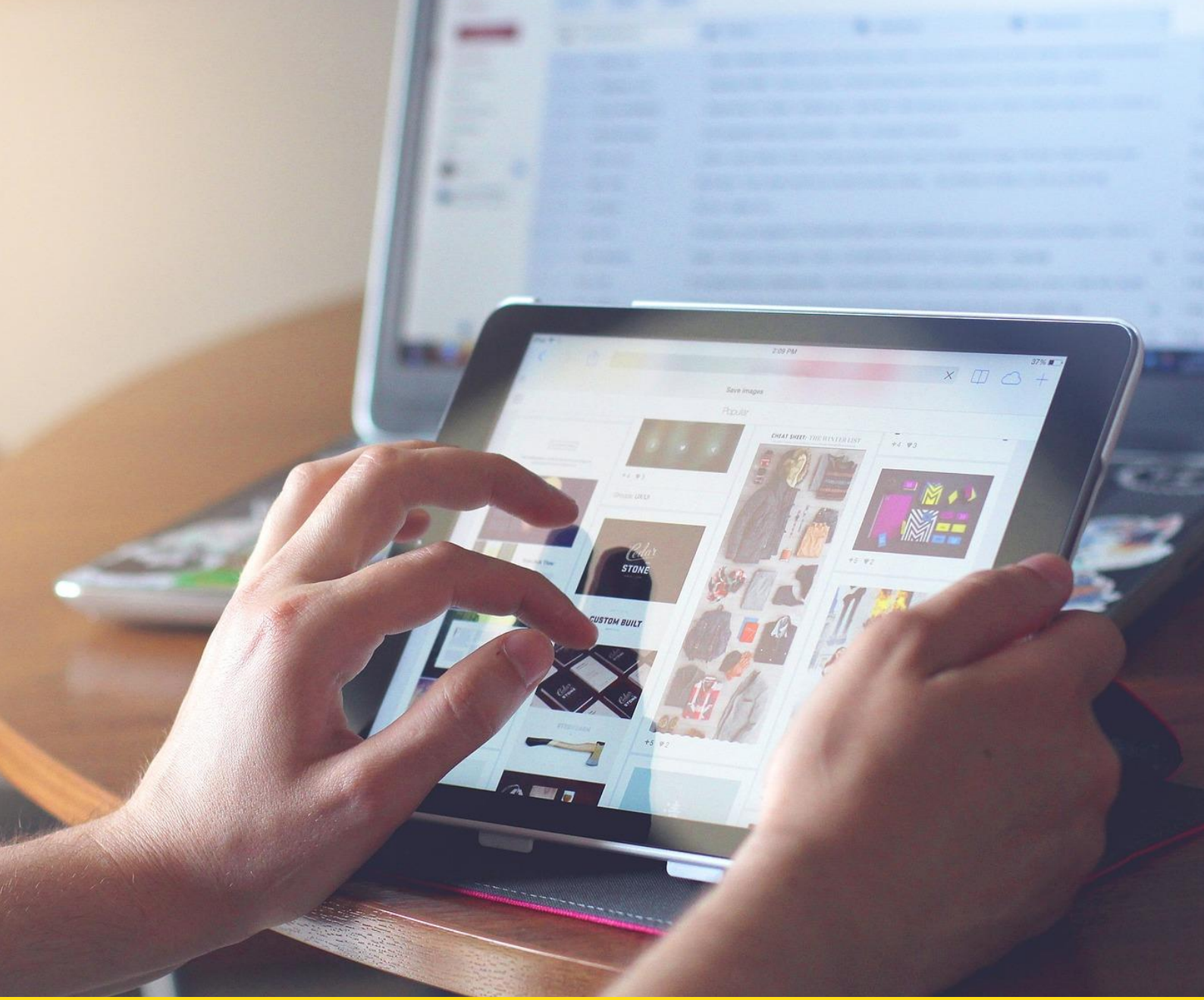


# Report about development
# Apprentice Track Ontology

APPRENTICE TRACK

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# About the activity

## 1. Apprentice Track Ontology Introduction

Activity 02A3 has a goal to propose an appropriate ontology for apprenticeship management. An ontology for apprenticeship management is essentially a set of concepts and categories with their properties and describes the relations between them. The ontology describes the inter-relation between all the layers of the system, as well as between the various actors that will use the system.

