DECART: Designing higher Education Curricula for Agility, Resilience & Transformation

DECART Workpackage 1: Curriculum Design

Report R13: Learning Material on Curriculum Design

version 1.0, April 2024

CAFE ☕:

the DECART tool for Creative, Agile & Flexible Education design

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Preface

DECART (Designing higher Education Curricula for Agility, Resilience & Transformation) is a cooperation partnership in higher education funded by Erasmus+. The aim of the project is to propose methods and tools to guide STEM & Management educational leaders in innovative curriculum design and program transformations in an effort to be more prepared for unpredictable VUCA contexts (volatile, uncertain, complex and ambiguous). The project facilitates the identification and sharing of innovative curricula among partners in the project as well as associated international participants, in essence to assess and improve interoperability and resilience of curricula. Over the course of 3 years (2022-2025), the project brings together 4 universities from Europe and 2 from South Africa and Asia.

This report, *Learning Material on Curriculum Design* (report R13) summarizes the work done on curriculum design activities, with CAFE ☕, designed and experienced by and with project partners. Two existing workshops, experienced by some project partners, are first presented (University of the Future and Learning Battle Cards). Then three activities designed, experienced, and refined by DECART project partners are detailed.

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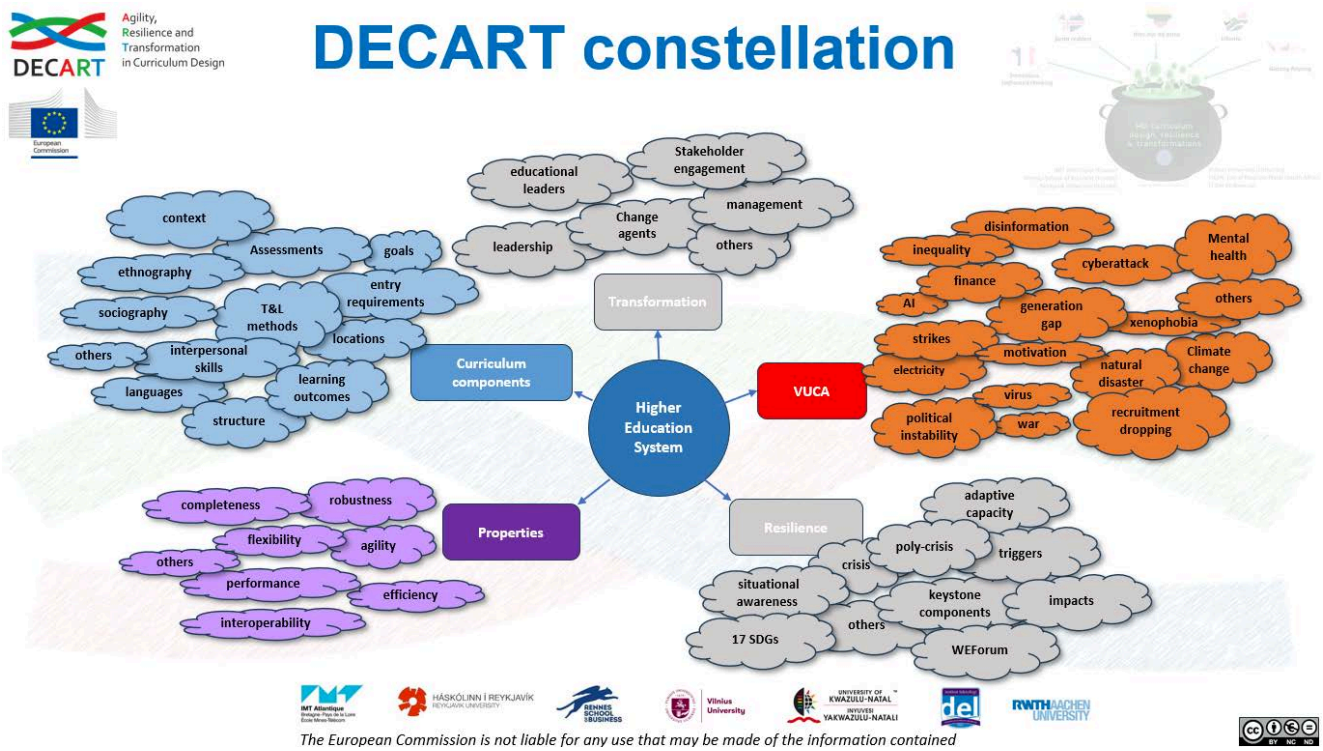

Figure. The DECART components - here focusing on Curriculum Components, Properties and VUCA.

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Partners in DECART

The DECART project is co-funded with support from the European Commission, a project under the Erasmus+ program (KA220-HED - cooperation partnerships in Higher Education, number 2022-1-FR01-KA220-HED-000087657). This document reflects only the views of the authors. The Commission is not responsible for any use that may be made of the information contained therein. This document and its annexes in their latest versions are available from the DECART website (www.decartproject.eu).

The partners in the DECART projects are from six institutions. The Table lists the partners and the leaders from each institute.

Table. List of partners in the DECART project and the leaders from each institute behind this report.

Continent	Institute	Focus in DECART	Responsible person
Africa	**UKZN:** University of KwaZulu-Natal, Durban, South Africa	Management	Cecile Gerwel
Asia	**ITD:** IT Del, Lagoeboti, Toba, Indonesia	Computer Science	Arlinta Barus
Europe	**IMTA:** IMT Atlantique, Brest, France	Computer Science	Siegfried Rouvrais
	RU: Reykjavik University, Iceland	Engineering	Haraldur Audunsson
	VU: Vilnius University, Vilnius, Lithuania	Education	Valentina Dagiene
	RWTH: Aachen University, Aachen, Germany	Engineering	Clara Lemke

Copyright and citation

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- Leading authors:
  - Siegfried Rouvrais, IMT Atlantique, Brest, France
  - Haraldur Audunsson and Asrun Matthiasdottir, Reykjavik University, Iceland
  - Additional collaborators and reviewers are listed at the end of this document, in the collaborators & acknowledgement section
- Formal link to the material: www.decartproject.eu

Dissemination model

Type	☐ Teaching material ☒ **Learning material** ☐ Training material ☐ Event ☒ **Report** ☐ Video ☐ Service/Product
Languages	English
Target groups	☒ **Teaching staff** ☒ Students ☒ Trainees ☒ Alumni ☐ Administrative staff ☐ Technical staff ☐ Librarians ☒ **Other: *University Management***
Dissemination level	☒ **Department / Faculty** ☒ **Institution**
Lead Organisation	WP1 coordinator: RU, Haraldur Audunsson
Participating Organizations	European partners: IMTA, RSB, RU, RWTH and VU African partner: UKZN ASEAN partner: ITD

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Summary

The aim of the DECART project is to propose methods and tools to guide STEM & Management educational leaders in innovative curriculum design and program transformations in an effort to be more prepared for unpredictable VUCA contexts. The project facilitates the identification and sharing of innovative curricula among partners in the project as well as associated international participants, in essence to assess and improve interoperability and resilience of curricula.

Curriculum Design processes comprises planning and implementation. Higher Education curriculum designers (academics and teachers), engage with this process, which rarely includes civil society and industry partners. In Higher Education, current changes are in addressing the use of the "same technologies, knowledge expressed in texts, on paper and now on screen, classroom organisation, educational assessment, student selection by examination, and certification," (Marginson, 2024, p. 1). The primary goal for DECART project partners is to design curricular to increase the quality and relevance of their curriculum activities, to increase their capacity to operate jointly at transnational level, boosting internationalisation of their activities and through exchanging or developing new practices and methods, as well as sharing and confronting ideas in curriculum design, with a focus on agility, resilience and transformation.

> Marginson, S. (2024, April 4-5). Higher education faces a more fragile and contested future. *University World News.* 1. https://www.universityworldnews.com/post.php?story=20240215145839243&utm_source=newsletter&utm_medium=email&utm_campaign=GLNL0773

In designing curricular with project team members who have their own experiences (expectations, perceptions, identity, understandings and practices, engaging with discipline content, educational contexts, with policies, colleagues and students etc.), the eliciting and sharing of these are important, for an enhanced design process and ultimately a highly well-structured curriculum. This eliciting and sharing may be achieved by the team playing varied appropriate games together.

