GDI Gender and Diversity in Engineering | RWTH AACHEN UNIVERSITY

Identifying Curriculum Disruptions in Engineering Education through Serious Gaming

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European Commission

DECART Agility, Resilience and Transformation in Curriculum Design

Workshop Agenda and Objectives

Agenda

Activity	Time
Introduction	~ 10 minutes
Game Activity: Identifying Trigger and Impacts	35 minutes
Discussion and Takeaways	15 minutes
Feedback (Survey)	

Expected Learning Outcomes

- Identify key trigger events affecting engineering curricula
- Analyze impacts & feedback loops using scenario mapping
- Reflect on applicability of SUCRE to your own institutional context

Motivation

Living in a VUCA World (Volatility – Uncertainty – Complexity – Ambiguity)

- Crises and disruptions in HEIs are increasing (COVID-19, funding shifts, tech changes)
- Technical universities/engineering programs seem to be highly vulnerable, as:
  - Frequent reliance on traditional teaching methods
  - Rigid curriculum structures
  - High dropout rates
  - …
- Aim: Build capacity to anticipate, adapt, and transform curricula (i.e. developing resilience) in a VUCA world

  →Serious Games as a tool to support effective decision-making in complex scenarios and to raising awareness

DECART

Agility, Resilience and Transformation in Curriculum Design

- International cooperation project with partners from Europe, South Africa and Indonesia
- Developing a practical framework for curriculum designing that is agile, resilient and adaptable in VUCA contexts
- Activities, i.e.
  - Development of a Serious Game to facilitate curriculum design and resilience thinking

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UNIVERSITY OF KWAZULU-NATAL

Vilnius University

decartproject.eu

The Game

SUCRE – Serious University Curriculum REsilience game

- Part of the **DECART** project
  - fostering exchange of innovative curricula and strategies for implementation in VUCA contexts
- Players work in teams
- **Three steps:**
  1. Building situational awareness
  2. Identifying vulnerabilities of a HEI
  3. Building adaptive capacity

  → **Focus on engineering curricula**
- **Game elements**:
  - Identity Cards = fictional universities with strengths and weaknesses
  - Trigger Cards = crises/events with VUCA characteristics
  - Impact Cards = positive, negative or uncertain consequences

