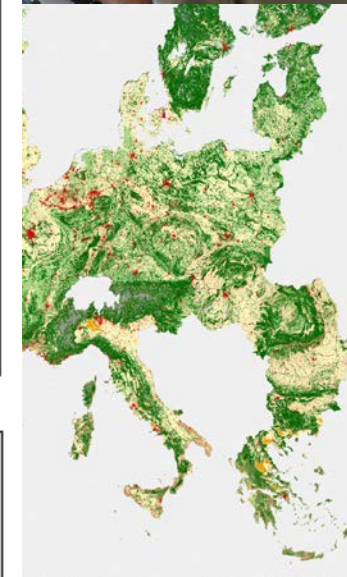
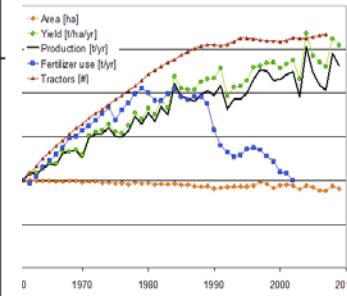
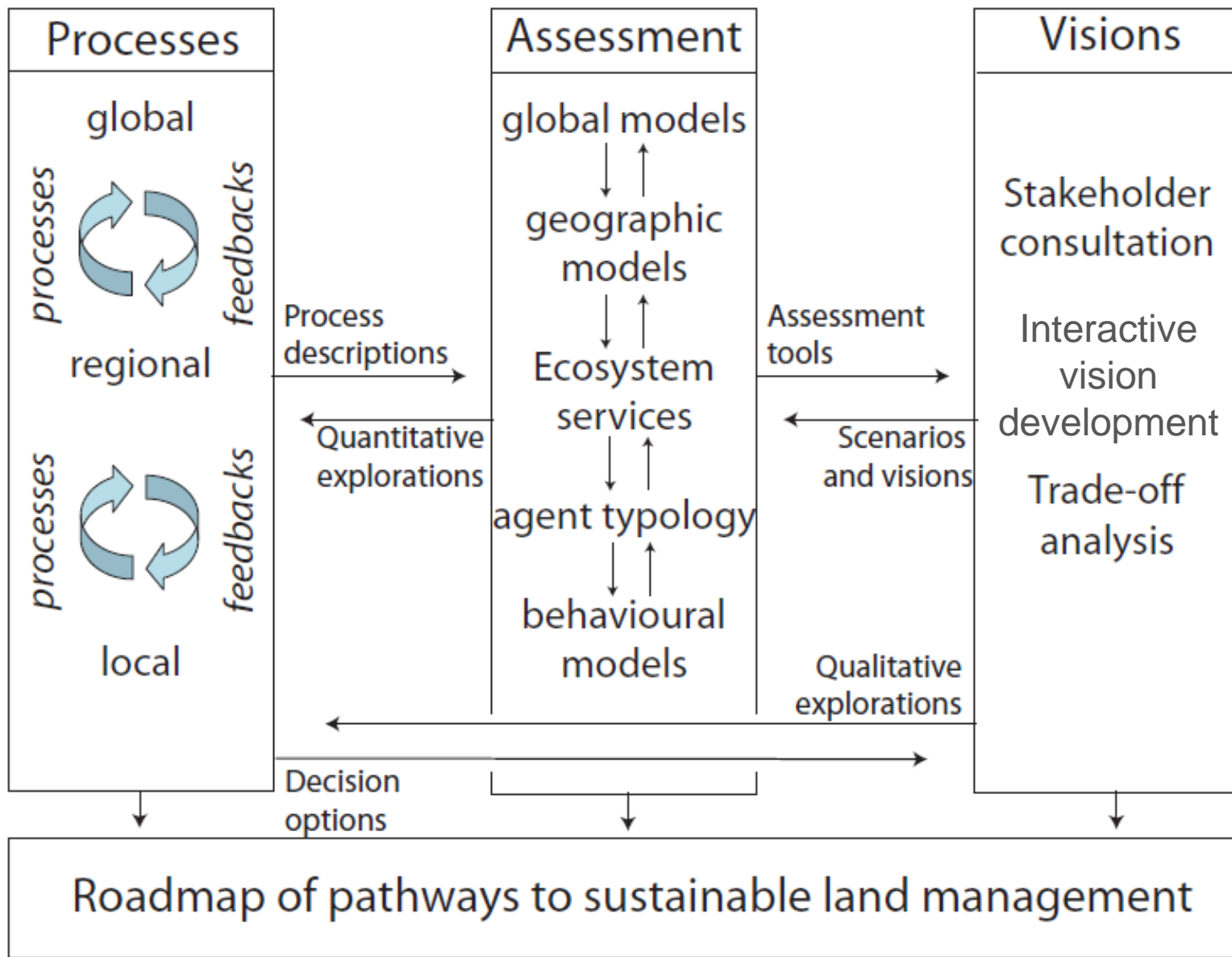


