

A Dutch-German Hydrogen Valley – The Netherlands and North Rhine-Westphalia as a Pioneer Region for the European Hydrogen Economy

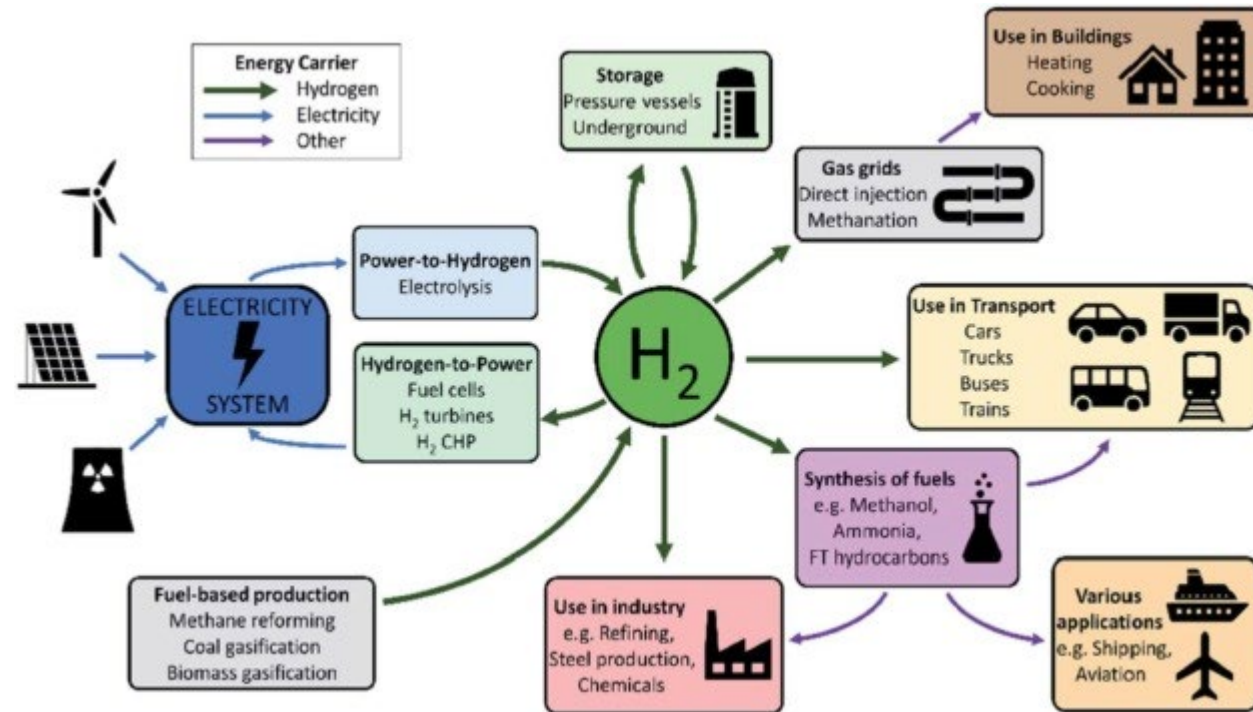
Second Dutch-German Forum on Comparative and European Energy Law (FCEEL)

