

HyWays
Towards a validated and well accepted
“European Hydrogen Energy Roadmap”

Introduction

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Project Description

- Objectives
- Budget, Duration and Partners
- Deliverables
- Results
- Relevance
- Methodology

Relevance and potential contribution to HFP

Future perspectives

- Opportunities
- Challenges

HyWays is an *Integrated Project* to

- develop a harmonised **European Roadmap** for H₂ energy,
- provide recommendations for an **Action Plan** (Roadmap implementation),
- develop a **standard procedure** for the roadmap process,

by means of

- describing the **future steps** towards H₂'s large-scale introduction,
- considering **transport and power sectors** (storage medium for renewables),
- using inputs from EU **industry, R&D institutes** and **member state experts**,
- combining known **technology databases** and **socio-economic analysis**,
- evaluating **stakeholder scenarios** for sustainable H₂ energy systems and
- reflecting real life member state **opportunities and barriers**.

Budget, Duration and Partners

HyWays

Initiation by HyNet: May 2002
 Start of HyWays: 01 April 2004
 Duration: 3 years (in 2 phases of 18 months)
 Total Budget: 7.9 M€
 Funding: 4.0 M€

Industry



Member states



Institutes



H₂ infrastructure build-up analysis

Economic impacts analysis

Policy measures analysis

Analysis of technology impacts

Emissions analysis

Development of the European Hydrogen Energy Roadmap

for the timeframes 2020, 2030 and 2050 and

all analysis on regional level considering country / region specific conditions

6 member states in Phase I (D, F, GR, I, N, NL) and 6 further in Phase II

- Overview and market introduction of H₂ cars in Europe (FC, ICE, hybrids)
- Proposal for H₂ energy chains for all 6 member states in Phase I
- Member state profiling drafts with energy market data and potential development for 6 member states of Phase I
- European Scoping Report with key development data (energy price, vehicle development)
- Handbook for further member state partners Phase II
- Interfaces description for models/tools E3 database, MARKAL, ISIS, GEM-E3 and COPERT

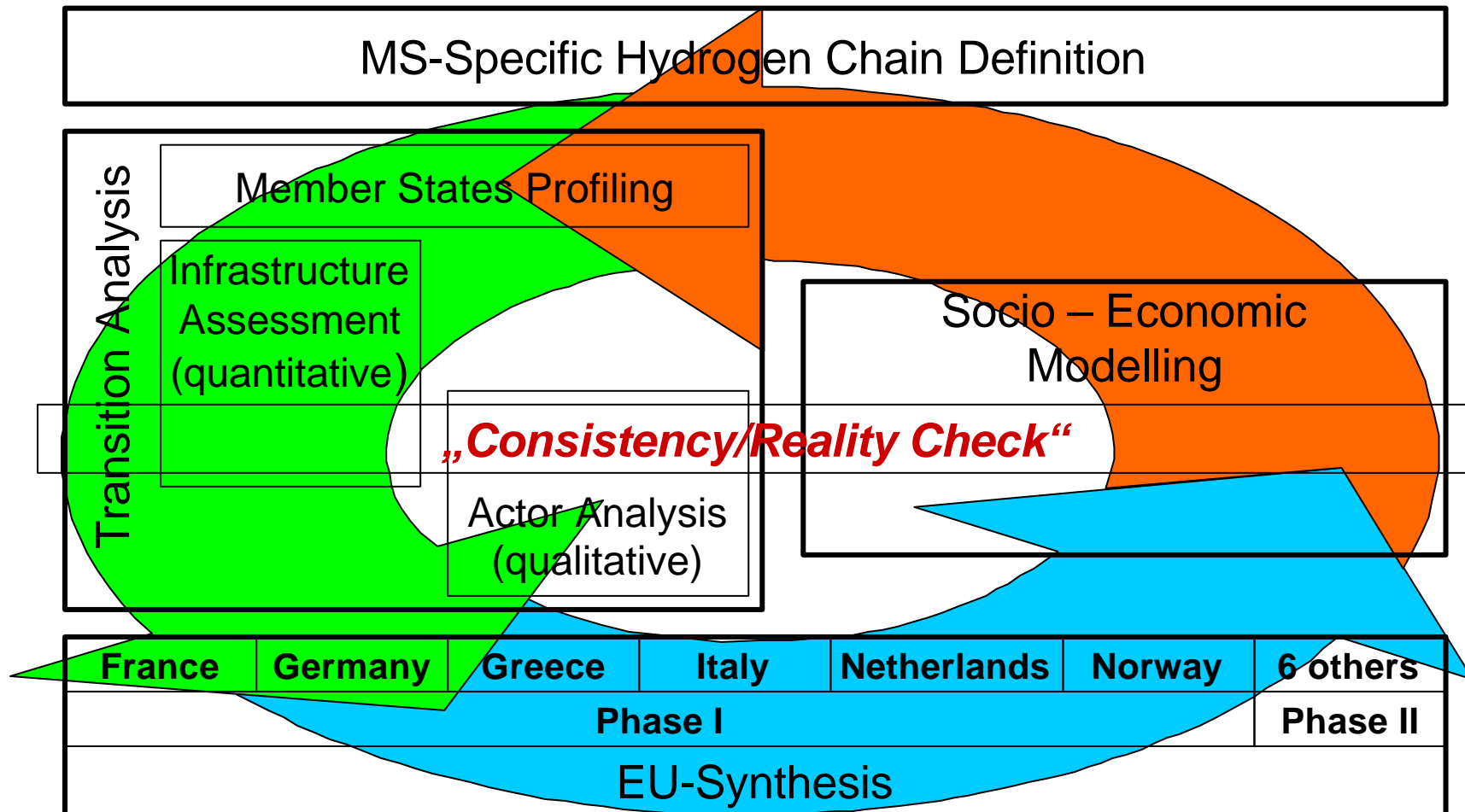
HyWays uses widely accepted and recent databases and tools.

