Instructional design and development – The DevOps case

Dr Theodor Panagiotakopoulos
Hellenic Open University

All Digital Week
24-03-2021

Job roles

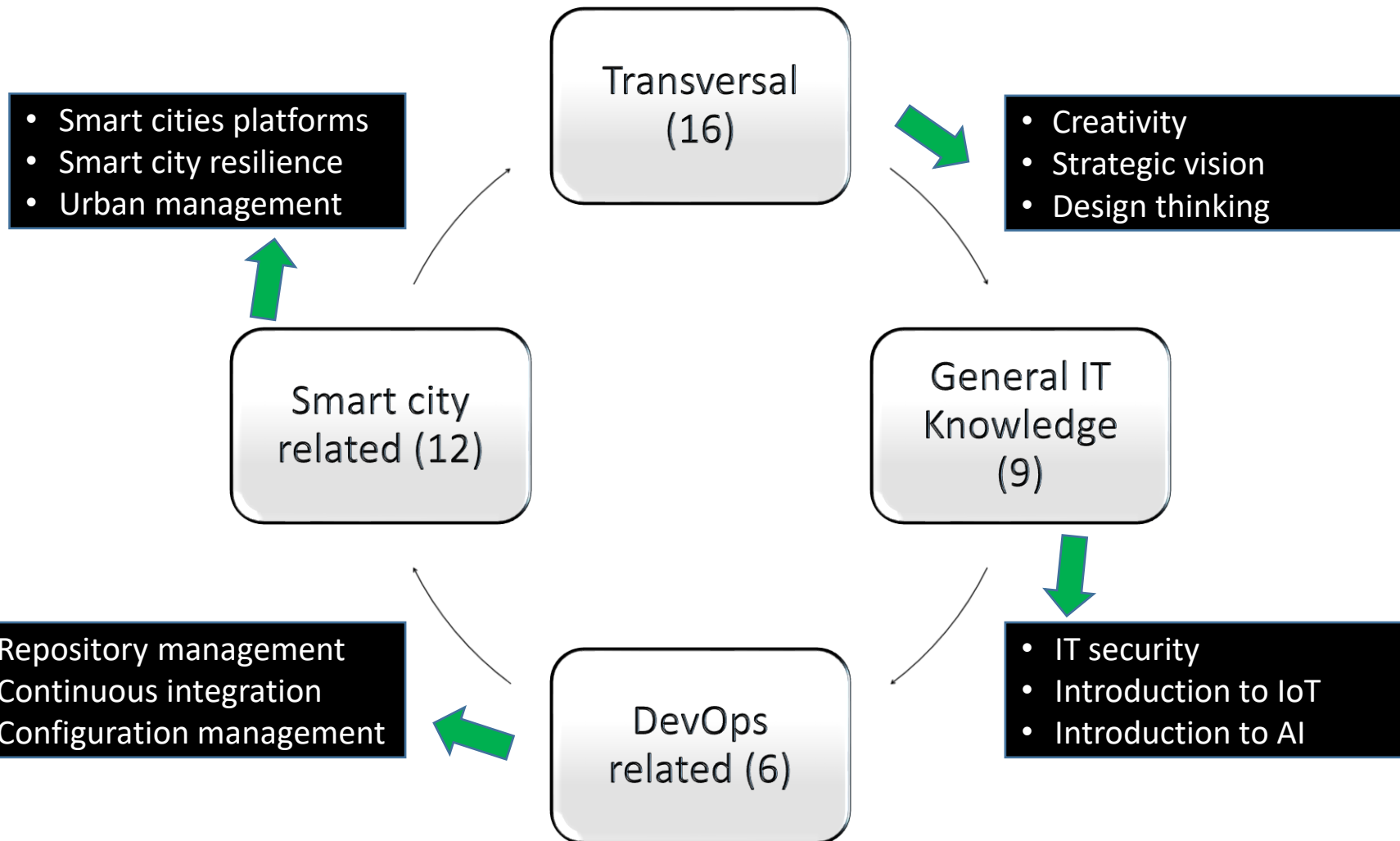| SC Planner	SC IT Head	SC IT Officer
High level official, drawing strategies and monitoring their implementation	Management and coordination of ICT solutions definition, deployment and operation	Technical expertise on design, development and operation of ICT systems and services

