

3D Immersive Environments: Strategies for Heritage Protection training within CCOE



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University of the West of England (UWE Bristol)



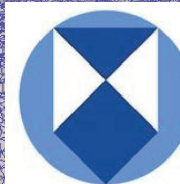
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3D Immersive Environments; Strategies for Heritage Protection training within CCOE

Lisa Mol and Justin Robbins



BLUE SHIELD
United Kingdom

UWE
Bristol

University
of the
West of
England

Military and CPP



Ballistic impacts, such as bullets, can leave scars that not only aesthetically affect the heritage site but could be the surface manifestation of a much larger fracture network within the stonework which can threaten long-term conservation of the heritage site.

The rapid deterioration can be associated with loss of heritage sites in the short- and long-term, thus depriving future generations of their heritage

The importance of CPP during conflict is increasingly foregrounded in training and conservation



As the **military is the primary party responsible for the protection of cultural property in the event of armed conflict**, it must be made aware of the need to protect cultural property and become familiar with the provisions of the Convention. For this reason, States Parties must foster in peacetime a spirit of respect for cultural property and must designate in peacetime military services or specialized personnel responsible for securing respect and cooperation with the civilian authorities responsible for safeguarding cultural property.

UNESCO



On site and in person training



Immersive Objectives

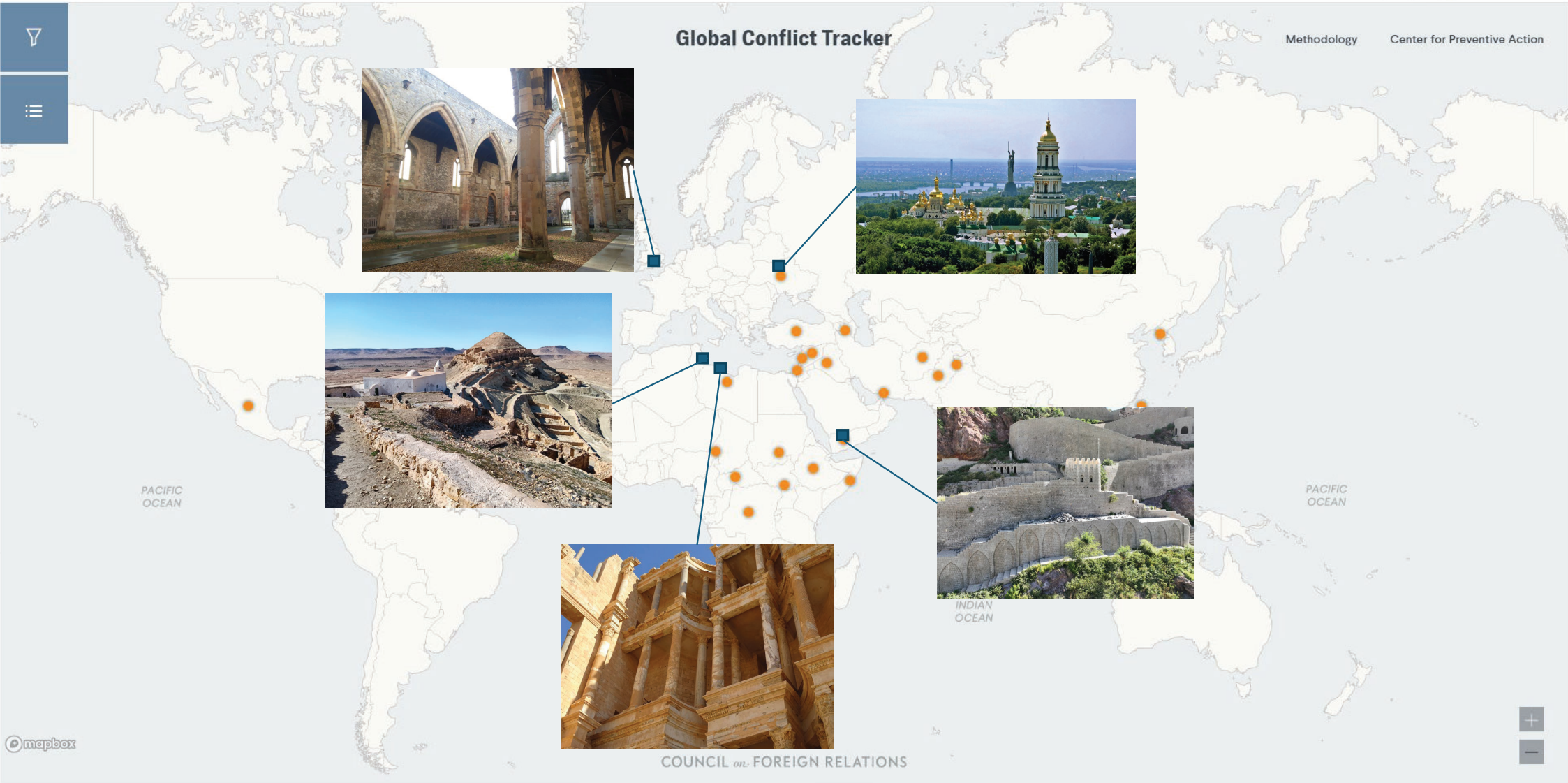
Using the captured drone data, we explore creating accurate digital 3D Models, using Reality Capture / Photogrammetry processes. Using these 3D models, we would explore the potential for creating digital condition surveys, develop tools and systems to do this, or utilise existing software. This would allow more CPP practitioners to get involved around the world and explore the sites in Virtual Reality, as if they were at the actual location, reducing the risk to exposure of conflict zones.



