



Results of IO1 A4

Indicators & Measurement Criteria

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1 Introduction

1.1 Indicators & Measurement Criteria framework

The aim of this activity was to prepare a list of indicators and measurement criteria based on specific inputs, processes and outputs of the management systems for apprenticeships in Slovenia, Croatia and the Czech Republic, including all documented and informal processes for apprenticeship-management, surveys done among students, employers and PHE institutions and data collected from best practices (national and EU).

1.1.1 Authoring of Indicators & Measurement Criteria (IO1 A4)

Based on the research done in IO1 A1-A3 (A1 – System Comparison, A2 – Survey and A3 – Desk Research), the consortium proposes a final set of monitoring and measurement criteria as well as indicators for each of the processes involved in apprenticeship management.

- **Measurement Criteria** define the essential elements against which sustainability is assessed. Criteria are those dimensions against which the QA tool assesses the quality of apprenticeship.
- **Indicators** are parameters which can be measured and correspond to a particular criterion.

1.1.2 Peer-Review of Indicators & Measurement Criteria (IO1 A5)

To ensure maximum consensus as to the proposed criteria, each pilot partner country nominated three independent peer-reviewers to provide comments and suggestions to the criteria. Their views were integrated into a final version of this publication.

1.1.3 Publication (IO1 A6)

The final version of the criteria is made available both as a publication and as a web-tool with a digital object identifier.

1.2 Methodological Approach & Main Tasks

In order to produce a valuable and useful finalization of IO1 - *Indicators & Measurement Criteria*, activities A4 (Peer-Review) and A5 (Publication) had to be based on structural approach to develop the final version of the output. The final publication explains the criteria and how to assess one's activities against them.

It discusses and agrees upon the:

- Scope,
- Indicators and
- Type of indicators in the frame of measurable.

Three independent peer-reviewers were nominated by each partner and a review assessment was provided on a designed standardised template (see Annex 1 to this publication).

The findings and indicators & criteria were validated through three validation seminars (in SI, CZ and HR) - Multiplier events.

The publication is disseminated as an e-publication and web tool.

1.3 Glossary

The table below contains the set of terms and definitions provided to the partners to help them with activity 1. Where possible, ISO 9000 terminology was chosen, due to its consensually international adoption. Where no ISO 9000 definitions were available, proprietary definitions were created to be used in the *ApprenticeTrack* project.

Term	Definition	Definition Source
AQT	Working abbreviation for <i>Apprenticeship Quality Toolkit</i> , which is a publication authored under the SAPS project (learntowork.eu).	Proprietary (AppreticeTrack project)
AppT	Working abbreviation for <i>ApprenticeTrack</i> project (appreticetrack.eu)	Proprietary (AppreticeTrack project)
Conclusion	Result of a process.	ISO 9000:2015
Criteria (AQT)/ Indicators (AppT)	Criteria define the essential elements against which sustainability is assessed/Indicators are parameters which can be measured and correspond to a particular criterion.	Proprietary (AppreticeTrack project)
Form	Document containing fields to accommodate information to be collected. <i>Note 1 to entry: Forms can sometimes be addressed by other terms such as layouts, questionnaires, among others.</i> <i>Note 2 to entry: Examples of forms can be the predefined text for a contract, the standardized layout for a report, an inquiry questionnaire, a checklist, a registration form, among others.</i>	Proprietary (AppreticeTrack project)
PHE(I)	Abbreviation for <i>Professional Higher Education (Institutions)</i> as defined in the HAPHE project (haphe.eurashe.eu).	Proprietary (HAPHE project)

