

Euro  Titan

EURO-TITAN

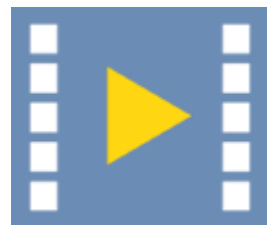
Titanium metal from industrial residues



Beate Orberger

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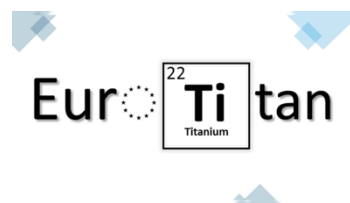
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Video: Click below



Optional: QR code



EURO-TITAN

EURO-TITAN aims to diversify and secure Europe's aeronautic supply chain by reducing dependency on Russian titanium. The project focuses on eco-friendly extraction and recycling methods, minimizing the industry's carbon footprint.

By employing green hydrogen – produced through wind-powered electrolysis – and electric furnaces, it is possible to achieve a reduction in carbon emissions of over 90%.

Machine learning enhances process optimization and real-time monitoring, ensuring efficiency and sustainability.

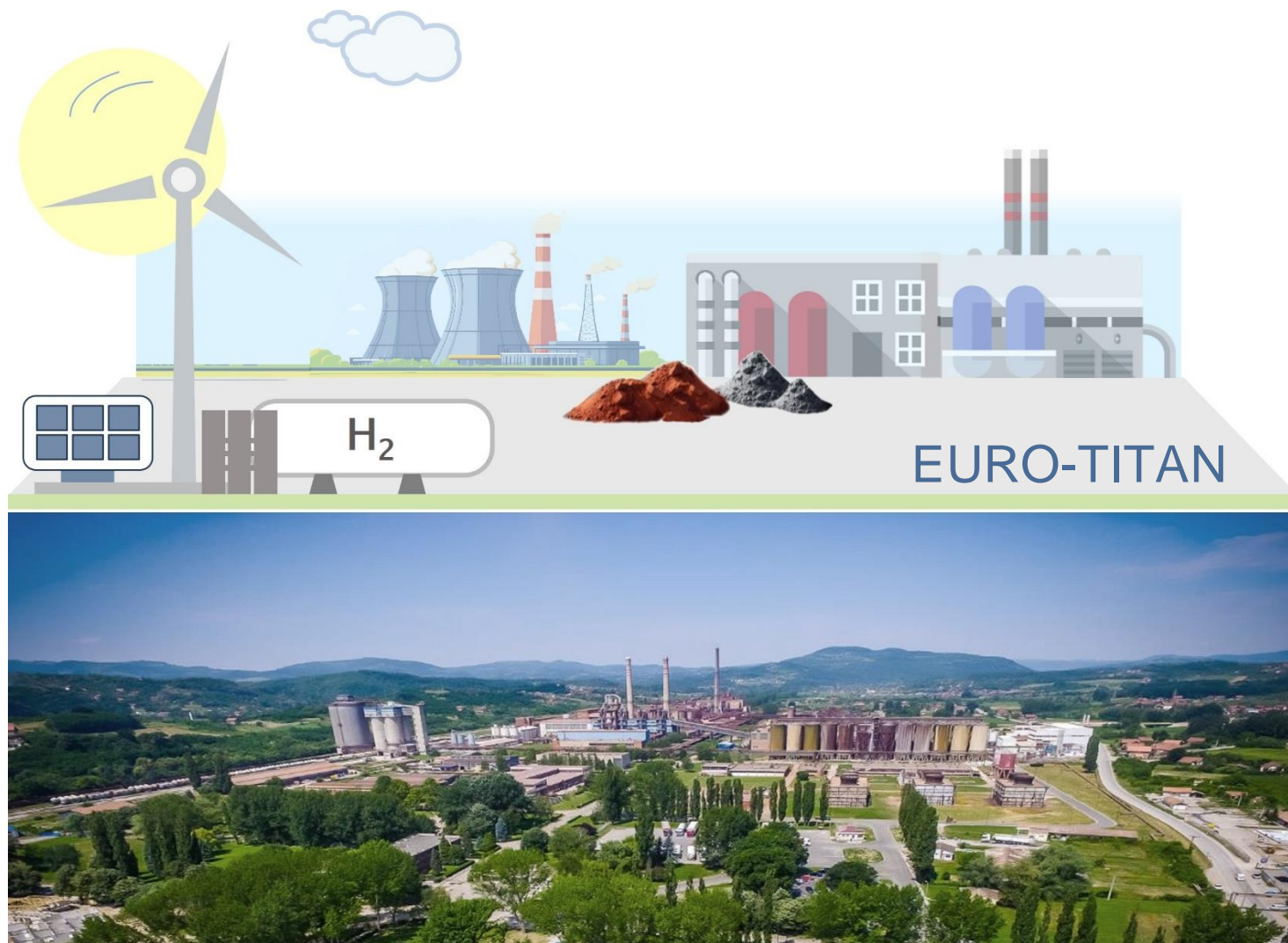
HORIZON-CL4-2023-RESILIENCE-01; ID 101135077

