# Investing in people: getting the skills for the digital decade
## Workshop report, Digital Assembly 2022

Over 70 representatives of businesses, public authorities, academia, ICT associations and NGOs gathered at the Digital Assembly in Toulouse to find solutions for the **growing digital skills gap in Europe**. The workshop discussions revolved around the following key messages:

- Retain all talent and target both basic and advanced digital skills.
- Close the gender gap in ICT and offer more inclusive digital skills trainings progarmmes, targeting underrepresented groups.
- Develop strategies to train and retain skilled workers for both ICT and non-ICT companies, using skills intelligence data.
- Offer multidisciplinary academic programmes, mixing traditional skills with new skills to prepare the future workforce.
- The digital transition requires close coordination between Member States in the area of digital transition and better cooperation at national level (academia, business and government).

## Context

Four out of ten Europeans are still digitally illiterate and companies across Europe cannot find the digital technology experts they need to innovate and grow. The workshop was designed to encourage discussion around the challenges obstacles, and solutions to reach the Digital Decade targets for skills, and in particular how to reach 20 million ICT specialists by 2030, with gender convergence. These ambitious targets are part of the Digital Decade Compass, Europe's roadmap to achieve a successful and inclusive digital transformation of our society and economy, by 2030. Currently, there are 9.2 million ICT specialists employed in the economy in 2021 and all Member States are facing difficulties in finding people with advanced digital skills. This is also one of the reasons why, following President von der Leyen's call, Vice-President Vestager has launched a structured dialogue on digital education and skills with all Member States. The Commission is meeting all Member States and consulting what can be done together to achieve these targets. The discussion during the workshop feeds directly into this exercise, which will result in Recommendations on how to improve digital skills and training in the EU.

To set the tone for the discussion the workshop started with the video Digital skills, your future, produced by the European Commission, highlighting the main goals and challenges that the EU is facing in its digital transformation.

# Panel 1: Lack of ICT specialists is a shared/common issue in all EU countries. What is the main challenge to increasing the number of ICT specialists?

The first panel highlighted the importance of training and retaining skilled workers. **Aniss Gaaya (Head of Digital Academy, Airbus)** shared the example of his company's reskilling opportunities for employees. He described how in the last 3 years Airbus has trained over 1000 of employees in data science. For similar initiatives to be successful, a company first has to understand the skill needs and the future occupational profiles. Airbus invests strongly in security (cybersecurity) technology specialist profiles, enterprise architects, etc. The company is also as open as it can be with its skills analysis. Aniss Gaaya shared that 40% of ICT employees are women in Airbus.

**Josef Lannemyr (project leader for digital excellence development, Swedish Agency for Economic and Regional Growth)** manages a project that aims to analyse and provide recommendations on how to increase the supply of high-skilled employees to match the demand of competence within the Swedish ICT-sector. Sweden has worked on benchmarking the situation, making comparisons with big countries across the world and this has highlighted the importance of funding to increase the supply of digital experts.

Sweden has a specifically designed tool ([Startsida - Digitalskills.se](Startsida - Digitalskills.se)) to aggregate job posts and analyse skills needs to make predictions. Josef Lannemyr highlighted that cross skilling offers big opportunities. For instance, doctors that can write algorithms predict with 90% correctness which patient would need more medical care. He called for more experts with combined skills from traditional disciplines and digital technologies (doctor with specialization on AI, lawyer with cybersecurity skills, etc). This new demand for combined profiles requires a shift into more multidisciplinary academic programmes.

However, according to **Roberto Giovannoni (Associate Professor, University of Pisa),** the education system is currently not able to deliver more graduates to fulfill the demand on job market. That is why we need to attract them already at lower level of education and offer more flexible modular programmes that combine academic training and on the job experience (shorter training courses). This could help to increase the number of digital experts. Professor Giovannoni highlighted that the 'contamination' of computer science with other disciplines has a positive affect to both discipline and students. Mixing data sciences with humanities, for example, will equip students with specialised skills and at the same time give them a broader overview of the variety of areas for application of this specialised knowledge.

All three panelists recognized the challenge of closing the gender gap in ICT.

In conclusion the panelists agreed that **efforts should focus** on:

- Closing the gender gap
- Strategies to train and retain skilled workers for both ICT and non-ICT companies.
- Data intelligence – the importance of analysing skills needs as they appear
- Access of students to multidisciplinary academic programmes - mixing traditional skills with new skills

# Breakout session 1: Identification of challenges

After the panel, workshop participants discussed in groups challenges for Europe in digital skills. Their ideas were clustered in the following main challenges:

**Challenge 1:** Attract and retain staff - how to find specialists on time and how to keep them motivated to stay on the job in a life- long learning perspective. Within this challenge participants identified also the big salary gap between public and private sector, as well as the lower importance of qualifications.