Towards Roadmaps of Future Land Use

Bas Pedroli



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aims of the Roadmapping Process

- Produce outcomes that are
 - a) relevant for decision-makers' needs and use (*salient*);
 - b) *credible* as being the result of the application of adequate scientific methodological and empirical work; and, finally,
 - c) *legitimate*, since they are incorporating divergent values in a non-biased context.
- Provide optimal synthesis and integration of project results and provide the basis for knowledge transfer from VOLANTE to the identified stakeholder groups
- Decide on recommended pathways for land use development
- Create Roadmaps for Future Land Resource Management, as a meaningful set of recommendations, supported by relevant high level representatives of policy, NGO and private sector stakeholder groups
- Identify obstacles, critical factors and implementation recommendations for the Roadmaps
- Produce and publish a high-impact Science-Policy Briefing on the outcomes of the Roadmapping process, including a post-VOLANTE implementation plan



What is a Roadmap?

A sequence of measures and actions designed to bring about a desired future

(after McDowall, 2004)

A typology of futures (adapted after McDowall & Eames 2006)

Descriptive

“what if?”

Forecasts use formal quantitative extrapolation and modelling to predict likely futures from current trends.

Exploratory scenarios explore possible futures. They emphasise drivers, and do not specify a predetermined desirable end state towards which storylines must progress.

Technical scenarios explore possible future technological changes in transport systems, incl. e.g. 2nd generation fuel cells, diversified container transport, GPS controlled motorway traffic, or driverless passenger transport. They emphasise the technical feasibility and implications of different options, rather than explore how different futures might unfold.

Normative

“where to arrive?”

Visions are elaborations of a desirable and (more or less) plausible future. They emphasise the benefits of a specific future rather than the pathways through which it might be achieved.

Backcasts and pathways start with a predetermined ‘end’ point—a desirable and plausible future. They then investigate possible pathways to that point.

Roadmaps describe a sequence of measures (policy options) designed to bring about a desirable future. Specific measures are defined on the basis of evaluation of scenarios, visions and pathway exercises. Roadmaps and similar foresight methods are used to cope with uncertainty in areas with long planning horizons