Competences

Curricula development
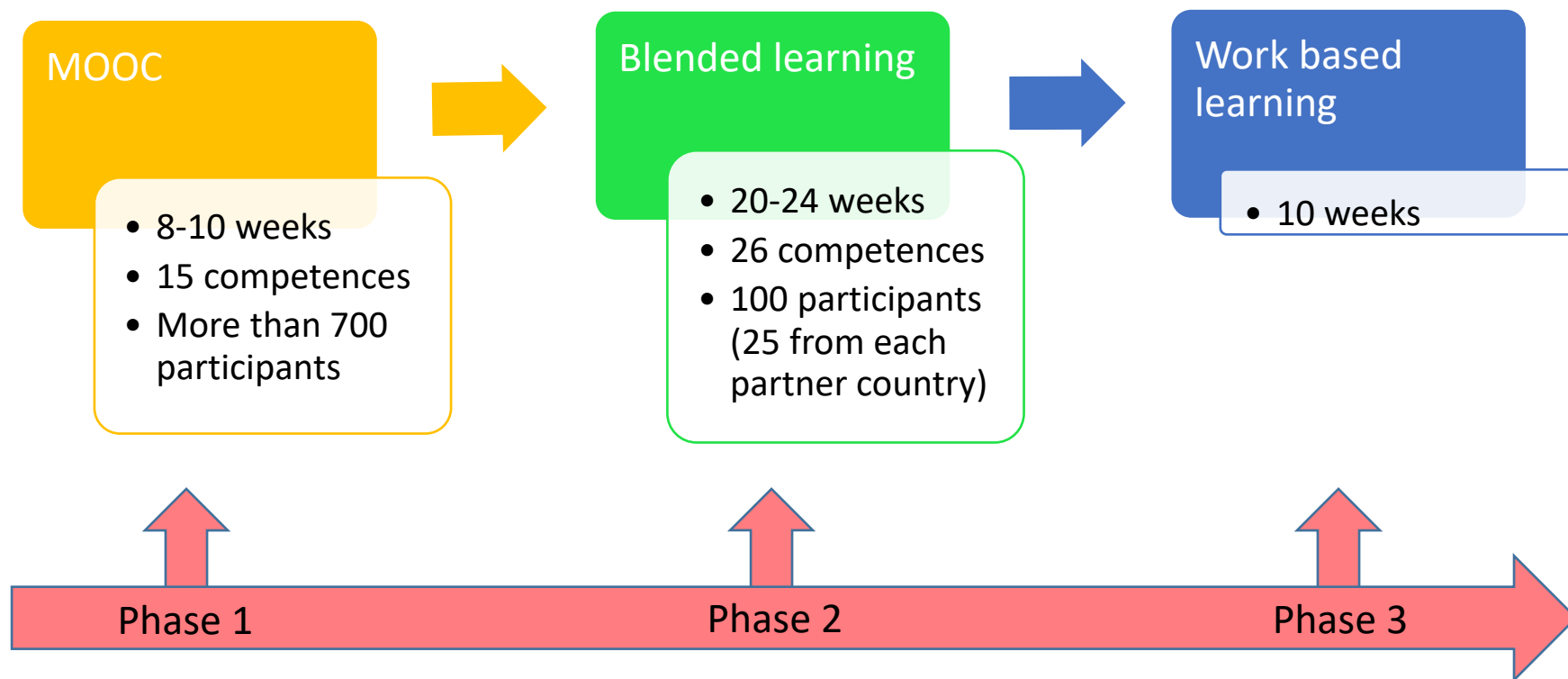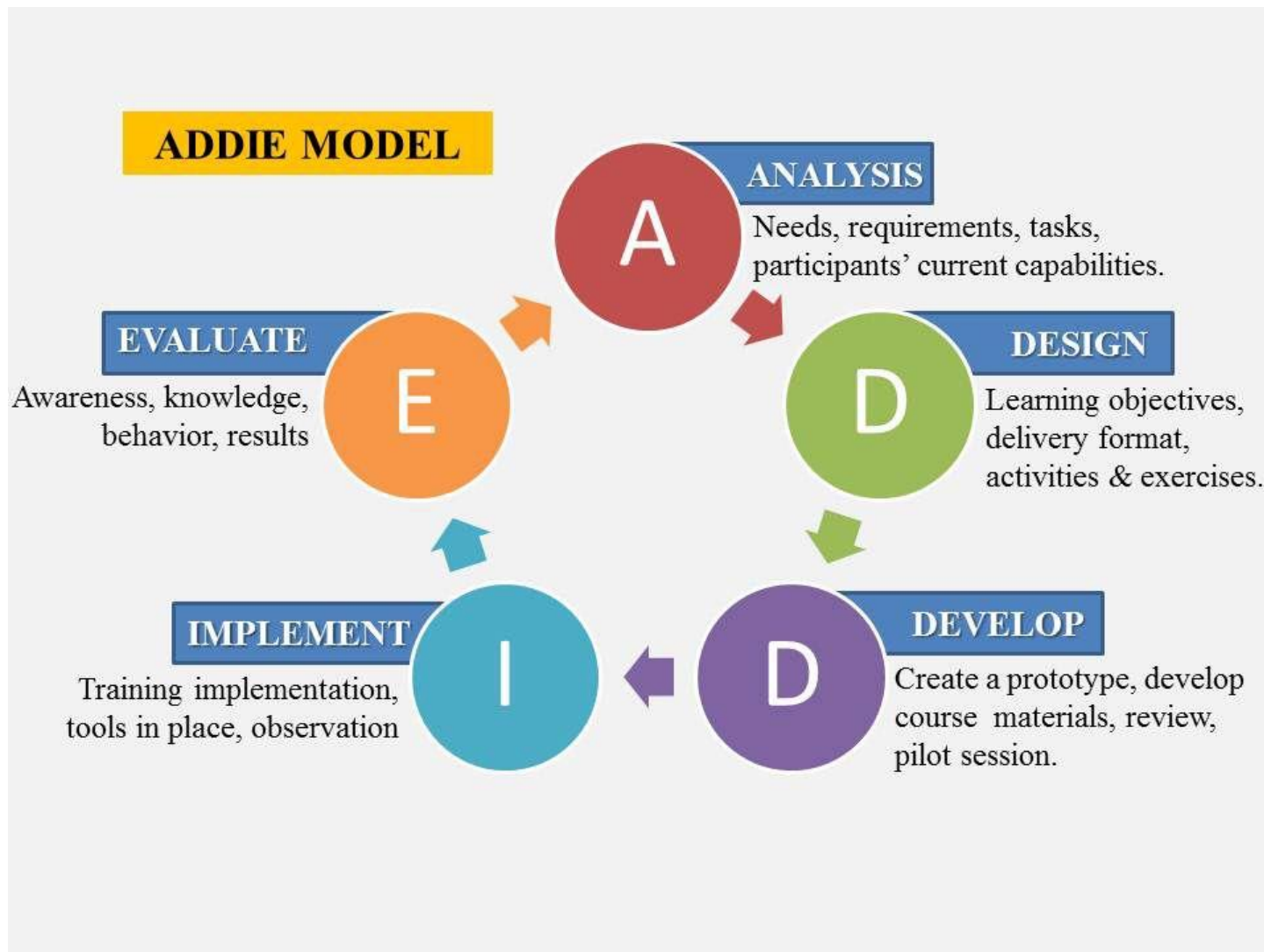
- Based on the **needs analysis** phase