This R13 report summarizes some work done in the first phase of the project, on curriculum design, and in particular on collaborative activities that were operated in a 4 days joint staff training event conducted at IMT Atlantique, France, in February 2024. These curriculum design activities highlighted why and how collaboration is needed to open mindsets and encourage

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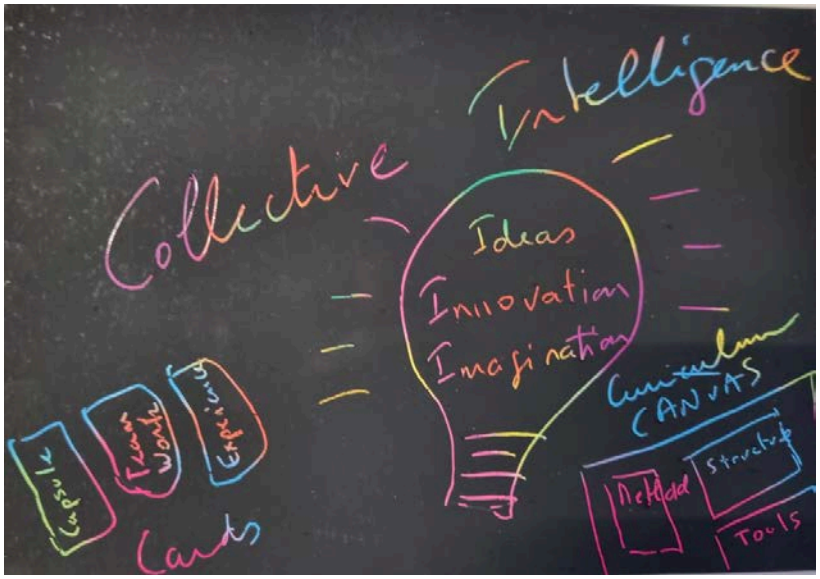
innovation. Some of these activities were also operated during conference workshops for dissemination. These various activities permitted a holistic perspective into the diverse practices and modes of designing curricula, with a focus on the need for agility and general architectures of curricula. They permit to enlighten the benefit of using the DECART curriculum canvas with its 9 components. On an international scale, collaboration of all stakeholders in design can be done effectively even with online tools. Online collaborative tools are excellent for producing a "collective" design, the design can be iteratively improved and facilitate collaboration from different parts of the world.

In this report, 6 activities and tools are presented:

1. The learning battle cards, thanks to Learning Salad collaboration in DECART, experienced by some project members in 2023,
2. The University of the Future workshop from TU/e experienced by some DECART members in 2023,
3. The DECART storytelling activity,
4. The DECART draw me a curriculum activity with CAFE,
5. The DECART curriculum analysis activity with CAFE cars
6. The DECART expeditional semester.



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Learning Battle Cards Example

Education is constantly and dynamically developing new approaches, ideas, and tools which help us teach better, and more effectively. Routine is one of the enemies of the modern educator. Learners live in a dynamically developing world and have bigger expectations and aspirations. They want new, better, more attractive, and more effective solutions. One of the functions that can be filled by the Learning Battle Cards(LBCs) is to go outside the routine and think out of the box. This also applies to individual educators as well as teams. The cards allow us to learn about a world of methods, create new and modern solutions and adapt existing training programs.

The LBCs are at the same time a method and tool for designing learning processes and courses. The LBC box represents 110 training methods, cards have markers about practical hints collected from practitioners from different countries in a crowdsourcing process.

Card example

The content of each LBC card is designed to provide an educator with key information regarding a teaching & learning method. The cards were created in 2016. In 2022, a second edition of the cards included revisions using content from the contributions of educators from all over the world. This second edition was expanded with digital content available with the help of QR-codes printed on each card.

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FIg. A LBC card (among 110).

As presented in the previous Figure, on the black front of the card, you can find content useful in the ideation process: the name of the method, a symbol and an icon and a word cloud with words which come to mind when thinking about a given method. It helps to better understand the method and creates space for even more inspiration. The back of the card contains some infographic data to help find a practical use for the method. There is information about where in the process the method is especially useful, which typical categories used in a blended learning practice this method falls into. Some power bars provide a rough estimate of the practical factors of implementation divided into three perspectives - the educator, the process, and the trainee's points of view.

Use case

LBC tools support the design of the learning process. It can be a great tool for individuals, teams and stakeholders as its playability or the realization of a creative process which engages the team members and encourages them to think creatively. This process usually follows these steps:

1. Selection of teaching activity cards from the entire set, either at random or according to project constraints

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2. Discussion of the chosen modalities, including specific details for this project. For example, the Movie card can be a teaser for a training program, an interview of an expert, an animation explaining a method, a software tutorial…
3. Construction of the training path using maps as a support. This step is the longer one, as it's done together with the learners' experience in mind.
4. tep back to check that the training path meets the constraints and objectives set, and that the learner's experience will be engaging.

The Learning Battle Cards design method allows to:

- Enrich the learners' experience,
- Vary learning paths,
- Improve training effectiveness,
- Promote new uses,
- Involve all stakeholders in the design steps.

Learning Salad

For skill development professionals looking to enhance their training offerings and gain autonomy, LearningSalad is an agency renowned for its pragmatism, efficiency, and creativity, offering to share its expertise in designing learning experiences. Unlike standardized solutions, their exclusive methodology, which relies on the involvement of all stakeholders, ensures the success of your projects and the skill advancement of professionals.

Their methods are based on the following principles:

- a progressive approach with deliverables at each stage.
- a collaborative approach aimed at involving all stakeholders.
- a tool-based approach, because we know from experience that to get a group to produce ideas, concepts or solutions, you need to get the protagonists involved, but also provide them with tools. This is why we work in the form of workshops, using a variety of tools to enable each participant to make a real contribution.
- an iterative, clear and controlled approach in which we initiate and guide the workshops to obtain consensus-based and validated results. These can then serve as the basis for the rest of the process.

LearningSalad intervenes for:

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- Strategic development: Integration of digital technology into the training offering based on a proven methodology.
- Professionalization of the actors: Professionalization of the teams necessary for the development of multimodal training offer.
- Business support: Various business support missions such as assistance with tool or service provider selection, project management support, or design assistance.
- Change management: support in change management actions, including assistance to company managers.
- Design assistance: methods to engage teams in an innovative approach to develop more effective and attractive training offerings.
- Design of educational games: creation of serious games and gamified learning sequences

Founded in 2010, the company works with a wide range of clients:

- French and foreign administrations: Ministries of Education, the Interior, Transport, Justice, Foreign Affairs, AFD, Government of Ontario, etc.
- International organizations: EU, UNESCO, AUF, etc.
- French consular organizations: CCI, Chambers of Agriculture, CMA
- Major corporations: Société Générale, Orange, St Gobain, EDF, HSBC, ACCOR, Le Duff, Auchan, Carrefour...
- Training organizations: CNFPT, ENFORA, AC Environnement, Projexion
- Schools and universities: Université Rennes, Université Paris Descartes, University of Mosul, Paris Business School, etc.

Useful links

- https://store.learningbattlecards.com/ (in English)
- https://www.learningbattlecards.fr/ (in French)
- https://www.learningsalad.fr/ (in French)

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University of the Future Example

Two DECART members[1] took part in the University of the Future (UoF) Working Group (WG) at the International CDIO 2023 conference at NTNU in Trondheim, Norway, in June 2023. The WG was on designing the University of the Future (UoF). The WG is part of a project started in 2022 by University of Eindhoven. As indicated in their website:
https://www.tue.nl/en/education/tue-innovation-space/projects/university-of-the-future/

> "In order to educate the engineers of the future we are eager to create a university where students and people from industry and societal actors work together. Learning is something we do all, all our life. So, we want to create a place where professionals from industry learn, together with the students and teaching staff. In the University of the Future project we envision and concretize the TU/e of 2050. We have a lot of great visions already. What will this university actually look like in detail? How will the future TU/e be structured? How will the educational journey look like within this university? How do students learn their essential competences? What role does this future TU/e have in the Brainport ecosystem? These are all questions that we want to answer."

The project was the winner of the Higher Educational Award 2021, and it is a three-year project (will end in 2025). More information on the project can be found here:
https://universitiesofthefuture.eu/
https://www.tue.nl/en/education/tue-innovation-space/projects/university-of-the-future/timeline

[1] The DECART members Cecile Gerwel and Haraldur Audunsson participated in this working group and wrote up this brief summary, June 2023.

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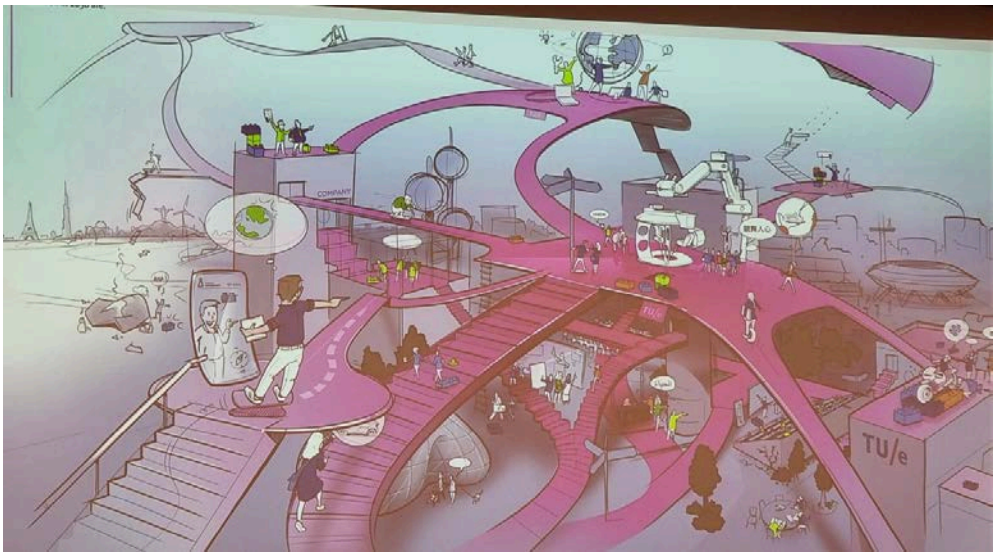
Before the meeting. Several weeks before the meeting, the initial participants who responded to the call to join the international working group, met online to get acquainted. Following that online meeting, the participants were asked to send in a brief outline of “Best practice”, and eight examples were sent in before the actual meeting at the CDIO 2023. Of these, two were selected by the board to be presented and used as an example at the WG meeting on site. About 21 persons were involved in the actual WG meeting, including the project leaders involved in running the program. The group discussed the best practices and then went on to design the University of 2050.



