Educational Package Specification:

Competences and the Digital Transformation (CDT)

Within the Erasmus+ Knowledge Alliance ProDiT – Projects for the Digital Transformation

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ProDiT
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1. Summary

The **Educational Package "Competences and the Digital Transformation (CDT)"** delivers the competences needed for the competence development and the competence-based management of project teams in the digital transformation.

Overall Learning Outcome: Participants will learn:

- to define the competences needed for the digital transformation, using the competence model for the digital transformation (CMDT),
- to assess and manage the competence development of individuals and teams, and
- to build and lead competent teams for digital transformation (DT) projects.

Target Group Analysis:

- Students in Master's programmes need the competences in addition to their degree major, e.g. management, IT, education or human resources (HR) management,
- professionals need the competences as they progress into management positions, and
- trainers and consultants need the competences in order to analyse and support the digital transformation, including sustainability audits.

Competences & Learning Outcomes: The main competences are:

- Knowledge about the methods, tools and processes for competence management and team development in the digital era, including competence models,
- practical skills to train and develop individuals and teams, and to staff projects,
- scientific reflection about the issues and concepts behind competence-based approaches for project management and organisational development (learning), and
- ability to develop individuals and teams to new competence levels.

Selection of Content: Main topics addressed by the package:

- Competence Management for the Digital Transformation
- Distributed Teams
- Agile Management in Virtual Project Environments
- Managing Digital Change
- Digital Transformation Project for Competence Development in an Organisation
- Scientific Methods and Tools for Competence Management

Concept and composition of the package: The package is composed out of 2 mandatory modules, 1 elective (1 out of 2), a project (with project thesis) and a scientific seminar.

Teaching Materials/Literature/Media/Technical Requirements/Lab Equipment: Digital infrastructure for agile project management and competence management.

Tailoring & Educational Tracks (Practical, Entrepreneurial, Scientific): Tailoring options are focussing on the usage in Master's programmes (Scientific Track) or company trainings (Practical Track).

Competence Assessment: Competence assessment is done with online tests (including self-assessment), oral exams, project assignment reviews, presentation, writing of scientific papers/reports.

Curricula Integration: Educational programmes can integrate the package as:

- single modules as electives
- complete package as a 30 ECTS minor in Master's programmes
- project assignments

in educational programmes like Master's in Management, Business Administration or HR, Master's in Education, Master's in Project Management, Master's in Informatics, Business Informatics, or Information Technology.

Quality Evaluation:

Pre- and post-course assessment based on self-evaluation, including reflection on acquired knowledge, skills, and abilities.

Change History & Ownership:

Release V1.0: Initial version of the specification of the edupack "Competences and the Digital Transformation (CDT)", 09.09.2022

Authors: Nargiza Mikhridinova, Bertha Ngereja, Carsten Wolff, Wim Van Petegem, Bassam Hussein, Olena Verenych

Release V2.0: Revised version of the specification of the edupack "Competences and the Digital Transformation (CDT)", 04.01.2024

Authors: Nargiza Mikhridinova, Carsten Wolff, Wim Van Petegem, Olena Verenych

Release V3.0: Revised version of the specification of the edupack "Competences and the Digital Transformation (CDT)", 14.10.2024

Authors: Nargiza Mikhridinova, Carsten Wolff, and Wim Van Petegem

Table of Content

2. Introduction to the educational package

The educational package (edupack) on “Competences and the Digital Transformation (CDT)” delivers the relevant project management and educational/HR competences:

- to define the competences needed for the digital transformation, using the competence model for the digital transformation (CMDT),
- to assess and manage the competence development of individuals and teams,
- to build and lead competent teams for digital transformation (DT) projects.

The competence is delivered by providing the:

- mandatory module “Competence Management for the Digital Transformation” (6 ECTS)
- mandatory module “Distributed Teams” (6 ECTS)
- elective module (choose 1 out of 2) “Agile Management in Virtual Project Environments” (6 ECTS)
- elective module (choose 1 out of 2) “Managing Digital Change” (6 ECTS)
- elective module “Scientific Methods and Tools for Competence Management” (6 ECTS)
- team/individual project assignment “Digital Transformation Project for Competence Development in an Organisation” (12 ECTS)

The edupack covers three main concepts: Project, Progress, and Person united by overarching concept of a Project Team, and addresses topics like:

- How competences of project teams are essential for project success [1]? What are the trends in competence management?
- What is competence or competency [2]? What is a competence profile and a competence model? How can competence management be digitally supported?
- How can the competence of a team or an individual be assessed? How can the required competences for a project be estimated [3]? How can the Competence Model for the Digital Transformation (CMDT) be used for this?
- How can DT projects be staffed and led with respect to competences?
- How can the competence of individuals, teams and organisations be developed?
- What are relevant sources of information about the topics? What are recent developments in the field [4]? Is there key literature?