- Questionnaires filled by smart city experts/professionals delineated **optional and mandatory competences** per job role

- Compilation of **four national reports** (Greece, Cyprus, Italy and Germany)

- Creation of **three VET curricula** – one for each job role – considering mandatory competences

¤	Smart City Planner¤		SC·IT·Head¤		SC·IT·Officer¤	
Transversal·skills¤	Mandatory¤	Optional¤	Mandatory¤	Optional¤	Mandatory¤	Optional¤
TRANSVERSAL·SKILLS¤						
1.·Creativity ¤	XXXX¤	¤	XXXX¤	¤	XXX¤	X¤
2.·Entrepreneurial·Thinking¤	XXXX¤	¤	XXXX¤	¤	·XXXX¤	X¤
3.·Ability·to·work·in·a·Team·(including·co-operating·in·an·ad-hoc·fashion;·being·co-operative)¤	XXXX¤	¤	XXXX¤	¤	XXXX¤	¤
4.·Social·Skills·¤	XXXX¤	¤	XXXX¤	¤	XXXX¤	¤
5.·Ambiguity·Tolerance·¤	XXX¤	X¤	XXX¤	¤	·X¤	XXX¤
6.·Motivation·to·Learn·(&·Continuous·Learning)¤	XXXX¤	¤	XXXX¤	¤	XXXX¤	¤
7.·Emotional·Intelligence¤	XXXX¤	¤	XXXX¤	¤	¤	XXXX¤
8.·Strategic·Vision·&·Strategy·Development·(including·switching·from·operational·to·strategic·competences)¤	XXXX¤	¤	XXXX¤	¤	·····X¤	XXX¤
9.·Intercultural·Skills¤	XXXX¤	¤	···XXX¤	X¤	·X¤	XXX¤

Training methodology

MOOC

- 8-10 weeks
- 15 competences
- More than 700 participants

Blended learning

- 20-24 weeks
- 26 competences
- 100 participants (25 from each partner country)

Work based learning

- 10 weeks

Phase 1   Phase 2   Phase 3

The ADDIE approach

➢ Illustrates an **iterative** and self-corrected process since it provides continuous assessment in every step

➢ Follows a **team-based approach** for development

  ❖ the **author** → design and development of the content

  ❖ the **technical reviewer** → monitors the intermediary outcomes assuring the follow the instructional design guidelines