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Phase 1: Getting to know

Getting to know each other. Initially there was a “speed dating” session with five rounds of three minutes each. There was a brief introduction first, and then participants had to respond to the following questions: 1) what motivated you to choose this working group? 2) What do you hope to get out of this CDIO conference, 3) With the knowledge you have now, what advice would you give to students who just started university? 4) If you could only use one word to describe your view on the University of the Future, what word would that be? 5) Which skills from your current job could help you to escape from a deserted island?

Introduction to the project. Next there was an introduction to the project, to the transition to the UoF, the convergence of Industry, University and Society to more unity at the UoF, and how people would be at the intersection of these three domains.

The card deck. The cards were introduced with the aim of enabling conversations, and the idea was that they would help in the design of UoF. These cards, which have elements of the UoF, were developed during the last year and were still in development. The cards were in the following four categories (and in different colours):

- Principle, 11 cards (kind of the value of the university)
- Concept, 8 cards
- Actors, 8 cards
- Artifact, 15 cards

There were also unmarked cards in each category, open to be marked with a specific meaning. To place emphasis within the design process, there were available a few cards marked “Conflict”, “Spark” and “Lens”.The markings and text on the cards can be read from the photo below.

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The two examples and two groups, about ten participants in each. Brief presentations were made of best practices from Nanyang Technological University, Singapore, and Reykjavik University, Iceland (by Haraldur, DECART project member). The two examples were quite informative and well received by the participants.

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Phase 2: Selecting artifacts

Following the presentations, the participants were split into two groups, with about 10 participants in each group, using the example presented before. The task was to use all the cards to guide the discussion on how to construct the UoF (using as many cards as the group wanted).

The first task of the groups was therefore to evaluate the characteristics of the examples and how they would fit into the UoF. They were furthermore requested to get acquainted with the cards and the framework they represented.

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The main tasks and four groups. In the latter main task, the participants were split in four groups, four in each, and each group had to select one artifact (one of the categories of the cards), and assemble the rest of the cards around that one.

As it turned out, some groups used the cards little, but used more drawing on a large piece of paper, lego, sticky notes and labeling in different colours.

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The groups were supposed to select a second artifact to design around, but that may have been different among the groups. In the second run of this session, each group selected a new artifact.

The theme selected by the four groups were:

- Group 1. Community, external and also internal
- Group 2. Your education through life
- Group 3. Education 5.0
- Group 4. Make the world better

Each group presented their results to the other three groups and some discussions ensued for each theme.

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Discussion

Final presentation at CDIO 2023. According to the presentation at the end of the conference, the next steps in the UoF project is to: 1) write a short report on the WG outcomes, 2) there will be a follow-up meeting in Fall, 3) keep collecting inspiration and best practices, and 4) continue to work on the complete University of the Future project.

DECART and serious games. Properly designed stack of cards may potentially be used for DECART serious games, for example in designing curriculums and to focus on their resiliency to VUCA scenarios. The cards can be in different categories, just as the curriculums are constructed, some additional cards with examples of various VUCA scenarios, and finally possible outcomes, stable or diverging education, collapsing or resilient. One may also want to use cards representing the actors and the community.

General reflection. The various interactive exercises throughout the day facilitated diverse participants in Higher Education to engage in discussions about the University of the Future, and try as far as possible to not be held back by constraints. The exercises also demonstrated

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how important it is to regularly integrate creativity and innovation in learning for curriculum leaders and developers, tasked with ensuring relevance of academic programs for an uncertain future. The critical role that diverse stakeholders in Higher Education, such as society and industry, play in shaping the future, cannot be ignored. This ultimately has implications for curriculum design.

DECART Curriculum Storytelling

The focus of the activity is on the theme of curriculum design. The purpose of the game is to establish how players respond to a curriculum based/focused case scenario (prompt). The players select cards (the same set used for Game One) and respond to the prompt shared. Players are expected to listen to the prompt and respond according to their understandings and practices re these curriculum related matters. The prompt responses shared are very important to encourage discussion and the stories told with follow on from the participants. The use of an ice-breaker like these games are important for the opening up of the stories.

Opening the discussion

Often, the focus of cards and dices is on the emotions expressed by each of the players. It is a storytelling and speaking game ideal for letting your imagination run wild. The purpose is for each player to be aware of building the cards in a card line and the sharing of their emotions with a result of a storyline. Each player takes a turn to roll the dice and tell a story by integrating the images revealed, i.e., the cards selected from the set of cards. His selection is particular in that the card should match the line of cards that has been built up by the players on the table. When the player places the card down in the line, they should respond to the question – How am I feeling? How am I feeling about the day? A player could say, “I am happy that we are working together”; “I am frustrated with the way the content about the curriculum was shared” etc. The game ends when all the original card set are finished. Players may discuss the feelings that they expressed and how this relates to the curriculum specifically, to bring the game to closure.

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Storytelling

Cards are on the table. One by one each participant select a card and complete the storry line by one or two sentences. The prompts experiences by DECART members include the list below:

1. This is a story of a STEM curriculum, …(to be continued by participants)
2. Hi, I'm Hannah, I'm South African and got my BSc with honours from IT Del in Indonesia, now I,…(to be continued by participants), …(to be continued by participants)
3. The accreditation evaluation reports that 45% of your professors complain about not having enough hours in the curriculum …(to be continued by participants)
4. This morning, students are on strike in the campus, they ask for change …(to be continued by participants)
5. Hi, I'm Antonio, responsible of an MSc in geophysics in a private University in Italy, I spent 4-day training on curriculum design at IMT Atlantique this week, …(to be continued by participants)
6. Bonjour bonjour, I'm A/Prof Monica, a teacher of maths, I do not have enough hours in our BSc to train my students, …(to be continued by participants)
7. Hi, I'm Michelle, Educational Scientist, I train and help on pedagogy the new teachers of our Master programs, …(to be continued by participants)
8. Hi, I'm Kim, from the University of Greenland, I have to create for 2026 a new Master program in Microbiology, very close to nature and our culture,…(to be continued by participants)

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9. Hi, I'm Prof. Tony, I'm the director of education in a TU in Sweden, which hosts both STEM and Business & Management programmes, I …(to be continued by participants)
10. Hi, I'm Sophie, director of the EU Eng educ accreditation body, this is what I'm looking for in HE curricula, I am looking for …(to be continued by participants)
11. Hello hello, I'm Heini, I'm HR in the public electric company of Finland, I need very adaptative engineers, …(to be continued by participants)
12. Hi, I'm Mickael, dean of academic affairs, I just got the evaluation report of our national accreditation, we have a problem, …(to be continued by participants)
13. Hi, I'm Albert, MSc student in one of the top Irish University, me, with all the BSc students go on strike from today, …(to be continued by participants)
14. Hi, I'm Hannah, South African from Johannesburg, IT BSc ITD, I just got an Erasmus grant for a MSc in Europe, …(to be continued by participants)

Cards and dices references

The team plays games that have problem-based thinking, personal questioning related to life experiences, emotional unpacking and systems connectedness, in a collaborative, social manner. The tools can include different sets of cards (featured visuals - Imagidés; “Speech”; Think, feel and act; E Q coach cards; Strength, etc.). The card games are different to the conventional ones in that players are expected to share their thoughts, emotions and experiences linked to the particular game, i. e. creative sharing of personal and curriculum case

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scenarios. The games serve to enhance flexibility in thinking, emotional feelings, understandings and connected social dynamics, amongst the project curriculum designers.

Several card decks can be used, e.g. speech, strengths cards, Tabou, Can you, etc. Dices also, as Imagidés. A card deck or pool of dices more dedicated to curriculum components could be envisioned. Nevertheless, the more the card are directed to the topic, the less flexibility is offered on imagination. As an icebreaker, open mindedness is a key, as a starter activity before a more in depth one desiccated to curriculum design artifacts.

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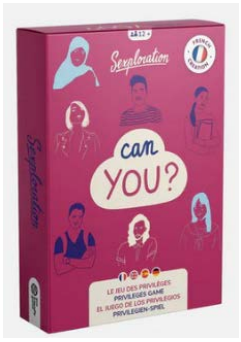

Several examples of card decks can be used, even out of the direct scope of curriculum design, or cards can be adapted:

- *Via Charachter,* For emotional profiles https://www.viacharacter.org/character-strengths
- *Can You*, the game of privileges, is a role-playing game in which each player embodies a character with his or her own story. Depending on the situation, you'll have to move forward if you think you can answer yes to the statements made by the master of the game. Introspection, debate and empathy! A game that will help you understand what privilege is and what discrimination is.
- *Pas tabou Mixité* is a game of speed and reflection. The aim is to get players to guess as many words as possible, without using forbidden words. These forbidden words cultivate a stereotype or are reductive.

