The UNITED Project

Eva Strothotte
3rd UNITED Workshop – Aquaculture Multi-Use Offshore: Technology Transfer

This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement no 862915

10/10/2022

What is Multi-Use ?

The ocean multi-use should be understood as the intentional joint use of resources (physical space, platforms, logistics, etc.) by two or more users. This is a marked change from the traditional concept of exclusive resource rights to include sharing of resources by multiple users.

Benefits:

- The more efficient use of ocean space and resources (more space left for protection and future generations);
- Derive synergies, added values incl. economic benefits to marine users;
- Enable certain uses to happen at all;
- Reduce the environmental impact of a given use by merging it with another activity;
- Provide additional socio-economic benefits to the coastal region.

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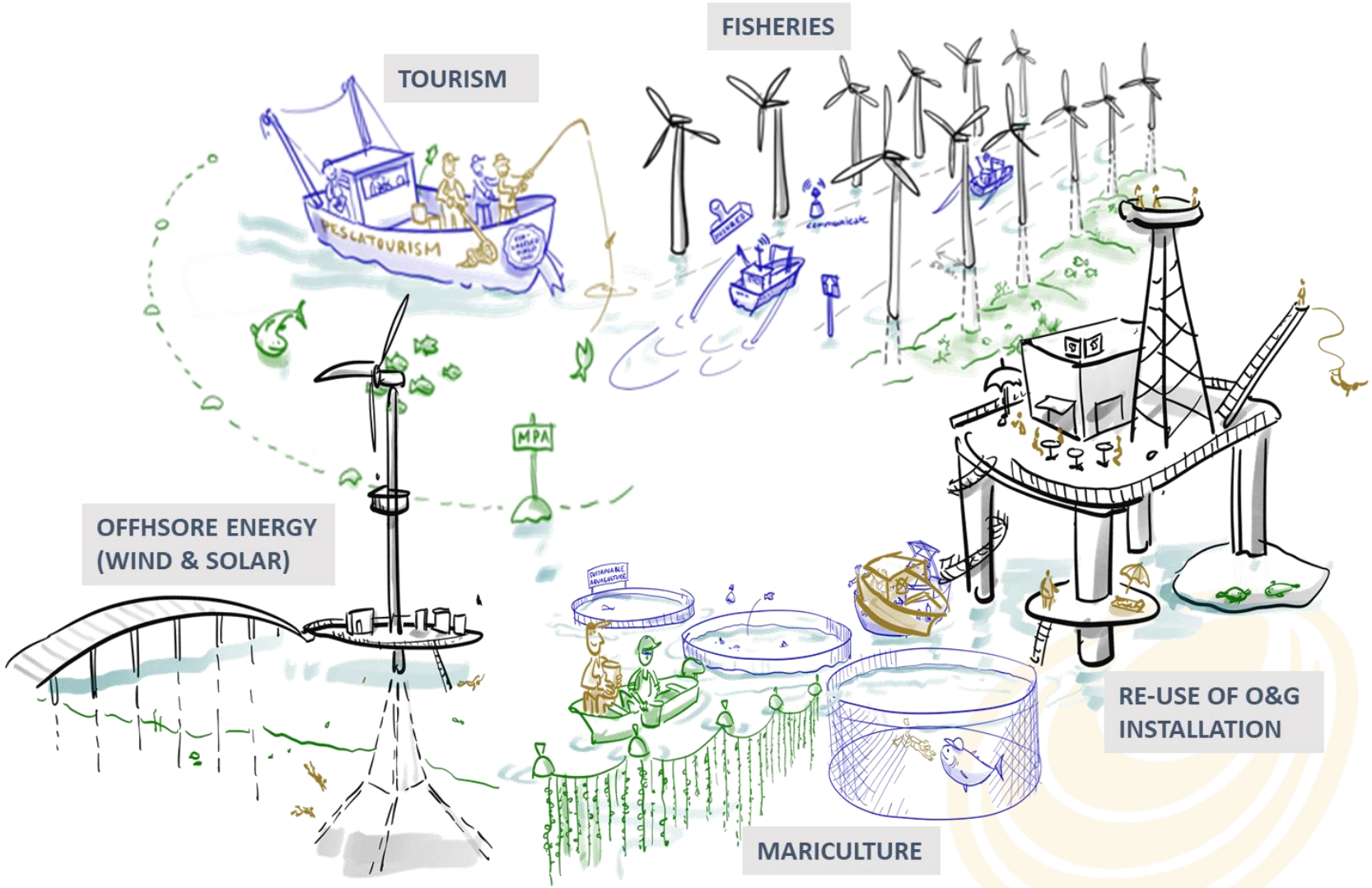
The Multi-Use Concept