During the last couple of months, SAT consortium has been working on this ontology for management apprenticeship. The consortium used data from OA and O2A1. Below you can find the developed ontology. The proposal was discussed internally as wells as with external experts.

Apprentice Track application will provide a platform for tracking apprenticeship programs. It will enable a faster workflow for apprenticeship administrators and a better overall experience for students and mentors during apprenticeship.

It will serve as a centralized repository for all documents regarding the apprenticeship and simplify the administration workflow before the apprenticeship takes place. All parties (students, mentors, teachers, school administrators) would be able to access the documents regarding the apprenticeship and have the ability to modify them according to their roles in the management process. Such modifications will be done either by modifying them in application or downloading/ modifying /uploading them to the application. Those changes are audited, so that a trail of changes is recorded.

In order to simplify the use of application and its internal management as much as possible, it will be delivered as a web application. That way Apprentice Track can be accessed regardless of what platform (Windows, iOS, Android, …) the user is using to access it. It also reduces development time  as only one service has to be maintained.

The application can work as integrated with already existing School Information Systems (SIS) or in standalone mode. A use case for such integration would be connecting an already existing student database with Apprentice Track via Apprentice Track authorization protocol. If multiple schools/SIS are connected to Apprentice Track, the application would prompt the user to choose the correct school/SIS when authenticating.

Apprentice Track will also include a reporting component to generate reports that will be also used to issue a certification of completed apprenticeship to those students that successfully finish their apprenticeship.

# 2. Apprentice Track Ontology

The below scheme presents the details of the created ontology, which shows the relationship between apprenticeship bodies and the flow of processes, which are a necessary part of the apprenticeship. A proposed ontology consists of various interconnected concepts. These concepts are represented as well within the Meta-Data Standard for a further and more in-depth understanding of ApprenticeTrack application functionality. Apprenticeship management is divided into several chronologically connected steps.

1) Actors create their profiles
2) Student find the organization of the apprenticeship
3) Students asks the school for approval of the apprenticeship
4) Agreement is prepared
5) Evaluation of the apprenticeship is prepared
6) Enterprise and student fill out the prepared apprenticeship evaulation
7) School evaluate the apprenticeship
8) Final assesment and evaluation is fill in SIS

**Identity management**

Identify Management is the process of the management of identification of the diferent concepts in this section

During the application installation, School **Admin** prepares the connectivity of **School** via **School Key** and creates the **School Admin** user to fill-out needed data (identification data, study programs and their description). The role of Admin is later involved in the application of technical maintenance and troubleshooting. Content can be added based on individual user permissions. School Key is used to interconnect the information system used by School and the ApprenteiceTrack application to ensure the secured and automated connection of SIS users to the apprenticeship management tool.

From the perspective of **School** (which represents various types of education providing facilities for teaching/learning), the following different clasess of users are included: **School Admin** and **School Organizer**.

- School Admin is used to represent the person who is responsible for school profile creation and provides a detailed description of this entity, including accredited study programs and modules. This user is in charge of creating other users (mentioned in the following text) and Articles for Apprenticeship Agreements. In the application this role hasthe following rights: access, create, modify the entities which represent the concepts explained.
- School Organizer is used to represent the person who is directly involved in Apprenticeship administration and cooperates with Students, Entreprise Admin and Mentors. Technical and contentual requests are forwarded to School Admin. The role of School Organizer also takes part in the evaluation of Apprenticeship as he receives

and processes the different requests of students, enterprise evaluation and Apprenticeship evaluation creation.

In connection to School, the **Student role as concept** is also used to represent all learners who are interested in participate in the apprenticeships. Student can be logged-in using SIS interface or after registration is made by School Admin. Students can search the list of apprenticeships offered by enterprises and contact them to make an agreement based on the set requirements of the study program or module they are enrolled in. Students can request School Organizer and participate within Apprenticeship. Moreover, the student will fill-out the final evaluation ater the apprenticeship is completed.