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- *10 000 Bornes - Sexisme*, the game that puts a STOP sexism in employment, is a game of speed game in which players have to analyze work or everyday situations: is this an accepted situations: is it an accepted situation or forbidden? The first player to 10,000 kilometers wins the game
- etc.

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DECART Draw me the structure of a Curriculum

The workshop for higher educators (staff training) is framed for 10-15 consortium participants. Profiles can be various. The background is on the use of detours and open mindedness to understand and share novelties, as to learn from & inspire partners, having all an original curriculum structure background or way of doing (decolonisation, freedom of learning, scaled multisite, native reconciliation, original managerial cultural heritage, rainbowization). Graphic facilitation is a principle of visualization at the service of interactions. It makes thinking more dynamic and promotes the emergence of solutions that allow the group to move forward collectively. It is not reserved for those who can draw. Everyone is indeed able to think visually and translate an idea into a drawing.

This activity was designed and operated prior to the DECART project ignition, during its application preparation phases with the partners in 2021. It was presented in an international conference in a partner institution, Reykjavik University, with a published paper:

> "If you please, draw me a resilient curriculum!", by S. Rouvrais, I. Liem, H. Audunsson, and C. Gerwel Proches In Proceedings of the 18th International CDIO Conference, hosted by Reykjavik University, Reykjavik Iceland, June 13-15, 2022.

The workshop lasts 2-hours on curriculum design from a free page, with an abstract and structural perspective. The insights are into facilitating international collaboration, which enabled different perspectives and representations of an original curriculum to emerge.. It is transferable to locally support the future transformation of programmes, by sharing and challenging ideas. Target participants are University programme leaders, deans, educational quality managers, accreditation bodies, curriculum heads and council stakeholders, as well as partners from industry, and even students.

Purpose

The workshop is a preliminary activity, to highlight why and how collaboration is needed between different stakeholders to open mindsets and innovation. On an international scale, the workshop demonstrated that collaboration of all stakeholders in curriculum design can be done effectively using online tools as Mural or Miro.

The workshop was designed with the aim of developing collaboration between training managers, program directors, teachers, students and industry. In order to "get out of its own

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walls" and exchange in complete neutrality, the groups are to be mixed between stakeholders and institutional cultures to "draw" the main lines of an imaginary training program. Informally following some design thinking methods, the workshop stimulates a collaborative innovation in curriculum.

In curriculum modelling, arrays including course blocks and semesters columns are often used, with learning pathway constraints between core, broadening or elective courses. It often takes very long to develop new programme architectures, and other challenges arise, such as deep managerial perspectives, resistance to change or administrative duties, which could limit the innovation and freedom for redesigning existing structures. Participants reflected on the fact that there was a lot of paperwork, administration, and sometimes little freedom on structures, with respect to the university curriculum framework, accreditation standards and other requirements.

Drawings

Six drawings were proposed, e.g. (i) curriculum architecture of all study programs in ITD (with four Faculty and three domains), (ii) a postgraduate diploma in Business Administration at UKZN with course structure, (iii) pillars and structure of a biomedical engineering BSc. at RU, (iv) an industrial design engineering bachelor with flexible choice-based curriculum.

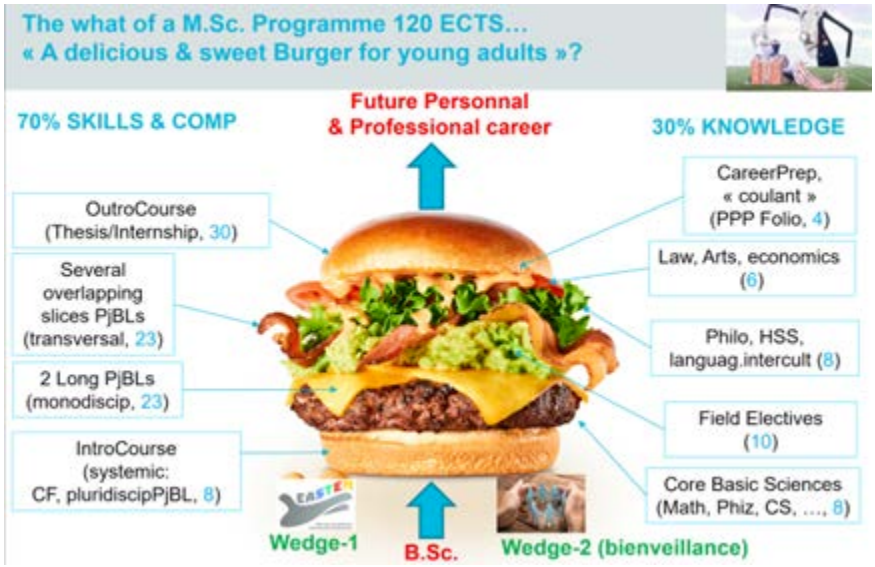

Fig. UpCERG, Uppsala University, Aalto University, and IMT Atlantique curriculum idiomatic example.

Among the six drawings, as an example, in previous Figure, the revamped burger-styled curriculum inspiration came from a meeting in Paris in June 2014 with members from UpCERG group from Uppsala University, Aalto University, and IMT Atlantique. It was recognized as attractive and flexible, but with few temporal links between too abstract courses. As a metaphor, it offers a kind of menu for curriculum blocks. The workshop highlighted how architectural representations of the curriculum suggested by the international participants varied considerably, both from a structural point of view and from the informal artefacts used. The participants however experienced challenges in designing a common understanding and reframing the problem in a human-centred and graphical way. They were questioning the main aim, problem, assumptions and implications.

The workshop concluded with a short debriefing session and dialogue. Next Table indicates preliminary elements of analysis, based on feedback.

Table 1. SWOT of the RC trial workshop.

Strengths	**Weaknesses**
• Collective work in favour of acting together • Based on plural and international experiences • Sharing good practices and enrichment • Serious playful games in accordance with motivational factors • Flexibility and freedom of graphic language for the design-thinking phase	• New approach with that needs appropriation of tools and techniques • No real concrete feedback yet quantitatively and qualitatively analyzed • No immediate post-workshop application under a concrete continuous improvement approach to programs
Opportunities	**Threats**

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• Flexible and intuitive representation language • Transferable to other disciplines • Transferable to other universities or programs • Potential sharing of strategies, goals, action plans and quality indicators of the developed outlines • Agility and resilience analysis support at architectural level	• Modeling curriculums too restrictive when a too formal graphic language • Lack of support from decision-makers due to the variety of participants • Loss of motivation of partners with regard to repetitive serious games • Competitiveness between participants with regard to transparency

Cooperation benefits

Intercultural encounter: The workshop allowed participants to identify many intercultural, professional and personal skills and aptitudes, which are mobilised by the participants. Problems of cross-cultural adaptation however remain. As noted by Kennedy et al. (2019), design and implementation of a programme may be influenced by cultural methods for conducting business and maintaining knowledge integrity, by taking interdisciplinary teams of academics on a journey towards 'curriculum reconciliation'.

> Kennedy, J., Thomas, L., Percy, A., Dean, B., Delahunty, J., Harden-Thew K., and de Laat, M. (2019) An Aboriginal way towards curriculum reconciliation, International Journal for Academic Development, 24:2, 148-162.

As an example, for the Indonesian author, the "gotong royong" principle is anchored as related to its ideological basis. *Gotong royong* in literal meaning is "mutual assistance"**,** a kind of collaboration with empathy, compassion in order to share burdens. During the 2019- pandemic, the Indonesian government encourage "gotong royong" to overcome the crisis. For the South African author, the African philosophy or concept of Ubuntu arose. This could be translated as "I am because we are" or "I am because you are", linked to Zulu, and in Xhosa, the meaning is also broadening to "the belief in a universal bond of sharing that connects all humanity". For the Icelandic author, "þetta reddast" is described as the country's motto. Þetta reddast can be translated to "it will all work out okay". Life could often be difficult in this barren, harsh country and over time Icelanders have developed a mentality which can sometimes seem a bit carefree. When faced with difficulties Icelanders always maintain a belief that things will work out in the

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end; no matter how big the problem, a solution will always present itself" (Iceland Magazine, by Sara McMahon, June 19/2014. https://icelandmag.is/article/what-does-thetta-reddast-mean)

Cooperation to stimulate thinking out of the box: It is important to note that the development of resilience takes time, especially in systems that are characterised by tight control and little room for risk-taking and innovation, as may be found in many HEIs. This workshop was thus exploratory in nature, with the purpose of primarily focusing on how best to support the development of resiliency and agility. It is important to bring together multiple, diverse stakeholders, who can journey through a process whereby their mindsets and traditional ways of working are challenged. The diversity of the group further led to participants being exposed to multiple perspectives and fresh thinking to attempt to address common problems plaguing HEIs.

