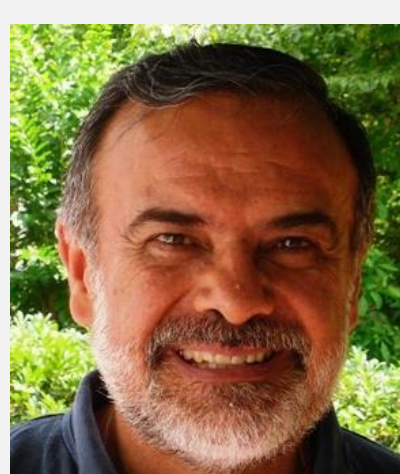


Reengineering engineering education for the digital age



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REDINGE2 project essentials

The REDINGE2 Project seeks to transform engineering education practices by means of technology-based active learning strategies in courses of the different disciplines, redesigned under Big Ideas approach. Studies from this two-year project (2017-2018) will solve 3 main questions:

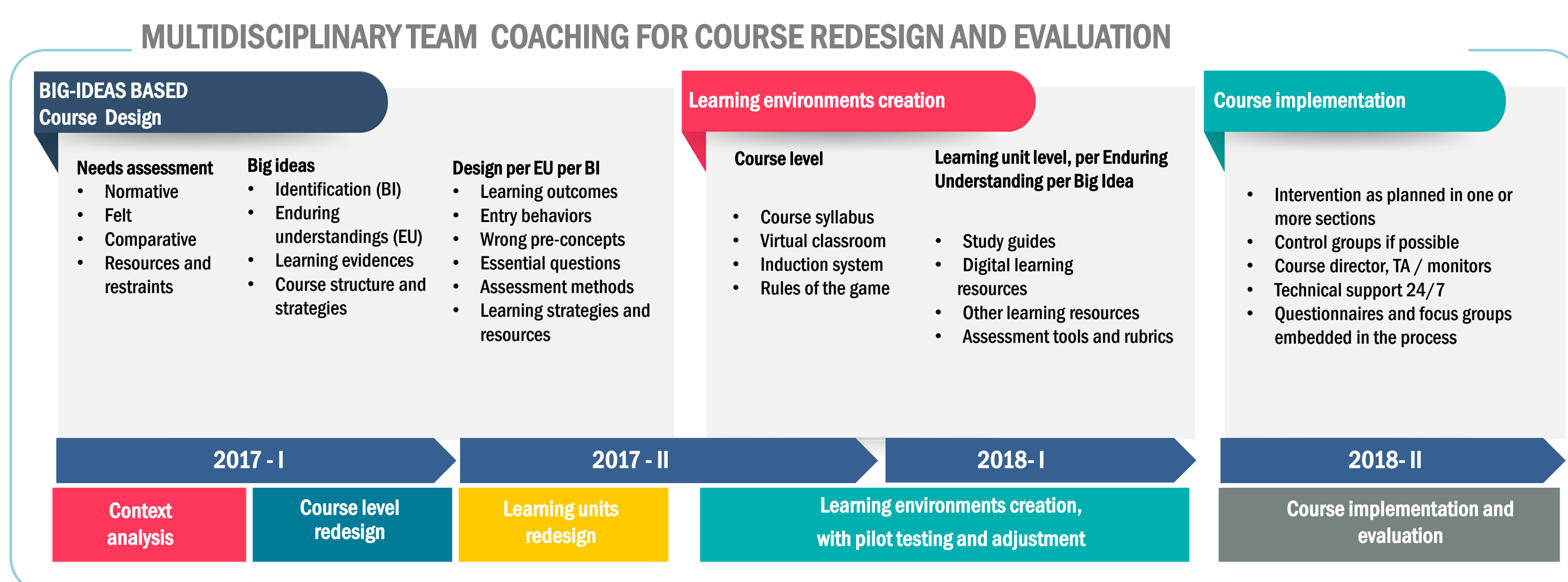
1 What changes in Engineering teaching conceptions, methods, tools and practices generate reengineering courses under Big Ideas approach?

2 What effects on student's learning strategies and results has the implementation of courses redesigned for active learning with ICT support?