Reduced Demand For Space For All Interests

Environmental Benefits

Socio-Economic Synergies

Efficiency and Cost Reductions



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Building On Lessons To Move Forward

Making use of past FP7 Oceans of Tomorrow, European Horizon 2020, and smaller national projects to make a leap to practical demonstration

SPACE@SEA

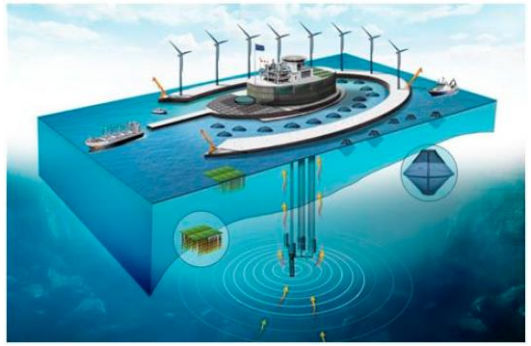
TROPOS

MUSES Multi-Use in European Seas

MARIBE Marine Investment for the Blue Economy

MARINA PLATFORM

MERMAID



H2Ocean

IMPAQT Intelligent Management System for Integrated Multi-trophic Aquaculture

MUSICA

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UNITED

*'Multi-**U**se offshore platforms demo**N**strators for boost**I**ng cost-effec**T**ive and **E**co-friendly pro**D**uction in sustainable marine activities'*

PROJECT MISSION

- Provide solutions to **improve operation, planning, & management** of multiple marine off-shore activities and propose **multi-use business models** to reduce costs and generate benefits.
- **Harmonize the logistic support**, service vehicles, equipment and infrastructures required by the multiple users within the pilots, addressing **risk management**, juridical and **governance** aspects in operational facilities
- **Demonstrate five core pilots** in the North Sea, the Baltic Sea and the Mediterranean involving industrial actors and integrating the knowledge, technologies and facilities, in multi-use system for multiple sectors including **mixed energy production, aquaculture, environment restoration, and tourism.**

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Key facts

KEY FACTS

DURATION 3.5 years (2020 - 2023)

26 PARTNERS

5 BLUE ECONOMY SECTORS

5 PILOTS

3 REGIONAL SEAS

5 ADVISORS

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Project Objectives

- Provide evidence of the viability of multi-use by the developing large-scale pilots that showcase technical, regulatory, economic, social and environmental solutions from the **development state (TRL5) to demonstration in an operational environment (TRL7)**.
- Achieve an operational environment within each of the 5 pilots exhibiting multi-use. Not only should the maritime activities co-exist, but the **environmental and socio-economic added benefits** should be achieved, through established synergies between different uses.
- Increase **awareness about multi-use** and address issues of acceptance ranging from industry actors (commercial, financial, and regulatory) to NGOs, local communities and society-at-large.
- Raise the total **capacity, professional skills, and competencies** for those working in Blue Economy through project training and work and increase participation of young sectors (e.g. floating solar).