Project duration: 2024-01-01 – 2027-12-31

Budget: 5 Million €

EU contribution: 5 Million €

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TRL level

TTRL 7-8

Pilot/demonstration sites

Design of plant and demonstration: Planned for 2027

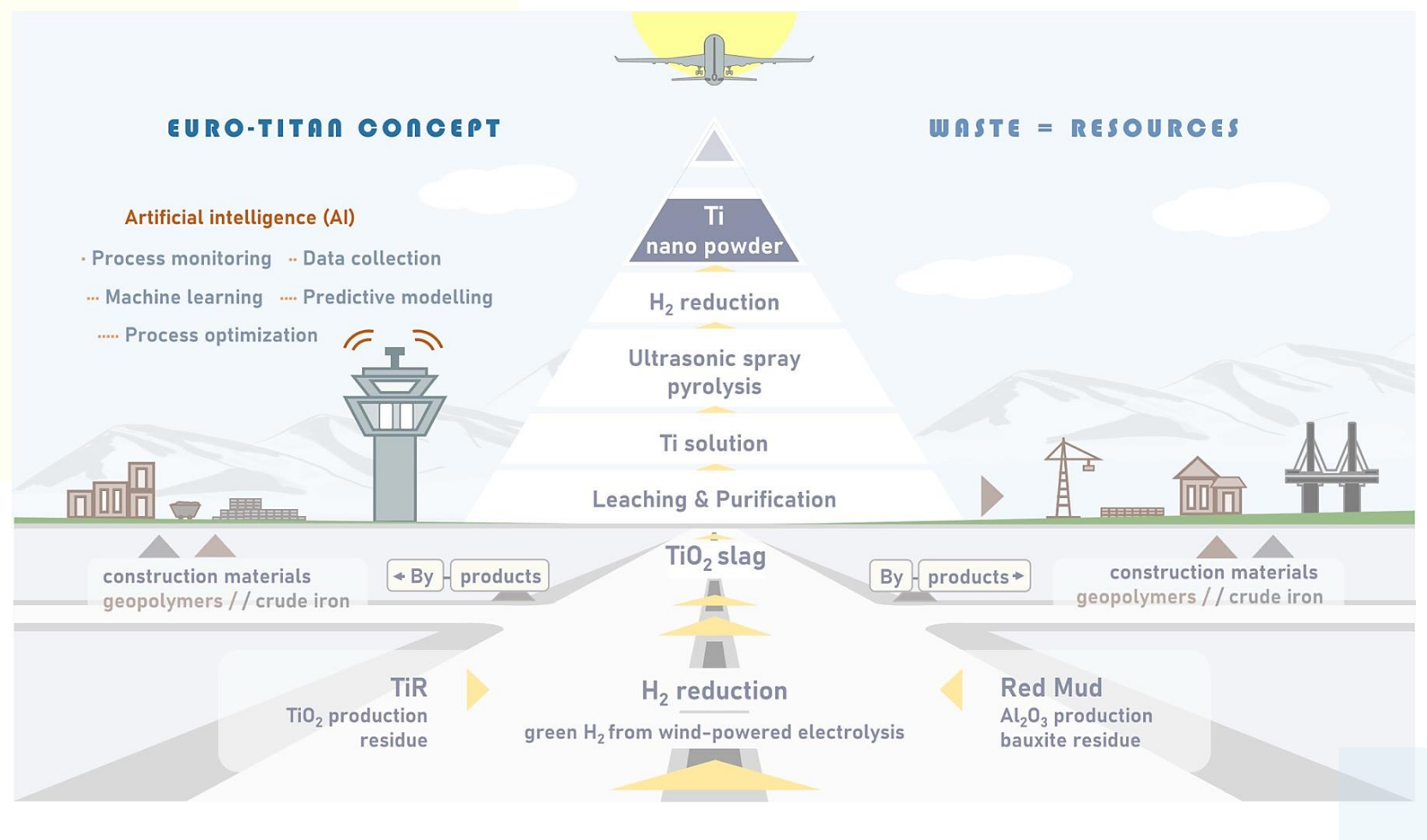
Al-Doo Aluminum Production Plant (Zvornik, Bosnia-Herzegovina)