It is important that members of HEIs, especially those on the ground, have the necessary skills and capabilities to drive change. The fixed organisational culture of HEIs which can be quite focused on policies and plans, can ensure efficiency, but can lead to staff being inhibited and unable to respond and recover quickly in the face of adversity. If the individuals in HEIs are unable to bounce back quickly, then how much more challenging is it going to be when examining the curriculum, especially when considering that it is the individuals in the system who are responsible for achieving outcomes. We thus argue that resilience-building of the curriculum is dependent on the extent to which individuals in the system themselves are capable of embracing change and being responsive and proactive.

Diversity of viewpoints: Participants highlighted the value of being able to hear the experiences of others, especially international perspectives. There was some value in the metaphors-direction, to help people think about curriculum as something other than just a timeline of courses planned over three or five years. The hamburger abstract design, in particular, was especially received well and led to the other participants thinking more creatively, as well during the second collaborative design from scratch phase; thus, emphasizing different characteristics of a curriculum. Increasingly, more and more criteria on HE programs are offered in quality procedures, sometimes even imposed by accreditation agencies.

To date, there is no global and unified framework for visualizing and discussing curriculum designs. The workshop presented was without any real constraints in terms of modeling, able to guide actors in HE to collaborate more effectively in their curriculum transformations. This informal and cooperative workshop makes it possible to start to act together in the construction of action plans in connection with strategies set by Universities, Ministries or accreditation systems.

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Many HEs suffer because they have a rigid curriculum, with specific courses which are fixed. It is critical that the curriculum is agile. As an example, in Indonesia, the Ministry of Education started to run the MBKM (Independent Learning-Independent Campus), formed at the beginning of 2020. Students of the 4-year Bachelor program are given the freedom to take the opportunity to spend one semester outside the study program and two semesters of carrying out learning activities outside the university. The credits of those semesters are taken into account in the academic transcript. It means that the curriculum must support a "big room" for MBKM activities and its credits. If the curriculum is not agile, it creates problems for the study programme. Students learn and gain experience from real world professionals, by doing the activities outside the university, especially through internships (in industry, government offices, research centres or in the community).

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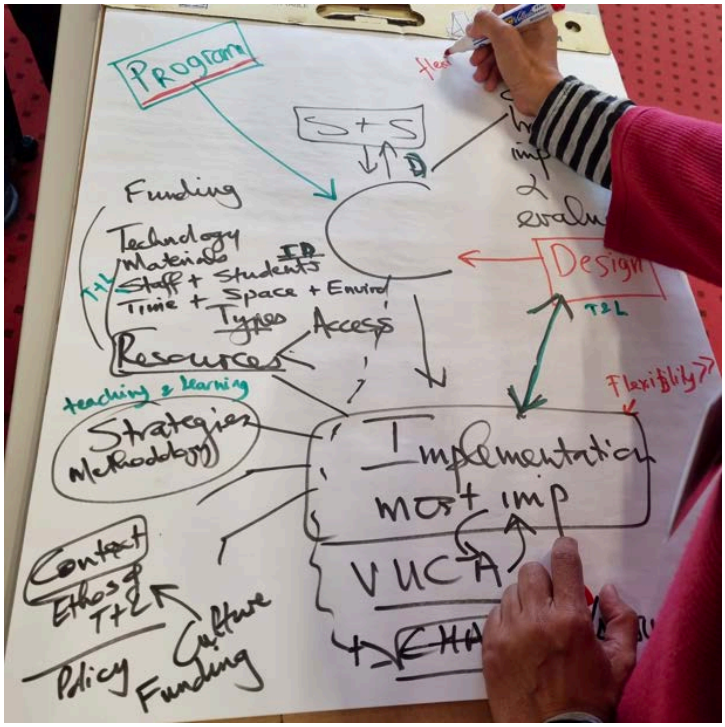
DECART Curriculum Design and Analysis with CAFE

They are opportunities to allow organisations to increase the quality and relevance of curriculum design activities and to increase capacity to operate jointly at transnational level for programme interoperability. The main purpose of this workshop is to train curriculum designers to share a common understanding with intercultural colleagues and team members, to later transform (redesign/reform) their own curricula according to local challenges, traditions, culture, etc. It questions the problem and investigates whether it is possible to reconcile HE stakeholders with cooperative design, in order to create a common understanding and develop a collection of hands-on methods for curriculum transformation. The proposed collaborative workshop can assist HE institutions to pave the way towards a curriculum structure, which can also help improve the quality and relevance of their curricula. With an international collaboration perspective, it is to facilitate innovative curriculum design activities, by exchanging or developing new practices and methods, and inspiring and learning from others.



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The curriculum design workshop was mostly inspired by University of Utopia is a serious collaborative game intended for HE teachers (Laplanche and Escrig, 2019). It allows pedagogical concepts presented via concept cards to be transferred to teaching situations defined collectively in order to improve the quality of learning activities. The participants develop a mono and multidisciplinary educational activity project on a poster.

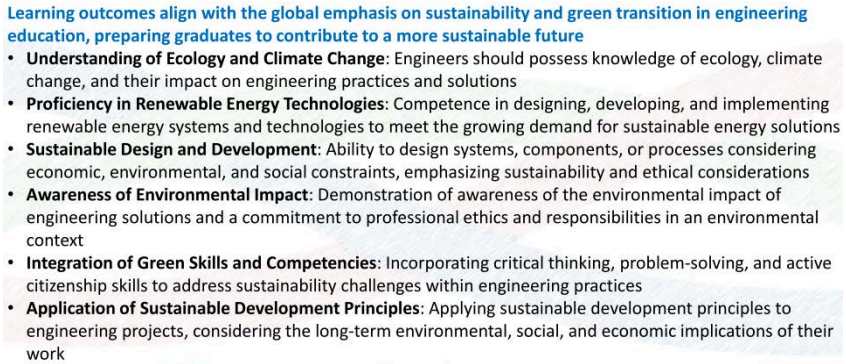
Laplanche, C. and Escrig, B. (2019). In French : University of Utopia : un jeu sérieux collaboratif pour utiliser des concepts en pédagogie universitaire. *Questions de Pédagogies dans l'Enseignement Supérieur*, June.

Phases

The workshop is made up of several phases, which can be followed at the participants' own pace, either as a course or independently, depending on their needs. Each phase is structured around several pedagogical activities and can represent the equivalent of 6 hours of training, on the same day or in two half-sessions to allow time for analysis to mature.

Canvas specification

This DECART workshop first proposes teams of curriculum designers to fill the DECART curriculum component canvas based on a curriculum they have to be specified or a curriculum they would like to specify. Teams can be also prompted with instructions for a specific curriculum to design, e.g. on a topic, on some learning outcomes (as in the next Figure) or so.



Learning outcomes align with the global emphasis on sustainability and green transition in engineering education, preparing graduates to contribute to a more sustainable future

- **Understanding of Ecology and Climate Change**: Engineers should possess knowledge of ecology, climate change, and their impact on engineering practices and solutions
- **Proficiency in Renewable Energy Technologies**: Competence in designing, developing, and implementing renewable energy systems and technologies to meet the growing demand for sustainable energy solutions
- **Sustainable Design and Development**: Ability to design systems, components, or processes considering economic, environmental, and social constraints, emphasizing sustainability and ethical considerations
- **Awareness of Environmental Impact**: Demonstration of awareness of the environmental impact of engineering solutions and a commitment to professional ethics and responsibilities in an environmental context
- **Integration of Green Skills and Competencies**: Incorporating critical thinking, problem-solving, and active citizenship skills to address sustainability challenges within engineering practices
- **Application of Sustainable Development Principles**: Applying sustainable development principles to engineering projects, considering the long-term environmental, social, and economic implications of their work

Next Figure prompts for example a focus on sustainable development integration in curriculum or propose an already filled curriculum for team analysis.

Cards for analysis and suggested changes

In a second phase, the workshop may be complemented with concept cards to guide participants to identify more specific strategies and solutions, in a view to develop a shared collection of good practices in curriculum transformation. Learning Battle cards can be used, especially on the T&L component where the 100 LBC have mostly their focus. Cards will make it possible to address several axes, e.g. priorities in terms of graduate outcomes, educational constructive alignments, internal and external partners in the program, strategies and missions, processes with a view to leading the continuous improvement.

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Fig. LBC cards for analysing a canvassed curriculum

More higher level change cards can be designed also. For example, the University of Edinburgh (Center for Research in Digital Education) proposes 8 scenarios, 8 tarot cards and 8 short stories.
https://www.de.ed.ac.uk/news/higher-education-futures-8-scenarios-8-tarot-cards-and-8-short-stories
Their eight speculative scenarios for the future of higher education teaching include:

1. Extinction-era universities
2. AI academy
3. The universal university
4. Extreme unbundling
5. Justice-driven innovation
6. Return to the ivory tower
7. The university of ennui
8. Enhanced enhancement

Component dices

DECART component dices have been designed in order for participants to be faced with a required change in one of the component. Curriculum designs being systemic, a change in a component most often affects other components.