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The Concept

Key research pillars

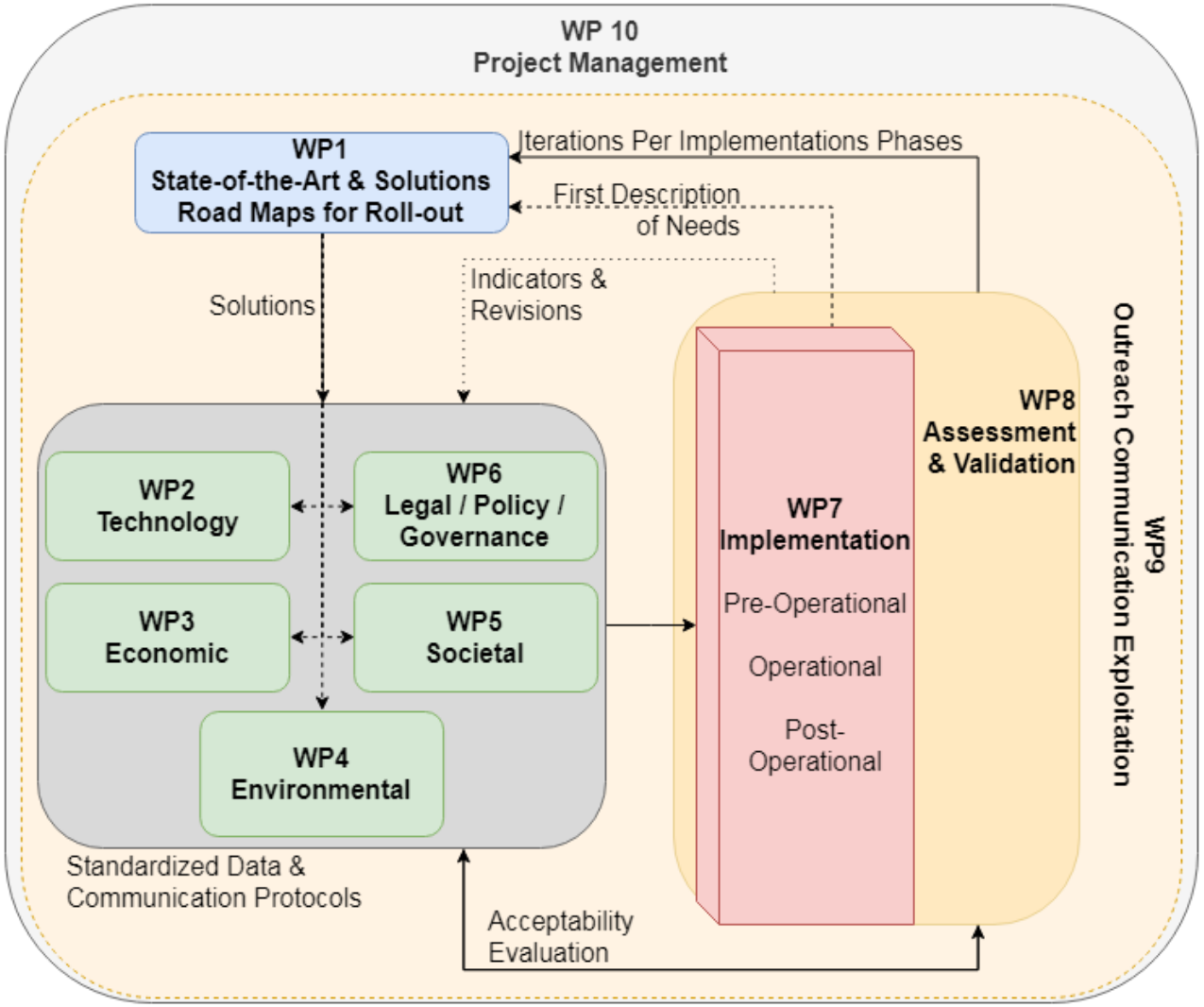
Environment: **cumulative environmental impact assessment** of multi-use

Technology: **synchronization** of multiple operations and maintenance systems, and improvements in current **design**, **safety** and infrastructure set-ups for multi-use

Economics: Insurance issues, profitability & threshold to **finance & investment** pay off, risk & health impact on business, as well as **economic sustainability**.