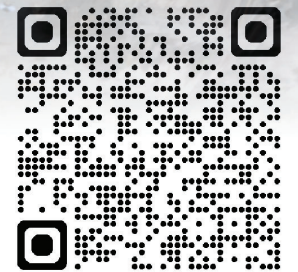
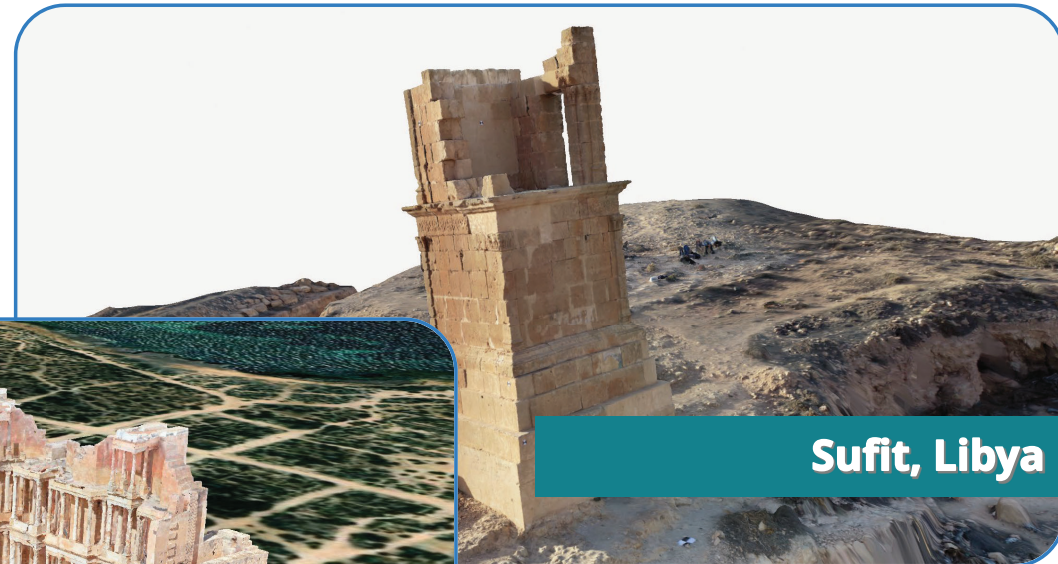
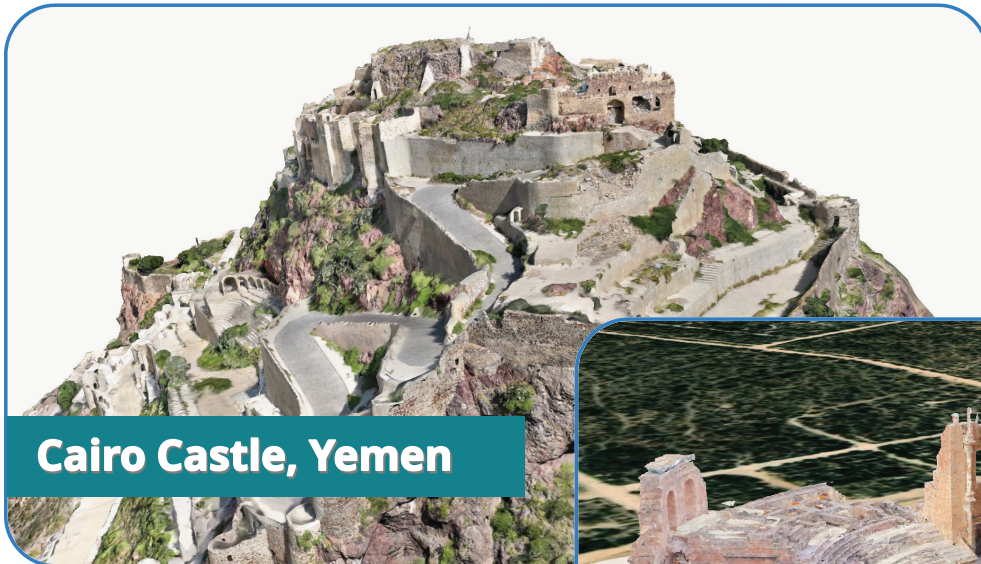
Immersive Training

- Advantages: Where data is available, we can undertake 'field training'
- No longer dependent on access to difficult areas
- Wide variety of settings, structures, cultures and conflict conditions
- Ability to study structures up-close to familiarise participants



