

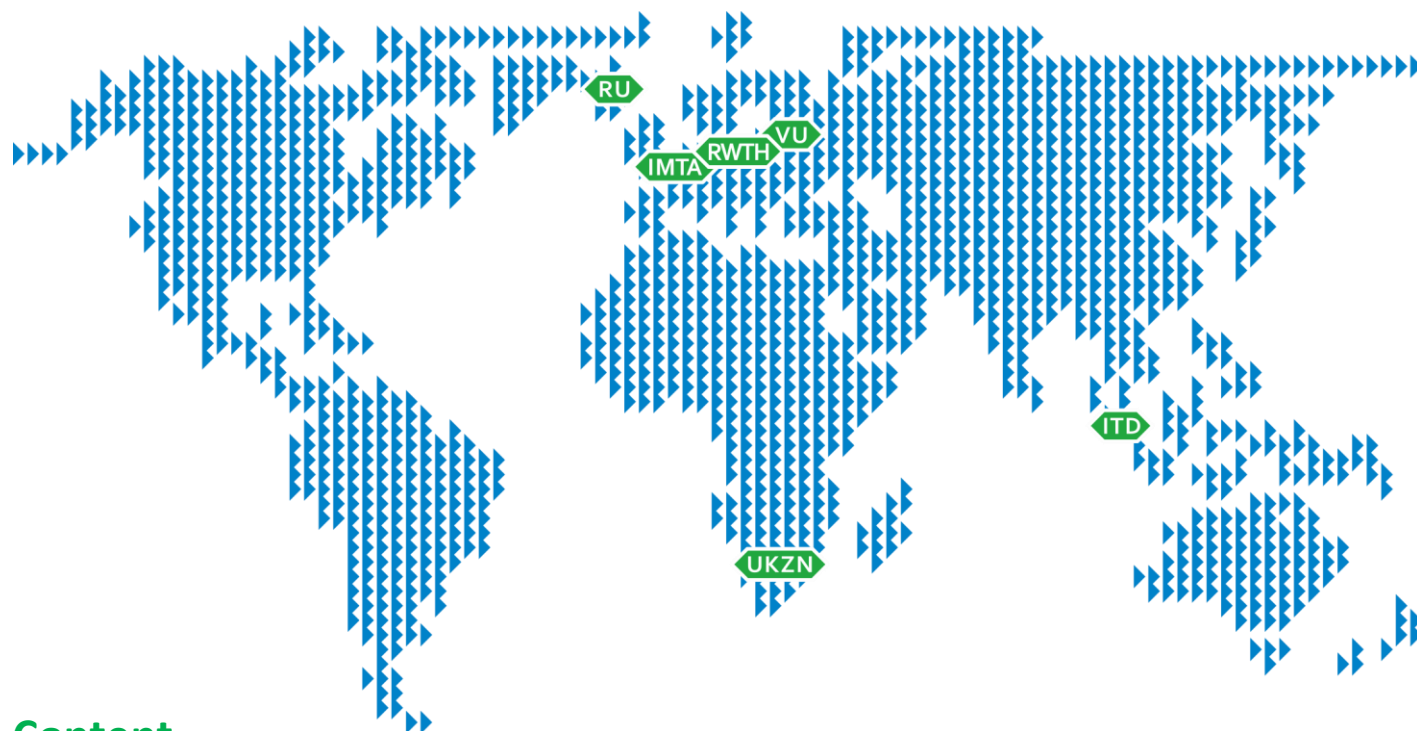


DECART



Designing higher Education
Curricula for **A**gility, **R**esilience
& **T**ransformation

www.decartproject.eu



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About DECART

The DECART research and innovation project is an international cooperation initiative funded under the European Commission's ERASMUS+ program (2022-1-FR01-KA220-HED-000087657). The project brings together higher education institutions from France, Iceland, Indonesia, Lithuania, and South Africa. The primary objective of DECART is to provide guidelines for designing innovative training programs that leverage the transformative potential of education systems, particularly in engineering training and higher education more broadly. The project focuses on delivering tools for collaboratively designing curricula, methods and serious games for analyzing resilience, and leadership models to support education stakeholders in increasingly turbulent contexts.