Procedure	Specified way to carry out an activity or a process. Note 1 to entry: Procedures can be documented or not.	ISO 9000:2015
Process	Set of interrelated or interacting activities that use inputs to deliver an intended result Note 1 to entry: Whether the “intended result” of a process is called output, product or service depends on the context of the reference. Note 2 to entry: Inputs to a process are generally the outputs of other processes and outputs of a process are generally the inputs to other processes. Note 3 to entry: Two or more interrelated and interacting processes in series can also be referred to as a process. Note 4 to entry: Processes in an organization are generally planned and carried out under controlled conditions to add value. Note 5 to entry: A process where the conformity of the resulting output cannot be readily or economically validated is frequently referred to as a “special process”.	ISO 9000:2015
	Note 6 to entry: The ultimate effect or output on longer term is called "impact".	Proprietary (AppreticeTrack project)
Requirement (AQT)/ Criteria (AppT)	Need or expectation that is stated, generally implied or obligatory Note 1 to entry: “Generally implied” means that it is custom or common practice for the organization and interested parties that the need or expectation under consideration is implied. Note 2 to entry: A specified requirement is one that is stated, for example in documented information. Note 3 to entry: A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement, quality requirement. Note 4 to entry: Requirements can be generated by different interested parties or by the organization itself.	ISO 9000:2015

2 Results

2.1 Setting the Learning Objectives of the Overall Programme

Criteria (AQT)/ Indicators (AppT)	Conclusions of IO1A1	Conclusions of IO1A2	Conclusions of IO1A3
Involvement of stakeholders in designing learning objectives	Identified stakeholders are involved in design of learning objectives	Involvement of stakeholders in designing learning objectives is partly implemented	Identified stakeholders should be involved in design of learning objectives
Methodology used to define learning objectives	Consult stakeholder's - include feedback from PHE institutions, employers and students	Document setting learning objectives for the apprenticeship is partly implemented	Consult stakeholders' - need for proper instructions and guidelines on students competences
Transparency	Analyse stakeholder's feedback - include feedback from PHE institutions, employers and students	Document setting learning objectives for the apprenticeship and the document which defines conditions for mentor/supervision are partly implemented but available	Analyse stakeholder's feedback - need for proper instructions and guidelines contain general and subject-specific competences and informative and formative objectives

Summary:

This paragraph supports the indicators/criteria and measurement criteria for Process 1 – *Setting the learning objectives of the overall programme*. It defines that all key stakeholders are involved in design of learning objectives, but some indicators are implemented just partly in practice. It was also found that all stakeholders require more detailed instructions/documents.

Recommendations:

Review of conditions for involving stakeholders in curricula development clearly set in the legal framework.

PHEIs should engage relevant employers into study curricula (according to students engaged, integrating qualifications into systematizations of working placements).

Local government level should have a coordinating person to facilitate the communication for the region between the triangle.

Strengthen up the local/regional business representation for the communication and involvement in the triangle.

Build a database of companies willing to take apprenticeships ideally in the ApprenticeTrack tool.

Having a person responsible for the external/business relations only to assure development of strong and influential communication which would result in better employers' engagement.

Qualifications should be integrated into employers' systematization of working placements to increase transparency and adequate resources (material, human, financial) should be ensured.

The learning outcomes should be translated into workable skills and competences for the employers.

Government should introduce regular financial support for employers offering apprenticeships (tax reductions, incentives, etc.).

The adequate system for monitoring and organizing apprenticeships/ ApprenticeTrack tool should be related to data systems of relevant stakeholders to assure synchronized data – as national data systems related to needs of world of work, national data systems for qualification frameworks, Erasmus+ apprenticeships platform, etc.

There should be prepared support for all stakeholders (students and employers) to cooperate in all phases of apprenticeships in terms of training as well as detailed instructions and documents.

Quantitative Targets/Qualitative Goals

- Number of stakeholders involved
- Diversity of stakeholders involved (min. the organizer from PHE institution, the mentor from employers institution, the student)
- Periodic review of Learning objectives
- Use of SMART Methodology
- Learning objectives and assessment methods publicly available