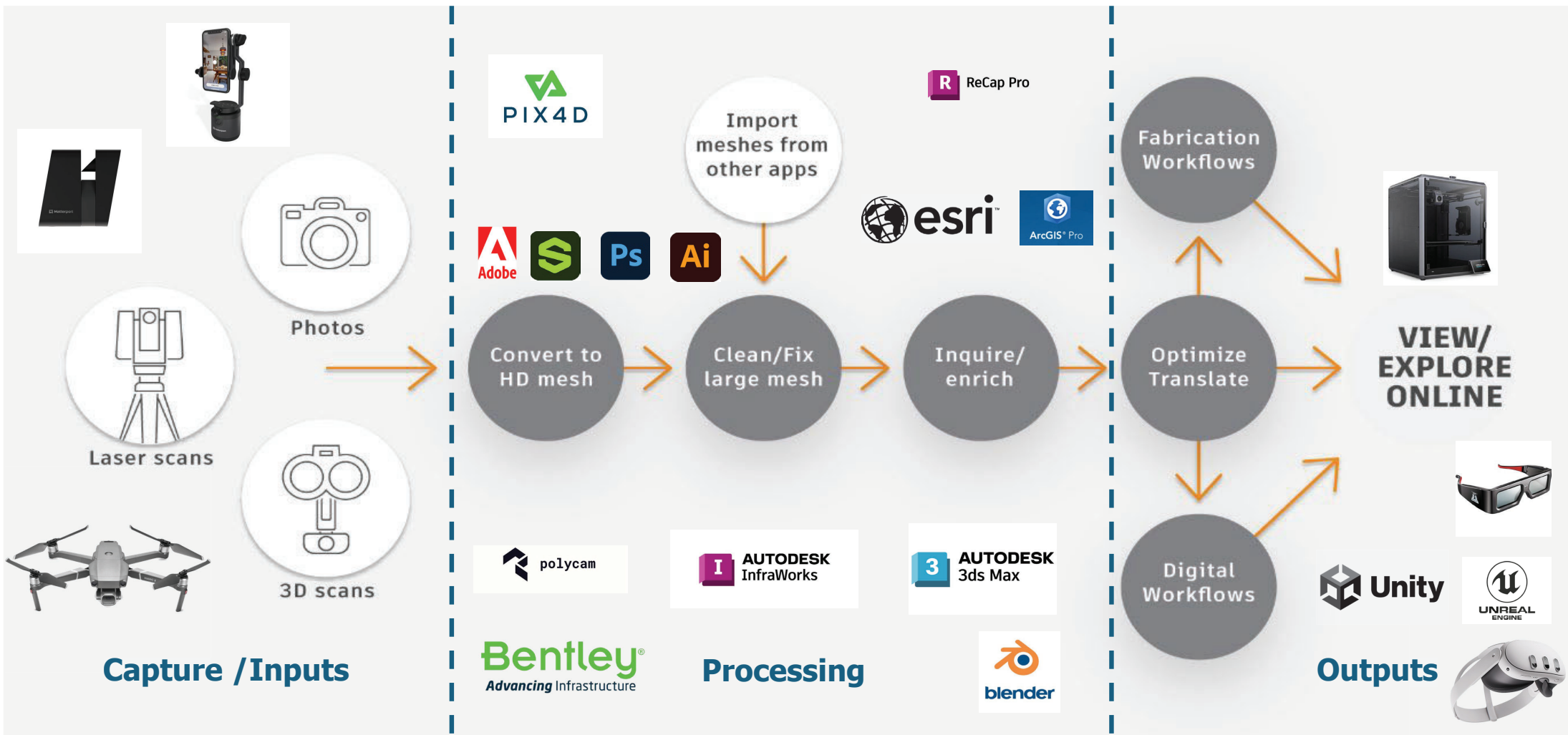


Heritage in the Crossfire – Overview of Sites



<https://shorturl.at/9qe1F>

Reality Capture / Photogrammetry Process



Al Quahira Castle, Taiz, Yemen



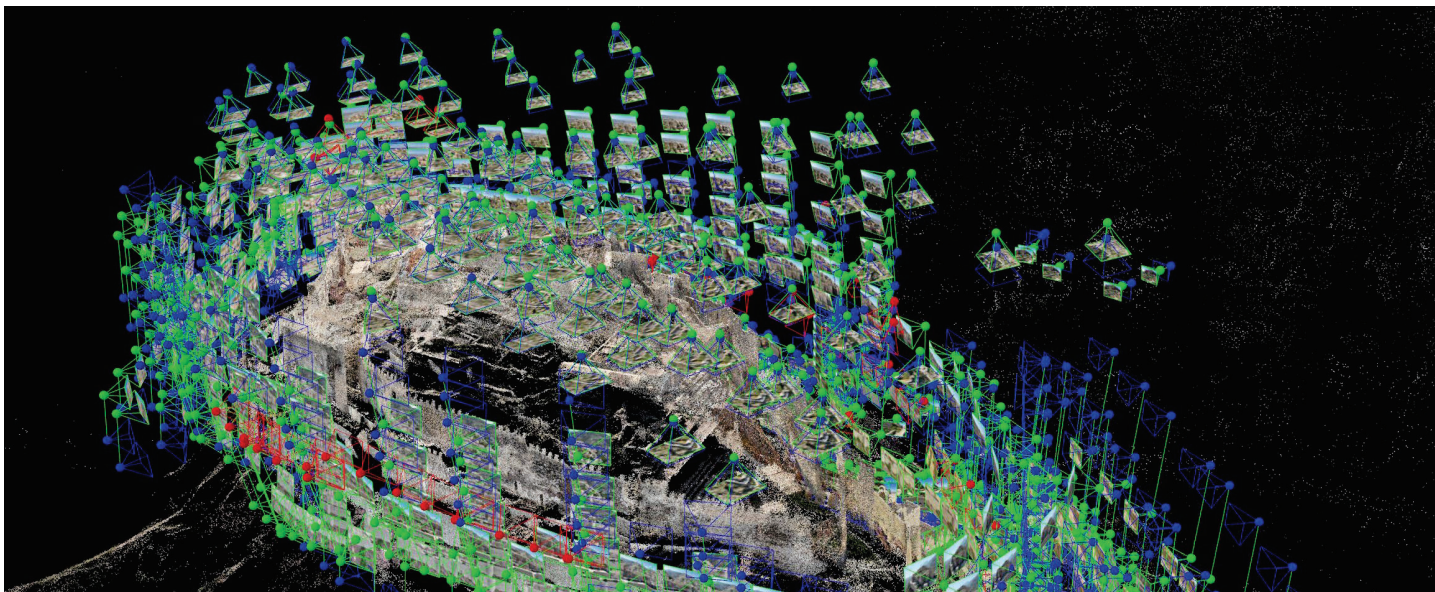
- Foundations date back to 1060AD
- Caught in conflict in 2015
- The main entrance, service facilities, and the guard towers were damaged as a result of direct missile and artillery strikes
- Since then site has become very unsafe



