



Developing operational cooperation
between the HIRLAM services:
United Weather Centers

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Overview

- **What has happened so far**
- **Aims and scope of the UWC cooperation**
- **UWC developments and timeline**
- **Relations between UWC and the HIRLAM R&D cooperation**

A slow start, but then things started to move fast...

... First there was the MetCoop (MetNo and SMHI) joint NWP production

... Later expanding with FMI

... Discussions on operational cooperation between 5 Nordic countries: NordNWP

... Operational cooperation DMI, IMO

... 2016-2017: Pressure to let the three Baltic states join NordNWP cooperation. Interest expressed by Netherlands, Ireland to join NordNWP operational cooperation

=> from 3 to 10 countries?!? How to keep this manageable?



The outcome: the UWC cooperation

February 2018: Directors meet in Helsinki. Decision:

- Expand MetCoop cooperation in two steps:

Step 1: a) Extend present MetCoop cooperation with 3 Baltic NMS's
b) DMI, IMO, KNMI and MetEireann start programme aiming to achieve joint operational production by end 2022, making use as much as possible of MetCoop experiences.

Step 2: Prepare these two cooperations for merging into a single joint operation by end 2027

- Start one programme to achieve 1b), and another to achieve that 1a) and 1b) will eventually merge into a single cooperation after 2027

June 2018: The overall cooperation will be called United Weather Centers (UWC).

Groups 1a) and 1b) are called UWC-East and UWC-West.

MoU's for UWC-West and UWC are signed in July and August 2018.

PM for UWC-West: Rene van Lier (KNMI); PM for UWC: Dick Blaauboer (KNMI).

UWC purpose

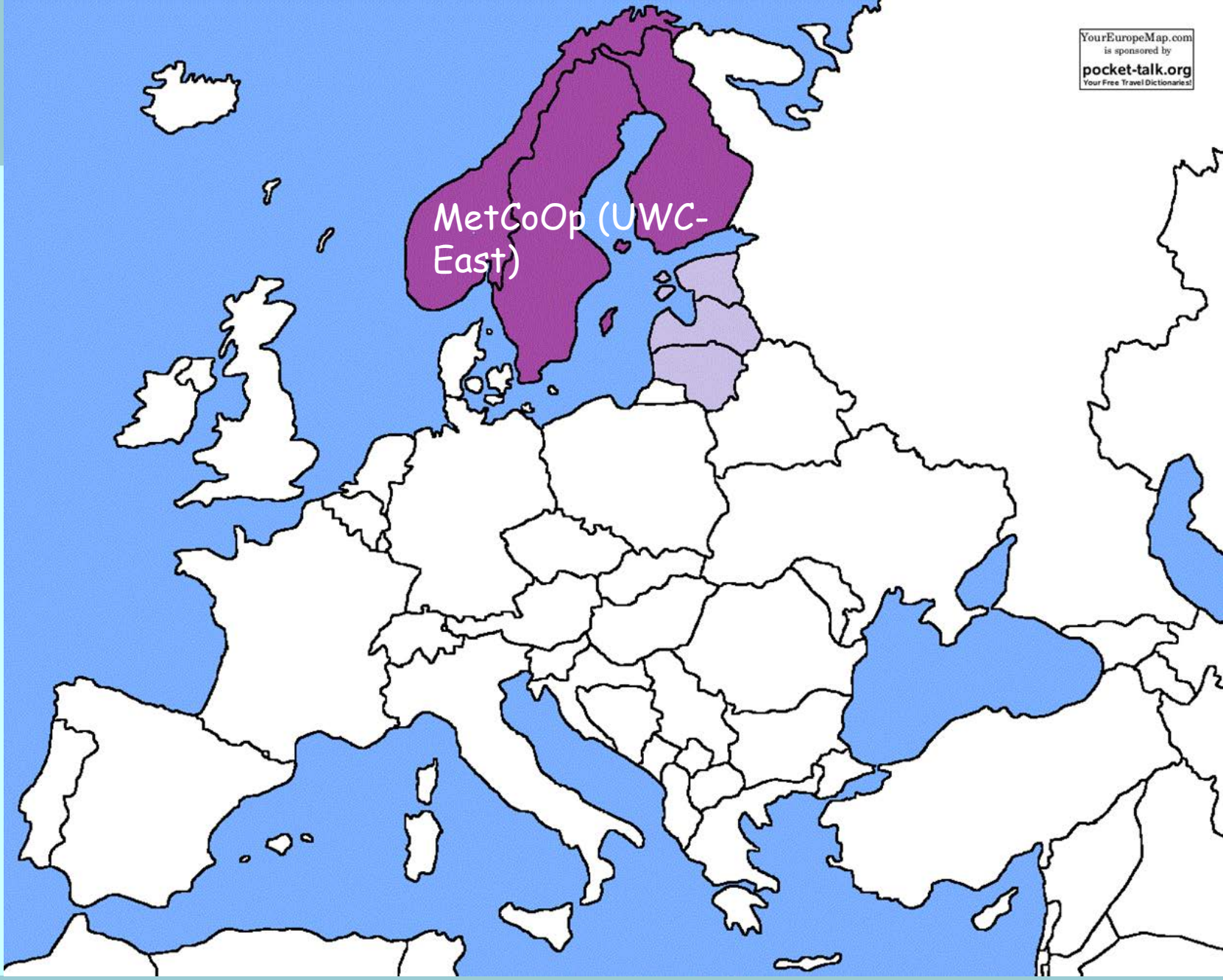
Main purpose of the UWC collaboration of 10 Parties: to enable Parties to accomplish joint operational exploitation of a science-based limited-area NWP system, including ensemble prediction and the related pre- (and post-) processing activities and the availability of a suitable HPC infrastructure from 1st of January 2028.

