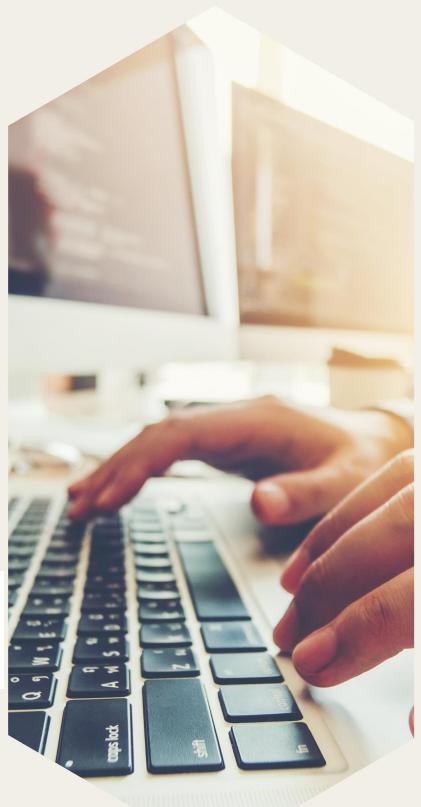# Output 4.1.5: Pilot-testing framework and conclusions

WP4:
Pilot-testing of Code4SP Methodology

Prepared by:

Project Information

Project Acronym: Code4SP

Project Title: Coding for Social Promotion

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11/06/2024	1.0	Action Synergy	Compiled report of the pilot testing in Portugal, Greece and Cyprus.

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Sumário Executivo

Este relatório global faz parte do projeto Code4SP (Coding for Social Promotion), que visa capacitar migrantes, refugiados e outros grupos vulneráveis com competências de programação, de forma a melhorar a sua empregabilidade. O projeto foi implementado de forma piloto em três países — Portugal, Chipre e Grécia — onde foram realizadas diferentes fases de formação. A fase piloto incluiu várias metodologias, como sessões presenciais, online e híbridas, com o objetivo de ajudar os participantes a adquirirem conhecimentos básicos de programação e experiência prática através de estágios.

Principais Destaques:

1. **Fases de Formação**: O projeto piloto foi dividido em quatro fases:
   - o **Fase I**: Focou-se na aquisição de conhecimentos básicos de programação.
   - o **Fase II**: Envolveu um desafio de projeto, onde os participantes desenvolveram os seus próprios projetos de programação.
   - o **Fase III**: Os participantes escolheram uma área de especialização, alinhada com as necessidades das empresas.
   - o **Fase IV**: Aprendizagem baseada no trabalho, onde os participantes completaram estágios em empresas parceiras.
2. **Participação e Resultados**:
   - o **Portugal**: 35 participantes inscritos, com 5 a completarem a formação e os estágios.
   - o **Chipre**: 51 participantes inscritos, com 6 a concluírem o programa.
   - o **Grécia**: 72 participantes inscritos, com 8 a completarem os estágios.
3. **Desafios**:
   - o **Altas taxas de desistência**: Muitos participantes subestimaram o esforço necessário para aprender programação, o que levou a elevadas taxas de desistência em todos os países.

- o **Barreiras linguísticas**: Especialmente no Chipre, o conhecimento limitado do inglês dificultou a aprendizagem.
- o **Aplicação limitada em contexto real**: Embora os participantes tenham adquirido conhecimento teórico, muitos não estavam totalmente preparados para tarefas práticas de programação durante os estágios.

4. **Sucessos**:
   - o **Envolvimento das empresas**: Apesar das dificuldades iniciais, algumas empresas foram recrutadas com sucesso para receber estagiários, e em alguns casos, os participantes foram contratados após os estágios.
   - o **Aprendizagem flexível**: A combinação de formação presencial, online e assíncrona permitiu aos participantes aprender ao seu próprio ritmo.
   - o **Impacto social**: O projeto proporcionou a indivíduos vulneráveis competências e oportunidades que poderiam conduzir a uma mudança de carreira e a melhorias nas suas condições económicas.

