

Using the multi-level perspective on socio-technical transitions to assess innovation policy

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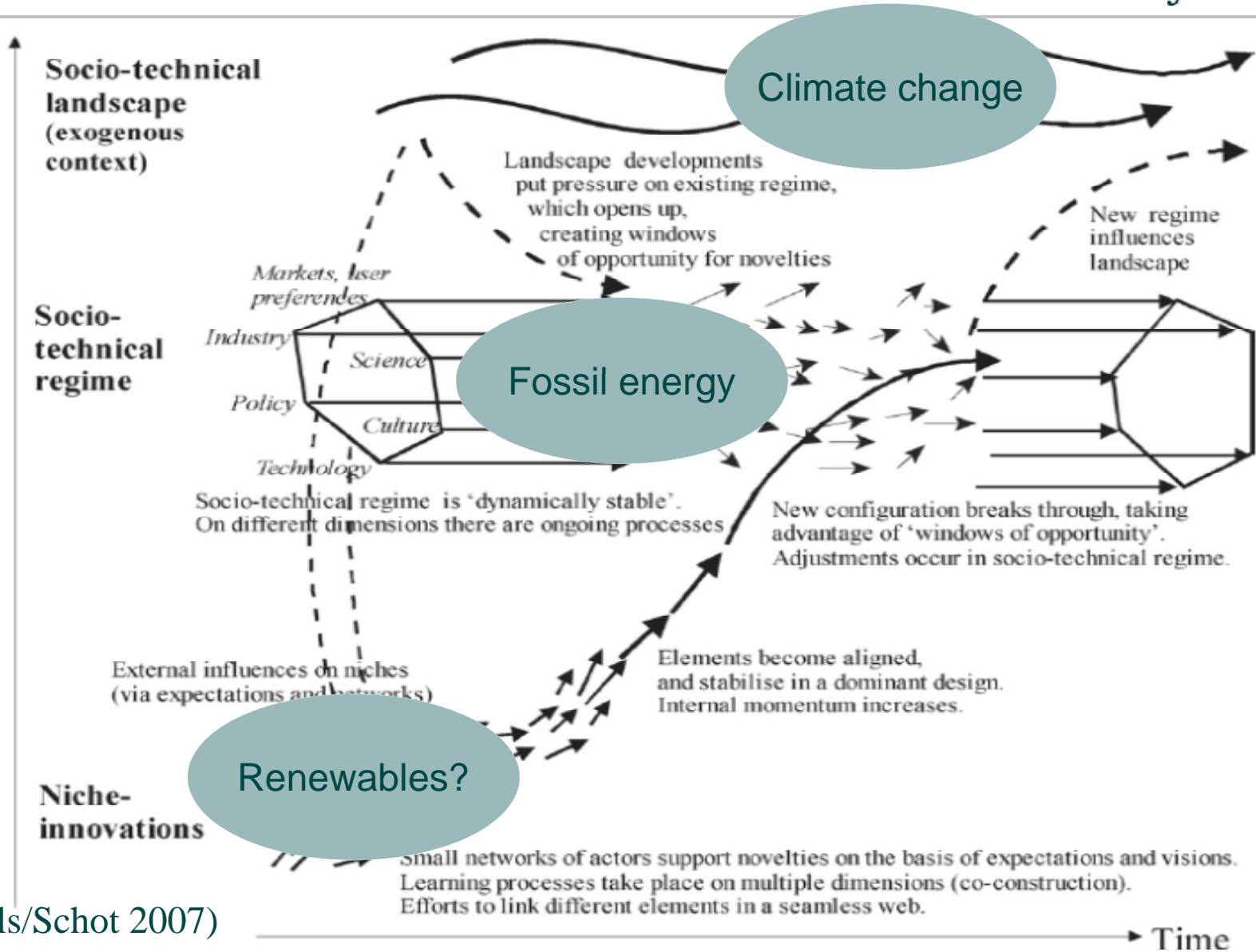
Context: Sustainability/Climate Change, Growth and Competitiveness



→ low carbon innovation policy is key to achieving sustainable energy systems and develop growth/new sectors: good case to study ‘mission-oriented innovation policy’

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Socio-technical multi-level perspective on transitions



(Geels/Schot 2007)

Question



Can this framework also be used to assess innovation policy initiatives aimed at fostering low carbon transitions?

