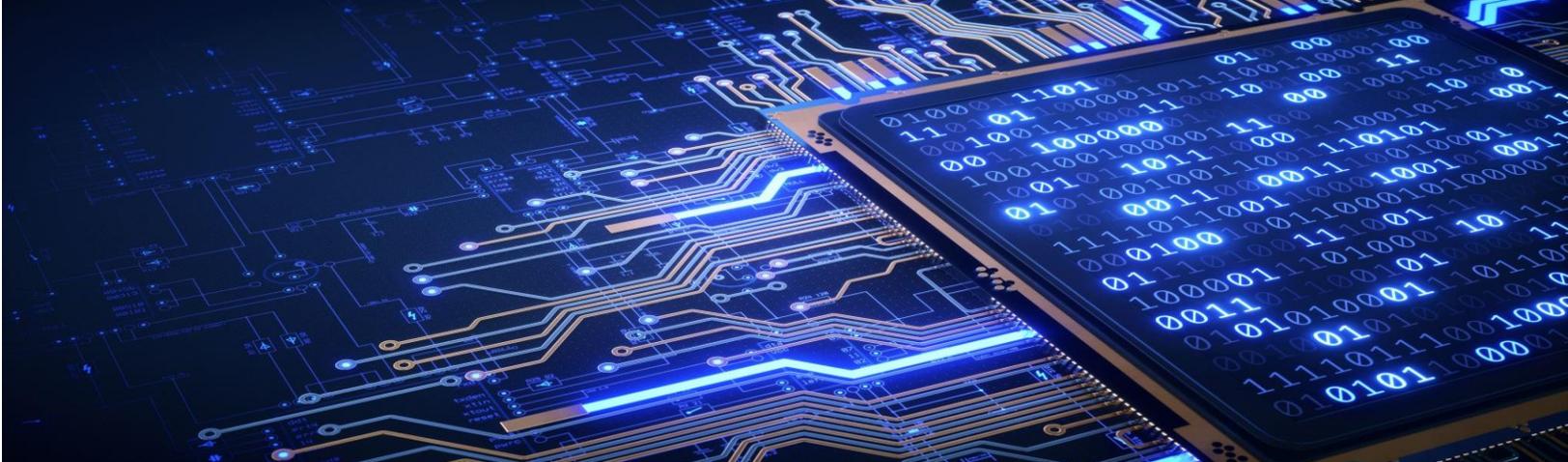Digital and sciEntifiC liteRacY uPskilling for adulTs

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TRAINING FORMAT
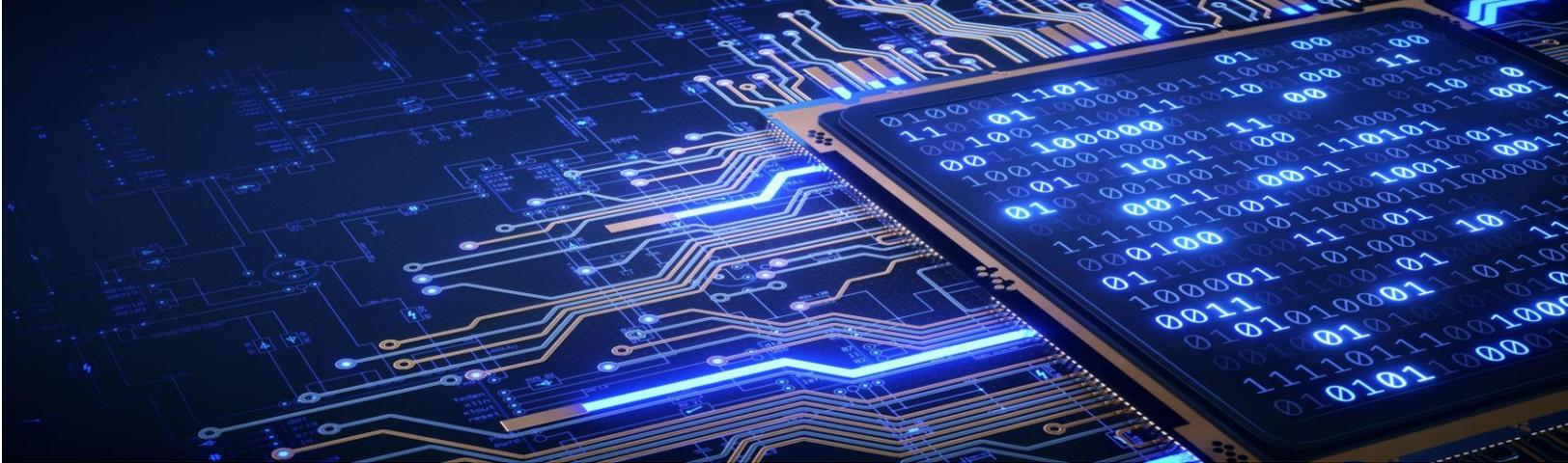
Contents

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Project scope and objectives

Education strives to keep the pace with the fast-changing world in which we live in, especially for those sectors of society who are not always involved in formal education programmes, such as the adults, and in rapidly evolving sectors like digital competences, new media and science. The European Commission has set among its priorities to pursue science education for responsible citizenship and to follow The Digital Competence Framework 2.0, which considers Information and data literacy to be one of the fundamental components of digital competence. **DECRYPT - Digital and scientific liteRacY uPskilling for adulTs** intends to promote the exchange of good practices of digital and science education for adults to foster a better understanding of scientific concepts helping to identify reliable sources in new media.

Objectives:

1. Establish a partnership to research and exchange experiences on digital and STEM education for adults in partner countries, and then lead to the elaboration of a finalized training format.
2. A Training Format with the educational programme for STEM and digital literacy, gathering research results and best practices having as aim to promote digital and scientific education.
3. A Joint Staff involving educators in digital and scientific literacy, having the Training Format as an educational tool.

Training Format

The Training Format contains a detailed outline of the research results of the project, including best practices and the findings in focus groups with adults and organizations in adult education. The Training Format was tailored to the needs of adults and adult educators to foster the development of knowledge, skills, and competences of digital and scientific literacy.
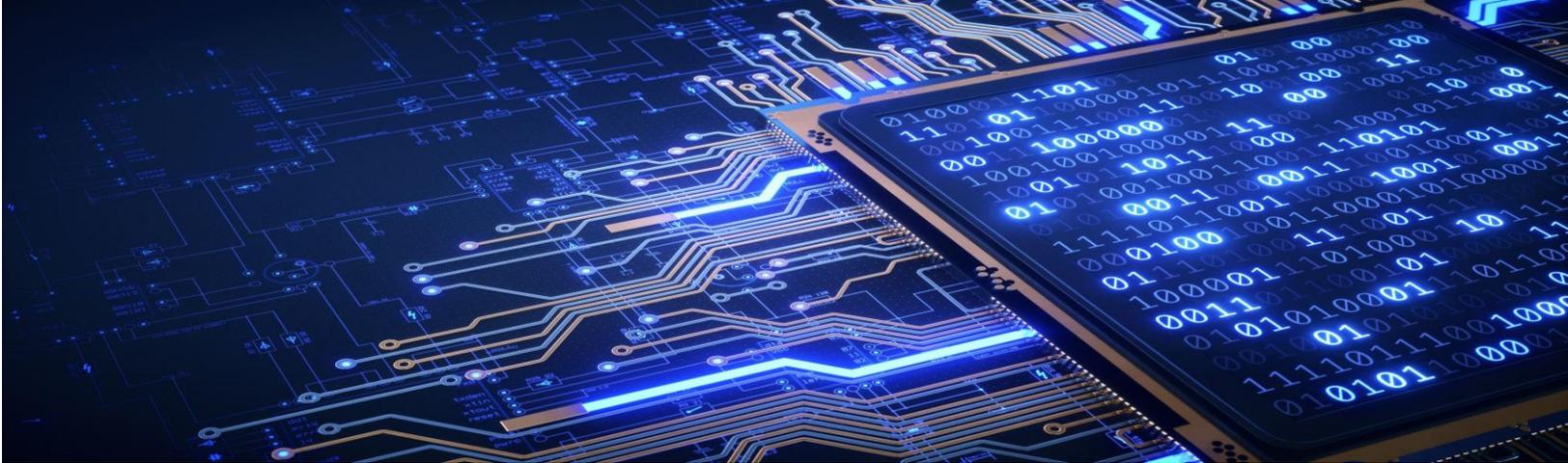
Research Methodology

The research methodology comprised both desk and field research. The **desk research** was aimed at collecting national and international good practices in digital and STEM education while for the **field research** all partners implemented a focus group involving both adult learners and adult educators in order to properly understand their needs and match them through the Training Format workshops.

The methodology is available in the **Annexes** section of this document.

Good Practices

This section contains the national and international good practices collected. At the national there isn't an equal number of good practices regarding digital and STEM education, which represent a relevant gap in our findings. However, considering the results at the Consortium level, this document contains high-quality good practices which are potentially transnationally replicable.

National Good Practices – Digital Education

"Competenze digitali per I cittadini: proposte operative"

Type of good practice	Topic	Status
National	Digital education	Ongoing
Entities involved	**Beneficiaries**	
Agenzia per l'Italia Digitale - AgID	Public administrations, citizens.	
Learning outcomes		
The aim of this document is to provide public administrations that have greater proximity to citizens (municipalities and territorial bodies in general) indications on the possible uses of the guidelines for training/dissemination projects, in order to increase the digital		

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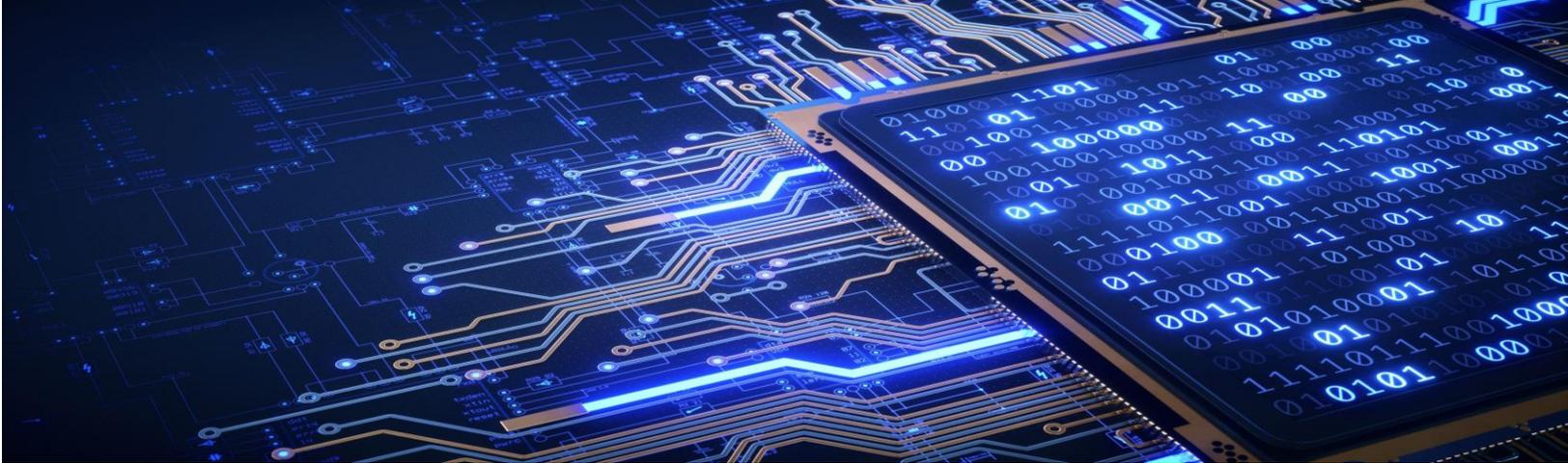
skills of citizens themselves and ensure greater interaction with both public and private digital services available today.

Detailed description of the programme/activities/sessions/workshops

USE OF DIGITAL DEVICES
Objective:
The aim of the training activity is to familiarise learners with the use of digital devices in order to learn about and use the Internet.
Training contents
- what device: information about the different types of digital devices (e.g.: personal computer, tablet, smartphone);
- basic tools: information on basic programmes (e.g.: writing systems, browsers, etc.);
- protection of digital devices: minimum security measures for digital devices (e.g.: antivirus, etc.);
- storage systems: local, on removable devices, cloud;
- copyrights and licences: correct way of using IT products.

GETTING TO KNOW THE INTERNET
Objective:
The aim of the training activity is to raise awareness of the use of the internet, how to access it, the basic services.
Training contents:
- what is the internet and what is the web: basic information on how the networks;
- how to access the internet: general information on how to connect and access it;
- what is a search engine: general information on how to use a search engine;
- what is an electronic mailbox: what it is, how it works, difference between ordinary mail and certified electronic mail;
- what is a social media: general information on popular social media;
- what instant messaging systems are: general information;
- online education: netiquette, copyright;
- personal data protection on the net: basic rules.

USING THE INTERNET
Objective:
The aim of the training activity is to enable users to get to know the basic rules of using the net, to navigate and interact with content in a safe way.
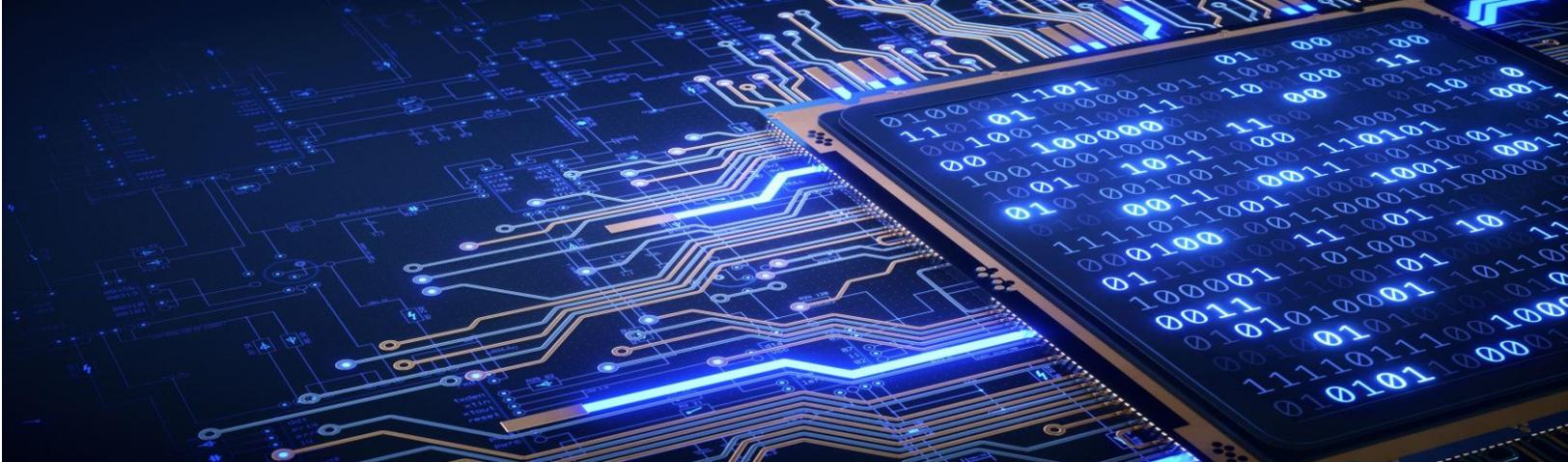
Training contents:
- search engines: how to search and check the reliability of information;
- e-mail: how to create an e-mail box, how to use it, basic rules;
- social media: how to create a profile, how to use it, basic rules;
- communication tools (instant messaging): how to create a profile, how to use it, basic rules;
- storage tools: benefits of using the cloud;
- online security: basic rules to protect against problems (e.g. identity theft).

DIGITAL ADMINISTRATION AT THE SERVICE OF THE CITIZEN
Objective:
The aim of the training activity is to spread knowledge about digital PA: information and services available to the citizen.
Training contents:
- digital administration code, CAD: digital rights and duties of the citizen;
- SPID digital identity: what it is, what it is for, the benefits, how to activate it;
- PagoPA digital payments: what it is, what it is for, the benefits, how to use it;
- online information: what content is compulsory (e.g.: register, transparency);
- online services: what they are, how to identify them, examples.

FATIH Project

"Movement of Enhancing Opportunities and Improving Technology"

Type of good practice	Topic	Status
National	Digital education	Ongoing
Entities involved	**Beneficiaries**	
Turkish Ministry of National Education Ministry of Transport and Infrastructure	Public schools, students, teachers	
Learning outcomes		
While creating the solution based on these principles, the success factors are based on 5 basic principles: Accessibility: To be able to provide service from anywhere, anytime, independently of time and tools;		
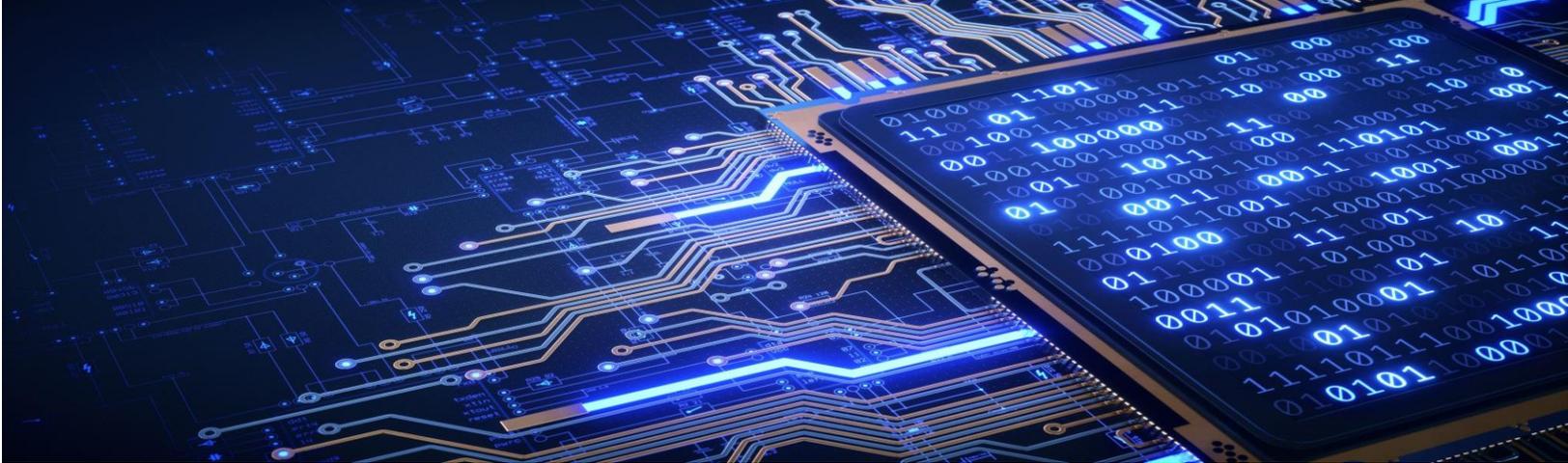
Efficiency: To offer target-oriented, more efficient working environments and development areas;

Equality (equality of opportunity): To ensure that all stakeholders have access to the best service;

Measurability: To evaluate the development correctly, the process and to ensure that the results can be measured correctly, to give proper feedback accordingly;

Quality: To increase the quality of all education measurably. Also, the following aspects were aimed to follow.

Thanks to the solution that considers all these success factors, it is aimed to increase the total quality while providing equal opportunity and closing the digital gap.

Detailed description of the programme/activities/sessions/workshops

FATİH (Fırsatları Artırma ve Teknolojiyi İyileştirme Hareketi) Project is a national initiative by the Turkish government to provide students and teachers with access to technology and digital resources to enhance the learning experience and promote digital literacy. The project was launched in 2010 and has since undergone various updates and improvements to better serve the educational needs of students and teachers in Turkey.

Here is a detailed timeline and explanation of activities, sessions, and workshops available under the FATİH Project:

2010: The project was launched with the aim of providing all Turkish students and teachers with access to technology and digital resources. The initial phase of the project focused on providing schools with smart boards, projectors, and tablets.

2012: The second phase of the project began, with a focus on providing schools with broadband internet access and building a national educational network. This phase also included the development of digital educational content, such as e-books, interactive educational materials, and educational games.

2014: The project continued with the third phase, which aimed to improve teacher training and promote the use of technology in the classroom. This phase included training programs for teachers on how to use digital tools and resources in their lessons.

2015: The fourth phase of the project began, with a focus on expanding access to technology and digital resources to all students in Turkey. This phase included the

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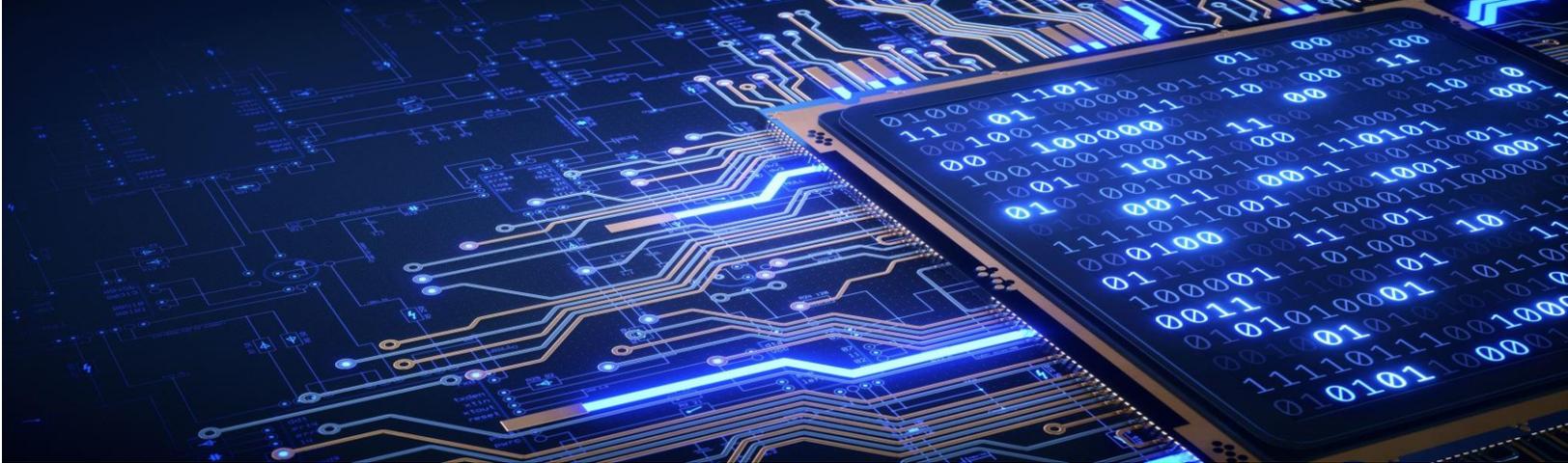
distribution of tablets to students in grades 5-12 and the development of digital educational content for all grade levels.

2016: The project continued with the fifth phase, which focused on improving the quality of education and enhancing the learning experience for students. This phase included the development of digital educational content in a variety of subjects and the creation of virtual learning environments for students.

2017: The sixth and final phase of the project began, which aimed to sustain and improve the existing infrastructure and digital resources. This phase included the maintenance of equipment and the development of new educational content and tools.

Under the FATİH Project, a wide range of activities, sessions, and workshops have been made available for students and teachers to enhance their learning experience and promote digital literacy. These include:

Digital educational content: A vast collection of digital educational content, such as e-books, videos, interactive educational materials, and educational games, are available for students of all grades and subjects. The content is regularly updated to ensure that it is relevant and up-to-date.

Teacher training: Various teacher training programs are available to help teachers improve their digital teaching skills and learn how to use digital tools and resources in their lessons. These programs include workshops, online training courses, and training sessions at regional training centers.

Virtual classrooms: The project has created virtual classrooms that allow students to learn remotely from any location. These classrooms provide live streaming of lessons and video conferences, as well as online assessments and homework assignments.

Student tablets: As part of the project, tablets have been distributed to students in grades 5-12, allowing them to access digital resources and educational content from anywhere. The tablets also provide access to educational apps and tools that enhance the learning experience.

Overall, the FATİH Project has been instrumental in enhancing the quality of education and promoting digital literacy in Turkey. The project has provided students and teachers
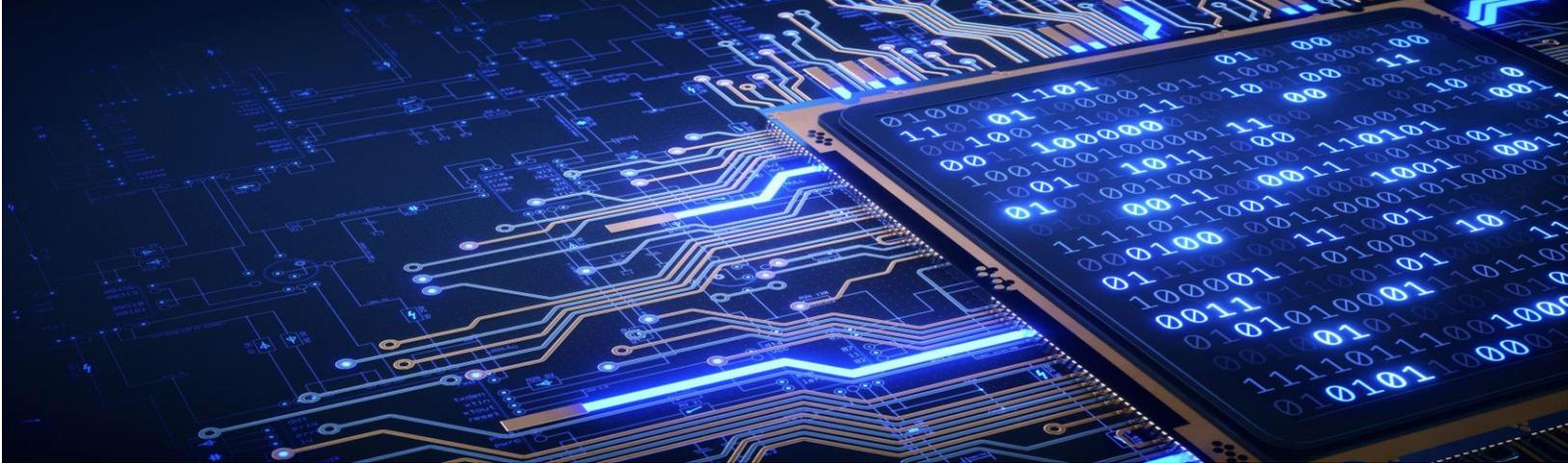
with access to technology and digital resources, creating a more flexible and inclusive learning environment.

"EBA" or "Eğitim Bilişim Ağı" (Education Information Network)

Type of good practice	Topic	Status
National	Digital education	Ongoing

Entities involved	Beneficiaries
Turkish Ministry of National Education Innovation and Educational Technologies General Directorate	Public schools, students, teachers

Learning outcomes

Live classroom application aiming at interactive teaching by eliminating the distance between the student and the teacher was initiated during the distance education process.

As of today, 5 million 954 thousand and 174 live classes were held in EBA live classroom application.

The Ministry prepared programs covering classes which provided questions that will come up at the Higher Education Institutions Exam (YKS) and High School Entrance Exam (LGS) for 8th and 12th grade students.

Lessons were shot in 10 different studios in Ankara and İstanbul for TRT EBA distance education broadcasts.

674 students from 93 branches participated in the shootings and total of 2 thousand and 358 lesson videos were produced.

https://www.meb.gov.tr/turkey-made-digital-world-list-with-its-distance-education-statistics/haber/21158/en
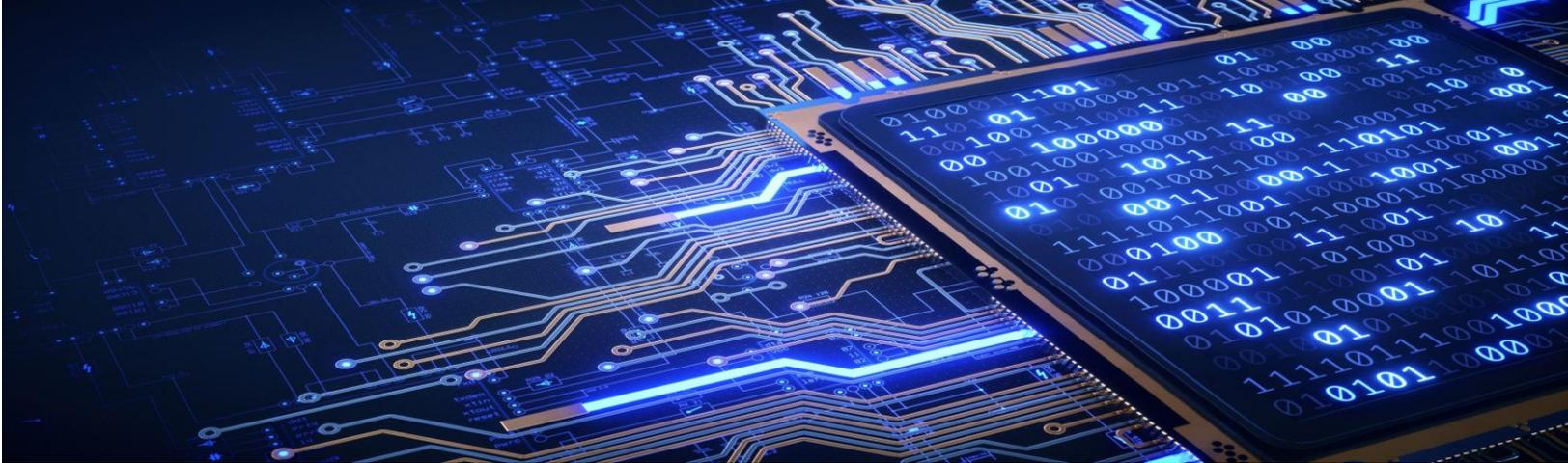
Detailed description of the programme/activities/sessions/workshops
2003: EBA was initially launched as an online platform for distance learning in higher education.
2008: EBA was expanded to include primary and secondary education, providing students and teachers with access to a variety of digital educational resources, such as interactive educational materials, online course materials, video lectures, e-books, and educational games.
2012: EBA introduced a new social learning network that allows teachers and students to communicate with each other and share information. This feature has helped to foster collaborative learning and has provided students with opportunities to learn from their peers.
2016: EBA began offering live online lessons and lectures, which became particularly important during the COVID-19 pandemic when schools were closed and remote learning became a necessity. The platform also provided access to previously recorded sessions, which allowed students to learn at their own pace and in their own time.
2018: EBA expanded its services to include professional development opportunities for teachers. The platform provided access to online training courses and workshops, which aimed to help teachers improve their teaching skills and keep up to date with the latest trends and practices in education.
2020: EBA underwent major updates and improvements to meet the increased demand for online learning during the COVID-19 pandemic. The platform provided students and teachers with a more user-friendly interface, better video streaming capabilities, and improved access to educational resources.
2021: EBA continued to expand its services to include more interactive educational materials, such as virtual field trips, gamified learning experiences, and augmented reality applications. The platform also provided additional training and support for teachers to improve their digital teaching skills and enhance the quality of their online lessons.
The sessions and workshops available on EBA cover a wide range of topics, from basic academic skills to more specialized subjects. For example, there are sessions available
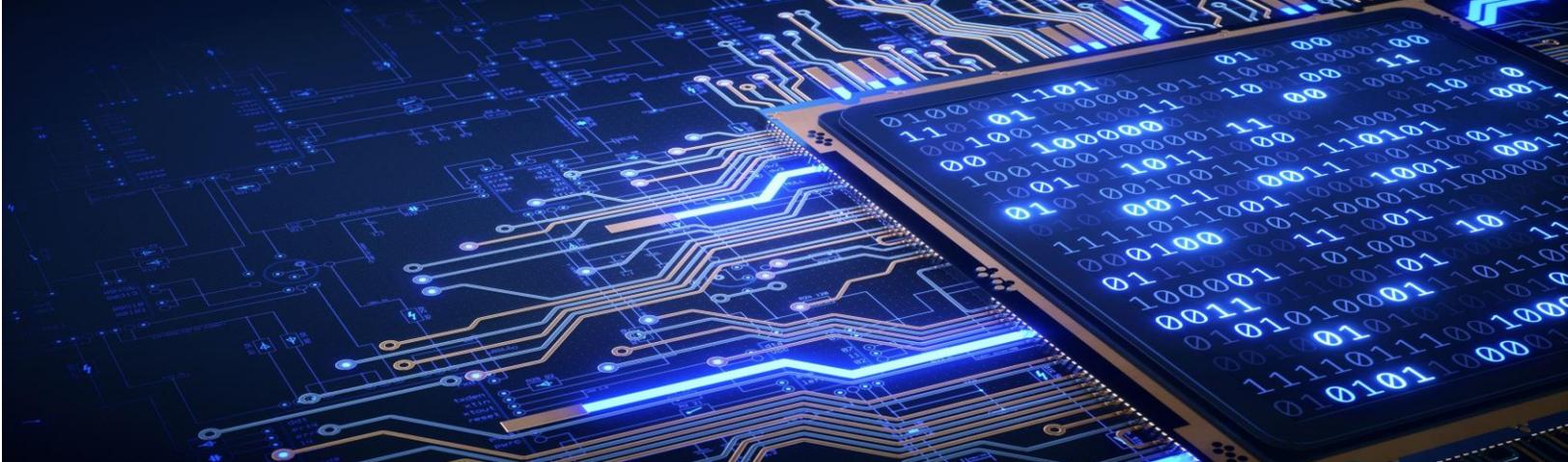
for students on how to improve their reading, writing, and math skills, as well as sessions on science, history, and foreign languages. The platform also offers training courses for teachers on how to design effective online lessons, how to use digital educational tools, and how to promote student engagement in virtual classrooms.

Overall, EBA provides a comprehensive and flexible learning environment that offers students and teachers access to a wide range of educational resources and opportunities for professional development. The platform has played a vital role in supporting distance learning and has helped to make education more accessible and inclusive for students across Turkey.

Digital skills @ Adult Education

Type of good practice	Topic	Status
National	Digital Literacy	Finished

Entities involved		Beneficiaries
DIGITAL IDEA, LARISSA (Thessalia), Greece		Adult educators

Learning outcomes
This project aimed and achieved: a) the strengthening of adult teacher's skills b) the formation of a modern digital training environment c) the use of more pupil-friendly teaching approaches as well as the effective integration of modern pedagogical methods, such as inquiry-based learning and the encouragement of creative thinking through the use of digital tools and technological merits.

Detailed description of the programme/activities/sessions/workshops
Details: ❖ The project was developed by DIGITAL IDEA and included the training of the organization's adult educators, who participated in two mobility flows: - The 1st Mobility Flow took place in the Czech Republic with the training of six (6) adult educators on the **use of ICT in adult education** and the **emphasis on e-learning and digital classroom technology**.
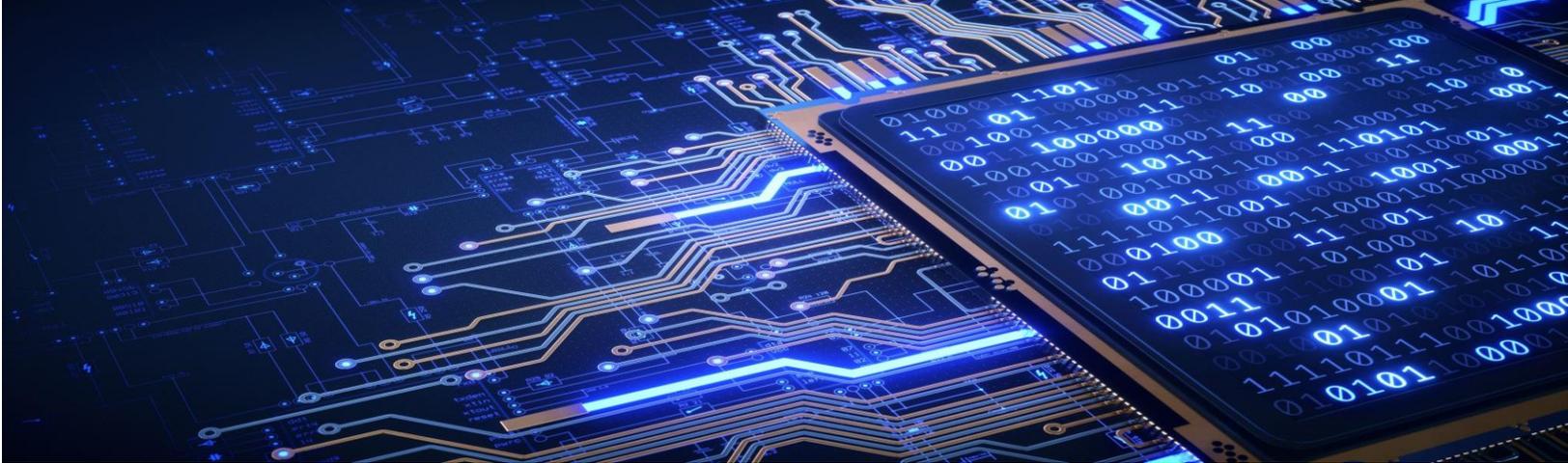
- The 2nd Mobility Flow took place in Italy with the training of four (4) adult educators and the emphasis on **integrating social networks** (Facebook, Twitter, LinkedIn, Pinterest, Instagram, YouTube) **into education and lifelong learning**
The organization believes that the project helped develop policies and actions aimed at harmonizing the digital progress of European countries by 2020 and having an impact on Adult education and training systems, thereby contributing to reform of policies and attracting new resources for mobility opportunities in Europe.

❖ **Website**: https://erasmus-plus.ec.europa.eu/projects/search/details/2018-1-EL01-KA104-047326

Lesson plan for web 2.0 from the adults educators who participated in the 2 project mobilities.
The main objective of the lesson is to make the learners understand:
- what is Web 2.0,
- what Web 2.0 applications are,
- what great potential it gives users and why.
The Lesson Plan is available in Greek. It includes useful theory tips and practical activities.

Exercise presentation:
Worksheet: 1
GROUP NAME ………………………………………………………………….
Create and post a blog that contains at least one photo and information about your place (eg tourist guide).

Φύλλο Εργασίας: 1

ΟΜΑΔΑ ....

Να δημιουργήσετε και να αναρτήσετε ένα μπλογκ (blog) το οποίο να περιέχει τουλάχιστον μια φωτογραφία και πληροφορίες για τον τόπο σας (π.χ. τουριστικός οδηγός).

Exercise presentation:
Worksheet: 2
GROUP NAME ………………………………………………………………….

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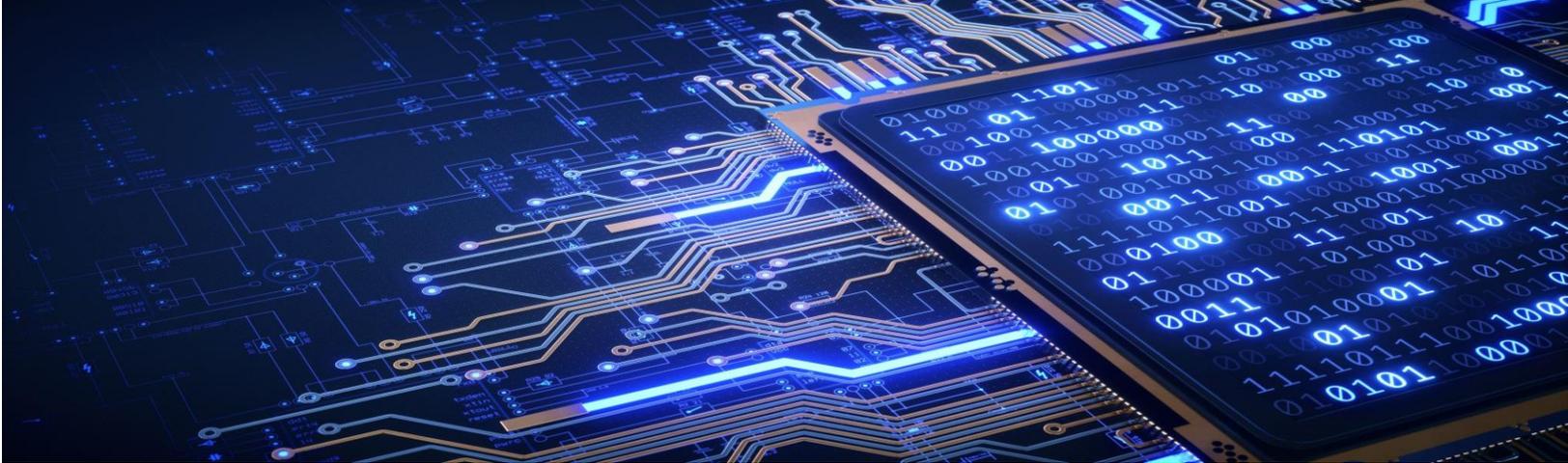
Use the GoogleDocs application and format the document according to the instructions given to you. Save the changes you made and share them with the author of the document.

Φύλλο Εργασίας: 2

ΟΜΑΔΑ …………………………………………………………….

Να χρησιμοποιήσετε την εφαρμογή GoogleDocs και να διαμορφώσετε το έγγραφο σύμφωνα με τις οδηγίες που σας δίνονται. Να αποθηκεύσετε τις αλλαγές που πραγματοποιήσατε και να τις κοινοποιήσετε στο δημιουργό του εγγράφου.

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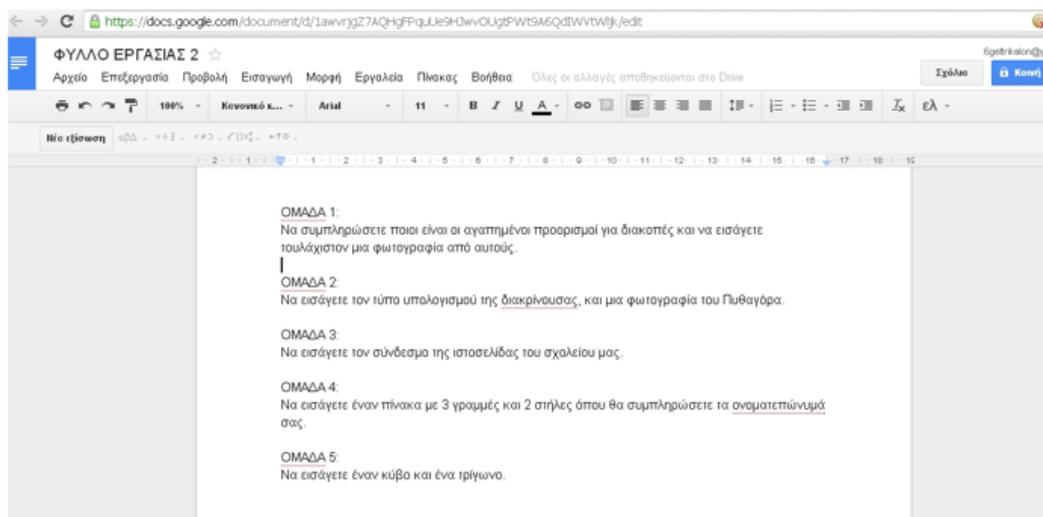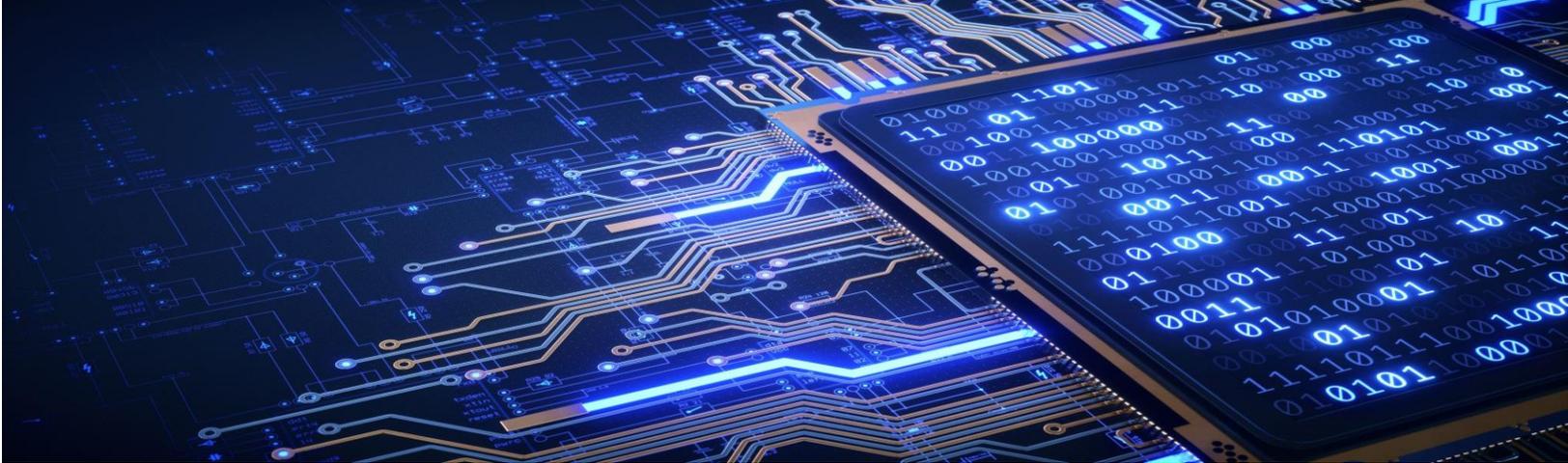
International Good Practices – Digital Education

Digital Skills 4 All

Type of good practice	Topic	Status
International	Digital education	Finished

Entities involved	Beneficiaries
Coordinator RAAMA NOORTE UHING NOORUS MTU (Estonia) Partners ASSOCIACAO INTERCULTURAL AMIGOS DA MOBILIDADE (Portugal) FUTURO DIGITALE (Italy) SDRUZHENIE ALTERNATIVI INTERNATIONAL (Bulgaria)	International bodies, adult centres, non-profit organization working with disadvantaged adults, willing to add non-formal activities to their formal curriculum; local and regional administrative bodies looking for support for fostering adult initiatives in their area, and at large organizations interested in ICT education for their workers.

Learning outcomes
• Acquisition of more specialized knowledge on digital skills; • Upskilling professional competence.

Detailed description of the programme/activities/sessions/workshops

The following activities are extracted from the Handbook.