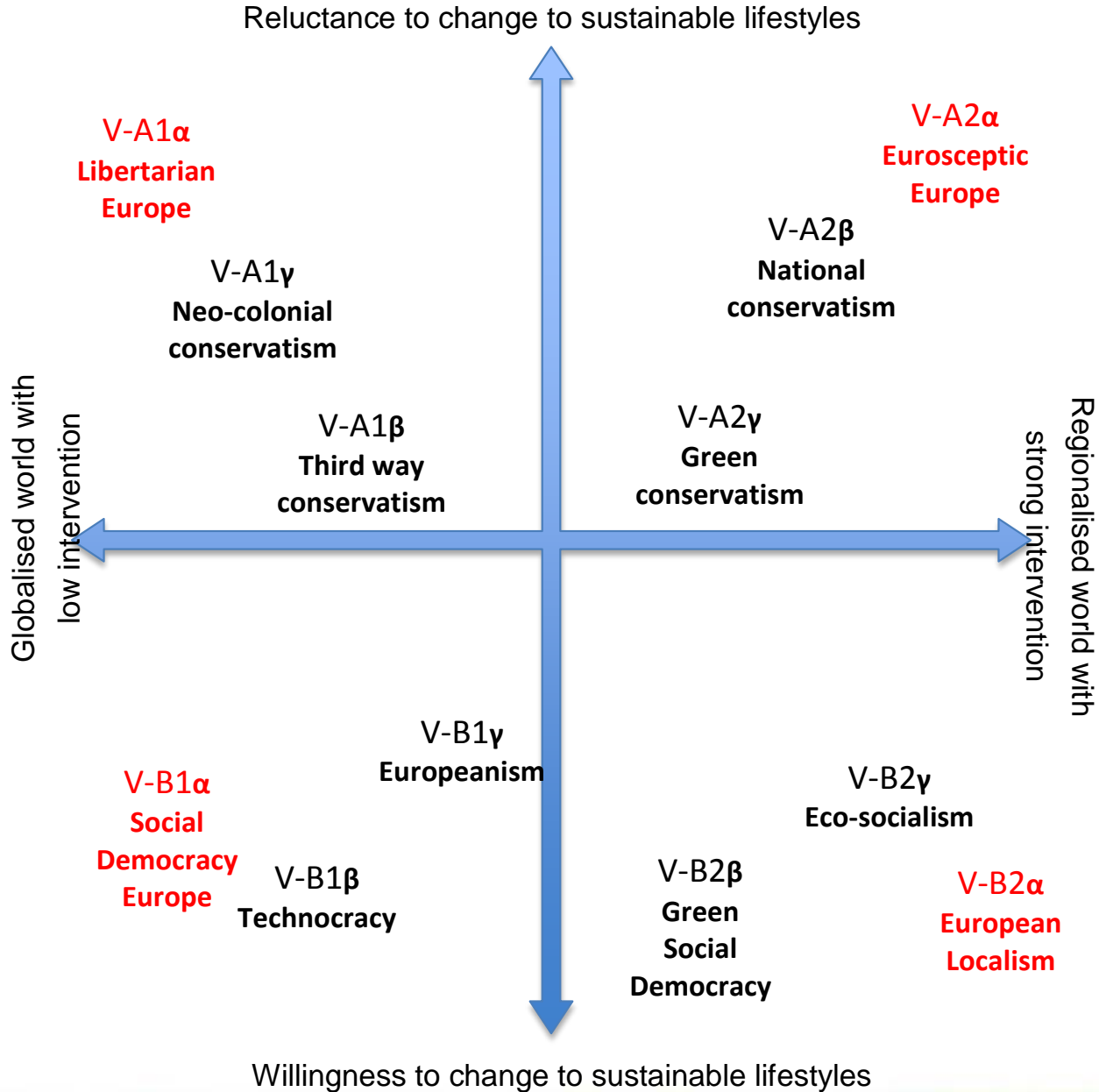
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**Storylines
(SRES
based)**



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Roadmap as policy advice

- any collaborative foresight process of significant scale and scope (e.g. U.N.-led 'Roadmap for Peace' to resolve the Israeli-Palestinian conflict, see e.g. Rowley & Webb 2007), and
- as policy advice by suggesting possible strategies to achieve a desired future, e.g. for the journey to a post-Kyoto protocol (Cléménçon 2008).
- defining design conditions and user requirements for technology applications, e.g. using the concept of eco-roadmapping (Donnelly *et al.* 2006).
- Providing integrated resource management for Europe, e.g. the Bio-energy Technology Roadmap of the IEA (OECD/IEA 2012), or the Roadmap for a Resource Efficient Europe (COM (2011) 571).
- an example of a foresight exercise to inspire the VOLANTE approach is UNEPs foresight document on the environmental issues of the 21st century (Alcamo 2012), defining 21 priority issues, such as:
 - Land grabbing
 - Social tipping points
 - Reconnecting science and policy
 - Coping with migration

21 Issues for the 21st Century

(Alcamo 2012)

