives from the 30 EWF national members, and the members are the National Welding Associations/Societies/Institutes in each country, mostly industries memberships organisations, with a great link to the National industry and services. When a training guideline is finished, the approval is made by the EWF members in each country.

According to the existing rules, EWF authorises one national organisation for awarding a given EWF qualifications (scope), which is the Authorised Nominated Body (ANB). The ANB in each country is responsible for issuing the EWF qualification diploma's, to perform the applicant's evaluation/examination and to approve and supervise the activities of the Authorised Training Bodies (ATBs). The role of the ATBs is to delivery training in conformity with the defined rules and operational procedures for the implementation of the EWF Qualification system, which include a set of conditions such as: alignment with EWF syllabus, adequate facilities, teaching staff requirements, among others.

Finally, the assessment in the EWF training and qualification system relies on transparent Learning Outcomes (LOs) supported by a harmonised evaluation system with consistent assessment rules. Along WOW project, a careful analysis was made to the existing Quality Assurance System, in order to introduce new Quality elements that would support and guarantee a harmonised implementation of WBL in the different European countries. A summary of the developed Quality Assurance elements for WBL is provided in table 1.

EWF quality assurance system - Pillars	WOW – Quality assurance for the implementation of apprenticeships
Training guidelines – minimum requirements for training	- Training Guidelines for the addressed Qualifications (EWP and EWS) encompass a specific WBL training path - A selection of Competence Units that can be selected and stablish as recommended period of on job-training
Rules and operational procedures for the harmonised implementation	Development of practical arrangements and procedures: - Contract Agreement for apprenticeship in the Welding Sector (rights and obligations of the parts) - Training Programme Template
Harmonised assessment	The examination rules and procedure remain the same
ANB and ATB roles and their compliance with implementation rules and procedures	- Extended scope and roles for ANBs and ATBs - Establishment of criteria to enable cooperation between training centres and companies - Development of a Quality model to be used at European level to assess the quality of WBL

WBL Quality Assurance Recommendations for EWF Quality Assurance System

This document developed for EWF members intends to set of recommendations on WBL in the European Welding Qualifications to be implemented in the EWF' Quality Assurance System. These recommendations presented below were developed based on the approach and the results obtained in the WOW project.

Recommendation 1 – Reference the required conditions for work-based learning in the EWF Training Guidelines

The Guideline EWF-IAB 252 for Personnel with qualification for welding coordination (latest version) provides information on the minimum requirements for the education, examination and qualification. This guideline composed of three parts, describes the requirements for the awarding the diplomas for the European Welding Practitioner and the European Welding Specialist among other profiles, such as the European Welding Technologist and European Welding Engineer.

In the project WOW a Guideline on the mutual learning outcomes was developed, addressing the extensive work of recognising directly learning outcomes inside each competence unit considered eligible for work-based learning by analysing all the topics/knowledge and skills. This resulted in the Appendix A for Welding Coordinators Guideline that shall be included in the EWF training Guidelines.

To access the WBL qualification path, the same access conditions for EWS or EWP described in Guideline EWF-IAB 252 shall be considered as applicable.

For EWP only, and in case of apprenticeship, it shall be considered that the trainee satisfies the access conditions (scholarship diploma and welder certificate) and experience only after the internship at the company. In such a case, the EWF Diploma shall be awarded by the ANB only after the scholarship diploma/certificate is issued by the relevant organization.

The training programme shall be designed balancing time spent in formal training at the ATB and in the company. The training structure (order of modules as designed in doc. Guideline EWF-IAB 252) should be followed or, at least, part 2 should be performed before part 3). However, it may be accepted that the WBL is performed following a different order under particular circumstances, including (but not limited):

- when distances to be covered by trainees require;

- depending on the availability of mentors and in-company trainers;

- depending on the availability of welding related work in the company.

Moreover, within the training programme, an introduction of the company to the trainees shall be included, as necessary, in order to introduce the company (structure, products, standards, etc.), the health and safety and any other applicable rules.

The training programme shall be presented to the ATB for evaluation and approval, and it shall include information on:

- the introduction (see above)

- items to be covered

- information on mentors and in-company trainers covering the items (including information on their qualifications – knowledge and experience - on the items taught)

- time and place of delivery (when and where WBL will be performed)

- information on how the WBL is monitored by the mentor.

The training programme shall be also presented to the trainee before he/she starts the WBL part of his training.

The assessment shall ensure the participant accessed proper knowledge against the Learning Outcomes as defined in the training programme and the relevant scopes of EWF Training Guidelines. The assessment shall be addressed only at items dealt with WBL, and, at discretion of the ATB, it may be performed with:

- essay questions

- multiple choice questions

- projects or products produced

- professional interview.

Based on the approved procedure of the ATB failure of the end-point assessment may lead to the requirement for the trainee to attend one or more items in formal training at the ATB.

Trainee successfully passing the end-point assessment will be granted the right to seat in the final examination for each module as having the training considered as formally attended.

The results of the end-point assessment shall be scored and recorded together with the other applicable documents (e.g. logbook).

As example for the EWP or EWS the proposed scheme for the WBL training path is composed by the following:

- Formal training performed according to the applicable revision of the Guideline EWF-IAB 252 document;
- Work-based learning performed at the host-company according to Quality Assurance Guideline for the recognition of work-based learning;
- End-point assessment to evaluate the WBL process.
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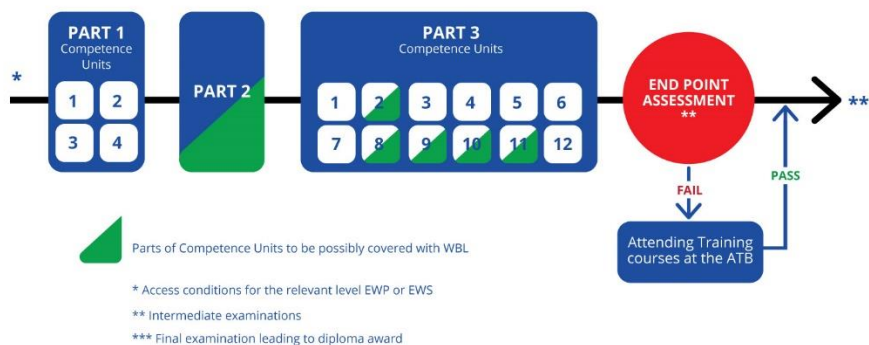
Part 2 - Practical Education

- Oxygas welding and cutting
- MMA/TIG
- MIG/MAG + Flux Cored Arc Welding
- Other Welding Process

Part 3 - Competence units (CU)

- CU 2 Welding and cutting conventional processes
- CU 8 Design for welding & brasing
- CU 9 General features for quality management
- CU 10 Quality assurance, quality control on welded joints
- CU 11 Tests used for the quality control of welded joints

The eligible parts of the guideline considered to be delivered in-company environment were evaluated having as reference the capability related to the companies involved in the welding sector, based on the expertise of the consortium partners.