1. MANAGING INFORMATION AND COMMUNICATION THROUGH TECHNOLOGY
1.1.INTRODUCTION
The basic meaning of information is simply facts about a person, event, situation etc. Simple definition of communication is simply the act of transferring information from one place, person or group to another. In other way, communication means exchanging information by speaking, writing or using some other medium.
Nowadays technology is one of the primary medium to manage information and communicate with others. It is not just trending in people's everyday life, but technology has an important role in education and business. Therefore, digital skills have become essential in today's life. In this learning unit we concentrate on digital skills necessary for managing information and communication through technology.
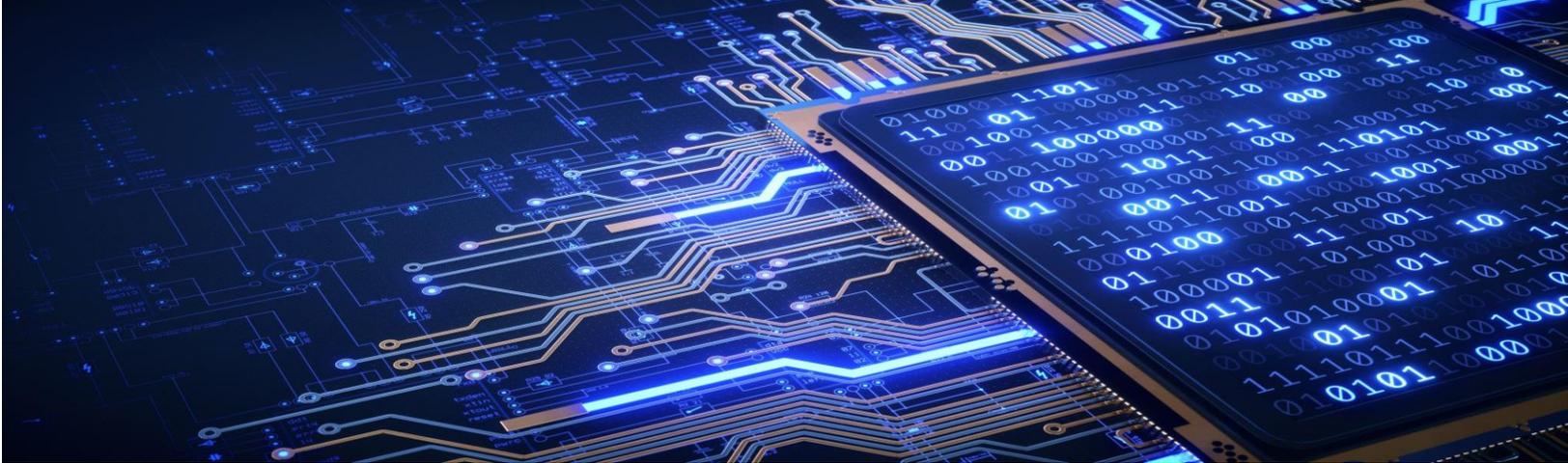
This learning unit's theoretical approach consists of 2 sub-units: managing information and communication. These sub-units explore the main issues of concern with adult learners nowadays.

In these sub-units there are different and simple exercises in order to enshrine the basic digital skills necessary for managing information and communication through technology.

1.2.THEORETICAL APPROACH TO LEARNING UNIT

1.2.1. Managing information through technology

When we speak about how to manage information through technology, there are few topics that need to be considered. Such as, digital footprint – what is it and how to control it; different search engines; figuring out what information is credible and trustworthy; referencing and plagiarism.

Digital footprint is a trail of data you create while using the Internet. That means that it trails all your activity – websites you visit, emails you send and information you submit to online services. Whether or not your information is shared intentionally, it's being gathered by advertisers, employers and companies from which you shop. This information is called your digital footprint—and it's becoming more important than ever in today's digital economy. While there's no official definition of the term "digital economy," it can be summed up as the entire ecosystem built from our online connectivity.

In this newfound era, your digital footprint can no longer be ignored. The more you spend time on social networking websites, the larger your digital footprint will be. Even "liking" a page or a Facebook post adds to your digital footprint, since the data is saved on Facebook's servers.

If you want to track down your digital footprint, the first thing you should do is Google yourself.

Exercise 1

Go to www.google.com and search yourself. Search your name with quotation marks around it. For example, "John Smith". Searching for your name in quotation marks ensures that the search engine will search for that phrase, not picked apart. After that, add in your state/city to narrow things down. Then go to www.bing.com or https://duckduckgo.com and do the same research.

In your search:

● If you don't want some information up, you can contact the site admin (use the "contact us" link) and ask for the information to be taken down.

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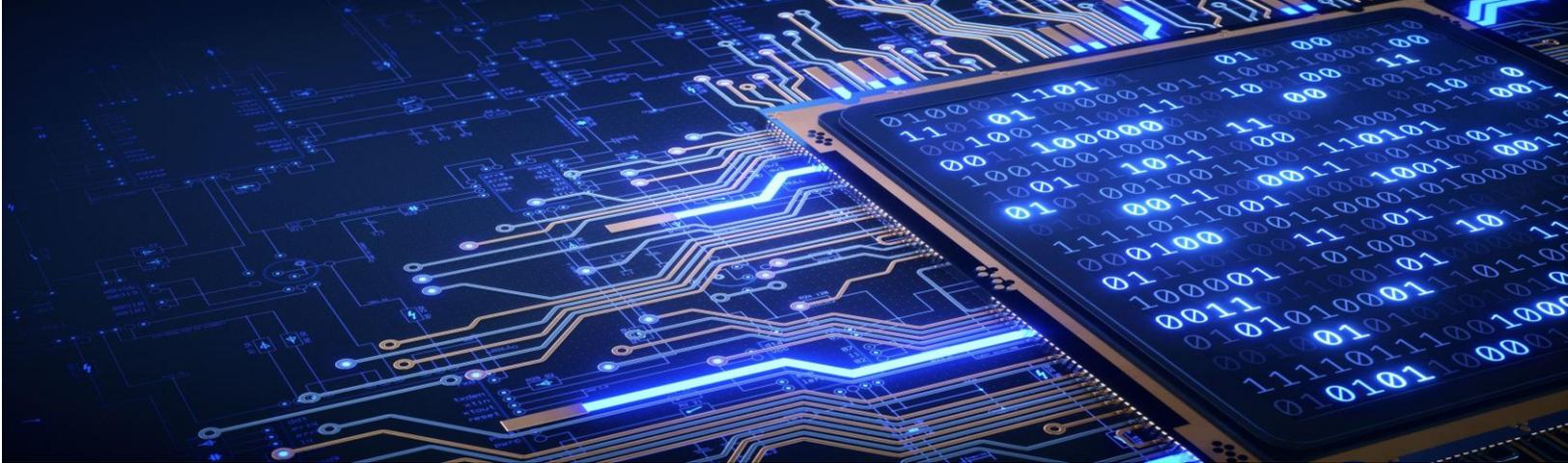
● If you come across old social media accounts you no longer use – log into these accounts and request for their deletion.

While you can often delete content from social media sites, once digital data has been shared online, there is no guarantee you will ever be able to remove it from the Internet. In addition, you can probably find everything online by the help of search engines. A search engine is a web-based tool that enables users to locate information on the World Wide Web.

Popular examples of search engines are Google, Bing, Yahoo etc. Search engines utilize automated software applications that travel along the Web, following links from page to page, site to site.

The information gathered, is used to create a searchable index of the Web. Every search engine uses different complex mathematical formulas to generate search results. In order to speed up your Internet, there are some tips and tricks for that.

Exercise 2
Go to a google.com and search free training opportunities for yourself in your region. For that use:
● Use quotes to locate a specific phrase. For example, "free training in Nuoro"
● If necessary, then include stop words, such as "and", "or" etc.

Google is not your only option for search engine. Less profit-motivated search engines like DuckDuckGo.com and Bing may take a little getting used to, but they can sometimes make clearer efforts to protect users' browsing privacy. Data privacy concerns are on the rise. Facebook has received a lot of heat recently, causing many individuals to start questioning their own privacy. This area is one that DuckDuckGo really shines. In fact, the way DuckDuckGo handles data is what set this search engine apart from the beginning.

According to DuckDuckGo, it never stores your personal information or search history. It doesn't follow you with ads or track you across the Internet. DuckDuckGo's mantra is simple, "no tracking, no ad targeting, just searching."

If you search information from the Internet, then you have to be careful as not all written sources are reliable, no matter how sound their arguments may appear to be. As you read from the e-learning module, there are several issues that needs to be considered, in order to evaluate the reliability of a writing or a website.

Such as:
● Is the information updated?
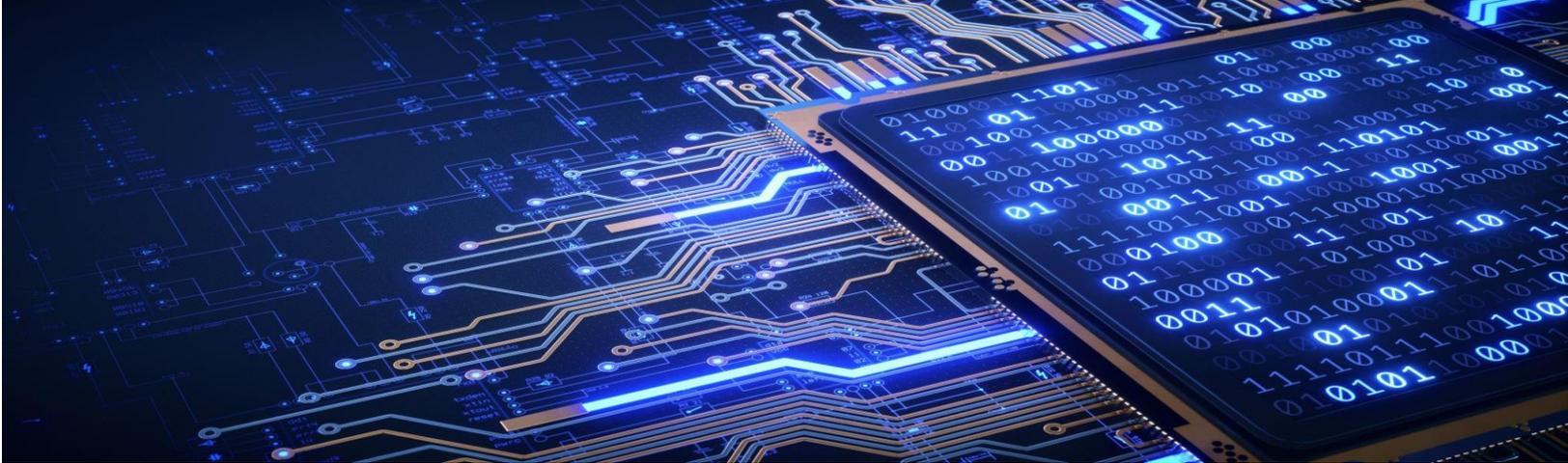
● Is it related directly to the topic it discusses?
● Does it provide sources for supporting ideas?
● Are these sources reliable?
● Is the purpose of the information to inform, to persuade, to sell or even to entertain?
● Has the information been written and published recently?
● Does a date of publication appear?
● Who is responsible for the information?

It is up to you to determine the bias and the source of what you read. Website owners can print anything they want, true or not, without a worrying about the consequences. For example, many Web pages are published anonymously by individuals. Are the views of individuals as reliable as those of experts from universities or from the government which cite sources?

As a reader, you must be careful about what you consult as a reliable source of information. That a source is in print or posted on the Web does not automatically make it trustworthy. You can always find information on any source. As a critical reader, you deserve the best, the most current, and the most reliable. Be sure to screen what you find to make sure that it is reliable.

Exercise 3
Check the credentials of these websites:
● https://worldnewsdailyreport.com/
● https://www.thebureauinvestigates.com/
● http://newspunch.com
● https://www.apnews.com/

Which of these websites are credible and trustworthy? Which of them are not?

Academically, there are many cases of students who find themselves accused of plagiarising, but often it has happened unintentionally. Sometimes it is difficult for people to understand that all the information, pictures, videos found online, is still somebody's work and it needs to be referenced to. Just because it is up in the Internet and easily accessible, it does not mean that you can take it freely.
By referring to the works of established authorities and experts in your subject area, you can add weight to your comments and arguments. This helps to demonstrate that you have read widely and considered and analysed the writings of others. Remember, good referencing can help you attain a better grade or mark (often between five and
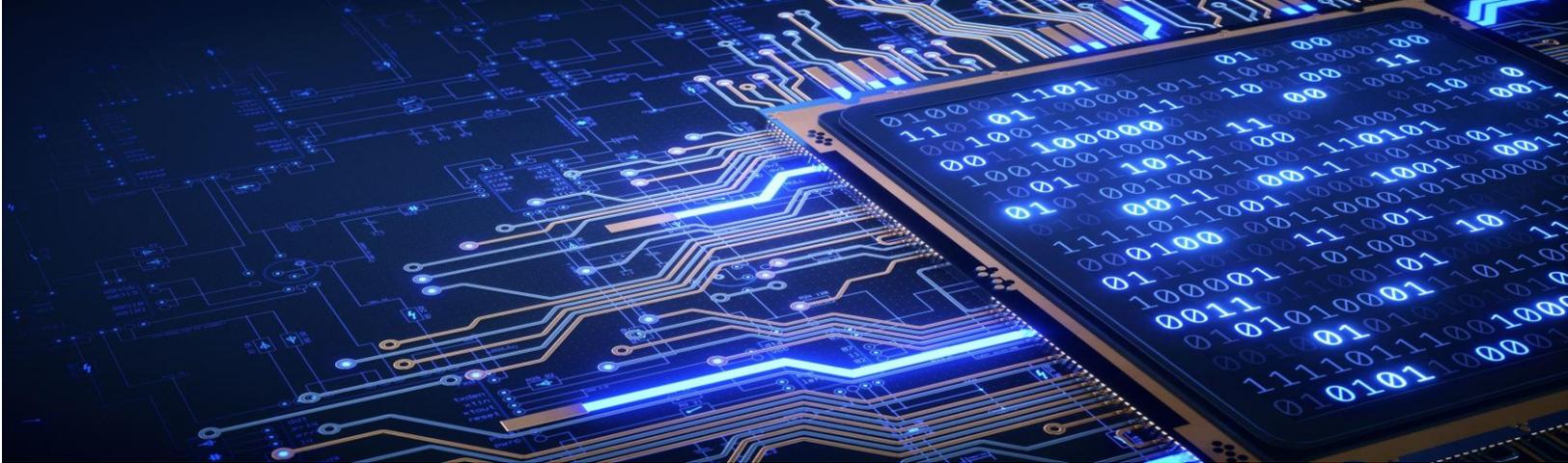
ten percent of the total). Most importantly, good referencing is essential to avoid any possible accusation of plagiarism.

Exercise 4

Write a short paragraph about your thoughts about learning and education. Use one of these quotations in your text correctly:
● "An investment in knowledge pays the best interest." Benjamin Franklin
● "Education is the key to success in life and teachers make a lasting impact in the lives of their students." Solomon Ortiz
● "Education is the most powerful weapon which you can use to change the world." Nelson Mandela

1.2.2. Communication through technology

Communication means exchanging information by speaking, writing or using some other medium.

For example, communicating through technology and the Internet. For better understanding about communication through technology it is important to regard these subjects: online communication, social network sites and interacting with technology.

People prefer more and more online communication than traditional forms, because it has many advantages, such as like flexibility to communicate with each other across the world. There are different types of online communication: emails, chats and chat rooms, forums, instant messaging, VoIP, video or audio conferences and blogs.

Since online communication is documented, it can be stored for later reference and has been known to be of importance especially related to legal aspects. Online communication saves a lot of time as well since the people involved can perfectly carry it on while doing other things as compared to a verbal communication where both parties have to be present.

Exercise 5

Make groups of 3-4 persons and do a group chat using at least two forms of communication (emails, chats and chat rooms, forums, instant messaging, VoIP, video or audio conferences and blogs). After the chat, analyse as a group which are the positive and negative sides of these ways of communication.

Social networking sites are online platforms, where people build social networks or social relationship with other people who share similar interests, activities, backgrounds etc. Social networking sites allow users to share ideas, digital photos and videos, posts,

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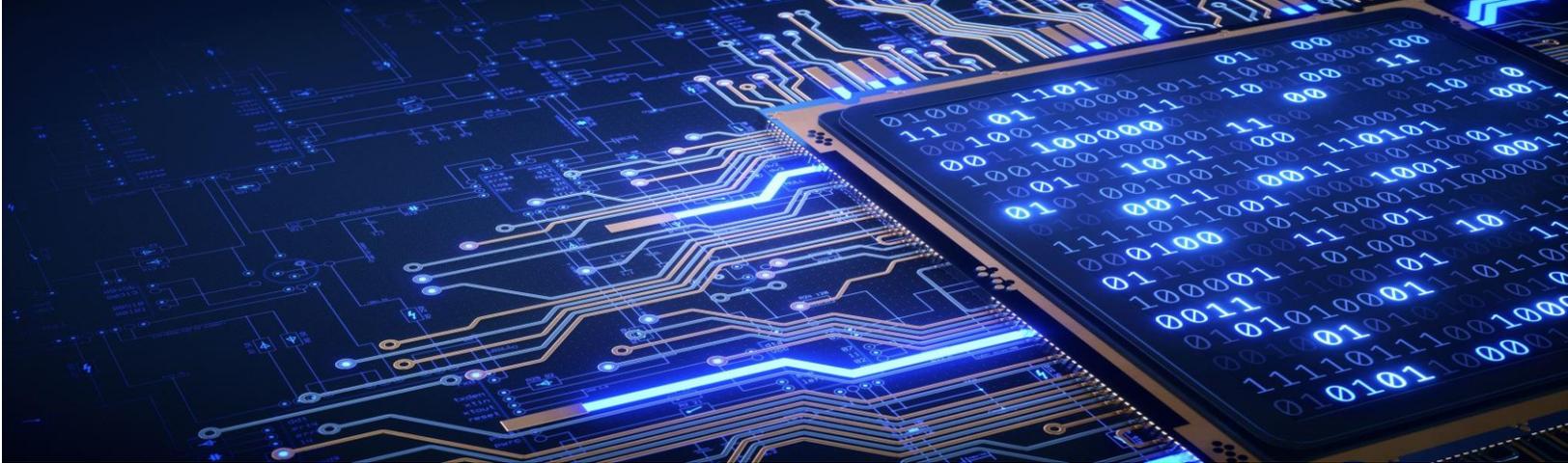
and to inform others about online or real-world activities and events with people in their network.

While in-person social networking, like a gathering in a village market to talk about events, has existed since the earliest development of town. The Web enables people to connect with others who live in different locations, ranging from across a city to across the world. Depending on the social media platform, members may be able to contact any other member. In other cases, members can contact anyone they have a connection to, and subsequently anyone that contact has a connection to, and so on.

There is a possibility to categorize social-network services into four types:

● socializing social network services used primarily for socializing with existing friends (e.g., Facebook)

● online social networks are decentralized and distributed computer networks where users communicate with each other through internet services.

● networking social network services used primarily for non-social interpersonal communication (e.g., LinkedIn, a career- and employment-oriented site).

● social navigation social network services used primarily for helping users to find specific information or resources (e.g., Goodreads for books).

Exercise 6
Select one social network site (one in the list in e-learning module) and add your own ideas in Like and Dislike categories.

The world's most popular social networking sites certainly have changed over the years, and they'll undoubtedly continue to change as time moves forward. Old social networks will die, popular ones will stick around and evolve. There are made new social network cites every other day. Trendsetters for social network cites are young people and usually older people follow.

Exercise 7
Use search engines to find out, what social network website is gaining their popularity right now and answer these questions:
● What is the purpose of this website?
● How many people (approximately) use it?
● Would you use it? Why?

LEARNING OUTCOMES
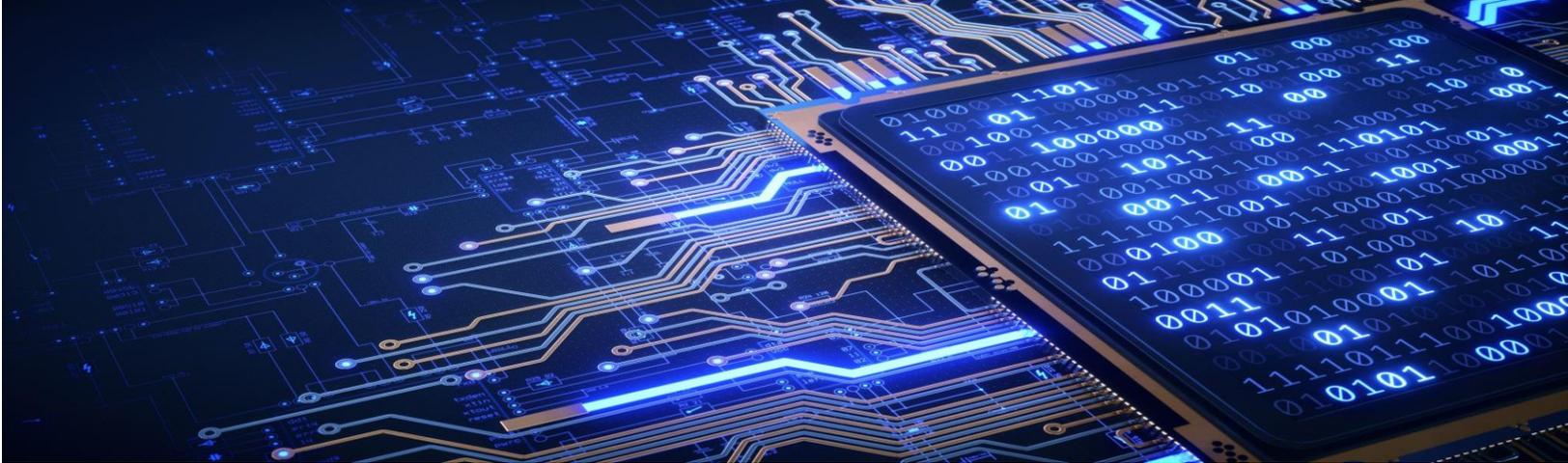
After accomplishing this learning unit, the trainee is expected to be able to:

✓ Understand what a digital footprint is and how to manage it;

✓ Use basic skills and knowledge on how to use search engines;

✓ Apply techniques to assess information's and websites credibility and trustworthiness;

✓ Follow essential rules in order to avoid plagiarism;

✓ Understand different types of communication and use them;

✓ Analyse social network sites;

✓ Understand how interacting with technology affects relationships.

2. BASIC MAINTENANCE ON THE COMPUTER AND OTHER DEVICES. PHYSICAL AND DIGITAL IDENTITIES. DIGITAL IDENTITY MANAGEMENT AND CONTROL. RISKS ON THE INTERNET. PRIVACY SETTINGS. PROBLEM-SOLVING.

2.1.INTRODUCTION

Whether it is through growing use of smartphones, social media, e-commerce or other means, we are all putting our personal information on internet more and more. We are living in a time of unprecedented connectivity, and it is easy to forget that there are dangers out there, on the internet, on social media, in the apps we use every day.

As the internet evolves, it is becoming ever more interconnected sometimes in ways we don't know or think of. In the push to make things easier online, sometimes we make things more dangerous.

More and more websites use your email address as your username to sign-in, making it a lot easier for hackers to gain access. They only need to guess your password, because they know your username is your email address. So what if someone gets access for example to your Facebook account? Many websites now offer a "sign-in with Facebook" option. With access to your Facebook profile, someone could also access all sorts of other services.

This learning unit will approach the subject from internet security to basic maintenance on the computer and other devices. Along this learning unit we will introduce basic concepts of online security, privacy settings and digital identity.

2.2.THEORETICAL APPROACH TO LEARNING UNIT

2.2.1. Basic maintenance on the computer and other devices

Computer and other devices maintenance are the practice of keeping them in a good state of repair, both physically and non-physical. Any abnormity in the integrated components of your computer or devices can become harmful to its performance.
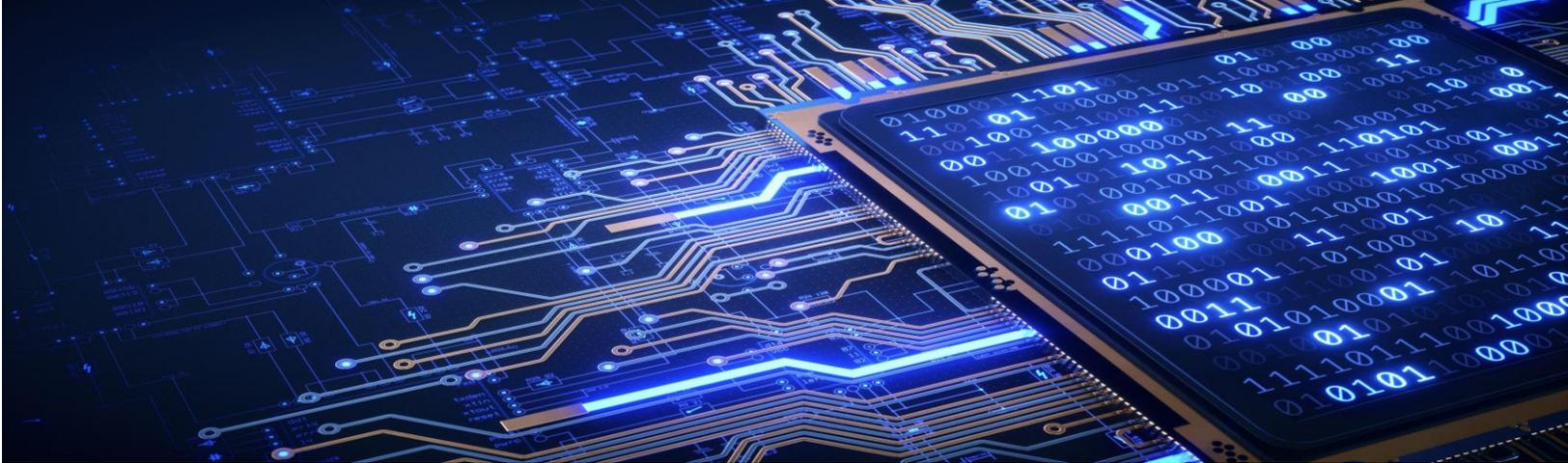
However, there are some common computer issues that can be addressed at personal level. There are a lot of effective procedures for computer repair and maintenance that should be applied to prevent and even fix them for good.

There are two different types of maintenance, the physical maintenance, the part of the computer we can touch, referred as Hardware maintenance (e.g. monitor, mouse) and the non-physical maintenance called Software maintenance (e.g. Windows 10, iOS 13).

2.2.1.1. Hardware maintenance

Deals with repairing and replacing broken and failing hardware. Computer hardware is generally reliable, and most computer problems are related to software issues. However, hardware can become damaged over time, and hardware maintenance is necessary for keeping all kind of devices up and running.

Keeping computers away from dust and dirt, keeping them clean and avoiding extreme temperature changes all help to maintain hardware. You can minimize dust accumulation by keeping your computer elevated from the floor, especially away from pets and cigarette smoke. Keep liquids away from the computer. From time-to-time change the battery of your device and don't use solvents to clean a computer or a smartphone; rather, you should wipe the monitor and keyboard regularly with a soft cloth.

2.2.1.2. Software maintenance

Software maintenance sustains the software product throughout its life cycle. Maintenance must be performed in order to correct faults, implement enhancements, interface with other software, adapt programs so that different hardware, software, system features, and telecommunications facilities can be used, and most important, keep the software running sharp and without major problems. When it comes to basic maintenance, there are several things you can do to ensure that your computer is performing at its optimal level, like, running operating system updates at least once a week, allow your system to shut down completely, run virus and malware scans regularly and perform regular backups of personal files. There are several other procedures to maintain your device at is optimal performance that you can do by yourself, but if you don't feel comfortable to go deeper on the subject you should contact a professional on this field, otherwise you can damage your equipment/device.

Exercise 1
Identify and compare the two types of the computer maintenance using at least 3 examples.
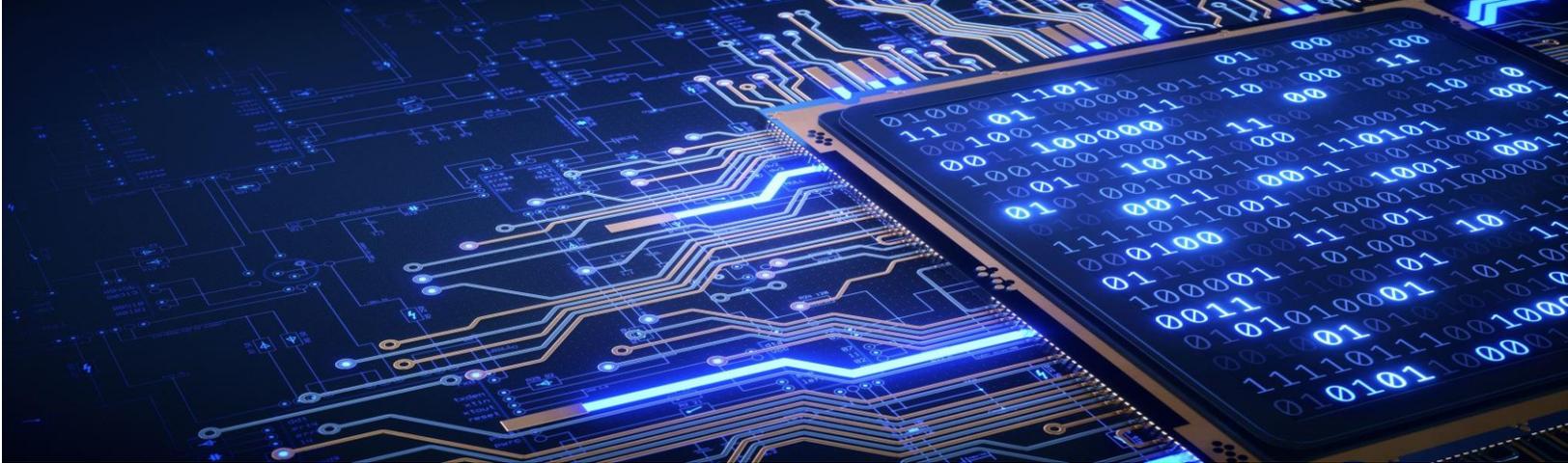
Exercise 2

What are the differences between Hardware and for Software and explain how to do the Software maintenance?

2.2.2. Physical and digital identities

What's the difference between physical identity and digital identity?

Before the rise of digital, your ID was a physical document. It was a card or a piece of paper that we physically carried. ID verification was carried out face to face, and still is in some circumstances.

Physical identity checks can involve using infrared lights to assess security features on documents, feeling the texture, and checking the photo isn't stuck on. But now more than ever, we're living in a digital society and we need to verify identities remotely. This often means using a 2D image of an original document. You might also have to manage this on a global scale, and on top of this, much of our personal information will be stored online.

In a world where the rise in the use of the Internet is increasing exponentially, the ability to prove your identity is crucial for the economic, financial and social development. Individuals and companies need identity solutions valid across different services, markets, standards and technologies.

Identity is defined in different ways and contexts over the years. Whether physical or digital in nature, identity is a collection of individual information or attributes that describe an entity and is used to determine the transactions in which the entity can rightfully participate.

Identities can be assigned to three main kinds of entities:

• Individuals: the entity we most associate with identity;

• Legal entities: like corporations, partnerships, and trusts;

• Assets: which can be tangible, e.g., cars, buildings, smartphones; or intangible, e.g., patents, software, data sets.

The identity for each of these entities is based on all its individual attributes, which fall into three main categories:

• Inherent: "Attributes that are intrinsic to an entity and are not defined by relationships to external entities." Inherent attributes for individuals include age, height, date of birth, and fingerprints; for a legal entity it includes business status (e.g., C Corporation, S Corporation);
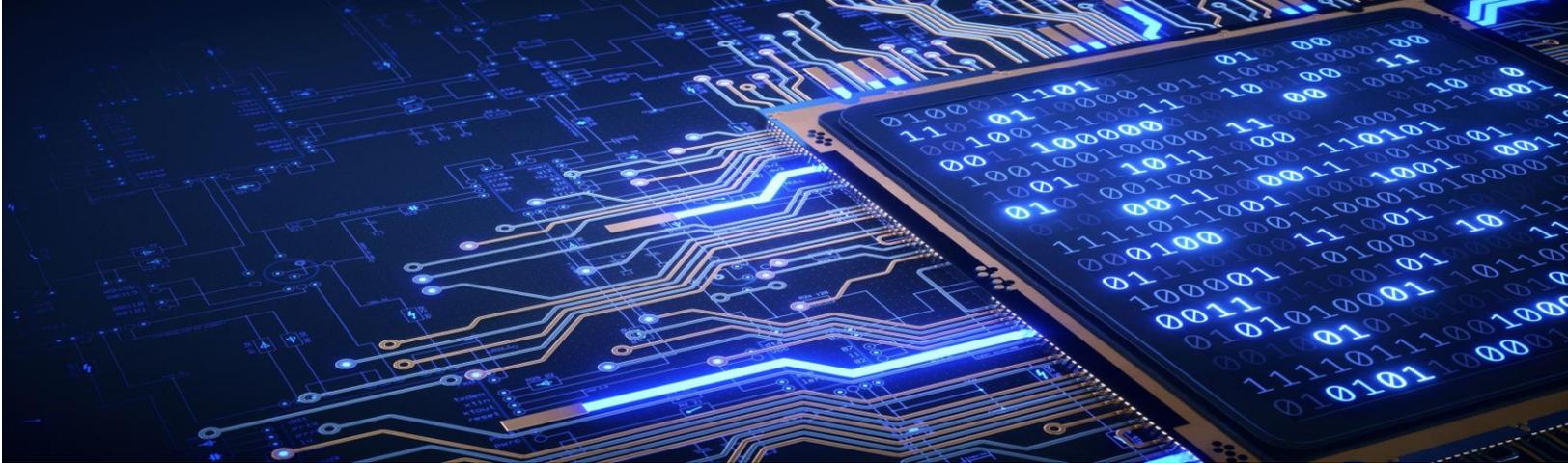
• Accumulated: "Attributes that are gathered or developed over time. These attributes may change multiple times or evolve throughout an entity's lifespan." For individuals these include health records, job history, Facebook friends lists, and sports preferences.

• Assigned: "Attributes that are attached to the entity, but are not related to its intrinsic nature.

These attributes can change and generally are reflective of relationships that the entity holds with other bodies." For individuals these include e-mail address, login IDs and passwords, telephone number, social security ID, and passport number.

These attributes enable entities to participate in transactions, by proving that they have the specific attributes required for that particular transaction. For example, to buy alcohol, individuals must prove that they're over the legal drinking age; to vote, they must prove that they're over the legal voting age, are citizens, and reside in that jurisdiction.

Most of us probably think about identity as reflected in our passport or driver's license. In fact, there are four facets of identity that have different components and "value" when considering individual identity: my physical attributes (e.g., DNA, biometrics), my legal representation (e.g., passport, driver's license), my electronic presence (e.g., email, social media) and my behavioural components (e.g., places visited, spending patterns).

	For individuals	For legal entities	For assets
INHERENT ATTRIBUTES Attributes that are intrinsic to an entity and are not defined by relationship to external entities	• Age • Height • Date of birth • Fingerprints	• Industry • Business status	• Nature of the asset • Asset issuer
ACCUMULATED ATTRIBUTES Attributes that are gathered or developed over time. These attributes may change multiple times or evolve throughout an entity's lifespan	• Health records • Preferences and behaviours (e.g., telephone metadata)	• Business record • Legal record	• Ownership history • Transaction history
ASSIGNED ATTRIBUTES Attributes that are attached to the entity, but are not related to its intrinsic nature. These attributes can change and generally are reflective of relationships that entity holds with other bodies	• National identifier number • Telephone number • Email address	• Identifying numbers • Legal jurisdiction • Directors	• Identifying numbers • Custodianship

Source: World Economic Forum (2016)

Exercise 3
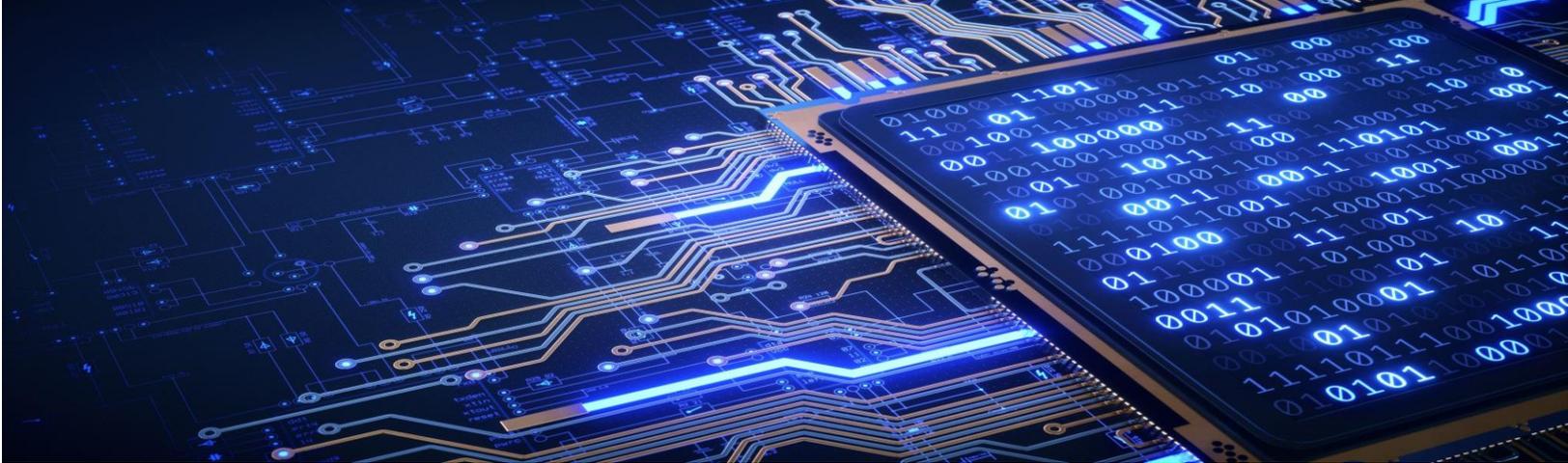
Identify the difference between physical identity and digital identity. What are the main concepts related with digital identity?

2.2.3. Digital identity management and control

The management of digital identity enables trusted remote interactions between an organisation and an individual. Managing the digital identity lifecycle generally involves several processes:

1) In order to be known by the system, the individual must first register with it and the conditions related to his/her identity or identity attributes must be checked so he/she can be provided with a set of credentials; this is the so-called registration or enrolment process.

2) Appropriate permissions and privileges to access the organisation's resources must be assigned to the individual, a process often called authorization.

3) To access resources, the individual makes an identity claim that can be verified: he/she logs into the system with the credentials provided during the registration process. This authentication process establishes confidence in the user's identity.

4) The result of the authentication process is used in a process called access control, whereby the system checks that the individual has the appropriate authorisation to access the resource.

5) When the individual is not associated anymore with the system, a revocation process must take place whereby his/her credentials are rescinded.

Therefore, we can conclude that the management of digital identity is the discipline provide the means and that enables the right individuals to access the right resources at the right times for the right reasons.

Exercise 4

What are the main processes related with the digital identity? Identify them.

2.2.4. Risks on the internet

We are living in an era of digital treats, every day we use internet, for personal use and professional, as more of our lives and business is conducted online, the risk of having our information compromised or used against us increases proportionately. From hackers and extortionists to identity thieves and child predators, the internet is a haven for criminals of many kinds. Likewise, the dangers they pose come in many forms: financial, social, psychological, professional and so on.
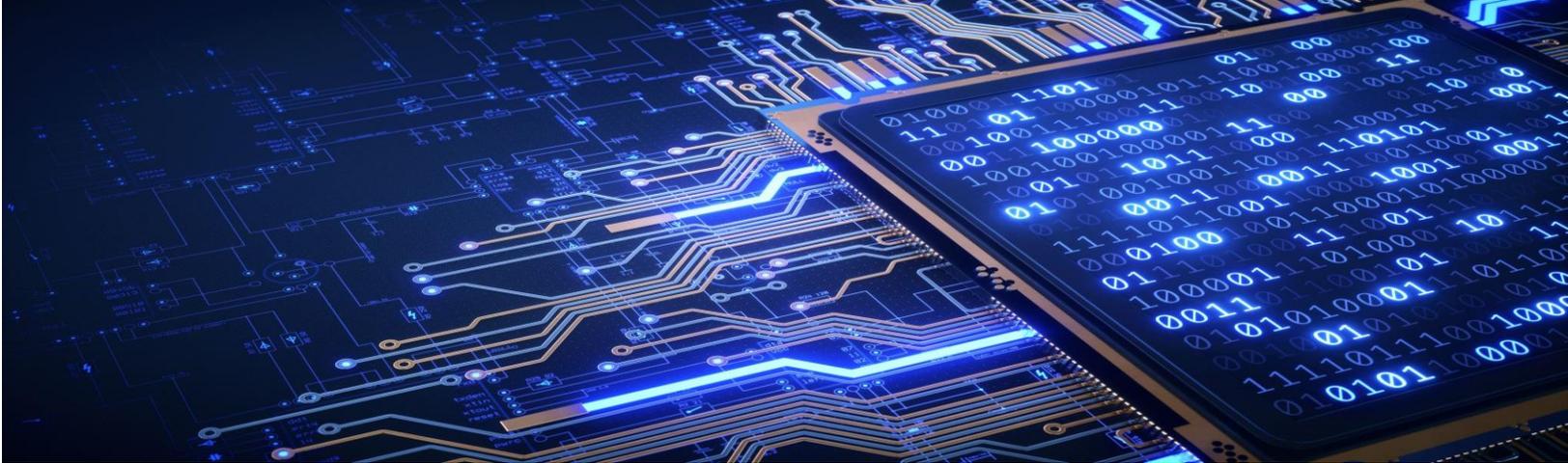
Strengthening online security doesn't mean lowering your risk to zero, but you can reduce the largest potential issues. Below is some recommendation to strengthening our online security.

• Change social media settings

Posting photos on Facebook while out of town may seem harmless, but it's a big sign that your house or your family is alone while you are away. Make sure you change your privacy settings so that not everyone can see your posts. Ideally, restrict it so only your friends or direct connections can see. Even better, don't post those photos until you return from the trip.

• Use a VPN

VPN stands for "virtual private network," which is just a fancy way of saying "protect my profile when I'm online." With free wi-fi in coffee shops, hotels and airports, more and more hackers are using simple "man in the middle" attacks to trick people into logging onto their fake networks. From there, it's easy for them to steal your information.

• Smart password practices

Online passwords should never be "password," "abc123," "admin" or anything easily guessed. If you use one password for all your online services, should a hacker breach one of your accounts, he could easily take down all of your accounts. That means your email, online bank accounts. Minimize this risk by using different passwords for different services and changing them, at least, every six months.

• Use secured websites

Web browsers such as Google Chrome will show a green icon in the URL address bar whenever you are on a website that is secured. Another indicator of security is if the website address starts with "https" vs "http." That little addition of the "s" means the site you are on is secured and safe to use. If you are shopping online or doing anything that requires you to provide sensitive data, make sure the website address starts with https.

• Bypass phishing attacks

Scammers often will use emails that look like legitimate companies in the hopes of tricking you into clicking on links and providing them your password, social security number and more.

These are called "phishing" attacks. The best way to avoid this is to simply bypass the email and go directly to the website by opening a browser. For example, if a bank sent you an email, don't click on the link in the email. Instead, open a web browser and go to the bank's website directly.

2.2.5. Privacy Settings
2.2.5.1. Online Tracking
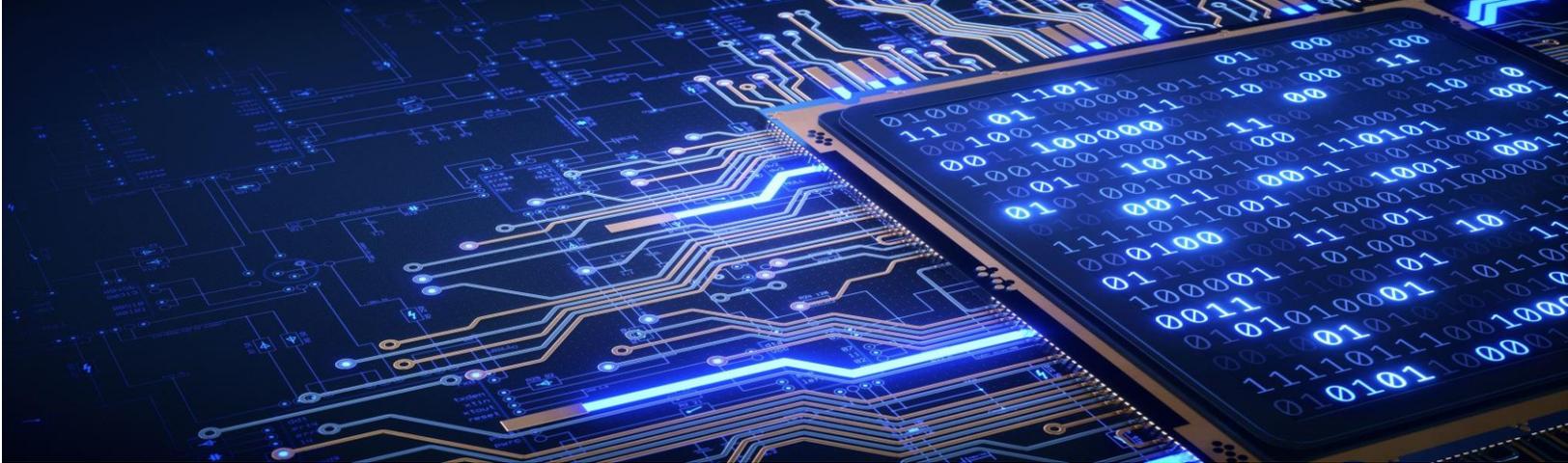
Almost every major website you visit tracks your online activity. Tracking technology can follow you from site to site, track and compile your activity, and compile all of this into a database. Generally, tracking uses a numerical identifier, rather than your real name. This information is used to personalize the content that you see online. Almost every major website you visit tracks your online activity.