3. Educational package Description

3.1 Overall Learning Outcomes

The main competences are (according to EQF [5], [6]):

- Knowledge about methods, tools and processes for competence management and team development in the digital era, including competence models.
- Practical skills to train and develop individuals and teams, and to staff projects based on competence descriptions.
- Scientific reflection about the issues and concepts behind competence-based approaches for project management and organisational development (learning).
- Ability to develop individuals and teams to new competence levels.

The next learning domains of competences are addressed (according to EQF-Level 7, [5]):

- **Knowledge**: differences between skill- and competence-based staffing of (DT) projects, understanding of importance of competence-based approaches in (DT) projects staffing, various trends of project staffing based on competence description, differences between “competency” and “competence” concepts, digital tools supporting project staffing, methods of project teams composition and development, awareness and understanding in finding relevant and high-quality literature sources on team staffing and competence management for DT projects.
- **Skills**: analysis of competence requirements for (DT) project staffing, ability to develop competence management and development plans for project teams and projectized organisations, ability to create a bigger picture of competence management on individual and organisational levels, ability to recognise and propose solutions for various team scenarios (e.g., composition, training/development, conflict resolution), ability to define and perform relevant competence assessment procedures.
- **Responsibility** and autonomy: ability to solve complex/non-trivial cases on DT project staffing (independently and in the (given) teams), reflection on acquired knowledge and skills and ability to apply those independently based on the given (case) context, ability to find creative solutions to provided cases, ability to apply the acquired knowledge and skills to the team situations happening during the group works (in this and other courses).

Learning Outcomes/Competences need to consider several competence domains [7]:

- **Technical Competence:** This involves digital literacy in relevant competence management tools, including project management tools and methods in general, scientific methods and tools, aiming at supporting decision making processes on competences allocation.

- **Professional Competence:** This involves effective communication about competences' gaps and their potential development, critical thinking and reflection on team compositions for future projects (based on historical data), ability to apply leadership skills in various team scenarios [8].
- **Global Competence:** This involves awareness of applying methods and tools to allow group of employees assigned to a project function as a team and understanding how to transform potential drawbacks in a team to its strengths leading to a full team capacity; ability to see a bigger picture of a project team in a more global context.

The **Overarching Learning Outcomes (OLO)** [9] are: the ability to identify what competences are required for a project to be successfully implemented, the ability to employ projects to develop required or desired competences, the ability of making decisions on best team composition based on available competence data and limited by uncertain project outcomes.

3.2 Target Group Analysis

Relevant target groups are:

- students in master's programmes, who need the competences in addition to their degree major, e.g. management, IT, education or HR management. Students should have previous experience of team work at least in educational context in order to reflect on the content of the course, understanding of projects' nature and settings, knowledge of basic project concepts (constraints, projectized organisations, etc.).
- professionals, who need the competences as they progress into management positions. Professionals should have previous experience in project management or experience of working in projectized organizations, or relevant background in their previous education.
- trainers and consultants, who need the competences to analyse and support the digital transformation, including sustainability audits. Trainers/consultants should have previous experience in project management/of working in projectized organisations, or at least knowledge of basic project concepts (constraints, projectized organisations, etc.).

3.3 Competences & Learning Outcomes

This chapter contains a more detailed description of the competences (knowledge, skills and attitudes) delivered by the educational package (based on [10]).

Knowledge:

- understand the differences between concepts like competence, competency and skill,
- describe key terms, classifications, and methodologies related to competence management and (DT) project staffing,
- elaborate on different competence models (describing competence profiles) and competence frameworks supporting digital transformation project management (including CMDT),
- outline recent developments in the field of competence management,
- recognize which staffing approaches fit best to form a DT project team,

- demonstrate knowledge of project staffing methods, competence management tools, and competence development/assessment processes.

Skills:

- apply acquired knowledge to complex, real-world cases on competence management in (DT) projects,
- employ competence models to develop project teams in given settings (e.g., with the focus on the digital era),
- interpret the (DT) project description to derive required for the project competences,
- compare and identify the best team composition based on competence data,
- operate with competence data to further define competence development plans (within teams and organisations).

Abilities:

- appraise and synthesize the acquired knowledge to solve complex, real-world cases on competence management,
- acknowledge various personalities in the study teams to better perform the given course assignments,
- acknowledge a bigger picture linking organisation's maturity and competence assets of an organisation,
- distinguish between relevant sources of information about the competence management topic in order to build on it and extend the existing body of knowledge.