بسم الله الرحمن الرحيم

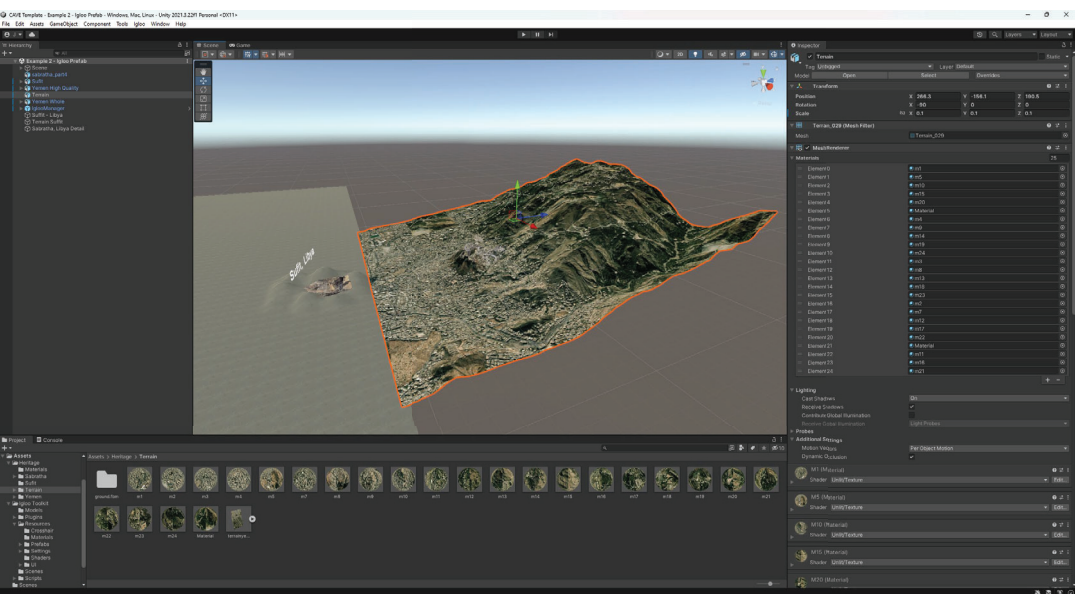
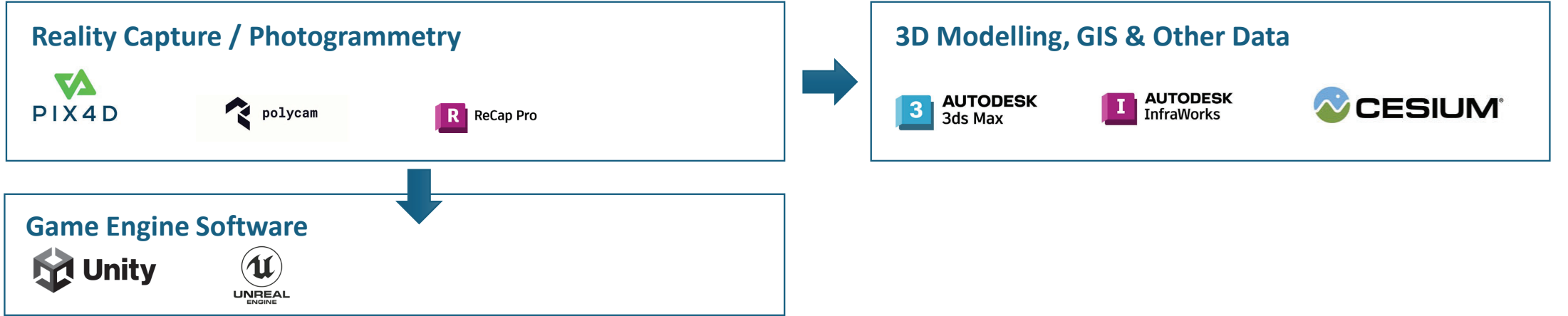
الجمهورية العربية اليمنية