But first:

- accomplish these goals for UWC West before end 2022.**
- extend (in parallel) the existing operational collaboration of MetCoOp (UWC East) towards the Baltic States before end 2022.**

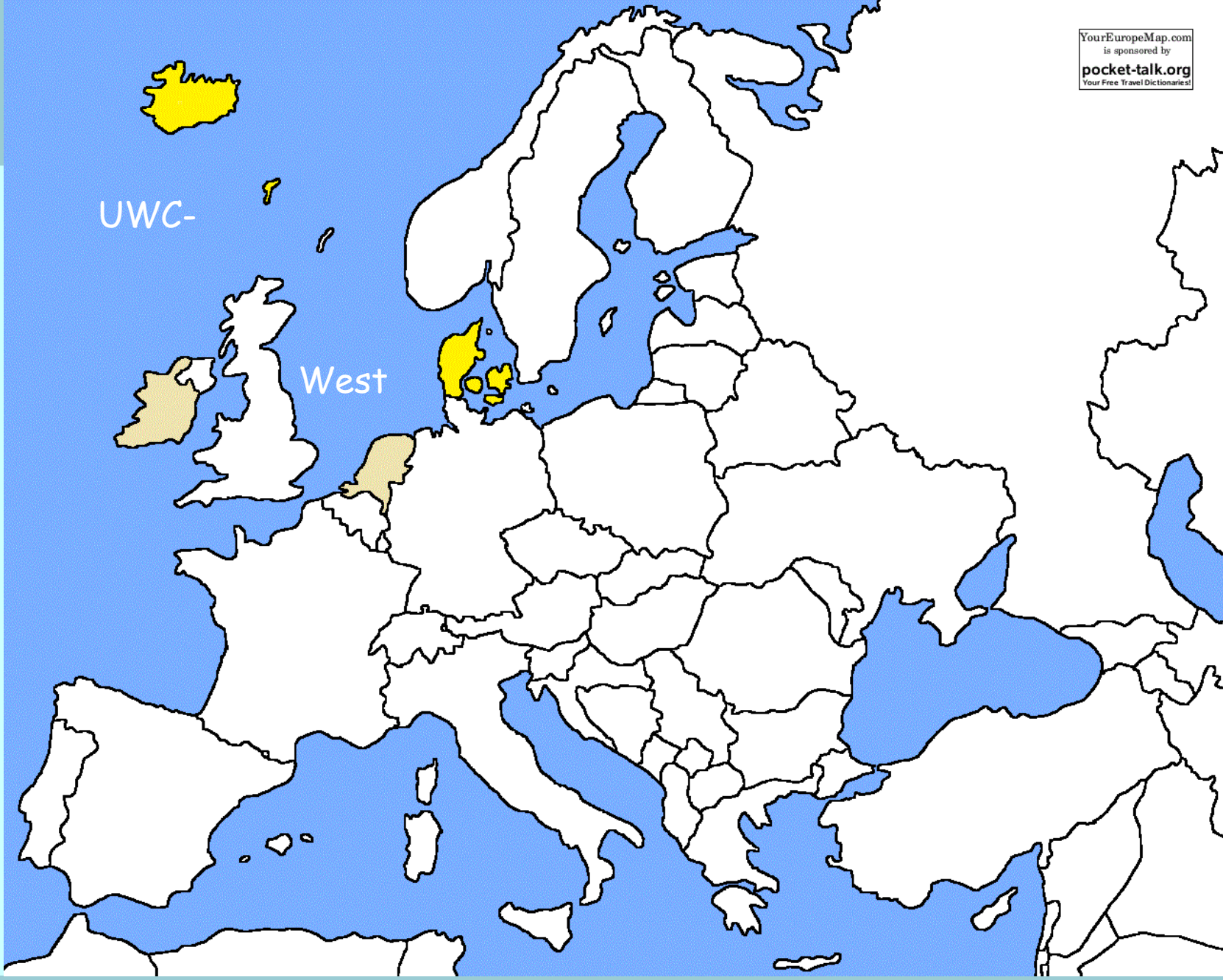


MetCoOp (UWC-
East)



UWC-

West



Overall timeline

Phase 0, 2018-2022:

- **UWC West: preparing for operation**
- **UWC East: operational, integration Baltic NMSs**
- **UWC: coordination, establishing strategy for 2023-2027**

Phase 1, 2023-2027:

- **UWC West: operational**
- **UWC East: operational**
- **UWC: preparing operational integration of UWC-West and UWC East**

Phase 2, >2027:

- **UWC: operational cooperation between all 10 NMSs**

UWC Preparations and envisaged scope

- **Members: DMI, ESTEA, FMI, IMO, KNMI, LEGMA, LHMS, Met Éireann, MetNo, SMHI**
- **MoU signed 16 August 2018**
- **Position Paper before end 2018 to consider/work out relevant aspects of cooperation:**
 - **Formulation of model set-up(s)**
 - **HPC life cycle (procurement, operation, maintenance)**
 - **National political/financial context**
 - **IPR, open data policy**
 - **Collaboration on preprocessing**
 - **Collaboration on verification**
 - **Collaboration on physiography**
 - **Collaboration on services**
 - **Other issues**
 - **Cooperation on postprocessing**
 - **Relation with forecasters**
 - **Possible new partners: AEMET, Aladin members, others, ...**
 - **Relation with meteo-environment → ECMWF, (other) LAM consortia, EUMETNET, EUMETSAT, ...**

UWC governance

Council: 10 DGs
Chair: Marianne Thyrring (DMI)

Steering Committee: 10 heads NWP
Chair: Jørn Kristiansen (MetNo)

Programme: PM (Dick Blaauboer, KNMI),
TA (Lars Berggren, SMHI), repr. 10 NMSs