Society: assessing and addressing societal concerns and **perception** of multi-use; improving **skills and competences for multi-use application**.

Legal-Policy-Governance: health safety and liability; permitting of multi-use; dialogue with public authorities that share responsibility for issuing **permits**.



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PILOTS

Locations

Key project milestones

UNITED PROJECT MILESTONES

State of the art multi-platform solutions reviewed
June 2020

Inventory of legal, insurance, risks and governance aspects completed
October 2020

Production and pre-installation of plant components and preparation of offshore-equipment
April 2021

Technological requirements from pilots addressed
June 2021

Installation at pilots
October 2021

Decision Support System developed
June 2022

Pilot environmental impact briefs
June 2022

TRL assessment completed
September 2022

Pilot business briefs
October 2022

Training workshops completed
October 2022

Decommissioning of the platforms
December 2022

UNITED Framework established
June 2023

Synthesis completed of risk governance
June 2023

Commercialisation roadmap established
June 2023

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Demonstration Pilots

German Pilot: Blue mussels, seaweed & offshore wind

- 80 km off the North-German coast (high energy environment)
- Research platform focused on multi-use
- TRL 5 – TRL7
- Demonstrate the technological, environmental and financial feasibility of far off-shore cultivation of seaweed, mussel longlines
- Expected synergies: logistics, transport, planning and maintenance far off-shore; monitoring and surveillance program far off-shore; security of tenure and insurance
- Challenges: extreme weather conditions; automation of remote monitoring; anchoring and mooring maintenance far off-shore; lack of economic procedures and insurance procedures; unclear legal status of multi-use

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Demonstration Pilots

Dutch Pilot: Seaweed, floating solar & offshore wind

- 12 km from the Dutch coast (moderate energy environment)
- Research site focused on upscaling innovation
- TLR5-TLR7

- Demonstrate integration offshore floating solar; commercial roll-out of seaweed; quantify effects of wave dampening of floating solar array; transfer of energy and communication
- Expected synergies: wave dampening effect floating solar; cost reduction in logistics and monitoring
- Challenges: damage extreme weather; high insurance and grid connection costs; lack of legal and governance procedures

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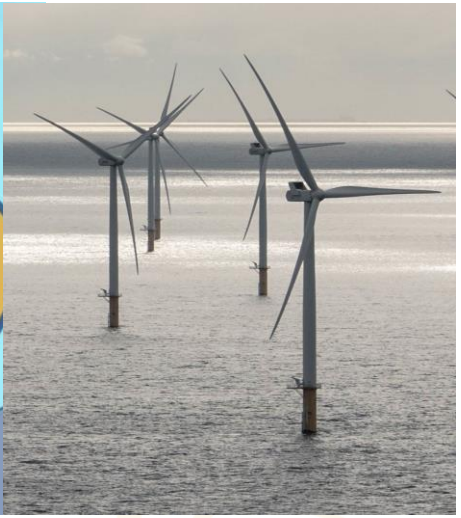
Demonstration Pilots

Belgian Pilot: Offshore wind, seaweed & flat oyster aquaculture & restoration

- 50 km from Belgian coast (moderate energy environment)
- Commercial multi-use site
- TRL5 – TRL7
- Demonstrate improvement of design and deployment methods of off-shore aquaculture activities at OWFs; flat oyster culture and oyster bed restoration
- Expected synergies: remote monitoring, logistics and maintenance; port facilities
- Challenges: damage extreme weather conditions; insurance and maintenance; invasive species; conflicts of interest of sea users