Intensive workshop for higher education at RWTH

Individuals from France, Iceland, Indonesia, Lithuania and South Africa took active part in the four day workshop - training the trainers - at RWTH Aachen university (*Rheinisch-Westfälische Technische Hochschule*), on December 9-12, 2024.



A moment from the workshop at RWTH in Aachen, Germany. Photo: Valentina Dagienė, Vilnius university, 2024

Over the course of three first days, DECART members focused on analyzing and refining the WP2 Serious Game (SG) SUCRE, specifically its mechanics and design, aligning with DECART objective O22 of WP2: building a SG to enhance the resilience of curricula.

Day 1 was dedicated to step 1 of the SG, which addresses level 1 resilience: "building situational awareness." The session began with a presentation of feedback on the SG gathered during the project meeting in Indonesia, July 2024. Following this, participants formed teams of three to four players to engage in step 1 of the SG. By the end of this first day, teams shared their reflections on the proposed game mechanics and design, offering valuable insights to guide further improvements.

Day 2 focused on step 2 of the SG, which addresses "Level 2 of resilience: Identifying keystone vulnerabilities". The goal of the day was to test the compatibility of the game mechanisms and the pre-designed identity cards (ID) to characterize the profile of an institution hosting the curriculum, created by DECART institution partners, with the objective of identifying critical vulnerabilities in a higher education institution's curriculum.

Same teams from Day 1 continued playing the SG, starting from their respective end-of-game situations from the previous day. By engaging with the SG and utilizing the ID cards, participants evaluated how effectively the design supports the goal of SG step 2, providing critical feedback on its alignment with the learning objectives and mechanisms.

Day 3 was dedicated to playing Step 3 of the SG, titled "Level 3 of Resilience: Building Adaptive Capacity." The primary goal of this step is to identify transformative actions that address the resilience gaps or "resilience holes" in the curriculum. A key aspect of this session is exploring how transformative actions should be introduced—whether as suggested actions for the players, as a guiding graphical canvas to help them identify such actions, or discovered through the debriefing process.

On the last Day 4, the DECART members focused on defining a tool for building resilient curricula. The discussions revolved around a work-in-progress decision tool designed to assist program leaders in evaluating the resilience of their curricula. The tool is designed to provide program leaders with actionable insights for improving the resilience of their curricula. Discussions centered on refining this tool to ensure its applicability and usefulness within the context of the project's objectives.

