Learning Record Store Conceptualisation and Specification of Application and Data

1.5 Note of Concept, Specifications

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PACE VET
Digital Credential

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Summary

The goal for the digital application was to provide an application that is user-friendly, secure and flexible to use. With a complete front- and backend that integrates a learning record store, learners should have the opportunity to document their non-formally and informally acquired learning and validate them.

The application should be able to connect to various databases to ensure data protection while integrating functions for learners, mentors, and assessors.

Assessor training took place and two microcredentials units for lighting and sound were developed. In May of 2024, assessor validation was completed, and candidates were assessed in Lighting Unit A. At that time, the application could only be used in a beta-version.

PACE-VET can also support transferability of similar validation processes to other economic sectors.

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1. Introduction

1.1 General

1.2 Purpose and aim of this document

This document describes the requirements for the scope of services to be provided by the application as part of the PACE-VET project.

1.3 Project reference

The focus of this document is on clarifying the requirements for the Learning Record Store with regard to various aspects, such as technical feasibility, information security and data protection, as well as the integration of existing data and findings from previous projects and existing solutions.

2. Concept and framework

2.1 Objectives of the PACE-VET Project

The documentation, validation and recognition of prior, non-formal and informal learning in the live performance and event technology sectors at a European level would contribute to a more inclusive, resilient, mobile and sustainable labour market in a fragile working environment. The application should provide learners in the sector a platform for lifelong learning, credentialization and job mobility.

A common denominator of the deficits in the live performance and events labour markets is the importance of non-formal and informal learning. High levels of workplace learning and self-education throughout working life are an integral part of the biography of most employees in the events industry. The application should provide documentation of these learning outcomes.

2.2 Goals and benefits for the users

The European live performance and events industries are the main target groups as they face several sector-specific circumstances that create unique conditions for employees and employers to find each other. There are two main reasons for this: Innovation and mobility. The industries are both subject to and driving technological change and are perceived as highly innovative. Therefore, competence-based knowledge can be extremely short-lived. This is particularly true due to the rapid developments in technology in the sector. Learners are often required to update their knowledge immediately after obtaining their qualifications. The constant updating of knowledge and skills means that employees acquire a wide range of competences over the course of their working life that can seldom be certified nor validated. As a result, technicians can have difficulty demonstrating their mastery of the latest technologies.

A way out of this conundrum is to offer a valid assessment process of their professional skills and competences in microcredential units that are not based on a curriculum, but on what they are able to do. Online documentation of validated learning outcomes then enables them to access new job opportunities within the EU.

Employers, in turn, find it difficult to ensure the suitability of their staff for certain types of work. Secondly, the labour force is extremely mobile and often works for international projects or foreign employers as a free-lancer. Due to the different understanding of job profiles in European member states, matching workers' competences with employers' expectations is a major obstacle to the employment process. These rigidities in the labour market have been exacerbated by the COVID-19 pandemic and the complete standstill of the live performance and event sectors.

The target group is extremely tech-savvy. When developing the app and therefore the backend, the selection of the appropriate technology and its usability will be crucial to fulfil the specific requirements of our project and ensure long-term success. Each decision will be guided by factors such as performance, scalability, ease of maintenance and compatibility with existing systems.

3. System Specifications

3.1 Definitions

Accreditation Entity

The quality management guidelines in PACE-VET require that a European entity with the necessary resources to develop and maintain the certification scheme (EN-ISO-EIC-17024:20212) is responsible for accreditation of the assessment centres and certification of the assessors and mentors.

Assessment Centre

Assessment centres are accredited by the accreditation entity to carry out assessments for PACE-VET. They must provide the necessary assessors and infrastructures for assessment. They might also provide mentors. They must adhere to the quality management standards as described in the process.

Assessors

Should a candidate request an assessment, accredited assessors will assess the candidate's learning outcomes in conjunction with an accredited assessment centre. Assessors will determine whether the candidate is qualified in the competencies listed by choosing from a list of various assessment techniques. The candidate will receive a proposal for the assessment processes and can decide to carry out the assessment or, for the time being, to leave the validation process. If they pass assessment, the assessors will then forward the validation results to the assessment centre that then grants certification documentation.

Candidates

The term for technicians that use the PACE-VET application. The term is derived from the role within an assessment process. Candidates are not required to demand an assessment unless they want to validate their competences. Candidates own their process.

Certification

Candidates who successfully pass the assessment of their competencies, the assessor then forwards the results to the certifying authorities, who then issues a formal certificate to the candidate. This is also added to the candidate's profile. This standardization of competencies will further enable candidates to have access to additional opportunities, which they may have had to forgo earlier due to a lack of qualifications.

Lifelong Learning Document Tool

The term for the original idea behind the PACE-VET application: a learning record store that enables candidates to store their qualifications, to document their work and to make their collected work experience and learning outcomes transparent.