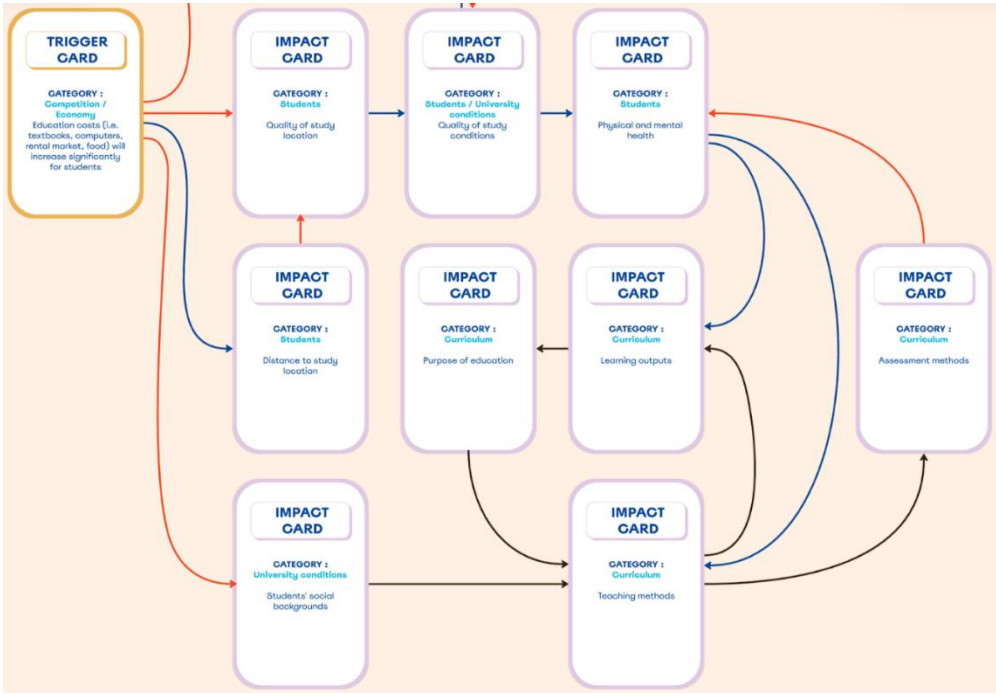
The Game – Focus of Today: Step 1

35 minutes – Building situational awareness

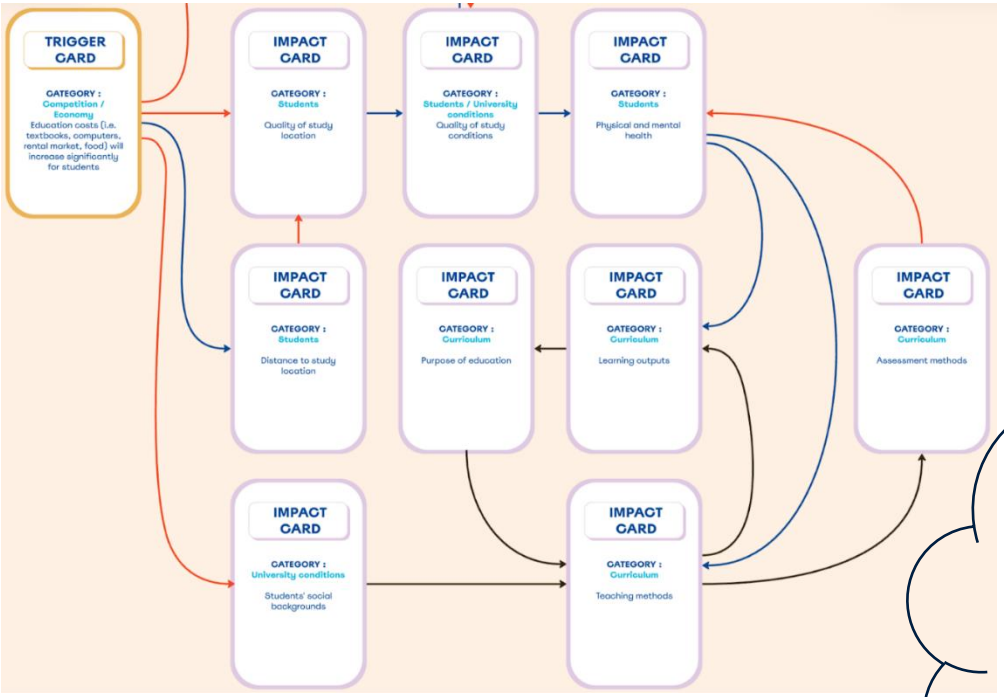
Every table gets the same identity card (Environmental Engineering), the same trigger and impact cards.

Your task:

1. Carefully read the Identity Card (Environmental Engineering)
2. Discuss which of the Trigger Cards could be relevant for this case
3. Consider the possible impacts of the triggers you selected (Impact Cards)
4. Visualize the relationships between triggers and impacts using arrows:
   - Red = negative impact
   - Blue = positive impact
   - Black = uncertain impact



Discussion



What triggers and impacts did you consider? What did you discuss?

How can SUCRE be adapted to engineering education?

How could you apply these insights in your institutions? What adaptations would you need?

SUCRE Next Steps

- **Three steps:**
  1. Building situational awareness
  2. Identifying vulnerabilities of a HEI
  3. Building adaptive capacity

- You find all material for SUCRE here: https://hub.imt-atlantique.fr/decart/?page_id=270
- A User Manual, Videos and an Animators Guide can help you

Feedback

We would appreciate your feedback on the SUCRE Game!

Thank you
for your attention!

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