Yet, the real benefit is not only „**technical learning**“ from complex simulations based on an involvement of experienced partners...

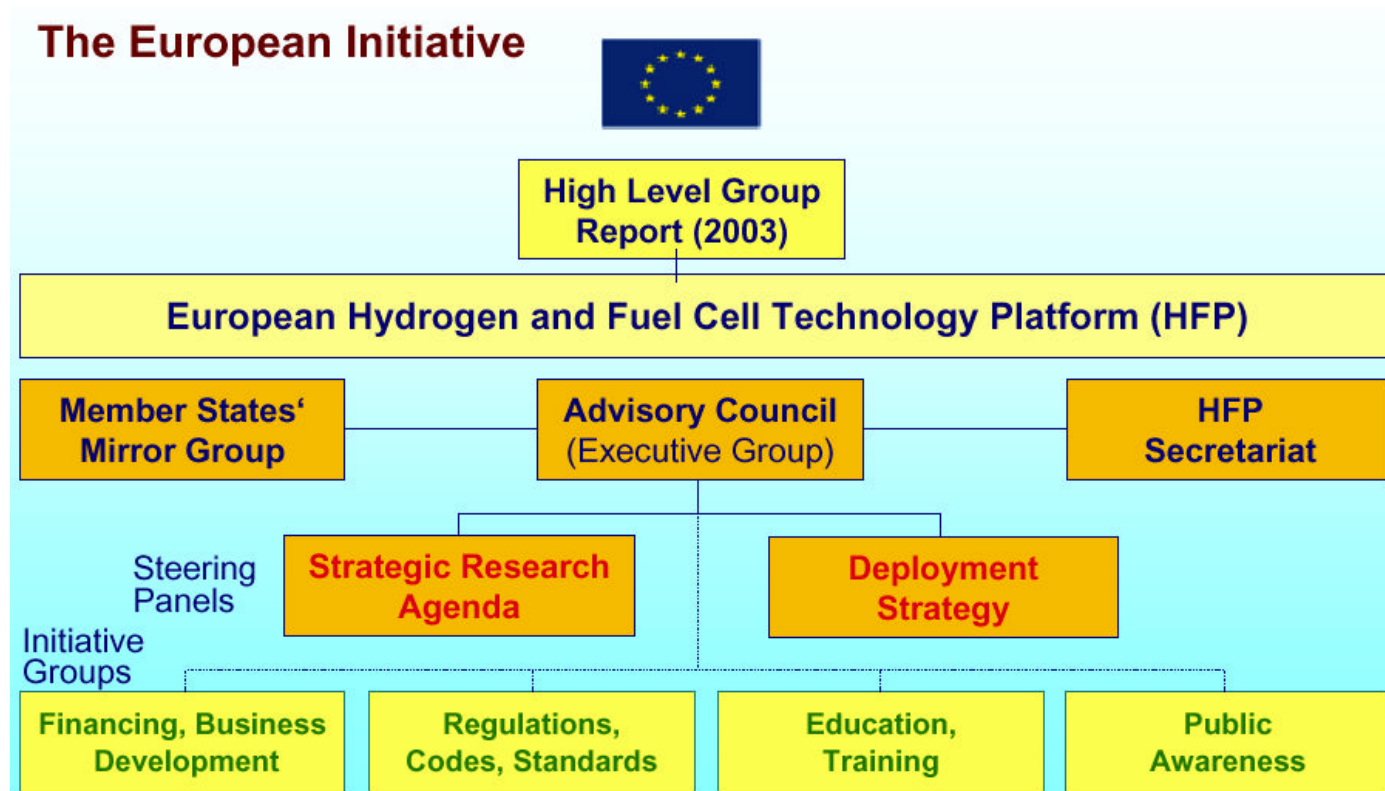
...but also

„**economic and social learning**“ by intense highly disciplined discussions among the HyWays partners, involving industry and r&d institutes, and specifically an extended reach into the member states* resulting in

- multiple mutual learning effects (European synthesis) and
- dynamic iterative generation of new insights.



