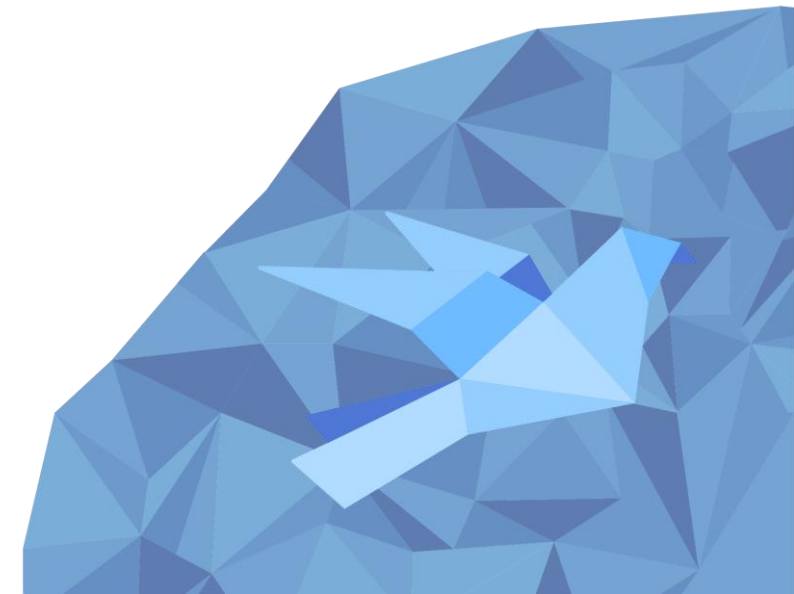


# Concept Development and Experimentation (CD&E) Tool for Simulation in EU Peace-building

## Dr. Nikolay Pavlov

Marie Curie Fellow and CDE4Peace project coordinator  
SYNYO GmbH, Vienna, Austria

27th April, 2022, International Training Technology Exhibition & Conference (IT<sup>2</sup>EC), ExCel, London





## **Information on EU Funding**

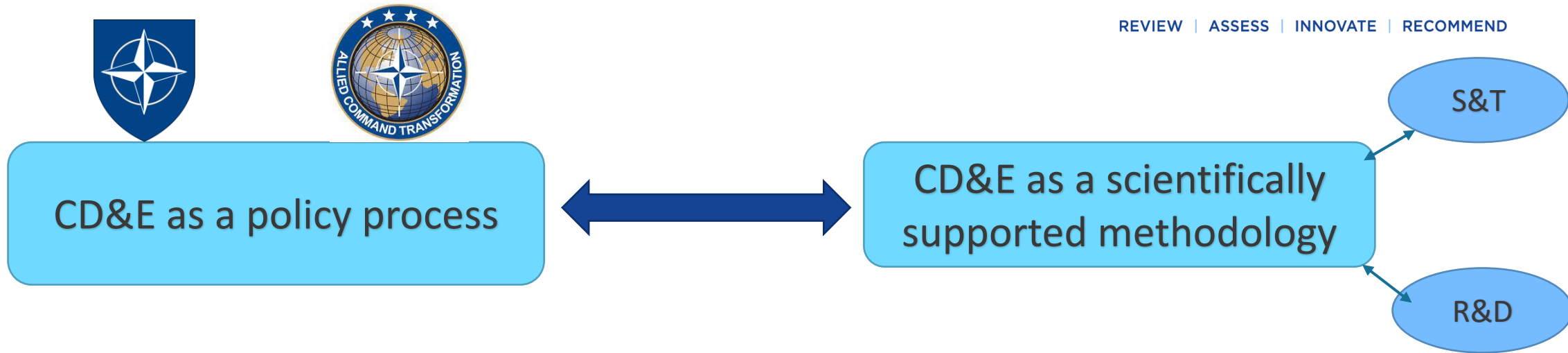
This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 882055 (CDE4Peace).

## **Disclaimer**

This project presentation and all project results reflect only the author's view. The funding agency is not responsible for any use that may be made of the information it contains.