26th October 2023

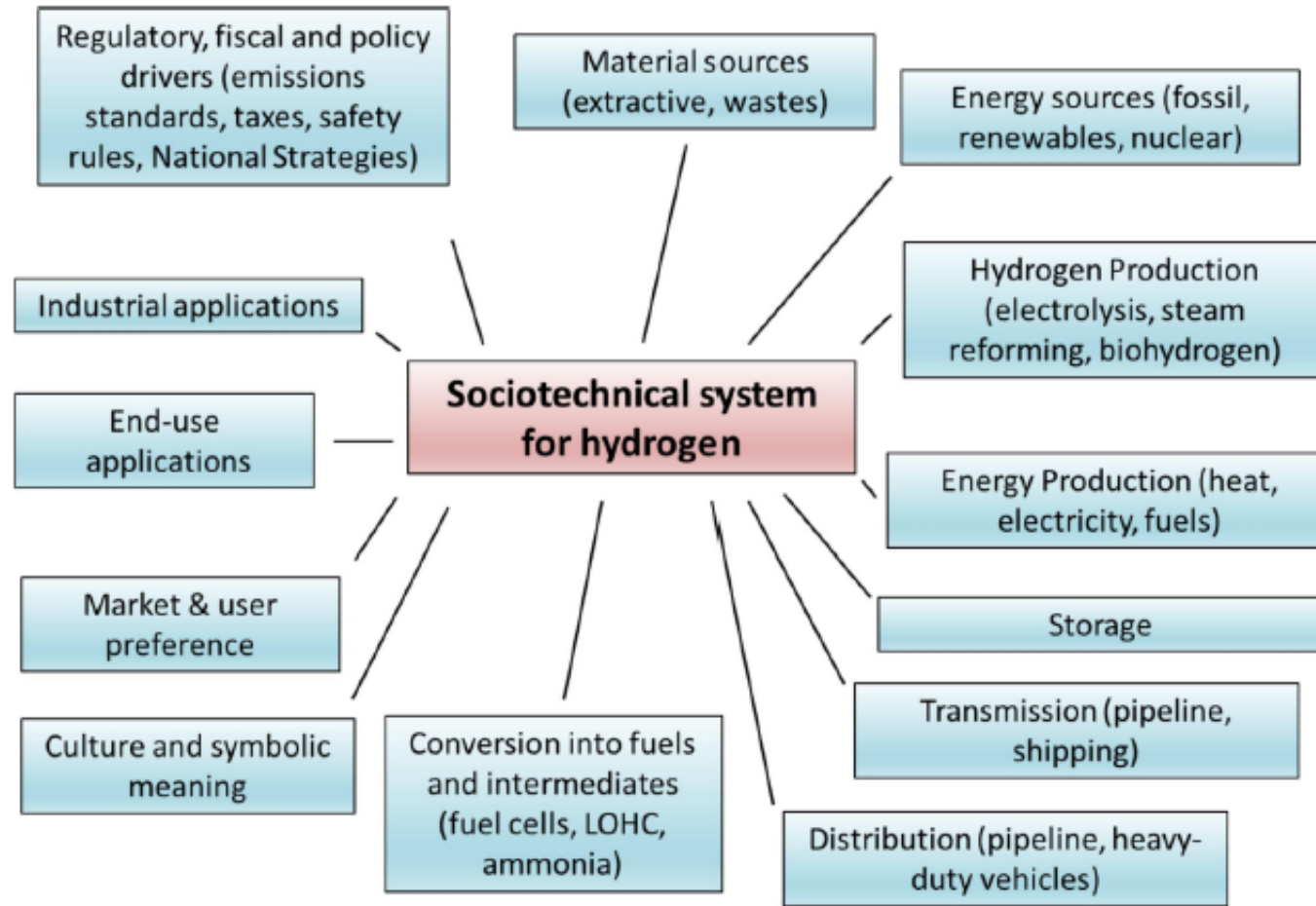
“The (geo)political context and the economic coordination in regard to the value chain and infrastructure management

Aad Correljé Associate Professor, Section Economics of Infrastructures, Dept. Values, Technology and Innovation, Faculty of Technology, Policy and Management (TBM), The Netherlands.

The hydrogen transition is...



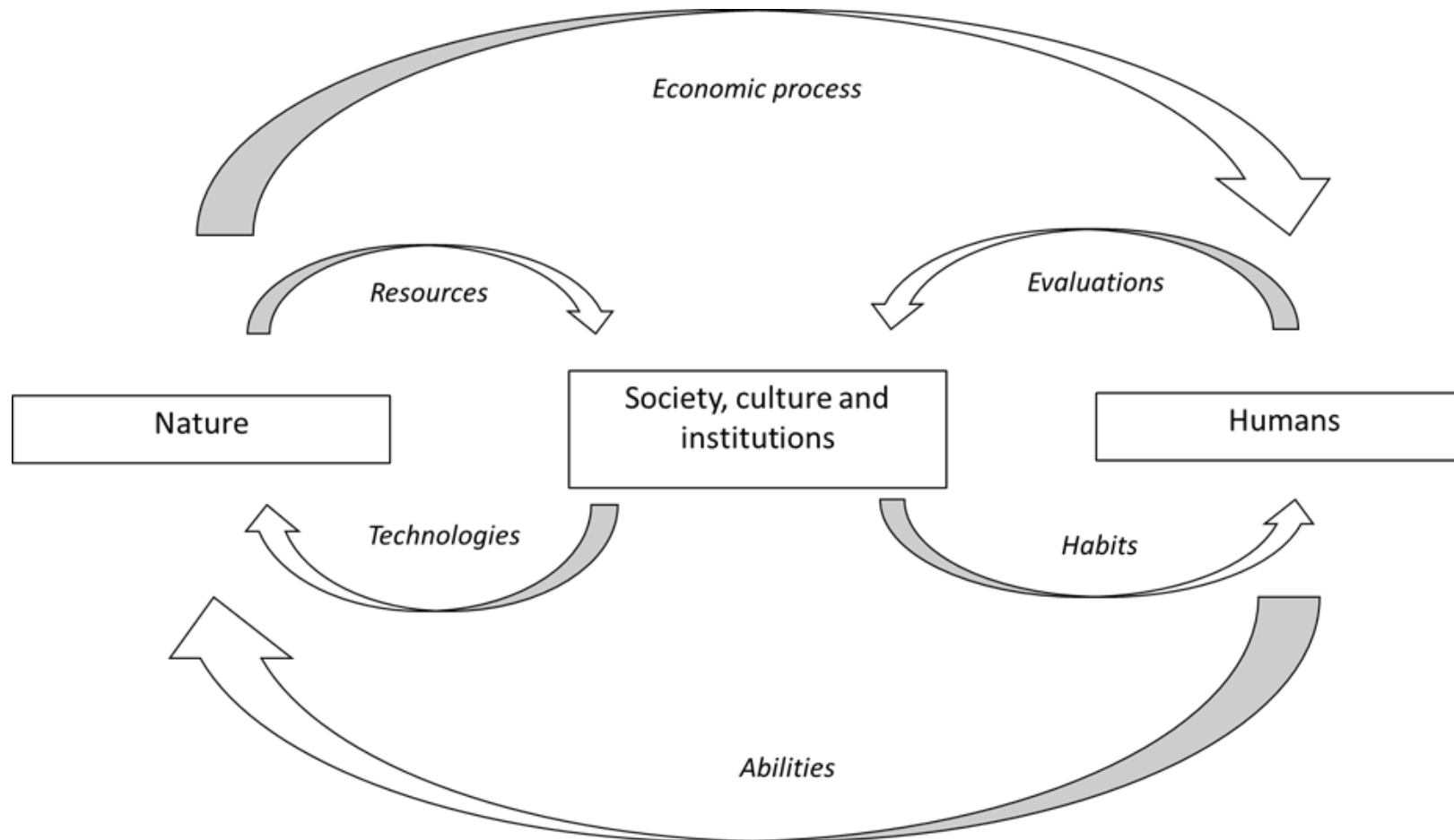
The hydrogen transition involves...