Despite all this, there are some ways to avoid being exposed that much, restricting some information given. Almost all browsers give you some control over how much information is revealed, kept and stored. Generally, you can change the settings to restrict cookies and enhance your privacy. Most major browsers now offer a "Private Browsing" tool to increase your privacy. However, researchers have found that "Private Browsing" may fail to purge all traces of online activity.

Most browsers also provide a Do Not Track (DNT) setting. DNT is a way to keep your online activity from being followed across the Internet by advertisers, analytics companies and social media sites.

When you turn on the DNT setting in your browser, your browser sends a special header to websites requesting that don't want your activity tracked. Unfortunately, honouring the DNT setting is voluntary. Individual websites are not required to respect it. While a few websites will honour DNT, the majority of the websites will ignore your preference.

Some of the tools that are used to track you online are cookies, flash cookies, and fingerprinting.

Below will be a quick explanation of each one.

Cookies

When we visit different websites, many of the sites deposit data about our visit, called "cookies," on our hard drive. Cookies are pieces of information sent by a web server to a user's browser.

For example, if you use the internet to complete the registration card for a product, such as a computer or television, you generally provide your name and address, which then may be stored in a cookie. Legitimate websites use cookies to make special offers to returning users and to track the results of their advertising. These cookies are called first-party cookies. However, there are some cookies, called third-party cookies, which communicate data about you to an advertising clearinghouse which in turn shares that data with other online marketers. These third-party cookies include "tracking cookies" which use your online history to deliver other ads. Your browser and some software products enable you to detect and delete cookies, including third-party cookies.

Good news is that there is browser's extension's, like Disconnect, that stops major third parties from tracking the webpages you go to. Every time you visit a site, Disconnect
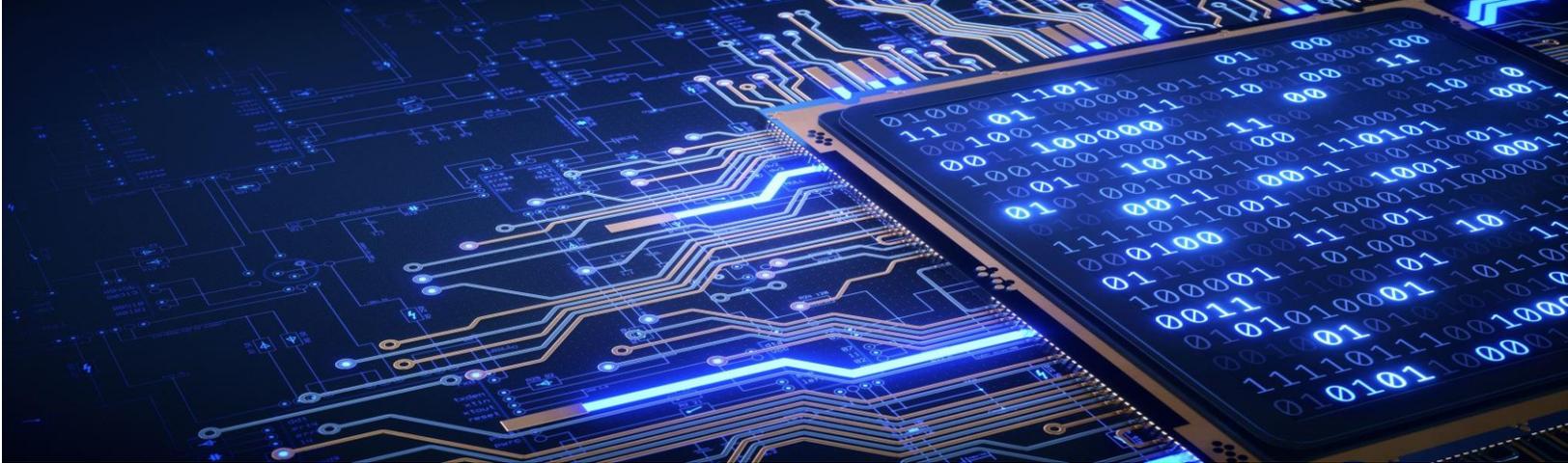
automatically detects when your browser tries to make a connection to anything other than the site you are visiting.

Flash Cookies

Many websites utilize a type of cookie called a "flash cookie" (sometimes also called a "supercookie") that is more persistent than a regular cookie. Normal procedures for erasing standard cookies, clearing history, erasing the cache, or choosing a delete private data option within the browser will not affect flash cookies. Flash cookies thus may persist despite user efforts to delete all cookies. They cannot be deleted by any commercially available anti-spyware or adware removal program.

Fingerprinting

A device fingerprint (or machine fingerprint) is a summary of the software and hardware settings collected from a computer or other device. Each device has a different clock setting, fonts, software and other characteristics that make it unique. When we go online, our device broadcasts these details, which can be collected and pieced together to form a unique "fingerprint" for that particular device. That fingerprint can then be assigned an identifying number, and used for similar purposes as a cookie. Fingerprinting is rapidly replacing cookies as a means of tracking.

Unlike cookies and flash cookies, fingerprints leave no evidence on a user's computer. Therefore, it is impossible for you to know when you are being tracked by fingerprinting.

Exercise 6

This example of exercise is for Chrome browser:

1. On your computer, open your browser
2. At the top right, click the dots and then select Settings
3. At the bottom, click Advanced.
4. Under "Privacy and security," click Site settings.
5. Click Cookies and then See all cookies and site data and then Remove all.
6. Confirm by clicking Clear all.

2.2.5.2. Mobile Apps

If we use a smartphone or other mobile device to access the Internet, chances are that we may be using mobile applications (apps) rather than an Internet browser for many online activities. An app is a program we can download and access directly using our mobile device. There are hundreds of thousands of apps available, including numerous free or low-priced choices. Unfortunately, apps can collect all sorts of data and transmit it to the app-maker and/or third-party advertisers. This data may then be shared or sold.
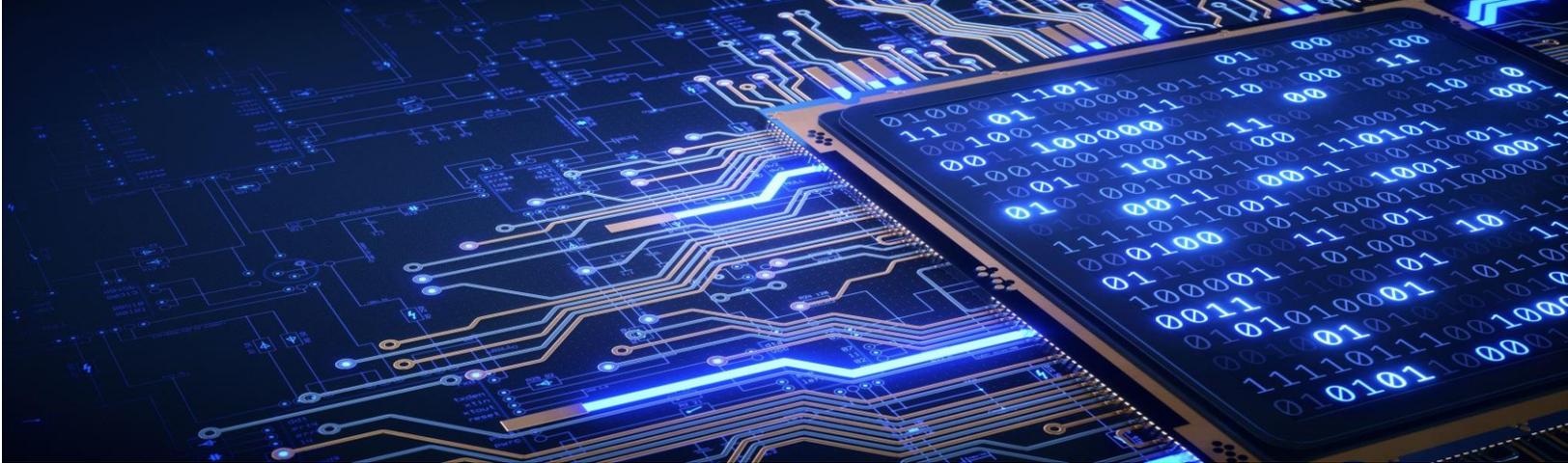
Some of the data points that an app may access from your smartphone or mobile device include:
o your phone and email contacts;
o call logs;
o internet data;
o calendar data;
o data about the device's location;
o the device's unique IDs;
o information about how you use the app itself.

Smartphones and other mobile devices may ask you for specific permissions when you install an app. Read these and think about what the app is asking for permission to access. Ask yourself, "Is this app requesting access to only the data it needs to function?" If the answer is no, don't download it. Learn where to go on your particular phone to determine what you will allow the app to access, and if you are at all suspicious do more research on the app before you download.

Exercise 7
Go to the list of apps by opening the Settings screen and tapping Apps. From the list of all your installed apps, tap the gear icon in the top-right corner of the screen and tap "App permissions."> You'll see a list of different categories of permissions along with the number of apps installed that have access to that permission. Categories include Body Sensors, Calendar, Camera, Contacts, Location, Microphone, Phone, SMS, Storage, and some "additional permissions." > Open the categories and check if there is any app with suspicious permissions.

2.2.6. Problem-Solving
Problem-solving is a mental process that involves discovering, analysing and solving problems. The ultimate goal of problem-solving is to overcome obstacles and find a solution that best resolves the issue. The best strategy for solving a problem depends largely on the unique situation. In some cases, people are better off learning everything they can about the issue and then using factual knowledge to come up with a solution. Like us, the computers have the same basis of problem solving. A computer, at heart, is not intelligent. It can only really know about a few things... numbers, characters, booleans, and lists (called arrays) of these items. Everything else must be "approximated" by combinations of these data types. A good programmer will "encode" all the "facts" necessary to represent a problem in variables.
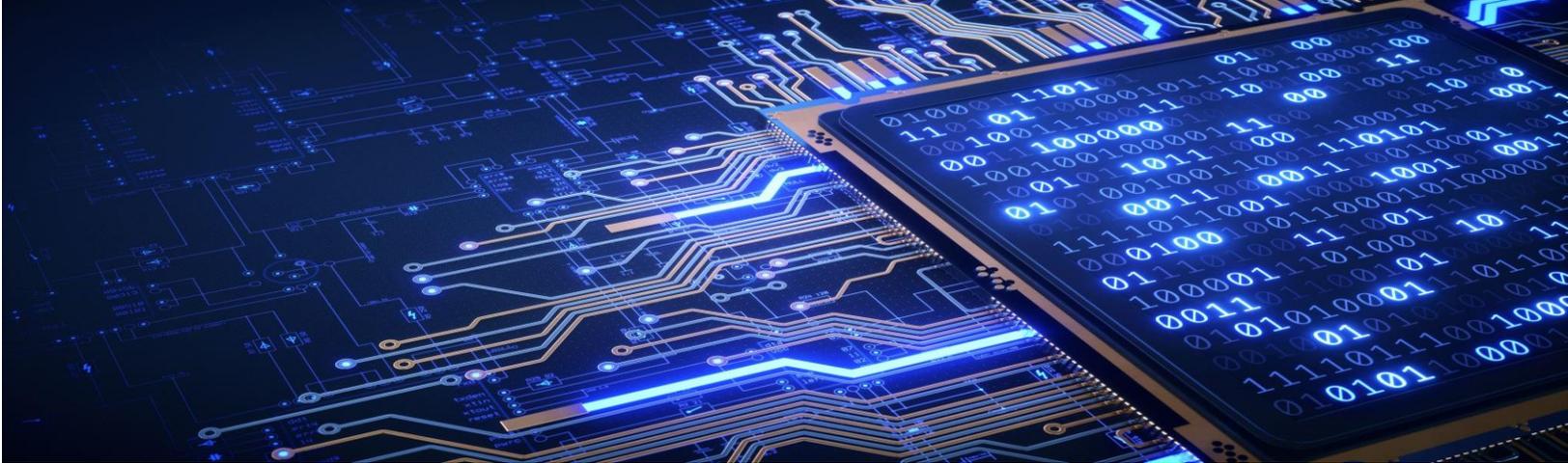
Further, there are "good ways" and "bad ways" to encode information. Good ways allow the computer to easily "compute" new information.

In Computer Science we can define Problem Solving as the sequential process of analysing information related to a given situation and generating appropriate response options.

There are 6 steps in Computer Science that you should follow in order to solve a problem:
1. Understand the Problem;
2. Formulate a Model;
3. Develop an Algorithm;
4. Write the Program;
5. Test the Program;
6. Evaluate the Solution.

Exercise 8
Gather a small team and choose a problematic topic, after having the topic, discuss in group about it and follow every steps of problem solving.

LEARNING OUTCOMES
After accomplishing this learning unit, the trainee is expected to be able to:

    ✓ Knowing the difference between Hardware and Software;

    ✓ Maintaining the good health of your computer;

    ✓ Understanding the concept of Online Safety;

    ✓ Being aware of the dangers online and protect your digital identity;

    ✓ Understand the differences between physical and digital identities

3. CREATING AND SHARING ONLINE DOCUMENTS AND PRESENTATIONS. ADVANCED PRESENTATION TOOLS, ONLINE VERSIONS OF INTERACTIVE GAMES AND WEBSITES.
3.1.INTRODUCTION

We live in a digital world and technologies are a big part of our daily and professional life. Digital skills became important for a variety of jobs but digital literacy remains low, especially among adult. The presented module tackles essential topics such as digital environment, digital communication, digital literacy, and digital competences. Digital literacy includes operational skills; Information skills, Strategic skills, Digital culture and identity.
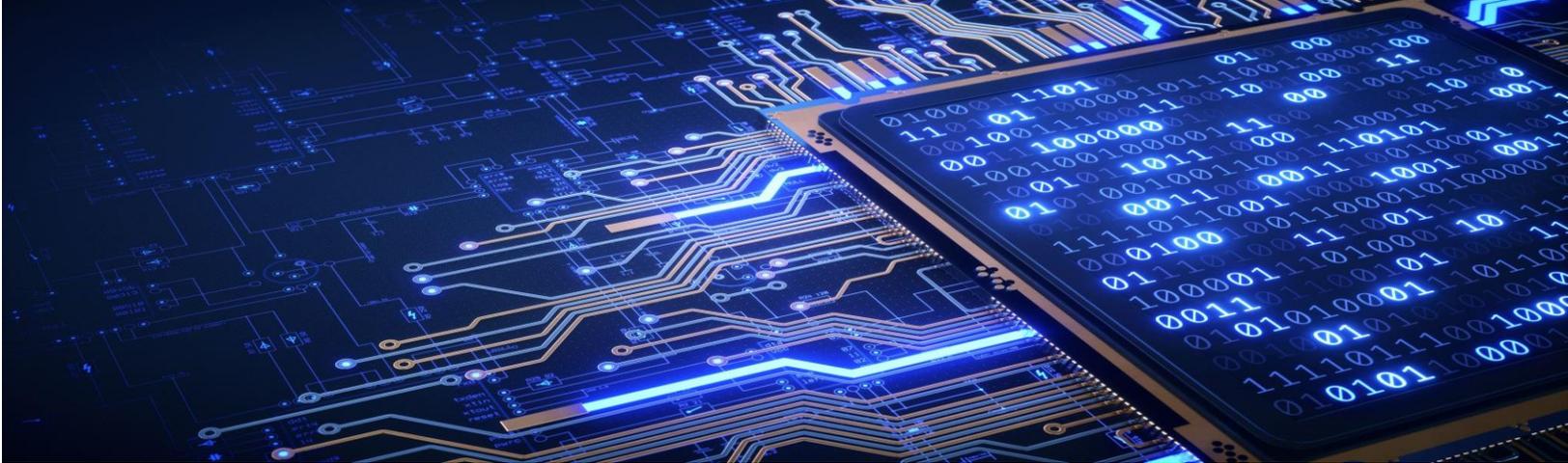
It is quite important to empower adult workers and learners and volunteers to fully exploit all the potentials of digital education and digital skills, and giving the possibility to NGOs to count on volunteers/adult ICT experts, is increasingly important for organizations digital work. Both can benefit by acquiring new key skills necessary to find economic and professional integration.

The handbook has two units and is giving practical directions on how to use certain digital tools to create online documents and presentations, practical self-assessment tools on how to evaluate your personal level of knowledge, skills and competences before and after. The handbook also gives simple exercises to ensure the basic skills necessary for creating presentations and online documents.

3.2.THEORETICAL APPROACH TO LEARNING UNIT

We focus on defining the meaning of digital skills and literacy. Nowadays it became so important as we can observe digital crisis-most of the jobs today require certain level of digital skills thus big percentage of adult learners are lacking them. The fast pace of technological change and the ubiquity of digital technologies in all aspects of work and life places new demands on everyone. For many years universities have been using group tasks to help students develop interpersonal and organisational skills that are invaluable for life, irrespective of which career path they choose. Today, the use of digital tools for sharing resources and collaborating online is an important part of that. Which tools work for you will depend on the nature of the task and personal preference. Apps and services evolve and change over time. However, adults learners have access to unprecedented amounts of information online and need to move beyond consumption to more critical, organised and productive use of digital materials, tools and platforms. Knowing how to search effectively online and evaluate digital resources are crucial skills for study and for life. Thus, the module is giving many tips and tricks but also require some searching to boost your critical skills. For example when creating a presentation you do not only need the tool itself, but also require research on the content.

The first step in preparing your presentation is gathering your ideas and materials. It is likely that at least some of your research will be done online and there are many tools for collecting digital content, thus you will need some critical thinking. So digital skills also combine some soft skills as well. Sometimes presentations are not individual but collaborative work which also requires using of other tools and skills. If your presentation is to be a collaborative effort, then as well as sharing resources with one of the above tools you may want to divide work between the group and keep track of progress.
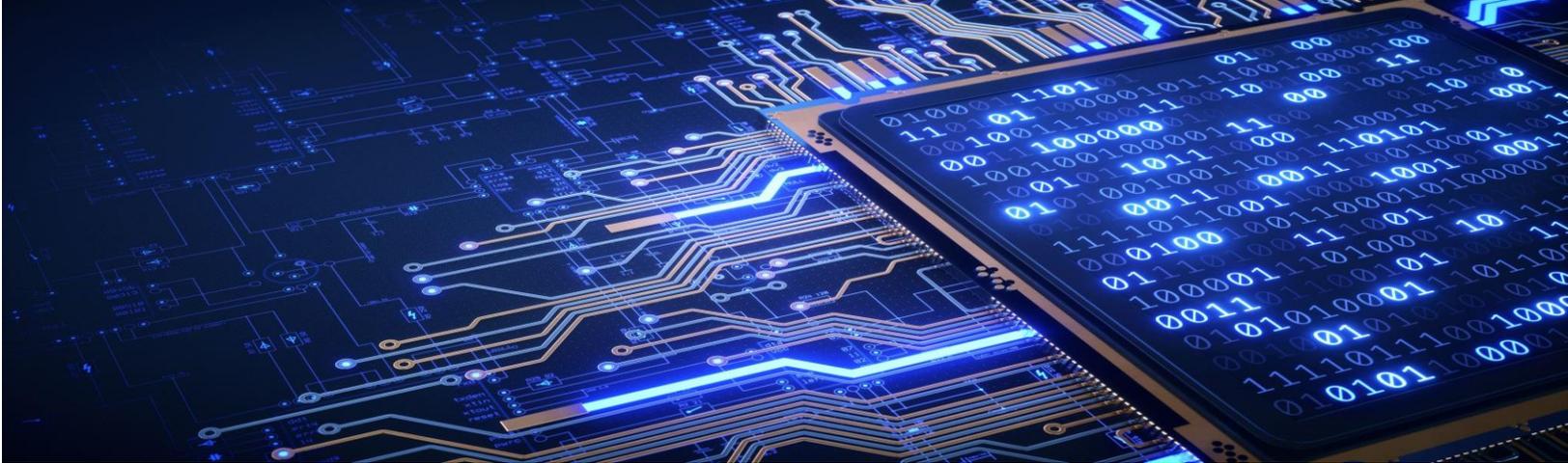
Several online task management tools allow you to allocate work to individuals and keep track of who has done what, such as Trello that is well descried in the module.
Another quite essential element of the module is work management digital tools- nowadays they are quite common in various fields of work thus are quite essential for adult learner's realization in labour market. Work management software is a relatively new type of digital tool that is still being confused with project management software. Some don't notice any difference between them, others regard project management tools as just another type of work management software. To handle work in general, you commonly need all of the essential features mentioned above.
Work management software helps you tackle both your project and non-project duties at the same time. It offers more flexibility, allowing you as a manager and your team members to handle both project and non-project activities through your own workflows. A work management tool reunites all the functionalities you need to execute and monitor your work from start to finish and keep your resources, costs, and time frames balanced.

3.2.1. Creating online documents
Creating online documents is one of adult people favourite solutions and generally for most users. The reasons we like it are because it's free, easy to access, supports collaborative editing, can open other document files, and may be accessed from many devices. Nowadays it's already very easy to work on common document, project, idea, etc… from distance. You don't have to be sitting anymore to each other and working on one device or take all notes in paper and then transferring it to the online tools. As the world in the digital era is growing and growing rapidly.

Exercise 1
Gather small team and choose a project/ topic/ idea that you would like to work on. Set up a scale for the content and then type in Google - Google docs which will lead you to the page in which you will be able to create the document. Than share this document with the other team members and give them full rights (to be able to edit) through the advanced options of sharing the document. Then add the scale and start working on the content together.

3.2.2. Sharing online documents
Back in 2001-2005, if you tried to share large file, you had couple options:
1) Use file-sharing service

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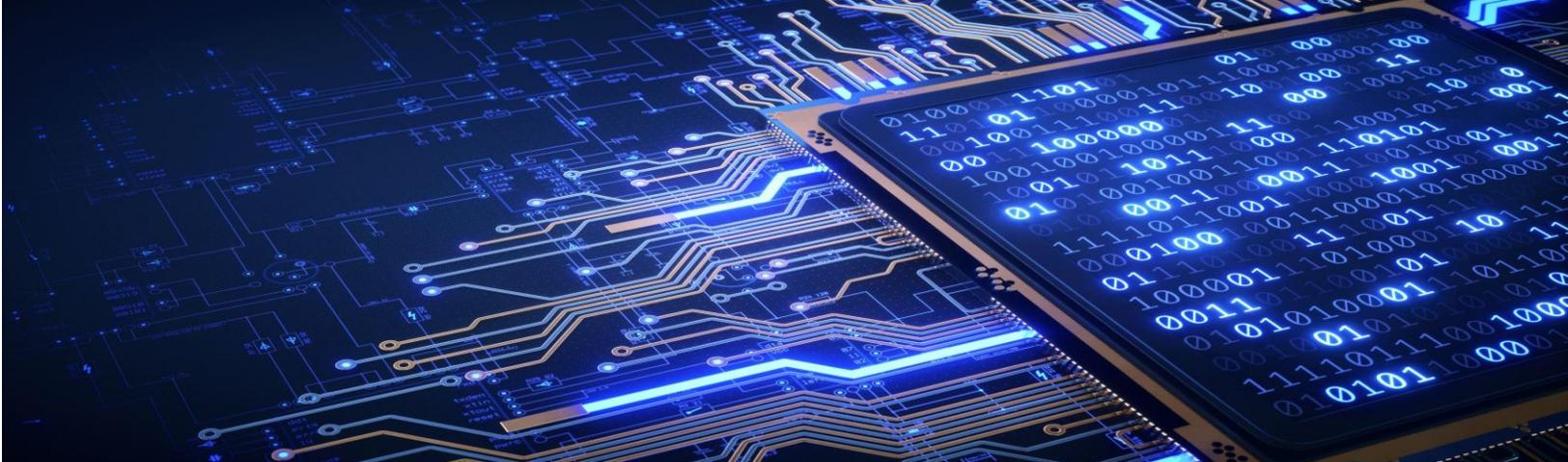
2) Copy the file to a disc and hand or mail it to the recipient which seem to be not so practical but for the time was the only option. Today, as far as file sharing goes, we have nearly endless opportunities with several tools - Dropbox, Box, Google Drive, Microsoft, One Drive and much more - these are among the services that enable you to share big files easily as well as store them in the cloud and have access across multiple devices and collaborate on them with colleagues.

Exercise 2
Create several video interviews or take photos during the day with your team or colleagues. Then download the files to your device and let's upload and share it. Open any of the tools described above and log in if required with your email -> create a folder and slide the files from your device to the uploading box / browse it through the search button on the tool on to your device. As a last step click on share button and send it to as much recipients using their email.

3.2.3. Tools for team work and assigning tasks
There are a lot of collaboration tools that organizes your projects into boards. Imagine a white board, filled with lists of sticky notes, with each note as a task for you and your team. Now imagine that each of those sticky notes has photos, attachments from other data sources like BitBucket or Salesforce, documents, and a place to comment and collaborate with your teammates. Now imagine that you can take that whiteboard anywhere you go on your smartphone, and can access it from any computer through the web. That would make team management as well as keeping deadlines and getting in touch for educational or working purposes. With the following exercise we will present and teach you how to do it.

Exercise 3
Open any of the platforms/tools that are presented in the part of digital tools for team work, management and assigning tasks in the learning module. Sign up with your email and create a Board (name the board as you like- your project, institution, personal, etc…). Then Invite your adult learners, educators, friends, colleagues or people you will be working with through the INVITE button. Than start creating tasks by adding different "notes" in the form of cards -> include full description in the card on what is the aim, objectives, activities -> assign deadline and reminder frequency, which will allow you and your team members to get reminders -> assign the relevant people you invited already to the specific card you created. Than keep on working and using the tool.

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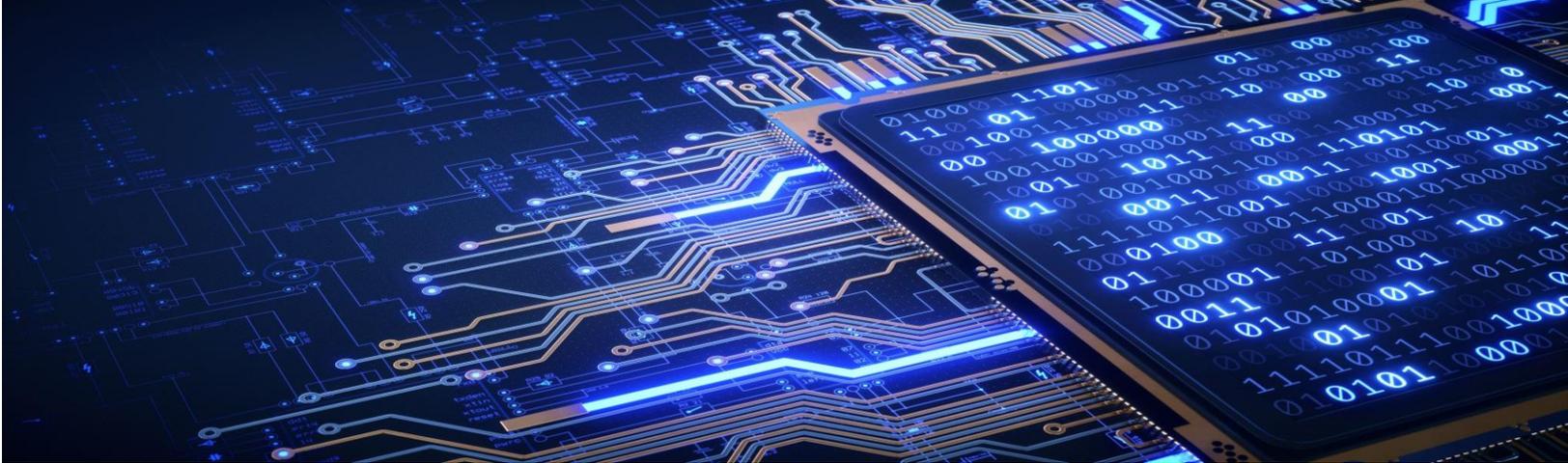
3.2.4. Online presentation tools

The prevalence of PowerPoint has made presentations all too routine. It can be hard to get and hold your audience's attention with mundane slides full of bullet points. It may be an effective tool in some scenarios, but there are many other presentation solutions out there that can help you engage with your audience and communicate key ideas.

With the following two exercises we would like to present you both - traditional tools such as PowerPoint, Google Slides and Keynote can all be used to create presentations, as well as If you're looking to shake things up and connect with your audience in a fun and engaging way, it may be time to try one of the other digital solutions.

Exercise 4

Log in trough your email to Google Slides. Click on add new/create new and complete presentation on topic you like by starting with front page including image -> add several other slides with information in form of a text or with bullet points. Than once you complete it present it to your audience.

Exercise 5

Here we will present you a little interactive way to create your presentation and be able to access it anywhere just you will need Wi-Fi connection or you can even download it and store it to your device or USB stick. Create an account and log it to Prezi which is quite interactive platform. Than from the menu you will be able ether to choose converting PowerPoint presentation or create from template (choose the relevant for you) and start- > Choose a template that you like (according to the presentation you will be creating) ->If you would like to create more slides, just click on add new and you will be able to get as much slides and you would like. - > Insert the text, images, videos you would like to be included in the presentation and change the colours as you like -> Once you completed it - click on present and you are ready to share it.

3.2.5. Interactive games

Creating fun and interactive learning game is already very easy and fast – you can do it within in minutes. The format and number of questions is up to you as well as the description you will add as explanation to it. With the following exercise we will ask you to create quite interactive game for adults.

Exercise 6
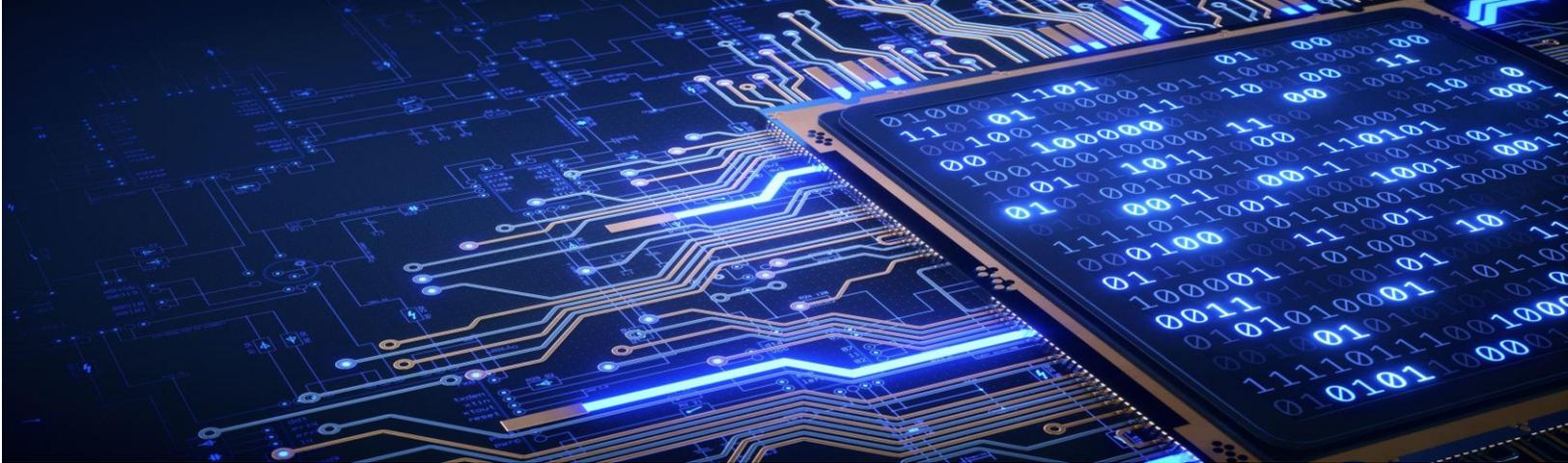
Sign up and log in with your email to Kahoot. Than create as much questions as you need and give proper right and wrong answers. ->Add videos, images and diagrams to your questions to amplify engagement. -> Once completed as your friends, colleagues, students to join you and play with you-> Start the game (As a host and for that you also need a big screen, as everyone will be looking at it to see the questions and answers) and on the screen you will see PIN -> this pin number has to be typed by each player to their device (laptop, computer, tablet, smartphone or etc).-> Once the game starts you will be able to see on the big screen the question, time for answer and the answers and on the participants device – they will see only the figure of the answers and they need quickly to select the answer. After each question and answer you can stop and give more input to the game with content.

LEARNING OUTCOMES
After accomplishing this learning unit, the trainee is expected to be able to:

✓ Understand the digitalization more and digital literacy;

✓ Use online documents for creating and sharing documents;

✓ Use online tools to create interactive presentation;

✓ Use online tools for creative interactive games.

Also, they will understand the importance of creation in knowledge dissemination, learn about effective tools of creating and sharing online presentations and documents, learn how to incorporate advanced tools into one's presentations, get acquainted with some online versions of interactive games and websites for digital learning.

Bridge the Gap!

Type of good practice	Topic	Status
International	Digital education	Finished
Entities involved	**Beneficiaries**	
• ISIS Institut für Soziale Infrastruktur, **Germany** • Queraum, Cultural and social research, Austria	Adult and old people, trainers in adult education, organisations working with and for older people	
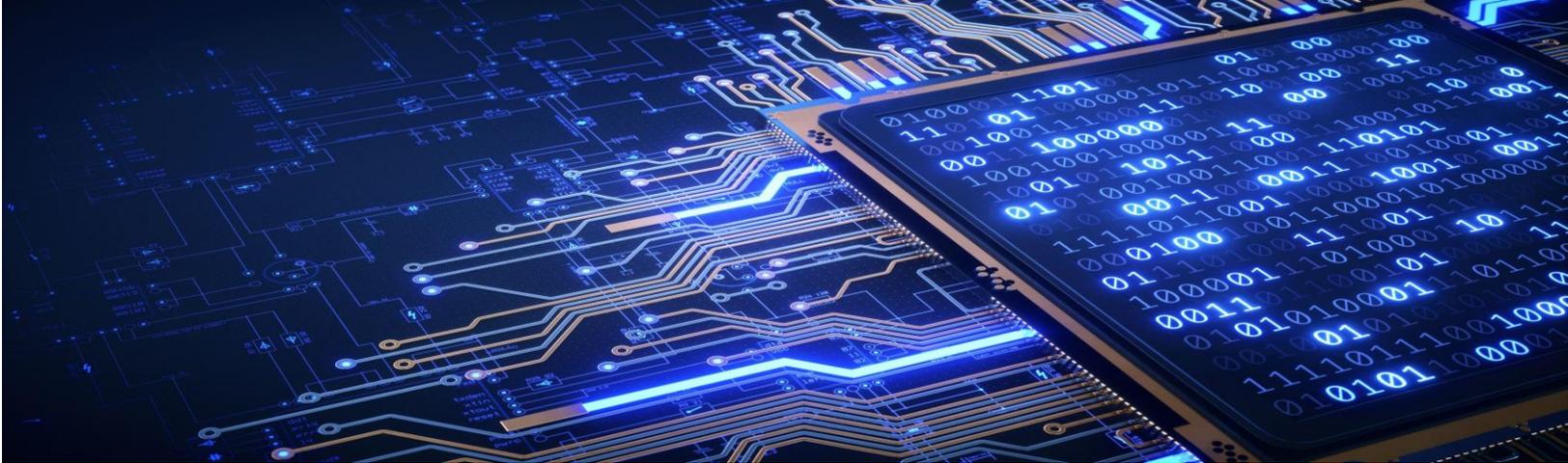
• Lunaria, Association of Social Promotion and Social Enterprise, Italy • SIC, Seniors Initiatives Centre, Lithuania, • AFEdemy, Academy on age-friendly environments in Europe BV, The Netherlands	

Learning outcomes

Older adults, developed their own ideas based on their interests and needs and were supported and empowered to build-up strong teams and networks and to implement their age-friendly neighbourhood initiatives. The curriculum innovatively combines the issues of age-friendly environments and digital literacy.

Detailed description of the programme/activities/sessions/workshops

Based on the information found on the Training Kit provided.

The Bridge the Gap! Project wanted to find creative and sustainable ways to enable older people to live autonomously and to shape living environments in such ways to support the independence and the social participation of older citizens.

The research and development work carried out in the project included the following tasks:

I. carrying out a desk research and interviews with experts, practitioners, stakeholders and older people to explore the current state of digitalisation in times of demographic change, and considering approaches which promote age-friendly environments or the digital participation of older people;

II. developing a Fact Sheet that provides information on the approach and activities of the Bridge the Gap! project and the topics of ageing and social participation in the digital era. In addition, projects and initiatives to create age-friendly environments in Europe with the support of digital tools are presented as inspirational best practice examples;

III. developing the training concept and curriculum, which innovatively combines the topics of age-friendly environments and digital literacy, and testing it with 79
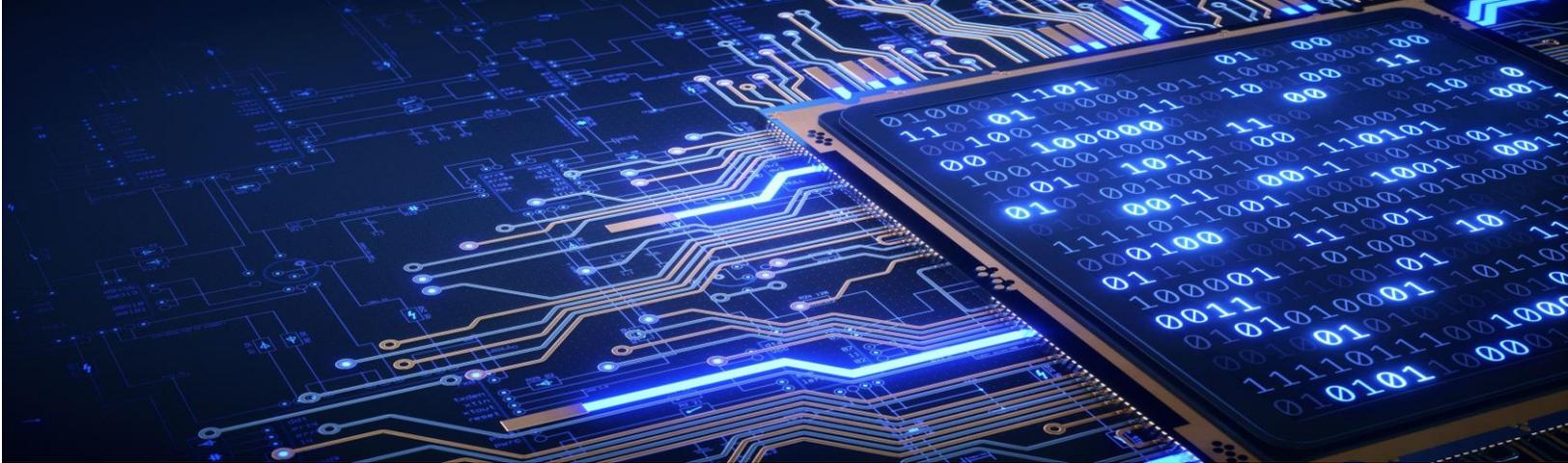
        participants in the age range 60–95 in Austria, Germany, Italy, Lithuania, and The Netherlands;

IV.   Developing the Bridge the Gap! Digital Training

Bridge the Gap! Training Course Outline
Course description: The course is about exploring the concept of age-friendly environments and the potential of digital technologies in carrying out daily activities and reducing dependence on others. The participants learn to apply digital tools to improve their personal life and to contribute to positive changes in their neighbourhood.
Target Group: People aged 60 years or above.
Course goals:
    A. Strengthen the social and digital participation of older citizens by improving their digital skills and their ability of using digital technologies as tools according to their individual needs and interests;
    B. Support older learners in improving their digital competences and at the same time encouraging them to contribute actively to their neighbourhoods;
    C. Help older people to get to know ICT related opportunities and use technologies in different contexts, to get confidence and freedom to explore how technologies can help them to live independently and participate in community life.
Learning objectives:
    The training course contributes to the participants' ability to:
    A. Understand the concept of age-friendly environments (AFE) and the eight AFE domains;
    B. Use digital tools to independently explore age-friendly topics;
    C. Identify and use digital applications to meet a variety of needs in everyday life (communication, mobility, shopping, health monitoring, home assistance);
    D. Develop and implement own ideas for initiatives and projects to make their neighbourhood more age-friendly (for advanced learners).
Assessment: informal assessment methods, such as self-reflection exercises with lead questions, group assessment activities and interactive tools can be applied.
Schedule of activities: The course is delivered in 6 workshops, consisting of thematic sessions, practical sessions and self-learning assignments. The workshops take place with 2–3 weeks intervals and last approx. 3 hours
Resources: In addition to the contents, tools and methods described in this Training Kit, facilitators are provided with a list of international and national online resources,

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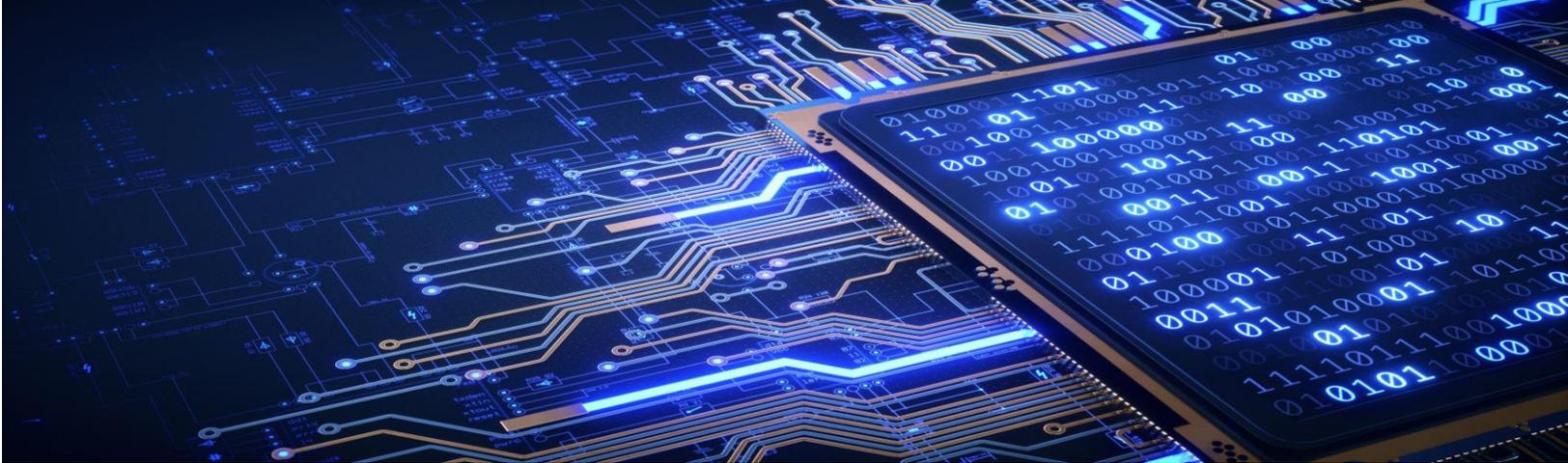
such a video tutorials, digital instruction guides, and e-handbooks for general information and specific digital skills (e.g., see ICTSkills4All; https://www.ageuk.org.uk/information-advice/work-learning/technology-internet/digital-instruction-guides/).

The Bridge the Gap! training course was delivered to 8 groups of older-age learners in Austria, Germany, Italy, Lithuania, and the Netherlands. The training activities included:

A. Thematic sessions and experts' inputs including the concepts of age-friendly environments, smart healthy age-friendly environments, the wide array of digital devices and their use within Bridge the Gap! Training course;

B. Practical sessions discussing inspiring examples and trying out devices during workshops;

C. Visits to places to learn about technical opportunities, guided joint participation in age-friendly initiatives or initiation of own age-friendly projects;

D. Take-home and self-learning assignments enabling participants to apply the inputs, new knowledge and have their own learning experiences which are reflected upon in the following meetings.

APRICOT

Type of good practice	Topic	Status
International	Digital education	Finished
Entities involved		**Beneficiaries**
- SDC, Siuolaikiniu Didaktiku Centra, ngo (Lithuania) - Planeta Ciencias, ngo (Spain) - Institute of Technology-oriented Women's Education (**Germany**) - Apricot Training Management, ngo (UK)		- Adult learners of different age, education, cultural background and traditions - Adult educators, who want and need to acquire necessary skills to teach parents (grandparents) on media literacy and critical thinking; - Parents (grandparents) to make them possible to contribute to their children safe, meaningful and wise use of media tools (including
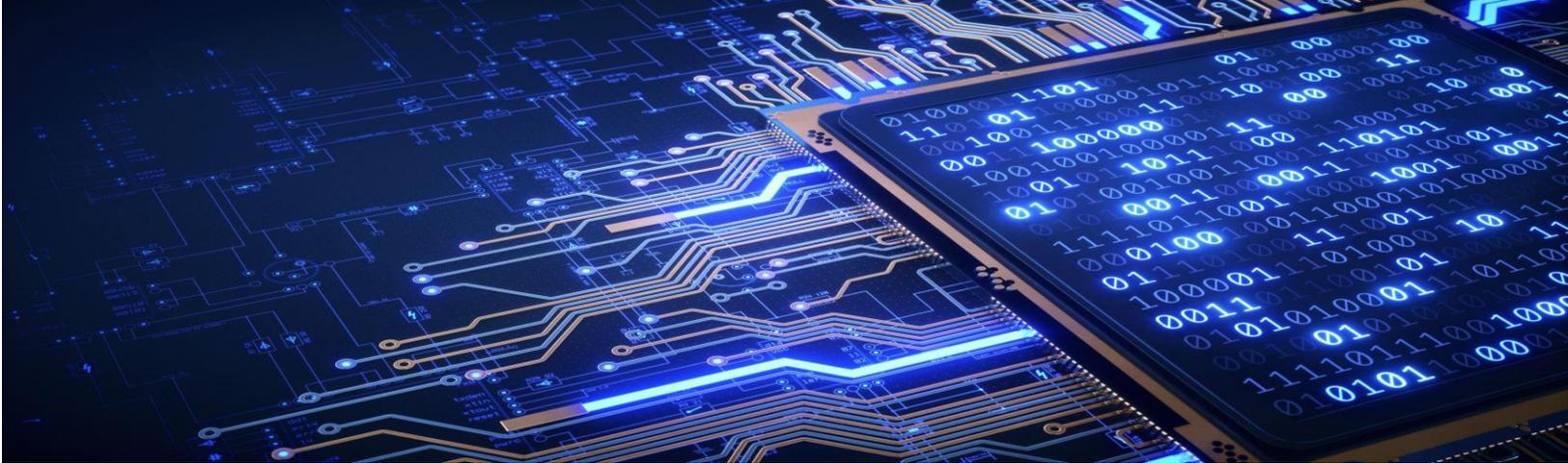
	digital), as well as developing critical attitudes and habits.