As future recommendation to extend the LOs mutual recognition to other European Qualifications, the WOW approach of referencing WBL in training guidelines and selecting the competence units shall be used.

Recommendation 2 – Define the ANB's, ATB and companies' roles in WBL

The organisations involved in the implementation of WBL in EWF system are the Authorised Nominated Bodies (ANBs), Authorised Training Bodies (ATBs) and the Companies. Thus, the implementation of WBL in the EWF qualification Systems implied the redefinition of roles of the main players in order to encompass all WBL related responsibilities, as follows:

ANB

- All EWF – ANB are responsible to agree the minimum requirements for education and training, in terms of objectives, scope, Learning Outcomes and the contact (teaching) hours to be devoted to achieving them.
- confirms that the ATB fulfils the requirements for delivering training in accordance with one or more EWF guidelines (EWF 656 latest edition), in this case that is accordance with the Quality Assurance Guideline for the recognition of work-based learning.
- shall provide guidance and support to companies not yet certified by an Approved Nominated Body for Company Certification (ANBCC) of the EWF, as the first engagement in a WBL path can be considered as part of the company certification process.
- confirms that the trainees fulfil the requirements for examination.
- responsible for the final exams and for awarding the EWF Diplomas.

ATB

- Approved by the ANB for the specific scope of the Quality Assurance Guideline for the recognition of work-based learning, based on a written procedure.
- Responsible for approving the companies and the qualification program against the requirements.
- Responsible for assigning specific items to be dealt with in WBL.
- Training duration in WBL has to be estimated by the ATB, based on different factors.
- Supervise companies and trainees throughout the WBL process.
- A tutor shall be assigned to each trainee, will be responsible to provide support to the trainee. Also, responsible for the periodical assessment of the training activities.
- Provide necessary templates and instructions to company and trainees.

Company

- The company shall be certified according to ISO 3834-2 or 3834-3; the certificate shall be issued by and Approved Nominated Body for Company Certification (ANBCC) of the EWF (or IIW) or by an accredited certification body recognised by the European Accreditation (EA) and International Accreditation Forum (IAF)
- Agree on the training programme, in line with its operations and with the learning outcomes expected.
- Grant access to tasks and associated equipment to participants for WBL.
- Assign the trainee to a mentor, responsible for training and supporting the candidates in the company. The qualification of the trainer should be at the minimum the level of qualification foreseen for the participant or higher, and properly experience in coordination tasks.
- The mentor may select in-company-trainers, based on their qualification and experience on the specific subject to be dealt with the WBL training.
- Approved companies shall be registered with all the relevant information included in the platform of the project.
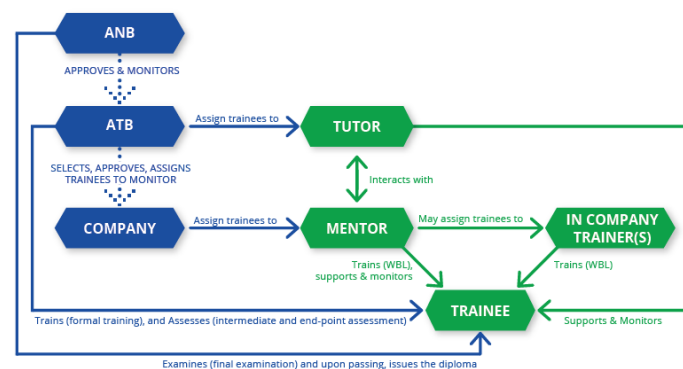
Figure 1 - Roles in WBL

After the piloting, the WOW project partners have agreed on specific recommendations regarding the cooperation arrangement between companies and VET provider to guarantee the future sustainability of the WBL Model implementation in the Welding sector, which include suitable arrangements and tools to implementation of the Apprenticeships; clear communication of rights and obligations of trainees, training centre/ATB and companies; early identification of regional training companies and its condition, willing to continue this cooperation with other trainees; good preparation of the intervenient in terms of WBL principles, and tools; and use of the platform is crucial for the success of the cooperation and the use of an effective platform for continuous communication and monitoring.

Recommendation 3 – Establishment of Quality Assurance criteria for the cooperation between ATBs and Companies

The establishment of criteria to assess the quality, engagement and sustainability of the partnership shall be required to guarantee harmonised implementation of work-based learning schemes at European level and within the EWF network.

The criteria presented as baseline to perform this assessment is stemming from two documents: 1) the Quality Assurance Guideline which establish some principles for the work-based learning being recognised by the EWF's quality assurance system and EWF's membership; and 2) the Council Recommendation on a European Framework for Quality Effective Apprenticeships (2018).

The following table presents the criteria from the Quality Assurance Guideline, deemed relevant to be assessed and the arguments/ideas that support its selection.

Criteria	Argumentation supporting the applicability
EWF's Quality Assurance Guideline for Recognition of Work-based Learning	
1. General quality of the partnership	Its's required to perform this assessment to capture what needs improvement at local and regional level.
2. Tutors	Tutor is a role envisaged in this route, as a pedagogic element from the Authorised Training Centre (ATB).
3. Mentor	Mentor is a role envisaged in this route, as a pedagogic/professional element from the company.
4. In-company trainer	In-company trainer is a role envisaged in this route, as a pedagogic/professional element from the company.
5. Facilities	The compliance of the company with health and safety requirements of the guideline in the company and with ISO standards.
6. Equipment	The compliance with health and safety requirements and have available all the equipment necessary to undertake in-company training.
7. Supporting tools	The tutorials developed in the project to explain the quality assurance rules, requirements, rights and obligations of each major stakeholder involved in this route and the platform, within this one the tutorials.
European Council Recommendation (2018)	
1. Written Contract	A three-folded-party contract is part of the documentation developed under this project (D.3.5 – Kit of documents).