Results of the UNEP Foresight Process on Emerging Environmental Issues

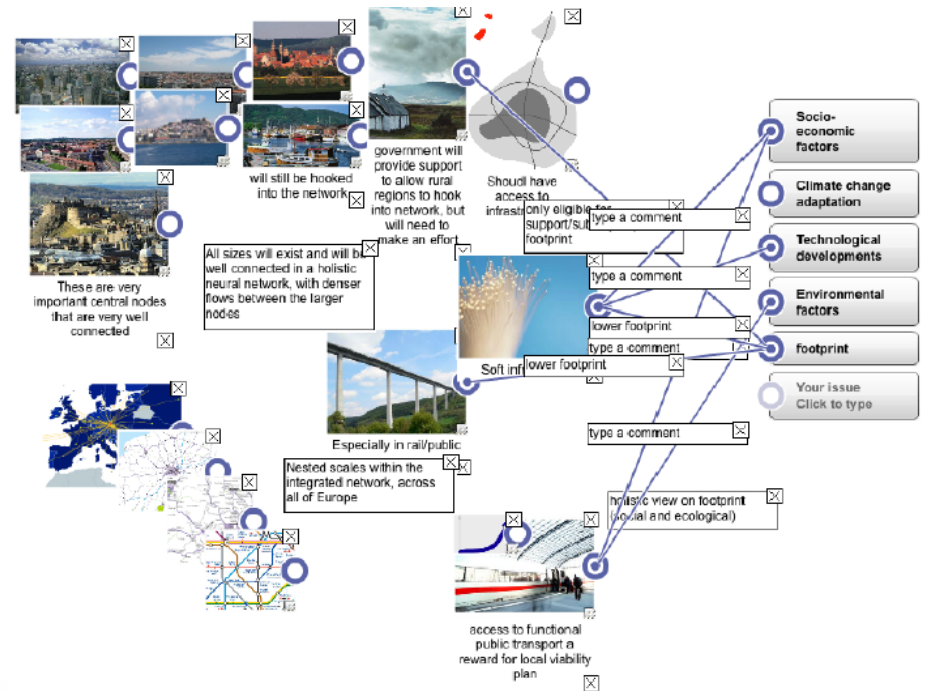
Cross-cutting issues	
001	Aligning Governance to the Challenges of Global Sustainability
002	Transforming Human Capabilities for the 21 st Century: Meeting Global Environmental Challenges and Moving Towards a Green Economy
003	Broken Bridges: Reconnecting Science and Policy
004	Social Tipping Points? Catalyzing Rapid and Transformative Changes in Human Behaviour towards the Environment
005	New Concepts for Coping with Creeping Changes and Imminent Thresholds
006	Coping with Migration Caused by New Aspects of Environmental Change
Food, biodiversity and land issues	
007	New Challenges for Ensuring Food Safety and Food Security for 9 Billion People
008	Beyond Conservation: Integrating Biodiversity Across the Environmental and Economic Agendas
009	Boosting Urban Sustainability and Resilience
010	The New Rush for Land: Responding to New National and International Pressures
Freshwater and marine issues	
011	New Insights on Water-Land Interactions: Shift in the Management Paradigm?
012	Shortcutting the Degradation of Inland Waters in Developing Countries
013	Potential Collapse of Oceanic Systems Requires Integrated Ocean Governance
014	Coastal Ecosystems: Addressing Increasing Pressures with Adaptive Governance
Climate change issues	
015	New Challenges for Climate Change Mitigation and Adaptation: Managing the Unintended Consequences
016	Acting on the Signal of Climate Change in the Changing Frequency of Extreme Events
017	Managing the Impacts of Glacier Retreat
Energy, technology, and waste issues	
018	Accelerating the Implementation of Environmentally-Friendly Renewable Energy Systems
019	Greater Risk than Necessary? The Need for a New Approach for Minimizing Risks of Novel Technologies and Chemicals
020	Changing the Face of Waste: Solving the Impending Scarcity of Strategic Minerals and Avoiding Electronic Waste
021	The Environmental Consequences of Decommissioning Nuclear Reactors

Visions as a basis for roadmapping

- Some policies have explicit desired outcomes; in many cases **stakeholders' visions are implicit**, or even unknown.
- Before embarking on the VOLANTE roadmapping exercise we identify:
 - the relevant stakeholder groups,
 - consolidated visions

Roadmapping only possible once future visions for all relevant stakeholders are made explicit.

- Visions, or mental images of the future, are central to:
- politics,
 - policies,
 - the missions of NGOs, and
 - the motivation of sectoral stakeholder platforms.