- 1) The background: Concept development & experimentation (CD&E) in NATO
- 2) The context: the CDE4Peace project
- 3) Why an innovative simulation tool for EU peace-building?
- 4) Methodology and approach
- 5) State-of-the-art
- 6) CD&E platform for simulation in EU peace-building
- 7) Training module of the CD&E platform
- 8) Experimentation module of the CD&E platform
- 9) Conclusions

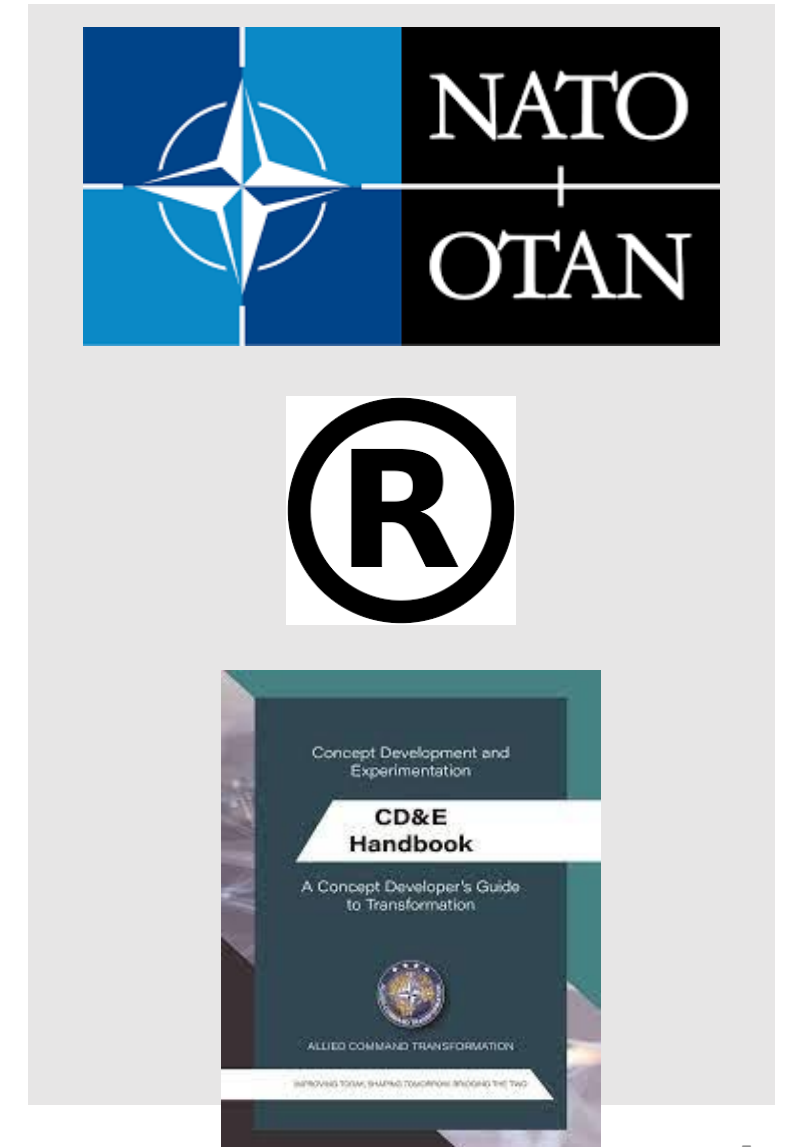
# The background: the dual nature of CD&E in NATO



“CD&E is a combination of methods and tools that drives NATO’s transformation by enabling the structured development of creative and innovative ideas into viable solutions.” (NATO CD&E Handbook, 2021)

# The CD&E process and methodology in NATO

- ✓ The CD&E policy process is part of NATO's defence planning and capability development process
- ✓ The CD&E methodology is a broad project management framework, an umbrella term for multiple research methodologies and methods:
  - Exercises (exercise-based experiments);
  - Modelling and simulation (M&S) and wargaming;
  - Alternative analysis;
  - Operational analysis;
  - Concept testing, etc.





# The context: the CDE4Peace project



## Concept development and experimentation for EU conflict prevention and peace-building (funded under the EU's research and innovation programme Horizon 2020)

Home News About Deliverables Ethical Aspects Researcher DE Contact

### Exploring the potential of CDE for EU peace-building

- EXPLORE**  
The project's principal research objective is to explore the potential of Concept Development and Experimentation for enhancing the EU's conflict prevention
- REVIEW**  
The project will conduct desk review and quantification of selected strategic and operational concepts in the field of EU conflict prevention
- ASSESS**  
The project aims at assessing the applicability and compatibility of Concept Development and Experimentation with strategic and operational concepts in the area of EU conflict
- INNOVATE**  
The project seeks to introduce and adapt CDE to EU conflict prevention and peace-building by defining the requirements for an innovative CDE tool tailored for this specific policy
- RECOMMEND**  
Finally, the project will define actionable policy recommendations for implementing the CDE methodology and tools in the complex EU policy-making