2. Learning Outcomes	The intended learning outcomes to be achieved are presented in the deliverables 1.2 – Guideline with selected learning outcomes and 2.1 – Quality Assurance Guideline, mirroring key-competences necessary for the development of welding coordination activities and promote vertical career progression (from Practitioner to Specialist).
3. Pedagogical Support	During the design of the framework that will allow to operate the work-based learning scheme, the mentor, tutor and in-company trainer are roles that will be engaged, in order to ensure feedback is provided to the trainees and continuous monitoring and assessment of the learning process in a company setting.
4. Workplace Component	The Guideline EWF-IAB 252 for Welding Coordination was reshaped and redesigned have more clearly stated job functions and job activities comprehending a workplace component for all the competence units, but also inside each competence unit, dedicated learning outcomes that can be assessed in this setting (Deliverable 1.2 – Guideline of the eligible learning outcomes).
5. Pay and/or Compensation	Not Mandatory according to EWF's Quality Assurance Guideline
6. Social Protection	National legislation in what refers to social protection should be applied.
7. Work, health and safety conditions	The "authorisation" of companies to host trainees comprehends, as already mentioned the compliance with health and safety rules to safely undertake in company-training.
8. Regulatory Framework	The deliverable 2.1 – Quality Assurance Guideline is a cornerstone in WOW project for a smooth development of the subsequent deliverables and reference. It states the rules, duties and rights for all stakeholders involved, including for the companies offering apprenticeships positions to be recognised/ "accredited" under EWF system.
9. Involvement of social partners	The consortium is composed of sectoral representatives, namely the European Federation for Welding, Joining and Cutting (EWF) it covers the European scope and a national one: Asociación Española de Soldadura y Tecnologías de Unión (CESOL). These organisations have close relationship with industry representatives, aligning the apprenticeship schemes with industry views and requirements.
10. Support for companies	Support for companies, under this project, is devised to occur in a first instance, through the tutorials on WBL procedures meant for this party for inquiries purposes. Funding and financial support for sharing costs provided for the companies is not applicable.

11. Flexible pathways and mobility	These qualifications, as shown in the State-of-the Art Report, are already linked to the EQF for some countries. This apprenticeship scheme is embedded in qualifications allowing the awarding of a common diploma that is recognised by the industry. The modular approach allows some competence units to be recognised across various qualifications (e.g. for Inspector and Coordinator) and the stand-alone validation of competence units. Besides the previous fact mentioned, the design of the Guideline EWF-IAB 252 for Welding Coordinators enables progressing from vertically across qualification levels, without repeating mutual content.
12. Career guidance and awareness raising	Different roles are considered for each stakeholder in respect to mentoring and tutoring to ensure the learner is kept on task and receives the necessary support. Please refer to the deliverable 2.1 – Quality Assurance Guideline.
13. Transparency	Transparency is ensured for the public and all specific interested stakeholders as, firstly, the information regarding the guideline is available online (Part 1 - Public part and private respectively – syllabus) and, secondly, the EWF members (private companies and other organisations) have full access to the necessary documentation needed for implementing the scheme. The deliverables of the project will also be publicly available, as well as the tutorials tailored for each of the stakeholders explaining the process.
14. Quality assurance and graduate tracking	EQAVET indicators are expected to be used to assess the apprenticeship scheme, which are detailed in the Deliverable 6.1 - Quality Plan and that will be monitored and reported within the deliverable 7.1 – Evaluation Kit. Mechanisms inside the platform were also developed to monitor and track the accomplishment of learning outcomes and mastering of job functions and job activities.
15. Implementation at national level	It is aligned with industrial relations systems since some of the organisations are industrial and associations of industrial companies and the guideline is complying with what welding industry requires. Referring education and training practices – the deliverable 1.1 - State-of-the-Art report is gathering and highlights the good practices from each country of the consortia plus Germany and The Netherlands.

Recommendation 4 - Use the WBL Quality Model to guarantee a harmonised evaluation of the partnership cooperation in the Welding Sector

In order to measure quality of the WBL system, a model was developed to evaluate the apprenticeship experience in the context of the Welding Sector. The methodology used in the WBL Quality Model was based on the selection of criteria (now onwards named "categories") linked to the numerical evaluation of a questionnaires' results realized by the stakeholders involved in WBL. The detailed description of the Model is provided in the appendix section.

The selected categories are the following; e.g. Facilities, Contract, Health and Safety, Work Based Learning, Platform, Pedagogical Support, Learning Experience, Industry Needs, General Appreciation) and 3 Actors/Participants (Trainee, Tutor, Mentor).

Furthermore, the Model has the objective to measure the quality among three different pillars: Quality based on the Categories described above concerning each one of the Actors individually; Quality based on the Categories concerning all Actors together; Quality of the Relationship between the three different Actors.

The Quality Indicators are based on the relevance each one of the Categories has on the Overall Quality, the relevance of each Question on specific Category (when compared with different Questions of the same Category) and on the relevance each Question has on its contribution for a specific Relationship between participants.

The Model is mainly based on weighted averages. One of these averages is the comparison between different questions (from the questionnaires) taking into consideration the weight of the question on the Quality of a specific Category. Another weighted average concerns with the value that each one of the actors has on the quality of a specific Category. Furthermore, there was also evaluated the weighted average of each Category on the Overall Quality of the WBL. Finally, each question value was weighted against remaining questions on its contribution to the Relationship Quality.

The Model was created with the main objective to guarantee a harmonised assessment of the WBL cooperation in WBL applied in different organisations and countries covered under the EWF network, by using a simple and clear evaluation method for the apprenticeships.

It shall be replicated in the future with other qualifications to withdraw conclusions on how the WBL worked as an overall experience, as well to describe the quality of the interactions between different stakeholders and the determine the quality of each category.

Conclusion

In this document "Recommendation for EWF's quality Assurance system", four main best practices were described for the integration and update of the EWF guidelines and Quality Assurance System according to work-based learning principles, methodologies and tools.