وزارة الاعلام والثقافة والسياحة
الهيئة العامة للآثار والمتاحف
محافظة تعز

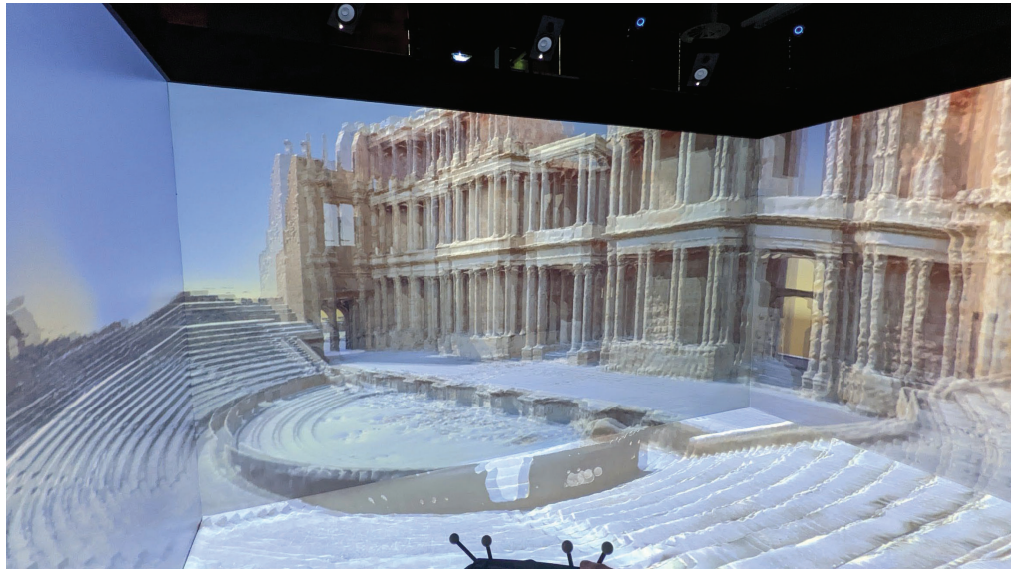


Results

Software to CAVE Process



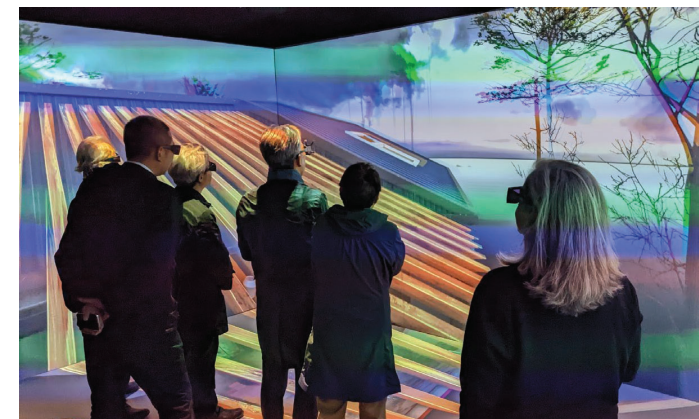
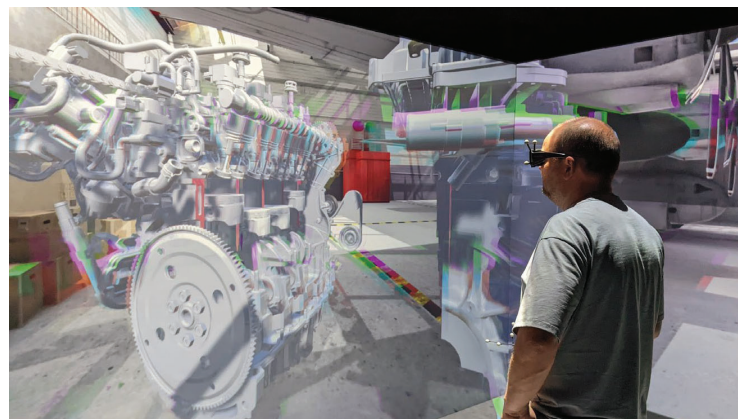
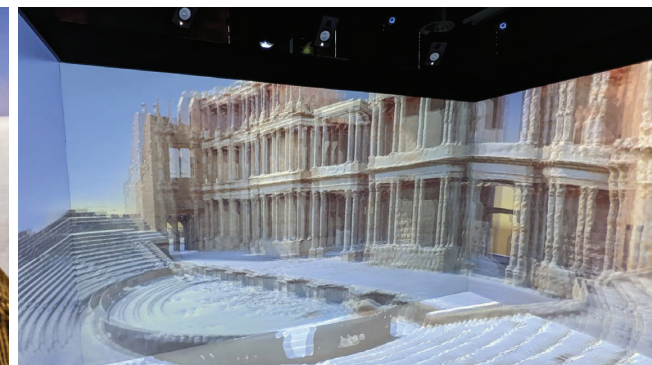
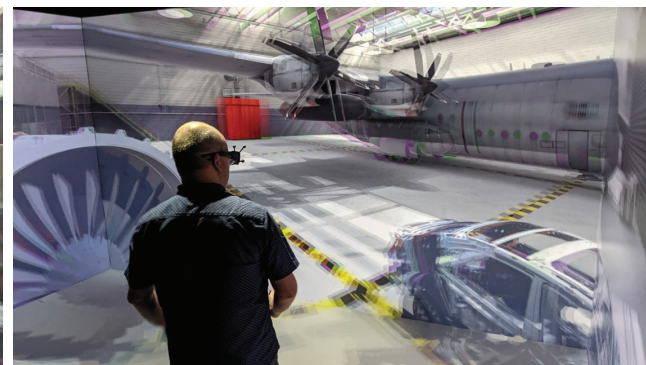
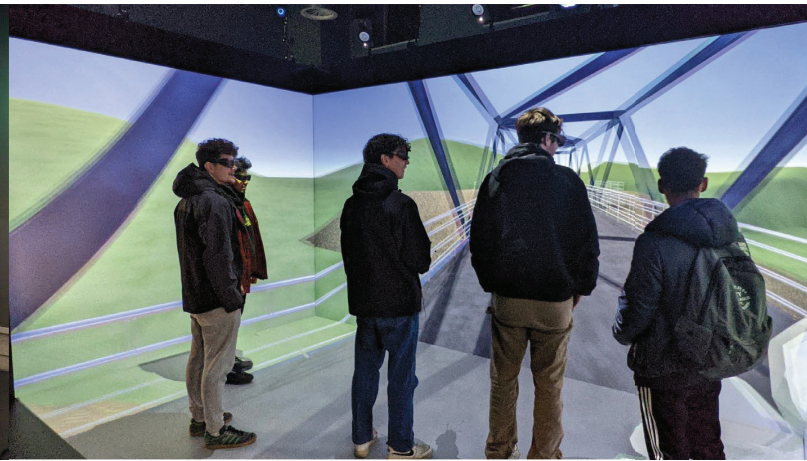
CAVE