Using the MLP as a heuristic for policy analysis: important processes



Niche	Learning processes E.g. learning processes have stabilised in a dominant design	Price-performance improvements E.g. price-performance improvements have been made and are believed to continue to improve	Support from powerful groups E.g. powerful actors have joined the support network	Establishing market niches E.g. innovation is used in market niches
Regime	Changes in rules E.g. belief systems, problem agenda's, guiding principles, search heuristics; relationships, behavioural norms; regulations, standards, laws	Changes in technologies E.g. in the case of electricity: resources, grid, generation plants	Changes in social networks E.g. new market entrants gain in importance compared to incumbents	
Landscape	Macro-economic trends E.g. globalisation, oils crisis	Socio-economic trends E.g. recessions, unemployment developments	Macro-political developments E.g. the 'philosophy' behind policy making	Deep cultural patterns E.g. trend towards more 'individualization'

(based on Geels and Schot 2007, Shackley and Green 2007 and Verbong and Geels 2007)

- many of these processes cannot be assessed quantitatively
- but analysts can qualitatively assess whether/how well the initiative is engaging with these processes

Illustration: The Carbon Trust in the UK



- set up in 2001 by the UK government as an independent company as part of Climate Change Programme
- Aim: *accelerate the move to a low carbon economy by developing commercial low carbon technologies and helping organisations reduce their carbon emissions*
- 215 employees
- grant funding from government, at times around £100m/year; now at £51m

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Illustration: The Carbon Trust in the UK: 5 business areas



Solutions

Delivering carbon savings for organisations



Enterprises

Creating new low-carbon businesses



Insights

Explaining the low-carbon economy



Innovations

Developing new low-carbon technologies



Investments

Financing low-carbon businesses



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- systematic literature and documentary review (e.g. CT annual reports; investment data; National Audit Office and government reports)
- 26 semi-structured interviews with employees of the CT and stakeholders from government, research, business and environmental groups

Results: Carbon Trust's activities from an MLP perspective



Analytical level		Carbon Trust's activities				
		<i>Innovations</i>	<i>Solutions</i>	<i>Insights</i>	<i>Enterprises</i>	<i>Investments</i>
		Develop low carbon technologies	Help companies to reduce emissions	Inform businesses and policy makers	Create new low carbon businesses	Finance the best ideas and business plans
Niche	Learning processes	X			X	X
	Price-performance improvements	?				?
	Support from powerful groups			X	X	X
	Establishing market niches	X		X		
Regime	Change in rules		X	X		
	Change in technologies		X	X		X
	Change in social networks				X	X

Degree (+: low, ++: medium, +++: high) to which Carbon Trust is facilitating developments on the niche and regime levels and is helped (+) or hindered (-) by developments on the landscape level.

Niche	Learning processes +++	Price-performance improvements ?	Support from powerful groups ++	Establishing market niches +
Regime	Changes in rules ++	Changes in technologies ++	Changes in social networks +	
Landscape	macro-economic trends -/+	socio-economic trends -/+	macro-political developments -	deep cultural patterns -

1. The paper demonstrates that the MLP can be a useful framework to assess innovation policies (how well they support key transition processes) and to foster policy learning (cf cost effectiveness type of analysis).

2. The Carbon Trust has a promising dual strategy of changing regime practice directly and fostering low carbon innovation niches using a variety of well targeted funding mechanisms; limited emphasis on social processes underlying innovation (e.g. skills, network building, public acceptance).

Thank you for your attention!