Working Groups

Projects: Physiography,
Obs. Pre-processing

Pre-UWC-West

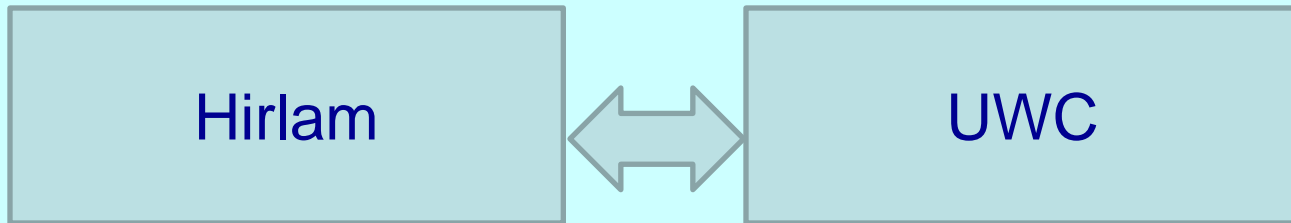
Met Éireann and KNMI will join forces on NWP operations already before 2023:

- **Met Éireann will use KNMI HPC from 2020 for part of its NWP operation**
- **Both KNMI and Met Éireann will initially use their own implementation of an EPS based on the Harmonie model**
- **This collaboration will continue until 2023. Afterwards, both partners will continue their collaboration jointly with DMI and IMO under UWC-West**
- **Preparations for this collaboration between Met Éireann and KNMI will start in 2019**

UWC-West timeline

March 2019	March 2022	Provide Computing Facilities (HPC)
September 2018	November 2021	Provide Infrastructure (Datacentre facilities)
February 2019		Datacentre location known
November 2021		Datacentre ready for use
March 2022		HPC in place and ready to use (@Datacentre UWC-West)
October 2018	December 2022	Setting up a common NWP Model environment (for both HPC Tender & Operational Exploitation)
October 2018	April 2019	Define common specifications for Pre- & Post-processing
June 2021	October 2021	Prepare NWP Operational Exploitation environment <ul style="list-style-type: none"> •Prepare common pre-processing (data assimilation) •Prepare common post-processing •Prepare common Harmonie Model •Prepare Data transport to local Product generation environments
March 2021	October 2021	Setting up Operational Management System
October 2021	September 2022	Test NWP Operational Exploitation environment
June 2022	December 2022	Prepare transfer common NWP Operational Exploitation environment
1st January 2023		Start NWP operations for UWC-West