**EXPLORE** the potential of CD&E for EU conflict prevention and peacebuilding;



**REVIEW** selected EU strategic and operational concepts;



**ASSESS** the applicability and compatibility of CD&E with EU strategic and operational concepts;

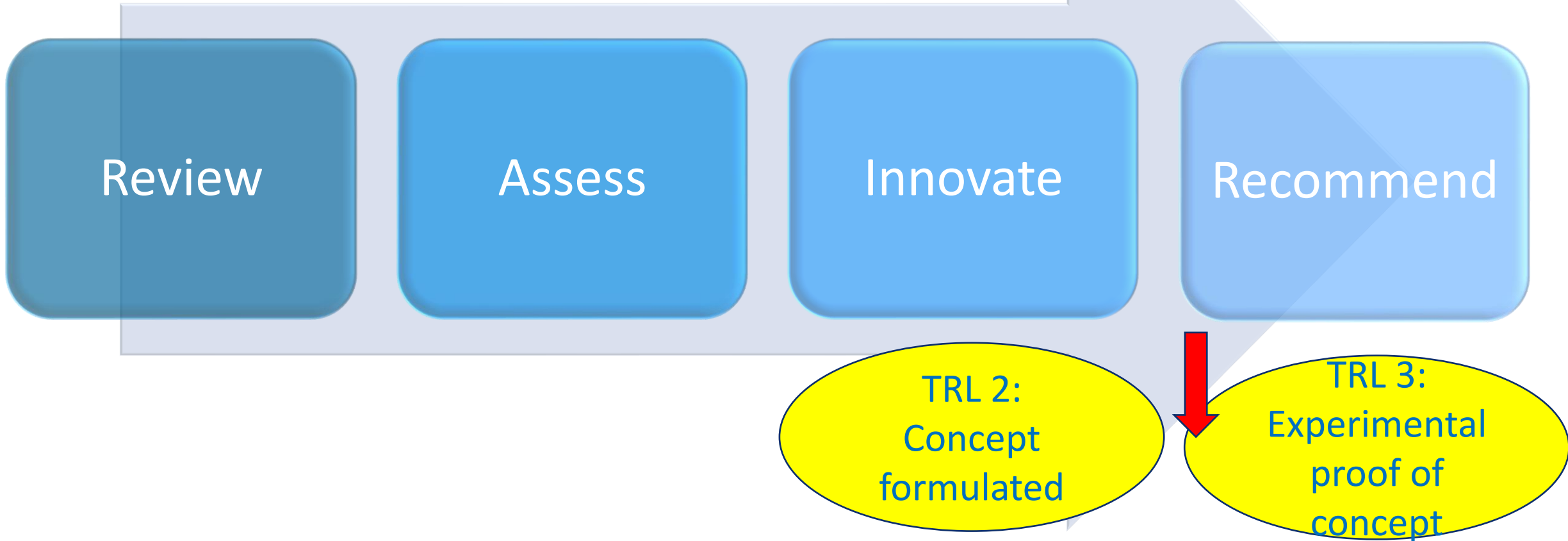


**INNOVATE** – to define the requirements for an innovative CD&E tool tailored for the EU;



**RECOMMEND** – to define policy recommendations for implementing CD&E in the EU

Phase 1 - REVIEW						Phase 2 - ASSESS						Phase 3 - INNOVATE						Phase 4 - RECOMMEND					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24





# Why an innovative simulation tool for EU peace-building is needed?

- Over 35 EU peace-building missions and operations in conflict-stricken countries;
- Capability development and training needs of EU personnel;
- Training and experimentation through simulation tools could enhance the planning and execution of EU missions and operations;
- Research on EU conflict prevention and peace-building is not adequately supported by experimentation;
- Why CD&E? CDE is one of the very few available options for state-of-the-art experimental methods on the international R&D market.

# EU peace-building missions and operations

Credit: European External Action Service



- ❑ The concept for the simulation tool has been designed by employing NATO's CD&E methodology and adapting it to the capability development needs of the EU.
- ❑ Modelling and simulation (M&S) play an important part in the CD&E methodology within NATO.
- ❑ The main M&S techniques to be used are constructive and virtual simulation of EU missions / operations at the tactical, operational and strategic level.
- ❑ Gamification techniques and scenario development are the most promising approaches for the innovative simulation tool.

