SEnDIng

Co-funded by the
Erasmus+ Programme
of the European Union

Bridging the skills gap in the Data Science and Internet of Things domains
A Vocational Education and Training Curriculum

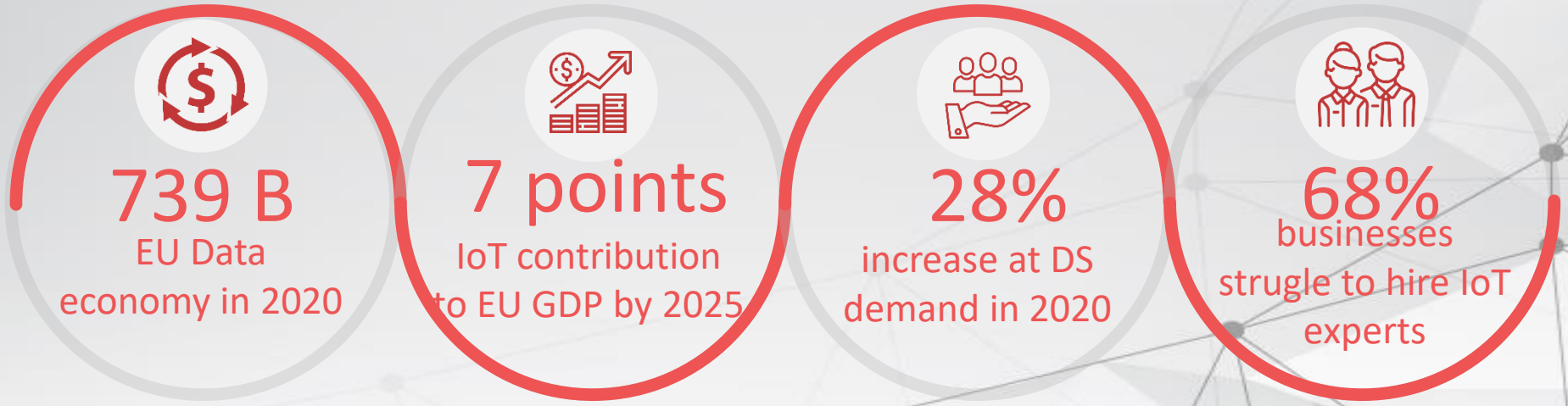
Gkamas V., Rigou M., Paraskevas M., Zarouchas T., Perikos I., Vassiliou V., Gueorguiev I., Varbanov P., Sharkov G., Todorova C., Sotiropoulou A.

28th ICDE World Conference on Online Learning
3-7 November 2019
Convention Centre, Dublin, Ireland

Dr. Vasileios Gkamas
Dept. of Computer Engineering & Informatics
University of Patras, Greece
gkamas@ceid.upatras.gr

DS and IoT scenery

Rapid and continuous evolution of Data Science (DS) and Internet of Things (IoT) technologies with applications in many industries



The challenges

- Variety of the economic sectors exploiting IoT and DS
- Diversity of technical options available in both fields
- Diversity of end users

Challenges faced by stakeholders in the value chain of education and training

- IT professionals in their career orientation
- Organizations designing training programs at several educational levels
- Businesses as recruiters of IT professionals

The problem

1. The current DS and IoT training programs do not match the real needs of enterprises.

2. The current DS and IoT training programs are only technical-oriented and do not commonly provide the learners with transversal skills.

Our contribution

- We present a multi-disciplinary and learning outcomes-oriented VET curriculum that combines technical knowledge and skills at DS and IoT domains with transversal skills and competences.
- The training will be delivered into three phases:

1. Online training on DS and IoT technologies (103 hours for each field)
2. Face to face training on transversal skills (20 hours)
3. Work based learning (4 months)

+ Certification

Curriculum key characteristics

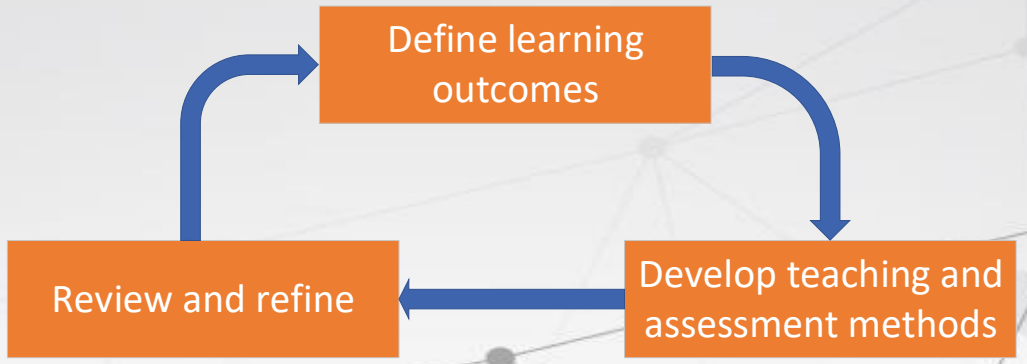
Multi-disciplinar. The modules developed cover both technical knowledge and skills at DS and IoT domains as well as transversal skills and competences