3.4 Content

Main topics addressed by the package:

- Competence Management for the Digital Transformation
- Distributed Teams
- Agile Management in Virtual Project Environments
- Managing Digital Change
- Digital Transformation Project for Competence Development in an Organisation
- Scientific Methods and Tools for Competence Management

3.5 Concept and composition of the package

A) Overall concept, curation of content, didactic concept

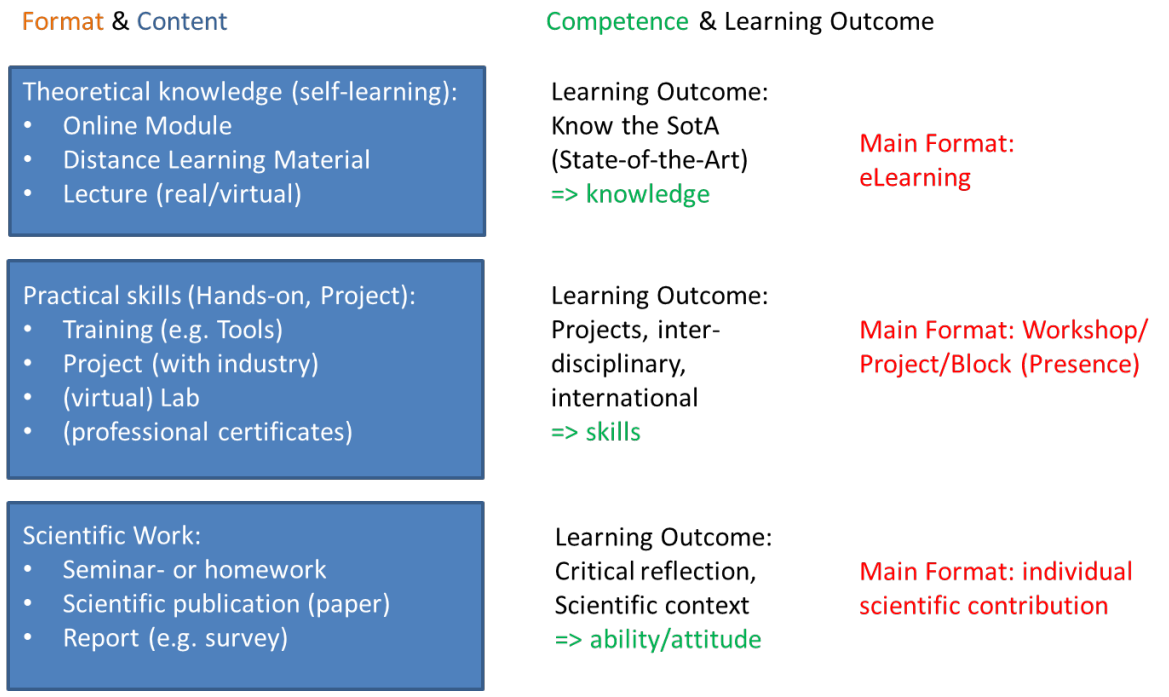

Figure 1 Didactic Formats per Competence Area [see specification "Educational & Didactic Concept"]

The educational package follows the following concept:

- Knowledge about the methods, tools and processes for competence management and competence-based project management for the digital transformation will be provided within 2 mandatory eLearning modules and 1 (out of 3) elective eLearning modules. The educational resources will contain online courses, classical lecture slides, video courses, tutorials, reading materials etc. Knowledge is delivered and assessed with tests and exams. Prior knowledge is assessed with self-assessments.
- Practical skills are already addressed in the mandatory and elective modules by conducting team exercises and small project assignments. Industrial case studies are used.
- Practical skills (including overarching learning outcomes (OLOs), professional and global competences) are intensively trained by conducting a development project for a sustainable digital innovation, usually as a student team, solving a realistic problem for an industrial case study, generating realistic work situations. The management project might be conducted cross-border in an international setting.
- The ability to build competent teams and to develop the competence of individuals, teams and organisations is trained by preparing students for such roles, put them into the roles in projects, and by letting them reflect on the role afterwards.
- The scientific competences for analysing, reflecting and researching on the competences and competence management for the digital transformation are delivered with small scientific assignments (e.g. homework) in the mandatory and elective modules, an optional scientific seminar (including courses on research methods & tools, actual research tasks, and writing a scientific paper for a Master student conference), and a possible scientific

thesis on the management project. This can be later continued into a scientific publication and/or a Master thesis.