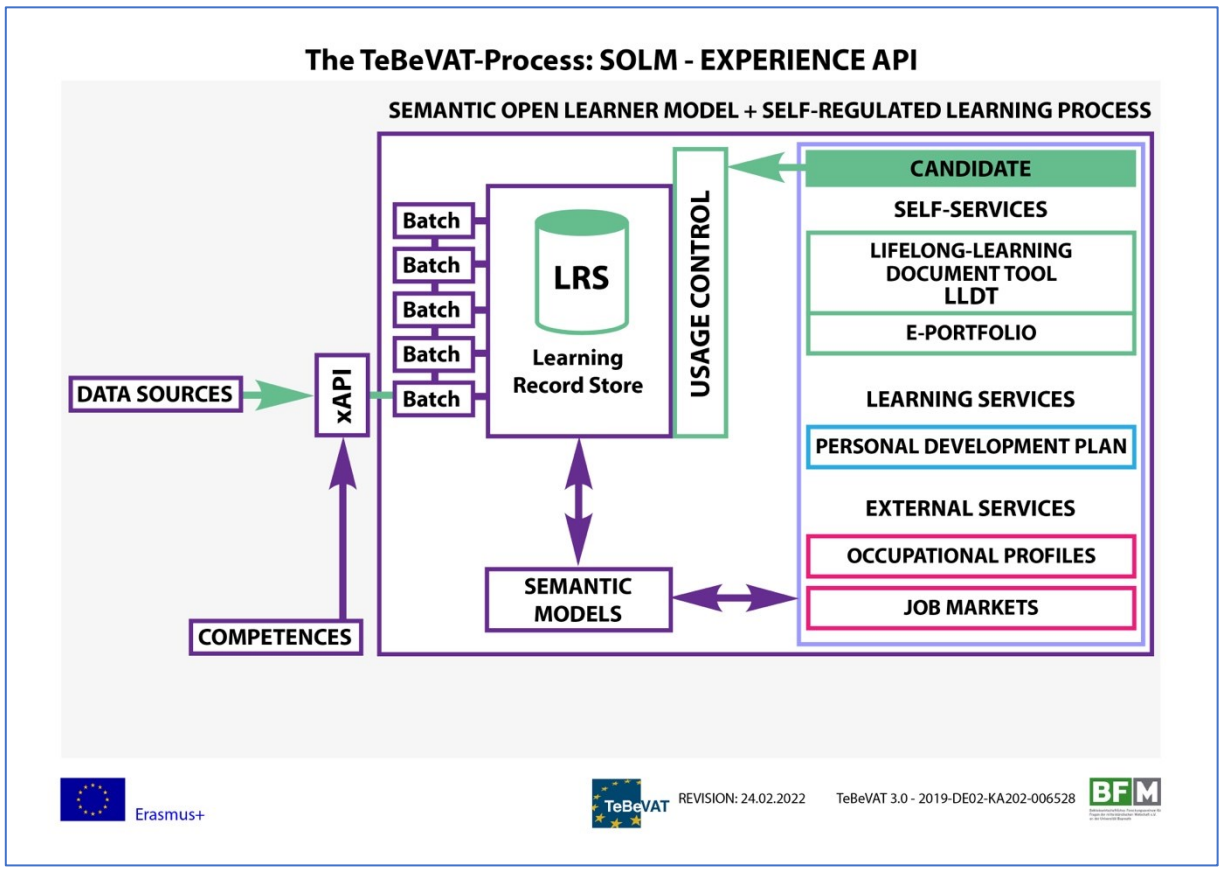

Figure 1: LLDT from TeBeVAT

Mentors

Candidates should be able to choose from a list of qualified personnel, a mentor to guide them through the process. The candidates will be able to communicate with their respective mentor via messages and be able to set up online appointments.

Microcredential Units

According to the European Commission and Cedefop, the definition of a microcredential is: *Record of the learning outcomes that a learner has acquired following a small unit of learning, and that have been assessed against a predefined standard*.[1] In PACE-VET, these are the two test units "Lighting A" and "Sound A". A detailed overview of the unit competences can be found in PR4 WP4.2: "PACE-VET_Lighting_Unit_A_Overview" and "PACE-VET_Sound_Unit_A_Overview".

Personal Development Plan

Recommendations made by the mentor to a candidate during the identification and/or assessment processes regarding further learning opportunities.

Portfolio

The portfolio is the database of all the candidate's (user) documentation. This can include:

- Certificates (including EDC)
- Curriculum Vitae

The candidate will be able to upload all the relevant data to their profile, and create their CV. In addition to bibliographical data (CV), information from Europass can be added, which accounts for the individual competences the person has gained.

- Annotated images
- Detailed witness statements
- Video material (with narration or written log)
- Learner log/evaluation
- Peer observation report

Unit Creation

Units can be specifically created for candidates from the TeBeVAT occupational profiles list and/or determined by assessment centres in advance.