## EU research and innovation products funded under the Horizon2020 programme

- The ‘Gaming for peace’ (GAP) online game.
- PeaceTraining.eu platform



## Commercial-off-the-shelf (COTS) products on the European market which could be used for CD&E purposes

- 11 tools identified in the ‘technology watch’ process.
- The tools are not tailor-made for EU peace-building

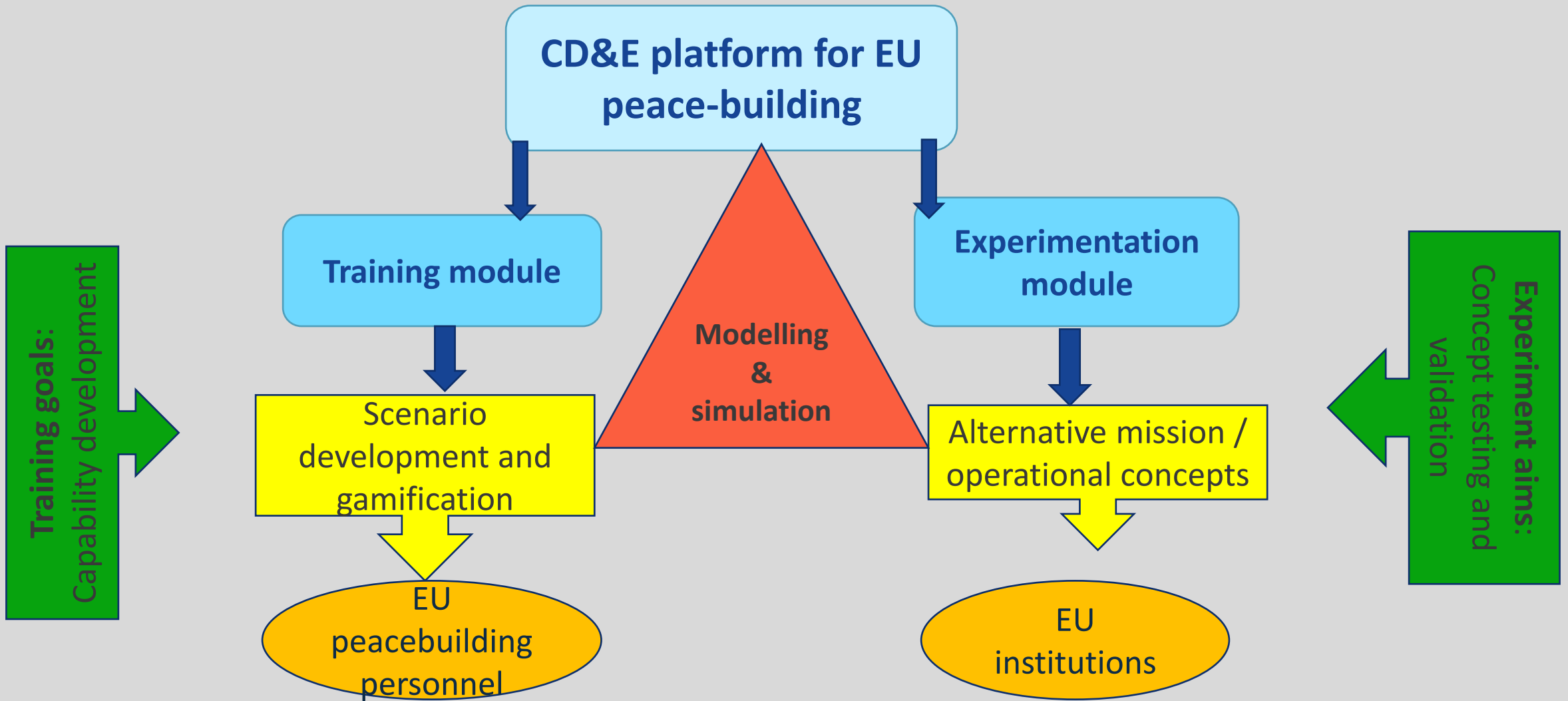
CONCEPT DEVELOPMENT AND  
EXPERIMENTATION FOR EU CONFLICT  
PREVENTION AND PEACE-BUILDING  
(CDE4PEACE)

**D4.1**  
Catalogue of available and emerging CD&E tools  
in the European Union

*Nikolay Pavlov*

- ❑ Principal objectives of the CD&E platform : 1) to improve human performance through training; 2) to improve mission and operational planning and execution through experimentation.
- ❑ The main innovation: the CD&E platform goes beyond training in the area of experimentation of EU peace-building concepts.
- ❑ In the EU context peace-building training and experimentation are closely connected and hardly separable in institutional and organisational terms.
- ❑ The target audience: EU peace-building personnel from missions and operations on the ground as well as EU officers in Brussels-based EU institutions.
- ❑ The CD&E platform is comprised of two modules, a training module and an experimentation module built around M&S methods, techniques and tools.