Conclusão:

O projeto Code4SP demonstrou que as competências de programação podem ser uma ferramenta eficaz para promover a inclusão social e a empregabilidade entre populações vulneráveis. Apesar dos desafios, o projeto alcançou os seus objetivos ao fornecer conhecimento técnico valioso, experiência prática e ao promover a colaboração com empresas. Projetos futuros podem beneficiar de um apoio mais personalizado aos participantes e de uma maior ênfase na experiência prática de programação.

Introduction

The present report aims to present the activities of the partners that are related with the pilot testing of the project methodology and materials in Portugal, Cyprus and Greece. The pilot testing was extended over a significant period of time in the framework of which the partners have piloted different approaches in order to engage and maintain the participants.

For a broader overview of the piloting phase, this document can be complemented with output 7.3, which thoroughly analyses the feedback from mentors, trainers and participants in each phase of the piloting.

Additionally, evidences for all parts of the piloting can be found in the respective Google Drive folder.

Part 1: Overview

In the framework of this part of the report, there are going to be examined the sessions that were organized in each country as well as the profile of the participants. While in Portugal, the whole pilot testing was organized in one round, in Greece and Cyprus several rounds were necessary in order to reach the participants. Also, the sessions included different training methodologies (face to face, blended, online). In all countries, the profile of the participants were initially migrants and refugees while this target group was expanded with the progress of the project. More specifically, in the various countries, the situation was the following:

Portugal

In Portugal, only one round of piloting was organized, divided into 4 phases, as foreseen in the project proposal. Summarily, each phase comprised the following sessions:

Phase I – 12 face-to-face sessions, 4 online sessions, and 13 offline sessions

Phase II – 3 face-to-face sessions, 6 offline sessions

Phase III and IV – no formal training sessions

TOTAL: 38 training sessions

The piloting occurred from **December 2022 to October 2023**.

Phase I – December 2022 to January 2023

Phase II – February 2023

Phase III – March 2023

Phase IV – March 2023 – October 2023

The people that were involved were the following:

- Registration phase – 35 participants
- Training phase – 23 participants

- Students completing the training and doing the internship – 5
- Entreprises providing internship – 4

Cyprus

In Cyprus, there were 2 rounds of piloting, divided into 4 phases, as foreseen in the project proposal. Summarily, each phase comprised the following sessions:

Phase I – 13 face-to-face sessions, 7 online sessions

Phase II – 2 face-to-face sessions, 1 hybrid session

Phase III and IV – no formal training sessions

TOTAL: 23 training sessions

The dates of the phases were the following:

Phase	Start	End
I	09/11/2022	23/12/2023
II	08/01/2023	09/02/2023
III	10/02/2023	24/04/2023
IV	25/04/2023	24/07/2023

There were 2 sessions organized! One was in November - December 2022 (hybrid) and one fully online in January- February 2023.

The people involved were the following:

- Registration phase – 51 participants
- Training phase – 20 participants
- Students completing the training and doing the internship – 6
- Entreprises providing internship – 8

Greece

In Greece, there were 3 rounds of piloting divided into 4 phases.

Phase I – 8 face-to-face sessions, 40 online sessions (16 sessions per round)

Phase II – 6 online sessions (2 sessions per round)

Phase III and IV – no formal training sessions

The first round was organized face-to-face. Action Synergy has made an agreement with a training centre (Academy of Entrpreneurship) with all the necessary infrastructure in order to host the sessions. However, the trainer of SHA who is not a Greek citizen was not able to get a visa for Greece and therefore while the participants were face to face, the trainer was online. All the other sessions were organsied online. Because of the multicultural profile of the participants, the courses were organized in English

The timeline for the different phases was the following:

Phase	Start	End
I	13/11/2022	12/2/2023
II	13/2/2023	13/3/2023
III	14/3/2023	31/3/2023
IV	1/4/2023	30/9/2023

The participants involved were the following:

Registration phase – 72 participants

Training phase – 42 participants (started the course)

Students completing the training and doing the internship – 8

Entreprises providing internship – 4

Part 2: Recruitment of Students

In this section of the report, the method that the partners have used in order to recruit students will be analysed. The recruitment of students was made on the basis of different methods such as direct mailing, social media posts, cooperation with NGOs working with migrants and asylum seekers etc. The profile of the students was mostly migrants and refugees. More details about what happened in each country can be found below:

2.1 Recruitment Methods

Portugal

Students have been recruited through social media posts, project dissemination, contacts with stakeholders and representatives of policy-implementing institutions, such as partner schools and training centres. Once the registration form had been filled out, participants were contacted individually by phone to confirm their participation and inform them of the next steps.