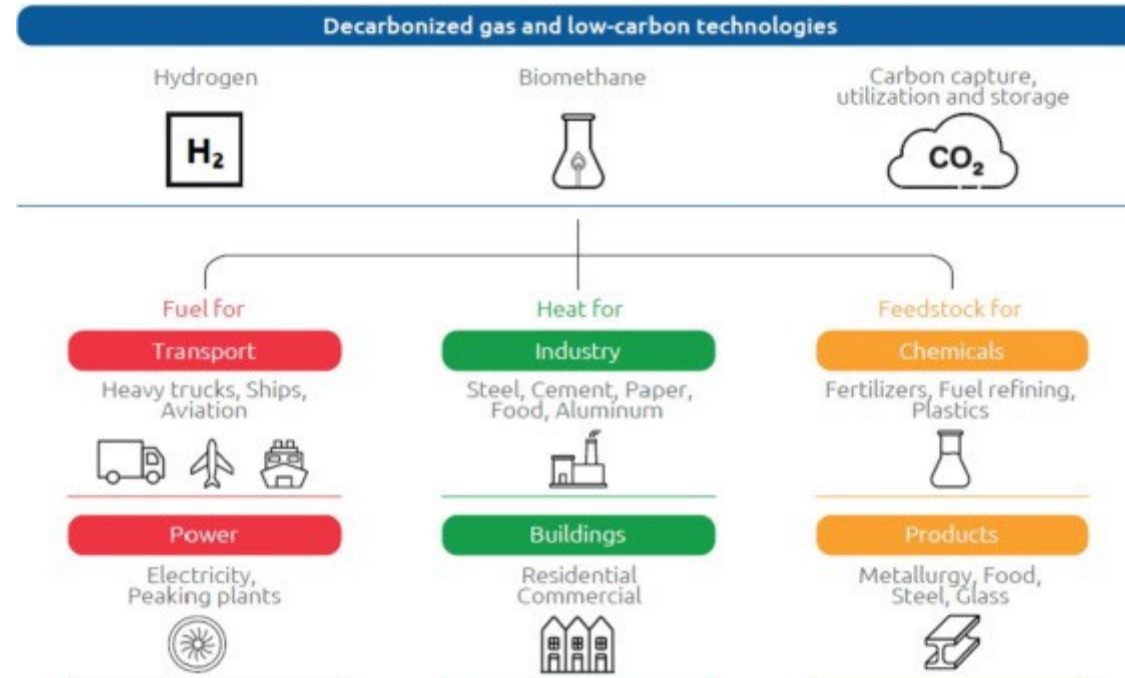
The hydrogen transition causes...

- Technical transformation of the energy system: New technologies, resources, carriers, flows, spatial patterns,...
- Impact in actions and behavioral patterns of actors in energy supply, transport and consumption: New attributes
- Institutional transformation: New property rights, transactions, incentives, and actors
- Affecting a much wider set of 'values' than just costs and prices
- Creating new uncertainties and sources of risk
- Causing new patterns of evaluation and decision-making by consumers, providers, and in the public realm
- (In)formal assessments made in society by more or less organized individuals, lobby groups and (local) politics, policy-makers and firm's managers...
- Either or not influencing "the rules and the play of the game".