Learning outcomes

Teachers, improved their professional competences working with diverse audience of parents (grandparents) in order to deliver high quality media literacy programs;

Parents (and Grandparents) learnt how to help teachers contributing to their children safe, meaningful and wise use of media tools (including digital), as well as developing critical thinking attitudes and habits.

Participants were showcased how parents can be supported to develop ML skills in themselves and children, how parents can become mediators between challenging world of media and digital realities.

Detailed description of the programme/activities/sessions/workshops

Based on the information found on the Project Introduction Guide provided.

APRICOT is a two-year project, funded by the Erasmus+ Strategic Partnerships for Innovation in Adult Education programme.

Course description

The course APRICOT Train the Trainer (project's Intellectual Output 1 (IO1)) is based on Critical Thinking, Inquiry Based methodologies. It is targeting educators/ teachers/ trainers in non-formal adult education institutions or in organisations of both – formal and nonformal education.

The methodology for training delivery
All themes are presented in following order:
Part I. Presentation of Model Activity
● General introductory activities to be decided by course presenters;
● Introduction to a session/theme, describing what will occur during it;
● Experiencing a guided lesson/activity;
● Reflection on a guided lesson/activity.
Part II. Analysis of the Process

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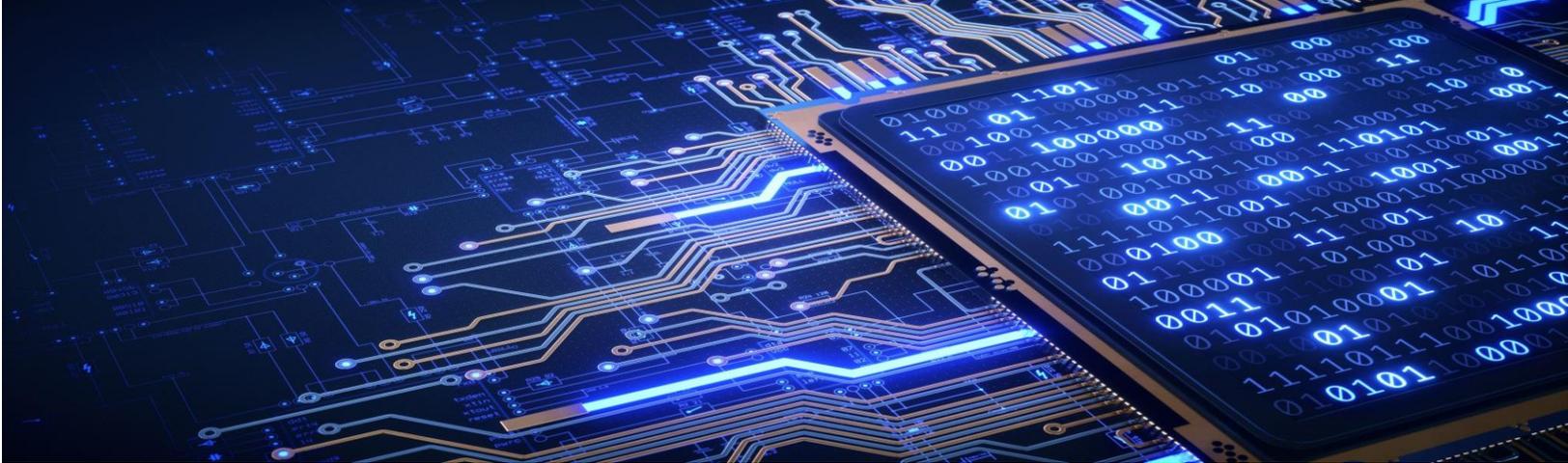
- Recalling all steps of a model activity/lesson;
- Analysis of a model activity/lesson from learner's perspective;
- Analysis of a model activity/lesson from teacher's perspective;
- Discussions.

Part III. Planning for Implementation

- Discussions about how & to whom this lesson/activity can be applied at local contexts;
- Development of a draft plan for implementation.

Description of competencies to be improved

The course is aimed at the development of AE working with diverse groups of parents / grandparents.

The course will enable them to:

- develop open, collaborative, collegial relations between adult educators from project partner countries;
- expand understanding of parental education, critical thinking, media literacy (including the context for CT);
- increase capacity to think critically, engage in critical reflection;
- use practical methods of teaching based on theoretically sound ideas, methodologically consistent framework;
- take responsibility for work with parents by becoming their counsellors & supports;
- become confident implementing the programme in educational settings;
- prepare course participants to deliver courses to other colleagues.

At the end of the course participants will:

- be aware of main principles of work with parental audience;
- better understand concepts of ML & CT;
- be ready to use methodical framework for teaching & learning; apply relevant strategies & methods;
- be able to plan their own teaching – to review and adapt adult education programmes / courses;
- be ready to teach colleagues in a local environment.
- be able to cite and explain the various types of Misinformation and Disinformation

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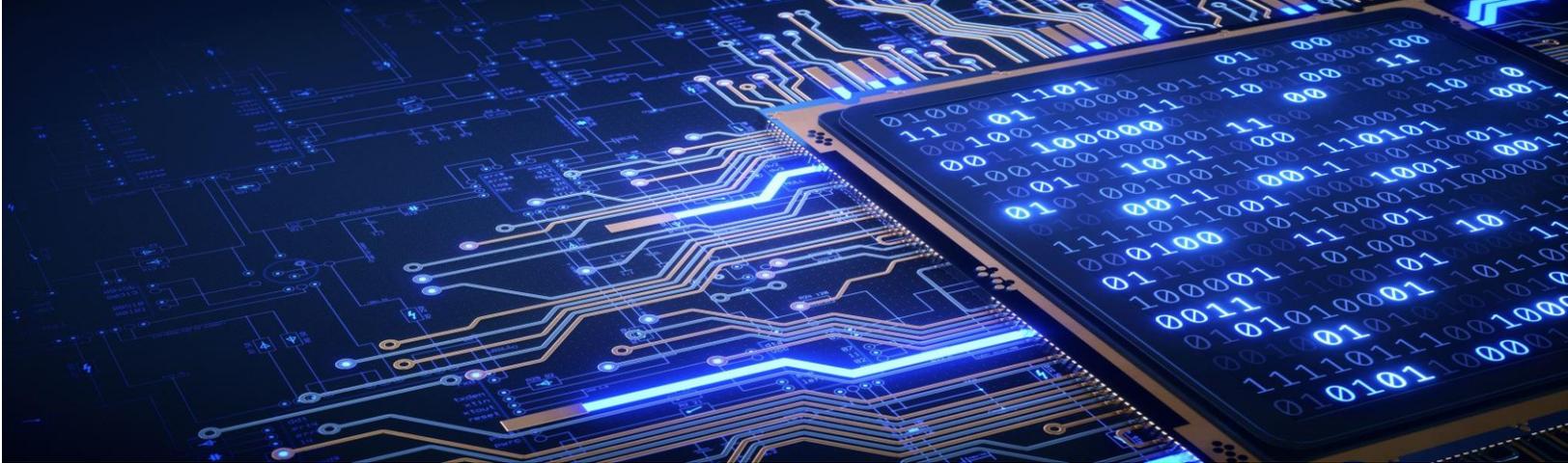
- explain how Misinformation and Disinformation is created and spread in the digital environment and the various intentions behind it.

Structure of the Course:

THEMES	PARTS/ SUB-THEMES	SCOPE
Theme 1:	Introduction into the theme Conceptual background	2 hours
Introduction into the course SDC, LT	Main principles working with the target group: Teaching disadvantaged people Motivation of the target group Prerequisites and general conditions of the training The Trainer The Training Acceptance and group atmosphere	
	Getting familiar with methodical framework for teaching & learning: Short theoretical introduction Part I. Presentation of Model Activity Part II. Analysis of the Process Part III. Planning for Implementation Possible adaptations References Annex 1	2 hours
Theme 2: Moral Dilemmas in the Contemporary World SDC, LT Definitions / Intros Part I. Presentation of the Model Activity Part II. Analysis of the Process Part III. Planning for Implementation Possible adaptations References	Introduction into the theme: Being human in controversial, conflicting, critical situations Personal characteristics of fair-minded person Courage to overcome bias Ability to say "yes" & "no" Egocentrism and its consequences	1,5 hours
	Sub-theme 1. Fair personal decisions: Self-awareness & self-reflectivity Self-correctness	1,5 hour / each sub-module

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		Sub-theme 2. Fair interpersonal decisions: Ability to listen & hear Willingness & readiness to help Care for other in personal & professional settings	1,5 hour / each sub-module
		Sub-theme 3. Fair social decisions: Responsible & critical decisions Individuality & sociality Personal freedom & social responsibility	1,5 hour / each sub-module
Theme 3: Informed decisions Planeta Ciencias, ES Definitions / Intros Part I. Presentation of the Model Activity Part II. Analysis of the Process Part III. Planning for Implementation Possible adaptations References		Introduction into the theme: Overview What is it about Structure	
		Sub-theme 1. Consuming decisions: Health impact and environmental impact Understanding labels from products Official inspection bodies Lack of information Previous assumptions and prejudices Confirmation bias	1,5 hour
		Sub-theme 2. Reliable sources of information: Quality as a standard for information References Primary and secondary sources Official organisations Scientific community Missing information Cherry picking	3 hours
		Sub-theme 3. The use of electronic devices and screens	1,5 hour

Theme 4: Misinformation & disinformation APRICOT, UK Definitions / Intros Part I. Presentation of the Model Activity Part II. Analysis of the Process Part III. Planning for Implementation Possible adaptations References	**Introduction into the theme:** *Fake News!: Why should we care?* The phenomenon of Fake News Impact on society	0.5 hours
	Sub-theme 1. Fake News, Misinformation and Disinformation – Types and Tactics: Types, definitions and intentions How disinformation is created and spread Annex 2: Fake News, Misinformation and Disinformation	2.5 hours
	Sub-theme 2. Fake News – How to spot it! Critical Digital Literacy (CDL) Applying CDL skills to identify, interpret and challenge Misinformation & Disinformation	2 hours

	Annex 3: Tacking Disinformation through Critical Digital Literacy	
	Sub-Theme 3. Fact Checking and anti-misinformation actions Tools for detecting and reporting disinformation	1 hour
Theme 5: Safety & Privacy ItF Institute, DE Definitions / Intros Part I. Presentation of the Model Activity Part II. Analysis of the Process Part III. Planning for Implementation Possible adaptations References	**Introduction into the theme: Understanding and protecting security and privacy** Definitions of security and privacy Technical possibilities of data protection Critical handling of private data Possibilities to protect yourself on the net	0,5 hour
	Sub-theme 1. Technical possibilities: Overview of current antivirus programs Tasks of antivirus-program Security settings Annex 4: Technical possibilities	1,5 hours
	Sub-theme 2. Serious surfing behavior: Recognize reputable websites Recognizing and avoiding dangers Annex 5: Serious surfing	1,5 hours
	Sub-theme 3. Secure use of social networks Protection in social networks Protecting own data, protecting emails Personal attacks and cyberbullying Annex 6: Secure use of social networks	2,5 hours
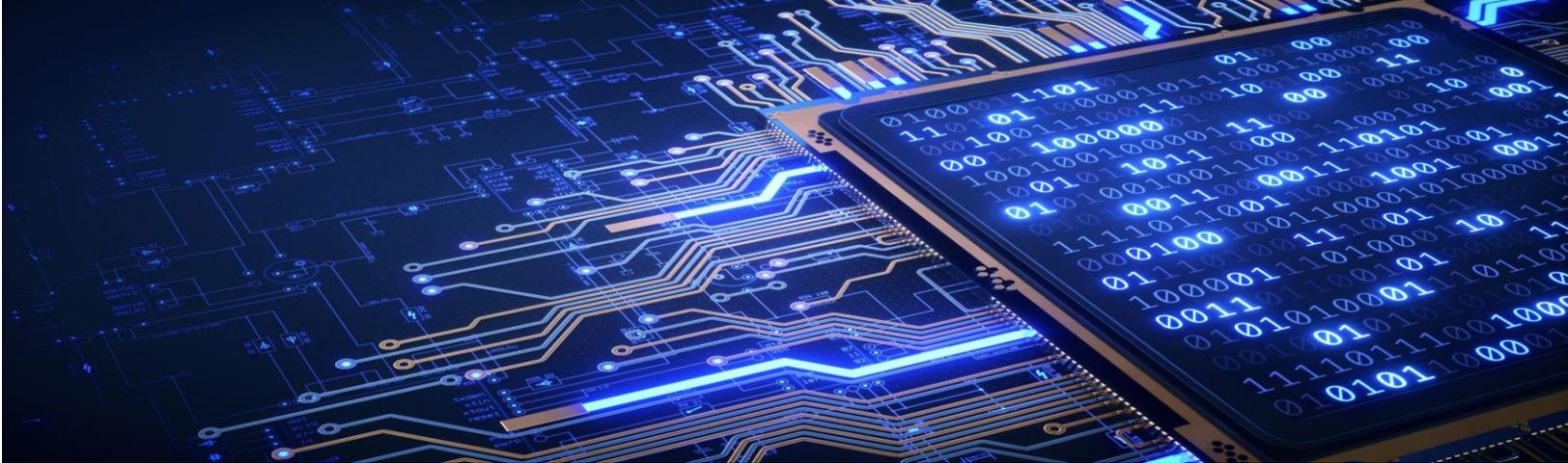
TeDiCom

Type of good practice	Topic	Status
International	Digital education	Finished

Entities involved	Beneficiaries
- Bildungswerkstatt Nachhaltigkeit e.V. DE Germany - DRUSTVO ZA RAZVIJANJE PROSTOVOLJNEGA DELA NOVO MESTO SI Slovenia - Kansan Sivistystyön Liitto KSL ry FI Finland - Kvarnby folkhögskola SE Sweden - Kvarnby folkhögskola SE Sweden Vilniaus "Zidinio" suaugusiuju gimnazija LT Lithuania	Teachers and professionals in adult education dealing with adults' activists, who have a message that they want to spread and who are active users of social media.

Learning outcomes
Based on the information found on the Online Training provided. TeDiCom is a European project funded by the Erasmus+ program of the EU. It deals with the transfer of digital competences. It increased the resilience of democratic European societies to resist fake news campaigns, hate speech on the internet as well as automated bot campaigns, so that these can be detected at an early stage and have no influence on the formation of opinion in European society. It did so by empowering adult activists to have a better understanding of digital media and its risks and opportunities. TeDiCom helped educators to conceptualise their existing training activities, evaluate and focus their impact to make them more relevant for the learners, more transferable for other educators and more useful for society.

Detailed description of the programme/activities/sessions/workshops

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During several transnational meetings, educators from the participating organisations came together to exchange good practice examples from their own organisations and from other organisations within the network. This information was collected and feeds into a handbook of best practices.

The project culminated in a teacher training activity, to which further professionals from adult education were invited. Together with this wider group of professionals, the practical applicability and relevance of the training concept was tested and evaluated.

ONLINE TRAINING COURSE
Critical Thinking as a competence for 21st century.
Training Modules:

- Methods that encourage independent thought and action, discussion (appreciation of other perspectives) and personal expression. For example, project work in smaller or larger groups.
- Methods that encourage self-reflection such as keeping a learning journal or asking at the end of a lesson: "What has been your main takeaway from this lesson and why?"
- Promote relevance: Brainstorming -individually or in a group -is a good method to reveal different thoughts and perspectives and to open up minds. Participants can prioritise the results of the brainstorming according to relevance (importance for a topic or a person) and explain why they consider certain points more important than others.
- Think of different learning tasks: Fewer wrong / right tasks, instead provide more sample solutions. In this way, the participants solve tasks independently, check their solutions on their own responsibility and reflect on their learning independently.
- Promote the "Why" and the "Why not": Don't always explain the "Why / Why not" but ask for it.

Cyber safety and digital competences:
Training Modules:

- The phenomenon of the Filter Bubble and its impact on us and on our societies and we should also understand how the algorithms choose "our" content for us
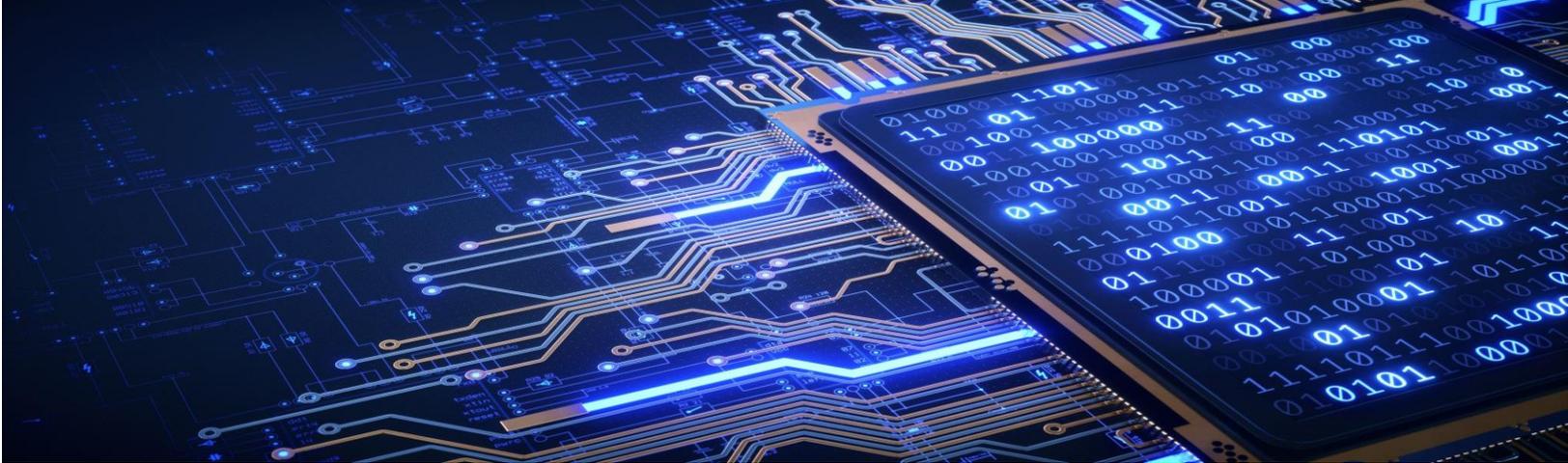
- How "big data" is being used and abused. There has been a lot of media coverage in the last year about the Fake news and Conspiracy theories - do we know why is this such an important topic?
- Some tips and tricks on how to check the authenticity of the online contents.
- What makes our digital footprint and how to control it and to maintain our privacy on the internet.
- Why online privacy is so important for all of us.

Online harassment – and how to combat it
Training Modules:

1. The tactics the harassers commonly use:

a) Black PR: Spreading rumours and false information about the target in order to harm reputation;
b) Doxxing: Disseminating personal information about the target;
c) Serial complaints: Official channels used to make complaints and reports about the target, for example to employer;
d) Troll calls: Calling harassing phone calls;
e) Filming and streaming video: Harassers show up and film the target with mobile phones, maybe streaming the content to internet;
f) Dogwhistling: Using coded or suggestive language inciting supporters to attack the target;
g) Image misrepresentation: Using photos to harass and abuse the target, includes also revenge porn and deepfakes.

2. The information used in harassing can be classified into three categories:

a) Misinformation: False information spread without intention to mislead;
b) Disinformation: False information spread in order to make harm;
c) Malinformation: True information spread in order to make harm.

3. How to react against harassment in internet:

a) Turn off notifications, choose when you react;
b) Lock troll accounts;
c) Save screen shots, pages, files, metadata is important in possible investigation;
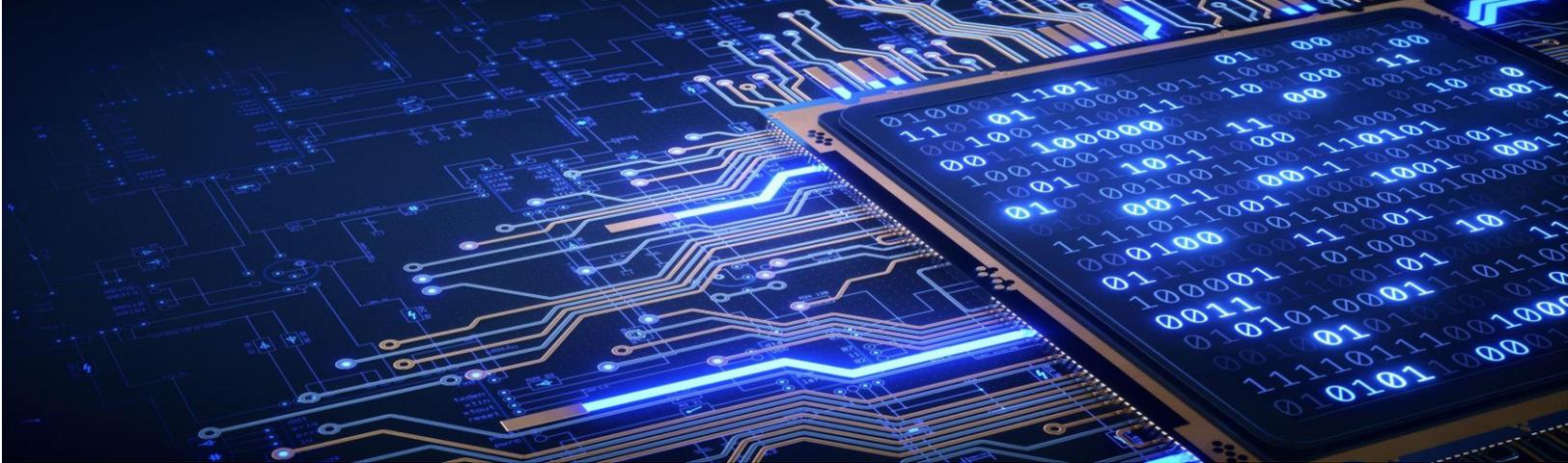
d) If harassment is connected to work the work place should give help to employee, also unions or freedom of speech associations can give help;
e) Ask help from a colleague or expert;
f) Ask a trusted person take care of your social media accounts for a while.

4. Tips to improve technical security:

a) Make home address secret;
b) Check out what information internet provides about you and seek to remove excessive information;
c) Use encrypted messaging;
d) Use secure passwords;
e) Store your passwords in an store software;
f) Use two factor authentication in your social media accounts;
g) Check out your privacy settings and third party apps in your social media accounts;
h) Make sure your communication lines are safe, use VPN which masks your location;
i) Use Tor Browser.

Hybrid war, international interference using social media
Training Modules:

- Why Hybrid Warfare;
- The "Weaponisation" of Social Media;
- Russia and Daesh approach;
- Tactics and Techniques;
- Resilience.

Fake news, Disinformation, Media Literacy, Propaganda

The workshop addressed the question about adult education. The need of increased Media and Information Literacy, throughout our societies is very big. Kids might learn in school but where should adults learn, was the question discussed among the attendees.
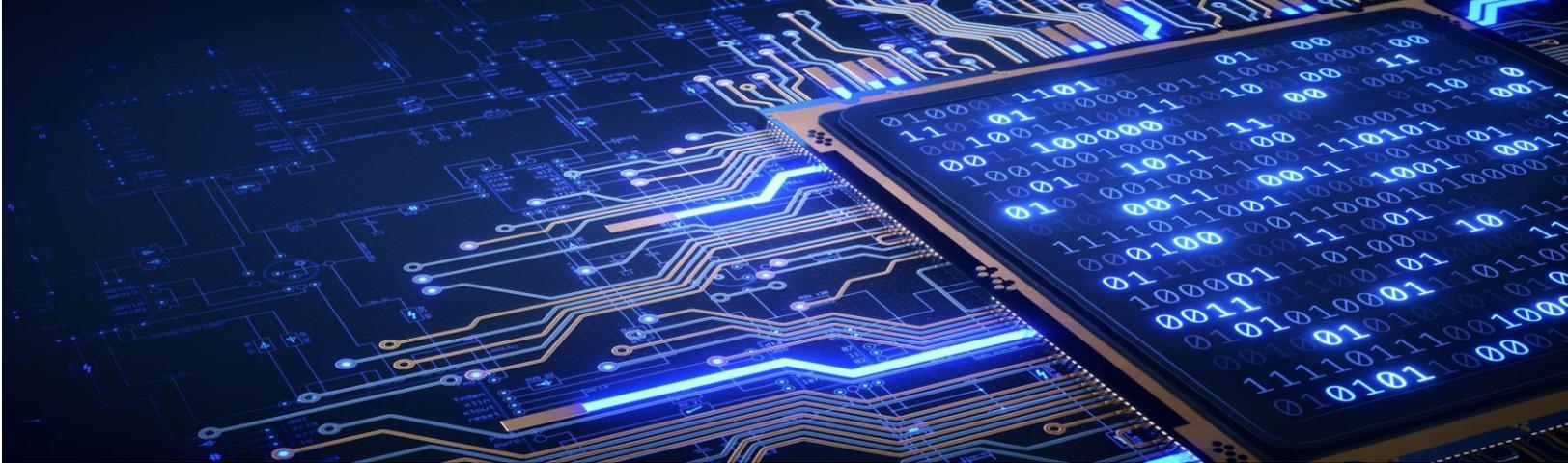
Developing Digital Literacy for Adults with Limited Access for a Better Life

Type of good practice	Topic	Status
international	Digital education	Finished

Entities involved	Beneficiaries
Cooperation: Macedonia, Greece, Turkey, Latvia, Portugal Coordinator: Turkish Ministry of National Education General Directorate of Lifelong Learning	low-skilled adults who are unskilled, immigrants who are uneducated or lacking in motivation or capacity, including those who have graduated from basic education levels or those in basic occupations.

Learning outcomes
The project aimed to provide digital literacy training for adults with limited access to technology to help them integrate more effectively into society.

Detailed description of the programme/activities/sessions/workshops

Activities:

Kick-off meeting in Ankara (November 2018): The project began with a kick-off meeting in Ankara, Turkey.

Project flies and e-magazine: Flyers and an e-magazine were created to promote the project and its goals.

Project website: A website was created to provide information about the project and its progress.

International Kick-Off Meeting in Vilnius: An international kick-off meeting was held in Vilnius to bring together partners and stakeholders from the participating countries.

Information for shareholders via e-news: Newsletters were sent out to stakeholders to provide them with updates on the project.

Guide for digital skills and gamification: A guide was developed to provide training on digital skills and gamification techniques.
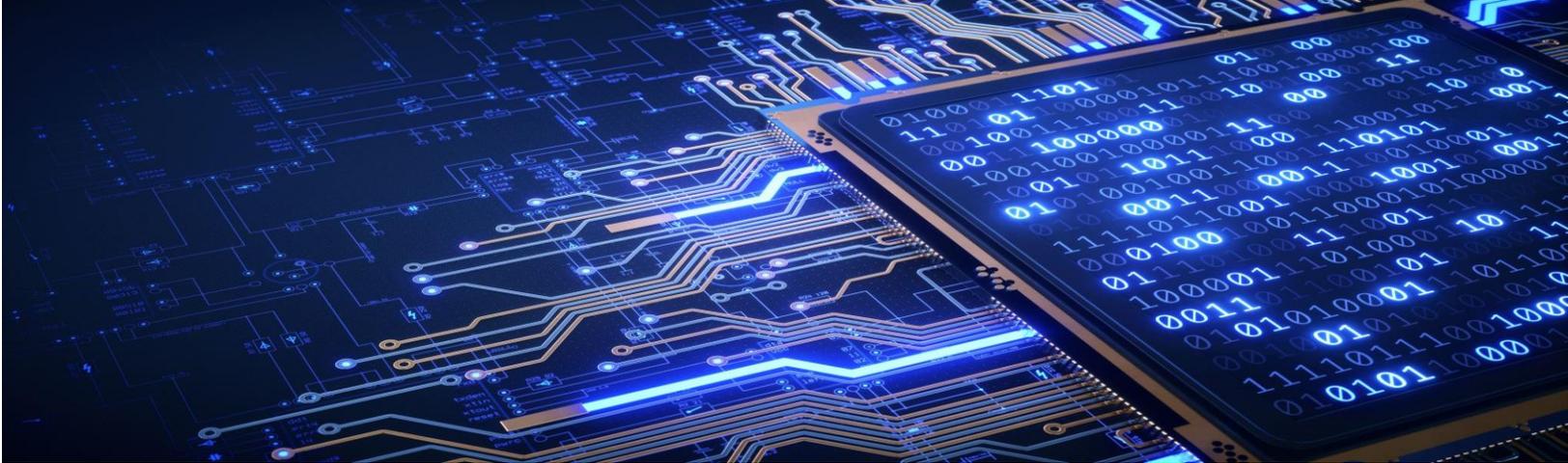
Needs analysis on most needed digital skills: A needs analysis was conducted to determine which digital skills were most needed by the target population.

Gamified distance education platform (http://mydigispace.web.tr/): A gamified distance education platform was established and e-contents were uploaded to the platform.
Mobile application (mydigibox): A mobile application was developed that worked in harmony with the gamified distance education platform and was published on the mobile market.

National Conference in Ankara (1 November 2021): A national conference was held in Ankara to share the results of the project with interested parties.

Transnational Evaluation Meeting in Çanakkale (25 October 2021): A transnational evaluation meeting was held in Çanakkale to evaluate the success of the project.

Overall, the project provided digital literacy training to adults with limited access to technology in order to help them integrate into society more effectively. The project utilized a variety of techniques, including gamification and distance learning, to make the training accessible and engaging. The project was a collaboration between partners from several different countries, and its success was evaluated through a national conference and a transnational evaluation meeting.

The "Developing Digital Literacy for Adults with Limited Access for a Better Life" project is important for STEM (science, technology, engineering, and math) and digital literacy for a number of reasons.

Firstly, in today's rapidly evolving digital world, it is crucial for individuals to possess basic digital literacy skills in order to fully participate in society. Without these skills, individuals may be excluded from many aspects of modern life, such as online banking, e-commerce, and communication. Digital literacy is also becoming increasingly important in the workforce, where employers are looking for candidates with the ability to use digital tools and technologies effectively.

Secondly, the project focused on gamification and distance learning, which are innovative and engaging approaches to teaching digital literacy. By incorporating gamification and distance learning into the project, the training materials were made more accessible and engaging to the target population. This is particularly important for
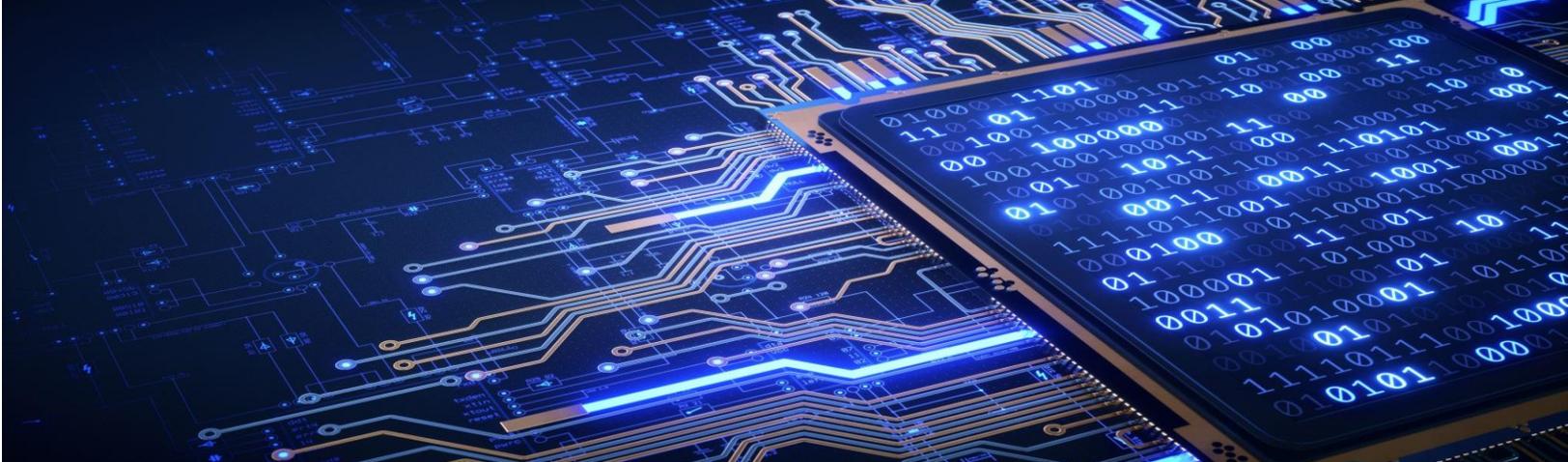
adults with limited access to technology, who may be hesitant or intimidated by traditional training methods.

Finally, the project was a collaboration between partners from several different countries, which allowed for the sharing of best practices and the exchange of ideas. This collaborative approach helps to promote the development of STEM and digital literacy across national borders and helps to ensure that individuals from all backgrounds have the opportunity to develop these important skills.

Overall, the "Developing Digital Literacy for Adults with Limited Access for a Better Life" project is important for STEM and digital literacy because it provides accessible and engaging training materials to individuals who may have limited access to technology. By using innovative approaches to teaching digital literacy and collaborating with partners from multiple countries, the project helps to promote the development of these important skills across different populations and borders.

Qualified Basic Skills Training (QUBAST)

Type of good practice	Topic	Status
International	Digital Literacy	Finished
Entities involved	**Beneficiaries**	
- Prios Kompetanse AS, Norway - ASOCIATIA EDULIFELONG RO Romania - FONIX AS, Norway - Innovation Frontiers IKE, Greece - OLEMISEN BALANSSIA RY, Finland - Trabzon İl Milli Eğitim Müdürlüğü, Türkiye	Adult educators	
Learning outcomes		

The project worked to improve quality assurance of adult learning and better track the progress of adult learners, by developing criteria's for transparency and recognition of skills and qualifications for educators.
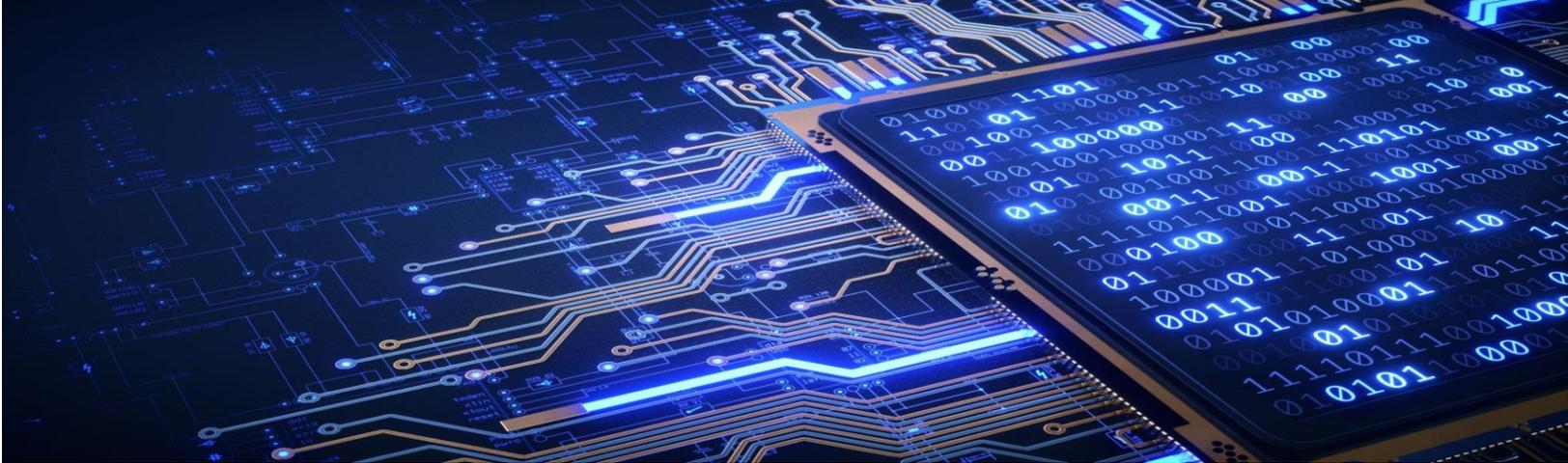
Each partner conducted a **pilot of basic skills training**, where the developed methodology package and certification tools were tested in all countries. The partners covered various professional aspects of basic skills training (ex ICT, media literacy, numeracy) which overall cover a multitude of opportunities. As a result of the project, the adult educators now have much better quality in their basic skills, for training and teaching. The positive effects of training motivated more adults to undertake training.

Detailed description of the programme/activities/sessions/workshops
Presentation: E-learning course, module: Digital Skills

The e-learning section of the Qubast project can be accessed after logging in to the platform. Then, the learner can enrol in the Digital Skills Module. The chapters include identifying the skill, general methodology and approach, motivation – how to motivate adults, integration – basic skills, design & implementation, and finally an assignment.

The Module focuses on providing the adult educators with the skills necessary to not only be proficient in the digital skills themselves, but also useful tips on how to pass this knowledge down to adult learners, taking into consideration their specific needs, fears and challenges.

Exercise presentation: "Why is it necessary to educate in a creative and original manner?"

This activity can help adult educators increase learners' engagement, interest, and participation in the digital skills course.

Instructions:

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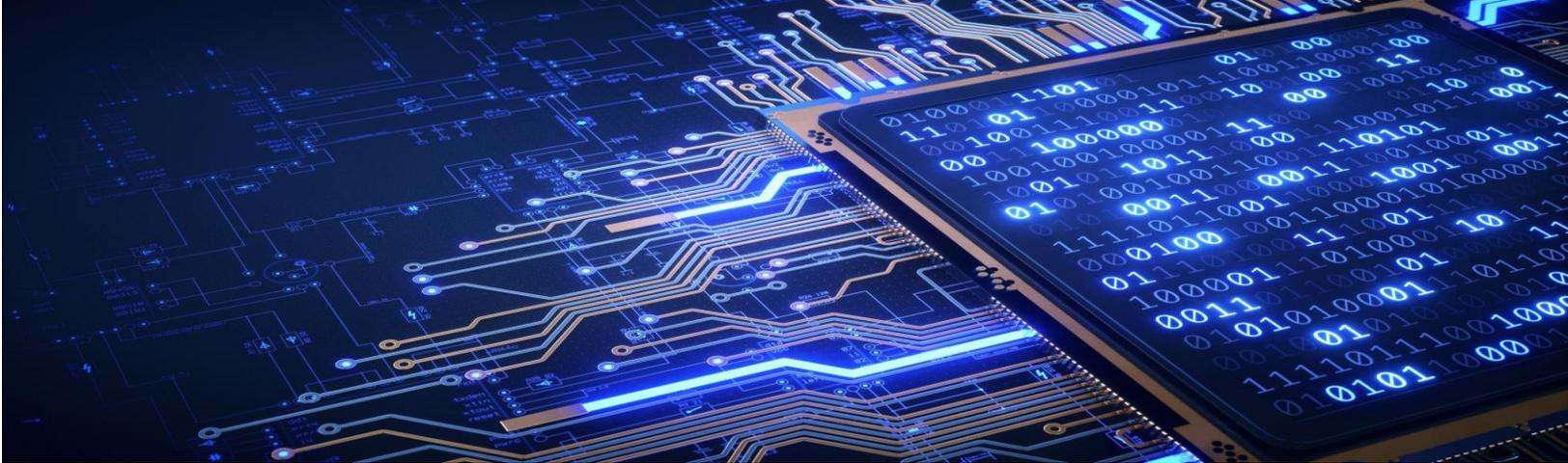
Read this article discusses the most common creative teaching strategies.
https://www.getsmarter.com/blog/career-advice/innovative-teaching-strategies-that-improve-student-engagement/
REMEMBER THIS How innovative could these strategies be if they were implemented with digital technologies, you will learn about in the DIGITAL TOOLKIT?
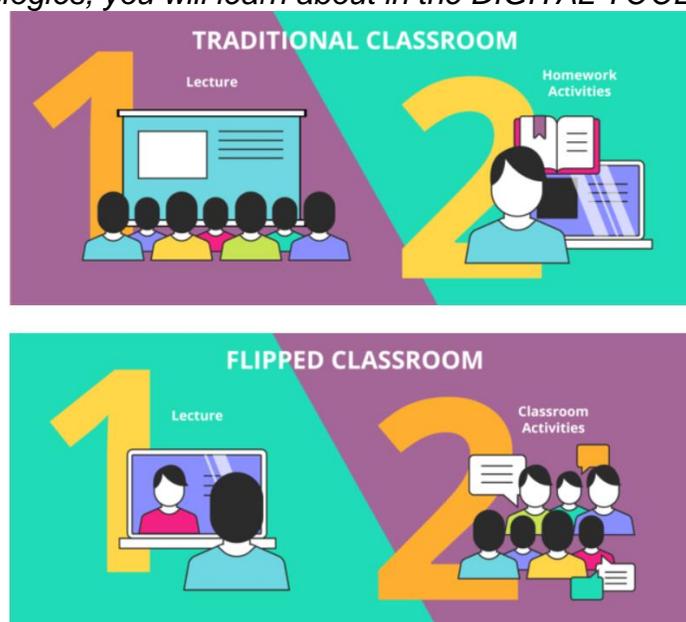
Exercise presentation: "Map your digital day"
This activity can help adult learners get over their fear of dealing with every-day technology challenges.
Instructions:
Ask your learners to "map their digital day" and write down the digital activities they do from the hour they get up until they go to bed. This activity will help your learners to understand "how digital they are".
Exercise presentation: "Practical Skills"
This activity can help adult learners get over their fear of dealing with technology challenges related to their educational or working place.
Instructions:
As an educator, create a classroom Google Drive folder and share it with all the learners via e-mail. Ask learners to write a letter for themselves to read at the end of the
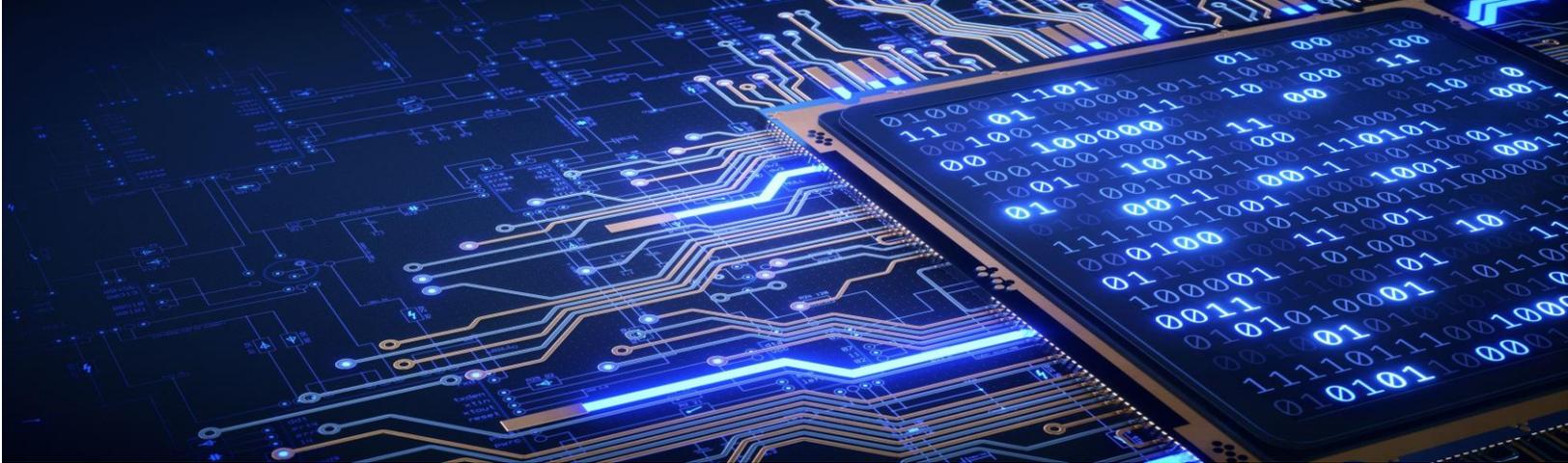
training/education. They can write about their needs & expectations and thoughts. Then upload the document to the shared folder in Google Drive.

Exercise presentation: "Creation of Digital Resources: Creating a Portfolio"
This activity can help adult learners get started with creating their own digital resources and become skilled in using WordPress.

Instructions:

WordPress is an excellent platform for bloggers. This can be used by teachers and learners to create a blog for a variety of purposes. WordPress is used in educational settings to create instructional blogs.

Ask your learners to utilize "WordPress" to create their portfolio filled with their work & experiences for their future job applications as a task/project.

Exercise presentation: "Creation of Digital Resources: Group Project with Canva"
This activity can help adult learners get started with creating their own digital resources and become skilled in using Canva, as well as collaborating with their peers online.

Instructions:

Ask your group to create a "Learning Plan" for "Digital Skills" training as a project -on Canva - that includes the course goals you've designed but also allows them to reflect on their own personal goals and connect them with yours. Learners can create a group of up to 10 members, which makes it easier to share designs and folders. They can share as many designs as they want in up to 2 folders within their group, which is ideal for drafting, revising, and collaborating on projects. They can also engage in peer review by liking, commenting on, and editing one another's work.

Exercise presentation: "Digital Problem Solving – the Phone"
This activity can help adult learners get over their fear of technical issues, as well as browsing and evaluating information online.

Instructions:

Create this scenario for your learners

"Your phone recently suffered from an issue: You have an iPhone 11, and it does not stay connected to your car via Bluetooth."

And ask your learners to find a solution to this problem by following these steps:

1. Go to the website of the company and check the FAQ & Customer support forum

2. Browse several other forums

3. Search for a tutorial on YouTube

4. Gather all the findings and discuss them with the other trainees and explain which steps you followed to receive these resources.

