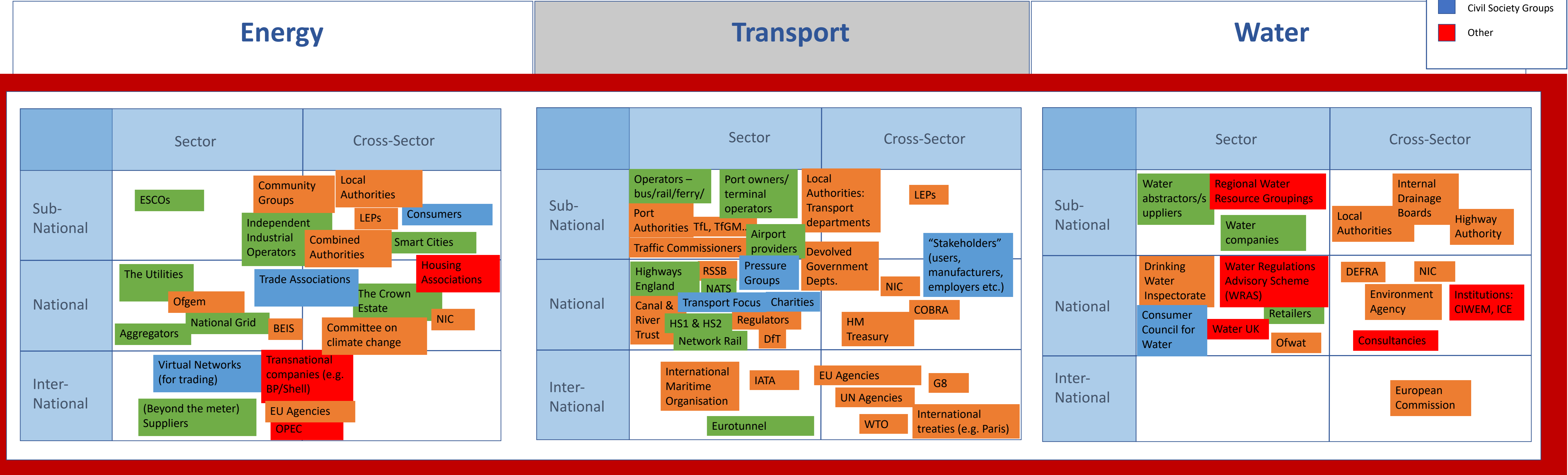


The institutions and processes that govern infrastructure operation and development have important roles in shaping infrastructure and its performance. Assessing infrastructure development over long time-spans and multiple scales requires the consideration of changes in governance. MISTRAL's cross-cutting theme on governance complements MISTRAL's quantitative modelling with analysis of current and future governance arrangements and their impacts. The interaction between modelling and governance is being explored using a five phase process.

Not all infrastructure decisions are national. Not only are activities playing out at multiple levels of authority (local, regional, national, international etc.). We have also demonstrated that the distribution of infrastructure governance across levels varies between sectors. Such complexity and variety in governance activities has implications for infrastructure decision-making at the national level and for modelling to support decision-making at all levels.

**Key**

- Public bodies
- Providers
- Civil Society Groups
- Other




### National Needs Assessment – A Governance Analysis

The National Needs Assessment (NNA) was set up to consider the strategic development of UK infrastructure. It was led by an Institution of Civil Engineering group chaired by Sir John Armit. The NNA incorporated results from ITRC's infrastructure sector models. These models were used to explore a range of sector strategies, each of which has implications for governance expectations and requirements.

Our governance analysis of these sector strategies highlights substantial differences between sectors – including differences in policy priorities and different drivers for governance change.

Primary policy goals embedded in NNA strategies	Emissions	Capacity/congestion	Sufficient supply of services
Representation of change in model	A relatively wide range of futures including continuation of current trends; electrification of transport and heat; and a more radical future focusing on demand management	Implementation of projects to increase capacity. The list of projects is based upon the National Infrastructure Pipeline. Increases in system efficiency are also included	New extraction opportunities, new transfer links, different water supply plants (such as desalination), reducing demand and leakage
Priorities/choices interacting with governance	The technologies selected come with different governance needs and existing arrangements (e.g. centralised vs decentralised technologies); balance of emphasis on new investment in supply, networks and demand side	Who makes the decision (how to meet capacity) affects response – priorities of local/national etc. different as is what they can influence	Contrasting a national supply system (making the most of water resources) vs a local system where would expect control and transport requirements to be less challenging
Example/illustration	Large scale technologies such as carbon capture and storage or nuclear required different modes of financing (to meet the certainty needs of investors) than distributed power generation	Urban public transport (across sectors), driven by societal goals (e.g. improving air quality) vs. national technology-based and regulated networks, driven by economic interests (e.g. railways)	Water transfer arrangements do not only require appropriate water transportation. Appropriate contractual arrangements also need to be made and enforced.

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**Findings and recommendations:**

- The governance-modelling iterative process developed here provides a basis for integrating techno-economic and governance research to explore the future development of infrastructure sectors
- Recommendations about national, cross-sector, infrastructure investments will need to recognise activities at other levels of governance, both below and above the national level, and variations across sectors

**Next steps:**

- Elaboration of three governance narratives, based on previously developed 'Transition Pathways' scenarios: market rules, centralisation & thousand flowers
- Codification of these narratives in one or more infrastructure sector models to understand how changes in governance could affect outcomes