Furthermore, WOW partners proposed the creation of a working group to the EWF Technical Committee to deal with WBL issues and guarantee its integration in the European Welding Qualification System. The role of the WBL working groups will be to update the Guidelines on WBL and the Quality Assurance System as well to foster the integration and implementation of the methodology in other qualifications (ex: addictive manufacturing) and countries.

In order to improve the overall impact of WOW project, this Recommendations document can be considered a basis for the implementation of a WBL system in Welding in all European countries members of EWF.

Annexes

Annex 1 – Feedback Questionnaire

	Questionnaire - Trainee
Facilities	In your opinion, did the facilities respect the Health and Safety regulation? *
	Were the facilities clean? *
	Was there a consistent number of equipment for welding training? *
	Did you had access and used all the equipment required during the training? *
Contract	Was the in-company training period hold under a mobility programme (e.g Studying and Traineeships abroad programme?)
	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution?
	Did the contract include necessary insurance as required by national law and legislation?
	Did your contract include a pay and/or compensation?
	Was the contract content clear?
Health and Safety	Were you informed about health and safety issues related to the apprenticeship, workplace and job-related risks? *
	Did you receive any training on health and safety issues related to the tasks to be performed in the workplace?
	Did you receive all necessary instruction to manage Health and Safety issues?
	Did you get (or did you have access to) devices and Personnel Protection Equipments (PPE) as required to manage Health and Safety issues? *
Work Based Learning	Were the principles of work-based learning (WBL), the rules of your training, your duties and rights made available to you? *
	Were the rules for WBL scheme, your duties and rights clear?
	The apprenticeship duration was enough to develop all the Learning Outcomes necessary?
	Was all the necessary information related to the WBL process publicly available? *
Platform	Was the WBL platform user-friendly?
	In your opinion, the information on the tutorials was clear?
	Was the information on your "Profile section" of the WBL platform sufficient?
	Was the information on the ATB/Training Centre "Profile section" of the WBL platform sufficient?
	Was the information on the Company "Profile section" of the WBL platform sufficient?

	Was the information on the "Library section" of the WBL platform easily accessible?
	Does the "Evaluation/Validation Section" of the WBL platform provide a clear understanding about the assessment of the Learning Outcomes and activities? *
	Did you find that the "Apprenticeship Profile" compiles all information you required? *
	Was it easy to report all the evidences for the activities (logbook) done during WBL?
	Did you used "Events" and "News section"?
	Did you find the "FAQ section" useful to clarify your doubts?
Pedagogical Support	Did you find the training programme suitable?
	Did you find all the material you required?
	Did your tutor provide you the necessary support?*
	Did your mentor provided you the necessary support? *
	Do you consider that the mentoring and tutoring was consistent to keep you on task? *
	Was there any communication between in-company trainers, mentors and ATB/vocational training centre to manage the pedagogical support? *
Learning Experience	Did you receive information on the company background (e.g structure, products, standards, etc)?*
	Were the learning outcomes clearly defined? If not, which area you feel is less covered? *
	Did the company complied with the agreed learning experience in the workplace?
	Do you consider that the tools used for continuous monitoring (logbook, interviews, questionnaires, projects, products created) and end-point assessment are suitable to assess the acquired knowledge and skills? *
	Do you consider that you have gained new knowledge and skills? *
	Do you consider the evaluation method effective to assess the activities and achievements (learning outcomes) of the apprenticeship?
	Did the tutor (ATB/Training Centre) checked your achievements on time in the WBL platform?
	Did the mentor (Company) checked your achievements on time in the WBL platform?
	Are you satisfied with the knowledge achieved at the in- company trainer? *
	Do you consider that this WBL through the apprenticeship scheme allows you to progress in your career? I*
General appreciation	Would you undertake another apprentice with these organisations? *
	Would you recommend this partnership for WBL to others? *

	Questionnaire - Tutor
Facilities	In your opinion, did the facilities respect the Health and Safety regulation? *
	Were the facilities clean? *
	Was there a consistent number of equipment for welding training? *
Contract	Was the in-company training period hold under a mobility programme?
	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution? *
	Did the contract include necessary insurance as required by national law and legislation? *
	Did the contract include a pay and/or compensation for the trainee? *
Work Based Learning	Were the principles of WBL, the rules, your duties and rights of EWS/EWP training and qualification made available to you?
	Were the rules for WBL scheme, your duties and rights of EWS/EWP training clear? *
	Was all the necessary information related to the WBL process publicly available? *
	Did the student acquired the knowledge required through this teaching method?
	Did you find the need to extend the apprenticeship so that the trainee could consolidate the knowledges acquired?
	Did the company accomplish the task through learning experience properly carried out in a workplace? *
Platform	Did you find it easy to create a "New apprenticeship" in the WBL platform? *
	Did you find it easy to create a "New trainee" in the WBL platform?
	Did you find it easy to create a "New partner company" in the WBL platform?
	Was the platform user-friendly? *
	Did the tutorials had relevant information and helped you with the Work-based (WBL) experience? *
	Was the information on your "Profile section" of the WBL platform sufficient?
	Was the information on the Trainee "Profile section" of the WBL platform sufficient?
	Was the information on the Company "Profile section" of the WBL platform sufficient?
	Was the information on the "Library section" of the WBL platform easily inserted?

	Does the "Evaluation/Validation Section" of the WBL platform provide a clear understanding about the assessment of the Learning Outcomes and activities? *
	Did you find that the "Apprenticeship Profile" compiles all information you required? *
	Were the logbooks/proves adequate to guarantee that the activities were done regarding each Learning Outcome?
	Did you used "Events" and "News section"?
	Did you find "FAQ section" relevant?
Pedagogical Support	Did you provide support to the trainee? *
	Did the in-company trainer revealed relevant qualification and experience? *
	Was the mentor in liaison with you? *
	Did you find the training Programme suitable?
	Did you find all the material you required?
	Do you consider that the mentoring and tutoring was consistent to keep the trainee on task? *
	Was there any communication between in-company trainers, mentors and ATB/vocational training centre to manage the pedagogical support? *
Learning Experience	Were the learning outcomes clearly defined? *
	Do you consider that the tools used for continuous monitoring (logbook, interviews, questionnaires, projects, products created) and end-point assessment were suitable to assess the knowledge and skills achieved by the trainee? *
	Do you consider the evaluation method effective to assess the activities and achievements (learning outcomes) of the apprenticeship?
	Did you check your achievements on time in the WBL platform?
	Do you consider that the skills / knowledge achieved by the trainee through the apprenticeship scheme will allow him/her to progress inside the company? *
Industry Needs	Do you consider that this WBL scheme is aligned with the needs of the welding industry? *
	Do you consider that the implementation / monitoring of the apprenticeship scheme in your country was an easy process? *
	Do you consider that the WBL scheme could be applicable to your national education and training practices? *
General Appreciation	Would you be open to further engage in extended/another WBL arrangement with these organisations? *
	Would you recommend this partnership for WBL to others? *