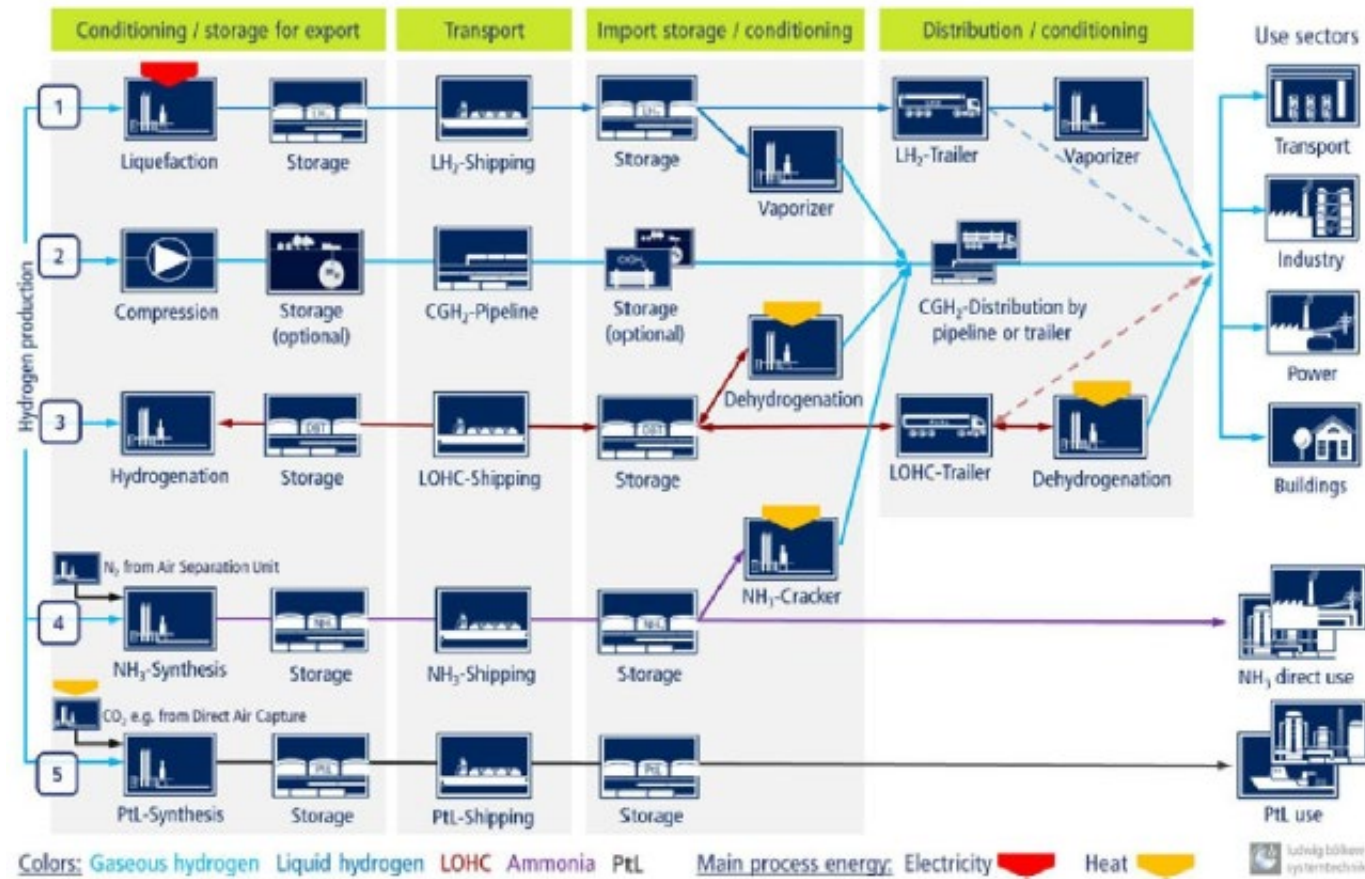
The hydrogen transition affects values, institutions and behaviour...