**Challenge 2:** Gender gap in education and training – currently only around 17% ICT specialists in Europe are women and this is a problem that every Member States in the European Union faces.

**Challenge 3:** Inclusion and basic skills – there is still big part of the population that lacks basic digital skills. We need to take in consideration vulnerable groups as well as regional differences.

**Challenge 4:** Innovation in education – the link between education and practices is missing. The education structures need to adapt to the new digital reality by adapting KPIS and introducing more multidisciplinary approaches.

**Challenge 5:** Cooperation between academia, governments and industry on the basis of dialogue and shared data on skills intelligence. It is important to increase the speed of change.

**Challenge 6:** How to encourage motivation for upskilling – we should impose a sense of urgency both at individual employee lever and organization (leadership) level.

**Challenge 7:** Funding and evaluation – better collaboration between business and governments to ensure easier access to funding.

# Breakout session 2: Identification of solutions

Having identified main challenges, workshop participants worked again in groups to discuss ways to address the challenge and present solutions. They were encouraged to think practically: What to do concretely? Who does what? How to make it happen? Who pays for it?

**Solution 1: Attract and retain staff**

This group agreed that developing a digital culture everywhere is crucial. The tech field should be made more appealing by highlighting the applications/usage of tech solutions. Moreover, technology should be a means rather than an end. The idea of **work studies contracts** was discussed as a way to attract talents. The group mentioned the importance of **certification** (at work) as a strategy to retain talent at the workplace. Employees should be given some freedom of risk taking and space for individual projects (digital assignments). Most importantly, employees should have access to training all along their work cycle.
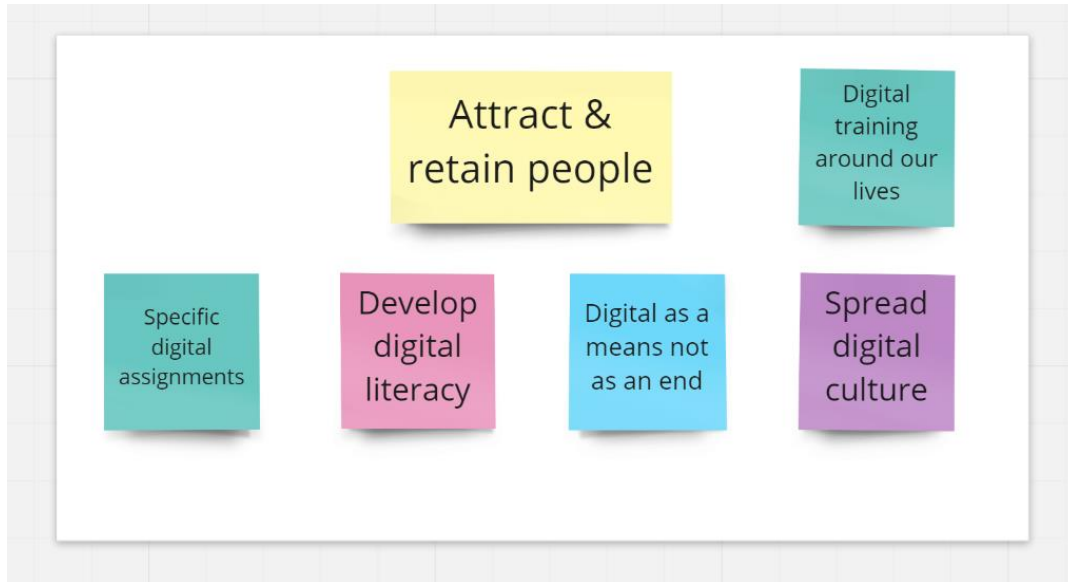
**Solution 2: Closing the gender gap**

The gender gap is not only in tech but in society in general. To solve this challenge, participants underlined the need to work at supply side (girls and women), demand side (see why they are male friendly) and environment (regulations and institutions).

**Fight gender stereotypes** in holistic way (school, family, media), tackle in expectations and real opportunities. We don't only need to work with girls but **also boys** to show them different opportunities and challenge the existing notion of success. We need new role models to promote via media. It is important to also **change male-dominated** tech work environments to make them more female friendly. We are in demographic transition, and we need to keep all talent. That is why we need to address all society and encourage digital literacy across all ages.



**Solution 3: Inclusion basic digital skills**

To ensure that every person has at least basic digital skills, we need to make available connectivity (infrastructure) to all. Just as in other workshop groups, participants discussed the importance of **collaboration at multistakeholder level** (NGOs, local governments, civil society, business, etc.). Education should offer more granular standardised training where **learning by doing** is at the centre. Furthermore, the education sector and business need to have more **concrete targets** to aspire to.



