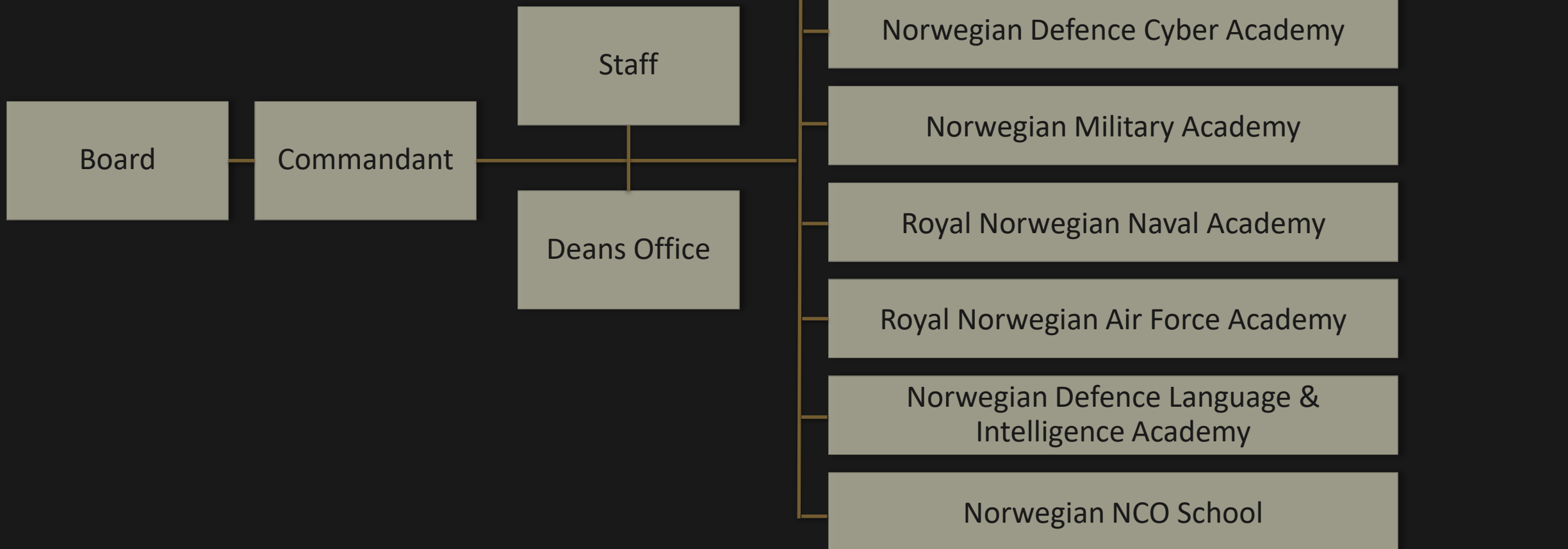




The Norwegian Defence University College (NDUC)





Military Education in Extended Reality «*The XR-project*»

*Empower the protection of civilians: innovative use
of new insights in military planning and impactful
measurement of results*

Markus Z. Widborg

Captain (A)

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Ugradert – kan deles eksternt med godkjenning



Protection of Civilians at NDUC





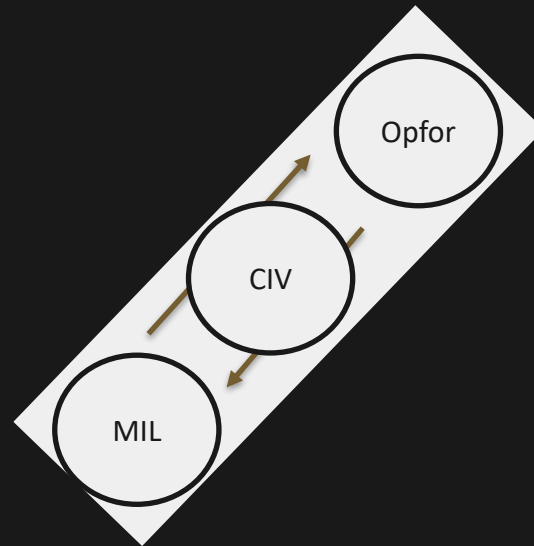
*A way of thinking and planning that
needs to change?*

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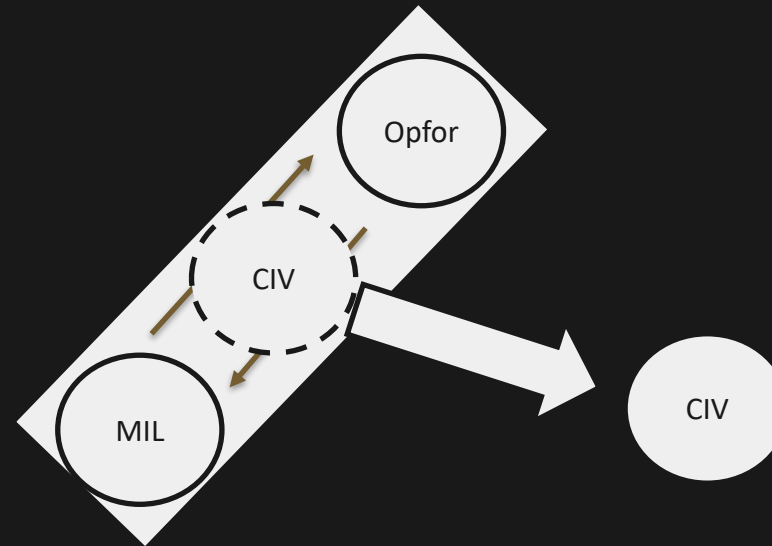
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Ugradert – kan deles eksternt med godkjenning fra informasjonseier. Skal ikke publiseres åpent.