	Questionnaire - Mentor
Facilities	In your opinion, did the facilities respect the Health and Safety regulations? *
	Were the facilities clean? *
	Was there a consistent number of equipment for welding training? *
Contract	Was the in-company training period hold under a mobility programme?
	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution?
	Did the contract include necessary insurance as required by national law and legislation? *
	Did the contract include a pay and/or compensation for the trainee?*
Health and Safety	Was the trainee informed about health and safety issues related to the apprenticeship, workplace and job-related risks?
	Did the trainee receive any training on health and safety issues related to the tasks to be performed in the workplace?
	Did the trainee receive all necessary instruction to manage Health and Safety issues?
	Did the trainee get (or did you have access to) devices and Personnel Protection Equipment's (PPE) as required to manage Health and Safety issues?
WBL	Were the principles of WBL opportunities, the rules, your duties and rights of EWS/EWP training and qualification made available to you?
	Were the rules for WBL scheme, your duties and rights of EWS/EWP training clear? *
	Did you find the apprenticeship duration was enough for the trainee to consolidate the knowledges acquired? *
	Carrying out this apprentice was good for the Company?
	Was all the necessary information related to the WBL process publicly available? *
	Did the student accomplish the task through learning experience properly carried out in a workplace? *
Platform	Was the platform user-friendly? *
	Did the tutorials had relevant information and helped you with the WBL experience? I*
	Was the information on your "Profile section" of the WBL platform sufficient?
	Was the information on the Trainee "Profile section" of the WBL platform sufficient?
	Was the information on the ATB/Training Centre "Profile section" of the WBL platform sufficient?
	Was the information on the "Library section" of the WBL platform easily accessible?

	Does the "Evaluation/Validation Section" of the WBL platform provide a clear understanding about the assessment of the Learning Outcomes and activities? *
	Did you find that the "Apprenticeship Profile" compiles all information you required? *
	Was it easy to report all the evidences for the activities (logbook) done during WBL?
	Did you used "Events" and "News section"?
	Did you find "FAQ section relevant"?
Pedagogical Support	Did you provide support to the trainee? *
	Do you consider that the mentoring and tutoring was consistent to keep the trainee on task? *
	Did you find the training programme suitable?
	Did the student had access to all training material required?
	Were you in liaison with the ATB / Vocational Education Centre? *
	Was there any contact/communication between in company trainers, mentors and vocational institution to manage pedagogical support? *
Learning Experience	Did the trainee revealed relevant experience for the work needed? *
	Were the learning outcomes clearly defined? *
	Do you consider that the tools used for continuous monitoring (logbook, interviews, questionnaires, projects, products created) and end-point assessment were suitable to assess knowledge and skills achieved by the trainee? *
	Do you consider that the skills / knowledge achieved by the trainee through the apprenticeship scheme will allow him/her to progress inside your company? *
Industry Needs	Do you consider that this WBL scheme aligned with the needs of the welding industry? *
	Do you consider that the implementation / monitoring of the apprenticeship scheme in your country was an easy process? *
	Do you consider that the WBL scheme could be applicable to your national education and training practices? *
General Appreciation	Would you be open to further engage in extended/another WBL arrangement with these training centre? *
	Would you recommend this partnership for WBL to others? *

Annex 2 – Description on how to use the WBL Quality Model

The following sections aim to describe fully the several steps undertook through this quality model. This annex, explains how to use the Quality Model.

Section 1 – Calculate Categories Quality by Actor

For each one of the categories the model aims to calculate the overall quality for a specific actor. This was done through a process that included several steps:

1st Step – Question Value

For a specific Actor. Evaluation of each question in terms of its weight (1 -7) on its category quality.
The process is repeated for the remaining actors.

2nd Step – Question Percentage Value by Category

For each question of a specific Category and a specific Actor. Calculated the percentage of the value in step1 when comparing it to all other values in step1. Then repeated the process for the remaining Actors in the same category.

3rd Step – Input Value * 2nd Step

Gathered all Input Values from the Questionnaire (answers of the participants, values 1 - 5) for all actors of a specific Category. Then the input value is multiplied by the values in step2.

Then the process is repeated for all actors of the same category.

relativo ao Aluno

Question Weight	Input Value	
0.304347826	4	1.217391
0.173913043	4	0.695652
0.217391304	4	0.869565
0.304347826	4	1.217391

relativo ao ATB

Question Weight	Input Value	
0.4375	5	2.1875
0.25	4	1
0.3125	4	1.25

relativo à Company

Question Weight	Input Value	
0.4375	5	2.1875
0.25	5	1.25
0.3125	5	1.5625

4th Step – Category Quality

The Sum of values in step3 for a specific actor then divided by 5. Obtained a result from 0 to 1, it represents the Quality of a specific Category for a specific Actor.

Then repeated the process for the remaining Actors.

	OF1T	
		0.8
1.217391		
0.695652		
0.869565		
1.217391		
	OF1A	
		0.8875
2.1875		
1		
1.25		
	OF1C	
		1
2.1875		
1.25		
1.5625		

5th Step – Categories Quality

Repeat the steps 2nd to 4th for all the Categories.