From the perspective of **Enterprise** (any company willing to provide Apprenticeship for students, which offers and internships will managed through the ApprenticeTrack application), **Entreprise Admin** and **Mentor** are the two categories of roles associated to an Enterprise.

- Enterprise Admin is used to represent the person who is responsible for data provision for the enterprise profile as well for the selection and management of Mentors.
- A mentor is used to represent the person who is directly involved in apprenticeship, mentoring the students within **the Enterprise**. Furthermore, the Mentor is responsible for the evaluation of Student during the apprenticeship period.

**Apprenticeships design and data recording.**

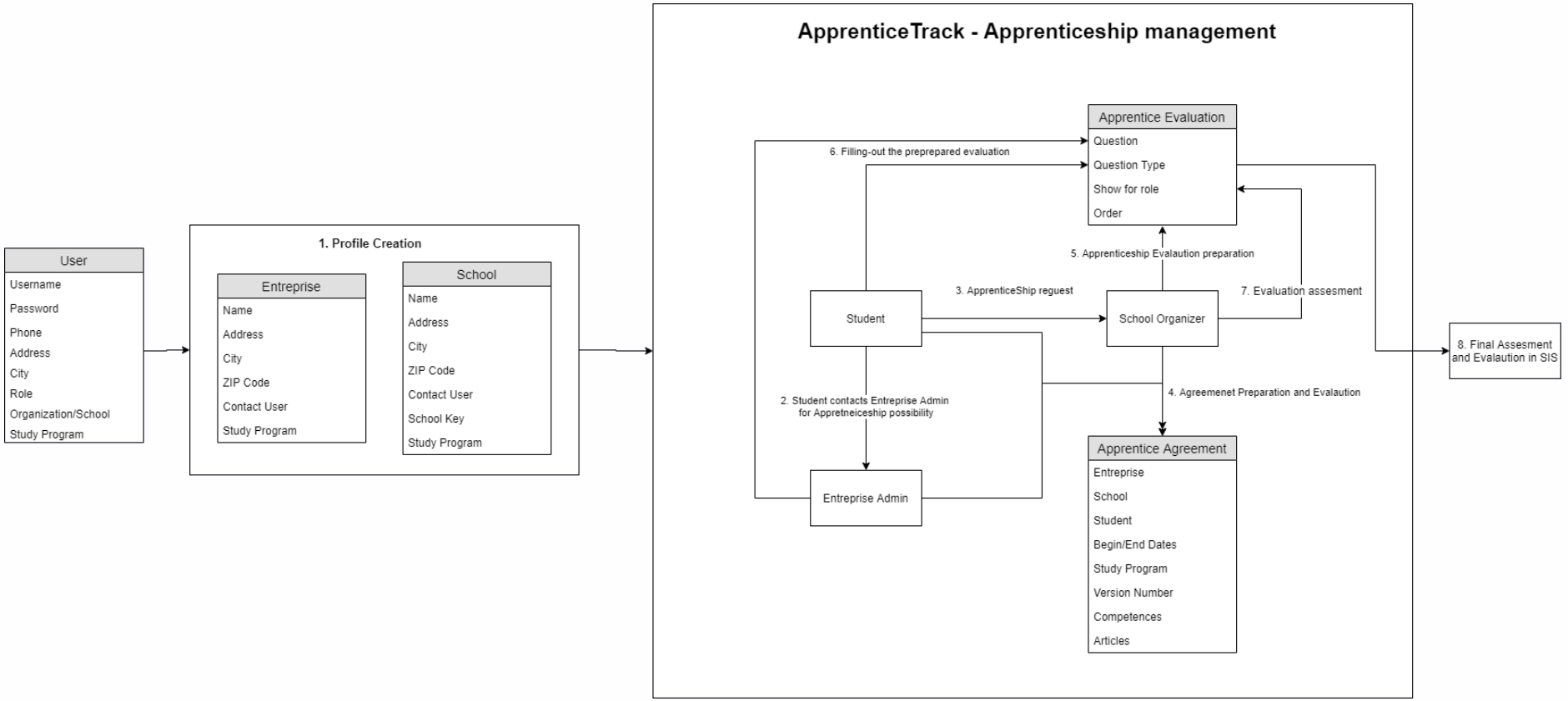
After the students' request is evaluated and confirmed (if the request is denied, students should contact the Entreprise Admin for request correction or look for another apprenticeship possibility), the Apprenticeship Agreement is being prepared using School, Entreprise and Student data.