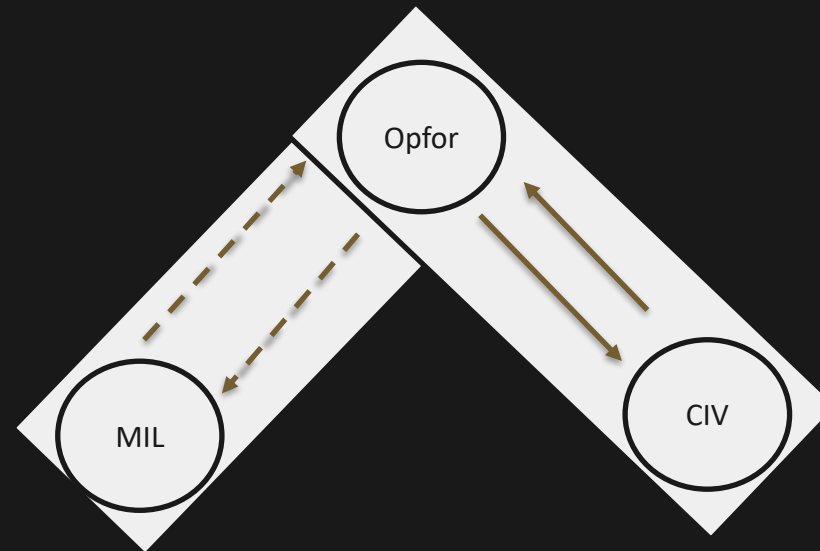
A common scenario



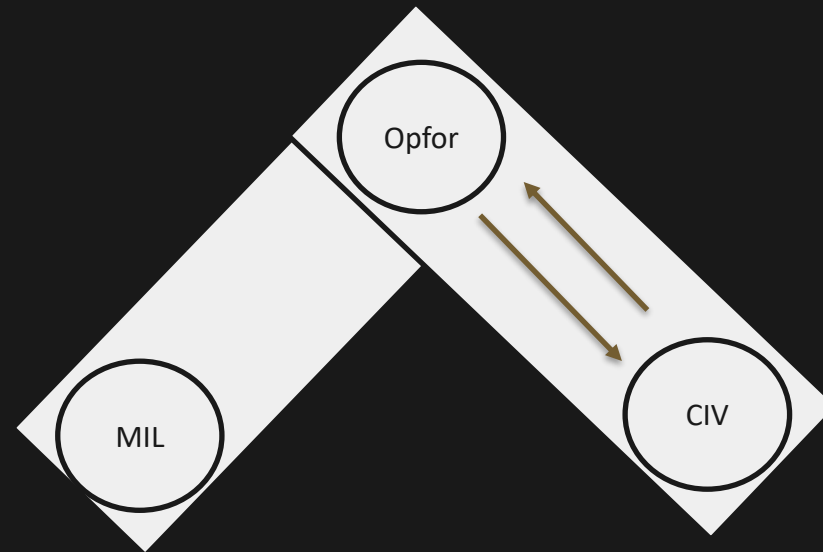
Moving civilians out of the way



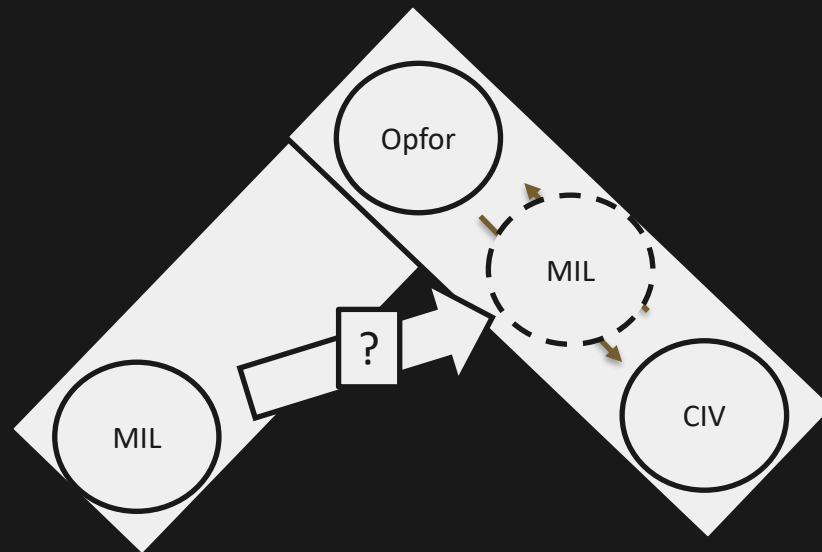
Into harms way?