Website: https://qubast.eu/
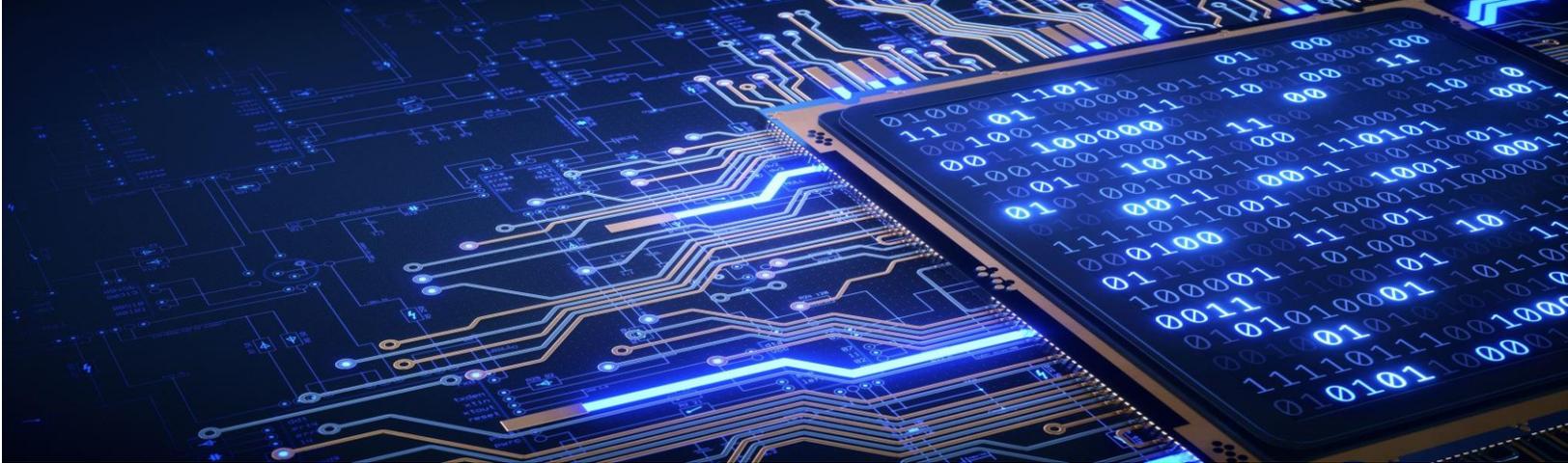
National Good Practices – STEM Education

Galilea STEM

Type of good practice	Topic	Status
National	STEM education	Finished

Entities involved	Beneficiaries
Coordinator GB.MAZZONI (Comprehensive Secondary School) Associated partners CPIA 1 Prato (Provincial Center Adult Education) Centro Antiviolenza "La Nara" Museo di Scienze Planetarie di Prato Associazione Erbavoglio Onlus Legambiente Coderdojo Prato Prato Municipality Cooperativa Alambicchi University of New Haven Tuscany Campus	N. Classes: 19 N. Educators: 5 N. Learners: 25

Learning outcomes
- Development of transversal skills;   - Increased awareness of one's interests and inclinations;   - a greater awareness of study addresses and work possibilities;   - Increased knowledge of the area's cultural offerings;   - Evolution from passive users of technologies towards their conscious use;   - Computer literacy;   - Conscious use of the IT tool;   - Development of specific skills in technology.

Detailed description of the programme/activities/sessions/workshops
All information is extracted from the project official Factsheet.

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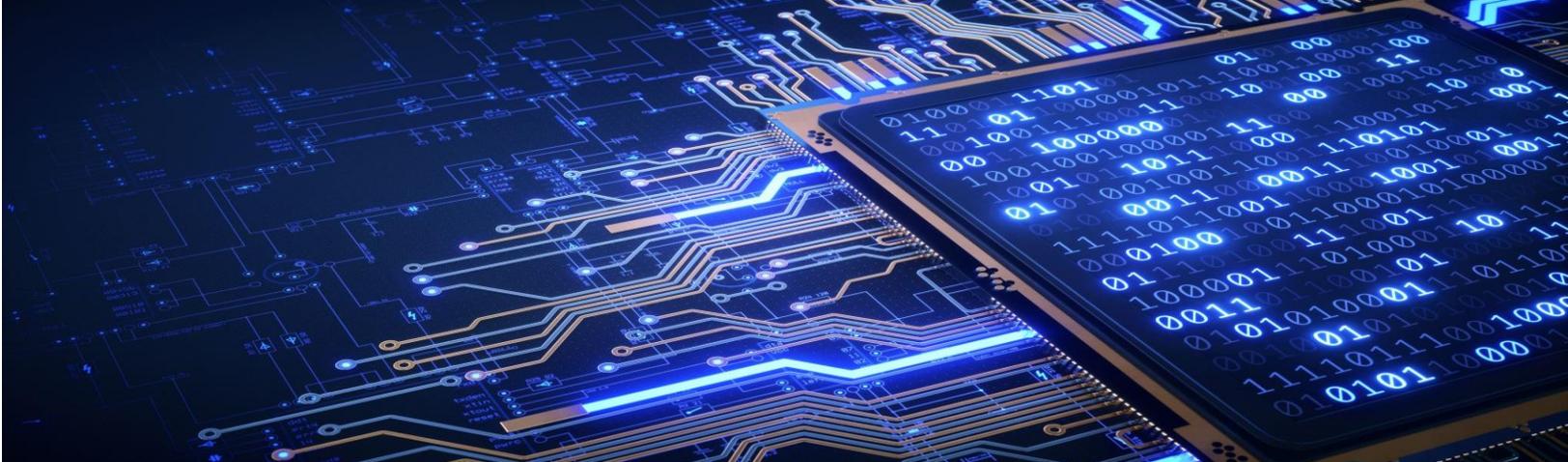
Four interconnected modules were implemented from a thematic, interdisciplinary and methodological point of view.

The first area of disciplinary intervention was **Science [S]**. Interventions were implemented by Legambiente operators and didactic paths used at the Museum of Planetary Science in Prato, the Natural Science Centre in Prato and the water purification plant of the GIDA spa company, as well as indoor and outdoor experiments and activities.

For the **Technology and Engineering [T-E]** area, activities were carried out in the robotics lab to create robots also with the use of the 3D printer in the new computer lab. In addition to robotics technology, other materials were also used to create settings and settings, fantasy scenarios to invent stories and develop language, expressiveness and narrative skills also in foreign languages (Ita for non-Italian speakers, English for everyone).

With regard to the scenario useful for conversation in English, we collaborated with the University of New Haven Tuscany Campus, which provided native speakers for activities focusing on oral communication. Being university students of Design and Tourism, their disciplinary skills were also useful for the use of technological tools. Robotics and activities were also used throughout the year for teaching pupils with disabilities through guided activities focusing on cooperative learning methodology.

With regard to digital programming, through the pathway coordinated by the Coderdojo group of Prato, an intensive campus was set up to approach computer programming. During the meetings, teaching was supported by one of the adult members of Coderdojo Prato with specific skills in programming for learning purposes. In order to promote equality, the teaching was introduced and carried out (with the support of an adult Coderdojo member) by a peer mentor of the target group for which the campus was designed.

The coding campus, in order to achieve the intended objectives, was divided into five 2-hour meetings plus a 3-hour final event. The contents focused on: introduction to the IT tool and concept Coderdojo (coding = action of programming; dojo = gymnasium); analysis and feasibility study of the programme, from idea to product (analysis of the flow of data in a logical and coherent order in order to design the application product); development part 1 (Java programming in Scratch); development part 2 (Java programming in Scratch); bug analysis (problems and possible criticalities) of the application product, troubleshooting, "go live" (online sharing) of the application. In the final open event there was the presentation of the projects, open-theme coding
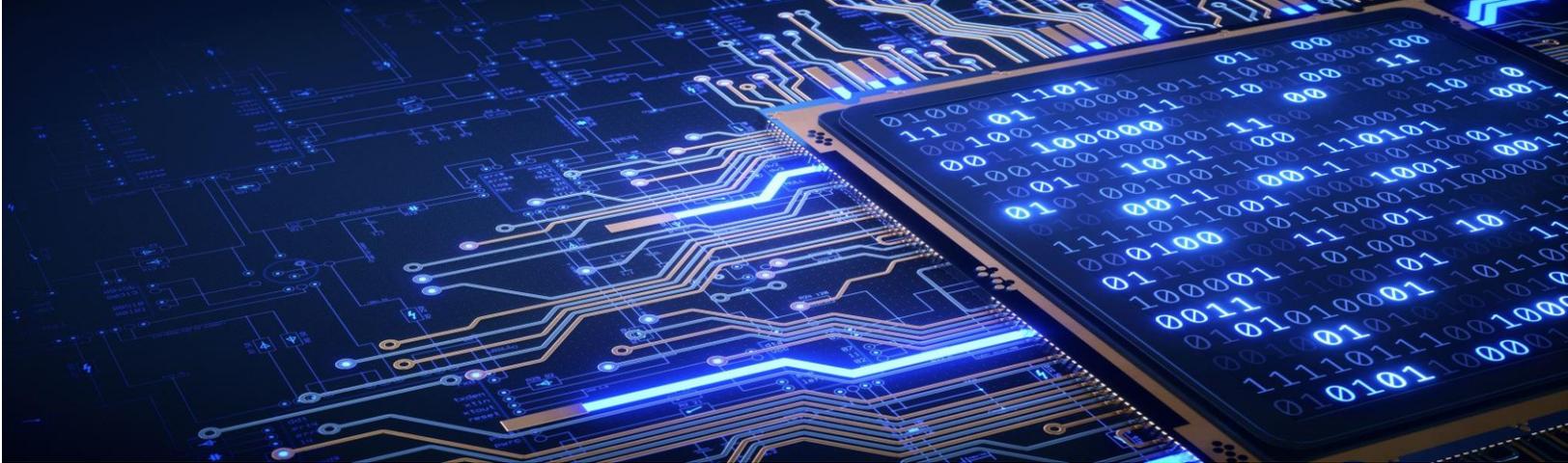
exercise, investiture of the campus learners as official Mentors of Coderdojo Prato for I.C. Mazzoni.

In this area [TE] moments of programming and development of practical skills were interspersed with moments of reflection on computer security, personal responsibility in the use of social networks through a critical and formative approach in order to develop awareness of the potential and risks of the network.

The last module concerned **Mathematics [M]** and included actions and activities focusing on playful didactics, for example through problem solving competitions, numeracy tournaments algebraic riddles, chess games, interactive online teaching activities on free sites, mathematical puzzles to solve, sudoku. A type of approach along the lines of the Rally Mathematical Transalpine.

Steps for educational innovation: digital development of our school and implementation of STEM education

Type of good practice	Topic	Status
National	STEM education	Finished
Entities involved	**Beneficiaries**	
8o GENIKO LYKEIO TRIKALON (8th High school -Lyceum- of Trikala, Greece)	School staff, school students (Exact numbers not available) The dissemination through the overall presentation of the acquired skills in teachers, parents and the local community as well as the colleagues throughout Europe are also considered of major importance and enhance the european dimension of the school.	
Learning outcomes		

Objectives: improve ICT innovative teaching skills of our staff through their participation in European training courses, equip our young learners with the necessary skills so that they will be able to deal with problems using STEM education and take advantage of the professional opportunities provided, training of the teachers

Empowerment: The training course (A1) gave incentives to the rest of the staff to adopt and implement teaching through ICTs and some of them are willing to implement multilateral European partnerships in the future. Regarding the impact on the students, it gave them the chance to familiarize with mobile learning especially in the context of

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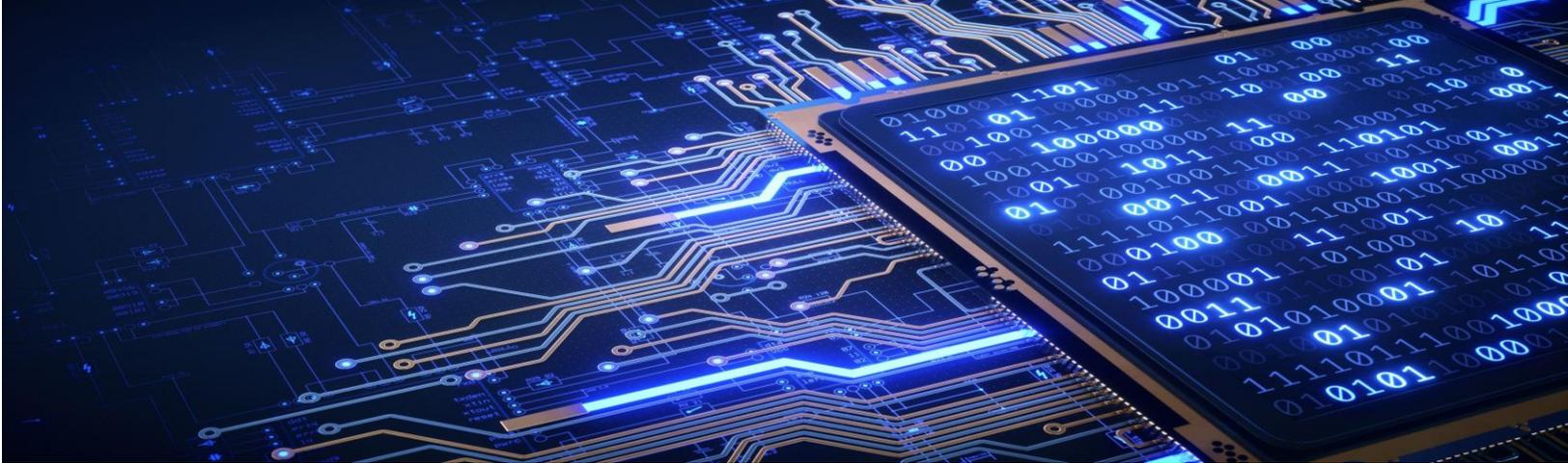
the subject "Creative Projects" and promote language proficiency in foreign languages and sociability skills that will contribute to the future development of their European identity in the context of European and international labour markets.

For the A2, the knowledge acquired involved BeeBots/BlueBots, LegoWeDo2, LegoMindstormsEV3 as well as practical application of robotic equipment and helped our students familiarize with STEM education and digital tools. The creation of the school robotics team and the student participation in robotics competitions as well as in the subject of "Creative subject" can be considered as added value in our school.

Detailed description of the programme/activities/sessions/workshops

The 8th High school (Lyceum) of Trikala is a school unit of general secondary education operating since 2006 in the prefecture of Trikala. 265 students (15-18) are currently enrolled and 25 teachers are employed in the school. Some of our students come from vulnerable backgrounds such as unemployed economic migrants and low-income or single parent families.

Activities:
1. **Training course for the digital upgrading of the school** through the use of digital devices in the teaching process. The one-week (7 days) learning mobility abroad aimed at the enhancement of the teacher's digital skills and their incorporation in the teaching process according to the school's European Development Plan. The training activity focused on the utilization of specific models of portable devices in the creation of rich-media materials in the school environment. The objectives of the course were enriching digital skills, inclusive learning, safety policy on the Internet, contact with other mentalities and participating in innovative collaborative networks.
2. Participation of the teacher of biology in a **5-day training course** for the application of STEM education at school. The training activity focused on the adoption of innovative practices and new technology tools both for teachers and students of primary and secondary education on the field of learning and teaching through STEM (Science, Technology, Engineering, Mathematics) as well as the linking of school knowledge with the real world.

Website: EPALE: https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/2018-1-EL01-KA101-046744
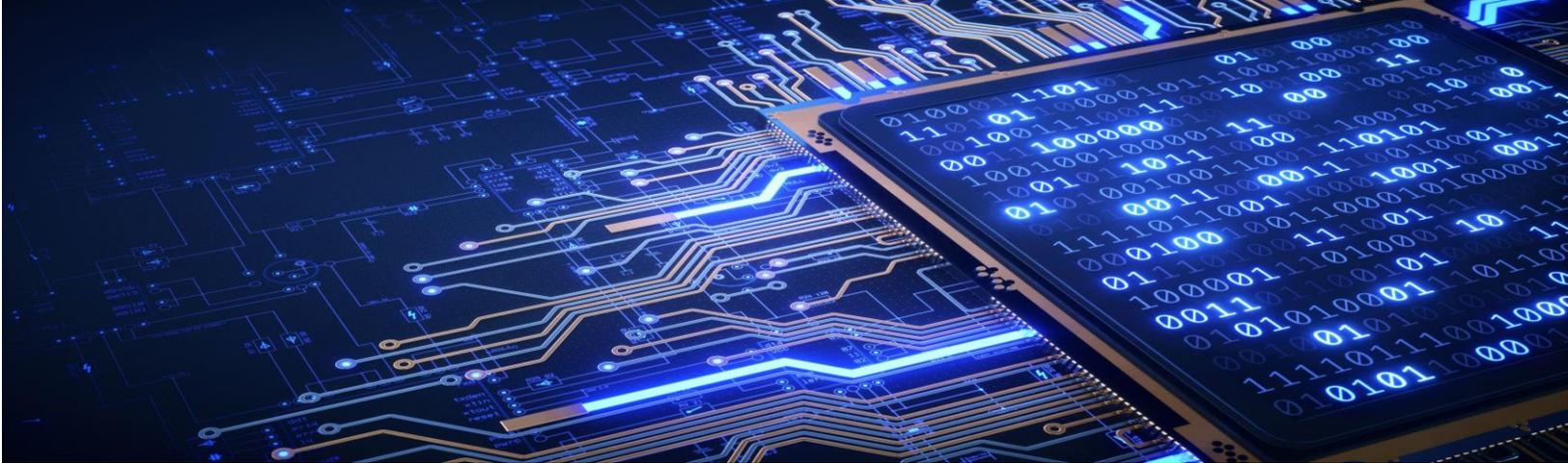
International Good Practices – STEM Education

No Gender Gap!

Type of good practice	Topic	Status
International	STEM education	Finished

Entities involved	Beneficiaries
Coordinator ASOCIACION BUILDING BRIDGES (Spain) Partners INTERNATIONALE ARBEIDSVERENIGING (Netherlands) Previform - Laboratório, Formação, Higiene e Segurança do Trabalho, Lda (Portugal) SCUOLA DI ROBOTICA (Italy) weltgewandt. Institut für interkulturelle politische Bildung e.V. (Germany)	The project was aimed at both educators and women at risk of social exclusion and belonging to disadvantaged groups (eg unemployed, victims of gender violence, refugees, without university studies, residents of rural areas) who wanted to improve their skills professionals in a sector where the high demand by companies in the world of ICTs can significantly reduce the unemployment rate.

Learning outcomes
- Enriching the professional profile of the teachers involved, connecting the world of education with the business world;   - Promotion of technology and robotics in adult schools as transversal components of school curricula;   - Innovation of adult schools and training schools through active learning tools and methodologies;   - Knowledge, technical skills and competences about the use of tools that are important today in various jobs and different sectors.

Detailed description of the programme/activities/sessions/workshops

The activities are extracted from the Methodological Guide.

EXAMPLE ACTIVITY: use computer's sensors	
Title	Sensors in computers: digital sensor-controlled games.
Target Group	This scenario could be adapted to every educational need.
Duration	At least 4 hours.

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Expected Outcomes	• basics of coding and programming; • what a sensor is; • how to make a computer interact with the environment; • design; • collaboration.
Methodologies	Problem-solving.
Learning setting	IT Laboratory.
Tools/resources	• computers; • visual programming software (like Scratch, mBlock, Snap!...); • projector; • audio system.
Activity description	Instruction for the learners: 1) analyse several simple games; 2) project and design your own game, working in groups; 3) make the main character be controlled using a PC sensor (like microphone loudness or webcam). A board like Makey Makey can be used instead.
Feedback	Demo show

EXAMPLE ACTIVITY: Simulate robots	
Title	Geometric shapes using simulated robots.
Target Group	This scenario could be adapted to every educational need.
Duration	At least 2 hours.
Expected Outcomes	• basics of coding and programming; • geometric shapes; • basics of robotics; • collaboration.
Methodologies	Problem-solving.
Learning setting	IT Laboratory.
Tools/resources	• computers; • robot simulation software (like Open Roberta Lab,Thymiosuite, ...) - Real robots can be used instead; • projector.
Activity description	Instructions for the learners:

2021-2-DE02- KA210-ADU-000049482

	1) observe simple geometric shapes (starting from squares and rectangles), measures and think about the concept of angle, extern and intern angle, edge, area, perimeter; 2) program the simulated robot so that it can move following a given geometric perimeter path; 3) try to find a relation between the physical parameters of the robot (i.e. wheels dimensions and position, number of rotation of the weel…) and travelled distances and angles.
Feedback	Group discussion.

EXAMPLE ACTIVITY: Simulate robots	
Title	Dog-follow using simulated robots.
Target Group	This scenario could be adapted to every educational need.
Duration	At least 2 hours.
Expected Outcomes	▪ coding and programming; ▪ conditional structures; ▪ robotics; ▪ sensors; ▪ collaboration.
Methodologies	Problem-solving.
Learning setting	IT Laboratory.
Tools/resources	▪ computers; ▪ robot simulation software (like Open Roberta Lab,Thymio suite, ...) - Real robots can be used instead; ▪ projector.
Activity description	Instructions for the learners: 1) Have to program a robot that keeps a constant and given distance from an obstacle; 2) And define an approach to achieve the goal. *The simplest one is to code with conditional structures and setting a threshold -> but the system is unstable.

	(optional) A better solution is to set up a proportional controller (it needs at least 2 hours more).
Feedback	Group discussion.

EXAMPLE ACTIVITY: 3D modelling	
Title	Monuments, cities and museums.
Target Group	This scenario could be adapted to every educational need.
Duration	3 lessons, 1 to 2 hours.
Expected Outcomes	3D modelling; 3D printing; - art; - design skills; - collaboration.
Methodologies	Problem-solving.
Learning setting	IT Laboratory.
Tools/resources	- computers; 3D drawing software (i.e. Autodesk Tinkercad, SugarCAD, SketchUp, …); 3D printer; - projector.
Activity description	Instructions for the learners: 1) analyse 3D cultural heritage: statues and monuments, bridges, buildings, etc.; 2) outline and sketch, working in groups, your personal 3D sculpture; 3) create the 3D model of the sculpture; 4) search for errors and iterate until the model is printable; 5) print the model; 6) analyse the printed model and, if any, fix errors; 7) create a presentation so that their artefacts can be shared. *A challenging and interesting element is to create a presentation suitable for blind people.
Feedback	Presentation.

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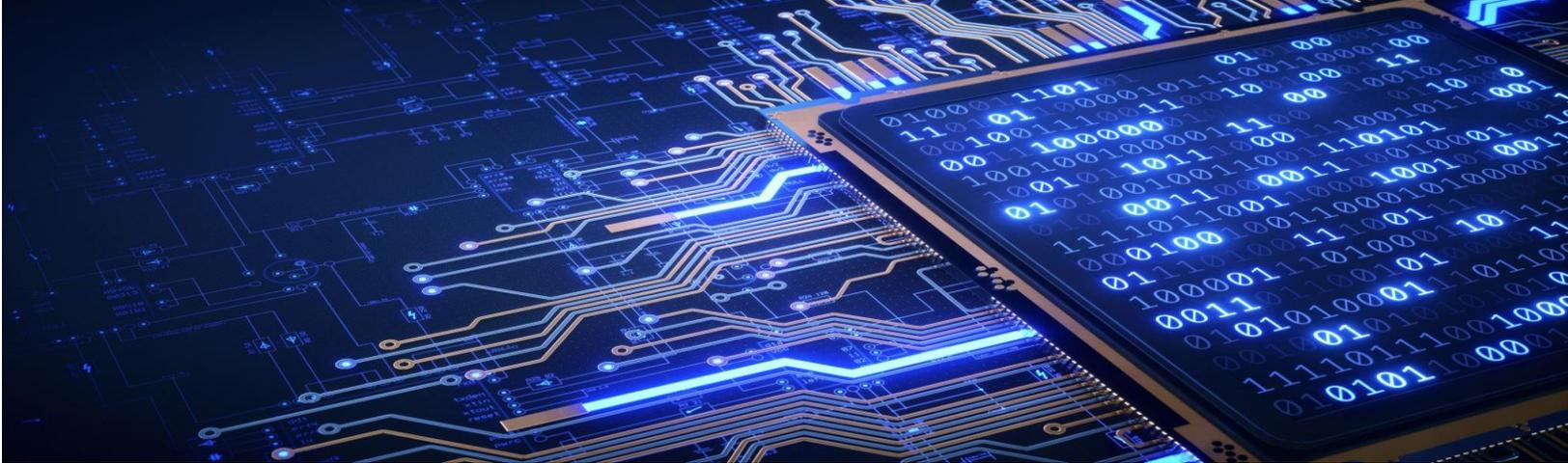
STEAMonEdu

Type of good practice		Topic	Status
International		STEM education	Ongoing
Entities involved			**Beneficiaries**
- Helliwood, 21st Century Competence Centre (Germany) - DAISSy Research Group – CTI (Greece) - Stati generali dell'innovazione (Italy) - Colectic(Spain) - PDEDE (Regional Directorate of Primary and Secondary Education in Western Greece, Greek Ministry of Ministry of Education and Religious Affairs) - ALL DIGITAL, Belgium - Educating for an Open Society Romania Foundation (EOS)			Educators, professionals, school children

Learning outcomes

The **STEAMonEdu project** aims to increase the adoption and impact of STE(A)M education by investing in the community of stakeholders and the professional development of educators.

The approach of the project is to nominate educators as the pillars of implementation of STE(A)M education policies and support their professional development either by blended training or by their participation in a community of stakeholders. The exchange of experience, collaboration and creative work of this community will be supported by online peer learning and crowdsourcing platform.

Detailed description of the programme/activities/sessions/workshops

Based on the information found on the Training Plan Handbook provided.
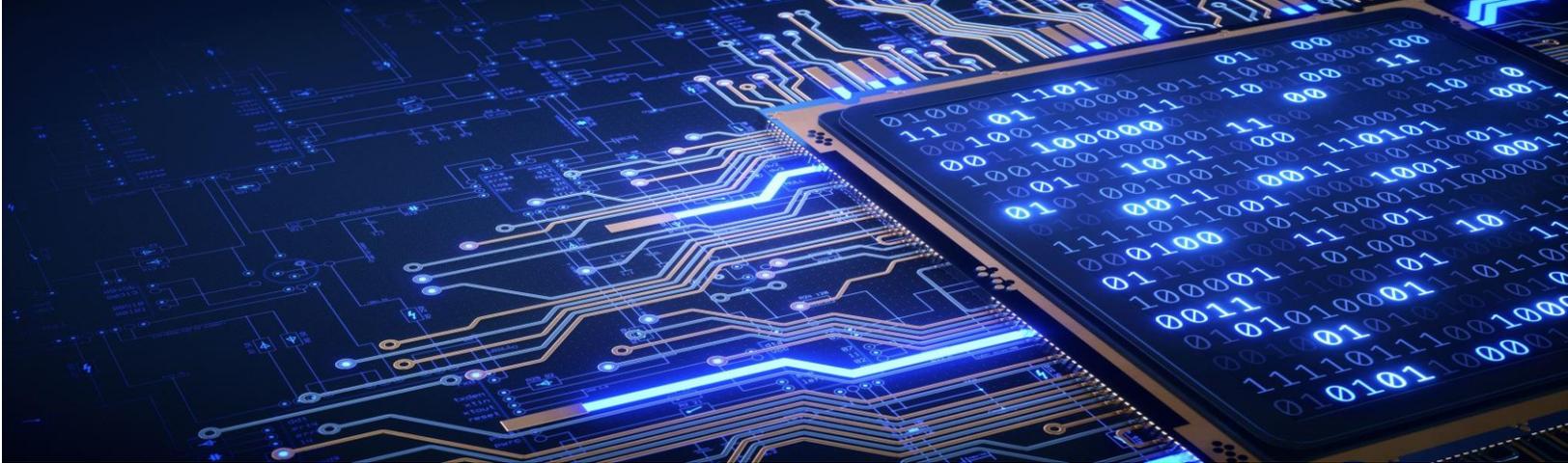
The SteamOnEdu training programme

The framework, organized in a top-down approach, begins at the top with **five perspectives** that cover the most important aspects of the educator's roles, as follows:

- Educator as teacher-trainer-tutor, implementing the educational procedure;
- Educator as designer and creator, designing and producing outputs;
- Educator as orchestrator and manager, coordinating procedures and outputs;
- Educator as community member, interacting with the environment;
- Educator as professional, developing and applying competences.

Each perspective comprises a set of **dimensions** (competences) which are combined in **areas**, i.e., coherent groups of competences.

Figure 1 illustrates graphically the perspectives and areas of the framework while, Table 1 provides, in addition, the set of independent competences that have been included in the courses from each area (see the legend at the end for an explanation of the colour code used).
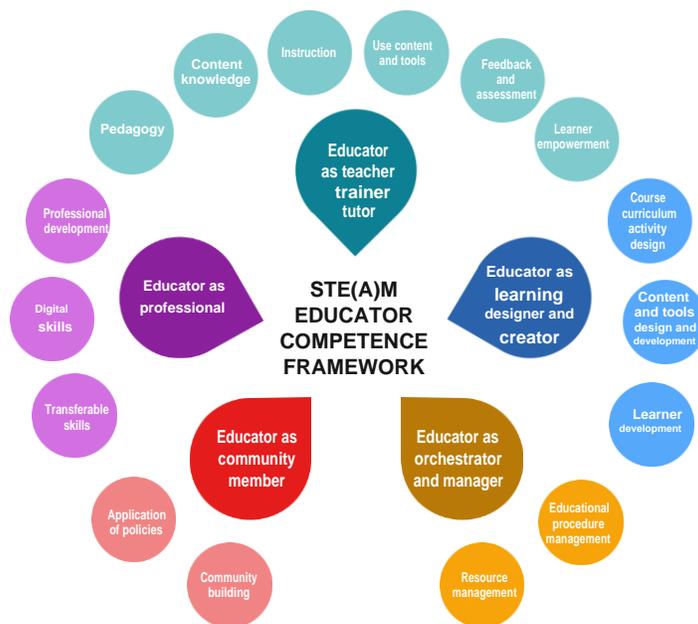
Figure 1. The perspectives and competence areas of STE(A)MComp Edu

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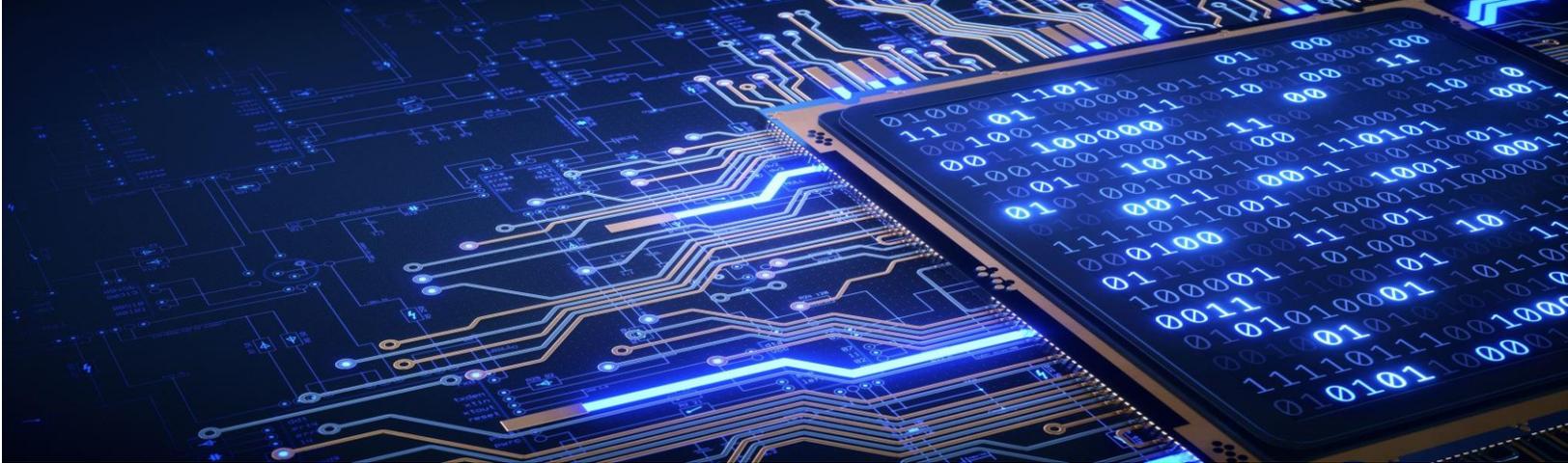
Table 1. The perspectives, areas and individual competences of STE(A)MComp Edu

Perspective (based on educator roles)	Area (coherent group of competences)	Competence (dimension)
Educator as teacher-trainer-tutor / implementing the educational procedure	Pedagogy	Understand and use teaching and learning techniques that promote STE(A)M education
		Apply collaborative learning methods in STE(A)M education activities
		Promote self-regulated learning in STE(A)M education activities
	Content knowledge	Understand what STE(A)M education represents and means
		Has the content knowledge of STE(A)M-related topics
	Instruction	Provide guidance in STE(A)M education activities
		Act as a facilitator in STE(A)M education activities
		Act as a mentor in STE(A)M education activities
	Use content and tools	Select and use appropriate content and tools for STE(A)M education
		Organize and share appropriate content and

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			tools for STE(A)M education
		Feedback and assessment	Use assessment strategies for STE(A)M education
			Use feedback techniques for STE(A)M education
		Learner empowerment	Ensure accessibility and inclusion in STE(A)M education
			Ensure active engagement of learners in STE(A)M education
			Ensure differentiation and personalization in STE(A)M education
	Educator as learning designer and creator / designing and producing outputs	Course / curriculum / activity design	Understand and develop STE(A)M education curriculum
			Design STE(A)M education courses
			Design STE(A)M education activities
		Content and tools design and development	Create and modify appropriate content for STE(A)M education
			Design and Develop software and apps for STE(A)M education
		Learner development	Facilitate learners' STE(A)M competences
			Provide guidance for STE(A)M related career opportunities
	Educator as orchestrator and manager / coordinating	Educational procedure management	Apply teaching organization methods in STE(A)M education
			Apply classroom management methods in STE(A)M education

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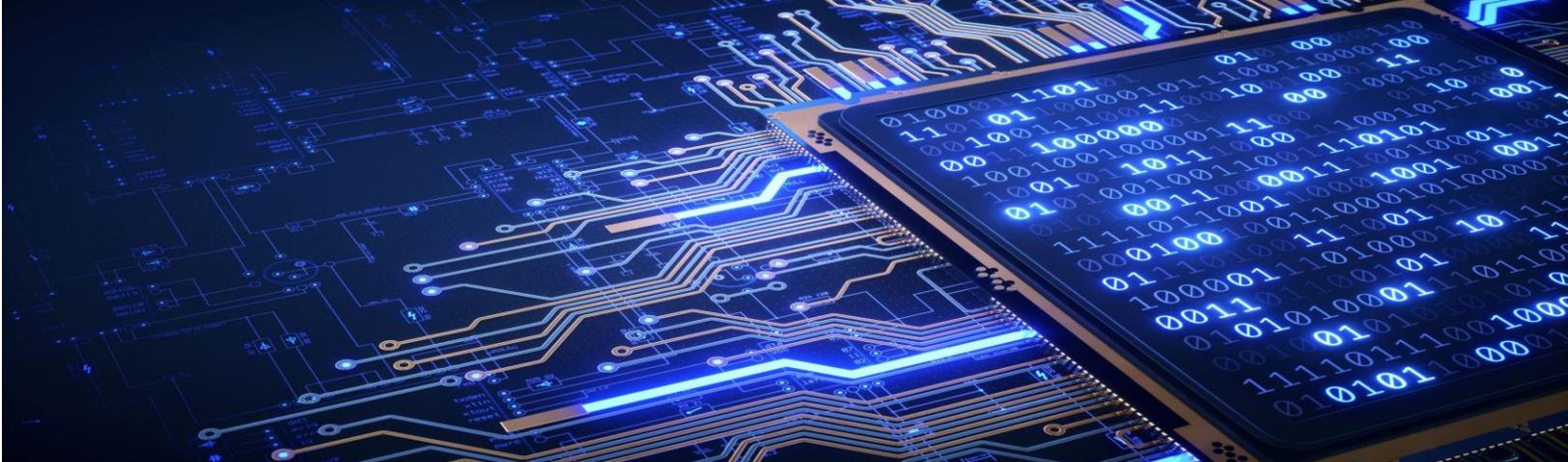
procedures and outputs	Resource management	Apply educational resources management methods in STE(A)M education
		Apply laboratory management methods in STE(A)M education
		Apply human resource management methods in STE(A)M education
Educator as community member / interacting with the environment	Community building	Engage in communities of STE(A)M educators
		Engage in institutional-based communities about STE(A)M education
		Engage in research and business communities about STE(A)M education
	Application of policies	Apply policies that promote STE(A)M education
		Develop policies that promote STE(A)M education

Educator as professional / developing and applying competences	Transferable skills	Develop leadership skills
		Develop presentation and communication skills
		Develop critical thinking and problem-solving skills
		Apply ethic skills
		Develop team work skills
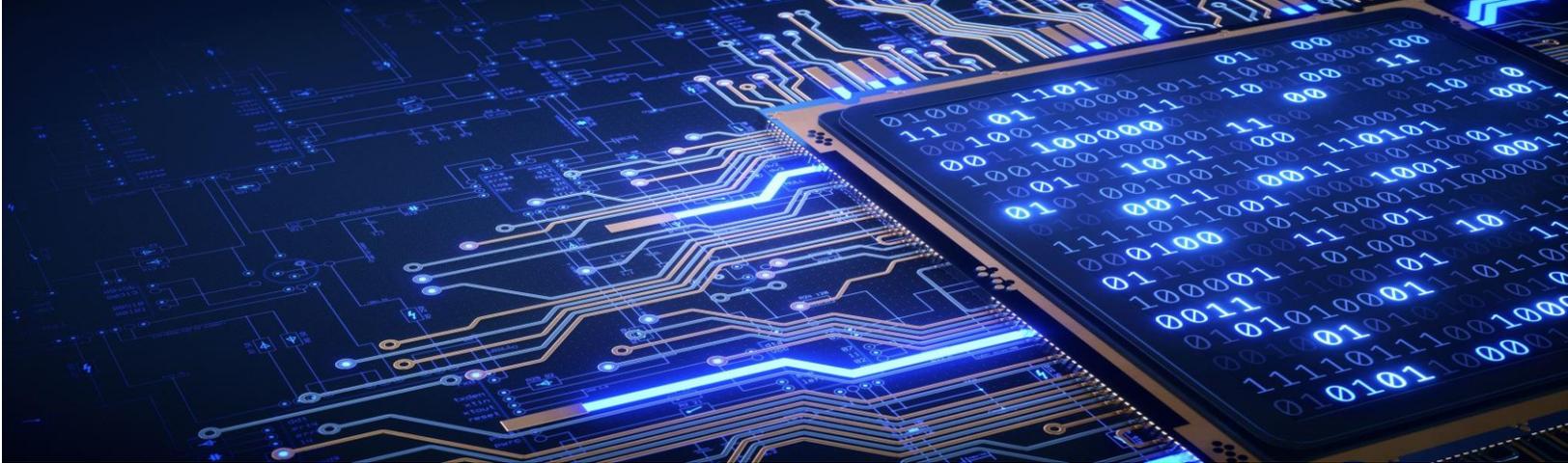
		Apply information management skills
		Develop entrepreneurship skills
	Digital skills	Develop digital literacy skills
		Manage and use digital tools for STE(A)M education
	Professional development	Adapt self-reflective practices for STE(A)M education
		Participate in lifelong learning experiences related to STE(A)M education
		Act as a researcher on STE(A)M education topics

MOOC	Blended Learning

The training programme consists of two parts: a MOOC and a blended learning course. The MOOC focuses on the abovementioned aspects. The specific competences that were selected for the MOOC are marked with light green background in Table 1. It has to be noted that the competences in the areas of digital and transferable skills are not examined in depth, but rather frameworks and directions for further development of the educator competences in these aspects are provided.

The blended learning, on the other hand, delves deeper into two perspectives, the educator as learning designer and creator and the educator as community member. It enforces interaction and cooperation of educators that are already well informed on the STE(A)M approach, having completed the MOOC. So, this is an intensive programme that can be delivered to a short number of participants, preferably over a short period that is not overloaded for active educators. The competences selected for the blended

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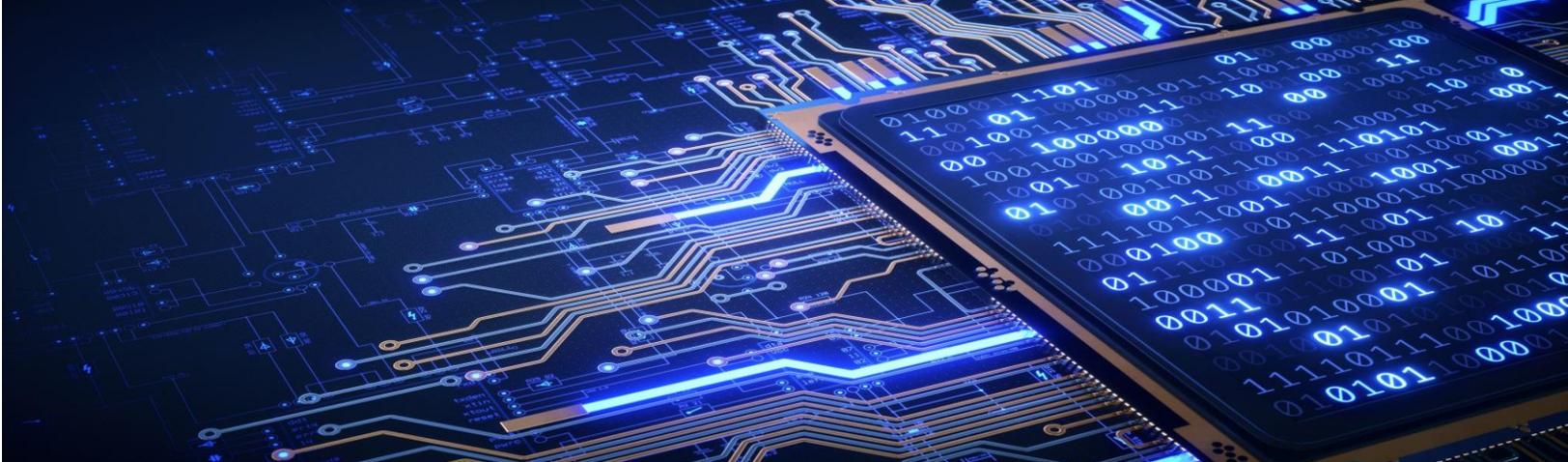
learning part are marked with the dark green background in Table 1. Finally, some dimensions will be developed in both parts, providing the basics within the MOOC and going deeper during the blended learning part. A summary of each phase of the training programme is given in the following chapters.

ASSETS

Type of good practice	Topic	Status
International	STEM education	Ongoing

Entities involved	Beneficiaries
LIDOSK, Türkiye ADEVA, Sweden Innovation Frontiers IKE, GREECE ArtSmart, Latvia Mine Vaganti NGO, Italy The Comparative Research Network , Germany	Students, Teachers, Migrants

Learning outcomes
"bASic Stem compETences for migrantS" (ASSETS), is a 24-months Strategic Partnership in the Field of Adult Education, aims at promoting and developing relevant and high-quality skills and competences related to STEM (Science, Technology, Engineering and Mathematics) for migrants, who pursue to promote their career in relevant job positions, either as employees or self-employed. Moreover, ASSETS promotes social inclusion of migrants in EU countries by empowering them to enter the job market through newly acquired competencies.

Detailed description of the programme/activities/sessions/workshops
- The state of Art for migrants' access to the labour market faced by adults' migrants (IO1).   - A training Format "Migrants and STEM" is developed and piloted during the Short-term joint staff training events.   - The Joint Staff mobility involving adult educators, trainers, social workers who are working with migrants. The development of format training course (IO1)
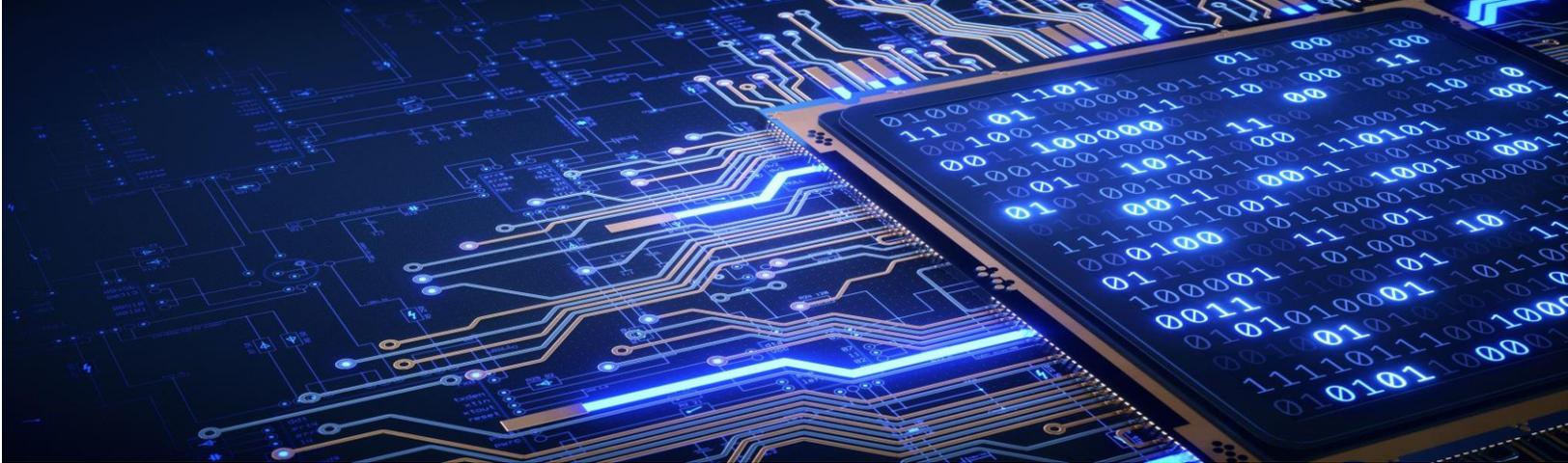
devised in three specifics modules called ASSETS motivational content, ASSETS mapping of STEM related careers and ASSETS content knowledge.