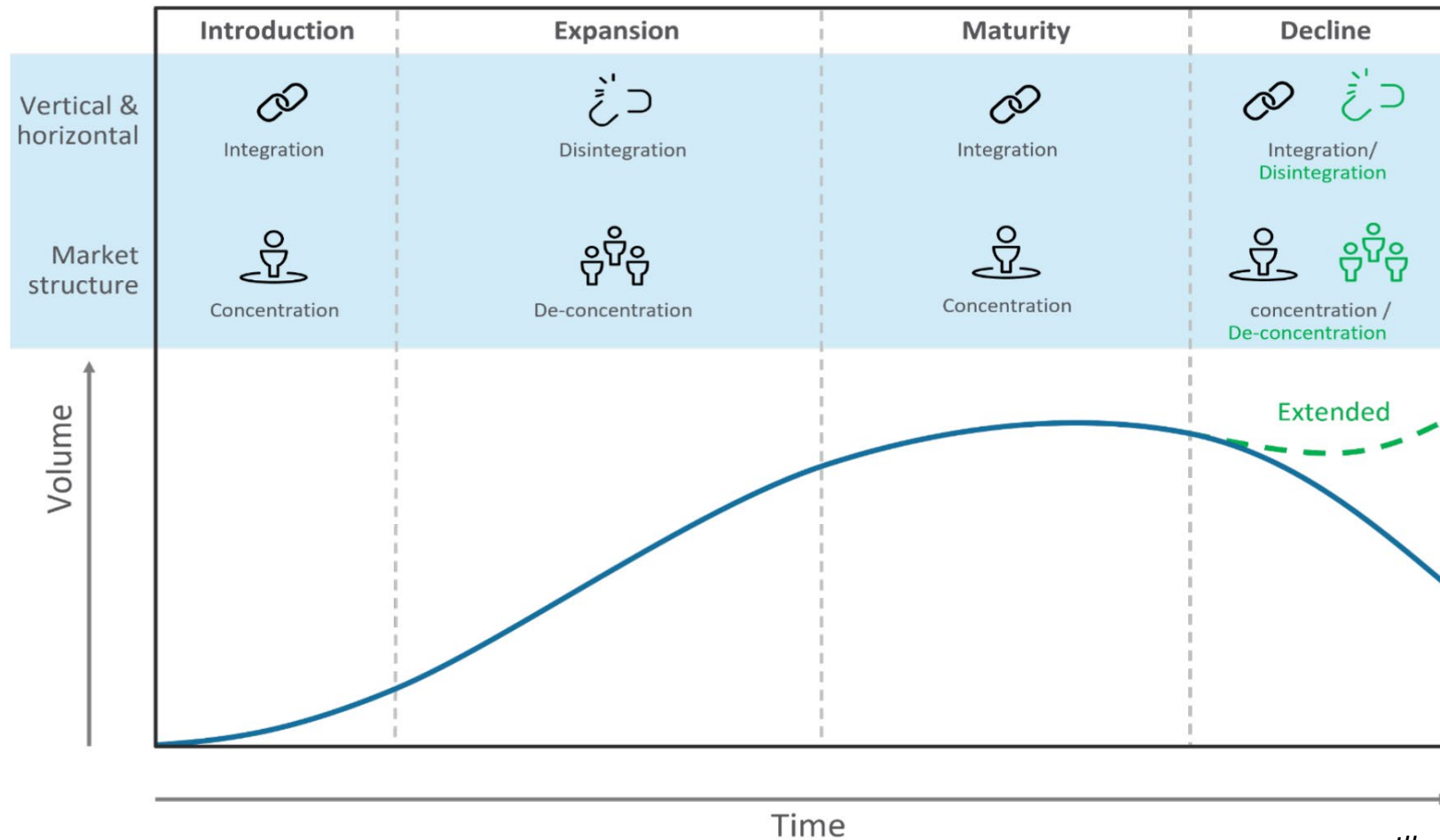
Connecting different systems of use...