Unit Selection and Self-Assessment

Once assessment centres are established, candidates should be able to choose an occupation profile or specific unit that fits them the best, for e.g. lighting or sound. By accessing the competence lists connected to the units, candidates can also perform a self-assessment for reference.

[1] Terminology of European education and training policy. Cedefop – European Centre for the Development of Vocational Training. https://www.cedefop.europa.eu/en/tools/vet-glossary/glossary?letter=M, (accessed October 25th 2024)

3.2 System Overview

Overall Description

The application provides access to a lifelong learning documentation tool (E-Portfolio) for technicians in the live performance and event technology sectors. It provides mentoring and assessment opportunities for microcredential units that are based on ESCO skills and competences. These can be validated and certified. It allows users to publish their learning outcomes and portfolios to their discretion to access the labour market. In the future it should allow access to learning opportunities and the creation of a personal development plan in all languages used in the EU.

Product Perspective

The application targets the live performance and event technology sectors in Europe. Although a few Member States provide VET, many in the labour market master only non-formal or informal learning outcomes that cannot yet be validated. Innovation and mobility further complicate the definition of qualification content within the national frameworks. Shortages of skilled workers require integration of technicians that may only require a partial certification. The application offers solutions for these challenges.

System Interfaces

The application includes features such as API interaction, internationalization (i18n), routing, and ORM generation. Additionally, it provides support for error tracking via Sentry and generating release builds for Android.

User Interfaces

The goal of the application user interface design is to create one makes it easy, efficient, and enjoyable (user-friendly) to access the information. The interaction is to allow effective operation and control through the application design that also aids the users' decision-making process.

Hardware Interfaces

The HMI is a touchscreen on any mobile device that can serve as a human interface device (HID).

Software Interfaces

The software must be transportable and function on Apple© and Android© mobile devices. This should reduce development time and costs and optimise maintenance without compromising performance or user experience and generate the widest possible reach.

Communication Interfaces

The application must use a graphical user interface (GUI) and must balance technical functionality and visual elements. The system is not only operational but also usable and adaptable to changing user needs.

Memory Constraints

It must be possible to uploaded documents in the following formats and sizes:

- Images: JPEG/ PNG / GIF - Limit = 10MB
- Video: MP4 / WebM / OGG - Limit = 250MB

Due to the limitations of an Erasmus+ Project, there will be limitations on server capacity and use.

Design Constraints

Constraints can be expected in the CPU architecture and speeds, available memory (RAM), limited data storage capacities, and variation in displays (technology, size, dimensions, resolution). As the application is to be available on Apple© and Android© mobile devices, there will be a formalized process by which the EHB will be able to submit the apps for approval and inclusion in those marketplaces.

Adaptation Requirements

In the future, the application must be regularly updated to the current operating system software. The ESCO URIs must be updates on a regular basis. There must be funding for more server traffic. It must be possible to add new microcredential units to the application. Mentors, assessors and assessment centres must be able to access the application once accredited by the European entity.

Product Functions

- Account/profile creation
  Account/profile types: assessor; candidate (user); employer; mentor
  Name (first/family)
  Email address
  Address
  Date of Birth
  Public profile: yes/no
  Password
- 2-factor authentication
- Portfolio creation: document upload and administration (database)
  Event rubrics: event; training; work
  Location

Start and end date

Description

- Assessment opportunities

  Selection through button on home page

  Microcredential unit list

  With link to ESCO URI

  Selection opportunity: competences to be assessed

- User settings (homepage)

User Characteristics

Users are extremely tech savvy. Interactive elements must function without glitches. Proficiency is very important. Interaction will be judged by its effect on efficiency and productivity. Technicians will expect lightning-fast responses and a user-friendly interface.

Constraints, assumptions and dependencies

Erasmus+ projects cannot support server capacity and traffic for an unlimited amount of time. There is no European entity for accreditation, therefore no accredited assessors or mentors.

It is assumed that some stakeholders in the sector will be interested in carrying the project goals forward. Without funding for the European accreditation agency, the process cannot be implemented.

Reliability

A system for reliable error tracking and monitoring is to be integrated in order to be able to rectify problems with the application as quickly as possible.

Availability

The application should be available for download from the Apple© (iOS) and Google Play© stores (Android© OS) without cost.

Security

The application must ensure data integrity and comply with GDPR and other data protection laws. It must be in adherence with EU regulations that require the ability to amend or delete personal data. Registration and use of the application must require 2FA.

Maintainability

The programming of application and backend must be available as an open-source document for further development and accessibility for improvements.

Hardware

The application must run on any Apple© and Android© mobile devices released since 2018.

4.1 Release

All PACE-VET materials are Open Educational Resources (OERs) according to "Creative Commons"[2] . The results are also published on the website www.pace-vt.eu/results.

[2] Licences List - Creative Commons

LRS conceptualisation and specification of application and data

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