- Local workshops of STEM competences in which migrant participated are implemented.
- During the local activities, e-training material is realized as well as Platform "Enhancing migrants through STEM competence" (IO2) which is an interactive online platform that contains specific modules focus on the effectiveness of ASSETS learning methodology on migrants and social workers.

The following Work-Based Learning activities are extracted from the IO1:

Part I. General information		
Name of the method	3D art modelling installations for migrants	
Type of Method	Training	
How many trainers/organisers are needed to perform the method?	- Trainers: 2 - Organisers: 1	
How many participants is the exercise or training constructed for? (Scale)	One to ten	
How long is the Preparation (a) needed to be able to conduct the method? How long does the application of the method take (b)	a) Preparation ☐ Less than an hour ☐ 1-3 hours, ☐ 4-8 hours, ☐ days ☐ 1 week	b) Implementation ☐ Less than an hour ☐ 1-3 hours, ☐ 4-8 hours, ☐ 2-4 days ☐ 1 week ■ 2 weeks – 1 month

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		☐ 2 weeks – 1 month ■ several month ☐ a year or more	☐ several month ☐ a year or more
	How does the preparation of the method look like? Do you use f. e. fixed curricula or non-formal planning?	To implement the PBL (problem-based learning) method, the preparation of the training requires the migrant students to: -Analyse 3D cultural heritage: statues and monuments, bridges, buildings, ... -Outlines and sketches, working in groups, their personal 3D sculpture installation. -Create the 3D model of the sculpture digitally. -Search for errors and iterate until the model is ready. -Install the model. -Analyse the installed model and, if any, fix errors. -Create a presentation so that their artefacts can be shared.	
	How does the documentation of the results look like?	The documentation will be in the form of a presentation of the model installation that the migrants have created.	
	How would you assess the overall difficulty of the method for the facilitator (a) and the participants (b)	a) Facilitator Level ☐1 ☐2 ■ 3 ☐4 ☐5 b) Participant Level ☐1 ☐2 ■ 3 ☐4 ☐5 Level 1 = no prior knowledge of the subject / similar methods Level 5 = deep experience and knowledge of the subject / similar methods necessary	

What is the level of engagement during the activity?	☐ Listen / Learn ☐ Do / Apply ■ Implement / Create	
How do you motivate your participants to apply the method or the learned material beyond the duration of the activity?	The participant can be motivated through the various installments opportunities in museums, city exposures and art galleries. Also the STEM skills developed for the 3D digital art can serve them in a variety of marketing and social sectors.	
How do you measure the impact of the method on the participants?	The impact can be measured through the an assessment or a questionnaire before and after the activity takes place.	
If there is published material on previous implementation, please share the link.	https://ec.europa.eu/programmes/erasmus-plus/project-result-content/a4aec502-d6b4-4278-87cc-29aae0c79e02/IO2_COMPLETED.pdf	

Part II. Relevance for STEM Training for migrants

What is the main challenge this method addresses regards to integration of	☐ unemployment ☐ language barrier ☐ lack of technical language ☐ lack of technical knowledge ☐ lack of cultural competences ☐ lack of competences for job search

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	migrants in the STEM field?	☐ lack of competences for application procedures ■ lack of digital skills for the job market ☐ lack of digital skills for work in STEM	
	What are secondary challenges this method addresses regards to integration of migrants in the STEM field?	■ unemployment ☐ language barrier ☐ lack of technical language ☐ lack of technical knowledge ■ lack of cultural competences ☐ lack of competences for job search ☐ lack of competences for application procedures ☐ lack of digital skills for the job market ☐ lack of digital skills for work in STEM	
	Which skills are required for participation?	☐ technical Language ■ technical Knowledge ☐ cultural Competences ☐ competences for job search ☐ competences for application procedures ☐ digital Skills for the Job Market ☐ digital Skills for Work in STEM ☐ foreign language	
	Which skills does the method develop?	☐ technical Language ☐ technical Knowledge ■ cultural Competences ☐ competences for job search ☐ competences for application procedures ☐ digital Skills for the Job Market ■ digital Skills for Work in STEM ☐ foreign language	

In which way does the method link STEM education with a positive image of the future career?	In conveys into digital art, specifically 3D art development through software applications applicable in 3d model creations.	
What would be the expected impacts of the method?	- Technical skills in software apps - Soft skills related to creativity expression - Better job opportunities in creative sector	
When are the first results/ effects of the method noticeable?	☐ immediately ☒ after a few weeks ☐ after months ☐ after years	
What kind of assessment methods do you use in order to follow the impact of the method?	Evaluation test or questionnaire before and after the activity.	
Indicate if this method is specific to one STEM field.	Technology-related field (ICT /Computer Science, other).	

	Is the method easily transferable to all STEM fields? How?	The scenario is adaptable to every educational need.			
	How innovative is the method and what are the innovative aspects of the methods?	The opportunity through problem based solving to develop technical skills in digital art and the work based learning in building the model as an example draft to analyze and further develop the skills in the sector.			
	How does the promotion of the method look like?	Art galleries, museums, city expose and website exposure.			
	SWOT	Strengths	Weaknesses	Opportunities	Threats
		Develop skills in software applications related to digital art	There is a lack of base skills to build up on related to 3D art	The creative industry opportunities	Lack of attention from the public

Part I. General information	
Name of the method	EUMentoring Programme for migrant women in STEM field
Type of Method	Exercise
How many trainers/organisers are needed	- 1 Trainer - 1 Organiser

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	to perform the method?		
	How many participants is the exercise or training constructed for? (Scale)	One to ten	
	How long is the Preparation (a) needed to be able to conduct the method? How long does the application of the method take (b)	c) Preparation ☐ Less than an hour ☐ 1-3 hours, ☐ 4-8 hours, ☐ days ☐ 1 week ■ 2 weeks – 1 month ☐ several month ☐ a year or more	d) Implementation ☐ Less than an hour ☐ 1-3 hours, ☐ 4-8 hours, ☐ 2-4 days ☐ 1 week ■ 2 weeks – 1 month ☐ several month ☐ a year or more
	How does the preparation of the method look like? Do you use f. e. fixed curricula or non-formal planning?	Nova Consultancy Ltd recognises that finding employment for migrant women can be a daunting prospect, even more so when their background is in any STEM field. Inova developed group mentoring sessions to incorporate action learning techniques, coaching and mentoring, combined with career development/self-reflection tools to support women in STEM and improve their employability skills. The Mentoring CirclesTM have been adapted to EUMentoring for the purpose of the EUMentorSTEM project. The EUMentoring consists of 1 facilitator, working with approximately 5 mentees (migrant women in STEM) in a group setting. The programme combines group discussions and individual challenges, reflection, goal setting and personal action planning. EUMentoring led by skilled facilitators with	

		expertise in action learning or by facilitators who have been trained in the methodology by Inova Consultancy directly.
	How does the documentation of the results look like?	It will be goal setting worksheets to be reached at the end of exercises.
	How would you assess the overall difficulty of the method for the	c) Facilitator Level ☐ 1 ☐ 2 ■ 3 ☐ 4 X 5 d) Participant Level ☐ 1 ☐ 2 ■ 3 ☐ 4 ☐ 5 Level 1 = no prior knowledge of the subject / similar methods Level 5 = deep experience and knowledge of the subject / similar methods necessary
	What is the level of engagement during the activity?	☐ Listen / Learn ■ Do / Apply ☐ Implement / Create
	How do you motivate your participants to apply the method or the learned material beyond the duration of the activity?	As the exercises are career building oriented, the participants will use the skills for better job opportunities in the market and to build a set of soft skills essential to get employed.
	How do you measure the impact of the method on the participants?	By reaching the goals pre-set in the beginning of the exercises with a final goal to have the migrant woman employed in the end of the mentoring programme.
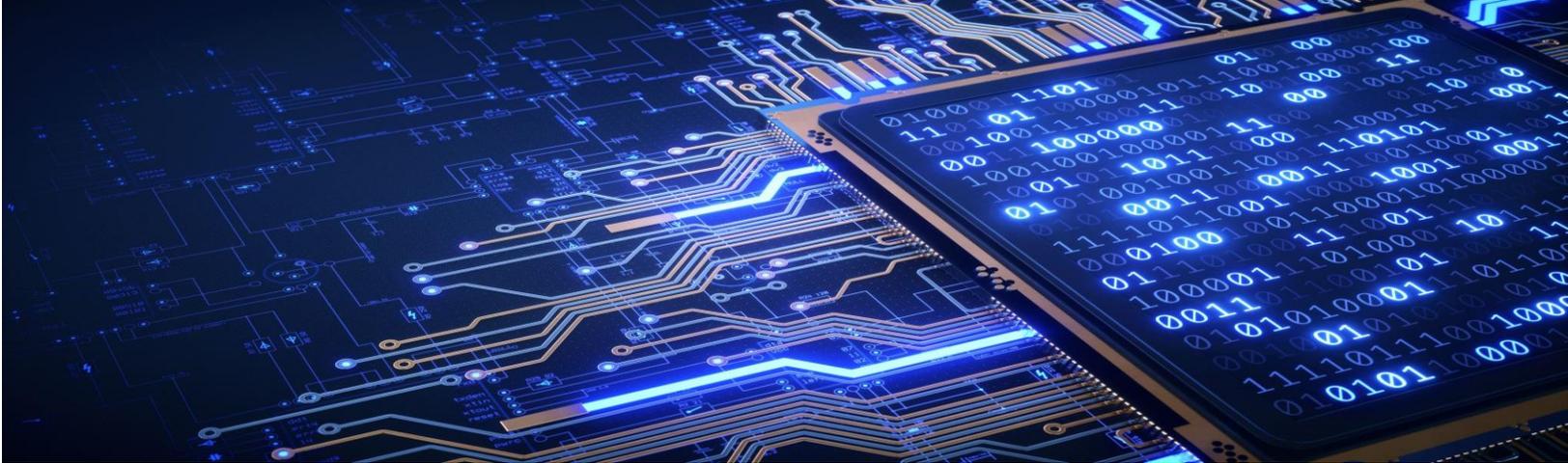
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	If there is published material on previous implementation, please share the link.	https://ec.europa.eu/programmes/erasmus-plus/project-result-content/dea5b7ab-79fb-4905-8fbc-9938e27f93ea/EUMentorSTEM%20TRAINERS%20KIT_ENGLISH.pdf

Part II. Relevance for STEM Training for migrants

What is the main challenge this method addresses regards to integration of migrants in the STEM field?	☐ unemployment ☐ language barrier ☐ lack of technical language ☐ lack of technical knowledge ☐ lack of cultural competences ☑ lack of competences for job search ☐ lack of competences for application procedures ☐ lack of digital skills for the job market ☐ lack of digital skills for work in STEM
What are secondary challenges this method addresses regards to integration of migrants in the STEM field?	☑ unemployment ☐ language barrier ☐ lack of technical language ☐ lack of technical knowledge ☐ lack of cultural competences ☐ lack of competences for job search ☑ lack of competences for application procedures ☐ lack of digital skills for the job market ☐ lack of digital skills for work in STEM

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Which skills are required for participation?	☐ technical Language ☐ technical Knowledge ☐ cultural Competences ■ competences for job search ■ competences for application procedures ☐ digital Skills for the Job Market ☐ digital Skills for Work in STEM ☐ foreign language	
Which skills does the method develop?	☐ technical Language ☐ technical Knowledge ■ cultural Competences ☐ competences for job search ☐ competences for application procedures ☐ digital Skills for the Job Market ☐ digital Skills for Work in STEM ☐ foreign language	
In which way does the method link STEM education with a positive image of the future career?	Incorporation of action learning techniques, coaching and mentoring, combined with career development/self-reflection tools to support women in STEM and improve their employability skills	
What would be the expected impacts of the method?	- Better employability chances - Overall background of migrant women prepared for the labour market - Development of STEM skills	

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	When are the first results/ effects of the method noticeable?	☐ immediately ☐ after a few weeks ■ after months ☐ after years	
	What kind of assessment methods do you use in order to follow the impact of the method?	The goal setting sheet filled by the participants will show the point they are with their development process. The ultimate impact will be shown by employing the migrant women in the labour market through STEM skills.	
	Indicate if this method is specific to one STEM field.	☐ Natural Sciences (Physics, Chemistry, Biology). ☐ Technology-related field (ICT /Computer Science, other). ☐ Mathematics. ☐ Engineering. ☐ Medicine and jobs on the health sector ■ Other: all of them connected with the social entrepreneurial aspect of the migrant women	
	Is the method easily transferable to all STEM fields? How?	Yes because it provides the participants a mentoring process to establish themselves in the set STEM field of their choice.	
	How innovative is the method and what are the	The transferability aspect into different target groups and the complexity of the programme to consider also soft skills as valuable assets in the labour market.	

	innovative aspects of the methods?				
	How does the promotion of the method look like?	Through social media, websites and networks.			
	SWOT	Strengths	Weaknesses	Opportunities	Threats
		Complete mentoring programme for migrant women development	Requires the migrant women motivation in the full process to see the final results	Integration in the labour market throufh STEM field skills developed	Technical level requirements for the migrant women for high earning positions

Part I. General information	
Name of the method	**NZEB for Enhancing STEM skills and motivating Students: Inquiry-based learning, Learning-by-doing and Learning on the job and on the field methods**
Type of Method	Training
How many trainers/organisers are needed to perform the method?	- 2 Trainers - 1 Organiser

	How many participants is the exercise or training constructed for? (Scale)	11 to 30	
	How long is the Preparation (a) needed to be able to conduct the method? How long does the application of the method take (b)	e) Preparation ☐ Less than an hour ☐ 1-3 hours, ☐ 4-8 hours, ☐ days ☐ 1 week ☐ 2 weeks – 1 month ■ several month ☐ a year or more	f) Implementation ☐ Less than an hour ☐ 1-3 hours, ☐ 4-8 hours, ☐ 2-4 days ■ 1 week ☐ 2 weeks – 1 month ☐ several month ☐ a year or more
	How does the preparation of the method look like? Do you use f. e. fixed curricula or non-formal planning?	The preparation is fixed curricula based adaptable for migrant students interested in the environmental sector, specifically in energy consumption and energy efficiency. The preparation phase consists in monitoring the school (or any building of choice facing energy poverty) energy consumption. - Weekly monitoring of the electricity meter (i.e. from Monday to the last school working day) over a minimum period of three months. - Monitoring of heating related energy consumption over a minimum period of three months. - Monitoring of possible cooling related energy consumption. - Study of the actual costs (monitoring of energy bills) in previous years.	

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How does the documentation of the results look like?	The results comprise with excel sheets of the evaluation of hidden household consumption of electricity and comparative data for reaching better energy consumption.	
How would you assess the overall difficulty of the method for the	e) Facilitator Level ☐ 1 ☐ 2 ☐ 3 ☑ 4 X 5 f) Participant Level ☐ 1 ☐ 2 ☑ 3 ☐ 4 ☐ 5 Level 1 = no prior knowledge of the subject / similar methods Level 5 = deep experience and knowledge of the subject / similar methods necessary	
What is the level of engagement during the activity?	☐ Listen / Learn ☑ Do / Apply ☐ Implement / Create ☐ Other _____	
How do you motivate your participants to apply the method or the learned material beyond the duration of the activity?	- Organize peer-training activities based on a training schedule. - set up a project blog/site as well as a discussion group. - organize surveys/interviews in the schools and within the local community; moreover, initiate and implement raising awareness campaigns addressed to the schoolmates, relatives, neighbours, etc.	
How do you measure the impact of the method on the participants?	The impact on the participant is measured by the level of impact they can provide for the energy efficiency in their households, schools or any building facing energy poverty, providing a relevant curricula as energy advisors able to monitor and offer solutions to the issue.	

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If there is published material on previous implementation, please share the link.	https://ec.europa.eu/programmes/erasmus-plus/project-result-content/64364d7d-e85e-4456-a712-342fa33943df/NZEB_Modulo%204._PUB.pdf

Part II. Relevance for STEM Training for migrants	
What is the main challenge this method addresses regards to integration of migrants in the STEM field?	☐ unemployment ☐ language barrier ☐ lack of technical language ■ lack of technical knowledge ☐ lack of cultural competences ☐ lack of competences for job search ☐ lack of competences for application procedures ☐ lack of digital skills for the job market ☐ lack of digital skills for work in STEM
What are secondary challenges this method addresses regards to integration of migrants in the STEM field?	■ unemployment ☐ language barrier ☐ lack of technical language ☐ lack of technical knowledge ☐ lack of cultural competences ☐ lack of competences for job search ☐ lack of competences for application procedures ☐ lack of digital skills for the job market ■ lack of digital skills for work in STEM
Which skills are required for participation?	■ technical Language ☐ technical Knowledge ☐ cultural Competences ☐ competences for job search ☐ competences for application procedures ☐ digital Skills for the Job Market ☐ digital Skills for Work in STEM

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		☐ foreign language
Which skills does the method develop?	☐ technical Language ■ technical Knowledge ☐ cultural Competences ☐ competences for job search ■ competences for application procedures ☐ digital Skills for the Job Market ☐ digital Skills for Work in STEM ☐ foreign language	
In which way does the method link STEM education with a positive image of the future career?	The training on the job requires that stakeholders inviting classes to make study visits and practical workshops to enable pupils to understand the various concrete applications of the topics they are working on, giving them an outlook for the future choice of university and work. At the end of the activities the students will have acquired skills in STEM, basic and transversal, as self-employment, skills and digital English language.	
What would be the expected impacts of the method?	- Training curricula as energy advisors. - Integration in the labour market. - Increased participation in community problems related to energy efficiency. - Developed technical knowledge.	
When are the first results/ effects of the method noticeable?	☐ immediately ☐ after a few weeks ■ after months ☐ after years	

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	What kind of assessment methods do you use in order to follow the impact of the method?	A survey can be sent to the participants to the activities to report their situation in terms of STEM career and how useful was the activity into their upskilling process.		
	Indicate if this method is specific to one STEM field.	☐ Natural Sciences (Physics, Chemistry, Biology). ☐ Technology-related field (ICT /Computer Science, other). ■ Mathematics. ■ Engineering. ☐ Medicine and jobs on the health sector.		
	Is the method easily transferable to all STEM fields? How?	Excel to visualize the energy consumption per student in each country.		
	How innovative is the method and what are the innovative aspects of the methods?	The energy efficiency sector as an all is underdeveloped and requires experts. Secondly the fact that migrant students will be able to impact a variety of buildings facing energy poverty with the same positive impact solutions.		
	How does the promotion of the method look like?	Through distribution in all the several buildings facing energy poverty as an innovative solution benefiting the community as an all and the integration of migrants in those communities through relevant work requirements.		
	SWOT	Strengths	Weaknesses	Opportunities	Threats
		Pre set excel sheet for the data collected	Lack of skills	Employability	Difficulties in calculation process or comparative data

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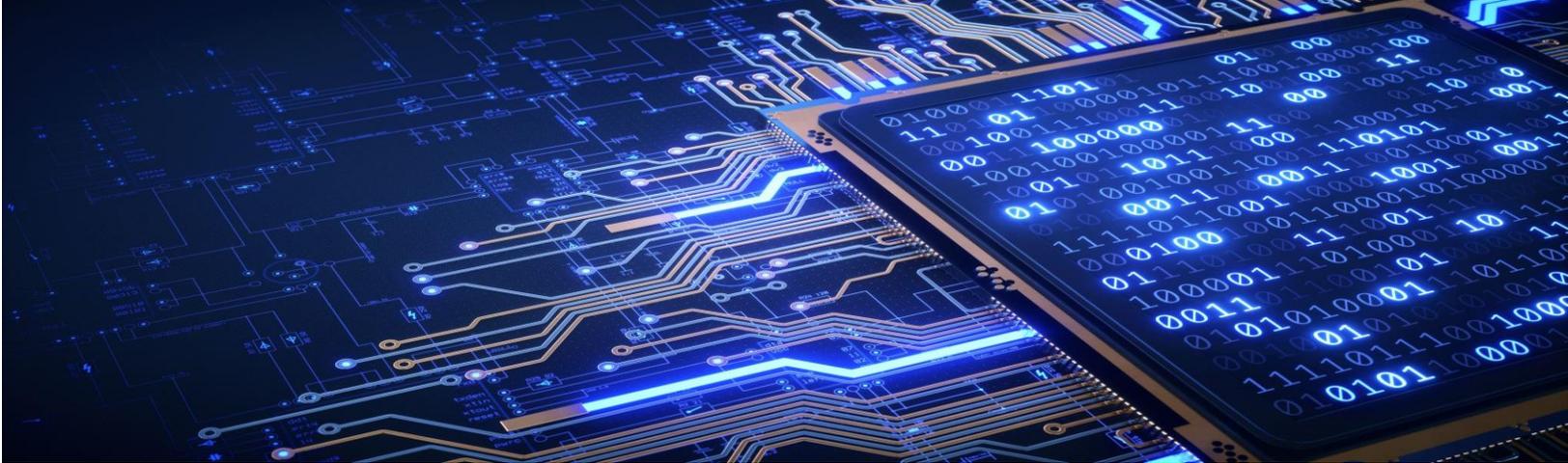
EU MENTOR STEM

(Creation of a EUropean e-platform of MENTORing and coaching for promoting migrant women in Science, Technology, Engineering and Mathematics)

Type of good practice	Topic	Status
International	STEM education	Finished

Entities involved	Beneficiaries
Alma Mater Studiorum – Università di Bologna Partner countries: Bologna (Italy), Budapest (Hungary), Athens (Greece), Bastad (Sweden), Shefield (UK)	IO1: 57 migrant women (including refugees and asylum seekers) 25 professionals about 270 stakeholder organizations 97 more professionals participated in the online survey delivered by UNIBO IO2+3 :11 partners 60 migrant women 56 professionals IO4: 5587 users acceeded the Hub, 83 enrolled

Learning outcomes

Dissemination activities allowed EUMentorSTEM reaching an impact at the local, regional, national and international level on about 8000 persons.

- ❖ The project aimed to support the labour market participation (as paid employees or as entrepreneurs) of migrant women with a STEM background by: a) enhancing migrant women's soft skills to increase their chances to succeed in the labor market; b) implementing the competences in mentoring and coaching (M&C) of the professionals (job counsellors, career advisers, educators, social workers, HR staff, etc.) who can intercept this highly specific category of beneficiaries.
- ❖ **Objectives**: Address: 1. the increasing influx of migrants 2. The gender gap in STEM sectors 3. The disadvantage faced by highly-skilled migrant women in the labor market stemming from the intersection of gender, age and ethnicity.

Detailed description of the programme/activities/sessions/workshops

Trainer's kit: The EUMentorSTEM Trainer's Kit focused on the elaboration of training toolkits and materials for professionals intercepting migrant women with a STEM

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background. The Trainer's kit allows prospective mentors achieving new strategies on mentoring and coaching that will help them supporting migrant women in developing and implementing those soft skills that can enhance their chances to succeed in the labour market. The toolkit includes a guidance booklet with tools and activities, template lesson plans, an introduction to recruiting participants (including template application forms, suggestions for strategies from previous successful recruitment campaigns across Europe), and links to various useful resources.

Exercise presentation: «Wheel of Skills» (page 20 of the Trainer's Toolkit).
The aim of this exercise is to help participants to understand what skills are useful in finding a job and to think about how they would rate themselves on their confidence level in this skill currently.
Instructions:
Participants add new skills to the general list of skills and then choose the 8 skills they think are most important to their career and write each skill on each of the lines by the side of the wheel. For each skill, ask participants to rate how confident they feel in this skill from a scale of 0-5 where 0 is not confident at all and 5 is extremely confident. Then ask participants to join up the Xs on the wheel. A general group discussion following the exercise helps participants to see ways they could increase confidence in their skills where necessary or to see what skills they have confidence in currently to use these to their best effect.
How to use this exercise in the context of the Decrypt project:
To make this exercise relevant to the field of STEM adult education, focus on STEM skills and STEM-related career opportunities.

WHEEL OF SKILLS

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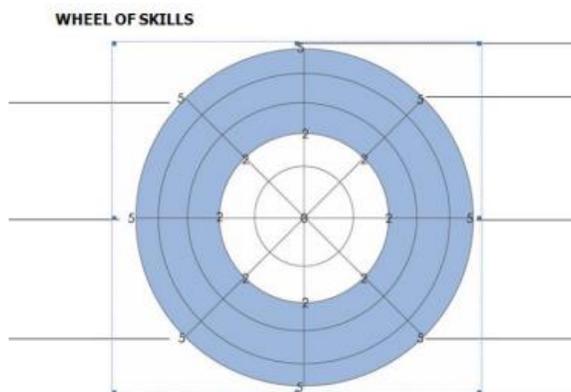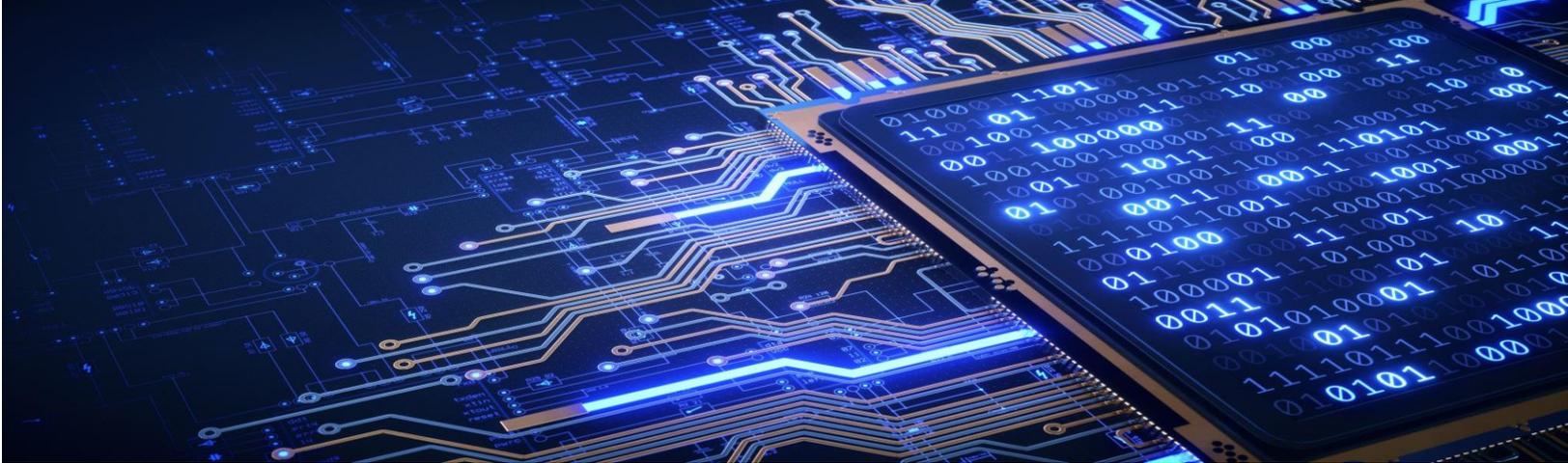
Exercise presentation: «Innovation & creating a market niche» (page 23 of the Trainer's Toolkit).
This exercise can help learners imagine a business in detail, focus on innovation and come up with a clear plan.
Instructions:
After explaining example of a beauty salon and the way they decided to innovate, ask participants to reflect on their own business niche if they have any or think of possible business ideas with a STEM background. What innovations are they bringing into the business? Are they aware of the needs of their target group?
How to use this exercise in the context of the Decrypt project:
To make this more relevant to the field of adult education, have a discussion with the participants before commencing the exercise. Ask them to make a list of STEM businesses and then make a personal list with their 5 favorite imaginary workplaces, choosing from the list. Then proceed with discussing the possible innovation changes.

Exercise presentation: «Flow Theory» (page 22 of the Trainer's Toolkit).
This activity can help adult learners deal with the anxiety and fear often related to STEM upskilling, as well as to pinpoint which skills they already possess can be further expanded and used practically.
Instructions:
The flow experience occurs when both skills and challenges are high. A typical activity starts at A, with low challenges and skills. If one preserves the skills will increase and the activity becomes boring (B). At that point, one will have to increase the challenges to return to flow (C). This cycle is repeated at higher levels of complexity through D and E. In good flow activity these cycles continue almost indefinitely. After explaining the theory ask participants to engage in a discussion about their anxiety and boredom and the impact this has with regard to procrastination. Ask them to think about strategies to move into flow. Ask them to provide you with examples of times when they have been in flow and what motivated this. If a participant notices arguments related to intercultural conflict they should feel confident and prepared enough to address it rather than feel anxious and procrastinate about a solution to
the conflict. After explaining the theory ask participants to engage in a discussion about their anxiety and boredom and the impact this has with regard to procrastination. Ask them to think about strategies to move into flow. Ask them to provide you with examples of times when they have been in flow.

Website: https://www.eumentorstem.eu/, https://erasmus-plus.ec.europa.eu/projects/search/details/2017-1-IT02-KA204-036520
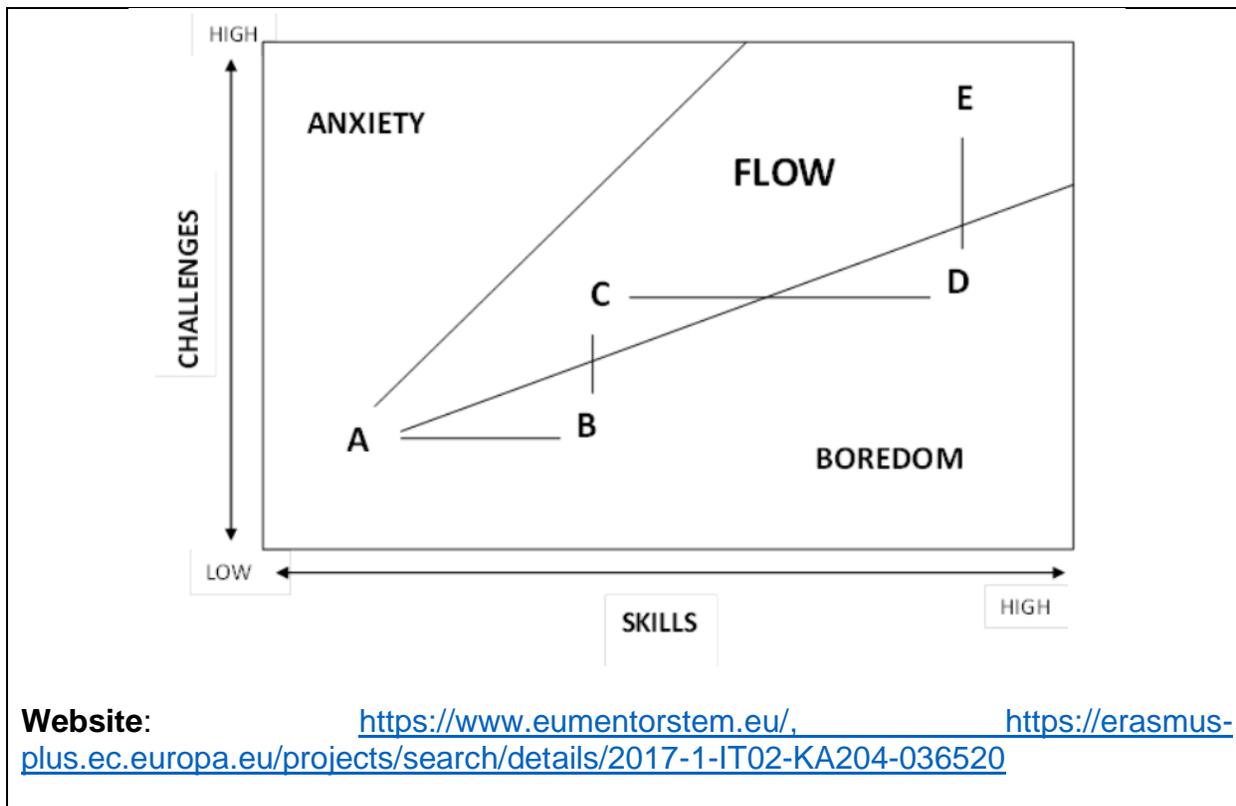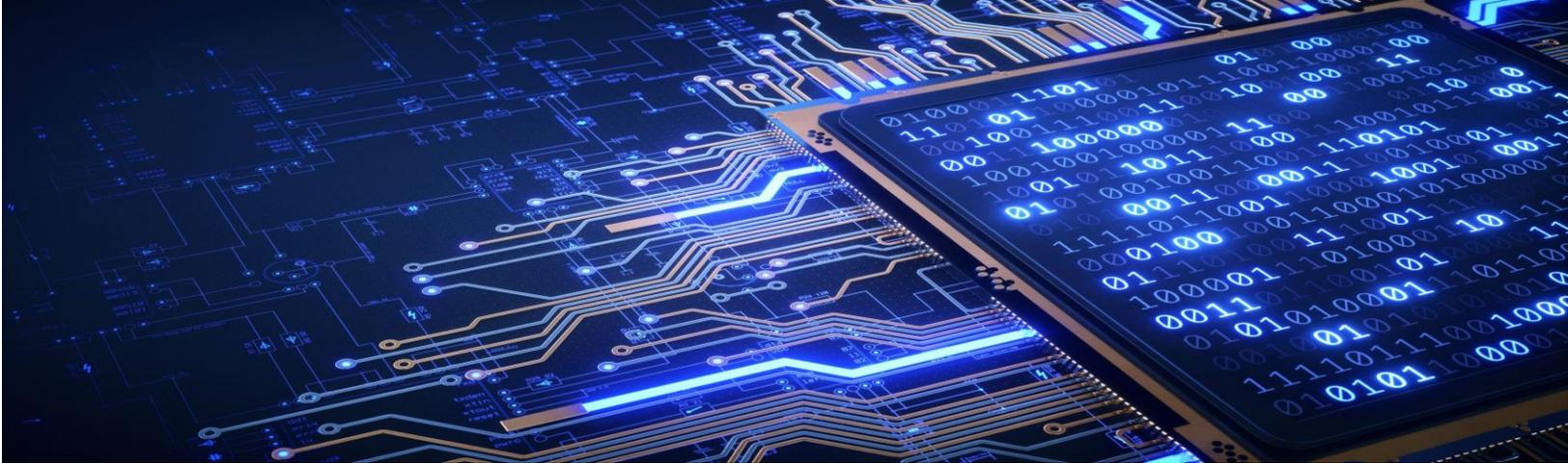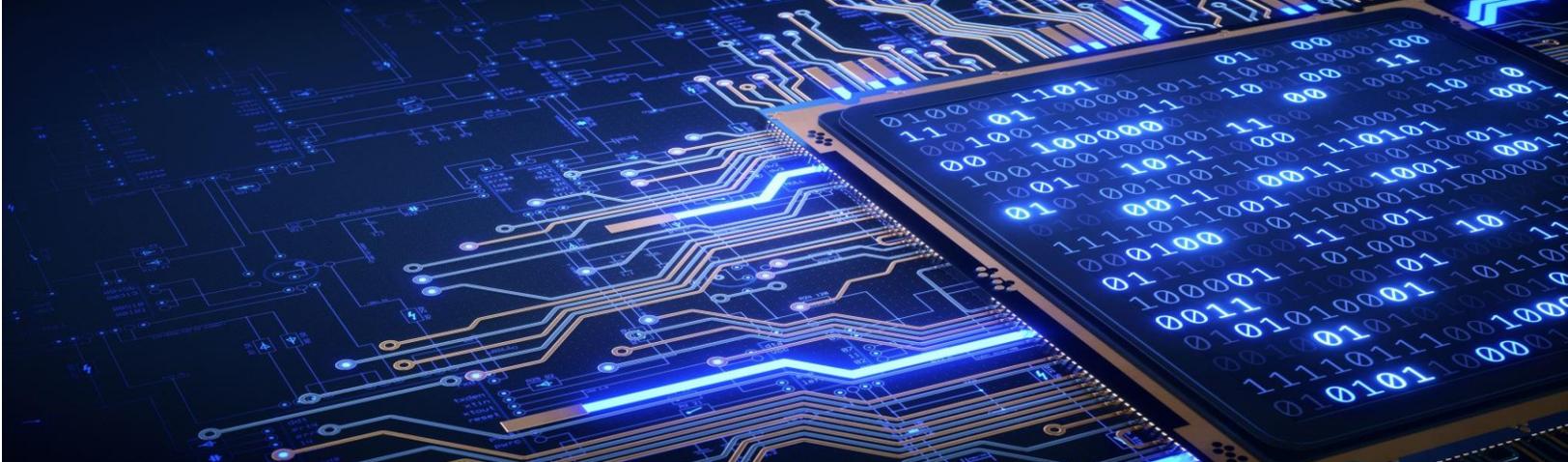
Results Focus Groups

Each partner implemented a focus group that involved a mixed group of adult educators and adult learners. The focus group was aimed at investigating the level of digital and STEM competences of the adult learners and identifying the gaps of the educational programmes provided.

Digital knowledge and skills

Italy

For what concerns information, data literacy, digital content creation, communication and collaboration, learners have an average set of knowledge and skills. When it comes to safety and problem solving the bar goes lower as they acquire just a basic level through education. It was underlined that few topics are addressed by the established programme especially for what concerns cyber security and content creation.

Greece

Learners are able to use different search platforms according to their goal. However, they all have some difficulty when evaluating information, as pinpointing the original information source and evaluating its authenticity and have a basic level of knowledge for what concerns digital safety. On the other hand, they are quite proficient in digital communication and cooperation and content creation.

Turkey

Learners are able to browse and search data, information, and digital content but they are not able to evaluate if the data received are reliable or not. The main concern is not being able to find reliable sources for true information. They are able to protect their own devices, however, they are not accustomed to check data policy info when it comes to online data insert.

Germany

A main learning issue for learners in IT was identified in the lack of knowledge and skills in math and STEM in general. It was underlined that decision makers in the educational
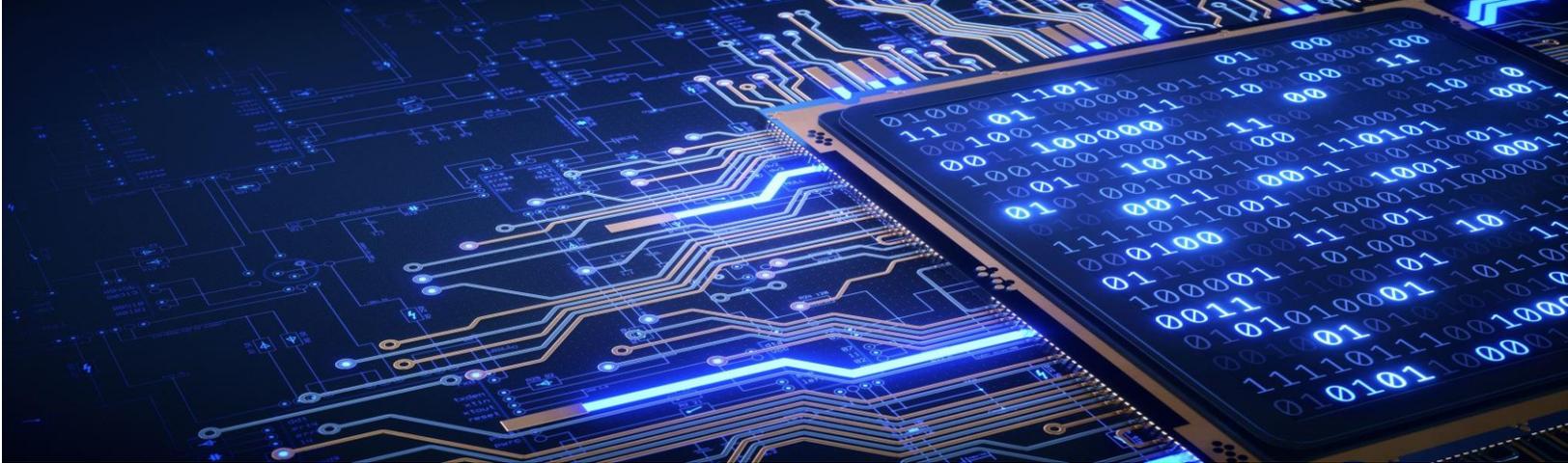
fields are people who are not digital natives and assume that running and posting video-lessons is enough for digital empowerment. It is important, to use digital tools properly and impactfully in education.

STEM knowledge and skills

Italy

Learners were not aware of what STEM means (even in the acronym was presented in their national language). When it comes to problem solving, just 1 learner declared to have a good level. Regarding math and science, learners have a basic level, only 1 of them was more advanced due to personal experience. Engineering and design thinking are not addressed by the educational programme.

Greece

Learners have heard about STEM. They were knowledgeable about its meaning, as well as the skills related to it. It was commented that there are many courses and seminars for adult learners. Educators commented that an interesting thing about STEM is the transversal skills it develops. However, when it comes to the education opportunities, each subject, is taught completely separated from the others.

Turkey

Learners declared that their educational programme addressed only the science and mathematics subjects connected to STEM. Half of the learners interviewed have an intermediate level while the other half is have a basic level. Two learners declared that they have knowledge on engineering due to their studies. Regarding critical thinking and collaboration learners declared that they are using them but not applied to STEM.

Germany

Only 2 of the focus group participants have a high competence in STEM. Another one places himself in a middle level. The others have no specific theoretical background in it.
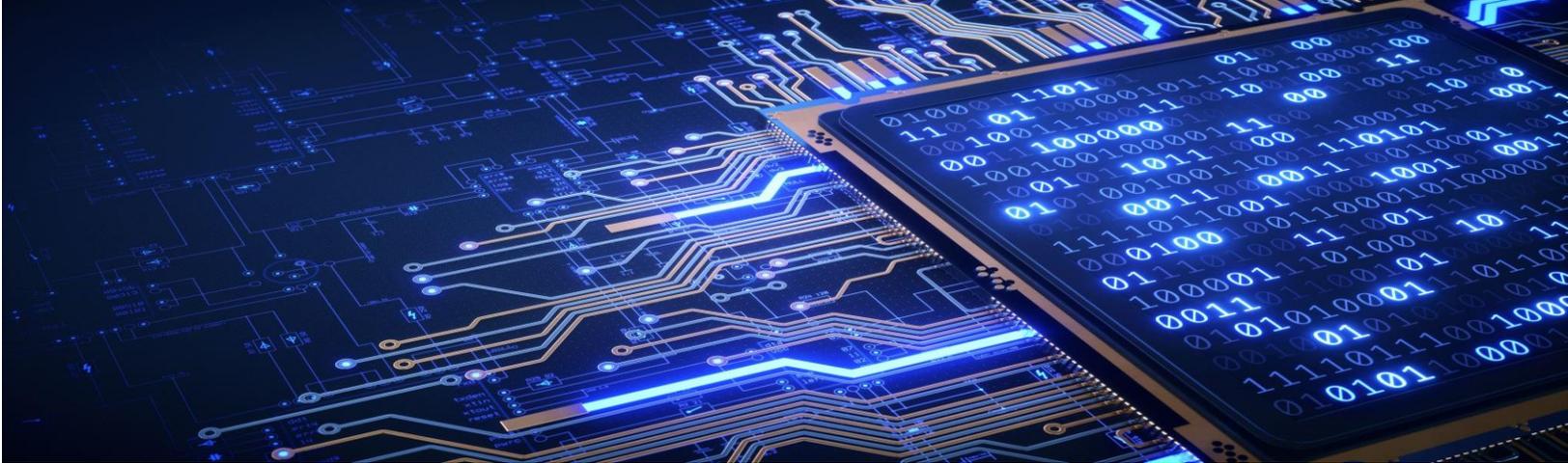
Conclusions

From the learners point of view, the educational system has some major flaws, and programmes are not structured in a functional way. The hours dedicated to the subjects related to digital skills and STEM are not sufficient to allow them to achieve an adequate level. The teaching methods that are applied are very general and shallow. Furthermore, the classes are made by a too much heterogeneous group in terms of knowledge and skills levels, so it is quite difficult to establish a proper learning flow to match the needs of all learners.

From the educators point of view, courses do not allow to properly address a multitude of topics which will provide learners with a more comprehensive didactical programme. In addition, digital knowledge and skills cannot be used fully because the number of educators with digital competence is below the needs. Regarding STEM, there are a lot of initiatives, including challenges and competitions in all STEM majors, seminars and courses. However they are not connected and organised in a way that can boost the results and cause a significant transformation.

Suggestions for improvement:

❖ Stimulate cooperation among learners to bridge the heterogeneous gaps;
❖ Make the programmes more personalised and based on the learners needs and not only to unique standards. Include tools that can support and stimulate more the learning process at home;
❖ Make a more organised approach on both digital and STEM skills. In that way learners would be able to find upskilling opportunities in convenient times and reasonable costs;
❖ Implement workshops targeted to adult educators, focused on the educational approach and how to cover possible knowledge gaps. A more wholistic approach would be useful, as it could help create transversal and practical skills;
❖ Need of balance between 'easy to use' tools and their efficacy, and educating adults to use technology in education must provide a 'deep understanding of what you're doing'.
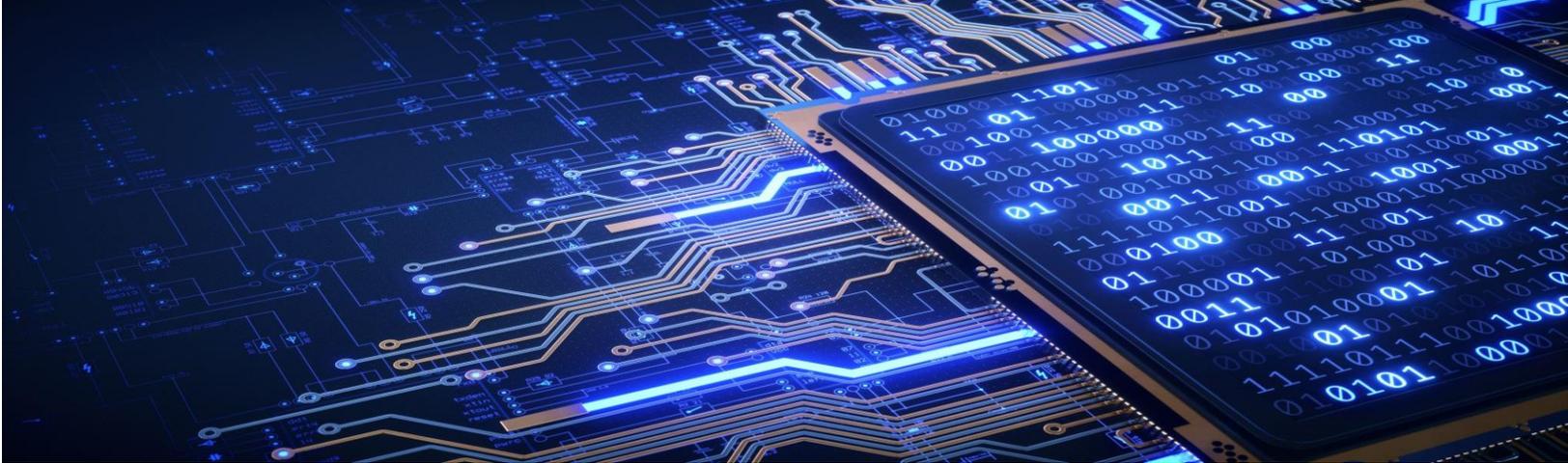
Training Format

Brainstorming

Type of workshop	Duration	N° of participants
Theoretical	60 min	12+

Materials
• Laptop; • Projector; • Wi-Fi.