  ❖ the **scientific reviewer** → assures coherence and validity of the produced content

Analysis

DEVOPS COMPETENCES FOR SMART CITIES

➢ **Training problem analysis** to specify course:
- ✓ Purpose
- ✓ Learners characteristics
- ✓ Objectives
- ✓ Structure and timetable

MOOC
- 8-10 weeks
- 15 competences
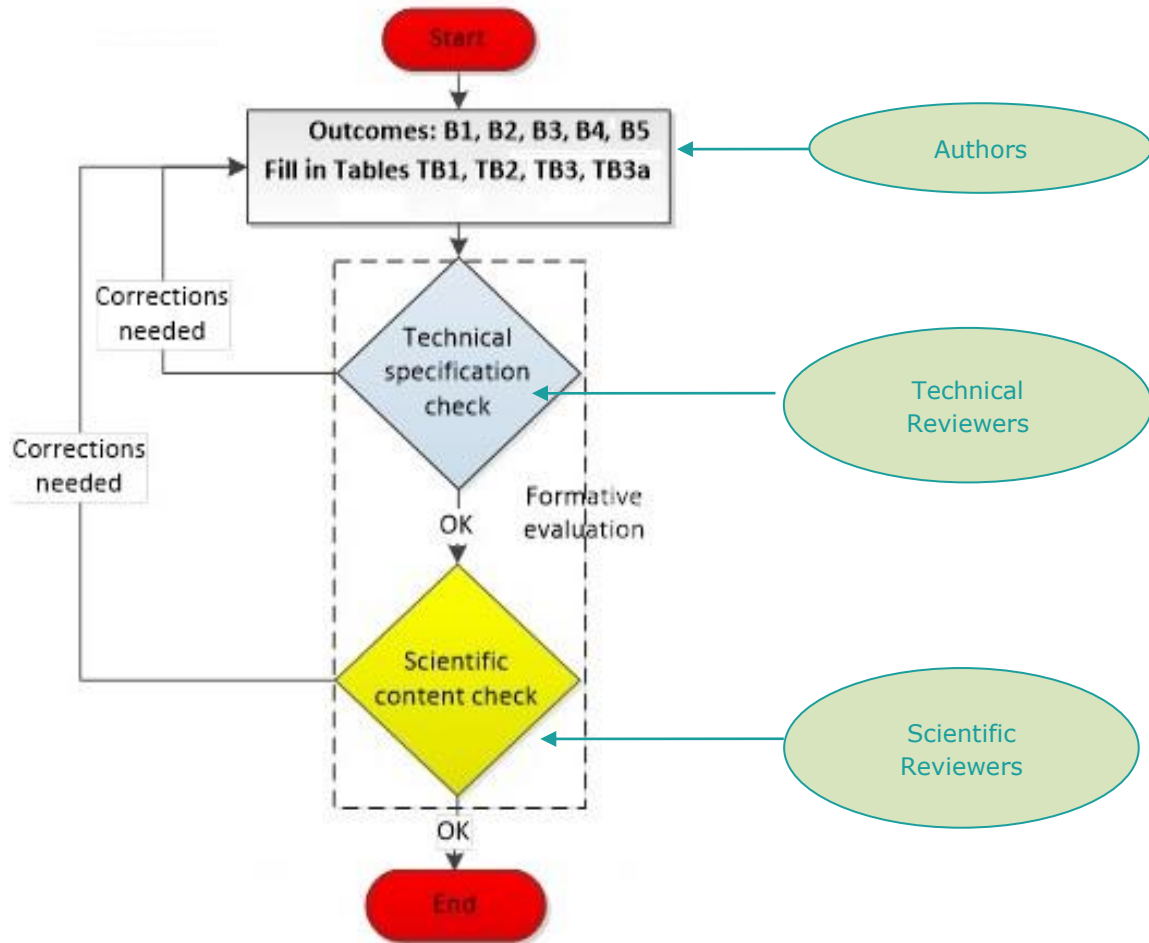- More than 700 participants

Example (DevOps MOOC outline)

❑ Weekly **workload** of 8-10 hours

❑ Each week, will contain 1 to 2 **modules** (each module stands for one competence).

❑ Each module should require 3-6 hours of **study time**

❑ Each module consists of 2 to 6 **units**

❑ In each unit a combination of **core learning objects** (e.g. presentation), **additional educational material** (e.g. e-books), **collaboration objects** (e.g. forum) and **assessment objects** (e.g. quizzes) are considered.