**Solution 4: Innovation in education**

This group looked at ways to introduce '**teaching sessions'** within a student's education journey. This will help them understand concepts better and teach/explain them to others. Participants agreed that digital environment and physical environment should be used in combination when it comes to education. Often students spend too much time in front of screens. The educational environments should also offer more socialization opportunities.

During the discussion of strategies to attract more students to tech fields in higher education, participants agreed that **financial incentives** could be given to students if they choose a tech field for their studies.
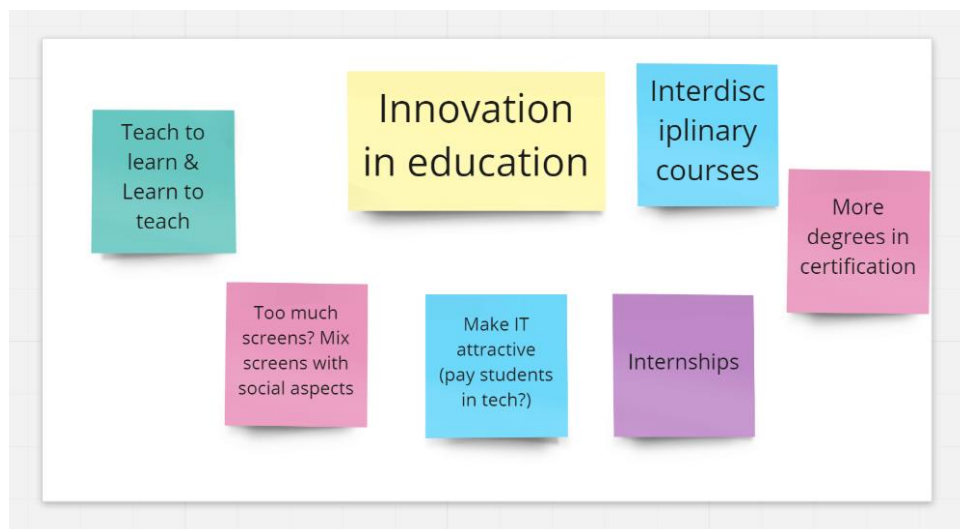
**Solution 5: Cooperation**

This solution focuses on facilitating stronger cooperation between stakeholders in existing ecosystems (government, private sector, academia) to build greater trust and facilitate funding processes. Participants suggested the facilitation of **an annual event** to bring together academia, companies, and governments design one key action. The event could be accompanied by a prize for good actions in the area on annual basis.

It is also important to engage and motivate children and young people by explaining in a simple way what big goals the society wants to solve. Students in university programmes should be offered a dual system where **education is combined with on-the-job** experience.
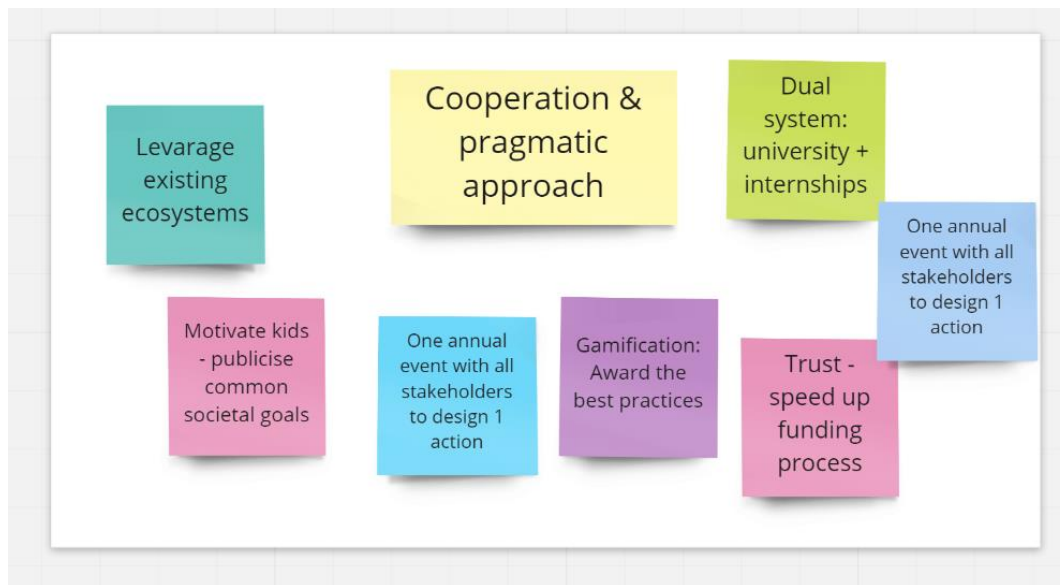


**Solution 6: How to encourage upskilling motivation.**

We need to demonstrate how important digital skills are at basic and advanced skills level and how important the role of educators is. Educators (academia) have a major role in motivating learners. However, they are not in close contact with business and its needs. Individuals should also have intrinsic motivation to upskill. Technology should be a means - by embracing immersive technology, we facilitate our own live.