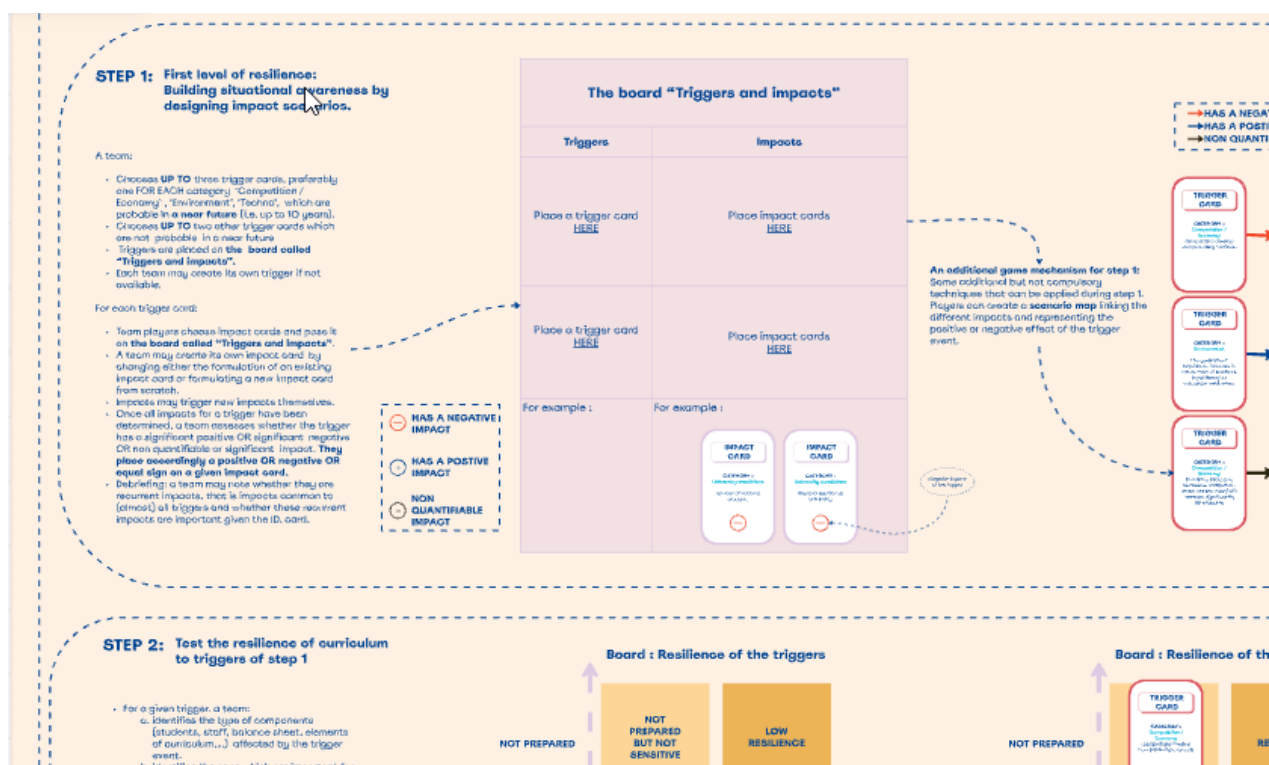
Work Package 2: Curriculum Resilience news

The objective of WP2 led by IMT Atlantique is to develop insights and methods for developing resilient curricula. Two specific objectives of WP2 are the development of a Body of Knowledge (BoK) showing the dimensions of resilience in a curriculum and the design of a SG prototype for the design of a resilient curriculum. A questionnaire was sent to the DECART university members in April 2024 with the aim to probe and qualify the properties of a resilient curriculum. It consisted of 23 questions with a total number of 35 respondents.

A conference paper presenting the drivers of curriculum resilience was published and presented at the 17th International Conference of Education, Research and Innovation, ICERI, at Seville, Spain on 11-13 November 2024 (<https://iated.org/iceri>). Using the results gathered in the ICERI paper and an additional literature review, DECART members are currently developing a decision tool comprising i) a questionnaire with items linked to properties of resilient curricula and ii) a diagnostic tool destined to help program leaders to evaluate specific indicators of curriculum resilience gathered from by the answers to the questionnaire. In so doing, they reach informed choices regarding how to reinforce resilience and reduce their institution's vulnerability to crises by effecting intelligent and traceable changes to curricula.



A prototype of the SG was finalized on MIRO from September to December 2024 and was presented and tested at the workshop for higher education at RWTH, in Aachen from the 9 to 12 December 2024. The SG is called SUCRE for “Serious game for University Curriculum Resilience”. The aim of this game is to improve the resilience of curricula in higher education institutions. During a game play, players are led through different steps to acquire various resilience capacities known to be drivers of organisational resilience. Therefore SUCRE is more than a serious game, as it reveals a process helping decision making and implementation of resilient curricula in real case situations.

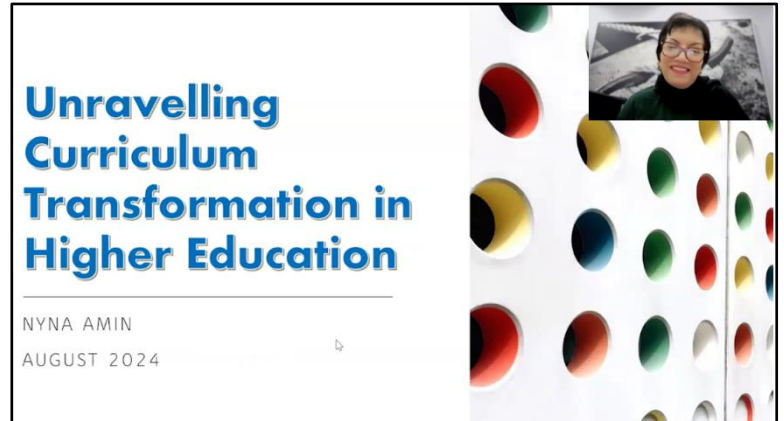


A sketch of the serious game SUCRE on MIRO. Canvas: Roger Waldeck, IMT Atlantique, 2024.