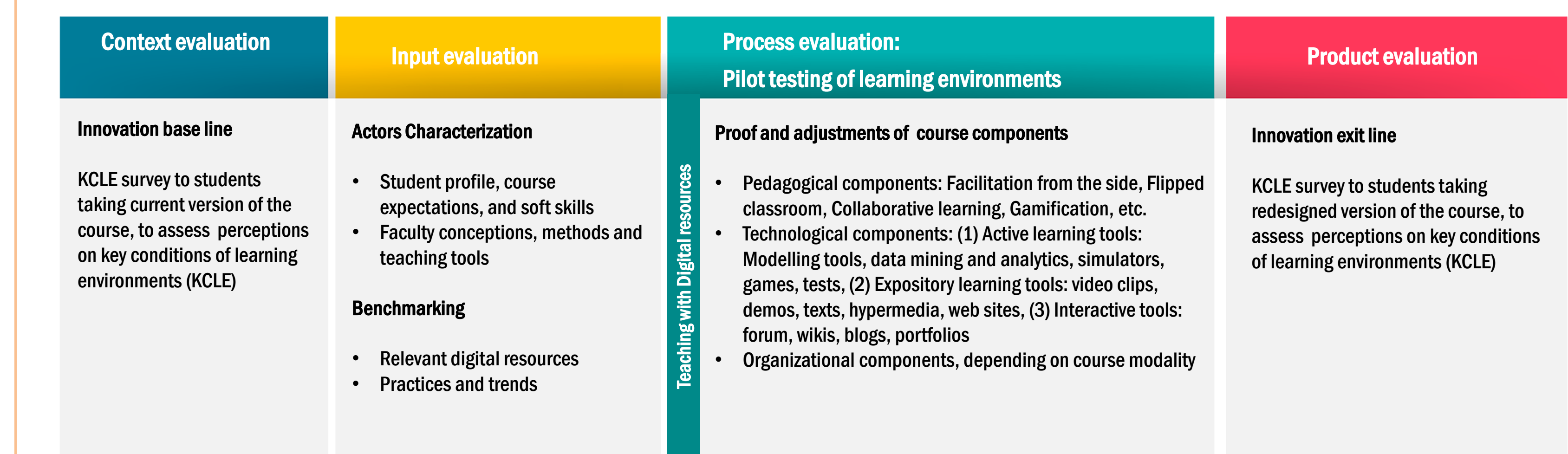
3 What effects on student's learning strategies and results has the implementation of courses redesigned for active learning with ICT support?

Transformation elements

Design methodology



CIPP –Context, Input, Process, Product– EVALUATION MODEL



On the way findings, after 1.5 out of 2 years

Findings set #1. Needs assessment results served as a base to:

- Design course structures and strategies articulating big ideas / fundamental concepts, assessment and learning strategies.
- Define learning evaluation methods and means to measure performance levels (soft skills and disciplinary competencies).
- Define teaching strategies to foster achieving soft and disciplinary skills associated with each big idea.

Findings set #2. Course-level and learning unit-level design processes allowed to:

- Carry out pedagogical reflection on how the discipline is taught and how to encourage students to learn.
- Create curricular structures and pedagogical and motivational strategies that respond to the identified enduring understandings per big idea.
- Select / create / pilot test ICT that allow flexible implementation of selected pedagogies.

Findings set #3. Surveys and focus groups with students were carried out for each redesigned course. This allowed to find out student perceptions about techno-pedagogical transformations of the courses. In synthesis:

- Students highlight the contribution made by the use of technology for learning processes.
- They value the use of diverse resources to access pertinent, accurate and sufficient information.
- Students recognize that interaction among students has improved, as well as among teachers.
- They identify the improvement of the evaluation and feedback processes, allowing them to know what they should and how to do it.
- Students point out that the activities are more interesting and motivating because they are authentic, close to professional work.
- They indicate that courses have improved their organization: balanced academic load, effective communication mechanisms, good distribution of the activities, accessibility to the contents have been adjusted.

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Pedagogies and technologies used in 14 transformed courses

Number of courses:
Primary learning strategies

- 5 Project-Based Learning
- 5 Problems-Based Learning
- 2 Team-based learning
- 1 Flipped classroom
- 1 Case-based learning

Number of courses:
Resources

- 93 Videos
- 40 Tutorials
- 37 Interactive presentation
- 24 E-Book / Class note
- 10 Interactive resources
- 8 Infographics
- 4 Software

Number of courses:
type of evaluation

- 4 Co-evaluation
- 5 Standardized instruments
- 5 Self-evaluation
- 14 Formative evaluation activities
- 14 Summative evaluation activities

People involved in 14 transformed courses