CIME-ORANO for TiO₂ Residues (Bessines, France)

Major industrial/research partners

Technische Universität Clausthal, Catura Geoprojects, SE&C, VIC, BAM, RWTH Aachen, MEAB, ORANO Mining, NovaMechanics, METU, SAIS LAB, LTB, Ferro Duo, Venator, University of East Sarajevo, SIKA, Alumina doo Zvornik, EIT Raw Materials

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What are your project targets, results?

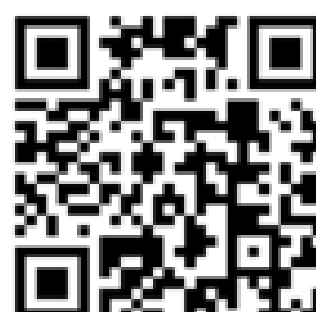
EURO-TITAN's Targets:

- Scaling up Ti extraction from two metallurgical residual resources (TiO₂ and Al₂O₃ production)
- Demonstrating the process at the Al-Doo plant and ORANO (France) to produce Ti-metal powders for ingots or alloying
- Achieving full industrialization at the Al-Doo plant, bringing 54 ktpy of Ti-metal powder to the market
- Offering Euro-Titan's Ti-metal powder at prices approximately 15% lower than imports

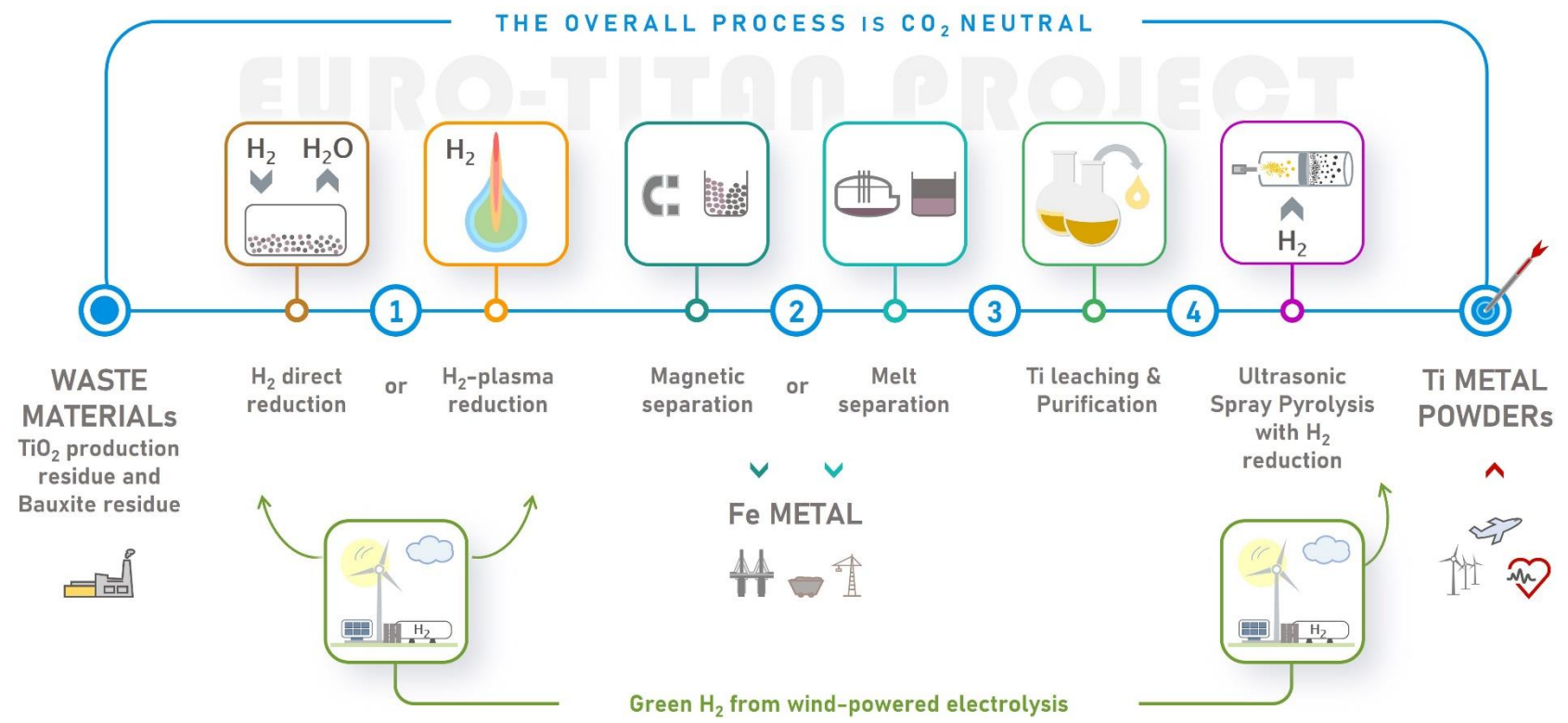
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What are your project targets, results?