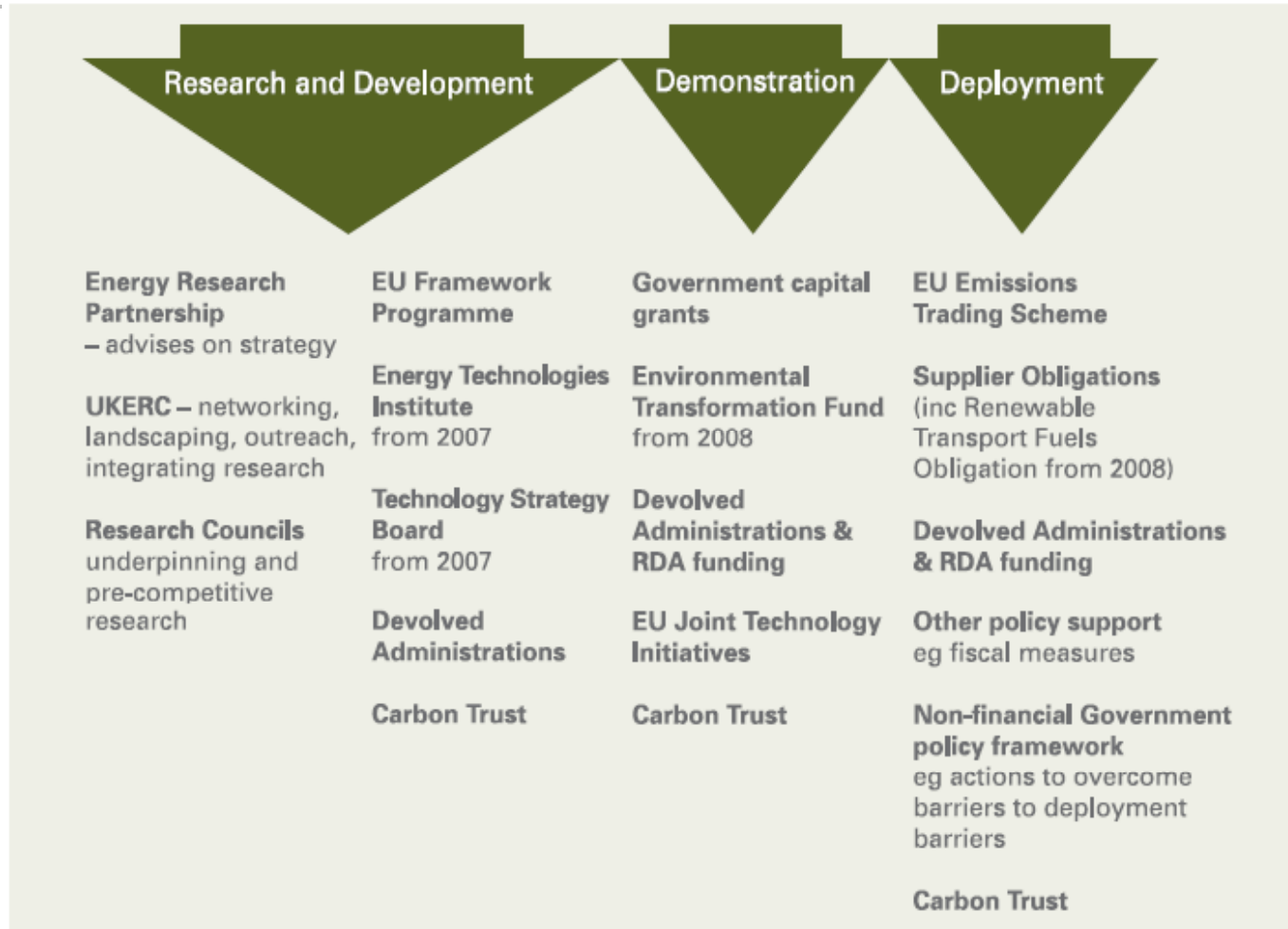


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UK low carbon innovation policy



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Illustration: The Carbon Trust's Innovations activities



Innovations

Developing new low-carbon technologies



Research & Development

Addressing technology risk



Business Incubation

Addressing company risk



Technology Acceleration

Addressing market risk

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