Cyprus

In Cyprus, the partners printed out flyers and went to different events promoting Code4SP. They also sent emails, called or even contacted face to face different organizations that help out migrants, immigrants, asylum seekers. They also shared the trainings on different posts on Facebook and Instagram social media platforms.

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Greece

In Greece, both partners have used their contacts and have sent direct e-mails to many potential students as well as to representatives of organisations that are working with migrants and asylum seekers. They have created a registration form: https://docs.google.com/spreadsheets/d/11AQpAspV2aIkEPkAY6h2kdX18zlZzIYgXO5Lnq6IPs0/edit?usp=sharing that the students were able to register. Also, different e-mails were sent to schools, especially in areas with a large migrant population and to NGOs that are working with migrants. Posts in social media were also made.

2.2 Profile of the Participants

Portugal

The students who started the training in Portugal were adults, up to 40 years old, from areas surrounding two big cities – Porto and Aveiro (Espinho is in between) – but mostly from rural backgrounds. The majority were immigrants from Brazil, São Tomé and Príncipe and Venezuela, but there were also nationals, which made it easy to follow the courses, but difficult to understand the level of English required for coding. Most of them were working in positions under their graduation and were looking for a career shift through coding, in order to improve their social and financial situation. Some participants had recently graduated high school and were looking to start a career in coding without going to college.

Cyprus

There were reached students from disadvantaged backgrounds, that means migrants, immigrants, asylum seekers and even some Cypriots that were unemployed.

The students that participated in the training were mostly migrants and asylum seekers from a great variety of countries including Syria, Nigeria, Kenya, Romania, Afghanistan, Cameroon, Sierra Leone. The participants included also some Greeks who either were unemployed or they were looking for a career change. Most of the participants were young adults but a few participants were also around 40 years old.

Part 3: Phase I: "Acquiring basic knowledge on coding"

In this section of the report, the activities of the partners related with the first phase of the piloting will be analysed. As it was mentioned also before, various methodologies were used in order to train these sessions which combined the organization of face-to-face sessions (at the beginning) with online sessions (later). The main challenge that was faced in all partner countries was the big drop-out rate of the participants. Several strategies have been put in place in order to improve this situation.

In each country, the situation was the following:

Portugal

During Phase I, 12 face-to-face sessions were organized, between December 2022 and January 2023. They were completed with 4 online synchronous sessions and 13 offline/asynchronous sessions.

The main challenges of Phase I were related to keeping the participants engaged consistently, as they were from multiple surrounding areas and were required to attend classes in a face-to-face format at least once a week (but sometimes, up to three days). This, along with the availability to also attend online sessions, made it difficult for everyone to follow the course, which ultimately led to a massive dropout rate, as the attendance sheets demonstrate. Moreover, not only availability issues arose, as well as a general lack of knowledge of what coding really entails and the amount of dedication needed. The Portuguese team early realized that most participants were attracted to the high salaries a coding career may offer but ended up quitting due to the difficulty of the subject.

As for success points, we can highlight the high number of registrations.

In order to overcome these challenges, the sessions were planned in accordance with the availability provided by each student when completing the registration form. Specifically, they were held at the end of the day, to accommodate those who were working. The trainer that was hired for this task was aware of the plural and diverse audience of the course, and had experience dealing with them. The fact that face-to-face, online and offline sessions were arranged was thought to diminish the effort of going to Espinho. The mentoring scheme was also important. However, none were enough to prevent the dropout rate.

The attendance lists, the pictures and screenshots from the training sessions, the initial registration forms, the timetables shared with the trainees and the trainer, as well as a folder called "Formação Code4SP", in Portuguese, used during the training, can all be found here.

Cyprus

In Cyprus, there were 2 separate trainings organized. The first one in November-December 2022 was organized face-to-face at first but then became hybrid. The second training in January-February was organized to be fully online.

The main problems for Cyprus students were transportation and language barrier. A lot of the students participating had absolutely zero knowledge of coding, programming etc., and the fact that their English knowledge was not so advanced made it really difficult for them to follow the instructor.