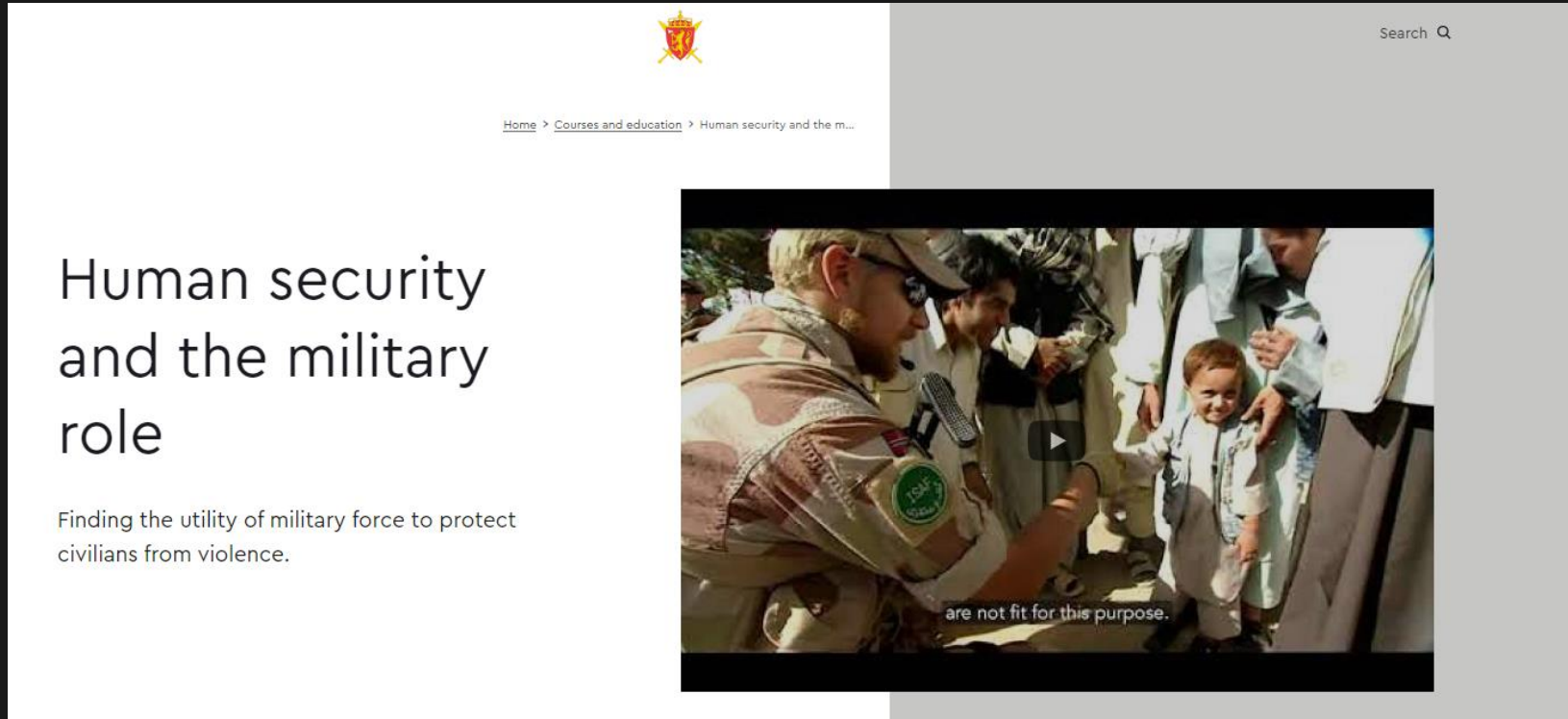
What then?



Perhaps a new threat based approach is needed to fully protect civilians?



NODEFIC online training



The screenshot shows a webpage with the FORSVARET logo at the top center and a search bar at the top right. Below the logo is a breadcrumb trail: Home > Courses and education > Human security and the m... The main heading is 'Human security and the military role'. Below it is a sub-heading: 'Finding the utility of military force to protect civilians from violence.' To the right of the text is a video player showing a soldier in camouflage interacting with a young child. The video has a play button in the center and a subtitle at the bottom that reads 'are not fit for this purpose.'

<https://www.forsvaret.no/en/courses-and-education/human-security-and-the-military-role>

Pedagogical framework

- XR as an environment for teaching and learning:
 - learning experiences that are exploring, allows for testing of possibilities, combined with debriefing and reflection.
 - learning experiences that are isolated and individual paired with learning experiences that are team based
 - Offers opportunities to "read the world"
 - Develop the ability to explore "what if ..." situations
 - Expand the views and perspectives of the learners: "what do we see, what does it mean, what should we do based on that"
 - Experiencing different roles – being in the shoes of others





The training

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Step 1	Step 2	Step 3	Step 4	Step 5
Lecture	Embodiment / 360-movies	Avatar dialogue	VR-map	Discussion/ Hot wash-up
Step 1	Step 2	Step 3	Step 4	Step 5

All five steps provide information about physical threats to civilians, steps marked in red are done in VR/XR as of now

Step 1 of 5

Introductory lecture: *Protection of civilians & understanding threats in armed conflict*

Step 1	Step 2	Step 3	Step 4	Step 5
Lecture	Embodiment / 360-movies	Avatar dialogue	VR-map	Discussion/ Hot wash-up
Step 1	Step 2	Step 3	Step 4	Step 5

Protection of civilians in armed conflict

Protection from others' exactions

- The implementation gap
- Lack of doctrine, guidance, and lessons learned
- Why “collateral damage-thinking» is not enough



	Pro-gov.	Anti-gov.	Total
2007	41 %	46 %	1,523
2008	39 %	55 %	2,118
2009	25 %	67 %	2,412
2010	15 %	75 %	2,790
2011	17 %	77 %	3,021