# CD&E platform concept and design



- ❑ Designed as a scenario-driven multiple-player online role-playing visual game.
- ❑ The training audience consists of EU peace-building personnel.
- ❑ The scenario events, injects, cues, prompts and stimuli are storyboarded.
- ❑ The training module has an inbuilt curriculum in peace-building skills as well as an assessment of those skills.
- ❑ The experimental proof of concept is currently developed and tested within SYNYO GmbH.

## *Technical aspects:*

- Designed as a gamification module.
- Implemented as a Moodle plugin, having an internal database.
- Employs visualization, 3D modelling and simulation and gamification techniques.

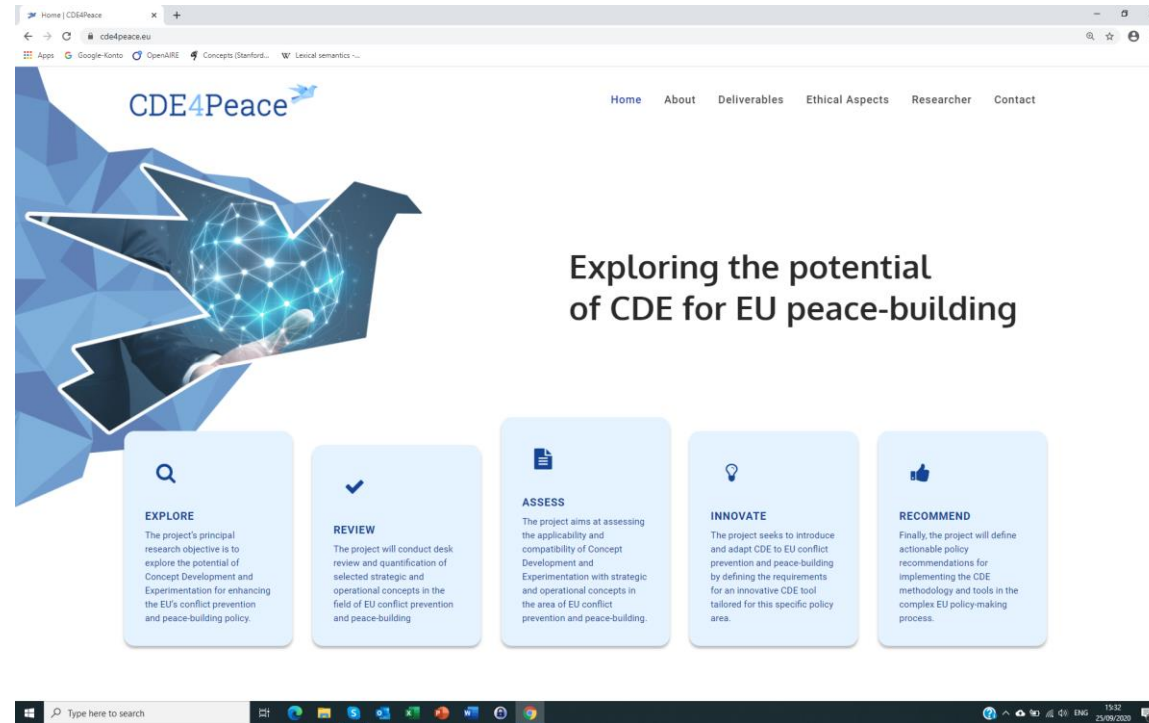
## Experimentation module

- The experimentation module is mandate-driven.
- The main objective is to experiment and validate alternative mandates and operational concepts:
- The M&S method of simulation-based experiment is employed. It is designed to experiment alternative EU mission and operational concepts and mandates.
- The experimental proof of concept is currently developed and tested within SYNYO GmbH.





- ❑ The ambitions of the EU as a peace-building actor on the international arena warrant the development and application of state-of-the-art tools for training, experimentation and capability development.
- ❑ Presently, there are no available tools tailor-made for EU peace-building.
- ❑ As an emerging and innovative solution the CD&E platform has the potential to fill in an existing market gap.
- ❑ The next step is the development of a Beta version of the proof-of-concept prototype to be trialled with end-users.
- ❑ The development of the CD&E simulation tool for this EU policy area requires considerable investment and public-private partnership (PPP) between experienced European companies and end-users from EU institutions.



Visit the project's web-site: <https://www.cde4peace.eu/>

E-mail: [nikolay.pavlov@synyo.com](mailto:nikolay.pavlov@synyo.com)

Follow the project on Twitter

 [@cde4peace](https://twitter.com/cde4peace)