Participants came up with a holistic approach to look at the link between individual, education and industry, called '**Digital game of life**'. This approach looks at the full cycle of an individual from the moment they enter education until they land their desired job. It identifies personal motivation as crucial in both the entry into education and the entry into a work field, whereas academic professors and on the job trainers are considered as important motivators as well.
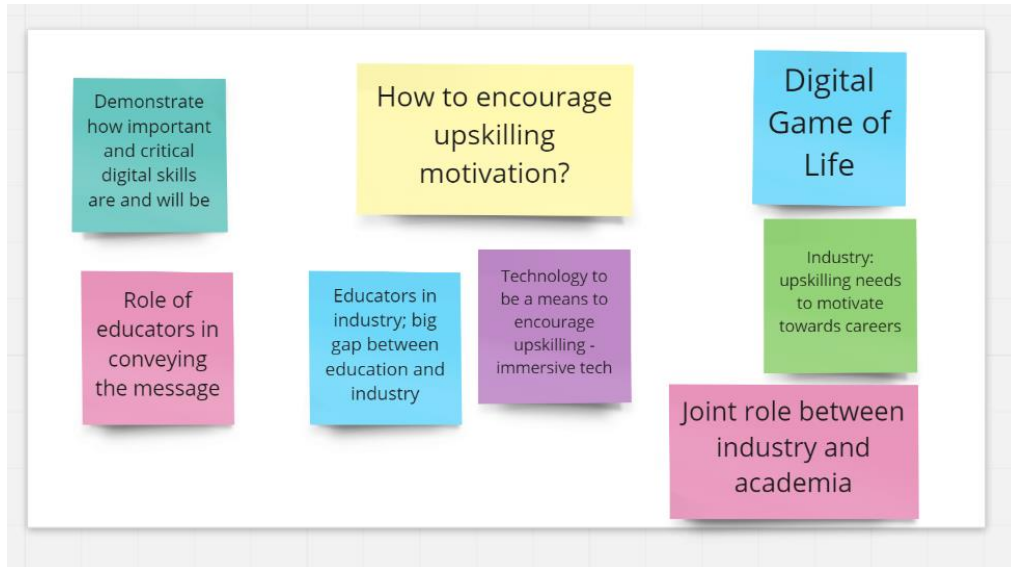
**Solution 7: Funding and evaluation**

Employers and government should work together and raise funding together. We should encourage **agreements between employee and employer to invest in skills** and governments could have a role in funding such initiatives.

On the other hand, we also need to look at evaluation/assessment approaches. Often, we tend to overestimate our own digital skills and that is why we should move from self-assessment to **real objective evaluation**.
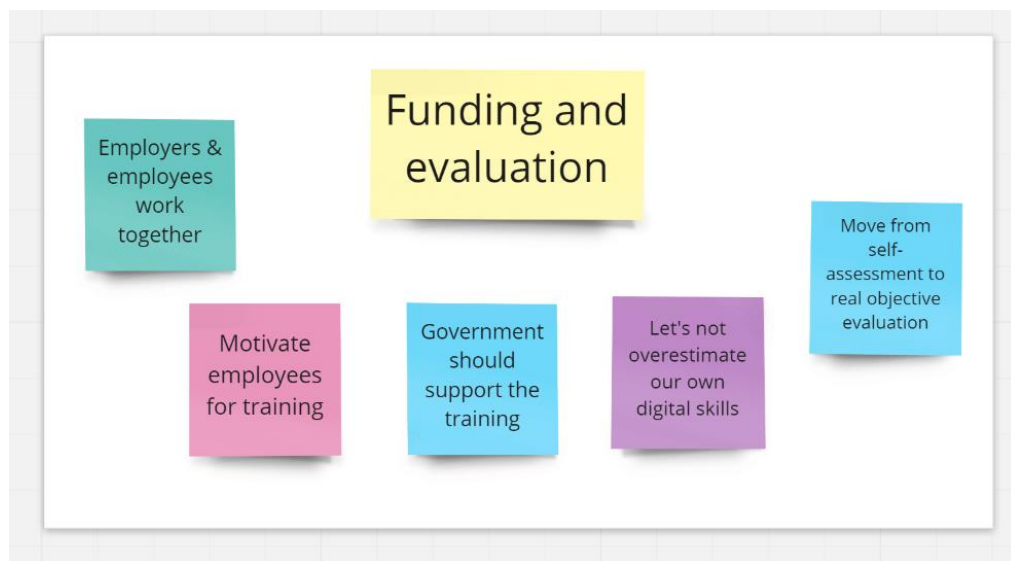