Understanding threats to civilians in armed conflict



Conflict related sexual violence



Starvation



Forced displacement



Explosive weapons



Chemical weapons



Mutilation



Forced recruitment



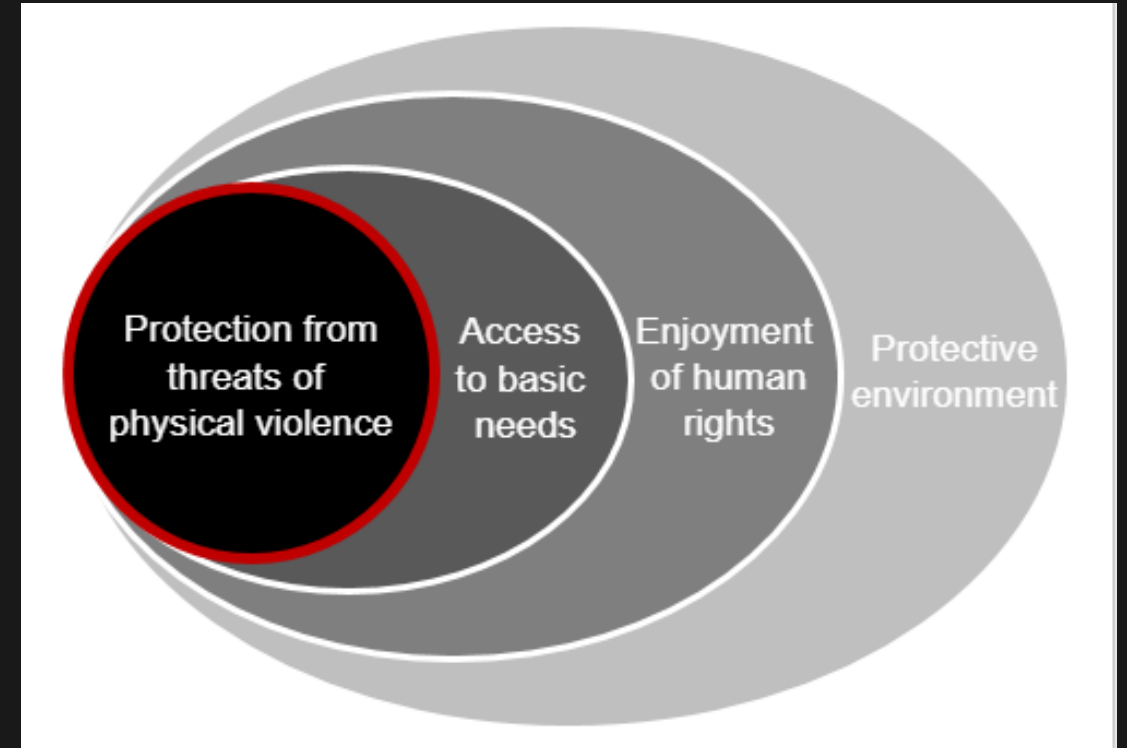
Destruction of infrastructure



Sexual exploitation/abuse

What is protection of civilians?

- Physical protection the most basic form of human security
- Failures are very visible
- Military forces hold the main responsibility for physical protection



The threat-based approach to protection of civilians

How and why are civilians targeted?

- Threats vary according to:
 1. **Motivation**
Exterminate, expel, control, avenge
 2. **Type of actor**
States, armed groups, communities, individuals
 3. **Strategies and tactics**
Massacres, assassinations, torture, rape, etc.
 4. **Capabilities**
Relevant military units, weaponry
 5. **Likely outcome**
Fatalities, IDPs/refugees, abducted

- Different threats demand different military responses

Scenarios
Genocide
Ethnic cleansing
Regime crackdown
Post-conflict revenge
Communal conflict
Predatory violence
Insurgency
Mob violence



Understanding threats to civilians

Scenarios are generic

May occur simultaneously, in different phases of conflict, or in different areas

Can help planners answer core questions

- Who should be protected first? (time)
- Where should forces be deployed? (space)
- How can force be used most effectively? (force)

Fundamental first step

– understand how and why civilians are targeted

Scenarios
Genocide
Ethnic cleansing
Regime crackdown
Post-conflict revenge
Communal conflict
Predatory violence
Insurgency
Mob violence

Understanding threats to civilians in Suania

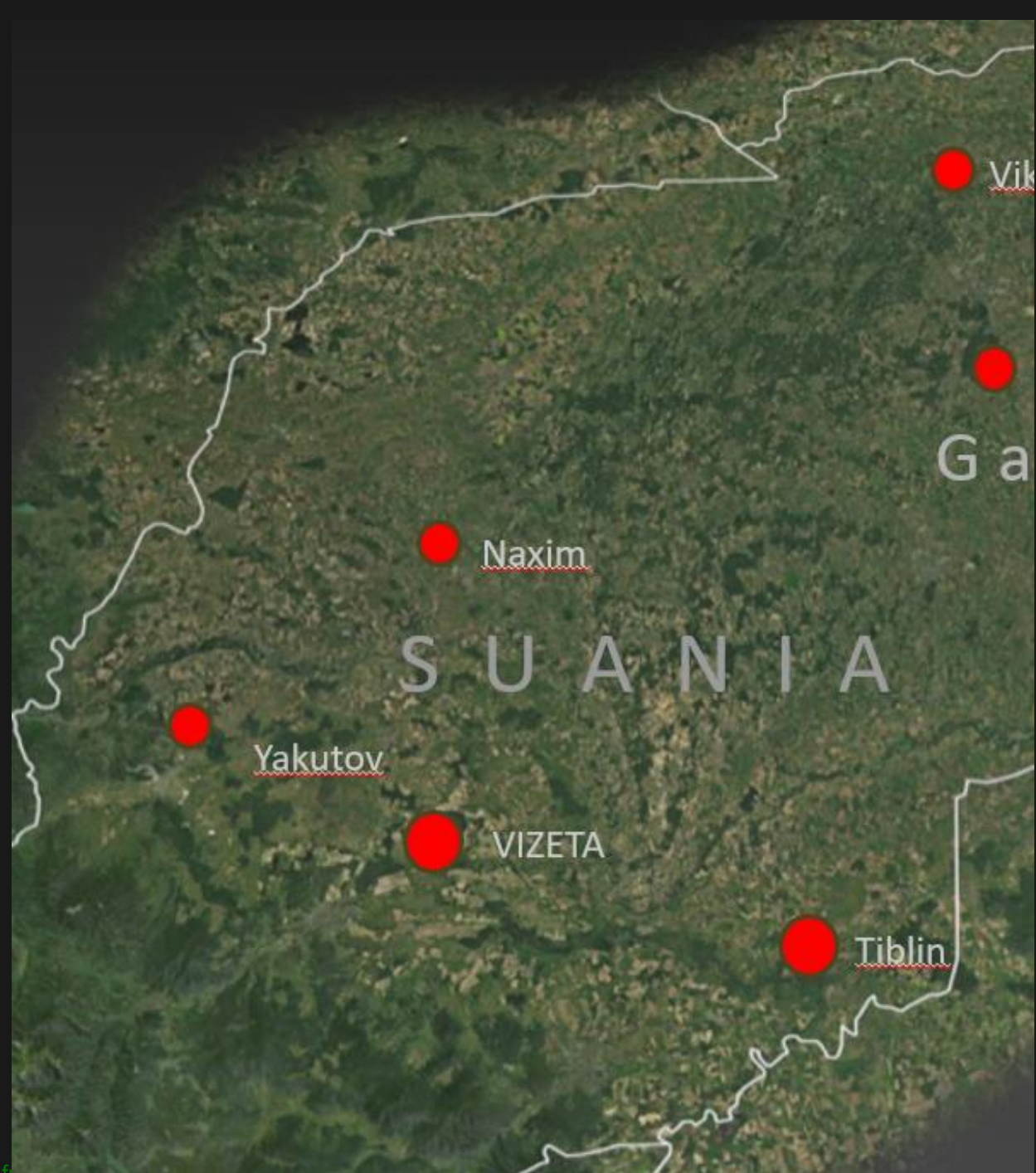
Task:

Analyze physical threats to civilians in Suania with the help of the five characteristics of perpetrators of violence

Answer these five questions:

- 1. Type of actor targeting civilians?**
- 2. Motivation for targeting civilians?**
- 3. Strategies and tactics for civilian targeting?**
- 4. Capabilities for targeting civilians?**
- 5. Likely outcome without intervention?**

The threat-based approach to protection (TbA)



Step 2 of 5

Embodiment and 360-degree videos: *Understanding threats to civilians in Suania from different perspectives*

Step 1	Step 2	Step 3	Step 4	Step 5
Lecture	Embodiment / 360-movies	Avatar dialogue	VR-map	Discussion/ Hot wash-up
Step 1	Step 2	Step 3	Step 4	Step 5

Introduction embodiment + 360-videos

▪ **Session 1: Civilian victims' perspectives**

- You are now uncle George, part of a larger family (incl. gender perspectives)
- You live in Suania's capital Vizeta
- Armed conflict in Suania
- You are visiting your family to celebrate a birthday
- Your family is of Garian origin
- You become George when you enter the goggles





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Introduction embodiment + 360-videos

▪ **Session 2: Perpetrators' perspective**

- You form part of a group of Suanian officers
- You are a staff officer supporting General Angryon
- You are currently in Yenakiv, north in Suania
- You wait for a meeting with a collaborator
- You become this staff officer when goggles are on



Step 3 of 5

Dialogue-simulations w/avatar:
Understanding threats to civilians in Suania through dialogue with perpetrators

Step 1	Step 2	Step 3	Step 4	Step 5
Lecture	Embodiment / 360-movies	Avatar dialogue	VR-map	Discussion/ Hot wash-up
Step 1	Step 2	Step 3	Step 4	Step 5

Understanding threats to civilians in Suania

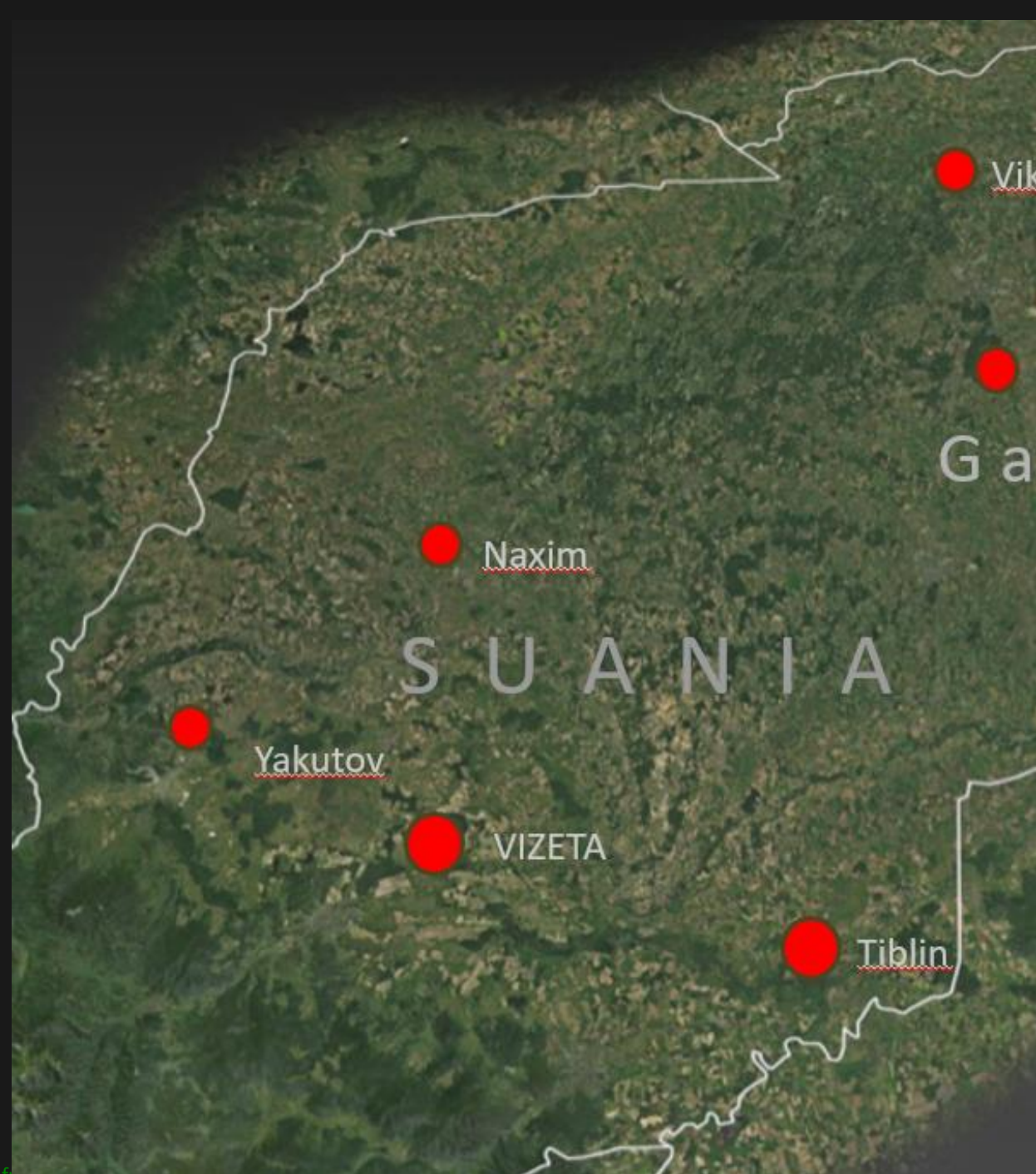
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The threat-based approach to protection (TbA)