Relations between UWC and HIRLAM R&D cooperation



**NWP Model development,
definition of content and
assessment**

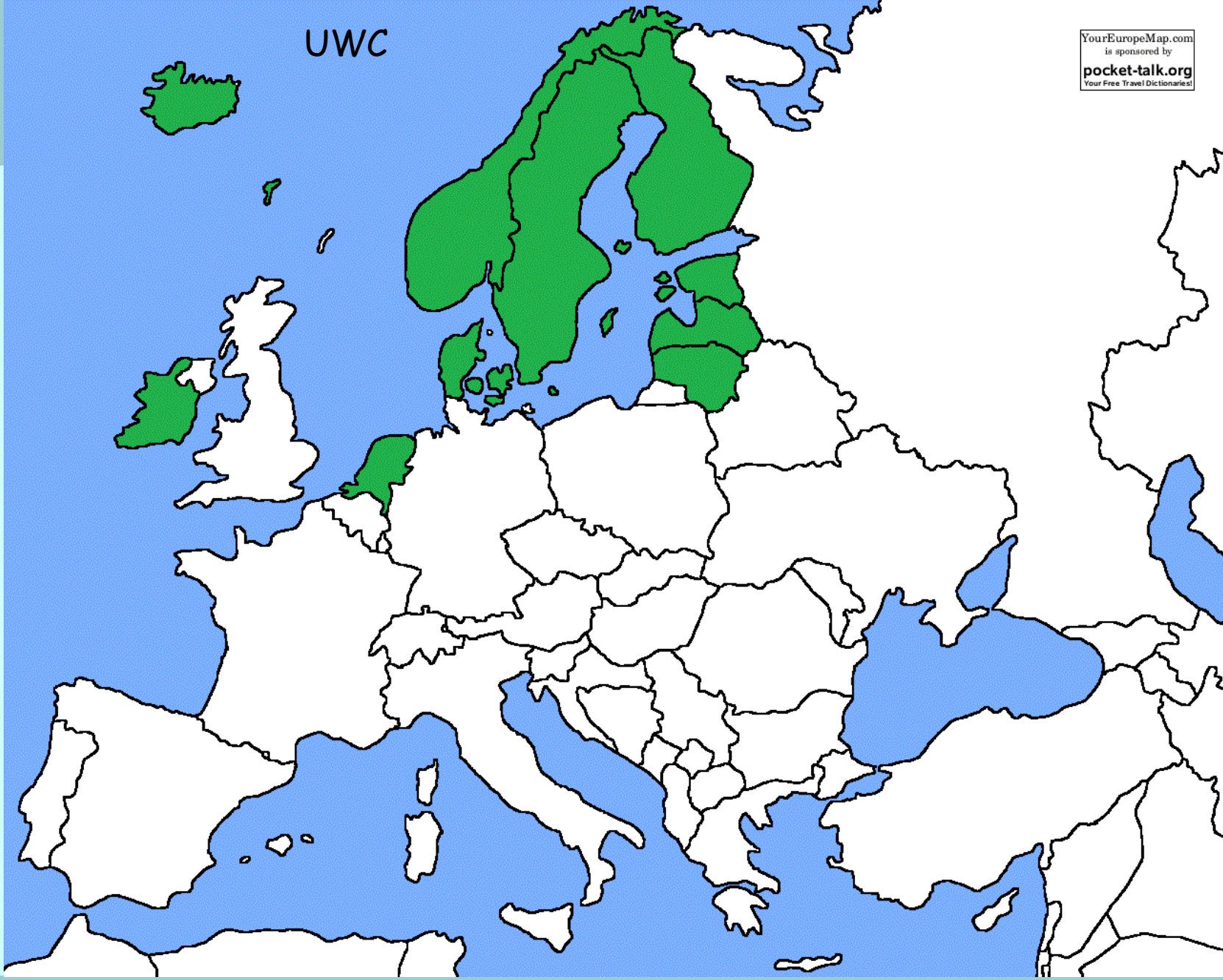
**Operational implementation,
monitoring and assessment**

Open questions:

- Memberships not fully overlapping (Spain, Latvia!)
- After 2020: Aladin-Hirlam convergence
- How to (re)organize R&D optimally wrt operations (overlapping pool of people)?
- How to arrange staff commitments?
- ...???

UWC

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Hirlam