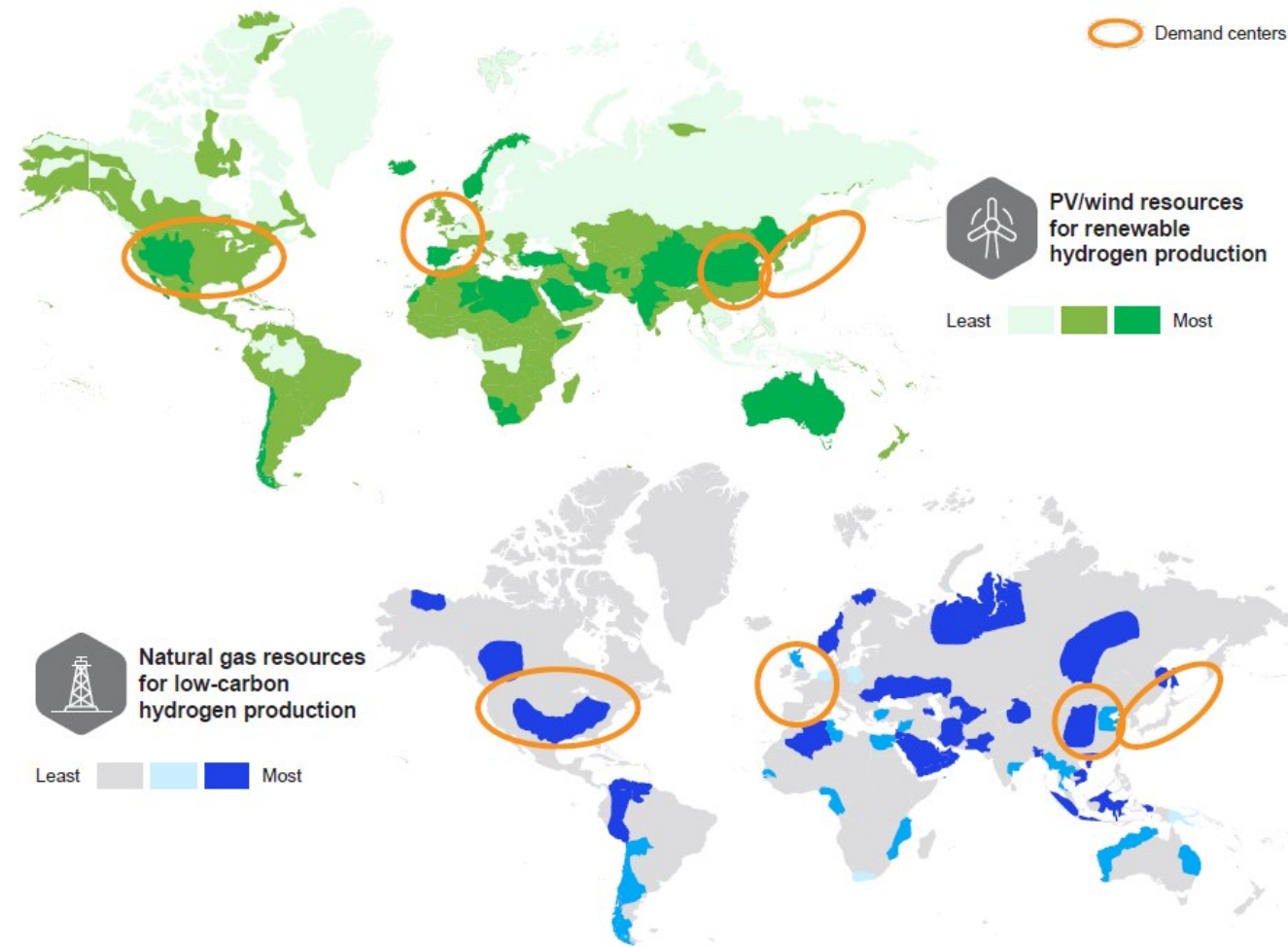
Using different supply chains...



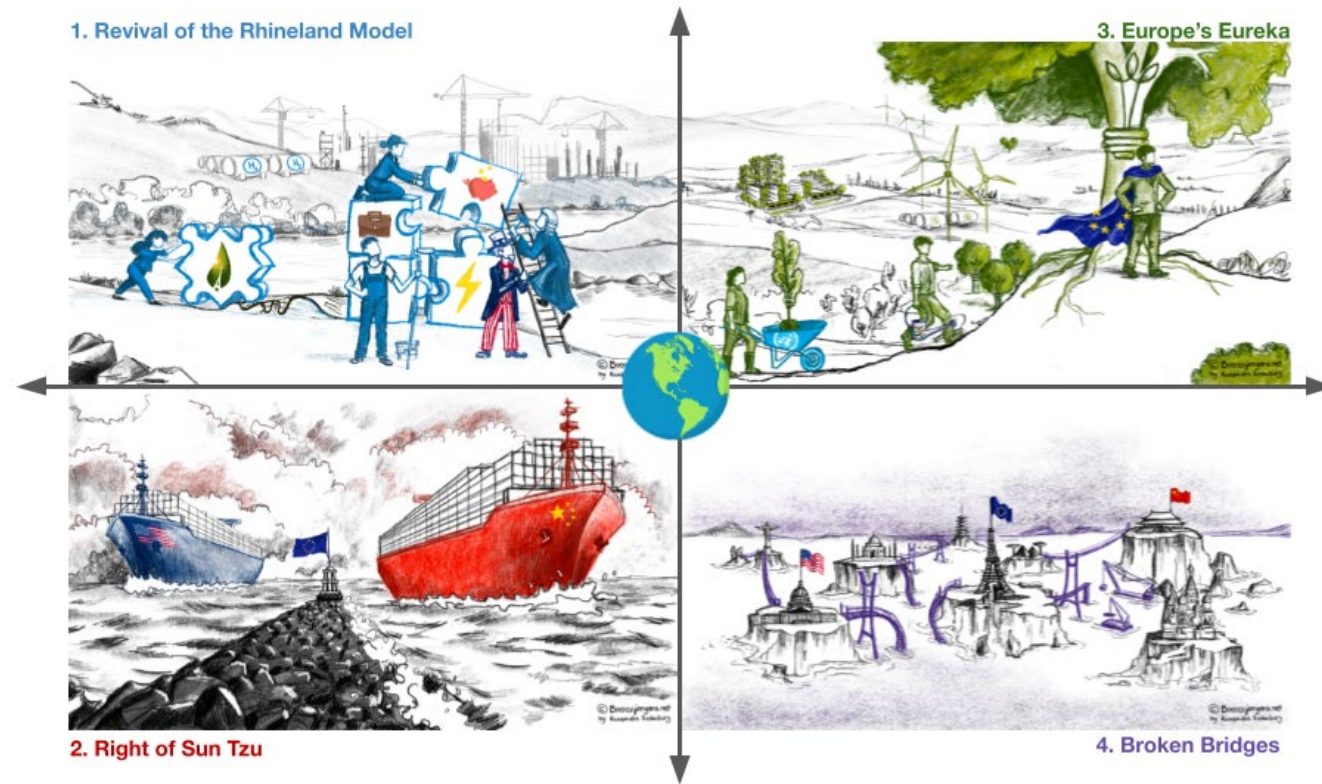
In different phases of development...