Then Calculated the following sheets:

Contract Category Indicators

Ex: Output da categoria Contract relativo ao Alun				OC1T
	Question Value	Question Weight	Input Value	0.8
2	2	0.083333333	4	0.333333333
7	7	0.291666667	4	1.166666667
6	6	0.25	4	1
4	4	0.166666667	4	0.666666667
5	5	0.208333333	4	0.833333333

Ex: Output da categoria Contract relativo ao ATB				OC1A
	Question Value	Question Weight	Input Value	0.915789474
2	2	0.105263158	4	0.421052632
7	7	0.368421053	5	1.842105263
6	6	0.315789474	4	1.263157895
4	4	0.210526316	5	1.052631579

Ex: Output da categoria Contract para a Company				OC1C
	Question Value	Question Weight	Input Value	1
2	2	0.105263158	5	0.526315789
7	7	0.368421053	5	1.842105263
6	6	0.315789474	5	1.578947368
4	4	0.210526316	5	1.052631579

Health and Safety Category Indicators

Ex: Output da categoria Health and Safety relativo ao Aluno				OH1T
	Question Value	Question Weight	Input Value	0.75
5	5	0.25	4	1
5	5	0.25	4	1
5	5	0.25	4	1
5	5	0.25	3	0.75

Ex: Output da categoria Health and Safety relativo ao ATB				OH1A
	Question Value	Question Weight	Input Value	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Ex: Output da categoria Health and Safety para a Company				OH1C
	Question Value	Question Weight	Input Value	1
5	5	0.25	5	1.25
5	5	0.25	5	1.25
5	5	0.25	5	1.25
5	5	0.25	5	1.25

And obtained the result:

Categories Quality by Actor						
Categories	Trainee		ATB - Tutor		Mentor - Company	
	Quality	Overall	Quality	Overall	Quality	Overall
Facilities	80%		89%		100%	
Contract	80%		92%		100%	
Safety	75%		NA		100%	
WBL	74%		88%		100%	
Platform	65%		60%		60%	
Pedagogical Support	80%		80%		100%	
Learning Experience	80%		91%		100%	
Industry Needs	NA		80%		100%	
General appreciation	100%		100%		100%	

6th Step – Categories Weight in Overall Quality

Calculated the percentage weight for each one of the categories in the overall quality.

Overall Quality	CQValue	
Facilities	4.666667	0.166667
Contract	3	0.107143
Safety	4	0.142857
WBL	2	0.071429
Platform	2	0.071429
Pedagogical Support	5	0.178571
Learning Experience	1	0.035714
Industry Needs	2	0.071429
General appreciation	4.333333	0.154762
Total		1

7th Step – Overall Quality Indicator for Category

For each one of the values in step6 multiplied by the respective value in step5, for a specific Actor. Repeated for the remaining Actors.

Trainee		
O1t	CQV	OQIT
80%	0.179487	0.14359
80%	0.115385	0.092308
75%	0.153846	0.115385
74%	0.076923	0.056923
65%	0.076923	0.049704
80%	0.192308	0.153846
80%	0.038462	0.030769
100%	0.166667	0.166667
NA	NA	NA

8th Step Overall Category Quality by Actor

For a specific Actor summed all values obtained in 7th. Repeated for the remaining Actors. Obtained overall Categories Quality by Actor.

OQIT
0.14359
0.092308
0.115385
0.056923
0.049704
0.153846
0.030769
0.166667
NA
0.809191

2 Section – Categories Quality for All Actors

The aim in this section is to measure WBL Quality considering all Actors together.

1st Step – Actor Value for Category

For each one of the actors of a specific category calculate the weight of each one of the actors in the category (% value).

Facilities		
Trainee	ATB	Company
5	3	1
5	3	1
Actor Value		
0.555555556	0.333333333	0.111111111

2nd Step – Individuals Category Quality

For each Category multiplied the results in section1 step4 by respective actor value in section2 step1 and summed all results. Repeat the process for remaining Categories.

Facilities Category Indicators

Ex: Output da categoria Facilities relativo ao Aluno					OF1T	
	Question Value	Question Weight	Input Value			0.8
7	7	0.304347826	4	1.217391		
4	4	0.173913043	4	0.695652		
5	5	0.217391304	4	0.869565		
7	7	0.304347826	4	1.217391		

Ex: Output da cateoria Facilities relativo ao ATB					OF1A	
	Question Value	Question Weight	Input Value			0.8875
7	7	0.4375	5	2.1875		
4	4	0.25	4	1		
5	5	0.3125	4	1.25		

Ex: Output da categoria Facilities relativo à Company					OF1C	
	Question Value	Question Weight	Input Value			1
7	7	0.4375	5	2.1875		
4	4	0.25	5	1.25		
5	5	0.3125	5	1.5625		

Ex: O2 Facilities		
O2F=	0.851388889	

Ex: 0,55*0,8+0,33*0,8875+0,11*1=0,851

3rd Step – Overall WBL Categories Quality

Multiplied each one of the values obtained in section1 step6 by the respective category value in section2 step2 and sum all values.

Categories Quality (O2)	Overall Quality Indicator = Sum(O2 * CQV)
85%	0.141898148
92%	0.098727588
88%	0.125
87%	0.062352092
63%	0.045263233
85%	0.152597403
89%	0.031941392
93%	0.066071429
100%	0.154761905
OQI=	88%

Section 3 – Relationship Quality

Aim to evaluate the quality of the relation between the 3 Actors involved in the WBL. There are 3 relations possible: Trainee – Tutor; Trainee – Mentor; Tutor – Mentor.

1st Step – Actors Involved

Considered one of the Actors' relation (i.e. Trainee - ATB) for that specific relation follow the next steps.

2nd Step – Questions Identification

Gathered all questions and respective inputs from the questionnaire of the selected actors that contribute to the relationship between the two. Note that some questions have an equivalent and others don't.

	Trainee Questions		ATB Questions
Contract	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution?	Contract	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution? *
WBL	Were the principles of work-based learning (WBL), the rules of your training, your duties and rights made available to you? *		
	The apprenticeship duration was enough to develop all the Learning Outcomes necessary?		
Pedagogical Support	Did your tutor provide you the necessary support? *	Pedagogical Support	Did you provide support to the trainee? *
	Do you consider that the mentoring and tutoring was consistent to keep you on task? *		Do you consider that the mentoring and tutoring was consistent to keep the tainee on task? *
	Was there any communication between in-company trainers, mentors and ATB/vocational training centre to manage the pedagogical support? *		
Learning Experience	Do you consider that you have gained new knowledge and skills? *		
	Did the tutor (ATB/Training Center) checked your achievements on time in the WBL platform?	Learning Experience	Did you checked your achievements on time in the WBL platfrom?
General Appreciatio	Would you undertake another apprentice with these organisations? *		
	Would you recommend this partnership for WBL to others? *		
		WBL	Did the student accquired the knowledge required through this teaching method?
		Platform	Were the logbooks/proves adequate to guarantee that the activities were done reagrding each Learning Outcome?
		Learning Experience	Do you consider that the tools used for continuous monitoring (logbook, interviews, questionnaires, projects, products created) and end-point assessment were suitable to assess the knowledge and skills achieved by the trainee? *

3rd Step – Question Relation Value

For a specific relation. Evaluated the value of each question in the overall relationship quality (1 - 7). Then calculated the percentage value against all remaining questions.