Modular. For each domain, the curriculum is separated in educational modules and training units (Introductory, Core, Advanced)

Learning outcomes-oriented

Curriculum development process

1. Define curriculum goals and design learning outcomes.
2. Develop teaching methods and forms of assessment.
3. Review and refine the curriculum.



Module description

1. Objectives
2. Learning outcomes
3. Content
4. Learning methodologies
5. Assessment methodologies
6. Duration
7. Pre-requisites

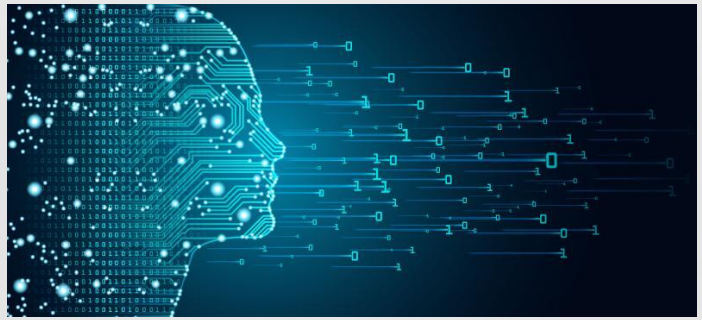
Learning outcomes design

- Macro level design (definition of curriculum learning outcomes)
  - Desktop research for the definition of draft learning outcomes
  - Validation of draft learning outcomes among SEnDIng partners and industry key experts in the respective fields
  - Survey among 76 ICT companies (including C-level representatives)
- Micro level design (definition of each training unit's learning outcomes)

Data Science modules (online)

Introduction to Data Science (DS-EM1)

Applied Machine Learning (DS-EM2)



Python for Data Science (DS-EM3)

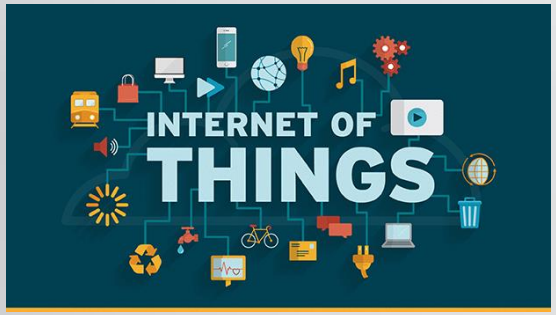
Statistics for Data Science (DS-EM4)

Storing and Retrieving data (DS-EM5)

Data Visualization (DS-EM6)

IoT modules (online)

Introduction to IoT (IoT-EM1)



IoT Devices (IoT-EM2)

IoT Communication Technologies (IoT-EM3)

Architectural Design and Applications in IoT (IoT-EM4)

IoT Security and Privacy (IoT-EM5)

IoT Business Value (IoT-EM6)

Transversal Skills modules (face to face)

Effective communication and presentation (TS-EM1)

Change management (TS-EM2)

Team working (TS-EM3)

Goal setting (TS-EM4)

Creative thinking (TS-EM5)

The SEnDIng training

- It will run from December 2019 to August 2020
- Totally 318 professionals have expressed interest to participate in the 2 trainings
  - 166 IT professionals for DS training
  - 152 IT professionals for IoT training
- We are at the phase of selecting the final list of trainees

The SEnDIng project

- Sector Skills Alliance Erasmus project
- The consortium consists of 12 partners (HEIs, VET providers, IT companies, Associations of IT companies and scientists and a certification body)
- Main objectives
  - Address the skills gap of DS and IoT professionals
  - Design a reference scheme of competences, skills, knowledge and proficiency levels for DS and IoT professionals in accordance with eCF and ESCO.

Thank you!

For further information please contact

Dr. Maria Rigou
Project coordinator
University of Patras
rigou at ceid.upatras.gr

Dr. Vasileios Gkamas
Technical Manager
University of Patras
gkamas at ceid.upatras.gr

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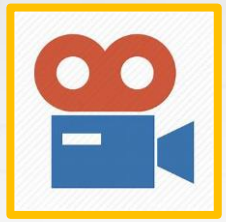

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