Relevance and Potential Contribution to HFP (1)

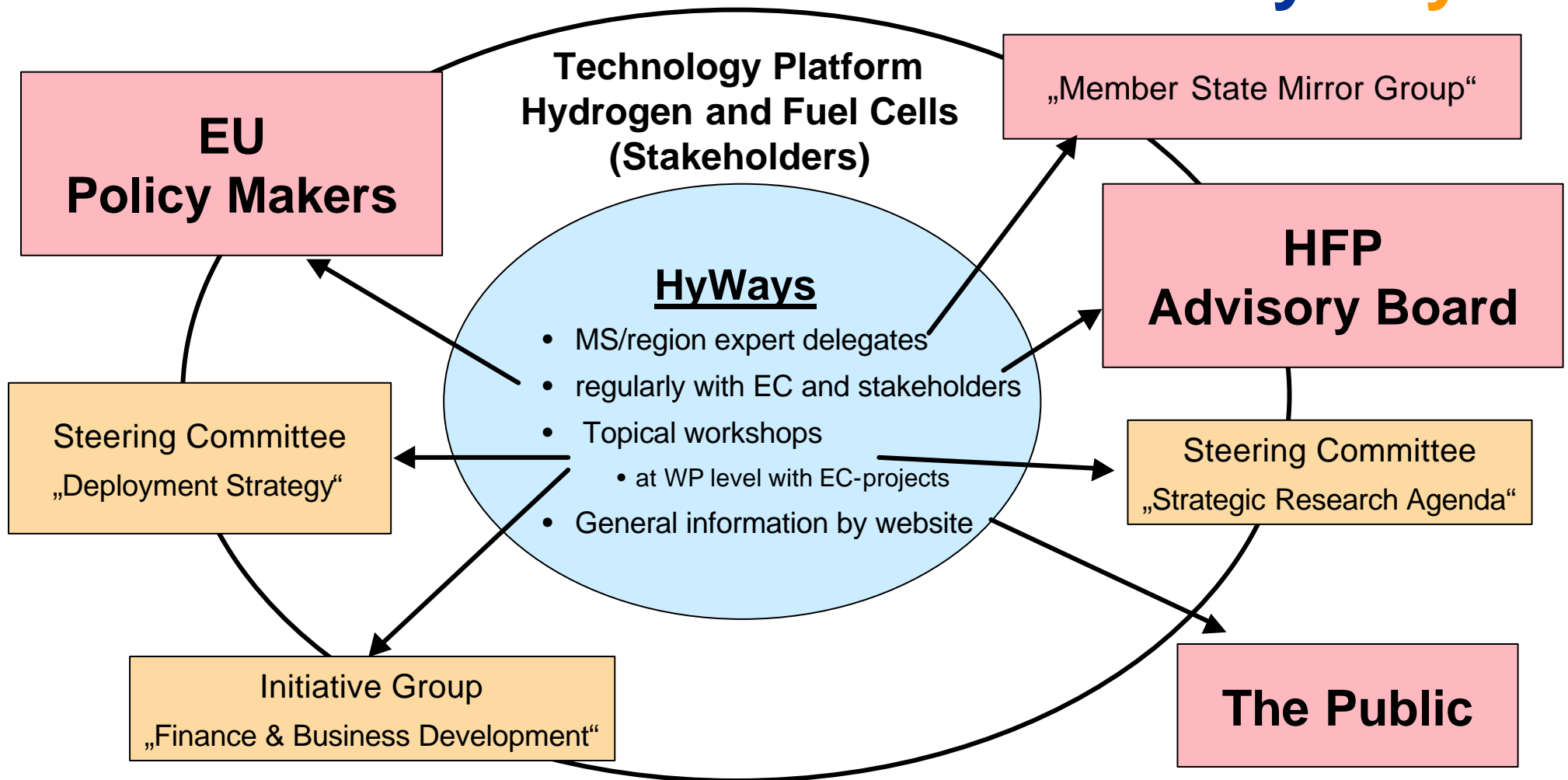


Initiative Group „H₂ Roadmap“ originally foreseen and eventually cancelled

➔ HyWays is the only H₂ roadmapping activity in HFP

➔ Status of the HyWays European Hydrogen Roadmap yet to be agreed

Relevance and Potential Contribution to HFP (2)



- complexity of multi-layer definition / multi-dimensional simulation task
- application of policy simulation instruments in stakeholder consensus
- risk of missing consensus
 - between partner interest groups with naturally diverging views
 - when raising the MS input one hierarchy level up
- Energy Trends 2030 modelling identified as inconvenient starting point (outdated for energy price projections, way off for some growth figures (cars....) and no consideration of fossil resource depletion (< 2030))
- highly competitive process to choose Phase II member state partners
- transparently interfacing with larger stakeholder group in HFP

This project is financed by the HyWays partners and by funds from the European Commission under FP6 Priority [1.6] contract number 502 596.

The co-ordination of HyWays is a rewarding and satisfying task due to the innovation potential and creativity of the HyWays partners.

We would like to thank the EC to create the right framework for the discussion process, and the HyWays partners for their support during the long and exhausting proposal and contract preparation phase.