DevOps MOOC structure

MOOC Course (8 weeks)

Design
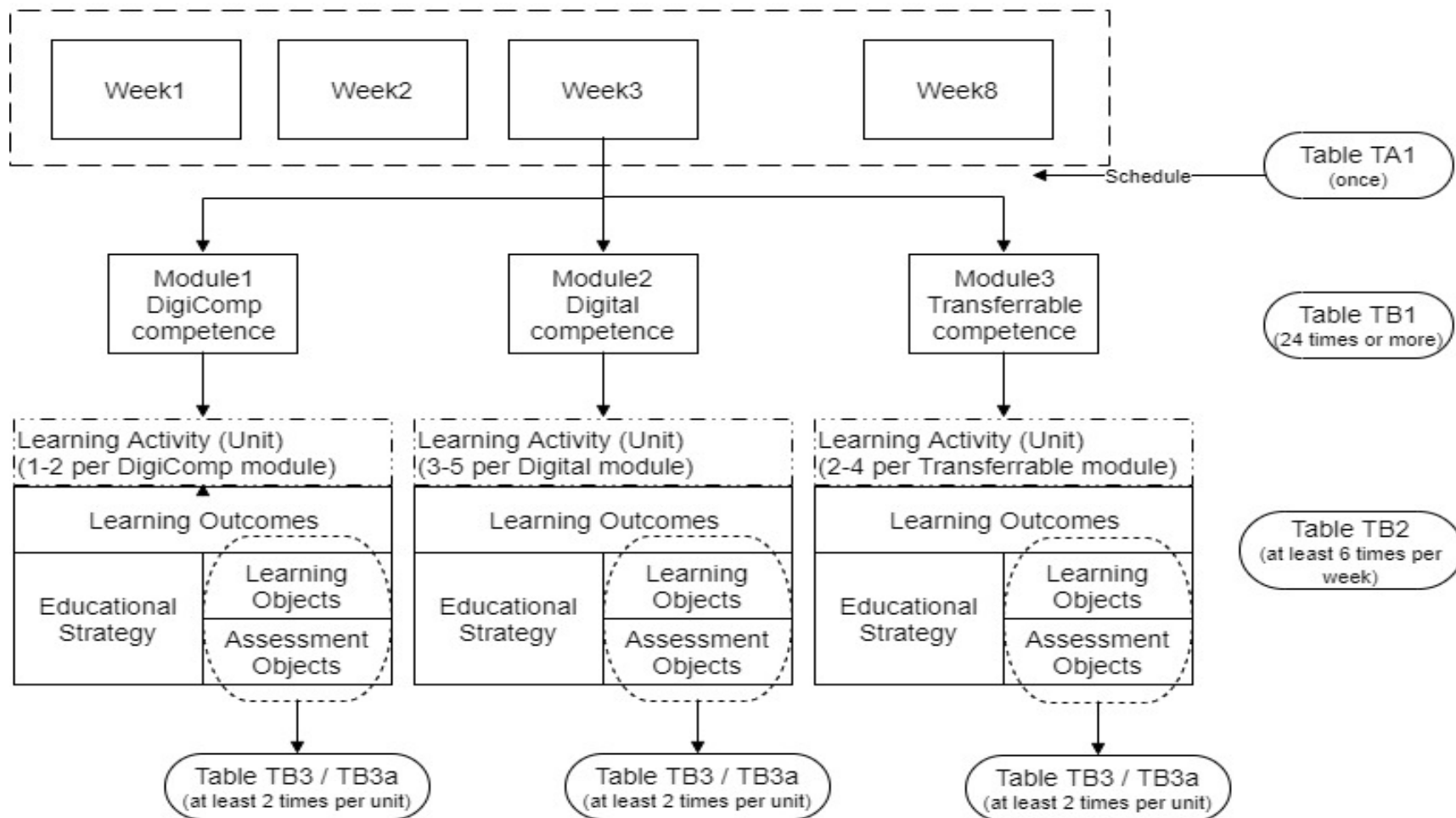
- ➢ The most **essential** and **demanding** stage

- ➢ Main **outputs** include:

  - ❖ Module description

  - ❖ Units description

  - ❖ Learning outcomes definition

  - ❖ Learning objects definition

  - ❖ Learner assessment methods definition

Table TB1. Course module description

Module description – Learning outcomes definition

TB1: COURSE MODULE DESCRIPTION		
1	Course Module code	Course Module code
2	Course Module title	Title of Course Module
3	Course Module description	Description of the module (up to 100 words)
4	Knowledge domain	Knowledge domain of the module
5	Learning objectives	Learning objectives (4 up to 10) for the specific course module

Learning outcomes for the Cognitive domain⁺ (Bloom Taxonomy)	
Code	**Learning Outcome** (please underline the verb and the concept of the knowledge domain used) Upon completion of this module, the learner will be able to:
1. Knowledge level	
2. Comprehension level	
3. Application level	
4. Analysis level	
5. Synthesis level	
6. Evaluation level	

ABCD Approach
SMART Approach

Bloom taxonomy (cognitive domain)

Unit Code*, **	**Unit title**

(*) A unit (learning activity) should be approximately 1-2 hours of study
(**) For each Unit specified above please fill in a Table TB2

Development

- ➢ Production of **learning and assessment material based on the identified learning outcomes**

- ➢ **Platform** development

  - ❖ Set up the MOOC

  - ❖ Upload material

- ➢ **User guides** development

Design & Development

DEVOPS — DEVOPS COMPETENCES FOR SMART CITIES

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

R3.4 Digital OERs

+ New...