2.2 Identifying and recruiting placements

Criteria (AQT)/ Indicators (AppT)	Conclusions of IO1 A1	Conclusions of IO1 A2	Conclusions of IO1 A3
Placement requirements defined	Definition of Standards for Placements is available.	Definition of Standards for Placements (some part should be added). Clear system to choose the place of apprenticeship is just partly implemented. A web platform should support placements.	Quality apprenticeships based on robust social dialogue and public-private partnerships. There is a lack of regulation of placements and there are few data collection mechanisms available to collect data on quality of placements or placement processes.
Method used to identify placements	Applying Security Restrictions for management of employers' database	The web platform supporting the management and monitoring of apprenticeship should have search for placements by students	Explaining what skills should employers have in mind that trainees need to learn and also have in mind the benefits
Capacity building provided to SMEs	Finding placements	The system to train mentors is partly implemented.	SMEs engaging in Apprenticeship training (Holt, 2012) and System for Management of Placement supply.
System used for Management of Placement-Supply		The web platform supporting the management and monitoring of apprenticeship should include search for placements by students. The web platform to support the monitoring and evaluation of apprenticeship is partly implemented.	Funding arrangements
Data Protection			Ensuring policy for securing personal data

Summary:

This paragraph supports that quality apprenticeships based on robust social dialogue and public-private partnerships. Key stakeholders defines that definition of Standards for Placements are partly implemented in practice. More detailed explanations what skills should employers have in mind that trainees need to learn it would be helpful. It will be also helpful to established/use the web platform supporting the management and monitoring of apprenticeship with various additional options of establishment placement.

Recommendations:

Engage PHEIs and employers to use an Apprenticeship Quality Toolkit and supporting materials and organize workshops/mini preparatory courses before apprenticeships.

Prepare a catalogue of best practice cases for a student approaching towards employers and a list of recommendations for the student when looking for a placement.

To establish a transparent, ranking system of employers (and available comments of students, organizers for PHEI separately).

Provide the HR manager who would support the application for the apprenticeships as a part of recruitment process.

Ensuring apprenticeships that fit student's competences with defined goals, results of apprenticeship, newly obtained skills, catalogue of knowledge, soft skills.

Financial support to national, centralized system for monitoring and organizing apprenticeships.

The system should be connected to national database tracking graduates (employability).

Implementation of national, centralized system for monitoring and organizing apprenticeships to provide maximum data security although providing systematized comparison of apprenticeship quality level.

Quantitative Targets/Qualitative Goals

- conditions of employment
- conditions of mentoring/supervision
- timelines of the apprenticeship
- responsibilities assigned
- process for reporting
- nomination of a coordinator
- documented support to students on how to lead an apprenticeship research: instructions, recommendations, lists of potential employers
- documented support to students on how to obtain an apprenticeship: how to write a good application, how to have a successful interview
- publish introductory information on apprenticeships online
- organize (information/recruiting) events for SMEs
- provide educational resources for SMEs
- the establishment of an internal database of placements

- rules for who can access and edit the database
- timely database update, including relevant metadata from the learning agreement, evaluation data linked to the placement and history of apprentices assigned to the placement
- integrated GDPR requirements.

2.3 Negotiating the Agreement

Criteria (AQT)/ Indicators (AppT)	Conclusions of IO1 A1	Conclusions of IO1 A2	Conclusions of IO1 A3
Content of the Agreement	Drafting the Agreement	Duration of the apprenticeship and identification of mentors should be included in the apprenticeship agreement.	It defines competencies that an agreement should consist off a minimum of National Register of Qualification (Data base of occupation standards)
System used to Match Students with Placements	Matching students with employers	List of students current skills and skills s/he is expected to acquire during the apprenticeship should be included in the apprenticeship agreement	List of competences helps to match students with employers requirements

Summary:

This paragraph supports indicators under process 3. It defines that list of student’s current skills and skills s/he is expected to acquire during the apprenticeship should be included in the apprenticeship agreement to match students with employer’s requirements. All stakeholders have some additional recommendations what to include in the Agreement.

Recommendations:

Provide stakeholders certified agreement template available online taking into account that employers should not be additionally overload.

Prepare the organizer at PHEI for process to verify and register existing relevant employers that fulfil conditions.

Ensure understanding and commitment to apprenticeship obligations of all stakeholders.

When establishing and maintain System used to Match Students with Placements gender and equal opportunities have to be assured. All stakeholders need to assure that student's activities during the apprenticeship correspond with the intended learning outcomes and competences.