From different global resources...



In potentially different “worlds”...



In a need of coordination...

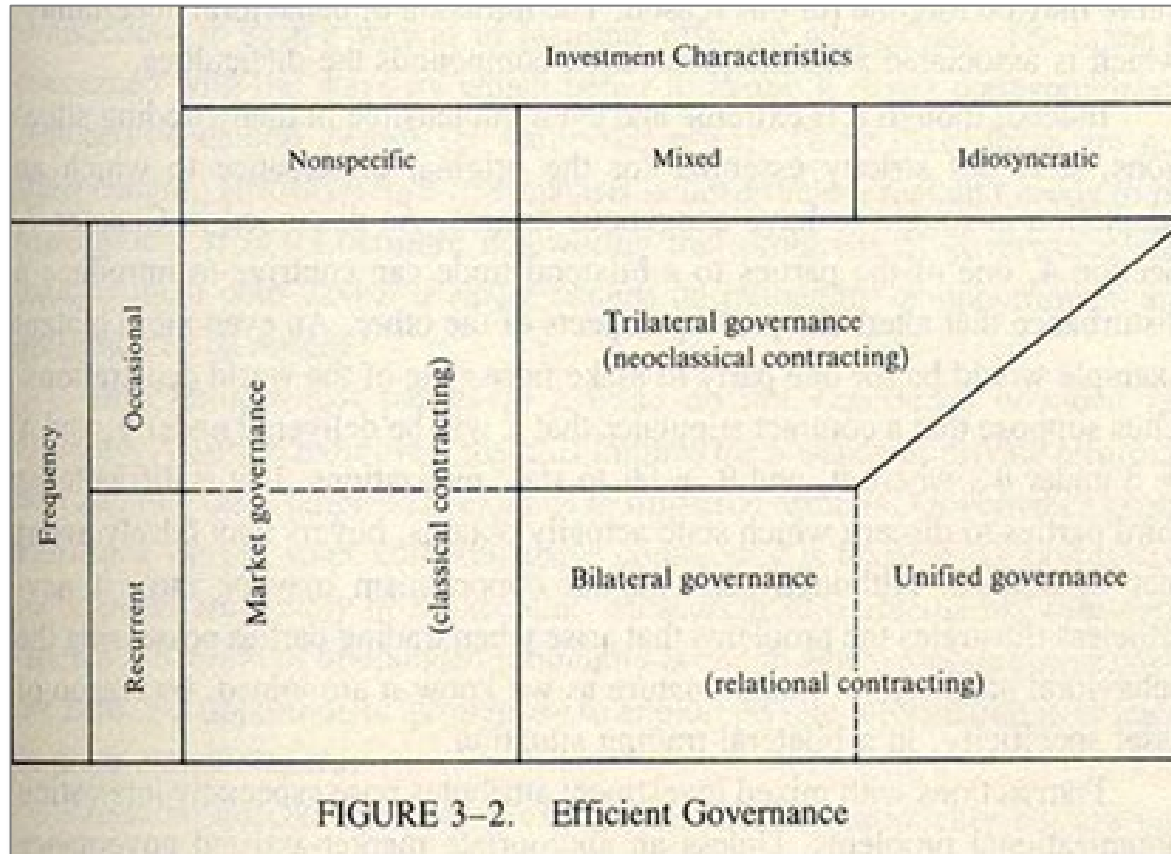
Coordination is difficult:

1. **Exchange and negotiations** of diverse interests, values and priorities
2. **Acceptance** of uncertainties and risk in a situation of *mutual dependence*
3. **Gaining trust** in commitment and result of “the others”
4. **Creating insight** in individual versus collective gains in a regional integrated hydrogen approach

Actors may secure their risk and interest:

1. Longer term, integral scale
2. Negotiate agendas, objectives, values and interests
3. Internalize the costs of the transition
4. Create an effective governance and contracting structure

System and product diversity and asset specificity...