Unsorted

1. Creativity (EDEX; UTH)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 2 more

2. Entrepreneurial Thinking (UTH; HdWM)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 2 more

3. Ability to work in a Team (EDEX; HOU)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 2 more

4. Social Skills (CSF; HOU)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 2 more

5. Ambiguity Tolerance (HOU; EDEX)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 3 more

6. Motivation to Learn (HOU; UTH)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 2 more

7. Emotional Intelligence (CSF; HOU)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 3 more

8. Strategic Vision (HdWM; UTH)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 2 more

9. Intercultural Skills (HdWM; CSF)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 3 more

10. Project and Process Management (UTH; EDEX)
- 1. Module/Units Design (Tables TB1,
- 2. Learning Objects Design (Table TB3)
...and 3 more

10. Project and Process Management - Part 2 (UTH; EDEX)
...and 3 more

11. Design Thinking (HDWM; UTH)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)
...and 3 more

12. Decision Making and Problem Solving (UTH; HDWM)
- 1. Module/Units Design (Tables TB1,
- 2. Learning Objects Design

13. Leadership and Management Skills (HDWM; UTH)
- 1. Module/Units Design (Tables TB1,
- 2. Learning Objects Design

14. Stakeholder Management (UTH; HDWM)
- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)

15. Knowledge Management (HOU; HDWM)
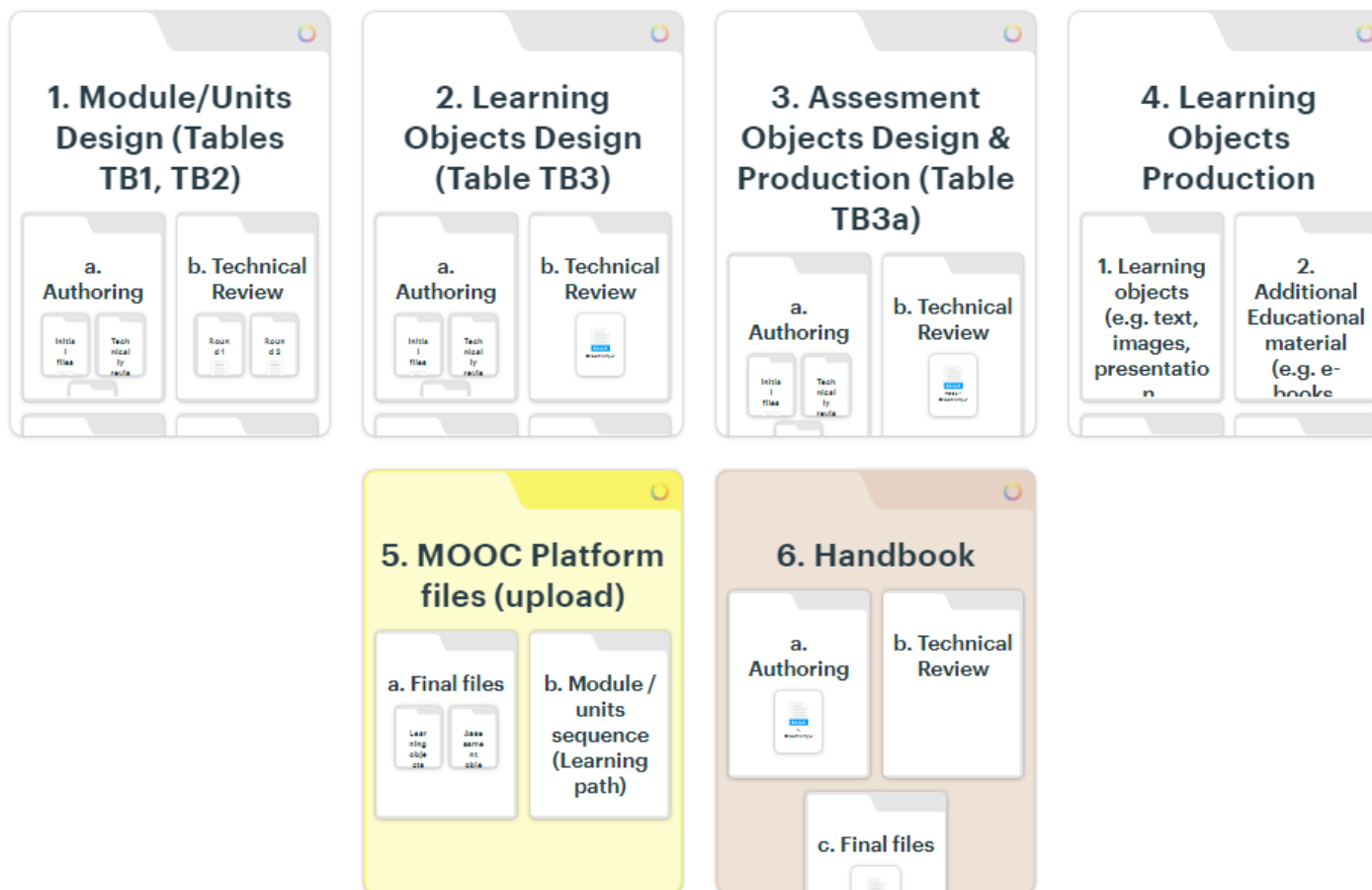- 1. Module/Units Design (Tables TB1, TB2)
- 2. Learning Objects Design (Table TB3)