Learning Outcomes
• Understanding existing needs and gaps in the adult education field related to digital and STEM competences; • Use of a digital tool for presenting and brainstorming.

Detailed description on how to deliver the workshop

Preparation
The Mentimeter should be prepared in advance, inserting the results from the research phase and the questions for the brainstorming part.

Implementation
1. Explain to educators the type of activity and the expected results to be achieved and let them connect to the Mentimeter.
2. Introduce the educators to the research methodology that was used and to the information gathered through the focus groups implemented in the four countries.
3. Engage the educators in a brainstorming session through Mentimeter, sharing their personal experience and contributing with their perspective on the needs and approach to the issue. After answering all the questions, lead the group discussion aimed at commenting the insights from the answers given.

Evaluation
Lead the evaluation session of the activity. The evaluation will be made in the format of groups discussion.
Insight
Mentimeter tool
Mentimeter is an online presentation-building tool that facilitates audience engagement. The tool allows presenters to include contents, presentations, polls, multiple-choice and open-ended questions, quizzes, and scales that audience members can interact with live.

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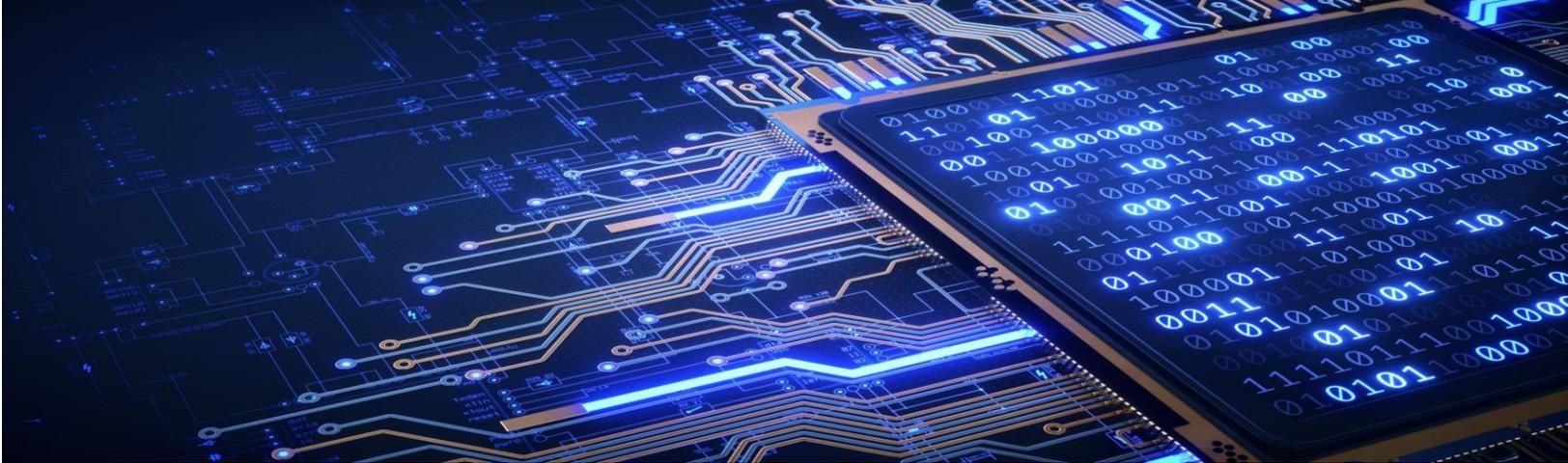
Here is a list of some useful tutorials:
- ➢ [How to create your first Mentimeter presentation - Mentimeter & Menti Tutorial](#)
- ➢ [Create an Interactive Mentimeter Quiz](#)
- ➢ [How To Create Word Clouds for Free - Live & Interactive - Mentimeter](#)
- ➢ [Impress your audience with our free ready-to-use Templates](#)
- ➢ [Mentimeter Tutorial - Import and integrate presentations from Powerpoint, Keynote and Google Slides](#)

SWOT Analysis

Type of workshop	Duration	N° of participants
Theoretical, Practical	65 mins	-
Materials		

Materials
- Projector and Screen
- Flipchart or Whiteboard
- Markers and Pens

Learning Outcomes
- Understanding the concept and purpose of SWOT analysis
- Ability to conduct SWOT analysis
- Analysis of Strengths and Weaknesses
- Identification of Opportunities and Threats
- Strategies for Turning Challenges into Opportunities

Detailed description on how to deliver the workshop

1. Pre-Workshop Preparation:
a. Define the workshop objectives and desired learning outcomes.
b. Develop the workshop content, including the presentation slides, handouts, and activities.
c. Gather relevant case studies, examples, and templates.
d. Prepare any necessary materials, such as flipcharts, markers, sticky notes, and evaluation forms.
e. Confirm the workshop venue, audiovisual equipment, and logistical arrangements.
f. Communicate workshop details to participants, including the agenda, timing, and any pre-workshop requirements.

2. Workshop Introduction: (Duration: 5')
a. Welcome participants and provide an overview of the workshop agenda.
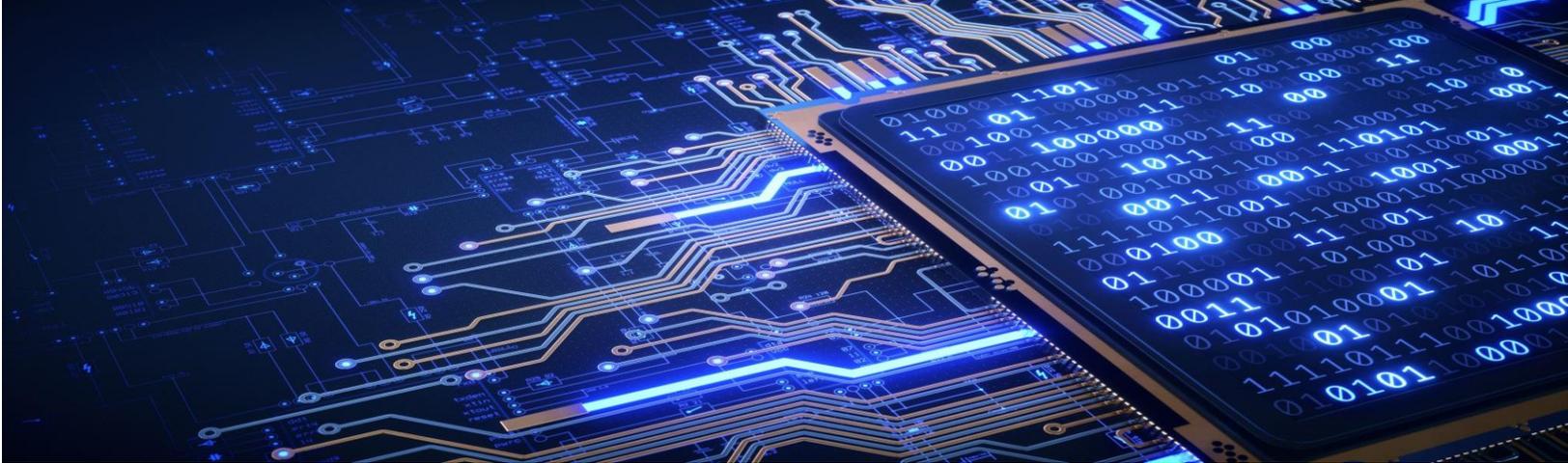
b. Set the context and explain the importance of SWOT analysis in identifying challenges and opportunities.
c. Clearly state the learning objectives and expectations for participants.

3. Understanding SWOT Analysis: (Duration: 15')
a. Define SWOT analysis and explain its components: strengths, weaknesses, opportunities, and threats.
b. Discuss the benefits and value of conducting a SWOT analysis.
c. Use presentation slides, examples, and interactive discussions to enhance participants' understanding.

4. Conducting a SWOT Analysis: (Duration: 20')
a. Present the step-by-step process of conducting a SWOT analysis.
b. Explain the techniques and tools for data collection and analysis.
c. Provide guidance on how to identify and prioritize strengths, weaknesses, opportunities, and threats.
d. Facilitate hands-on activities or group discussions where participants can practice conducting a SWOT analysis.

5. Turning Challenges into Opportunities: (Duration: 10')
a. Discuss the importance of recognizing challenges as opportunities for growth and innovation.
b. Present different strategies for leveraging strengths and opportunities while addressing weaknesses and threats.
c. Share case studies and examples that demonstrate successful implementation of SWOT analysis in turning challenges into opportunities.

6. Conclusion and Q&A Session: (Duration: 10')
a. Recap the key points covered during the workshop.
b. Emphasize the importance of adaptability and innovation in leveraging SWOT analysis.
c. Allow time for participants to ask questions and seek clarification.
d. Provide additional resources or references for further learning.

7. Post-Workshop Follow-up: (Duration: 5')
a. Collect feedback from participants through evaluation forms or feedback surveys.
b. Review the feedback and make any necessary adjustments for future workshops.
c. Share relevant resources, handouts, or presentation materials with participants for their reference.

By following these implementation phases, you can ensure a well-structured and engaging workshop that effectively equips participants with the knowledge to apply SWOT analysis in turning challenges into opportunities.
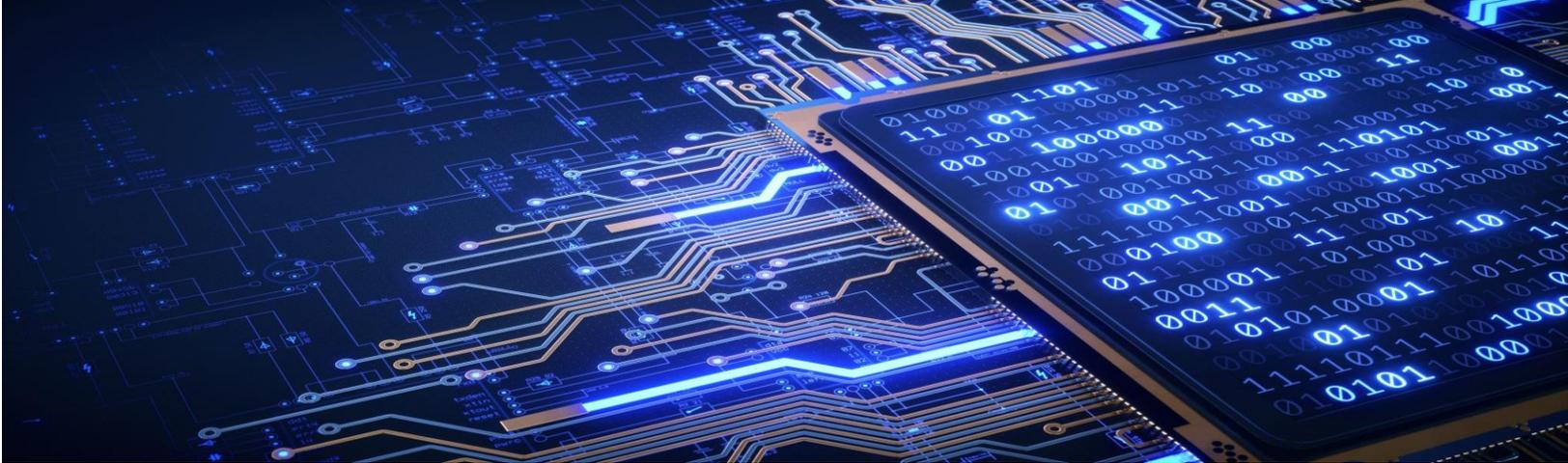
Fake News

Type of workshop	Duration	N° of participants
Theoretical, Practical	1 h and 35 minutes	12-20
Materials		

Materials

- Pens and paper
- Tactical tech materials printed.
- Pens, pencils, marks, and a paper board

Learning Outcomes

- Tips and tools to identify fake news
- Awareness of what fake news are

Detailed description on how to deliver the workshop

Preparation

Connect computer to the projector for the slides and give Tactical Tech paper materials printed to the participants.

Implementation

1. Help yourself with the slide about Fake News to give a general and informative presentation of the topic, from page 5 to page 13 of the slides. (**15 minutes**)

2. By the means of the slides' presentation, show to the participants what the 10 things to do are, in order to recognize fake news, from page 14 to 22. (**15 minutes**)

3. Practical Activity 1: make participants complete the Tactical Tech material "MISINFORMATION MARTIAL ARTS", the learning path for recognizing misinformation and fake news. At the end of the activity debrief with participants about how they find the activity and what they learned. **(10 minutes)**

4. Practical Activity 2: Name of the activity: "Fake or not?". Divide the participants into groups of 4 and make them look on internet for suspicious news on a social network. Better if you choose a news with also data (like statistics, a graph, an infographic). Groups have to give reason why they think that is a fake news or not, based on the theoretical knowledge they got through the slides before. Every group have also to present the process that have brought them to take that decision. To explain whether it is a fake news or not, help yourself by replying to some questions:

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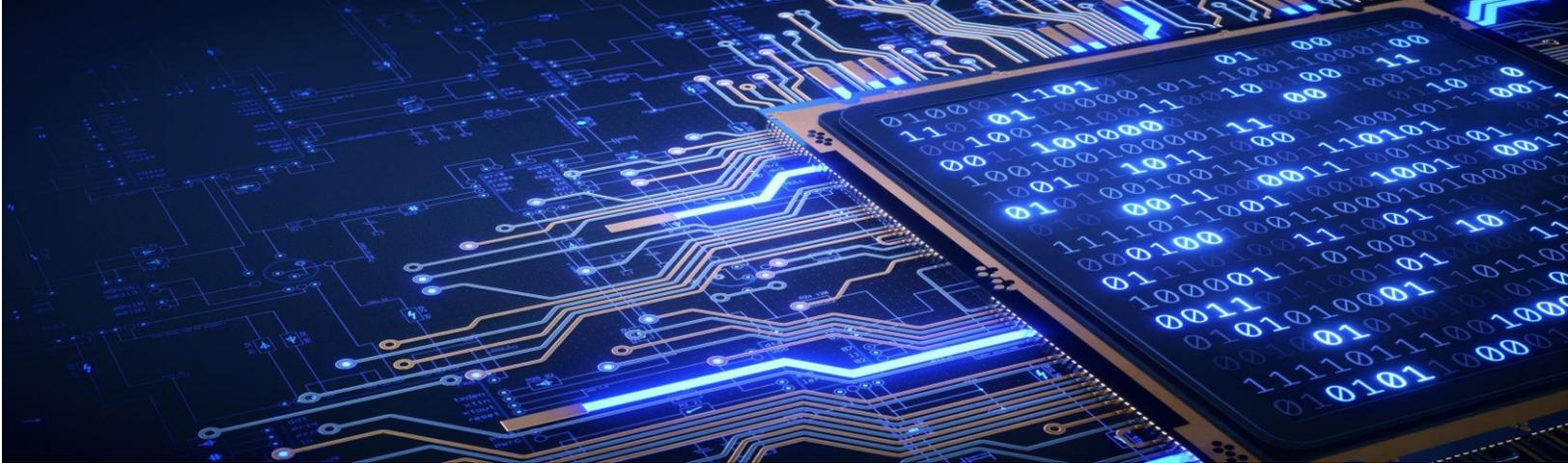
➔ How does the author present the info?
➔ What data are saying and where they come from?
➔ What is the source of the news?

At the end of the research phase, which is going to last 20', every group will present the finding (5' minutes per group). (**40 minutes total**)

5. Final Debriefing

Take 10' to make a final debriefing with participants to have feedback and suggestions about the workshop. Make them also explicit what they learned and how they changed their view on the topic. (**10 minutes**)
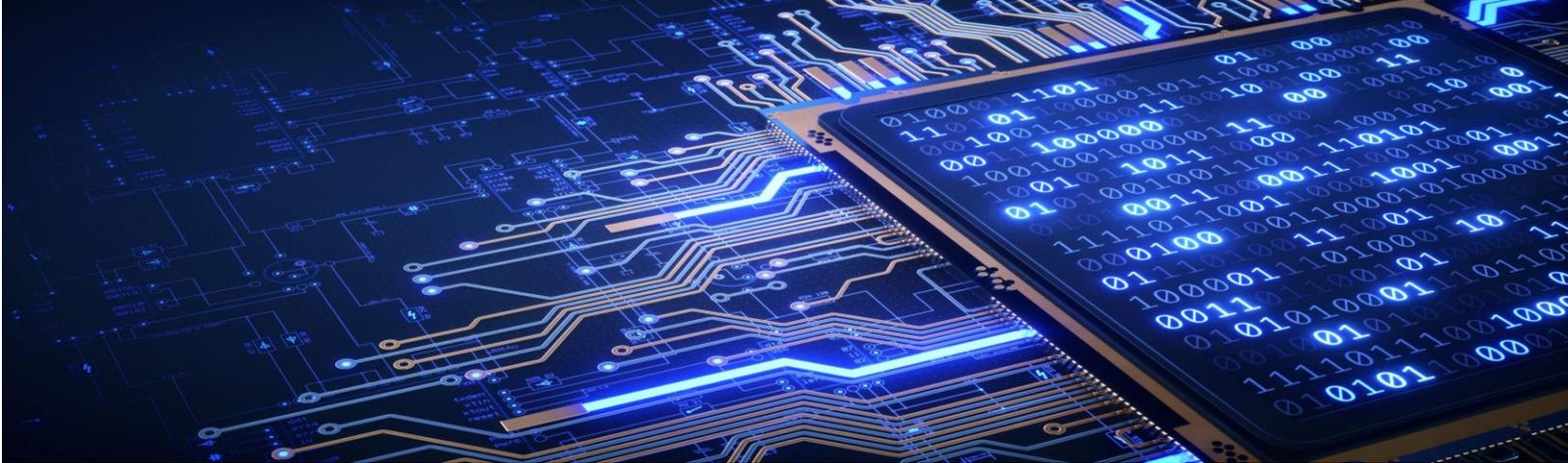
6. Evaluation

Evaluation through Mentimiter (**5 minutes**)

Cyber Security

Type of workshop	Duration	N° of participants
Theoretical, Practical	2 h and 10 minutes	12-20
Materials		

- Pens and paper
- Tactical tech materials printed.
- Pens, pencils, marks, and a paper board

Learning Outcomes

- Tips and tools for cybersecurity
- Awareness about cybersecurity threads

Detailed description on how to deliver the workshop

Preparation
Connect computer to the projector for the slides and give Tactical Tech paper materials printed to the participants.
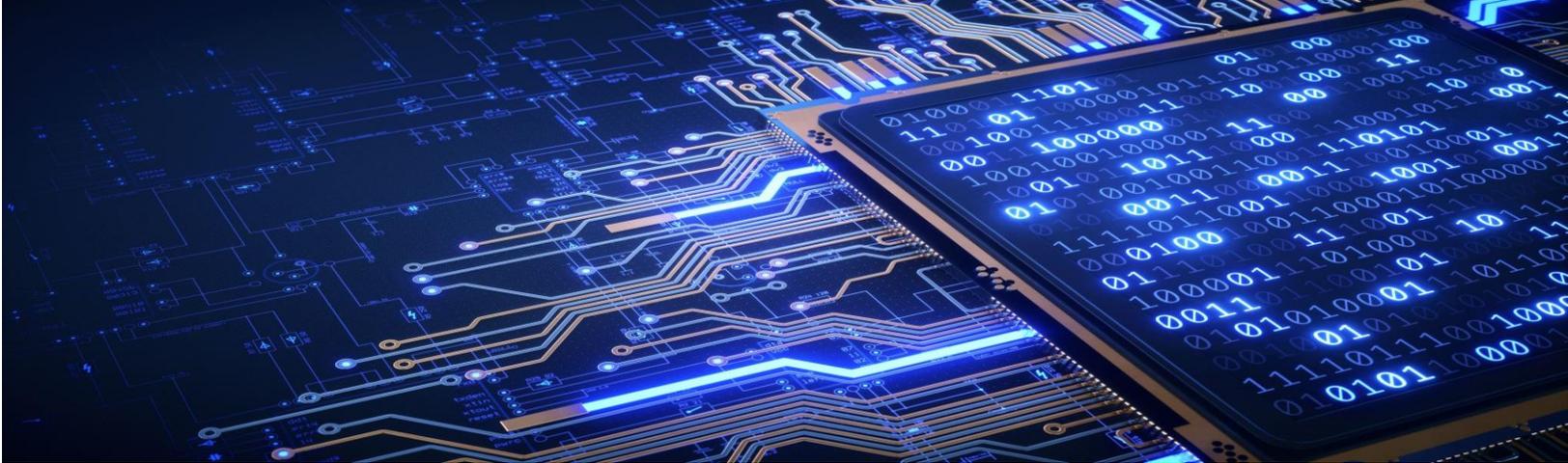
Implementation

1. Initial Brainstorming: ask participants what cybersecurity for them is. (**15 minutes**)

2. Presentation of the threads: by the means of the slides, you will present what are the cybersecurity main threads. Page 37-38. (**10 minutes**)

3. Presentation of the best methods, and things to do, to protect yourself: present the 7 steps to surf safe on the web. From page 39 to page 47. (**15 minutes**)

4. **Practical Activity 1:** make participants complete the Tactical Tech material "STEP UP YOUR SECURITY GAME", the learning path for getting new awareness on how to surf with an increased online security. At the end of the activity debrief with participants about how they find the activity and what they learned. (**10 minutes**)

5. **Presentation of privacy topic:** by the means of the slides, you will present what are the privacy online is, and how to make sure to share less of your personal data as possible. Page 50-64 from the slides. (**15 minutes**)

6. **Practical Activity 2:** make participants complete the Tactical Tech material "GET A GRIP ON YOUR DATA", the learning path to have control over what you want to share online and what not. At the end of the activity debrief with participants about how they find the activity and what they learned. (**10 minutes**)

7. **Practical Activity 3:** make participants complete the Tactical Tech material "IS GOOGLE YOUR BFF*?", the learning path to get awareness of how much you use daily google. At the end of the activity debrief with participants about how they find the activity and what they learned. (**10 minutes**)

7. **Practical Activity 4:** divide the room in 3 zones. The extreme left is the "totally disagree" zone; the middle one is the "I don't know" zone; the extreme right is the "I totally agree" zone. Say loudly to the groups some statements and make them take a position about the statement. After they take a position, pick someone among the group and make him/her give reason of why he/she took such a position on the zone line. The statement they have to take a position to are the following (you can add as many new ones as you likes):

Statements:
- There is no point in using social media and not sharing location information. I don't think it can be harmful.
- A child/young person cannot become the target of cyber-attacks. Only companies and organisations are vulnerable.
- I never ask my parents for help. They don't know much and if something goes wrong, they may block my internet access. I ask help from peers with more experience or look it up on the Web.
- We should be 100% protected from cyber risks in order to use a laptop or mobile device.

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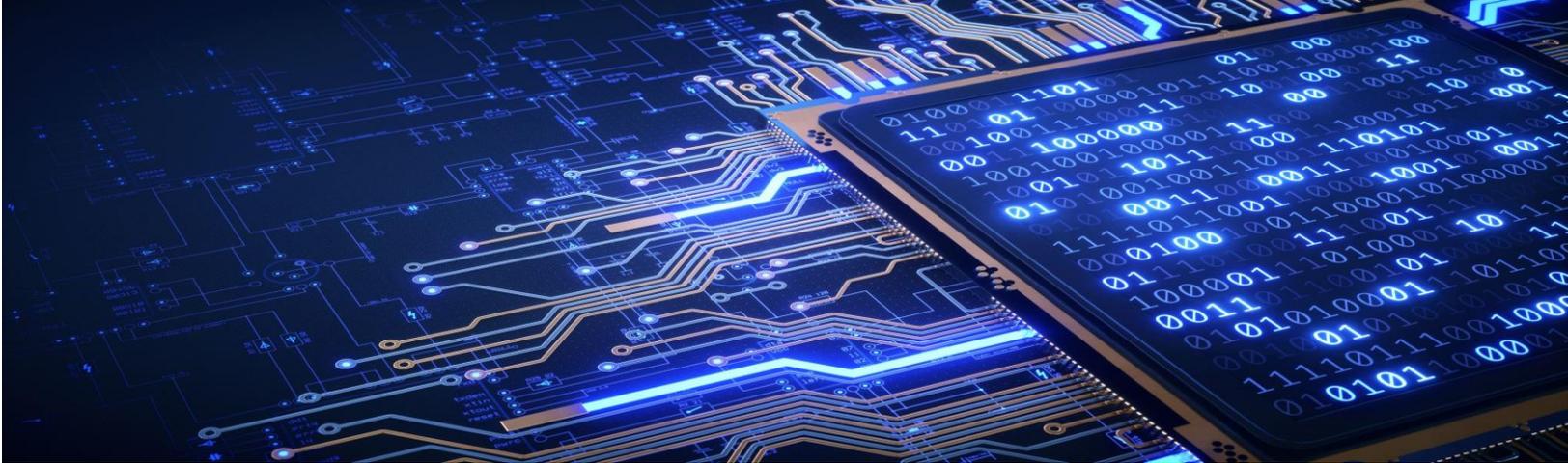
- Modern systems are evil. They are very dangerous. They consume our personal data and can harm us.
- When I see something online that is too good to be true, I never try it because there is no chance for it to be true.
- When other people have given positive reviews, I believe something is safe and good.
- I am scared of online scams. However, when people are willing to meet you in person and provide proof of their identity, I would say it is rather safe to trust them.
- I think that changing my password for different platforms and apps often is important and I do it.
- I don't accept cookies on websites just like that, I check what I am accepting first.
- I don't share other people's photos without asking for permission first.

(**20 minutes**)

8. Final Debriefing

Take 10' to make a final debriefing with participants to have feedback and suggestions about the workshop. Make them also explicit what they learned and how they changed their view on the topic. (**10 minutes**)

Evaluation

Final discussion with the participants about what is their final thoughts about the topic and about the workshop in itself. Evaluation through Mentimiter. (**5 minutes**)

Let's digitalize!

Type of workshop	Duration	N° of participants
Theoretical & Practical	60 min	12+
Materials		
• One laptop per group; • Projector; • Wi-Fi;		
Learning Outcomes		
• Employment digital tools for the creation of interactive lessons; • Creation of digital content to be employed during the lessons or at home.		

Detailed description on how to deliver the workshop

Preparation
The materials for the theoretical part and the Mentimeter for the evaluation phase should be prepared in advance.
Implementation
1. Explain to educators the type of activity and the expected results to be achieved.
2. Introduce the educators to several digital tools that can be employed to make the lessons more interactive and propose several combinations. Tools: G Suite, ePub Editor, Edpuzzle, ScreenPal.
For introducing the tools, it could be useful to prepare a table with a short description and interesting/useful features of each tool and dedicate more time for in-deep explanation for the step 3.

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3. Show how to create digital content with some of the tools introduced in the previous step.
GSuite
Regarding GSuite you can focus on three tools: Google forms, Google Sites and Google classroom.
Google forms
Show how to create a quiz with Google forms, explaining the structure, scoring and feedback features.
Google sites
Show how to create a website with Google sites, explaining how to add pages and subpages and how to add contents.
Google classroom
Show how to create a course/class with Google classroom and explain the various features such assignments, virtual discussion and grade system.

ePub Editor
Show how to create a new eBook. Do not spend so much time in the text part, as it is similar to a word doc. Show hot to create: multiple choice question, reorder sequence, matching, drag&drop text, text with infographic. Lastly, show the graphic style and options and how to publish the eBook.

Edpuzzle
Show how to select the video segment of interest, how the feature voiceover works and then how to insert audio notes and quizzes in the selected segment. Lastly show how to create the link for the video once is finished.

ScreenPal
Show how the platform works and what is necessary to use it. Show the recording options and record a short example to show the final product.

4. Split the educators in small groups and assign to each one of them a tool. Each group will create a digital content to be employed during a lesson.
Group 1
The first group will work with ePub Editor. The task will be to create a short eBook based on the following article Best Digital Skills to Learn in 2023 including one chapter with text and other chapters with quizzes.

Group 2
The second group will work with Google Form. The task will be to create a quiz based on the following video GCSE Chemistry - Electrolysis P2 - Electrolysis to Extract Metals From Oxides - Explained #41
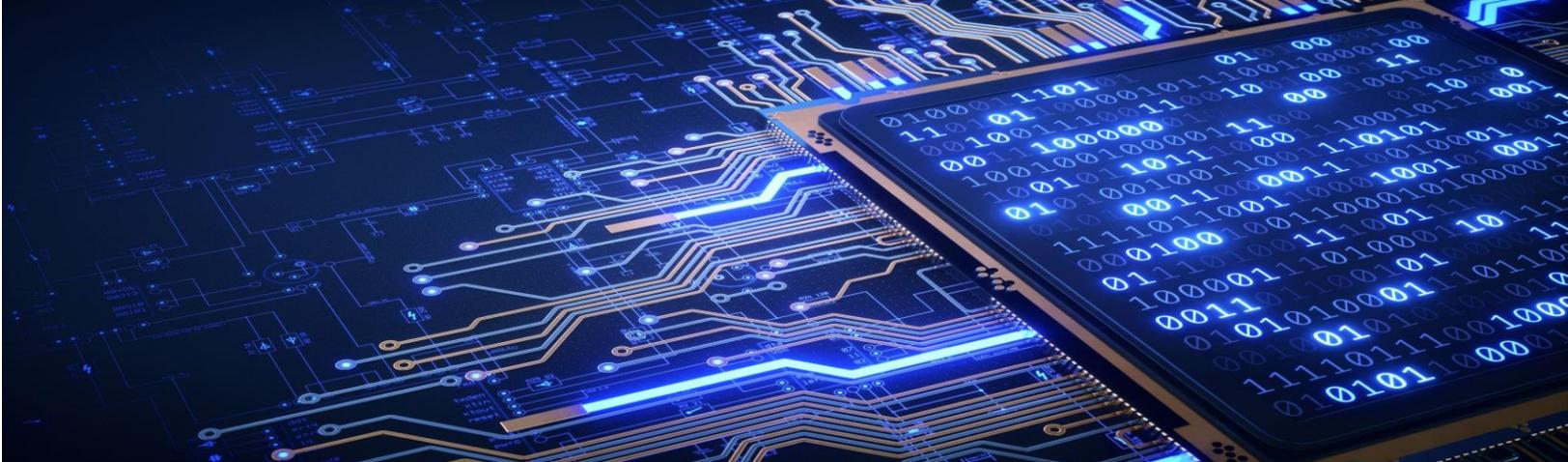
Group 3
The third group will work with Edpuzzle. The task will be to add audio notes and quizzes on the following video How to Read Math

5. Each group will present the digital content created to the others. After each presentation lead a Q&A small session to understand the development process and the choices that have been made to reach the final content format to be presented.

Evaluation
Lead the evaluation session of the activity. The evaluation will be made in the format of groups discussion with the support of Mentimeter.

Insight
GSuite
Google forms
How to Create a Quiz Using Google Forms
Google sites
Create a Classroom Website Using Google Sites
Google classroom
How to Use Google Classroom - Beginner's Guide

ePub Editor
Free ebook editor in epub format and digital content for publishing, training and education.
ePub Editor user Guide

Edpuzzle
EdPuzzle is a free assessment-centered tool that allows teachers and students to create interactive online videos by embedding either open-ended or multiple-choice questions, audio notes, audio tracks, or comments on a video.
How to edit a video with Edpuzzle

ScreenPal
ScreenPal is an application for macOS and Windows that records your screen, webcam, and/or microphone. You can record a PowerPoint or Google Slides presentation, or demonstrate a tool directly from your computer.
ScreenPal (formerly Screencast-O-Matic) - Recording Your First Video

Video to be used for Edpuzzle explanation
GCSE Chemistry - Atoms & Ions #1
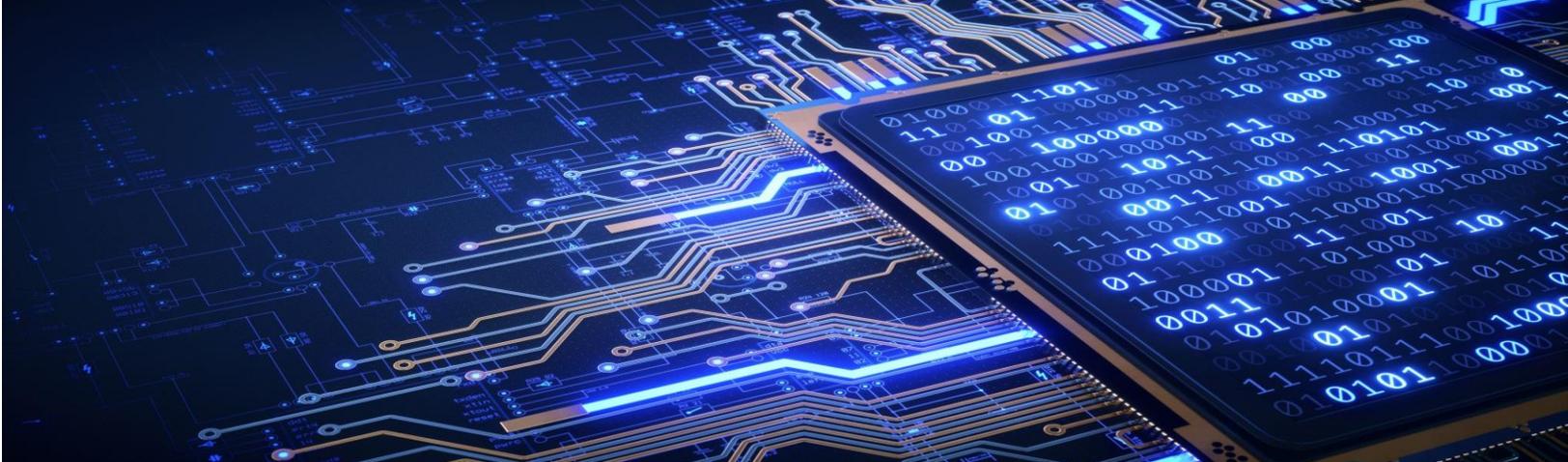
Problem Solving

Type of workshop	Duration	N° of participants
Theoretical, Practical	90 mins	-

Materials
• Projector and Screen • Flipchart or Whiteboard • Markers and Pens • Internet Access

Learning Outcomes
• Understanding the importance of problem-solving skills in STEM fields. • Developing a problem-solving mindset that embraces curiosity, perseverance, and collaboration. • Gaining knowledge of key elements and strategies involved in effective problem solving. • Learning techniques to define problems, gather relevant information, and analyze complex issues. • Acquiring skills in generating and evaluating multiple solutions to problems. • Exploring resources and tools available for problem-solving in STEM disciplines. • Applying problem-solving skills to real-world scenarios and challenges. • Increasing awareness of continuous learning opportunities to further enhance problem-solving abilities.

Detailed description on how to deliver the workshop

1. Introduction: (Duration: 5')
- Begin by welcoming participants and introducing yourself as the facilitator.
- Share a brief overview of the workshop's objectives and what participants can expect to gain from the session.
- Set a positive and engaging tone to create a conducive learning environment.

2. Understanding Problem Solving in STEM: (Duration: 15')
- Define problem solving and its significance in STEM fields.
- Discuss the key elements of problem solving, including critical thinking, analytical skills, creativity, and perseverance.
- Provide examples of how problem-solving skills contribute to innovation and advancement in science, technology, engineering, and mathematics.

3. Developing a Problem-Solving Mindset: (Duration: 10')
- Emphasize the importance of curiosity in problem solving and encourage participants to embrace a curious mindset.

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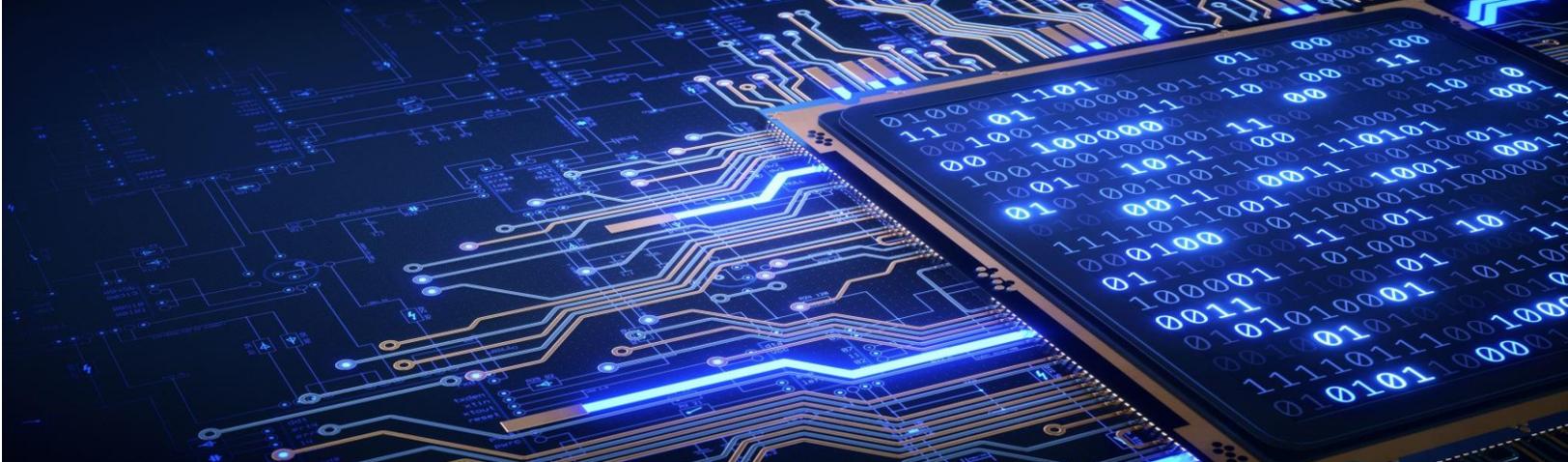
- Discuss the value of embracing failure as a learning opportunity and share stories of renowned scientists or engineers who faced setbacks but persisted to succeed.
- Highlight the benefits of collaboration and teamwork in problem solving, particularly in interdisciplinary STEM projects.

4. Strategies for Effective Problem Solving: (Duration: 15')
- Break down the problem-solving process into key stages: defining the problem, gathering information, analyzing the problem, generating solutions, evaluating and selecting solutions, and implementing and iterating.
- Explain each stage in detail, providing practical tips and techniques for participants to apply.
- Engage participants in interactive activities, such as small group discussions or case studies, to apply problem-solving strategies and share their approaches.

5. Enhancing Problem-Solving Skills in STEM: (Duration: 15')
- Discuss the importance of continuous learning in developing problem-solving skills.
- Provide recommendations for further learning resources, such as books, online courses, and problem-solving frameworks.
- Introduce software tools and applications that can aid in problem-solving activities within STEM fields.

6. Application and Reflection: (Duration: 10')
- Present real-world problem scenarios related to STEM and ask participants to apply the problem-solving strategies discussed.
- Facilitate group discussions, encouraging participants to share their approaches, solutions, and lessons learned.
- Allow time for participants to reflect on their own problem-solving skills and identify areas for improvement.
- Provide guidance and feedback during the activity to reinforce effective problem-solving techniques.

7. Conclusion and Action Planning: (Duration: 5')
- Summarize the key points covered during the workshop, reinforcing the importance of problem-solving skills in STEM.
- Encourage participants to develop an action plan for applying the newly acquired problem-solving skills in their personal and professional lives.
- Allow time for participants to ask questions and engage in a brief Q&A session.
- Express gratitude for their participation and encourage ongoing learning and growth in problem solving.

8. Evaluation and Closing: (Duration: 5')

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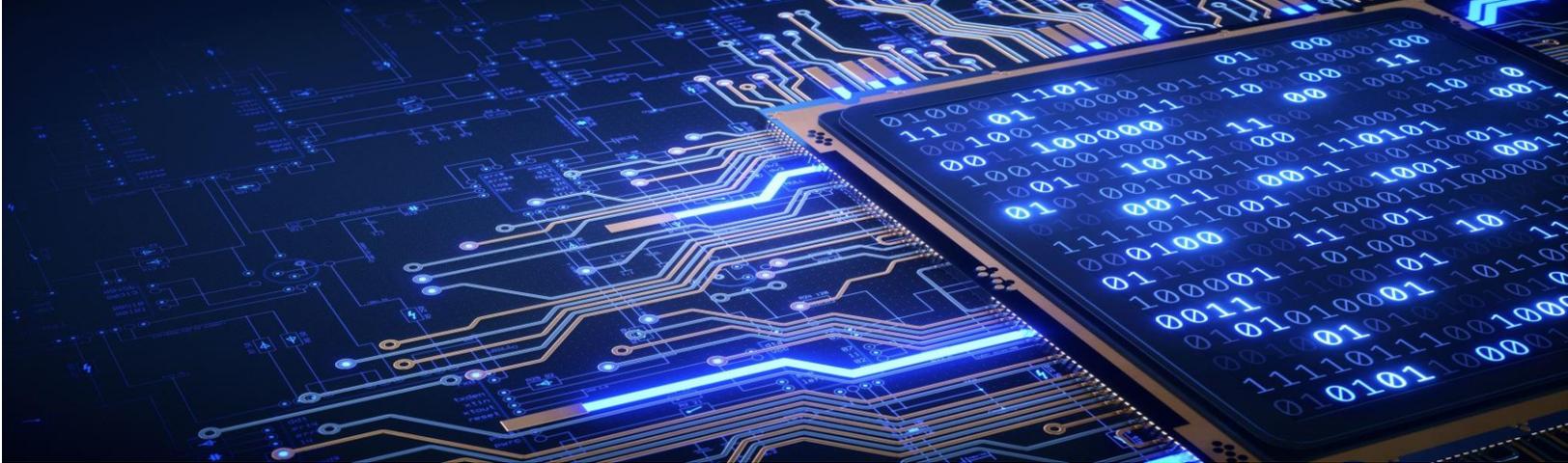
- Distribute evaluation forms or feedback sheets for participants to provide their feedback on the workshop.
- Collect the evaluation forms and thank the participants for their time and contributions.
- Provide any additional resources, references, or contact information for further support if needed.
- Conclude the workshop on a positive note, reiterating the value of problem-solving skills in STEM and the participants' ability to make a difference in their respective fields.

*There will be 10 mins of a break where the facilitator seems proper.

Research & Experiment

Type of workshop	Duration	N° of participants
Theoretical, Practical	1 h and 45 minutes	12
Materials		
• Pen and paper, wifi, PPT or Canvas		
Learning Outcomes		
• Learn about the concept of experiential learning and its benefits		
• Understand the differences between the types of teaching & learning		
• Identify how experiential learning can be incorporated in curriculum		
Detailed description on how to deliver the workshop		

Preparation
Participants are divided into two large groups.

Implementation

1. **Theoretical information about the implementation of experiential learning in adult education (25 minutes)**

2. **Workshop (1 h & 15 minutes)**
As interdisciplinary teams they need to discuss and think of a common 10-hour course, consisting of 5 sessions, which they are going to teach to learners. This course can be either about hard skills or soft skills. The two groups based on their expertise need to share ideas on the main points and learning outcomes of the training course. A final title of the training course needs to be developed which is going to be shared to the whole group (10 minutes)

Afterwards, the two groups need to get into more depth about the content of the course and most importantly, about the tools they are going to use. Therefore, the two groups will need to

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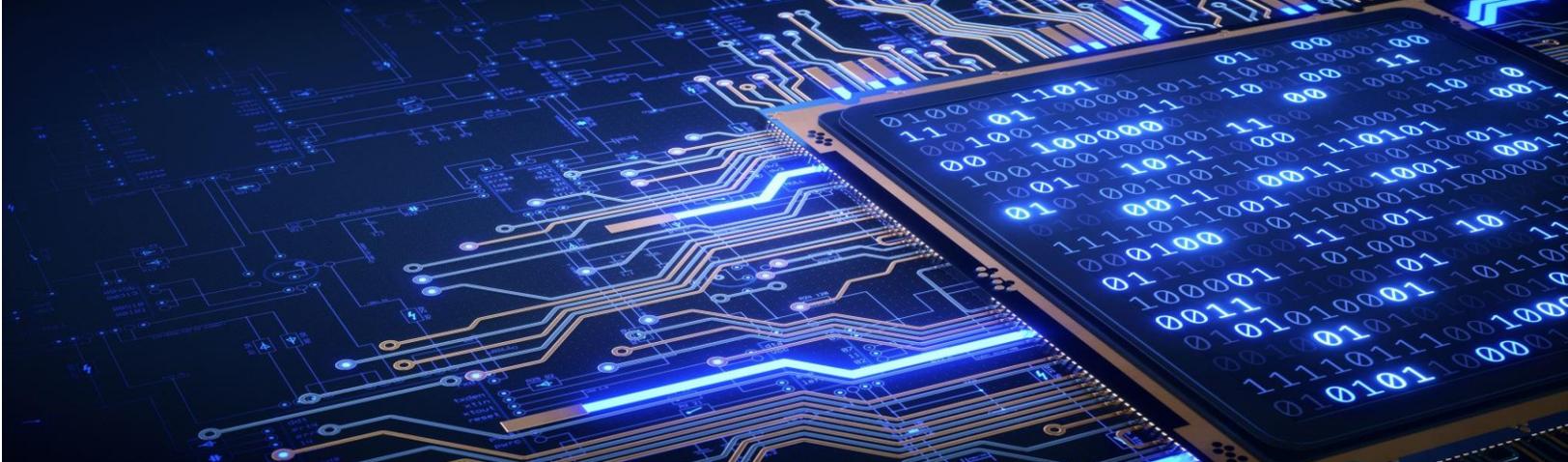
create a detailed working plan on the 5 sessions, regarding the thematic unit which will be covered in each one and the tools to teach the content. It is expected to use interactive material and experiential type of teaching and learning as much as possible (20 minutes)

After writing down their ideas, the two groups will have to create a vision board in order to present and explain their working plan about the training course to the whole group. Using PPT or Canva they will have to create the vision board using pictures, texts or other materials to depict their ideas. (30 minutes)

Finally, the two groups will present their vision boards while describing the ideas about the course and the tools to be used. (15 minutes)

Evaluation (5 minutes)

Participants will share their feedback regarding theory and at which level it is implemented in adult education. In addition, they will discuss their thoughts and feelings about the workshop and the creative process of developing a working plan for a hands-on course.