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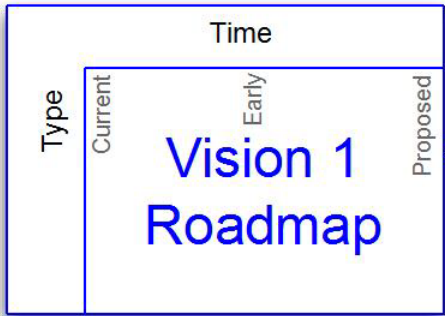
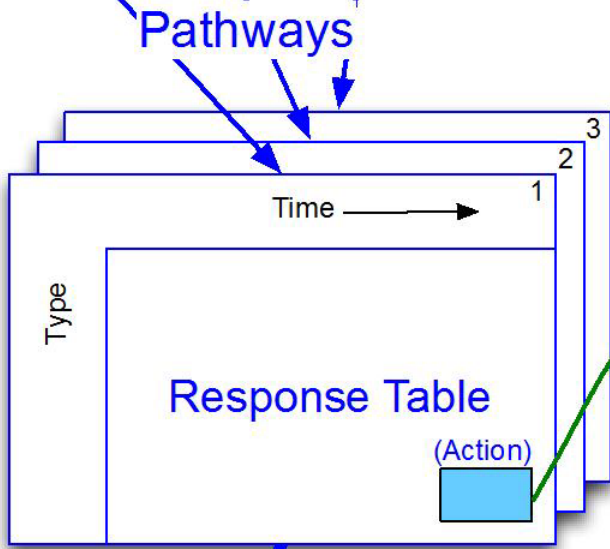
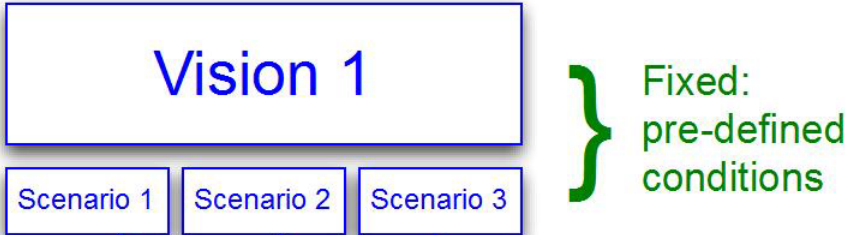
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The VOLANTE Roadmap

- To acknowledge spatial variation over Europe
- To emphasise a set of (policy-relevant) cross-cutting issues
- To explicitly incorporate the uncertainties associated with long-term land use projections
- To identify:
 - Sustainable, robust pathways to reach plausible and desired *visions* of future land use
 - Barriers, failure factors
 - Performance indicators
 - Possible responses: actions and measures