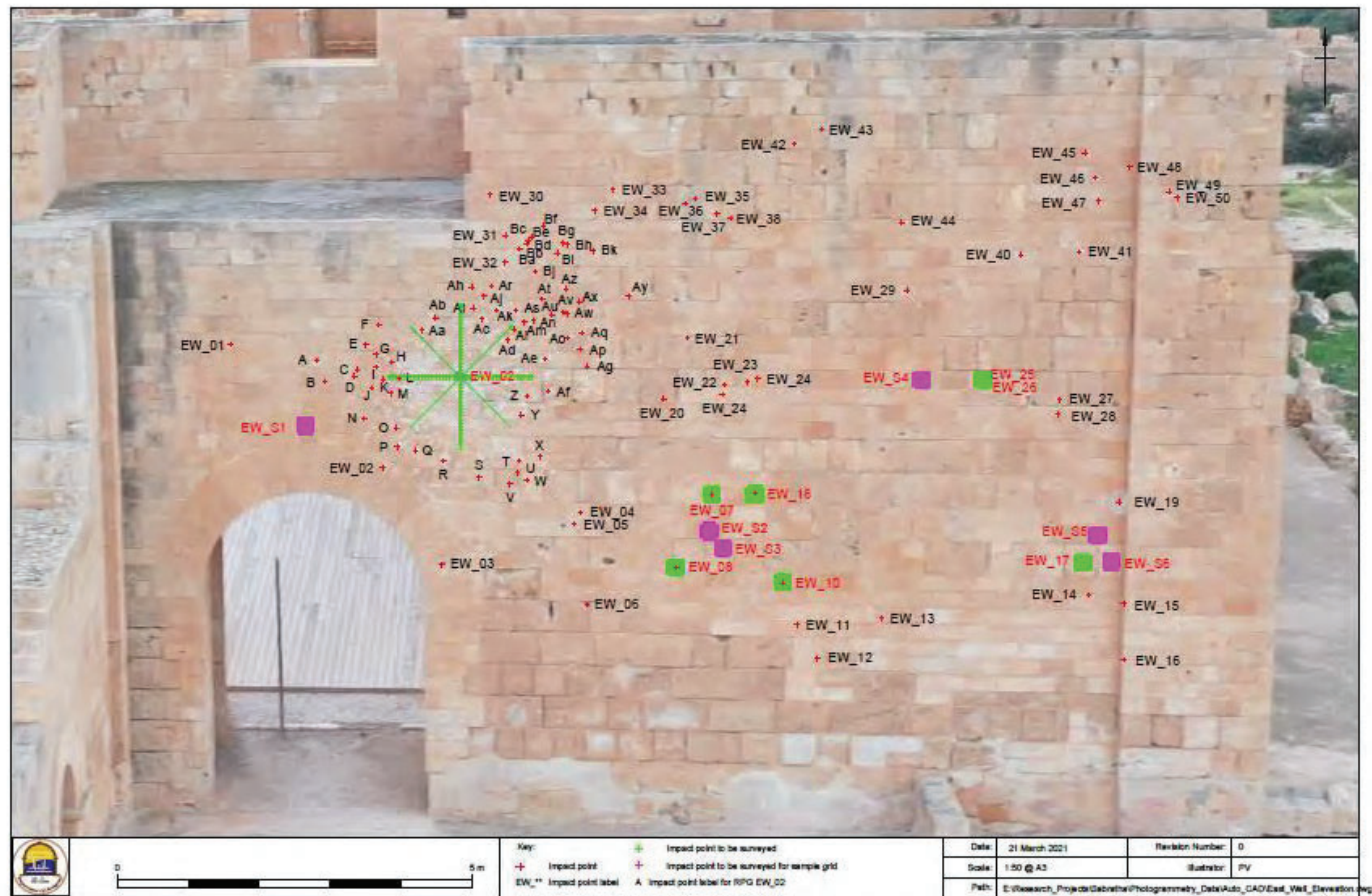


View Results in CAVE



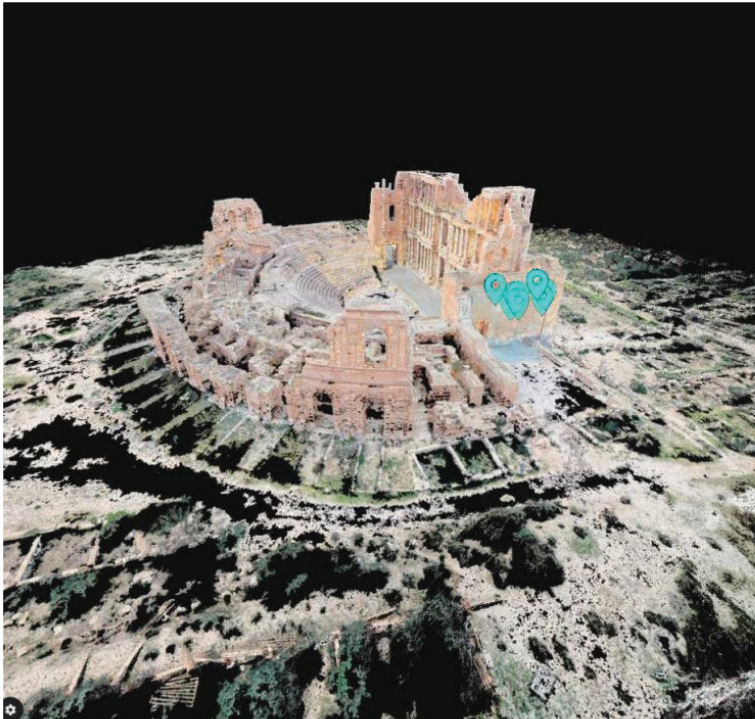


Example of recording sheet showing locations of impacts on the East Wall of the Theatre – field team to do the measurements