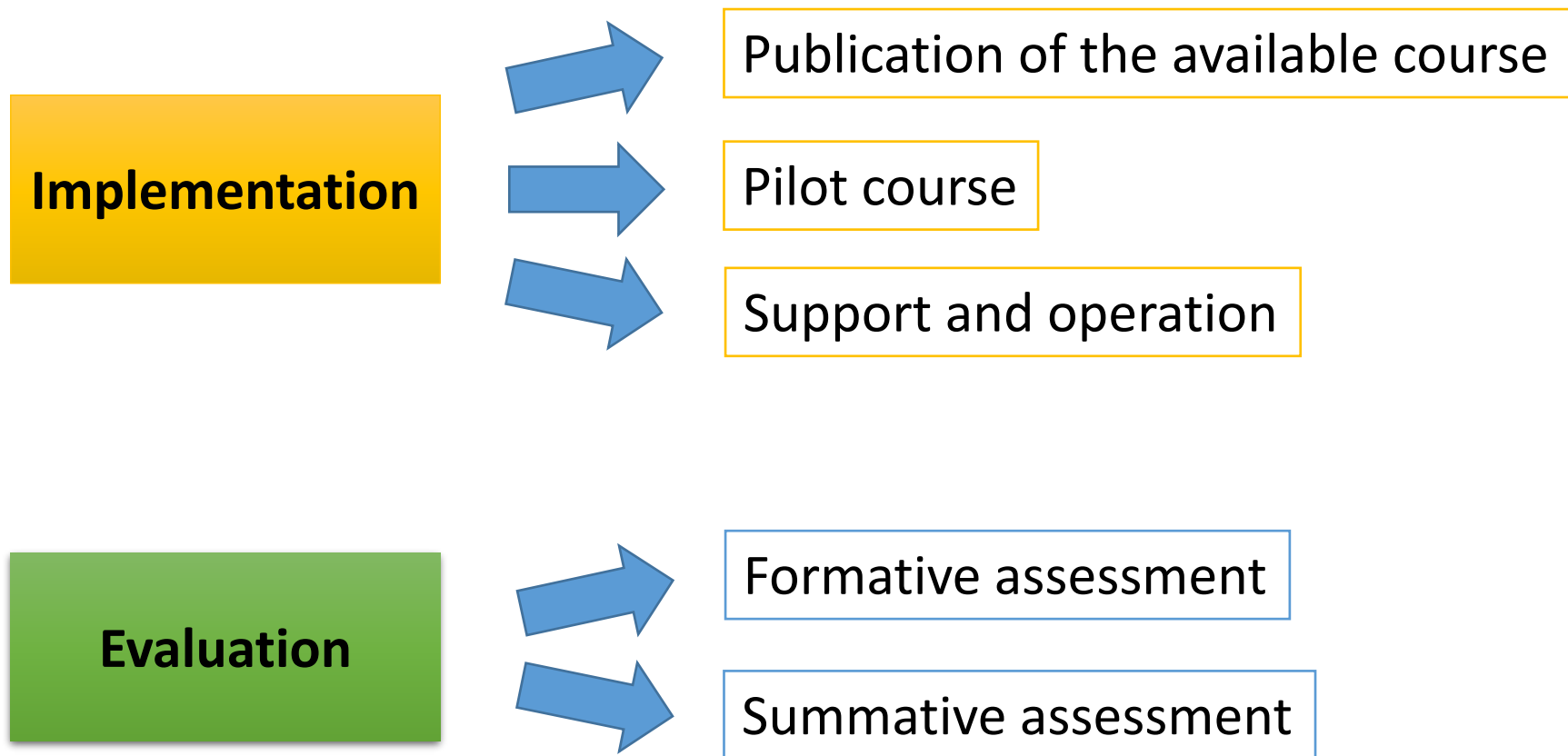Home   Pings   Hey!   Activity   My Stuff   Find