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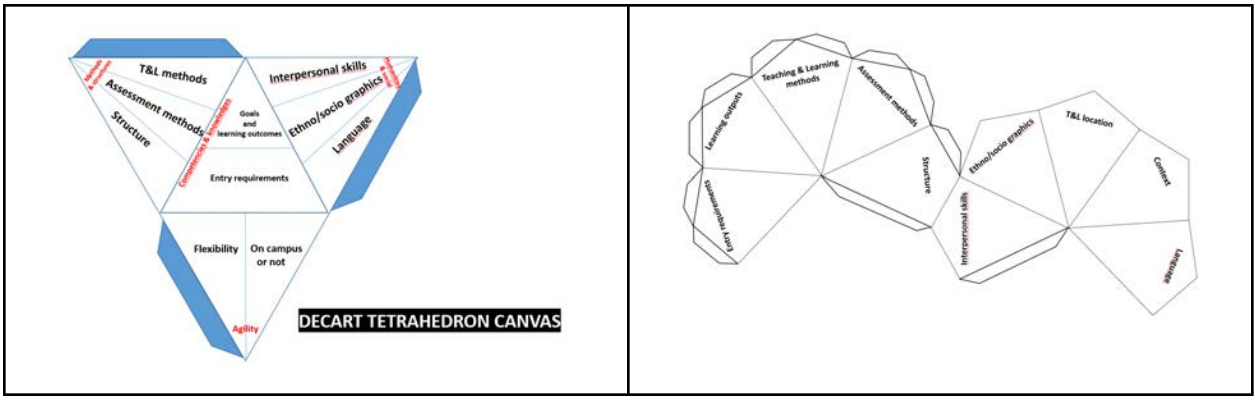

Fig. Dice template for printing

VUCA cards : throwing a VUCA event

VUCA cards can be included then, to stress thh specified curriclum, e.g. cyberattacks, widespread false information on immediate asteroid impact causing civil confusion and unrest, severely accelerated global warming and immediate ban on vehicles using fossil fuel, sudden and extreme solar storms destroying communication satellites such that private internet use will be limited to one hour per day, Embargo on students mobility; Electric and heat shutdown, Strikes, 2 years of 100% online teaching, bankruptcy of large industrial groups requiring imperatively entrepreneurs and buyers, exactly 50% female students in all STEM programs, 8 semesters abroad imposed for a real European curriculum of 10 semesters, national industrial priority in the context of a world war, obsolescence of the need for training in knowledge due to generalized brain implants etc.

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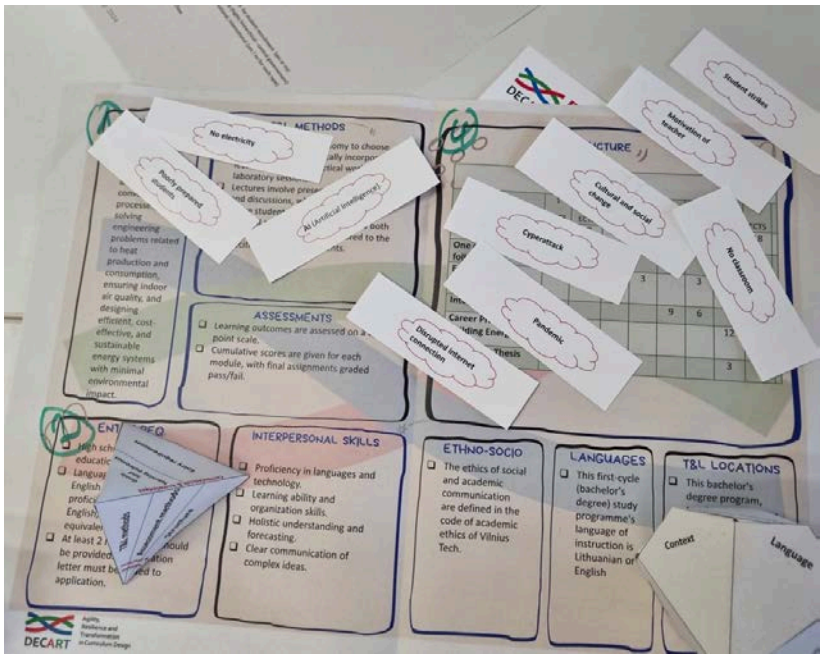

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DECART Expeditional Semester Design

The workshop provides an opportunity for engineering program designers, teachers, all that are involved in engineering education, but also students, and industry professionals to exchange innovative perspectives on curriculum designs, which is a joint European semester with international dimensions and particularly those that want to facilitate student mobility and collaboration at the international level. No prior knowledge is presumed. The original context is an imagined cruise ship, equipped with learning and teaching workspaces, traveling to visit both universities and companies.

> European University Association (2024). “Challenges and enablers in designing transnational joint education provision”. Thematic Peer Group Report. Learning & Teaching paper #22. 28 pages. Editors: J. De Wilde, N. Timus and A. Morrisroe, 15 March. eua.eu/component/attachments/attachments.html?id=4522 (accessed on 4 April 2024).

In a two-hour active workshop, participants in groups elaborate on and codesign, the structure and curriculum components of a joint European semester, part of an engineering curriculum at Master level with significant international dimensions. The context is a 5-month expedition in an imagined cruise ship, equipped with learning and teaching workspaces, traveling between several coastal European cities to visit both universities and companies. Recently, shipbuilders and engine manufacturers are exploring prototypes and designs for ships powered by more carbon-neutral systems, like wind-assisted propulsion and alternative propulsion systems to fuel energy.

Context

2030 Agenda for sustainable development and goals

The context of the workshop is in particular the challenges of climate change and sustainability, both of which are the subject of a broad consensus worldwide. In 2015, the UN adopted an agenda with 17 Sustainable Development Goals (SDGs) for 2030, and four of these are focused the access to quality education (n°4), fight against climate change (n°13), responsible consumption and production (n°12) and marine biodiversity (n°14).

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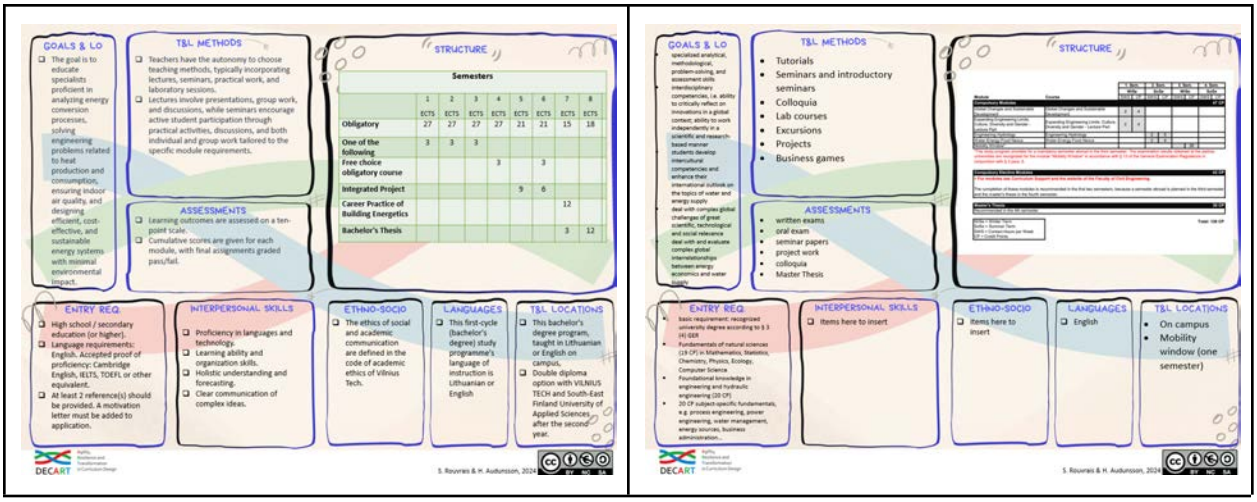
Global risks

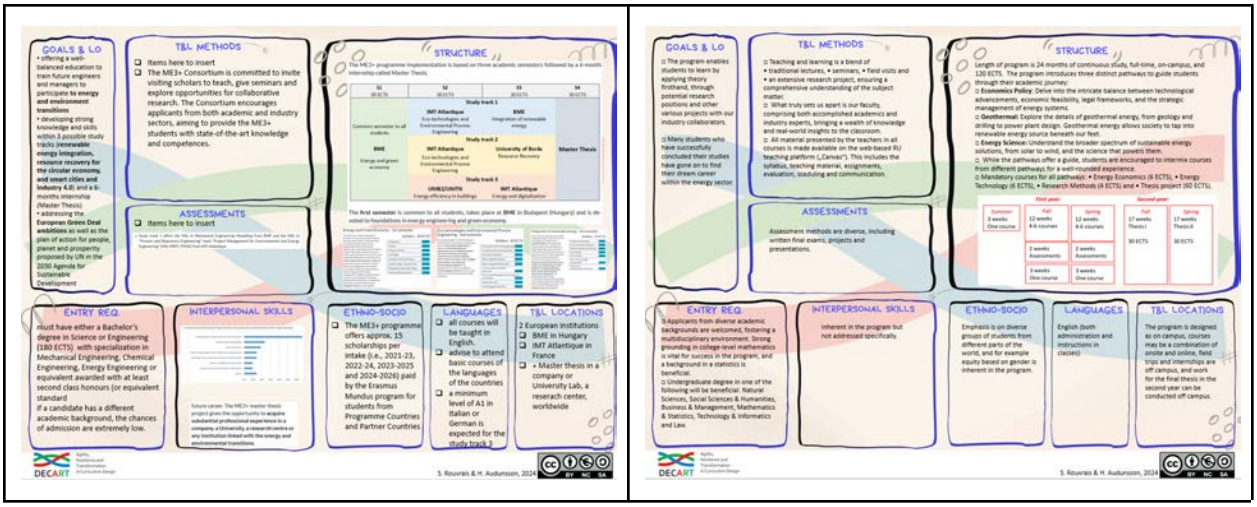
According to the 2024 19th edition of the World Economic Forum (WEF, 2024), “Climate change encompasses the range of possible trajectories of global warming and consequences to Earth systems. […] Global warming pathways will still be influenced by the speed at which decarbonization takes place, and deployment of climate solutions.” The WEF perception survey ranked by severity and the likely impacts of risks over a 10-year period. Among the 34 risks identified, the four first ranked are environmental risks: Extreme weather events, Critical change to Earth systems, Biodiversity loss and ecosystem collapse, and Natural resource shortages.