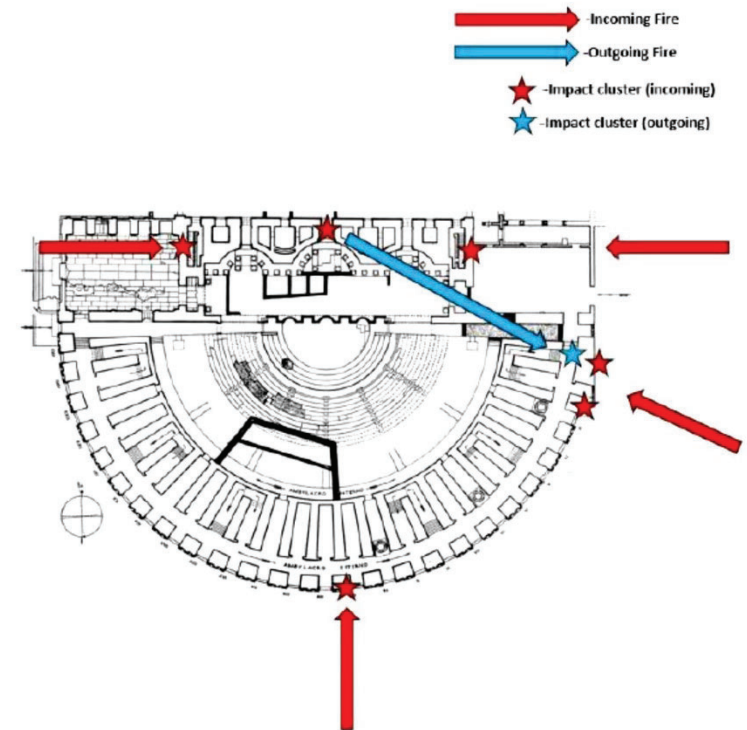




Credit: Mahmoud Hadia, Ahmed Masoud, Patricia Voke



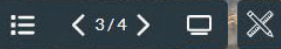
Credit: Patricia Voke



Credit: Oscar Gilbert

Sufit, Libya

Mausoleum

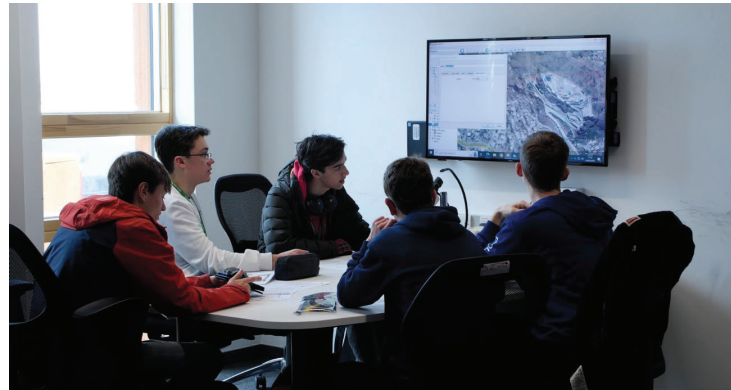


Sufit, Libya
Mausoleum





Schools outreach



Potential for wider use

- Immersive approach to familiarise field personnel with the surroundings of deployment
- Assessment of information gathered on the ground
 - Collaborative approach between employed personnel and those stationed in UK/EU
- Enhancement of CPP approaches



Thank you

Strategic Simulation Exercises



Mrs. Isabelle McRae

Consultant
Centre for Geopolitics
Cambridge University



Mr. Adam Wurr

HM Diplomatic Service
Foreign, Commonwealth and Development
Office



STRATEGIC SIMULATIONS

ADAM WURR & ISABELLE MCRAE



PURPOSE

TO ALLOW ACADEMICS,
STUDENTS AND PRACTITIONERS
TO EXPERIENCE THE REALITY OF
NATIONAL GOVERNMENT
RESPONSES TO INTERNATIONAL
CRISES **FROM THE INSIDE**





OUR HISTORY AND HIGHLIGHTS



OUR 'PRIME MINISTER(S)'



HYPER-REAL EXERCISING

PRACTICING 'THE SUSPENSION OF DISBELIEF'

The background is a dark charcoal gray. In the upper right corner, there is a faint, light gray circular scale with markings from 0 to 210 in increments of 10. Several concentric circles and arcs are scattered across the image, some solid and some dashed, creating a technical or architectural feel. A thin white line forms a large rectangle that frames the central area of the image.

AI INNOVATION

05:19

4G 100



Trump appears to warn NATO countries not to interfere in Moldova

Posting on his Truth Social platform overnight, President Trump appeared to issue a warning to NATO countries not to interfere as tensions between Russia and Moldova escalate "IT'S NOT OUR PROBLEM" he posted under a picture of...



Russia claims victory in Odessa and Mykolaiv, new blow for Zelensky



The pound has fallen to its lowest level in over a year, UK borrowing increases



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05:30



4G 100



Home Office



For you

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Video



BREAKING NEWS 365

British Prime Minister cancels summer holiday to chair COBR meeting as tensions rise in Balkans

279

345

2.9K

40



Danielle Walters Journalist

Former Defence Chief tells Sky News that President Sandu was irresponsible to seek refuge in UK Embassy. Has the UK's compassion vanished I wonder?



12

8

45

7





THE TIMES

27th July 2025

A lame President in crisis and a country that appears to be on the brink of civil war

Moldova is the latest country to be torn apart and divided by the left and right of politics.

As President Sandu sought refuge the British Embassy last night it has become apparent that her narrow victory in the recent presidential elections is likely to be short-lived. The right-wing, pro-Russian Alexandr Stoianoglo has been using social media channels to claim that the people of Moldova have unanimously deposed President Sandu and has called for her resignation and immediate elections.

Critics of the Kremlin and Mr Stoianoglo have claimed that his surprising results in the recent elections were due to Russian interference and did not represent the wishes of the Moldavian people.



Musk claims some people are more entitled to free speech than others

In a statement that could be straight out of Animal Farm, last night Elon Musk defended dictatorships by stating that some people *'those who have taken the responsibility to be in charge'* are more entitled to air their views than those who *'sit around criticizing'*

Has Zelensky run out of moves?



A PREDICTIVE TOOL FOR AN UNCERTAIN WORLD





PARTNERSHIPS

CONTEXTUALISING GEOPOLITICS FROM NEW ANGLES



SUPPORTING THE UK'S CRISIS RESILIENCE



WIDER ENGAGEMENT

WORKING WITH A NEW GENERATION OF DECISIONMAKERS



DEVELOPING FOR THE FUTURE

WHERE DO WE GO FROM HERE?

QUESTIONS?