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Demonstration Pilots

Danish Pilot: Offshore wind & tourism

- 3.5 km off the Danish coast (high energy environment)
- Commercial multi-use site
- TRL6 – TRL 8
- Demonstrate logistic and financial feasibility of tourism activities (such as OWFs sightseeing, diving, leisure fishing, education on green energy) and OWFs

- Expected synergies: cost reduction in logistics, monitoring and information management technology; societal acceptance
- Challenges: high costs of operating staff; waste pollution visitors; lack of safety assessments; low individual financial power and capacity to join multi-use from local collaborators

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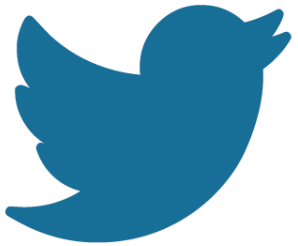
UNITED on social media

Tweeting about multi-use ?
Mention UNITED in your Tweets!



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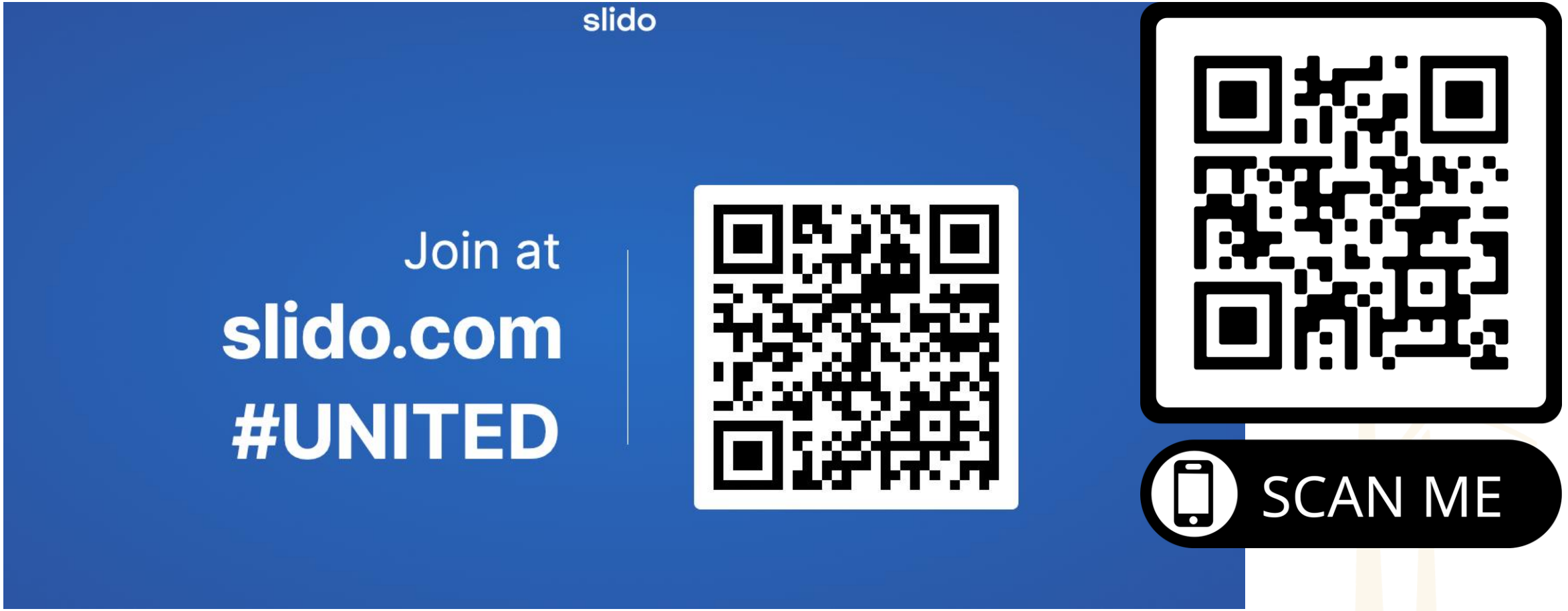

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