Input Trainee		Trainee Questions	QIPt	QPV	QIPa		ATB Questions	Input ATB
4	Contract	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution?	4	7	5	Contract	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution? *	5
3	WBL	Were the principles of work-based learning (WBL), the rules of your training, your duties and rights made available to you? *		6	0			NA
4		The apprenticeship duration was enough to develop all the Learning Outcomes necessary?		6	0			NA
4	Pedagogic al Support	Did your tutor provide you the necessary support?*	5	7	3	Pedagogic al Support	Did you provide support to the trainee? *	4
4		Do you consider that the mentoring and tutoring was consistent to keep you on task? *	5	7	3		Do you consider that the mentoring and tutoring was consistent to keep the tainee on task? *	4
4		Was there any communication between in-company trainers, mentors and ATB/vocationaltraining centre to manage the pedagogical support? *		7	0			NA
4	Learning Experience	Do you consider that you have gained new knowledge and skills? *		6	0	Learning		NA
4		Did the tutor (ATB/Training Center) checked your achievements on time in the WBL platform?	5	6	3	Experience	Did you checked your achievements on time in the WBL platfrom?	5
5	General	Would you undertake another apprentice with these organisations? *		7	0			NA
5	Appreciatio	Would you recommend this partnership for WBL to others? *		6	0			NA
NA				7		WBL	Did the student accquired the knowledge required through this teaching method?	5
NA				4		Platform	Were the logbooks/proves adequate to guarantee that the activities were done reagrding each Learning Outcome?	3
NA				5		Learning Experience	Do you consider that the tools used for continuous monitoring (logbook, interviews, questionnaires, projects, products created) and end-point assessment were suitable to assess the knowledge and skills achieved by the trainee? *	4

QPV	QPVr
7	0.086
6	0.074
6	0.074
7	0.086
7	0.086
7	0.086
6	0.074
6	0.074
7	0.086
6	0.074
7	0.086
4	0.049
5	0.062

4th Step – Questions Equivalent Relevance

For a specific relation. Evaluated all questions that have an equivalent (in the other actor questionnaire) evaluated which question (1 - 5) is more relevant. Get 1 value per question for each actor involved.

Input Trainee		Trainee Questions	QIPt	QPV	QIPa		ATB Questions	Input ATB
4	Contract	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution?	4	7	5	Contract	Was there a written contract between the employer, the trainee and the Authorised Training Body/Vocational Training Institution? *	5
3	WBL	Were the principles of work-based learning (WBL), the rules of your training, your duties and rights made available to you? *		6	0			NA
4		The apprenticeship duration was enough to develop all the Learning Outcomes necessary?		6	0			NA
4	Pedagogic al Support	Did your tutor provide you the necessary support?*	5	7	3	Pedagogic al Support	Did you provide support to the trainee? *	4
4		Do you consider that the mentoring and tutoring was consistent to keep you on task? *	5	7	3		Do you consider that the mentoring and tutoring was consistent to keep the tainee on task? *	4
4		Was there any communication between in-company trainers, mentors and ATB/vocationaltraining centre to manage the pedagogical support? *		7	0			NA
4	Learning Experience	Do you consider that you have gained new knowledge and skills? *		6	0			NA
4		Did the tutor (ATB/Training Center) checked your achievements on time in the WBL platfrom?	5	6	3	Learning Experience	Did you checked your achievements on time in the WBL platfrom?	5
5	General	Would you undertake another apprentice with these organisations? *		7	0			NA
5	Appreciatio	Would you recommend this partnership for WBL to others? *		6	0			NA
NA				7		WBL	Did the student accquired the knowledge required through this teaching method?	5
NA				4		Platform	Were the logbooks/proves adequate to guarantee that the activities were done reagrding each Learning Outcome?	3
NA				5		Learning Experience	Do you consider that the tools used for continuous monitoring (logbook, interviews, questionnaires, projects, products created) and end-point assessment were suitable to assess the knowledge and skills achieved by the trainee? *	4

5th Step – Input Value Weighted

For a specific Actor. For each question i selected in step4 done the following calculation:
$\sum_{i=0}^{n} value\ actor1i * input\ actor1i + value\ actor2i * input\ actor2i$

IT	IA	AV	QPV	QPVr	QIPt	QIPtr	QIPa	QIPar	IVW
4	5	1	7	0.086	4	0.444	5	0.556	4.556
3	NA	NA	6	0.074	0	0	0	0	3
4	NA	NA	6	0.074	0	0	0	0	4
4	4	0	7	0.086	5	0.625	3	0.375	4
4	4	0	7	0.086	5	0.625	3	0.375	4
4	NA	NA	7	0.086	0	0	0	0	4
4	NA	NA	6	0.074	0	0	0	0	4
4	5	1	6	0.074	5	0.625	3	0.375	4.375
5	NA	NA	7	0.086	0	0	0	0	5
5	NA	NA	6	0.074	0	0	0	0	5
NA	5	NA	7	0.086	0	0	0	0	5
NA	3	NA	4	0.049	0	0	0	0	3
NA	4	NA	5	0.062	0	0	0	0	4

6th Step – Intermediate Question Relation Value

For a specific relation. For each question. Multiplied all values from step5 by the values in step2.

IT	IA	AV	QPV	QPVr	QIPt	QIPtr	QIPa	QIPar	IVW	QVPR
4	5	1	7	0.086	4	0.444	5	0.556	4.556	0.07874
3	NA	NA	6	0.074	0	0	0	0	3	0.04444
4	NA	NA	6	0.074	0	0	0	0	4	0.05926
4	4	0	7	0.086	5	0.625	3	0.375	4	0.06914
4	4	0	7	0.086	5	0.625	3	0.375	4	0.06914
4	NA	NA	7	0.086	0	0	0	0	4	0.06914
4	NA	NA	6	0.074	0	0	0	0	4	0.05926
4	5	1	6	0.074	5	0.625	3	0.375	4.375	0.06481
5	NA	NA	7	0.086	0	0	0	0	5	0.08642
5	NA	NA	6	0.074	0	0	0	0	5	0.07407
NA	5	NA	7	0.086	0	0	0	0	5	0.08642
NA	3	NA	4	0.049	0	0	0	0	3	0.02963
NA	4	NA	5	0.062	0	0	0	0	4	0.04938
		0.5								0.83935

7th Step – Relationship Percentage Output

Summed all values in step6 and have a specific relationship value.