**Solution 8: Citizens for the digital age**

The main objective is to create citizens for the digital age rather than pure IT professionals. We should aim to facilitate **fluidity of skills** and people based on the principles of inclusion, motivation and understanding. It is crucial to **raise awareness at all levels** – schools, workers and citizens at large and to

offer to them real life examples, role models that would act as 'digital skills ambassadors'. In order to foster **digital citizenship**, we need to encourage self – sufficiency and self- motivation.
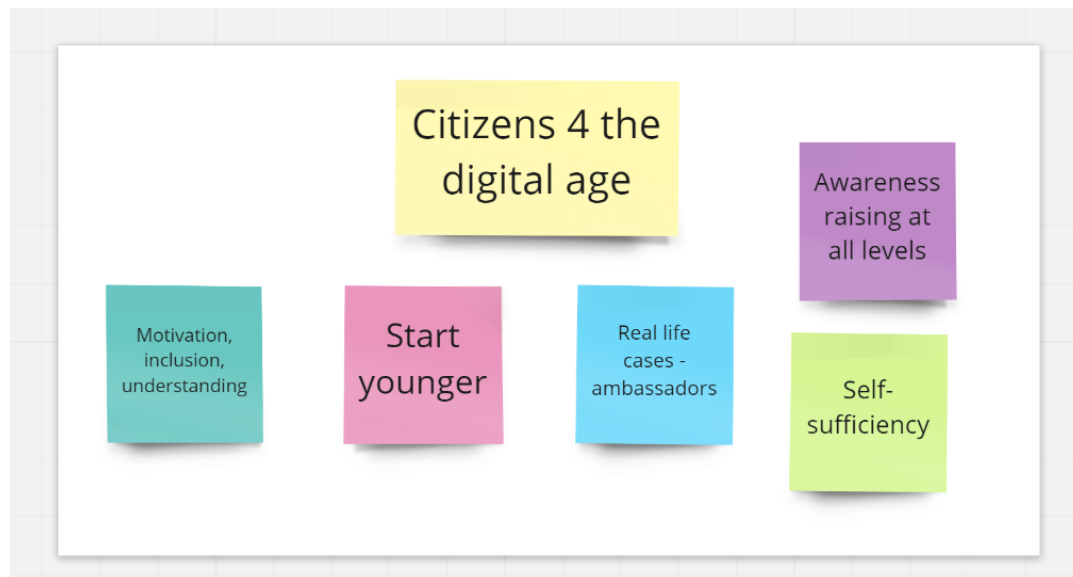


## Closing panel discussion: Reactions to proposed solutions and how to reach the Digital Decade targets for ICT Specialists

The 2nd panel talked about the EU's strategic autonomy in technology and the need to retain and attract talented people to Europe.

**Lina Gálvez Muñoz (Member of the European Parliament)** shared the opinion that complex challenges need complex solutions. The digital transition will help Europe to gain autonomy across sectors (energy, agriculture, etc.) but we need to make sure we retain all talent and focus on both basic and advanced digital skills. The main challenge is in coordination between Members States. There is a lot of inequality between Members States and also gaps in regulation. She also reminded about the gender gap in tech and called for role-model actions to encourage girls to consider ICT studies and job. Transition should be done in an inclusive way, not leaving anyone behind.

**Samia Ghozlane (Director at the Grande Ecole de Numerique)** added that it is necessary to explain to women and girls that digital jobs are about creating something meaningful with social impact. We need role models for girls and to address boys with tailored messages to call for more inclusivity for women. She also explained the business model behind the Grande Ecole de Numerique, which aims to address underrepresented groups – women, young people, people from disadvantage neighborhoods by motivating them to engage in training despite in some cases not having finished high school. The organisation offers seed funding for training organistaions to train with innovative approached for specific target audiences.

**Mário Lelovský (Coordinator of the Slovak National coalition for digital skills and jobs)** talked about the importance of political leadership and willingness to cooperate at national level (academia, business and government), giving more background on how the Slovak Digital Skills and Jobs Coalition was established.

He added that the European Commission can have a strong role in convincing Member States to recognize the importance of digital skills. He also mentioned the importance of digital experts in the future reconstruction of Ukraine.