Quantitative Targets/Qualitative Goals:

The PHEI shall assure the agreement is timely signed by authorised staff and covers:

- duration
- programme objectives and learning activities
- legally binding obligations regarding the conditions of employment
- working material provided identification of supervisors and mentors
- description of roles and responsibilities of supervisors, mentors and students
- modes of communication
- methods of assessment
- monitoring arrangements
- mechanisms for conflict resolution
- forms of certification/recognition to be issued to the students, the PHEs and the SMEs

At minimum the PHEI shall use a system that provides:

- a list of suitable available placements
- an information program for students including: dissemination of information material, organization of information sessions/workshops and availability of personalised consultation services
- identification of students' needs and expectations

2.4 Monitoring of Apprenticeships

Criteria (AQT)/ Indicators (AppT)	Conclusions of IO1 A1	Conclusions of IO1 A2	Conclusions of IO1 A3
Monitoring of Students Activities	Monitoring Practical Training (PT) by students	Monthly period for the contact within the responsible persons at the education organization and the employer to assure the monitoring of each apprenticeship is the most suitable one	Indicators for monitoring students activities
Monitoring of SMEs Activities	Monitoring PT by HEI	The system to train mentors is partly implemented. The web platform to support the monitoring and evaluation of apprenticeship is partly implemented.	The management of apprenticeship training defines the direction of the development of training and prepares the ground for the attainment of the set goals
User Support and Issue Resolution		The web platform supporting the management and monitoring of apprenticeship should have search for placements, possibility for students to grade the apprenticeship and tasks and final grading Helpdesk for solving problems during the apprenticeship is partly implemented	It outlines steps that need to be made in order to insure the most efficient monitoring for activities that students and employers do
Method used to Evaluate Apprenticeships		The complex written evaluation with all relevant information would be appreciated by all participated employers in all three countries	Quality of the apprenticeship training is based judged by its degree of flexibility, individuality, practicality, educational success and the degree of service ability and effectiveness of its cooperation network

Summary:

The paragraph supports indicators of quality management of apprenticeship training as a vital part of apprenticeship. It outlines steps that need to be made in order to insure the most efficient monitoring for activities that students and employers do. The complex written evaluation with all relevant information would be appreciated by all participated employers in

all three countries. The web platform to support the monitoring and evaluation of apprenticeship and helpdesk for solving problems during the apprenticeship are just partly implemented.

Recommendations:

Provide a simple online monitoring tool - user friendly; simplifies with optional details, simplified language.

Prepare a supporting web platform with necessary information for organizers and mentors in companies.

PHEI should be able to include the feedback provided by the evaluation of apprenticeships into their apprenticeship management framework to ensure constant improvements.

Quantitative Targets/Qualitative Goals:

- The PHEI shall:
- establish a schedule to communicate with students
- establish requirements for students to report progress
- nominate a named supervisor for each apprenticeship
- establish a schedule to communicate with SMEs
- provide a contact person in charge of following the student and the apprenticeship (a ""PHEI tutor"")
- provide the student and the SME with the contact person information
- establish rules to resolve issues including specifications to deal with urgent critical issues

The method used by the PHEI shall cover:

- collecting input from students and from SMEs
- analyse the inputs collected
- record and report corrective and improvement actions identified
- assure the transparency of the evaluation

2.5 Assessment of Apprenticeships

Criteria (AQT)/ Indicators (AppT)	Conclusions of IO1 A1	Conclusions of IO1 A2	Conclusions of IO1 A3
Assessment design	Assessment framework	A web platform to support the monitoring and evaluation of apprenticeships is partly implemented	In the G20 countries, there is not a single, standardized model of apprenticeships, but multiple and varied approaches
Method used to Perform and Monitor Assessments	Assessment on progress and implementation of PT provided by Employer	Guidelines to support the mentors' job in partly implemented. The web platform to support the monitoring and evaluation of apprenticeship is partly implemented.	The complex written evaluation with all relevant information would be appreciated
Grading System		The web platform supporting the management and monitoring of apprenticeship should have final grading.	
Certification System	Assessment on progress and implementation of PT by Student	Guidelines to support the mentors' job in partly implemented. A web platform should have the possibility to grade the apprenticeship and tasks.	
Complaints and Appeals System	Evaluation of PT by Employer		

Summary:

This paragraph supports indicators under process 5. It defines that there is not a single, standardized model of apprenticeships, but multiple and varied approaches. Stakeholder exposed that the web platform to support the monitoring and evaluation of apprenticeship is just partly implemented All stakeholders have some additional request what to include in the

web platform to be more user friendly and helpful as well as complex written evaluation with all relevant information would be appreciated.