IT	IA	AV	QPV	QPVr	QIPt	QIPtr	QIPa	QIPar	IVW	OVPR
4	5	1	7	0.086	4	0.444	5	0.556	4.556	0.07874
3	NA	NA	6	0.074	0	0	0	0	3	0.04444
4	NA	NA	6	0.074	0	0	0	0	4	0.05926
4	4	0	7	0.086	5	0.625	3	0.375	4	0.06914
4	4	0	7	0.086	5	0.625	3	0.375	4	0.06914
4	NA	NA	7	0.086	0	0	0	0	4	0.06914
4	NA	NA	6	0.074	0	0	0	0	4	0.05926
4	5	1	6	0.074	5	0.625	3	0.375	4.375	0.06481
5	NA	NA	7	0.086	0	0	0	0	5	0.08642
5	NA	NA	6	0.074	0	0	0	0	5	0.07407
NA	5	NA	7	0.086	0	0	0	0	5	0.08642
NA	3	NA	4	0.049	0	0	0	0	3	0.02963
NA	4	NA	5	0.062	0	0	0	0	4	0.04938
		0.5								0.83985

8th Step – Accuracy Value

For the questions selected in step4 calculate the difference between the input values. Then calculate the average of the results. Then have the Accuracy Value for a specific relationship.

IT	IA	AV
4	5	1
3	NA	NA
4	NA	NA
4	4	0
4	4	0
4	NA	NA
4	NA	NA
4	5	1
5	NA	NA
5	NA	NA
NA	5	NA
NA	3	NA
NA	4	NA
		0.5

9th Step – Relationship Quality for all Relations

Repeat steps from 2 to 8 for the missing relations. Will obtain the relationship quality for all relations.

Relationship Evaluation
84%
87%
89%

10th Step – Weight of relationship in Overall Quality

Calculated the weight (percentage value) of each Relationship value on the overall relation quality.

		Relation Indicator
Trainee - ATB	2	0.181818182
Trainee - Company	4	0.363636364
ATB - Company	5	0.454545455

11th Step – Relationship Overall Quality

Multiplied values from step10 by values from step9 and then summed all values encountered.

Then is obtained the overall WBL relationship quality.

Relationship Quality			
	Accuracy Value	Relationship Value	Overall Relation Quality
Trainee - ATB	1	84%	
Trainee - Company	1	87%	
ATB - Company	0	89%	
			87%

The previous steps divided into 3 evaluation sections explain how the Quality Model was created. On the next Chapter will be explained how to evaluate this Model Results.

How to Evaluate Results from Quality Model

At this part of the document it is explained how to evaluate the results from the quality model, namely, how to interpret the information from the different tables of results section (Annex 2). First of all, refer that there are three ranks of values of the results achieved on the quality model:

WOW WBL Quality Model		
Rank of results	Interpretation	Action
x < 60%	Bad result -	Analyse the answers to the feedback and report what went wrong (questions with lower answers).
60% < x < 75%	Average result -	Report and state what could went better (from analysing the answers of the questionnaires)
x > 75%	Good Result -	Just report

There are 3 tables of results for the evaluation of the feedback. This tables can be encountered on the last sheet of the document Quality Model Excel Document (Annex 2).

The tables are explained as follows:

Table 1 – Categories Quality per Actor

Table 1 Categories Quality per Actor

Categories Quality for All Actors		
Categories	Quality	Overall
Facilities	a	
Contract	b	
Safety	c	
WBL	d	
Platform	e	
Pedagogical Support	f	
Learning Experience	g	
Industry Needs	h	
General appreciation	i	
Total		x

The results from (a to i) of the table represent the value obtained through the quality model for each one of the Categories, taking into consideration the combined feedback from all actors (Trainee, Tutor, Mentor).

The value x represents the Overall Quality Value obtained from all the categories represented on the feedback. (Taking into consideration all actors)

This shall be the first table to be evaluated when looking to the results of the Model.

Table 2 – Quality by Actor

Table 2 Categories Quality by Actor

Categories Quality by Actor						
Categories	Trainee		ATB – Tutor		Mentor - Company	
	Quality	Overall	Quality	Overall	Quality	Overall
Facilities	A		a		a	
Contract	B		b		b	
Safety	C		c		c	
WBL	D		d		d	
Platform	E		e		e	
Pedagogical Support	F		f		f	
Learning Experience	G		g		g	
Industry Needs	H		h		h	
General appreciation	I		i		i	
Total		x		Y		z

Values from (a to i) represent the quality of each Category taking into consideration the feedback from each actor individually.

The x, y, z represents the overall categories quality for a specific actor.

Table 3 – Relationship Quality

Table 3 Relationship Quality

Relationship Quality			
Relations	**Accuracy Value**	**Relationship Value**	**Overall Relation Quality**
Trainee - ATB	A	D	
Trainee - Company	B	E	
ATB - Company	C	F	
			x

This table aims to quantify the quality of the relationship of the WBL. This means that the values on the table will quantify the relation between the 3 actors. The table is split into 3 different relations (Trainee – ATB; Trainee – Company; ATB - Company).

Values A to C represent the accuracy value. These values represent the difference between the answers from both feedbacks of a specific relation (when there are common questions to both actors). If the accuracy value is higher than 1.5 it means that the answers from the 2 feedback questionnaires are very divergent, and it shall be reported.

Values D to F represent the quality value for a specific relation. If this value is higher than 75% it means there is a good relation, furthermore if the values are in between 60 and 75% we have an average relation. If below 60% we have a bad relation.

Finally, we have the Overall Relation Quality that represents a weighted average of the values from D to F. The same principle evaluating the results applies here.

Annex 3 - Quality Model Template

WOW_Feedback_Q
uality Model_Base.xl