Database:
VOLANTE
NAVIGATOR



Robust actions

trade-offs between pathways



Response table with actions and measures

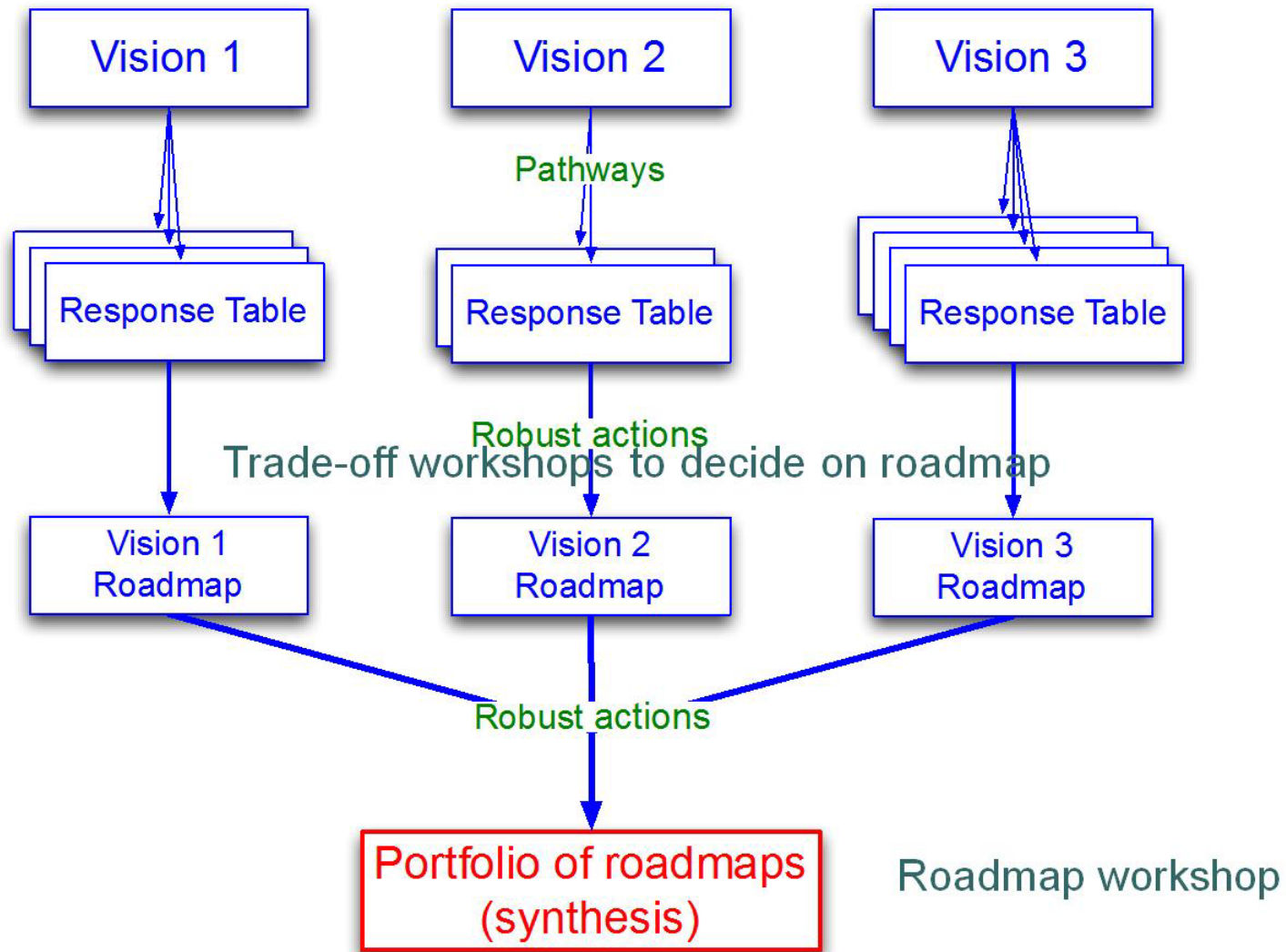
Vision X	Current situation	Short term actions/measures	Long term actions/ measures
Legislation/ Policies/ Governance	<ul style="list-style-type: none"> • CAP • Natura2000 • Bioenergy Dir. • Water Framework Directive 	<ul style="list-style-type: none"> • urban agriculture • 2020 national renewable energy action plans • integrated water management 	<ul style="list-style-type: none"> • climate mitigation (Kyoto) • strategic rural development •
Knowledge	<ul style="list-style-type: none"> • CLC • LUCAS • FADN 	<ul style="list-style-type: none"> • new RS systems (Galileo, Sentinel) • coordination of detailed farm information 	<ul style="list-style-type: none"> • green accounting • strategic impact studies
Markets and Incentives	<ul style="list-style-type: none"> • agri-env. schemes • green electricity incentives 	<ul style="list-style-type: none"> • alleviating trade restrictions • new agri-env. measures • payment for ecosystem services 	<ul style="list-style-type: none"> • environmental credit systems • mobility tax
Technologies and practices	<ul style="list-style-type: none"> • brownfield restoration • river restoration • increased water retention 	<ul style="list-style-type: none"> • green & blue infrastructure • local breeds and crops • precision agriculture • 	<ul style="list-style-type: none"> • zero-energy agriculture • in-vitro meat • permaculture • hydrogen-driven engines
Changing social attitudes	<ul style="list-style-type: none"> • forest certification • regional products 	<ul style="list-style-type: none"> • voluntary participation in spatial planning • more eco-labelling • management of urban green 	<ul style="list-style-type: none"> • sustainable consumption • flexitarianism • farmers collaborating in landscape management

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Towards a new European land use management paradigm for the future !



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