Work Package 3: Curriculum Transformation news

The UKZN team leading the DECART Work Package (WP3) focusing on Curriculum Transformation, organised an online workshop on 27 August 2024. The workshop was facilitated by Professor Nyna Amin, Interim Director: Teaching & Learning of the UKZN Teaching and Learning Office. Nyna emphasized the importance of reflecting on traditional teacher-centric models and creating an educational approach that is responsive to societal and global needs. She highlighted the need for radical curriculum transformation in terms of the cycle of disruption which embraces a cycle of disrupt, rethink, reimagine, and reinvent.

Nyna's presentation also highlighted the importance of student-centered learning and addressing the challenges of power dynamics in education. The discussions also centered on exploring the complexities of decolonizing a curriculum, the potential of AI in education, and the importance of inclusive curriculum development processes. Other aspects of the presentation focused on - the implications of transformation, the hidden curriculum, and the need for continued conversation about curriculum design and transformation, given the multiple complexities. Participants pondered on how to incorporate critical thinking and problem-solving into curricula, and to reflect on balancing global and local perspectives in curriculum design. The workshop not only encouraged DECART participants to further explore systemic and big picture thinking in curriculum transformation, but to also learn about curriculum transformation in different countries. Participants compared and identified common challenges and unique national contexts of curriculum transformation. The workshop was also attended by external participants.



Presentation at ISOTL Conference

WP3 work was presented at the 2nd Innovations in the Science of Teaching and Learning (ISOTL) Conference, 26-27 September 2024, in Durban, South Africa. The presentation focused on *“Unpacking curriculum transformation in Higher Educational Institutions in a volatile, uncertain, complex and ambiguous (VUCA) world: Insights from the DECART project”*. The iSoTL 2024 conference brought together educators, researchers, and practitioners from various disciplines to explore the crucial link between innovation, ethics, and inclusive excellence in higher education teaching and learning. The two-day event aimed to promote debate and share practices that leverage innovation to enhance equity and learning, particularly in response to the transformation of universities driven by new technologies and increasing diversity among students and staff. Sessions and presentations at the conference focused on fundamental themes that connect teaching, learning, ethics, and innovation. The conference sought to inspire creativity in higher education, aiming to improve outcomes and enrich the educational experience for all students.



Photo: Cecile Gerwel Proches, UKZU, Durban, 2024

Learning Show in Brittany, France

The IMT Atlantique DECART team attended the 2024 Learning Show in Rennes, France. An opportunity to discover serious games for education, at all levels and sectors. A source of inspiration for DECART members and the curriculum design canvas and resilience serious game enhancement and practicality. The Learning Salad team, with the Learning Battle cards on Teaching & Learning methods was again discussed, as the application on renewals of resource management of educational programs.



Presentation at the UKZN College of Law and Management Studies

The UKZN team presented on the DECART project and WP3 at the UKZN College of Law and Management Studies (CLMS) Research Day on 2 October 2024. The title of the presentation was *“Exploring Curriculum Transformation: Insights from the Erasmus+ DECART Project”*. The event was centered around the theme “Energizing Research in Law and Management Studies”. The goal with this multidisciplinary research day celebration was to bring together diverse members of academia, scholars, researchers, graduates, and post-graduate students – from various Schools within the College of Law and Management Studies.

#Erasmus Days 2024

Two DECART events were proposed by DECART members during the #ErasmusDays, which is an international six-day celebration of the Erasmus+ programme.