Apprenticeship Agreement consists of pre-created articles agreed by Enterprise Admin and School Admin, study programs and identified competencies. Starting and finishing dates are as well crucial for apprenticeship process.

**After the apprenticeship**

Both, student and mentor evaluates the whole process of the internship, including individual stages, benefits and other information about the apprenticeship. The whole evaluation process is designed by School Organizer who creates the sets of questions and assign them to different roles involved within the evaluation process.

If the evaluation is fill-in sufficiently, the School Organizer can finish the whole assessment procedure based on the internal standards of apprenticeship evaluation.

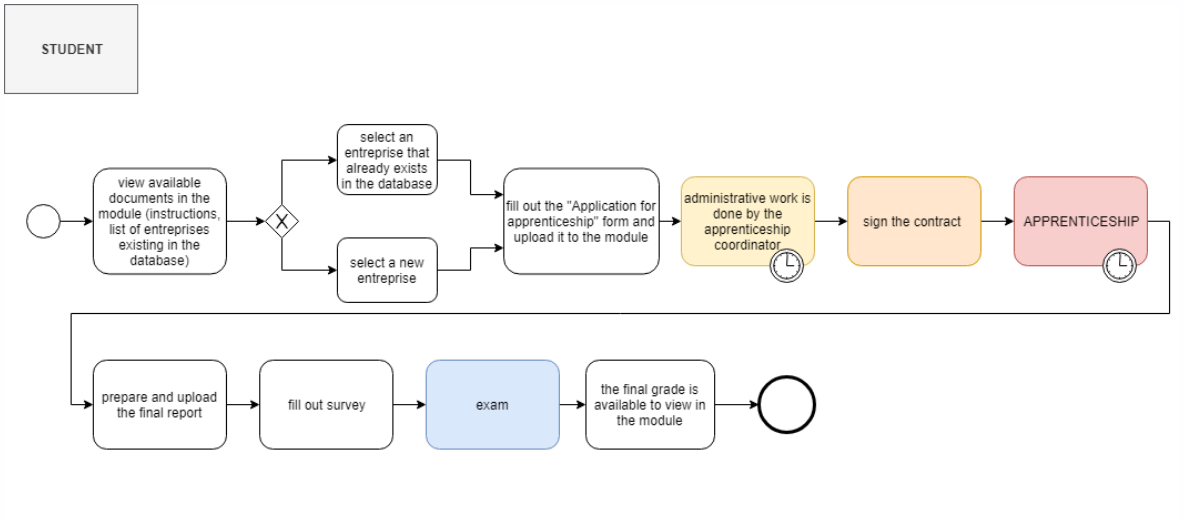

User
Username
Password
Phone
Address
City
Role
Organization/School
Study Program
1. Profile Creation
Entreprise
Name
Address
City
ZIP Code
Contact User
Study Program
School
Name
Address
City
ZIP Code
Contact User
School Key
Study Program
ApprenticeTrack - Apprenticeship management
Apprentice Evaluation
Question
Question Type
Show for role
Order
6. Filling-out the preprepared evaluation
5. Apprenticeship Evalaution preparation
3. ApprenticeShip reguest
7. Evaluation assesment
Student
School Organizer
2. Student contacts Entreprise Admin for Appretneiceship possibility
4. Agreemenet Preparation and Evalaution
Entreprise Admin
Apprentice Agreement
Entreprise
School
Student
Begin/End Dates
Study Program
Version Number
Competences
Articles
8. Final Assesment and Evalaution in SIS

These models show the process of the apprenticeships from different actors' perspective.

This diagram show how the concept of Student is integrated to the apprenticeship management.