Introduction

- You are a military officer
- You form part of a Liaison Team
- You find yourselves in the south-western part of Suania
- You are tasked to meet the infamous Lazarus Boder, leader of the Suanian Liberation Front (SLF) to understand how and why his group targets civilians
- There are no right or wrong questions



Step 4 of 5

Map application in Virtual Reality: *Understanding threats to civilians in Suania through group work*

Step 1	Step 2	Step 3	Step 4	Step 5
Lecture	Embodiment / 360-movies	Avatar dialogue	VR-map	Discussion/ Hot wash-up
Step 1	Step 2	Step 3	Step 4	Step 5

Understanding threats to civilians in Suania

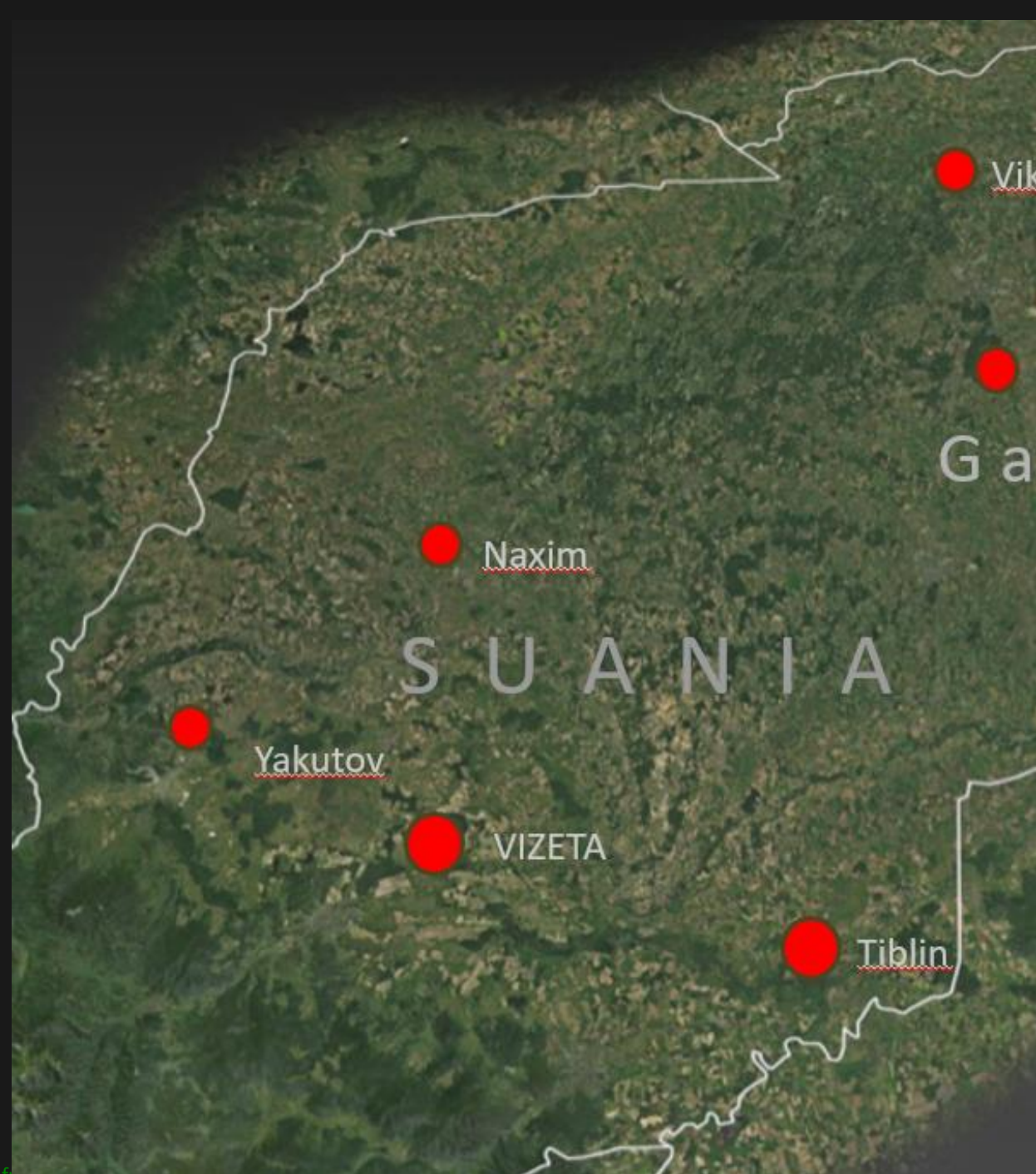
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Answer these five questions:

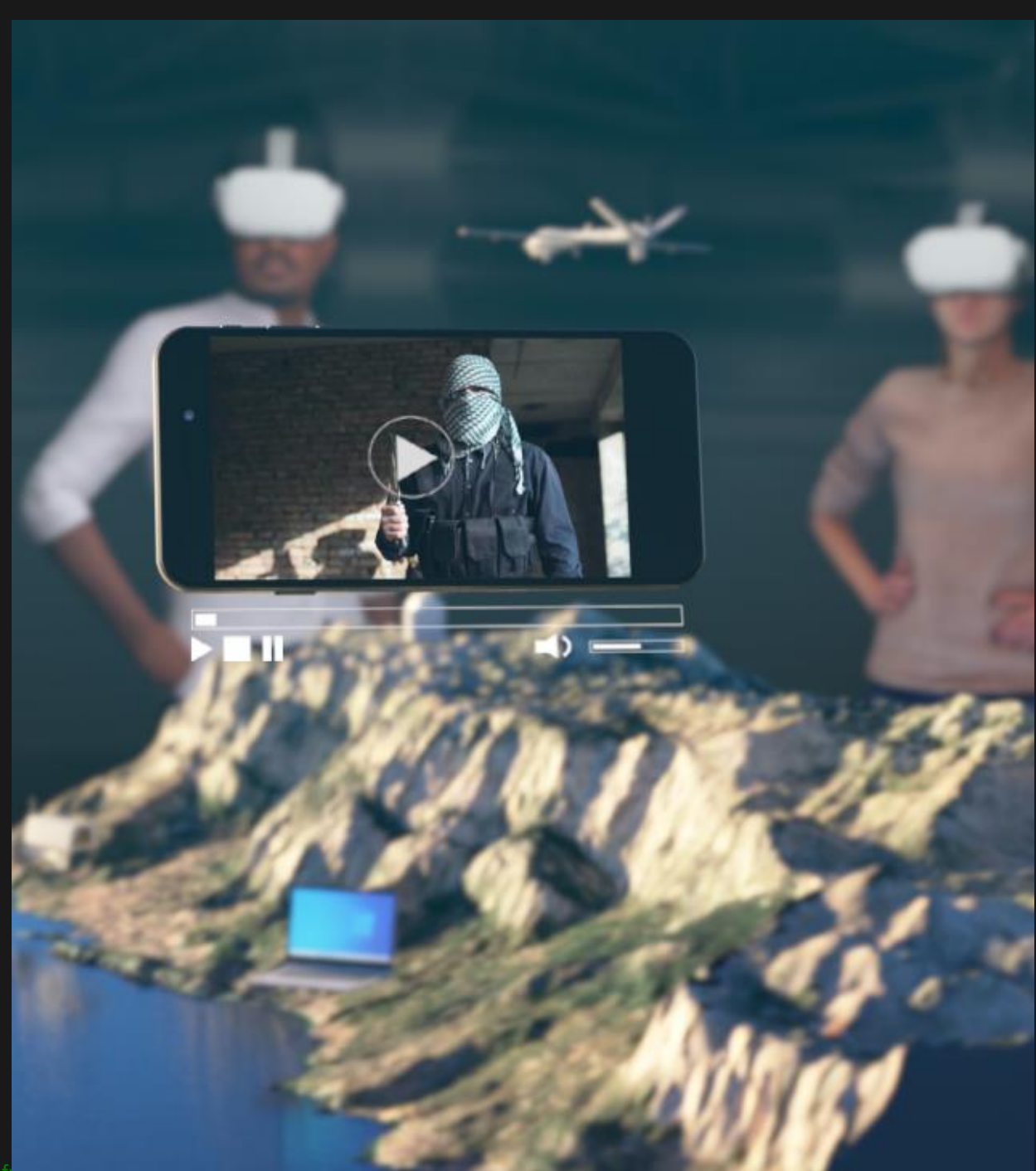
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The threat-based approach to protection (TbA)



Introduction

- You are a military planning officer
- Threat analysis as part of joint operational planning
- Self-organizing group work
- Interact with clues in the map
- Discuss in your group
- Take notes and prepare to discuss in plenary as individuals (no group presentation)



Step 5 of 5

Group discussion & hot wash up:
Understanding threats to civilians in Suania through Extended Reality

Step 1	Step 2	Step 3	Step 4	Step 5
Lecture	Embodiment / 360-movies	Avatar dialogue	VR-map	Discussion/ Hot wash-up
Step 1	Step 2	Step 3	Step 4	Step 5

Understanding threats to civilians in Suania

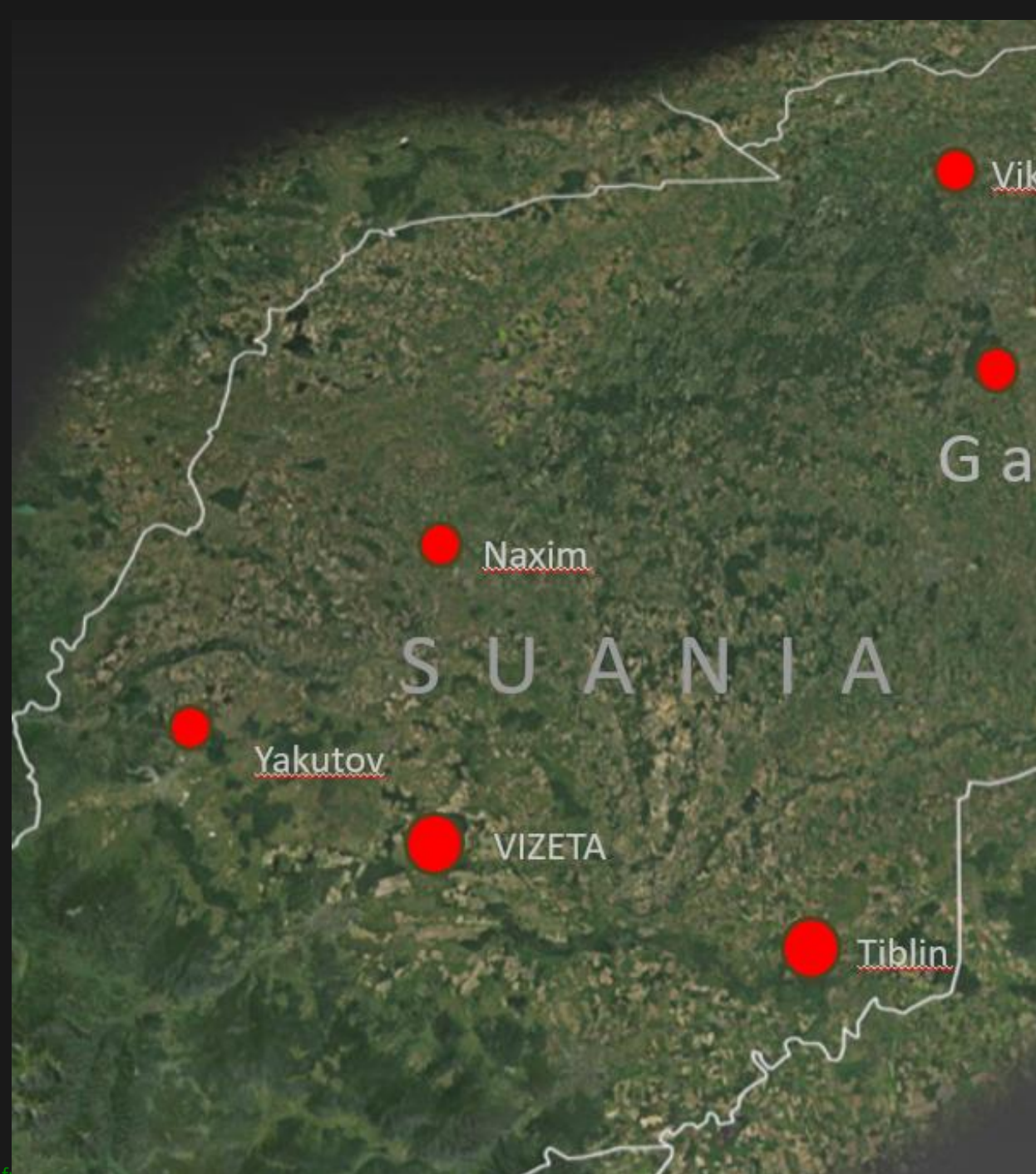
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The threat-based approach to protection (TbA)