World Economic Forum (2024). “The Global Risks Report”. Insight report, 19th edition. 124 pages. January. Available from www.weforum.org

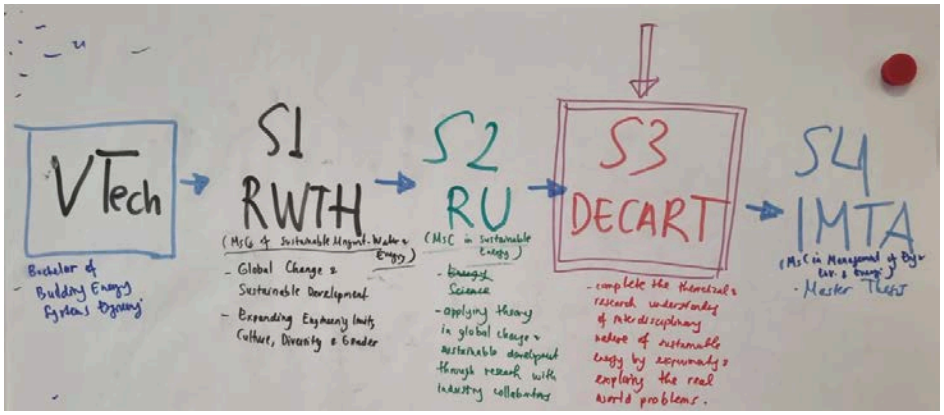
Competency referential for engineering students

The inclusion of Environmental and Social Transformation (EST) issues throughout the student's curriculum enables to train future professionals capable of integrating these issues into their future careers. Engineering education must adopt a systems-based approach that incorporates ecological principles and societal needs. An EST competency referential, in the form of few meta-competencies, is to be infused into a curriculum, e.g. (i) systematically analyse the impact of human activities and industries on ecosystems and the climate, (ii) apply a historical and forward-looking approach favouring a critical stance in the face of major resource-energy-climate issues, (iii) embody individual responsibility to act collectively, and (iv) create value chains respectful of a sustainable future.





As experienced in February 2024 DECART joint staff training events, 4 curriculum in the DECART canvas were given to participants, respectively from VilniusTech (BSc. entry requirement), RWTH (Master), Reykjavik University (Master), and IMT Atlantique (Master). Teams had then to select a semester and design it (e.g. semester 3 as in the next Figure), to be part of a joint curriculum.



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Nomadic University

Ship and expedition characteristics

To facilitate international learning pathways, not only students can travel, maybe the workspace also. Workspaces can be available in the Sail Cruising Ship, e.g. auditorium, Labs, collaborative learning workspaces, restaurant area, bar, lounge etc. Onboard can be students, invited speakers/teachers for a day/week/month, on site teachers/tutors, pedagogical innovators, associations, entrepreneurs, programme leaders, elderly learners, etc.

Recently, shipbuilders and engine manufacturers are exploring prototypes and designs for ships powered by more carbon-neutral systems, like wind-assisted propulsion and alternative propulsion systems to fuel energy. The International Windship association (2022) classifies wind propulsion technologies into categories including soft sails, hard sails, Flettner rotors, suction wings, kite sails, and turbines. Several large shipping companies plan such installations as part of their goal to achieve net-zero emissions. Some EU-funded projects, like OPTIWISE and WHISPER are investigating with industry partners wind energy propulsion for vessels.

The ship could be 100m long, with 3000m2 sails for 80% of fuel reduction, sailing 8 knots, 30 crew members, up to 100 cabins for non crew. The transit times of 400 Km per day (at 1 knots = 1 naut. miles per hour, 1,85Km/h). As an example, Brest <-> Reykjavik is 2000 Km by sea, Brest <-> Oslo 1500 Km.

As presented, January 2022, in the WIND PROPULSION FOR SHIPS: Technologies ready to decarbonise maritime transport. An industrial opportunity for France whitepaper (produced with the financial support of ADEME, the French Agency for Ecological Transition): “Developing clean and low-carbon maritime transport is one of the major challenges of this decade in order to fulfill the 2015 Paris Agreement the goal of which is to limit global warming to well below 2°C, and preferably 1.5°C, compared to pre-industrial levels. In 2017, France initiated the Tony de Brum declaration which sets ambitious objectives to ensure the contribution of maritime transport to this global commitment.”, “One value proposition that is able to create a virtuous cycle is the systematic use of wind energy to propel ships. Sailing is a 7,000-year-old practice. It relies on a fully renewable energy resource that is widely available on the planet. Having previously used all kinds of sails woven in soft materials, the maritime industry of the 21st century is reinventing the merchant sailing ship with new technologies and new materials that combine the laws of aerodynamics with those of hydrodynamics better than ever before.

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These technologies can be deployed on the majority of existing ships, and easily find their place in the design of new ships".

> Wind Ship association (2022). "Wind Propulsion for Ships: Technologies ready to decarbonise maritime transport". 106 pages. www.wind-ship.fr (accessed 5 February 2024).

Examples of such ships can be found in the following links:

- https://www.wind.coop/en/
- https://www.neoline.eu/en/

In such a context mapped to transport students around regions, for the workshop, teams have to propose and specify a MSc semester program that:

- is innovative to meet skills and competencies (core and transversal) as attributes and values in line with Environmental and Societal Transition
- have 14 weeks of course, incl. 1 week of final exam aside course continuous assessments
- has in its pathway >=5 universities visited, as well as >=5 companies

French source of inspiration on nomadic training

Trek Telecom at IMT Atlantique

https://www.studyrama.com/vie-etudiante/s-informer-toute-l-actualite-etudiante/le-trek-telecom-une-aventure-pedagogique-23171

Trek Telecom was a pedagogical nomadic initiative of IMT Atlantique, imagined by Aymeric Poulain-Mauban, an alumni of IMT Atlantique. The idea was to send teams of students to meet professionals to take inspiration and develop a project on the subject in line with EU strategies or goals. To reach a major European city, the teams had three weeks to reach the school by their own means. In their luggage, they had a project to develop on an issue (e.g. sustainable development) through their meetings with companies on their way. Four teams of 8 students were selected from among the many applicants, in each team, 6 students set off and 2 stayed at school to help their teammates catch up on missed classes. The projects are part of the students' semester projects and provide credits for the final validation.

The teams, which are resolutely mixed (girls, boys, French and foreign students in the 1st and 2nd years), did not set out on an adventure. Selected at the end of November, each team

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mapped out its route and made appointments with European companies. With a budget of €10,000 in their pockets, the four teams left from four major European cities (in a session: Dublin (Ireland/England/Netherlands/France), Warsaw (Poland/Germany/France), Munich (Germany/Italy/Switzerland/France) and Madrid (Spain/Portugal/France). Many companies have supported Télécom Bretagne's project: Orange, Modulwatt, Makina Corpus, La Société Générale, Le Point, the Brest Métropole océane community of municipalities and the General Council have provided the teams with the funds needed to carry out the project.

Training Scientific students on board, French examples

Ecole Navale in France trains engineering students, with an educational program accredited at Master level in 5 years. At the end of the curriculum, French cadets go on a round the world mission, including training purposes: “after two years of training at the Naval Academy of Lanvéoc-Poulmic (Brittany), an elite school of the French military navy, Mission JEANNE D’ARC represents the culmination of the training of future naval officers. This mission, historically carried out on the helicopter carrier Jeanne d’Arc, which retired from active service in 2010, has kept her name and is part of the tradition of the ship’s deployments, which have remained anchored in the memory of entire generations of French Navy officers. Throughout this mission, which will take them far from home for more than 150 days, the cadets will spend more than 100 days at sea, interspersed by watch hours, exercises, operations, periods of instruction provided by the crews of the two ships and by their instructors from the Naval Officer Application School Group (GEAOM), and port calls. They will be trained in the various specialties that they can choose from at the end of their JEANNE D’ARC campaign”
https://www.defense.gouv.fr/sites/default/files/operations/20230209_PRESS_KIT_JDA_23.pdf

Training experiences on board for scientists and STEM students also exists in France. As an example, ISblue (Interdisciplinary graduate School for the blue planet) is a training and research project run by Université de Bretagne Occidentale with 8 partners (Université de Bretagne Sud, ENSTA Bretagne, IMT Atlantique, ENIB, Ecole Navale, Ifremer, CNRS and IRD). The ISblue institutions wish to strengthen the integration of Ecological and Social Transformations into their Master's, engineering and doctoral courses.
Details can be found from the following references:

- https://universitesflottantes.iuem.cnrs.fr
- https://isblue.fr/universite-flottante-campagne-resilience-2022

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Imagine an expeditional semester

Workshop phases

After a very short context presentation of the workshop with 2 slides in only 5 minutes, the workshop mission was given to subgroups of 5-7 participants in few lines of text. Then each group draws the itinerary on the provided A3 map of a learning ship hosting up to 80 engineering students, visiting at least 5-7 universities and 5-7 companies in an itinerary around Europe. Each harbour is to meet some EST needs, e.g. with links to strategic industrials activities of a country, could it be low carbon systems.