Design Thinking

Type of workshop	Duration	N° of participants
Theoretical, Practical	1h	12
Materials		
• Pen & paper		
Learning Outcomes		
• Explore the concept of Design Thinking • Identify how to implement design thinking • Understand the importance & benefits of design thinking in STEM education • Identify ways to integrate design thinking in the classroom		
Detailed description on how to deliver the workshop		

Preparation
After the theoretical presentation, participants are divided into Group A and Group B.

Implementation

1. **Theoretical presentation on design thinking (20 minutes)**
- What is design thinking?

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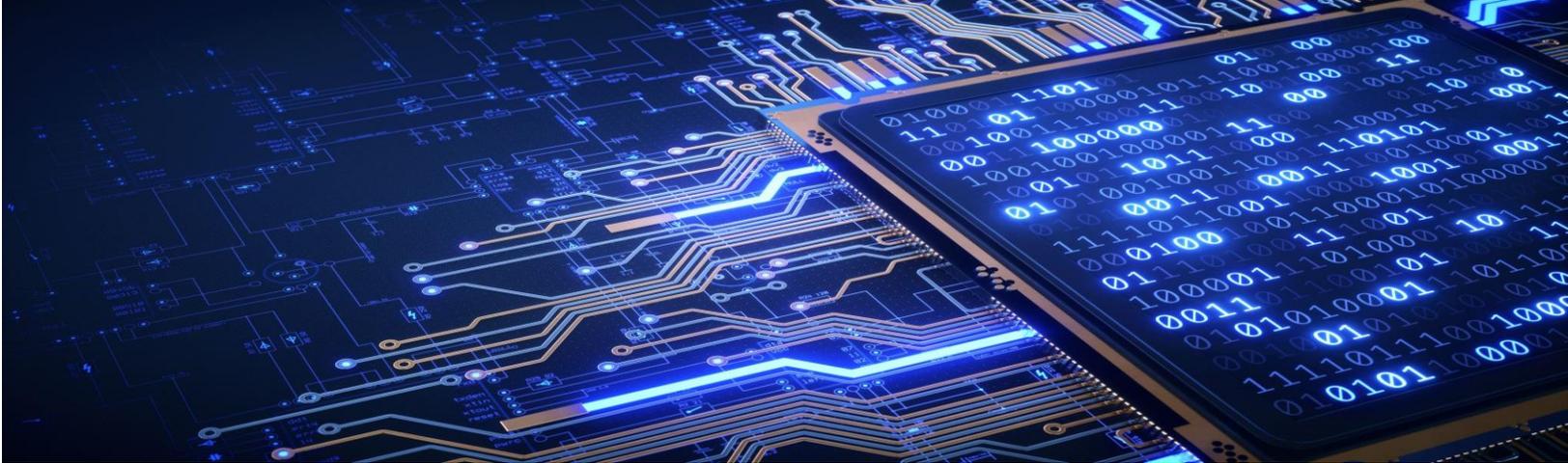
- Which are the stages of implementing design thinking?
- Design thinking and STEM education
- How to integrate in the classroom

2. Workshop (40 minutes)
Each participant A should work with a participant from Group B.
All participants are then asked to write down how a didactic hour should be structured in order to be better/ideal for them (preferably discuss about a STEM lesson) (5 minutes)

Afterwards, participants A and B are interviewing each other and discussing about the points they have identified, while focusing on why they suggest these points. To support why they suggest these specific points, participants should talk about previous experiences, thoughts and feelings they had. (10 minutes)

After this discussion, each participant is working on their own and makes notes on a) what are the points of the other person and b) why they are suggesting these points, meaning which are their needs and feelings behind their suggestions. Then, each one will have to record their ideas and propose a plan regarding the specific structure of the didactic hour based on the ideas that the other participant has shared with them (10 minutes)

At last, each participant will have to communicate this plan to their pair and receive feedback. Integrating this feedback, they will have to record the plan in more detail and finalize it. (10 minutes)
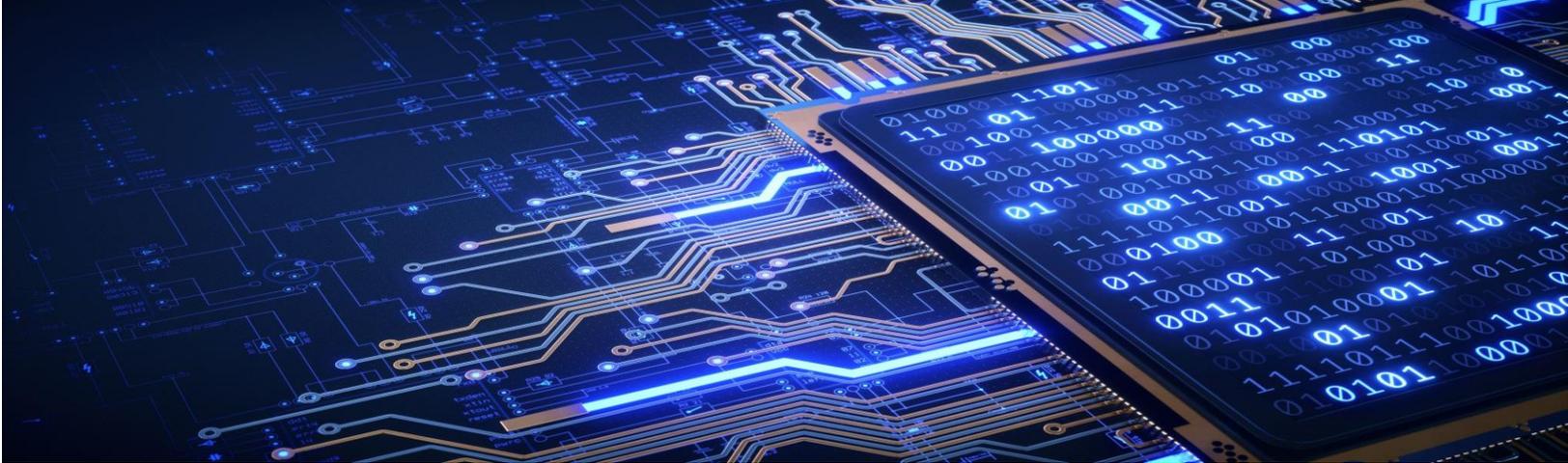
Workshops designed by educators

During the last days of the Joint Staff Training Event, the educators were split into two working groups.

The educators were provided with the template that partners employed for the design of the workshops. All the boxes of the template were explained in detail, in order for the educators to fully understand how to structure the activities they will design.

Each group has developed one digital and one STEM educational programme.

DIGITAL

Digital Design

Type of workshop	Duration	N° of participants
Theoretical & Practical	2 Days	Up to 25
Materials		
• Laptop, projector, wi-fi, printed infographic about the tools.		
Learning Outcomes		
• Familiarisation with specific digital design tools; • Ability to create visual digital content; • Ability to use AI software to supplement digital design process.		
Detailed description on how to deliver the workshop		

Preparation
The educator should:
- Do preliminary research regarding the industry standards related to digital design;
- Know well and being able to use all the tools that are part of the session;
- Prepare the presentation flow;
- Informing learners that they will need a digital device (laptop/tablet) during the session and that they should install the tools before;
- Administer a questionnaire to the learners to understand their level of knowledge and skills;
- Prepare an infographic of the tools that will be presented during the session;
- Prepare the Mentimiter for evaluation.

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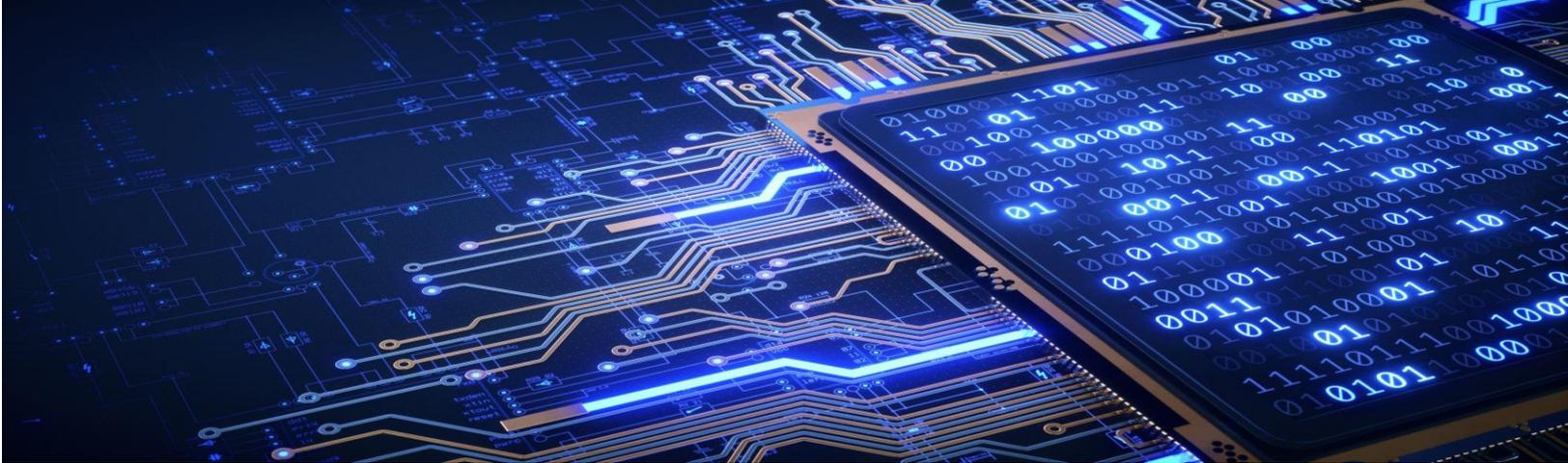
Implementation
1. The educator will present the tools and how to use them, while the learners will follow him, step-by-step through their laptop, testing them on parallel with their learning. (6 hours)
List of tools to be presented:
- Photoshop;
- Stable diffusion;
- CANVA.

2. After the presentation the educator will present the practical part that will be divided in two steps:
1. Each learner will be asked to generate a logo with the AI tool based on a specific theme; (1 hour min)
2. Learners will be split in small groups (3 people each) and will be asked to create a landing page on a specific theme. (3 hours)

3. Each group will then present the landing page they've created. (1 hour).

Evaluation
The educator will ask the learner to evaluate the session through Mentimeter. (30 min).

Digital Art Masterclass: Unleashing Creativity with Digital Tools

Type of workshop	Duration	N° of participants
Theoretical, Practical	1 day (6 hours)	15 (with some background in art)
Materials		
- Computers or laptops with digital art software (e.g., Adobe Photoshop, Procreate, GIMP) - Graphics tablets or stylus pens (one per participant) - Projector and screen for demonstrations - Drawing paper and pencils (for sketching exercises) - Handouts with digital art tips, techniques, and resources		
Learning Outcomes		
- Understanding of digital art tools and techniques. - Develop skills in digital drawing and painting. - Explore various styles and genres of digital art.		

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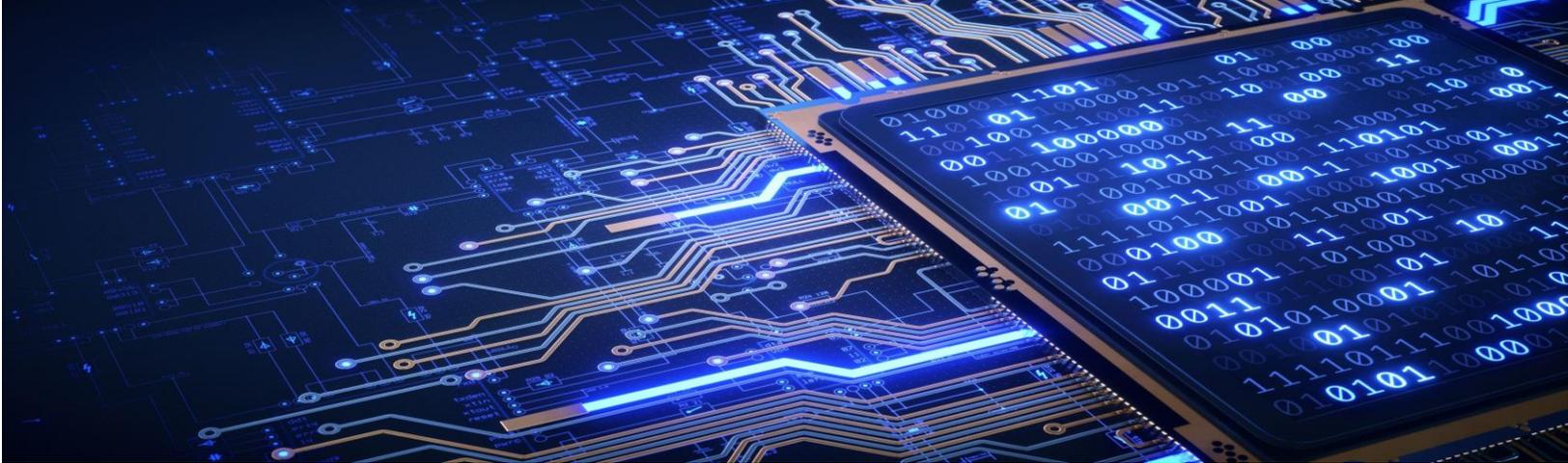
Detailed description on how to deliver the workshop

Preparation
1. Set up computers or laptops with the required digital art software.
2. Prepare a variety of digital art resources and references for inspiration.
3. Prepare a list of keyboard shortcuts and tips for each participant.

Implementation

1. Step 1: Introduction to Digital Art (30 minutes)
• Welcome participants and introduce the workshop.
• Present an overview of digital art and its relevance in the modern creative world.

Step 2: Getting Started with Digital Tools (1 hour)
• Have the participants choose a personal project with a specific topic and technique to do in the last part of the wokshop.
• Familiarize participants with the digital art software and its basic features.
• Demonstrate how to use graphics tablets or stylus pens for drawing.

Step 3: Digital Art Techniques (90 minutes)
• Lead hands-on exercises to practice digital drawing, painting, and layering techniques (e.g. digital coloring, blending modes, layering).
• Encourage participants to experiment with different brushes and effects.

Step 4: Personal Project (90 minutes)
• Assign a personal art project to participants with the topics and styles chosen previously.
• Provide individual guidance and support as participants work on their projects.

Step 5: Sharing and Feedback (90 minutes)
• Each participant presents their completed digital art project to the group.
• Facilitate constructive feedback and encourage discussions about the creative process.

Evaluation
1. Post-Workshop Survey: Collect feedback from participants to evaluate the workshop's effectiveness and gather suggestions for improvement.
2. Discuss the efficacy of the prompts and digital tools in the process of creating the project.
3. Evaluate the difference of using digital tools vs traditional ones in the pursuit of art.

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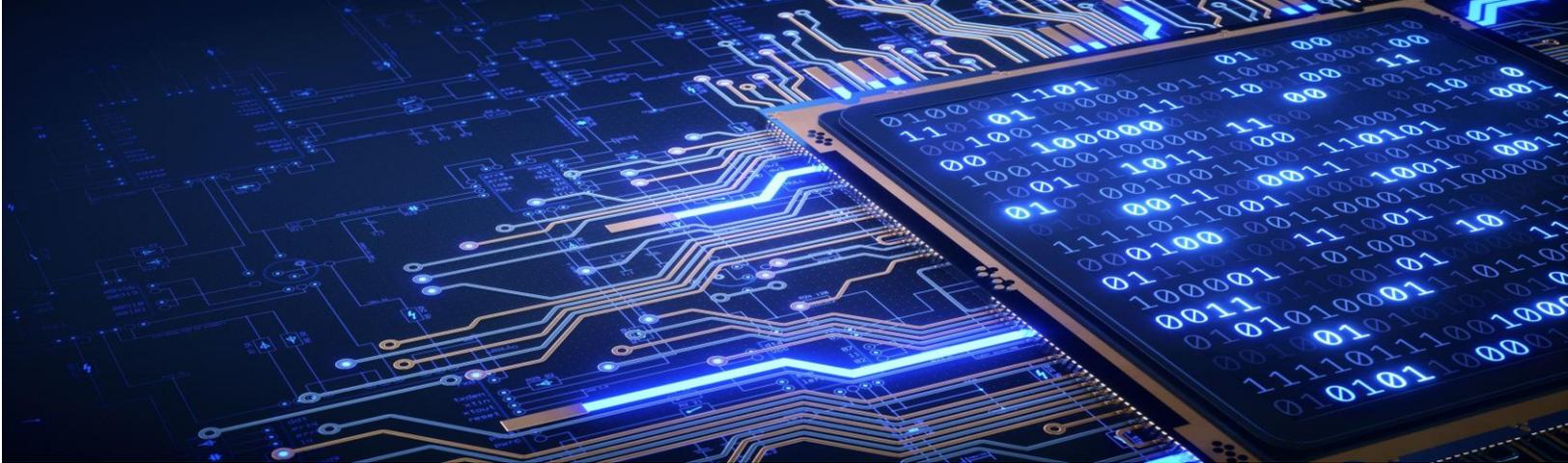
Create your own planetary system

Type of workshop	Duration	N° of participants
Theoretical & Practical	1 day	12+

Materials
• Laptop, projector, wi-fi, printed booklet, recycled materials.

Learning Outcomes
• Enhanced environmental awareness. • Learning sciences specific knowledge to understand: - Planetary system; - Planet life.

Detailed description on how to deliver the workshop

Preparation
- Prepare coding materials for learners;
- Inform learners that they need to install the Jupyter Notebook software before the session;
- Prepare the videos/animations to be used for the theoretical part;
- Gather the materials for the practical exercise (model);
- Prepare and print booklet with relevant information;
- Prepare the Mentimiter for the evaluation.

Implementation

1. The educator will introduce learners to the topic and showcase how the planetary system and planet life work (positive and negative aspects/impacts/effects) through videos & animations. Then, the educator will show learners how to use code blocks with python and they will follow step-by-step through their laptop, testing them on parallel with their learning. (2 hours)

2. The educator will split the learners into two groups. Each group will be asked to create their own planetary system taking into account:
- functionality;
- physics laws;
- environmental conditions of the planet;
- life sustainability (at least one planet).
Each group will work with python to prepare the simulation as well as building the model with the recycled materials. (3 hours)
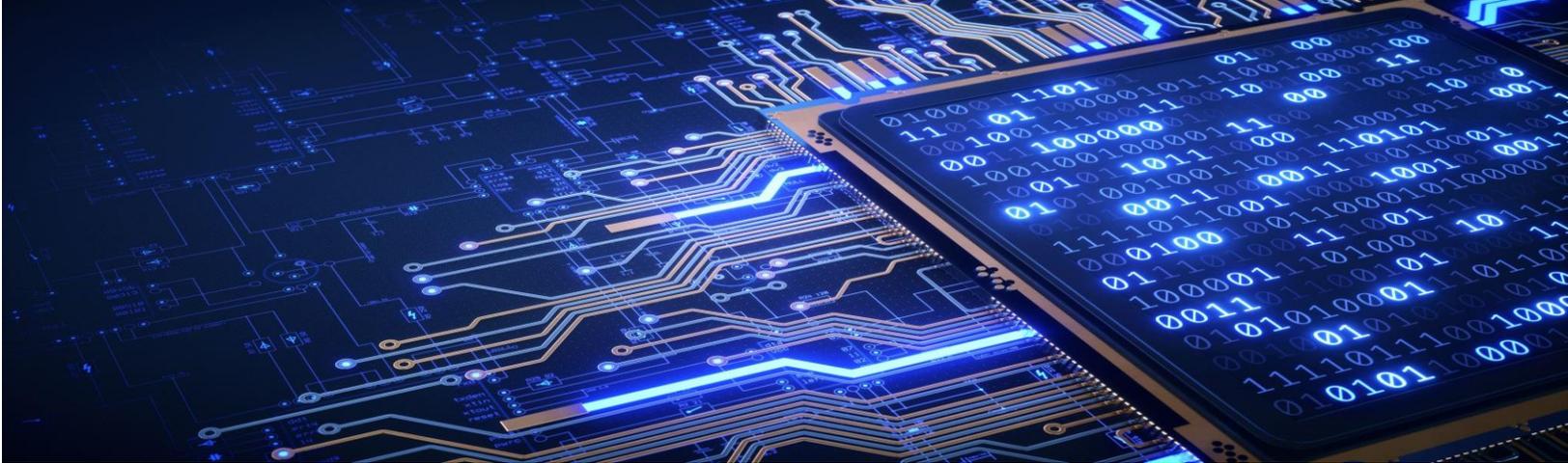
3. Each group will present their own work by running the simulation(s) they've built on python as well as showing the model. (1 hour)

Evaluation
The educator will ask the learner to evaluate the session through Mentimeter. (30 min).

Introduction to Robotics and Coding

Type of workshop	Duration	N° of participants
Practical and Theoretical	2 days (6 hours per day including breaks)	20
Materials		
- Laptops or computers with internet access (one per participant or shared in groups) - Robotics kits (e.g., Arduino or similar kits) - one kit for every 4 participants - Coding software installed on laptops (e.g., Arduino, Python, or a block-based coding platform) - Whiteboard and markers - Projector and screen (optional, for presentations)		
Learning Outcomes		
- Understand the basics of robotics. - Learn the fundamentals of programming robots. - Acquire practical experience in building simple robots. - Develop problem-solving and teamwork skills through application.		
Detailed description on how to deliver the workshop		

Preparation

- Prepare the computers and reference material (instructions) for each group (5 total).
- Ensure the kits are complete and functional.
- Prepare research links and materials for the groups to use in and after the workshop.

Implementation

1. Day 1:
Step 1: Introduction (30 minutes)
• Welcome participants, introduce the workshop's goals, and present an overview of robotics and coding.

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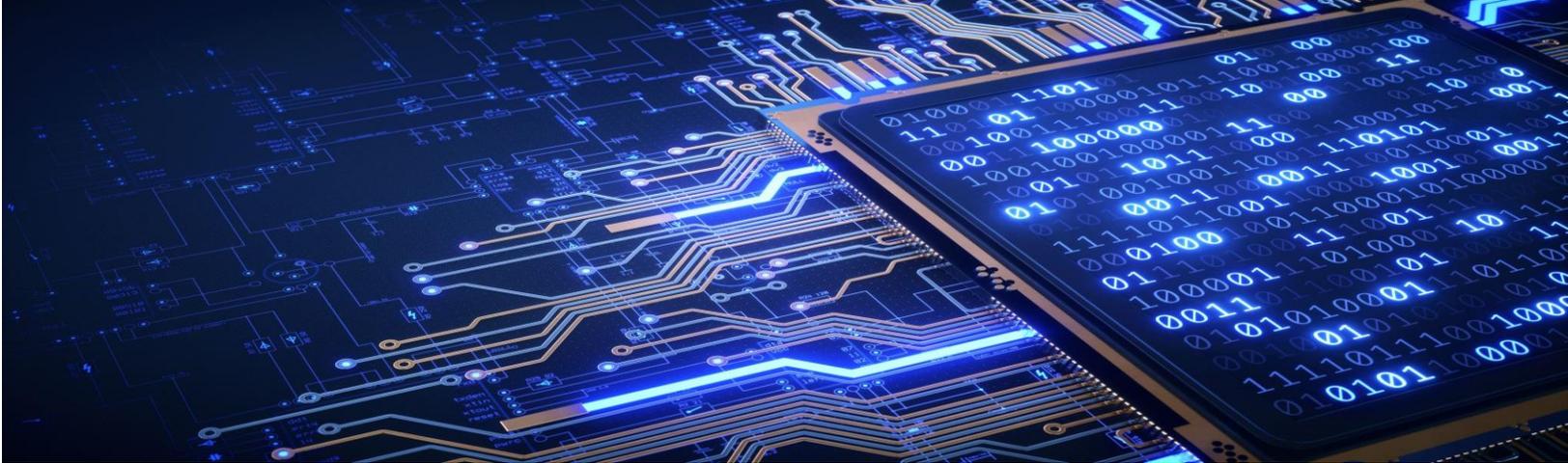
Step 2: Understanding Robotics (1 hour)
• Explain the basics of robotics, including components, sensors, and actuators.
• Showcase examples of robots used in different industries.

Step 3: Introduction to Coding (90 minutes)
• Introduce participants to coding concepts and programming languages.
• Demonstrate basic coding examples on a chosen platform (e.g., Scratch).

Step 4: Hands-on Building (2 hours)
• Divide participants into 5 groups of 4 and distribute robotics kits.
• Have each group choose a challenge that their robot will have to complete on the 2nd day (maze navigation, obstacle avoidance, or simple pick-and-place)
• Instruct participants to follow provided instructions to build a simple robot.

2. Day 2
Step 1: Review (30 minutes)
• Recap the concepts covered on the first day.
Step 2: Coding the Robot (2 hours)
• Guide participants on how to program their robots to perform specific tasks.
• Encourage creativity in coding to enhance the robot's capabilities.

Step 3: Team Challenges (1 hour)
• The teams now fulfill the challenges they picked on Day 1 using their robot.
• They improve on their design, iterating by testing and revising.

Step 4: Presentations and Discussion (1 hour)
• Each group presents their robot and the challenges they tackled.
• Facilitate a group discussion on the common problems the teams faced and the steps they took to overcome them.

Evaluation

• At the end of the workshop, participants will take a short quiz to assess their understanding of key concepts.
• Feedback Form: Provide participants with a feedback form to gather their opinions on the workshop's content, delivery, and organization (menti.com).
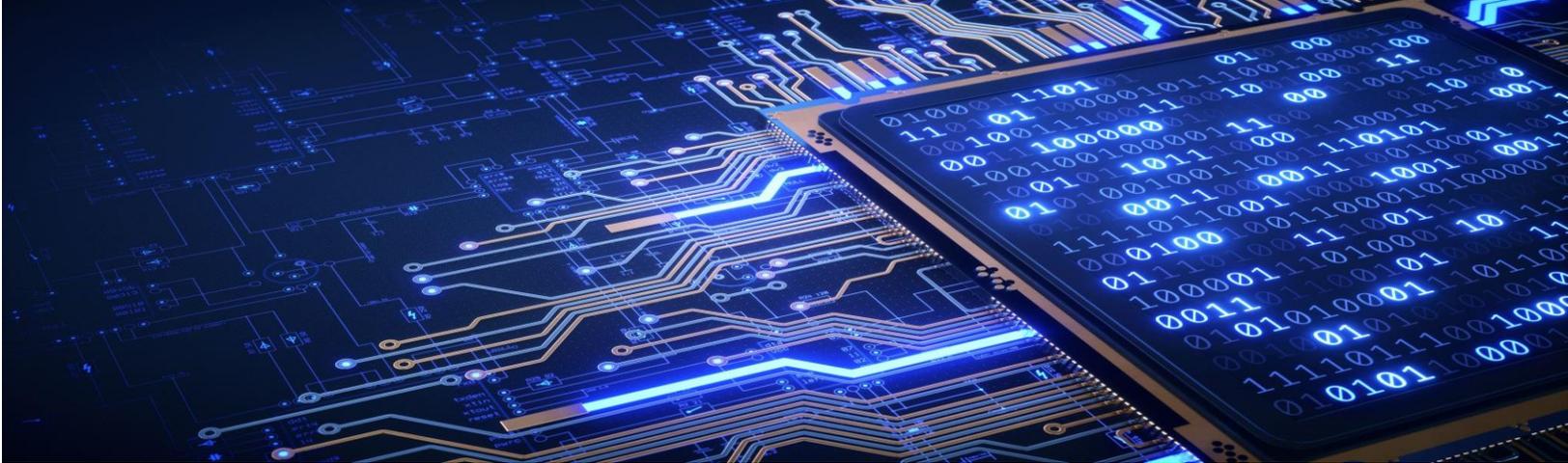
Annexes

Research methodology

Good practice on digital and science education for adult learners template

Type of good practice	Topic	Status
National, international	*Digital education, STEM education*	*Ongoing, finished*
Entities involved		**Beneficiaries**
Learning outcomes		
Detailed description of the programme/activities/sessions/workshops		
❖ *The description should contain a detailed timeline and explanation of the activities/sessions/workshops for their potential replicability.* ***Example***		

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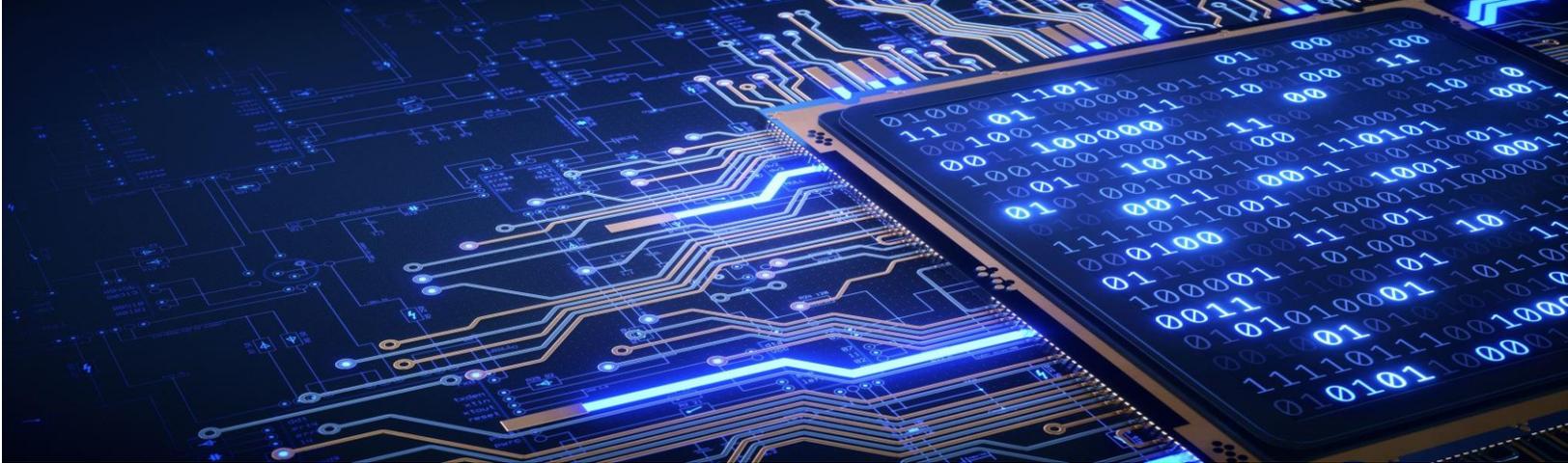
PPT to deliver the focus group

Digital and
sciEntifiC liteRacY
uPskilling for
adulTs

(DECRYPT)

2021-2-DE02-KA210-ADU-000049482

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of the European Union

DIGITAL LITERACY

INFORMATION AND
DATA LITERACY

• BROWSING, SEARCHING
AND FILTERING DATA,
INFORMATION AND
DIGITAL CONTENT.

• EVALUATING DATA,
INFORMATION AND
DIGITAL CONTENT.

COMMUNICATION
AND COLLABORATION

• INTERACTING THROUGH
DIGITAL TECHNOLOGIES.

• SHARING THROUGH
DIGITAL TECHNOLOGIES.

• ENGAGING CITIZENSHIP
THROUGH DIGITAL
TECHNOLOGIES.

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the European Union
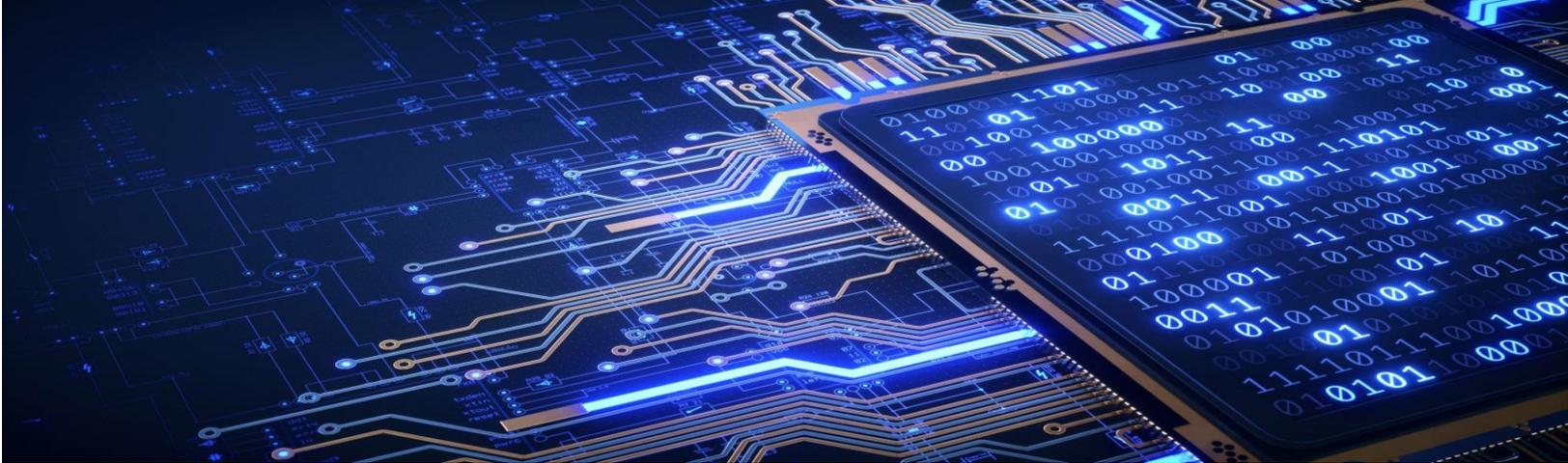
DIGITAL CONTENT CREATION

- DEVELOPING DIGITAL CONTENT.
- INTEGRATING AND RE-ELABORATING DIGITAL CONTENT.
- PROGRAMMING.

SAFETY

- PROTECTING DEVICES.
- PROTECTING PERSONAL DATA AND PRIVACY.

PROBLEM SOLVING

- SOLVING TECHNICAL PROBLEMS.
- IDENTIFYING NEEDS AND TECHNOLOGICAL RESPONSES.
- CREATIVELY USING DIGITAL TECHNOLOGY.
- IDENTIFYING DIGITAL COMPETENCE GAPS.

STEM

STEM???

- SCIENCE
- ENGINEERING
- TECHNOLOGY
- MATH

STEM SKILLS LIST

- ✓ PROBLEM SOLVING.
- ✓ CREATIVITY.
- ✓ INQUIRY SKILLS.
- ✓ MATH AND SCIENCE SKILLS.
- ✓ ENGINEERING-DESIGN THINKING.
- ✓ CRITICAL THINKING.
- ✓ COLLABORATION.

OPEN QUESTIONS

1. ARE THERE ANY EDUCATIONAL GAPS FOR WHAT CONCERNS THE ACQUISITION OF DIGITAL KNOWLEDGE AND SKILLS?
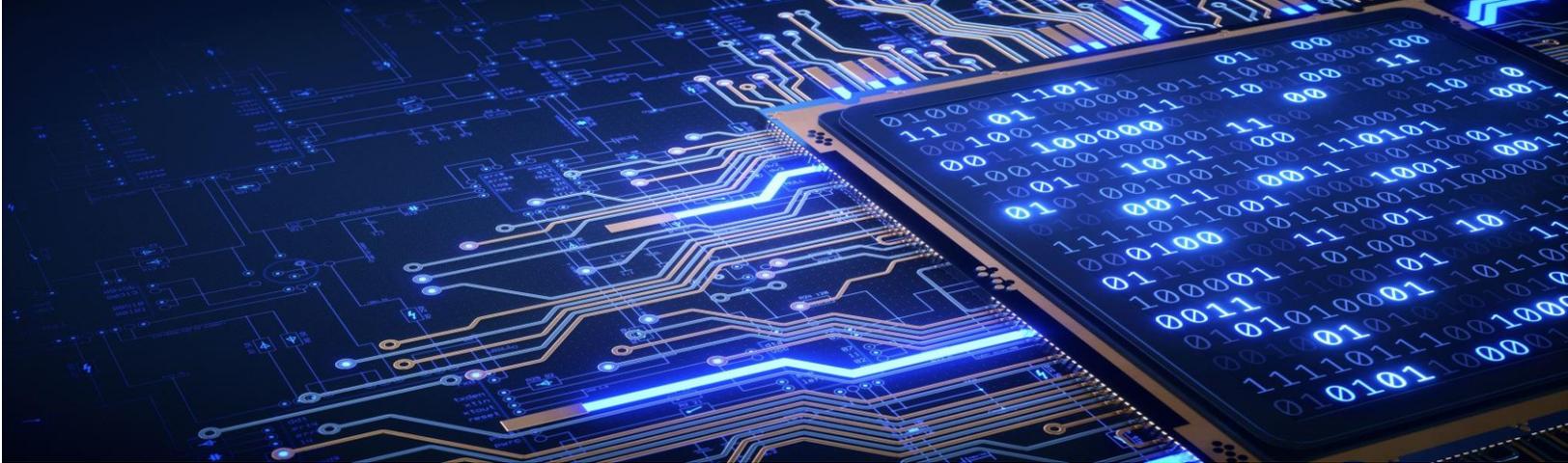
2. ARE THERE ANY EDUCATIONAL GAPS FOR WHAT CONCERNS THE ACQUISITION OF STEM KNOWLEDGE AND SKILLS?

3. DO YOU HAVE ANY SUGGESTION ON HOW TO IMPROVE THE CURRENT EDUCATIONAL OFFER?

Focus Group Report template

Focus Group Country

Report

❖ Please summarise the level of digital knowledge and skills of the adults learners based on the self-assessment they made during the focus group and the assessment made by the educators (max 2000 characters spaces included).

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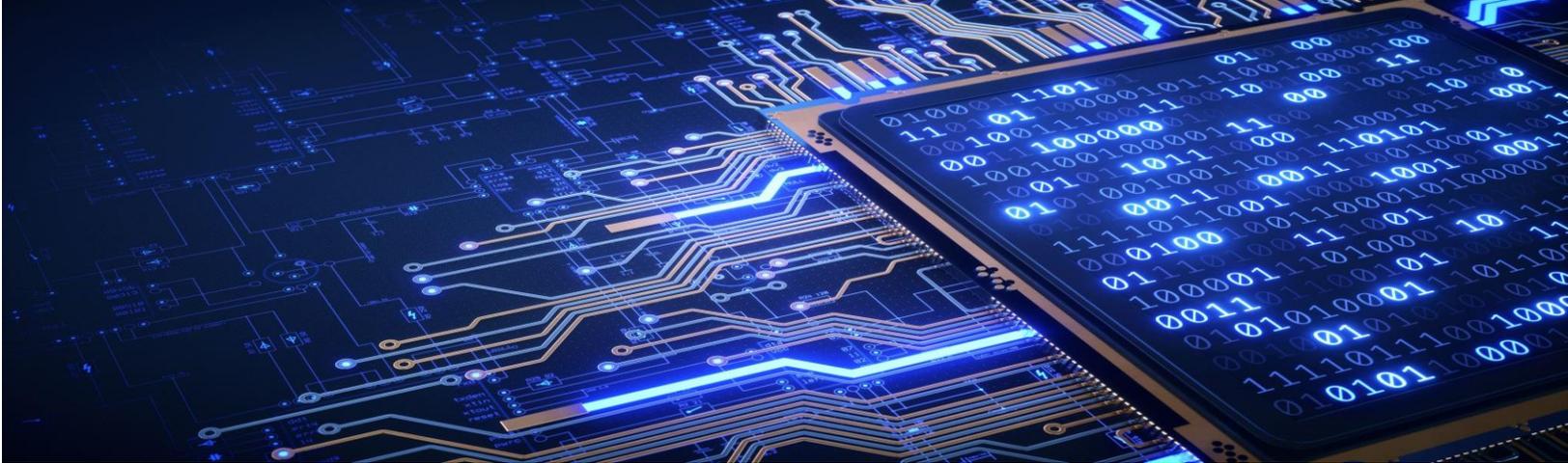
Learners:

Educators:

❖ Please summarise the level of STEM knowledge and skills of the adults learners based on the self-assessment they made during the focus group (max 2000 characters spaces included).
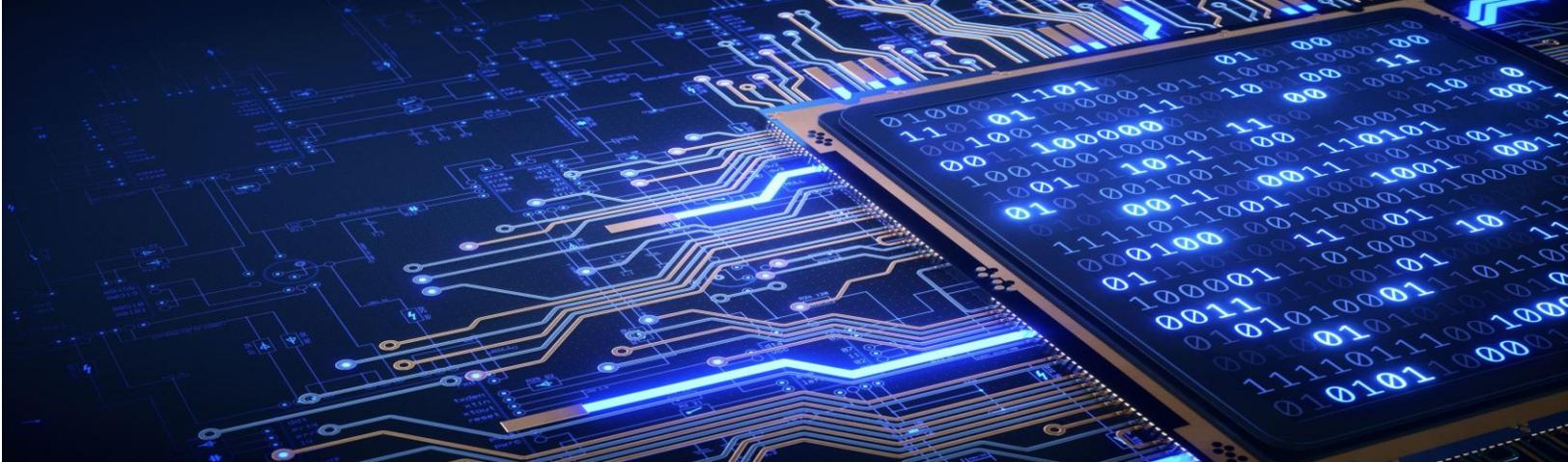
Learners:

Educators:

❖ Please summarise the most relevant information gathered from Q1 and Q2 differentiating the point of view of learners and educators.
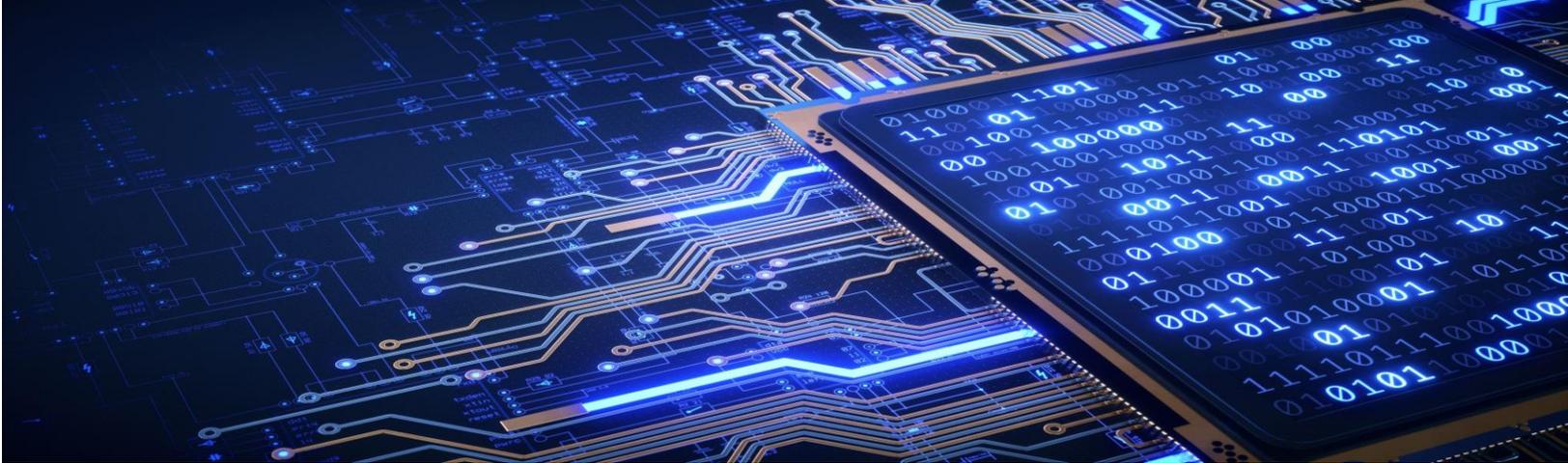
Learners:

Educators:

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❖ Please summarise the most relevant information gathered from Q3 differentiating the point of view of learners and educators.

Learners:

Educators:

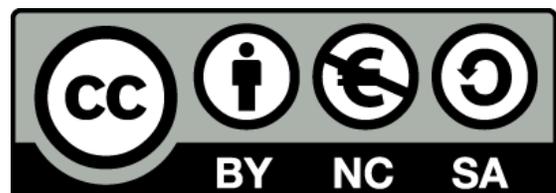❖ Please add here any additional relevant information gathered through the focus group.

Disclaimer

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Open Educational Resources

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