This second panel discussion brought attention to the **need to**:

- Have better coordination between Member States in the area of digital transition.
- Retain all talent and target both basic and advanced digital skills.
- Seek political leadership to facilitate better cooperation at national level (academia, business and government).
- Offer more inclusive digital skills trainings progarmmes, targeting underrepresented groups.
- Encourage women and girls to consider ICT jobs by highlighting the social impact that they have.

In conclusion, the workshop moderator **Alexander Riedl (Deputy Head of Unit, European Commission)** reminded participants that the Digital Europe programme is a main tool to trigger new actions to bridge the digital skills gap. The workshop discussion will contribute to the stakeholder consultation on the ongoing Structured Dialogue on digital skills and education, which aims to offer future recommendations. He also invited participants to stay tuned on the Digital Skills and Jobs Platform to be always up to date with EU activities on digital skills and invited participants to share their thoughts and activities there.

# Annex I – Clustering of challenges for Europe in digital skills
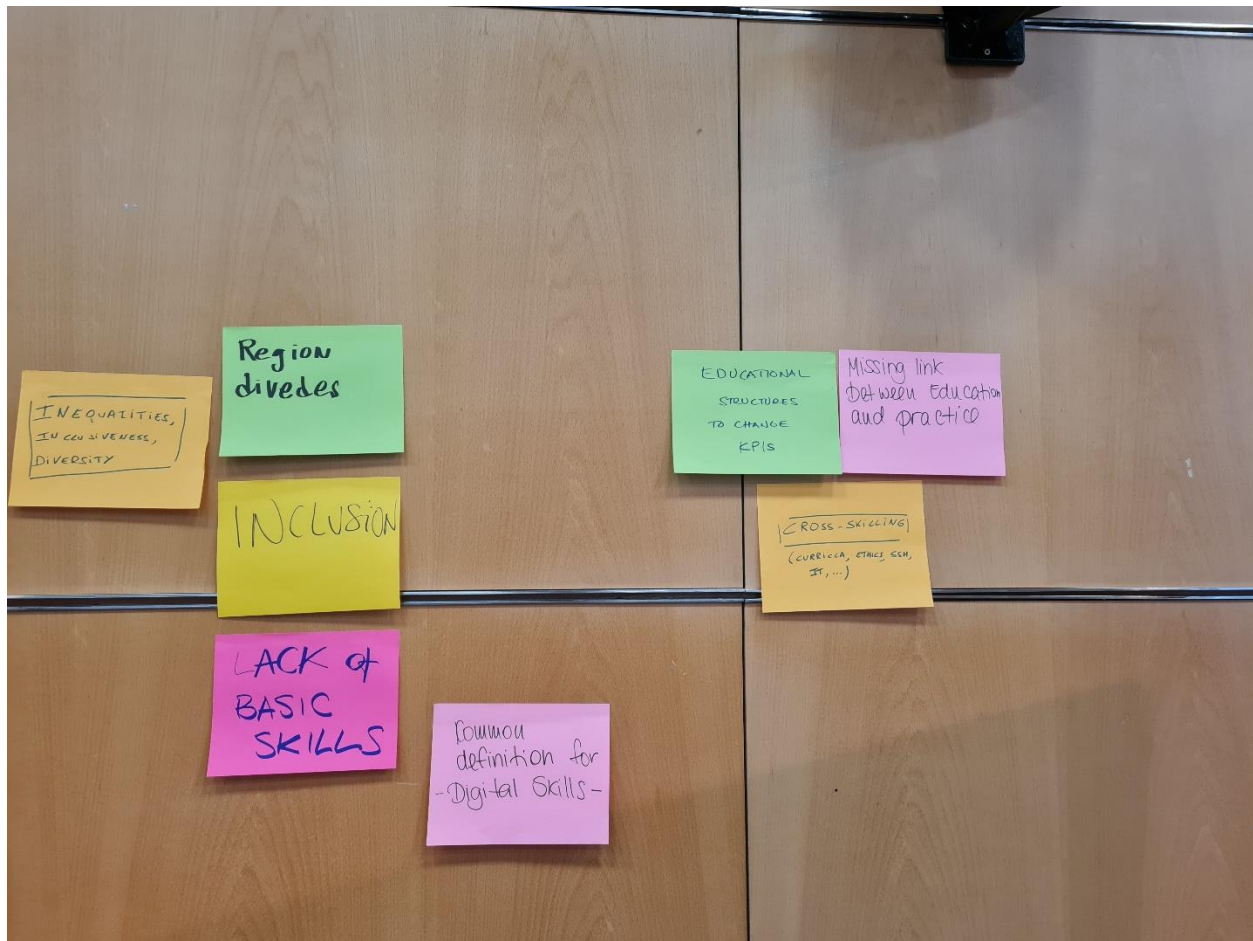
GENDER GAP

MOTIVATION
SENSE OF
URGENCY
SENSE OF GOAL

Lack of
MOTIVATION IN
Educators.