Design & Development

DEVOPS — DEVOPS COMPETENCES FOR SMART CITIES

1. Creativity (EDEX; UTH)

+ New...   Unsorted ▼

1. Module/Units Design (Tables TB1, TB2)
- a. Authoring
  - Initial files
  - Technically revie
- b. Technical Review
  - Round 1
  - Round 1

2. Learning Objects Design (Table TB3)
- a. Authoring
  - Initial files
  - Technically revie
- b. Technical Review

3. Assesment Objects Design & Production (Table TB3a)
- a. Authoring
  - Initial files
  - Technically revie
- b. Technical Review

4. Learning Objects Production
1. Learning objects (e.g. text, images, presentation
2. Additional Educational material (e.g. e-books

5. MOOC Platform files (upload)
- a. Final files
  - Learning objects
  - Assessment object
- b. Module / units sequence (Learning path)

6. Handbook
- a. Authoring
- b. Technical Review
- c. Final files

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

DEVOPS
DEVOPS COMPETENCES FOR SMART CITIES

DevOps MOOC

➢ **15 competences** from all competence categories

➢ Estimated **effort** 5-10 h/week

➢ **English** language

➢ No **prerequisites**

➢ No **fees**

➢ **Duration** 3 months

➢ **Certification** awarded

➢ **980 registrations**

Week	Starting Date	Module
1	19/10/2020	Creativity
2	26/10/2020	DevOps Basic Concepts, Culture and Practices
3	02/11/2020	Entrepreneurial Thinking
4	09/11/2020	Basic Concepts of Cloud Computing
	09/11/2020	Basic Concepts of Data Analytics
5	16/11/2020	Project & Process Management (part 1)
	16/11/2020	Stakeholder Management
6	23/11/2020	Motivation to Learn
	23/11/2020	Ability to Work in Teams
7	30/11/2020	Reflection Week
8	07/12/2020	Strategic Vision
	07/12/2020	Smart Cities Platforms
9	14/12/2020	Basic Concepts of Internet of Things
	14/12/2020	Social Skills
10	04/01/2021	System and Software Architecture
	04/01/2021	Smart Cities Business Models and Financial Management
11	11/01/2021	Reflection Week

DEVOPS
DEVOPS COMPETENCES FOR SMART CITIES

DevOps MOOC platform

Week 4 - Basic Concepts of Data Analytics

Restricted Available from **8 November 2020** (hidden otherwise)

🔵 **WebEx Session** ☑

🔵 **Description, Learning Objectives and Learning Outcomes** ☑

Unit 1 - Introduction to Data Analysis ☑

Core Material

🔴 **Introduction to Data Analysis** ☑

This unit presents to learners an introduction to the fundamentals definitions of Data Analysis.

Assessment

🔴 Week 4.2 - Unit 1 - Assessment Quiz ☑

ⓘ 297 of 951 Attempted

Unit 2 - Descriptive Statistics ☑

Core Material

🔴 **Descriptive Statistics** ☑

This unit presents to learners the fundamentals of Descriptive Statistics.

Thank you for your attention!

http://devops.uth.gr

devops@uth.gr

@SmartDevOpsEU

@devops_smart

Project Number: 601015-EPP-1-2018-1-EL-EPPKA2-SSA

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

UNIVERSITY OF THESSALY

HELLENIC OPEN UNIVERSITY

UNIVERSITY of NICOSIA

CENTRO STUDI CITTÀ DI FOLIGNO

SGI

EVBB
EUROPEAN ASSOCIATION OF INSTITUTES FOR VOCATIONAL TRAINING

ΕΛΟΤ
Hellenic Organisation for Standardisation

CitiesNet
Digital Cities Central Greece S.A.

ANEL
Nicosia Development Agency

HOCHSCHULE DER WIRTSCHAFT FÜR MANAGEMENT
UNIVERSITY OF APPLIED MANAGEMENT STUDIES

ALL DIGITAL
ENHANCING DIGITAL SKILLS ACROSS EUROPE

BBB
Bundesverband der Träger beruflicher Bildung (Bildungsverband) e.V.

K DIGITALE
DIGITAL TRANSFORMATION INSIGHT