 The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2009
Elinor Ostrom, Oliver E. Williamson

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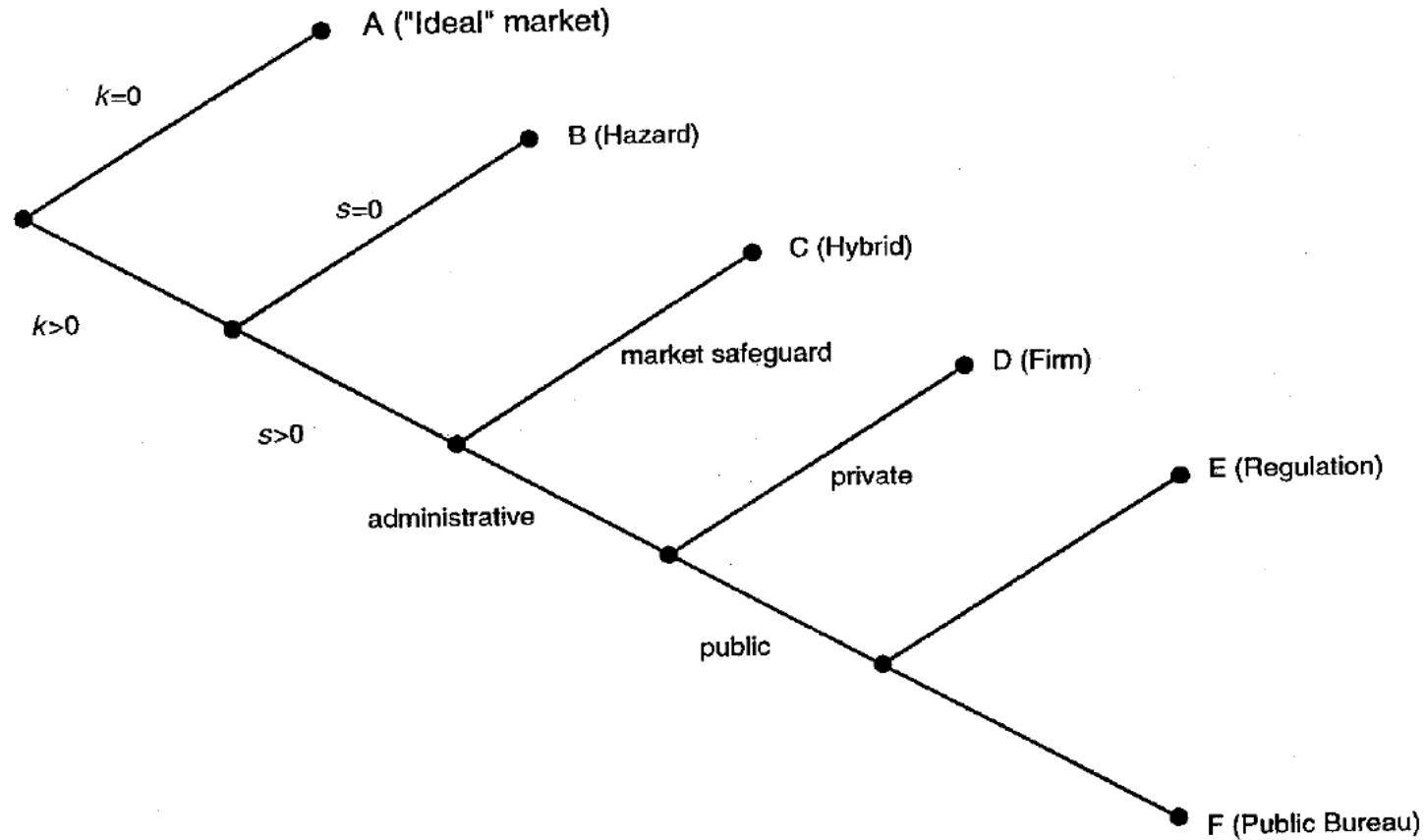
Oliver E. Williamson - Facts



Oliver E. Williamson
Born: 27 September 1932, Superior, WI, USA
Affiliation at the time of the award: University of California, Berkeley, CA, USA
Prize motivation: "for his analysis of economic governance, especially the boundaries of the firm"
Field: economic governance
Contribution: Provided a theory of why some economic transactions take place within firms and other similar transactions take place

Photo: U. Montan

Different roles for the private initiative and the public sphere...



In the real world...

- Competing and complementing developments with other regional ports and industries
- Mechanisms for price discovery, contracting and infrastructure management
- Presence of international commodity flows in hydrogen and derivatives, within an existing market and pricing centre for other commodities, thus already providing important related services
- Market structures will evolve as technology and the market develop, for example, with initial long-term contracts transitioning towards spot market trading as excess volumes begin to change hands
- Organisational formats of critical assets and markets and security of supply issues in different phases of development and intra-dependency, particularly as producing countries choose whether to serve domestic demand primarily, or to export
- Rules and regulations concerning production, transport, use and trade of hydrogen, such as the application of EU's Renewable Energy Directives, as well as tradable (environmental) permits and non-tradable tariffs and regulations
- Market interventions such as incentives and support to (pilot) schemes to support green hydrogen production and use
- Governmental and Third Party opportunism...

Thank you for your attention

Name