AWARENESS AT
THE LEADERSHIP
LEVEL
("SENSE OF URGENCY")

PRAGMATIC
APPLOACH
START FROM THE
END / NEED Fe
TRAINING
MEANING

COOPERATION -
DIALOGUE - DATA
(ACADEMY - INDUSTRY -
MINISTRIES

**ATTRACT & RETAIN**

**GENDER GAP**

Salary gaps
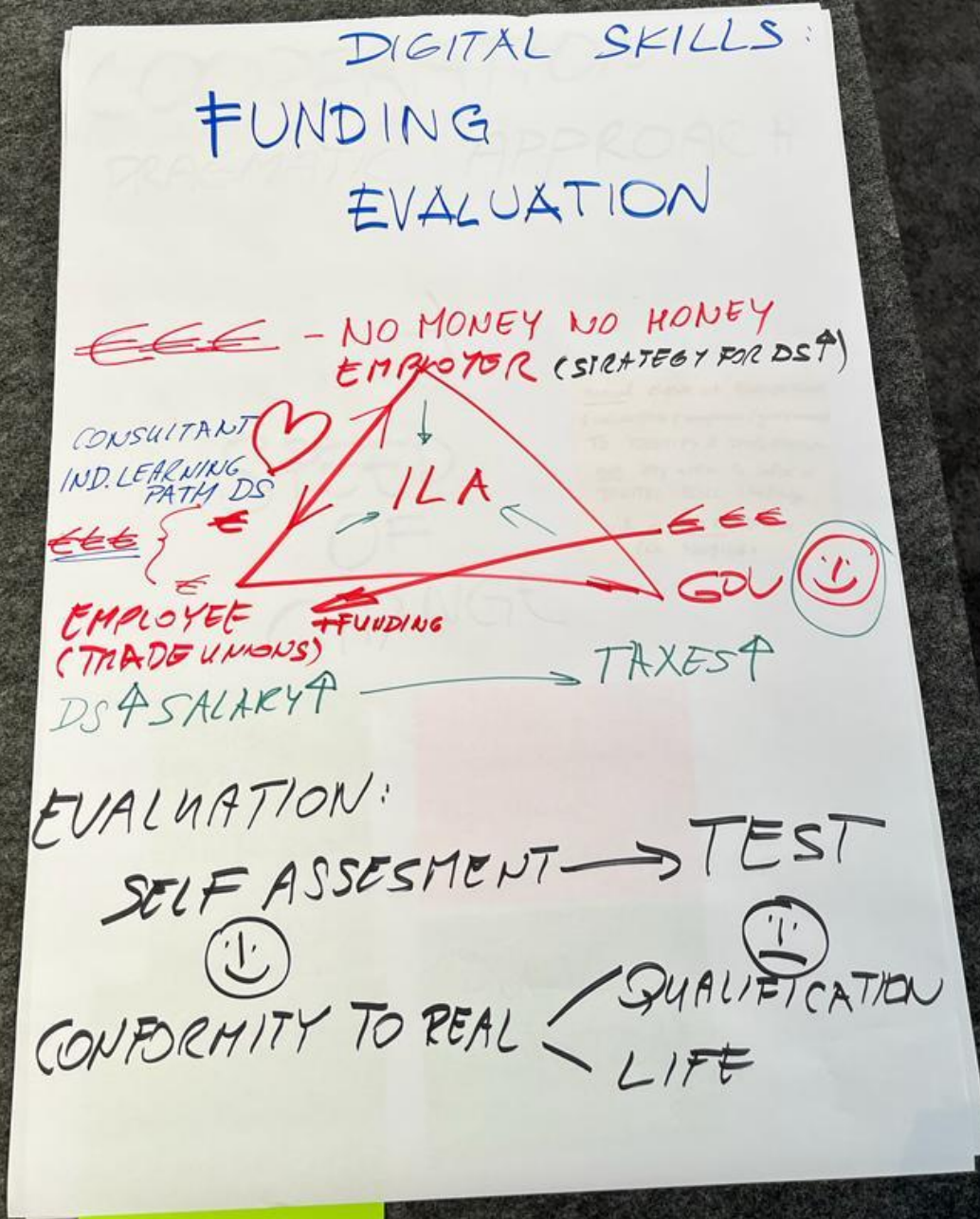Private vs Public

Reconnaissance des talents

Qualifications NOT being important.