B) Educational Elements

The package is composed out of:

- eLearning Modules (including online courses)
  - Competence Management for the Digital Transformation (6 ECTS), mandatory
  - Distributed Teams (6 ECTS), mandatory
  - Agile Management in Virtual Project Environments (6 ECTS), elective
  - Managing Digital Change (6 ECTS), elective
- Projects (including methodology, templates, courses on project-based work)
  - Digital Transformation Project for Competence Development in an Organisation (12 ECTS)
  - Or as an alternative: Company Internship (12 ECTS)
- Case studies (digital description, data, materials)
  - (Data) Analytics for Competence Management
  - Competence-based Support for Project-based Learning
  - "Smart" Competence Management with Cloud-based tools
- Scientific elements:
  - Scientific Seminar, 6 ECTS, elective

C) Teaching & Learning Activity Plan

Modules	ECTS	Description
Mandatory (Core) Modules		
Competence Management for the Digital Transformation	**6**	Including the Competence Model for the Digital Transformation (CMDT)
Distributed Teams	**6**	
Elective (Additional) Modules		
Agile Management in Virtual Project Environments	*6*	
Managing Digital Change	*6*	
Scientific & Practical Elements		
Scientific Seminar (Elective)	**6**	scientific methods and tools for the competence management for the digital transformation, including e.g. course on Research Methods &

		Tools, assignment of writing a paper for a (student) conference
Digital Transformation Project for Competence Development in an Organisation	**12**	Students conduct a team project (2-4 students per team) on a consulting case study and present the results
Company Internship (alternative to management project)	*12*	*Students conduct an internship and deliver an internship report*

3.6 Teaching & Learning Resources

Learning Management System (LMS): moodle

IT tools for project and competence management: Atlassian Confluence, Jira, and access to demos of competence management tools

IT tools for collaborative work: Microsoft 365, including MS Teams

Required digital learning resources:

- Case studies
  - (Data) Analytics for Competence Management: this case study provides background information on how a consulting/engineering company manages information on competence profiles of their employees. Different processes on assignment and training are considered with suggestions on improvements. Students are asked to perform roles of (a) consultants to give directions how current processes can be improved, and (b) project leads, who use competence data to assign team members to projects, teams and solve relevant problems.
  - Competence-based Support for Project-based Learning: this case study focuses on how to plan learning journeys based on the analysis of competence data. Students will be offered roles of themselves planning their own educational journeys or of consultants/project leads, who need to advice on competence development.
  - "Smart" Competence Management with Cloud-based tools: this case addresses a real cloud-based competence management tool in detail (with a demo). Students are asked to suggest additional scenarios on competence data using, e.g., which additional information the competence data gives a user after finishing self-evaluation procedures, or what a "supervisor" of an employee can conclude based on this data.
- Online courses and demos: courses will be suggested on data mining techniques to process competence data, and a demo of competence management tools will be offered.
- Tutorials and reading materials:
  - **Webinars**: (1) Smart competence management: detecting hidden talents with a cloud-based tool - https://youtu.be/422aFuTlCnw; (2) "Digital Transformation

Projects: A Guide to Organizational Readiness" - https://youtu.be/g9DAhmVbb8M; (3) What are the competences for digital transformation? - https://youtu.be/EO5yNtVaUHA

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- **Scientific papers:**

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3.7 Tailoring & Educational Tracks

The educational package will implement 2 Educational Tracks:

- Practical: focus on professionals and consultants => company training programme
- Scientific: focus on Master's students

3.8 Assessment Methods

Planned assessment methods:

FORM	ECTS	REMARK
Competence Management for the Digital Transformation	6	Team project + presentation (50%) and homework (50%)
Distributed Teams	6	Team project + presentation (50%) and oral exam (50%)
Agile Management in Virtual Project Environments	*6*	*Team project + presentation (50%) and oral exam (50%)*
Managing Digital Change	*6*	*Team challenge (50%) and online test (50%)*
Scientific Seminar	*6*	*Test (Research Methods & Tools) (30%), Scientific Paper presented at a conference (70%)*
Digital Transformation Project for Competence Development in an Organisation	12	Project pitch as a team presentation (30%), (training) concept presentation (30%), written reflection report (40%)
Company Internship	*12*	*feedback of employer (30%), internship report (30%), presentation of work results (40%)*

3.9 Curricula Integration

Educational programmes can integrate the package as:

- single modules as electives
- complete package as a 30 ECTS minor in Master's programmes
- project assignments

in educational programmes like Master's in Management, Business Administration or HR, Master's in Education, Master's in Project Management, Master's in Informatics, Business Informatics, or Information Technology

3.10 Quality Assurance – Evaluation

Pre- and post-course assessment based on self-evaluation, including reflection on acquired knowledge, skills, and abilities. Examples of a pre- and post-course evaluations.

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