Fig. Filling itinerary map.

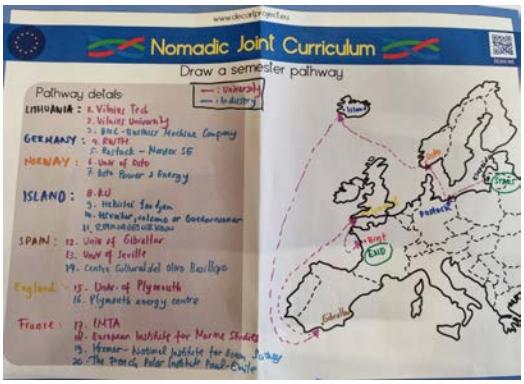

Fig. Identifying Universities and Industries in each location.

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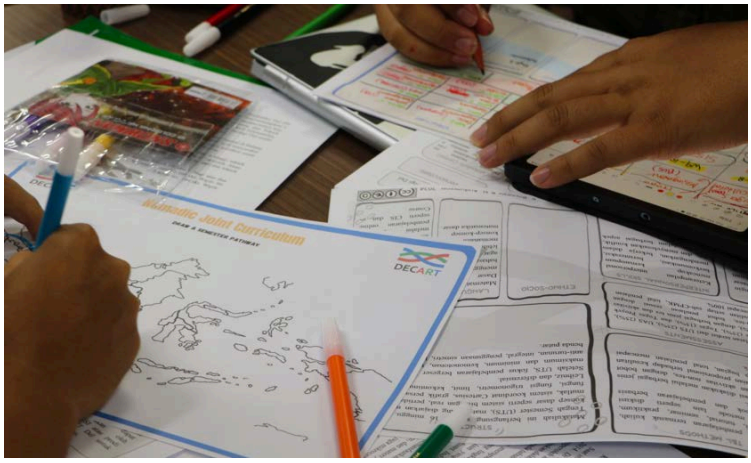

Each group is given the curriculum canvas. The groups are not to fill all the component descriptions but are asked to use the structure to facilitate the design of the curriculum. The design of the curriculum is facilitated with the DECART canvas where the components include: main goals and learning outcomes of the program, entry requirements, structure and contents of the program, teaching and learning methods, location of teaching and learning, interpersonal skills, assessment methods, language of instruction, and ethno- and sociographic aspects, including diversity and equity.

Fig. Components of the curriculum canvas.

Fig. Filled canvas example for the semester.

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Closure and material

In the end each group displays its route and curriculum draft on the wall. To close the session, a very short discussion is conducted, free time depending. A questionnaire (Google Form) is filled by all participants.

Learning outcomes

At the end of the one-hour workshop, each active participant may have enhanced his/her capacity to:

1. share and confront ideas for original engineering curriculum addressing some of the challenges of climate change;
2. recommend specific actions for effective EST initiatives in the engineering education ecosystem;
3. understand why a multi-institution educational programme can leverage potential in driving sustainability transformation;
4. identify a method, its entry points and main activities for abstract curriculum design;
5. link formal education EST competencies in universities with industrial and societal needs of different countries;
6. reflect on joint curriculums to embed EST in a program across several institutions.

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Examples of routes

In February 2024, two DECART teams during a project joint staff training event suggested two European pathways as presented in the next Figures. In March 2024, the mission was adopted to the Indonesian curriculum and regional situation and location.

Fig. Team European route 1.

Fig. Team European route 2.

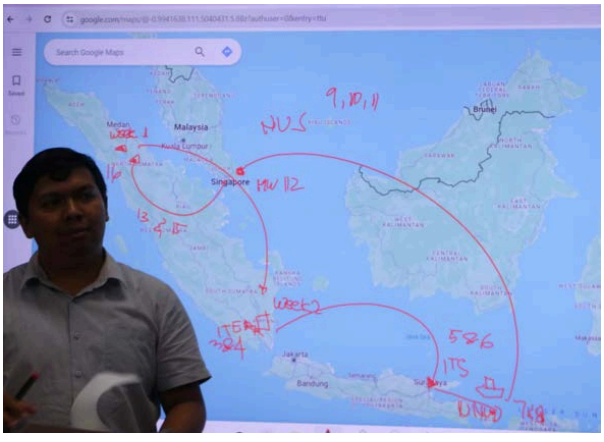

Fig. Team Indonesian route 3, Indonesian archipelago map.

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Online

Online sessions of the workshop are ongoing in the second semester 2024, in a shortened 1 hour model. A summary will be provided in the version 1.2 of this R13 report later.

Discussion

In line with some SDGs and global risks, this workshop is significant for STEM higher education but also Business education in the context of educating responsible engineers and equip them with EST competencies. EST is an essential facet of the professional identity that engineering graduates must embody to tackle complex sustainability challenges. Learning the knowledge, skills and attitudes of sustainable engineering have a systemic view but also an international dimension. The European Commission has proposed a blueprint for establishing a European degree, with the aim of facilitating deeper cooperation among higher education institutions across Europe (European University Association, 2024). Having engineering students in their last year to travel throughout Europe to meet universities and industries is an attractive idea. This workshop can stimulate discussion between participants on these issues.

A business model will be foresight later in the project, maybe to envision effective feasibility of such a floating University semester, funding issues could be based on European funds (e.g. European Universities, KA1 mobility allowance, industry fundraising and foundation, student registration fees, donations, etc.)

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Other DECART ideas

During informal discussions, DECART members also envisioned some other activities around curriculum design, which were not designed and operated, e.g.:

- Higher education systems fresk: participants in teams are asked to identify on a temporal fresk the main changes and ruptures that affect higher education in their country, their causes, affects, etc. Each team presents to the other groups and common points as risks are discussed.

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The authors of this report are particularly grateful to faculty, university managers, academic leaders, teaching and learning professionals, students, alumnus and educational researchers who gave their time for fruitful discussion in the partner institutions, during conferences or workshops, during DECART onsite and virtual meetings activities or training, or even aside other project meetings.

Contributors

DECART project is an inter-institutional collaboration which includes a process in which parties (individuals or institutions) work together to achieve project goals. DECART knowledge is shared through regular open discussion during plenary project and ZOOM meetings from November 2022. All DECART partners share values and ideologies around the project objectives. This DECART report, as project WP1 deliverable, is a joint authorship: several authors have participated and whose contributions cannot be separated one from the other. The property of this document content is the one of all the corresponding authors.

Lead Organisation	WP1 Coordinator: RU
Participating Organisations	European partners: IMTA, RSB, RU, RWTH and VU African partner: UKZN ASEAN partner: ITD

More precisely, there is generally a ‘leader' of the collaboration for this report:

- At Reykjavik University, Haraldur Audunsson was responsible of this report writing process with Siegfried Rouvrais from IMT Atlantique

A collaborative project can not exist without the active implication on several stakeholders in the partnership. Several members actively collaborated for this first DECART report, formally as subsection producers or during informal discussion during project meetings or join staff training events. They include in country alphabetical order:

- In France:
    - Nathalie Chelin, Gilles Jacovett, Siegfried Rouvrais, and Roger Waldeck from IMT Atlantique,

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- Chantal Puren and Coraline Lozac'h for the project administrative purposes

- In Germany:
  - Carmen Leicht, Clara Lemke, and Ann-Kristin Winkens from RWTH
- In Iceland:
  - Haraldur Audunsson and Asrun Mathhiasdottir from Reykjavik University
- In Indonesia:
  - Arlinta Barus, Inggriani Liem, Sari Silalahi, and Eka Stephani Sinambela from IT Del,
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  - Valentina Diagene, Vladimiras Dolgopolovas, Egle Jasute and Asta Meškauskienė from Vilnius University,
- In South Africa:
  - Angela James, MacDonald Kanyangale, and Cecile Gerwel Proches from University of KwaZulu Natal.

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Based on the foundational work presented in R11 *Curriculum Components and Properties* and R12 *VUCA Scenarios Affecting Higher Education* DECART reports (available on the website), the project partners prepared activities to design curricula applicable to higher education. Partners demonstrated that the tools used in the workshop activities support an international collaboration. The collaboration leads to various points of view and various representations of curriculum. The activities were based on a co-design approach and transferable in order to locally support the transformations of programmes, by sharing and confronting new curriculum ideas.