EURO-TITAN's Results (M13):

H₂ Direct Reduction and Subsequent Smelting (HPSR):

- Optimization to maximize the metallization of Fe-oxides for Fe recovery to provide Ti-rich slag for Ti-recovery

Bundesanstalt für Materialforschung und -prüfung (BAM) in cooperation with the Max Planck Institute for Iron Research

Development of a sensor for inline-analysis:

- Spectrometer Development: Near completion
- Measuring head assembly in progress for installation at BAM's pilot EAF

LTB Lasertechnik Berlin

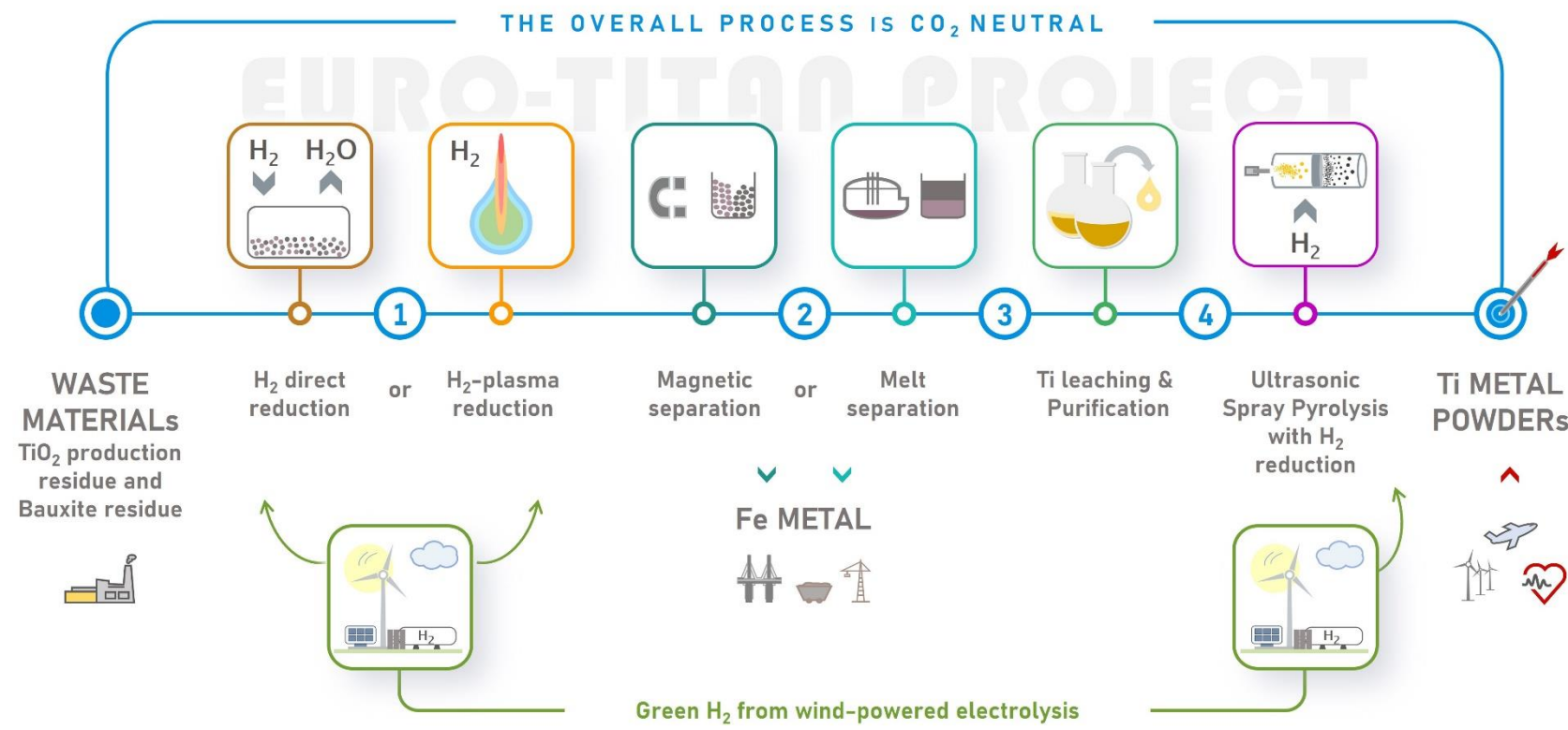
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What are your project targets, results?