The second problem was the transportation. CSI provided space with computers so that everyone will be able to follow the courses. However, transportation in Cyprus is not the best one and a lot of the students could not attend the lessons every day. Therefore, it was decided in order to help them to have the lessons both online and on spot. Only 2-3 people would show up to the space provided and the rest of them were online. After seeing that, it was decided for the 2nd try to carry out the courses fully online.

The evidences for the implementation in Cyprus can be found here: https://drive.google.com/drive/folders/1DwkIm6D5BkWDByxDLTWG3_ImpIA6Waaq?usp=drive_link

Greece

In Greece, 3 rounds of training were organized: October 2022, November 2022, February 2023. At the beginning, as described above, the sessions were organized face to face in the premises of Academy of Entrepreneurship during weekends. However, the trainer was not able to get a visa for Greece and therefore while the attendants were present, the tutor was online. Such model was proved not to be efficient and sustainable and therefore, a new call was organized for courses that are only online. In these courses there were involved also the participants that have replied to the first call for the expression of interest and the courses started again in November. Two groups were created and they were doing courses online, one with the "old" participants and one with the "new" ones. Eventually, after a while these two groups merged. The third round was launched with an entirely new call for participants and the courses started in February 2024.

There were few challenges in Greece including:

- The unavailability of the trainer to be physically present in the first face-to-face courses.

- The fact that this target group (migrants/ refugees) has a big degree of volatility with fast changing of status, plans etc. This means that long-term commitment is more difficult compared with the mainstream population and this resulted to a big drop-out rate.

- The fact that the call for interest was completely open even for people with small experience in ICT made some people to drop-out early when they realize that coding is difficult if they did not have a high degree of motivation.

These challenges were addressed through the creation of a community through Discord in order to keep the communication between the participants, the individualized support offer and the extra material provided. However, the drop-out rate was high.

All the evidences for this phase can be found here:

https://drive.google.com/drive/folders/1W7jcwfPS6qgbYqyt3h0ke0XHGIDvDIs6?usp=drive_link

Part 4: PHASE II: "The big project-challenge"

This part of the report analyses the activities that were organized in the part of the piloting activities which is called "The big project- challenge" which includes the creation of a project and video from the part of the participants.

Portugal

This phase consisted of 3 face-to-face sessions, 1 online synchronous session and 7 offline/asynchronous sessions. There was a big component of autonomous work, as participants had already been given the theoretical knowledge to develop their project. However, the trainer and the mentors were always available to help, even outside the proposed timeframe. Given its short duration, there was no specific challenge or highlight during Phase II, that would differ from Phase I. Participant videos can be found here.

Cyprus

An info-day was organized at CSI premises on the 15th of March 2023. During that info-day, the mentor of CSI and the representative of CIP were both present in order to inform the participants about the next steps of the project. A presentation with the main points of the next steps and the creation of CV and cover letters was created. Due to the fact that we were consistent with the participants and they wanted not only to have the internship but also to have a good CV and cover letter that they could use at any time, they were really consistent with both creating their CV, cover letters but also creating their project idea and finalizing their project. The videos are available here: https://drive.google.com/drive/folders/1vSMQn3DNeJ6dXHrjjIgHaUkxsMNkOp7J?usp=drive_link

The work in this phase was mainly autonomous work made by the participants assisted and supported by the trainer. The process was also supported by dedicated online sessions. The main challenge that was encountered was that not all participants have acquired the skills to proceed to this phase after the end of Phase I and therefore there was a need for specific and individual support and also some participants dropped out from this phase because they found it difficult. The videos can be found here: https://drive.google.com/drive/folders/13H9FwnKsnnVE2TInE34bKceCYeo5wkZl?usp=drive_link

Part 5: PHASE III: "Selecting a Code4SP specialization"

This part of the report focuses on the activities related with the selection of a specialization. It consisted mostly of finding out the preferences of the companies and the participants and try to match their skills and needs. It also included the recruitment of enterprises.