Recommendations:

For mentors in companies to provide "friendly" and simple documentation and assessment tool.

Assessment tool should be integrated in one coherent system.

Ensure structured and clear manual for mentors in companies how to perform assessments based on acquired general and professional competences.

Designing a system/description of grades based on competences achieved.

Inform student on how to use certificate for apprenticeships.

Providing students with a Diploma supplement to increase their employability.

Quantitative Targets/Qualitative Goals:

At minimum, the PHEI shall establish and make publicly available:

- assessment rules
- templates to support assessment reports to be filled by students, SMEs and organizers of PHEIs

The method used by the PHEI shall cover:

- guidelines for SMEs on how to perform assessments
- how to collect assessment data?
- requirements for data protection, including document traceability, anti-tampering and privacy

At minimum, the system used by the PHEI shall cover:

- documented list of grades
- description of grades
- template to record the grades attributed

At minimum, the system used by the PHEI shall establish rules to award credits, including:

- a method to allocate transferable credits
- a model for the certificate to be used

- a model for any supplemental information to the certificate (diploma supplement, Europass, etc.)
- the PHEI existing management method to keep records of awarded certificates
- the PHEI existing management method to respond to requests for verification of certificates

At minimum, the system used by the PHEI shall include:

- channels to submit complaints and appeals
- templates to support the submission of complaints and appeals
- requirements to investigate complaints and appeals
- requirements to decide on complaints and appeals
- information on the timeline to provide feedback on complaints and appeals to their authors

2.6 Recognition of prior learning

Criteria (AQT)/ Indicators (AppT)	Conclusions of IO1 A1	Conclusions of IO1 A2	Conclusions of IO1 A3
Recognition System	Review of student application for recognition of prior working experiences		Inclusion in lifelong learning

Summary:

This paragraph supports indicators under process 6. The process was additionally acknowledged by consortium and is supported with system comparison and literature analysis. It defines new process which, in case of prior student working experiences, gives PHE institutions defined procedures to recognize these experiences and integrate them into overall learning process.

Quantitative Targets/Qualitative Goals:

At minimum, the system used by the PHEI shall cover:

- documented list of working experiences
- a method for recognition of gathered information into grades
- documented additional procedure in case of mismatch between apprenticeships goals and working experiences
- template to record the grades attributed

3 Conclusions

Main aim of this activity was to adopt/support indicators and measurement criteria which were established during ApprenticeTrack, based on specific inputs, processes and outputs of the management systems for apprenticeships in Slovenia, Croatia and the Czech Republic. This criteria and indicators will help us define, understand and promote the concept of management systems for apprenticeships; provide a common framework to describe, monitor, assess and report.

Activities under A1-A3 mostly support exposed indicators and measurement criteria, especially on legal part but there is still some space to implement this indicator into the practice (some are just partly implemented).

Pilot countries define minimum of requirements under each indicators and measurement criteria, which will be included in a software tool.

Annexes

Annex 1: IO1A5 Peer-Review of Indicators & Measurement Criteria

About the ApprenticesTrack Project and this publication

Apprenticeships allow students to build up skills and knowledge, while providing companies with a reliable way to evaluate potential future hires and the benefit from fresh perspectives offered by academia. Despite their advantages, apprenticeships are challenging to manage, as the needs of students and of specific enterprises are difficult to match, particularly when organizations need to deal with massive amounts of students and, consequently, data. Structured communication channels between enterprises and students, robust management systems and clear evaluation protocols are necessary to manage such a complex system, are therefore needed to enable the launch of valuable, steady and sustainable Apprenticeship Programmes.

This publication summarizes conclusions under IO1, defines quality criteria, indicators and measurement targets. Furthermore, it proposes recommendations for different levels and according to relevant stakeholders.



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