HOW TO FIND SPECIALISTS ON TIME

Sensibilisation / Formation continue

PRAGMATIC APPROACH
START FROM THE END / NEED FOR TRAINING
MEANING

# COOPERATION
## + PRAGMATIC APPROACH

$+$

# SPEED
# OF
# CHANGE

Annual EVENT at Europe level
(universities / companies / governments)
TO IDENTIFY & IMPLEMENT
one key action to solve a
DIGITAL SKILL challenge
with a _PRICE_ to win
(No FUNDING)

Leverage of
existing
ecosystems
Public / Private / Academic

Accelerated ICT
training,
Sector specific /
thematic

Public Goals (Big challenge!)
"Clear the Ocean from
plastic"
1) Idea  2) Concept
→ Funding

TRUST

"MINI SILICON
VALLEY"

DUAL
SYSTEM

# GENDER GAP

SUPPLY SIDE
DEMAND SIDE
ENVIRONMENT / INST. REGULATION

FIGHT STEREOTYPES
IN A HOLISTIC WAY
. EDUCATION
. EXPECTATIONS (MEDIA CULTURE)
. REAL OPPORTUNITIES

CHANGING MALE-
DOMINATED TECH
WORK ENVIRONMENTS
&
MAKING MORE
FEMALE FRIENDLY

BOY'S
→ CLUBS &
NETWORKS

WORK WITH
BOYS & CHALLENGE
THE NOTION OF
SUCCES **
DO NOT LOOSE
MALE CARE TALENT

CHANGING
ROLE MODELS

SOCIAL NETWORKS

. SOCIAL SERVICES
. TIME USE POLICIES
TO BALANCE
WORK & LIFE
FOR MEN & WOMEN

MEANINGFULL CARE
& SOCIAL IMPACT

DIGITAL
LITERACY

REAL OPPORTUNITY
TO CHOOSE

FOR A BETTER
WORLD

# Ritizens 4 the digital age

$\neq$ pure IT professionals

INCLUSION

MOTIVATION

UNDERSTANDING

- GO YOUNGER
- REAL LIFE CASES AS DIGITAL SKILLS AMBASSADORS
- AWARENESS - RAISING @ ALL LEVELS
- SELF - SUFFICIENCY

# INCLUSION
# BASIC SKILLS

- MORE (CONNECTIVITY)
  (INFRAESTR...)
- MORE (MULTI-STAKEH. COLAB.)
  (CIVIL SOC., NGOs, LOCAL GOU..
  CORPORATE ...)
- MORE (GRANULAR + STAND. TRAIN.)
  (DEF. OF TARGETS [SCHOOL, CORPORATE,
  INDUSTRY.. ] )

LEARNING BY PRACTISING..

TYPE AND TIME OF SOLUTIONS"

ACCESSIBILITY

# INNOVATION IN EDUCATION

→ introduce sessions of "Teaching Sessions"
    for students → 2 impacts:

**Teach to learn & Learn to Teach** → better understand (what is difficult to understand by others, for themselves)

    → Be able to educate others

→ Mix "out of screens" ways of learning with "screens ways" (too much screens, Needs of "Nature")

**less screens in Education**

→ **Pay students** to attract & retain to study in that frame

→ Foreign students (Indian for example)
→ more "socialization" aspects
→ keep experts in Europe ⟹ Excellence in EUROPE needed!
→ more degrees of certifications
→ interdisaplanary cursus
→ internship enhancement and boner in the cursus (mix theory & operational world)

# HOW TO ENCOURAGE UPSKILLING?
## MOTIVATION

What
→ Demonstrate how important / critical Dig Skills ARE + WILL BE. And, How important Role of Educators is.

Who
→ Educators : - Academic
- Industry


BIG GAP

How
✳ Motivation is/needs to be within Ourselves:
- Relevance to Career
- Become Problem ~~Solving~~ Solvers

✳ Use Tech to Upskill in Tech
→ Immersive
Augmented = "New Way of Life"

nlceday

# The Digital 'Game of Life'

'Entry Motivation'
= Basic Dig Skills

GO

"Whole/Holistic Thinking"

Academic
Educators
+
Developers

Industry
Developers
+
Educators.

Individual → Company

Academic

Ongoing Individual
Motivation
= Upskilling

# ATTRACT
# RETAIN
# LIFE - LONG   LEARNING

## Attract

- Develop work Studies Contract
- Develop digital Culture every where
- Attrack by applications / useages
  NOT by Computing Sciences / coding

## Retain

- Ensure certification recognition at work
- Give means for dedicated individual
  project
- Allow risks taking
- Have access to digital training all
  along her/his (working) life

niceday