Portugal

This phase relied heavily on the conjoint work of both the trainer and the mentors. The trainer's assessment of the trainees during Phase I and Phase II was key to identifying in which areas they would thrive and be more successful. Discussions were held first between these actors and, secondly, with the trainees, to make sure everyone's expectations were aligned. Both SPEL and CEPROF were already in contact with several companies from the beginning of the project. As VET providers whose students must do an internship, both of the entities had several potential enterprises to host the internship. The mentoring sessions were mostly informal, with students having the personal contacts of the mentors, who were always available to help with any question and would make sure to contact students who were not so active and coach them on how to proceed. As stated previously, the mentors' work was also deeply aligned with the trainer's. The trainee's specific workplan can be found here.

Cyprus

CIP & CSI had meetings and were in constant communication in order to find the best enterprises possible for the participants to have their internship.

Enterprises were recruited through a combination of strategic outreach efforts, including networking with industry partners, leveraging existing contacts within the project's partner organizations, and participating in industry events and seminars. Additionally, targeted invitations were sent to companies with an interest in skills development, programming, and IT, as well as those focused on supporting disadvantaged communities. Collaborating with local chambers of commerce and business associations also helped in connecting with relevant enterprises interested in participating in the project.

Finding the enterprises was quite challenging but in the end we managed to find 8 enterprises who stayed with us until the end of the project.

The mentor in order to help the participants organized along with CIP an info-day to inform about the next steps of the project. During that info-day the mentor not only shared the next steps but also showed the participants how to create their CV and cover letters for the enterprises. The CIP representative also helped the participants understand how to create their projects.

A Google Drive folder was created, in which each participant had a folder where they could share their cvs, cover letters and their project's ideas. The mentor was responsible to review both the CV's and the cover letters, give feedback and provide the project ideas to the CIP teams to examine them.

Also, the mentor was supporting and helping out the participants by constantly providing feedback, answering emails and contacting the participants. Evidence is available here: https://drive.google.com/drive/folders/1fj4Frpm9J4d2WLBQuQGo6XFlO8IcTnuz?usp=drive_link

Action Synergy and SHA have worked together in order to recruit enterprises. At the beginning an open call was launched addressed to many enterprises. There were a lot of discussions with these enterprises but eventually the enterprises were recruited through personal contacts and networks of the project partners. A main challenge in the process of the recruitment of enterprises was the unclear legal framework which exists for internships that are not organized from universities and also the brief duration of the course which made enterprises uncertain related with the skills of the interns.

8 participants have reached this stage. The participants that reached the stage had individual online sessions with the mentor who also have supported individually to build a CV in order to send it to the company. All participants have made CVs that were sent to the enterprises in order to check them. Action Synergy was in constant contact with the enterprises and the participants through the mentor. Finally, it was possible to recruit 4 companies, each one of which hosted 2 interns. The evidence is available here: https://drive.google.com/drive/folders/1mYHuuzOt7_vPx64ZC7WlohhWsTpGOrlV?usp=drive_link

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Part 6: PHASE IV: "Work-Based Learning"

Work-Based Learning was the final and most demanding phase of the project. During this phase, the participants have spent in average 60 days in internship in a company and have worked on some common projects. This phase was organized in the partner countries as follows:

Portugal

After signing the cooperation protocol with the enterprises that would host the internships, as well as the trainee's individual workplan (phase III), the trainees started their assigned tasks, according to what had been defined. The internship phase lasted longer than what was originally foreseen because of different constraints, related both to the trainees and the enterprises, that were properly addressed. During Phase IV, the trainer was assigned daily checkups with the trainees, as well as the mentors. The enterprises' tutors were also key actors during this phase, providing regular feedback on the trainees' performance.

The main success points were related to the added value that the interns brought to the companies where they did the internship, as well as what it meant, for their technical and personal development, to be part of an actual company, even if only for a limited period. It was challenging, though, to sometimes address the needs of the trainee and the enterprise.

The feedback from participants is fully reported in WP7. From the enterprises' viewpoint, the feedback was overall very positive, stating only (from the negative side) that minor arrangements could be made, especially when it comes to the duration of the internship – they wanted more time in the company, which was difficult to achieve, given the limited availability of the participants. On the other hand, they recognized the importance of such initiatives and valued the trainees' work.

Cooperation Protocols and Certificates can be found here.

Cyprus

CIP was in constant communication with the enterprises and the trainers responsible for the interns. In case of any problem both CIP & CSI were ready to resolve it. The success points are that during this phase, the interns were really eager to learn and they were really satisfied with the internship. No challenges were faced at this phase.