The WP1 team organizes at IMT Atlantique, Nantes site, a collaborative workshop to hear the student voices on innovative curriculum design. This workshop addressed a UE “hot topic”. Decarbonization is a major objective of the European Union to achieve carbon neutrality by 2050. As an example, for the transport sector, shipbuilders and engine manufacturers are exploring prototypes and designs for ships powered by alternative propulsion systems to fuel energy, like wind-assisted propulsion. Higher Education Institutions, through their science and technology curricula, must now prepare the next generation of responsible engineers to support ecological transitions.



Photo: Anthony Diaz, IMT Atlantique, 2024

CURRICULUM CO-DESIGN: European STEM & engineering students are expected to be a force & ready players of EU energy transitions, reflect independently, make critical and independent propositions, face controversies, etc. The short video of the workshop is available in the DECART youtube channel here <https://tinyurl.com/decart24Edays>

To guide educational program leaders and curriculum designers, an active workshop permits to codesign a pan-European Master level semester. During the #ErasmusDays 2024, around 20 IMT Atlantique Master 2 level students took 2 hours to design such a dreamed semester. The context is a 5- month expedition in an imagined cruise ship, a nomadic university which provides accommodation for the students, also with learning and teaching workspaces.

This low-carbon ship, as a floating Lab, travels between several cities, providing training on the various links of energy European sovereignty, thanks to the dynamics of different academic, scientific and industrial communities met during the itinerary. In sub-groups, participants propose their ship itinerary on a given geographical map and sketch out an original joint curriculum with the aid of a canvas of nine components. No prior knowledge or expertise in energy topics are needed, just openness to new ideas and creativity in collaborative curriculum design.



Photo: Anthony Diaz, IMT Atlantique, 2024

The WP3 team delivered an online presentation on 17 October 2024.

The presentation focused on *“Developing curriculum transformation champions in Higher Education: Insights from the DECART Erasmus+ Project”*. The UKZN team highlighted their efforts in curriculum transformation, emphasizing the complexities involved and the diverse perspectives held by various stakeholders. The team discussed the obstacles to realizing curriculum transformation, acknowledging the difficulties in aligning diverse perspectives. They emphasized the crucial role of leadership in facilitating and driving effective curriculum transformation processes. This presentation contributed to the broader discourse on international education, collaboration, and the ongoing efforts to adapt academic curricula to meet contemporary needs.

Developing Curriculum Transformation Leaders: Insights from the DECART Project

Join us for a presentation by Prof Cecile Gerwel Proches, Prof Angela James and Prof Macdonald Kanyangale from the University of KwaZulu-Natal (UKZN) in Durban, South Africa. We will present an overview of work done to date on curriculum transformation in the Erasmus+ DECART project (Designing Higher Education Curricula for Agility, Resilience and Transformation). DECART is a research and innovation project, and involves an international co-operation partnership. Partner institutions are from France (IMT Atlantique), Germany (RWTH Aachen University), Iceland (Reykjavik University), Lithuania (Vilnius University), Indonesia (Dei Institute of Technology) and South Africa (UKZN). The project aims to facilitate the sharing of innovative curricula and their volatile, uncertain, complex and ambiguous (VUCA) properties, develop curriculum cooperation modes that are resilient, strengthen leadership capabilities for driving curriculum transformation, and to disseminate innovative curricula structures, curriculum design methods and leadership tools.

Prof Cecile Gerwel Proches is an Associate Professor based in the Graduate School of Business and Leadership at the University of KwaZulu-Natal. Her teaching, research, and supervisory interests include leadership, organisational behaviour, and change management.

Prof Angela James is an Associate Professor based in the School of Education, University of KwaZulu-Natal. She is the Academic Leader: Community Engagement and has over 30 years teaching and community engagement experiences and over 20 years research in the schooling, tertiary and adult education sectors.

Prof Macdonald Kanyangale is an Associate Professor based in the Graduate School of Business and Leadership at the University of KwaZulu-Natal. His areas of research interest include strategy-as-a practice, strategic leadership, and sustainable leadership in organisations.