Material Conditioning:

- Analysis of different feed materials (chemical composition, mineralogy, and particle size distribution)
- Trials for the physical up-concentration of TiO₂-P residues

Technical University of Clausthal-Zellerfeld

High-Pressure Leaching of Slags:

- High-pressure leaching of slags obtained from the reduction of bauxite residues in an EAF with sulfuric acid at 150 °C, in the presence of oxygen, achieved a Ti-leaching efficiency of 85–96%. This process prevents silica gel formation and produces a Ti-oxysulfate precursor
- Ultrasound Pyrolysis (USP) has been successfully applied to produce spherical nanosized and submicron Ti-oxide powders using a Ti-oxysulfate precursor

RWTH Aachen – IME and the Technical University of Sarajevo

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TURNING WASTE INTO VALUABLE RESOURCES

VALUABLE BY-PRODUCTS
CONSTRUCTION MATERIALS
Geopolymers / Crude iron

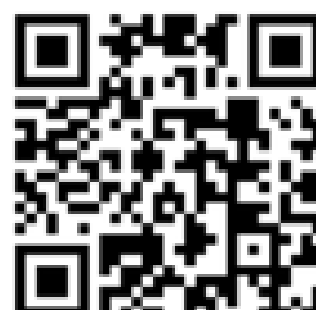
15% LOWER TITANIUM COSTS

20% REDUCTION IN ENERGY
AND WATER USAGE

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What we are looking for at PDAC?

- Networking with other EU-funded projects for future collaboration
- Sharing EURO-Titan's experience and knowledge with project-related organizations to facilitate future knowledge transfer and collaboration
- Attracting young scientists and engineers to the topic of "metal extraction from industrial waste"

What we can offer at PDAC?

- Providing insights into innovative process approaches and potential waste resources
- Sharing EURO-Titan's experience and knowledge with industries, academia, government, and non-government organizations
- Connecting young career scientists and engineers with our partners to enhance their professional portfolios

EURO-TITAN PROJECT

OPTIONAL

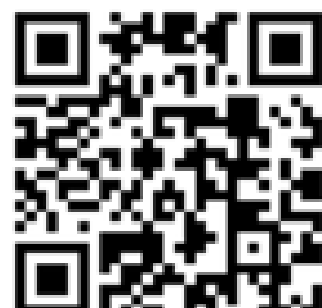
PARTNERS



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OPTIONAL

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COMMUNICATION

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