The feedback from enterprises and participants was overwhelmingly positive. Participants appreciated the program's comprehensive content, practical relevance, and its strong focus on career readiness, particularly in the IT and programming sectors. Enterprises valued the program's ability to develop skilled individuals, especially from disadvantaged backgrounds, and saw potential for recruitment and integration into their workforces. Both groups highlighted the program's adaptability, ease of use, and strong impact on community development.

Finally, it is really important to say that 1 of the participants that were doing the internships was actually recruited by one of the enterprises.

Evidences can be found here:
https://drive.google.com/drive/folders/1bExXbajiqPt43w_I_YazojU8WEoDt67o?usp=drive_link

Greece

In Greece, the Phase IV was organized and completed successfully from all participants that have started it. There was a regular support by the mentors through group online sessions in which there were discussed issues that were faced by the participants. Not all the participants were equally motivated for the internship since some of them have dedicated more effort than others. This is also related to the fact that some of them were willing to follow a coding career while others not. However, with the good collaboration of the companies it was possible to carry out the tasks identified. In the drafting of the Cooperation Agreements, the tasks that were decided were not very ambitious in order to be able to be implemented.

The primary success of the internship was the skills and competencies participants gained. However, a key challenge was that the level of expertise they achieved during the course was insufficient for them to contribute meaningfully to real company projects, limiting their roles to mostly supportive tasks. Additionally, it was difficult to engage students who had completed the first two phases, as the internship required a high level of commitment, was conducted entirely online, and offered no financial compensation. Both companies and students were also unfamiliar with the concept of online internships, which further reduced engagement.

The evidences are available here: https://drive.google.com/drive/folders/1ydh8X-KXil9eUL01dMwGnvLc2wWzCr9w?usp=drive_link

Conclusion

The Code4SP project has demonstrated the potential to equip migrants, refugees, and other disadvantaged groups with valuable coding skills through a well-structured, multi-phase pilot testing program. While the project achieved several notable successes, it also encountered significant challenges that provided valuable lessons for future initiatives.

One of the project's key achievements was its ability to provide participants with fundamental coding knowledge, contributing to their personal and professional development. Across all the partner countries – Portugal, Cyprus, and Greece – participants were exposed to a blend of face-to-face, online, and asynchronous training sessions, ensuring flexibility in learning. The combination of theoretical learning, practical exercises, and mentorship gave participants the opportunity to develop the competencies necessary for a potential career shift. Many participants came from vulnerable backgrounds, including migrants and refugees who were seeking new career opportunities, especially in coding and IT. The project successfully attracted a diverse audience, allowing participants to build new technical skills and enhance their employability.

The project's primary challenges stemmed from several factors. One major issue was the dropout rates across all countries involved in the pilot. Many participants underestimated the commitment required to successfully complete the program, often due to their unfamiliarity with the complexities of coding. Additionally, the language barrier and lack of prior knowledge made it difficult for some participants to keep up, particularly in Cyprus.

Another challenge was the readiness of participants to engage in real-world coding projects. While the theoretical foundation provided during the training was solid, the hands-on experience was insufficient to allow many participants to fully contribute to

company projects during their internships. This limitation meant that participants' roles were largely auxiliary, limiting their overall impact in the workplace.

Despite these challenges, there were several successes worth noting. The recruitment of enterprises willing to provide internships was a critical achievement. Although it was initially difficult to secure company participation, the project eventually partnered with several enterprises in each country, giving participants an opportunity to experience real-world work environments. In some cases, participants performed so well that they were offered employment following their internship, as seen in Cyprus. Additionally, the project's flexible approach, which involved the use of face-to-face, online, and asynchronous learning, allowed participants to engage with the material at their own pace, accommodating different learning styles and schedules.

In conclusion, the Code4SP project has been a valuable experiment in equipping disadvantaged groups with essential coding skills. While challenges related to participant engagement, language barriers, and the transition from theoretical learning to practical application were prevalent, the project succeeded in providing valuable lessons for the future. By addressing these challenges – especially through more tailored support, greater emphasis on practical coding tasks, and improved engagement during internships – future initiatives can build on Code4SP's foundation to further empower participants and enhance their employability in the digital economy.