These steps should be done:

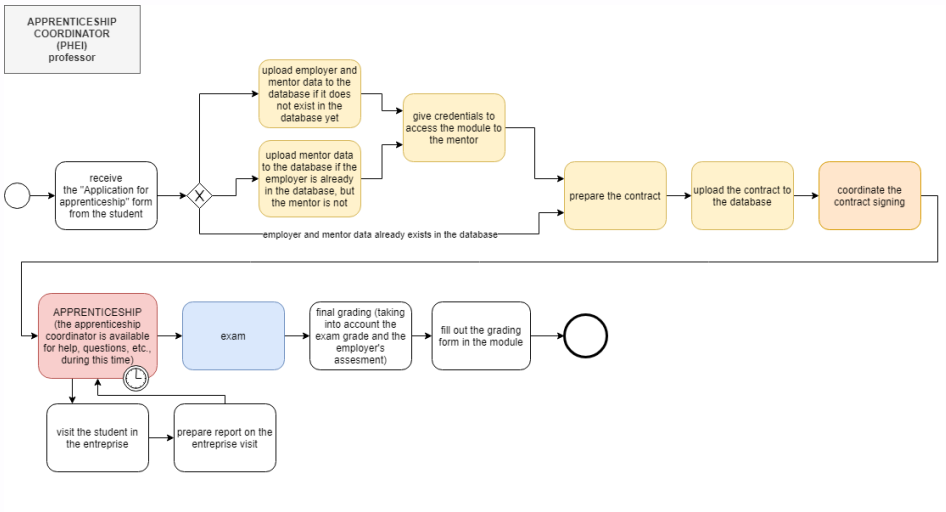
1. Student finds an enterprise to do apprenticeship at
2. Student checks if the enterprise is already available in AppTrack
    a. If enterprise is not available, he contacts the professor to make necessary arrangements with the enterprise
3. Student submits "Application for practical training" form to professor
4. Student signs the contract
5. Student gets apprenticeship materials/instructions from mentor in AppTrack
6. Student proceeds with apprenticeship, during which they fill out "Journal of practical training" in AppTrack and can view mentor's weekly reports
7. After apprenticeship student submits the final report
8. Student fills out the survey
9. Student takes the exam




This diagram show how the concept of School organizer (coordinator/professor) is integrated to the apprenticeship management.

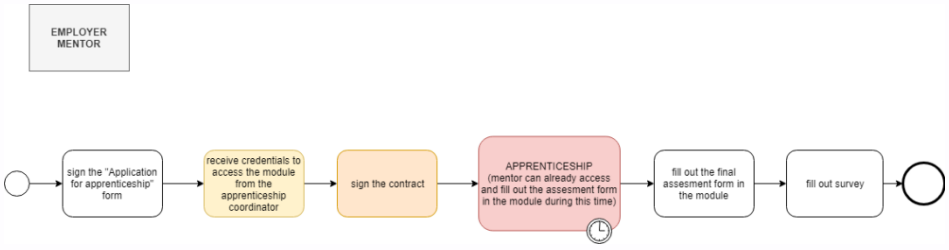
1. School organizer  receives the "Application for practical training" form from student
    a. If the enterprise and mentor are not available in AppTrack, professor adds them
    b. If mentor's data is not available, school organizer adds it
    c. School organizer sends AppTrack credentials to mentor
2. School organizer prepares the contract and upload it to AppTrack
3. School organizer  regularly checks student's journal and communicates with the mentor

4. During apprenticeship school organizer  visits the enterprise and prepares a report that is uploaded to AppTrack
5. After apprenticeship school organizer checks students and mentors report
6. School organizer  grades students final report and exam
7. School organizer  fills in student's grade in AppTrack




This diagram show how the concepts of Enteprise admin and Mentor are integrated to the apprenticeship management.

1. Mentor reads the apprenticeship documentation provided the professor in AppTrack
2. During apprenticeship mentor follows student's journal entries
3. Mentor writes weekly reports on student's work and communicates with the professor
4. After apprenticeship mentor fills out the final assessment form ("Mentor's report within the organization on the progress and implementation of PT")
5. Mentor fills out the survey



# 3. Conclusion

Presented ontology show which actors and processes should be in Apprentice Track. There are also showed the relationships between different actors, which processes happen during these relationships. We also present how the particular actors should be involved in the apprenticeship management.

Standardised procedure of the apprenticeship management should be used to ensure smooth and continuous evaluation of practically-oriented professional education.

**About the Apprentice Track 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.

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