DATE:
17 OCTOBER
2024

[CLICK HERE TO RSVP](#)

TIME:
9AM – 10AM
(SAST)

INSPIRING GREATNESS

DECART Expeditionary learning presentation at STE Conference

The 4th International Conference on Science and Technology Education STE 2024 took place in Porto, Portugal, 3-4 October 2024. It offered for DECART French members excellent facilities for high quality scientific interactions. This conference is held every 2 years. The focus is on education in science and technology. The conference provided an international forum for the sharing, dissemination and discussion of research, experience and perspectives across a wide range of teaching and learning issues. The DECART curriculum design canvas was presented as its impact for curriculum renewals and preparation of transformations.



Photo: Siegfried Rouvrais, IMT Atlantique, 2024

UKZN International Partner Week 2024

The WP3 DECART team presented at the 3rd UKZN International Partner Week, which was held 28 October to 1 November 2024, about the project and WP3 work. There were participants from 20 countries (South Africa, France, Belgium, Italy, Austria, Tanzania, Latvia, Mauritius, Sri Lanka, Ethiopia, Malawi, Swaziland, USA, Chile, Côte d'Ivoire, Zimbabwe, Madagascar, Senegal, United Kingdom). The theme was on Innovation for Global Engagement.

Recommendations for curriculum transformation: WP3 report

DECART reports are available on the project website. The DECART report and deliverable D31 on *Curriculum Transformation: Drivers and Challenges*, summarizes the work done in the third phase of the project, i.e. on understanding curriculum transformation in Higher Educational Institutions. This was done by the UKZN WP3 team, Cecile Gerwel Proches, Macdonald Kanyangle and Angela James. The report outlines the methods, activities and tools involved with respect to the third work package. The results outline how curriculum transformation can be conceptualized, the dimensions of curriculum transformation, and the drivers, disruptions and challenges in curriculum transformation.



Canvas: Nedjma Gosselin, IMT Atlantique, 2024

Recommendations are provided below for diverse stakeholders in HEIs to better manage curriculum transformation.

- In preparation for a VUCA context, there is a need for comprehensive understandings of curriculum transformation. It may be regarded as a complex phenomenon with diverse meanings, an on-going and dynamic process, involving a variety of internal and stakeholders.
- Curriculum transformation is multi-dimensional and has key characteristics, which require attention if curriculum transformation is to be effective.
- The methodical pursuit of curriculum transformation should entail a relentless pursuit of answers to different components of the curriculum transformation framework, focusing on the why, what, who, when, and how pertaining to curriculum transformation.
- HEIs need to navigate technological advancements and challenges carefully, ensuring that technological integration enhances learning rather than detracts from it. Technological advancement has a central role in curriculum transformation, especially in the context of AI, digital tools, and Industry 4.0 which underscores the need for curriculum to reflect societal and market changes in a digital world. However, there is need for caution as digital tools and AI could deepen disparities between institutions with varying levels of resources and negatively affect the quality of education, student engagement, and the role of the educator.
- The success of curriculum transformation depends on how well HEIs can navigate a variety of disruptive changes, ensuring that they enhance learning outcomes, support faculty development, and meet societal needs without overwhelming students or compromising educational quality.
- Dynamic curriculum alignment and realignment pronounces the need for a collaborative approach in which all stakeholders—students, teachers, administrators, industry and professional bodies—are aligned in their understanding and expectations of curriculum changes. Clear communication, ongoing professional development, and a collaborative approach to curriculum design are pivotal as misalignments are capable of undermining the effectiveness of curriculum changes, particularly if students feel overwhelmed by new demands or if faculty are not adequately prepared to implement innovative teaching practices.

Publications (Fall of 2024)

- Rouvrais, S., Audunsson, H., Barus, A., & Silalahi, S. *Expeditionary learning around Europe*. In *4th Intern. Conference on Science and Technology Education*. FEUP, Porto, Portugal, 3-4 October 2024.
- Waldeck, R., Garner le Gars, J., Audunsson, H., Barus, A., Liem, I., Kanyangale, M., Gerwel Proches, C., Rouvrais, S., Winkens, A. K. *Higher Education Resilient Curricula: Lessons from a European Project*, ICERI2024 Proceedings, pp. 3592-3600, 2024.



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