Testing CIMIC in the field:
A Leiden University and CCOE joint study of CIMIC Analytical Capabilities



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PhD Candidate
Universiteit Leiden



Mrs. Eleonora De Martin
EDM Consultant
CCOE Experimentation



Universiteit
Leiden
The Netherlands

Testing CIMIC in the field

a Leiden University and CCOE
joint study
of
CIMIC Analytical Capabilities

Saurav Narain & Eleonora De Martin



AGENDA



- 01 Introduction
What is behind this project
- 02 Relevance
Why there is the need to research
- 03 Research Plan
How we want to investigate
- 04 Implication
What are the effects of this study
- 05 Conclusion
Leiden Uni & CCOE Future Pathway



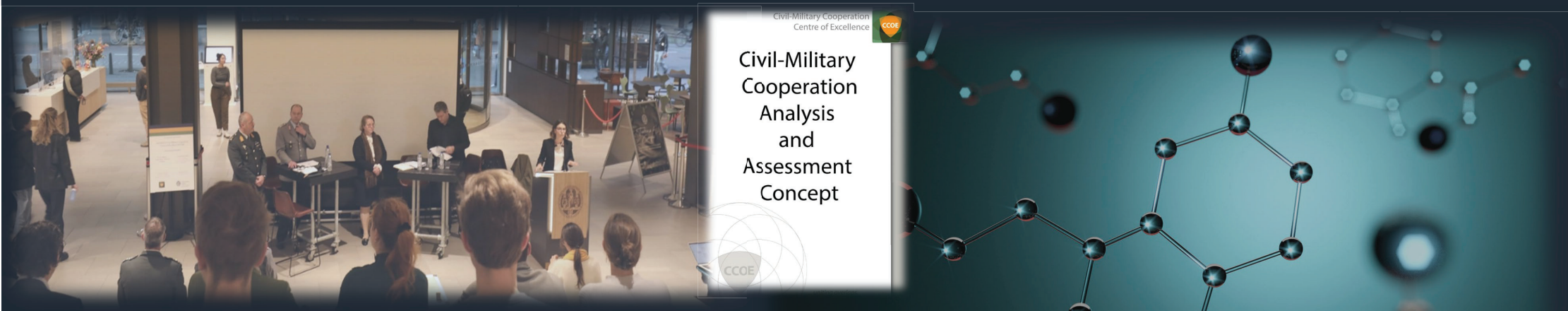
INTRODUCTION



2021
Letter of Intent: CCOE &
Leiden University

CCOE Concept
Development &
Experimentation

NATO CIMIC Analysis
and Assessment
Concept



RELEVANCE



Universiteit
Leiden
The Netherlands



Concept Validation



Increased Situational Awareness



Scientific Rigour and Knowledge
production

RESEARCH PLAN



What is the added value of NATO CIMIC Analysis and Assessment Capability into the decision-making process during a NATO military operation?



Focus on CIMIC Personnel

RESEARCH PLAN



CASE STUDIES:

TACTICAL

OPERATIONAL

STRATEGIC



JOINT COOPERATION 25 - NIENBURG



STEADFAST DETERRENCE 25 - SHAPE

RESEARCH PLAN



DATA COLLECTION

- QUANTITATIVE: PRE & POST SURVEY
- QUALITATIVE: Semi-Structured Interviews



RESEARCH PLAN



Levels of Comparison

Decision-
makers /
Analysts

Levels of
Command

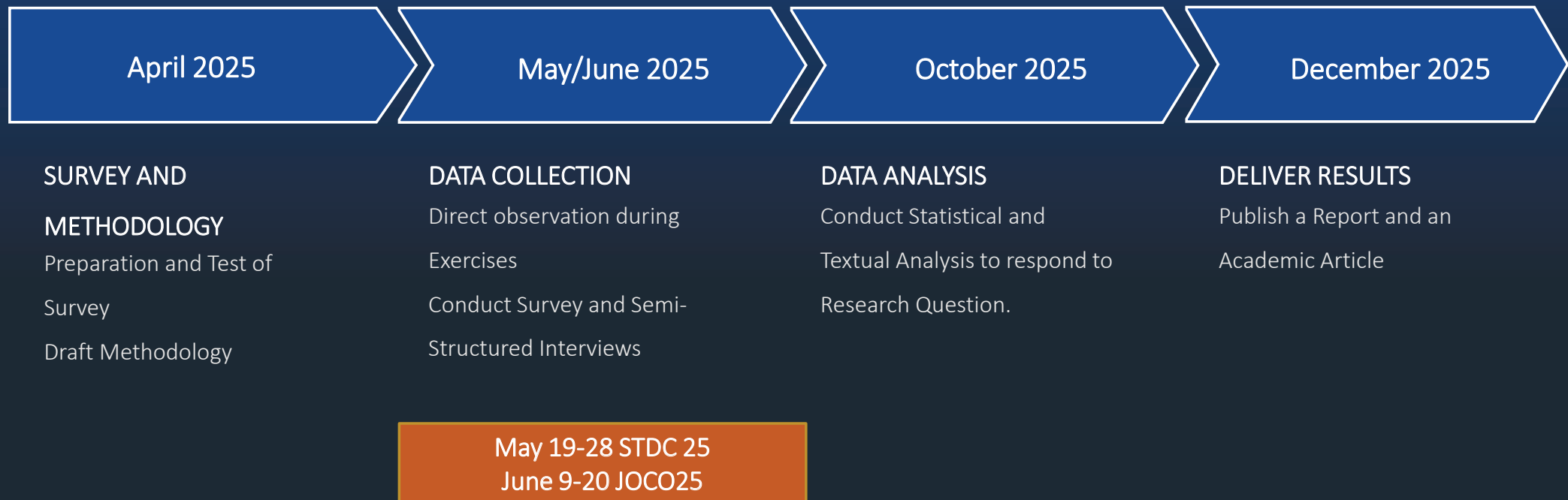
Pre - Post
exercise

Data Analysis

RESEARCH PLAN



STATUS OF THE RESEARCH



RESEARCH PLAN



LIMITATIONS

Dependency on Participant Engagement

Availability and Bias of Responses

Generalizability of findings

Focus on Exercise: limited ability to generalise results to all NATO operations. >

Data Classification & Sensitive Information

STDC25 NATO Classified

IMPLICATIONS



Highlight the Importance of CIMIC



Identify Best Practices & Limitations



Increase awareness of NCAAC



Improve CCOE's Relevance & Adaptability

CONCLUSION



- Experimentation is key for INNOVATION
- Strengths of CCOE and Academic Partners

Acknowledgements:

Prof Silvia D'Amato
Cpt Porath & LTC Bauer