Does it work?

- “The preliminary results indicate that the students find the XR system useful and contributing to better understanding of the threat-based approach to protection of civilians. The results also point to a significant interest in using XR to improve learning in higher military education.”

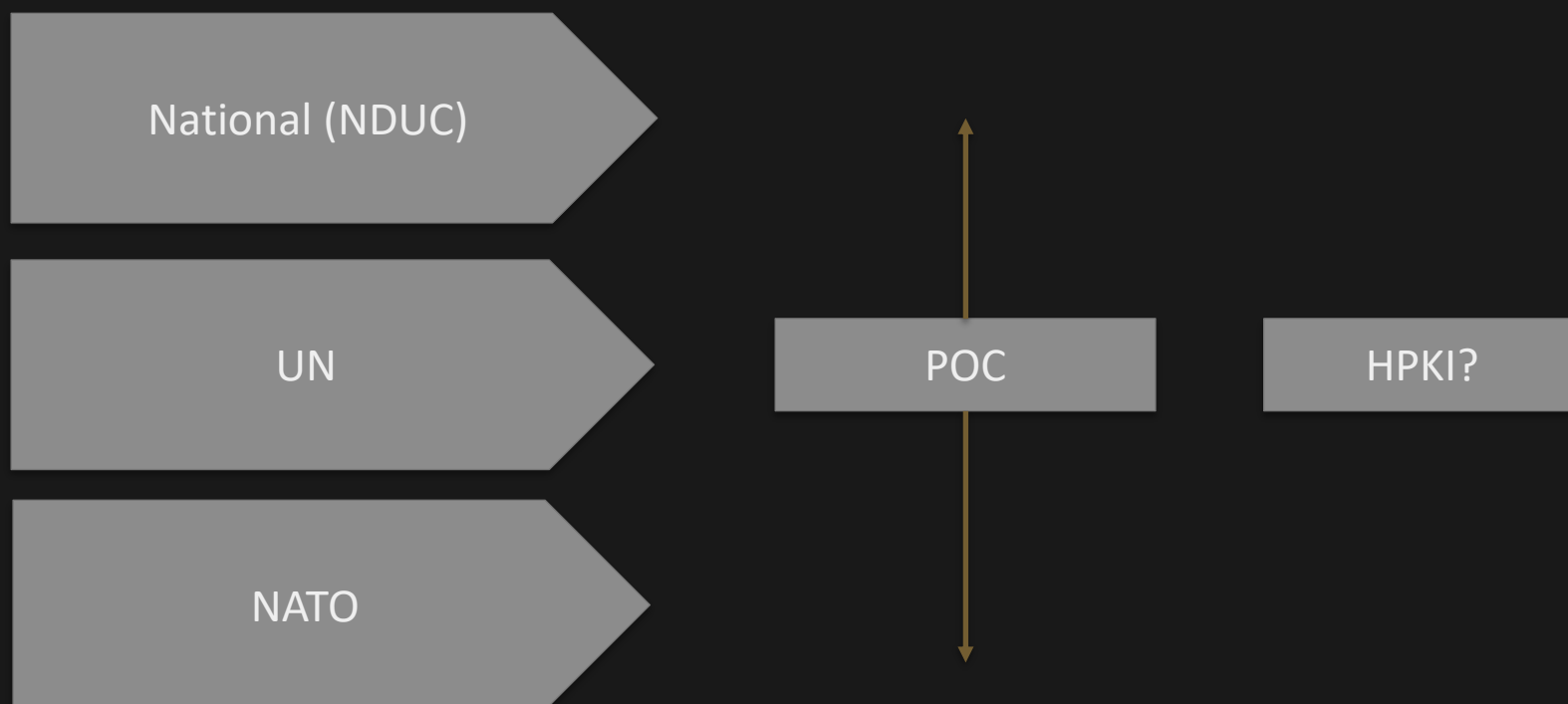
Estrada, Jose Garcia, et al. "Using Extended Reality to Teach Protection of Civilians in Higher Military Education." 2022 International Conference on Cyberworlds (CW). IEEE, 2022.

• Education." 2022 International Conference on Cyberworlds (CW). IEEE, 2022.

Way forward



Lines of effort – XR-project





Questions?

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